THE LATE HOLOCENE OCCUPATION OF INTERIOR SOUTHWESTERN ALASKA

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ABSTRACT

A small party of hunters occupied a narrow cave near Farewell Mountain in southwestern Alaska around three thousand years ago. Bones of small to large animals were found around their campfire, some with cut marks. Radiocarbon dates on charcoal from their campfire within the cave indicated an occupation between 2931±23 ^{14}C years BP and 3165±40 ^{14}C years BP. An earlier use of the cave area was suggested by charcoal from a layer in front of the cave that dated to 3760±180 ^{14}C years BP. The artifacts lying about the cave campfire were nondiagnostic, but a nearby site contained a side-notched projectile point similar to those recovered from Northern Archaic sites in the region, suggesting that the cave may have been occupied during a late phase of the Northern Archaic tradition.

KEYWORDS: Farewell Cave, Northern Archaic tradition, southwest Alaska

NORTHERN ARCHAIC TRADITION SITES IN SOUTHWESTERN ALASKA

During an archaeological survey in 1982 six archaeological sites were found in the vicinity of Lone and Farewell mountains north of the Alaska Range (Figs. 1, 2). Here the low-lying piedmont is covered with moraines of the Farewell and Selatna glaciations, outwash slopes, flood plains and alluvial fans (Bundtzen 1980; Bundtzen and Gilbert 1983; Fernald 1960; Kline 1983; Kline and Bundtzen 1986). Three braided streams—Big River, Windy Fork, and the South Fork of the Kuskokwim River—flow northward across the piedmont, carrying boulders, gravel, sand, silt, and organic materials from sources within the Alaska Range (Fig. 2). With peak elevations of 807 and 802 m, Lone and Farewell mountains are characterized by a series of rubble-covered limestone ridges. On the crest of the ridges are discontinuous mats of alpine tundra vegetation with isolated alder thickets that encircle or extend on to the ridge tops. Lower in elevation are stands of poplar, aspen, white birch, and white spruce on better-drained slopes and black spruce on the lower slopes and valley bottoms.

Five of the sites consisted of surface lithic scatters, two on a ridgeline on Lone Mountain (MCG-036 and 037) and three on small hilltops (MCG-034, 038, 039) near Farewell Mountain. The sixth site (MCG-035) is in a cave that had been used as a temporary shelter by prehistoric hunting parties.

Site MCG-036 on Lone Mountain contained a weathered flake core and nine flakes of chert and argillite. MCG-037, also on Lone Mountain, contained two flake cores, a biface fragment, an end scraper, and 111 decortication and primary biface thinning flakes of chert and argillite. The position of the two sites on a high ridge overlooking the Kuskokwim River lowland and the limited amount of cultural debris suggests lookout stations used by hunters during the fall caribou migration. There was no organic material at either site for dating and the generalized nature of the assemblages did not provide an age estimate.

Site MCG-038 near Farewell Mountain contained a unifacial tool made on a large flake of argillite and a chert biface fragment. There was retouch along one curved

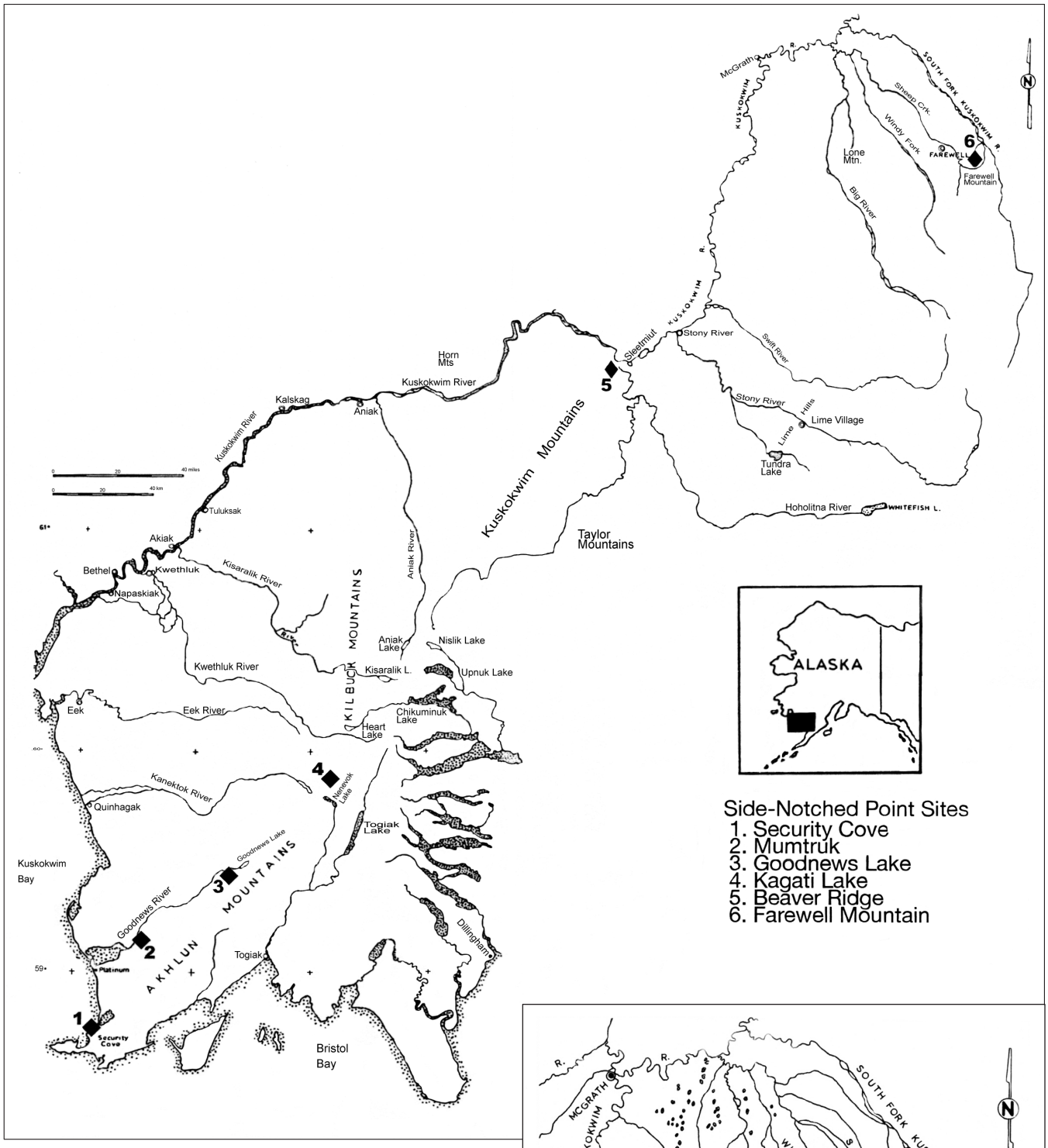

Figure 1 (above). Archaeological sites in southwest

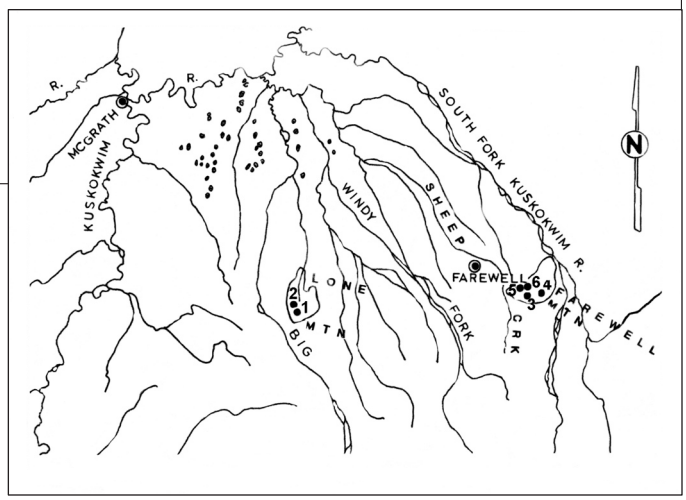

Figure 2 (right). Lone and Farewell mountains sites

side of the flake, suggesting that it was used as a large side scraper. At MCG-039 a bifacial side blade of chert was discovered with one margin strongly curved and the other fairly straight. The straight side or back was lightly retouched while the curved side had been repeatedly retouched as the result of multiple resharpening. The large biface could have been hafted transversely like an Eskimo ulu or longitudinally hafted and used as a large side blade. A battered piece of obsidian with many cleavage planes was found with the side blade at MCG-039. Site MCG-034, on an exposure along a spur-like ridge of limestone, yielded a chert flake and a side-notched projectile point with the tip missing. The side-notched point (Fig. 3) was made on a thick flake; the reverse face retained much of the ventral flake surface. The rather broad side notches were formed by retouch directed from either face and had been lightly ground along the edges. The base was convex and thinned by the flaking on both faces. Flaking on the face of the point was collateral and reached only partway across the face, leaving a central knob, often the mark of an inexperienced or careless knapper. The point had been hastily made with little care for form. Based on the form of notching and the shape of the base, the point could fit within the early phases of the Northern Archaic tradition found at the Onion Portage site (Anderson 1988). Given the variability of side-notched projectile point forms, however, the point could fit almost anywhere within the span of the Northern Archaic tradition. No datable organic material was recovered to date the site chronologically.

In terms of comparable site assemblages, component IV at the Dry Creek site has weakly side notched to stemmed projectile points that are similar to those of phase 5 at Onion Portage (Powers et al. 1983). Component IV has upper dates of 3430±75 ^{14}C years BP and 3655±60 ^{14}C years BP and a lower date of 4670±95 ^{14}C years BP (Powers et al. 1983). No microblades were recovered in component IV of the Dry Creek site. Side-notched projectile points were also present in the upper levels of site MMK-4 at Lake Minchumina together with other projectile point types and microblades in a seemingly late cultural context ca. AD 800–1000 (Holmes 1986).

Further to the west, side-notched points have been found at the Beaver Ridge site (SLT-072) at the mouth of the Holitna River, around the shores of Kagati Lake (GDN-082, 094, 100, 158), along the upper and lower courses of the Goodnews River (GDN-069, 018), and at Security Cove (XHI-009) (Fig. 1). The Beaver Ridge site, previously unreported, contained scrapers; cobble cores; biface fragments; hammerstones; quartz pebbles broken perhaps by bipolar procedures; bifacial thinning flakes of chert, argillite, and obsidian; and a side-notched projectile point that is almost stemmed (Fig. 4). This is the first recovery of obsidian and the side-notched projectile point form on the Holitna River. Calcined bones from the site have been identified as fragments of metapodials and metacarpals from an artiodactyl, probably caribou. The Holitna

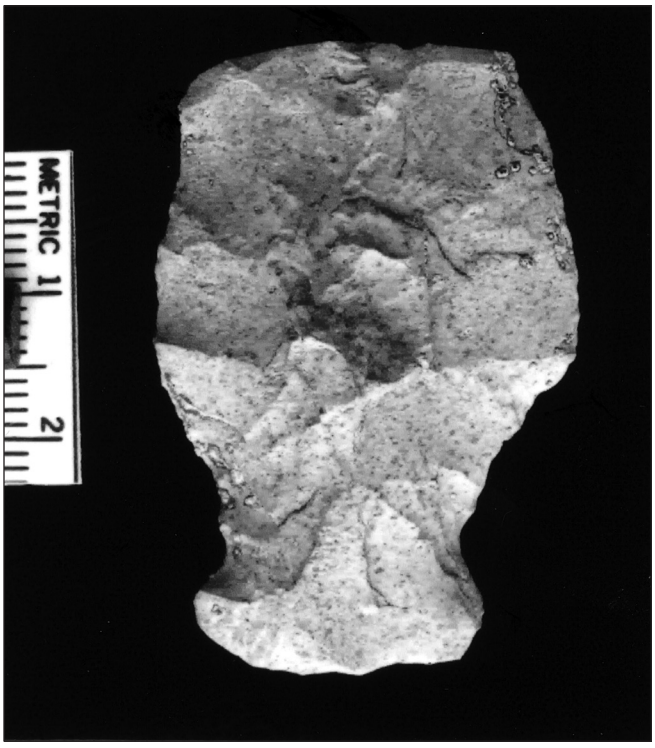

Figure 3. Side-notched projectile point, site MCG-034.

Figure 4. Artifacts from the Beaver Ridge site (SLT-072). Upper row—side-notched projectile point, three biface fragments; lower row— three utilized flakes.

River, Kagati Lake, Goodnews River, and Security Cove side-notched point assemblages (Ackerman 2005) can be assigned to a local variant of the Northern Archaic tradition, which at Onion Portage dates to roughly between 6000 and 4000 ^{14}C years BP (Anderson 1988). Towards the end of this sequence (phase 6, 4300–4200 ^{14}C years BP), side-notched points were replaced or evolved into an oblanceolate biface form (Anderson 1988). Most of the side-notched points found in sites in southwestern Alaska (Fig. 1) are undated due to the lack of any recovered datable material. The one exception is the Pond site (GDN-094, Fig. 1 site 4) where a Portage-type point (Anderson 1988) was recovered. Charcoal from the cultural level dated to 4120±40 ^{14}C years BP (Ackerman 2005).

Within central Alaska there are additional sites where side-notched points co-occur with other tool forms. The late dates for many of these sites suggest that there may have been a projectile point tradition(s) derived from the Northern Archaic tradition or may indicate that there was a blending of the Arctic Small Tool tradition with as-yet-unknown point complexes.

FAREWELL MOUNTAIN CAVE

Below the limestone ridge where we found the side-notched point (MCG-034), there were a series of openings in the cliff face (Fig. 5). Most were natural fissures in the limestone that had been enlarged by freeze-thaw cycles, but did not appear to be large enough for human use. Lower down in the cliff face there was a somewhat larger opening 12.8 m above a small stream (Fig. 6). It had provided shelter to a family of porcupines for their scat was everywhere. The main gallery of the cave (Fig. 7) was an irregular passageway that was 87 cm wide and 51 cm high at its entrance before excavation (1.2 m wide and 1.25 m high after excavation) and extended 3.25 m into the cliff face. Two narrow side passages led off to the east and west. The eastern passage was 50 cm wide and 2.25 m deep while the western passage was only 25 cm wide at its juncture with the main corridor, but did extend as a narrow fissure 2.25 m westward where it broke through the cliff face to the left of the cave entrance.

The cave deposit was composed of silt- to sand-sized sediments and rockfall (Fig. 8). The surface of the cave floor consisted of porcupine dung and a scattering of porcupine needles. Just below the surface, we recovered well-preserved bones of porcupine, snowshoe hare, voles, and lemmings that bore marks of gnawing. A similar assortment was found throughout the upper levels of the cave deposit. At the base of the deposit (Fig. 8) there was

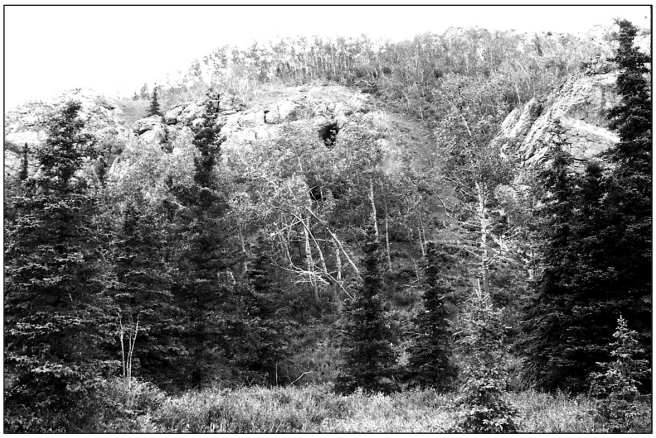

Figure 5. View of limestone ridge, Farewell Mountain Cave. Upper cave opening visible.

Figure 6. Farewell Mountain Cave site (MCG-035) with Lance Rennie and Jim Gallison beginning excavation near entrance.

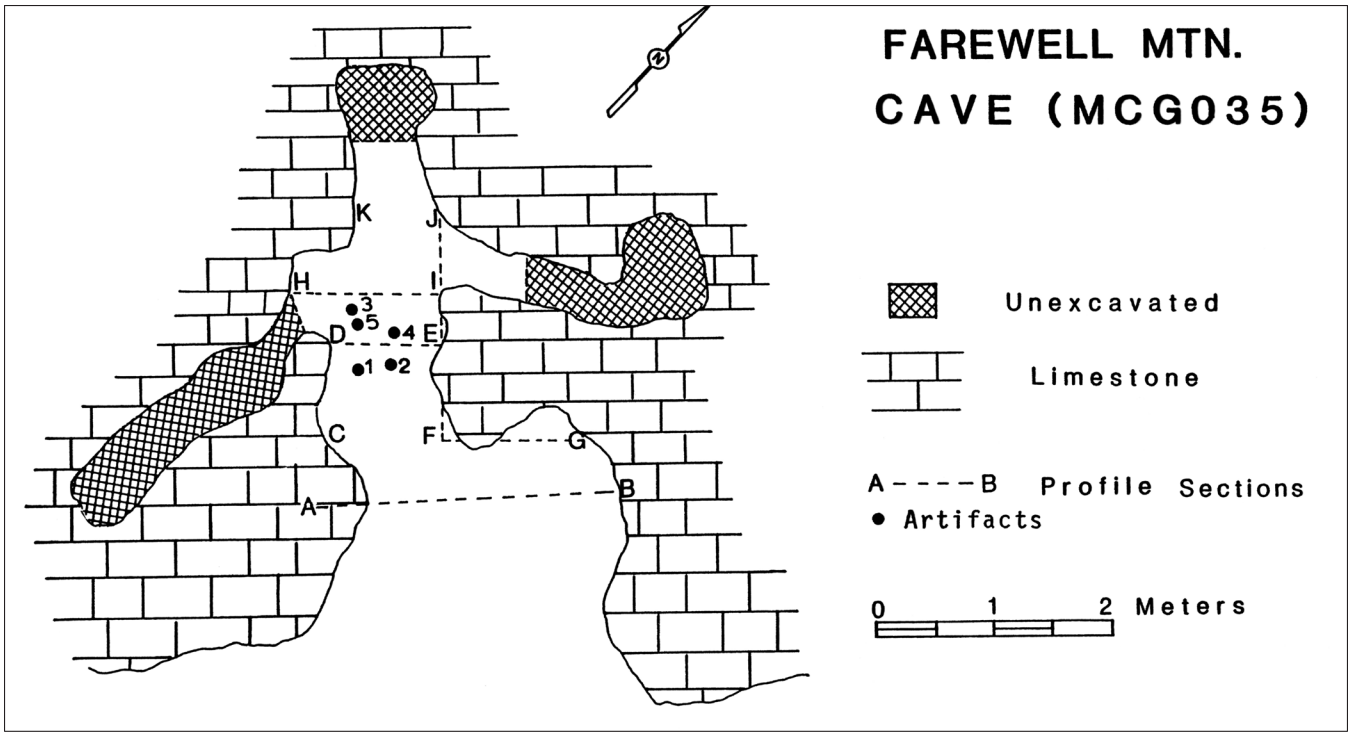

Figure 7. Plan view of Farewell Mountain Cave site (MCG-035). Artifacts: (1) biface fragment, (2) flake that fits onto the biface, (3, 5) two pieces of a chert flake, (4) argillite flake

Figure 8. Photograph of stratigraphic profile at DE (Figure 7) at the front of the Farewell Mountain Cave (MCG-035)

a well-defined layer of charcoal, carbonized fat, charred to calcined bones, and a few artifacts on the cave floor extending from cross section line AB to somewhat beyond cross section line HI (Fig. 7).

Neil Endacott, a doctoral candidate in anthropology at Washington State University, analyzed the faunal remains from the cave. Bones from the highly carbonized cultural layer on the floor of the cave (Table 1) were identified as those of ground squirrel, ptarmigan, and snowshoe hare. No particular pattern in prey species selection was evident in the small sample (ten) of identified bones. A larger sample of bone fragments that could not be identified to species but could be grouped by size to large, medium, and small mammals was recovered (Table 2). For larger-sized animals such as sheep- or caribou-size animals, long bones and ribs (including the costal cartilage that is also part of the rib cage) were the most strongly represented remains. Ribs were again the most numerous part of the animal in the class 3–5 category where the fragmentary nature of the faunal remains did not permit more specific assignment. In the smaller animals, such as fox, hare, marmot, or porcupine (class 3), ribs and the vertebrae of the tail were dominant (Table 2). Our sample of the smallest class size (class 2) was limited to four bones with long bones and ribs following the general pattern. Overall, fragments of ribs and long bones are the most dominant elements in the faunal assemblage, but it should be noted that 100 bones (Table 2) were so fragmented and burned that they were unidentifiable to body part. The charred to calcined nature of the fragmented bones indicates that they had been broken/pulverized to extract fat before being placed in a fire. There appears to be some selection for the larger animals in terms of the bones recovered, but bones of the smaller mammals were also present.

Table 1. Identified fauna from Farewell Mountain Cave (MCG-035)

Species	Body Part						Total
	radius	metapodial	incisors	maxilla	femur	rib	
Showshow hare (*Lepus americanus*)	1	1	2				4
Ptarmigan (*Lagopus lagopus*)	2			2	1		5
Ground squirrel (*Spemophilus parryii*)						1	1
Total	3	1	2	2	1	1	10

Table 2. Class size fauna from Farewell Cave (MCG-035)

Class size	Body Part								Total
	long bones	ribs	costal cartilage	caudal vertebra	cut bone	cranial	maxilla	fragments	
Class 5: sheep/caribou	10	19	19		1			7	56
Class 3–5		30			2				32
Class 3: fox, hare, marmot, porcupine	4	18		9	1	1			33
Class 2: squirrel	2	1					1		4
Unknown size class								93	93
Total	16	68	19	9	4	1	1	100	218

Human involvement in the accumulation of faunal remains is further corroborated by cut marks across a rib fragment of class 3 animal (Table 2), by cuts along the edge of a cranial fragment of a small-to-medium-sized mammal (class 3–5), and by cuts along the edge of two flat bone fragments from class 3–5 and class 5 size animal. Unfortunately, none of the cut pieces of bone could be identified to species.

Only a few artifacts were recovered from the cave excavation. A broken biface of argillite (Fig. 9) lay on the cave floor about 1 m back from the narrow entrance (Fig. 7:1). The biface fragment had been flaked from the right margin with additional retouch along the edge. The piece had broken medially, probably prior to the attempt to create a biface. A flake that could be refitted onto the biface lay approximately 30 cm to the east (Fig. 7:2). Two pieces of a chert flake (Fig. 7:3, 5) were found just north of the biface. A remaining flake of argillite (Fig. 7:4) was found 50 cm to the north and east of the biface. These five artifacts clustered just within the passageway, adjacent to the fissure on the west where a fire had been built. The artifacts were of such a generalized nature that they did not provide any hints as to the cultural phase represented at this temporary camp.

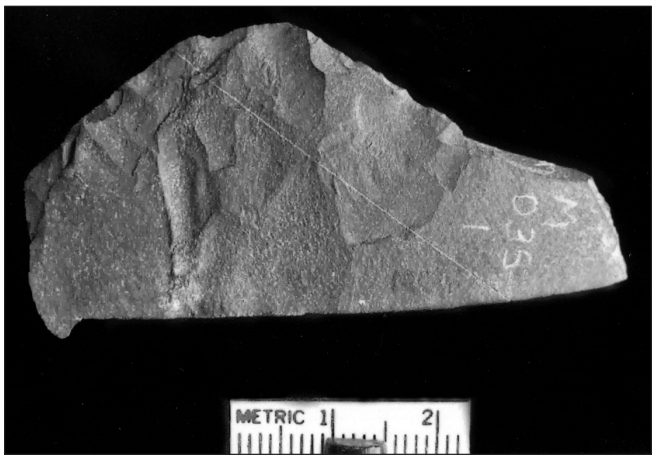

Figure 9. Biface fragment (No. 1 in Figure 7) from Farewell Mountain Cave site (MCG-035).

It appeared from the fragments of charred birch bark obtained from the hearth area that birch was the wood of choice for the hunter's campfire. The charcoal of the hearth zone consisted of twigs, small branches, and fragments of larger pieces of wood.

The area in front of the cave entrance contained two charcoal layers separated by a 15 cm zone of silt and rock fall. The charcoal sample from the lower layer dated to 3760±180 ^{14}C years BP (WSI 2762) (4620–3639 BP at 2 sigma). Within the cave, the hearth feature consisted of a single layer of charred bone, burnt fat/grease, and charcoal from which we recovered artifacts and cut bone. Charcoal from this layer yielded dates of 3165±40 ^{14}C years BP (WSU

2760) (3467–3329 BP at 2 sigma) and 2921±23 ^{14}C years BP (WSU 2761) (3161–2971 Cal BP at 2 sigma). Since bone fragments were recovered from the deposits in front of the cave entrance we assumed that this area was also part of the cave occupation, but no artifacts or cut bones were encountered in this area. The date of 3760±180 ^{14}C years BP is also almost six hundred years older than the oldest hearth date of 3165±40 ^{14}C years BP and likely represents an occupation prior to the cave occupation. The two dates from the hearth feature in the cave, while separated by a bit more than two hundred years, probably represent a single occupation given the vagaries of radiocarbon dating and the fact that the samples were taken from the same hearth feature. If there were multiple occupations they were closely spaced occurrences.

We are thus left with this brief glimpse into the past. Between three thousand and thirty-one hundred years ago one or two hunters (not enough room for more) crouched beside a fire in a small gallery-type cave on the north slope of the Alaska Range. Heat from the small fire would have quickly warmed the cave. The matrix of burnt and cut bone and the charred residue of grease and wood on the cave floor indicates that the hunters enjoyed a meal or two during their brief occupancy. The fragmentary argillite biface and the two argillite flakes may have been expedient tools used around the fire or a halfhearted attempt to fashion a tool from rather inferior raw material. The two fragments of a chert flake indicate that tools made of other lithic materials were brought into the cave by the hunters, but not left behind.

We wondered about the positioning of the small cooking fire in the cave and why it had not been placed further into the passageway. After our excavations were complete, we built a small fire in the exact location of our ca. three-thousand-year-old hearth next to the west fissure. After a bit of uncertainly as the cold air was forced out of the narrow fissure to the west, the opening began to draw like a chimney, venting all of the smoke out of the cave. We sat around our small fire, enjoying the warmth, not unlike the ancient hunters who had temporarily found refuge in the cave some three thousand years ago.

The cultural identity of the hunters remains unknown, but ethnographic studies of the seasonal pattern of the interior Kolchan (Hosley 1981) who occupied this region in historic times indicate that during the summer hunters moved up Big River to the front of the Alaska Range in search of caribou (Fig. 1). By late fall, they moved across the foothills and lowlands over to the South Fork of the Kuskokwim River. In early fall, when late runs of salmon came up the Kuskokwim River, they built rafts and floated with their stores of hides and meat down the South Fork to their winter villages, where they would net salmon for their winter stores. This historic pattern of small groups of hunters wandering over the foothills and lowlands in search of scattered caribou was likely a pattern that was also used some three thousand years ago.

THE KUSKOKWIM LOWLANDS DURING THE LATE HOLOCENE

The environmental setting for hunters who traversed the Kuskokwim River lowlands and the foothills on the North Slope of the Alaska Range three thousand years ago was not too unlike that of today. White spruce (*Picea glauca*) was present in the Farewell Lake area by 8000 ^{14}C years BP with an increase in white spruce pollen noted between 8000–6000 ^{14}C years BP (Brubaker et al. 2001). Stands of birch trees (*Betula papyrifera*) expanded into the Farewell Lake area by six thousand years ago (Brubaker et al. 2001). Towards the late Holocene (ca. 4000 ^{14}C years BP) the climate became cooler and wetter, with black spruce (*Picea mariana*) replacing white spruce (Hu 1994; Hu et al. 1995). Minor expansion of mountain glaciers in many parts of Alaska also occurred about this time (Hu et al. 1995), marking the onset of Neoglacial conditions. South and west of Farewell Mountain, black spruce needles recovered from the Lime Hills Cave site (LIM-002) (Ackerman 1996) dated to 2940±50 ^{14}C years BP (BETA 119055) indicate that black spruce had become well established throughout the region by the time of the occupation of the Farewell Mountain cave site. Yesner (2001) noted that after ca. 7500 ^{14}C years BP, and certainly by 4000 ^{14}C years BP, boreal and wetland taxa such as red squirrel, red fox, beaver, and muskrat were present at the Broken Mammoth site. Bigelow and Edwards (2001) reported that in central Alaska between 5800 and 3000 ^{14}C years BP there were fluctuating abundances of spruce, birch, and alder. The mid- to late Holocene was marked by climatic transitions with a warm and wet period that favored the spread of white spruce, a cool wet regime that would have encouraged the replacement of white spruce by black spruce, and in some areas a colder, drier period that was characterized by return to shrub vegetation (Edwards et al. 2001). A decrease in forest cover has been noted in Siberia around 3500 ^{14}C years BP when forests gave way to a shrub tundra dominated by birch and alder (Pisaric et al.

2001). It appears that between ca. 4000 to 3000 ^{14}C years BP there was a climatic cooling that would likely have resulted in a mix of conifer and hardwood forests together with patches of alder shrub and in the wetter areas willow and sedge meadows, not too unlike the present landscape. This latter shift, if present in the Farewell Mountain region, would have favored herd animals such as caribou, moose, and perhaps bison.

LATE HOLOCENE SITES

Sites of the Northern Archaic tradition in southwestern Alaska, with a single exception (Ackerman 2005), have not been dated nor have the sites in the uplands of the Kuskokwim Mountains with artifacts that have been tentatively assigned to the Late Tundra tradition (Ackerman 1987, 2001). Rough prismatic microblade cores and microblades were recovered with side-notched points at the Ugashik Knoll site on the Alaska Peninsula (Henn 1978). The Ugashik Knoll phase dates between 5055 ±70 and 4810±85 ^{14}C years BP, and it has been suggested that the appearance of side-notched points marks the transition from the Paleoarctic to the Northern Archaic traditions or the contact between the peoples of these two traditions (Henn 1978:40–41).

Dating of later Holocene-age sites has proven to be difficult. The Dixthada site in central Alaska has a date of 2420±60 ^{14}C years BP for the lower level of occupation (Shinkwin 1979). The Campus site, also in central Alaska, has been dated between 3500 and 2750 ^{14}C years BP (Mobley 1991). Both sites contain side-notched to stemmed projectile points associated with wedge-shaped microblade cores and microblades quite unlike the side-notched projectile point assemblage at Dry Creek (Powers et al. 1983), Onion Portage (Anderson 1988), or the Northern Archaic tradition sites in southwestern Alaska (Ackerman 2005) where microblades are absent. Further work at the Campus site (Pearson and Powers 2002) has helped to clarify the dating difficulties, but obviously additional investigations of the late Holocene in central Alaska are needed.

Further surveys conducted in the immediate vicinity of Farewell Mountain in 1982 were disappointing. Helicopter transects of the area around the South Fork of the Kuskokwim failed to locate other potentially suitable site areas. Ground surveys south of Farewell Mountain on the west side of the South Fork of the Kuskokwim River were equally unproductive. Additional surveys were conducted in the upper reaches of Windy Fork, Big River, and the area south of Lone Mountain (Fig. 2). No additional sites were noted in these areas.

COMMENTARY

In terms of Alaskan prehistory, the period around three thousand years ago is well defined along the coast by industries of the Arctic Small Tool and Norton traditions (Ackerman 1982, 1988; Dumond 1981, 1987; Giddings 1960, 1961, 1964; Giddings and Anderson 1986; Henn 1978). Within interior Alaska and the southern Yukon, the cultural sequence is less well understood. Side-notched points together with microblades may be attributes of the Northwest Microblade tradition of the Yukon between 4000 and 3000 ^{14}C years BP (Gotthardt 1990). In central Alaska, the association of side-notched, stemmed, and lanceolate points with microblades and burins has also been noted (Late Denali complex, 3500–1500 ^{14}C years BP) (Dixon 1985). Henn (1978), as noted earlier, recovered microblades with side-notched points at the Ugashik Knoll site on the Alaska Peninsula with dates between 5055 and 4810 ^{14}C years BP. At the Beverley Lake site (Wood-Tikchik lakes district) microblades were part of an Arctic Small Tool tradition dating between 3700 and 3100 ^{14}C years BP (Greg Biddle 2008, personal communication). In all of our traipsing about on the north flank of the Alaska Range (South Fork of the Kuskokwim River to Big River) and wherever we found side-notched points, we did not find even a glimmer of evidence for microblades. It would appear that in this region microblades had been phased out by 3500–3000 ^{14}C years BP or earlier, and only a bifacial industry remained. The last three to four thousand years of Alaskan prehistory are, as yet, poorly understood, and remain an area of research for future generations of Alaskan archaeologists.

ACKNOWLEDGEMENTS

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