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A NORTON TRADITION VILLAGE SITE ON THE ALAGNAK RIVER, SOUTHWEST ALASKA

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ABSTRACT

In 2004, National Park Service archeologists conducted an intensive testing program at a prehistoric village site, DIL-161, along the Alagnak River. The site consists of prehistoric house depressions and a twentieth century cabin complex. Some features are threatened by severe river erosion.

Alagnak prehistory is poorly understood, and no other site has been intensively tested or excavated. Work at DIL-161 revealed that the site includes forty-six prehistoric and seven historic features. Thirteen radiocarbon dates fall between 2140 and 1300 cal B.P., within the Norton period on the Alaska Peninsula. A preliminary comparison between DIL-161 and other Norton sites suggests considerable variation that may be the result of differential resource availability, gradual cultural change, or seasonality.

KEYWORDS: seasonality, intrasite variation, ceramics, Kvichak drainage

INTRODUCTION

The Alagnak River flows west from Kukaklek and Nonvianuk lakes in Katmai National Park and Preserve into the lower reaches of the Kvichak River near where it enters Bristol Bay (Fig. 1). The upper reaches of the river are within view of the mountains of the Aleutian range, but downstream of the confluence of the Nonvianuk and Alagnak rivers, the river meanders through fairly flat, boggy, open spruce tundra.

Much of the Alagnak River is a designated Wild River and is managed by the National Park Service (NPS). In 1997 and 2001, National Park Service archeological survey crews identified and mapped a large prehistoric village site along the Alagnak River, DIL-161. They classified DIL-161, as "one of the most threatened sites on the Alagnak River corridor" because of severe erosion (Hilton 2002:83). In 2004, NPS conducted an intensive testing program at the site to better understand the site and the impacts of erosion.

DIL-161 is located along a section of the river where multiple braids narrow into a single, deep channel about 20 meters across. Local residents mentioned to archeologists that caribou cross the river there in the fall. This may have been the case in prehistory, although the alluvial history of the Alagnak is unknown. Mapping and testing at DIL-161 revealed that the site occupies 3.8 acres (15,400 m^2) and includes forty-six prehistoric features (a

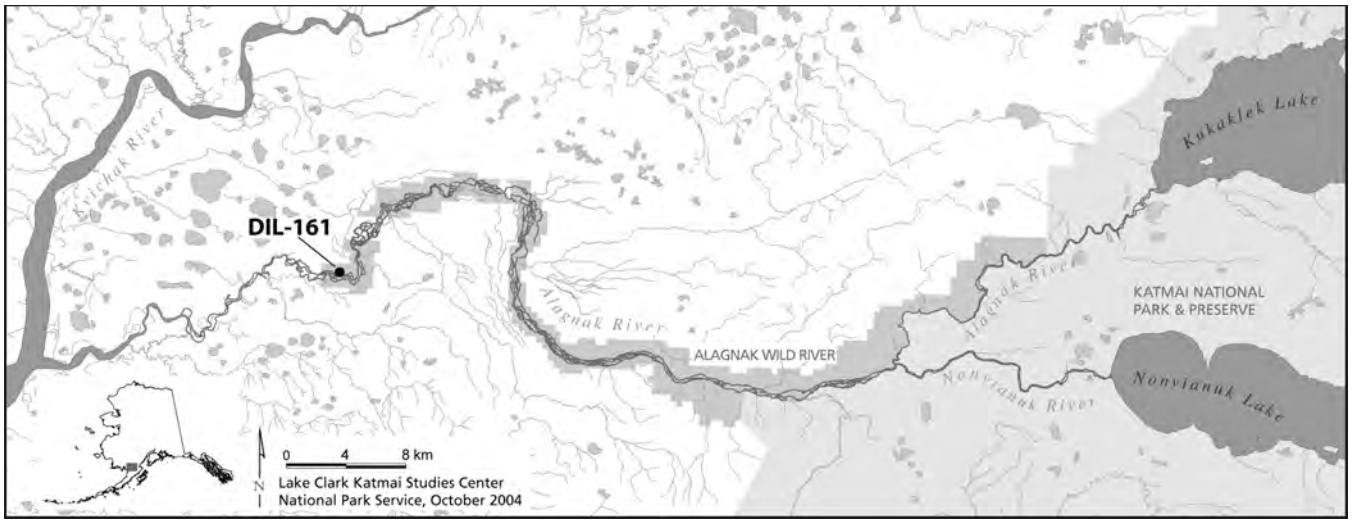

Figure 1. The Alagnak Wild River showing the location of site DIL-161.

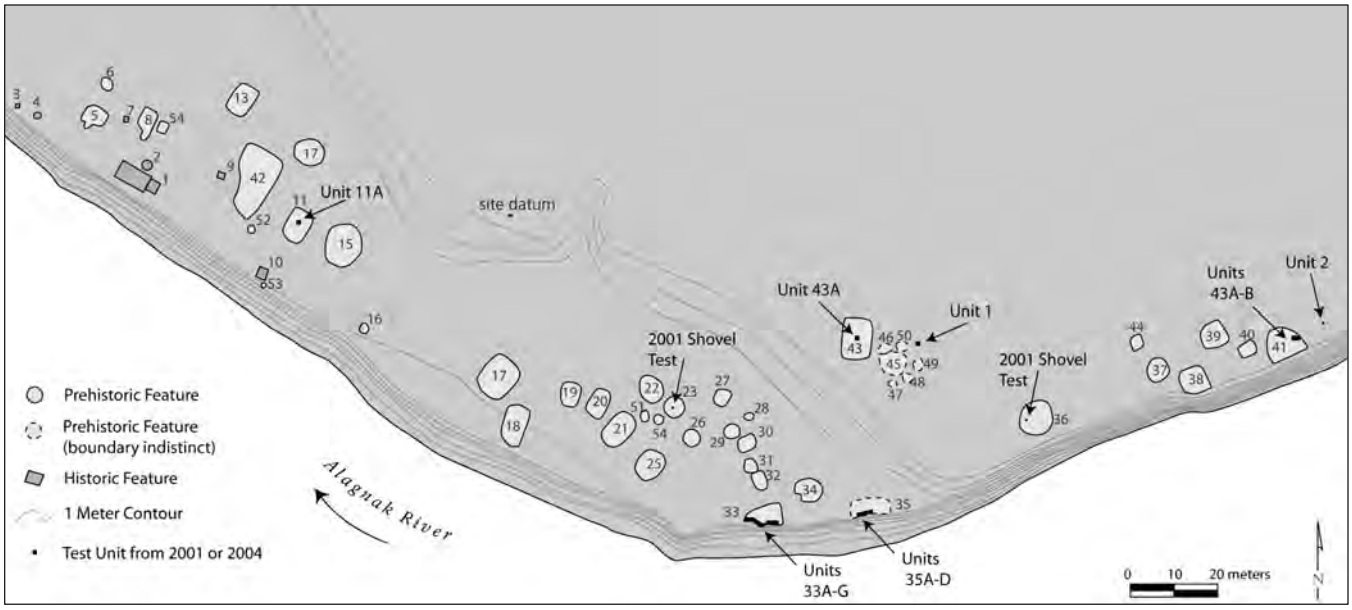

Figure 2. Prehistoric and historic features at DIL-16.

mid-twentieth century cabin and associated structures add another seven features; Fig. 2). Although a few of the features at the western extent of the site may date to the Thule period, six features in the main site area that have been radiocarbon dated fall within the Norton period.

Archeologists have not intensively tested or excavated any other site along the Alagnak River. Shovel testing at several sites during the 1997 and 2001 surveys produced a small number of diagnostic artifacts from a few of the thirty-eight known sites along the river. The artifacts, along with radiocarbon dates, indicated that Alagnak prehistory may be similar to that of the more intensively studied Naknek River and Ugashik drainages to the south. Work at DIL-161 generally supports this hypothesis, although artifacts and features differ in some ways from those reported from other Norton tradition sites.

HISTORIC USE OF THE ALAGNAK RIVER

Historic use of the Alagnak River area has been documented through archival research (NPS 1983; Stirling 1982) and ethnographic interviews (Endter-Wada and Levine 1994; Crow 2001). Additional interviews with elders in Levelock and Igiugig were conducted by Morseth in 2000 and by Hilton in May 2001 (summarized in Hilton 2002). In addition to documenting traditional place names for the area, informants indicated current and past uses such as trapping, ice fishing, and dogsled travel in the winter,

and fishing with traps in the summer. Historic remains of these activities include several cabins and camps as well as a village site thought to date to the late 1800s (Luttrell 1997). Crow (2001:3) described the richness of the Alagnak River's recent culture history:

> In the spring the people catch birds and gather eggs, sourdock, wild celery and fiddlehead ferns. In the summer camps, fish are gathered for smoking, salting, canning, and freezing for the winter. When dogs were used as the major mode of transportation, fish was stored for them, too. Long ago, fish was stored in underground pits and was used to make fermented fish heads, a delicacy. In the fall season, salmon berries, blackberries, blueberries and cranberries are gathered and stored for winter. Also wild game such as caribou and moose are caught. After the bears have consumed berries, they are ready to eat. In the late fall, white fish are harvested and stored for the winter. In the winter, smelt, trout and grayling are caught by ice fishing. Trapping is still done, to provide fur for hats, mittens, coats and household use such as throw rugs and furniture coverings.

In modern times, most of the above-mentioned resources are available at DIL-161. The two main ecosystems nearby are the shrub tundra on which the site is located and low-lying marshy areas (tundra ponds and sloughs of the river). Together these host an assortment of berries and other plants as well as small game. The narrowing of the river creates a bottleneck for fish and a crossing point for large game. Despite the year-round availability of various resources in the area, the majority of modern subsistence use is reportedly in the winter.

NORTHERN ALASKA PENINSULA PREHISTORY

The prehistory of the Alagnak River is not well understood, but other interior rivers on the upper Alaska Peninsula have been more intensively studied, especially the Naknek and Ugashik drainages (Fig. 3). Dumond (1981:189-190) defined five traditions (divided into ten phases) in the Naknek drainage area. The first of these is the Paleoarctic tradition (9000-7000 B.P.), characterized by blade technology and wedge-shaped cores. Habitations were temporary campsites. After an apparent hiatus, the Northern Archaic tradition (5000-3900 B.P.) appeared in the area. Flaked stone projectile points (especially side-notched varieties), knives, and scrapers dominate Northern Archaic assemblages. Assemblages attributed to the Arctic Small Tool tradition (3900–3100 B.P.) appeared after the Northern Archaic. These are characterized by small, finely flaked bipoints and scrapers, adzes, and a few small microblades and burins. Small campsites and small permanent houses are known from this period. After another hiatus, the Arctic Small Tool tradition was followed by the Norton tradition (2300–900 B.P.). Norton assemblages include the first ceramics in the area (generally fiber tempered), as well as larger flaked stone projectile points and knives, drills, notched sinkers, pecked stone vessels and lamps, flaked bifaces and the occasional ground slate knife. The permanent houses from this period in the Naknek drainage are of small, relatively shallow, single-room construction (although they are larger elsewhere, such as Kukak Bay, Clarks Point, and Ugashik; Clark 1977; McMahan et al. 2000; Henn 1978 respectively). The Thule tradition (900 B.P. to historic contact) succeeded Norton and is characterized by thick-walled, gravel-tempered ceramics; ground slate projectile points and ulus; planing and splitting adzes, hammerstones, abraders and whetstones; bone harpoon points and bone or antler wedges. Houses are deeper and more sturdily constructed than Norton houses. After 600 B.P., multiroom houses appear in the Naknek drainage. The cultural sequence from the Ugashik drainage, far to the south, is very similar to the Naknek drainage (Henn 1978:75–85).

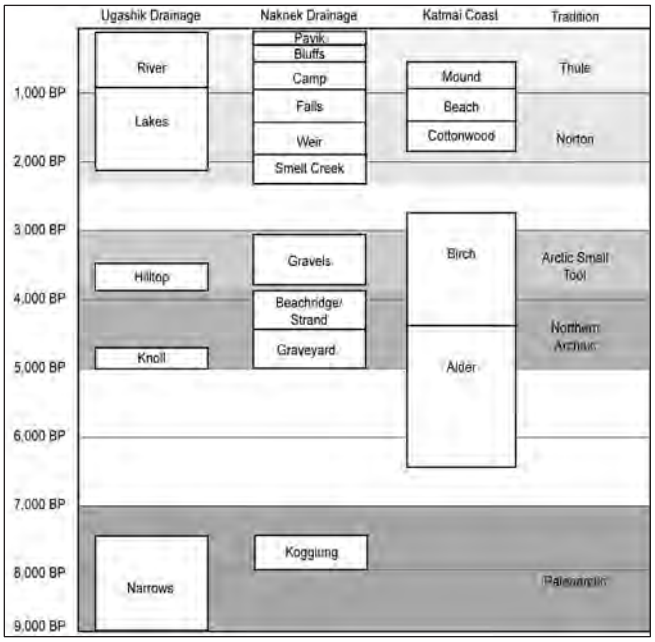

Figure 3. Alaska Peninsula Culture History, after Dumond (1981).

Henn (1978:84–85) suggested that the Naknek and Ugashik records are the result of broad regional patterns. The Alagnak drainage, like the Naknek and the Ugashik, flows into Bristol Bay from the western flank of the Aleutian range. All three areas have substantial rivers with large salmon runs and uplands that host caribou and other game as well as berries and edible plants. The prehistory in the Alagnak area is not well known, with less than four percent of the Wild River corridor surveyed at the reconnaissance level. Radiocarbon dates from seven sites reveal prehistoric occupation from 2140 cal. B.P., with some evidence for two periods of occupation (one before 1300 cal. B.P. and the other from 750 to 310 cal. B.P.; Hilton 2002). Archeological sites that are likely older have been found along the river but are undated. Artifacts suggestive of the Paleoarctic tradition were found at a site near the Nonvianuk Lake outlet of the river (ILI-102), including a subsurface microblade scatter with a core platform tablet (Rasic 1998). A blowout site near the Kukaklek Lake outlet (ILI-088) produced surface artifacts consistent with both the Paleoarctic and Northern Archaic traditions (Vinson, pers. comm. 2005). The two sites are undated. Previous to the current project, all diagnostic artifacts from dated sites along the Alagnak fit with the Naknek/Ugashik cultural sequence (Hilton 2002). All fiber-tempered ceramics were found in sites that dated to before 1000 cal. B.P. while a single gravel tempered example was found in a site that dated to 750 cal. B.P. A ground stone adze preform also dated to 1700 cal. B.P. Five Alagnak sites have features that appear to be multiroom houses. Three of these sites are dated, and all post-date 750 cal. B.P (Hilton 2002).

THE NORTON TRADITION

The Norton culture was first defined by Giddings (1949, 1964) from his work at the type site of Iyatayet in eastern Norton Sound, and was later described by others at numerous sites along Alaska's western coast (Dumond 2000). Differences between the preceding Arctic Small Tool tradition and the Norton tradition signify a change in subsistence focus. According to Dumond (2005:30), Norton people had:

> a developed interest in harvesting massive fish runs, while the taking of sea mammals along the coast was also practiced. Compared to most representatives of the Arctic Small Tool period, increases in sedentariness and in attention both to sea coasts and salmon streams are unmistakable.

Some collections made before the description of the Norton culture, first attributed to the Near-Ipiutak culture, were reclassified as Norton or Norton-Near Ipiutak (Giddings and Anderson 1986:312). As more sites were studied, it became apparent that "the chronology of the Norton tradition was markedly different between the coasts of the Chukchi and Bering seas" (Dumond 2000:4). On the Chukchi Sea, the umbrella Norton tradition includes the Ipiutak, Norton (Norton-Near Ipiutak), and Choris cultures, while the Bering Sea sequence (which includes the Alaska Peninsula) shows more homogeneity (Dumond 2000). This interpretation is not universally accepted. Giddings and Anderson (1986:315) recognized the continuity between the Ipiutak, Norton, and Choris cultures, but placed them all within the Arctic Small Tool tradition, along with the earlier Denbigh Flint complex. This implies that Ipiutak, Norton, and Choris are as distinct from each other as they are from Denbigh, while Dumond (2000) concluded that Ipiutak, Norton, and Choris show continuity and represent a distinct break from the Arctic Small Tool tradition.

Shaw and Holmes (1982:3) attempted to explain the various incarnations of Norton tradition cultures and the attendant "taxonomic confusion" with the concept of the Norton Interaction Sphere. The interaction sphere is "a high level abstraction with both spatial and temporal dimensions in which communication … takes place" (Shaw and Holmes 1982:4). The concept of the interaction sphere offers a framework for describing the complex cultural developments and connections across western and interior Alaska from 2500 to 1000 B.P., but it risks introducing so much variation into what can be called a Norton site that it could render the term nearly meaningless. In this paper, I generally follow Dumond's terminology and the term *Norton tradition* will refer to the larger entity encompassing a variety of cultures and phases, *Norton period* will refer to the date range during which Norton tradition sites occur in the Alaska Peninsula area, and *phase* will refer to a cultural unit with a limited geographical and temporal range (e.g., the Smelt Creek phase of the Norton period). Dumond (1981) referred to the Norton tradition date range as the Brooks River period, but I substitute the term Norton period to avoid any confusion about applying the term beyond the Brooks River sites. Radiocarbon dates from the current project (discussed further below) are

all within the Norton period as defined for the Naknek/Ugashik area by Dumond (1981, 1982, 2000).

METHODOLOGY

Mapping and testing at DIL-161 accomplished two goals. First, the entire site was mapped and selectively tested to better understand its extent. Second, features that were actively eroding or in danger of eroding were investigated by subsurface testing. Six research questions formed the basis of the project design:

1. Which of the surface depressions are cultural and what was their function?
2. How many temporal components are present at the site (i.e., are all the features contemporaneous, or are there multiple occupations representing different time periods)?
3. What is the relationship between the eroding, potentially eroding, and potentially impacted features and the site as a whole?
4. In what season was the site occupied, and what activities were carried out at the site?
5. What type of house form (house architecture) is represented by the eroding depressions?
6. What are the similarities and differences between DIL-161 and other archeological sites in the upper Alaska Peninsula region, including contemporaneous coastal and Brooks River sites? What is the significance of DIL-161 relative to these sites?

A three-part testing program was designed to address the six research questions, including: (1) site and profile mapping, (2) soil probing and small-scale feature testing, and (3) large-scale feature testing. In the first part of the program, the crew intensively surveyed the area and mapped all features. Rebar monuments were set at intervals bordering the river bank to serve as permanent measuring points for monitoring erosion rates. The exposed river bank was cleaned for profiling where possible.

The second part of the program was designed to test features sufficiently to characterize archeological deposits across the site. Probes and single test units (1 x 1 m or 50 x 50 cm) were placed inside and outside the surface depressions to verify that depressions are cultural in origin, to obtain material for radiocarbon dating, and to locate possible buried features and exterior activity areas. Features at the site fall into five categories: very large single room (represented only by Feature 42), large single room, small single room, cache pit, and possible multiroom (Table 1). Very hummocky tundra made the possible multiroom features, which tended to be shallower, difficult to discern. Repeated construction episodes, especially at the central portion of the site, made identifying features by surface topography difficult.

In addition to differences in size and shape, features appeared to be spatially patterned into three clusters—west, central, and east. Archeologists initially believed that the clusters might be temporally sequential. Hoping to sample features from different time periods, and given that the very large feature (42), and a small single room feature (23) had already been tested by survey crews, we selected noneroding features for testing based on spatial patterning rather than feature type. Feature 11 was selected in the west cluster because it appears typical of that cluster, and Feature 43 in the central cluster because it is on the upper terrace and two eroding features from that cluster would be tested on the lower terrace. Two areas were selected for testing outside features, Unit 1 and Unit 2, because there appeared to be anthropogenic sediments in the soil probe. The final part of the research program was more intensive feature testing, during which larger areas were excavated in the three features suffering the worst erosion (33, 35 and 41). The testing program was designed to recover data threatened by erosion, date three distinct spatial areas of the site, and assess site boundaries by determining the extent of deposits outside surface features.

RESULTS

Limited testing in two features and two outside areas and intensive testing at three features produced 6,056 artifacts, mostly lithic flakes and ceramic sherds, from floors and fill. One hundred and twenty-five samples of organic material were collected.

Table 1. Features at DIL-161.

Feature Type	Feature Number
Historic	1–4, 7, 9, 10
Prehistoric	
Very Large Single Room	42
Large Single Room	11, 15, 17, 18, 21, 25, 33, 35, 36, 38,41
Small Single Room	5, 12, 19, 20, 22, 23, 26, 27, 29, 30, 31, 32, 34, 37, 39, 40, 44
Cache Pit	6, 16, 28, 51–54
Possible Multiroom	8 and 54, 45–50

Stratigraphy

Under the modern vegetation across the site is a thin (less than 0.5 cm thick) whitish tephra that is probably from the 1912 Mt. Katmai/Novarupta eruption. In some places, below the tephra is a reddish, mottled, sandy silt that contains decayed organics and is not cultural. Another light-colored tephra, informally called the "second" tephra, is below either the sandy silt or the 1912 tephra. It is often thicker than the 1912 tephra, more than 1 cm in places, but can also be very thin and is not present across the site. Based on its stratigraphic position above the dated cultural layers, the second tephra could be from the same event as the layer designated "Ash C" in the Brooks River area by Dumond (2005:8), which fell about 600 years ago. A third possible tephra underlies the second tephra across the site (occasionally with noncultural sandy sediments between). The layer is 1 to 2 cm thick, consists of dark brown to black silt above grey silty sand, and was informally named the "black-and-grey" layer. No cultural material was found above the black-and-grey layer in any test unit or profile (with the exception of modern debris on the surface).

Cultural sediments underlie the black-and-grey layer. The first cultural layer in all tests was mixed cultural fill—silty sand with sparse concentrations of artifacts and lenses of charcoal. In features, one or more house floor levels are below the mixed cultural fill (in the two tests outside features, sterile sand and gravel are below the mixed cultural fill). Floors are 1 to 3 cm thick, charcoal-rich layers with dense concentrations of artifacts and debitage. In Feature 33, there were two distinct floor levels separated by a layer of "floor fill." The top "floor" may in fact have been roof fall if the roof of the house was an activity area. Under the house floor in every feature excavation unit was sterile sand and gravel.

Radiocarbon Dates

Twelve samples of organic material were radiocarbon dated. Table 2 and Fig. 4 show radiocarbon results, plus the single sample from the 2001 season. Previous radiocarbon dates suggested that there were two periods of occupation on the Alagnak: 1870–1700 cal. B.P. and 750–310 cal. B.P. (Hilton 2002). The current suite of dates extends the first range to 2140–1300 cal. B.P. It seems likely that future radiocarbon dating at Alagnak sites will close the gap between the two periods and even, given the presence of Paleoarctic artifacts at Kukaklek and Nonvianuk Lakes, extend the range into the early Holocene.

Table 2. Radiocarbon dates from DIL-161.[a]

	Lab Number (Beta-)	Provenience	Material Dated	Technique	Conventional Radiocarbon Age (1-sigma)	Calibration Curve Intercept	Calibrated Age Range (2-sigma)
1	196941	Fea. 33 Floor	charcoal	AMS	1390 ± 40	1300	1340–1260
2	196947	Fea .33 Floor	charcoal	extended count	1480 ± 60	1350	1520–1280
3	196945	Fea. 41 Fill	charcoal	AMS	1580 ± 40	1500	1550–1380
4	196948	Fea 33 Floor	charcoal	AMS	1580 ± 40	1500	1550–1380
5	159796	Fea. 36 Floor (from 2001)	bark	AMS	1760 ± 40	1700	1800–1560
6	196939	Fea. 35 Fill	bark	standard	1810 ± 60	1720	1880–1570
7	196938	Fea. 11 Floor	charcoal	extended count	1850 ± 80	1810	1960–1570
8	196940	Fea. 33 Fill	charcoal	extended count	1880 ± 90	1830	2000–1580
9	196944	Fea. 35 Floor	charcoal	AMS	1890 ± 40	1840	1900–1720
10	196937	Fea. 43 Floor	charcoal	AMS	2100 ± 70	2060	2320–1900
11	196946	Fea. 41 Floor	charcoal	AMS	2130 ± 40	2120	2300–2250, 2170–2000
12	196943	Fea. 35 Base of Floor	charcoal	extended count	2140 ± 70	2130	2330–1940
13	196942	Fea. 35 Top of Floor	charcoal	AMS	2150 ± 40	2140	2310–2230, 2190–2010

a All dates are B.P.

Radiocarbon testing produced dates with calibrated radiocarbon curve intercepts between 2140 and 1300 cal. B.P. (a 2-sigma calibrated range between 2330 and 1260 B.P.). The features in the western part of the site near the cabin differ from the rest of the site, where depressions are deep and oval in shape with no entry. Features 5 and 8 are shallow depressions with entryways visible in the walls. Feature 8 may have a side room (mapped as Feature 54). These features may date to a later occupation, but were not tested because they are filled with garbage from the occupation of the cabin. Another mapped feature, numbered 45–50, is poorly defined and may be a shallow multiroom house or merely the result of tundra hummocks or prehistoric construction activity. The features tested all dated to the time of the Norton period on the Alaska Peninsula, but radiocarbon dates and the presence of historic and apparently late prehistoric features indicate that the site may have been occupied during Norton, Thule, and historic times.

Radiocarbon dates from the site appear to fall into three groups: the earliest from 2140 to 2060 cal. B.P., the middle from 1840 to 1700 cal. B.P., and the most recent from 1500 to 1300 cal. B.P. These three groups were tested for contemporaneity (Table 3), following the procedure recommended by Long and Rippeteau (1974). Features from the early group are most likely to be occupied during

Table 3. Probability of contemporaneity of apparent radiocarbon date groups.

Dates	F	Probability of Contemporaneity
All 13 dates	1.26	≈ 25%
Late Group: dates 1–4	0.80	≈ 50%
Middle Group: dates 5–9	0.09	≈ 99%
Early Group: dates 10–13	0.06	≈ 99%
Late and Middle Groups	0.83	< 50%
Middle and Early Groups	0.56	> 75%

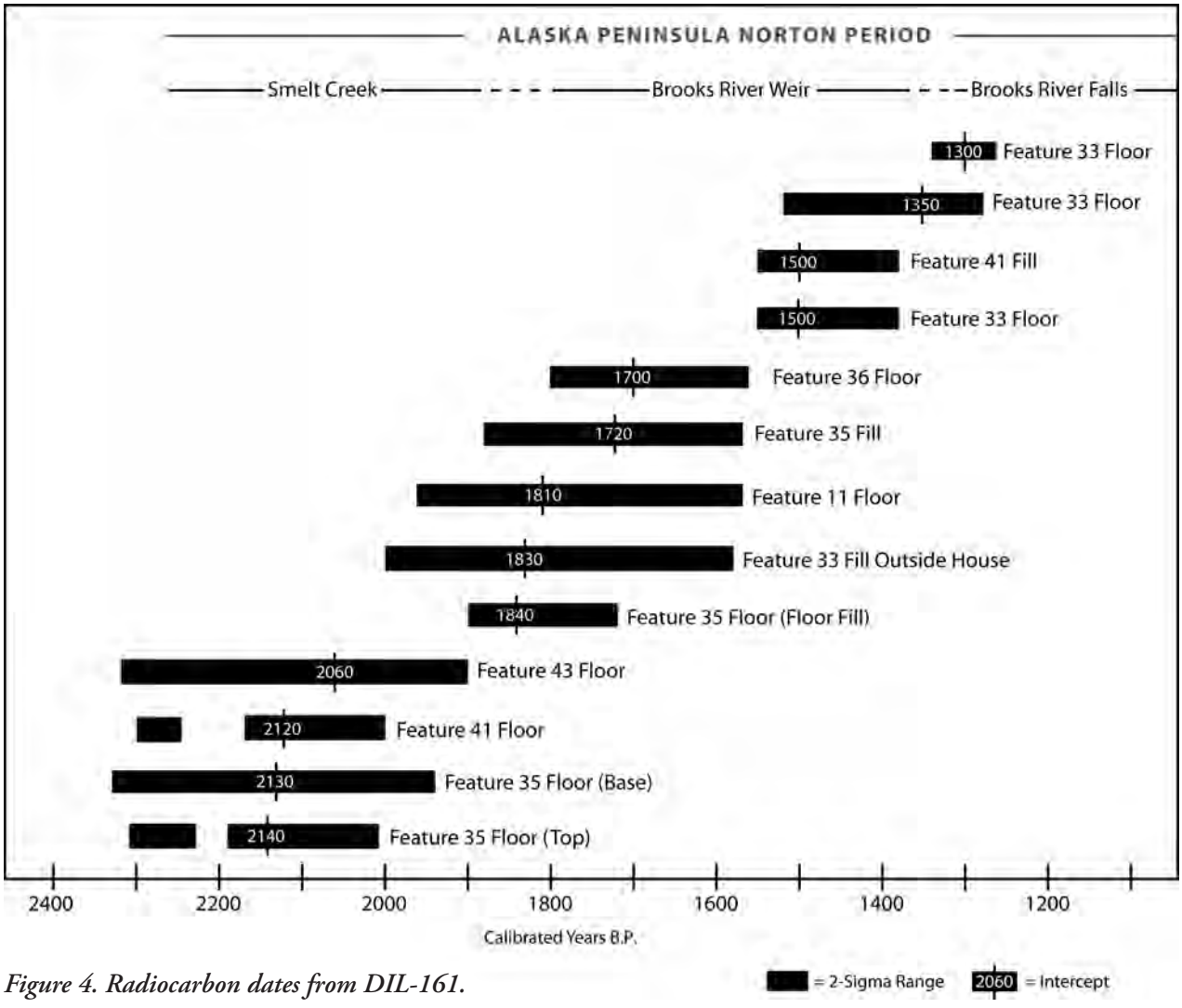

Figure 4. Radiocarbon dates from DIL-161.

the same time period, and features from the middle group are also highly likely to have been contemporaneous. The probability of contemporaneity for the two groups together is slightly lower, but still an acceptable possibility. The dates in the late group are slightly more likely to be contemporaneous than the late and middle groups together. If the most likely results are accepted, Features 43, 41, and 35 were occupied around the same time in the early group of dates (if the date on the floor fill is excluded because it is several hundred years younger than dates above and below it). Features 36 and 11 were occupied around the same time the fill in Features 33 and 35 was deposited, in the middle group of dates. Three of the four dates in the late group come from the floor of Feature 33. The remaining late date comes from the fill in Feature 41, indicating that both terraces were in use later in the Norton occupation of the site. Although it is possible that the three groups overlap in time, the division into three different time periods is validated by the statistical analysis. Whether the groupings actually represent three different occupations of the site—between which it was not occupied—is another issue. Only six of the forty-six prehistoric features were dated, and it is possible that dating other features would close the gaps between the three groups.

Fig. 5 shows radiocarbon dates mapped by provenience and age group. All three age groups include at least one feature (fill or floor) from both the upper and lower terraces. Apparently large areas of the site were used throughout the occupation. Overall, radiocarbon dates confirm that the site was occupied intensively over a long period.

FEATURE ARCHITECTURE

Substantial depressions visible on the surface indicate that semisubterranean houses at DIL-161 were relatively large and deep. No single feature was completely excavated, but some architectural features such as walls and post holes were found in test units. Excavation at Features 33 and 35, the intensively tested houses in the actively eroding area, revealed cross-sections of the features. Table 4 gives characteristics of features excavated at DIL-161.

The limited excavation indicates that Norton tradition houses at DIL-161 are large semisubterranean structures with unconstructed central hearths. Size varies, but all appear to be larger than 5 m on the shortest side (some unexcavated features may be smaller). The superstructures are supported by thick upright logs at the edges of the floor surrounded by smaller upright posts as needed (Bundy 2006). Sod, grass, or bark may have been used for roofing, but poor organic preservation makes the identification of roofing materials difficult. None of the houses appear to have been abandoned in a sudden or unplanned manner. There may be features other than houses at DIL-161 but none were encountered in the excavation and hummocky tundra topography makes smaller depressions on the ground surface difficult to identify.

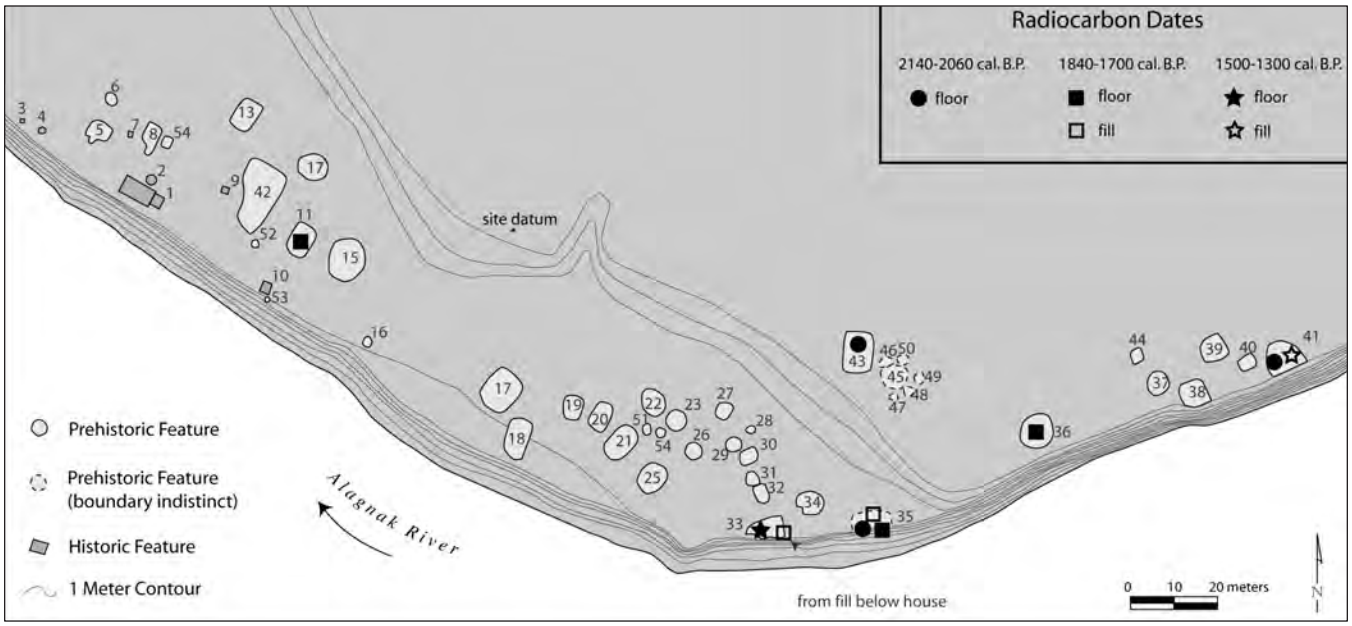

Figure 5. Radiocarbon date locations.

Table 4. Characteristics of tested features.

Feature	Estimated Size	Size Estimated By	Estimated Depth Below Contemporary Surface	Floor Features
11	7 x 5 m	surface depression and small test	70–100 cm, based on surface depression	
33	6.5 x 5 m	test excavation	40 cm	unconstructed hearth, two post holes
35	7 x 6 m	test excavation	35 cm	hearth, six post holes, pit feature, bark surface (roof fall?)
36	8 x 7.5 m	surface depression and small test	unknown*	bark surface (roof fall?)
41	8 x 6.5 m (?)	surface depression and small test	unknown*	three post holes
43	9.5 x 7 m	surface depression and small test	unknown*	unconstructed hearth

* too much fill above floor to determine feature depth from surface depression.

ARTIFACTS

The artifact assemblage from DIL-161 consists entirely of lithics and ceramics; no organic artifacts were preserved (Table 5). The assemblage is biased by the small areas excavated, lack of excavation in features other than houses, possible repeated floor cleaning in prehistory, planned abandonment, and poor organic preservation.

Table 5. Artifacts from DIL-161.

Object	Number		Object	Number
flakes: unmodified	3,984		perforators	3
ceramic sherds	1,840		endscrapers	3
unmodified bone	52		abrader fragments	3
retouched flakes	22		mineral substances	2
projectile points	12		lamps	2
biface bases	17		knife	1
sideblades	17		hammerstone	1
biface fragments	14		whetstone	1
utilized flakes	11		ground item	1
flake scrapers	11		ground burin	1
ground flakes	10		pebble core	1
bifaces	6		ground biface fragment	1
pumice abraders	6		basalt piece	1
projectile point bases	6		adze blade fragment	1
projectile point tips	5		adze blade	1
drills	5		adze bit fragment	1
chert pieces	5		adze bit	1
sidescrapers	4		bullet casing	1
biface tips	3		Total	6,056

A total of 6,056 artifacts were recovered, the most common of which were lithic flakes (unmodified, retouched, and utilized, n = 4,027), followed by ceramic sherds (n = 1,840). Together these two artifact categories make up 97% of the total artifacts. Flaked stone bifaces make up most of the balance of the assemblage.

Nearly a third of the artifact assemblage from DIL-161 is ceramic sherds (n=1,840, 30%). Of these, most were relatively thin-walled (0.4 to 1.0 cm thick) plant fiber tempered body sherds (Table 6 lists the ceramics by temper, surface treatment, and location on the vessel). Some sherds also had a mix of plant fiber and fine gravel temper. Rim and base sherds were also represented, as were sherds with surface treatments such as stamping or pigment.

Stamping is present on fifteen sherds, although it is typically very light. Three fiber-tempered sherds have diamond or parallelogram shaped stamping that is greater

Table 6. Ceramic sherds.

Sherd Type	Number of Sherds	Percentage of Total Sherds
Fiber tempered undecorated body sherd	1,695	92.0
Fiber tempered undecorated rim/base sherd	30	2.0
Fiber tempered stamped body sherd	9	0.5
Fiber tempered stamped rim/base sherd	1	0.05
Fiber tempered pigmented body sherd	71	4.0
Fiber tempered pigmented rim/base sherd	10	0.5
Gravel and fiber tempered undecorated body sherd	18	1.0
Gravel and fiber tempered stamped body sherd	5	0.3

than 4mm on the longest side (Brooks River Diamond Stamp variety; Dumond 1981:213). Six fiber tempered sherds have check stamping smaller than 4mm on the longest side (Smelt Creek Check Stamp variety; Dumond 1981:213) The remaining six stamped sherds are a gravel and fiber tempered variety with Brooks River Diamond stamping, three of which refit. Neither linear-stamped nor cord-impressed ceramics were found at DIL-161.

Sherds from a pigmented vessel from the floor of Feature 43 (Fig. 6) are the only group to refit into a recognizable (although incomplete) vessel shape. The pigment is a dark red-to-black shade and appears in overlapping "watercolor-like" vertical swathes on the top two-thirds of the vessel. The outer surface of the vessel is very smooth, as if burnished, in contrast with other ceramic sherds from the site, which are much rougher. Under magnification, the surface of the pigmented areas is cracked in the same manner as the unpigmented areas, but whether the cracking is from manufacture, use or post-depositional processes is unknown. No striations from burnishing or polishing are visible, and there is no evidence of a slip applied to the outer surface. There is some charring on the interior of the vessel, but only a tiny charred area near the rim on the outside. There may be pigment on the interior surface, but the charring and rough texture obscure it.

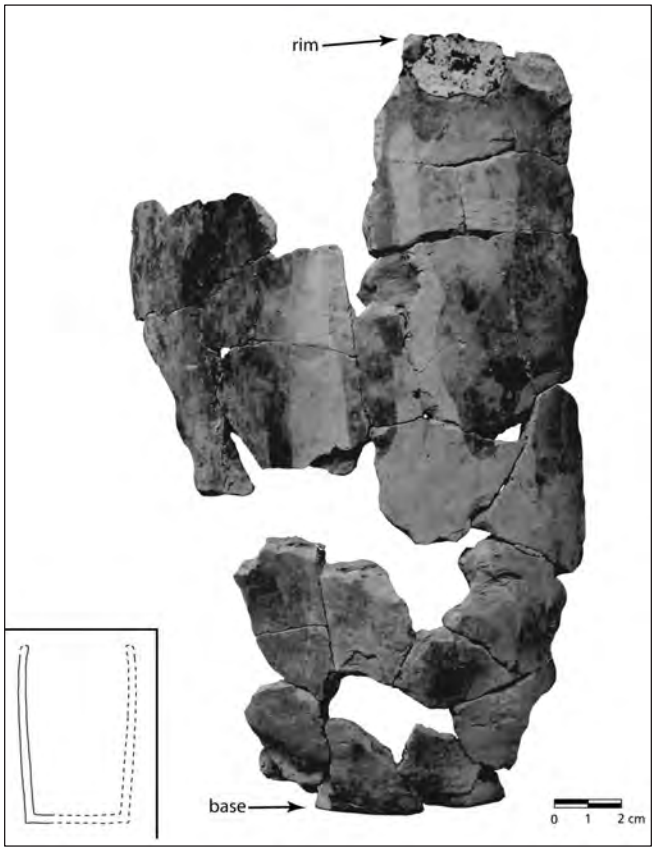

Figure 6. Partially reconstructed vessel with pigment.

Chipped stone untyped bifaces and biface fragments were the most numerous stone tool. These tools show bifacial manufacture but are not identifiable to a specific tool type, either because they are incomplete or because the morphology is not consistent with standard categories. Of the forty items in this category, seven are essentially complete tools or preforms. There is only one knife in the artifact collection. Many of the biface fragments are likely from sideblades, given their asymmetrical shape and the prevalence of sideblades among finished bifaces.

Twelve flaked stone projectile points were recovered, as well as six bases and five tips (Fig. 7). The points as a group are similar to assemblages recovered from the Naknek drainage area (Dumond 1981:203–204). Examples are present of the Brooks River Square Base type (*ibid*.; Fig. 7:A and S), the Smelt Creek Contracting Base type (*ibid*.; Fig. 7:D, Q, and T), and the Falls Stemmed type (*ibid*.; Fig. 7:I–L, V and W), as well several points that are distinct from any categories previously defined for the region. (Fig. 7:C, E–G, U). The four remaining points are not complete enough to be typed (Fig. 7:M–P).

Of the projectile point types present, three are characteristic of cultural phases in the Naknek drainage. Smelt Creek Stemmed and Smelt Creek Contracting Base points are associated with the Smelt Creek and Brooks River Weir phases (2250–1950 B.P and 1950–1350 B.P., respectively; Dumond 1981:135,143) and Falls Stemmed points are associated with the Brooks River Falls phase (1350–900 B.P.; *ibid*.:147). The projectile point types found at DIL-161 are generally consistent with radiocarbon dates from the site.

Eighteen scrapers were found at the site: nine flake scrapers, four sidescrapers, three endscrapers, one end and side scraper and one possible discoidal scraper (Fig. 8). All of the scrapers are made of chert or basalt, except for one indurated sedimentary flake scraper. Most had only a minimal degree of working, although three scrapers had bifacial working elsewhere on the flake in addition to the unifacial scraping edge. Six scrapers showed signs of use-wear in the form of polish or edge-crushing. One of the sidescrapers could be called a "flake knife" because of its blade-like form and extensive unifacial retouch on two lateral edges (Fig. 8:A).

Seventeen flaked stone sideblades of various shapes were recovered. The sideblades are pictured in Fig. 9 classified according to the Naknek drainage typology (Dumond

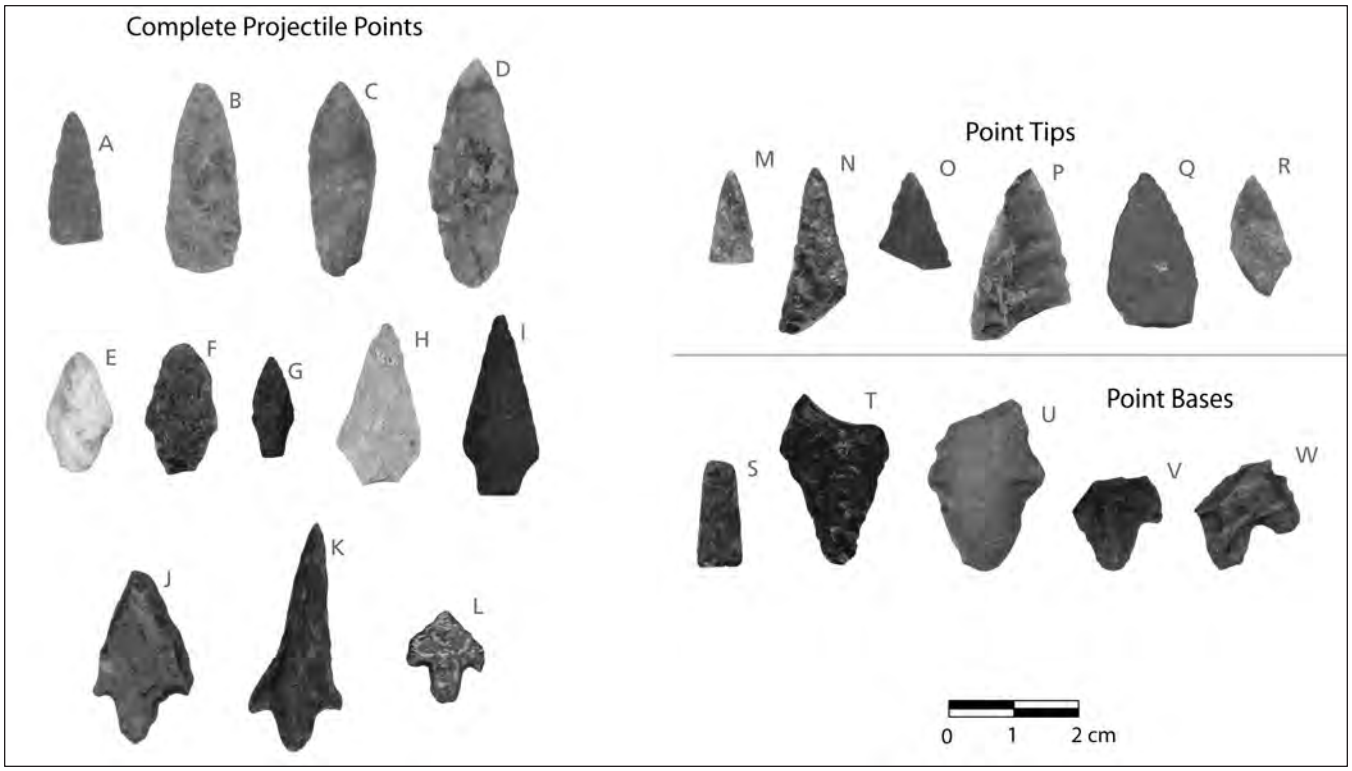

Figure 7. Projectile points.

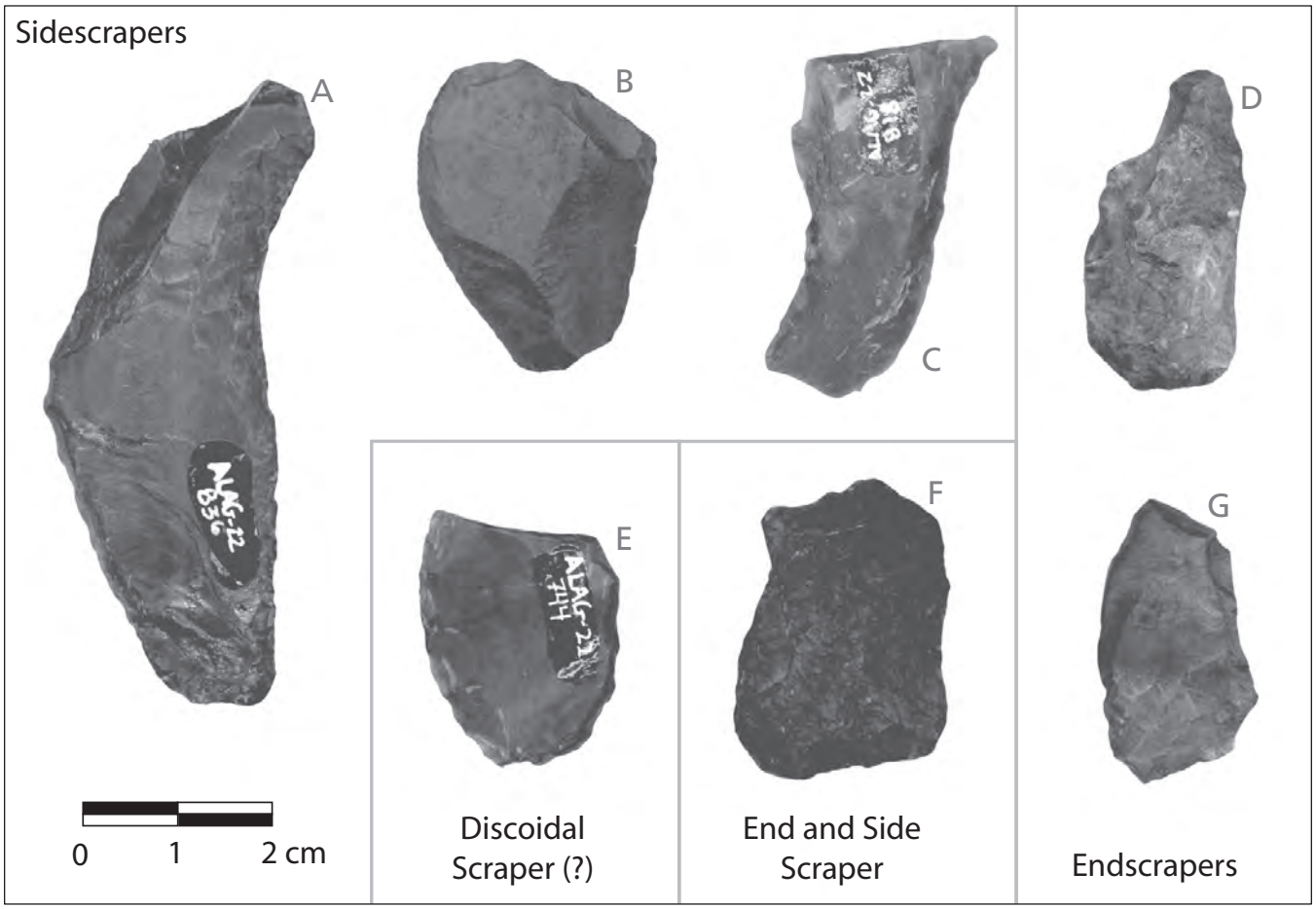

Figure 8. Scrapers.

1981:205). The cutting edge faces downward, and the hafted edge to the top and right. As Dumond (1981:205) noted, considerable variation among sideblades makes categorizing difficult. Although the artifacts shown in Fig. 9 are divided into Sideblade I, II and III categories after Dumond (*ibid.*), these may not represent functional differences, and there may be such differences within categories.

The excavation produced 5 whole or partial flaked stone drills. Three showed some usewear on the point in the form of edge-crushing or polish. Different forms are evident. Two drills had asymmetrical bases and a projection at least as long as the base. One other was broken, but was also likely of this type. A second type of drill is represented by only one specimen. It was ovoid in form with a small projection. The final type of drill is a chipped stone form with heavy polish on a short projection, and is also represented by only one artifact. The polish appears to be the result of manufacture rather than usewear.

Six abraders and abrader fragments were recovered along with a fine-grained sandstone cobble that may have been a whetstone. All six of the abraders and abrader fragments were of pumice with a broad flattened surface rather than deep grooves. A large sandstone cobble appears to have striations from use as a whetstone, but these may also be natural banding in the lithic material.

Only nine ground stone items were found: three endshavers or perforators, four adze parts, a ground burin, and a midsection from a ground slate projectile (Fig. 10).

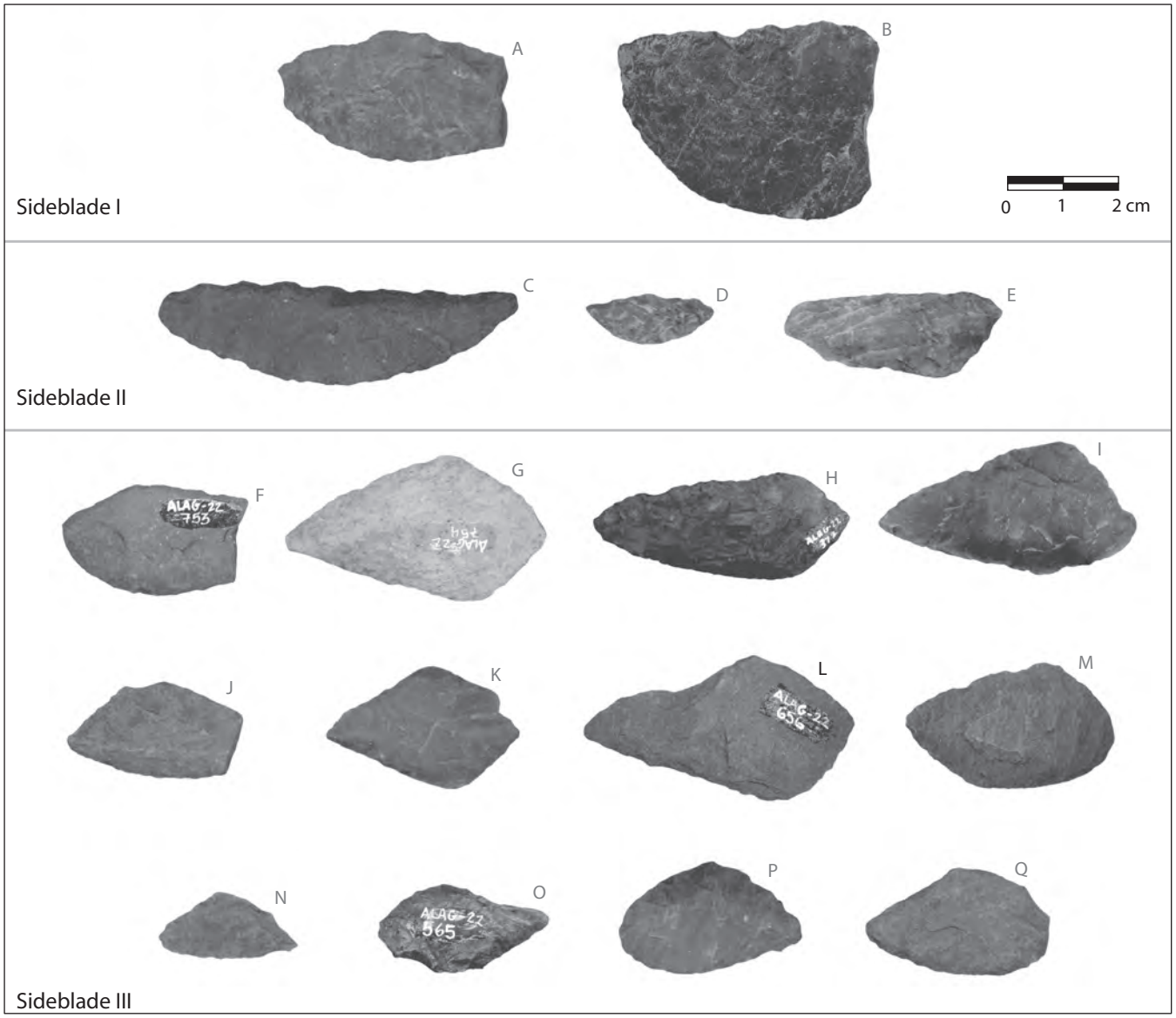

Figure 9. Sideblades.

The complete endshaver has a flat ground surface on the ventral side and a curved surface on the dorsal side (plano-convex), and is made of andesite (Fig. 10:F). It was found on the floor of Feature 33. Two other items are similar in size and shape, with roughly chipped bases and ground portions that are plano-convex in cross-section (rather than round or lenticular as a drill would be), but are missing the tip (Fig. 10:G and H). Without knowing the shape of the tip, it is not possible to determine whether these were endshavers or perforators. The ground slate projectile point midsection was the only ground slate item found at the site (Fig. 10:E). It has a single ground facet on one side, and two ground facets on the opposite side that meet in a central ridge. The ground burin is made of andesite, and has four polished facets that meet at a corner (Fig. 10:D). Four adze parts were found: a complete andesite blade, chipped all over and ground at the working edge (Fig. 10:A); a distal fragment of a ground blade of unidentified lithic material (Fig. 10:B); an andesite bit, chipped all over and ground at the working edge (Fig. 10: C); and a small ground flake with an angled edge that indicates it was chipped from an adze. All three larger adze pieces are lenticular in cross-section, have working edges that are curved rather than angled, and show usewear at the working edge.

Pecked stone vessels are represented by two items: a small complete specimen and a larger fragment (Fig. 11). Neither has evidence of burning or oily residue that might indicate use as a lamp, nor of ochre residue that might indicate use as pigment grinder. The large vessel fragment (Fig. 11:A) may be natural rather than culturally modified. A single hammerstone was recovered from the excavation. No other large pecked stone items were found, including net sinkers, which had been expected. The sampled area was small, though, and the absence of sinkers might be the result of spatial patterning.

DISCUSSION

Testing at DIL-161 was designed in part to address questions about the occupation of the site and its relation to other archaeological cultures in southwest Alaska. The combination of architectural, radiocarbon, and artifact data allows comparison to other sites and speculation

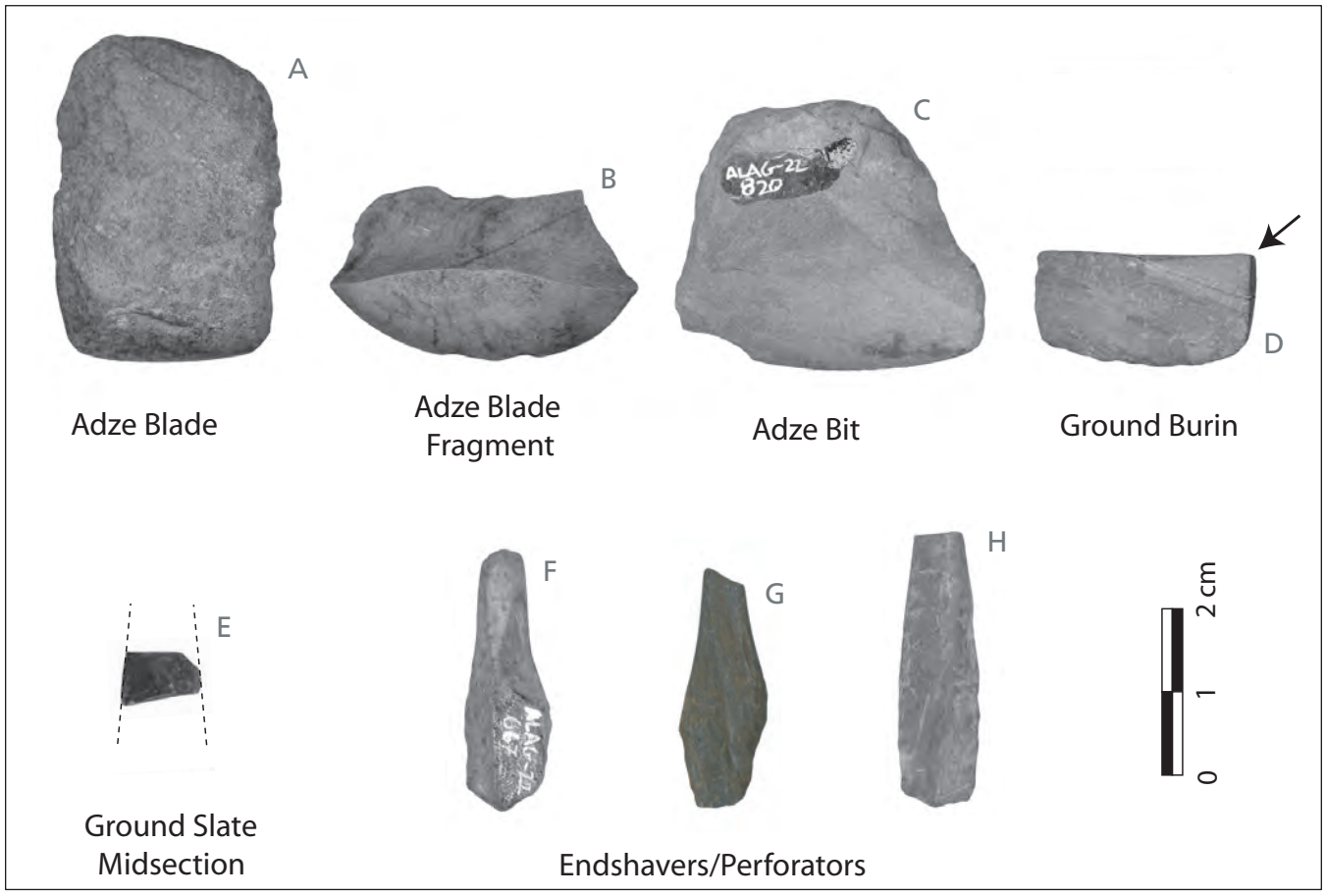

Figure 10. Ground stone artifacts.

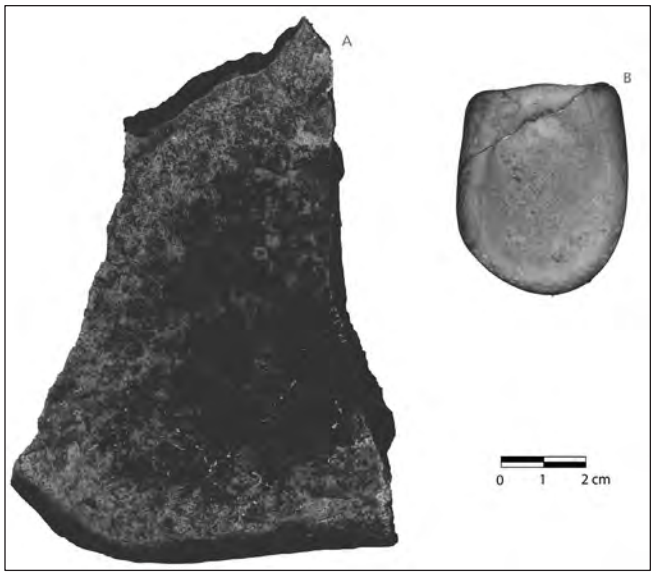

Figure 11. Pecked vessels..

about similarities and differences at Norton tradition sites in southwest Alaska and beyond.

FEATURE OCCUPATION SEQUENCE

Testing produced radiocarbon dates and artifacts from five habitation features. Although the excavated areas were limited, the data provide some insight into the sequence of feature occupation at the site and the relation of the artifact assemblages to Norton period phases established for the nearby Naknek drainage sites. Radiocarbon dates indicate that Features 35, 41, and 43 are contemporaneous. Of the tested features, these three are the earliest. About 250 years later, Features 11 and 36 were occupied contemporaneously, followed by the occupation of Feature 33 about 300 years later. By dates alone, these three groups fall into the Smelt Creek, Brooks River Weir, and Brooks River Falls phases as defined by Dumond (1981:189–190), although the transitions between these phases is gradual and affiliation should be assigned on the basis of artifact assemblages (Dumond 2005:31). The assemblages from house floors from the three chronological groups were reviewed to examine the relation to the Naknek drainage cultural phases. Artifacts from mixed fill are not included. Although there are dates from the fill in some features, stratigraphy within the fill resulting from different deposition episodes might not be apparent. All of the fill within a feature cannot be assumed to be contemporaneous.

The earliest-occupied group consists of Features 35, 41, and 43. Feature 35 was the most extensively tested in this group, with four square meters excavated. Artifacts recovered from the floors of these three features included stamped ceramics (Smelt Creek Check Stamp and Brooks River Diamond Stamp varieties), a ground burin, an adze bit fragment, projectile points (Smelt Creek Contracting Base, Brooks River Contracting Base, and Brooks River Square Base), and sideblades (varieties I, II and III). Eighty-six percent of the artifact assemblage from these three features (excluding debitage) is ceramics.

The lithic artifact collection from these three features is similar to collections from the Smelt Creek phase of the Norton period (Dumond 1981:132–152). Two of the three identifiable projectile point types, Smelt Creek Contracting Base and Brooks River Contracting Base, are found in all three phases. The third, Brooks River Square Base, is confined to the Smelt Creek and Brooks River Weir phases. The ceramic assemblage is similar to the Brooks River Weir phase in that Smelt Creek Check Stamp and Brooks River Diamond Stamp varieties occur together. Pigmented ceramics have not been identified from any of the Naknek drainage sites. All other artifact classes appear throughout the Norton period.

The artifact collection from the early group, then, appears similar to Smelt Creek assemblages in lithics (based on only one diagnostic artifact, the ground burin), and similar to Brooks River Weir assemblages in ceramics (based on only two diagnostic sherds). The radiocarbon dates for the group, however, fall early in the Smelt Creek phase. The collection from the early group can be attributed to that phase, with the understanding that a larger artifact collection would be necessary to make a more definitive assignment.

The middle group includes Features 11 and 36. Artifacts recovered from floors included Brooks River Diamond Stamp ceramics, a flake knife, and an untyped biface with a burin-like flake removal. Seventy-five percent of the artifact assemblage from these three features (excluding debitage) is ceramics. The possibly burinated biface is the only potentially diagnostic artifact. The only chipped burin from the Naknek drainage Norton period collections came from the Brooks River Falls phase, the latest of the three phases (Dumond 1981:152). The presence of a single artifact that is rare in the type collection is a slim basis on which to make a cultural attribution, though, and the radiocarbon dates fall at the boundary between the Smelt Creek and Brooks River Weir phases (although they trend towards the younger Weir phase). In the absence of more conclusive data, the group can be ten-

tatively attributed to the Brooks River Weir phase based on the radiocarbon dates.

Feature 33 is the only feature in the latest-occupied group. Artifacts from the floor included projectile points (Falls Stemmed Varieties 2 and 4, Brooks River Square Base, and Smelt Creek Contracting Base), a perforator, and a chip from an adze bit. Only 51 percent of the artifact assemblage from the feature (excluding debitage) is ceramics. The Falls Stemmed projectile points are the only diagnostic artifacts. Variety 2 is found in both the Brooks River Weir and Brooks River Falls phases, but Variety 4 is only found in the latter (represented by eight examples from three sites; Dumond 1981:145, 151). Radiocarbon dates also point to the Brooks River Falls phase, although one falls in the Brooks River Weir phase age range. Given that the dating of the phases is still somewhat ambiguous, attributing the collection to the Brooks River Falls phase is appropriate.

The three radiocarbon date groups from DIL-161, in order from earliest to latest, can be tentatively assigned to the Smelt Creek, Brooks River Weir and Brooks River Falls phases. None of the artifacts represent a significant departure from those reported from the Naknek drainage sites (Dumond 1981:132–152; discussed further below), and radiocarbon dates are roughly commensurate with the phases in that area, although as noted earlier, transitions between phases of the Norton period are gradual (Dumond 2005:31).

While Dumond's (1981) analysis of the Naknek drainage assemblages provides a framework by which to evaluate Norton tradition assemblages from the Alagnak River, there are differences between artifact collections from the two areas. The significance of these differences can best be assessed by reviewing the range of Norton traditions assemblages in southwest Alaska, and select assemblages from outside the region.

VARIATION AMONG NORTON TRADITION SITES

Norton tradition sites across Alaska are remarkable not for their differences but for their many similarities across a wide geographical and chronological range. Examining variation among the sites, though, could offer insight into Norton cultural development and lifeways. A review of data from several Norton tradition sites in southwest Alaska, and a few in northwest Alaska considers several possibilities for explaining differences and similarities. Sites discussed are listed in Table 7 and shown in Fig. 12. This discussion is not intended to be a comprehensive analysis of Norton tradition sites and assemblages, but an overview to better understand the place of DIL-161 in the context of the tradition as a whole.

Differences in artifact assemblage, house form, and site location are apparent among Norton tradition sites in southwest Alaska and beyond. Variation is also undoubtedly introduced by differing collection sizes and excavation methodologies. There might also be several cultural reasons for this variation: geographical differences in resource availability, change in cultures over time and space, or seasonal changes in residence and subsistence. Norton tradition sites are found in diverse environments, from the arctic coast to interior mountain ranges to the relatively mild Gulf of Alaska coast. Important resources such as large salmon runs, construction-quality trees, and seasonal sea ice are not available across the Norton tradition area, undoubtedly introducing differences. If regional resource availability were the primary reason for variation, we might expect to see:

- house construction differences correlated with available construction materials,
- similarities between sites near similar resources, and
- artifact assemblage variation mostly in tools with specific subsistence functions (as opposed to design elements).

The Norton tradition lasted for around 1500 years across a wide geographic span. Some aspects of the tradition, such as ceramics, are Asian in origin (Dumond 2005:30); some appear to have developed in situ in northwest Alaska, such as small insert sideblades; and others originated in the Pacific coast area, such as slate grinding and oil lamps (Dumond 2000) Wherever the Norton cultural pattern first came together, many sites would have been far from this "homeland." If culture change were the main reason for variation between sites, we would expect differences to occur gradually over time and space, both in functional and decorative elements.

Seasonality can be estimated using direct and indirect methods (Monks 1981). Direct methods involve study of faunal materials, which are available from very few Norton traditions sites. Indirect methods use other data, including "matrix granulometry, matrix chemistry, population size, settlement pattern, community pattern, artifact function, and burial pattern" (Monks 1981:217–218). With limited data available from Norton tradition sites, the most useful analyses are examination of artifact assemblages, geography of settlement, and feature construction. If seasonal

variation were present among Norton tradition sites, we could expect to find:

- artifact assemblage and feature construction variation between sites in different environmental locations, even if they are geographically relatively close,
- cold weather and warm weather features at different sites (e.g., deep semisubterranean houses),
- artifacts associated with seasonal pursuits, such as net sinkers or ground slate lances, present at some sites and absent at others, and
- more complete assemblages with nonportable artifacts at sites occupied for more of the year.

Evaluating these possibilities requires assessing the function of artifacts and features based on morphology and ethnographic data. Extending ethnographic analogy into the past is problematic, especially in western Alaska where there is a clear division between Norton people and the subsequent Thule people who are the ancestors of ethnographically described populations. The seasonal round may have been quite different than the pattern reported during

Table 7. Sites referenced in text.

Site	General Location	Reference
Naknek Drainage Sites (Brooks River and Smelt Creek)	Alaska Peninsula	Dumond 1981
Hook Point (XMK-020)	Alaska Peninsula	Clark 1977
Kukak Bay (XMK-059)	Alaska Peninsula	Clark 1977
Ugashik Coastal Sites	Alaska Peninsula	Henn 1978
Ugashik Inland Sites	Alaska Peninsula	Henn 1978
Clark's Point (XNB-055)	Bristol Bay	McMahan et al. 2000
Pedro Bay (ILI-001)	Bristol Bay	Reger and Townsend 2004
XNI-028	Yukon-Kuskokwim Delta Area	Nowak 1982
MAR-007	Yukon-Kuskokwim Delta Area	Shaw 1982
Iyatayet	Northwest Alaska	Giddings 1964
Kugzruk Island Site 1	Northwest Alaska	Giddings and Anderson 1986
Cape Krusenstern Sites	Northwest Alaska	Giddings and Anderson 1986

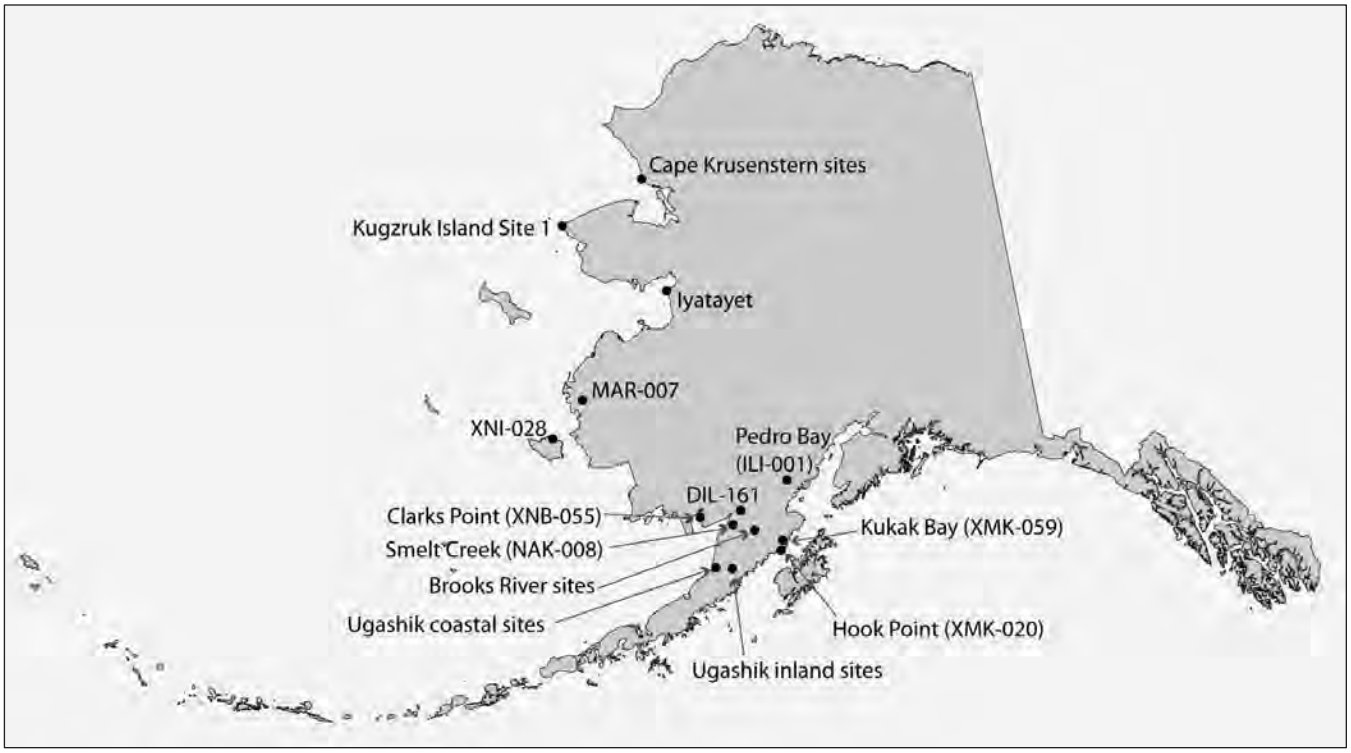

Figure 12. Norton tradition sites referenced in text.

the historic period, and may even have varied with time and place within the Norton period. Nonetheless, many technologies are similar. In the absence of indications to the contrary, Norton artifacts and features probably had a similar function to their contact period counterparts.

House construction in western Alaska has been tied to climate and seasonality (e.g., Giddings and Anderson 1986:159–160). Larger and deeper houses, which are better insulated, are thought to be evidence of winter occupation. Some were even covered with frozen sod, which melted in the summer and made the house uninhabitable. Smaller, shallower dwellings, or campsites with little evidence of structure, are considered summer houses. Deep semisubterranean houses require sturdy frames, especially if they are covered with heavy sod rather than grass matting, bark, or hides. Large spruce trees were probably not growing near any of the Norton sites discussed here, with the possible exception of Pedro Bay (Brubaker et al. 2001); most lack large trees even today. Driftwood is available at coastal sites, but would have been difficult to move up rivers to interior sites. Variation in house size, then, could be attributed to geographical location in relation to raw materials or to seasonality.

Some Norton tradition artifacts have been associated with specific activities. Net sinkers, ground slate ulus, and fish spears are indicative of river fishing, while toggling harpoons suggest sea mammal hunting (Dumond 2000). Some researchers have suggested that toggling harpoons are oriented towards winter hunting, either through breathing holes on pack ice or in open water with icebergs (Arutiunov and Fitzhugh 1988). Ground slate lances and end blades have also been associated with sea mammal hunting, but could also be used in hunting large terrestrial mammals. Other artifacts are associated with sedentism. Ceramics and pecked stone vessels are generally absent from sites identified as short-term campsites (Dumond 2000). The size and variety of artifact assemblages has been taken as evidence of duration of occupation, and therefore, of seasonality (McMahan et al. 2000).

If winter settlements are occupied for much of the year, and summer or fall occupations are more temporary camps, then winter assemblages would be more diverse due to the duration of occupation and feasibility of using less-portable items. Settlement size might differ if families or lineages traveled to their own fishing sites in the summer but congregated in a single location in the winter. Unfortunately, the number of contemporaneously occupied houses at Norton sites has been difficult to estimate due to reoccupation and deeply buried cultural horizons. Site location might also be related to seasonality. Sites can be classified as coastal or interior, although Dumond (2000) noted that many Norton coastal sites are located near stream mouths, and may represent a less intensive focus on harvesting marine resources compared to later Thule economy. Nonetheless, Norton tradition coastal sites have been identified as one phase of a seasonal round that included an interior component focused on fishing and a coastal component that included sea mammal hunting.

The three possible reasons given here for variation among Norton tradition sites—resource availability, gradual cultural change, and seasonality—are not mutually exclusive. For example, Dumond (2000) attributed the spread of Norton culture into the Pacific to "an improved ability to hunt in open water," which is related to both cultural development and resource availability. Despite the overlap, patterns pointing to gradual change and seasonality are apparent in Norton tradition sites in the Upper Alaska Peninsula/Bristol Bay region and beyond.

NORTON PERIOD SITES IN THE UPPER ALASKA PENINSULA/BRISTOL BAY REGION

For the nine sites (or groups of sites) in the Upper Alaska Peninsula/Bristol Bay region in this analysis, several variables have been chosen for analysis based on the above discussion: site date(s), general location, assemblage size, ceramic use frequency, ceramic decoration, feature dimensions, and the presence or absence of various artifact types (Table 8; Fig. 13).

The distribution and chronology of sites in this sample does not fit well with the resource availability explanation. Coastal sites with access to driftwood are no more likely to have large, deep houses than sites in the interior, although Dumond (1982) found the opposite to be true for a larger sample of Norton tradition sites across Alaska. Net sinkers are absent from some riverine sites, such as DIL-161, but present at coastal sites not near rivers, such as Hook Point. The functional tool assemblage among the sites varies most in the presence or absence of net sinkers and ground slate tools, and the proportion of ceramics. These are not more variable, however, than decorative details such as surface treatment of ceramics and the presence of labrets, indicating that differences are not only attributable to resource availability. Sites near each other and in similar settings, such as the Brooks River sites and DIL-161, differ in feature

construction and artifact assemblage. Conversely, sites in very different environments, such as Clarks Point and Pedro Bay, have similar assemblages. Differences between Norton tradition sites in the Upper Alaska Peninsula/Bristol Bay area cannot be explained by resource availability, although seasonal mobility undoubtedly affects feature construction and artifact assemblages at various sites. Further testing at Norton tradition sites could reveal patterns not evident in the small sample discussed here.

Gradual cultural changes over time may explain some, though not all, variation among Norton period sites in the Upper Alaska Peninsula/Bristol Bay region. Site location appears to be correlated with time of occupation in that early sites are more likely to be located along rivers, while later sites are more likely to be located on the coast. This may represent the continuation of a trend towards coastal residence that began during the transition from the Arctic Small Tool tradition to the Norton tradition (Dumond 1982). A large sample of Norton tradition sites across Alaska showed that "Norton people show a stronger preference for locating their permanent settlements on the seacoast than did their predecessors" (Dumond 1982:43). Data from the Upper Alaska Peninsula/Bristol Bay sites discussed here indicates that the trend may have continued through the Norton period. Four sites have large, deep houses: two early sites in the interior (DIL-161 and the Ugashik inland sites); and two late sites on the coast (Kukak Bay and Clarks Point). Late sites tend to have fewer ceramics as a proportion of the total artifact assemblage, and are less likely to contain stamped ceramics. None of the other artifact classes appear to vary with site date. The sample from nine sites (or site areas) in the Upper Alaska Peninsula/Bristol Bay region indicates change in residence patterns from river towards coast through the Norton period, although variation among artifact assemblages cannot necessarily be linked to the shift.

Artifact assemblage variation among sites may be related to seasonal mobility. The variation does not appear to fit the seasonal winter/summer round as reported ethnographically, where the expected pattern would be large deep houses on the coast associated with sea mammal hunting gear and nonportable artifacts, and small, shallow summer camps along rivers associated with reduced artifact inventories and fishing gear. None of the relevant artifact classes, nor overall assemblage size, correlates with

Table 8. Selected characteristics of upper Alaska Peninsula/Bristol Bay Norton sites.

	DIL-161	Hook Point	Kukak Bay	Brooks River Sites	Smelt Creek	Clarks Point	Pedro Bay	Ugashik inland sites	Ugashik coastal sites
Location	**Interior**	**Coast**	**Coast**	**Interior**	**Coast Riverine**	**Coast**	**Interior**	**Interior**	**Coast Riverine**
Earliest Date, B.P.[a]	2150	1680	1460	2140	2255	1630	1340	2110	1535
Latest Date, B.P.[a]	1390	1680	1075	975	1900	1630	1340	1665	930
Position in Norton Tradition	early and late	late	late	early and late	early	late	late	early	late
Assemblage Size	Medium	Large	Large	Large	Large	Small	Small	Large	Medium
Organic Preservation	–	+	–	–	–	–	–	–	–
Ceramics	+	+	+	+	+	+	+	+	+
Stamping on Ceramics	+	–	–	+	+	–	+	+	–
Ceramics as % of Assemblage	78–86%	2%	12%			38%	0%	6%	9%
Stone Vessels	+	+	+	+	+	–	–	+	+
Ground Slate Ulus	–	+	+	+	+	–	–	–	–
Net Sinkers	–	+	+	+	+	–	–	+	+
Labrets	–	+	+	+	+	–	–	–	+
Fish Spears		–							
Toggling Harpoons		+							
Average Feature Size (m)	7.5 x 6		7 x 6.5	4 x 3	3.5 x 2.5	7.5 x 6		6 x 5	
Average Feature Depth (cm)	~50		60	20	30	35		60	

[a] Uncalibrated radiocarbon age; calibrated dates are not available in all publications.

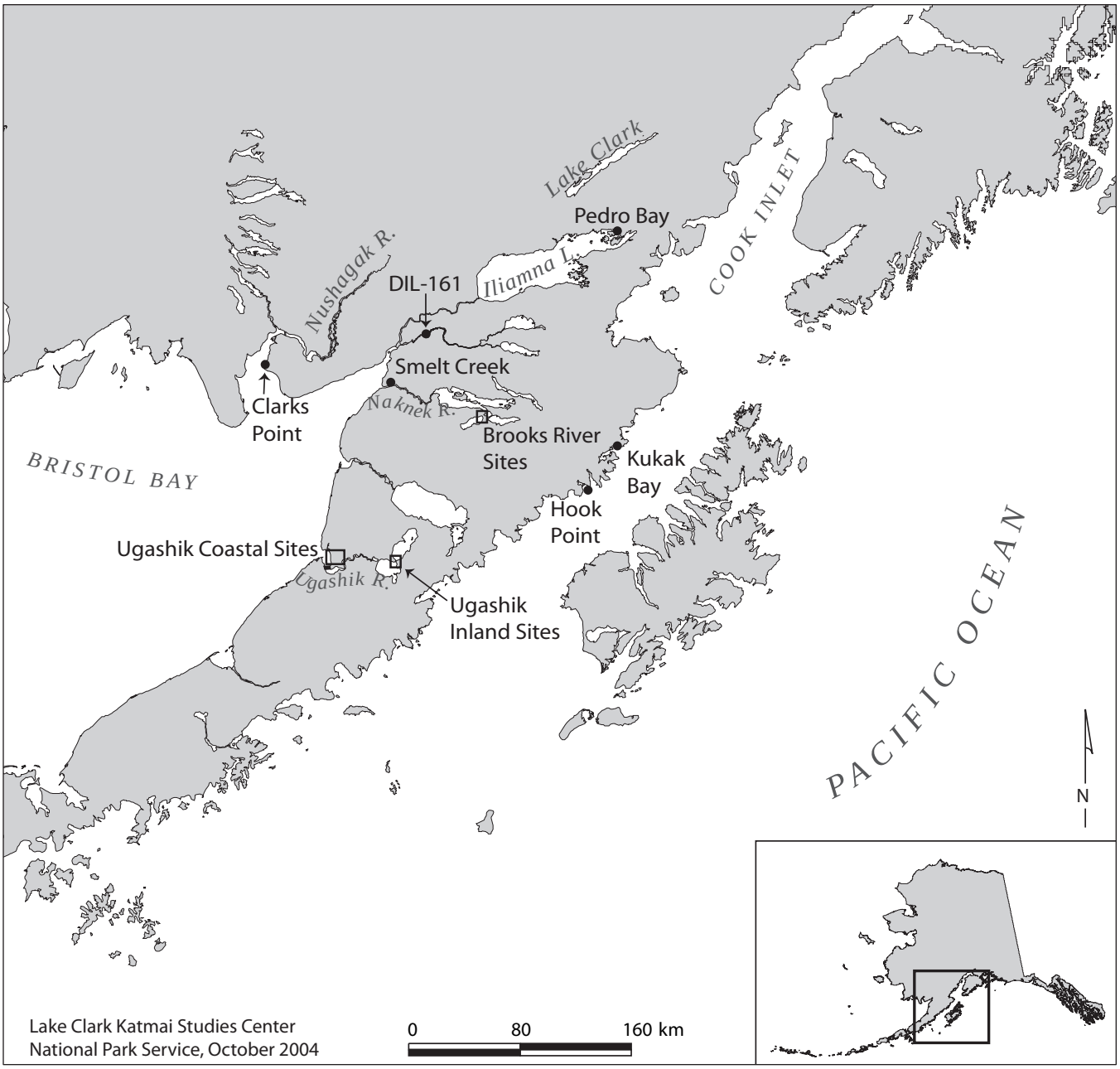

Figure 13. Norton tradition sites in the Upper Alaska Peninsula/Bristol Bay area.

coastal vs. interior site location. Ground slate ulus and net sinkers, however, tend to occur together. Feature size is also not correlated with location. This does not, however, rule out seasonality during the Norton period.

At the risk of reducing significant variation to a few factors, three artifact types, in addition to feature construction, can be used to assess sedentism and seasonality. The presence of net sinkers and ground slate ulus may indicate summer fishing. A significant proportion of ceramics in an assemblage suggests sedentism. Large, deep features indicate both a long duration of occupation, and winter use.

By these indicators, Kukak Bay and the Ugashik inland sites may have been occupied nearly year-round. It is possible that larger houses were occupied in the winter, and nearby campsites or lightly built shelters in the summer, as with the Cape Krusenstern Ipiutak beach ridges (Giddings and Anderson 1986:158). Ceramic use is low, but other nonportable items such as large stone lamps are present. Ceramic manufacture may have been limited by the availability of raw materials.

The Naknek drainage sites could have been occupied in the warmer months for a relatively long period (ceramics

make up a significant portion of the assemblage, but houses are relatively lightly built). Clarks Point may have been a short-term winter or fall encampment, which would explain relative scarcity of all artifacts, and especially ceramics. McMahan and colleagues (2000:64) concluded that "it is at least conceivable that the site was occupied only briefly, in response to fluctuations in the seasonal movements of caribou."

A long winter occupation could explain the large, deep houses and profusion of ceramics at DIL-161, where net sinkers are absent. This is in accord with reports that historic use of the middle river has been heaviest in the winter. The contents of sites in the Upper Alaska Peninsula/Bristol Bay region suggest variable seasonal movements determined by the resources immediately available. In resource rich areas like the Katmai coast, nearly year-round living could be possible. In less productive areas, a seasonal round is more likely. The round apparently did not follow a consistent pattern of coast-to-interior travel, nor was long duration occupation limited to the winter. More data from sites in the area could confirm or refute these hypotheses.

NORTON TRADITION SITES OUTSIDE THE UPPER ALASKA PENINSULA/BRISTOL BAY REGION

A review of all Norton tradition sites in Alaska is beyond the scope of this report, but examination of a few sites in Western Alaska offers a comparison to the apparent Upper Alaska Peninsula/Bristol Bay pattern (Table 9). The sample is quite small, but shows similar variability to the Peninsula sites.

One coastal site, XNI-028, has a large house and toggling harpoons, indicating possible winter use, and net sinkers and ground slate ulus suggesting summer fishing. Long term occupation is indicated by the large assemblage and significant proportion of ceramics. This site, like Kukak Bay and the Ugashik inland sites, may have been occupied for much of the year.

Two other sites, Iyatayet and Kugzruk Site 1, have similar artifact patterns but smaller houses. These may have been occupied in spring and summer, or house size might be related to the availability of construction materials. The small assemblages from Cape Krusenstern sites identified as "campsites" indicate seasonal use of temporary camps on the coast. The only interior site, MAR-007, has both ground slate ulus and toggling harpoons (represented by a foreshaft); no other evidence is available to assess seasonality.

The increased sedentism noted by Dumond (1982) is evident in sites with apparently long-term occupation, and there is also indication of seasonal movement. None of these sites is similar to DIL-161—an interior site with evidence of long-term occupation that lacks fishing gear—although this may be an effect of small sample size.

Table 9. Selected characteristics of western Alaska Norton sites.

	MAR-007	XNI-028	Cape Krusenstern Norton Campsites	Kugzruk Site 1	Iyatayet
Location	**Interior**	**Coastal**	**Coastal**	**Coastal**	**Coastal**
Earliest Date, B.P.[a]	1300	2100		2566	2530
Latest Date, B.P.[a]	1100	1360		2306	2016
Position in Norton Tradition	late	early and late		early	early
Assemblage Size	Medium	Large	Medium	Large	Medium
Organic Preservation	+	+	–	+	+
Ceramics	+	+	+	+	+
Stamping on Ceramics	+	+	+	+	+
Ceramics as % of Assemblage		47%			32%
Stone Vessels	–	–	–	+	+
Ground Slate Ulus	+	+	–	–	–
Net Sinkers	–	+	–	+	+
Labrets	–	–	–	+	+
Fish Spears	–	–		+	+
Toggling Harpoons	+	+		+	+
Average Feature Size (m)		6 x 5		unknown, apparently small	5 x 4 m
Average Feature Depth (cm)		unknown		apparently shallow	unknown

[a] Uncalibrated radiocarbon age; calibrated dates are not available in all publications.

Cultural differences between the Peninsula and western Alaska sites are suggested by the ceramic assemblages. Stamping is present in all ceramic collections in western Alaska, but absent at several Peninsula sites. Hair and feather temper is common in some western sites, and plant fiber dominant in Peninsula sites. Despite these differences, artifact assemblages are for the most part similar.

This short review suggests that much of the variation among Norton tradition sites may be explained by differing seasonal rounds and, in the Upper Alaska Peninsula/Bristol Bay region, by gradual cultural change. A more comprehensive study of Norton tradition sites across Alaska is necessary to assess the validity of these explanations.

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HOLOCENE ASSEMBLAGE VARIABILITY IN THE TANANA BASIN: NLUR ARCHAEOLOGICAL RESEARCH, 1994–2004

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ABSTRACT

This paper summarizes survey and testing data from a decade of investigations by Northern Land Use Research, Inc. in the Tanana Basin, Interior Alaska. A number of important prehistoric sites have been discovered, test excavated, and radiocarbon dated. Data from these and other investigations are summarized; and patterns such as technological conservatism and typological variability are related to central Alaskan prehistory, cultural chronology, and assemblage variability. These data suggest that current cultural chronologies do not adequately reflect details of intersite variability in this region. Necessary future technological and typological studies should incorporate site structure to more accurately reflect intersite variability in artifacts, features, and sites. Current archaeological constructs need to be reconsidered in this context.

KEYWORDS: Holocene archaeology, intersite variability, Tanana Basin, Interior Alaska

INTRODUCTION

Since its inception in 1991, Northern Land Use Research, Inc. (NLUR) has completed over 320 cultural resource projects throughout Alaska. Since 1994, a number of projects in the Tanana River Basin have resulted in discovery of prehistoric sites ranging in age from early Holocene to late prehistoric. Primary data are needed on radiocarbon-dated assemblages given the relative paucity of information on prehistoric components in this region and lack of a widely accepted cultural chronological framework. This study presents descriptions of at least 14 components from 12 sites discovered by NLUR archaeologists between 1994–2004 in the Tanana Basin. Most of these components were discovered through several large-scale surveys and testing projects: (1) the Golden Valley Electric Association Intertie between Fairbanks and Healy, documenting 21 sites (Bowers et al. 1995), (2) the Yukon Training Area and Fort Greely Army Lands Withdrawal Survey, documenting 22 sites (Higgs et al. 1999), and (3) the proposed Alaska Natural Gas Pipeline Project, which traversed >1,000 km between Prudhoe Bay and the Canadian border, documenting 122 sites (Potter et al. 2002). In addition to these major projects, we include two additional surveys of more restricted geographic focus: the Healy Canyon area along the Alaska Railroad (Reuther et al. 2003), and a proposed seismic exploration area west of Nenana (Potter 2004). Site locations are illustrated in Fig. 1.

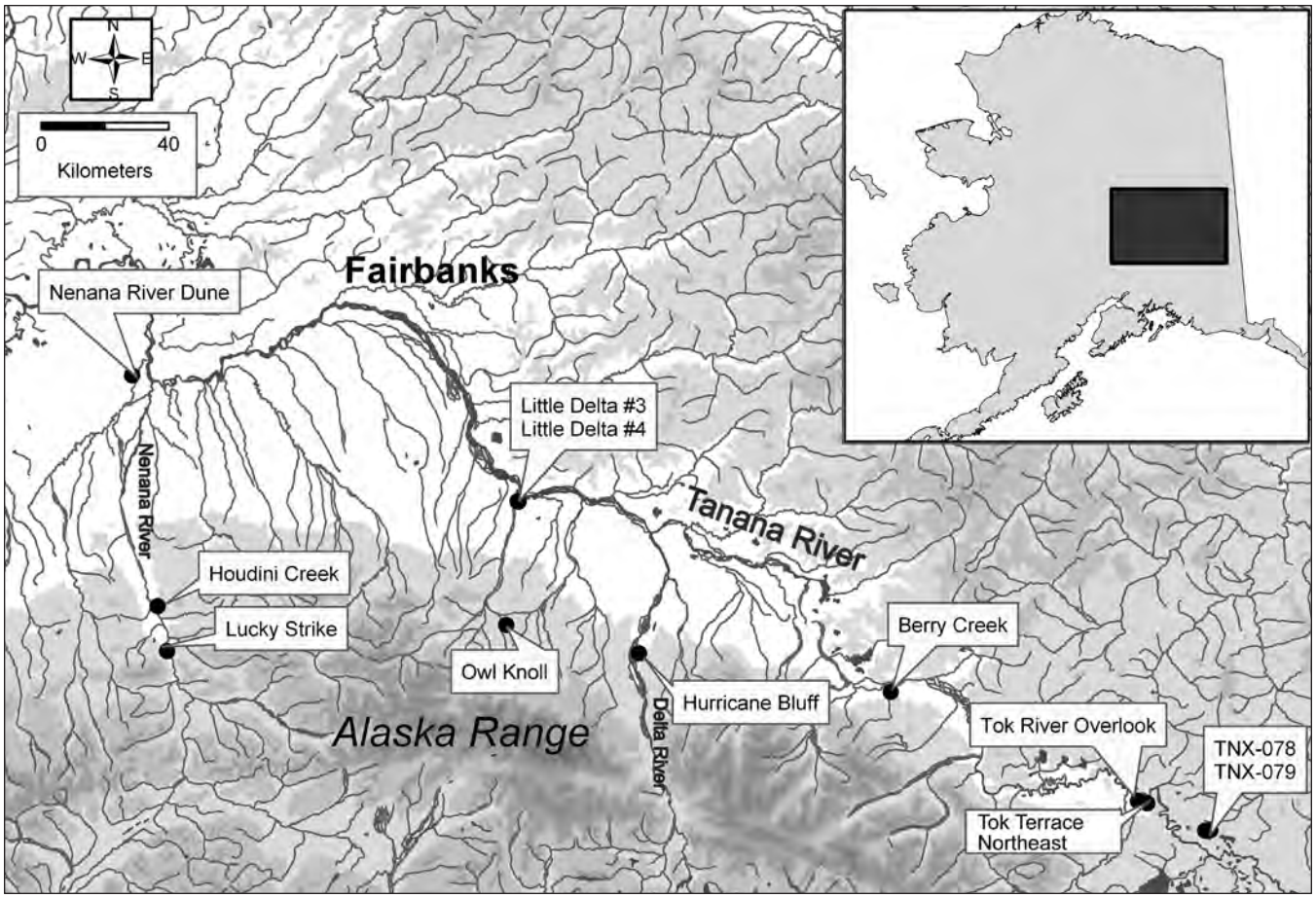

Figure 1. Tanana Basin overview map.

These projects and sites are described in detail in individual survey and site assessment reports (see complete report and project list at www.northernlanduse.com). Descriptions of project areas, research designs, survey strategies, methods, results, and conclusions can be found in each report. Our purpose here is to highlight several sites that have potential to contribute to our understanding of central Alaskan prehistory, in particular those sites with well-defined stratigraphy, unique artifact assemblages, and/or radiocarbon dated components. This paper is organized as follows: each site is described separately, followed by a discussion of cultural chronology and assemblage variability. The sites are ordered by location west to east: the first three sites are in the Nenana Basin, the remaining ten are in the middle and upper Tanana Basin. For consistency and clarity, each site section is comprised of three subsections: an overview and setting, stratigraphy and dating, and cultural material and discussion. When feasible, artifact photographs or drawings, stratigraphic profiles, overview photographs, and site maps are provided (Figs. 2–11). Table 1 summarizes the radiocarbon data, and Fig. 12 illustrates component age estimates. A discussion of the archaeology of the Tanana Basin follows, with emphasis on inadequacy of current cultural chronologies to encompass technological variability demonstrated at these components. In addition, technological conservatism is apparent, and both patterns underscore the necessity for site structural studies incorporating broader consideration of assemblage variability in intrasite and intersite contexts.

SITE DESCRIPTIONS

NENANA RIVER DUNE (FAI-1661)

Overview and Setting: This site is located on a south-facing erosional alluvial terrace (Potter 2004). This landform marks the easternmost vegetated edge of a large sand dune complex lying to the southwest (Collins 1985). Vegetation consists of paper birch, white spruce, and aspen, and a small stream is present about 1 km south of the site. Three depressions were observed on the terrace edge (between 1.5–2 m in diameter and 15–30 cm deep). The site was discovered by NLUR in 2003 through subsurface

Table 1. Radiocarbon date list (all AMS dates).

Site	Lab #	Conventional Date (RCYBP)	Calibrated Age Range (2σ) (IntCal98)	Material and Association
Houdini Creek	Beta-74737	7880±60 BP	8991–8484 cal BP	Charcoal, Band 7 (80 cm BS), stratigraphically associated with component.
Hurricane Bluff	Beta-123339	8810±60 BP	10154–9564 cal BP	Charcoal, stratigraphic date on lowest paleosol (P1), lower limiting date for lower component.
Hurricane Bluff	Beta-123338	1750±40 BP	1812–1545 cal BP	Charcoal, stratigraphically associated with Upper Component, upper limiting date for lower component.
Little Delta River #3	Beta-123331	9920±60 BP	11554–11198 cal BP	Charcoal, stratigraphically associated with upper component
Little Delta River #4	Beta-123332	3700±70 BP	4242–3835 cal BP	Charcoal, upper limiting date for component.
Lucky Strike	Beta-196499	7760±50 BP	8631–8412 cal BP	Scattered charcoal 3–5 cm below *in situ a*rtifacts
Nenana River Dune	Beta-196497	800±50 BP	791–659 cal BP	Charcoal from base of cache pit, dating component.
Owl Knoll	Beta-123340	3010±110 BP	3466–2870 cal BP	Hearth charcoal dating component.

testing on the terrace, and two test units were excavated: one bisecting a depression and another 50 x 50 cm unit expanded to 1 m^2 about 25 m to the west of the depression (Potter 2004) (Fig. 2).

Stratigraphy and Dating: Soil stratigraphy consisted of humus (0–5 cm BS), oxidized loam (5–25 cm BS), unoxidized loam (25–50 cm BS), and grayish light brown sand (50–105+ cm BS). Within the unoxidized loam, a paleosol stringer of organic rich material was observed at 30–32 cm BS, and an oxidized loam layer at 37–45 cm BS. These both represent buried soils. The paleosols are characterized as typic cryochrepts, developed in calcareous loess deposited over a stabilized sand dune. A radiocarbon date of 800±50 BP was obtained from a concentration of charcoal at the base of a cache pit fill.

Cultural Material and Discussion: One depression was excavated, revealing stratigraphy and morphology suggestive of a cache pit. A biface was found at the bottom of the dark brown silt (interpreted to be fill), as was a charcoal concentration from the center-base of the fill layer. The second test pit, placed nearby on the terrace surface, yielded lithic flakes, tools, and faunal remains just below the humus layer. Lithic items consisted of two rhyolite short-axis beveled flakes (end-scrapers) and 68 lithic flakes of chert, rhyolite, basalt, obsidian, siltstone, and chalcedony, totaling 11.6 g. Two obsidian flakes were attributed to the Batza Tena source (or Group B defined by Cook 1995) based on energy-dispersive x-ray florescence analysis (ED-XRF; Speakman 2006). Faunal remains consisted of 756 fragments (333.7 g total), of which 74% (by weight) was burned or calcined. The materials exhibited spatial patterning in the faunal and lithic distributions, with concentrations of lithics to one side of the densest charcoal and faunal concentration (see Fig. 2). Faunal analysis indicates that at least two size classes of animals were present, with an unburned 2nd phalanx of a small (squirrel-sized) mammal, and numerous burned large, thick long bone fragments (caribou-sized).

The cultural materials had a limited vertical distribution between 10–20 cm BS, and are likely associated with the dated cache pit materials given the stratigraphy, bone preservation, and cultural material. The site is therefore interpreted as a single component site. Given the absence of bone, the presence of a flaked tool and probable culturally derived charcoal cluster, and location near the terrace edge, this feature may represent a hunting blind. The presence of a wide variety of lithic raw material types, the relative small number of flakes, and generally small flake sizes (most are 1.0–1.5 cm in maximum dimension), we interpret site function to include lithic tool maintenance rather than tool manufacture. The presence of burned and calcined bone and the relatively small sizes of the bone fragments suggests that faunal processing took place at the site (perhaps marrow extraction and/or consumption). The general topographic setting suggests the site may have functioned as an observation station. This site is the first in the Lower Nenana region to yield a radiocarbon date associated with cultural materials from the Late Holocene.

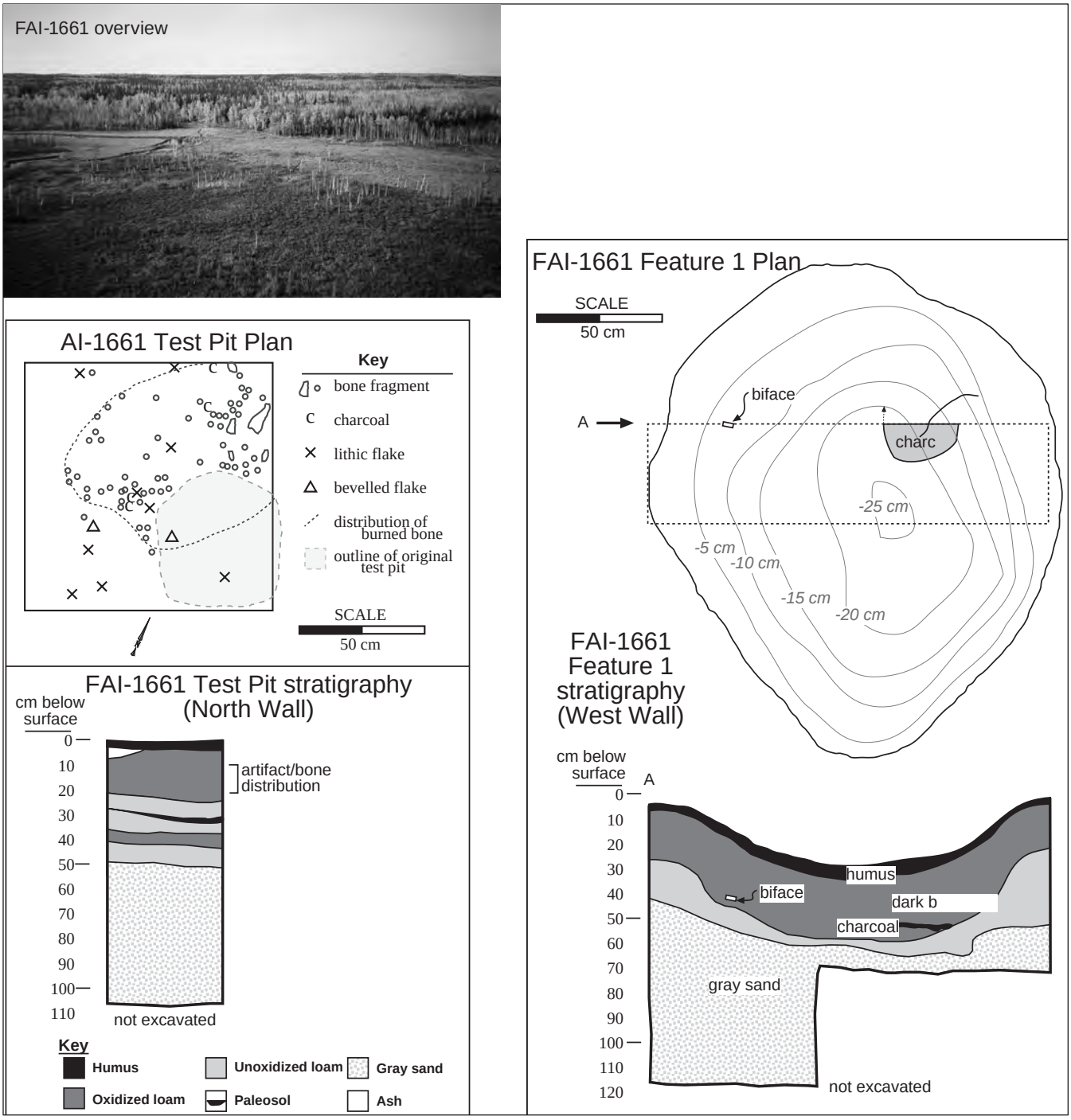

Figure 2. Nenana River dune overview, artifacts, and stratigraphy.

LUCKY STRIKE (HEA-327)

Overview and Setting: HEA-327 is located in Healy Canyon along the Alaska Railroad, approximately 3.3 km south of Healy. The site is situated on a northeast-southwest trending terrace that lies approximately 60 m above the Nenana River. Vegetation consists of an open spruce/birch forest canopy with a moss and grass understory. The site was found by NLUR archaeologists in 2003, who observed lithic artifacts eroding out of an approximately 3 m high cutbank on the terrace (Reuther et al. 2003). Two 50 x 50 cm test units were excavated within a 25 x 25 m area to define the stratigraphy at the site and the artifacts' position within the stratigraphic column (Fig. 3).

Stratigraphy and Dating: The stratigraphy at the site can be characterized as a thick moss forest soil and root mat covering approximately 3 m of alternating silts and paleosols overlying schistic bedrock. Five paleosols were observed and are continuous throughout the site area. In addition, a discontinuous white tephra, located approximately 1.4 m below surface level, was recorded. Based on field observations, this most likely represents the Hayes Volcano ash fall that occurred between 3500 and 3800 years BP (Riehle et al. 1990); however, petrographic or geochemical analyses have yet to be conducted on this tephra. In situ lithic artifacts were found within a loess deposit, approximately 40–70 cm below the lowest paleosol and 2.5 to 2.7 m below the modern vegetated surface. The soils are unusually water saturated and are likely frozen throughout much of the year, which should promote excellent organic preservation. Scattered charcoal fragments were recovered from the loess deposit at approximately 2.7 m below the modern vegetated surface, directly beneath the in situ artifacts, and one charcoal sample produced a radiocarbon date of 7760±50 BP (Beta-196499).

Cultural Material and Discussion: Lithic artifacts were found on an exposed eroding loess surface approximately 2.5 m below the modern surface level. Minimal testing near the surface artifact concentration revealed cultural materials in primary context. A total of 21 artifacts were observed in a 2 x 3 m area (11 on the surface and 10 in primary context). One basalt boulder spall recovered on the exposed loess surface refits to an in situ basalt spall core. One rhyolite bifacial projectile point base (bipointed), one large basalt biface, two large basalt core fragments, one basalt modified flake, and 16 basalt and rhyolite flakes comprise the rest of the assemblage. The lateral extent of the site could not be adequately established due to time constraints; however, based on the topography of the terrace on which the site is situated, a size of 4,820 m^2 is estimated. The site appears to be early to mid-Holocene

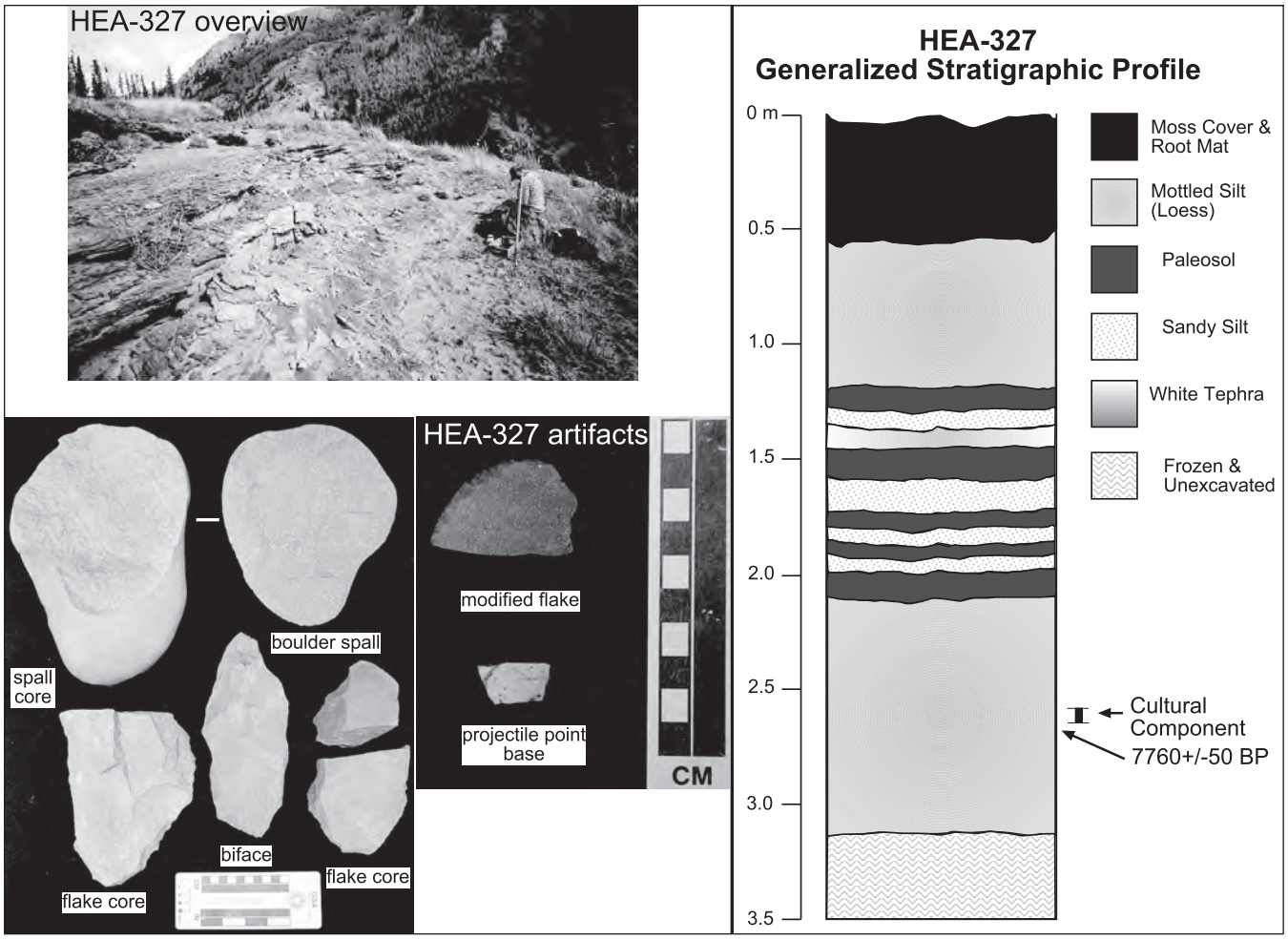

Figure 3. Lucky Strike overview, artifacts, and stratigraphy.

based on the stratigraphic provenience of cultural materials found in primary context and a lower limiting radiocarbon date of 7760±50 BP.

HOUDINI CREEK (HEA-295)

Overview and Setting: HEA-295 is located on Houdini Creek, an eastward-flowing tributary of the Nenana River, about 10 km north of Healy, and about 3 km SE of the Walker Road site (HEA-130). It was discovered in 1995 when artifacts were observed eroding from the edge of a strath terrace cut by Houdini Creek. The terrace bluff is steep, about 30 m high, and has a limited southeast exposure. HEA-295 is located on the late Pleistocene Healy outwash terrace, near the base of the Dry Creek terrace (Wahrhaftig 1958). The bluff edge is well drained and is vegetated by white spruce and willow, with an understory of cranberry and fireweed. The site was mapped, with 4.12 m^2 test excavated out of an estimated area of approximately 240 m^2 (Fig. 4).

Stratigraphy and Dating: At Houdini Creek, upwards of 1 m of silt and sand caps the Healy outwash gravel; several zones of discontinuous buried soils are present. The uppermost Unit 7 consists of 30 cm soil A horizon developed within silt. Beneath this is Unit 6 (29 cm thick), a weakly bedded sandy silt. The underlying Unit 5 (59–63 cm BS) is composed of oxidized silt. Beneath this is Unit 4 (63–72 cm BS) silt, which contains charcoal and an artifact horizon. Unit 3 (72–80 cm BS) is comprised of weakly oxidized silt and medium sandy silt. Unit 2 (80–81 cm BS) is a thin discontinuous paleosol; beneath this is Unit 1 (81–100 cm BS) silt and sand overlying outwash gravel. A single AMS date was obtained from charcoal fragments directly associated with lithic artifacts in Unit 4: 7880±60 B.P. (Beta-74737).

Cultural Material and Discussion: Lithic artifacts were found eroding out of the bluff edge sediments, as well as in situ within Unit 4 silt. Materials found on the slope below the site consist of two bifaces, one blade-like flake, and 35 unmodified flakes. In situ artifacts excavated from test pits included over 600 lithic flakes, cobble tools, a lanceolate biface, asymmetrical lanceolate bifaces, and a sandstone abrader.

While several occupations may be represented, it is most likely that HEA-295 is a single component site. The exact relationship between the displaced artifacts and those found in situ is unclear; although similar lithologies and biface reduction technologies strongly suggest a single component. Based on lithic morphology, the most likely affinities lie with the early Holocene Denali Complex (keeping in mind that microblades may not have been left behind at every Denali site; e.g. Mason et al. 2001; Mason and Bowers 1995). Because of the panoramic view within the Houdini Creek drainage, it most likely served as a game lookout and flaking station. The setting differs from most other known Nenana Valley sites in that it is located near the inner margin of the Healy Terrace rather than on the front overlooking the Nenana River. Houdini Creek is broadly comparable in age and stone working technologies to the Carlo Creek Site (Bowers 1980), Eroadaway Site (Holmes 1988), and Lucky Strike Site (Reuther et al. 2003; this paper).

OWL KNOLL (XMH-839)

Overview and Setting: The site is located on a kame east of the Little Delta River near the northern foothills of the Alaska Range with a 360-degree view of the surrounding glaciated highlands. Vegetation includes typical tussock-tundra, including birch, lowbush cranberries, and moss cover. The site was discovered by NLUR archaeologists in 1998 through subsurface testing on the kame. A total of five test units were excavated (50 x 50 cm including three expanded to 100 x 100 cm, totalling 4 m^2) (Higgs et al. 1999) (Fig. 5).

Stratigraphy and Dating: Tests revealed shallow stratigraphy and little soil development. The stratigraphy consists of a reddish-brown organic loam (0–3 cm BS) overlying an undulating sandy silt layer (4 to 6–15 cm BS), and a basal beige sand unit mixed with pebbles (7 to 16–23+ cm BS). Three test pits contained artifacts. All artifacts were found exclusively within the sandy silt and its contact with the upper loam. A charcoal sample obtained from Feature 1 hearth at 13 cm BS yielded a radiocarbon date of 3010±110 BP (Beta-123340).

Cultural Material and Discussion: Test Pits 2 and 3 yielded 236 flakes but no utilized or worked items. Test Pit 5 contained 113 flakes, three bifaces (one lanceolate projectile point preform, one bimarginally worked flake fragment, and two conjoining biface fragments broken at mid-section), a modified microblade medial segment, and numerous bone fragments all associated with a hearth.

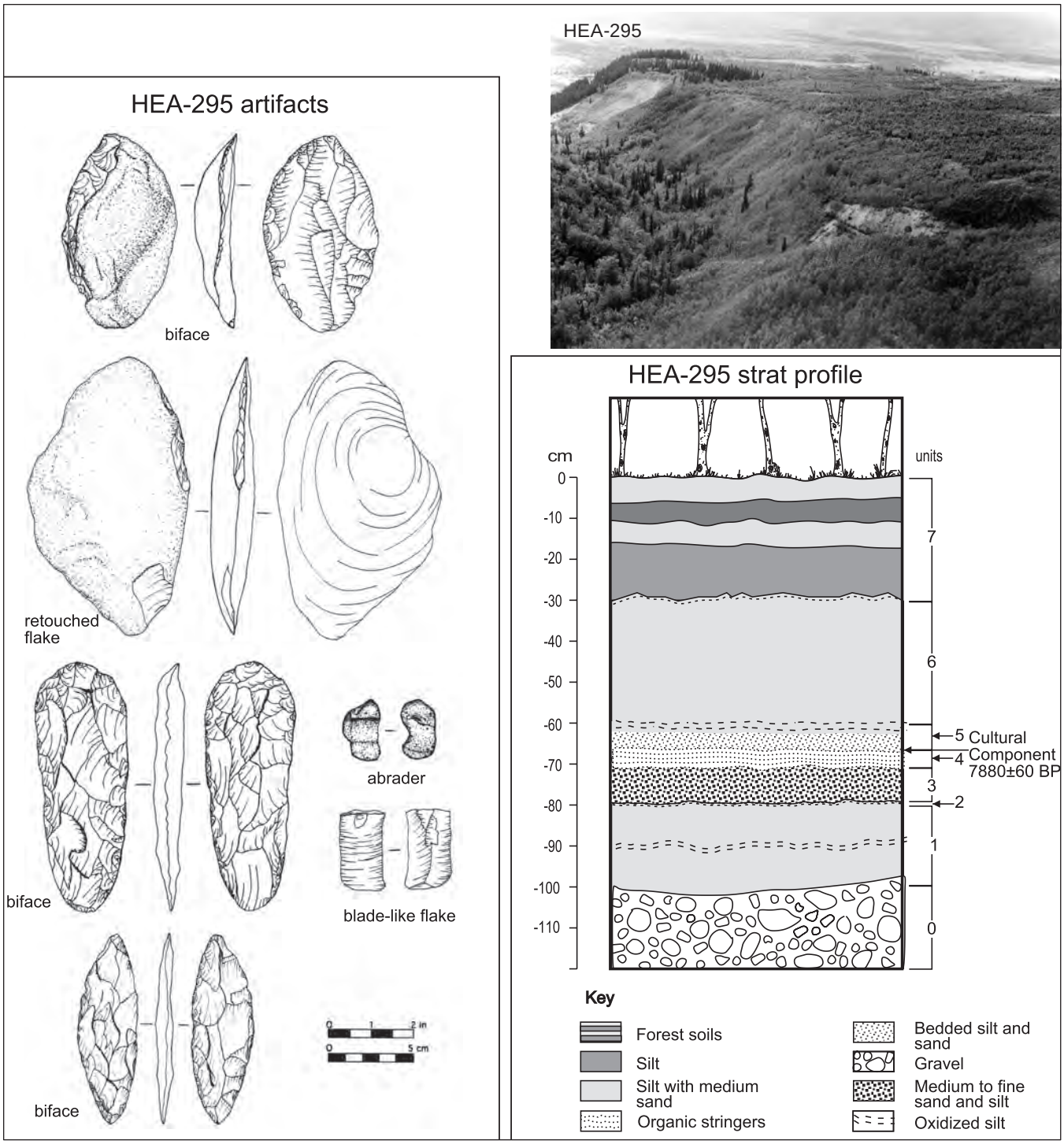

Figure 4. Houdini Creek artifacts and stratigraphy.

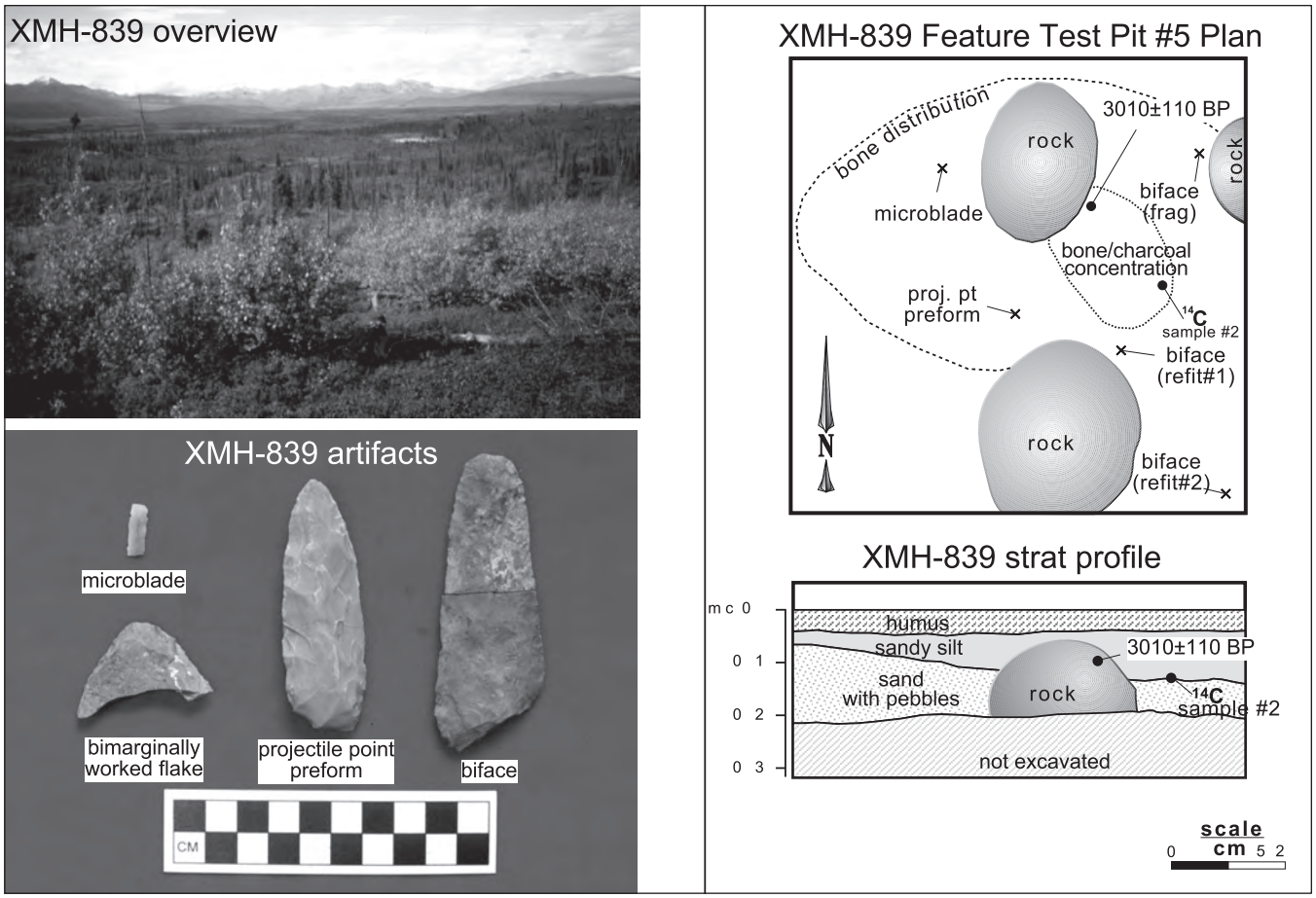

Figure 5. Owl Knoll overview, artifacts, and stratigraphy.

The bone fragments were distributed within the sandy silt over a 65 x 90 cm horizontal area that included a 20 x 50 cm charcoal concentration in the northeast quarter of Test Pit 5; this is interpreted to be a hearth. The stone artifacts were found both within and outside of the bone distribution. Thirteen analyzed bone pieces consist of one humerus fragment, one phalange, two unidentified long bone fragments, two unidentified axial elements, and six unidentified skeletal elements, all part of a large to medium mammal (perhaps caribou). Bone fragment sizes ranged from 0–2 cm (n=9) to 2–5 cm (n=4). The bone fragments, stone tools, and charcoal concentration were found among three small boulders.

The cultural origin of the charcoal feature in Test Pit 5 is supported by the association of the artifacts and faunal remains with the charcoal, the localized distribution of the charcoal within the test pit, and the lack of any charcoal or faunal remains within any of the other test pits. The association of the cultural materials, including the microblade and lanceolate projectile point with the radiocarbon date appears to be warranted. The observed site size is 300 m^2 based on the subsurface testing results and estimated site size is 600 m^2 based on the topography.

Little Delta Creek #3 (XBD-167)

Overview and Setting: The site is located 70 m above the Little Delta River floodplain near its confluence with the Tanana River. It is situated on a level terrace overlooking the floodplain to the south. Vegetation consists of an open spruce/birch forest canopy with a moss and grass understory that covers the terrace. The site was discovered by John Cook in 1996; at that time, a single shovel test located stone flakes and possible microblade at a depth of 40 cm bs. NLUR archaeologists investigated the site in 1998 and excavated two 2 m^2 units (Higgs et al. 1999) (Fig. 6).

Stratigraphy and Dating: The generalized stratigraphy of the units consists of a thick moss forest soil root mat covering 70–75 cm of loess deposits overlying bedrock.

The loess is characterized as a reddish silt (6–35 cm BS), underlain by a beige silt (36–74 cm BS), that encloses the majority of the artifacts. The basal levels consists of a thin, compact tan silt with schist (75–83 cm BS) overlying shattered schist bedrock (>83 cm BS). A charcoal sample collected at 50 cm BS associated with the heaviest clustering of artifacts (50–55 cm BS) produced a date of 9920±60 BP (Beta-123331).

Cultural Material and Discussion: The two test pits yielded 3290 flakes (mainly primary and secondary decortication flakes), six biface preforms or roughouts, one pointed uniface, one pebble tool, and three chert cobble fragments distributed from 35–77 cm BS. Over 90 percent of the artifacts were distributed from 50–55 cm BS, associated with the dated charcoal fragment. A possible lower component was found about 5–10 cm below the main concentration at 60–77 cm BS, consisting of 149 flakes and two biface preform fragments. Within both test pits, the upper component was associated with the reddish silt and beige silt interface and throughout the upper part of the beige silt. The uniformity and density of the artifacts suggest that both tests located a portion of a large horizontal occupational surface. Although the two test pits did not reveal site boundaries, estimated site size could be as much as 880 m^2 (40 x 22 meters) based on the level terrace area. This site may reflect acquisition and primary reduction of chert cobbles derived from the Little Delta River outwash plain.

LITTLE DELTA CREEK #4 (XBD-183)

Overview and Setting: The site is located 80 m above the Little Delta River floodplain near its confluence with the Tanana River. It is situated on a level terrace overlooking the floodplain to the south. The terrace extends southwest, with an exposed weathered schist bedrock outcrop. Vegetation consists of an open spruce/birch forest canopy with a moss and grass understory that covers the terrace. NLUR archaeologists discovered and investigated the site in 1998 and excavated four units; three were 50 x 50 cm, and one was 100 x 50 cm (Higgs et al. 1999) (Fig. 7).

Stratigraphy and Dating: The stratigraphy at the site consists of a thick moss forest soil root mat covering 90 cm of

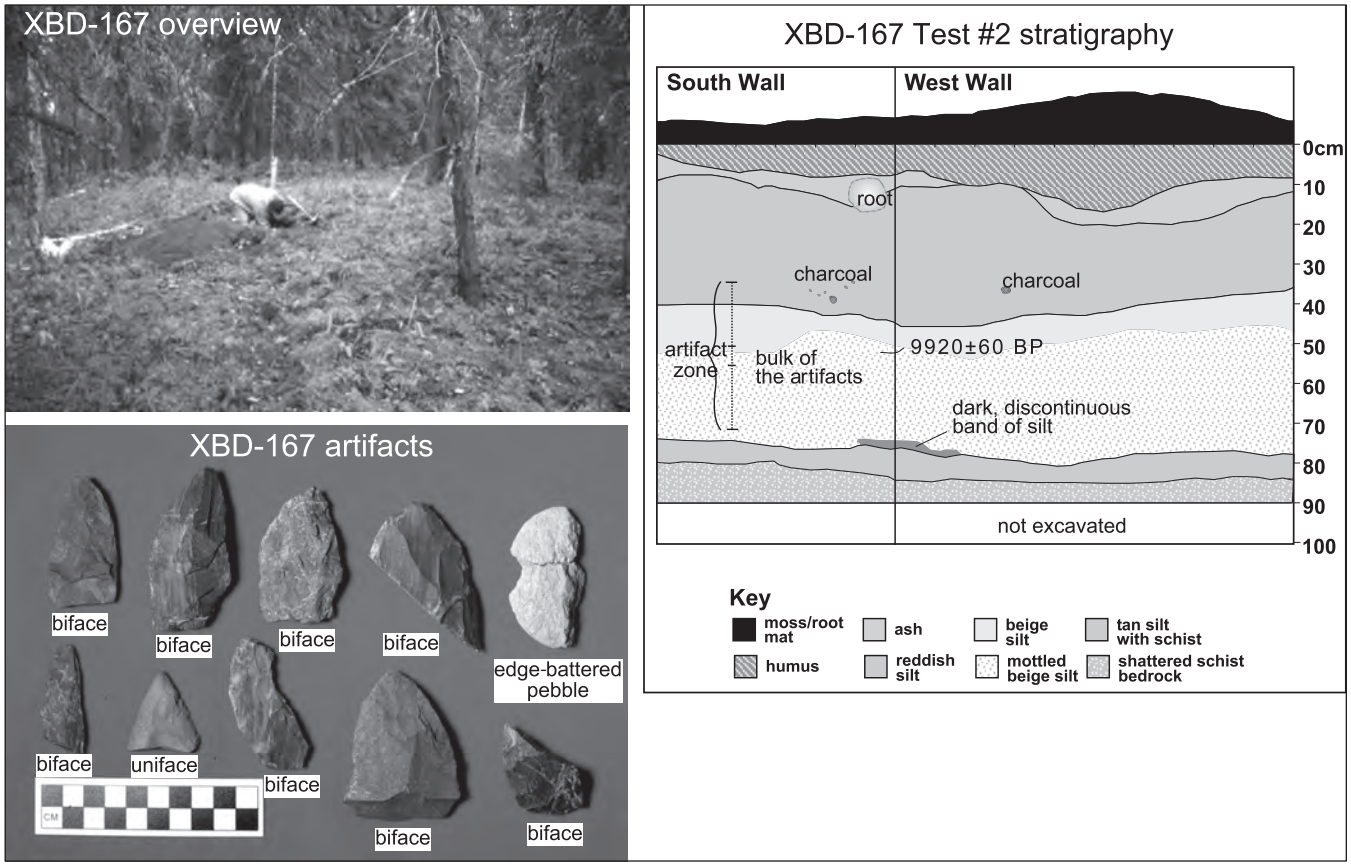

Figure 6. Little Delta River #3 overview, artifacts, and stratigraphy.

loess, in turn overlying bedrock. The loess is composed of reddish silt (10–40 cm BS), beige silt (40–66 cm BS) grading to a gray/tan silt loess (67–92 cm BS). A charcoal lens was discovered 30–34 cm BS, and a sample was dated to 3700±70 BP (Beta-123332). Nine gray/brown chert lithic flakes were found associated with this date (30–45 cm BS); however, the majority of flakes were found between 45–60 cm BS (n = 128 flakes). The date is viewed as an upper limiting date.

Cultural Material and Discussion: The two positive test pits yielded 138 flakes of at least seven varieties of chert and one split chert cobble. These materials are very similar to those at XBD-167, located about 400 m to the northwest, in terms of lithologies and similar chert cobble fragments. A single component is inferred, dating to before 3700 BP. Both XBD-167 and XBD-183 may reflect similar activities in acquisition and primary reduction of locally derived chert cobbles. The estimated site size is 200 m^2, based on observed artifact distribution and on the ridge microtopography.

HURRICANE BLUFF (XMH-838)

Overview and Setting: The Hurricane Bluff Site is situated about 20 km south of Delta Junction, on a southward-facing bluff about 45 m above the Delta River floodplain. The site is located <1 km from XMH-297 (Bacon and Holmes 1980). Vegetation consists of open white spruce forest with sage and grass understory. The observed site size is 408 m^2, based on observations of both surface and subsurface artifacts, although the inferred size based on microtopography is approximately 1,000 m^2. Although there is a military access road 150 m away, there is little evidence of recent human disturbance. Eolian erosion is severe, and modern bison trampling affects the site (Fig. 8).

Stratigraphy and Dating: The stratigraphy revealed at XMH-838 is remarkable. It is nearly 4 m deep, consisting of a complex sequence of eight sand units, six silt units, seven paleosols, and at least two tephras overlying Pleistocene outwash gravel. Cultural materials were found in situ within Paleosols 3 and 5. A sample of organics in Paleosol 3 (87–103 cm BS), dating Cultural Component 2, was radiocarbon dated to 1750±40 BP (Beta-123338). A lower limiting ^{14}C date (noncultural) from Paleosol 7 (300–325 cm BS) returned a date of 8810±60 BP (Beta-123339). Positioned between these two dated strata is a tephra (250 cm BS), which probably represents Hayes tephra, locally referred to as the Jarvis Ash Bed, dating between 3800–3500 BP (Reihle et al. 1990). A second tephra, above Cultural Component 2, is of unknown source, and appears to be younger than 1750±40 BP.

Cultural Material and Discussion: At least two stratigraphically distinct cultural components are present, based

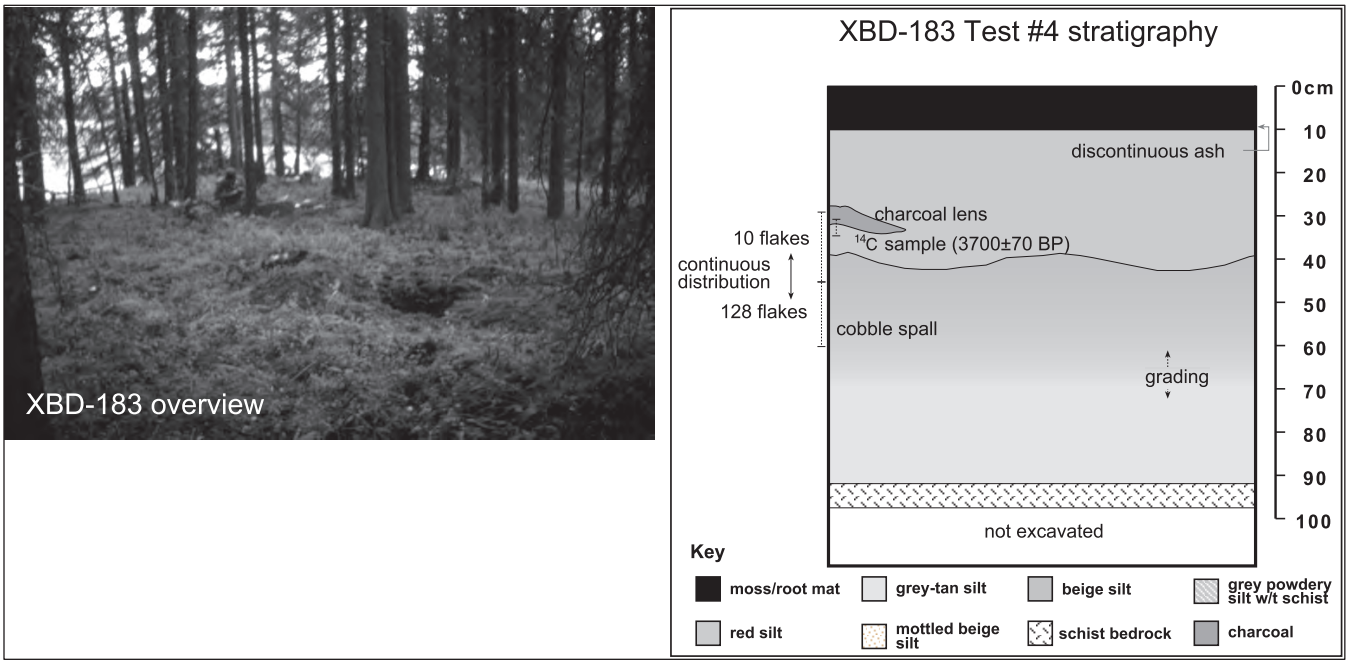

Figure 7. Little Delta River #4 overview and stratigraphy.

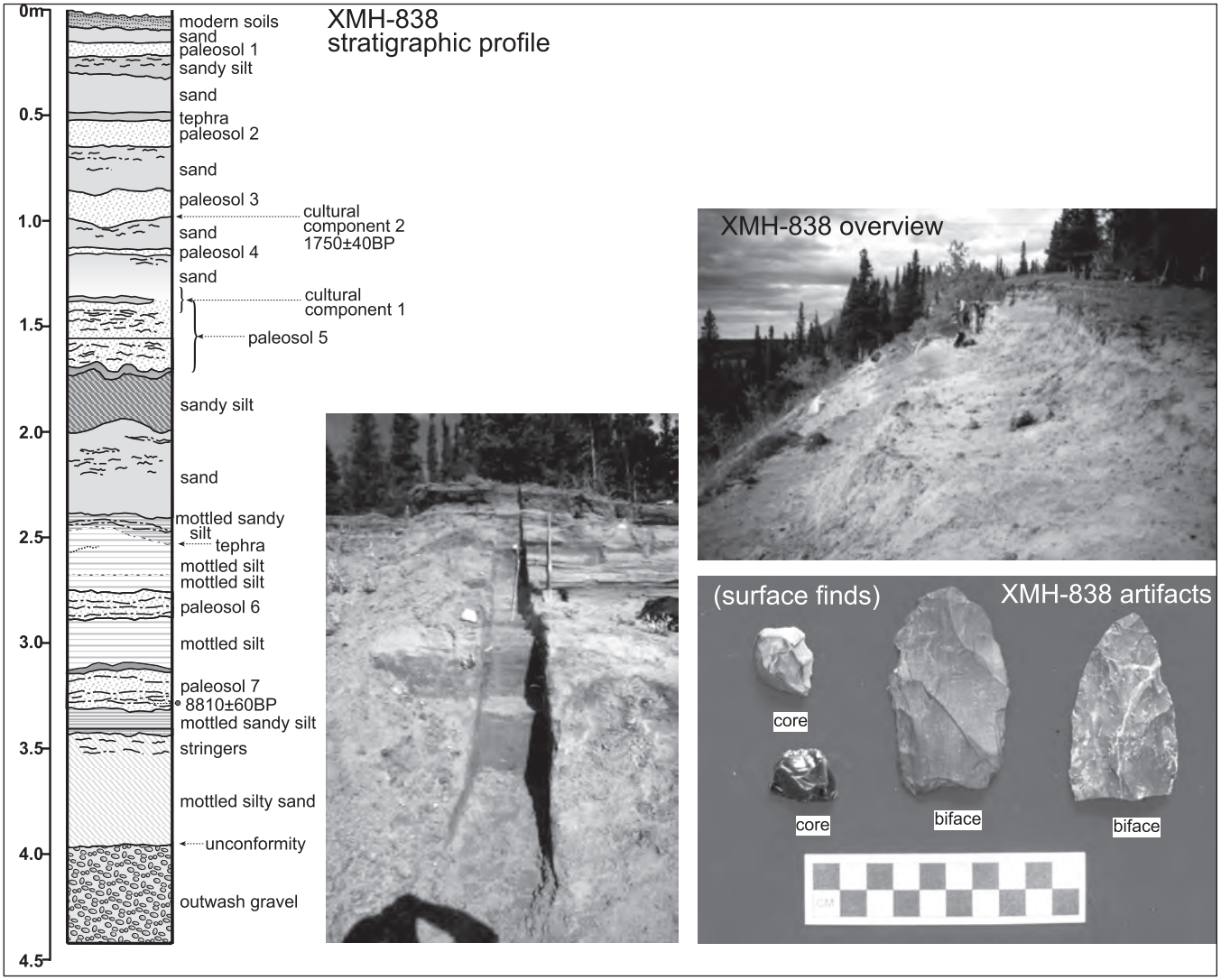

Figure 8. Hurricane Bluff overview, artifacts, and stratigraphy.

on relative vertical position of in situ lithic flakes. No formal tools or diagnostic artifacts were found in any of the controlled excavations. The upper component, consisting of 31 flakes, is within Paleosol Complex 3, which dates to 1750±40 BP. The lower cultural component, consisting of 40 chert flakes and one bone, is located within the upper soil stringers in Paleosol Complex 5. Tools recovered from surface erosional areas include an exhausted flake core, an obsidian flake core, and two bifaces. The obsidian was attributed to the Wiki Peak source (or Group A defined by Cook 1995) located in the Wrangell Mountains based on ED-XRF analysis (Speakman 2006). None of these can be associated clearly by age or cultural affiliation, nor can they be assigned with certainty to a stratigraphic layer.

The thick sand and silt deposits, good preservation, and excellent stratigraphy, make this site of major potential significance. It was not possible to fully assess this deeply buried site due to the time constraints of our limited testing program. Although no detailed cross correlations have been made between the stratigraphy of XMH-838 and XMH-297 (Bacon and Holmes 1980), the two are remarkably similar. The lowest paleosol at XMH-297 has been dated to between 8555±380 and 7190±200 BP, while the P7 paleosol at XMH-838 dates to 8810±60 BP. These appear to be related to a widespread forest soil formation event, documented throughout Interior Alaska (e.g. Mason et al. 2001; Potter 2005).

BERRY CREEK (XMH-869)

Overview and Setting: The Berry Creek Site, located about 15 km west northwest of Dot Lake, is situated on

a south-facing bluff that overlooks a broad alluvial flood plain and Berry Creek. Canopy vegetation consists of an open black spruce forest with aspen, birch and white spruce dominating the bluff edge at the southern end of the site. The understory is dominated by moss. The site was discovered and investigated by NLUR archaeologists in 2001 during subsurface testing on the bluff, and 45 50 x 50 cm shovel tests were excavated within a 27,000 m^2 area (Potter et al. 2002) (Fig. 9).

Stratigraphy and Dating: The Berry Creek Site is located on an area of the bluff where sediment deposits tend to be shallow (less than 50 cm below surface level). The site stratigraphy is characterized as a thick organic forest soil and root mat (7–13 cm thick) overlying sandy silts and poorly sorted pebbles (approximately 17 cm thick). The percentage of pebbles mixed with silt increases with depth, as does pebble size. Fine to coarse-grained sand mixed with poorly to well-rounded pebbles and cobbles extends below 50 cm in depth. Dates of the cultural component(s) at the Berry Creek Site have yet to be determined.

Cultural Material and Discussion: A total of 118 lithic artifacts were observed in 19 of the 45 shovel tests within 12,000 m^2 along the southern edge of the bluff. The artifacts were found between 7–35 cm below the surface level and include two dacite unifaces, one cobble hammerstone, and 115 flakes made of a variety of materials from obsidian, chert, dacite, and rhyolite. The Berry Creek Site appears to be an extensive lithic scatter that covers a large area of the bluff's southern edge. The range and diversity of lithic materials and the site's large size compared to other Interior Alaska sites are noteworthy.

TOK TERRACE NORTHEAST (TNX-088) AND TOK RIVER OVERLOOK (TNX-089)

Overview and Setting: The Tok Terrace Northeast site is situated on a terrace edge that overlooks the Tanana River and its adjacent flood plain to the northeast, approximately 10.5 km east of Tok. The Tok River Overlook Site is located approximately 2.4 km west of the Tok Terrace Northeast site along the same terrace. The Terrace Site (TNX-033) is located approximately 2.4–3.2 km south of the two sites, and is situated on the southern edge of the same terrace (Sheppard et al. 1991). The Tok River Overlook Site overlooks the Tok River and its adjacent flood plain to the west. The terrace is approximately 5–10 m above the flood plain and former river channels of the Tanana and Tok rivers. A majority of the open black spruce forest vegetation within the areas surrounding the sites was burned in the 1990s by natural forest fires, and a number of early successional species such as fireweed, grasses, and aspen saplings are recolonizing the area. The sites were discovered and investigated by NLUR archaeologists in 2001 during subsurface testing of the terrace (Potter et al. 2002). At the Tok Terrace Northeast site, 53 50 x 50 cm shovel tests and three 1 x 1 m test excavations were placed within a 7,800 m^2 area. At the Tok River Overlook Site, 65 50 x 50 cm shovel tests and 4 1 x 1 m test excavations were placed within a 6,000 m^2 area. The depth of the subsurface tests ranged from 30 cm to 150 cm below the surface. Thirteen of the 53 tests excavated at the Tok Terrace Northeast site were positive for cultural material, while 25 of the 65 tests placed at the Tok River Overlook Site yielded artifacts (Potter et al. 2002) (Fig. 10).

Stratigraphy and Dating: The stratigraphy is similar at both sites and can be generalized as a thin forest mat (approximately 4 cm thick) overlying a silt (loess) deposit

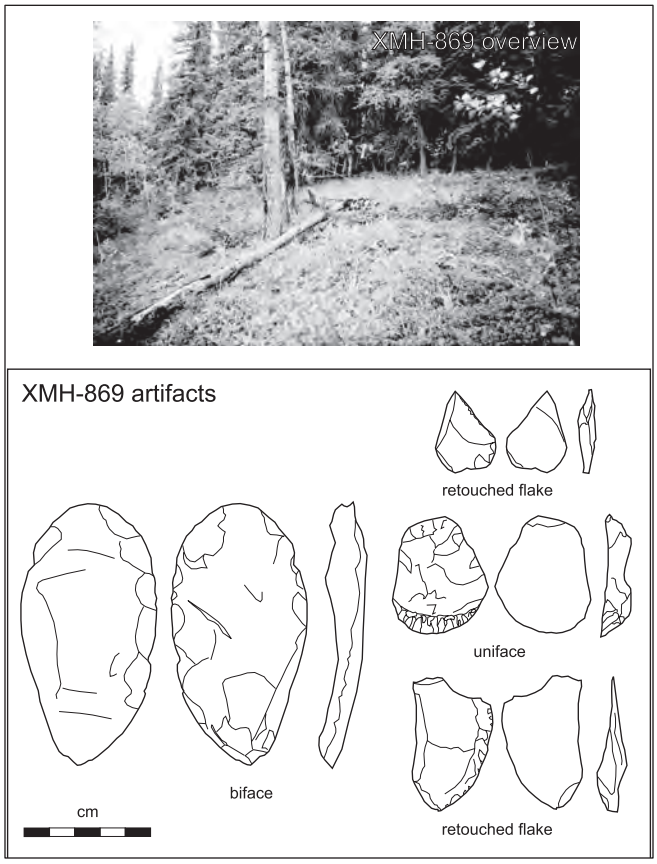

Figure 9. Berry Creek overview, artifacts, and stratigraphy.

mixed with discontinuous white volcanic ash (approximately 5 cm thick). Based on field observation, the ash appears to be White River Ash; however, petrographic and geochemical analyses have yet to be conducted. The silt loses the traces of the ash and begins to grade into an underlying reddish grey silt, followed by yellow sandy silt to about 20 cm below surface. The ash was likely reworked into a lower silty deposit similar to processes observed at the Terrace Site (Sheppard et al. 1991). Beyond a depth of 20 cm, alluvial silts mixed with outwash gravels are found below 150 cm below surface. The artifacts were consistently found between 5–15 cm below the surface level in and below the silt mixed with ash layer. The two sites also are similar in stratigraphy to the Terrace Site, where Sheppard et al. (1991; also see Bigelow and Steffian 1992) determined that a majority of the artifacts were discarded within loess overlain by White River Ash. The volcanic ash was subsequently reworked into the upper portions of the lower silt, probably through cryoturbation (Sheppard et al. 1991:42–43). A noncultural radiocarbon date of 5110±100 BP was obtained on organic materials from a contact between the silt deposit and outwash gravels at the Terrace Site, assumed to be the maximum age of the silt deposit (Sheppard et al. 1991:20). A date range for occupation(s) at the Tok Terrace Northeast and Tok River Overlook sites can thus be estimated between 5100 BP and 1900–1500 BP (see Lerbekmo et al. 1975; and Robinson 2001 for the extent and dating of the northern lobe of White River Ash).

Cultural Material and Discussion: At the Tok Terrace Northeast site, 13 test pits produced over 200 lithic artifacts that were primarily debitage made from a variety of materials including basalt, chert, and chalcedony. At the Tok River Overlook Site, 25 test pits yielded almost 600 lithic artifacts, seven large mammal cortical bones, and several smaller unidentifiable bone fragments. Among the lithic artifacts recorded at the Tok River Overlook Site were three wedge-shaped microblade cores, 20 micoblades, one microblade core tablet, two bifaces, one uniface, two retouched blades, five retouched flakes, and one amorphous flake core fragment. The lithic artifacts were composed of a variety of raw materials that included basalt, obsidian, and a variety of cherts.

TNX-078 and TNX-079

Overview and Setting: TNX-078 and TNX-079 are located about 31.2 km east southeast of Tok and are situated on a low south-facing alluvial terrace overlooking the

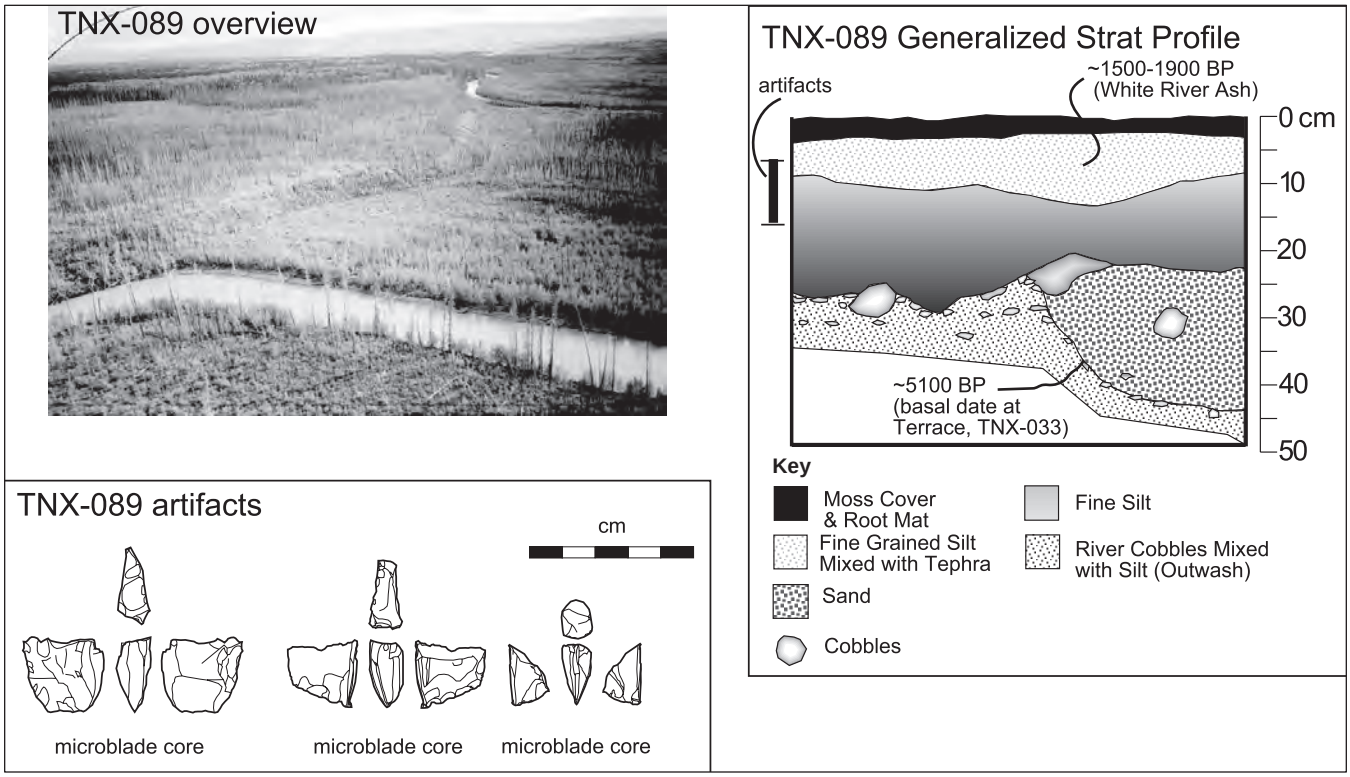

Figure 10. Tok Terrace Overlook overview, artifacts, and stratigraphy.

Tanana Flats. The sites are located within approximately 1.6 km of each other. Vegetation along the terrace consists of an open black spruce/birch forest canopy with a thick moss forest soil and root mat understory. Muskeg and low-lying marshes interspersed with small lakes, streams, and creeks that characterize the Tanana Flats are located approximately 300 m to the south of the terrace. A majority of the vegetation along the terrace has been burned by natural forest fires. The sites were discovered and investigated by NLUR archaeologists in 2001 (Potter et al. 2002). Twenty-three 50 x 50 cm shovel tests were placed within a 600 m^2 area at TNX-078, and 22 tests were placed within a 6400 m^2 area at TNX-079. Shovel test depths varied between 50–100 cm at each site. One of the 23 shovel tests excavated at TNX-078 produced over 77 lithic artifacts and 11 bone fragments. Three of the 22 tests conducted at TNX-079 produced 10 lithic artifacts (Fig. 11).

Stratigraphy and Dating: At TNX-078, the stratigraphy consists of a shallow moss forest soil and root mat (2–8 cm in thickness) immediately overlying sandy silt (15 cm thick). A discontinuous lens (1–4 cm thick) of white volcanic ash, which appears to represent the White River Ash based on field observation, underlies the upper sandy silt deposit. A deposit of mottled sandy silt underlies the ash deposits and grades to a coarser silt at 40 cm; this in turn overlies a coarse gray sand below 100 cm. Artifacts from a single shovel test were recovered from a depth between 15–17 cm below the surface, just above the ash layer. The stratigraphic sequence at TNX-079 consists of a shallow burned moss forest soil and root mat (2–4 cm thick) overlying a 25–30 cm thick deposit of silt. The upper 10–15 cm of silt has discontinuous lenses of white volcanic ash. At 25–30 cm below the modern surface vegetation, silt grades into light brown sand containing reddish clay lenses approximately 5 cm thick. Underlying this, at a depth of 30–35 cm, are gravels of schist and granite, intermixed with silt that extends beyond 50 cm in depth. Artifacts were found in three tests at approximately 15 cm below the surface level and immediately above the tephra. Based on the dating elsewhere of the White River Ash, a lower limiting age of 1,500–1,900 radiocarbon years can be estimated for these two sites (Lerbekmo et al. 1975; Robinson 2001).

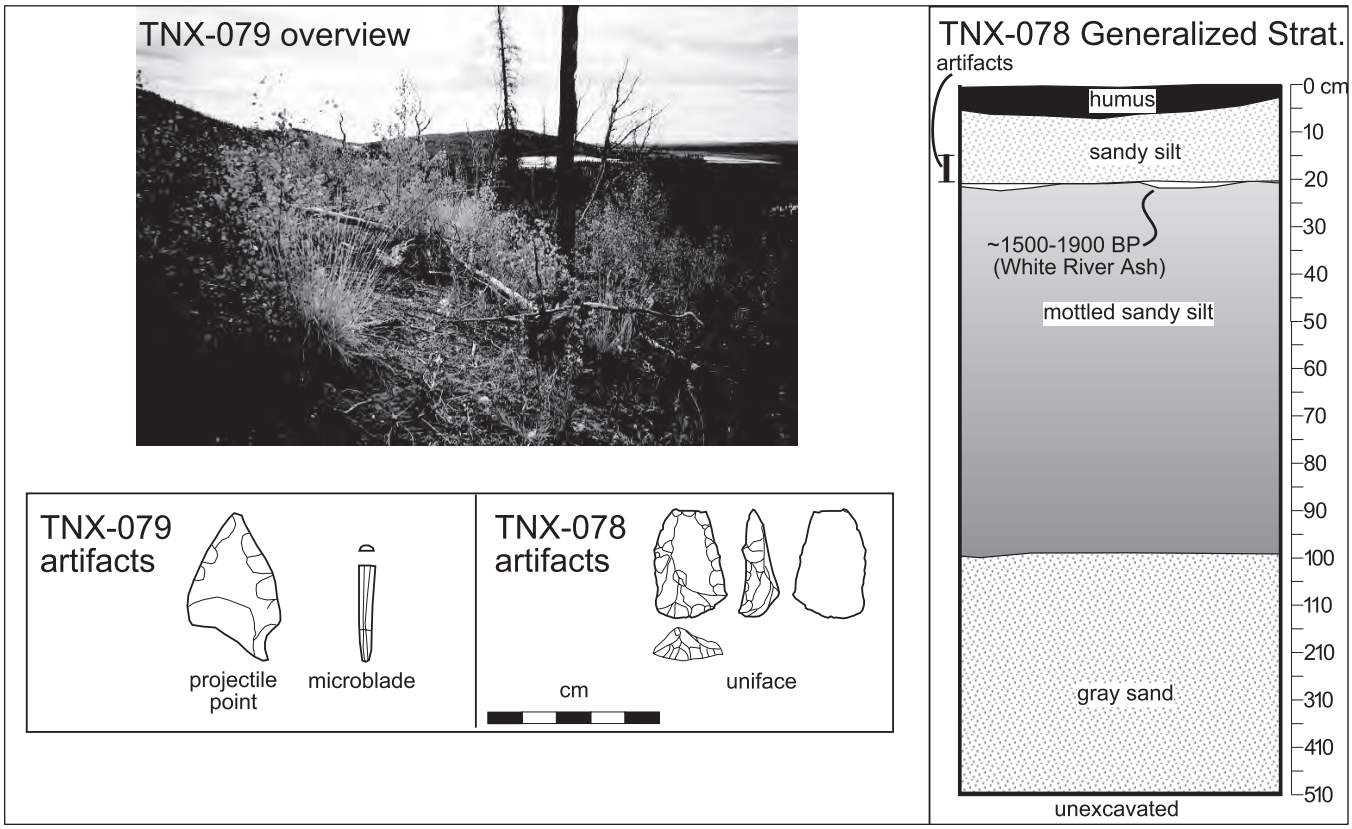

Figure 11. TNX-078, TNX-079 overview, artifacts, and stratigraphy.

Cultural Material and Discussion: At TNX-078, a single test pit yielded 66 lithic artifacts and 11 small mammal bone fragments. Among the lithic artifacts observed at TNX-078 are a black obsidian unifacially retouched scraper, 63 obsidian flakes, and two black chert flakes. At TNX-079, 20 lithic artifacts and six animal bone fragments were observed on the surface of the terrace within an estimated 3600 m^2 area. The surficial lithic artifacts included one obsidian microblade, one dark grey chert uniface, a reddish-brown chert side-notched point, 15 smoky black obsidian flakes and two dark grey basalt flakes. Three test units within this area produced a total of 11 lithic artifacts that include four grey chert flakes and seven black basalt flakes.

DISCUSSION

For the purposes of placing these assemblages within cultural frameworks, a brief review of some existing cultural chronologies is appropriate. A number of archaeological constructs have been postulated on the basis of a few excavated assemblages and rather limited intersite variability studies (e.g., Bacon 1976, 1987; Cook 1969; Dixon 1985, 2001; Goebel et al. 1991; Hamilton and Goebel 1999; Holmes 1974, 2001; Powers and Hoffecker 1989; West 1967, 1981, 1996). Terms used to describe Interior Alaska assemblages variously include American Paleoarctic Tradition, Denali Complex, Nenana Complex, (Northern) Paleoindian Tradition, Chindadn Complex, Beringian Tradition, Tuktu Complex, East Beringian Tradition, and others. These groups are generally derived from presence/absence of specific tool classes (e.g., microblades) or tool types (e.g., side-notched bifaces, "Kavik," and "Chindadn" points).

Probably the most widely cited cultural chronology for the Alaska interior is Dixon (1985). While comprehensive in its scope in 1985, subsequent research has made portions of a sequence of Chindadn–American Paleoarctic–Northern Archaic–Athabascan somewhat untenable (cf. Bever 2001). For example, recent work has clearly demonstrated that microblade technology (with wedge-shaped microblade cores) is present from the earliest components: Swan Point CZ 4a and 4b, (Crass and Holmes 2003; Holmes 2001) to some of the latest: Healy Lake Village and Garden sites (Cook 1969), Lake Minchumina Levels 1–3 (Holmes 1986), Swan Point CZ 1a (Holmes 2001), Fish Creek Concentration A11 (Cook 1977), and Dixthada Component 1 (Shinkwin 1979). This paper documents three additional components with Late Holocene microblade technology (Owl Knoll, Tok Terrace Northeast, and TNX-079).

In practice, only a few items generally considered to be culturally diagnostic have been considered sufficient to establish or posit a cultural affiliation (e.g., discussion of Chindadn points in Robertson et al. 2005: 62, 125). For the Late Pleistocene/Early Holocene period, essentially two "diagnostics" have been promulgated: "Chindadn" points and variable presence/absence of microblade technology (see Potter 2005:70–74). While no Chindadn-like bifaces were found at the components described in this paper, the temporal distribution of microblade technology is contrary to expectations from established cultural chronologies. A number of Early Holocene components, situated in the timespan of the Paleoarctic Tradition or Denali Complex (defined primarily on the basis of microblade technology) have not yielded microblades, such as Little Delta Creek #3 components, Houdini Creek, and HEA-327, described in this paper, as well as other sites in the broader Tanana Basin, such as Gerstle River Component 1 (Potter 2005), and Erodaway (Holmes 1988). While sample size might be a factor in the absence of microblade technology at some of the sites, this is likely not the case at Gerstle River, Erodaway, or Houdini Creek. Thus, a more complex relationship of assemblage variability affected by technological organization, site structure, and site function may be reflected in these patterns. It is beyond the scope of this article to develop cultural chronological units more consistent with the data; however, we discuss cultural chronology of the Tanana Basin based on the data presented above.

A consistent pattern revealed by these disparate sites is that of technological conservatism throughout the Holocene. A number of the components presented here contain microblade technology in the later Holocene (<5,100 BP). Microblades were found at Owl Knoll and TNX-079, and wedge shaped microblade cores were found at Tok River Overlook. Another pattern is the variability in bifacial forms, especially projectile points, in the Late Pleistocene and Early Holocene. Within the period 12,000 to 7,000 years BP, projectile point types include tear-drop or "Chindadn" points (Type 1 as described by Holmes 2001) found at Walker Road, Moose Creek, and Chugwater (Maitland 1986; Lively 1988), short triangular points (Holmes' 2001 Type 2) found at Healy Lake, Owl Ridge, and Swan Point, concave-based lanceolate points (Holmes 2001 Type 3) found at Ero-

adaway (Holmes 1988), Jay Creek Ridge (Dixon 1993), convex or bipointed lanceolate points (Holmes 2001 Type 4) found at Houdini Creek and HEA-327, spatulate lanceolate points found at Dry Creek Component 2 (Powers et al. 1983), and flat-based lanceolate points found at Dry Creek Component 1 and Moose Creek (Hoffecker 1996). The association of microblades with a lanceolate projectile point form is demonstrated at Owl Knoll in the later Holocene. Microblades and notched projectile points are possibly associated at TNX-079. The association of notched bifaces and microblades is well demonstrated by Cook and Gillispie (1984). The presence of multiple weapons systems suggests that microblades may represent one or more functional categories within assemblages rather than performing the same function (dart tip) within different demes or cultures.

The sites discussed here are also important in understanding assemblage variability and site structure, despite the fact that limited testing has been conducted to date. Some sites or components (e.g., Houdini Creek, Hurricane Bluff Component 1) exhibit thin deposits of cultural material suggestive of single occupations, while others have thick cultural deposits perhaps indicative of multiple occupations or longer term use (Little Delta Creek #3). Little Delta Creek #3 in particular is illustrative of how established cultural chronologies cannot adequately deal with Holocene variability. The cultural material at this site contains almost exclusively early stage primary reduction and bifacial reduction with no evidence of microblade technology that is considered widespread at ca. 10,000 BP. Houdini Creek bifaces are similar to those at Carlo Creek (Bowers 1980) and Dry Creek Component 2 (Powers et al. 1983; cf. Bowers et al. 1995). Variability in assemblage characteristics as well as typology suggests that site structural studies may be critical in understanding how tools and sites were used in systemic contexts. Such studies will be important in developing cultural chronologies that more accurately reflect intersite variability.

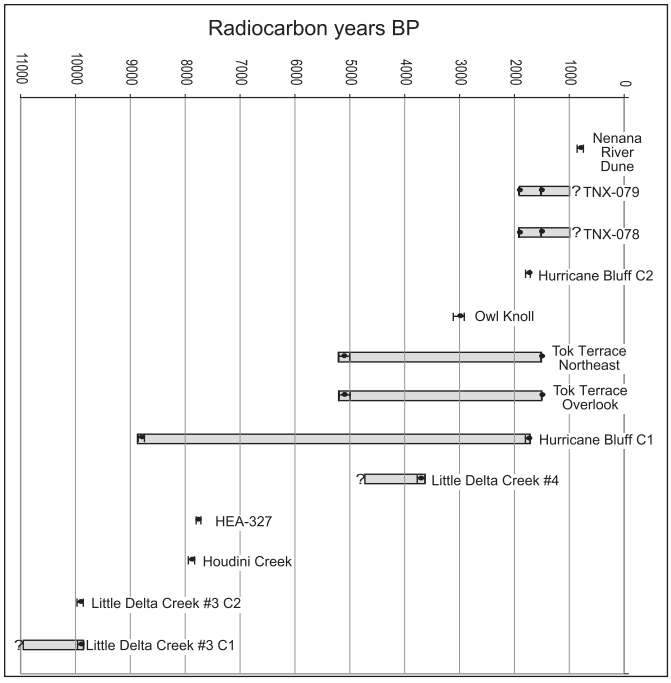

Figure 12. Radiocarbon dated components.

When these data are considered within the wider context of Tanana Basin archaeology, the technological conservatism discussed above is even more evident, with wedge-shaped and sub-conical microblade core varieties, flake burins, various unifacial forms, lanceolate biface forms, and boulder spall scrapers present throughout the record (see site summaries in Dixon et al. 1980; Dixon et al. 1985; Holmes 1979; Potter et al. 2002).

A reasonable conclusion is that microblade technology and generalized projectile point forms may not be considered to be culturally diagnostic. A re-evaluation of archaeological constructs in Interior Alaska therefore seems appropriate. Assemblage variability should be incorporated into any such future analyses given the variation of assemblage characteristics described in this paper. The possibility that the composition of components may reflect both technological and typological traits in addition to other variables such as technological organization, site structure and site location should be addressed.

More refined dating and block excavations (with consequent control of horizontal space) are necessary for many of the sites presented here to fully explore technological, spatial, and assemblage variability. There are few large excavated sites in the Tanana basin, and the investigations conducted to date have revealed substantial variability in assemblage characteristics and tool types within sites (compare Mobley 1991 with Pearson and Powers 2001; see also Cook 1969; Maitland 1986; Lively 1988; Potter 2005). Detailed technological and typological studies are necessary in order to document the nature of the variability in various formal and expedient tool forms. Site structural studies at an intrasite level (e.g., Hoffecker 1983a, b; Potter 2005), and usewear analyses (e.g., Flannigan 2002) are necessary to develop and test hypotheses about site utilization, technological organization, and tool use; these in turn will provide insights into settlement systems and subsistence strategies of these populations.

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TWO NORTHERN ARCHAIC TENT RING SETTLEMENTS AT AGIAK LAKE, CENTRAL BROOKS RANGE, ALASKA

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ABSTRACT

Agiak Lake in the central Brooks Range exhibits both a high density and a wide array of archaeological features, including lithic scatters, campsites, lookouts, hunting blinds, and caribou drivelines composed of hundreds of *inuksuit* (stone cairns). Of particular interest are two tent ring complexes at either end of the lake and their possible association with two caribou driveline complexes. These archaeological features are examined using a distributional approach to archaeology that emphasizes spatial relationships and high-resolution GPS mapping of individual archaeological features and de-emphasizes the delineation of "sites." Analyses of the distribution of lithic artifacts and their primary association with the tent rings suggest a Northern Archaic tradition occupation of both tent ring sites. Charcoal found in hearths within the tent rings produced radiocarbon dates ranging from 3690 cal. years BC to 2940 cal. years BC. The spatial association of the drivelines and tent rings on the landscape surrounding Agiak Lake may indicate an association between the Northern Archaic tent rings and the caribou drivelines.

Keywords: Mid-Holocene, caribou driveline hunting, archaeology

INTRODUCTION

Throughout the central Brooks Range, prehistoric people have left extensive evidence of their presence on the landscape. These traces indicate a vast array of activities, broadly distributed across the landscape and variable by season. Agiak Lake in the central Brooks Range exhibits both a high density and a wide array of archaeological features, including lithic scatters, campsites, lookouts, hunting blinds, and caribou drivelines composed of hundreds of *inuksuit* (stone cairns). Of particular interest are two tent ring complexes at opposite ends of the lake and their possible association with the caribou drivelines. This configuration of archaeological features reveals some rarely glimpsed behaviors in the Brooks Range such as communal caribou hunting, specialized hunting technologies, comprehension of caribou behavior, and seasonal land-use.

In order to better understand the archaeological features at Agiak Lake, we employed a "distributional" approach to emphasize the importance of individual archaeological features and artifacts and recognize the importance of landscape and topography to the distribution of these features (Dunnell and Dancey 1983). This approach avoids imposing arbitrary site boundaries on distributions of features and artifacts and allows the examination of spatial patterns in the archaeological record. This in turn produces

more informed inferences as to the possible interrelatedness of features across the landscape and the relationship of these features to the landscape. When viewed graphically, a distributional approach can show patterns among archaeological features that are obscured by their aggregation into single sites. Highly accurate global positioning system (GPS) receivers and geographical information system (GIS) software has made this approach economically feasible and more powerful in helping archaeologists with field data collection and analysis.

Stone tent rings and caribou drivelines are fairly common elements of central Brooks Range archaeology. Stone tent rings are circles of stones likely used to secure the edges of domed caribou-skin-covered tents (Binford 1978; Burch 2006; Campbell 1962; Corbin 1976; Gubser 1965; Hall 1976). Drivelines were used to aid in caribou hunting by guiding caribou in desired directions, often ending at bodies of water where hunters in kayaks could easily dispatch the swimming animals. Ethnographic and archaeological examples of this method of hunting exist for much of the Arctic (Balikci 1970; Binford 1991; Birkett-Smith 1929; Brink 2005; Burch 1998, 2006; Gronnow et al. 1983; Gubser 1965; Mathiassen 1927; Rasmussen 1930; Spearman 1986; Steffanson 1921; Stewart et al. 2000). Past researchers have reported dozens of sites and hundreds of tent rings and *inuksuit* scattered throughout the Brooks Range, especially along rivers and near mountain lakes (Alexander 1969; Binford 1991; Campbell 1962; Davis et al. 1981; Hall 1976; Kunz 1986; Tremayne 2006). However, describing and interpreting these sites has not been a central focus of most archaeological work, and there are few absolute dates associated with them. It has conventionally been assumed that most tent rings and drivelines in the central Brooks Range are the result of historic or protohistoric occupations of the inland-dwelling Nunamiut Eskimos or northern bands of Athabascan Indians (Amsden 1977; Campbell 1976; Corbin 1976; Davis et al. 1981; Gubser 1965; Kunz 1986); however, these assumptions are typically not based upon radiocarbon dating or artifact typology. While north Alaskan proto-historic and historic peoples certainly constructed tent rings, the limited chronological data on tent ring structures prompted us to investigate two tent ring clusters at Agiak Lake with the hope of clarifying the age of these particular settlements. The impressive number of tent rings at Agiak Lake increased our interest in the locale and further directed the focus of our research. Also, the possibility that these features may have been associated with the massive caribou driveline systems at Agiak Lake generated an even higher degree of interest. Although the archaeological record at Agiak Lake includes a wide variety of sites and features, this paper will focus on the tent ring complexes and drivelines near the lake.

Agiak Lake lies just south of the continental divide, nearly 56 km east-southeast of Anaktuvuk Pass (Fig. 1). It is one of several large lakes in the Chandler Lake valley, a wide mountain pass that serves as a natural corridor between the North Slope tundra and the forested valleys and hills south of the Brooks Range. At 950 m above sea level the vegetation is a mixture of alpine tundra, dryas, and notably sparse willow growth concentrated along several small, winding creeks. Ethnographic accounts of people living in the central Brooks Range place a high level of importance on willow for establishing campsites, especially in winter (Binford 1978; Campbell 1962; Gubser 1965; Spearman 1979). The current sparse willow cover at Agiak Lake may account for the lack of more historic and modern sites in the area. The soil is thin and rocky, especially at the bases of the three rugged mountains that rise above the lake.

Agiak Lake was chosen for this project based on the abundance and variety of known archaeological features in the area. The lake was originally inspected by Alexander (1969) during the late 1960s as part of his dissertation research on the archaeology of the central Brooks Range. However, it was not until the mid-1980s that a systematic investigation of the area was undertaken by the National Park Service (NPS) as part of an initial cultural resources survey following the establishment of Gates of the Arctic National Park and Preserve (Kunz 1986). Along with documenting a substantial number of sites throughout the park, the 1985 field crew located more than 40 sites within 3 km of Agiak Lake. The unpublished 1986 report remains the most complete account of archaeological resources at Agiak Lake. During the subsequent 20 years, NPS archaeologists have periodically visited the lake to conduct additional surveys, investigate the condition of known archaeological sites, and update archaeological databases (Saleeby 1996; MacIntosh 2001).

RESEARCH GOALS

Previous research at Agiak Lake raised several questions concerning its archaeological record. In the vicinity of the lake the 1985 NPS field crew reported four discrete tent ring clusters—three in close proximity northeast of the lake

and the other located just southeast of the lake. According to the 1986 report, the three northern sites—XCL-089, XCL-090, and XCL-091—consisted of six, one, and five tent rings respectively for a total of 12 features, while the southern site, XCL-118, included nine tent rings.

During a 2001 NPS site visit, archaeologists revisited the northern tent ring sites and discovered an additional three tent rings within the cluster designated as XCL-089, thereby raising the number of tent rings at that site to nine and bringing the total number of tent rings in the northern cluster to 15. MacIntosh (2001) noted some difficulty in locating the stone structures due to the surrounding terrain—a boulder field created by ancient rock-fall from a nearby mountain. Despite the difficulty in locating additional tent rings, their discovery made Agiak Lake the setting for some of the most substantial tent ring clusters in northern Alaska. McIntosh (2001) also mentioned the possibility that more tent rings may be found in the area and that the three sites may eventually be merged together as one large complex. Therefore, some of the primary concerns of the 2005 research were to discover new tent rings, to determine if the individual rings may have been simultaneously occupied, and to establish whether the tent ring complexes may be associated with one another.

The 1985 field crew also documented large quantities of lithic materials within and around the tent ring structures, including dozens of finished tools and hundreds of waste flakes. The tent rings were initially assumed to be much younger than the lithics, which were reasonably assumed to be prehistoric (Kunz 1986). Although the lithic assemblages at both the northern sites and the southern complex appeared similar, a side-notched projectile point

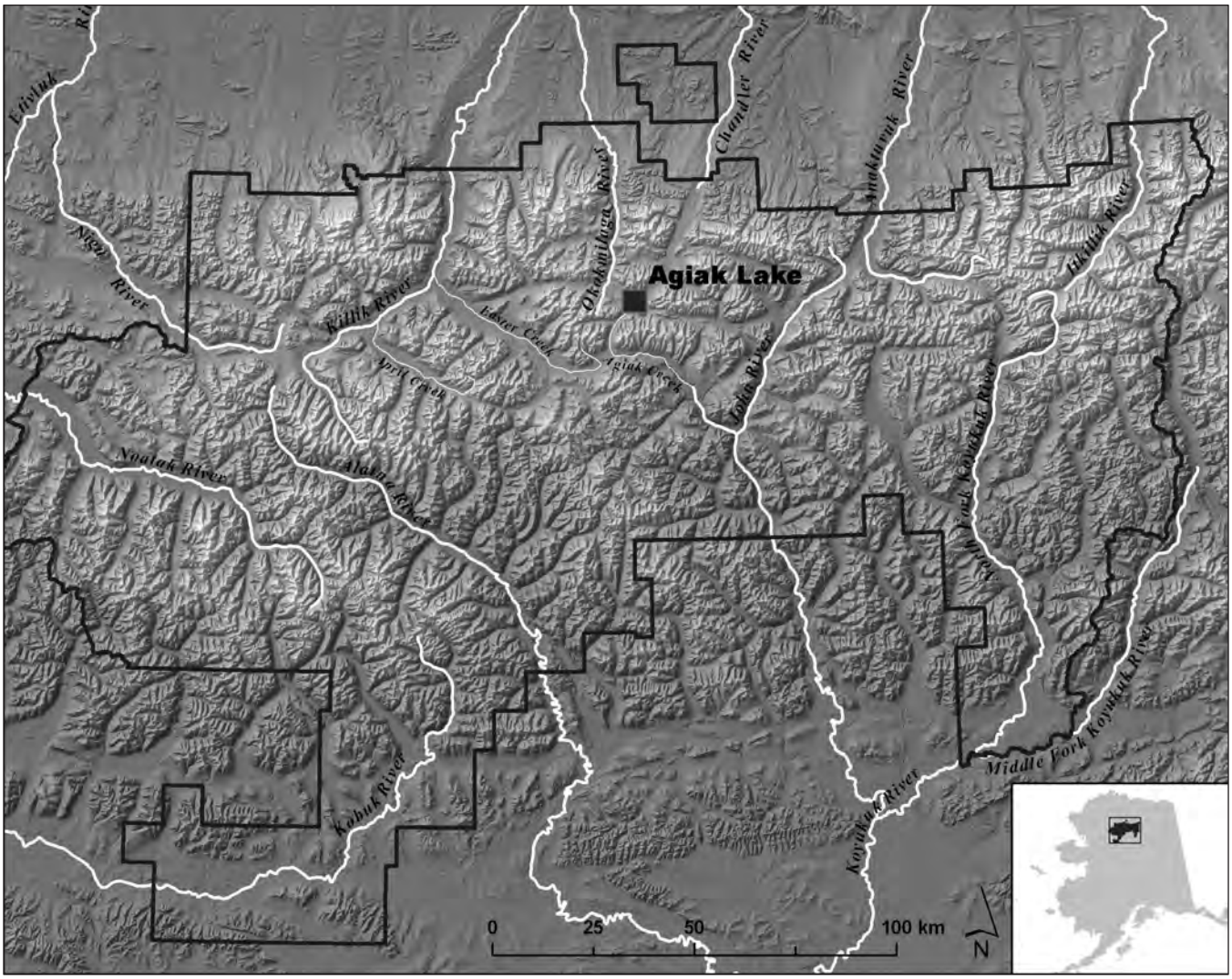

Figure 1. Location of Agiak Lake and Gates of the Arctic National Park and Preserve in the central Brooks Range, Alaska.

discovered at the southern site suggested a more ancient lithic assemblage. Side-notched projectile points are often attributed to the Northern Archaic tradition (Anderson 1968), which dates to between 4500 to 6500 years BP in northern Alaska (Anderson 1988; Campbell 1962; Lobdell 1986, 1995). Based on this information, Kunz (1986) proposed that more recent historic or protohistoric tent rings were superimposed on much older lithic assemblages and the spatial associations were coincidental. We set out to test this assumption and discover whether or not the tent rings and lithic materials were indeed contemporaneous by attempting to acquire datable material from test excavations within the tent rings and examining associations between the ancient lithics and the structures.

In addition to the information reported on the tent ring sites, two substantial caribou drivelines were described by previous investigators (Kunz 1986; Saleeby 1996; MacIntosh 2001). The drivelines are located in a smaller east-west-trending valley separating the two tent ring complexes east of Agiak Lake (Fig. 2). The details of these drivelines were variously recorded, but little effort was given to dating or associating them with other sites located around Agiak Lake, other than possible associations to nearby hunting blinds. We wanted to address the possibility that the large sites at Agiak Lake—the tent ring sites and the caribou driveline complexes—were built and used by the same people. Although it is typically assumed that driveline hunting in Alaska is a relatively recent phenomenon, Ackerman

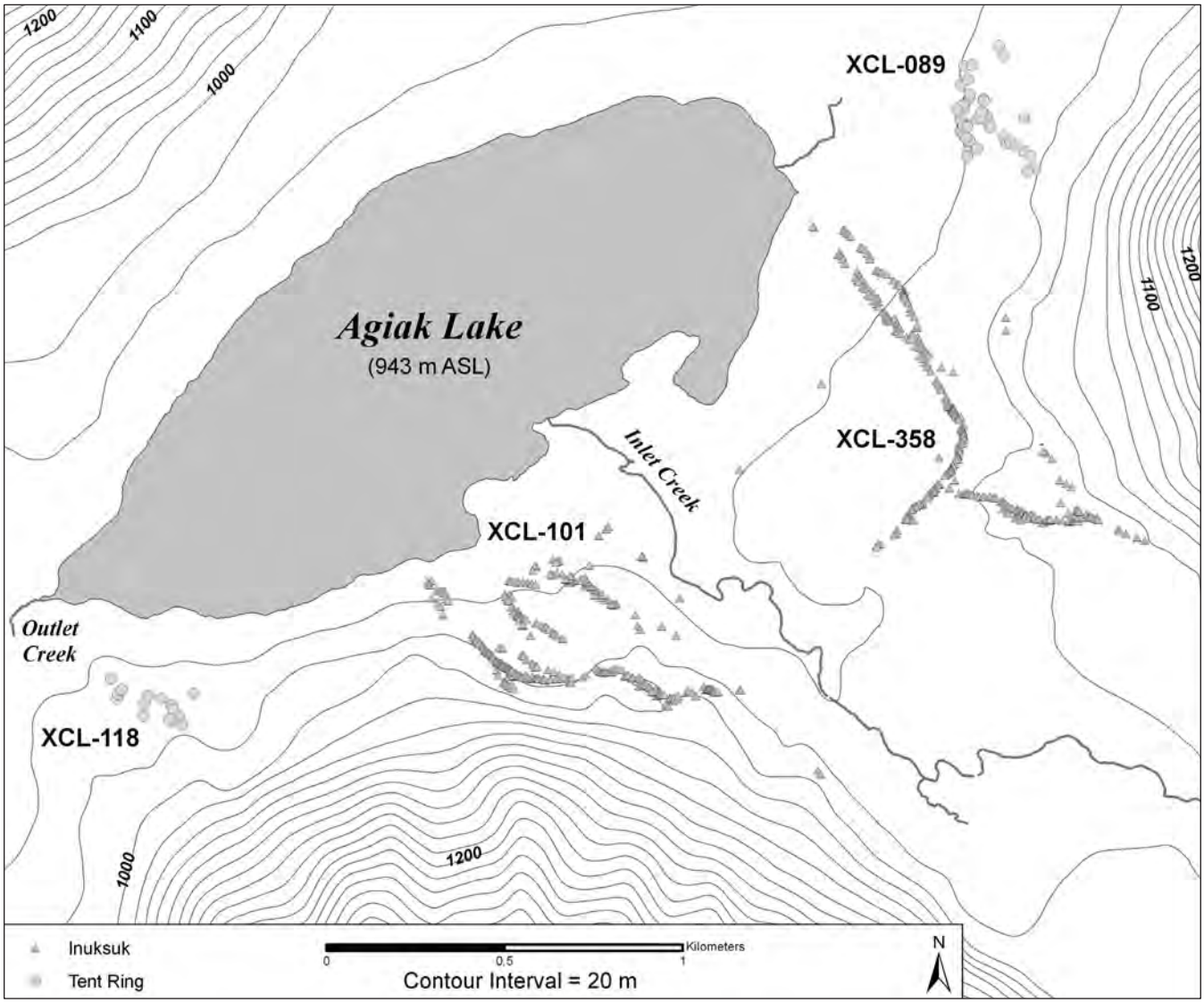

Figure 2. Tent ring and driveline complexes as mapped in 2005 at Agiak Lake.

(2004) has proposed that perhaps this technique may be as old as the Northern Archaic tradition.

METHODS

With access to prior archaeological field maps, the sites at Agiak Lake proved easy to relocate. Once the known tent rings were established, transects were walked at roughly 5 m intervals over the entire surrounding terrain. The survey identified many more tent rings than previously described, although it required careful examination to distinguish the tent rings in the boulder-field terrain. Also, the tent rings were often poorly preserved, obscured by vegetation and lichen cover, and/or occasionally deformed by frost cracks. The effects of cryoturbation are minimal, and none of the tent rings appear to be the result of frost action, such as cryogenic sorting. Although many additional tent rings were discovered during the initial pedestrian survey, we continued to find new tent rings right up until the last day of fieldwork. For this reason, it is conceivable that concealed tent rings remain to be discovered during future site visits.

Each tent ring was sketched at a large scale using a 4 x 4 m grid system, focusing on the rocks visually identified as part of the tent ring wall and on other important features such as nonportable boulders, frost cracks, and prominent vegetation. We recorded attributes of each tent ring, such as diameter, shape, rock number, presence or absence of hearths or entryways, and orientation (Tremayne 2006). The physical location of each tent ring was mapped using a Trimble GeoXT GPS receiver. This GPS unit generated better than 1 m accuracy, which allowed for each tent ring sketch to be georeferenced into a GIS map. This technique can be visualized as establishing small chunks of floating 4 x 4 m grid around each tent ring that were then tied together using their geographic coordinates with < 1 m accuracy. This routine was fast and economical and provided adequate precision to address questions about feature distribution and site structure by modeling the distributions of archaeological features. The Trimble GeoXT also has the ability to record feature attributes, further enhancing the GIS maps and our ability to query the data to answer research questions.

We excavated 1.0 m^2 test units in nine of the tent rings to obtain materials for radiocarbon dating and to sample subsurface artifacts for detailed lab analysis. Tent rings containing sediments and those associated with artifacts were given preference for testing. Surface vegetation was typically sparse, composed of grasses, sedges, lichen, and moss. Underlying sediments were shallow and consisted of poorly sorted gravelly or sandy silt averaging 15 cm in depth and terminating in frost-shattered regolith. Each unit was excavated several centimeters into the regolith, which was devoid of cultural materials. Because of the shallow nature of the soil and the absence of identifiable stratigraphy, the test units were excavated as a single stratigraphic unit. All excavated material was screened through ¼-inch mesh.

Surface artifacts and artifacts beneath tent ring rocks were described. The ground surface outside the tent rings, but still within the complex area, was also examined in order to locate artifacts deposited outside the tent rings. All surface artifacts were analyzed in the field and returned to their original locations, while subsurface artifacts were provenienced and collected. We took a technological approach to lithic debitage analysis, with an emphasis on placing the flakes into a manufacturing continuum (Flenniken 1981). Upon returning from the field, we analyzed the material recovered from test units. The results of these analyses allowed comparison of the tent rings based upon assemblage characteristics and provided information on occupation activities.

SITE OVERVIEWS

TENT RING COMPLEXES

The tent ring sites both north and south of Agiak Lake share many similarities. Tent rings at both complexes are composed of a high number of stones, typically greater than 50. The tent rings are circular or oval with similar diameters and a roughly continuous ring of stones (Fig. 3). Ring stones at both sites are heavily weathered, covered with lichen, and where they lie on vegetation, are deeply embedded within the vegetation mat (Fig. 4). Lithic artifacts occur within or beneath nearly all tent ring walls. Surface inspection of areas outside tent rings revealed very few lithic artifacts. The array of lithic artifacts in the assemblages, both formal artifacts and debitage, is quite similar at both complexes, as is the variety of raw materials used.

The geographic settings of the two tent ring complexes are broadly similar. They lie at opposite ends of the lake, separated by 2.5 km (Fig. 2). Both are located near the eastern side of the roughly north-south trending Agiak valley, proximal to the east-west trending inlet creek valley. Both

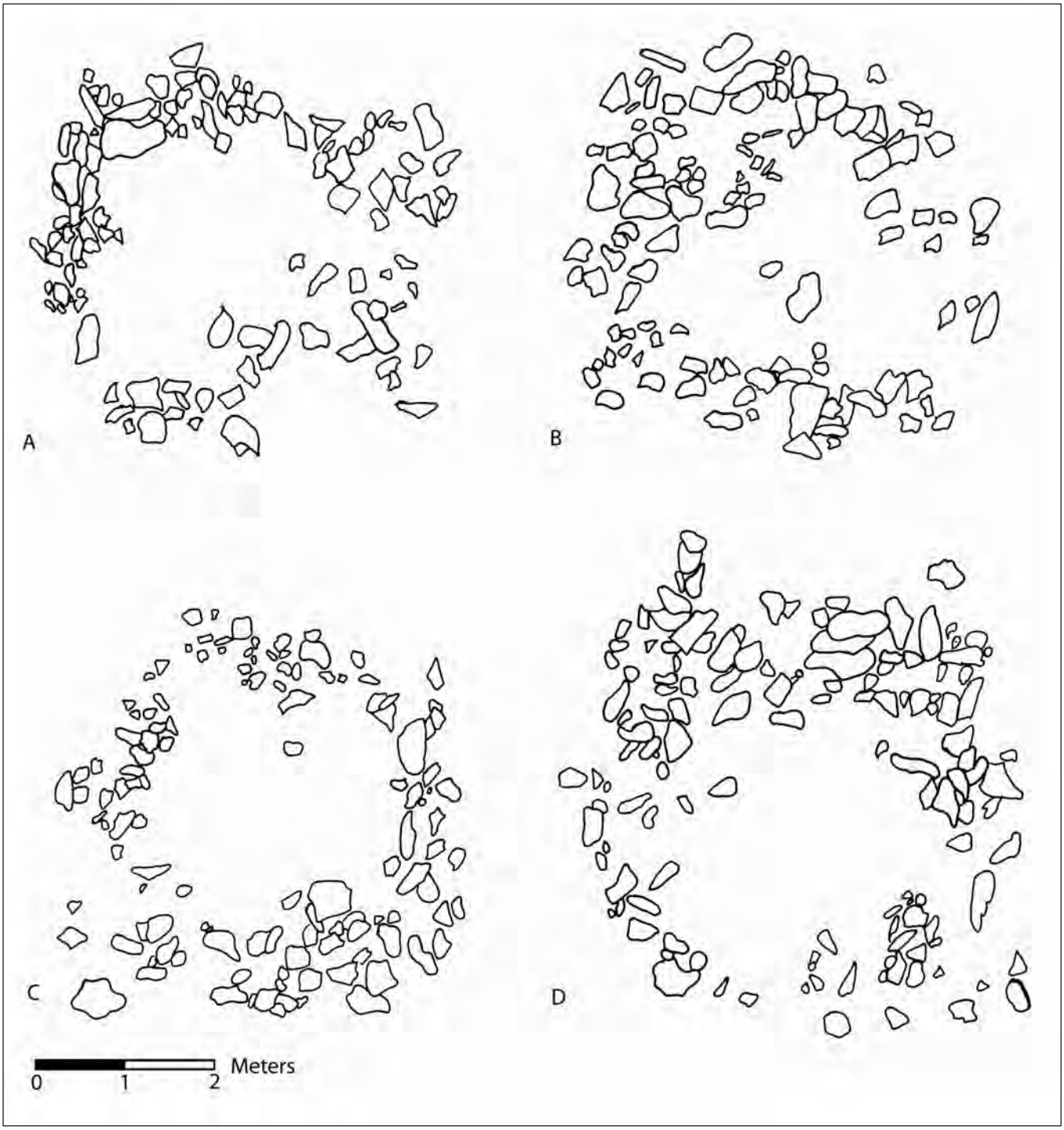

Figure 3. Plan maps of representative tent ring features: A: Site XCL-089, Feature X; B: Site XCL-089, Feature V; C: Site XCL-089, Feature L; and D: Site XCL-118, Feature I.

Figure 4. Tent rings from both the southern (bottom; white tape measure at 4 m) and northern (top) complexes.

sites are positioned near the base of boulder-strewn mountains on somewhat level plateaus above the surrounding terrain—the remnants of ancient glacial deposits and landslides. The southern complex rests on rougher, less vegetated terrain than the northern site, which has some vegetated swales. Both sites are at similar elevations above the present lake surface.

At the north end of the lake, 26 additional tent rings were discovered in the vicinity of the three previously listed tent ring sites. These new tent rings have filled in the intervening areas between XCL-089, XCL-090, and XCL-091; thus, the northern complex, now composed of 40 identified tent rings, has been redefined as one large tent ring complex, XCL-089 (Fig. 5). The complex sits 485 m from the present lakeshore and 24 m above the lake's surface. A small inlet stream flows into Agiak Lake near the site to the west-southwest. The view from the site encompasses the entire lake and valley to the south, as well as much of the terrain to the west and north. The view to the east is restricted by a 1540-m mountain. The tent rings are spread over a seven-hectare area, with many of the rings concentrated near the terrace edge that rises somewhat abruptly from the low-lying marshy grasslands just north of the lake. Vegetation in the area consists mainly of grasses, mosses, and lichens concentrated in shallow swales and within the tent ring circles. The nearest willow patch of any size is 400 m away to the south, but it is uncertain how similar this pattern is to prehistoric vegetation distribution. Although no formal spatial analyses have been conducted on the layout of the tent rings, many of the rings are regularly spaced along the small rises or within gentle swales on the terrace (Fig. 5). In several locations, groups of three to six rings are regularly spaced roughly 10 to 12 m apart, following linear topographic features.

The southern site is comprised of fewer tent rings than the northern site, with 15 identified rings located 200 m south of the lakeshore (Fig. 6). The lake's outlet creek, Agiak Creek, exits the lake just over 300 m to the northwest. The banks of this creek support the largest and densest willow patches in the region, with some trees approaching 3 to 4 m in height. The southern complex boasts views of the entire lake and much of the valley to the north, as well as terrain to the west and some of the Agiak Creek valley to the south. Views to the east and southeast are restricted by a 1,530-m mountain—the talus slope covering the mountain's foothills rises steeply less than 100 m from the complex. The complex covers an area roughly two hectares in size. Similar to the northern complex, the rings are located along the tops of small undulations in the boulder-strewn terrain as well as within the swales between ridges. Vegetation is sparse, with only small concentrations of grasses and mosses growing between boulders and within tent rings. A few dwarf birch shrubs are interspersed within the rocky outcrops. Regular spacing of tent rings at the southern complex is less apparent than at the northern complex; however, some spatial patterns are still recognizable. These clusters of three to four tent rings, positioned along the small ridgetops and slight plateaus, have a somewhat regular spacing of between 12 and 20 m (Fig. 6).

DRIVELINE COMPLEXES

Two prominent caribou drivelines stretch over the terrain east of Agiak Lake, impressive for their length and the close spacing of individual *inuksuit*. Many of the cairns are wonderfully preserved, standing precariously on end

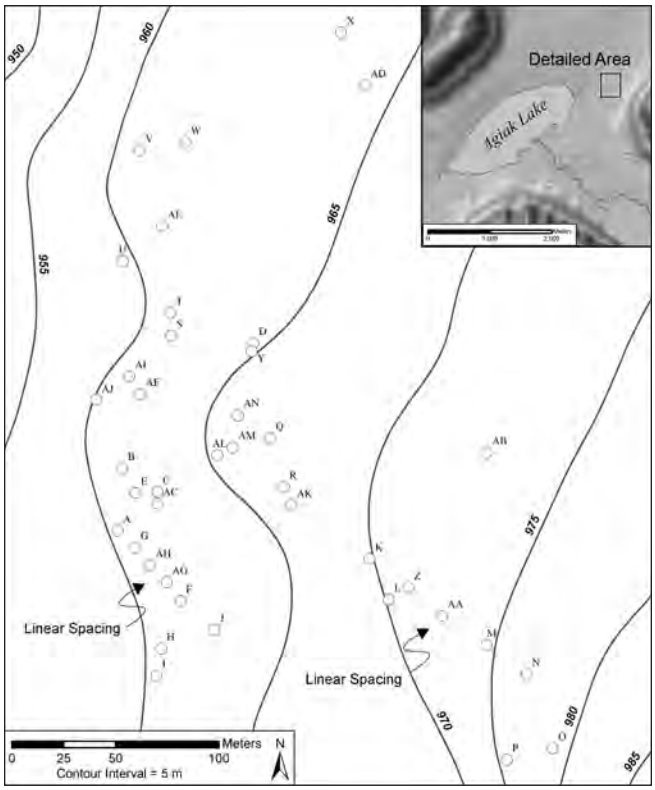

Figure 5. Detail of northern tent ring complex with examples of patterned spacing.

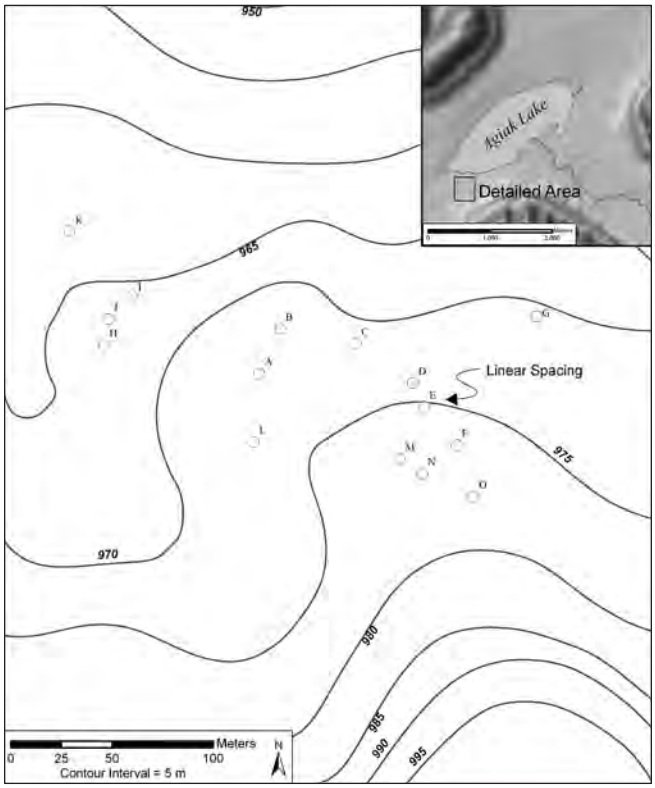

Figure 6. Detail of southern tent ring complex with examples of patterned spacing.

or carefully stacked many stones tall (Fig. 7). These lines run roughly east-west along the bases of two separate mountains and terminate near the lakeshore. The *inuksuit* in both lines follow subtle topographic features within the valley, most often located on micro-ridges or along the rocky slopes of natural rises. In this manner, the *inuksuit* enhance the natural topography, standing out against and breaking the horizon. Willow branches and sod clumps were likely used to augment the effectiveness of the stone cairns in directing caribou movement.

The northern caribou driveline (XCL-358) contains 298 *inuksuit* and extends in a roughly northwest-southeast direction. The base of the line nearest the lake travels over a low-lying, grassy plain and then increases in elevation as it extends away from the lake along the south-facing slope of the mountain northeast of the northern end of Agiak Lake. The base of the line nearest the lake is approximately 85 m away from the water's edge. The driveline takes on a Y-shape with two segments diverging roughly halfway along its total length. The segments appear to represent two unique construction events, probably the result of reuse and maintenance. The combined length of these seg-

Figure 7. Examples of **inuksuit** *from Agiak Lake drivelines. Top left: stacked construction. Top right and bottom: monolithic construction.*

ments is 2,247 m. The distance between the two extremities of the line (the two furthest *inuksuit*) is 1,280 m. Pieces of willow were found associated with ten of the *inuksuit*; thus, it is likely that willow branches were used in order to make the cairns appear larger and therefore more effective at breaking up the horizon and redirecting caribou. The several pieces of well-preserved (but undated) willow also indicate that the drivelines were most recently used in historic or late-prehistoric times; however, this does not preclude the possibility of older episodes of use.

The southern caribou driveline (XCL-101) is located at the base of the mountain that defines the southern boundary of the valley east of Agiak Lake and consists of 306 identified *inuksuit*. Most of this line cannot be seen from the north due to the proximity of the mountain. The southern driveline is much more convoluted than the northern one, with many diverging and disconnected segments. As with the northern driveline, these multiple segments probably indicate more than one episode of use and maintenance. The total length of the segments is roughly 1,500 m. Other scattered *inuksuit* in this general area were considered components of the complex but could not be definitively associated with any of the defined segments. The *inuksuit* in the southern complex are contained within an area of 46 ha.

RESULTS

ABSOLUTE DATING

The primary reason for subsurface testing at Agiak Lake was to obtain material suitable for radiocarbon dating. Fortunately, many of the rings produced organic material including bone, calcined bone, and charcoal samples. The tested tent rings all showed some evidence of internal, unlined hearths. Four of the seven rings tested at the northern complex and one of the two rings tested at the southern complex produced charcoal suited for radiocarbon dating. In addition, the hearths yielded burned soil, potlidded flakes, calcined bone, and tight concentrations of charcoal—all important elements of hearth features. Due to the small scale of the tests, the extents and shapes of the hearths were not established.

Radiocarbon dates were obtained on five charcoal samples collected in 2005. Samples from the two complexes produced a fairly tight cluster of dates (Table 1). Calibrated at the 1-sigma (68% probability) level, the dates range between 3690 cal. yrs BC and 2940 cal. yrs BC (INTCAL04; Reimer et al. 2004). Although the older dates come from the northern complex, the one date at the southern complex matches exactly one of the dates obtained at the northern complex.

LITHIC ANALYSIS

As mentioned above, each of the tent ring complexes, and most of the individual tent rings, contained a large quantity of lithic material. The goal of the lithic analysis was threefold: to determine activities involving the manufacture and repair of stone tools, to document similarities or differences between the two tent ring complexes, and to determine into which archaeological tradition the assemblages best fit. For the purposes of this paper, the comparison of the two tent ring complexes is of primary concern. As with the site

Table 1. Radiocarbon dates obtained from hearths within tent rings. Calibrated with INTCAL04 (Reimer et al. 2004).

Lab No.	Catalog No.	Provenience	Material	Conventional (^{14}C yrs BP) Radiocarbon Age (1-sigma)	Calibrated (cal. yrs BC) Age (1-Sigma)
Beta-210714	GAAR14659A	XCL-118; Tent Ring J	Wood charcoal, *Salix* sp.	4430 ± 40	3310–2940
Beta-210707	GAAR14564A	XCL-089; Tent Ring H	Wood charcoal, *Salix* sp.	4430 ± 40	3310–2940
Beta-210710	GAAR14580A	XCL-089; Tent Ring AM	Wood charcoal, *Populus* sp./ *Salix* sp.	4580 ± 40	3490–3130
Beta-210708	GAAR14621A	XCL-089; Tent Ring M	Wood charcoal, *Salix* sp.	4760 ± 40	3640–3520
Beta-210709	GAAR14633A	XCL-089; Tent Ring AL	Wood charcoal, *Salix* sp.	4850 ± 40	3690–3540

descriptions, the lithic analyses focused on the similarities between the two complexes. Intrasite variability is very low and not an integral part of comparing the two complexes; therefore, it is not discussed in this report.

The assemblages from the two complexes include 137 tools or tool fragments (Table 2) and 6,759 pieces of debitage. Of the nearly 7,000 pieces of debitage, a total of 1,268 pieces possessed enough attributes to make them diagnostic of reduction stage and/or technology (Flenniken 1981; Table 3). At both complexes, unifacial scrapers and notched points are prominent and typologically important artifact types. These tools are considered diagnostic of the Northern Archaic tradition in northern Alaska, as are the bifacial knives found at the northern tent ring complex (Anderson 1988; Lobdell 1986, 1995; Fig. 8). Other tools within both tent ring clusters, such as notched pebbles (Fig. 9), also appear in Anderson's (1988) description of Northern Archaic artifacts at the Onion Portage site. The notched pebbles at Agiak Lake show signs of battering, indicative of their use as percussors, perhaps during the extraction of bone marrow. The scrapers, bifacial knives, and notched pebbles together indicate that hide working, game processing, and marrow extraction were primary activities. The side-notched projectile points are represented only by broken bases and two nearly complete points. The projectile points and bases suggest rehafting of weapons within the tent rings, while the bifacial blanks and preforms indicate initial tool production.

The lithic debitage data show that similar technological activities—mainly later-stage bifacial reduction, including percussion and pressure shaping, and unifacial and bifacial retouch and/or resharpening—were taking place at both tent ring complexes on opposite sides of the lake (Table 3). Resharpening flakes imply the onsite use of scrapers rather than transport to and discard at the site. Debitage analysis also shows a paucity of primary and secondary decortication flakes (2.7% of the debitage), which indicates that most tools entering the site were in later stages of production—very little initial material testing, shaping, and reduction occurred on site.

Lithic raw material at both tent ring complexes consisted mainly of black (82.2%) and gray chert (12.9%), with lesser quantities of other materials, including obsidian (2.3%), tan siliceous mudstone (1.3%), quartzite (0.3%), quartz crystal (0.3%), and one unifacial tool made of basalt. Much of this material was apparently obtained from sources distant from Agiak Lake—the obsidian, for example, has been chemically matched to the Batza Tena source 250 km away (Speakman 2006). The presence of exotic raw materials indicates a familiarity with the Brooks Range and surrounding regions. However, a poor-quality tabular black chert appears to be of local origin because several pieces of this raw, unworked material were observed near the lake.

DISCUSSION

The absolute age of the tent rings at Agiak Lake has been established and confirmed by five radiocarbon dates. These particular tent ring structures date to a time period in northern Alaska usually assigned to the Northern Archaic tradition. Diagnostic lithic artifacts, including side-notched projectile points and notched pebbles, further support the classification of these settlements within the Northern Archaic tradition.

Table 2. Surface and subsurface artifacts from the northern (XCL-089) and southern (XCL-118) tent ring complexes.

Tools/Formed Artifacts	XCL-089 (40 tent rings)		XCL-118 (15 tent rings)	
	Count	Percent	Count	Percent
Unpatterened Flake Core	3	2.9	0	0.0
Modified Flake Tool	17	16.2	0	0.0
Biface Blank	32	30.5	6	18.8
Biface Preform	3	2.9	3	9.4
Notched Projectile Point	8	7.6	3	9.4
Bifacial Knife	4	3.8	0	0.0
Uniface/Scraper	37	35.2	19	59.4
Notched Pebble	1	1.0	1	3.1
Total	105	100.0	32	100.0

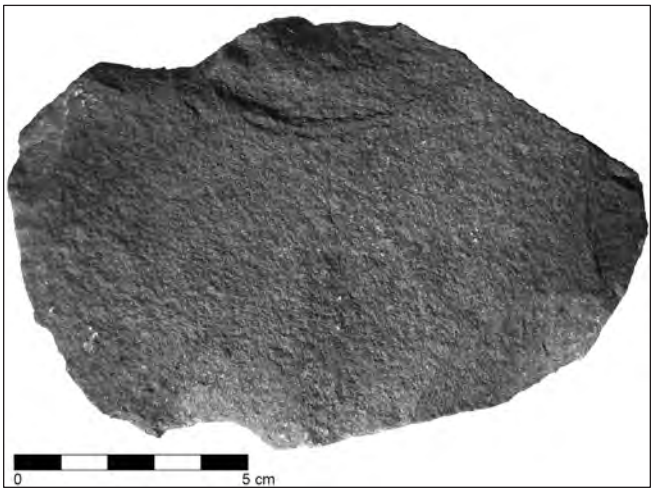

Figure 9. Notched pebble from tent ring D, site XCL-089.

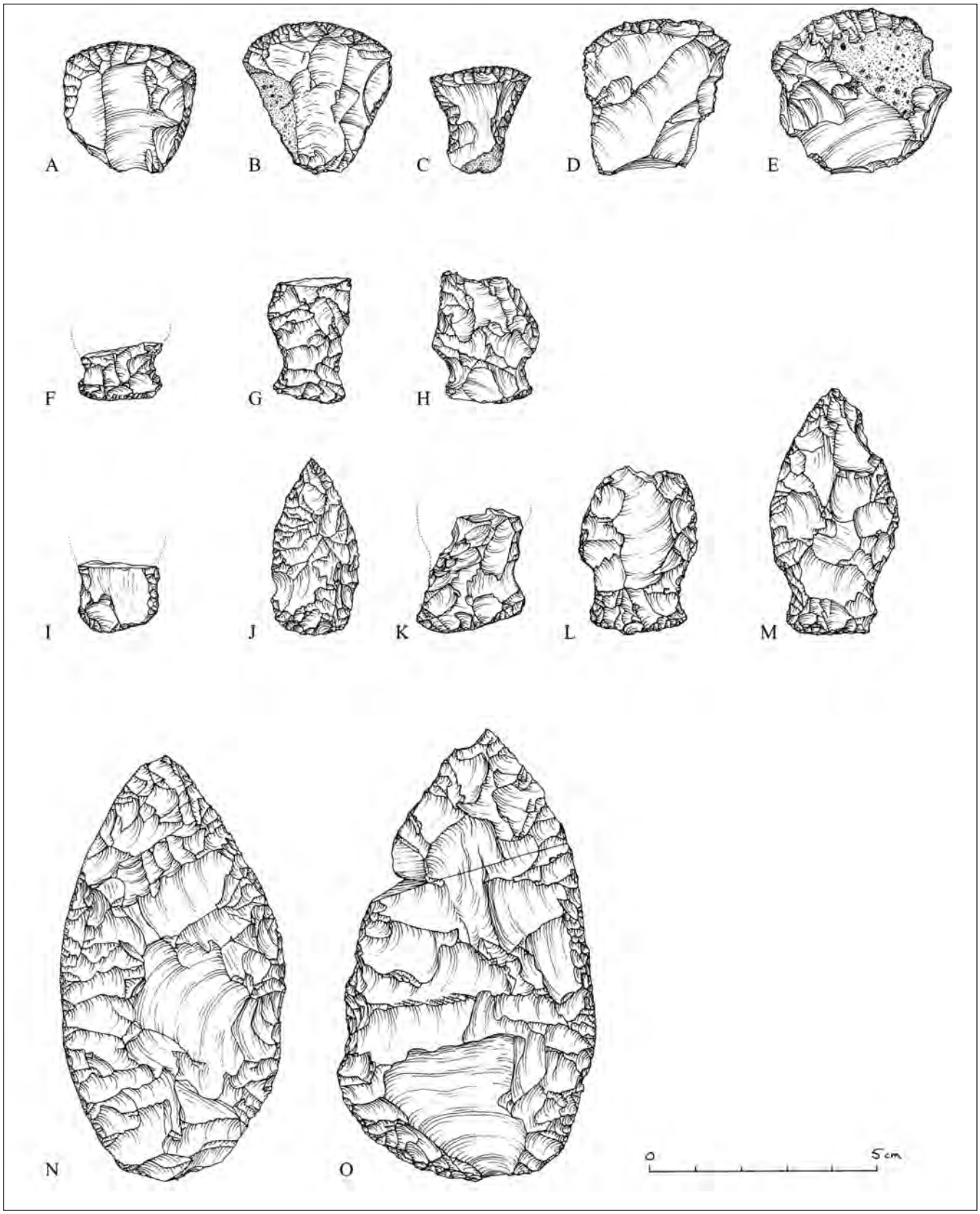

Figure 8. Drawings of formed artifacts from both tent ring complexes: scrapers [A (089D), B (089AJ), C (089H), D (089M), E (089AM)], notched projectile points [F (089X), G (089H), H (089H), I (118J), J (118H), K (118H), L (089X), M (089AL)], and bifacial knives [N (089X) and O (089AM)].

Table 3. Surface and subsurface debitage from the northern (XCL-089) and southern (XCL-118) tent ring complexes.

Stage of Reduction and Technology	Flake Types	XCL-089 (40 tent rings)		XCL-118 (15 tent rings)	
		Count	Percent	Count	Percent
Early Stage Core Shaping	Primary Decortication	8	0.8	0	0.0
	Secondary Decortication	33	3.2	8	2.6
	Interior Multi-Faceted	149	14.7	20	6.5
	Interior Single-Faceted	46	4.5	10	3.3
Bifacial Shaping	Edge Preparation	39	3.8	16	5.2
	Bifacial Percussion	184	18.1	36	11.7
	Bifacial Pressure	401	39.5	181	59.0
	Notching Flake	1	0.1	0	0.0
Unifacial Shaping	Unifacial Pressure	155	15.3	36	11.7
Total		1,016	100.0	307	100.0

Corresponding dates from the two campsites imply the rough contemporaneity of the two tent ring clusters and suggest that both areas were used within decades of each other. While radiocarbon dating does not allow for a more precise determination of occupation age, there are other indicators of contemporaneous use. Prehistoric hunters would have made decisions about the geographic placement of these settlement areas in relation to the surrounding landscape and topography, proximity to the lake, vegetation resources, caribou migration routes, weather conditions, and other related factors. The complexes have been placed similarly in relation to the surrounding landscape, almost like mirror images across the lake. This similarity is one indicator of possible shared cultural behavior, which further supports roughly contemporaneous occupation. Similar weathering and lichen cover on tent ring stones indicate approximately equal lengths of time since construction and the possibility for seasonal occupations at either end of the lake by the same group of people.

A closer look at the placement of tent rings within each complex may address the question of contemporaneous occupation of individual tent rings. Many of the tent rings sit atop small ridges or within the grassy bottoms of gentle swales. It is difficult to say why swales and ridges were chosen, but the patterned spacing may indicate contemporaneous occupation of the rings (Park 1997; Whitelaw 1991). The contiguous spacing of the tent rings may indicate a social need for physical distance from neighbors occupying nearby tents (Binford 1983; McCartney 1977; Whalen 1981). Regularly spaced clustering of households has also been interpreted as an indicator of close social relationships, such as kinship ties or political alliances (Gargett and Hayden 1991; Stark and Young 1981; Yellen 1977). The very regular spacing of tent rings seems less likely to be attributable to successive occupations by single families constructing new tent rings year after year—why would one family construct tent rings year after year with such regular spacing? Although it is very unlikely that *all* the tent rings at both complexes were occupied at once, it seems likely that some or many of the tent rings were in use at the same time.

The association of lithics with tent rings is strong. Of the 55 total tent rings, 53 contained lithic artifacts, and the artifacts are almost always entirely within the perimeter of the structures. Only two lithic scatters unassociated with tent rings were documented on the landforms containing the tent ring complexes, and almost no lithic material was found outside the tent ring walls. It seems highly unlikely that such a large number of tent rings would be subsequently placed precisely atop nearly every observed ancient lithic scatter. It makes far more sense to assume an association between the two forms of archaeological data. The correspondence of the hearth features located centrally in several of the tested tent rings, the Northern Archaic-age dates from samples in the hearths, and lithics indicating heat-fractured tools and flakes associated with both the hearths and the Northern Archaic tradition all strongly support the association of tent rings, radiocarbon dates, and lithic artifacts.

A final discussion concerns the tent ring complexes and their possible association with two of the most prominent sites at Agiak Lake—the monumental caribou drivelines. A presumption can be made that the drivelines are protohistoric or historic in age due to good preservation of many of the cairns, the association of preserved willow within some cairns, and the historically documented use

of this hunting strategy in similar Brooks Range settings (Binford 1991; Burch 2006; Spearman 1986). In fact, the last documented communal kayak-caribou hunt occurred just 16 km north of Agiak Lake at Little Chandler Lake in 1944 (Spearman 1986). Preserved willow fragments, likely used to enhance the *inuksuit* during a caribou drive and found near and under many of the cairns indicate that the lines, or portions of the lines, were indeed used in more recent times. However, the argument can also be made for a more ancient construction and use of the drivelines, with later populations using and augmenting this ready-made hunting facility (Brink 2005).

The state of preservation of individual *inuksuit* varies and suggests multiple episodes of construction and use. While some *inuksuit* are well preserved (standing) and unvegetated, others, especially in the southern line, are poorly preserved (toppled) and exhibit very heavy lichen cover. Admittedly a rough, relative measure, the degree of lichen growth on many *inuksuit* is nonetheless equivalent to that found on stones from tent rings now dated to over 3000 cal. years BC. Our attempts to derive more precise ages using lichenometry were not successful since the environmental conditions among individual *inuksuit* were highly variable. While many of the *inuksuit* have very little lichen cover and were therefore probably constructed and used in more recent times, the dilapidated *inuksuit* may be part of a more ancient drive system.

Furthermore, the proximity of both tent ring complexes to the northern and southern drivelines give circumstantial support to their possible association. The symmetry produced by the physical locations of the tent ring complexes and the drivelines in relation to one another may indicate functional positioning of settlements and drivelines at both ends of the lake, perhaps in relation to predictable seasonal shifts in caribou migration. Both tent ring complexes are situated in the same relative position and within 700 m of the drivelines. The tent ring settlements would have been out of sight to caribou moving along the lines, yet close to the termination of the lines and the expected kill areas on the lakeshore. This would have facilitated processing, preservation, storage, and use of caribou meat, hides, etc.—activities that would at least partially have taken place within the residential camp. The many endscrapers found in the tent ring settlements suggest that hide-working was an important activity. The large bifacial knives would have functioned well as meat slicing and butchering tools, as seen associated with other large scale kill-butchery sites (Jodry 1998; Morrison 1997). Surprisingly, there is no evidence at Agiak of storage facilities, such as stone caches, as seen in similar historic contexts (Binford 1978, 1980; Murray 1999). If large amounts of game were procured on the shores of Agiak Lake, it may be that stone caches were not a part Northern Archaic technology. Perhaps perishable materials, such as drying racks (Binford 1978), were a more common method of preserving meat if the hunt took place in spring; meat obtained in fall hunts could be frozen without leaving any archaeological trace. Another possibility is that the sites were short-term occupations and no storage facilities were necessary.

There is no reason to suspect that northern caribou hunters would *not* participate in communal caribou hunts. This is an ancient technique used for thousands of years in the Old World (Davis and Reeves 1990) and a technique almost certainly within the capabilities of Northern Archaic hunters in the central Brooks Range. Ackerman (2004), for example, has argued for a similar connection between a Northern Archaic assemblage and a caribou driveline near a lake in southwestern Alaska. It has even been suggested that before the introduction of firearms, moderately sized populations in the New World would have been required to hunt communally, especially in seasonally variable, high-latitude environments such as northern Alaska (Blehr 1990). Communal hunting was not necessarily employed because it was cost-effective in terms of labor but rather because it was a more reliable (less risky) means of ensuring a successful hunt (Hayden 1981; Hofman 1994). The possibility of many people at Agiak Lake for at least part of the year suggests the necessity, and human resources necessary, for communal driveline hunting (Driver 1990; Riches 1982). However, it should be noted that the activation of caribou drivelines in ethnographic times did not require a large number of people—as few as twenty is sufficient (Balikci 1970; Binford 1991, Spearman 1986). It should also be kept in mind that reasons for human aggregation other than communal hunting, such as religious gatherings, rites of passage ceremonies, information sharing, mate finding, etc., would have been important concerns (Binford 1991; Conkey 1980; Hofman 1994).

Another argument for the association of the tent rings and the drivelines involves changing lake levels. Both tent ring complexes are at similar elevations above the current lake level. After mapping the terrain and looking closely at the topography around Agiak Lake, we observed that the lake level may have been higher than at present. The

land immediately surrounding the lake is relatively low and wet. Around most of the lake at a distance of 5 to 500 m from the present shoreline exists a steep bank that rises roughly 5 to 20 m from the low-lying terrain surrounding the lake, possibly representing a paleoshoreline. In addition, the southern outlet creek flows through a very narrow, steep-walled valley that rises some 5 to 10 m above the lake level. If this narrow outlet was once partially filled in, it would have dammed the lake, causing higher lake levels. Clague et al. (2006) documented a similar lake level shift at Kluane Lake, in the southern Yukon Territory, due to glacial activity and snowfall. This is one possible explanation of Agiak Lake's hypothetical level change. Loon Lake, several kilometers south of Agiak Lake, experienced a catastrophic drainage event in the 1990s when heavy rainfall caused the basin to overflow and resulted in rapid down-cutting of its outlet creek and a shoreline shift of an estimated 100 m. At Agiak Lake, the lake level would only have to be several meters higher to place the northern tent rings very near the water's edge. The southern tent rings would have been closer to the lake, but not right on its shore. The cairns nearest the water, although they are separated by two kilometers, both sit 8 m above the current lake level. The same several-meter rise in lake level would place the cairns that are closest to the water's edge—currently 50 to 80 m from the lakeshore—directly adjacent to the hypothetical shoreline, thus making the driveline more effective. Although this hypothesis remains untested, ethnographic and archaeological records in the Brooks Range demonstrate the common theme of living close to water and the important resources in and near lakes and rivers. The lake-level history of Agiak Lake should be investigated to better establish links between the paleoenvironmental setting and human occupational events.

CONCLUSIONS

The tent rings and driveline complexes at Agiak Lake are among some of the most intriguing settlement and hunting complexes in northern Alaska. The age of the tent rings and the diagnostic lithic assemblage place the occupants of these structures within the Northern Archaic tradition. In Alaska very few tent rings from this time period have been recognized and documented, and none of these sites match the size of the Agiak Lake complexes. The impressive expanse of tent rings may suggest seasonal gatherings of people, perhaps to activate the caribou drivelines in a communal hunt. Regardless of whether communal hunts necessarily occurred in conjunction with occupation of the tent camps, the shores of Agiak Lake were witness to large numbers of people, either simultaneously or through the centuries, who wielded a typical Northern Archaic toolkit and relied on their knowledge of the surrounding environment to subsist in the central Brooks Range.

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HISTORICAL DEMOGRAPHY AND GENEALOGY:

THE DECLINE OF THE NORTHERN KENAI PENINSULA DENA'INA*

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ABSTRACT

Historic, linguistic, genealogical, and archaeological data can be used to identify the Dena'ina Athabaskans who once inhabited the Sqilantnu archaeological district and other abandoned communities on Alaska's northern Kenai Peninsula. The argument is made that not just one catastrophe, but rather a succession of events precipitated the near-disappearance of these people in the late nineteenth and early twentieth centuries. These events include the interception of large numbers of migrating salmon enroute to their spawning grounds, the intentional setting of large forest fires, a series of devastating epidemics, placer mining, and extensive intermarriage with northern European immigrants. When vital statistics such as birth, marriage, and death records are enlisted in service of ethnohistorical research, much can be learned about the fate of specific villages, families, and individuals.

Keywords: Athabaskan, Dena'ina, ethnohistory, Kenai, population, genealogy

INTRODUCTION

The collapse of cultures and civilizations around the world has recently attracted a good deal of interest and attention through the writing and lectures of Jared Diamond (2005). In Alaska, we have only to look at the northern Kenai Peninsula for historic and late prehistoric evidence of vanished peoples. In the Sqilantnu archaeological district, not far from Kenai Lake and near the present community of Cooper Landing (Figure 1), there are dozens of house and cache pits that reveal the presence of large numbers of aboriginal people who have no known living biological descendants. The richness of these cultural resources seems to go largely unnoticed in the local press, although they are a major part of what is driving the issues of widening the Sterling Highway or building bypasses (see Loomis 2006 and the Alaska Department of Transportation project website www.sterlinghighway.net).

The cultural affiliation of features at three Sqilantnu sites (KEN-092, KEN-094, and SEW-214) excavated by the Alaska Archaeological Survey on the Kenai Peninsula in 1984–1985 remains a most intriguing and complex puzzle. However, in contrast to the Easter Islanders, the Greenland Norse, the Anasazi, the Mayans, and many

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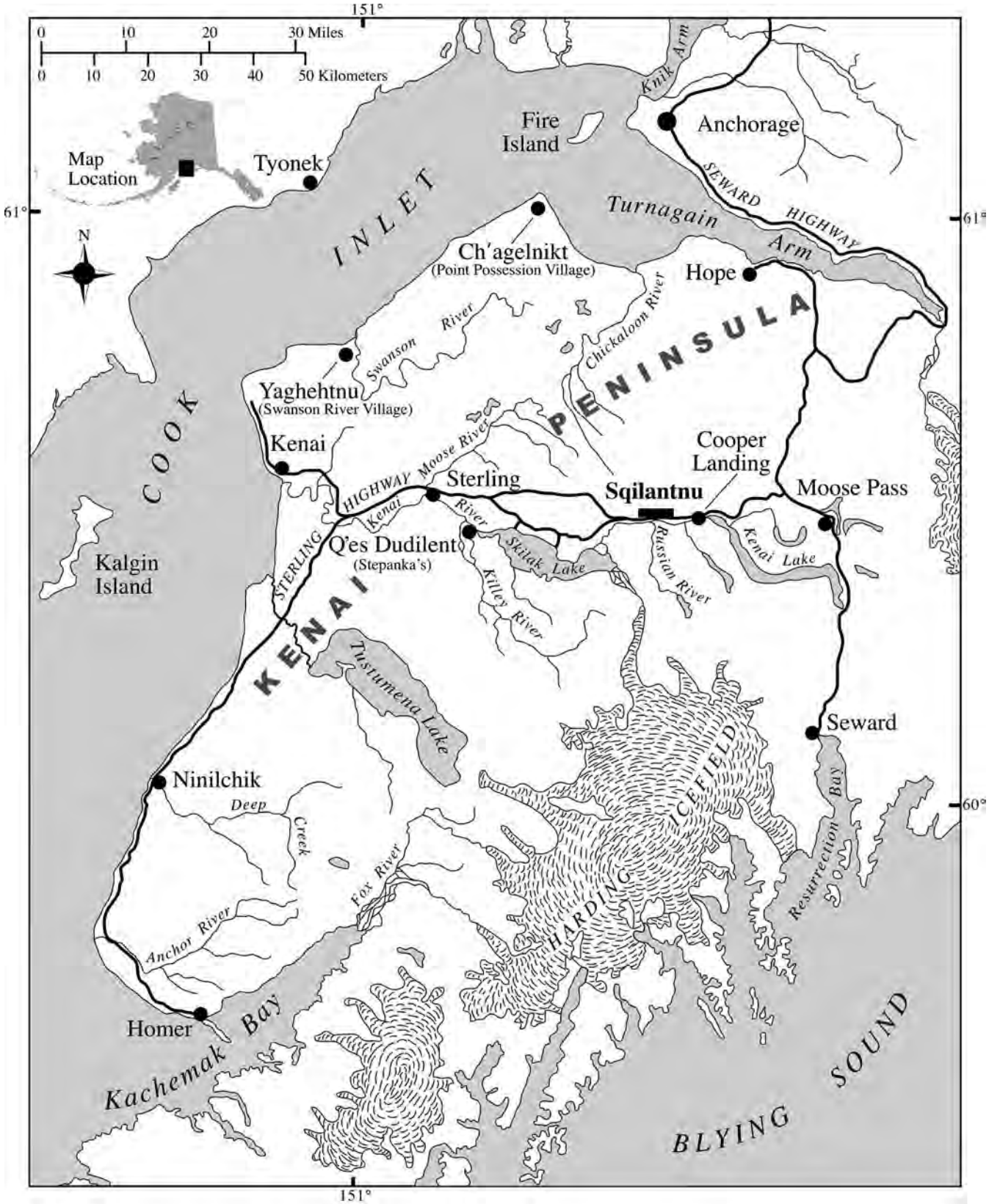

Figure 1. Kenai Peninsula, Alaska (adapted from Holmes 1988).

others recounted by Diamond, the Kenai Peninsula peoples who once thrived at Sqilantnu and other places seem to have disappeared not as a result of their own mistakes in managing environmental resources but because of external forces largely beyond their own control.

All of the historic, linguistic, and archaeological data now available make it highly probable that at least one component of one of these sites, situated near the mouth of the Russian River where it joins the Kenai River, is historic Dena'ina Athabaskan. I say this in spite of the fact that most of the artifacts excavated outside the two large house pits at sites KEN-094 and SEW-214 look Eskimoan, as do the human remains found in several associated graves. But because it is widely known that Eskimos buried their dead while Dena'inas and other Athabaskans practiced cremation, the discovery of a human cremation locus situated precisely on top of a burial at site SEW-216 strongly suggests that Athabaskans occupied this area more recently than Eskimos. At the same time, Charles Holmes (1988), who directed the 1984–1985 excavations, has hypothesized that both groups may have come together at this place simultaneously to fish and to trade. Radiocarbon dating for the hearth charcoal at KEN-094 was determined to be in the range of AD 1750–1800, while the hearth charcoal at SEW-214 suggested an occupation within the range of AD 1670–1820. Another larger house pit, identified as KEN-068, was excavated in 1989 and determined by dendrochronology to be in use during the mid-to-late nineteenth century and abandoned no later than 1890 (Yesner and Holmes 2000:61). For more on the archaeology of the area see Reeger and Boraas (1996) and Reeger (1998).

Physical evidence that Athabaskans were living at Sqilantnu (a Dena'ina placename meaning 'ridge place river') in the late nineteenth century is inferred from the glass seed beads, iron bracelets, and iron knives excavated with the SEW-216 cremation. James Ketz (1983:227, 239) claims that such beads were not manufactured until the late nineteenth century, being first introduced by American traders sometime after 1872. Recovered faunal remains at these sites were almost 50 percent fish, mostly salmon, and resulted in no identifiable moose or caribou (Yesner 1986, 1996). Reliance on fish is not surprising considering that even today the Russian River is probably Alaska's most popular salmon stream for sport fishermen.

According to the Alaska Department of Fish and Game web site, "The Russian River sockeye salmon fishery is the second largest fishery for this species in Alaska being surpassed only by the Kenai River sockeye salmon fishery. Annual [sport fishing] harvests in the Russian River routinely exceed 50,000 and in some years have approached 200,000" (www.sf.adfg.state.ak.us/Region2/areas/kenai/kenhome.cfm). There are two major sockeye runs on the Russian River. One begins about June 15 and tapers off at the end of June. A second and larger run begins about July 20 and ends by mid-August. But the Russian River and the Kenai River also support healthy stocks of rainbow trout and coho salmon. Two runs of coho arrive in August and September, with the second run continuing well into October. The Kenai River also has two substantial runs of Chinook salmon, which appear in late May and late June, respectively. Certainly the late prehistoric and early historic Dena'inas knew all of this, which is undoubtedly what induced them to build log dwellings and live at Sqilantnu.

In addition to fish, however, the subsistence economy of the people living in the houses at KEN-068, KEN-092, KEN-094, and SEW-214 was quite diverse, revealing a strong focus on snowshoe hare, with bones also of various birds, brown bear, Dall sheep, hoary marmot, beaver, porcupine, muskrat, river otter, and red squirrel. Again, there was a notable absence of faunal remains for large game animals such as moose and caribou (Yesner 1986, 1996).

FEODORE SASHA

As the only historian/ethnographer in the 1984 Sqilantnu excavation crew, I was challenged to answer these questions: when did Athabaskans first arrive in the area, how did they adapt to new conditions during the historic period, and when and why did they leave it? While no living persons have apparently ever witnessed Dena'inas living in the Sqilantnu district, there are several circumstantial sources of information that lead us to confirm such an occupation in historic times. The most significant of these is Cornelius Osgood's life history sketch of Feodore Sasha, whom Osgood met and photographed in Kenai during the summers of 1931 and 1932 while doing field work for his classic *Ethnography of the Tanaina* (1966). According to Osgood, Sasha was "born in the country between Skilak and Kenai Lakes, from which his father and mother also came and his ancestors before them as far as he knew" (Osgood 1966 [1937]:23). The Kenai Mountain Dena'inas inhabiting this region were known as the Tsaht'ana, and those living near Kenai Lake were called the Sqilan Ht'ana (Kari 1977:92; 1996:57).

Feodore Sasha's familiarity with this mountainous area was also demonstrated to Frederica de Laguna, when she elicited from him Dena'ina names for six archaeological sites in the Kenai River drainage in 1930–1932 (de Laguna 1934:134). It is important to state that the Dena'ina placename inventory compiled by Peter Kalifornsky (1977; also 1991), one of the last fluent speakers of Dena'ina on the Kenai Peninsula, was based largely on the oral legacy of Sasha, who was his personal mentor as well as Osgood's and de Laguna's. In fact, Kalifornsky dedicates his book to the memory of Sasha (see 1991:v). Kalifornsky's ethnogeography of the Kenai River takes on added significance because the first published account of exploration into the upper Kenai River, written by the Russian mining engineer Peter Doroshin (1865), also contains local placenames that are recognizably Dena'ina.

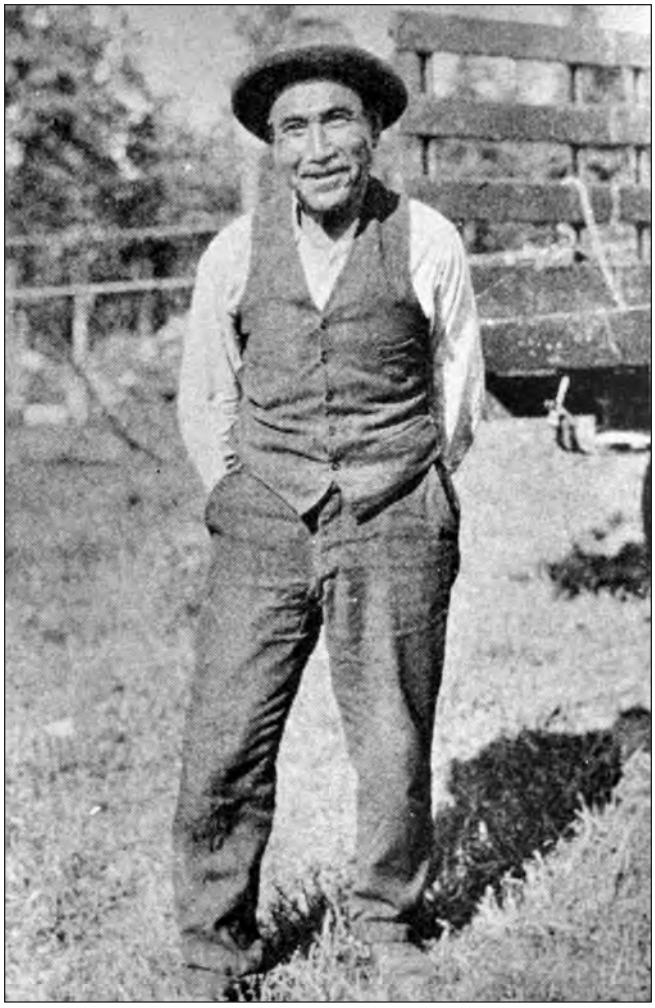

Figure 2: Feodore Sasha. Photo by Cornelius Osgood, reprinted from his **Ethnography of the Tanaina** *(1966 [1937]). Courtesy of Yale University Department of Anthropology.*

It is instructive to compare Doroshin's placenames (transliterated from Dena'ina into Russian Cyrillic and then into English) with those of Peter Kalifornsky (1977, 1991) and Kari and Kari (1982), who worked with Kalifornsky and other Dena'ina speakers to compile a comprehensive Dena'ina ethnogeography (see Table 1).

Table 1. Comparative Kenai placenames.

Doroshin	Kalifornsky/ Kari & Kari	English
1. Tusli-tnu	Tuslitnu	Skilak River
2. Ka-studilin-bna	Q'es Dudilent Bena	Skilak Lake
3. Ka-ktnu	Kahtnu	Lower Kenai River
4. Taslikh-ktnu	Tasdlihtnu	Cooper Creek
5. Chunu-ktnu	Chunuk'tnu	Russian River
6. Skiliankh-ktnu	Sqilantnu	Upper Kenai River
7. Skiliamna	Sqilan Bena	Kenai Lake

From this comparison, it cannot be disputed that Doroshin relied on the Dena'ina language to orient himself to the interior part of the Kenai Peninsula. Moreover, it seems very likely that he either had a Dena'ina guide accompany him upriver or that he met Dena'inas residing along the river who taught him these placenames.

As Osgood suggests, the persons known to be most closely associated with Sqilantnu in the twentieth century were Feodore Sasha, his siblings, and his parents. Very little has ever been published about Sasha except Osgood's thumbnail sketch, which mentions his penchant for heavy drinking and his great wealth of knowledge about traditional Dena'ina culture. Fortunately some key events in Sasha's life and his genealogy can now be reconstructed through documents made available in the Kenai Courthouse Records (KCR) and the Alaska State Office of Vital Statistics (OVS) in Juneau.

For information about Sasha, I took advantage of an Alaska state law, House Bill No. 91, passed by the Alaska legislature on April 5, 1984. This act made public for the first time all death, marriage, and divorce records more than 50 years old and all birth records more than 100 years old. Since the Territory of Alaska did not start keeping vital statistics in these categories until about 1900, this means that most public birth records are still closed but that all death and marriage records before 1957 are now accessible as public documents.

At the Alaska Office of Vital Statistics in Juneau, an annual surname and village placename index allows researchers to readily find information on specific individuals and communities. Death certificates contain a wealth of information on the place of death, the cause of death, the age at death, the names of surviving kin, the deceased person's occupation, ethnic identity, and occasionally the height, weight, and hair color. Marriage certificates include the names of the conjugal couple's mothers and fathers, their place of birth, and their date of birth.

Such data are extremely useful to ethnohistorians interested in documenting how contagious diseases affected specific areas, and they allow the additional luxury of reconstructing genealogies. When death and marriage certificates are tied into U.S. census schedules from 1900 and 1910, the demography becomes very exciting. There is an opportunity for researchers to learn a great deal about family size, population movements and marriages and to find clues about when and why certain historic villages were abandoned.

Feodore Sasha's parents' names, for example, can be learned both from census records and death certificates, and this is important because Osgood tells us that both of Sasha's parents came from the Sqilantnu area. The 1900 U.S. Census schedules from Fort Kenai (Bureau of the Census 1900) list "Alexander" as the head of a household born in 1850, and of course "Sasha" is the Russian diminutive for Alexander. Alexander's wife was named Maria (born in 1857), and they had three sons: Feider [Feodore], born in March 1881; Dunofay, born in June 1884; and Alexander, born in August 1890. These data are consistent with local death certificate records (KCR Book 1), which show that a trapper named Alexander Shasha [Sasha] died at age 68 from "asthma" in Kenai on May 14, 1918. The only survivors listed on the certificate are a wife, Mary Shasha, and a son named "Theodore." Surely this "Theodore" was Feodore Sasha.

From these two independent sources we can deduce that: (1) Feodore's father, Alexander Sasha, was born about 1850 and would have been just an infant when Doroshin made his first ascent of the Kenai River; (2) Feodore's two brothers, Dunofay and Alexander, must have died sometime between 1900 and 1918; and (3) the Sasha family probably moved from Sqilantnu to the village of Kenai sometime before 1900.

From vital statistics some information about Feodore Sasha's marriage comes to light. His wife was Alexandra Osipoff, who at 32 years of age gave birth to daughter Pelagia (Polly) Shasa [Sasha] on May 14, 1919. Apparently the couple lost two other children before this, for although the number of children born to Alexandra (including Pelagia) is listed as three, only one of them was still alive when Pelagia was born. It was not long, however, before baby Pelagia also died, on December 13, 1920 (OVS). Feodore's wife Alexandra may well have been a grandchild of the Russian-American Company retirees, Peter and Evdokiya Osipov, who helped found the village of Ninilchik in 1847 (Arndt 1996:246).

In retrospect, it appears that although Feodore Sasha was one of the last of the Kenai Mountain Indians, he apparently spent much of his adult life in the vicinity of Kenai. In fact, he was incarcerated in the Kenai tribal jail on March 24, 1929, when the Fifteenth U.S. Census was taken there, although he may still have returned often to the mountains at Sqilantnu where he was born.

We also learn from Vital Statistics records that Feodore became a widower when his wife Alexandra died at age 49 on May 14, 1938, from "probable heart failure" (OVS). From Feodore's own death certificate (KCR Book 2), we discover that he burned to death in his house due to an overheated stove on February 17, 1945, that he was 5 feet 6 inches tall, weighed 145 lbs., and was born July 17, 1880. This birth date does not exactly match the birth date for Feodore given in the 1900 Census schedule (where it is given as March 1881), but the discrepancy only amounts to about eight months. Moreover, since Feodore was the only surviving child in his family by the time of his father's death in 1918, had lost his only known daughter in 1920, and became a widower in 1938, it is logically consistent with earlier records that when he himself died in 1945, no living relatives were named.

EPIDEMICS

The logical question one must ask when faced with a large number of archaeological sites known to have been occupied in late prehistoric as well as historic times is this: why is there no one left to tell the tale of these people? Feodore Sasha could have told much or all of this tale, but my hypothesis is that the Sqilantnu Dena'inas, along with those in many other outlying villages on the Kenai Peninsula, died from contagious diseases introduced during the historic period, that major ecological changes led to a collapse in their subsistence economy, and that the few survivors took up residence in Kenai village where they intermarried with non-Natives.

Much has already been written about the diseases that struck the Dena'ina in the early and mid-nineteenth century, but the first known epidemic was reported to Alexsander Baranov in the spring of 1798. This illness, which also hit Kodiak that same year, was distinguished by symptoms of nausea followed by chest pains and then death within twenty-four hours. Khlebnikov (1970:16) says the epidemic "was rampant in Kenai Inlet, where many deaths had occurred." James Fall (1981:117-118; 1987) provides an excellent summary of the smallpox epidemic that struck the Tlingit in 1836 and then reached the Dena'ina in Cook Inlet about 1838. He concludes that the population around Cook Inlet declined by 50% in the next seven years, following not only the impact of the disease but the related starvation brought on by disruptions in subsistence activities.

In an unpublished manuscript at the Bancroft Library, Zakhar Chichinoff, an employee of the Russian-American Company, tells very graphically how hard the Dena'ina were hit by this: "During the following winter [1836–1837] I traveled continually from village to village in the Kenai district, trading, but at nearly every place the population had been reduced by at least one-half by the ravages of smallpox. In many places the people were still of the opinion that the dreadful disease had been sent among them by the Russians. . . . Quite a number of orphan children, whose parents had died of the disease, were taken to the Redoubt [St. Nicholas at Kenai] and supported there at the expense of the Company" (Chichinoff 1878:3).

Katherine Arndt (1985) has made a detailed study of how the smallpox diffused and how the Russian-American Company tried to contain it. Practically the only doctor in Alaska in the 1830s and 1840s was a German, Dr. Blaschke, who began a program of vaccinating the Indians around Sitka and who proceeded to organize teams to inoculate the residents of Unalaska, the Alaska Peninsula, Bristol Bay, and Cook Inlet. The Russian trader Malakhof was put in charge of vaccinating the people of Cook Inlet (Bancroft 1886:562n).

Again in 1862 the Indians at Kenai and on the Kenai River were being inoculated, and this time the Russian Orthodox clergy rather than the Russian traders administered the shots. While there is no indication why these particular vaccinations were being given, there is ample evidence from both written and oral sources (Blackman 1982:45, 63) that a smallpox epidemic killed many of the Haida in the Queen Charlotte Islands in 1862, and this epidemic may have also spread to Cook Inlet. In his travel journal for November 12 of that year, Abbot Nicholas wrote: "My songleader went to Skilakh village, about 150 versts [160 km] from Kenai, to vaccinate the people. He has to walk that distance, and there is no road. The Indians of that village, learning that we had a vaccine, petitioned me to send someone to vaccinate them." On December 3, the Abbot added that his songleader had returned from Skilakh Village after vaccinating about 100 people (Nicholas 1862; also Townsend 1974:9).

When Ivan Petroff visited Kodiak to do archival research and oral history interviews in July 1878, he met there several men who had just arrived from Cook Inlet and reported that "the Natives and half-breeds around the Inlet are dying away very fast, mostly from the effects of syphilitic disease and consumption [i.e., tuberculosis]" (in Hinckley and Hinckley 1966:17). In the mid-1880s Petroff learned that the Dena'ina had coined words for both syphilis (*iyatcinaqe*) and smallpox (*na-aknikilde*) (Staffeief and Petroff 1885–1886:189).

After traveling to villages in Upper Cook Inlet in the summer of 1881, Hieromonk Nikita of the Russian Orthodox Church observed that "the prevalent diseases are catarrhs, fever, tuberculosis, and sore eyes, which explains why there are so many blind among them" (Nikita 1881: II, 63). Again in 1884, Nikita reported that an outbreak of influenza killed nearly all the children under the age of two in the villages of Kenai, Ninilchik, Alexandrovsk (Nanwalek), and Seldovia (Nikita 1884:I, 357).

Although little hard evidence has been found, a major flu epidemic in Alaska in 1889 was remembered as "the Russian flu" (*Seward Weekly Gateway*, October 8, 1918:1). In 1888, for example, Governor A. P. Swineford was alarmed that "a very heavy rate of mortality is…reported from Kenai and Bristol Bay, occasioned by pulmonary diseases" (Swineford 1888:1). More specifically, the old Dena'ina village of Yaghehtnu, situated near the mouth of the Swanson River (Figure 1), was reported to have been wiped out by a flu epidemic "around 1890" (Lynch 1980).

Joan Townsend (1965:330–348) also reports a long series of epidemics among the Dena'ina, beginning in the 1880s with diphtheria and broncho-pneumonia, followed by a combined measles and influenza epidemic in 1900–1901, and another measles epidemic in 1913. Although Townsend has focused her research in the Nondalton, Kijik, and Iliamna communities on the west side of Cook Inlet, it is significant that in the Iliamna region, village abandonment and regional consolidation was the emerging pattern.

At least some of these epidemics had as much impact on the Kenai Peninsula Dena'ina as they did on the Dena'inas across Cook Inlet. In 1913, for example, we can say specifically that at least eight Natives at Kenai died from the measles, four died from tuberculosis, and five others died from measles and tuberculosis combined (KCR; OVS). Records from the Kenai Mission show that among the Orthodox population (which was predominantly Dena'ina and creole), the number of deaths outstripped the number of births in 1907, 1914, and 1916 (Alaska History Research Project 1936-1938:331–334). One disease, well known among the Dena'inas as "*iich*" (Kalifornsky 1984b), is not even mentioned in the official records, though it may well have been a abbreviation for "*iyatcinaqe*" (syphilis).

ABANDONMENT OF THE SQILANTNU DISTRICT

One early population estimate of the Squilantnu district comes from the missionary Hegumen Nikolai (apparently the same person as Abbot Nicholas above). Nikolai endured great hardship to ascend the banks of the Kenai River on snowshoes and give communion to seventy-four Kenaitze living somewhere in the mountains upriver from Skilak Lake on February 17, 1861 (Znamenski 2003:87). Since it is unlikely that communion would have been offered to small children, this number probably reflects adults only. However, in 1897 the resident Orthodox priest, Ioann Bortnovskii, did not include either Skilak or Squilantnu in his inventory of Kenai mission villages, and by 1916 the priest Pavel Shadura wrote about Skilak village as a place that existed only in the distant past (Znamenski 2003:204, 267).

Oral testimony from Beryl Lean (1984), the oldest resident of Cooper Landing until her death in September 1984, suggests that the Dena'inas had already left the Sqilantnu area by 1919, the year she arrived to settle there at the age of 19. At that time she remembered a few Indians passing through Cooper Landing, but none that were still residing there permanently. This observation also dovetails with data about the "Spanish flu" epidemic, which struck Alaska in 1918. Exactly how devastating this epidemic was to Alaska's Native population is only now coming to light.

In 1921, Father Pavel Shadura observed from the Kenai mission that the Natives in his parish were "prone to various infectious diseases and in case of a minor epidemic die out like flies. Thus, measles and influenza wiped out five villages. The parish population declined by half" (Znamenski 2003:272). To understand this devastation in raw numbers, it is instructive to look at the total number of deaths in the territory recorded between the years 1913–1919, as given by Alaska Office of Vital Statistics (see Table 2):

Table 2. Death Statistics (taken from Territorial Records, OVS, Juneau).

Year	Number of reported deaths
1913	505
1914	661
1915	694
1916	874
1917	956
1918	2,200
1919	794

While no one has yet ascertained what percentage of the 2,200 reported deaths in 1918 were caused by influenza and what percentage of deaths caused by influenza were Alaska Natives, it is pretty evident from the data on death certificates and from all the newspaper publicity that the 1918 flu epidemic was a major factor in the 130% death increase over the year before. With reference to Sqilantnu, it is fruitful to examine population trends elsewhere on the northern Kenai Peninsula, at least in those communities known to have been inhabited by Dena'inas. Table 3 is designed to show these trends.

Table 3. Population of northern Kenai Peninsula Dena'ina villages (from U.S. Departments of Interior and Commerce, Bureau of the Census Reports for 1880, 1890, 1900, 1910, 1920, and 1929). See community notes in Appendix.

	1880	1890	1900	1910	1920	1929
Skiliakh	44					
Chkituk & Chernilia	58					
Kalifonsky			16	34		
Kasilof	53	117	159	5**	45	
Kenai	44	159*	186*	250	332	286
Titukilsk & Nikishka	57		8			
Kultuk	17					
Pt. Possession			15	17		
Hope			27	35	44	15**

* Adjusted by the author to exclude seasonal cannery workers identified as "Orientals" and whites from outside of Alaska.

** No Alaska Native or partly Native households are identified by the author in these census schedules.

It is easy to get lost in all the notes that go with this table (see Appendix), but the point I want to stress is that between 1880 and 1920 at least eight Dena'ina villages on the northern Kenai Peninsula (see Figure 1) were abandoned (leaving only Kenai and Point Possession). This pattern undoubtedly reflects the devastation wrought by epidemics but also increasing consolidation and urbanization in the villages of Kenai and Tyonek. It is specifically known, for example, that the Kasilof people all moved to Kalifonsky [Kalifornsky] village, that all the Kalifonsky village people in turn moved to Kenai or Tyonek in 1925 or 1927 (Kalifornsky 1977:10; 1984a:95; Brelsford 1975:46), and that in 1910 some of the Kustatan people moved to Kenai after suffering from a disease believed to have been inflicted by a Susitna shaman (de Laguna 1934:138). The rest of the Kustatan people, those who managed to survive the flu, apparently moved to Tyonek in 1918 (Kalifornsky 1991:301).

Though never officially counted in the first population censuses, the people at Swanson River village (Yaghehtnu), who were decimated by an earlier flu epidemic, are said to have moved to Kenai or Tyonek during the early 1890s (Lynch 1980). Other historic Dena'ina villages include Q'es Dudilent or Stepanka's, a winter community of twenty-five to thirty people located near to where the Kenai River comes out of Skilak Lake (Monfor 1983:24; Kalifornsky 1991:349), and Chik'el'unt or Tsik'el'unt, located on the Chickaloon River either near its mouth in Chickaloon Bay or perhaps farther inland near its headwaters in American Pass (Kalifornsky 1984a:91; 1991:314–315, 345). Chik'el'unt was named after the last Dena'ina who had two wives.

NICHOLAI'S BAND

Something usually unnoticed about the 1918 "Spanish flu" epidemic is that influenza was only one of the diseases that struck the Dena'ina that year. In fact, although there were no deaths in Kenai attributed to influenza in 1918, eight Natives there died from tuberculosis and twelve (mostly infants) perished from the whooping cough. At the same time, however, the 1918 flu appears to have been disastrous to the small Dena'ina community at Point Possession (Ch'aghałnikt), where ten Natives were recorded as perishing from the epidemic (KCR Book 1). Apparently only one family, the Kallanders, still remain there, returning seasonally.

The census schedules from 1900 show Point Possession to be a tiny community of fifteen people divided into three families (Bureau of the Census 1900). By 1918 it may have been somewhat larger than this but probably not much larger, and it is logical to conclude that the ten individuals who died there in 1918 probably made up about half of the total village population. Of those ten who died at Point Possession, five were from a single family (the Chikloons), seven were children under the age of 8, and three were adults (KCR Book 1). The three adults were between 27 and 32 years of age, and all of them were listed as parents of young children—undoubtedly key individuals in the small-scale hunting, fishing, and trapping economy of the village.

Ironically, Point Possession village is said to have been founded in modern times by the survivors of an earlier epidemic that destroyed the old village on Fire Island (de Laguna 1934:136). The Dena'inas at Point Possession Village, also known as Ch'aghel-nikt or Nicholai Village, were in dismal health as early as 1916 when visited by a U.S. Forest Service ranger. In his field diary for July 17, Keith McCullagh wrote:

> Visited Chief Nicholai village—found himself and seven children all in one room badly gone with consumption (Nicholai died four days later). As they had no food we sent some ashore from the boat and about the same time the cannery sent a large supply of staples. This village is in urgent need of medical attention. Antone was found with his wife and three children (one 13 days old) in another cabin, both pretty sick (McCullagh 1916).

Another visitor to Point Possession who seems to have arrived at about the same time as McCullagh found every member of the two families living there (a total of about twelve persons) afflicted with measles and tuberculosis, many of them too weak to even step out of the cabin: "They were sprawled upon the floors of their cabins coughing and moaning in a most pitiful manner" (Bennett 1921:47). Some food was left for them, and an Anchorage doctor was summoned, but too late to save the father of one family. Chief Nicholai's own death from consumption was reported in the *Anchorage Times* on July 27, 1916. The obituary writer said he "was looked up to by his tribesmen as a man of good judgment; he was authority in all matters pertaining to their fishing and hunting rights and he was a picturesque character, well known to the old-timers in the inlet." The oral life history of Feodoria Kallander

Pennington (2002), the granddaughter of Chief Nicholai, confirms these written records.

Five members of the Chikloon family living at Point Possession were reported as dying from influenza in November 1918 (KCR Book 1). It appears that Kenai Village residents may have been spared deaths from the 1918 flu epidemic by having a medical doctor residing in the community who successfully treated the illness or who gave inoculations well ahead of time. The 1918 catastrophe at Point Possession, however, was mirrored at Susitna Station, an Upper Inlet Dena'ina community on the Susitna River where the flu almost completely decimated the population (Pete 1977; Fall 1981:100).

AFFANASI'S BAND

Though not known to be associated in any way with Feodore Sasha**,** Chief Affanasi was a contemporary of Sasha's father and one of the few northern peninsula Dena'inas for whom there is any concrete biographical data. Affanasi, who lived in and around the village of Hope on Turnagain Arm, apparently took his name or was given his name in memory of Hieromonk Afanassy, the Russian Orthodox monk who helped found the first mission in Kodiak in 1794 and stayed on at Afognak until 1824 (Gregory 1977:21, 47). An imposing photograph shows him formally dressed in a fancy cap and dentalium necklace, wearing face paint (Figure 3). Affanasi's name appears in the source literature under an even wider variety of spellings than those attached to Feodore Sasha. Some spell "Affanasi" with one *f* and two *s*'s, others with two *s*'s and one *f*, others with two "f"s and two "s"s, and still others with a final *ia*, Affanasia. None of these various spellings can really be considered standard.

At the time of the 1900 U.S. census, Affanasi and his family were living at Hope along with two other Indian families, making for a total Indian population of fourteen. All of them were said to be from Knik. The census tells us that Affanasi himself was born in 1850 and originally came from Knik. His wife's name was Mary (born in 1870), and he had one biological child, William (b. 1888) as well as two adopted sons: Stephen (b. 1872) and Pedro (b. 1881). Affanasi also had a son named Wahska who died in Hope on December 21, 1907, after a long illness, and the chief and his wife loaded the body in a small boat to take it to Kenai village for burial (*Seward Weekly Gateway,* December 28, 1907:4). Affanasi's adopted son Stephen died of tuberculosis on January 31, 1918, and was also buried at Kenai (KCR Book 1).

By the time of his death in 1909, Affanasi had earned quite a reputation among white people in the area. The author of his obituary revealed a begrudging respect for him:

> Chief Affanacy, the hiyu big chief of the Aleuts [sic] of the Cook Inlet region, has been gathered to his fathers. His end, unlike his career, was peaceful. Time was when Chief Affanacy was a power—a veritable monarch—among his people. All paid tribute to him, and he thus amassed considerable wealth. He was a natural leader, firm and unyielding. His personality was strong and magnetic, and when in his presence the other Natives recognized in him one who must be obeyed.

Figure 3. Chief Affanasi, ca. 1900–1904. Sylvia Sexton Collection, Album 6. SCL-1-804. Courtesy of the Seward Community Library.

> Affanacy once had his headquarters at Old Knik [Eklutna]. Years ago, when the region was chiefly inhabited by Natives, an agent of the Alaska Commercial Company [George Holt] at that place was murdered. The crime was laid at the door of the Native chief; not the actual commission, but the instigation. The law's delay, the lack of testimony, permitted this foul crime to go unpunished.... When he died a few days ago at Kenai he was living in poverty, shorn of his power, and but a relic of his former greatness (*Seward Weekly Gateway*, July 24, 1909:3).

James Fall (1981:432) concludes there may have been more than one Dena'ina named "Affinassa." One of these was an Upper Inlet *qeshqa* (rich man) of the *nulchina* sib originally from Eklutna and Knik, the same area ascribed to Chief Affanasi in the 1900 census taken at Hope. Today there are several Kenai Peninsula placenames that bear Affanasi's name. Affanasi Creek is one of the tributary streams for Abernathy Creek and Resurrection Creek and lies approximately 32 km north of the Sqilantnu district. Its direct historic association with Chief Affanasi is unknown, but since this placename appears on Sleem's (1910) early map of the Kenai Peninsula, it may once have been associated with Affanasi.

The name most closely associated with Chief Affanasi's life is Affanasi Point, the site of a small Dena'ina village on Turnagain Arm at Hope. At one time there were three or four houses on Affanasi Point, but white people later moved into the cabins and eventually burned everything down. About all that remains is a very small graveyard, and even that is getting difficult to identify (Clark 1984). Field notes for the U.S. cadastral survey of this Indian graveyard indicate the presence of "about 3 graves" (Conklin 1966), though Affanasi himself was probably buried in Kenai where he died and where his sons are interred. Without further archaeological surveys and testing, there is no way of knowing whether Dena'inas occupied the Hope area before the gold rush of the early 1890s.

FOREST FIRES, FUR TRAPPING, AND PLACER MINES

Diseases were surely not the only factor contributing to the depopulation and migration of Dena'inas from Sqilantnu to Kenai. Forest fires apparently played a significant role also. In his short history of early fires in Alaska, H. J. Lutz (1959, 1974) recalls that Peter Doroshin (1865) was the first to report a major forest fire on the peninsula, observing one in the Tusli-tnu (i.e., Skilak River) valley in 1851. Lutz also calls attention to Dufresne (1955:21), who attributed the disappearance of caribou on the peninsula to a major fire in 1883, and to Bennett (1921:72), who says that in 1890 a big fire raged for months over the interior part of the Peninsula from Tustumena Lake to the mountains and was followed by another at the lower end of Tustumena Lake in 1911. These last two fires covered over 25,900 ha between Tustumena Lake and the Kenai River and Skilak Lake. While the causes of these 1883, 1890, and 1911 fires remain unknown, it is known that the influx of several thousand white prospectors on the peninsula during the 1890s led to a dramatic increase in forest fires.

Some of these fires were natural or accidental, but others were purposely set to destroy the breeding grounds for flies and mosquitoes (Moffit 1906:50). In 1896 gold miners intentionally burned the entire length of Canyon Creek (Lutz 1956:15). But in addition to destroying insects, such fires must have killed or driven out many of the fur-bearing animals trapped by the Dena'inas. While some mammals such as beaver, moose, hare, black bear, and lynx are known to thrive in burned-over areas, other important fur-bearers such as marten are severely devastated since they are dependent upon climax spruce forests for their habitat (Lutz 1956:81; Viereck and Schandelmeier 1980:82–85).

Marten were at the core of the Russian fur trade economy, and Osgood (1966:96–97) illustrated how Dena'inas trapped marten with two kinds of deadfalls. The historical importance of marten to the Dena'ina during the late eighteenth century is well established in the journals of Captain Cook's Lieutenant King (Beaglehole 1967:1422) and Captain George Vancouver (1984:1223–1224). In 1778, Lt. King met some men at Point Possession who were wearing marten skin cloaks, and sixteen years later, in 1794, while his ship was anchored between East and West Foreland, Vancouver bartered European goods (iron, beads, snuff, and tobacco) for marten skins with a Native named Sal-tart.

The Russians also had a strong desire for sable and marten pelts, which supplied the primary motive for the colonization of Siberia in the sixteenth and seventeenth centuries (Fisher 1943:17; Gibson 1968–1969:209). However, during the latter part of the eighteenth century, just as the *promyshlenniki* were moving into Alaska, market demand began to lean heavily in favor of the sea otter, and from 1804 until 1850 a single prime sea otter pelt

was worth fifty to sixty prime marten skins (Tikhmenev 1978:201–204). There was still a demand for marten after 1850, but it was not as strong.

The diversity and abundance of fur-bearers trapped by these upper Kenai River Dena'ina is revealed in a short note made in an Alaska Commercial Company (1876–1877) logbook kept at "Kennay [Kenai] Station." This logbook dwells mostly on daily weather conditions, but on April 26, 1877, the unidentified trader noted that "today three Indians arrived from Skilak, having been gone about two months. bought — (18) Marten (11) Mink (4) Land otter (1) Silver grey fox (1) Cross fox (1) Lynx (1) Wolverine, and (1) Beaver. paid 85^{40} for the lot." Today, this may not seem like a lot of cash, but if converted to 2006 dollars using the Consumer Price Index, adjusted for inflation, the three Dena'ina trappers received the substantial modern-day equivalent of $1,592.03 for their fur (see www.austintxgensoc.org/calculatecpi.php).

This already devalued marten pelt did not seem to deter the trappers, but it was made almost worthless by a sudden across-the-board plummet in fur prices just twenty years later. Between 1897 and 1899 the prices paid for Alaska furs dropped by over 50 percent, and the Alaska Commercial Company had already stopped issuing supplies on credit to the Indians as early as 1883 (Townsend 1965:161–164). Thus, if there was any Dena'ina marten trapping still going on in the upper Kenai River drainage in the late nineteenth century, human-caused forest fires and this major market collapse should have put an end to it. However, according to Peter Kalifornsky (1984a:101; 1984c:177; 1991:330–335), the trapping of small fur-bearers on the northern peninsula lasted until after World War II, when he claimed that stocks began to be depleted. Kalifornsky recalled, for example, that the Demidoff and Darien families were still actively trapping in the upper Kenai River and Cooper Landing area up until that time, and his verbal mapping of all the lakes and streams on the northern Peninsula where he and other Dena'inas were trapping reveals a vast economic network.

A rare turn-of-the-century photo (Figure 4) showing an unidentified Native hunting party in the forest near Seward appears to portray a northern Kenai Peninsula Dena'ina family, perhaps on a visit from the Squilantnu

Figure 4. Native family with hides and guns after a hunt, near Seward, ca. 1896–1913. Elsie Blue Collection, SCL-15-84. Courtesy of Seward Community Library.

area, near the time when Squilantnu appears to have been abandoned. This photo is diagnostic for ethnicity based not on the photographer's caption but on the detail of the woman in the photo holding a rifle. We know that historically, Alutiiqs (Chugach Eskimo) have also lived in the region around Seward and the Kenai Fjords, but to draw an ethnographic analogy from contemporary subsistence patterns, Alutiiq women rarely handle guns and hunt game while Athabaskan women commonly do (see Peter 1992:63; Mishler and Simeone 2004:xxxi). The woman's gun shown here in Figure 4 is a Winchester Model 1906, either .22 short or .22 long, with slide action and a Marbles or Lyman tang sight. Since this rifle was manufactured continuously from 1906 until 1932, the circa date in the photo credit needs to be adjusted forward by at least ten years.

The large contingent of gold miners who descended on the Kenai Peninsula in the late nineteenth and early twentieth centuries must have had a dramatic direct impact on the Dena'inas living at Squilantnu. Today commercial placer miners must receive an anadromous fish protection permit from the Alaska Department of Fish and Game and a wastewater disposal permit from the Alaska Department of Environmental Conservation before starting operations. Biologists have long known that the heavy silt discharge and the erosion of stream banks that result from dredging and hydraulic mining can severely damage salmon spawning areas and salmon migrations (Smith 1940).

Although mining on the Kenai must have come under the jurisdiction of the Chugach National Forest, as designated by President Roosevelt in 1907, there were no state or territorial agencies to regulate mining, and the discharge of silts surely had a negative impact on the reproduction of salmon and other fish in the area, such as rainbow trout. The Kenai Mining and Milling Company, for example, began hydraulic mining in the area of Cooper Lake and Cooper Creek during the summer of 1908. This was a very large camp that operated day and night, around the clock. Cooper Creek joins the upper Kenai River just a few kilometers above the mouth of the Russian River, so all of the heavy runoff from Cooper Creek must have affected fish going into the Russian River at Squilantnu. Then starting in 1910, Charles Hubbard and the Kenai Dredging Company built and began operating two gold dredges right on the upper Kenai River, which surely produced even more turbidity and bank erosion (*Seward Weekly Gateway* 1910:4; 1911b:3; Barry 1997:111–112, 140–144). That same year other prospectors reported successful finds on the Russian River and at the mouth of the Russian River (*Seward Weekly Gateway* 1911a:3). There they would have had direct encounters with any Dena'inas still living at Squilantnu.

FISH TRAPS

It is important to recognize that in the late nineteenth century, fish traps, gill nets, beach seines, and boats operated by the canneries at the mouth of the Kenai River also substantially curtailed the salmon runs at Sqilantnu. As early as 1886 there were small canneries at the mouths of the Kasilof and Kenai Rivers (Elliott 1886:93–94). The Northern Packing Company was established at Kenai in 1888 and operated there until 1891, packing between 12,996 and 18,712 cases of salmon each year (Moser 1899:51–52). Figuring an average of fourteen fish per case, this means the cannery harvested between 181,944 and 261,968 fish per season. It's impossible to tell what percentage of these were taken from traps set directly in the Kenai River, but since no regulations prevented fish traps from being set right in the river mouth where migrating salmon are the most vulnerable, one can assume that Northern Packing took full advantage and that a large percentage of their pack came from river traps. Even five years after the Northern Packing Company closed in 1891, one of the canneries at Kasilof continued to work three traps at the mouth of the Kenai River, putting up 3,000 to 10,000 cases (42,000 to 140,000 fish) per season (Moser 1899:140).

Cut off from their subsistence fishing by commercial competition (Bortnovskii 1897:82), an increasing number of Dena'inas went to work for the canneries during the summer. Just before the turn of the century, the U.S. Bureau of Fisheries (Kutchin 1899) reported that twenty Natives were employed by the new Pacific Steam Whaling cannery at Kenai, while another ten were working at the older cannery at Kasilof. In 1916, Hugh Bennett (1921:47) also recognized that the Kenai Indians were doing far less trapping than formerly and were making money both by working in the canneries and by fishing for the canneries with gill nets. Others found seasonal employment as packers and hunting guides in the burgeoning big game trophy hunting industry (Cassidy and Titus 2003:11, 40). They

were being quickly absorbed into a cash market economy, but it may have been their only way to survive.

INTERMARRIAGE AND ETHNIC MIXING

Finally, we must recognize that many northern Kenai Peninsula Dena'ina women, in the process of moving away from the small rural settlements and into the village of Kenai, married Russian and Scandinavian immigrants. One visitor who landed there in July 1900, wrote that "the population of Kenai is more than doubled in the summer by the Cannery men and Chinese who come up from S.F. [San Francisco]. The town is a mile or so from the wharf and cannery and consists of a few little log buildings and the Greek [i.e., Russian Orthodox] Church. The people are mostly mixed Russians and Indians" (Walpole 1900). By this time Russian fur traders and other settlers had been living in Kenai for over fifty years, so that intermarriage was already an established practice by the time Scandinavian men began to arrive and develop the Cook Inlet commercial fisheries in the 1880s (see Znamenski 2003:13–14). These Scandinavian fishermen represented the second wave of European bachelor immigrants.

The 1920 U.S. Census schedules for Kenai list twelve women who were born in Alaska and married to Outsiders. Of these men, one was a Canadian (with the surname of March), two were Russian (Koshako and Shadura), two were Finnish (Mann and Wik), three were Norwegian (Gregerson, Juliussen, and Hermansen), three were Swedish (Hedberg and two Petersons [aka Pettersons]), and one was an Anglo-American named Miller from Illinois. In 1916 the priest Pavel Shadura complained bitterly about these sailors and fishermen because they were "indifferent" to Russian Orthodoxy and discouraged their children from attending church services (Znamenski 2003:267). By 1929, however, there were sixteen women born in Kenai or Alaska and married to non-Native men (Bureau of the Census 1920, 1929). Such marriages signify a dramatic shift in Dena'ina social structure, marking the collapse of cross-cousin marriage, matrilineal moieties and clans, the disappearance of potlatching traditions, and the loss of language. We have observed a similar process of intermarriage at work among the Han Athabaskans in more recent times (see Mishler and Simeone 2004:92–93).

While the ethnicity of these Alaskan-born wives is blurred, it seems likely that they were Native women of Dena'ina or mixed Dena'ina and Russian descent. Their maiden names are not supplied in the census, but their given names are largely Russian: Anna, Vallea [Valya], Inga, Alexandra, Katherina, Eva, Matrona, Theodora [Feodora], and Feona. Numerous other household heads in the 1920 Kenai census have Russian surnames, but the census taker observed that both husband and wife were born in Alaska. Spouses in these households were probably Dena'inas or Russian creoles with Dena'ina blood: viz., the Pansiloffs, Oskolkoffs, Demidoffs, Bokoffs, Panshins, Sashas, Soroborikoffs, Simenoffs, Michikoffs, Kalifornskys, Komdidoffs, Pinfedoffs, Konikoffs, Knikoffs, and Phitsoffs.

It is quite telling, too, that three of the six Native elders from the northern Kenai Peninsula interviewed by A. J. McClanahan in the book *Our Stories, Our Lives* (2002) are the children of Danish or Swedish fathers and Dena'ina mothers, and a fourth is the daughter of creole parents who spoke both Dena'ina and Russian. With both Russian and Scandinavian bloodlines, some Dena'inas living in Kenai today can be thought of as doubly creolized. However they saw themselves, late nineteenth and early twentieth-century Dena'inas as a group became much less visible as Natives as a result of adopting Russian and Scandinavian surnames, even when their surnames were conferred on them by Russian Orthodox baptisms rather than intermarriages. Intermarriage between northern European men and Alutiiq women residing in Kodiak area villages also occurred widely during this same period (see Mishler and Mason 1996; Mishler 2003).

CONCLUSIONS

From all of this circumstantial historic evidence, particularly the pattern of migration and consolidation that prevailed along the coast of Cook Inlet, it seems reasonable to extrapolate and conclude that the Dena'inas residing at Sqilantnu and other places in the interior of the Kenai Peninsula suffered a fate very similar to their brethren on the coast. That is, they thinned out or perished altogether not just from a single horrendous epidemic but from wave after wave of disease that struck between the late 1830s and 1918. These diseases included not only the well-known outbreaks of smallpox and influenza (both Russian and Spanish varieties), but also measles, typhoid, whooping cough, syphilis, tuberculosis, and the mysterious "*iich*."

Sometimes two or more of these diseases arrived simultaneously, attacking different age groups.

In the very midst of these epidemics, moreover, the interior northern Kenai Peninsula Dena'inas were hard hit by forest fires, falling fur prices, loss of credit, placer mining, and heavy unregulated commercial harvesting of river-run salmon. Taken together, the depletion of small mammal and fish resources not only ruined the Indians' fur trade but seriously cut into their subsistence economy. If this depletion of resources was really severe, and we have every reason to believe it was, the Sqilan Ht'ana would have been starved out and burned out, forced to move elsewhere, becoming refugees in their own land.

From this perspective, Feodore Sasha's family history is like a tracer bullet. When their families moved to Kenai to find cannery processing work, to catch fish for the canneries, or to guide big game hunters, some Dena'ina men such as Feodore Sasha met and married the granddaughters of Russian immigrants. But more significantly, many young Dena'ina women met and married northern European men. Mixed marriages were clearly their ticket to survival in the newly emergent wage labor and cash economy. Of all the factors that led to their decline as a distinct people, this was perhaps the only one that could be ascribed to personal choice.

Ironically, and perhaps tragically, the Dena'ina may have blamed themselves rather than the Europeans and Americans who were invading their homeland for this ecological collapse. It was a widely held Dena'ina religious belief that if animal bones were discarded carelessly, or if fish were mistreated, the spirits of those creatures would feel disrespected and would not be reincarnated again, leaving the people to starve (see Alexan 1965:38–39; de Laguna 1996:72; Boraas and Peter 1996:184–188). Each edible species had its own set of protocols. Animal bones were supposed to be stacked carefully away from the dogs and then later deposited in water or burned in a fire.

Obviously the thousands of small mammal and fish bones excavated in middens and other features at KEN-068, KEN-092, KEN-094, and SEW-214 and later examined by David Yesner (1986, 1996; also Yesner and Holmes 2000:69) demonstrate that this ceremonial practice was not always carefully followed at Sqilantnu. It is possible that moose and caribou bones at Squilantnu were properly burned or placed in the river, but it is also possible that the region did not support large moose and caribou populations during the late eighteenth and nineteenth centuries. Evil shamans were also believed to disrupt the natural order and cause declines in animal populations (Boraas and Peter 1996:190).

Population census data for the village of Kenai (Table 3) shows a marked increase in that community's population between 1880 and 1890, which can largely be attributed to white gold miners and Asian cannery workers, yet some of it is also surely attributable to migrations by the Dena'ina away from places such as Sqilantnu, Skilak, Shk'ituk't, Ch'aghałnikt, Ch'anilnat, Chik'el'unt, Yaghehtnu, Tiduqilts'ett, Kalifornsky Village, and the three Nikishkas. Part of the problem with the census numbers is that in 1900 the totals of three separate U.S. census schedules were combined. One head count was done at Fort Kenai, another at Old Kenai, and still another at the Pacific Steam Whaling Company's cannery, established in 1897. In the published abstract (Bureau of the Census 1901), however, all three of these are lumped together under the single placename "Kenai." Presented in summary form without detailed analysis and social context, the rapid population growth that census takers reported for Kenai between 1880 and 1920 masks the very rapid and catastrophic decline of the Dena'ina virtually everywhere else on the northern part of the Peninsula.

Counting Sqilantnu, along with those communities enumerated in the 1880 census (Table 3) and several others never included in the censuses, it becomes quite evident that at least a dozen historic Dena'ina villages on the Peninsula were abandoned before 1929. It needs to be said that when archaeology, genealogy, natural history, and vital statistics are enlisted in service of ethnohistorical research, much can be learned about the mysterious fate not only of specific villages, but of families and individuals. Along with the collection of oral life histories, this will humanize our narrative reconstructions.

REVIVAL

As a postscript, it is encouraging to know that there is now a vigorous effort underway by the Kenaitze Indian Tribe and other Dena'inas to recapture their language and cultural history (see http://qenaga.org/index.cfm). In recent years Kenaitze tribe members have partnered with the U.S. Forest Service to run an interpretive archaeological site and gift shop during the summer months at K'Beq ('Footprints'), located at mile 52.6 of the Sterling Highway, directly across from the entrance to the Russian River Campground. Under the leadership of Alexandra (Sasha) Lindgren (whose name neatly embodies the tribe's

Russian-Swedish ancestry), the Kenaitze have produced a short *Footprints* video to demonstrate their sense of ongoing stewardship over the Squilantnu sites (Kenaitze Indian Tribe IRA 1994).

Looking to the future, the U.S. Forest Service and the U.S. Fish and Wildlife Service have worked out a major agreement with Cook Inlet Region, Inc. (CIRI), spelled out in the Russian River Lands Act of 2002 (Public Law 107-362, 107th Congress), to convey $13.8 million for constructing an interpretive visitors center and for the design of a Sqilantnu Archaeological Research Center near the mouth of the Russian River. This hopeful agreement, to which the Kenaitze Indian Tribe is also a party, settles without litigation the outstanding 14(h)(1) land claim selections made by CIRI under Alaska Native Claims Settlement Act (ANCSA) of 1971.

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APPENDIX: COMMUNITY NOTES FOR TABLE 3

SKILIAKH [SKILAK]

It is not known exactly where Ivan Petroff found Skilak village. Judging from the ethnological map that accompanied his 1880 census (Petroff 1884), Skilak village was situated on a river that entered Skilak Lake from the south (perhaps at the mouth of the Killey River?), but he also shows Skilak Lake as the head of the Kasilof River, which means he merged Kenai Lake with Tustumena Lake and totally confused the two. In the midst of all this confusion, Petroff may have intended to show that Skilakh village was on the upper Kenai River, at Sqilantnu. Abbot Nicholas's (1862) estimate that Skilakh village was about 150 versts (about 160 km) from the village of Kenai only muddles the matter further, since the Sqilantnu archaeological district is only about 80 km from Kenai as the crow flies and probably only half again as far by river. Skiliakh is most likely the same place known as Stepanka's (Monfor 1983:24), also known in Dena'ina as Q'es Dudilent. The name "Skilak" was first reported by the Russian Ilia Wosnesenski about 1840 (Baker 1906:580), several years before Peter Doroshin explored the area.

CHKITUK AND CHERNILIA

In modern orthography (Kari and Kari 1982:31) these two villages are Shk'ituk't (Skittok) and Ch'anilnat (Chinila/Chinulna Point). Shk'ituk't is situated on the lower part of the Kenai River. De Laguna (1934:133) says Tc'k'itu'k' (Shk'ituk't) was located on both sides of a small stream flowing into the Kenai River from the north, where the Kenai Packing Company was later built, while Kalifornsky (1991:347) says it was at the former site of the Northwest Fisheries Cannery. It was occupied until a Russian priest moved the villagers to the present site of Kenai in 1910. Shk'ituk't or Skittok may well be the same as the mouth of Slikok Creek (aka Shlakaq'), where two archaeological sites, KEN-063 and KEN-147, with conspicuous house pits have been located. Ch'anilnat or Chinila is a fish camp located just south of the mouth of the Kenai River (Kalifornsky 1991:343) and appears on the Alaska Heritage Resource Survey as KEN-035.

KALIFONSKY (UNHGHENESDITNU)

More properly called Kalifornsky, after the family with that surname. All sixteen members of this community were identified as Kenaitze (Kenai Peninsula Dena'inas) in 1900. The 1910 U.S. census records a population of thirty-five "Aleuts," an obvious ethnicity error repeated again for that year at Kenai, Point Possession, and Hope.

KASILOF (ALSO KASSILOF)

See Peter Kalifornsky's notes on the etymology of this Russian placename (1991:318–319). The sudden jump in population at Kasilof between 1880 and 1890 was due to

the establishment of the Alaska Packing Company's fish cannery at the mouth of the Kasilof River in 1882; a second cannery was built there in 1890 by George W. Hume of San Francisco (Alaska Department of Fisheries 1951:72–74). Of the 159 persons counted at Kasilof in the 1900 census, 16 were crew members on the steamer *Centennial*, 136 were employees of the Alaska Packers Plant, and only 7 were locals. Of these 7, only 2 were Kenaitze. The closest Dena'ina communities to the canneries were Humpy's Point Village (K'echan Dałkizt), located 4.8 km south of Kasilof, and Kalifornsky (Unhghenesditnu), 6.4 km north of Kasilof.

KENAI

Among the 264 persons counted at Kenai in 1890, Porter (1893:4) found 41 persons of mixed blood (i.e., creoles), 93 Indians, 51 whites, and 79 Mongolians (the latter presumably cannery workers). Since Petroff (1884:29) had counted 42 creoles and only 2 whites in Kenai but no Athabaskan Indians ten years earlier, it seems likely that a large number of Indians from Shk'ituk't and other villages began moving into Kenai between 1880 and 1890. The 1900 census schedules show a total of 156 people in Fort Kenai (including 61 Indians), 30 in Old Kenai (including 24 Indians, 5 of mixed blood, and 1 Caucasian), and 104 men (mostly Chinese from San Francisco) living at the Pacific Steam Whaling Company's cannery, built in 1897-98. To rectify the misleading nature of these figures for 1900, I subtracted the 104 identified as seasonal cannery workers (both white and "oriental") and adjusted the total downward from 290 to 186.

I have also adjusted the 1890 total at Kenai downward from 264 to 159 to exclude the 79 "Mongolians" and 26 of the 51 whites listed, on the supposition that there were at least 105 seasonal residents associated with the cannery. Although this figure is somewhat speculative because no census schedules are available for that year, it closely approximates the number of cannery workers known to have been employed at Kenai in 1900 and 1910. In 1910 the census taker counted 112 cannery workers at Kenai, but in this instance, the cannery workers were not incorporated into the official published abstract figure of 250 persons. By making adjustments for 1890 and 1900, therefore, the 1910 total can be seen in a more balanced perspective of steady population growth.

It is virtually self-evident that the boom in Kenai's population in 1890 came principally from the seasonal importation of cannery workers from Outside, for the Northern Packing Company built its cannery at the mouth of the Kenai River in 1888 (Alaska Department of Fisheries 1951:72). In spite of this boom, the ethnic breakdown shows a slight decline in the total number of Indians living in and around Kenai between 1890 (when there were 93) and 1900 (when there were 85). All this notwithstanding, by 1910 there were 155 "Aleuts" (Dena'inas) living in Kenai, a substantial increase. This near-doubling of the Native community in just ten years almost certainly reflects regional village consolidation, migration, and urbanization, although a higher birth rate or lower death rate might also have played a role.

HOPE

Of the twenty-seven persons counted at Hope City in 1900, fourteen were Indians, all identified as coming from Knik. These Indians were probably all in Chief Affanasi's band. The 1910 census schedules (taken a year after Affansi's death) list only four "Aleuts" and four creoles in Hope (out of a total population of thirty-five), but of the four full-bloods, three were Indian women married to white men, and the fourth was an adopted daughter. By 1920 the only Natives left in Hope were a woman named Olga Ivanoff and her three children. By the time of the 1929 census even they were gone.

POINT POSSESSION (CH'AGHAŁNIKT)

It is not known why Point Possession, Hope, Nikishka, and Kalifornsky Village are found on the local census schedules but are omitted from the published summaries of the Alaska census for 1900 and 1910. A short oral history of Point Possession may be found in Pennington (2002).

TITUKILSK, NIKISHKA, AND KULTUK

In modern orthography (Kari and Kari 1982:32) the first of these census-counted villages (Titukilsk) is Tiduqilts'ett, also called Nikiski No. 2 or Nikishka No. 2, which is located somewhere between Swanson River and Bishop Creek. Tiduquilts'ett literally means 'disaster place,' so named because many of the people there died from sickness (Kalifornsky 1984a:77). Judging from the census data (Table 3), an epidemic may have struck this place sometime between 1880 and 1900 and greatly reduced the population.

Historically, there were three different Nikishkas or Nikiskis (de Laguna 1934:134; Brelsford 1975:67–68), named after three brothers bearing that name. Nikishka No. 1 was not included in Petroff's 1880 census, but Orth (1971:688) equates it with the modern-day Nikiski Wharf, and de Laguna (1934:134) said "a mile or a mile and a half up the trail from Nikishka 1 to the lake, are reported old houses belonging to Tukyektat" [Tuqyankdat in modern Dena'ina]. Kalifornsky (1984a:81) has written an intriguing story about this village, told in both Dena'ina and in English.

De Laguna thought Kultuk was probably the site now known as Nikishka No. 3, also called Treja'lux, where she located and tested one housepit. Nikishka No. 3 was occupied at least as late as 1931 by the Antone family (Monfor 1983) The population figure of eight persons in the 1900 census schedule is for Nikishka only, but the schedule does not specify which Nikishka was intended (Bureau of the Census 1900).

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THE ARRIVAL: NATIVE AND MISSIONARY RELATIONS ON THE UPPER TANANA RIVER, 1914

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ABSTRACT

This paper develops a context for a series of historical photographs that document the arrival of missionaries at the Episcopal mission at Tanana Crossing in 1914. The photographs were taken 15 years after the Klondike stampede of 1898, which set in motion a series of developments that, by 1914, were already having a profound effect on the Native people of interior Alaska. The author argues that while the Episcopal Church saw Native people as nonactors in the drama of development and feared unregulated change, Native people embraced change, and this is evident from the photographs. The people facing the camera saw themselves as sophisticated, "civilized" people still in control of their world. This confidence produced a certain anxiety because Whites were then faced with an image that neither White nor recognizably Native. Such unregulated transformations placed the church in a double bind, because they not only led to unrecognizable forms but might also lead to desires for self-governance.

Key words: Episcopal Church, Upper Tanana, Athabascan, photographs, missionaries

In 1914, the upper Tanana region of east central Alaska was on the periphery of the American frontier. Gold seekers had briefly wandered through the area on their way to the Klondike in 1899, but by 1914 the region was remote from the major transportation corridor connecting the population centers of Fairbanks and Valdez, and it was not until the construction of the Alaska Highway during World War II that the region became accessible to settlers. This period could be characterized as a "middle ground" because EuroAmerican hegemony had not yet become dominant (White 1991).

Deaconess Mabel Pick (Fig. 1) of the Protestant Episcopal Church arrived at the mission station at Tanana Crossing late in the summer of 1914. A thin layer of wet snow covered the ground. Accompanying Pick were the Reverend Charles Betticher, priest in charge of the Episcopal missions along the Tanana River, and Celia Wright, a lay missionary who was returning to the mission after a furlough in Fairbanks. The 200-mile trip had taken eight weeks by river steamer (Betticher 1914). As soon as he arrived Betticher began taking photographs. From the steamer he took two photos of the mission, which was a converted telegraph station purchased by the church from the U.S. military. The telegraph station had been built at a ford or crossing on the Tanana River and was part of the telegraph line connecting Valdez with Eagle City on the Yukon. By 1914, the line and all the stations had been abandoned. Those Native people who lived nearest the mission

in 1914 were from the Mansfield/Ketchumstuk band, who had semipermanent villages at Mansfield Lake, located 11 km north of Tanana Crossing, and Ketchumstuk, 97 km further north (McKennan 1981:565).

Pick, Wright, and Betticher were greeted by retiring missionary Margaret Graves and a contingent of Native people. At some point Betticher photographed the entire group standing against one wall of the mission house. There are approximately 50 people in the photograph, but this is certainly not the entire Mansfield/Ketchumstuk band since the 1910 census lists 57 people at Lake Mansfield and 44 Native people residing at Ketchumstuk. The missionaries stand to the right, with Pick dressed in a somber black and white outfit. Some of the people are holding cabbages harvested from the garden started by the missionaries.

Figure 1. Deaconess Mabel Pick surrounded by supplies that were supposed to see her through winter. (Photo by C. Betticher, courtesy of the Episcopal Church Archives, Austin, Texas.)

To greet the new missionary, some people, especially the younger ones, wore their best clothes: the men in suits, white shirts, ties, and Stetson hats, and the women in dresses they had either purchased in Dawson, Eagle, or Fortymile or had made themselves using a sewing machine brought by the missionaries. Many of the young women also wore hairstyles influenced by the missionaries. Because the mission was so remote, Pick brought enough supplies to see her through an entire year, and these were unloaded with the help of Native men. The missionaries decided to celebrate and use some of the new supplies to make bread, and they enlisted the help of several Native women.

When I found Betticher's photographs in the late 1970s they appeared to have little ethnographic value, since everyone was dressed in western-style clothing. But the images were fascinating. They have a captivating vitality and immediacy. The people seem almost bemused, exuding a relaxed self-assurance that is reminiscent of the stately high society portraits painted by the American artist John Singer Sargent. I showed the photos to Tanacross elders Martha Isaac and Gaither Paul. They were able to identify most of the people and related stories about where people came from, whom they were related to, and some of the personal idiosyncrasies they were noted for. But the question was: what did the photographs represent as historical documents? Using various sources of information, I constructed a context around the pictures and thought about the relationship between the missionaries who took the photographs and the people in the pictures.

The photographs were taken 15 years after the Klondike stampede of 1898 and only a few years after Felix Pedro found gold on a tributary of the lower Tanana River (Simeone 1998). The discovery of gold set in motion a series of developments that, by 1914, were already having a profound effect on the Native people of interior Alaska. Their territories were inundated by swarms of prospectors who must have seemed like a group of warring aliens, rushing from one creek to another, building and then evacuating towns, and shooting and fishing where convenience demanded. In the context of this drama the Protestant Episcopal Church saw Native people as passive actors who had to be protected from the ravages of unscrupulous Whites and unchecked progress. As the Episcopal priest Frederick Drane put it, the church not only had the

Figure 2. The mission station at Tanana Crossing, 1914. (Photo by C. Betticher, courtesy of the Episcopal Church Archives, Austin, Texas.)

Figure 3. The two story mission house and covered well. The mission house was originally built as a telegraph station on the line linking Valdez with Eagle (Photo by C. Betticher, courtesy of the Episcopal Church Archives, Austin, Texas.)

Figure 4. Mansfield and Ketchumstuk people with the missionaries Graves, Pick, and Wright, 1914. (Photo by C. Betticher, courtesy of the Episcopal Church Archives, Austin, Texas.)

responsibility to pass on the gospel but a duty to "humanity as well as to God to show the Native that there were those who would work for his uplift as well as those who would prey on his weakness" (Drane n.d.:14). But the situation created a dilemma for the church. How do you protect Native people not only from unscrupulous Whites but from their own desire to embrace change and mimic or emulate what they saw around them? One solution, advocated by Episcopal Bishop Peter Trimble Rowe, was to consolidate the scattered bands of Indians into centralized locations controlled by the church. In his annual report for 1910, Rowe (1910–11:68) wrote that

> In places they [Native people] are made victims of lust and debauchery. While subjects of laws they have no voice in, yet no laws seem to protect them. This is why they are so scattered that it is next to impossible to help them. The Government expends much in trying to educate the children, but average attendance is frightfully small. … It is like caring for the top of the tree while the roots are rotting. Something entirely different is demanded, and these original possessors of the country thrust to one side, their food-giving preserves encroached upon by the not-to-be-prevented advance of the superior race, are justly entitled to some protection and aid from our Government. What is needed is some law by which all those who live in scattering families shall be brought together in places not already appropriated by the white people, where under wise leadership they can easily support themselves, learn the art of self government, where they can receive such medical help as will save their lives and where education will be to some purpose and cost less then the present unsatisfactory methods.

On the other hand, the Archdeacon of the Episcopal Church, Hudson Stuck (1988 [1914]:288–289) thought that to remove Native people from the land would destroy them and that to educate simply for the sake of education was wrong. Stuck wrote:

> For no one who has the welfare of the natives at heart can tolerate the notion of making them paupers; these who have always fended abundantly for themselves, can entirely do so yet. With free rations there would be no more hunting, no more trapping, no more fishing; and a hardy self-supporting race would sink at once to sloth and beggary and forget all that made men of them. If it were designed to destroy the Indian at a blow, here is an easy way to do it. Yet there are some, obsessed with the craze about what is called education, regarding it as an end in itself and not a means to any end, who recommended this pauperizing because it would permit the execution of a compulsory school-attendance law. Or is it a personal delusion of mine that esteems an honest, industrious, self-supporting Indian who cannot read and write English above one who can read and write English—and can do nothing else—and so separates me from many who are working amongst the natives?

Administrative pragmatism won out, and the church started a series of missions along the Yukon and Tanana rivers. On the Tanana River missions were built at strate-

Figure 5. Little Mark Solomon was from Ketchumstuk and the brother of Silas Solomon, a noted Tanacross elder. In addition to his suit, he is wearing a pair of heavily beaded moccasins and what looks like a red, white and blue campaign ribbon on his lapel. (Photo by C. Betticher, courtesy of the Episcopal Church Archives, Austin, Texas.)

Figure 6. Unknown woman and Jennie Frank (on the right). Both women are wearing moose hide moccasins with cloth inserts over the instep. This particular type of moccasin had a flap that was wrapped around the ankle and tied. (Photo C. Betticher, courtesy of the Episcopal Church Archives, Austin, Texas.)

gic points beginning at Nenana in 1907, Chena in 1908, and Salchaket, on the middle portion of the river, in 1909. Finally, in 1912 the church built a mission at Tanana Crossing on the upper river. By building these stations the church hoped to somehow induce outlying Native groups to a place where they could be easily educated, given proper medical treatment, and kept from drifting toward towns where they would become the prey of corrupt Whites.

None of these missions were self-supporting but relied heavily on subsidies through donations from parishes outside of Alaska. To solicit support, the missionaries often wrote articles illustrated with photographs demonstrating their activities and progress. Many of these articles were published in the *Alaska Churchman Magazine*, a periodical published by the Episcopal Church in Alaska to provide news and update parishioners "outside" about the mission's progress. One simple method of illustrating success was to take "before and after" pictures in which the Natives are shown first as dirty savages in tattered clothes and then as well-groomed and properly adorned mission Indians.

Figure 7. Salina Paul (right) and her sister-in-law Laura Paul. Salina was the daughter of Old Paul (see Fig. 8), and would soon marry Joe Joseph. She is wearing moccasins and a beaded belt and has flour on her hands from making bread. Laura was married to David Paul, who became one of the first Native deacons in the Episcopal Church and was the son of Old Paul. (Photo by C. Betticher, courtesy of the Episcopal Church Archives, Austin, Texas.)

Figure 8. Old Paul dressed in his chief's coat and wearing his dentalium shell necklace. Old Paul was from Salchaket. He was marred to Julia, who was Peter Onion's sister. (Photo by C. Betticher, courtesy of the Episcopal Church Archives, Austin, Texas.)

When Betticher took his trip to Tanana Crossing in 1914, he was the editor of the *Alaska Churchman* and interested in developing articles for the magazine. However, the photographs taken at Tanana Crossing were never published, although a rather extensive article, with photos, including a photo of a dead bull moose, was published about Pick and Betticher's trip upriver (Betticher 1914). There are probably many reasons why these photos were never published, but I think one reason was that they did not conform to the missionaries' view of Native people in general and to their view of upper Tanana Athabascans in particular.

In 1914, the church viewed the upper Tanana region of east-central Alaska as "Indian country." Physical access was difficult since at the best of times it was almost impossible for steamers to travel up the Tanana River beyond Fairbanks. To reach the area from the Yukon River, one had to travel 242 km (150 miles) overland. Only a handful of non-Native traders had penetrated the area and no major gold strike had yet occurred, so it seemed an especially fertile ground for the establishment of a controlled community as envisioned by Bishop Rowe. Bishop Rowe wrote that the "natives in this region are better off physically, than any I have ever seen. They have not been hurt by the evil White element and game and fur are plentiful. All are anxious to have a mission and a school." He went on to say "I chose Tanana Crossing as the most advantageous place to begin … having one [a mission] here puts

Figure 9. Peter ('Onion') Thomas hauling a box of Ivory Soap for the mission, 1914. He was nicknamed Peter Onion because he liked to eat onions. He was known as an expert moose tracker and orator. Thomas wears a pair of gauntlet-style mittens trimmed with beaver or otter fur and a pair of moccasins that are beaded on the cloth vamp. (Photograph by C. Betticher, courtesy of the Episcopal Church Archives, Austin, Texas.)

us in possession and control of the whole Tanana River" (1910–11:69).

As the site for a mission, Tanana Crossing was advantageous for three reasons. First, there were already buildings on the site. In 1902 the U.S. government had built a telegraph line connecting the tidewater port of Valdez with Eagle on the Yukon, which was the site of a federal court. To maintain the line the army established relay stations along the route, and there were three such stations within the territory of the Mansfield/Ketchumstuk Band. One was at Tanana Crossing. After the line was abandoned in 1910, Bishop Rowe purchased the buildings at Tanana Crossing with seed money from St. Timothy's Episcopal Church in Cantonsville, Ohio. For this reason the new mission was named St. Timothy's (Simeone 1995).

Second, Tanana Crossing was centrally located to a number of upper Tanana bands. The closest was the Mansfield band, who had a village on Mansfield Lake, 11 km north of the mission. One hundred kilometers (60 miles) further north the Ketchumstuk people had a village in the hills separating the Yukon and Tanana rivers. Further up the Tanana River were the people of Tetlin and Nabesna, and about 72 km (45 miles) to the south were the upper Ahtna of Mentasta, Suslota, and Batzulnetas. The church hoped to induce most, if not all, of these people to resettle around the mission.

A third reason for starting a mission at Tanana Crossing was because the church thought they had been invited to do so by Chief Isaac, one of the local rich men or *hak'ke*. Both written and oral accounts emphasize the prominent role Chief Isaac played in the initial decision to establish the mission. According to E. A. McIntosh (n.d.), who was an Episcopal missionary at Tanacross for approximately 30 years, Chief Isaac had traveled to Eagle where he had seen the church and mission, and he had also heard about missions being started at Fort Yukon and Salchaket. So in the fall of 1909 Chief Isaac went downriver to Fairbanks to meet Reverend Betticher and petition the church to send a mission to his people. The following year, in 1910, the bishop sent Archdeacon Hudson Stuck to look over the situation. Stuck writes about his encounter with Chief Isaac in his book *Ten Thousand Miles with a Dog Sled*. According to Stuck (1988 [1914]:262), Chief Isaac told him he had visited the Anglican missionary William Bompas at Fortymile when he was a boy, but the archdeacon was the first minister most of his people had ever seen. Chief Isaac also told Archdeacon Stuck that if the church was to build a mission he, Chief Isaac, preferred that it be near Mansfield Lake or at Tanana Crossing since "farther down river was not so good for their hunting and fishing."

The missionaries' account is consistent with the oral traditions. Silas Solomon, a Tanacross elder, said:

> 1912 was when [Arch]Deacon Hudson Stuck and Bishop Rowe come through. They talk to Chief

> Isaac; they ask him "can we lead a mission here?" Chief Isaac innocent man, no fighting, no cussing, just friendly, he feed a lot of people. He feed a lot of the people that's why he became a chief. In the early days. He said yeah they'd like to have a mission. (Simeone field notes 1987)

Tanacross elder Gaither Paul also knew about Chief Isaac's involvement in establishing the mission and emphasized the equality between Archdeacon Stuck and Chief Isaac. According to Paul, the archdeacon, on his trip up the Tanana River in 1910, caught up with Chief Isaac at Paul's Cabin, a camp on the Tanana River. Paul's Cabin was the camp of Old Paul, a very prominent man who was photographed by Betticher in his chief's coat and dentalium shell necklace and who happened to be Gaither Paul's grandfather. Chief Isaac went to Old Paul and told him "some important man wants to meet with me but I don't think I am important enough." Old Paul told Chief Isaac not to think that he wasn't important enough: "You are a leader here and you can talk to Hudson Stuck man to man." A third Tanacross elder, Martha Isaac, said that on his deathbed Chief Isaac asked that a mission be established at Tanana Crossing (Simeone field notes 1987).

For the missionaries Chief Isaac seemed to fit the image of a strong paternalistic figure they could work with. Archdeacon Stuck (1988 [1914]:263) obviously thought so when he wrote that Chief Isaac "was evidently a chief that was a chief." McIntosh took pains to reinforce that image when he wrote that Chief Isaac had vision and wanted the mission to counter the evil influences of the towns and mining camps. McIntosh further strengthened that image with a story about how Chief Isaac had traded all of his furs for the stock of playing cards owned by a local trader so that he, Chief Isaac, could burn them and stop his people from gambling (McIntosh n.d.).

Among Tanacross elders today, the Episcopal Church figures prominently in any discussion of the past. In part this is because the missionaries were viewed as friendly to Native people and because Chief Isaac was seen as instrumental in establishing the mission. But whereas the church was interested in changing people's morality, Chief Isaac, I think, had more practical aims for establishing the mission that are reflected in the Silas Solomon's comment that Chief Isaac "fed a lot of people, that's why he became chief."

In the summer of 1912 Margaret Graves and Celia Wright set out to establish a mission at Tanana Crossing. Graves had previous missionary experience in Alaska but it was thought she would need assistance in such a remote location as the upper Tanana, so Celia Wright, who was part Athabascan and had been raised at the mission at Nenana, was assigned to accompany her. The trip was difficult. Initially the two women traveled by river steamer, but within 120 km (80 miles) of their destination were forced to return to Fairbanks because of low water. Eventually they made their way to McCarty, near present-day Delta Junction, where Betticher and four Native men joined them. The four men—John Paul, Sam Charlie, John Sam, and Joe Joseph (who eventually became Salina Paul's husband)—pushed and pulled the missionaries and their boats the remaining 160 km (100 miles) to the crossing. Graves remained on duty for two years before being replaced by Pick in 1914, who stayed for a year before returning to her native England. Today most Tanacross elders remember the names of all the missionaries, although some are more prominently remembered than others are. Margaret Graves is remembered as the "woman preacher, [a] single woman who wasn't married" (Solomon 1984).

A principal aim of the mission was to undermine the power of the shamans, who were considered to be not only evil, but also competitors for the hearts and minds of the people. Soon after the mission was established, Graves decided to stage elections for the position of chief. Chief Isaac had died in 1912 and the missionaries wanted to elect someone who was sympathetic to the mission. Walter Isaac, Chief Isaac's second son, was elected chief. Though he gained considerable stature over his lifetime, Chief Walter, as he became known, was never considered a rich man or *hak'ke*. Instead he filled a new role in the community that might be compared to a toyon, since he often acted as a cultural broker. Throughout most of his life Chief Walter was considered the chief of Tanacross, but even as late as 1987 some people maintained he was not the real chief. Eventually both Walter's son Oscar and his grandson Jerry became elected chiefs and his nephew Andrew Isaac became the traditional chief of the Doyon region. In Betticher's photograph of him, Chief Walter looks dapper in his suit and tie that is strikingly similar in its sober quality to the clothes worn by Deaconess Pick.

The apparent isolation of the upper Tanana region and the "true and childlike" nature of the indigenous people had induced the church to build a mission station at Tanana Crossing, but was the upper Tanana region this imagined Eden? From one perspective it was. Up until the beginning of the 20th century the entire Tanana River was largely unknown to Whites. Lieutenant Frederick Schwatka (1893:302) described the Tanana River as "the

longest wholly unexplored river in the world, certainly the longest in the western continent." In 1885 Lieutenant Henry Allen undertook the first recorded exploration, but he largely confined himself to the river. By 1914 the only development along the entire river was taking place around Fairbanks. By comparison, the upper Tanana region appeared empty. When Archdeacon Stuck visited Chief Isaac in 1910 there were only two places to acquire trade goods on the upper Tanana River. William Rupe had a trading post near the head of the Tanana River, in the Scottie Creek Valley at a place called Nahtsiaa Ch'ihchuut, in the Upper Tanana language (Easton n.d.), and farther downriver was W. H. Newton's store at Healy Lake (McKennan 1959:25). Additional sources of trade goods were the gold camps on Chicken and Franklin creeks and stores at Eagle and Dawson on the Yukon River.

While the upper Tanana appeared isolated to Whites, Native people had been living in the area for centuries and had developed an extensive system of trails that connected them with many parts of interior Alaska and the Yukon Territory. Titus David, an elder from Tetlin, described at least five routes that led out of the upper Tanana region. One led down the Tanana River to the rendezvous at Nuklukayet at the confluence of the Tanana and Yukon rivers. Four more led to Dawson City on the Yukon. He also described active trading with Canadian Indians and with the Chilkat Tlingit that his father participated in and where he learned about leaf tobacco (Simeone field notes 1987). The Eagle Trail itself, billed by the U. S. government as the all-American route to the Klondike, followed a system of Native trails that connected the Yukon, Tanana, and Copper rivers.

After the sale of Alaska to the United States in 1867, trade in interior Alaska developed quickly as a number of competing firms established posts along the Yukon River almost as far as the mouth of the Klondike River in western Yukon Territory. The impetus for building posts on the upper Yukon was to enhance trade relations with remote bands of Athabascans, including those on the upper Tanana River (Mercier 1986:1–2). The establishment of Fort Reliance in 1874 and Belle Isle in 1880 brought trade goods to the region's doorstep, and by the early 1880s people from all the upper Tanana villages were making regular excursions to the Yukon (Allen 1887:76, 80). The situation shifted in favor of the Mansfield/Ketchumstuk people in 1886 when gold was found on the upper Fortymile River. Placer mines opened at Franklin and Chicken creeks, about 20 miles from Ketchumstuk, and two entrepreneurs, Leroy

Figure 10. Walter Isaac, later known as Chief Walter. He was the son of Chief Isaac, a well known* hak'ke *or rich man. Walter Isaac was the father of Oscar Isaac, who was chief at Tanacross from about 1965 to 1990. Walter's grandson is Jerry Isaac, who was also chief at Tanacross and president of the Tanana Chiefs Conference. (Photo by C. Betticher, courtesy of the Episcopal Church Archives, Austin, Texas.)

Napoleon McQuesten and Arthur Harper, established a store at the mouth of the Fortymile River (Mercier 1986:3). In 1898–99 the trade expanded again with the Dawson Stampede and the opening of the Eagle trail.

Native people embraced the trade and enthusiastically adopted all the consumer goods they could lay their hands on. Clothing was especially sought after, and Native people were often dressed to the nines, even when out hunting. Various observers have commented on the Indian's "extravagance" both in terms of their propensity not to save, but also in their preference for luxury items like flashy clothes. In the summer of 1898 a prospector named Basil Austin (Austin 1968) passed through the upper Tanana region on his way to the Klondike. At one point he met a man named Solomon, who was a member of the Mansfield/Ketchumstuk band and probably the father of Mark Solomon, one of the men Betticher photographed in 1914. Austin called Solomon the "Generalissimo" of the hunting party and described him as dressed in clothes of "loud design and color" that made Austin "feel rather shabby in comparison." According to Austin, Solomon's watch chain was "strong enough though a little short to have tethered [a dog]" and it "anchored a real watch of the turnip variety" that Solomon consulted at frequent intervals. Not only was he well dressed, but Solomon spoke fairly good English and had been down the Yukon as far as Circle City and out to Skagway.

DISCUSSION AND ANALYSIS: DIFFERING VIEWS OF CHANGE

The missionaries were idealists, looking for an Eden that did not exist. Native people, on the other hand, were pragmatists and materialists, willing and able to adapt to changing circumstances and opportunities that would make life more comfortable. The church saw Native people as nonactors in the drama of development. Hudson Stuck thought it was part of Native people's nature to be passive and thought it best they remain in the woods. The church feared unregulated change, feared what might happen if Native people were not buffered or insulated against what the church considered to be the "evil White element" found in frontier towns. In the view of the church, Native people were too easily impressed with and too ready to mimic lower-class forms of dress and behavior. To counter this tendency, the church worked to create a moral dependency on the part of Natives and to guide them towards more acceptable middle-class forms that would transform them into civilized subjects. But while demanding change, the missionaries often became uneasy when they thought Native people carried things too far. This "colonial mimicry" produced, as Homi K. Bhabha (1994) notes, a certain anxiety because Whites were then faced with an image that was not quite right; it was neither White nor recognizably Native. Such unregulated transformations placed the church in a double bind, because they not only led to unrecognizable forms but might also lead to desires for self-governance. It was better to hold Native people in a limbo where they were neither here nor there.

Although the church feared change, Native people embraced it, and this is evident from the photographs. The Native people facing Betticher's camera appear sophisticated, "civilized" people still in control of their world. They equated suits, ties, white shirts, jackets, Stetson hats, and watch fobs with being civilized (Simeone field notes 1987). Manufactured clothing was particularly sought out in this regard because of the ease with which it could be displayed on the body. Such clothing also demonstrated or signaled competence and social prestige, which was and still is a major concern in the indigenous culture.

Certainly people mimicked or emulated what they saw in the towns and mining camps and they did a good job. But the photographs suggest that these changes were neither imposed nor detrimental. People wore their clothes with style and grace. The critic John Berger (1980:39) would suggest that such an easy acceptance of consumer goods that lay outside people's own culture and experience is succumbing to a cultural hegemony. From this perspective Native people would forever be condemned, within the system of class standards that produced the clothes they wear, to always being second-rate, uncouth, and defensive. But in 1914 the Native people on the upper Tanana River still existed at the periphery of that system. Mansfield/Ketchumstuk people, like the Dawson Boys described by Richard Slobodin (1963), moved freely between two worlds. Instead of succumbing to a cultural hegemony, Native people were busy creating their own space that was not White, nor was it Indian as defined by Whites. The Episcopal priest Frederick Drane (nd.:62) suggests this when he writes, in 1918: "The Indian of this section [the upper Tanana] today is almost universally friendly with the White man. He has found it to his advantage to be so for the white man brings him ammunition, the tea, the tobacco, other things he has learned to depend on." Drane then adds, "while most of the Indians of this section are

friendly to the Whites, most of them feel a great superiority to them, for this is strictly Indian country."

POSTSCRIPT

In fact the upper Tanana region essentially remained Indian country until World War II. In 1940–41, the region's isolation was breached by the construction of the Alaska Highway. At the same time the Army Air Corps constructed airfields at Tanacross and Northway, a village close to the U.S.–Canada border. The end of isolation brought a number of problems, including loss of political and economic autonomy; competition for wild resources, especially moose and caribou; racism; and alcoholism. By the 1950s the church and the BIA were the only two institutions directly involved in the villages. One of the last Episcopal priests to serve as a full-time missionary at Tanacross was the Reverend Robert Green. Green is fondly remembered as one of the few non-Natives who stood with Native people in the difficult post war years. He helped develop an indigenous ministry and brought some modern conveniences to the community, such as a local telephone system that connected most of the houses in the village. The church maintained a mission at Tanacross staffed by lay workers and itinerant priests until the mid 1970s.

The Episcopal Church has been very influential in Tanacross history and culture for a number of reasons. I have already talked about how people see their elders as instrumental in creating the mission and how as soon as the mission was created they enlisted the help of Walter Isaac. But he was not the only person who became a prominent adherent to the church. David Paul, who was Old Paul's son, learned English at an early age and became something of a lay worker and eventually the first Athabascan to be ordained deacon. David served the church faithfully until the early 1970s. The church was also well represented by some of its priests, such as the Reverend Robert Green, especially immediately following the war when the village was struggling to survive. Today Christianity and the Episcopal Church have become integrated into the indigenous culture, and the church is a central feature of the Tanacross people's identity, similar to the Russian Orthodox Church in Alutiiq communities. At the same time, Tanacross people, and all Native people living in the upper Tanana region of east central Alaska, are still very much involved in building a distinctly Athabascan tradition. In this sense the upper Tanana is still very much Indian country.

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KING GEORGE GOT DIARRHEA: THE YUKON-ALASKA BOUNDARY SURVEY, BILL RUPE, AND THE SCOTTIE CREEK DINEH

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ABSTRACT

The imposition of the international boundary along the 141st meridian of longitude between Yukon and Alaska has separated the aboriginal Dineh of the region into two separate nation-states. This division holds serious implications for the continuity of identity and social relations between Native people across this border. This paper examines the history of the establishment of this border along its southern margin through the Scottie Creek valley, comparing the written record of the state surveyors with the oral history of the Scottie Creek Dineh. I argue that the evidence supports the notion that the Dineh of Scottie Creek, like elsewhere in the Yukon and Alaska, were both aware of and resistant to the implications of the boundary and refused to cede their rights to continued use and occupancy of both sides of the border. Concurrent with this history is that of William Rupe, the unacknowledged first trader in the Upper Tanana River basin, and his role in mediating the negotiations between government surveyors and Dineh leaders. Despite the difficulties imposed by the border, Natives of the region continue to formulate a strong identity as Dineh, holding and practicing distinctive values and social relations that collectively are known as the Dineh Way.

Keywords: Upper Tanana, aboriginal-state relations, 141st meridian, Yukon-Alaska history

PRELUDE

It is July 1997. I am atop Mount Dave, Yukon, just east of the international border with Alaska. About fifty residents of the region, mostly Dineh, have gathered here to witness the marriage between Rickie John and his Cree bride from Saskatchewan, whom he met while attending school outside. They stand beneath a willow bower specially constructed under the direction of Rickie's mother, Bessie John. The Beaver Creek justice of the peace goes through his state-dictated role to formalize the marriage and then Bessie and her sisters launch into their own Dineh ritual of approval in their Upper Tanana Athapaskan language. Everyone cheers at the end and we break up into smaller conversational groups. I walk aside with Joseph Tommy Johnny, with whom I have been living off and on for the past two years in his borderlands cabin, and Teddy Northway, his close friend, older cousin, hunting partner, and mentor in the Dineh Way. We pause overlooking the Scottie Creek valley laid out below us in the sunshine to the northwest (see Fig. 1). They ask and I share cigarettes with them. We smoke. They point out to me Ts'oogot Cho Niik—their name for Scottie Creek[1]—the mountain beyond known as Tets'eniik̲ayy, the village at its base called

1 Place and personal names transcribed in Athapaskan language follow the orthography for Upper Tanana established by the Yukon Native Language Centre, Whitehorse. They include tonal indicators and represent utterances within the Scottie Creek dialect of the Upper Tanana Athapaskan language. Both John Ritter and James Kari have assisted in the collection, transcription, and translation of these words, though any errors (and there may well be) are my responsibility alone.

Figure 1. View from Mount Dave to the west, overlooking the lower Scottie Creek Valley.

Tayh Chìį, the point to the north called Tthee tsaa k'eèt, and the borderline vista that bifurcates the valley, crossing the Alaska Highway at the United States Customs station, which itself lies atop the old village of Ts'oogot Gaay. Teddy starts to hum a tune and on the second refrain begins to softly sing some words, which are taken up in unison by Tommy. They repeat it twice and then stop, laughing. "You know that one?" Teddy asks me. I have heard it before: Tommy has sung it quietly on the trail as we walked to Tayh Chìį earlier in the summer and later again as he built a fire at our camp. "What does it mean?" I ask. Looking at each other, they both laugh. "Oh no," says Tommy, "we can't tell you that one. We don't want to start a war. The Queen would get mad at us." I plead further. "It means," says Tommy with hesitation, "it means, 'King George got diarrhea.' We sing that for that border there."

INTRODUCTION

The survey of the international boundary between Canada and the United States along the 141st meridian between 1907 and 1913 was the first prolonged incursion by the modern state into the lands and lives of the Upper Tanana Dineh, the aboriginal Athapaskan language speakers indigenous to these borderlands that today are traversed by the Alaska Highway (see Fig. 2).

While at first this long straight line across Dineh lands had only a minimal effect on their lives, the existence of the border would come to have profound social, economic, and cultural effects later in the 1900s (Easton 2005a) and remains problematic in their lives today. The Dineh of the borderlands were always aware of the implications of the boundary survey effort, however. In fact, from early

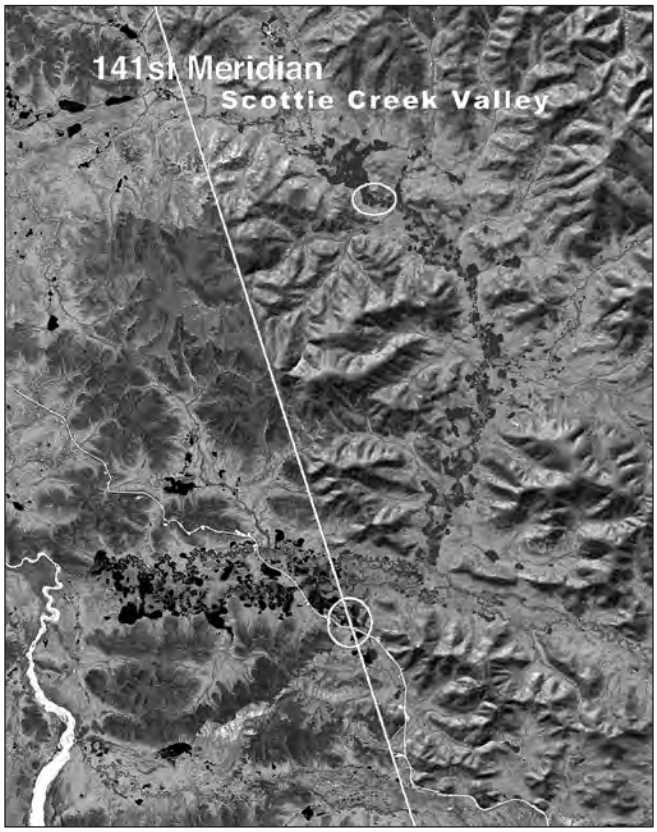

Figure 2. Satellite photo of the Yukon-Alaska Borderlands. The Alaska Highway can be seen as the white line running northwest from the bottom left to intersect with the border at the lower circle, which marks the Dineh village of Ts'oogot Gaay. The other circle above shows the general location of Nàhtsìa ch'ihchuut Màànn'.

on the Dineh asserted their rights to occupation and use of the borderlands regardless of the claims of the new nation-states of America and Canada. In this paper I present contrasting versions—that of the state and that of the Dineh—of how the international border was established across the territory of the Scottie Creek valley and examine some of the implications of their differences.

The choice of the 141st meridian as the international boundary between Alaska and Yukon was established through the terms of "The Treaty between Great Britain and Russia, signed at St. Petersburgh, February 28/16, 1825," which also set out its demarcation through the coastal panhandle region (Green 1982: Appendix, contains the full text of the original treaty). However, the panhandle boundary identified in the treaty was geographically vague and the 141st meridian boundary was practically unenforceable for lack of any Russian presence within the interior. This led to a number of international disputes between Britain and Russia and, after its purchase of Alaska from Russia in 1867, the United States.

The most significant of these disputes, known variously as the Dryad Affair or Stikine Incident, occurred in 1834 (Green 1982; Shelest 1990). Among other issues, it identified to both parties the practical imprecision of the 1825 treaty's demarcation of the boundary within the coastal panhandle and the almost utter lack of topographic knowledge along the borderlands. Due to these ambiguities, different interpretations of the treaty text were possible, and the precise position of the border along the coast remained unresolved for many years. This led to a number of additional incidents through the late 1800s and culminated in a treaty agreement between Britain and the United States to survey and establish the boundary in the panhandle in 1892 (Green 1982).

FIRST ATTEMPTS TO ESTABLISH THE 141ST MERIDIAN

Although the border along the 141st meridian seems more straightforward, the lack of surveys establishing the boundary led to disputes as well. Until 1871, when the region was incorporated into the Northwest Territories of the Dominion of Canada, the lands to the east of the boundary were granted by the British Crown for the exclusive use of the Hudson Bay Company (HBC). However, the HBC regularly transgressed into the territory claimed by Russia (and subsequently sold to the United States), establishing Fort Yukon at the confluence of the Yukon and Porcupine rivers in 1847 and carrying out trade in the lower reaches of the Tanana River. In 1869 an American military survey determined the HBC's illegal occupation in Alaska and deported their representatives upriver (Green 1982).

This led to further recognition by the respective states of the need to establish unequivocably and permanently the location of the border in order to avoid future conflicts of this sort. Initial work on determining the precise location of the 141st meridian began in 1887, with William Ogilvie's astronomic observations along the Yukon River in association with the Geological Survey of Canada's Yukon Expedition of the same year (Dawson 1888; see also Easton 1987). From 1889 to 1895, several additional surveys were made of the 141st meridian in the Klondike region, and in 1902 the line was extended south from the Yukon River to the headwaters of Scottie Creek (International Boundary Commission 1966); no mention is made in the official reports of these surveys of any Dineh inhabitants of the region.

From the south, in 1898 a United States Geological Survey party led by Alfred Brooks explored the Upper Tanana territories, providing the first known record describing the upper reaches of the Tanana River watershed. Little is recorded on their nongeological observations in their formal report; however, a map provides some detail on their route and dates of passage through the area: 10 July at Snag, on the White River; 11–18 July along Snag Creek to the 141st meridian; 19–21 July south of Mirror Creek; 1 August at the mouth of Mirror Creek and Tanana River [sic] (Brooks 1898; U.S. Geological Survey 1899).[2]

Again, no mention is made of any Dineh, a curious absence, since the Dineh villages of Nìį'ìį, Taatsàan, and Taatsàan T'oh all lie within a mile or two north and south of the surveyor's passage over the flatlands through which the middle Snag and upper Mirror Creeks run. However, late July–early August is the time of fish camp in the region, and this may account for the Dineh's absence from these nonfishing villages. Another possible explanation is that these surveys, unlike those undertaken by George Dawson, were singularly uninterested in recording Native settlements or encounters. Or perhaps we might surmise that the official reports neglected mention of Native people

2 The identification of the Tanana River here is a geographical error; Mirror Creek runs into the Chisana River, which in turn meets the Nabesna River, at which point the Tanana River proper begins.

occupying the borderlands in order to avoid raising, at a bureaucratic state level, the presence of Native occupations (and perhaps the rights that might flow from their occupation) along the borderlands.

Be that as it may, Brooks did recall something of the Upper Tanana Dineh in his memoirs:

> These [people] were essentially meat-eaters, their only fish diet being the Arctic trout, or grayling, and a small whitefish. These highlanders, as they might be called, were the last to come into contact with the whites and hence preserved many of their original customs up to recent times. In 1898 and 1899 I found such men living on the upper Tanana who, except for their firearms, exhibited but little evidence of intercourse with the whites. Most of the men and some of the women were dressed entirely in buckskin, and their bedding was made of furs. Here I saw an Indian hunting with bow and arrow. His arrows were tipped with copper from the gravels of near-by streams. On this same stream, the Kletsandek, a tributary of the upper White River, I found a party of natives searching for the native copper pebbles in the gravels, their digging implements being caribou horns. (Brooks 1953:117–118)

Two years later, in early June 1900, W. F. King, Canada's chief astronomer, and O. H. Tittmann, superintendent of the U.S. Coast and Geodetic Survey, arrived in Skagway, Alaska, to mark out the provisional boundary between Canada and the United States along the three main passes (the Chilkat, Chilkoot, and White) from the coast to the interior gold strikes in the Klondike. As they traversed the Chilkat valley, they were approached by a group of Tlingit from the village of Klukwan who "presented a petition to the commissioners asking that they be allowed to continue to hunt, fish, and trade across the new boundary line that sliced cross the Chilkat River valley about a mile north of their village. The commissioners agreed to forward the petition to the president and governor general respectively" (Green 1982:76; see also United States 1903: case appendix). While no official reply to this petition has been uncovered to date, it reveals that the coastal Tlingit inhabitants were not unaware of the implications of the state's boundary-making across the landscape. So too were the interior Dineh, as demonstrated below.

DINEH LIFE IN THE BORDERLANDS BEFORE THE BOUNDARY[3]

Until the turn of the 20th century, the Dineh of the borderlands were exclusively foragers. In this regard they shared much with their Athapaskan cognates within the western Subarctic, such as the Southern Tutchone (McClellan 1975), the Han (Mishler and Simeone 2004; Osgood 1971), the Koyukon (Nelson 1983), and the Ahtna (Kari 1986). Their economic adaptation of hunting and gathering natural resources followed a seasonal round within an ecological region generally defined by a geographical watershed. They gathered within semipermanent villages for labor-intensive economic and ritual activity and dispersed as small extended families during times of resource scarcity. They traveled widely for the purposes of trade and to establish and maintain kinship relations (Easton 2005a; McKennan 1959).

Kin-based economic and ritual activity was promoted and regulated by clan membership; through much of the region this was a dual moiety bifucation of society members, but among the Upper Tanana in the precontact period there seems to have been a three or more clan phratry division (Easton n.d.(a); Guedon 1974). This included prescriptive marriage and ritual relations between moieties or phratries, which were socially recognized through "potlatch" aggregations (Guedon 1974).[4] Political relations were egalitarian, with a strong emphasis on the authority and responsibility of the individual in determining and pursuing an appropriate choice of action (Goulet 1998;

3 While many features of Dineh culture of the western subarctic have been described, prior to my fieldwork (which began intensively in 1993) there had been little direct ethnographic, historical, or archaeological work with the Scottie Creek Dineh. McKennan conducted fieldwork among the Upper Tanana in 1929–30, but due to transportation difficulties he was unable to visit the territory of the borderlands (McKennan 1959:3). In subsequent decades he conducted additional studies among the Alaskan Upper Tanana (McKennan 1964; 1969a; 1969b; 1981). McKennan's field journal of 1929–30 has recently been published (Mishler and Simeone 2006). Other ethnographic work amongst the Upper Tanana has included Case (1984), Guedon (1974), Halpin (1987), Haynes and Simeone (2007), Haynes et al. (1984), Pitts (1972), Simeone (1995), Vitt (1971), and Northway (1987); all of these works contain no or only tangential reference to the borderland Dineh. Linguistic research of the Scottie Creek dialect of Upper Tanana has been undertaken by John Ritter, James Kari, and myself; much of this remains unpublished, but see Easton (2005b, n.d.(b), John (1994), John and Tlen (1997), Kari (1986), Milanowski (1962, 1979), Tyone (1996), and Yukon Native Language Centre (1997, 2001). Easton (2002a, 2002b, 2007), Easton and MacKay (n.d.), and MacKay (2004) discuss the archaeology of the borderlands prehistory, while contemporary ethnicity and subsistence is discussed in discussed in Easton (2001) and Friend et al. (2007), respectively.

Ridington, 1982, 1983). The authority of leadership was a contingent acknowledgement by those led by a category of people known as *ha'skeh* in the Upper Tanana language—men of respect who had demonstrated capacity to make sound decisions affecting the group and who practiced a life of generosity and wisdom. Extensive oral traditions provided the ideological and moral basis for many aspects of social life, as well as support to a naturalistic world view that understood humans and nature to be bound by reciprocal obligations to each other. The interpretation of dreams, visions, and communications from animals—regarded as "nonhuman persons"—informed decision-making, contextualized experience, and explained misfortune (Easton 2002c.; Guedon 1994; Nadasdy 2007; Nelson 1983; Ridington 1988).

The initial effects of the arrival of Europeans in the northwest were diffused along existing aboriginal exchange networks before Native people met Europeans. This included the trade of material goods (e.g., metal and beads), the spread of disease (e.g., small pox and influenza), and the communication of ideas (e.g., shifting from cremation to burial of the dead). These effects increased in volume and intensity as the western fur trade escalated in geographical reach in the 19th century (Helm et al. 1975; Van Stone 1974), culminating in a wave of Euro-American immigration and the establishment of permanent settlements associated with the gold rushes of the Yukon River watershed between 1896 and 1902 (Hosley 1981; McClellan 1981).

The Dineh of interior Yukon and Alaska reacted to this influx of newcomers with both a culturally driven generosity and a concerned desire for the stability of their indigenous society. In a letter dated 13 January 1902, for example, Kashxóot (Jim Boss), the *ha'skeh* of the Ta'an Kwäch'än Dineh who lived in the region of Lake Laberge, Yukon Territory, sought compensation from the superintendent of Indian Affairs for Canada for his people's losses since the Gold Rush of 1898. "Tell the King very hard" he asked, "that we want something for our Indians because they take our land and game." (cited in Gotthardt 2000).

Closer to the borderlands, the Tr'ondëk Hwëch'in *ha'skeh* Isaac anticipated the coming difficulties for his people in the Dawson City area as early as 1896; by the following year he had arranged for a reserve and the movement of Dawson Dineh 5 km downstream to Moosehide. At about the same time he led a contingent of Tr'ondëk Hwëch'in to Dixthadda (Mansfield) and Tetlin Lake, two Upper Tanana Dineh villages in Alaska. Here he taught his maternal relatives the songs and dances of the Tr'ondëk Hwëch'in, asking them to "hold on to them" in the years ahead; Chief Isaac correctly foresaw the suppression and loss of these traditions in the Dawson region in the years to come.[5]

A few years later in Alaska, a group of Tanana River Dineh *ha'skeh* met to discuss the effects of Euro-American immigration into the Alaska interior, and they agreed to bring their concerns forward to the newcomers' authorities. The Tanana Chiefs Conference of 1915 was held in Fairbanks to discuss land claims and educational and employment opportunities within the emerging American state order. Foremost on the agenda of the representatives of the United States was the settling of the Tanana Dineh upon individual homesteads or collective reservations, under the terms of the 1906 Native Allotment Act. This proposition was rejected by the chiefs, who maintained "We don't want to go on a reservation. . . . We just want to be left alone. As the whole continent was made for you, God made Alaska for the Indian people, and all we hope is to be able to live here all the time" (Mitchell 1997:177–78; see also Patty 1970). To my knowledge, based on an examination of records held by the U.S. National Archives, no land grants under the Allotment Act were granted within the upper Tanana River region.

I cite these examples of western Dineh attempts to negotiate a mutually agreed-upon relationship with the new state-based governments that had assumed control over their ancestral lands in order to provide a context for the history of the international boundary survey in Upper Tanana Dineh territory. These examples demonstrate that the Dineh throughout the northwestern Subarctic were not passive acceptors of the new regimes; rather, from early on

4 The term "potlatch" is the English gloss of the western Dineh ritual of formal intercommunity gatherings in which gifts are exchanged between clans in recognition of social obligations met by another clan or family, such as handling the dead of another clan, and honoring members of the opposite moiety, such as a spouse or a paternal child. The Dineh potlatch—called *huhte'etiin* in Upper Tanana—differs considerably in structure and meaning from the more widely described potlatch of the Northwest Coast cultures (see also Guedon 1974 and Simeone 1995).

5 I was told of this responsibility by Titus David of Tetlin Village, Alaska, during an interview in 1996 (Easton tape 1996-4). He himself had learned these songs and dances as a youth. It was also about this time that the transfer back to the Tr'ondëk Hwëch'in of these songs and dances, along with some ritual paraphernalia, began to take place, a process which is still continuing.

they had thought through and discussed the implications and their response to these historical events within their local and regional society. Such a context lends credibility to the specific accounts held by Upper Tanana Dineh in their oral history, which I will present below.

The Upper Tanana borderland Dineh held an additional advantage in their encounter with the international surveyors, however: a white man by the name of William (Bill) Rupe—a man who in Upper Tanana history has come to embody all the contradictory aspects of Native–newcomer relationships in the twentieth century: unknown creature–human, stranger–kinsman, advocate–traitor, contempt and compassion.

THE STORY OF BILL RUPE

Throughout the history of contact between indigenous peoples and European explorers and settlers, there are numerous stories of the newcomers finding themselves in a strange land, lacking even the basic knowledge of survival. Many simply disappeared, dying in the "wilderness" they had entered with such ignorance, their remains discovered, or not, by others. But the wilderness for the newcomer is a homeland for its indigenous occupants, people who have come to survive in their environment through the lessons of their ancestors, learned through the mastery of traditional knowledge and their own careful observation of the world in which they live. There are many instances in which the newcomer to a place, faced with death from his own ignorance, is saved by the intercession of locally adapted and informed indigenous peoples. The oral histories of the northern Athapaskans contain many such accounts; the tale of Bill Rupe is one of them.[6]

During the latter part of the 19th century, and increasingly in the period between the Klondike and Chisana gold rushes (1896–1914), the borderland Dineh helped many men who had become lost or run out of food on the trail.[7] Chajäktà, Andy Frank's "father," who was married to the sister of the major Scottie Creek *ha'skeh* T'saiy Süül (known as Joe in English), was very industrious and always had lots of food cached—indeed, he himself carried *ha'skeh* status. As a result, he was able to help many lost and hungry people who passed through the country at the turn of the century.

Sometime after the Klondike gold rush,[8] Chajäktà found such a man lost and hungry in the bush. His name was Bill Rupe (often pronounced "Bell Root" in Native nonstandard English).[9] Chajäktà took him in and fed him. While Rupe was recovering over the winter, he taught both father and son the English language. On Rupe's recovery, Chajäktà proposed a partnership to Rupe: he would guide Rupe back to Dawson where Rupe would exchange Chajäktà's winter fur catch and with the proceeds purchase a trading outfit. Chajäktà reasoned that a white man would be able to strike a better deal in these transactions than an Indian. Then Chajäktà would bring Rupe back to the big village site at Nàhtsi̱ą̀ ch'ihchuut Mą̃nn' in the upper Scottie Creek valley (see Fig. 3), and together they would open a store. Rupe agreed to the proposal.

The small trade post at Nàhtsi̱ą̀ ch'ihchuut Mą̃nn was the first of its kind in the upper Tanana River watershed and proved a successful venture for both men. In 1908 the itinerant missionary Rev. O'Meara reported Rupe's presence in the Scottie Creek valley: "W. S. Rupe has a trading post situated 40 miles [64 km] due West from a point 60 miles [96 km] up the White River. This post is situated on a branch of the Tanana River. *He also trades with the Copper Indians as well as other Bands, who come a distance of 250 miles [400 km] up the Tanana River*" (Anon. 1908, emphasis added). The remains of Rupe's cabin have been identified and will be the subject of future archaeological investigation (see Fig. 4).

6 There is a parallel structure to the stories of Indians' assistance to "starving prospectors" found in the tales told by prospectors' themselves, in which the roles are reversed; prospectors' accounts maintain the pathetic nature of the Indian and how through their actions and patronage Indians gained food, clothing, medical care, education, and, perhaps most importantly, a job or wage—in short, some measure of "civilization."

7 For another example in the region, see Walter Northway's account of meeting his first White men in his biography recorded by Yarber and Madison (Northway 1987:36–37).

8 Possibly during the short "rush" to the White River district in 1902, stimulated by Jack Horsfeld's discovery of gold at the mouth of Beaver Creek, west of the Canadian border.

9 According to the Northwest Mounted Police Records of Entry, a W. S. Rupe entered Canada through Lake Bennet on 19 May 1898. In 1906 the Post Office List of People Dying or Leaving the Klondike lists "Rupe, W. S., age 29" at Stewart City, Yukon. There are several mining claims in the Dawson and Stewart River areas registered in his name as well in the Dawson City Museum Archives. See also footnote 22.

Figure 3. Nàhtsı̨a ch'ihchuut Mànn' (wolverine grabbed something lake) from the northwest. The Scottie Creek Dineh village was located along the hillside to the left, while Bill Rupe's trading cabin site was on the first promontory to the right. (Photo by N. A. Easton.)

Andy Frank spoke to me several times about the years of Rupe's residence [comments in square brackets are my own]:

> My daddy and Bill Rupe used to haul freight over that way, from head of Ladue [river]. Bill Rupe and my daddy had a boat, old time motorboat, I guess, bring stuff on it, so far as head of Ladue, I guess. Make cache, put it up. Got two horse there. My daddy use one horse there, Bill Rupe use one horse there, then haul the stuff over to the head of Pepper Lake [Nàhtsı̨ą̀ ch'ihchuut Mànn]. Lots of work, to do that, lots of work.
>
> They got store there, they make store. They do good. Even lots of Tetlin, Tanacross people go over there. Go there, bring lots of fur. He doing pretty good, Bill Rupe.
>
> [Did he share the money from that with your grandpa?]
>
> Yup. It's my daddy, he work lots that time. He bring horse load, he got lots of stuff, he got traps, more stuff, more stuff, more stuff. They bring more stuff, guns, groceries, lots of blankets, tobacco, all stuff like that. They still bring lots of stuff, two horses, eh. They buy fur, I remember. They're all full of fur in the cache. Fur high [in price] too that time, eh. A long time ago. Black fox high that time.[10]

Rupe remained in partnership with Andy's father for about ten years. During this time he settled into a "country marriage" with an Upper Tanana woman named Annie John, and they had a baby girl who was called Margaret in English and popularly called Maggie by the Dineh. Andy Frank and others also recall that Rupe had a habit of recording births and other important events in a book with red binding that was very smooth to touch, "like a bible" (i.e., of tanned leather). Sometime after 1910, Rupe took his daughter Margaret to Dawson and placed her in the charge of the Sisters of Saint Anne, who ran a school for Indians and the hospital there.

OFFICIAL ACCOUNTS OF THE INTERNATIONAL BOUNDARY COMMISSION SURVEY

In 1903, the Alaska Boundary Tribunal was established by Britain and the United States to adjudicate the disputed

10 Easton field recording (SCCHP 1994-02). Interview with Andy Frank, Northway, Alaska, 4 July 1994. See also Easton fieldnotes 14 October 1993.

Figure 4. Close-up view of the remains of Bill Rupe's trading cabin on the shore of Nàhtsi̱a ch'ihchuut Mànn'. (Photo by N. A. Easton.)

boundary between Canada and Alaska along the coastal Panhandle (the Dominion of Canada had not yet been given control over foreign relations by Britain). While the treaty negotiations were riddled with intrigues against Canadian interests (see Green 1982; Penlington 1972), the final terms of the resulting Convention of 1906 initiated intensive surveying of the border, including determination of position by astronomical observations and triangulation, and the cutting of a 20-foot-wide vista along the entire length of the established border by collaborating crews of the Canadian and American Geological Surveys. Fieldwork began in 1907 and continued until 1913 (International Boundary Commission 1918; see also Fig. 5). The remainder of this narrative of the work of the International Boundary Commission survey will be restricted to that occurring in our principal area of interest, the territory occupied by the Upper Tanana Dineh.

The official accounts of the work of the boundary survey present the following general chronology of work in the region (see also Fig. 6):

1907: Several members of the survey projected a line from the Yukon River southwards 200 km (125 miles) to a point near the crossing of Snag Creek.

1908: This line was continued southward past the White River crossing of the border, triangulation was completed to about 120 km (75 miles) south of the Sixty-mile River (near the headwaters of Scottie Creek), topographic mapping and vista clearing undertaken to the Sixty-mile, and permanent monuments set through to the Ladue River.

1909: Over 50 men arrived at Canyon City on the White River in late spring (May 21) to carry out the work of the survey; the majority proceeded up the White River to work their way towards Mt. Natazhat in the Wrangell Mountains, while two smaller crews continued topographic surveys about the border to the north, meeting at Mirror Creek on August 24; cutting of the 20-foot vista was completed north from Mt. Natazhat to Mirror Creek.

Figure 5. Surveyors of the 141st Meridian in the Nutzotin Mountains, 1912. (Geological Survey of Canada, National Archives of Canada.)

1910: The vista was completed between Mirror Creek and the Ladue River and monuments set from the Sixty-mile River to Mirror Creek.

1911: All survey efforts were north of the Yukon River.

1912: Additional triangulation was carried out along the upper reaches of the White River to the Skolai pass and into the Chitina watershed south of the Wrangell Mountains.

1913: A final inspection of the boundary from the Yukon River south to Mount Natazhat was conducted, checking and numbering monuments, thus completing the work of the International Boundary Survey along the 141st meridian (information extracted from International Boundary Commission 1918).

This chronological account of the activities of the survey does not give full justice to the enormous undertaking that was completed between 1907 and 1913. The final report of the commission cited above provides some anecdotal accounts of the challenges met by the surveyors, and Green (1982) expands on this with information gleaned from archival field books and personal logs. Within all of the officially *published* documentation of the International Boundary Commission there are no accounts of observations of or encounters with the aboriginal inhabitants of the region between the Sixty-mile and White rivers. My own research, however, involving the examination of archival documents and the recording of local Dineh oral history, indicates that the surveyors did encounter Upper Tanana Dineh in the course of their work.

Archival research of the survey-related documents was undertaken at the Public Archives of Canada, Ottawa; the Rasmuson Archives, Fairbanks; and the National Archives in Washington, D.C. The research has allowed for a more detailed understanding of the routes and dates of passage through Upper Tanana territory during the course of the survey, including the winter ranges of packhorses within the White River valley, which were undoubtedly encountered by Upper Tanana Dineh hunting caribou in this area, and lists of men employed in supporting the work of the official survey members. The latter provide us with additional unpublished sources (in the form of journals, memoirs, and letters of the named participants) to attempt to document more fully the interactions between the survey members and the local inhabitants.

The final report of the International Boundary Commission (1918) gives an account of the "Chiefs of Parties and Assistants"; Table 1 summarizes these names for most of the years of our interest (1908–11). The record for 1909, for example, names 14 surveyors and their assistants. In addition, the personal diary of F. H. Lambert, who acted as a chief of party for the Crown that year, lists an additional 31 men by name hired by the Canadian survey to cut vistas, lay monuments, cook, and handle horses (Lambert 1909). Presumably, the United States would have hired roughly the same amount, suggesting a total contingent in the neighbourhood of 60 to 70 men active in the region from late spring to late August of 1909.

The earliest reference in the unpublished documents that speaks directly of the Dineh of Scottie Creek is contained in G. Clyde Baldwin's account of his work during the field season of 1908. It is clear from the context of his unpublished report that he followed the established

Table 1. Chiefs and assistants of parties, International Boundary Survey, 141st Meridian, 1908–11.

1908	
USA	Chiefs of parties: G. C. Baldwin, Thos. Riggs, Jr. Assistants: W. B. Reaburn, W. B. Gilmore, A. I. Oliver
1909	
UK	Chiefs of parties: A. J. Brabazon Assistants: Fred. Lambart, D. H. Nelles, Claude Brabazon, Thos. P. Reilly
USA	Chiefs of parties: G.C. Baldwin, Thos. Riggs, Jr. Assistants: W. B. Reaburn, A. C. Baldwin, D. W. Eaton, A. I. Oliver, W. C. Guerin, L. Netland
1910	
UK	Chiefs of parties: A. J. Brabazon, Fred. Lambart, J.D. Craig Assistants: D. H. Nelles, A. G. Stewart, Claude Brabazon, Thos. P. Reilly
USA	Chiefs of parties: Thos. Riggs, Jr. Assistants: A. C. Baldwin, W. B. Reaburn, A. I. Oliver, W. C. Guerin, F. S. Ryus, O. M. Leland
1911	
UK	Chiefs of parties: J. D. Craig Assistants: Fred. Lambart, A. G. Stewart, D. H. Nelles, Thos. P. Reilly

Source: International Boundary Commission (1918).

Dineh trail from the White River, up Katrina Creek, and over the watershed into the Scottie Creek valley. Figure 6 is a Boundary Survey map showing the general routes of the survey 1907–13, while Figure 7 is a less detailed map along the boundary showing the location of the alphabetically named station markers mentioned in the text.

Baldwin (1908:9–10) writes:

> Since for the next portion of our trip we must rely entirely upon our horses as the freight carriers when we failed to find part of them on the 6th [of July] (the day we intended starting overland) we necessarily remained until they were rounded up the next morning. Mr. Brabazon had not yet appeared upon the scene so I left one of the packers and three horses to bring him over to our boundary camp. The trail which we followed wound along through the timber in the bottom of the valley of Katrina Creek and was a gradual easy ascent most of the way until we reached the summit of the divide between the waters of Katrina and those of Scottie Creek on the west. Here it took a decided turn to the south but as we knew that it led eventually to Rupe's trading post somewhere in the valley before us we thought it better to continue following it rather than to strike off due west and cut a new trail through the timber. In the Scottie Creek flat we had some very swampy, soft traveling which was only ended after we had crossed the main stream. This creek at this point is composed of a series of small but deep lakes through which there is a very slow current in a southerly direction. Just before we reached the crossing place an Indian came hopping across the 'niggerhead' swamp from the direction of Rupe's cabin but his English proved to be rather limited so when we tried to make him understand that we needed a canoe to ferry our supplies across the stream he would only grunt and bob his head. As this was a rather unsatisfactory answer we did not wait for his canoe but proceeded to build a raft on which we ferried our outfit across in safety.

Figure 6. General Routes of the International Boundary Commission Survey, southern portion of the 141st Meridian (reproduced from Green 1982).

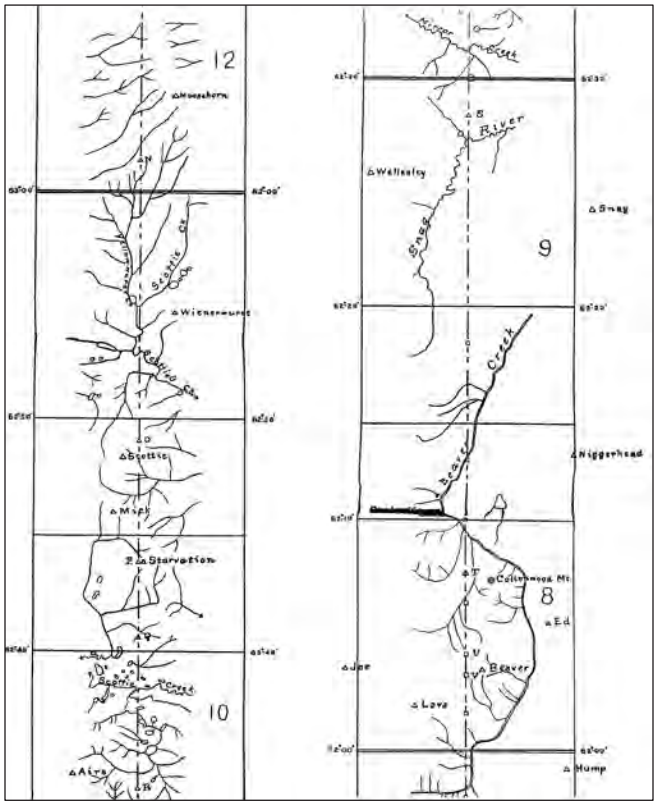

Figure 7. Location of alphabetically named boundary survey station markers and named triangulation points on the 141st Meridian, upper Scottie Creek south to upper Beaver Creek. (Source: National Archives of the United States. College Park Facility, Maryland. Record Group 76, Cartographic Series 136, Preliminary Inventory 170, Entry 378, Folder 2.)

> About this time, however, several Indians arrived and one old man did actually come in a very small but well made birch-bark canoe. When our horses swam the stream these Indians thought it great sport and the shrill laughter of the women could be heard for some distance. Leaving Scottie Creek we encountered some bad traveling through fallen burned timber and on the 12th a steady rain kept us in camp all day. The 13th was spent in exploring the surrounding country and in locating station "O of the Boundary," none of the men with me at the time having seen it before. Then on the 14th we moved our camp to a small draw very close to the station and at last we were on working ground.

The next day the camp was joined by Mr. Brabazon, while two of the men, with 12 horses, set off back to Katrina Creek to retrieve their cache. The boundary party continued their work in the area for another month, breaking camp on August 26. They then set out to cross the "Big Flat," through which both Snag Creek and Beaver Creek flow, just east of the border. Their progress again shadows the traditional Native trail I have documented across these flats to the low hills south of the contemporary village of Beaver Creek, Yukon:

> After crossing Snag Creek we pursued a south south-easterly course until we crossed Beaver Creek when we changed to a south south-westerly direction and kept along the edge of some level bench ground which parallels the latter stream until we finally reached the opening or canyon through which Beaver Creek emerges from the hills. Here we again crossed Beaver Creek and found a fairly well beaten trail along the south bank. This we followed as far as an old Indian camping place near the point of the hill which we knew station "T of the Boundary" to be located. (Baldwin 1908:14)

They set station "T" and quickly pushed on, meeting members of the survey coming north from stations to the south, and were soon thereafter leaving the field for the season. However, Baldwin's 1908 report contains some additional notes on the area and its people in his summary comments:

> During the early part of the season those of us who passed through the flat country saw practically no game of any size, which I think was due to the fact that the Indians keep this region pretty well hunted out. In the many small lakes of the vicinity fish are plentiful and form the chief summer food of the natives. All along the valley of the White River moose, caribou and bear are to be found while in the hills and mountains of the upper river the mountain sheep are very numerous. After reaching the higher hills we had all the fresh meat which we needed for the balance of the season.
>
> The natives of this country have already been mentioned several times but not as yet fully described. In appearance they resemble the Siwashes of the coast, they wear store clothes but continue to use moccasins for foot coverings. Through contact with traders and other white men they have acquired a smattering of English but in many cases their vocabulary is very limited. As in many other non-civilized or half civilized tribes or peoples the squaws do most of the hard work while the bucks do the necessary hunting. In our dealings with them they were perfectly honest but proved to be great beggars and had absolutely no sense of obligation for anything given to them or for any favors accorded them.[11] They are very fond of the white man's food and especially of tea that even the small children will drink without either sugar or milk when as strong as it can be made. Next in value to tea as an article of trade comes tobacco and several times I saw men whose English was entirely limited to the two words "tea" and "chew." In general they know the value of money but prefer silver to any other medium of exchange. This is illustrated by a case in which I paid one of them a silver dollar and a dollar bill for some little service, which he had performed for me, and upon the receipt of the money he immediately bought all the grubs that he could get for the bill although he kept the silver. Some of the squaws had their faces tattooed and I saw one at least with a ring of silver stuck in her nose. In summer they live in tents and in the open but I think most of them have cabins for winter habitations. The women, especially when excited, have very shrill piercing voices, which sound very much like those of small children. (Baldwin 1908:23–24)

Thomas C. Riggs was second-in-command of the American party. His journal for 1909 contains a single reference to encountering Native people:

> *Rupe* [emphasis added] was not at his camp but about 30 Indians were camped there. I tried to take some pictures but desisted when a buck grabbed a gun and said "Indian shoot." They seem to have

11 This observation is ethnocentric. The Dineh behaviour described in this observation is what we now recognize as "demand sharing," a common practice among egalitarian foragers (see Peterson 1993).

> some sort of idea that a picture takes something out of a person that is not replaced. (Riggs n.d.: July 1909)

Rigg's account places him in the upper Scottie Creek valley at the time, and the "camp" he refers to is almost certainly the village at Nàhtsìà ch'ihchuut Mànn where Bill Rupe had his trade store.

UPPER TANANA DINEH ORAL HISTORY ACCOUNTS OF THE BORDER SURVEY

Living and working in the Upper Tanana borderlands I have often encounted reference to the ill effects of the international boundary on the lives of local Dineh; it is generally regarded with bitterness. Most Upper Tanana Dineh hold that they remain one people: "We're all the same family, both sides of the border, Canadian and Alaskan." In the 1990s a few could even recall first-hand the arrival of the boundary survey and their reaction to it, while many local Dineh held oral history accounts learned directly from their older relatives who were themselves witnesses to the events.

These accounts provide important further elaboration on the encounter between the boundary survey people and the Upper Tanana Dineh. They document the physical division of Ts'oogot Gaay village[12] on Little Scottie Creek (see Fig. 8) by the survey and all emphasize the promise by the chief of survey, William Raeburn, that the Dineh would continue to have the right to occupy and use the region as they had done in the past.

Mrs. Bessie John's Account of the Border Survey

The oral testimony of Mrs. Bessie John on the border survey through Ts'oogot Gaay village has been recorded by myself and in John-Penikett and John (1990); the recordings differ only in a few elaborating, stylistic details.[13] Comments in square brackets and footnotes are my own elaborations.

> MRS. JOHN: Right now I'm going to tell you people about when the borderline go through there. There were 200 in the village there, the place white people call Little Scottie Creek [Ts'oogot Gaay]. There are lots of people buried there. All our people, things like that. At that time the borderline went through. That's the story I'm going to tell you guys right now.
>
> This great story. My Great [i.e., respected] grandpa (T'saiy Süül),[14] when that borderline go through ahead there. They got some, what they call, moose skin, caribou skin. That's the kind of tent he got right down there at customs with the borderline going through. They don't know at that time, these white people who come around the boundary line, so maybe that one guy who is the government boss, they hit my great grandfather's tent. They say, "Could you move?" He do that you see? [the surveyor waved his arm]. So, that government said, "Your tent gonna be cut. You gonna be Alaskan, you gonna be Yukon?" they tell my Great grandfather, they say.
>
> So, they make lots of moccasins to be used at that time by those boundary line people. I don't know how many wore those moccasins, but all say, "make moccasin."
>
> I don't know, but my mother and my Great grandfather say, "You know how many moose skin they need to keep warm, those Indian people?" Make moccasin, meat, everything.
>
> After that, the government, they give all kinds of flour and rice, I guess. They don't know what's that,

12 Ts'oogot Gaay is sometimes translated as "little spruce knee" or "little spruce," based on the etymological correspondence between *gaay* = "little" or "small," *ts'o* = "spruce tree," and *got* = "knee"; however, when taken as a whole this literal interpretation is not semantically sound within the Upper Tanana language. While there is no doubt of the interpretation of *gaay* = "little" or "small," it seems that *ts'oogot* in this form is an archaic and un-analyzable word, which generally suggests great antiquity (John Ritter, Yukon Native Language Centre, 1997, written communication; see also Sapir 1916 [1949:436]).

13 The occasion for this recollection by Mrs. Bessie John was the Yukon Historical and Museums Association's 1989 conference on Yukon Borderlands, held at Yukon College, 2–4 June. Comments by her daughter, Lu Johns-Penikett, whose questions and prompts facilitated her mother's presentation, are indicated by "LJP" in the transcript. I have reviewed the original tapes for accuracy and corrected several small errors in transcription arising from Mrs. John's pronunciation of English as her third language (her first was Upper Tanana and her second Northern Tutchone)

14 T'saiy Süül was Bessie John's mother's father, which English speakers would refer to as "grand-father." Her use of the term "Great" here is an honorific, meant to indicate his "greatness," not that he was a third ascendent generation ancestor, as English speakers indicate in the term "great-grandfather."

Figure 8. Aerial View of Ts'oogot Gaay from the northeast. The Alaska Highway runs along the top of the photo, while the international boundary can be seen running diagonally across the top left of the photo. Ts'oogot Gaay Mànn' is the lake on the right; to the left can be seen Ch'ìhjiit Mànn' (ripe or spoiled lake) along the shores of which are found numerous ground caches for storage of fish. (Photo by N. A. Easton.)

> my Great grandfather. That flour, he tried boiling all day, he said, grandma.[15] He tell his wife, he said, "That's sour water. You gonna die if you guys eat it." He boiled it all day, he said, grandma. He boiled it all day and put moose fat—he throw it in there. He finished his fat piece, he said, my Great grandfather, my Great grandma. He stirred all day, and after that he got a stick spoon. They made it out of birch bark sometimes. You used a little bit, that's all. You were his kids, they say.[16]
>
> That's a long time ago they do that, and I'll talk to you about a story, you guys. The boundary line go through at that time. There were lots of people at Scottie Creek at that time, about 200. They buried fish [in ground caches], dry meat, everything. All that stuff was cached. They put fish in there, dry meat, everything. At that boundary line, he showed it to my Great grandfather and that Great grandma she carried that book [note well the reference to the book] around a long time. I'd like to know if that book is in Ottawa. They give my Great grandma and Great grandfather a red book a long time ago.

15 The Athapaskan language has no gender markers. As a result, it is typical for speakers of English as a second language to ignore or mix-up English gender, as Mrs. John does here.Thus, the sentence "That flour, he tried boiling all day, he said, grandma" is ambiguous as to what sex did what and what sex said what. Informed context generally assists English heads trying to make sense of such utterences.

16 Typical of Dineh narrative structure, Mrs. John here interjects both practical and ethical Dineh knowledge in her speech: (1) You can make a spoon out of birchbark; (2) if you do you shouldn't use too much bark (3) because that bark is like the child of the tree, its life. (4) Extending the metaphor by thoughtful consideration, since one would not want one's own children treated badly, humans should treat the children of "other-than-human persons" with respect and care.

"This is your book," they tell my Great grandfather. They carry it around a long time—it must have been about 1911 when the boundary line went through. Lots of people all just dead now. The story just grow up to us. That's why I tell you guys special story about my Great grandfather.

LJP: So, mom, what happened when the boundary people asked him to move? Did he move or how long did they try and get him to move?

MRS. JOHN: Long time. They stay there. He can't move his moose skin or caribou skin tent. That's right. They give him lots of food, they say. The government people. They stay there everyday. That's all, I think.

LJP: So, did they move or what happened when the boundary survey . . . ?

MRS. JOHN: They don't move! They belong to their village. The old borderline go through. They back and forth. They move all the way down to Big Scottie Creek, all the way down to the Yukon River.

That's the right way to Indian. They feed each other, you know. They don't know boundary between Yukon and Alaska. Right now, just everything happened. It was supposed to be that they feed each other, just one trail in this country. All our country. They help each other, you know, Indian people.

LJP: Well, I thought you told me before that Stsii Stsool [Ts'aiy Süül] didn't want to move. He didn't want to move but they kept asking him. So what happened? They got him to sign a piece of paper or something.

MRS. JOHN: Yeah, that government they tell him to sign a piece of paper. So, he sign paper.

LJP: And what did they say he was going to get from that?

MRS. JOHN: "You gonna be Alaskan. You gonna be Alaskan. You gonna be Yukon. Two sides of the country, all you are from," they tell my Great grandfather. After that they do a book, and my Great grandmother she said, ". . . some kind of bible." They live to sign that, my Great grandfather. He can't move his tent, that's why that government do that and he sign the paper. "Two sides of the country," he say. "All your family, they are all going to grow up on two side of the country." My great Grandfather know all about our country here. That's why he signed that paper. (John-Penikett and John, 1990:187–90)

Andy Frank's Account of the Border Survey

Andy Frank, who was a young boy of about six or seven at this time,[17] shared his version of the arrival of the border survey crew at the village site of Ts'oogot Gaay:[18]

Borderland chief [the survey chief], his name was Raeburn.

That's when he say [my grandfather] at the border that time. "Good people," he say, "what you do this, you cut the bush all the way in a line?"

"That boundary line. New law. There going to be law, nobody can't go across." That's what they [Raeburn] said, he said.

Grandpa, he said, "No," he said, "I don't like that," he said. "Good people. White man good people, but tell 'em what I say," he say. "That we can go anywhere, where we got hunting ground, where we got property to get everything, we go there. You got to tell 'em," he said. "You're allright, good people, but me, I like to go anyplace where I got land," he said, my grandpa.

He [the Dineh] like to hear our grandpa talk too, that people that time. Grandpa talk good. He called Border Chief [his grandfather held *ha'skeh* status]. He got earring bead. "Why you do that?" he say that. Old time chief, borderland chief.

They call the Border People [the English surveyors], that's what my grandpa told me, a long time ago. He tell that people, the Boundary Line Chief [Raeburn], my grandpa he say "No, no, no us," he tell him. They put down [the line] all through. My grandpa he go Dawson, he make meeting [with government officials]. Grandpa he say "What they do down there?"

"They make boundary line. You can't go other side no more."

17 Like many of his generation, Mr. Frank was not absolutely certain of his birthday but certainly could count the years he had been alive. His birth recorded on his obituary is December 24, 1902 (he died in August 1994). Such a day in the historic record for Indian people is commonly found; it can be taken to mean that he was born in that year, well into the winter. His recollection that he was six, suggests the events occurred in 1908, although the survey itinerary suggests it was more likely 1909, hardly a major inconsistency in Mr. Frank's account.

18 Taped interview with Andy Frank, 4 July 1994 with N. A. Easton (SCCHP tape #1994-2) and Easton (Fieldnotes, n.d).

> "No, not us," my grandpa say. He tell it true. He put down . . . [unclear utterence], he tell his dad, who he put down. "Us? No way! We got proper way, we got hunt, good place to hunt we use. We go anywhere. Not us," he say. I tell everybody. I go Fairbanks. I tell you too. That book, somewhere is that book [the "red book" referred to by Mrs. John in which Rupe kept records].

A Short Standard English Summary of Dineh Oral Testimony and Surveyor Records

The evidence of archival and oral history demonstrates that throughout the boundary survey, government representatives of both Canada and the United States did have contact with the Dineh of Scottie Creek. In 1907, projection of the line south to Snag Creek would have taken them through the Scottie Creek valley. In 1908 Baldwin knew of Rupe's presence in the Scottie Creek valley. Although Baldwin (1908) does not mention meeting Rupe specifically, it seems quite likely he did, since Baldwin anticipated arriving at "Rupe's trading post somewhere in the valley below us" and subsequently met an Indian "hopping across the 'niggerhead' swamp from the direction of Rupe's cabin." In 1909 Rupe must have had some contact with the International Border survey, since it was "Rupe's" camp that Thomas Riggs recorded arriving at in July 1909 to find "about 30 Indians were camped there" (Riggs n.d.), again intimating that the surveyors both knew and were looking for him. The Indians were undoubtedly Rupe's Scottie Creek Dineh affines. In 1910, the crew clearing the 20-foot wide vista worked from Mirror Creek northwards towards the Ladue River, a trajectory that would take them directly through the Dineh village of Ts'oogot Gaay, which was arranged on the hill overlooking the border lake of the same name. A general map of a field survey of the surface remains at this site is presented in Figure 9.

Not only does the boundary pass through the village, but according to Dineh oral history the vista ran directly through a large bark-covered domed house structure—indeed if you walk the borderline today you will come to a point at which there clearly was a camp astride the line, evidenced by historic detritus (a kettle, cans, and other metal waste) within a cleared area extending on either side of the borderline.

The survey party insisted that they would have to cut through the house if it would not be moved, and that the Indians would have to decide whether they wished to live on the American or Canadian side of the border. The Dineh at Ts'oogot Gaay refused to do either, seeking assurances that their occupation and use of the region would not be affected by the new borderline.

The Dineh spokesmen, the local *ha'skeh*s Chajäktà and Ts'aiy Süül, asked for a meeting with the "Borderline Chief," the head of the survey crew, and called together the Dineh to discuss the situation. W. B. Reaburn identified himself as the chief of survey and the Scottie Creek *ha'skeh*s, assisted by Bill Rupe, negotiated with him the terms of allowing the survey crew passage through Ts'oogot Gaay. After several days of holding their ground, the Dineh finally received the assurance from Reaburn that the people of the village could continue to live there without interference to their historical use and occupation of the region on both sides of the new boundary, and Reaburn signed a paper to that effect.

Rupe kept the paper or recorded a copy of the agreement in the "Red Book," leaving it with Chajäktà when he later left the valley. Andy Frank was repeatedly told by his father, "Don't you forget that man's name, the borderline chief, Raeburn. You don't forget because one day it will be important."[19] On his deathbed, Chajäktà entrusted the book to his son Andy Frank, reminding him again to remember Raeburn. Frank kept the book for many years as he lived throughout the region; however, about 1957 someone broke into his cache at the place called High Cache, just below the Alaska Highway on Desper Creek about 10 km into Alaska, and stole his outfit of traps, guns, ammunition—and the Red Book.[20]

19 Easton, fieldnotes. Interview with Andy Frank, 30 September 1993, Northway, Alaska.

20 Such theft has been a common occurrence suffered by many Natives over the years, once easy access to their cached (perceived as "abandoned") possessions was gained by tourists and government officials through improved transportation. Government employees flying through the area in tax-paid airplanes and helicopters, for example, pillaged caches at Fort Selkirk (Easton and Gotthardt 1990; Gotthardt and Easton 1989). They justified their theft by the notion that the stuff had been abandoned and would only be taken by tourists, while they would keep it in the territory and care for it as a historic object; of course, many of these people would eventually abandon the territory and take it away, as well.

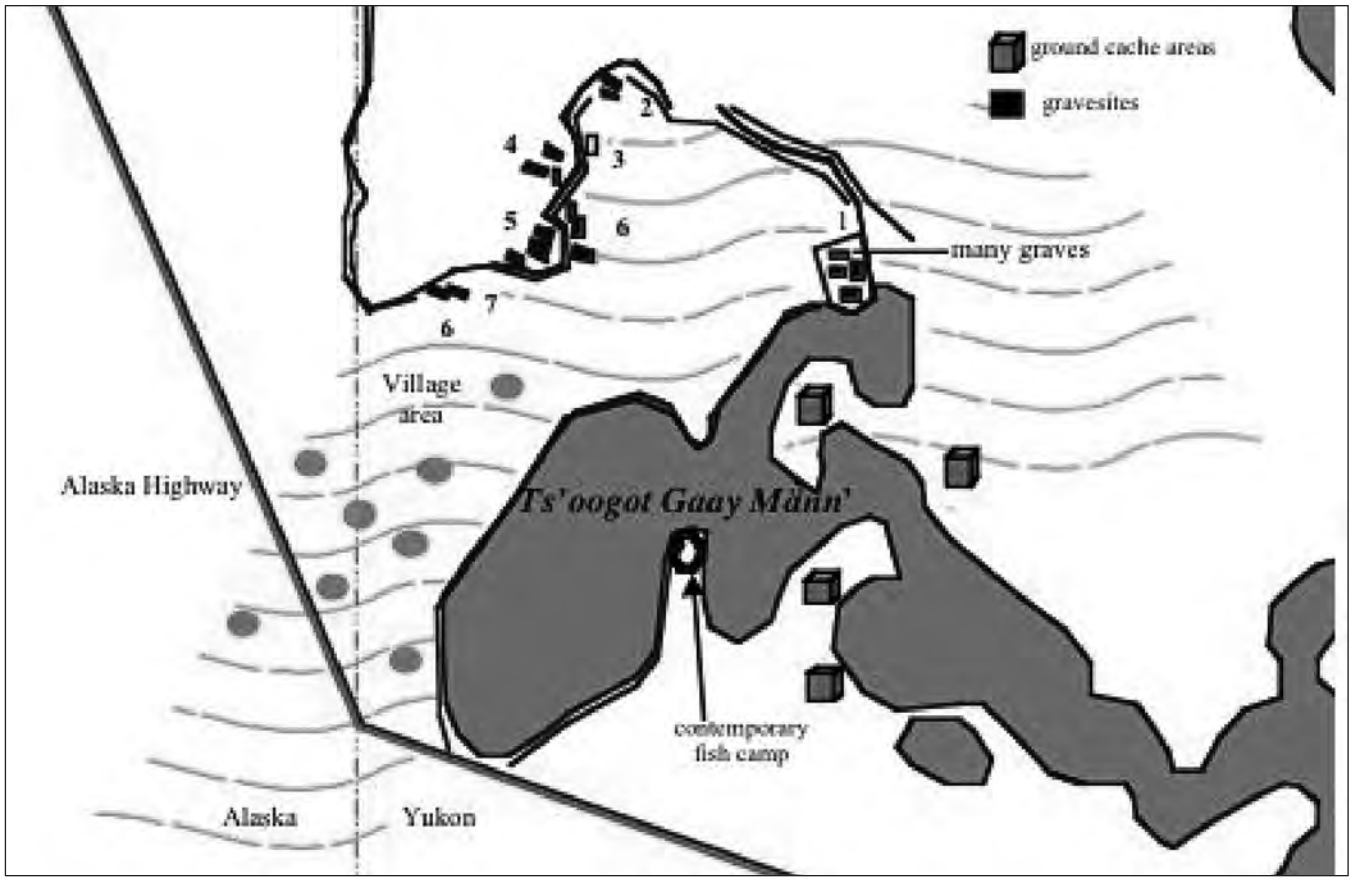

Figure 9. Map of Ts'oogot Gaay based on field documentation by the author. Note the border vista bifurcating the village site and the preponderance of graves; gravesite number 1 is the location of mass burials during the influenza epidemic of 1918–19. Circles indicate approximate locations of large open areas within the contemporary dense willow that are presumed to have been locations of the traditional dome-shaped skin tents of the Upper Tanana Dineh occupants.

TRUST AND BETRAYAL ON THE BORDERLANDS

After the border had come through, when Rupe's child Maggie was about 10 years old (circa 1912), Rupe left his Dineh wife and took his daughter to Dawson, where he enrolled her in St. Mary's catholic school run by the Sisters of St. Ann.[21] Dineh oral history records that her mother, Annie John (Fig. 10), traveled to Dawson and appealed to the court there to have her daughter returned to her, but her request was refused. Unfortunately, Dawson court records of this period were lost in a fire in the 1920s.

The ultimate fate of Maggie Rupe remains a mystery. Bertha Demit, Annie John's older daughter with another Dineh (and thus Maggie's half-sister), worried all her life over the fate of her sister Maggie. Recalling the story

Figure 10. Annie John, Titus John, and Silas Thomas, Northway, 1943. (Photo courtesy Duesenberg Archive Film.)

21 According to records held by the Archives of the Sisters of St. Ann in Victoria, B.C., Margaret Rupe officially entered St. Mary's School in Dawson, Yukon, on 26 August 1912. Personal communication from Margaret Cantwell, S.S.A., archivist, 30 Jan 1998.

of Bill Rupe and Maggie to me in the Upper Tanana language in 1996, translated by her son, Mrs. Demit began to cry and she asked me, as a White man who knew the outside world, to do what I could to find her younger sister, a plea I have followed to the best of my abilities.

After he left the Scottie Creek valley, Bill Rupe continued to trap and prospect from the Klondike to the White rivers until his death in Dawson City in 1937.[22] His daughter Margaret had left Dawson in 1927 for Victoria, B.C., where she graduated from St. Joseph's School of Nursing in 1930 (Fig. 11). She worked at the St. Joseph Hospital until 1956, rising to oversee the nursing staff of the maternity ward. Margaret married an affluent man named Arthur and retired to live with him. For reasons that remain unclear, she had asked the sisters of St. Ann to maintain confidentiality of her married name and residence.[23] At this late date, it is presumed she has now passed on and is buried somewhere in southwestern British Columbia (see also Easton 2002d).

Bill Rupe had a profound effect on the eastern Upper Tanana Dineh. He was the first sustained contact they had with a person who was not Dineh. Not knowing who he was or where he came from, they nevertheless recognized his implicit humanness and extended to him all the generosity that any human being deserves when found in need. They gave him shelter, sustenance, and eventually incorporated the stranger as kinsman through marriage. And while it is true that Rupe would eventually disappoint the Dineh, it seems unacceptable to simply characterize Bill Rupe as another White man who came into Indian country to exploit them and then leave with their riches. Although he may have set the standard of betrayal of trust for White–Indian interaction, there are complex motivations discernable in his actions, not the least of which must have been a deep love for his daughter Margaret, which are not visible for much of the subsequent relations between representatives of the new nation-states and the Upper Tanana Dineh.

Nevertheless, when Rupe left with Annie John's daughter he committed a grievous affront to Upper Tanana *matrilineal* culture. By all local measures, Maggie belonged, literally, to Annie John's lineage and clan. Annie John's failure to convince the government authorities in Dawson of this fact and retrieve her daughter from her father was the first open instance, and certainly not the last, of the capacity of the new encapsulating state order to exercise irresistible force.

Other forces would intrude on the Borderlands Dineh in the years to come. Just before 1920 a devastating influenza epidemic—quite likely the local manifestation of the world-wide Spanish Flu pandemic—struck the village of Ts'oogot Gaay, killing almost everyone there. "Five guys walk out from that—Bell Gaiy, my dad (Little John/White River Johnny), Titus John, and Andy Frank," and one other, recalled Joseph Tommy Johnny. "They bury everyone together, they die so fast. They just quit that village then." A few families would later return after some decades to take up seasonal fishing once again. Today the

Figure 11. Margaret Rupe's graduation photo from St. Joseph Nursing School, Victoria, B.C., 1930. (Photo courtesy Sisters of St. Anne Archives, Victoria, B.C.)

22 "William Rupe, old-time trapper in the White River district, passed away yesterday at St. Mary's hospital after a prolonged illness. The deceased was born in Santa Rosa, California about seventy-one years ago. He is survived by one daughter, Margaret Rupe, now residing on the Pacific Coast." *Dawson News*, 31 July 1937.

23 Archives of the Sisters of St. Ann, Victoria, B.C. Personal communication from Margaret Cantwell, S.S.A., archivist, 30 Jan 1998. This information was in response to a set of well-wishing letters from several of Margaret Rupe's Dineh relatives, which I had forwarded to the Sisters of St. Ann in 1997.

village locality is still used by Ada Galen and the descendents of White River Johnny to net whitefish and collect cranberries in the summer.

However, it was not until the building of the Alaska Highway that any sustained effort was made to enforce the regulations of the international boundary. Along with the highway came numerous other agents of the state who have since attempted to exercise increasing control over the lives of the Borderland Dineh: game regulators, educators, social workers, customs officers, Indian agents, capitalist entrepreneurs, and religious proselytizers. A future essay will address these subsequent impacts; suffice to say that many Dineh see the border as a betrayal of the trust given the newcomers at the time of the International Boundary Survey. In the words of one local Dineh, "When they put in that [border] line everyone got fucked."

It is important to ask to what degree the agreement that the Upper Tanana Dineh believe to have been made with the United States and Canada through their representative Raeburn was purposely not reported to his superiors, made in bad faith, or ignored and discarded by the governments of the United States and Canada? It is of interest to note that there is no record of contact whatsoever with Dineh in the surveyors' accounts of 1910, when the vista was completely cleared from Mirror Creek to Ladue River, a trajectory that passes right through the village. Nor, as shown in the copy of the plane table field map of the survey that year (Fig. 12), is there any indication that the border at Ts'oogot Gaay ran through an Indian village, although the topographical detail of the area is considerable. Furthermore, the aboriginal trail is clearly and accurately marked on this map, and an "X" is seen next to the trail at the location of a Dineh camp and fishing site on Tsà' Kąyy' Mǟnn' (beaver house lake), which is still used by Scottie Creek Dineh today as a base for hunting moose on the lake and is the principal contemporary residence of Joseph Tommy Johnny.

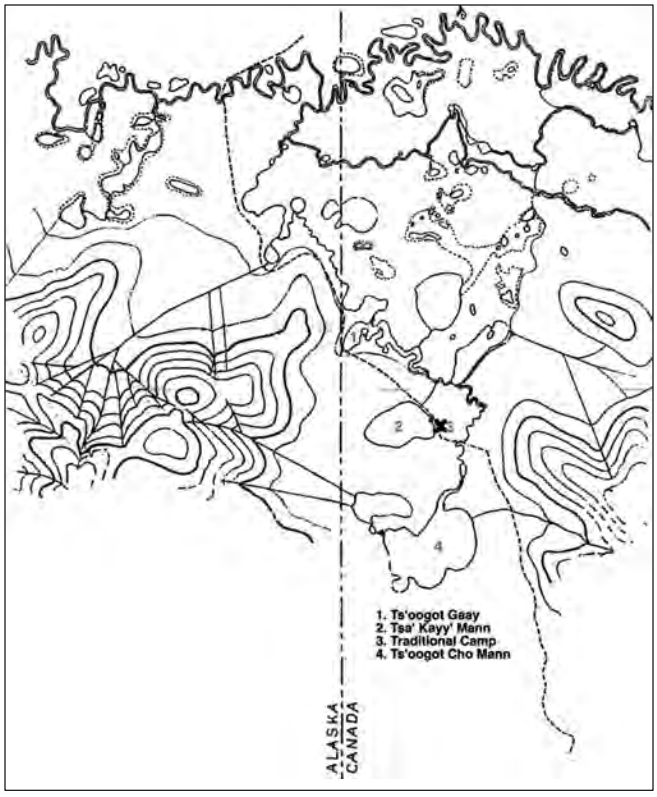

Figure 12. Plane table field map of the International Border around Tsoogot Gaay. The dashed line represents the Native trail through this area documented by the author. Note that it passes directly through Ts'oogot Gaay, and the "X" at the location of another Native fishing site. (Source: U.S. Archives. RG76. Carto Series 136. Public Inventory 170. Entry 378. 34 Maps. Folder 2.)

24 It has recently occurred to me that surely there were meetings with and instructions given to the heads of survey for each country, although I have not encountered any in my research. I suspect I have been looking in the wrong place. A determination should be made of who the heads of survey reported to and who was superior to these individuals, and a search of the records related to these bureaucrats should be made in an attempt to discover memorandums or notes related to meetings held before and after each year's field season. As well, a concerted effort needs to be made to attempt to locate Rupe's "Red Book," stolen from Andy Frank's cache in the late 1950s; it is possible that the traveller who took it, or his heirs, realizing it held some historic merit beyond mere curiousity, may have deposited it in some archives close to their home on their return or death.

25 To be fair, the United States does allow traditional Native commodities of truck and barter freely into the United States from Canada under a provision of the Treaty of Amity and Commerce (the Jay Treaty), which the United States yet recognizes. Canada has always refused to recognize the application of the Jay Treaty provisions since its confederation, maintaining its Parliament has never approved it, a technical point based on the fact the 1794 treaty was between the United States and Great Britain and not explicitly transferred to Canada (Case 1984; Issac 1999).

26 Again, in fairness, many of the Customs officials who work at both nations' custom stations are now aware of the former village and something of its history as a result of both Upper Tanana Dineh and myself informing them, and many also hold some degree of sympathy towards the Dineh case. But individuals are not the State, and while some officials sometimes turn a blind eye, ultimately they are charged with the enforcement of the law and accompanying regulations.

Finally, referring back to the cited survey documents above, some members of the survey recorded some other camps and villages and their interactions with local Dineh. It is simply inconceivable that the boundary surveyors could have missed the existence of Ts'oogot Gaay village, nor that they did not encounter Dineh at this location during their years of survey and vista cutting, since it was used as both a winter village and a major summer fishing site in July and August, drawing to it additional Dineh from the region. And yet the boundary survey records are silent on the existence of the village.[24]

Correspondingly, so too are both the United States and Canadian governments on the matter of Dineh rights on the borderlands. Indeed, Dineh traditional occupation rights were held in such apparent disregard that the United States built the most recent Alcan Customs station right atop the village site, apparently in complete ignorance of its existence and with no archaeological impact assessment, in contravention of general federal laws and policy.[25] My own efforts to undertake archaeological survey (in addition to the surface survey I have conducted) in the late 1990s were rebuffed on the basis of international border regulations concerning its "security," and a general policy of prohibiting activity within a kilometer of the border; although I have not recently requested, no doubt post-9-11 regulations are even more stringent. Requests by the White River First Nation to have the existing interpretive signs at the tourist pullout on the border vista where it crosses the Alaska Highway revised to reflect their historic occupation have been neglected by the Canadian state over the years. The existence of Ts'oogot Gaay, its Dineh inhabitants, and their original (misplaced) trust, has somehow been officially erased from the memory of the national governments, demonstrating to the Upper Tanana Dineh that the word of the state is at best a convenience.[26]

Perhaps the most bitter recollection of the ability of the state to enforce its administrative authority contrary to the expectations of Upper Tanana Dineh is the failed potlatch for the highly respected Dineh elder Mary Eikland in 1981. It is recalled that blankets and other potlatch goods were seized from American resident relatives and friends traveling to her funeral potlatch in Beaver Creek, Yukon, by Canadian Customs agents as illegal importations—unless they paid a duty, which few could afford. The potlatch was ruined. The Upper Tanana Dineh have not held a proper potlatch funeral ritual since then on the Canadian side, and a few elderly American Dineh have told me they never crossed the border again. The loss of this sacred religious ritual, one of the defining elements of their cultural identity as Dineh, is heavily felt among Upper Tanana Dineh in the Yukon. Fortunately, ever-resourceful in developing the means to sustain, confirm, and celebrate their unity as a distinctive Dineh society and culture, they have adapted to these state-imposed circumstances by holding this important ceremony for Canadian resident Upper Tanana Dineh in Northway or Tanacross, Alaska, where the ritual continues to flourish. One Dineh composer has summed up their collective bitterness towards the border and the trust to be placed in the state by making a Dineh song which is sung in campsites on both sides of the border. In translation, the singular refrain repeats: "King George—King George got diarrhea."

CONCLUSION

The existence of the international border of two nation-states dividing the land and people of the Upper Tanana Dineh remains a vexing issue for the descendants of the aboriginal occupants of the region. The resentment of the arbitrary imposition of the boundary between Canada and the United States upon the lands of the Upper Tanana Dineh is deep, separating as it did "Our Great People" from each other with different laws, education, and regulations over their activities. Today, many Dineh work hard to maintain their filial and clan relationships across the border, traveling or telephoning regularly between Beaver Creek, Northway, Tanacross, Tetlin, Mentasta, Gakona, Chitna, Copper Center, Whitehorse, Fairbanks, and other places where relatives and friends have settled, bringing gifts of the land, sharing memories and contemporary

27 In its recently failed land claims negotiations with Canada and Yukon (negotiations were closed by the federal government in 1995), the White River First Nation had sought designation of the Scottie Creek valley and borderlands as a special management area of natural and historical significance, including the possibility of creating an international park at Ts'oogot Gaay (similar to that at the U.S.–Canada border at Blaine, Washington state), which would provide a location for the presentation of Dineh history and culture to the tens of thousands of travellers that pass through yearly, a suggestion which didn't make it into the proposed final agreement. The White River First Nation people have subsequently rejected the proposed land claims final agreement and remain one of three Yukon First Nations (interestingly, all have trans-border claims) who retain all of their constitutional and Supreme Court of Canada–recognized aboriginal rights and territory, unimpeded or affected by constraining specifics of a negotiated final land claim.

experience, and consolidating a continued ethnic identity as the Dineh of the borderlands.

While their dispersal from the villages of the Scottie Creek valley by a variety of factors (see Easton 2005a; Simeone 1992) has resulted in a serious erosion of contemporary knowledge of the area's history, use, and potential among many younger Dineh, there remains considerable contemporary attachment to this land even today.[27] It is embodied in the practices of some Dineh such as Joseph Tommy Johnny, who still live on and off the land in the area of the borderlands in order to "keep the land open for my people," and in parents who take their children regularly out to the borderlands for evening walks "just to look around," during which they tell of their Dineh history and teach the Dineh Way. Much of this contemporary attachment and practice is invisible to the casual outside observer, non-Natives believing that the integration of television, automobiles, homeboy fashions, and hip-hop music demonstrates the final assimilation of the Dineh into western capitalist consumer culture.

But this image is a chimera, unreflective of the social, cultural, and spiritual beliefs and practices that, though unarguably changed by history, remain unalterably Dineh in nature.

> My people help each other. Someone there [in Alaska] wants to bring me fur coat, shirt, that's what I like. Rabbit skin, martin, potlatch food. They [Customs] want tax. It hurts my heart. . . . Where do government people think I came from? A hole in the ground? . . . Who is that Queen Elizabeth anyway? Who made her? We are Queen here, we all are Queens, Native people. (Mrs. Bessie John, speaking to representatives of Canada Customs in Beaver Creek, 24 October 1995)

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REPORT

NUVUK BURIAL 1: AN EARLY THULE HUNTER OF HIGH STATUS

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On July 1, 1998, acting as cultural resources manager for the landowner, Ukpeagvik Iñupiat Corporation (UIC), I responded to reports of an eroding burial at Nuvuk (49-BAR-011). Historic burials were known from Point Barrow, but this one turned out to be spectacularly different.

Nuvuk is located at the tip of Point Barrow, Alaska (Fig. 1). In 1852 and again in 1853, Captain Rochfort Maguire in HMS *Plover* overwintered in adjacent Elson Lagoon, where he learned a great deal from the Iñupiat Eskimo who were his neighbors (Maguire 1988) during those years. The tip of the Point Barrow spit had been eroding for generations. People told Maguire that erosion had forced their grandparents to relocate the village to the location he visited. The former location was under water. That older Nuvuk is long gone and most of the Nuvuk location that Maguire visited also has disappeared. In fact, most anthropologists believed that thanks to ongoing erosion, nothing is left of any significant archaeological value at Point Barrow (J. Bockstoce, E. Burch and E. Hall personal communications to G. Sheehan). Recent finds indicate that a reevaluation of that position is necessary.

NUVUK-01

The burial excavated in 1998 by the author and volunteer Jenny Asiangatuq Brower, designated Nuvuk-01, was that of an adult male with grave goods at his feet. The grave was discovered beginning to slump down the eroding bluff, with the top of the grave gone and the cranium exposed and beginning to slump. It was reported in midafternoon on the day before a long holiday weekend, during which the Nuvuk area would receive large numbers of recreational visitors. It was clear that immediate excavation was necessary in order to avoid accidental destruction by visitors. Due to the circumstances of discovery, measurements of the intact grave were not possible.

The individual was skeletonized, with the cranium and long bones relatively well preserved. The small bones of the hands and feet were in a poor state of preservation, and the torso was quite decayed. The pelvis was sufficiently preserved to determine that the individual was male, and the length and (where preserved) epiphyseal fusion states indicated that he was an adult. He appeared to have been laid on his back, with knees slightly bent, and placed in a shallow pit. He was associated with fragments of an animal hide, too decayed to determine if it had been sewn into garments or merely placed under or around him. There were indications of decayed wood beside the individual and beneath his feet at the pit margins. The fragments of decayed wood slumping down the bluff, which had led to the initial discovery of the grave, suggest that wood may have been present at the head of the grave as well.

The style of the grave goods places the burial in the Early Thule cultural phase. The harpoon heads include two of the Sicco type (see Fig. 2), one of which had two vestigial barbs, and vestigial side blade slots. Stanford illustrates two Sicco harpoon heads from Walakpa, one from the Mound A test trench (1976:170:Plate 58b) and the other from level B-7 (1976:174: Plate 63c), which he

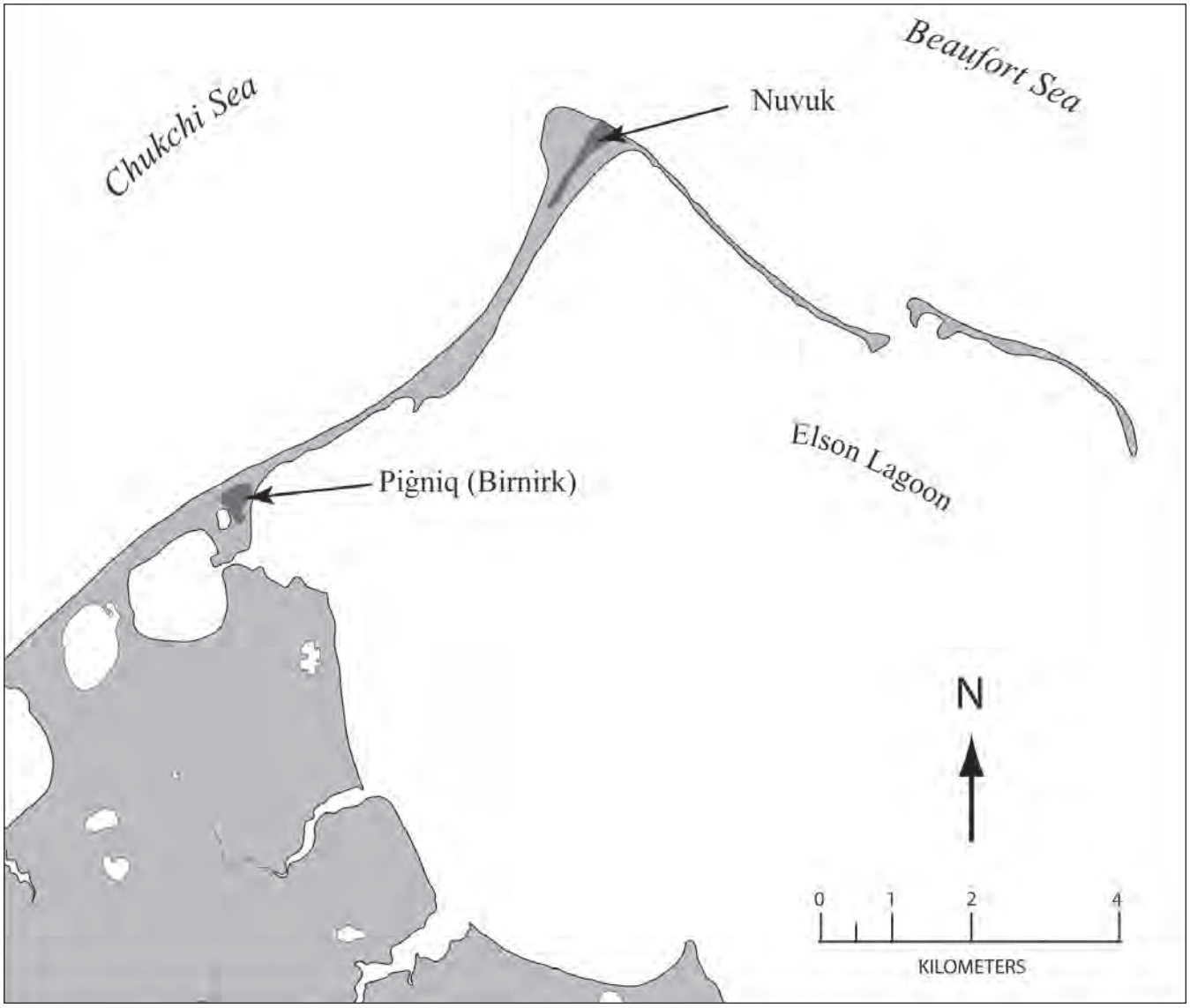

Figure 1: Map of Point Barrow area, showing locations and approximate extent of Nuvuk and Piġniq (Birnirk). Map based on 1949 aerial photos.

describes as early Thule. The decoration on the harpoon heads from Nuvuk is relatively simple, similar to that seen on the harpoon heads illustrated by Stanford and some shown by Ford (Ford 1959:85:Fig. 38b,c). It is Sicco harpoon heads with this style of decoration that have been considered an "index fossil" for early/classic Thule.

The other four harpoon heads are all thin forms with open sockets, with lashing slots, single side spurs, and blade slots parallel to round line holes (see Fig. 2). One of them has vestigial side blade slots. They fall into Mathiassen's Thule 3 type (1927) or Jordan's Class 1B (1979:163) and resemble Sicco and Tasik Open Socket in terms of spurs, line hole/blade slot arrangement, and decoration, but they are not keeled. Ford (1959) does not illustrate anything like them, while Stanford illustrates a very similar harpoon head from level B-7 (1976:174:Plate 63b) and another from level B-2 (1976:174:Plate 63a) at Walakpa. Schledermann and McCullough (2003:137:Plate 1f) show a similar harpoon head from Eskimobyen House 21, although it is made of ivory.

Other artifacts (Table 1) included additional hunting gear, including bola weights, a seal scratcher, bird dart side prongs, a foreshaft, a socket piece, a float inflation nozzle, a wound plug and a possible wound pin. There were also some manufacturing or maintenance items: a flaker or scraper handle, a beaver tooth graver, and one half of a composite knife handle. A probable bag handle and an ivory owl toggle or fastener were also present.

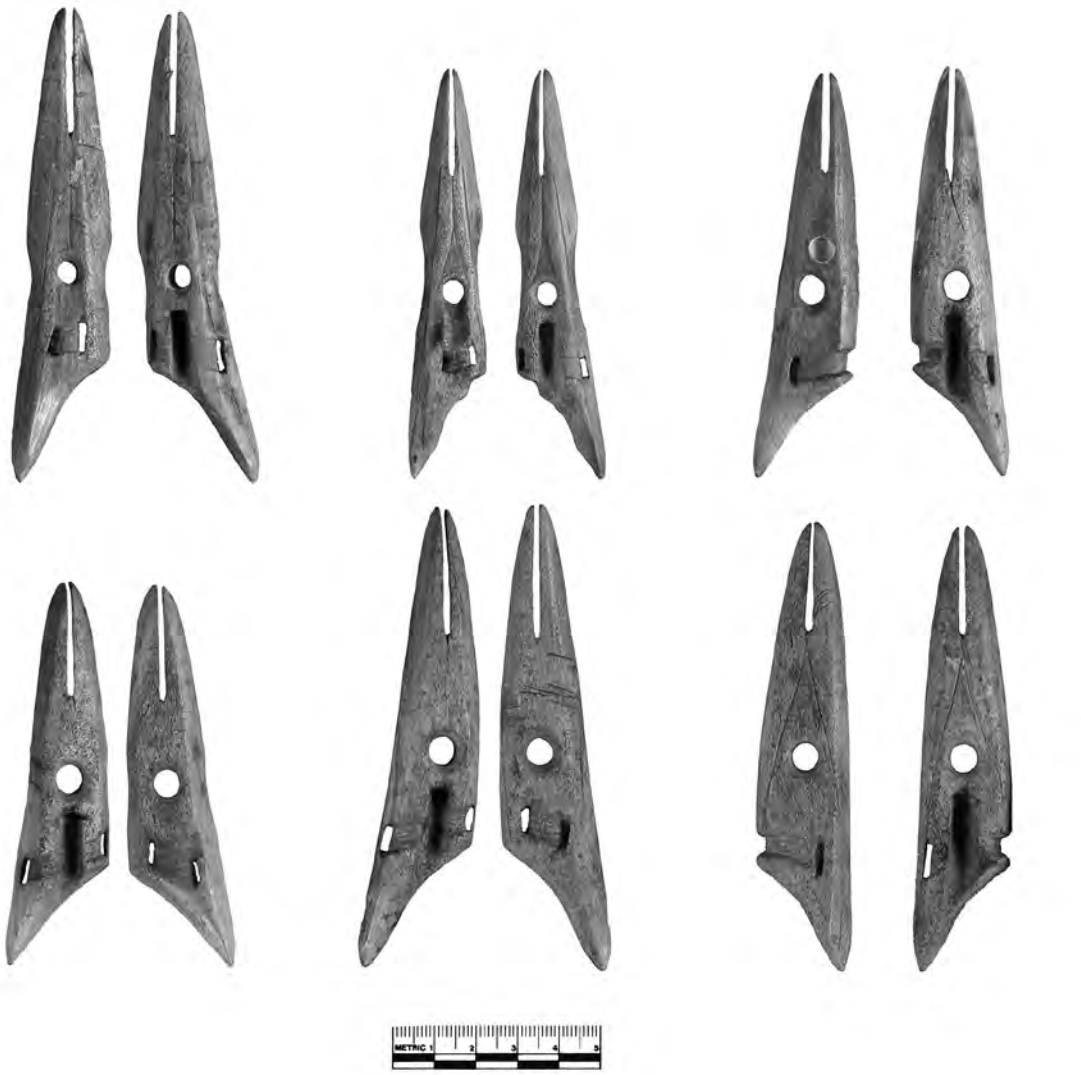

Figure 2: Harpoon heads from Nuvuk-01 burial. Note the Sicco type at upper left.

Unlike most sites in the Barrow area, the matrix at Nuvuk consists entirely of unconsolidated gravel with little organic content. The active layer is very deep, and in some areas there is no permafrost to a depth of 5 m or more. Therefore, preservation at Nuvuk is generally not as good as at other Neo-Eskimo sites in the Barrow area but still is excellent by most standards.

RADIOCARBON DATING

In 2003, Owen Mason was kind enough to date one of the non-Sicco antler harpoon heads from the Nuvuk-01 burial in connection with analysis of materials from the Uivvaq site. A number of additional dates have been obtained on graves excavated during the 2005, 2006, and 2007 Nuvuk field seasons (Jensen in prep.).

Nuvuk-01 (Beta-180329) yielded an AMS determination with a conventional ^{14}C date of 1110 ± 40 BP, with a calibrated two sigma range of AD 810–1020. The date for Nuvuk-01 grave is quite close to the dates for Aġnaiyaq, the frozen girl excavated at Ukkuqsi, Barrow, in 1994 (Zimmerman et al. 2001). It should be noted that this date corresponds almost exactly to the date of 1140±60 BP (Beta-46510) from the Sivuqaq Grave 91-7, the two sigma range of which was primarily centered around AD 774–1018 (Staley and Mason 2004: 127).

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Table 1. Artifacts from Burial Nuvuk-01

Artifact	Description	Raw material	#
Harpoon head	Sicco	Antler	2
Harpoon head	Thule 3	Antler	4
Fastener/toggle?	Owl effigy	Ivory	1
Preform, harpoon head	Whaling?	Ivory	1
Wound plug		Ivory	1
Handle, composite knife	½, beveled butt, slot for alignment spline	Ivory	1
Graver	Beaver tooth		1
Side prongs, bird dart	Ford Class A	Antler	2
Foreshaft	Line slot	Ivory	1
Socket piece	Tapered butt, drilled hole for securing to shaft	Bone (dense)	1
Seal scratcher	Paired holes for rattle attachment, hole at base of handle, five "claws"	Wood	1
Handle, scraper or flaker		Wood	1
Handle, bag?		Bone	1
Marlin spike	Crude	Ivory	1
Inflation nozzle		Ivory	1
Wound pin?	Elaborately carved head, resembles Eastern Arctic "ornamental bodkins"	Ivory	1
Bola weight		Ivory	1
Bola handle/weight	Elongated	Ivory	2
Bola weight	Walrus tooth with drilled hole, found with other bola weights	Ivory	2
Bola handle/weight	Elongated	Bone	3
Bola weight?	Tablet-like with beveled edges and drilled hole, found with other bola weights	Mammoth ivory	1
Bola weight	Rib segments, rounded off by beveling	Bone	13
Bola weight	Rib slabs, unrounded	Bone	3

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REPORT

A ROSTER OF BIA ANCSA RADIOCARBON DATES

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INTRODUCTION

To substantiate claims by the Native regional corporations for historical places and cemetery sites under Section 14(h)(1) of the Alaska Native Claims Settlement Act (ANCSA 1971), the Bureau of Indian Affairs (BIA) must demonstrate that the sites meet the eligibility criteria set forth by implementing regulations, which were modeled after the National Historic Preservation Act (1966) and are applied in the ANCSA context through a unique land claims settlement. For this process there are no overarching research imperatives. In practice, ANCSA archeologists have emphasized surface inventories and, wherever possible, oral history research over subsurface testing and excavation. In part this was because many claims for heritage sites could be verified with data obtained by these relatively noninvasive methods. Moreover, some regional corporations were opposed initially to any collecting or testing on their selections. In recognition of the latter concern, the BIA ANCSA Office encouraged a "no collection" field protocol in the mid-1980s.

Despite a restrained collecting and testing policy, ANCSA archeologists have not overlooked the value of the radiocarbon method for estimating the age of sites, particularly older components beyond the temporal limits of oral history or in the absence of Native informants. Especially those sites situated along active coastlines and riverbanks often present opportunities to secure datable carbon samples from natural exposures with minimal disturbance. In some instances, certain environmental settings (e.g., coseismic and interseismic level changes in Prince William Sound) or site types (e.g., campsites) have required more attention to archeological testing than might be necessary otherwise. Where establishing the presence of buried cultural material was deemed crucial to a particular investigation, tests were excavated in an effort to demonstrate that research potential. In 30 field seasons (1978–2007), the ANCSA program obtained 393 radiocarbon dates for Section 14(h)(1) properties or adjacent sites. An additional 88 dates were run in support of BIA regional archeology or a few special projects.

ANCSA radiocarbon dates have been reported from time to time in papers presented at the Alaska Anthropological Association annual meetings, but with a few exceptions they have remained unpublished. The Aleutian region is best represented in the published and gray literature (Clark 1990; Cooper 2003; Cooper and Bartolini 1991; Corbett 1991; Corbett et al. 2001; Kent 1985; Lefevre et al. 2001; Maschner et al. 1997; O'Leary 2001). Bland (1996) listed all the Aleutian dates obtained by BIA fieldwork through 1991 in a doctoral dissertation. Sheppard (1983) published a few dates from early work in Norton Sound, in the Bering Straits region. Kent (1987, 1990) reported dates for the Doyon region in two short papers, and Clark (1988, 1989) listed dates from the Cook Inlet region. A few dates for western Alaska have been reported by Griffin (2004), Pratt (2001), Pratt and Shaw (1992) and O'Leary (1995, 1999). Blumer (2002) reported and calibrated three

ANSCA-funded dates on St. Lawrence Island artifacts. For the Chugach region, Dotter (1988) assembled a rather complete roster of dated samples through 1988, which has been widely cited (e.g., Haggarty et al. 1991). It is in part the interest shown in Dotter's paper and in subsequent regional radiocarbon syntheses (e.g., Bland 1996; Gerlach and Mason 1992; Mills 1994) that prompted the present list. Dates from the ANCSA-sponsored mitigation at NAK-015 have also been published or reported (Dumond 2004; Harritt 1997). While these references provide important contextual and interpretative information, the tables below constitute the definite roster.

ROSTER ORGANIZATION

We follow Gal in reporting all dates regardless of outcome and in listing associated artifacts as opposed to "synthetic archeological formulations" (1982:159). For many of the sites, that would be premature given the limited testing and the generally low yield for diagnostic artifacts directly associated with the samples. Dates are arranged in 11 separate tables by geographical areas corresponding to the ANCSA regional corporations, and within each corporate region by AHRS number. Note that the Arctic Slope Regional Corporation declined to participate in the ANCSA Section 14(h)(1) program, and the Thirteenth Corporation was excluded from heritage site or other land claims. Each regional date list has seven columns presenting the following data:

AHRS Number: identifier for the Alaska Heritage Resources Survey, a statewide inventory of historic and prehistoric sites maintained by the Alaska State Office of History and Archaeology.

BLM Number/Locality: indicates the serial case file number assigned to a Section 14(h)(1) claim by the Bureau of Land Management (BLM), along with the site name or general site vicinity. Separate loci of a site are indicated by a letter following the serial number (e.g., AA-12262B). The primary reference for context and interpretation of a particular ANCSA date is the "Report of Investigation" and associated case file, both identified by BLM serial number. Secondarily, the various published and gray literature cited above offer pertinent information. Sites without BLM numbers are non-ANCSA.

Lab Number

Conventional Age: the calculated age in radiocarbon years before present (RCYBP) or percent modern carbon (pMC), as reported by the laboratory. Activity measures were based on the carbon-14 (^{14}C) half-life of 5568+/–30 years. Unless noted, ^{14}C content was normalized to a common $^{13}C/^{12}C$ (δC^{13}) value of –25.0 o/oo to account for isotopic fractionation.

Calibrated Age: the calendar age-range for the sample expressed at the 2 sigma confidence level. Conversion from the ^{14}C timescale (BP) to calendar years (BC/AD) was by Beta Analytic (after 1995) or used the CALIB version 4.3 computer program (Stuiver and Reimer 1993; Stuiver et al. 1998a, 1998b). Dates on shell, bone, and ivory have not been calibrated, due to the complexities and uncertainties associated with marine reservoir effects.

Material Context: provides (1) information about sample provenience, where "F-" indicates surface feature number, "TP-" indicates test pit, "L-" is stratigraphic level, and "cm" is depth in centimeters below the ground surface (unless noted); and (2) information about special handling, measured age, $\delta^{13}C$ value, or a list of artifacts thought to be directly associated with the dated material.

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AHRS Number	BLM Number/Locality	Lab Number	Conventional Age RCYBP	Calibrated Age (2 sigma)	Material	Context
GUL-033	Crosswind Lake	Beta-110095	980±70	AD 960–1220	charred material	Area 6, buried surface outside F-3, 20–22 cm. Flakes.
GUL-088	AA-60730A East Fork Village	Beta-29399	480±80	AD 1300–1630	charred material	F-1, TP-1, L-3, 50–53 cm.
GUL-194	AA-60729D Dickey Lake	Beta-214807	970±40	AD 1000–1170	charred material	Section, Blowout 2, unit 1N/3E, west wall, 10–20 cm. AMS. Measured age 980±40 BP, $\delta^{13}C$ –25.8 ‰. Flakes.
GUL-219	Tulsona Creek	Beta-41829	650±80	AD 1225–1430	charcoal	?
		Beta-41830	100.4±0.9 pMC	modern	charcoal	Hearth, 20–23 cm.
GUL-331	Little Lake Louise	Beta-56549	60±70	AD 1670–1955	charcoal	F-9, TP-3, 1–10 cm, floor?
NAB-003	AA-10714A Batzulnetas	Beta-56551	570±150	AD 1165–1645	charcoal	Profile 1, cutbank at Nataelde clearing, Unit 9, 24 cm. Possible rootlet contamination.
		Beta-56552	410±80	AD 1335–1650	charcoal	Profile 1, cutbank at Nataelde clearing, Unit 4, 26 cm. Possible rootlet contamination.
VAL-323	Klutina Lake	Beta-134347	120±60	AD 1655–1955	wood	House depression. See Forshaw nd.
		Beta-134346	100±40	AD 1675–1955	bark (*Betula*)	House depression. AMS. Measured age 130±40 BP, $\delta^{13}C$ –27.0 ‰.
		Beta-134345	60±60	AD 1675–1955	bark (*Betula*)	House depression.
VAL-404	AA-58702B Mendeltna Creek	Beta-29400	1510±60	AD 420–660	charcoal	F-127, Cell 1, L-3, 44–46 cm below datum. Cache pit feature.
		Beta-29401	590±60	AD 1285–1440	charcoal	F-127, Cell 2, L-3, 50–53 cm below datum. Cache pit feature.
VAL-488	Lower Tonsina	Beta-56548	4220±90	BC 3075–2500	charcoal	Bluff edge test pit, 10–30 cm. Extended counting. Flakes.
VAL-489	Copper River	Beta-56550	2920±90	BC 1395–845	charcoal	F-1, TP-2, 23–35 cm, floor. Anomalous old age?

The Aleut Corporation (TAC)

AHRS Number	BLM Number/Locality	Lab Number	Conventional Age RCYBP	Calibrated Age (2 sigma)	Material	Context
ADK-015	AA-12153 Shagak Spit	Beta-145103	230±40	AD 1530–1950	charred material	F-11, 30–50 cm. AMS. Measured age 210±40 BP, $\delta^{13}C$ –23.8 ‰. Flakes, ground-stone ulu, girdled line sinker.
ADK-023	AA-12085 Adak Island	Beta-159930	3860±40	BC 2460–2200	charred material	F-A, 41–55 cm. AMS. $\delta^{13}C$ –25.1 ‰.
ADK-024	AA-12086 Adak Island	Beta-159931	3740±40	BC 2280–2030	charred material	F-1, 50–51 cm, floor. AMS. Measured age 3760±40 BP, $\delta^{13}C$ –26.2 ‰.
ADK-028	AA-12090 Bay of Waterfalls	Beta-122570	500±70	AD 1310–1620	charcoal	F-1, 20–25 cm, floor.
		Beta-127621	3300±70	BC 1740–1425	organic sediment	F-1, 52–54 cm. Low carbon bulk sample. Possibly a buried soil horizon.
ADK-035	AA-12097 Adak Island	Beta-194447	2570±40	BC 810–560	charcoal	F-1, TP-1, 39 cm. AMS. $\delta^{13}C$ –24.8 ‰. Flakes.
ADK-052	AA-12056 Deceit Point	Beta-47139	130±70	AD 1645–1955	charcoal	Exposure, 10 cm.
ADK-055	AA-12059 Kanaga Island	Beta-47140	3290±60	BC 1735–1430	organic sediment	F-52, 60–68 cm. Flakes.
ADK-067	AA-12071 Kanaga Island	Beta-147151	470±60	AD 1400–1620	charred material	F-4, 8–10 cm, floor. Flake.
		Beta-144988	370±50	AD 1430–1650	peat	F-4, 34–36 cm, floor. Extended counting. Flake.
ADK-083	AA-12106 Adak Island	Beta-159932	1970±40	BC 50–AD 110	charred material	F-4, 32–34 cm, floor. AMS. $\delta^{13}C$ –25.2 ‰. Unifacial tool, flakes, calcined bone.
ADK-097	AA-12114 Staten Island	Beta-145102	1190±60	AD 690–990	charred material	F-C, 40–45 cm. Extended counting. Flakes.
ADK-102	AA-12119 Eddy Island	Beta-109535	102.3±1.1 pMC	modern	charred material	Area I, House J, 14 cm. Extended counting.
ADK-103	AA-12120 Little Eddy Island	Beta-159933	1460±40	AD 540–660	organic sediment	F-C, 45–47 cm, floor. AMS. Measured age 1480±40 BP, $\delta^{13}C$ –26.3 ‰. Flake.
ADK-110	AA-12128 Camel Cove	Beta-33332	2250±130	BC 760–AD 20	charcoal	F-3, TP-1, 35–38 cm. Extended counting. Obsidian projectile point, flakes.

AHRS Number	BLM Number/Locality	Lab Number	Conventional Age RCYBP	Calibrated Age (2 sigma)	Material	Context
ADK-117	AA-12135 Adak Island	Beta-159934	2020±80	BC 200–AD 130	charred material	F-2, 38–41 cm, floor. Griddle stone.
ADK-127	Adak Island	Beta-122573	1530±50	AD 425–640	organic sediment	F-F, test, 32–35 cm, floor. Low carbon bulk sample. Flake.
ADK-171	Clam Lagoon	Beta-122574	6410±60	––	shell (*Clinocardium*)	Sectioned exposure, 115–148 cm, upper shell layer. Flakes. Measured age 6000±60 BP.
ADK-194	Clam Lagoon	Beta-134338	3050±70	BC 1445–1105	organic sediment	F-12, 60–63 cm, below 40 Year Ash. Low carbon bulk sample. Griddle stone.
ADK-221	Kanaga Island	Beta-76981	4230±60	BC 2920–2610	organic sediment	Bluff exposure, 100 cm. Basalt projectile point, flakes.
ADK-222	AA-12057 Kanaga Island	Beta-134340	2870±40	BC 1140–920	charred material	F-47, 37–47 cm. AMS. $\delta^{13}C$ –25.4 ‰. Calcined bone.
ADK-223	Airport Site	Beta-145104	160±60	AD 1645–1955	charred material	F-1, TP-1, 33 cm, floor. Flakes, bone projectile tip, griddle stones.
ADK-224	AA-12105 Campers Point	Beta-147152	150±40	AD 1660–1950	charred material	F-9, 15–20 cm, floor. AMS. $\delta^{13}C$ –24.7 ‰. Projectile point fragments, flakes.
		Beta-144989	320±40	AD 1460–1655	peat	F-9, 22–25 cm, floor. Extended counting. Flakes.
ADK-225	AA-12103 Boot Bay	Beta-122571	230±60	AD 1515–1950	charred material	F-2, 24–30 cm. Tested cobble, flakes.
ADK-227	AA-12136 Adak Island	WSU-2960	192.4±32.9 pMC	modern	grass mat	Burial cairn, tightly woven inner layer of burial wrap. Also reported as modern±400.
		WSU-?	250±300	AD 1210–1955	grass mat	Burial cairn, loosely woven outer layer of burial wrap.
AMK-003	AA-12203 Carlisle Island	Beta-39281	3200±70	BC 1680–1320	sediment	Profile 1, 173 cm. Flakes.
		Beta-39282	1690±70	AD 145–540	sediment	Exposure V, Profile 2, 98 cm, burned tundra layer.
		Beta-39283	1940±60	BC 50–AD 230	sediment	Exposure V, Profile 2, 103 cm. Flake.
AMK-008	AA-12201 Herbert Island	Beta-47146	3660±70	BC 2270–1785	sediment	Locus B, house floor in bluff exposure, 150–190 cm. Biface fragment, flakes, pumice abrader.
ATK-007	AA-12166A Sergiof Bay	Beta-159935	460±50	AD 1410–1500	charred material	F-7, 50–52 cm, floor. Measured age 440±50 BP, $\delta^{13}C$ –24.0 ‰. Flakes, griddle stone fragment, fish bone, calcined bone.
ATK-023	AA-12173 Bluefox Bay	Beta-168723	3030±40	BC 1400–1140	charred material	F-1, 55–75 cm, fill above floor. AMS. $\delta^{13}C$ –25.1 ‰. Flakes.
ATK-038	AA-12176 Podsopochni Bay	Beta-47121	440±70	AD 1330–1640	charcoal	Cutbank on creek, 10–15 cm, uppermost of 3 samples from same section.
		Beta-47120	620±80	AD 1260–1440	charcoal	Cutbank on creek, 35–40 cm, middle of 3 samples from section.
		Beta-47122	2390±50	BC 760–385	charred material	Cutbank on creek, 105–110 cm, lowermost of 3 samples from section.
ATK-039	AA-12177 Wall Bay	Beta-47142	2540±90	BC 890–400	charcoal	Creek exposure, pit feature, 72 cm. Numerous bifacial and unifacial tools in associated slump.
ATK-042	AA-12180 Egg Bay	Beta-127626	1990±40	BC 60–AD 85	charred material	F-1, 48 cm. AMS. Measured age 1940±40, $\delta^{13}C$ –22.1‰.
ATU-003	AA-11926 Shemya Island	Beta-39090	1790±110	BC 35–AD 530	charcoal	TP-A, L-6, 50–60 cm, NE quad, midden. Extended counting.
		Beta-39091	1860±100	BC 50–AD 410	charcoal	TP-A, 130–133 cm, midden. Extended counting.
		Beta-39092	1770±120	BC 35–AD 540	charcoal	TP-B, L-6, 50–60 cm, NW quad. Extended counting.
		Beta-40420	1720±70	AD 130–530	charcoal	TP-C, south half, L-6, 60–70 cm, possible hearth.
		Beta-40421	2030±70	BC 200–AD 125	charred material	TP-C, L-8, 50–60 cm, midden.
		Beta-40422	1810±60	AD 75–385	charred log	TP-C, L-10, 105–115 cm.
ATU-023	AA-11925 Shemya Island	Beta-39089	2680±70	––	fish bone	TP-2, 0–45 cm, midden. Biface fragment, flakes, 2 net sinkers.
ATU-035	AA-11913 Armeria Bay	Beta-33320	360±60	AD 1430–1655	charcoal	F-18, TP-1, L-2, 9–18 cm. 3 bifacial knives, flakes, bone tool fragment.
		Beta-33321	760±70	AD 1160–1390	charcoal	F-18, TP-1, L-2, 9–18 cm.

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		Beta-127625	1550±60	AD 400–635	charred material	F-18, TP-1, L-5, 40–50 cm. Biface or core fragment, unifacial scraper, stone saw, flakes.
ATU-061	Shemya Island	Beta-39104	3540±60	——	fish, sea mammal bone	TP-2 (section), 45–70 cm.
ATU-062	Shemya Island	Beta-40423	2060±90	BC 360–AD 125	charcoal	TP-1, 54–68 cm.
ATU-216	AA-11914 Armeria Bay	Beta-33322	330±50	AD 1445–1660	charcoal	F-49, TP-1, L-5, 40–43 cm below datum. Bifacial knife, biface fragments, blade with unifacial retouch, core fragment, 2 stone saws, fishhook shank.
		Beta-33323	280±50	AD 1480–1950	charred wood	F-49, TP-1, L-5a, 45 cm below datum.
KIS-001	AA-11932 Mutt Cove	Beta-122568	1890±60	AD 5–250	charred material	Exposed section, TP-2, 80–93 cm. Hammerstone, flakes.
KIS-008	AA-11927 Buldir Island	Beta-33324	320±50	AD 1450–1660	charred wood	Base of midden, 200 cm.
		Beta-33325	420±60	AD 1410–1640	wood	Base of midden, 145–155 cm.
KIS-010	AA-11931 Gertrude Cove	Beta-33318	310±50	AD 1450–1790	charcoal	East wall F-8, TP-1, 30 cm. Harpoon foreshaft, flakes.
KIS-029	AA-11934 Kiska Harbor	Beta-134339	320±60	AD 1445–1665	peat	F-1, 17–20 cm, dwelling floor.
KIS-030	AA-11930 Dark Cove	Beta-33327	2270±80	BC 505–120	charcoal?	TP-2, 15–30 cm, midden. Biface, 2 biface fragments, flakes, scoria abrader.
RAT-024	AA-11967 Amchitka Island	Beta-14935	23590±310	——	charcoal	Locus V, TP-1, L-3, 35–45 cm. Inferred lignite contamination.
		Beta-15710	4440±90	BC 3370–2885	charcoal	Locus V TP-1, L-3, 35–45 cm. Flakes, burin spall.
		Beta-15711	3520±130	BC 2200–1520	charcoal	Locus V, TP-1, L-3, 35–45 cm.
RAT-068	AA-12011 Petrel Point	Beta-15712	13780±270	——	charcoal	Locus II, TP-5, 66–74 cm. Inferred lignite contamination. Core fragment, flakes.
		Beta-14936	4610±110	BC 3640–2935	charcoal	Locus IV, TP-6, L-C, 22–32 cm. Retouched flake, flakes.
		Beta-29409	4510±230	BC 3760–2505	charcoal	Locus IV, TP-6, L-E, 44–55 cm. 2 hammerstones, core fragment, flakes.
RAT-070	AA-12013 Amchitka Island	Beta-14934	4330±100	BC 3340–2640	charcoal	Locus II, TP-5, Lens P, 0–10 cm. Flakes.
		Beta-29407	4780±270	BC 4220–2880	charcoal	Locus II, TP-5, Lens P, 0–10 cm. Flakes.
RAT-079	AA-11937 Rat Island	Beta-33328	180±50	AD 1540–1955	charred wood	F-7, TP-1, 16 cm.
		Beta-33329	230±90	AD 1450–1950	charcoal	F-7, TP-1, 10–20 cm.
		Beta-33330	360±90	AD 1410–1950	charcoal	F-40, TP-3, 8–16 cm.
RAT-085	AA-11944 Little Sitkin Island	Beta-33331	380±190	AD 1275–1955	charcoal	Stream cutbank, 60–62 cm. Extended counting.
RAT-087	AA-11936 Segula Island	Beta-122569	460±70	AD 1395–1635	charred material	F-1, 36–46 cm. Extended counting. Flake.
RAT-097	AA-11960C Sea Otter Point	Beta-14933	3640±90	BC 2285–1745	charcoal	F-69, TP-2, Stratum J, 162–167 cm. Extended counting. Flakes.
		Beta-29408	2430±190	BC 970–45	charcoal	F-69, TP-2, Stratum J, 162–167 cm.
SAM-017	AA-12204 Carlisle Island	Beta-39284	2780±60	BC 1110–810	sediment	Erosional face below F-22, 80 cm. Blade core fragment?
		Beta-41826	1540±110	AD 255–685	sediment	Marine terrace, base of soil overlying marine cobbles and sand, Area A-Ai? Geological sample.
		Beta-41827	1030±90	AD 780–1215	sediment	Marine terrace, base of soil overlying beach sand, Area A-Ai? Geological sample.
		Beta-41828	5440±100	BC 4460–4000	sediment	Marine terrace, base of subaerial deposits, 284 cm, Area A-Ai? Geological sample.
SAM-024	AA-12209 Samalga Island	Beta-159937	310±40	AD 1470–1660	charred material	F-38, 21–25 cm, floor. AMS. Measured age 280±40 BP, $\delta^{13}C$ –23.2 ‰. Biface fragment, retouched flake, flakes, tuff bowl fragment, unfinished lamp/pallet (?), calcined bone.
SEG-008	AA-12189 Amlia Island	Beta-47123	1170±90	AD 665–1025	charcoal	Midden section, 80–100 cm. Retouched flakes, burin (?).
SEG-011	AA-12190 Amlia Island	Beta-47143	2100±100	BC 390–AD 125	charcoal	F-19, 30 cm. Extended counting. Basalt scraper, flakes.

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SEG-013	AA-12192 Cape Idalug	Beta-134344	2130±50	BC 360–40	charred material	F-23, TP-3, 16–25 cm. AMS. Measured age 2110±50 BP, $\delta^{13}C$ –23.8 ‰. Biface fragment, blade-like flake, flakes, haphazard lamp (?).
		Beta-47144	520±70	AD 1300–1485	charcoal	F-99, TP-2, 20–25 cm. Flakes.
SEG-017	AA-12196 Amlia Island	Beta-168724	2500±40	BC 790–420	charred material	F-1, 56–60 cm, fill. AMS. Measured age 2480±40 BP, $\delta^{13}C$ –24.0 ‰. Flakes, bone.
		Beta-159936	2700±40	BC 920–800	charred material	F-1, 63–66 cm, fill. AMS. Measured age 2580±40 BP, $\delta^{13}C$ –17.7 ‰.
UMK-002	AA-12223 Umnak Island	Beta-134341	1110±50	AD 795–1015	charred material	F-1, 20–24 cm, lower band. AMS. $\delta^{13}C$ –25.3 ‰. Flakes, pumice abrader.
UMK-009	AA-12213 Kagamil Island	Beta-47124	260±60	AD 1480–1950	charcoal	Eroding terrace near F-101, 30 cm.
UNI-048	AA-12242A Akun Island	Beta-33333	2070±70	BC 350–AD 75	charcoal	Midden section, 140–150 cm.
		Beta-33334	1900±50	BC 15–AD 240	wood	Midden section, 200 cm.
UNI-076	AA-12244 Cape Lapin	Beta-122572	230±70	AD 1495–1950	charred material	F-10, 20–50 cm, fill above floor. Flakes, whalebone.
UNL-025	AA-12226 Konets Head	Beta-235610	330±40	AD 1450–1650	charred material	F-14, 38–44 cm, midden. AMS. $\delta^{13}C$ –25.3 ‰. Iron (?), obsidian flakes, faunal remains (shell, fish, bird, mammal)
UNL-057	AA-12239B Sedanka Island	Beta-14937	110±60	AD 1655–1955	charcoal	TP-1, 22–33 cm. Flake.
UNL-064	AA-12237 Usof Bay	Beta-179068	250±50	AD 1510–1950	charred material	F-1, 10–15 cm, upper floor. Measured age 240±50, $\delta^{13}C$ –24.2 ‰. Glass beads, ferrous metal, ground ulu or knife, flakes.
		Beta-179067	1020±40	AD 970–1040	charred material	F-1, 27–30 cm, middle floor. AMS. Measured age 1050±50, $\delta^{13}C$ –26.6 ‰. Ground stemmed knife.
		Beta-159939	1190±40	AD 720–960	charred material	F-1, 39–42 cm, lower floor. AMS. $\delta^{13}C$ –24.8 ‰. Flakes, worked wood, calcined bone.
UNL-081	AA-12227 Unalaska Island	Beta-159938	220±60	AD 1520–1950	charred material	F-3, 50–55 cm, hearth? Measured age 230±60 BP, $\delta^{13}C$ –25.5 ‰. Copper fragment, flake, sea mammal bone, fish bone (including Gadus), bird bone, urchin and bivalve shell, wood chips.
UNL-219	Sedanka Island	Beta-134342	840±40	AD 1055–1270	charred material	F-2, TP-2, 20–25 cm, floor? AMS. Measured age 820±40 BP, $\delta^{13}C$ –23.3 ‰.
XCB-004	AA-12261 Morzhovoi	Beta-29388	1500±150	AD 240–860	charcoal	F-264, TP-1, 0–10 cm, sod layer. Glass beads in situ below. Rejected by excavators.
XCB-023	AA-12256 Izembek Lagoon	Beta-29382	330±100	AD 1410–1950	charcoal	Bluff exposure near F-4, 10–29 cm, middle of 3 midden lenses. Bifacial knife fragment.
XCB-025	AA-12273 Alaska Peninsula	Beta-29386	290±100	AD 1430–1950	charcoal	F-21, TP-1, 20–40 cm. Combined sample from two 10 cm levels. White-on-white glass bead, flakes.
		Beta-29387	960±160	AD 695–1380	charcoal	F-19, TP-2, 10–40 cm. Combined sample from three 10 cm levels. Whetstone, flakes, metal fragments.
XCB-029	AA-12268 Joshua Green River	Beta-29390	4500±250	BC 3780–2490	charcoal	F-108, TP-1, 45–65 cm. Combined sample from two 10 cm levels. Retouched blade-like flake, flakes.
		Beta-29391	3370±150	BC 2105–1320	charcoal	F-108, TP-1, 90–100 cm. Flakes.
XCB-030	AA-12255 Blaine Point	Beta-29381	2990±110	——	shell	Area B, Shovel Test 2, 50–80 cm, fox burrow in midden. *Clinocardium, Mytilus*.
XCB-031	AA-12259C Izembek Lagoon	Beta-29384	1420±130	AD 390–890	charcoal	F-3, TP-1, 15–25 cm. Utilized flake, flakes.
		Beta-29385	1190±100	AD 655–1025	charcoal	F-3, TP-1, 55–65 cm. Flakes.
XCB-074	Alaska Peninsula	Beta-29392	740±70	AD 1165–1395	charcoal	Shovel probe, 20 cm.
XFP-023	AA-12262B Alaska Peninsula	Beta-29389	1780±80	AD 70–425	charcoal	F-1, 30 cm. Flakes.
XGI-019	AA-12045 Tanaga Island	Beta-147150	180±40	AD 1650–1950	charred material	F-35, TP-3, 20–22 cm, floor. AMS. $\delta^{13}C$ –24.6 ‰. Flakes.
		Beta-145101	1310±40	AD 650–780	charred material	F-35, TP-3, 34–36 cm, floor. AMS. $\delta^{13}C$ –25.1 ‰. Flakes.

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XPM-018	AA-12292 Sanborn Harbor	Beta-40419	2030±90	BC 350–135	charcoal	TP-8, 27–29 cm. Extended counting. Groundstone (?), miniature chert projectile point, retouched flake, flakes.
XPM-080	Korovin Island	Beta-127630	180±60	AD 1635–1950	charred wood	Bluff exposure above SE shore, upper portion of cultural deposit.
XSI-002	AA-12286A Simeonof Island	Beta-40418	190±60	AD 1530–1950	charred material	Area B, bluff section, 100 cm.

Bering Strait Native Corporation (BSNC)

AHRS Number	BLM Number/Locality	Lab Number	Conventional Age RCYBP	Calibrated Age (2 sigma)	Material	Context
BEN-060	F-22894 An-Ning-Nug	Beta-234319	200±40	AD 1640–1950	charred material	Test in house depression, 20–22 cm. AMS. Measured age 190±40 BP, $\delta^{13}C$ –24.1 ‰. Pottery (fine gravel, sand, fiber), *Rangifer* in fill just above.
BEN-185	F-22007 Birch Creek	Beta-170273	1090±60	AD 790–1030	organic sediment	Test, 43–48 cm, floor? Measured age 1110±60 BP, $\delta^{13}C$ –26.7 ‰.
CAN-004	F-22908 Iqalugruaq	Beta-127629	120±50	AD 1660–1950	wood post	Near F-D, Shovel Probe 1, 10–43 cm. Ulu blade.
NOB-023	F-22849 Inglutalik	Beta-197560	120±60	AD 1660–1960	wood	Slumped sod block, west end of site, ca. 60 cm. Shot through with rootlets. Measured age 140±60 BP, $\delta^{13}C$ –26.0 ‰. On beach nearby are sheet copper, ground endblade, whetstones, pottery, Phoca, other sea mammal, Delphinaperus, Alces, *Rangifer*, mammoth ivory (?).
		Beta-196764	1010±40	––	charred material	Sample scraped from ceramic vessel wall, surface of intertidal beach on left river bank. AMS. Measured age 990±40 BP, $\delta^{13}C$ –23.9 ‰. From ceramic sherd (pebble and grass temper).
NOM-004	F-21997B Salmon Lake	Beta-221218	170±40	AD 1650–1950	charred material	F-58, 30–35 cm. AMS. Measured age 210±40 BP, $\delta^{13}C$ –27.7 ‰. Groundstone knife fragment, calcined bone.
NOM-051	F-22857 Independence Reindeer Cabin	Beta-221219	40±40	AD 1690–1950	charred material	F-A, 21 cm, probably dwelling floor. AMS. Measured age 30±40 BP, $\delta^{13}C$ –24.6 ‰.
NOM-112	F-21907B Glacial Lake I	Beta-196762	260±40	AD 1520–1950	bone (*Rangifer*)	Slumped sod block, downslope from F-18, ca. 23 cm. AMS. Measured age 150±40 BP, $\delta^{13}C$ –18.2 ‰. Biface fragments, cores, flakes nearby.
NOM-145	F-22847 Cobblestone Creek	Beta-197559	110±40	AD 1670–1950	bone (*Rangifer*)	Surface lithic scatter, NW slope of moraine. AMS. Measured age 0±40 BP, $\delta^{13}C$ –18.2 ‰. Biface fragment, burin (?), flakes.
SOL-012	F-21916 Chiugaq	Beta-221217	290±40	AD 1490–1660	charred material	Test in house feature, 75 cm. Extended counting. Measured age 300±40 BP, $\delta^{13}C$ –25.3 ‰.
SOL-065	F-21936C Kuvrawik	Beta-23391	390±70	AD 1410–1650	charcoal	Bluff exposure near F-20, 15–20 cm.
		Beta-23392	770±50	AD 1165–1300	charcoal	Bluff exposure at F-21, 88–90 cm.
		Beta-23393	620±80	AD 1260–1440	charcoal	Bluff exposure near F-22, 90 cm. Below bone sled shoe.
SOL-068	F-21889 Uqpiktulik	Beta-127628	10±80	AD 1675–1940	wood	Area O, between F-A and F-B, TP-1, 56 cm. Bone boat hook.
SOL-073	F-21945B Tapkaaq	Beta-218800	510±60	AD 1310–1470	charred material	Backdirt from looter's hole, south portion F-B. Extended counting. Measured age 500±60 BP, $\delta^{13}C$ –24.2 ‰. Pottery (fiber and gravel temper).
SOL-130	F-21937 Ipnachuaq	Beta-235611	30±40	AD 1700–1950	wood	F-16, TP-1, 40–45 cm. $\delta^{13}C$ –25.0 ‰. Wood sled shoe.
		Beta-234318	290±50	AD 1460–1950	charred material	F-43, TP-2, ca. 55 cm. $\delta^{13}C$ –25.3 ‰. Wood sled shoe (?) in fill just above, pottery (fine gravel, sand, plant fiber temper) in nearby cutbank.

AHRS Number	BLM Number/Locality	Lab Number	Conventional Age RCYBP	Calibrated Age (2 sigma)	Material	Context
SOL-169	F-21946	Beta-219596	70±40	AD 1680–1950	cut wood	F-A entry, ca. 50 cm, part of modified wood object. AMS. $\delta^{13}C$ –25.3 ‰.
TEL-020	F-22006 Millitaavik	Beta-23388	100.3±0.9 pMC	modern	charcoal	F-65, Profile 1, L-1, 90–95 cm. Corrugated/curvilinear pottery.
		Beta-23389	600±70	AD 1280–1440	charred log	F-56/57, Profile 2, L-1, 90–100 cm.
TEL-066	F-21949B Kok-suk-tik	Beta-235612	30±40	AD 1700–1950	charred material	Cutbank exposure below F-M. AMS. Measured age 60±40 BP, $\delta^{13}C$ –26.6 ‰. Associated with pottery (sand, fine gravel, plant fiber temper), chert biface thinning flake, bird and small mammal bone.
		Beta-225447	630±40	––	soot	Charred material scraped from exterior of pot sherd (possible Seward Striated type), cutbank, 50 cm. AMS. Measured age 620±40 BP, $\delta^{13}C$ –24.5 ‰.
TEL-067	F-21979 Ave-olt-vik	Beta-233978	610±40	ad 1290–1420	charred material	F-E, 47 cm. Measured age 580±40 BP, $\delta^{13}C$ –23.3 ‰. Flakes and potter (fine gravel, sand, feather temper) in section above.
TEL-151	F-22010 Ah-up-tak-con-yak	Beta-197557	210±40	ad 1640–1950	bone (*Rangifer*)	Surface of caribou bone midden at habitation area. AMS. Measured age 100±40 BP, $\delta^{13}C$ –18.4 ‰.
		Beta-196763	250±40	ad 1520–1950	bone (*Rangifer*)	Caribou bone midden at habitation area, 35 cm. AMS. Measured age 140±40 BP, $\delta^{13}C$ –18.4 ‰.
		Beta-233979	290±40	ad 1480–1660	wood	F-8, 24 cm. Measured age 300±40 BP, $\delta^{13}C$ –25.3 ‰. Shale flake, pottery (fine gravel, sand, plant fiber temper), *Rangifer* and unidentified bird in section above.
TEL-152	F-22010	Beta-197558	220±40	ad 1640–1950	antler (*Rangifer*)	Surface along caribou bone drift fence. AMS. Measured age 130±40 BP, $\delta^{13}C$ –19.6 ‰.
TEL-208	King Island Cemetery	Beta-225448	1010±40	––	soot	Charred material scraped from exterior of pot sherd (Seward Striated type), surface. AMS. Measured age 970±40 BP, $\delta^{13}C$ –22.5 ‰.
TEL-210	King Island	Beta-207746	870±40	ad 1040–1260	charred material	F-2, TP-1, 10–50 cm, backdirt. AMS. Measured age 890±40 BP, $\delta^{13}C$ –26.0 ‰. Flake tool fragment, pottery (gravel and fiber temper).
		Beta-209779	1420±40	––	soot	Charred material scraped from exterior of thick-wall rim sherd (gravel and fiber temper), F-2, TP-1, SE wall, 30 cm. AMS. Measured age 1370±40 BP, $\delta^{13}C$ –21.8 ‰.
		Beta-207747	870±40	AD 1040–1260	charred material	F-5, TP-2, 25–35 cm. AMS. Measured age 800±40 BP, $\delta^{13}C$ –20.8 ‰. Ground slate endblade, whetstone, pottery (gravel and fiber temper).
		Beta-209780	1440±40	––	soot	Charred material scraped from exterior of pot sherd (gravel and fiber temper), F-5, TP-2, 25–35 cm. AMS. Measured age 1370±40 BP, $\delta^{13}C$ –20.9 ‰.
		Beta-219157	720±40	AD 1250–1300	charred material	AF-005, 17 cm. AMS. Measured age 690±40 BP, $\delta^{13}C$ –23.2 ‰. Pottery (gravel and fiber temper), calcined bone.
		Beta-219593	1330±40	––	soot	Charred material scraped from exterior of pot sherd (gravel and fiber temper), AF-005, 17 cm. AMS. Measured age 1290±40 BP, $\delta^{13}C$ –22.5 ‰.
UKT-001	AA-38080 Golsovia	Beta-182356	380±60	AD 1420–1650	charred material	F-20, 20 cm, base of sod. Extended counting. $\delta^{13}C$ –24.7 ‰. Calcined bone.
		Beta-181469	280±40	AD 1500–1665	charcoal	F-20, 32 cm. AMS. Measured age 290±40 BP, $\delta^{13}C$ –25.4 ‰.
		Beta-234317	180±40	AD 1650–1950	wood	F-33, 50 cm. AMS. $\delta^{13}C$ –24.7 ‰. *Rangifer*, unidentified small fish in fill just above.

AHRS Number	BLM Number/Locality	Lab Number	Conventional Age RCYBP	Calibrated Age (2 sigma)	Material	Context
UKT-016	AA-10700 Kuik	WSU-2539	470±75	AD 1310–1630	grass mat	Base of midden exposed at bluff edge, 100 cm. Yukon-lined pottery.
		WSU-2540	530±80	AD 1290–1490	charcoal	Base of midden exposed at bluff edge, 100 cm. Possible mold contamination.
UKT-017	Qiku	Beta-181470	150±70	AD 1640–1960	charcoal	Cutbank, 23–25 cm. $\delta^{13}C$ –25.3 ‰. Groundstone ulu, calcined bone (including *Rangifer*).
UKT-021	AA-10695 Ulukuk	Beta-169778	120±40	AD 1670–1950	charred material	F-8, TP-1, 15–18 cm, floor. AMS. Measure age 130±40 BP, $\delta^{13}C$ –25.7 ‰. Calcined bone.
		Beta-170271	270±40	AD 1510–1800	charred material	F-7, 18 cm, floor. AMS. $\delta^{13}C$ –25.3 ‰. Window glass, calcined bone.
		Beta-170272	150±40	AD 1660–1950	charred material	F-20, 18 cm, floor. AMS. Measured age 140±40 BP, $\delta^{13}C$ –24.4 ‰.
		Beta-217833	200±40	AD 1640–1950	wood (*Betula*)	Birch bark basket fragment (UA91-52-9), TP-1, near entry tunnel for F-8, 98 cm. AMS. Measured age 250±40 BP, $\delta^{13}C$ –27.9 ‰. Three white glass beads.
UKT-032	AA-10701 Black Point	Beta-169777	390±40	AD 1430–1630	charred material	TP-1, 10–20 cm, stone-walled feature. AMS. Measured age 400±40 BP, $\delta^{13}C$ –25.8 ‰. Pottery (fiber and gravel temper), cut bone (including *Rangifer*).
		Beta-181468	320±70	AD 1440–1950	charred wood	"Grassy knoll," 8 cm. Extended counting. Whetstone.
		Beta-221216	40±40	AD 1690–1950	charred material	Base of eroding midden at high tide mark. Extended counting. Measured age 30±40 BP, $\delta^{13}C$ –24.8 ‰. Groundstone fragment, whetstone, pot sherds (gravel and fiber temper) in adjacent slump.
XSL-009	Kukulik	Beta-144990	1680±40	––	ivory (*Odobenus*)	Harpoon head, I-1935-0115; 66.5 m E of test cut, 8 m N, 122 cm above sterile clay. AMS. Measured age 1500±40 BP, $\delta^{13}C$ –13.6 ‰. Punuk. See Blumer 2002:83–84,103.
		Beta-144992	2110±40	––	bone	Harpoon head, I-1935-8992, beach slope. AMS. Measured age 1850±40 BP, $\delta^{13}C$ –13.6 ‰. Old Bering Sea. See Blumer 2002:83–84,103.
		Beta-144991	1110±40	––	bone	Harpoon head, I-1935-8676. 16 m E of test cut, 4.5 m N, 58.5 cm. AMS. Measured age 1050±40 BP, $\delta^{13}C$ –20.8 ‰. Thule or Punuk. See Blumer 2002:83–84,103.

Bristol Bay Native Corporation (BBNC)

AHRS Number	BLM Number/Locality	Lab Number	Conventional Age RCYBP	Calibrated Age (2 sigma)	Material	Context
DIL-148	Nushagak River	Beta-110107	250±70	AD 1475–1950	charred material	F-9, L-3, tunnel. Groundstone, *Rangifer*.
		Beta-110102	300±80	AD 1440–1950	charred material	F-18, L-12, floor. Extended counting. Groundstone, scrapers, cores, flakes, *Rangifer*.
		Beta-110104	280±50	AD 1485–1950	charred material	F-20, West Unit, L-4. Groundstone, whetstone, flakes, *Rangifer*, Castor.
		Beta-110101	170±60	AD 1645–1950	charred material	Sample RH-1-25. Extended counting.
		Beta-110105	240±60	AD 1505–1950	charred material	Sample AD-4.
GDN-233	Togiak River	Beta-110098	1230±70	AD 665–980	charred material	F-A. Polished adze bit, groundstone, tanged sideblade, biface, core, flakes, *Rangifer*?
		Beta-109536	1250±50	AD 670–890	charred material	F-B. AMS. Measured age 1290±50 BP, $\delta^{13}C$ –27.6 ‰. Bifacial knife, endblade, biface fragments, scrapers, core, flakes.
		Beta-110099	1280±80	AD 635–960	charred material	F-D. Extended counting.

AHRS Number	BLM Number/Locality	Lab Number	Conventional Age RCYBP	Calibrated Age (2 sigma)	Material	Context
		Beta-109537	1170±80	AD 680–1020	charred material	F-D, L-7, 105 cm. Groundstone, biface preform, microblade, core, hammerstone, flakes, *Rangifer*?
		Beta-109538	1200±100	AD–650–1020	charred material	F-E. Groundstone, tanged sideblade, sideblades, endblade, end scraper, biface, cores, flakes.
		Beta-110100	1070±70	AD 855–1150	charred material	F-F. Endblade, bifaces, microblade, flakes.
		Beta-109539	1290±60	AD 650–885	charred material	F-G. Groundstone knife, sideblades, end scraper, bifaces, core, flakes.
ILI-035	Copper River	Beta-106568	900±60	AD 1015–1265	charred material	Test Unit RH-1, 25 cm.
		Beta-106569	2340±100	BC 780–175	charred material	Test Unit CS-1, 36–38 cm. Extended counting.
ILI-133	Tazimina River	Beta-182357	110±70	AD 1650–1955	charred material	F-1, TP-1, 27–35 cm, base of hearth. Extended counting. $\delta^{13}C$ –25.1 ‰. Calcined bone.
NAK-015	Naknek River	Beta-83512	260±60	AD 1485–1800	charcoal	H-19, hearth. Groundstone, worked *Rangifer*. See USBIA 1998.
		Beta-67127	140±80	AD 1640–1950	wood	H-47, 60 cm, tunnel structure.
		Beta-83953	330±60	AD 1435–1950	charcoal	H-47, hearth.
		Beta-104615	290±80	AD 1445–1950	charred material	H-47, 50 cm, floor. Measured age 310±80 BP, $\delta^{13}C$ –26.2 ‰. Ground shale endblades, shale sideblade, adze, whetstones, biface fragments, hammerstones, exterior-ridge pottery, labret, stone bead, copper, flakes, worked *Rangifer* bone, *Odobenus*.
		Beta-83513	210±70	AD 1515–1950	charred material	H-58, 25 cm, hearth. Groundstone, flake, slotted handle (*Rangifer*), *Odobenus*.
		Beta-34424	240±80	AD 1465–1950	charcoal	H-65, hearth.
		Beta-67125	260±80	AD 1450–1950	charcoal	H-65, 30–35 cm, hearth. House artifacts include ground shale endblades, chipped point, bone dart head, whetstones, hammerstones, bone wedge, pigment grinder, shale knife, exterior-ridged pottery, bone scraper, bone pick, copper, ivory effigy, flakes, *Rangifer*, *Eumetopias, Phocidae, Pinnipedia*.
		Beta-71500	420±70	AD 1410–1650	charred material	H-65, tunnel floor. Measured age 430±70 BP, $\delta^{13}C$ –25.3 ‰.
		Beta-71501	300±70	AD 1450–1950	charred material	H-65, floor? Measured age 340±70 BP, $\delta^{13}C$ –27.4 ‰.
		Beta-71502	370±80	AD 1420–1950	charred material	H-65, floor? Measured age 410±80 BP, $\delta^{13}C$ –27.5 ‰.
		Beta-67128	110±70	AD 1650–1950	wood	H-68, 80 cm, structural wood. Modern rootlets.
		Beta-67129	630±60	AD 1275–1425	organic sediment	H-68, roof sod? Low carbon bulk sample.
		Beta-104616	410±60	AD 1420–1645	charred material	H-68, 25 cm, floor. Measured age 450±60 BP, $\delta^{13}C$ –27.3 ‰. Groundstone, shale knife, slotted handle (*Rangifer*), hammerstone, flakes, pottery, pigment anvil.
		Beta-67126	290±80	AD 1440–1950	charcoal	F-76, 10–40 cm, hearth.
		Beta-71495	230±70	AD 1500–1950	charred material	F-61, 43 cm, floor? Measured age 300±70 BP, $\delta^{13}C$ –29.3 ‰.
		Beta-71496	2170±80	BC 390–0	charred material	F-76, 55 cm, Norton floor. Measured age 2220±80 BP, $\delta^{13}C$ –27.9 ‰. Sideblade, biface fragments, flakes.
		Beta-71497	1480±80	AD 420–680	charred material	F-76, 80 cm, tunnel fill. Measured age 1510±80 BP, $\delta^{13}C$ –27.2 ‰.
		Beta-71498	340±60	AD 1440–1950	charcoal	F-76, 33 cm, hearth. Measured age 380±60 BP, $\delta^{13}C$ –27.4 ‰.

AHRS Number	BLM Number/Locality	Lab Number	Conventional Age RCYBP	Calibrated Age (2 sigma)	Material	Context
		Beta-72634	300±70	AD 1440–1950	charred material	F-76, floor. Measured age 310±70 BP, $\delta^{13}C$ –25.4 ‰. Ground shale endblades, shale knives, whetstones, bone handle (*Rangifer*), bone wedge, twined basket, leather, bone pick, flakes, pottery.
		Beta-72365	340±60	AD 1440–1665	wood	F-76, 88–98 cm, tunnel structure. Measured age 330±50 BP, $\delta^{13}C$ –24.6 ‰
		Beta-76983	230±50	AD 1520–1950	charred material	F-76, 50 cm, hearth.
		Beta-83952	350±60	AD–1435–1665	wood	F-95, tunnel structure. Associated artifacts include adzes, whetstones, hammerstones, bone handle (*Rangifer*), bone wedge, drill rest, flakes, pottery.
		Beta-104617	380±80	AD 1415–1665	wood	F-102, 15 cm, floor. Measured age 390±80 BP, $\delta^{13}C$ –25.9 ‰. Core, bone pick, pottery.
		Beta-83515	1000±70	AD 895–1205	organic material	F-105, 55–59 cm, compressed plant material below "Ash C."
		Beta-83516	1580±70	AD 350–635	charred material	F-105, 74–79 cm, upper floor. Biface fragments, flakes.
		Beta-83517	1700±80	AD 145–550	charred material	F-105, 98–100 cm, lower floor. Stemmed point, flakes, pottery.
		Beta-83514	320±60	AD 1450–1950	charred material	H-113, 83 cm, floor. Chipped endblade, bone wedge, flakes, pottery.
		Beta-83954	530±60	AD 1305–1460	charred material	H-116, L-3, floor? AMS. Measured age 570±60 BP, $\delta^{13}C$ –27.5 ‰. Human remains, adze, whetstone, flakes, *Rangifer*, *Mytilus*.
UGA-050	King Salmon River	Beta-208262	1550±40	AD 420–610	charred material	F-14, 90–95 cm. AMS. Measured age 1540±40 BP, $\delta^{13}C$ –24.1 ‰.
UGA-052	King Salmon River	Beta-168718	1640±40	AD 340–530	charred material	TP-1, 63 cm, house fill. AMS. $\delta^{13}C$ –24.8 ‰.
		Beta-168719	1580±40	AD 400–570	charred material	TP-1/2, ca. 60 cm, house fill. Combined sample. AMS. $\delta^{13}C$ –25.3 ‰.
		Beta-168720	280±40	1500–1670	charred material	TP-7, 30–40 cm, floor. AMS. Measured age 300±40 BP, $\delta^{13}C$ –26.3 ‰.
		Beta-168721	310±50	AD 1460–1660	charred material	TP-7, 100 cm, tunnel or pit.
		Beta-168722	1020±70	AD 890–1180	charred material	TP-8, 20–25 cm. Measured age 1040±70 BP, $\delta^{13}C$ –26.4 ‰.
XNB-051	AA-11875 Tuqlia	Beta-14946	2010±80	BC 200–AD 135	charcoal	P-1, section at eroding bluff near F-12, 18–30 cm. Linear- and check-stamped pottery, bifaces in slump.
XNB-125	AA-10668 Meterviim Qamiqurra	Beta-220689	2070±40	BC 190–AD 20	charred material	Midden grab sample from fox den entrance. AMS. $\delta^{13}C$ –24.9 ‰. Biface thinning or retouch flakes, *Phoca*, bird, fish, *Clinocardium, Macoma, Mytilus, Thais*.
XNB-126	AA-10668 Meterviim Qamiqurra	Beta-220687	190±40	AD 1650–1950	charred material	F-1, TP-1, ca. 15 cm, upper floor (?). AMS. $\delta^{13}C$ –25.3 ‰.
		Beta-220688	1620±60	AD 260–570	charred material	F-1, TP-1, 30–33 cm, lower floor. Measured age 1630±60, $\delta^{13}C$ –25.3 ‰. Biface thinning or retouch flakes.

Calista Corporation

AHRS Number	BLM Number/Locality	Lab Number	Conventional Age RCYBP	Calibrated Age (2 sigma)	Material	Context
BTH-118	AA-11496 Qemicugmiut	Beta-18583	700±80	AD 1190–1410	charcoal	F-9, section through sod block wall. Extended counting. Informants associated the site with *ircinraat*, "little people."
BTH-158	AA-10200 Qip'acuk	Beta-233207	100.5±0.5 pMC	modern	charred material	F-1, TP-1, 13–31 cm. AMS. $\delta^{13}C$ –25.2 ‰

AHRS Number	BLM Number/Locality	Lab Number	Conventional Age RCYBP	Calibrated Age (2 sigma)	Material	Context
GDN-215	AA-09945 Tekrilnguaraam Nuunii	Beta-18578	440±50	AD 1410–1620	charcoal, wood	Cutbank near F-10, 50–53 cm. Zig-zag (gravel temper) and linear-stamped (gravel and fiber temper) pottery in slump below.
KWI-008	AA-10060 Cillarsuinaq	Beta-195271	1310±40	––	fish bone (*Lota, Esox*)	Cutbank section, 53–55 cm. AMS. $\delta^{13}C$ –25.1 ‰.
KWI-043	AA-11764A Kuigaaralleq	Beta-14938	360±70	AD 1425–1660	charcoal, wood	Cutbank section, L-2, 60 cm. Pottery, bone needle.
	AA-11764B	Beta-14939	modern	modern	charcoal	Cutbank, 101 cm.
LIM-015	AA-11751 Tinch'ghil'kaq	Beta-127623	280±60	AD 1460–1950	charred material	F-1, TP-1, 5–8 cm. Extended counting.
LIM-017	AA-09344 Qeghnilen	Beta-218277	880±50	AD 1030–1260	charred material	TP-1, 14–20 cm, midden. AMS. $\delta^{13}C$ –24.9 ‰.
LIM-030	AA-11752A Stony River	Beta-23390	470±80	AD 1305–1635	charcoal	F-1, TP-1, 10–17 cm.
LIM-063	AA-11755	Beta-218279	480±60	AD 1320–1500	charred material	Test near F-c, 14–17 cm, buried surface. AMS. Measured age 360±60 BP, $\delta^{13}C$ –17.8 ‰.
MAR-008	AA-09722 Englullugpagmiut	WSU-2955	451±55	AD 1400–1620	wood?	Slumped NW face of Mound F.
MAR-036	AA-09827 Teggalqut	WSU-2957	modern±80	modern	charcoal	F-1, 12–25 cm, hearth.
MAR-052	AA-09747 Utqerrun	Beta-47135	101.2±1.0 pMC	modern	charcoal	F-1, 5–10 cm.
MAR-057	AA-11316B Qasqirayarmiut	Beta-29395	100±60	AD 1660–1955	charcoal	Between F-25 and F-26, 75 cm.
MAR-060	AA-11743 Ciquyulinguk	Beta-234315	390±50	AD 1430–1640	peat	F-16, 29–31 cm. Measured age 380±50 BP, $\delta^{13}C$ –24.2 ‰. Line-dot pottery (small gravel, sand and plant fiber temper), fish bone, freshwater bivalve.
		Beta-233209	40±40	AD 1700–1950	charred material	F-16, ca. 45–48 cm. AMS. $\delta^{13}C$ –25.1 ‰. Line-dot pottery (small gravel, sand and plant fiber temper)
MAR-068	AA-10173 Evegtaq	Beta-231807	240±40	AD 1530–1950	charred material	HP-4, TP-1, ca. 20 cm. AMS. Measured age 220±40 BP, $\delta^{13}C$ –23.5 ‰.
		Beta-231808	70±40	AD 1680–1960	charred material	HP-2, TP-2, 18–22 cm. AMS. Measured age 50±40 BP, $\delta^{13}C$ –23.8 ‰.
MAR-072	AA-11221 Qayigyalek	Beta-29397	140±110	AD 1490–1955	charcoal	Mound 2, cutbank exposure near F-10, 75–80 cm.
MAR-073	AA-09731 Akakiigmiut	Beta-14931	600±90	AD 1260–1450	charcoal	Area C, F-9, 15–20 cm. Extended counting.
MAR-074	AA-09724 Aurrvigmiut	WSU-2958	100.5±1.0 pMC	modern	charcoal	Frost crack on occupation mound, 20 cm. Also reported as modern±80.
MAR-075	AA-09626 Kapuut'llermiut	WSU-2956	790±120	AD 1005–1405	charcoal	Frost crack on occupation mound, 30–60 cm.
MAR-076	AA-10170 Naparraat Kuigat	Beta-14940	710±70	AD 1195–1400	charcoal	F-1, 20 cm. Flakes, calcined bone.
MAR-077	AA-09911B Cingigmiut	Beta-14932	480±90	AD 1300–1640	charcoal	Shovel Test 1, 27 cm. *Rangifer*, *Canus*.
MAR-080	AA-10169 Avgun	Beta-195272	1330±70	AD 610–870	charred material	F-1, 20–30 cm. Measured age 1360±70 BP, $\delta^{13}C$ –26.6 ‰. Flakes, pottery, calcined bone.
		Beta-195273	1030±70	AD 880–1170	charred material	F-1, 30–40 cm. Measured age 1040±70 BP, $\delta^{13}C$ –25.3 ‰. Chipped endblade fragment, flakes, pottery (sand and fiber temper), calcined bone.
		Beta-195274	1290±50	AD 650–870	charred material	F-1, 40–45 cm, fill. Measured age 1300±50 BP, $\delta^{13}C$ –25.5 ‰. Flakes, striated pottery (sand temper), calcined bone.
		Beta-233206	210±40	AD 1640–1950	charred material	F-14, 29–33 cm, floor zone? $\delta^{13}C$ –25.3 ‰.
		Beta-235609	900±40	AD 1030–1220	charred material	F-14, 38–40 cm, fill. AMS. Measured age 870±40 BP, $\delta^{13}C$ –23.4 ‰.
RUS-079	AA-11581 Taqikatuk	Beta-233208	70±40	AD 1680–1950	charred material	Test, 36–46 cm. AMS. Measured age 60±40 BP, $\delta^{13}C$ –24.3 ‰.
RUS-081	AA-11582 Kassigluq	Beta-182355	101.36±0.7 pMC	modern	wood	F-1, TP-1, 15–20 cm, roof collapse. Measured age 101.18±0.7 pMC, $\delta^{13}C$ –25.9 ‰.

AHRS Number	BLM Number/Locality	Lab Number	Conventional Age RCYBP	Calibrated Age (2 sigma)	Material	Context
		Beta-180668	440±60	AD 1405–1630	charred material	F-1, TP-1, 25–28 cm, floor. Extended counting. Measured age 420±60 BP, $\delta^{13}C$ –23.8 ‰. Copper wire, bird bone.
RUS-083	AA-11482 Quagyaq	Beta-195275	510±70	AD 1300–1490	charred material	Test pit, 18–25 cm. Extended counting. Measured age 530±70 BP, $\delta^{13}C$ –26.6 ‰.
SLT-002	AA-11703A Ituliliq	Beta-218278	105.7±0.5 pMC	modern	charred material	F-1, TP-1, 46–47 cm, floor. AMS. Measured age 106.4±0.5 pMC, $\delta^{13}C$ –21.8 ‰. Glass seed beads.
		Beta-219155	390±40	AD 1430–1630	charred material	F-31, TP-2, ca. 42 cm, floor. AMS. Measured age 380±40 BP, $\delta^{13}C$ –24.6 ‰. *Rangifer*.
SLT-008	AA-09855 Little Mountain Village	Beta-40424	1140±60	AD 720–1020	charcoal	F-23, TP-2, L-IV, 10–17 cm.
SMI-035	AA-10072 Petmigtalek	Beta-182354	1870±70	BC 5–AD 330	plant material	House depression, 20 cm. Measured age 1900±70 BP, $\delta^{13}C$ –26.4 ‰. Arrow shaft, cut bone (*Rangifer*?), hair, seeds of Rubus and Empetrum.
		Beta-181467	1910±80	BC 60–AD 260	wood (stake?)	House depression, 30 cm. Measured age 1950±80 BP, $\delta^{13}C$ –27.5 ‰. Bone figure (*Rangifer*), pottery (gravel and fiber temper), worked wood, *Egignathus*?, seeds of *Rubus* and *Empetrum*.
XBI-080	AA-11366 Ingriarmiut	Beta-18582	440±100	AD 1300–1655	charcoal	NE side of mound, 100 cm up from base? Extended counting. Pottery (gravel and fiber temper).
XBI-123	AA-10188 Ar'emaarmiut	Beta-218798	230±40	AD 1530–1950	charred material	Structure 6, TP-1, ca. 20 cm. AMS. $\delta^{13}C$ –24.8 ‰.
XBI-135	AA-09890 Arnat Kuigat	Beta-218797	100.72±0.54 pMC	modern	charred material	F-1, SP-1, 16–20 cm. Extended counting. Measured age 100.56±0.54 BP, $\delta^{13}C$ –25.8 ‰. Gun part, glass beads.
XBI-143	AA-11365A Cakcaam Painga	Beta-127622	170±80	AD 1520–1950	charred material	Structure 10, rock-lined pit, 10–25 cm. Informant identified feature as a kiln. Pottery (gravel and fiber temper).
XBI-176	AA-09927 Ayiikatarmiut	Beta-14945	350±70	AD 1430–1790	charred material	Cutbank, 110 cm. Pecked basalt lamp.
XBI-177	AA-09967 Imainermiut	Beta-14944	470±70	AD 1320–1630	charcoal	Slumped bank at F-3, 40 cm.
XBI-178	Ircinraat Nuniit	Beta-127631	1060±60	AD 875–1040	charred material	Holes A and B. Combined sample with extended counting. Curvilinear pottery (gravel and fiber temper). Informants associated the site with *ircinraat*, "little people."
XBI-179	AA-10294 Qassurarmiut	Beta-18581	530±80	AD 1290–1490	charred wood	F-2, 81–93 cm. Groundstone fragment, flake.
XBI-180	AA-11602	Beta-29396	100.2±0.7 pMC	modern	charcoal	F-1, 88–100 cm, slump exposure.
XBI-185	AA-10228 'Luumarvik	Beta-218799	220±40	AD 1640–1950	charred material	F-32, TP-2, 10–30 cm. Extended counting. Measured age 240±40 BP, $\delta^{13}C$ –26.7 ‰. Cut *Rangifer*.
XBI-186	AA-09981 Nalikvagmiut	Beta-195270	190±60	AD 1530–1950	charred material	F-6, TP-2, 17–22 cm. $\delta^{13}C$ –24.7 ‰. Pottery (gravel and fiber temper).
XCM-001	AA-09270 Ciguralegmiut	Beta-18589	2260±80	BC 480–110	charcoal	Section, 42–46 cm. Pottery (fiber temper), flake. Check-stamped pottery, ivory bird point (blunt), net sinker, groundstone knife fragment in slump below.
XCM-005	AA-09281 Penacuarmiut	Beta-18592	560±100	AD 1275–1610	charcoal	Cutbank exposure, 17 cm.
		Beta-18591	2670±220	BC 1405–235	charcoal	Section, 44 cm below datum. Extended counting. Exterior-ridged pottery (gravel and fiber temper). Check-stamped pottery in situ above, groundstone knife or ulu fragment in situ below, net sinkers in slump below.
XCM-010	AA-09254A Kiiwigmiut	Beta-18587	110±70	AD 1650–1955	charcoal	F-2, fire box (slab hearth near surface). Calcined bone.

AHRS Number	BLM Number/Locality	Lab Number	Conventional Age RCYBP	Calibrated Age (2 sigma)	Material	Context
XCM-024	AA-09255 Qikertarrlag	Beta-18871	190±80	AD 1495–1954	wood	F-11, TP-1, 5–15 cm. Stone sculpture, whale bone. See Pratt and Shaw 1992.
		Beta-18872	210±70	AD 1494–1952	wood	F-11, TP-1, 5–15 cm. Stone sculpture, whale bone.
		Beta-18873	980±70	––	whale bone	F-11, TP-1, 20 cm. Stone sculpture.
XCM-026	AA-09244 Cikuyuilngurmiut	Beta-29402	980±160	AD 690–1375	charcoal	Cut-bank near F-13, 40 cm. Pottery (gravel temper).
		Beta-29403	640±60	AD 1275–1420	charcoal	F-14, Room A, TP-1, 5–13 cm, burned timber.
		Beta-18585	1150±90	AD 670–1030	charcoal	F-17, TP-4, 10–16 cm, hearth.
XCM-027	AA-09247 Cingigmiut	Beta-56536	130±50	AD 1655–1955	wood	F-22, 9 cm, structural (?) wood fragments.
		Beta-47125	100.2±0.7 pMC	modern	wood	F-22, 24 cm, structural (?) wood fragments.
XCM-029	AA-09250A Nuuteqermiut	Beta-29404	100.3±0.8 pMC	modern	charcoal	Cutbank section at F-18, L-C, 32–35 cm.
		Beta-18586	200±90	AD 1480–1955	charcoal	Cutbank section at F-18, L-E, 50–75 cm. Extended counting. Check-stamped pottery, flake.
		Beta-231806	2300±40	––	carbon residue	Scrap from check-stamped sherd from cutbank section 5 m south of F-5. AMS. Measured age 2230±40 BP, $\delta^{13}C$ –20.6 ‰. Bifacially flaked side-blade and other check-stamped sherds nearby.
XCM-033	AA-09253 Nuqariillermiut	Beta-56537	260±70	AD 1465–1950	charcoal	F-8, TP-1, 6–10 cm. Pottery (gravel and fiber temper), groundstone ulu and endblade fragments.
		Beta-47126	740±60	AD 1190–1390	wood	F-8, TP-1, L-4, 30 cm to bottom. Groundstone point tip, pottery (gravel and sand temper), whetstone.
XCM-036	AA-09255 Qikertarrlag	Beta-47127	70±50	AD 1670–1955	wood	F-5, TP-2, 28 cm.
		Beta-52513	110±60	AD 1655–1955	charred wood	F-5, TP-2, 0–30 cm. Hammerstone, whetstone fragments, groundstone fragments, pottery (gravel and fiber temper).
XCM-049	AA-09266A Itegmiut	Beta-47128	80±50	AD 1670–1955	charcoal	Bank exposure near F-7, 10–15 cm.
XCM-065	AA-09273 Can'gilngurmiut	Beta-52514	630±90	AD 1225–1440	charcoal	Animal backdirt pile. Extended counting.
XCM-068	AA-09271 Qayigyarrat	Beta-47129	100±60	AD 1660–1955	charcoal	Exposed section, 35 cm. Grooved pottery (gravel temper) in slump below.
XCM-069	AA-09272 Amyag	Beta-18590	290±140	AD 1335–1955	charcoal	Cutbank exposure, 80 cm. Extended counting.
XCM-070	AA-09264A Narulkirnarmiut	Beta-18588	780±80	AD 1040–1390	charcoal	F-81, Shovel Probe 2, 39–50 cm. Extended counting.
XCM-080	AA-09283 Asweryagmiut	Beta-18593	480±70	AD 1310–1620	charcoal	F-23, Shovel Probe 5, 13–70 cm. Pumice abrader.
XCM-084	AA-09285B Carwarmiut	Beta-218276	2400±50	––	carbon residue	Scrap from check-stamped rim sherd on surface near F-143. AMS. Measured age 2330±50 BP, $\delta^{13}C$ –20.8 ‰.
XCM-086	AA-09288A Qayigyalegmiut	Beta-18595	1470±70	AD 430–680	charcoal	Cutbank profile, 104–126 cm. Flake in situ. Check-stamped pottery, whetstone, net sinkers, obsidian sideblade, pecked stone lamp, unifacial scraper, groundstone blade fragment in slump below.
		Beta-18594	1690±70	AD 145–540	wood, bark	Base of cutbank, 185 cm. Flake.
XHB-022	AA-09618 Qangllumiut	WSU-2959	100.5±1.1 pMC	modern	charcoal	Cutbank section at F-2, 5–21 cm. Also reported as modern±80. Yukon-lined or grooved pottery (gravel and fiber temper), *Rangifer*.
XHB-051	AA-10243 Qullicuar	Beta-39093	modern	modern	charcoal	Shovel probe in clearing, 25–27 cm.
XHB-056	AA-09396 Unatkurmiut	Beta-14929	modern	modern	charcoal	Area F, 7 cm, under volcanic rock.

AHRS Number	BLM Number/Locality	Lab Number	Conventional Age RCYBP	Calibrated Age (2 sigma)	Material	Context
XHB-067	AA-10021 Kangaluk	Beta-233976	170±40	AD 1650–1950	charred material	Test, 38 cm. AMS. $\delta^{13}C$ –25.1 ‰. Pottery (small gravel, fiber temper) in section above.
XHC-068	AA-11573 Pengurpak	Beta-217830	170±40	AD 1650–1950	charred material	F-1, TP-2, 5–7 cm over shattered bedrock. AMS. Measured age 180±40 BP, $\delta^{13}C$ –25.6 ‰. Mammal bone.
		Beta-217831	190±40	AD 1650–1950	charred material	F-13, TP-1, 15–20 cm. AMS. Measured age 180±40 BP, $\delta^{13}C$ –24.3 ‰.
XHI-003	AA-10363 Qengallecuar	Beta-208257	200±70	AD 1520–1950	charred material	F-12. Measured age 190±70 BP, $\delta^{13}C$ –23.9 ‰.
		Beta-208258	280±40	AD 1500–1670	wood	F-12. Measured age 260±40 BP, $\delta^{13}C$ –24.1 ‰.
		Beta-208259	50±60	AD 1680–1950	charred material	F-30. Measured age 30±60 BP, $\delta^{13}C$ –23.5 ‰.
XHI-039	AA-09480 Arliarmiut	Beta-134343	490±40	AD 1405–1455	charred material	Lens in wall of F-19, 75 cm. AMS. $\delta^{13}C$ –25.1 ‰. Flake scraper, groundstone knife, pottery (sand temper).
XHI-040	AA-09481 Kugyuarmiut	Beta-18576	360±60	AD 1430–1655	charred wood	F-5, 40 cm.
XHI-066	AA-09485 Kugyuarmiut	Beta-18574	270±50	AD 1485–1945	charcoal	Bluff exposure between F-23 and F-28, 35 cm. Bifaces, chipped projectile points, sideblade, pottery in slump nearby.
XHI-073	AA-10376C Kangirnaarmiut	Beta-127618	320±70	AD 1435–1950	charred material	Cutbank west of cultural mound (F-1, F-2). Extended counting.
XLC-065	AA-09511 Whitefish Lake	Beta-207410	1000±70	AD 900–1190	charred material	TP-1, 8–20 cm. Measured age 1040±70 BP, $\delta^{13}C$ –27.4 ‰. Cut Alces, *Rangifer*.
		Beta-219595	0±40	AD 1950–1960	antler (*Rangifer*)	TP-1, 8–20 cm. AMS. Measured age 100.8±0.5 pMC, $\delta^{13}C$ –20.7 ‰. Cut Alces.
XNI-002	AA-09298 Iqugmiut	Beta-52515	200±60	AD 1525–1950	charred wood	F-8, 9–12 cm, floor. Pottery (gravel and fiber temper).
		Beta-47131	90±50	AD 1670–1955	wood	F-8, 9 cm, upright post remnant. Pottery (gravel and fiber temper).
XNI-003	AA-09303B Ellikarmiut	Beta-225445	870±40	––	soot	Scrap from ceramic sherd (zig-zag type; sand, gravel and fiber temper), cutbank near F-82, 8 cm. AMS. Measured age 830±40 BP, $\delta^{13}C$ –22.5 ‰.
XNI-007	AA-09310 Negermiut	Beta-18597	520±70	AD 1300–1485	charcoal	Cutbank exposure near F-55, 13–48 cm. Raised or exterior-ridged pottery (sand temper), other pottery (gravel temper).
		Beta-219594	1740±40	––	soot	Scrap from check-stamped ceramic sherd, F-23, surface dune exposure. AMS. Measured age 1720±40 BP, $\delta^{13}C$ –24.0 ‰.
XNI-052	AA-09734C Qengaramiut	Beta-14943	210±70	AD 1495–1950	charcoal	Cutbank exposure at Structure 1. Yukon line-dot or grooved pottery, boat hook.
XNI-053	AA-09738 Cevnermiut	Beta-14942	320±60	AD 1440–1795	charcoal	Base on west side of occupation mound. Pottery (gravel and fiber temper).
XNI-059	AA-11346A Englulrarmiut	Beta-47137	900±50	AD 1020–1260	wood	Cutbank exposure, 60 cm. Bone fish-hook shank.
XNI-088	AA-09292D Tacirrarmiut	Beta-47130	1740±100	AD 70–540	charcoal	F-12, 10–32 cm. Flakes, pottery (gravel and fiber temper).
XNI-101	AA-09299 Miqsarmiut	Beta-47132	290±60	AD 1450–1950	wood	F-10, wood fragments (mask?) from rock crevice.
		Beta-47133	170±60	AD 1530–1955	wood	Grave 22, wood fragments (mask?) from rock crevice.
		Beta-18596	1190±70	AD 670–1000	charcoal	Slump exposure below F-1.
		Beta-29406	540±120	AD 1260–1640	burned wood	Slump exposure below F-2, 120 cm (not in situ).
		Beta-225446	780±40	––	soot	Scrap from undecorated sherd (gravel and fiber temper), shoreline exposure near F-1/F-2. AMS. Measured age 730±40 BP, $\delta^{13}C$ –21.8 ‰.

AHRS Number	BLM Number/Locality	Lab Number	Conventional Age RCYBP	Calibrated Age (2 sigma)	Material	Context
XNI-119	AA-09312A Kangiremiut	Beta-18598	280±50	AD 1480–1950	charcoal	F-30, Shovel Probe 1, 7–21 cm. Pottery (gravel and fiber temper).
		Beta-47134	50±50	AD 1670–1955	charcoal	F-24, Room E, 8–40 cm. Glass bead, groundstone fragments (points?), pottery (gravel and fiber temper), *Rangifer, Mytilus*.
XNI-123	AA-11336 Taqikar	Beta-47136	120±60	AD 1655–1955	wood	F-10, 45 cm, exposed structural post.
		Beta-47605	300±70	AD 1440–1950	wood	F-16, 40–45 cm.

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ANC-247	AA-41487A Cannery Creek	Beta-56544	840±90	AD 1020–1375	charcoal	TP-1, 15–25 cm.
		Beta-56545	860±70	AD 1020–1285	charcoal	TP-1, 25–35 cm.
		Beta-56546	830±70	AD 1030–1295	charcoal	TP-1, 40–47 cm.
ANC-589	AA-41489 College Fiord Travel Camp	Beta-18573	460±70	AD 1325–1630	charcoal	F-1, TP-6, 23–30 cm.
ANC-591	AA-12549 Elutuli Seal Hunting Camp	Beta-194448	420±80	AD 1400–1650	charcoal	TP-4, 27 cm. Extended counting. $\delta^{13}C$ –24.7 ‰.
ANC-776	AA-41487B Unakwik Inlet	Beta-56547	400±90	AD 1330–1660	charcoal	TP-1, 7–27 cm. No definite cultural association.
ANC-851	College Fjord	Beta-82398	800±60	AD 1065–1295	charred material	Section, 20–30 cm. Bulk sample.
COR-008	AA-10741 Eyak Lake outlet	Beta-147149	120±100	AD 1525–1955	charred material	Post Hole 9, 14–39 cm. Extended counting. Calcined bone.
COR-035	AA-11025 Qucuyvli	Beta-194445	2270±60	BC 410–190	charred material	Rock shelter, 175 cm below floor, midden. Extended counting. $\delta^{13}C$ –24.9 ‰. Flakes, shell (*Clinocardium, Mactromeris, Mytilus*). Part of shell-carbon pair.
		Beta-194446	2950±40	––	shell (*Clinocardium*)	Rock shelter, 175 cm below floor, midden. Measured age 2560±40 BP, $\delta^{13}C$ –1.8 ‰. Part of shell-carbon pair.
COR-038	AA-11021 Tauxtrik	Beta-23369	670±120	AD 1070–1445	charcoal	F-1, TP-4, 58 cm. Extended counting.
		Beta-23370	610±70	AD 1280–1440	charcoal	TP-2, 45 cm, midden. Extended counting. Slate flake. Glass bead in situ above.
COR-063	AA-10775 Qayarlliit	Beta-67134	220±70	AD 1490–1950	charcoal	Pothole, 20–30 cm.
COR-064	AA-10730 Macanqeqlliq	Beta-67131	360±100	AD 1400–1950	charcoal	Stream cutbank, 87–92 cm. Extended counting.
COR-080	AA-11049 Nunalleq	WSU-2239	460±90	AD 1300–1640	charcoal	House feature, TP-4, L-IV, 25–40 cm. Provenience suspect. Glass bead in situ above.
COR-081	AA-10767 Nuucingnasaaq	WSU-?	350±100	AD 1405–1950	--	TP-4, Section B, 15–20 cm, midden. Probably confused with WSU-2240.
		Beta-207411	30±30	AD 1890–1950	charred material	TP-4, Section B, 15–20 cm, midden. AMS. Measured age 10±30 BP, $\delta^{13}C$ –24.0 ‰. Part of shell-carbon pair.
		Beta-207412	1070±70	––	shell (*Saxidomus*)	TP-4, Section B, 10–20 cm, midden. Measured age 680±70 BP, $\delta^{13}C$ –0.9 ‰. Part of shell-carbon pair.
		WSU-2240	385±100	AD 1330–1950	charcoal	TP-4, Section B, 30–40 cm, midden.
COR-094	AA-10763 Qilangalik	Beta-127620	330±60	AD 1440–1665	wood	TP-2 (Grid 2), 25–35 cm. Polished adz/axe, whetstone, groundstone fragments, flakes.
COR-277	AA-11063 Strawberry Harbor	Beta-172779	590±50	AD 1290–1430	wood	Outer 4–14 rings of 30 cm diameter rooted stump, stream mouth, upper tide zone, 2 m below lowest living spruce in vicinity. Presumably dates marine transgression associated with local subsidence. Measured age 620±50 BP, $\delta^{13}C$ –27.1 ‰.
COR-290	AA-10786 Double Bay	Beta-82396	300±60	AD 1455–1950	charred material	TP-3, 21–29 cm.

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COR-295	AA-10785 Double Bay	Beta-172777	1740±40	AD 220–400	organic sediment	TP-2, 27–60 cm. Measured age 1760±40 BP, $\delta^{13}C$ –26.5 ‰.
		Beta-82397	200±60	AD 1535–1950	bark (*Picea*)	Bark from rooted stump in intertidal zone, 0.63 m below modern extreme high tide. Presumably dates marine transgression associated with local subsidence.
		Beta-169779	520±40	AD 1320–1440	wood (*Picea*)	Outer 6–10 growth rings from same rooted stump. Measured age 510±40 BP, $\delta^{13}C$ –24.7 ‰. Dates marine transgression associated with paleoearthquake or local subsidence.
COR-296	AA-11057 Shelter Bay	Beta-172778	100.62±0.46 pMC	modern	peat	TP-1, 14–16 cm, 1964 intertidal zone. Measured age 100.2±0.46 pMC, $\delta^{13}C$ –27.3 ‰.
--	Head of Shelter Bay	Beta-204836	700±40	AD 1260–1390	wood	Outer 5–6 rings of 30 cm diameter rooted stump, stream at SE bayhead, approx modern mean high tide. Presumably dates marine transgression associated with local subsidence. Measured age 750±40 BP, $\delta^{13}C$ –27.9 ‰.
COR-306	AA-10992 Olsen Bay	Beta-67137	290±80	AD 1440–1950	charcoal	Midden test, 10–15 cm, below mean high tide line.
COR-319	AA-11135A Emilnguq	Beta-23380	350±60	AD 1435–1660	charcoal	F-3, TP-2, 10–26 cm. Groundstone fragments.
COR-326	AA-10808 Sunny Cove	Beta-23379	170±80	AD 1520–1955	charcoal, organic material	TP-3, 22–25 cm.
COR-401	AA-11056 Shelter Bay	Beta-196761	110+/-50	AD 1660–1960	wood (*Tsuga*)	Outer 3–7 rings of rooted stump, west edge of lagoon, approx modern extreme high tide line. Presumably dates marine transgression associated with local subsidence. Measured age 100±50 BP, $\delta^{13}C$ –24.4 ‰.
COR-407	AA-10779B Nagaa'ulek	Beta-67135	230±70	AD 1485–1950	charcoal	TP-2, 7 cm. Possible contamination from rootlets, spruce needles. Extended counting.
		Beta-67136	60±60	AD 1670–1955	wood, charcoal	TP-3, 20 cm.
SEL-228	AA-11117 Taroka Arm	Beta-29412	970±140	AD 735–1295	charcoal	Section, TP-3, Stratum 3, 23–30 cm.
SEW-006	AA-11075 Long Bay	Beta-67139	490±80	AD 1330–1630	wood, charcoal	Inside dripline of rock shelter, TP-3, 3–16 cm.
		Beta-67140	1300±130	AD 475–1015	charcoal	Rock shelter, TP-4, 14–20 cm. Extended counting.
SEW-051	AA-12582B Nanwarnalek	Beta-56543	520±70	AD 1300–1485	charcoal	Test, 62–88 cm.
SEW-060	AA-10964A Culross Island	Beta-204461	1410±40	AD 580–680	charred material	Section, Locus 2, ca. 20–30 cm. AMS. Measured age 1420±40 BP, $\delta^{13}C$ –25.5 ‰.
SEW-066	AA-11032 Ajeygulik	Beta-23374	200±60	AD 1525–1955	charcoal	TP-3, 20–22 cm.
SEW-076	AA-11037 Aniaxunit	Beta-23375	300±80	AD 1440–1950	charcoal	TP-8, 50–60 cm, midden. Hammerstone, ground and chipped stone (striking flint?).
		Beta-29410	790±140	AD 985–1420	charcoal	TP-8, 70–75 cm.
SEW-080	AA-10720 Stockdale Harbor	Beta-23378	310±50	AD 1450–1790	charcoal	TP-11, 35–40 cm (25–40?).
SEW-081	AA-10720	Beta-23372	190±70	AD 1520–1955	charcoal	TP-10, 5–25 cm, midden. Glass beads.
SEW-082	AA-10720	Beta-23371	340±80	AD 1425–1950	charcoal	TP-7, 40–50 cm. Extended counting. Unilateral barbed bone point.
		Beta-23373	550±80	AD 1285–1480	charcoal	TP-8, L-3, 60–68 cm. Barbed (tanged) groundstone point.
SEW-266	Head of Pigot Bay	Beta-168726	1050±60	AD 880–1140	charcoal	Root crown of upturned tree, ca. 50–70 cm. May date forest fire.
SEW-332	AA-12572 Waterfalls Smokehouse	Beta-29411	280±170	AD 1315–1955	charcoal	F-1, TP-1, Stratum 2, 10–42 cm.
SEW-355	AA-10984E	Beta-23368	550±80	AD 1285–1480	charcoal	TP-3, 20–30 cm.

AHRS Number	BLM Number/Locality	Lab Number	Conventional Age RCYBP	Calibrated Age (2 sigma)	Material	Context
SEW-356	AA-10984C Iwilurtuli	Beta-23367	300±60	AD 1450–1950	charcoal	TP-3, 0–5 cm, hearth exposed by tree throw. Extended counting.
SEW-391	AA-12558 Port Audrey	Beta-82399	1370±50	AD 615–770	charcoal	Cutbank section, 20–27 cm.
		Beta-147153	1200±60	AD 680–980	charred material	TP-2, 27–32 cm.
SEW-538	AA-11048B Agulik Island	Beta-56539	610±80	AD 1270–1440	charcoal	TP-1, 11–19 cm, intertidal zone.
		Beta-56540	760±100	AD 1035–1405	charcoal	TP-1, 22–30 cm, intertidal zone. Extended counting?
		Beta-56541	990±90	AD 890–1240	charcoal	TP-2, 52–67 cm, 2 m above mean high tide line. Groundstone tool blank (?).
		Beta-56542	230±80	AD 1475–1950	charcoal	TP-2, 80–85 cm, 2 m above mean high tide line. Stratigraphically below Beta-56541. Groundstone fragments.
SEW-548	AA-16678 Seal Hunting Complex	Beta-23376	440±80	AD 1325–1640	charcoal	TP-1, 15–46 cm.
SEW-550	AA-11031 Seal Hunting Complex	Beta-23377	220±80	AD 1480–1950	charcoal	TP-13, 10–25 cm. Extended counting.
SEW-553	AA-11044B Unakwik Inlet	Beta-207413	340±40	AD 1450–1650	charred material	TP-2, L-3, 17–20 cm. AMS. Measured age 350±40 BP, $\delta^{13}C$ –25.8 ‰. Part of shell-carbon pair.
		Beta-207414	880±60	––	shell (*Clinocardium*)	TP-2, L-3, 15–20 cm. Measured age 500±60 BP, $\delta^{13}C$ –2.2 ‰. Part of shell-carbon pair.
		Beta-23381	530±80	AD 1290–1490	charcoal	TP-2, L-4, 20–50 cm, midden.
		Beta-23366	1090±70	AD 780–1150	charcoal	F-4, TP-1, L-4, 28–29 cm. Hammerstone.
SEW-977	AA-11033B Nunacungaq	Beta-56538	790±60	AD 1070–1300	charcoal	TP-2, 50–52 cm. No definite cultural association.
SEW-980	AA-11009B Culross Passage	Beta-76982	900±70	AD 1005–1275	charcoal	Midden exposure, 90–100 cm.
SEW-991	AA-10757B Nuu'aruat	Beta-67132	310±80	AD 1435–1950	charcoal	Test, 26–30 cm, summit of small islet.
SEW-992	AA-10757C	Beta-67133	1130±80	AD 690–1030	charcoal	Test, 30 cm, small islet.
SEW-994	AA-11008E Mink Bay	Beta-67138	170±80	AD 1520–1955	charcoal	Stream cutbank, TP-2, 5–15 cm. Extended counting. Possibly associated with historic ceramic sherds.
SEW-1246	AA-10985 Long Bay	Beta-168725	440±50	AD 1410–1620	charred material	Cutbank, TP-1, 6–9 cm. Measured age 450±50 BP, $\delta^{13}C$ –25.5 ‰.
VAL-253	AA-41502 Sawmill Bay Complex	Beta-23365	300±50	AD 1465–1795	charred material	TP-4, 0–15 cm, hearth within intertidal zone.
		Beta-127627	380±60	AD 1425–1650	charred material	TP-5, 25–35 cm.
XBS-020	AA-10998 Northwestern Lagoon	Beta-23383	140±60	AD 1650–1955	charcoal	F-30, TP-7, 50 cm. Groundstone chisel in situ below.
		Beta-23382	320±50	AD 1450–1660	charcoal	F-30, TP-7, 100 cm, midden.

Cook Inlet Region, Inc. (CIRI)

AHRS Number	BLM Number/Locality	Lab Number	Conventional Age RCYBP	Calibrated Age (2 sigma)	Material	Context
KEN-065	AA-11814 Kasilof Landing	Beta-23385	1860±50	AD 30–320	charcoal	F-66, TP-2, Stratum 4, 25–30 cm. 2 cobble line sinkers, flakes.
		Beta-23384	3220±250	BC 2140–835	charcoal	F-69, TP-1, Stratum 5, L-C, 25–30 cm. Flakes. Unifacial thumbnail scraper in situ above (L-B).
KEN-159	AA-11819 Bedlam Creek	Beta-159929	1820±60	AD 70–370	charcoal	F-1, TP-5, 45–47 cm. Notched pebble line sinker.
KEN-298	AA-11096G Russian River	Beta-26589	660±100	AD 1190–1440	charcoal	Area 4b, F-164, L-4, 30–32 cm, north half. Splitting adz or wedge fragment.
		Beta-26590	800±70	AD 1040–1375	charcoal	Area 4b, F-164, L-6, 56–62 cm.
		Beta-26591	550±60	AD 1300–1445	charcoal	Area 4b, F-195, 57–58 cm.

Doyon, Ltd.

AHRS Number	BLM Number/Locality	Lab Number	Conventional Age RCYBP	Calibrated Age (2 sigma)	Material	Context
ARC-012	F-22584A Old John Lake	Beta-179066	90±40	AD 1680–1950	calcined bone (*Rangifer*?)	Surface lithic scatter, CPSU site 27. AMS. Measured age 100.2±0.5 pMC, $\delta^{13}C$ –18.2 ‰. Flakes, fish bone, rodent bone.
		Beta-33335	4730±100	BC 3705–3140	charcoal	F-5, TP-1, L-3, 20–30 cm. Extended counting. Microblades, uniface fragment, flakes, *Rangifer*.
		Beta-33336	4380±190	BC 3630–2490	charcoal	F-5, TP-1, L-4, 30–40 cm. Microblades, flakes.
		Beta-33337	5260±150	BC 4430–3710	charcoal	F-5, TP-1, L-4a, 30–36 cm. Extended counting. Microblades, flakes, *Rangifer*.
RUS-008	AA-12374 Ingrimiut	Beta-214806	2170±40	BC 370–100	charred material	F-1, TP-1, 38–42 cm. AMS. Measured age 2190±40 BP, $\delta^{13}C$ –26.1 ‰. Flakes.
		Beta-18572	3530±390	BC 2905–900	charcoal	F-1, TP-1, 50–60 cm. Extended counting. Flakes and pottery fragments in test. Chipped sideblade and polished adz bit on beach below.
RUS-054	AA-12370 Old Paimiut	Beta-18570	290±60	AD 1450–1950	organic sediment	Locus B, cutbank section near F-22, L-G, 60–80 cm. Whetstone in situ below (L-H).
		Beta-18571	350±50	AD 1440–1650	charcoal, charred wood	F-85, TP-1, L-H, 35–45 cm. Ulu fragment, bone dart tip.
RUS-056	AA-12341 Nasquani	Beta-234316	140±40	AD 1660–1950	bark (*Betula*)	Pit 2, 37–38 cm, upper house floor. AMS. Measured age 200±40 BP, $\delta^{13}C$ –28.4 ‰. Chert flakes, fire-cracked rock.
		Beta-233977	400±40	AD 1430–1630	charred material	Pit 2, 48–50 cm, lower house fill. AMS. Measured age 380±40 BP, $\delta^{13}C$ –23.9 ‰. Biface thinning flake.
NAB-399	DML-3 Deadman Lake	Beta-219158	4000±40	BC 2590–2450	charred material	TP-2, unit 75N/50W, 51 cm, sample 4. AMS. Measured age 3990±40 BP, $\delta^{13}C$ –24.4 ‰.
		Beta-214047	2700±40	BC 920–800	organics in calcined bone	T4A, 31 cm, sample 5, below White River Ash. AMS. Measured age 2610±40 BP, $\delta^{13}C$ –19.3 ‰.
NAB-400	DML-6 Deadman Lake	Beta-214808	5140±50	BC 4040–3800	bone carbonate	Unit 9N/16E, sample 10, below White River Ash. AMS. Measured age 5100±50 BP, $\delta^{13}C$ –22.5 ‰.
NAB-401	DML-9 Deadman Lake	Beta-214048	1840±40	AD 80–250	organics in calcined bone	TP-2, sample 14, below White River Ash. AMS. Measured age 1850±40 BP, $\delta^{13}C$ –25.7 ‰.
TNX-047		Beta-214049	2320±40	BC 410–360	organics in calcined bone	Sample 1A, from below White River Ash. AMS. $\delta^{13}C$ –25.0 ‰.
UKT-045	AA-12327	Beta-217832	1080±40	AD 890–1020	charred material	Cutbank section below clearing, ca. 50–60 cm. AMS. Measured age 1090±40 BP, $\delta^{13}C$ –25.7 ‰. Flakes on river bank nearby.
		Beta-219156	1210±40	AD 700–900	charred material	Test in clearing, 27–29 cm, buried surface. AMS. Measured age 1240±40 BP, $\delta^{13}C$ –27.0 ‰.
XHC-153	AA-12360	Beta-232998	940±40	––	soot	Charred material scraped from large ceramic vessel fragment (small gravel, sand, plant fiber temper) with complex line-dot design along rim. AMS. Measured age 970±40 BP, $\delta^{13}C$ –26.6 ‰.
		Beta-233210	200±40	AD 1530–1950	charred material	Measured age 230±40 BP, $\delta^{13}C$ –26.6 ‰.

KONIAG, INC.

AHRS Number	BLM Number/Locality	Lab Number	Conventional Age RCYBP	Calibrated Age (2 sigma)	Material	Context
KAR-016	Sturgeon Lagoon	Beta-110108	930±70	AD 990–1260	charred material	Section, TP-4, 35–37 cm. Kachemak lag artifacts on beach below.
KAR-115	Sturgeon Lagoon	Beta-110096	2780±80	BC 1130–800	charred material	F-1, TP-2, 53–55 cm, floor. Extended counting.
KOD-151	AA-10555 Uyak Bay	Beta-208644	130±50	AD 1660–1950	charred material	Midden section, ca. 30 cm. Measured age 140±50 BP, $\delta^{13}C$ –25.2 ‰. Ground ulu fragment.
		Beta-208645	180±70	AD 1530–1950	charred material	Midden section, ca. 55 cm. Extended counting. Measured age 190±70 BP, $\delta^{13}C$ –25.9 ‰. Part of shell-carbon pair.
		Beta-208646	1000±70	––	shell (*Serripes*)	Midden section, ca. 55 cm. Measured age 630±70 BP, $\delta^{13}C$ –2.1 ‰. Part of shell-carbon pair.
		Beta-208647	370±90	AD 1410–1800	charred material	Base of midden section, ca. 85 cm. Extended counting. Measured age 390±90 BP, $\delta^{13}C$ –26.2 ‰. Part of shell-carbon pair.
		Beta-209776	1020±70	––	shell (*Serripes*)	Base of midden section, ca. 85 cm. Extended counting. Measured age 660±60 BP, $\delta^{13}C$ –3.6 ‰. Part of shell-carbon pair.
KOD-155	AA-10575 Uyak Bay	Beta-209777	1120±40	AD 810–1000	charred material	Midden Section 1, 10–35 cm. AMS. Measured age 1140±40 BP, $\delta^{13}C$ –26.1 ‰. Part of shell-carbon pair.
		Beta-209778	2800±60	––	shell (*Saxidomus*)	Midden Section 1, 10–35 cm. Measured age 2410±60 BP, $\delta^{13}C$ –1.3 ‰. Part of shell-carbon pair.
		Beta-208648	2470±70	––	shell (*Saxidomus*)	Midden Section 2, 15–30 cm. Measured age 2080±60 BP, $\delta^{13}C$ –1.0 ‰.
KOD-607	Three Saints Bay	Beta-108012	620±60	AD 1280–1425	charcoal	F-1, 40–46 cm, hearth. Pumice abrader, calcined bone. See O'Leary 1998.
		Beta-110097	590±50	AD 1295–1430	charred material	F-1, 18–20, floor. Flaked slate, calcined bone.
		Beta-108013	680±60	AD 1250–1410	charcoal	F-3, 24–28 cm, floor. Flaked slate, hammerstone.
		Beta-108014	570±70	AD 1290–1450	charcoal	F-7, 30–31 cm, hearth edge. Ground slate, flaked slate, calcined bone.
		Beta-108015	760±50	AD 1205–1300	charcoal	F-7, 45 cm, hearth.
SUT-047	AA-11774G Sutwik Island	Beta-70828	1920±170	BC 70–AD 320	charcoal	Base of eroding midden, 100 cm. Extended counting.
UGA-031	AA-11774A Kanataq	Beta-47138	590±80	AD 1280–1445	charcoal	TP-B, 80–90 cm. Adz bit, ground ulu fragment.
UGA-061	AA-11777B Mother Goose Lake	Beta-29394	270±90	AD 1440–1950	charcoal	F-1, TP-13B, 10–50 cm. Hollow-ground projectile tip with medial ridge.
UGA-070	AA-11775F Fish Village	Beta-39096	1860±60	AD 25–325	charcoal	F-27, TP-12, L-I, 16–30 cm. Flakes.
		Beta-39097	2400±90	BC 795–210	charcoal	F-27, TP-12, L-II, below 37 cm. Extended counting. Biface fragment, pumice abrader, flakes.
		Beta-39098	310±80	AD 1435–1950	charcoal	F-55, TP-13, below 9–12 cm. Extended counting. Flakes.
UGA-082	AA-11776G Ugashik Lake	Beta-33319	520±60	AD 1300–1470	charcoal	F-16, TP-23, 14–16 cm. Chert projectile base, groundstone fragment, uniface fragment, flakes.
UGA-085	AA-11775B Becharof Lake	Beta-39094	570±70	AD 1285–1445	charcoal	F-8, TP-4, 22–25 cm. Ground projectile or ulu fragment, flakes.
UGA-086	AA-11775C Becharof Lake	Beta-39100	1770±70	AD 80–425	charcoal	F-2, TP-6, 34–36 cm.
UGA-087	AA-11775D Fish Village	Beta-127624	1830±100	BC 40–AD 420	charred material	Surface depression, TP-9, 32–36 cm. Extended counting. Calcined bone.
UGA-090	AA-11775J Becharof Lake	Beta-39099	880±100	AD 980–1295	charcoal	F-16, TP-18, 38 cm. Extended counting. Groundstone, flakes.

AHRS Number	BLM Number/Locality	Lab Number	Conventional Age RCYBP	Calibrated Age (2 sigma)	Material	Context
		Beta-39100	640±50	AD 1280–1410	charcoal	F-20, TP-19, 22–26 cm.
UGA-093	AA-11775M Becharof Lake	Beta-39101	570±50	AD 1300–1440	charcoal	F-16, TP-21, 15–20 cm. Pottery.
		Beta-39102	630±60	AD 1280–1425	charcoal	F-20, TP-22, 32–42 cm. Flakes, pottery.
UGA-094	AA-11775N Becharof Lake	Beta-39103	620±50	AD 1285–1420	charcoal	TP-25, cutbank section, 18–27 cm.

NANA Regional Corporation

AHRS Number	BLM Number/Locality	Lab Number	Conventional Age RCYBP	Calibrated Age (2 sigma)	Material	Context
AMR-158	F-22292B Ingisugruich	Beta-23387	450±80	AD 1320–1640	wood (log)	Interior of rock shelter.
KTZ-158	Baldwin Peninsula	Beta-41833	100±70	AD 1655–1955	charcoal	House depression, 33 cm, tunnel floor. Toggle harpoon head, worked bone and wood, forged iron.
NOA-287	Noatak River	Beta-41831	1130±80	AD 690–1030	charcoal	Chipped endblades and sideblades, flakes.
		Beta-41832	1620±70	AD 255–600	charcoal	?
SLK-044	F-22353C Singak	Beta-208261	60±50	AD 1680–1950	wood	TP-3, 75 cm. Extended counting. Measured age 40±50 BP, $\delta^{13}C$ –23.8 ‰.
SLK-049	F-22267 Sisiivik	Beta-23386	610±100	AD 1225–1455	charcoal	F-17, TP-1, 20–30 cm. Flakes, pottery (sand and fiber temper).
SLK-111	Sayou	Beta-194856	600±40	AD 1290–1420	charred material (peat)	F-45, 20–23 cm. AMS. Measured age 630±40 BP, $\delta^{13}C$ –27.1 ‰.
		Beta-194449	880±40	AD 1030–1250	organic sediment	F-45, 20–23 cm. Silt fraction from bulk sediment sample. AMS. Measured age 910±40 BP, $\delta^{13}C$ –26.7 ‰.

Sealaska Corporation

AHRS Number	BLM Number/Locality	Lab Number	Conventional Age RCYBP	Calibrated Age (2 sigma)	Material	Context
SIT-002	Castle Hill	Beta-125914	640±50	AD 1280–1415	charred material	Upper shell midden. Extended counting. Measured age 660±50 BP, $\delta^{13}C$ –26.7 ‰.
		Beta-125913	460±60	AD 1400–1630	charred material	Shell midden, 80 cm. Extended counting. Measured age 500±60 BP, $\delta^{13}C$ –27.5 ‰.
		Beta-125912	1070±60	AD 875–1040	charred material	Shell midden base. Extended counting. Measured age 1100±60 BP, $\delta^{13}C$ –26.8 ‰.
SIT-175	AA-10513 Point Craven Village	Beta-52516	790±70	AD 1040–1380	charcoal	Midden test, 20–40 cm. Shell.
SKG-004	AA-10508A Chilkoot River Village	Beta-127619	60±70	AD 1665–1950	charred material	Midden test, 43 cm.
XPA-032	AA-10494 Port Malmesbury Cave	Beta-168727	210±40	AD 1640–1950	charred material	Cave 1, TP-1, 30 cm. AMS. Measured age 230±40 BP, $\delta^{13}C$ –26.4 ‰.
XPA-078	Redfish Bay	Beta-127632	4220±50	BC 2910–2645	root (*Tsuga*)	Twined basket fragment, intertidal zone. AMS. Measured age 4230±40 BP, $\delta^{13}C$ –25.9 ‰.

SPECIAL FEATURE

AN INTERVIEW WITH ERNEST S. BURCH, JR.

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Ernest S. "Tiger" Burch shares some of his early field experiences in Alaska, as well as some thoughts about current anthropological research in the North. I called anthropologist Ernest S. "Tiger" Burch, Jr., to ask him a few questions about his early experiences conducting research in Alaska. Although the original interview took place on September 25, 2003, updated information was incorporated in the text in 2005 and 2006.

RM: *How did you get started as an anthropologist?*

ESB: When I was 16, I got a chance to go on a trip to Greenland on a schooner with the old arctic explorer Donald B. MacMillan. When I left I wanted to be a field biologist; when I returned I wanted to be an anthropologist. On that trip we went to Labrador, several places in Greenland, and northern Baffin Island. So that's what got me started.

RM: *What about the trip? What did you see on that trip that steered you toward anthropology?*

ESB: Well, I met a lot of interesting people, mostly Inuit. And it was gorgeous country, and I thought, "Gee, nice people, gorgeous country, what else could one want?"

RM: *How did you happen to come to Alaska?*

ESB: I first went up in 1954 with MacMillan, then went back by myself in 1959. I was in Labrador in the summer of 1959 doing research for my B.A. thesis. Early that summer I met a guy named Tony Williamson, who was a friend of Don Foote. Foote was working on the Project Chariot study in Point Hope, Alaska [see Wilimovsky and Wolfe 1966]. He thought he was going to need somebody to do the Kivalina part of the research in 1960–61. As it turned out, it wasn't given to him. But Doris Saario, of Anchorage, who had been doing the research in Kivalina for the University of Alaska, needed help. And Foote recommended me to her.

RM: *Were you a graduate student at that point?*

ESB: I was just going to start graduate school at the University of Chicago in the fall of 1960. It turned out that Doris was also a grad student there, in the Human Development program. She came to Chicago when I went there to register. We talked about her project and she hired me as an assistant. That ended graduate school for that year. So I spent a year in Kivalina, and that's what started me in Alaskan work.

RM: *Can you tell us a little about your first fieldwork experience?*

ESB: The job was what is now known as an environmental impact study. I was supposed to find out how dependent the Kivalina people were on local resources. In order to do that, I tried to participate as much as I could in the hunting and fishing activities of the village. I got a dog team and tried to copy the locals in everything they did.

RM: *What year was that?*

ESB: That was 1960–61. I had a wonderful time.

RM: *What kind of hunting did you do that year?*

ESB: Mostly for caribou. Moose hadn't gotten there yet. I wanted to hunt seals, but there were very poor ice conditions that year. Even the Natives didn't want to go out on the ice, and they sure wouldn't take me out. Fortunately, I was wise enough not to try it on my own. The expert seal hunters kept telling me that one of these days

Figure 1. Ernest S. Burch, right, looks at a narwhal tusk with Donald B. and Miriam MacMillan at the end of their 1954 arctic expedition. (Courtesy Ernest S. Burch, Jr.)

an east wind would come up and the ice would disappear. They started telling me this in early January, and in late March, by golly, the first east wind of the winter came up and the ice disappeared. All one could see was open water. The ice came back after a few days, but anybody on it when it went out would have had a hard time.

RM: *That year in Kivalina, did anyone take the role of teaching you how to hunt or teaching you about the traditional knowledge of hunting?*

ESB: Several people were pretty nice to me, after they got to know me a little bit. I guess the leader in that was Bob Hawley. His brother Amos was also very helpful, and so was Clinton Swan. But there were lots of other people too. Every time I made a mistake, someone told me what I should have done. They called it "learning by doing."

RM: *Where did you stay?*

ESB: I stayed in a little tiny house that I rented from the Episcopal mission. It was a place where visiting clergy could stay when they were in the village. It was a little shack with an oil heater but no cooking stove. Fortunately, Doris had obtained a winter's supply of stove oil for me.

RM: *Here's a question that would apply to fieldwork situations other than your first: How do you do your work? That is, over the years, what kind of fieldwork strategies have you found the most successful?*

ESB: Well, I have used a combination of strategies. The first year I spent in Alaska, I used participant observation combined with very informal interviews, really just conversations. It was a wonderful way to get started, especially before snowmachines and other new-fangled devices arrived. I think I got some respect from the Natives for trying even though I didn't do things very well.

Then on my way to the quarterly meeting of the Friends Church in Noatak in March 1961, I had an unusual encounter with a rabid wolf that brought me considerable notoriety. The story was spread far and wide because there were so many people in Noatak when I arrived there with the dead wolf on my sled. Years later, when I went to villages I had never visited before, and people were trying to figure out who I was, after a few questions they would say "Oh, you're the guy who fought the wolf," and I was more or less accepted.

I returned to Kivalina in 1964 with my wife of one year. We were doing another participant observation study. But unfortunately I was badly burned in a gasoline fire in early December and had to go outside for treatment. We returned to Kivalina in May 1965, but by then it was a different situation for me. I had hoped to spend another year in northwest Alaska, in Shungnak, but I was too weak to spend the winter anywhere in Alaska. That's when I switched to interviewing instead of participating. And that was pretty successful. But of course I was working with people who already knew me pretty well.

In the summer of 1968 I spent two months in Eskimo Point (now Arviat), on the west coast of Hudson Bay, interviewing Caribou Inuit about their past way of life. That experience, following on my 1965 summer experience, prepared me for my major Alaskan research in 1969–70.

In the fall of 1969, my wife and I returned to northern Alaska with two very young children. We were based in Kotzebue, but I also made brief visits to a number of other villages. This time I was specifically working on historical questions. My interest was in early 19th-century life, whereas previously I had focused on the 20th.

At the outset, I didn't really think it was possible to do what I wanted to do, but I thought it was worth a try. But I started working with some of the elders that the Natives considered to be historians. And I was amazed at how much they knew about what had happened in their parents' and grandparents' and even great-grandparents' times. Some of these people were born in the 1880s and 1890s. And they could tell me not only what happened two generations before their time, but how things had changed in the years since then. And that got me so excited I just kind of went crazy.

RM: *Can you mention some of the Native people who were particularly knowledgeable in history?*

ESB: I feel a little embarrassed, because I'll leave some people out. My teachers included Simon Paneak in Anaktuvuk Pass; Robert Cleveland and Joe Sun in Shungnak; Mary Curtis, Lester Gallahorn, Della Keats, Charlie and Lucy Jensen, Putu Vestal, Emily Barr, Albert McClellan, Thomas Mitchell, Levi Mills, Walter Kowunna, Elwood Hunnicutt, and Frank Glover in Kotzebue; James Savok in Buckland; Daniel Foster in Noorvik; Charlie Smith and Johnnie Foster in Selawik; Eva and Patrick Attungana, David Frankson, and Laurie Kingik in Point Hope; Regina Walton, Martha Swan, Edith Kennedy, and Amos Hawley in Kivalina; Thomas Morris in Deering; Ernest Oxereok and Winton Weyapuk in Wales; Arthur Douglas in Ambler; Walter Nayokpuk and Gideon Barr in Shishmaref; and Peter and Effie Atoruk in Kiana. They and many others taught me how to do historical research.

RM: *Are there any people still around who have the kind of knowledge you're talking about?*

ESB: I don't think so, maybe a handful. Most of the people I worked with had been born and raised when the oral tradition was still very strong. Few of them had spent much time in school. They had been raised in tiny little camps and had been trappers and reindeer herders early in their lives. They spent a lot of time out in the country rather than in the villages.

One thing they used to do is to bring elders out to their little camps for entertainment. During the long evenings of late fall and early winter, the elders told stories. Also, when they walked over the country, the youngsters learned the placenames and the stories behind them, and they discovered the physical remains of former ways of life in the form of house ruins, old caribou drive fences, graveyards, and piles of human bones. And they asked their parents and visiting elders about what they saw. Thus, the people who were raised and who spent most of their time in camps got ahead of their village contemporaries with regard to historical knowledge. And I was just lucky enough to catch the last generation of these people. I quickly realized that, and so I worked exceptionally hard. I hardly saw my wife and kids the whole year we spent in Kotzebue.

RM: *So, that's a thing of the past that elders would come out to the camps for entertainment? Does anybody do that anymore?*

ESB: They don't have trapping and herding camps any more, although they still have summer fish camps in many areas.

RM: *How, over the years, has your focus changed, as you have visited these Iñupiaq communities?*

ESB: Well, I guess I learned how to do oral history research by doing it for ten years, then spent the rest of my career trying to fill in the gaps in my information and to correct all the mistakes I had made. I returned to northern Alaska many times after 1970 for brief trips of two or three weeks, especially during the 1980s, and tried to fill the gaps in my information. But of course the elders were dying off by this time.

I'll give you one example of this follow-up process. In 1969–70 I acquired a lot of information on battles and raids. But it never occurred to me to try to find out specifically when they took place. The thing is, the Inupiat were not very strong on absolute dates. But they are very good, and were very good, at relative dating, at before and after. And so I think it was in the early 1980s, I went back to some of the people I had worked with in 1970. And I asked Charlie Jensen, of these three particular battles, which happened first, second, and third? He deferred to his wife Lucy, who turned out to know the answer.

RM: *And you had not asked them before?*

ESB: No, it never occurred to me. If I had done that in 1969–70, I probably could have dated, at least approximately, many of the battles on which I had information. I might have gotten some actual timelines. But I was too ignorant to know that until it was too late. Also, I didn't understand the value of collecting genealogies as a dating mechanism. If you know that somebody's ancestor X was present at a particular event, if I had a genealogy that showed where X fit, two generations, three generations back, or whatever, I could have probably formed at least an estimate of when a lot of things happened. But I was too late.

RM: *You started telling me about a few of the changes that have occurred in the communities that you work in, but I asked another question. I wonder if you could go back now to say what are the major changes that you've seen in some of the communities that you've been working in?*

ESB: Kivalina is the one I know best. When I first went up there, almost every house had a home-made wood-burning stove, but no one had any wood. And so the men spent a vast amount of time collecting willows. They had harvested all the dead willows within 20 miles [32 km] of the village, and they had cleaned out all the driftwood on the beach, so all they had left for fuel was green willows, which didn't burn very well. In the winter, they spent an enormous amount of time working on that. When they had extra seal blubber, they also used that in the stoves. Now they use oil stoves and highly efficient, factory-produced wood stoves. The women spent most of their time washing diapers.

RM: *Really!*

ESB: Oh, yeah, they had six, seven, eight kids. Two of them were in diapers at any given time, and the diapers in those days were made of cloth, not paper. They had to be washed, which meant that people had to get water, which was some distance away. Then they had to heat it, which used up even more fuel. All clothes, including diapers, had to be washed by hand.

And the people were, I would say, very poor. Almost all of them were very poor except for the school janitor and the postmistress, who had jobs. The only other local sources of cash income were seal scalps, for which there was a bounty, and furs. Men worked very hard hunting and fishing for food, trapping for furs, and collecting wood, espe-

cially collecting wood. Then in the summertime they went out and tried to get seasonal work longshoring in Kotzebue, mining near Fairbanks, working in the canneries on Bristol Bay, or fighting fires wherever. If they managed to work for a month or two, they would get unemployment checks for some time afterward.

In those days, you could build a house almost anywhere you wanted. Go anywhere you wanted. Do anything you wanted. As long as it didn't hurt or bother anyone else. Then ten years later, they started surveying the villages and putting in property lines and building houses. There were several different housing programs, and all of the new houses were heated by oil.

RM: *Did they have the HUD houses that you see everywhere in Alaska?*

ESB: Oh, yes, sure they did. There were many HUD houses, and I think NANA built some of a different type. . . . Some organization would arrange to build half a dozen houses every few years, and people would move out of their old shacks and into the new houses. When I first went to Kivalina half the houses were covered with sod. Maybe even a little more than half. And of course everybody hunted and traveled with dogs when I first got there. And ten years later they were switching to snowmobiles. Nowadays, the only dogs left are racing dogs or pets, and there are very few of them. They didn't have telephones then; now they have telephones. They didn't have electricity then; now they have electricity. They didn't have CB radios, but then they got CB radios [now a major form of communication in the villages]. They didn't have high schools; village schools went only through eighth grade. If they wanted to go to high school, they had to go to the boarding school at Mount Edgecumbe, near Juneau. Now all the villages have high schools. There's been an enormous amount of change since I first went to Alaska.

I'm not too familiar with how things are now because I haven't been up there for several years. A lot happened just between 1960 and 1980. Now they've got TV, e-mail, and everything else.

RM: *You presented a paper at the 2000 Alaska Anthropology Association meetings critically reappraising Spencer's work,* The North Alaskan Eskimo, *which was published in 1959. I was wondering if you've seen changes since Spencer's time, what kind of changes you've seen in ethnographic research? In how it's done since Spencer's research?*

ESB: Well, I have Spencer's field notes. So I've seen his notes, which give me some insight into how he proceeded. I talked to his wife, his widow. And I knew Spencer a bit when he was alive. He did very good interviewing. He had good informants. I don't know exactly how he found them, but they were very knowledgeable. He asked good questions and took good notes.

Unfortunately, Spencer worked under some false assumptions. One notion prevalent among anthropologists in the 1950s was that all hunter-gatherers had been free wanderers. They could move about anywhere they wanted. Spencer seems to have had that perception.

In addition, Spencer thought that the period when his informants grew up, the 1880s and 1890s, was the early contact period. So the situation they experienced and he described in his book could be projected backward into the early decades of the 19th century. In fact there had been enormous change between 1850 and 1890. Disease and famine had greatly reduced the population, which he didn't know. There had been a lot of population movement, which he didn't know. Toward the end of the 19th century and early in the 20th, Inupiaq bands on the North Slope really had been free wanderers. But many of them were migrants from further south who were up wandering around the North Slope trying to make a living, having been starved out of their original homelands by the crash of the caribou populations. There was nobody left there to stop them. The population of Barrow was almost completely replaced between 1875 and 1900 by immigrants from the interior or from further south. The coastal people had succumbed to diseases brought by the whalers, and they were replaced by inlanders. Over time, the people from inland all ended up on the coast. The later residents of Anaktuvuk Pass moved back inland some 30 years later.

RM: *On another subject, can you address what are some of the common weaknesses in ethnographic research in the North?*

ESB: Oh, my!

RM: *Or maybe a better way to put that would be, what things need to be addressed in the North that haven't been addressed yet, in ethnographic research?*

ESB: Well, to answer your first question, I would say that the greatest weakness in arctic ethnography is the lack of theoretical sophistication, which means two things. The first is that information collected by one person may or may not relate to what anyone else has done. If everyone is working within a common conceptual and theoretical framework, then each individual's work is relevant to that

of everyone else using the same framework. Second, if the theoretical framework poses questions, you have to go out and get the answers.

Most of the people who have worked in the North either have had no theoretical foundation for their work or they have had to invent one from scratch. They've been pretty good at it, but it's difficult to relate one person's work to anyone else's. I was lucky because I came with a comprehensive theoretical orientation from my undergraduate training. All I had to do in my own research was fill in the blanks.

RM: *What are some of the gaps in the research now in the North?*

ESB: The North generally?

RM: *Well, yes. Or just Alaska.*

ESB: That's a tough question.

RM: *What are the most glaring gaps?*

ESB: I don't know, it depends what you're interested in. People up north are having various kinds of problems. Social scientists should provide some help. I don't know how, though, since it's not my part of the field. I'm primarily a social historian. I don't know much about applied research.

RM: *What kind of problems are you talking about?*

ESB: Well, alcohol abuse, substance abuse, sexual abuse, and so on. I can look up on the Web and find a list of villagers I know who are sexual offenders, which I find a little disturbing. And of course there is a huge unemployment problem, which usually can be solved only by leaving the village.

RM: *One thing I find encouraging is that the social work students at the University of Alaska now have to take some classes on Alaska Natives and cultural anthropology, which I think is a step in the right direction.*

ESB: Absolutely. Some of the Native kids on the North Slope, who are the ones I've been in contact with most recently, are getting more knowledgeable about their own history. I know because I did a couple of telephone lectures to a class at Barrow and some other villages. Jana Harcharek was the teacher. The first time, she wrote questions out because she knew nothing from written documents. I said, "Well, Jana, I'll send you a list of things you ought to read." And she did read them. And so a year or so later she wanted me to lecture to her class again. And during the course of that it became pretty clear that I didn't need to do the teaching any more, because Jana had gotten up to speed on the literature herself. Except for publications released by the North Slope Borough's Language and Culture Commission and the Simon Paneak Memorial Museum, in Anaktuvuk Pass. When I said that Anaktuvuk Pass had been occupied by Indians 150 years ago, the students didn't believe me. And I suggested that they read the transcripts of their own elders conferences.

RM: *Good.*

ESB: I don't know what else is going on. I know there's some good people, but I don't know what's going on up there.

RM: *Do you have any suggestions on how to address that problem of the left hand not knowing what the right hand is doing, as far as redundant research or people not knowing about research that's out there?*

ESB: Well, I don't know. You have to go to meetings of the Alaska Anthropological Association if you want to keep abreast of what's going on in Alaska. Most of my own research has been historically oriented. But young researchers are getting lazy. I know of several times when people said they couldn't find anything, and the reason they couldn't turned out to be because it wasn't on the Web. But if they had just walked over to Rasmusen Library it would have been right there.

RM: *It seems to be a common problem among students and young people in general. I wonder if you could talk a little bit about trade and interchange in historical times between the Russian and Alaskan sides of the Bering Strait.*

ESB: Well, what I know about it is that there was quite a bit of action back and forth. Some of it was trade and some of it was hostile. In my most recent book (Burch 2005) I discuss this in some detail.

There were two groups, of course, in Chukotka. One was Chukchi and one was Eskimo. Sometimes they came over to trade. And sometimes they came over to raid. So it was just as complex across Bering Strait as it was in north Alaska itself.

RM: *Was there very much intermarriage between the groups?*

ESB: Not that I know of. But I'm dealing with them pretty early. Peter Schweitzer might know more about that. He studied that from a more recent perspective. Igor Krupnik also would know more about that.

RM: *OK. But generally, you say there was just as much trade as some kind of hostile exchange across the Bering Strait as there was within Northwest Alaska?*

ESB: Well, it wasn't as much. There couldn't be as much. It was hard to get across the straits because of the weather. But there was still quite a bit. They knew each other well.

RM: *Did they get across in a boat?*

ESB: Yes. Pretty big boats. They traded at Sheshalik, near Kotzebue, and near Point Spencer, at Port Clarence. And later on, and possibly earlier, they also traded up and down the coast. When the Chukotkans got to Wales most of the Wales people disappeared into the hills, because they didn't know whether they were coming to trade or to fight.

RM: *Can you comment on any comparison between the current situation of Alaska Native cultures and the indigenous people of the Russian parties?*

ESB: No, I've never been on the Russian side. However, I think that things are in a lot better shape in Alaska. Just because everything in Alaska is in better shape than in Russia. But what I know about them is secondhand.

RM: *OK. Is there anything else that you'd like to comment on about the anthropology of the North and your work here?*

ESB: Well, all I can say about my work is that I've enjoyed it immensely. I have learned a lot. I hope that if I can communicate my interest to other people some of them might find it interesting also.

RM: *Do you have any plans for your next project?*

ESB: Well, I have one in the advanced stages right now, a book titled *Social Life in Northwest Alaska: The Structure of Iñupiaq Eskimo Nations* [Burch 2006]. I have already proofread the edited manuscript, but the galleys won't be ready for awhile. Proofreading them, and particularly indexing the book, will take much of my time for nearly a year; it's a long and complex book. Then there are several other projects. The Spencer project is now on hold, but I expect it to be the next one I'll tackle. Another one on hold is an historical study of caribou populations in northwestern Alaska. And I have been thinking about writing a book on world view. And finally, I want to write a book about my research on the Caribou Inuit, in the central Canadian subarctic. That ought to keep me busy for a while.

RM: *Do you have any advice for anthropologists just starting out who want to work in the North?*

ESB: No. You know, I'm sort of out of touch with young people because I'm not teaching. And since I hardly do any fieldwork any more because all the people who know what I want to learn are dead, I don't know what's going on in the villages.

RM: *Thank you so much for your time.*

ESB: You're welcome.

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REVIEW

ALLIANCE AND CONFLICT: THE WORLD SYSTEM OF THE INUPIAQ ESKIMOS

By Ernest S. Burch, Jr., 2005, University of Calgary Press
xvi + 384 pages, 6 x 9 inches, 7 photographs, 23 maps, 3 figures, 11 tables, index
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Reading Ernest "Tiger" Burch, Jr.'s new book has been a pleasure. This work enfolds you in a vivid description of lives and regions now changed. Burch also provides a conceptual framework that unites individuals, extended families, regions and even "nations." Anyone even modestly acquainted with the literature of the region cannot help being impressed with the high level of scholarship that Burch has applied to every scrap of the ethnohistorical literature. In addition, informing the work under review here, and acknowledged by Burch himself, is the collegial support provided by individuals such as Charles Lucier.

The time horizon for this book is 1800–48, a period "chosen because it is the earliest for which both the documentary evidence produced by Westerners and the oral accounts of Inupiaq historians can be reasonably applied" (Burch 2005:10).

The second date (1848) was selected because "it was then the most significant perturbations in the system for more than 1,000 years began to take place" (Burch 2005:226). The area under consideration for this account is putatively "northwest Alaska," which Burch notes "nearly coincides with what is now known as the NANA Region" (Burch 2005:9). However, in line with the subtitle of the book, *The World System of the Inupiaq Eskimos*, the book actually provides a tremendous amount of information on areas we now refer to as the North Slope Borough, the Seward Peninsula (especially Wales/Kinikmiut), many of the "nations" in Norton Sound, St. Lawrence Island, the Diomedes, and the Chukotka Peninsula.

To help understand Inupiat territorial organization, Burch makes a distinction between an "estate" and "range," where "an estate is the geographic area claimed by a set of individuals to be their property, whereas a range is the country over which those individuals ordinarily hunt and forage to sustain life. Together the two constitute a domain" (Burch 2005:26). This conceptual distinction between "estate" and "range" is a very useful heuristic device that allows us to understand how a geographically defined resource area could be exploited by multiple "political" entities. In essence, seasonal de facto usufruct rights allowed coastal and interior groups to use areas beyond their estates with minimal friction. Partnerships, which are described in some detail, also serve a similar function.

Chapter 2: Hostile Relations

Chapter 2, Hostile Relations, contains considerable detail about Inupiat warfare. However, nothing conveys the levels of Inupiat concern for enemies better than when Burch describes how silent these communities were as the norm in everyday life. Settlements were bereft of children's laughter given the expectation that noise, even from dogs, might give one's position away to the ever-present possibility of attack (Burch 2005:75).

Again it needs to be emphasized that Burch is speaking about a very specific interval in time: 1800 to mid-century. And while Burch assumes these conditions to have been in place for several centuries, he is quick to point out

that a variety of impacts, including disease, changed the complete landscape in the 20th century. After the 1850s, or slightly later, warfare ceased rather abruptly (Burch 2005:38) and the general expectation of Inupiat communities was freedom of movement across the entire landscape with little anticipation of hostility.

Burch evaluates a number of possible explanations for why armed conflict and the threat of armed conflict were basic facts of life (Burch 2005:57). In a fairly systematic manner he dismisses pressures from outside colonial interests, territorial expansion, economic factors such as control of trade, and raids for the abduction of women. He finds this latter motive unreasonable in that in the vast majority of occasions, women that were abducted during a raid were raped and then killed.

In the end Burch concludes, "Inupiaq historians uniformly regarded revenge as the primary cause of warfare in northwestern Alaska" (Burch 2005:64). In his historical reconstruction, one raid or atrocity seemed to precipitate further retaliation. Rather wistfully Burch acknowledges "I never found out what started the chain of events" (Burch 2005:65). Burch does speculate on several possible proximate causes that could have initiated this cycle—individuals who were cheated in trade, insulted or humiliated in athletic contests, unexplained disappearance of a hunter, and any untoward incident or disaster that could be attributed to magic by members of another nation. The key to the escalation of this *causi belli* was for

> the offended individual to persuade his countrymen to join him in avenging what began as a personal affront. The only way to do this was to appeal to the fund of grievances that had accumulated over the years in the population at large. (Burch 2005:66)

Burch also tried to put this in a comparative perspective by discussing similar phenomena among societies in other parts of North America, e.g., the northwest coast. Readers are urged to compare Burch's discussion of warfare with Jorgensen's (1980) chapter on political organization, sodalities, and warfare in his formal comparative study of 172 societies in western North America, entitled *Western Indians*.

In contrast to some indigenous polities in western North America, raiding for economic booty does not seem to be a motivation for warfare in northwest Alaska (although this generalization does not necessarily hold for raiders from Chukotka). Burch (2005:63) points out that:

Very little plunder was involved in Inupiaq warfare because most raiding and war parties traveled on foot and therefore traveled light. Once a battle or raid was completed, the aggressors usually tried to get home quickly and thus with little baggage, because they could never be sure that fellow countrymen or allies of the defeated force would not suddenly appear and retaliate.

In the end, as Burch's informants pointed out, the Inupiaq verb *anuyak*, "to make war between nations," means "to seek vengeance." This motive has to be emphasized, especially with respect to the uncomfortable feeling that one experiences when reading Burch's vivid narrative. With vengeance the motivating force, "the brutality that often characterized Native warfare in northwestern Alaska is more readily understood if this likelihood [war = vengeance] is kept in mind" (Burch 2005:67).

The remainder of the chapter on hostile relations contains detailed narrative and analysis of Inupiat tactics, weaponry, defensive preparations, conditioning of male warriors, and leadership. The chapter also contains an extremely edifying consideration of warfare across the Bering Strait, with two of the major players being the Ninikmuit (Wales) and the Uellyt (Chukchi from Uelen). As to the frequency of warfare; after careful consideration Burch concludes that "all one can say with certainty is that warfare was frequent enough and dangerous enough to be on people's minds almost all of the time" (Burch 2005:137).

Chapter 3: Friendly Relations

Chapter 3, Friendly Relations, is an extensive and sometimes humorous discussion that details all the social institutions and personal relations that brought people together in northwest Alaska. Burch describes in fascinating detail trading partnerships, kin relationships, intermarriage, comarriages, adoption, messenger feasts, and above all trade fairs and the international trade networks. In fact Burch's description of these institutions is so thorough that the reader might become uneasy about the preceding descriptions of violence. Burch recognizes this and states:

> If we were to focus on this aspect of the system (i.e., friendly relations) and ignore all other kinds of evidence, we would find it almost impossible to believe that the hostilities described in Chapter 2 could have taken place. (Burch 2005:165)

In fact Burch asserts friendly and hostile relations were equally widespread, were intertwined in complex

and subtle ways and that "one of the most intriguing aspects of early-19th-century life in the region was how the two kinds of relations coexisted" (Burch 2005:145). Given space limitations, only a couple of these mechanisms have been singled out for discussion.

Trading partnerships were the foundation for peaceful international relations because partners often saw each other twice a year and had definite obligations to fulfill each time they met. An exchange of gifts was key and often involved resources unavailable within one's own area; for example, seal oil was often reciprocated with caribou hides. Actually our concept of "trading" is inappropriate because exchanges were always made at well below "market price." If famine struck the family of one trading partner, his family had the right to go live with his partners in other "nations" until the crisis had passed. Most trading partnerships were imbued with considerable affection, and partners often requested obscure and frivolous items that were almost but not quite impossible to fulfill.

> The partner from whom such a request was made then spent much of the time between meetings either trying to fulfill the request literally or, perhaps more often, trying to figure out how to do so metaphorically or in some ludicrous way. (Burch 2005:156)

Burch provides a thorough description of messenger feasts, which were often structured around the partnerships mentioned above. These feasts were almost always sponsored by *umialgich* and were invariably "inter-national" in scope. Feasts were not an opportunity to establish new international connections but served to strengthen existing friendly ties.

Katnut, meaning peaceful gathering of people, were the annual trade fairs held at Point Spencer, Sisualik, Sullivik, or Nigliq. Burch provides a wealth of information and analysis on these events, including who participated, the number of people in attendance, the resources and goods exchanged, and the marked social controls that were employed in a situation where the potential for trouble lay everywhere. Also included in this chapter are detailed narratives concerning the trading relationships across the Bering Strait and between groups from differing language families within Alaska.

There is one issue in this chapter that has given me considerable pause for thought. Burch (Burch 2005:210) asserts that

> By the late 1870s the Inupiat had acquired breech-loading rifles and were using them to kill caribou. With these weapons the Inupiat did, in fact, all but exterminate the caribou populations of northwestern Alaska during 1870s and 1880s.

This assertion raises two points of concern for me. First, it seems that substantial weather-related events were occurring during the period 1878–83. For example, St. Lawrence Islanders report sea ice too far north during critical periods to hunt walrus and seals (Burgess 1974). In this context it would seem more judicious to attribute the decline in the caribou herds to both natural cycles (exacerbated or caused by climatological factors) and human predation but not posit the extermination of the herd to human agency alone. However, Burch (personal communication) feels he can "support the claim that the herds crashed primarily because of human predation rather than because of climatic variables. I spent years trying to connect the caribou crash of the 1870–90 period to climatic variables, . . . and failed."

Second, Burch has documentation to substantiate the possibility that there was considerable harvest of terrestrial and marine mammals during this period that involved wastage of meat. Of course a contradiction between professed profound cultural values and actual behavior is not necessarily a surprise; members of all cultures do it. Nevertheless the question remains: why would northwest Alaska Inupiat harvest huge numbers of hides and leave the meat to spoil, a behavior which was (and is) anathema to traditional values? Such behavior, from a traditional viewpoint, would lead to disappearance of all caribou. Perhaps the commercial aspects of their hunting, supplying meat as a commodity to westerners and hides for their own international trade, were regarded as acts separate from respectful behavior to sentient animal beings?

For example, Jorgensen (1990) spends a great deal of time discussing the impacts of St. Lawrence Islanders' early integration into the periphery of the world economy. These Siberian Yupik speakers were selling whale oil and baleen to commercial whalers by the 1850s, if not earlier. By the early 1860s they were selling their labor as hunters and guides for the whaling crews and were compensated in a variety of ways. The advent of shore-based stations in the 1880s led to increasing sales of meat to whaling crews by hunters in Wainwright. Were similar processes changing some Inupiat hunters' perspective on the nature of animal beings, or were individuals able to rationalize or ignore such seemingly contradictory behavior?

At the end of the chapter on Friendly Relations, Burch discusses the formation of alliances. Many of the questions that arose for me during the reading of the book

until this point are answered here. For example, if the concept of "mass" (i.e., number of combatants available) was so important to Inupiat warfare, why didn't a number of smaller groups coordinate an attack on a larger one? The short answer is that they did, although one should not discount, given the mid 18th-century landscape of northwest Alaska, the difficulties in communication, coordination, and logistics involved in such an effort. For example, in a very interesting narrative, Burch describes how the Napaaqtugmiut, Nuataagmiut, Qikiqtagrunmiut, and the Kivallinigmiut formed an alliance to attack the capital of the Tikigagmiut (Pt. Hope). In general, given the title of this book—Alliance and Conflict—rationales for how and why alliances came about and their attributes seem to be particularly underdeveloped. What are the circumstances, attributes, and hypotheses that account for the Tikigagmiut being the most warlike of the Inupiat, while their counterparts of similar "mass," the Kinikmiut (Wales), were noted for their diplomacy?

> The contrast between the Tikigagmiut and Kinikmiut apparently resided in differences in their respective outlooks on how international affairs should be conducted. The Tikigagmiut, who are not known to have formed an alliance with any nation, evidently preferred to pursue their international goals primarily through naked aggression and intimidation; their neighbors responded accordingly. The Kinikmiut, on the other hand, preferred diplomacy, and most of their neighbors also responded in kind. (Burch 2005:244)

But this really begs the question of what predisposes the Kinikmiut to diplomacy. Their role in trade? Particular attributes of leadership? Extensive intermarriage? A resource base that contrasts significantly from the Tikigagmiut? Or are historical factors the key? This is all the more important when one realizes the underlying explanation for warfare in this book, revenge, seems not to be the key for either the Tikigagmiut, whose belligerence Burch characterizes as "*res ipsa loquitur*—the thing that speaks for itself," or for the Kinikmiut, who seem to have discovered social institutions that blunt this psychology.

Chapter 4: Conclusions

In this final chapter I disagree with Burch when he assesses some of the "political" evolutionary implications from this Inupiat case study. Burch concludes that the international system in northwestern Alaska had not increased in complexity for more than a thousand years because these societies didn't live in environments "with a higher carrying capacity" (p. 246). I take from this that he thinks that the resource base available in their environment did not produce enough surpluses to support higher estate densities, which would provide the impetus for more complexity. To avoid this from becoming circular reasoning, we have to clearly define what we mean by "carrying capacity." In the case of this book, Burch himself asserts that social mechanisms existed, e.g., among the Kinikmiut, that helped ameliorate revenge killings, which could have increased an estate's carrying capacity.

This last chapter, Conclusions, is also where Burch systematically addresses "The World System of the Inupiat." Readers familiar with world-systems theory from three decades ago may initially be disconcerted with some of the ways Burch used such concepts as "nation" and "world system."

"Nations"

Burch describes the rationale for his use of the term "nation":

> In this study I have used "nation" as a full equivalent to "society," partly in deference to the wishes of my senior informants and partly to make the point to others that Inupiaq societies were comparable in their most general features to modern nation-states. (Burch 2005:238)

World Systems Theory

A "world-system" (notice the hyphen that indicates for some, including Burch, the original Wallerstein [1974] construction, while the lack of a hyphen indicates the more recent broader approach) is for Wallerstein a world economy integrated through markets where a "core" group of nations specialize in capital and technologically intensive production, whereas "peripheral" countries supply raw materials to core nations or engage in low-value, labor-intensive production. Wallerstein's idea draws its heritage from the French Annales school (attention to geo-ecological regions and emphasis on empirical materials), Marx (the centrality of the accumulation process and class struggle), and dependency theory (the exploitation of the periphery by the core). At first glance none of these factors (markets, accumulation, capital, classes, "metropolises") seem to be at play in northwest Alaska circa 1800–50.

However, Burch's detailed chronological investigation of "nations" in northwest Alaska and their extensive relations, through trade and warfare, with other nations

within Alaska and on the Chukotka Peninsula demonstrates the reality to me of what Burch (2005:242) terms the "North Pacific Interaction Sphere." This spatial and temporal sphere existed as "goods and information flowed from one end of this system to the other" and was "peopled entirely by hunter-gathers except on the extreme west, where some of the Asiatic peoples were reindeer-herding pastoralists."

Burch decided to use some of the processes underlying the development of world systems, as identified by world-systems theorists, to organize his discussion of "international" relations among 19th century groups in northwest Alaska. These processes, "confrontation, negotiation, domination, alliance formation, intimidation, rivalry, intrigue, exploitation, trade, physical violence" (Burch 2005:2), have been endemic to international relations for millennia.

Following the lead of Chase-Dunn and Mann (1998), Burch is trying to redress the Eurocentric world-systems conceptual framework advocated by Wallerstein and others. Interestingly, Andre Gunder Frank was (prior to his recent death) one of the earliest and most influential of the dependency theorists to rethink his position and was very supportive of broadening the structure of world-systems theory. Frank (1996) organizes his rethinking of this problem in a book entitled *The World System: Five Hundred Years or Five Thousand?*

Space does not permit a careful review of all the issues contained in the "Conclusions" chapter, although I do want to examine one use of the "core-periphery" concept as radically amended by Chase-Dunn and Mann (1998). They state: "we divide the conceptualization of core/periphery relations into two analytically separate aspects: core/periphery *differentiation* and core/periphery *hierarchy*" (1998:14).

This formulation seems to me to engage in a form of intellectual sleight of hand, especially as a core/periphery *differentiation* can include intermarriage between groups. For me this substantially dilutes the underlying power of the core/periphery concept, whose locus lies in a differential economic exchange that is completely asymmetrical in favor of "core" entities. Thus I substantiate Burch's conclusion on this issue where he states that "the portion of the interaction sphere described in this volume was so decentralized most of the time as to make core-periphery issues almost meaningless" (2005:245).

In the end one must be impressed with Burch's consideration of this issue of world systems. His analysis has certainly raised my awareness. Burch's work has lifted the clouds on what was formerly terra incognito and has revealed some form of continuity from precapitalist economic formations, through the mid-19th-century transitional incorporation of this region into the world economy (e.g., Jorgensen 1990), to its present day integration into globalization, climate change, and dependency on money to sustain traditional subsistence activities. In conclusion, this book should be considered an essential reference for anyone interested in any aspect of the field of ethnohistory.

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REVIEW

RECORDING THEIR STORY: JAMES TEIT AND THE TAHLTAN

By Judy Thompson, 2007. Canadian Museum of Civilization, Ottawa, Douglas and McIntyre, Vancouver, and University of Washington Press, Seattle.
xi + 207 pp. maps, b&w and color illus., appendices, notes, references.
Clothbound. US $50.00. ISBN 0295986948.

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Here is a book that is like a fine dessert, a cheesecake extraordinaire ladled with blueberry sauce, a sliver of key lime pie, a second spoonful of crème brûlée. It is so attractively designed and presented that its contents are irresistible. There is much to like about this large format volume, carefully researched and clearly written.

The Tahltan are an Athabaskan tribal group living around Telegraph Creek and Dease Lake, along the tributaries of the upper Stikine River in northern British Columbia. The book's title, nonetheless, is somewhat misleading. I came to it expecting to read an ethnography of the Tahltan written by James A. Teit and edited by Judy Thompson. What I found instead was a biography of Teit written by Thompson, with ethnographic data on the Tahltan squeezed into the quotes, endnotes, captions, and appendices.

That does not mean the book is a disappointment. To the contrary, readers will be held spellbound by the quiet and unassuming personality of Teit, his hard work, his handsome good looks, and his competence. He was born James Tait, a Shetlander, in Lerwick in 1864. He emigrated to Canada in 1884, arriving in the small southern British Columbia community of Spences Bridge at the invitation of his maternal uncle.

After arriving in Canada, he mysteriously changed the spelling of his surname to Teit, much to the chagrin of his parents. Working in his uncle's country store, he met and socialized with many Thompson River Indians and learned both Chinook jargon and their Native language, Nlaka'pamux. Within three years he fell in love with Susanna Lucy Antko, a local Indian woman, and began living with her. Teit made ends meet by working in his uncle's store and supplemented that with sundry other jobs such as mining coal, cutting firewood, fur trading, and guiding big game hunters. Teit married Antko in 1892, only to see her die of pneumonia seven years later.

A chance meeting with Franz Boas near Spences Bridge in 1894 inspired Teit to undertake a series of ethnographic projects in the region, changing his amateur's interest into a distinguished professional career. And what a career it was. Teit used his linguistic talents to inform himself systematically about all aspects of Athabaskan culture, and his easygoing manner helped him build great rapport and trust with the people he studied. He eventually produced a wealth of monographs and essays on not only the Tahltan, but the Lillooet, the Thompson River Indians, the Okanagan, the Kaska, the Shuswap, the Chilcotin, and others. Article after article began to appear in *American Anthropologist* and the *Journal of American Folklore*, many of them edited and annotated by Boas. One of Teit's wealthy hunting clients, Homer Sargent, soon became a patron of his fieldwork.

Boas also recommended Teit to Edward Sapir, who promptly hired him to work for the Canadian Geological Survey, parent organization of the Canadian Museum of Civilization in Ottawa, where Judy Thompson is now employed as curator of ethnology for the western subarctic. For the rest of his life Teit was torn between his allegiances to Boas and to Sapir, both of whom piled project after project on him, far more fieldwork and writing than he could

handle. Sometimes Teit deferred the interests of both masters in order to advance the political interests of the British Columbia First Nations. He advocated for their hunting and fishing rights and for their territorial homelands.

In 1904 he remarried, this time to Leonie Josephine Morens, a young French woman born in Spences Bridge. With the assistance of Boas and Sapir, Teit acquired both a camera and a wax cylinder recording machine and began using these tools to showcase Indian life. He became enamoured with Tahltan songs and took detailed notes on each recording, recorded during major field trips to northwest B.C. in 1912 and 1915. These notes are reproduced in appendices to the book; it is unfortunate that a companion compact disk of the songs could not be included to go with them. The many portraits Teit took of the Tahltan are vivid and revealing, perfectly exposed and focused. He took a keen interest not just in his key respondents, such as Dandy Jim, but in the entire community of young and old, male and female.

In the U.S., many wax cylinder recordings of North American Indian singers have now been digitized and remastered by the Library of Congress and the Archives of Traditional Music at Indiana University, and it is hoped that the Canadian Museum of Civilization will likewise proceed to make at least some of these songs available to the First Nations they came from, if not to scholars and the general public. Students of Athabaskan material culture will be delighted to find appendices devoted to Teit's description of the Tahltan artifacts he collected for the Canadian Museum of Civilization. The main text contains many photos of these artifacts, some of which are reproduced in stunning color. The continuity of northern Dene material culture from British Columbia to Alaska, from the Tahltan to the Gwich'in, for instance, is little short of astonishing.

Although the book's title is *Recording Their Story*, a significant drawback is that very few of the stories Teit recorded have been included. If two appendices can be devoted to listing the Tahltan songs he recorded and another two can be devoted to listing the artifacts he collected, it is pity that there is no appendix listing the titles of the Tahltan stories he collected and published. Since wax cylinders were limited to a running time of approximately two minutes, it is understandable that this medium was not the ideal way to record stories. Still, folklorists interested in comparative study of tribal group narrative repertoires should not be forced to look up each of Teit's publications individually just to find out what traditional stories he published. When Teit died in 1922 of prostate cancer, a good portion of this work was left in manuscript form. Boas steered much of the unfinished corpus into scholarly journals, although Teit's Tahltan field notes did not find their way into print until 1956.

The book has a couple of other small flaws that should have been caught in peer review. One is that the list of references does not contain all of Teit's publications. Although this volume understandably focuses on his Tahltan writings, where else can we find a full bibliography of his life's work? A key word index is also conspicuously missing.

Despite these minor flaws, the book can be highly recommended. It elevates Teit's largely unrecognized fieldwork and advocacy efforts to heroic status and brings him out of the shadows into the bright sunshine. It is a book full of substance and style, extremely well-written, and a delight to hold and behold. Very sweet indeed.

REVIEW

GENDER AND HIDE PRODUCTION

Edited by Lisa Frink and Kathryn Weedman, 2005, Altamira Press, Walnut Creek, CA
xiv + 282 pages, 30 black and white illustrations, maps, tables, bibliography, index
Paperback ISBN 0-7591-0851-X

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Gender and Hide Production is the first volume to explicitly address what was almost certainly a ubiquitous activity in the human past. The intention of the editors is to contextualize both the processes of hideworking and the study of hideworking. That is, they seek to write a historiography of archaeology, in part to explain why hideworking, though essential to survival, has been largely ignored while studies of hunting and hunting implements abound.

The volume covers considerable ground geographically. Authors in the first half of the volume rely upon archaeological and ethnohistoric evidence, focusing on the Great Plains (Gilmore, Habicht-Mauche, Scheiber, Hollimon, Kehoe) and Alaska (Frink, Cassell, and Steen). The second half of the book deals with ethnographic evidence from western Canada (Baillargeon), South Africa (Webley), and Ethiopia (Weedman) and explores the implications of this evidence for archaeology.

The introduction to the volume is regrettably brief, with only four pages on the general issues facing archaeologists dealing with gender, e.g., the prevalence of ahistorical perspectives on women's roles in the past and the role of analogy in archaeological interpretation. These issues are treated in the concluding essay by Suzanne Spencer-Wood but are not dealt with in any detail by other contributors.

Kevin Gilmore's chapter on Franktown Cave in eastern Colorado provides a useful description of Great Plains hide production as recorded ethnographically, followed by a formal analysis of one of the moccasins recovered at the site, which he suggests may be a marker of Algonquian ethnic identity.

Judith Habicht-Mauche contributes a chapter on the protohistoric Garza complex of the Texas High Plains, where she finds that women's production of dressed bison hides provided the material basis for men's alliance- and status-building activities. Habicht-Mauche suggests that women's labor, including that of captive women, was increasingly co-opted as the importance of trade and exchange relationships grew along with the intensification of bison exploitation.

Laura Scheiber's discussion of materials from the Donovan site in Colorado complements Habicht-Mauche's work by illustrating the range of activities associated with bison processing. Scheiber does a good job of showing that the hunting and initial butchering of an animal formed only part of a series of labor-intensive activities that included secondary butchering, grease and marrow extraction, meat drying, and hide processing.

In her study of early historic Arikara of the northern plains, Sandra Hollimon documents the loss of women's status with the rise of Euro-American trade in bison hides and fur. Men controlled the distribution of high-quality hides for exchange (p. 82) and were the primary agents in trade relationships, limiting the extent to which women could participate in or benefit socially and economically from interaction with traders. Hollimon observes that the destabilizing effects of contact may have actually *improved* opportunities for some nonelite women to garner prestige and economic power as expert hideworkers. Trade with Euro-Americans and access to non-Native status markers may have provided an alternative route to upward mobility

otherwise limited by the hierarchical and ascribed social system of the Arikara (p. 87).

Lisa Frink's chapter on the effects of Russian and American trade in western Alaska echoes the theme of earlier chapters on the Great Plains, i.e., that intensification of trade relationships with non-Natives privileged Native men and resulted in the devaluation of women's production. Frink notes that imported goods, while benefiting men—as in the case of firearms, which increased hunting success—actually caused a loss of status for women. With the advent of manufactured clothing, for example, women lost a primary claim to status and authority, i.e., their skill and productivity in skin sewing (p. 100).

Mark Cassell examines endscrapers and discard patterns at a whaling station at Point Belcher in northwest Alaska. This site was briefly occupied by John Kelly and his male Iñupiaq employees during the winter of 1891–92. Cassell observes that the Iñupiat continued to use "traditional" endscrapers made of chert into the late 19th century, even though they had adopted Euro-American trade goods for other tasks. Evidence for endscrapers indicates to Cassell that Iñupiaq labor was central to the functioning of Kelly's station and demonstrates that labor had become commoditized by the demands of Euro-Americans working in the whaling and fur trade industries.

In her study of hide chewing, Susan Steen examined sets of human mandibles from Golovin Bay and Nunivak Island, Alaska. She evaluated the mandibles for evidence of musculoskeletal stress markers, i.e., increased robusticity (size) or rugosity (textural remodeling) at muscle attachment sites. Her results confirm the observations of Margaret Lantis and others that Nunivak Island women did not use their teeth as tools.

Alice Beck Kehoe discusses endscrapers used by northwestern plains women and notes that lithic typologies often obscure the presence and number of expedient endscrapers made and used by women by classifying them as "utilized flakes." Kehoe includes extensive quotes from 20th-century ethnographers to illustrate the hide production process on the Great Plains.

In an ethnographic chapter that cuts across the Great Plains, Plateau, and Rocky Mountains, Morgan Baillargeon discusses the sacred aspects of tanning. Of interest to archaeologists is the observation that women used tanning tools that had been curated, in some cases for four or more generations. Baillargeon focuses on the process of transforming a hide into an object with power and energy, a process that he terms "quickening." Baillargeon observes that the skull and brain are perceived as the seat of the animal's soul; therefore the use of the brain to tan the animal's hide is essential to the process of revivification.

Lita Webley's ethnoarchaeological study of the pastoralist South African Khoekhoen is perhaps the strongest contribution to the volume. After a review of hide preparation, Webley describes the many uses of hide in Khoekhoen society. She then examines archaeological materials from Spoegrivier Cave, on the Atlantic coast of South Africa, and interprets them in light of her ethnographic data.

In her discussion of Konso and Gamo hideworkers in Ethiopia, Kathryn Weedman provides a detailed exploration of the relationship between marriage and residence patterns and scraper style. In what is the most material-oriented contribution to the volume, Weedman finds greatest diversity in scraper style when hideworkers in a village are unrelated, versus the Gamo case, in which hide production is a skill passed through the patrilineage.

Suzanne Spencer-Wood's concluding essay evaluates each chapter as an "implicitly" theoretically situated critique of androcentrism in anthropology. Writing from a second-wave feminist perspective, Spencer-Wood describes the two contributions on Africa (Webley, Weedman) as "liberal egalitarian feminist" (p. 200), while the majority of the chapters are classified as "postmodern feminist" (pp. 200–201), though I wonder whether the authors themselves would describe their contributions in such terms.

Each chapter in *Gender and Hide Production* is relatively short, providing a brief introduction to the practice of hideworking in a specific cultural context. Authors of many of the chapters have discussed their data in greater detail elsewhere, and for that reason this volume is an excellent entrée to the literature. Without exception, however, "gender" for the contributors equals "men" and "women." Authors engage with normative forms of socioeconomic organization, a topic that until the early 1990s was termed the sexual division of labor. They do provide diachronic studies that consider the effects of social change, as well as the role of agency in individual decision-making—topics that earlier work on the division of labor neglected.

Perhaps one of the most significant contributions of this volume is how explicit it makes the labor requirements of hideworking. Though most archaeologists would agree that producing a useable hide is labor intensive, I suspect few would be able to describe in any detail each step re-

quired. The essays in this volume provide vivid examples of not only the work involved in preparation of the hide itself but also the numerous associated activities, such as collection of raw material for scrapers, production of pegs for stretching the skins, preparation of plant or animal substances for tanning, and production of awls and needles for piercing and sewing the hides. Many of these activities leave archaeological remains in the form of artifacts and the spatial patterning of activity areas.

Gender and Hide Production makes the time and energy demands of this activity apparent, and by doing so gives us a better idea of how central hideworking was—and still is in some communities—to subsistence activities, social organization, and ritual practice. The editors have succeeded in their efforts to contextualize hide production cross-culturally; archaeologists will be hard pressed to continue ignoring the significance of hide production in the human past.