THE HAYFIELD SITE: A NEW LOOK AT THE 1949 COLLECTION

Molly Proue
Northern Land Use Research, Inc., P.O. Box 83990, Fairbanks, Alaska 99708, mmp@northernlanduse.com

Justin M. Hays
Northern Land Use Research, Inc., P.O. Box 83990, Fairbanks, Alaska 99708

Jeffrey T. Rasic
National Park Service, Fairbanks Administrative Center, 4175 Geist Road, Fairbanks, Alaska 99709

Joshua D. Reuther
Northern Land Use Research, Inc., P.O. Box 83990, Fairbanks, Alaska 99708

ABSTRACT

The Hayfield site, located in the upper Kuskokwim region of Southwest Alaska, was originally investigated during the summer of 1949 by researcher Charlene Craft LeFebre and two students from the University of Alaska. Their findings were published by LeFebre in a 1956 *American Antiquity* article. Recently, LeFebre's original field report and sketches were retrieved from the Office of History and Archaeology. Material culture excavated from the site, now housed at the University of Alaska Museum of the North, was reanalyzed, including the use of AMS radiocarbon dating and XRF obsidian sourcing. This paper presents the results of these investigations and places the site within a broader context of the late prehistoric Athabascan tradition in Alaska.

KEYWORDS: late prehistoric Athabascan tradition; fish camp; Upper Kuskokwim River; Southwest Alaska

INTRODUCTION

The Hayfield site is located in the upper Kuskokwim region of Southwest Alaska on lands traditionally occupied by the Telida–Minchumina band of the Upper Kuskokwim Athabascans (formerly referred to as Kolchan) (Hosley 1966) (Fig. 1). Various origin stories have been recorded for the Telida–Minchumina band. In his comprehensive history of Nikolai and Telida, historian Ray Collins related the following tale, which tells the story of two women who, after their husbands are killed by raiders, seek a place for shelter and food. The women come to:

> a creek flowing out of a large lake where they found whitefish. Somehow they made a fish weir and began catching the fish that were migrating out of the lake. They caught a lot of whitefish, and at last had plenty of food and could even put enough away to see them through the winter. The fish run at this lake occurs just prior to freeze-up and the fish can be dried or stored in underground pits and allowed to freeze. These are the large lake whitefish locally called tilaya and the place became known as tilayadi' or "whitefish place." Next the women used something to make a winter house. This was the old style semi-subterranean house called, appropriately, nin'yekayih (in-the-ground house). The ground was excavated to a depth of three or four feet and a pole frame constructed. The frame was covered with a layer of birch bark, or perhaps grass, and then covered over with dirt and sod. There was a smoke hole in the middle of the roof. This is the same type of house that is described in all the old stories where smoke was seen coming out of the ground and people could walk up on the house and look down through the smoke hole. Carl Sesui described such a house as "all the same, beaver

house". By the time the house was completed it was winter. During all that time the women had not seen any other people, but one day during the winter, someone came to the door and asked, "Who are you people?" The person who came to the door was their only brother who lived somewhere down the Kuskokwim River. He had been looking all over for them and had finally located them on the McKinley Fork. From that time on people continued to live at Telida, catch whitefish, and to travel out to the mountains by way of the McKinley Fork. This is the way the story had been told from long ago (Collins 2004:71–72 citing pers. comm. with Carl Seseui [sic] and Miska Deaphon).

The Hayfield site (MED-005) is situated roughly seventy meters removed from the stream that drains Lower Telida Lake (LeFebre 1956). Charlene Craft LeFebre traveled to Telida with two University of Alaska students, George Schumann and Leona Neubarth, during the summer of 1949 to investigate reports received by the university's Department of Anthropology about sites of unknown antiquity in the region. While there she recorded the Hayfield site, so named because of its location in a grassy elevated area south of the modern village of Telida. LeFebre and colleagues conducted limited excavation and published their findings in *American Antiquity* (LeFebre 1956), in which the site was interpreted as a late prehistoric Athabascan tradition fish camp.

The interpretation of the site as a fish camp was supported by LeFebre's ethnographic work during the summer of 1949. When she and her team arrived, they found local residents fishing for whitefish at Telida and her functional interpretations of artifacts and features were aided by extensive collaboration with local resident Carl Sesui, who is quoted by Collins in the origin story above. Born and raised in the vicinity of Lake Telida, Mr. Sesui provided insights on the region's history and the artifacts

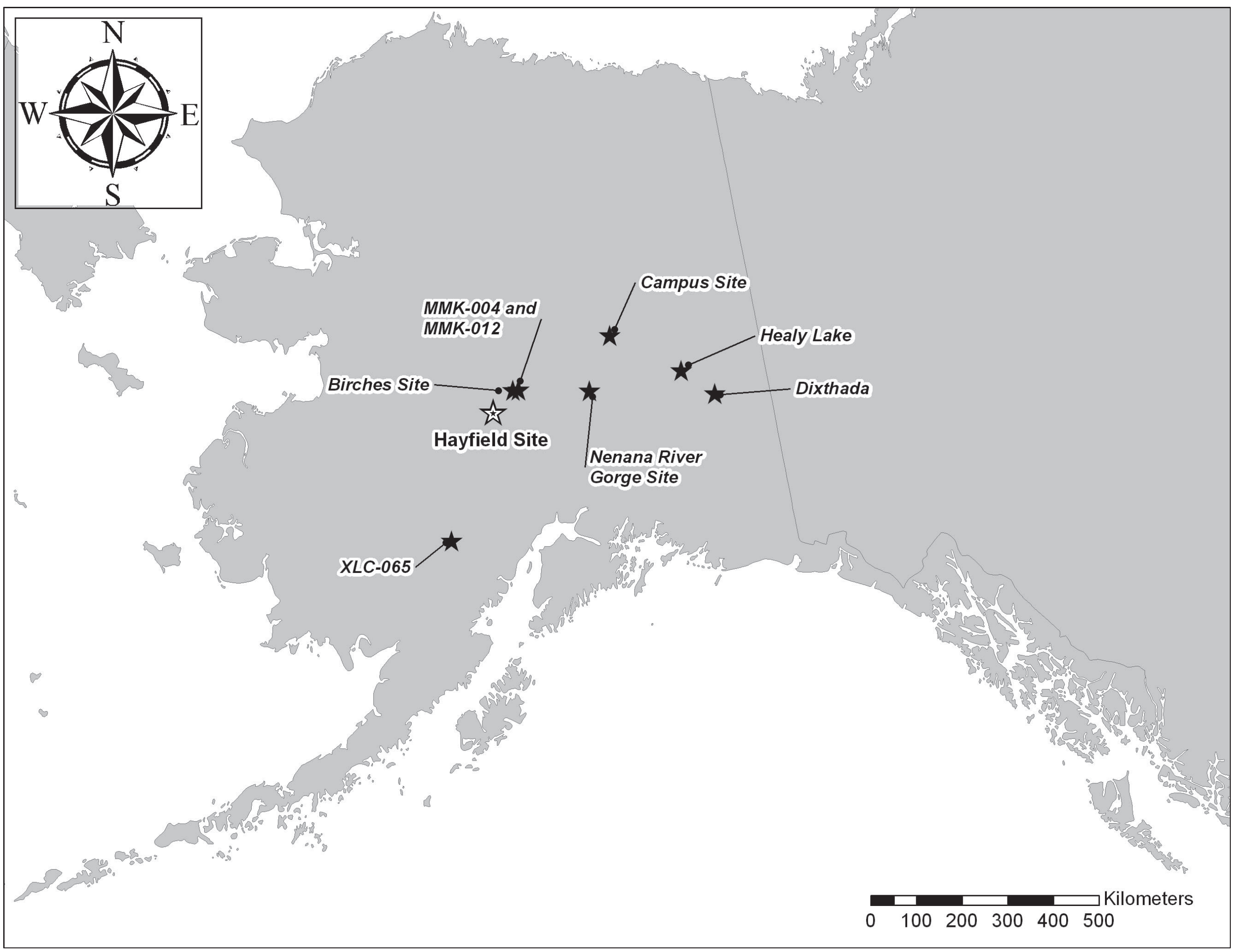

Figure 1: Archaeological sites referred to in the text.

recovered from the Hayfield excavations. At the time of his collaboration with LeFebre, Mr. Sesui fished for whitefish in the summer and trapped during the winter. He and his family were the only permanent residents of Telida, although other families still occasionally came up to catch fish (Craft 1950b).

Today, the Hayfield site remains one of the very few prehistoric archaeological sites known from the upper Kuskokwim River watershed in southwestern interior Alaska. The site is situated in a stratified geological context, and partial excavation yielded a diverse and well-preserved artifact assemblage that is a near textbook example of late prehistoric Athabascan tradition (Cook 1968; Cook and McKennan 1970) material culture, but since LeFebre's original work, there has been little subsequent attention given to this site. Since 2004, Northern Land Use Research, in conjunction with Chumis Cultural Resource Services, has conducted cultural resources investigations in the central Kuskokwim River region. Extensive archival research carried out during the winter of 2007 led to the discovery of LeFebre's original field report, with accompanying sketch map (Fig. 2), in the Office of History and Archaeology in Anchorage (Craft 1950a). There was additional information in LeFebre's 1949 field notes, provided by Dianne Gudgel-Holmes (Craft 1949). Advances in archaeometry since 1956 led to reinvestigation of the material culture excavated from the site, now housed in the University of Alaska Museum of the North (UAMN). Most significantly, our investigation led to: re-examining the archival written documentation pertaining to the site, stratigraphy, and artifact collection; radiocarbon dating the Hayfield occupation or occupations with radiometric accelerator mass spectrometry (AMS) methods; sourcing obsidian artifacts using X-ray fluorescence (XRF); and comparing the artifact assemblages to other collections recovered since 1956. The results of these new analyses supplement the material culture descriptions and general site description from LeFebre's 1956 *American Antiquity* article.

STRATIGRAPHY

The Hayfield site is located near the outlet of Lower Telida Lake on well-drained ground (Craft 1950a:2; LeFebre 1956:270). LeFebre describes a thick, black stratum present throughout the site approximately 15 to 25 cm below the existing sod layer. The thickness of this black cultural layer varies from 5 to 25 cm. The cultural layer overlays a sterile layer of clay or sandy clay that transitions to permafrost approximately 43 to 51 cm below the surface (LeFebre 1956:270). Pockets of ash and rocks were observed mixed within the matrix of the black layer (Craft 1949). Notes do not indicate whether the rocks show signs of heat treatment and it is unclear if the presence of ash pockets within the black stratum matrix represents wood ash or volcanic tephra. What is known from the notes and report is that the black stratum consisted of multitudes of fish scales, bones, lithics, and charcoal. LeFebre interprets this stratum as the product of a fish processing/smoking feature left behind by prehistoric inhabitants of Telida Lake.

The 1949 crew excavated a 5.6-meter-long narrow trench oriented north to south. The precise location of the trench within the site was not recorded, but it appears to have stretched from higher ground at the lake margin southward and down slope to the lake's outlet stream. This is indicated by the sediments and topography recorded in the 1949 stratigraphic profile. Clay and sand pockets present in the northern end of the trench are likely evidence of a lacustrine environment; the sand at the southern end of the trench is likely evidence of alluvial sediments carried by the stream or creek. We created an illustration of the generalized stratigraphy (Fig. 3) to simplify the strata at the site as described in Table 1. LeFebre divided her trench description into 16 one-foot-horizontal swathes; Table 1 provides a transcript of her notes with her original English measurements and includes our interpretation of LeFebre's stratigraphic notations. Fig. 4 is a stratigraphic profile of the trench we have redrawn from LeFebre's field sketch and notes.

SUBSISTENCE

Archaeofauna was not collected at the time of LeFebre's excavation of the Hayfield site; however, her observations acknowledge the importance of Telida Lake and nearby riverine and likely wetland environments as subsistence focal points for the prehistoric residents of the area. LeFebre describes finding fish scales that resembled the scales of the extant whitefish and northern pike that the archaeological crew consumed during the excavation (Craft 1950a:2; LeFebre 1956:270). Other species reported by LeFebre (1956:272) include moose, black bear, caribou, beaver, muskrat, weasel or squirrel, and possibly fox. Bird bones included those of duck, goose and swan, and grouse or snipe.

Table 1: Stratigraphy at the Hayfield site, as observed in trench. Interpolations are indicated using brackets.

LeFebre Trench Horizontal Provenience	Transcription of LeFebre's Notes (Craft 1949)	Our Stratigraphic Interpretation in Centimeters Below Surface (cmBS)
0' (0 m)	8" sod, 21" permafrost	0–20 cmBS, sod [20–53 cmBS, clay/sandy clay] 53+ cmBS, permafrost
1' (0.3 m)	7" sod, rock, 12" to bottom of fire, 18" to permafrost	0–18 cmBS, sod with rock 18–30 cmBS, black layer/ash [30–46 cmBS, clay/sandy clay] 46+ cmBS, permafrost
2' (0.6 m)	sod 6", 7" to bottom of sand layer, rocks, 10" to bottom of black, 12" to bottom of ash layer, 14" to bottom of black and discol[ored] sand 16" to permafrost	0–15 cmBS, sod 15–18 cmBS, sand with rocks 18–25 cmBS, black layer 25–30 cmBS, ash layer 30–36 cmBS, black layer and discol[ored] sand [36–41 cmBS, clay/sandy clay] 41+ cmBS, permafrost
3' (0.9 m)	6" sod, rocks, 11" to bottom of black layer, lam[inated] with disc[olored] sand, 15" to bottom of ash and black, disc[olored] sand into permafrost at 17"	0–15 cmBS, sod with rocks 15–28 cmBS, black layer, laminated with discolored sand 28–38 cmBS, ash and black layer 38–43 cmBS, discolored sand 43+ cmBS, permafrost
4' (1.2 m)	7" to sod 9" to bottom of black, 11" to bottom of next black disc[colored] sand to 13", 18" to permafrost	0–18 cmBS, sod 18–23 cmBS, black layer 23–28 cmBS, [lower] black layer 28–33 cmBS, discolored sand [33–46 cmBS, clay/sandy clay] 46+ cmBS, permafrost
5' (1.5 m)	7" sod, 10" black layer, 13" to bottom of disc[olored sand] 18" to permafrost	0–18 cmBS, sod 18–25 cmBS, black layer 25–33 cmBS, discolored sand [33–46 cmBS, clay/sandy clay] 46+ cmBS, permafrost
6' (1.8 m)	9" sod, 12" bottom of black 20" to permafrost, 6.5" charcoal layer begins at level of lower edge of black layer	0–23 cmBS, sod 23–30 cmBS, black layer [30–51 cmBS, clay/sandy clay] 51+ cmBS, permafrost At the 6.5' (1.8 m) horizontal marker, a charcoal layer begins at the lower edge of the black layer
7' (2.1 m)	10" sod, 11" charcoal, 18" perma[frost]	0–25 cmBS, sod 25–28 cmBS, charcoal [28–46 cmBS, clay/sandy clay] 46+ cmBS, permafrost
8' (2.4 m)	8" sod, 11" to bottom of black, 18" permafr[ost] At 8' begins a brown dirt layer between sod and black layer	0–20 cmBS, sod [over brown sediment at bottom of sod] 20–28 cmBS, black layer [28–46 cmBS, clay/sandy clay] 46+ cmBS, permafrost At the 8' (2.4 m) horizontal marker, a brown sediment layer appears between the sod and black layer
9' (2.7 m)	7" sod, 9" to bottom of brown, rock, 12" to bottom of black beg. lens of charcoal, 18" to permafrost, ash layer begins at 9.5"	0–18 cmBS, sod 18–23 cmBS, brown sediment with rock 23–30 cmBS, black layer which includes charcoal lens [30–46 cmBS, clay/sandy clay] 46+ cmBS, permafrost An ash layer begins at the 9.5' (2.9 m) horizontal marker

LeFebre Trench Horizontal Provenience	Transcription of LeFebre's Notes (Craft 1949)	Our Stratigraphic Interpretation in Centimeters Below Surface (cmBS)
10' (3.0 m)	8" sod, 9 to bottom of charcoal, 13 to bottom of ash 18" to permafrost	0–20 cmBS, sod 20–23 cmBS, charcoal 23–33 cmBS, ash [33–46 cmBS, clay/sandy clay] 46+ cmBS, permafrost
11' (3.4 m)	8" sod, 10" to bottom of black, 12 to [bottom of ash], 14" to bottom of discol[ored sand], 18" to permafrost	0–20 cmBS, sod 20–25 cmBS, black layer 25–30 cmBS, ash 30–36 cmBS, discolored sand [36–46 cmBS, clay/sandy clay] 46+ cmBS, permafrost
12' (3.7 m)	8" sod – 10" to [bottom of] black, beg[inning] of new ash layer at 12", 18" to permafrost	0–20 cmBS, sod 20–25 cmBS, black layer [25–46 cmBS, clay/sandy clay] 46+ cmBS, permafrost A new ash layer begins at the 12' (3.7 m) horizontal marker
13' (4.0 m)	6" sod, 8" to bottom of black, 12" to bottom of ash, 14" to bottom of disc[olored sand] and black 18" to permafrost	0–15 cmBS, sod 15–20 cmBS, upper black layer 20–30 cmBS, ash 30–36 cmBS, discolored sand and lower black layer [36–46 cmBS, clay/sandy clay] 46+ cmBS, permafrost
14' (4.3 m)	6" sod, 8" [bottom of black], 10" to bottom of ash 2 (little ash layer above upper black layer[)] 11" to bottom of black	0–15 cmBS, sod 15–20 cmBS, upper black layer 20–25 cmBS, ash 25–28 cmBS, lower black layer [28–46 cmBS, clay/sandy clay] [46+ cmBS, permafrost]
15' (4.6 m)	at 14 ½' begins a brown layer betw[een] upper and lower black, 8" sod, 9" to bottom of black, 11" to bottom of brown, 12" to bottom of black, 18" to permafrost	0–20 cmBS, sod 20–23 cmBS, upper black layer 23–28 cmBS, brown layer 28–30 cmBS, lower black layer [30–46 cmBS, clay/sandy clay] 46+ cmBS, permafrost A brown layer between the upper and lower black layers begins at the 14.5' (4.4 m) horizontal marker
15.5' (4.7 m)	black bottom layer petered out 6" sod, 8" black	0–15 cmBS, sod 15–20 cmBS, black layer [20–46 cmBS, clay/sandy clay] [46+ cmBS, permafrost] The bottom black layer narrows and ends at the 15.5' (4.7 m) horizontal marker
16' (4.9 m)	at 16' the permafrost went deeper as in clear sand instead of sandy clay	At the 16' (4.9 m) horizontal marker the permafrost appears as clear sand rather than sandy clay

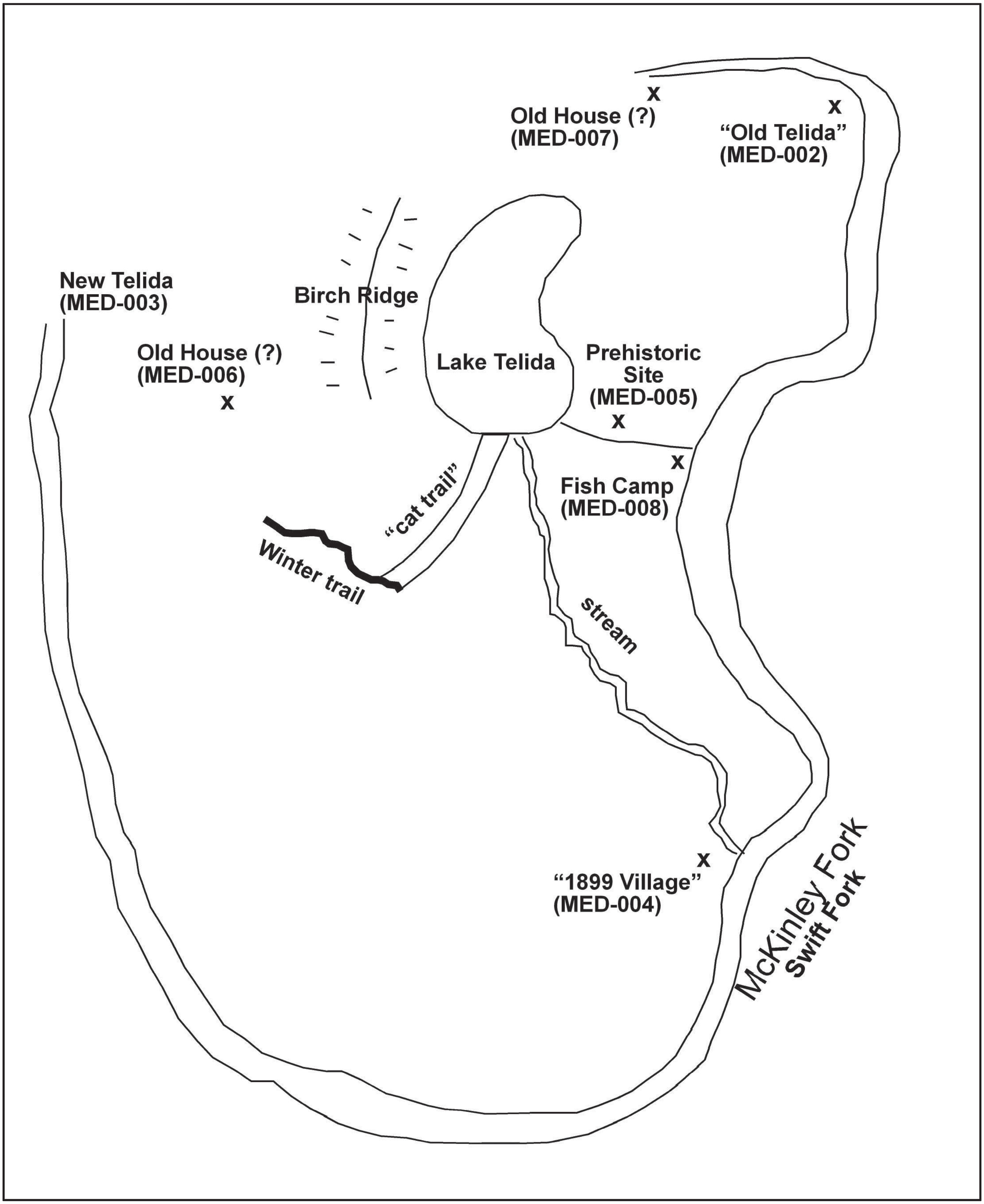

Figure 2: Digitized version of LeFebre's sketch map of sites investigated during her 1949 field trip.

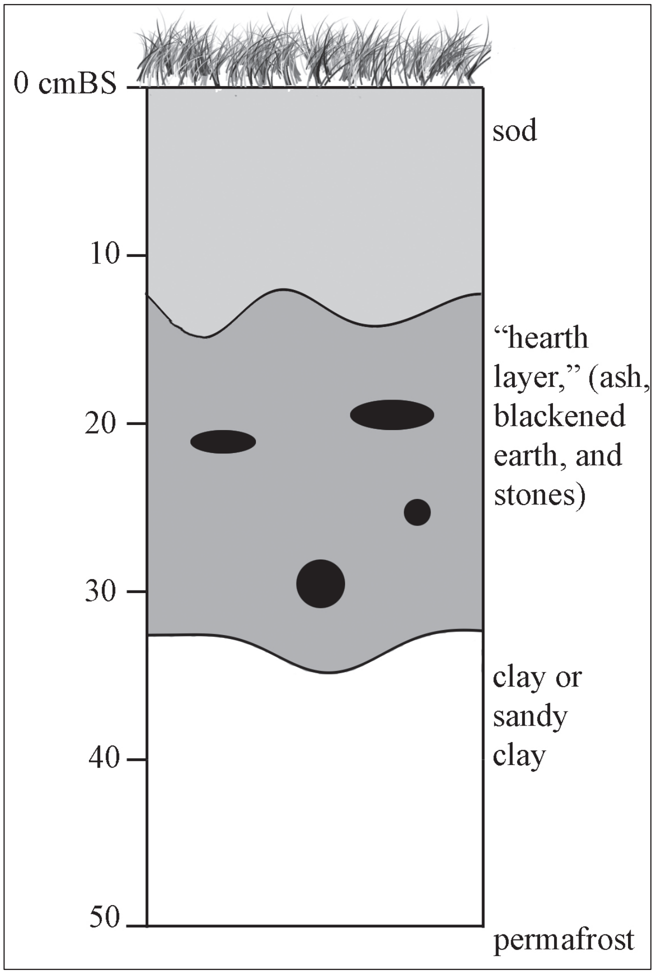

Figure 3: Generalized stratigraphy at the Hayfield site.

Despite the lack of subsistence-oriented research in archaeology in the 1950s, LeFebre interprets the site as a camp in contrast to the village she had originally hoped to unearth, noting that "[t]his was not a village site in the usual sense of the word—apparently it had been a camp site occupied while fishing in the lake and in the stream draining the lake by more or less remote ancestors of the present inhabitants" (Craft 1950a:2). The presence of a thick charcoal stratum (the "black layer" of LeFebre's stratigraphic description), boiling stones, fauna, and ash indicate this location was used to process fish and game from the lake and its surroundings. Despite the lack of faunal collections and analysis, LeFebre's reported archaeological data indicate subsistence activities oriented toward river and lake resources. Furthermore, evidence indicates that the prehistoric inhabitants cured fish to preserve a seasonal food resource for use throughout the year. The summer LeFebre spent at Telida, Carl Sesui netted whitefish and built a whitefish trap in the stream that drains the lake. He also showed LeFebre the process he and his family used to dry whitefish and loaned the archaeological team a fish net, which led to whitefish becoming part of their daily diet (Craft 1950b).

The interpretation of the site as a camp dedicated to harvesting lake and river resources is consistent with ethnographic evidence of the importance of whitefish in the area. In the Upper Kuskokwim Athabascan language, Lower Telida Lake is *Tilaydi Mina'*, which translates to "lake whitefish lake" and the Lower Telida Lake outlet is *Tilaydi Mina' Kisno'*, "lake whitefish outlet creek" (J. Kari 1999:101, fig. 16). Whitefish continue to be harvested

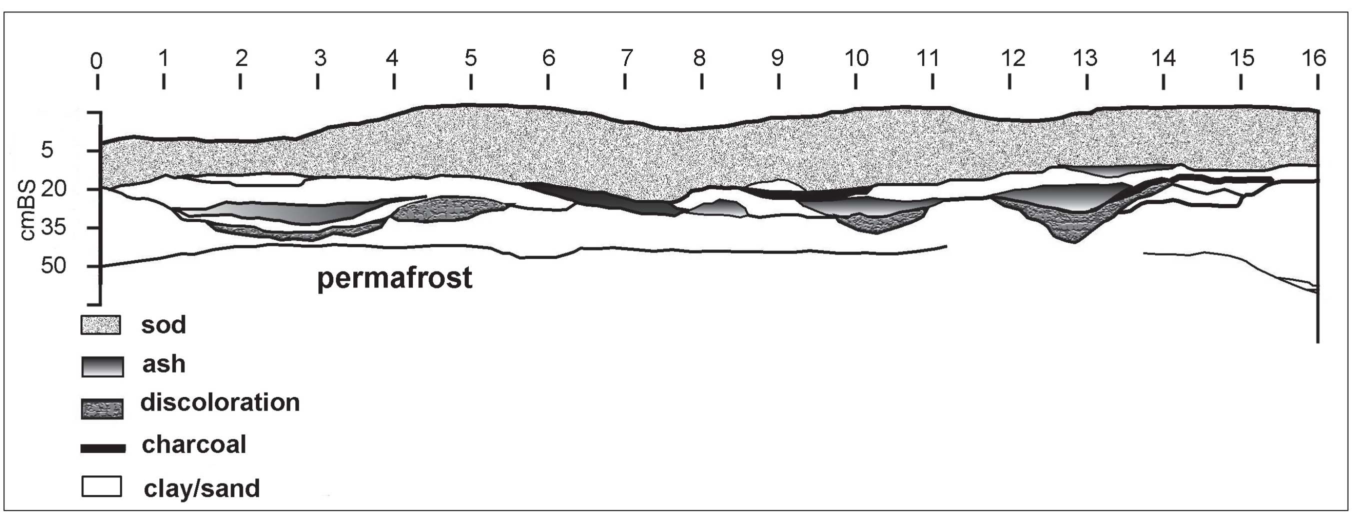

Figure 4: Stratigraphy of the 1949 Hayfield site trench, as drawn and interpreted from LeFebre's 1949 field notes. (Note that numbers shown at top refer to LeFebre's horizontal provenience labels, as described in Table 1, and are not to scale.)

year-round in this area, and Telida is still known for its abundance of this fish (Williams et al. 2005).

MATERIAL CULTURE

In her 1956 article, LeFebre provides a comprehensive overview of the artifacts collected from the Hayfield site. In fact, the bulk of LeFebre's article is a descriptive list of the material recovered from the excavation, highlighted with information on probable artifact function provided by her local informant, Carl Sesui. The artifact assemblage can be divided into five basic technologies. The first is a flaked stone technology that employed fine-grained raw materials. This portion of the assemblage contains several microblades, microblade core tablets, modified flake tools of obsidian, and flaking debris of chert, jasper, chalcedony, and obsidian. A second basic lithic industry involved rough flaking, pecking, and grinding of coarse-grained stones such as slate and schist. This portion of the assemblage contains two small, stemmed projectile points (Fig. 5), ovate scrapers made on large primary flakes (*tci-thos*), semilunar knife blades (referred to as "ulus"), tabular bifaces (cf. Le Blanc 1984; Workman 1978), and notched net sinkers. A third technology consists of modified bone tools and includes awls or piercing tools made of bird and large mammal bone, unilaterally barbed bone or antler arrowheads with conical tangs, a four-lobed blunt antler arrowhead, numerous beaver incisors likely used as gouge bits, and several fragmented and unidentified grooved and incised bone tools. Fragments of birch bark with possible sewing holes hint at a basketry technology. A ceramic technology is represented by numerous fragments ($n = 82$) of fiber-tempered pottery, with both plain and incised surface treatments (Fig. 6). LeFebre (1956:273) noted that the

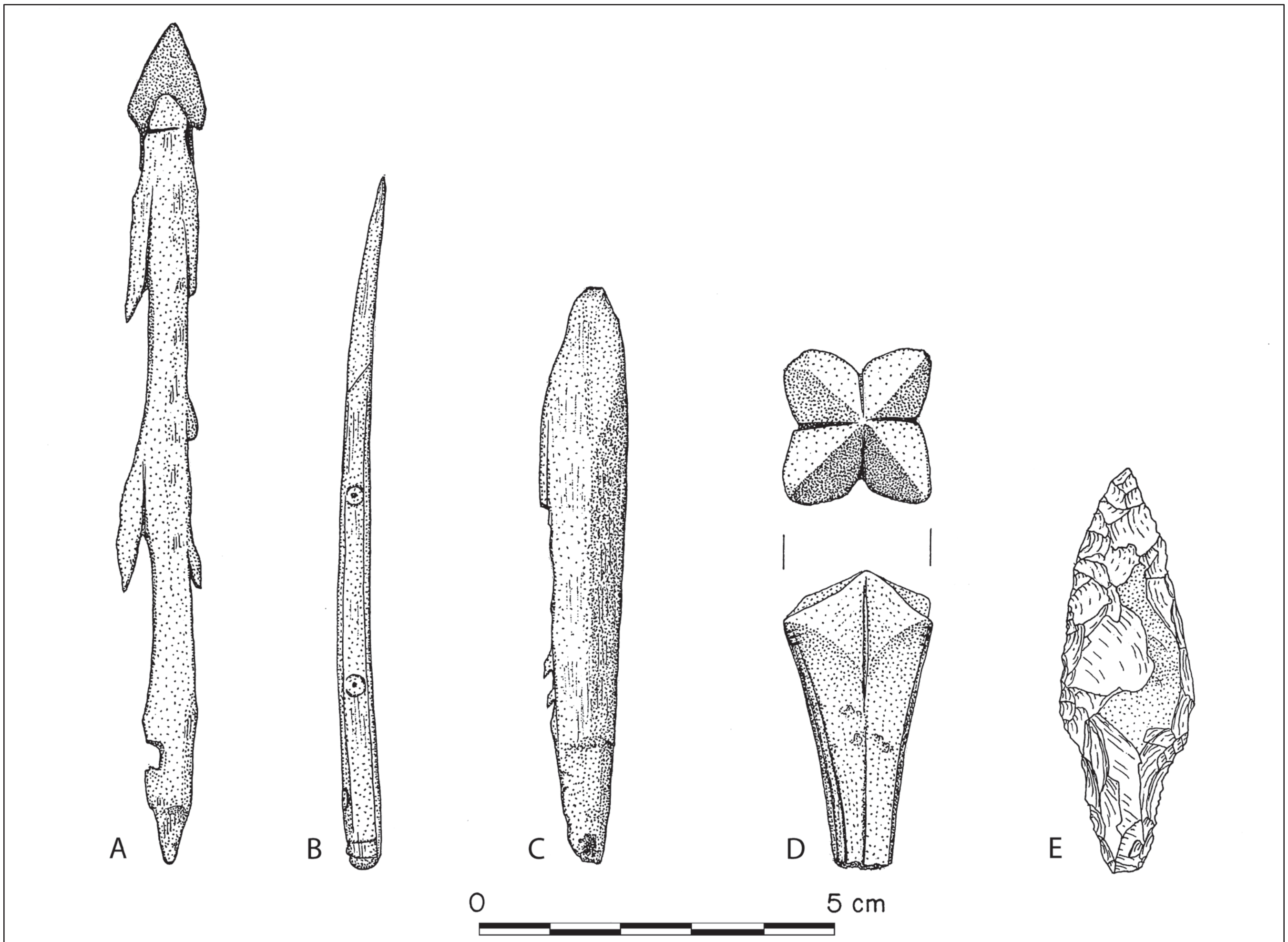

Figure 5: Selected artifacts from the Hayfield site: (a) antler projectile point with iron end blade; (b) bone awl; (c) bone arrow point; (d) blunt arrow head of bone; (e) stemmed projectile point of slate. University of Alaska Museum acc. no. UA 67-081. Illustrations by Sarah Moore.

Figure 6: Examples of pottery excavated at the Hayfield site.

pottery exhibits many similarities to ceramic technology along the Yukon River as described by Osgood (1940) and de Laguna (1947). These similarities include tempering with grass, leaves, and feathers, and the presence of incised lines or grooves and dots on the exterior of some sherds (LeFebre 1956:fig. 87).

OBSIDIAN SOURCING

One component of our reanalysis entailed geochemical characterization of thirty-nine obsidian artifacts. Artifact types included microblades, core tablets, flake tools, and flaking debris (Table 2; Fig. 7). Trace elements of obsidian artifacts were measured at the Smithsonian Institution's Museum Conservation Institute using a Bruker Tracer III portable XRF system and methods described by Phillips and Speakman (2009). The results, shown in Table 1, demonstrate the use of at least two geochemically distinct types of obsidian, Batza Téna and "Group G" (see Cook 1995 and Clark and McFadyen Clark 1993 for more detailed descriptions of these sources). A third possible source is represented by a single obsidian artifact, the geochemistry of which does not match any known archaeological or geological sample from Alaska.

The geochemical composition of thirty of the obsidian artifacts matched the Batza Téna obsidian source, which is located in the Koyukuk River drainage some 175 miles north of the Hayfield site. Batza Téna obsidian is the most common type of obsidian in Alaskan archaeological sites and has been recovered from Late Pleistocene to protohistoric contexts (Clark and McFadyen Clark 1993; Cook 1995; Reuther et al. 2011). The Batza Téna artifacts

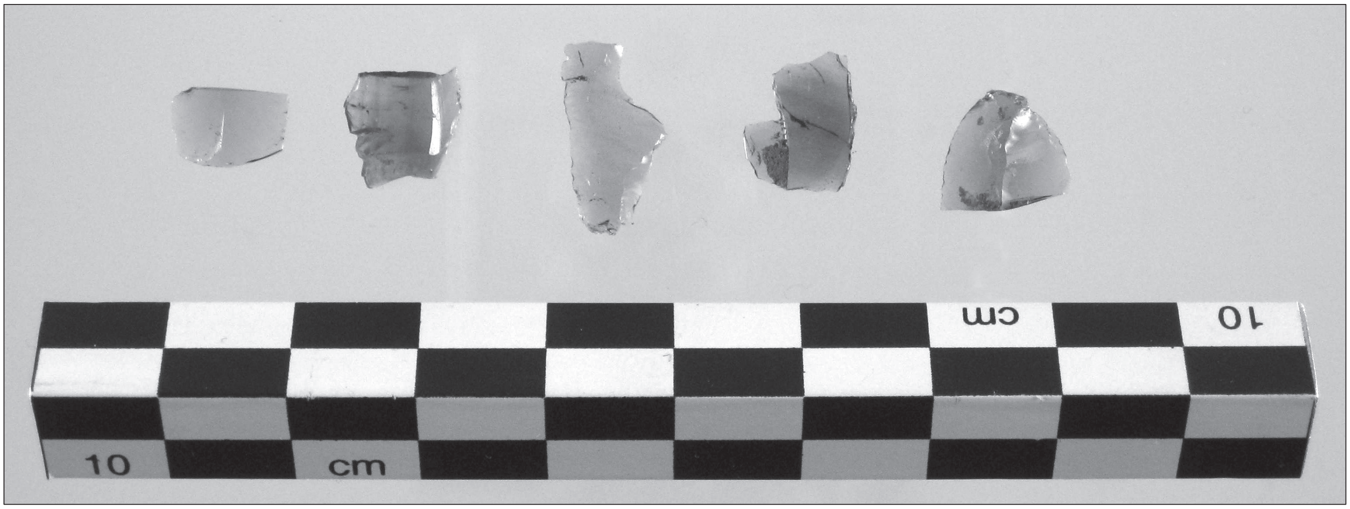

Figure 7: Examples of obsidian microblade technology collected from the Hayfield site.

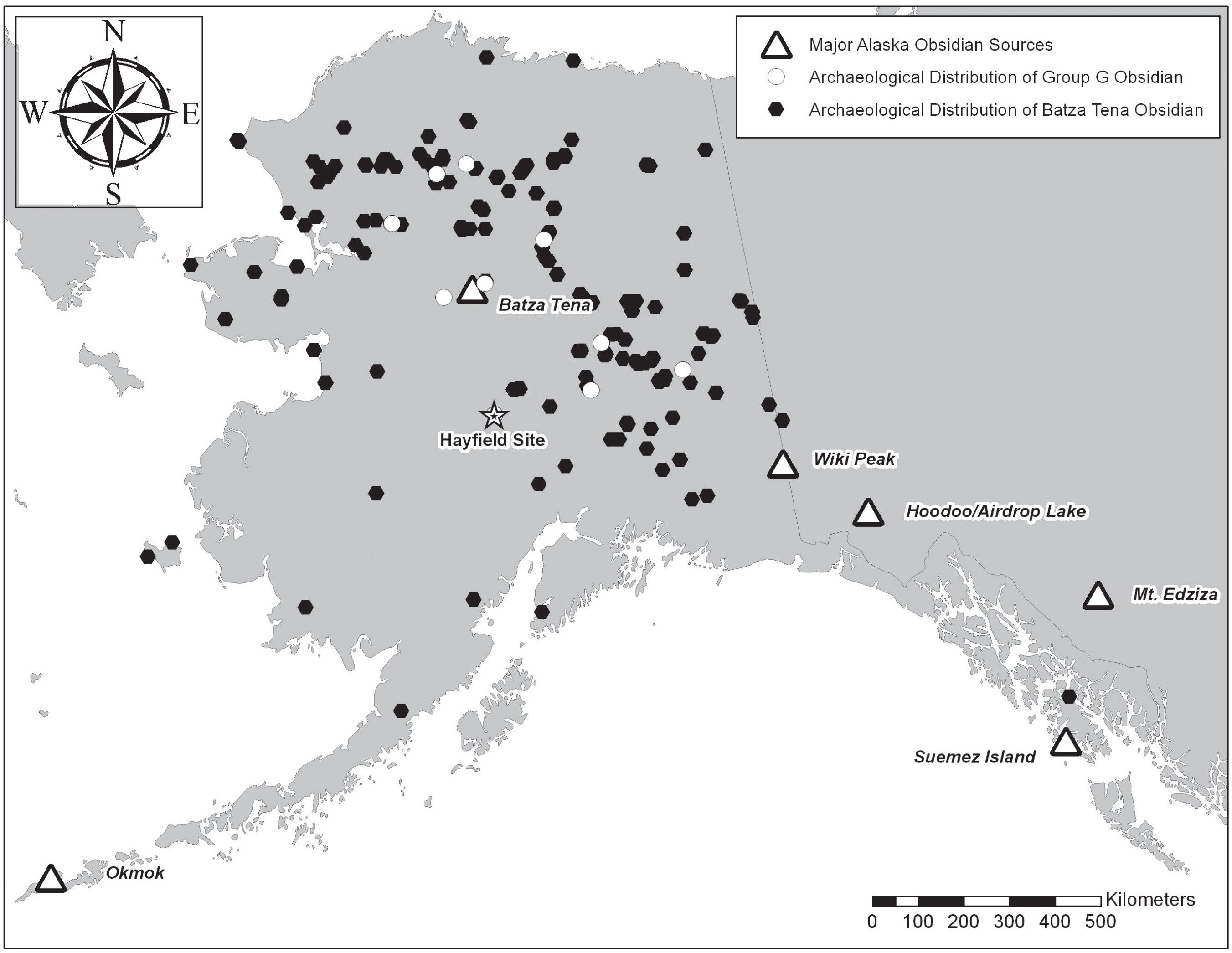

Figure 8: Known distribution of identified obsidian groups found at the Hayfield site.

Table 2: Obsidian artifacts recovered from the Hayfield site and analyzed by portable XRF.

UA Museum acc. no.	Cortex (present/ absent)	Artifact Type	Source/Group
UA67-081-0012	absent	microblade fragment	unassigned
UA67-081-0001	absent	flake fragment	Batza Téna
UA67-081-0002	absent	flake fragment	Batza Téna
UA67-081-0003	absent	non-diagnostic fragment	Batza Téna
UA67-081-0004	absent	core tablet fragment	Batza Téna
UA67-081-0005	absent	core tablet	Batza Téna
UA67-081-0006	absent	unifacial tool fragment	Batza Téna
UA67-081-0007	present	flake tool	Batza Téna
UA67-081-0008	absent	flake tool	Batza Téna
UA67-081-0009	present	flake	Batza Téna
UA67-081-0010	absent	flake tool fragment	Batza Téna
UA67-081-0011	absent	microblade fragment	Batza Téna
UA67-081-0013	absent	bipolar flake	Batza Téna
UA67-081-0014	absent	flake	Batza Téna
UA67-081-0016	absent	non-diagnostic fragment	Batza Téna
UA67-081-0017	present	modified blade tool	Batza Téna
UA67-081-0019	present	flake fragment	Batza Téna
UA67-081-0021	absent	flake fragment	Batza Téna
UA67-081-0022	present	flake fragment	Batza Téna
UA67-081-0023	present	flake fragment	Batza Téna
UA67-081-0025	present	non-diagnostic fragment	Batza Téna
UA67-081-0026	absent	flake	Batza Téna
UA67-081-0027	present	flake fragment	Batza Téna
UA67-081-0028	present	flake	Batza Téna
UA67-081-0029	present	bipolar flake	Batza Téna
UA67-081-0030	absent	flake fragment	Batza Téna
UA67-081-0031	present	flake	Batza Téna
UA67-081-0034	present	flake	Batza Téna
UA67-081-0035	present	flake fragment	Batza Téna
UA67-081-0036	absent	core debris	Batza Téna
UA67-081-0037	absent	flake	Batza Téna
UA67-081-0015	present	flake	Group G
UA67-081-0018	absent	flake	Group G
UA67-081-0020	present	flake	Group G
UA67-081-0024	present	flake fragment	Group G
UA67-081-0032	present	flake	Group G
UA67-081-0033	present	flake	Group G
UA67-081-0038	present	flake fragment	Group G
UA67-081-0039	absent	nondiagnostic fragment	Group G

at Hayfield include microblades, core tablets, flake tools, and unmodified waste flakes. Thirteen of the thirty artifacts, including waste flakes, display cortex on their dorsal surface, which suggests primary and secondary decortication flakes were transported as tools or tool blanks, or that minimally modified pebble cores were part of the transported toolkit.

Eight of the thirty-nine obsidian artifacts were assigned to Group G, an obsidian with a distinct geochemical signature that has been identified among archaeological specimens, but for which a corresponding geological source has not yet been identified (Cook 1995). Group G obsidian artifacts from Hayfield are all unmodified flakes; six of the eight flakes have cortex present on their dorsal surfaces. Fig. 8 shows the distribution of both Batza Téna and Group G obsidian throughout Alaska; note the Hayfield site at the southwesternmost point of Group G's currently known distribution. Other interior Alaskan sites that have Group G identified in lithic artifact assemblages include Onion Portage (AMR-001), the Village site at Healy Lake (XBD-020), the Nenana River Gorge site (HEA-062), the Bonanza Creek Bluff Locality 1 (FAI-215), and MLZ-016 near the Batza Téna source (Cook 1995). The oldest dated use of Group G obsidian is in Northern Archaic components at the Onion Portage site that are approximately 5800 ^{14}C yrs BP (4770–4540 cal BC) and it continues to occur in sites through the mid- to late Holocene and into the late prehistoric period (<1000 ^{14}C yrs BP [cal AD 980–1160]).

SITE CHRONOLOGY AND OCCUPATION HISTORY

LeFebre reasonably assigned the Hayfield site a late prehistoric age and an Athabascan cultural affiliation based on typological attributes of the assemblage. The antiquity of the occupation(s) at the Hayfield site has been a question since LeFebre's report, which offered the relative chronological estimate of the site as predating the "tin-can era," noting strong links between the Hayfield artifact assemblage and other recent prehistoric Athabascan assemblages in Alaska, particularly the Dixthada site located in eastern Alaska in the upper Tanana River Basin (Rainey 1939, 1940) and sites recorded by de Laguna (1947) on the Yukon River. Recovered artifacts (e.g., pottery, boulder spall scrapers (tci-thos), and small, stemmed bifacial projectile points [Fig. 5]), remnants of birch bark containers, and the absence of trade goods such as metal or glass beads are consistent with a precontact, late prehistoric Athabascan tradition site. One exception was a barbed point of antler that contained an iron endblade (Fig. 5). Barbed points were recovered at Dixthada in the late Athabascan period component (Rainey 1939; Shinkwin 1979). This artifact was found immediately below the ground surface under a thin cover of moss and was interpreted as a recent, historic-age item. The antler barbed point shows continuity with earlier artifact forms, while the iron endblade shows adaptation and change as new materials became available post-contact.

Another exception was the presence of several microblades and flaking debris characteristic of microblade core shaping. LeFebre noted that the microblades and related debris occurred in a discrete cluster within the site, but were found within the same black cultural layer as the remainder of the assemblage. The presence of microblade technology was considered by LeFebre to potentially indicate an occupation of considerable antiquity, but she acknowledged that the age of microblade technology and its presence or absence in late prehistoric Athabascan material culture was an unresolved issue (LeFebre 1956:273).

To shed light on the age and occupation history of the site, we submitted two bone artifacts, made from terrestrial large mammals, to Beta Analytic for collagen extraction and AMS radiocarbon dating (Table 3). Each artifact was labeled as recovered from the "black layer." The radiocarbon assays for the two samples statistically overlap when calibrated at two standard deviations, and are essentially equivalent age determinations. The average of the

Table 3: Radiocarbon ages on bone from the Hayfield site. Calibrated using CALIB 6.0 software and the IntCal09 ^{14}C curve (Reimer et al. 2009; Stuiver and Reimer 1993).

Material/Analysis	Lab no.	Measured Radiocarbon Age	δ^{13}C	Conventional Radiocarbon Age	2σ Calibration[a]
bone collagen/AMS	Beta-238707	250 ± 40	–17.7 ‰	370 ± 40	cal AD 1450–1630
bone collagen/AMS	Beta-238708	280 ± 40	–20.0 ‰	360 ± 40	cal AD 1450–1630

a. Conventional radiocarbon ages were calibrated to two standard deviation age ranges using the INTCAL09 terrestrial atmospheric radiocarbon model (Reimer et al. 2009) in the CALIB 6.0 radiocarbon calibration program (Stuiver et al. 2012).

two dates is 370 ± 30 ^{14}C yrs BP (using CALIB 6.0 pooled mean option; Ward and Wilson 1978), and when calibrated (2σ) falls between 320 and 500 cal BP (cal AD 1450 and 1630). Refer to Table 3 for details.

The dates are in accord with expectations for a late prehistoric Athabascan assemblage and are consistent with much of the site's material culture. The artifacts associated with microblade technology, as LeFebre noted, are an exception. Microblade technology has a long history in Alaska and the Yukon. It is found among the earliest known, Late Pleistocene-age sites in the region and persists through much of the Holocene. Few sites, however, contain microblade technology reliably dated to younger than 1000 cal BP (cal AD 980–1160) (Dixon 1985; Potter 2008), and it remains an open question whether these few sites do indeed represent reliably dated occurrences of very recent microblade use or are instead cases in which artifacts from an older microblade-containing component were incorporated in a late prehistoric-age archaeological deposit. The question of very late Holocene microblade technology is still unresolved at Hayfield.

While many of the artifacts at the Hayfield site appear on typological grounds to have been contemporaneous and date to the late prehistoric period, it is possible that more than one component is contained within the "black layer." We simply do not know the amount of time represented by the black layer, and therefore conservatively assume that low sedimentation rates combined with some amount of post-depositional disturbance accounts for artifacts from distinct episodes of site occupation being present within this one stratigraphic layer. Our radiocarbon dates may reflect only one of multiple episodes of site occupation. An alternative is that LeFebre's excavation techniques did not distinguish between potentially spatially and stratigraphically discrete components. A third possibility is that the materials from the black layer represent a single late prehistoric occupation that contains one of the most recent occurrences of microblade technology documented to date.

PLACING THE HAYFIELD SITE IN REGIONAL CONTEXT

The lack of known archaeological sites within the upper Kuskokwim watershed allowed for only a small regional comparison at the time LeFebre's article was published in 1956. Unfortunately, more than sixty years since the 1949 Hayfield excavation, there are still only a handful of comparable sites that have been investigated by archaeologists within the watershed. The Alaska Heritage Resources Survey (AHRS), for example, records only two prehistoric archaeological components in the four-million-acre Medfra quadrangle where the Hayfield site is located. We have focused on the Hayfield site (MED-005) of the greater Telida Lake site(s) in an attempt to date and further interpret this prehistoric fish camp and processing area at Telida Lake. Based on the radiocarbon results presented above, the site can now be more precisely compared with other interior Alaska Athabascan tradition components, such as those from sites at Lake Minchumina (Holmes 1986; Hosley 1968; West 1978), Dixthada (Rainey 1939, 1940; Shinkwin 1979), the Nenana River Gorge (Plaskett 1977), the Campus site (Mobley 1991; Nelson 1935, 1937; Rainey 1939), and XLC-065 on the central Kuskokwim (Ackerman 1984) (Fig. 1). A brief discussion of the known archaeological tradition(s) in this vast area is described below, followed by short overviews of comparable sites.

The Athabascan tradition is a prehistoric culture attributed to ancestors of the northern Athabascan Indians of Alaska, whose archaeological history precedes Euro-American contact (Cook 1969). At present, sites in interior Alaska dating to at least 2000 years ago and up to AD 1880 are generally attributed to the Athabascan tradition. The duration of this tradition is unknown. Cook and McKennan (1970) defined the "Athapaskan tradition" with a time depth of about 3,000 years, while Holmes (1979, 2008) and Dixon (1985) defined its beginning based on marked technological changes observed around 1,500 years ago. It is important to note that the "Athabascan tradition," in its archaeological denotation, refers to the archaeological culture. In common usage, the Athabascan tradition, cultures, and languages continue to the present. Prehistoric Athabascan sites are characterized by subsurface housepit and cache features associated with a variety of flaked and ground stone, bone, native copper and antler artifacts (Clark 1981; Morrison 1984; Shinkwin 1979; Workman 1976, 1978). Protohistoric (or late prehistoric) Athabascan sites include artifact assemblages characterized by Native-made items with some non-Native trade goods (e.g., iron and glass beads). The absence of historical artifacts from the Hayfield "black layer" and our recent radiocarbon results indicate that the black layer component is prehistoric. Ethnohistoric and linguistic information assigns this region to the Upper Kuskokwim or Tenaynah [Dena'ina] Northern Athabascan group (Hosley 1968). It is unclear whether the inhabitants of the Hayfield site are ancestral to the Upper Kuskokwim, *Deg Hit'an*, or an entirely separate Athabascan group. Additionally, the presence of ground slate ulus, net-sinkers, and decorated pottery may be of Eskimo origin or, minimally, represent some sort of Eskimo contact. Although our sample size precludes definitive assignation of cultural affiliation, the material culture assemblage combined with ethnographic and linguistic evidence lead us to place the site within a greater context of late prehistoric Athabascan sites in the Alaska interior.

The Lake Minchumina area offers the best comparison of age, site type, faunal assemblage, physiography, and archaeological tradition. The Minchumina sites, MMK-004 and the East Cove site (MMK-012), are both multicomponent sites that overlap with the time when the Hayfield site was occupied. MMK-004 contained cremated human remains above an earlier hearth. Both features were dated and seem to represent two distinct periods in time. The human remains were dated to approximately 190–390 ^{14}C yrs BP (cal AD 1440–1950) (Holmes 1986:125). The remains were associated with three obsidian flakes and one chert flake. Not much beyond the age of MMK-004 can be compared with the Hayfield site. MMK-012 contained a hearth feature and component radiocarbon dated to 665 ± 125 ^{14}C yrs BP (cal AD 1040–1470) (GX-4433) (Holmes 1986:125). The Minchumina sites are very similar to the Hayfield site in terms of physiography; all three sites are situated next to large lakes, are characterized by taiga vegetation, and can be accessed by winter trails. Not surprisingly, lacustrine faunal remains such as northern pike and beaver were recovered from all three sites.

The Birches site (MMK-005) on the western shore of Lake Minchumina is geographically close to the Hayfield site with similar physiography but unreliable radiocarbon dates (640 ± 95 [cal AD 1210–1450; I-2617] and 1430 ± 150 ^{14}C yrs BP [cal AD 260–950; RL-739]) make comparison difficult. West indicated reservations with these dates due to possible new-carbon contamination (RL-739) and comparative typology (I-2617) (West 1978:51–52). Artifactually, the assemblages are very similar, with both containing weakly shouldered points and endscrapers. Although the Birches site assemblage lacks microblade technology, the absence of microblades could be a matter of sampling.

Investigations in the central Kuskokwim region by Ackerman in the 1980s revealed many historic sites and site XLC-065, which was reported to be "historic to protohistoric in age," although it lacks a radiocarbon date (Ackerman 1984:13). Clearly, further investigation is needed at this site and within the region of the central Kuskokwim. Like the Hayfield site, XLC-065 is located near an outlet stream leading from a lake known for whitefish. The site lies adjacent to the Whitefish Lake outlet to the Hoholitna River. The area in the vicinity of site XLC-065 has traditionally been used by Dena'ina people as a spring and summer camping ground and a winter trapping area (P. Kari 1983).

The Dixthada site (TNX-004) is a well-documented late prehistoric Athabascan site in the upper Tanana River watershed (Rainey 1939, 1940; Shinkwin 1979). Shinkwin (1979:148) defined two components at the site, a lower component dated to 2420 ± 60 ^{14}C yrs BP (760–400 cal BC) (P-1834), and the upper, late prehistoric "midden" component dated to 770 ± 40 ^{14}C yrs BP (cal AD 1190–1290) (P-1832) and 390 ± 50 ^{14}C yrs BP (cal AD 1440–1640) (P-1833). The late prehistoric assemblage has many elements in common with Hayfield, including unilaterally barbed bone and antler arrowheads; a four-lobed blunt antler arrowhead; bone awls; small, stemmed stone projectile points; tabular bifaces; boulder spall scrapers; and microblades. The association of microblades with the late prehistoric component is ambiguous. Microblade cores, core tablets, and microblades occur in both the upper midden and lower component and Shinkwin interpreted them to be intrusive in the more recent deposits, resulting from disturbance of the lower component by later site occupants. This interpretation is supported by the fact that a large majority (73 of 85) of the microblades recovered from the site were found in situ within the lower component; however, eleven of the twelve microblade cores, core fragments, and core tablets were recovered from the upper component (Shinkwin 1979:136); it is possible that microblade technology is represented in either or both site components.

Healy Lake, located in the Tanana River Valley, represents a more or less continuous occupation for the past 10,000 years (Cook 1969). Within the upper levels, dated to the late prehistoric period, the site contains cultural material similar to that recovered at the Hayfield site, such as evidence of microblade technology. Two radiocarbon dates were obtained on charcoal from the upper levels: 455 ± 130 ^{14}C yrs BP (cal AD 1270–1950) (GX-2166) and 900 ± 90 ^{14}C yrs BP (cal AD 990–1280) (Gak-1886) (Cook 1996:327). Like the Hayfield site, obsidian recovered from

Healy Lake Village has been sourced to Batza Téna and Group G (Cook 1989, 1995).

The multicomponent Campus site (FAI-001) on the University of Alaska Fairbanks campus was originally reported by Nelson (1935, 1937) and reinvestigated by Mobley (1991). Two components may be related in age to the Hayfield site (Mobley 1991; Nelson 1935, 1937; Rainey 1939:381). AMS dating yielded a date of 650 ± 200 ^{14}C yrs BP (cal AD 900–1950) (Beta-10879), though it is suspect because it derived from a mixed bone sample (Mobley 1991:78). Another questionable date of 240 ± 120 ^{14}C yrs BP (cal AD 1460–1950) (Beta-7224) was excluded and considered to be relic charcoal from modern bonfires on campus (Mobley 1991:74). Furthermore, separate samples from the same horizontal layer of 20–30 cm below the surface yielded a date of 3500 ± 140 ^{14}C yrs BP (2200–1500 cal BC) (Beta-6829) (Mobley 1991:75). The Campus site was recently re-excavated and charcoal found associated with microblades in an undisturbed portion of the site was dated to 6850 ± 70 ^{14}C yrs BP (5880–5630 cal BC) (Beta-97212) (Pearson and Powers 2001). A ground stone artifact may be assigned to the upper component, which is consistent with Athabascan assemblages (Rainey 1940:368; Shinkwin 1979:133). The accuracy of dates at this site precludes further comparisons.

The Nenana River Gorge site (HEA-062) contains historic and prehistoric components; the latter date to approximately 460 ± 115 ^{14}C yrs BP (cal AD 1280–1800) (I-9883) and 260 ± 75 ^{14}C yrs BP (cal AD 1450–1950) (I-9883) (Plaskett 1977:90). During reinvestigation of the site in 2005 and 2008, NLUR dated bone found in cultural contexts. The age estimates of the bone samples [between 510–310 cal BP (cal AD 1440–1650)] overlap at 2σ. These dates suggest a more limited occupation period than the initial 1977 radiocarbon dates on bulk wood samples, which suggested the site was occupied for more than 600 years (Reuther et al. 2009). Many similarities exist between artifacts from Hayfield and Nenana River Gorge such as the presence of decorated pottery sherds, incised bone, birch bark, fire-cracked rock, and ground stone, to name only a few. Like the Birches site, the lack of microblades in the collected assemblage from the Nenana River Gorge site could be a reflection of sampling rather than true absence of the technology. Though the physiographies of the upper Kuskokwim and the Nenana River valley differ markedly, the similarities in age and artifact assemblage provide fodder for future research.

In particular, the presence of pottery at these two locales sets them apart from other contemporaneous interior Alaskan sites. The ceramic technology at the Nenana River Gorge site is remarkably similar to that collected at Hayfield. The Nenana pottery was tempered with organic material, as evidenced by voids in the cross sections and exteriors of the sherds. Fibers (feathers and possibly grasses) may have been included to increase the workability of the clay during manufacture, but burned out during the firing process. Sand was also used as temper. Some large, angular grains of sand may represent the addition of crushed quartz to the clay, which is consistent with the Hayfield pottery (Reuther et al. 2009). Visually, the pottery from the two sites is quite similar, with sherds recovered at each site ranging from buff to gray in color and of comparable thickness (generally 11–20 mm for Nenana River Gorge and 7–20 mm for Hayfield ceramics). Both ceramic assemblages were likely constructed using the paddle and anvil method, in which a stone or similar artifact is held inside the clay vessel while the potter shapes the exterior with a paddle. This is a common manufacturing technique for pottery throughout Alaska (see, for example, Stimmell 1994). The temper and general appearance of pottery from Nenana River Gorge and Hayfield are similar to pottery of the Yukon River region, which was made using the paddle and anvil method. In his thesis focusing on the site, Plaskett (1977:216) hypothesized that the pottery from the Nenana River Gorge site "may have originated along the lower Yukon River," based on ethnographic descriptions by Frederica de Laguna of pottery produced there. But the presence of clay deposits in the Nenana River region may indicate a local manufacture, as suggested by Holmes, who noted that "excellent ceramic clay is present today" near the site and that "ceramic manufacturers and local potters from both Anchorage and Fairbanks obtain clay from the area" (Holmes 1975:116). Local manufacture, although not local material, is likewise indicated at the Hayfield site: i.e., LeFebre's informant, Carl Sesui, related that his grandmother had told him "that the Telida people got the clay for such cooking pots from the Innoko River, which is at least 100 miles overland" (LeFebre 1956:273).

MOVING FORWARD

Over fifty years have passed since Charlene Craft LeFebre and her team of undergraduates spent their summer investigating the archaeology around Telida Lake and talking with Carl Sesui to learn the history of the region.

The information she collected, in the form of notes, maps, photographs, and artifacts, represents a valuable resource for looking at life on the upper Kuskokwim. In her 1956 *American Antiquity* piece, LeFebre emphasized the need for further archaeological reconnaissance in the Kuskokwim region. From the vantage point of 2012, we state the same need. Much of this region of Alaska is difficult to access and under-explored for cultural resources. Further work needs to be done to create a regional dataset and broaden our understanding of the area. This work should include additional archaeological survey and excavation, the re-examination of existing museum collections, continued integration of ethnography, and collaboration with local groups to conserve and manage cultural resources. Resurrecting the Hayfield material with the incorporation of new analyses made possible by advances in archaeometrics and comparative regional excavations contributes to a more complete archaeological record for the Kuskokwim River area of Southwest Alaska.

ACKNOWLEDGMENTS

The authors would like to thank Dianne Gudgel-Holmes for the field notes and discussions on LeFebre's work and the Telida area; Lacy Hamner and Joan Dale for help in the Office of History and Archaeology archives; Jeff Speakman and Natasha Slobodina for the pXRF analyses; Jim Whitney, Scott Shirar, and Chris Houlette (now of NPS) of the University of Alaska Museum of the North for helping us with access to the collections; our anonymous AJA reviewers for many helpful suggestions; and Donlin Creek, LLC for funding the initial archival research.

REFERENCES

Ackerman, Robert E.
1984 Prehistory of the Asian Eskimo zone. In *Handbook of North American Indians,* Vol. 6, edited by David Damas, pp. 106–118. Smithsonian Institution Press, Washington, D.C.

Alaska Methodist University, Anchorage.
1978 Prehistory of the Aishihik–Kluane Area, Southwest Yukon Territory. *Mercury Series* Paper 74, Archaeological Survey of Canada, National Museum of Man, Ottawa.

Clark, Donald W.
1981 Prehistory of the Western Subarctic. In *Handbook of North American Indians,* Vol. 5, edited by June Helm, pp. 107–129. Smithsonian Institution Press, Washington, D.C.

Clark, Donald W., and A. McFadyen Clark
1993 Batza Téna, Trail to Obsidian: Archaeology at an Alaskan Obsidian Source. *National Museum of Man Mercury Series* No. 147, Canadian Museum of Civilization, Hull, Quebec.

Collins, Raymond
2004 *Dichinanek' Hwt'ana: A History of the People of the Upper Kuskokwim Who Live in Nikolai and Telida, Alaska.* McGrath, AK.

Cook, John P.
1968 Some Microblade Cores from the Western Boreal Forest. *Arctic Anthropology* 5(1):121–127.
1969 The Early Prehistory of Healy Lake. Ph.D. dissertation, Department of Anthropology, University of Wisconsin, Madison.
1989 Historic Archaeology and Ethnohistory at Healy Lake, Alaska. *Arctic* 42(3):109–118.
1995 Characterization and Distribution of Obsidian in Alaska. *Arctic Anthropology* 32(1):92–100.
1996 Healy Lake. In *American Beginnings: The Prehistory and Palaeoecology of Beringia*, edited by Frederick Hadleigh West, pp. 323–327. University of Chicago Press, Chicago.

Cook, John P., and Robert A. McKennan
1970 The Athapaskan Tradition: A View from Healy Lake in the Yukon–Tanana Upland. Paper presented at the 10th Annual Meeting of the Northeastern Anthropological Association, Ottawa.

Craft, Charlene
1949 Fieldnotes. Unpublished manuscript, on file in personal collection of Dianne Gudgel-Holmes, Anchorage.
1950a Archaeological Fieldwork in Alaska, 1949. Report to the Department of the Interior. Unpublished manuscript, on file at the Alaska State Office of History and Archaeology, Anchorage.
1950b Last of the Telidas Tells His Story. *Farthest-North Collegian* 30(1):13–15, 28.

de Laguna, Frederica
1947 The Prehistory of Northern North America as Seen from the Yukon. *Memoirs of the Society for American Archaeology* No. 3. Menasha, WI.

Dixon, E. James
1985 Cultural Chronology of Central Interior Alaska. *Arctic Anthropology* 22(1):47–66.

Holmes, Charles E.
1975 A Northern Athapaskan Environment System in Diachronic Perspective. *Western Canadian Journal of Anthropology* 5(3–4):92–124.
1979 Report of Archeological Reconnaissance: Yukon Training Command Withdrawal Area, Fort Wainwright, Alaska. Report to Army Corps of Engineers in partial fulfillment of contract No. DACA85-79-M-0001.
1986 Lake Minchumina Prehistory: An Archaeological Analysis. *Aurora: Alaska Anthropological Association Monograph Series* No. 2. Alaska Anthropological Association, Anchorage.
2008 The Taiga Period: Holocene Archaeology of the Northern Boreal Forest, Alaska. *Alaska Journal of Anthropology* 6(1–2):69–81.

Hosley, Edward
1966 *The Kolchan: Athapaskans of the Upper Kuskokwim*. Division of Statewide Services, University of Alaska, College.
1968 The Kolchan: Delineation of a New Northern Athabascan Indian Group. *Arctic* 21(1):6–11.

Kari, James
1999 Draft Final Report: Native Place Name Mapping in Denali National Park and Preserve. Report for National Park Service, Denali National Park and Preserve. Alaska and Polar Regions Department, University of Alaska Fairbanks.

Kari, Priscilla Russell
1983 Land Use and Economy of Lime Village. *Technical Paper* No. 80, Alaska Department of Fish and Game, Division of Subsistence, Juneau.

Le Blanc, Raymond J.
1984 Rat Indian Creek Site and the Late Prehistoric Period in the Interior Northern Yukon. *National Museum of Man Mercury Series* Paper 120, Archaeological Survey of Canada, Canadian Museum of Civilization, Hull, Quebec.

LeFebre, Charlene Craft
1956 A Contribution to the Archaeology of the Upper Kuskokwim. *American Antiquity* 21(3):268–274.

Mobley, Charles M.
1991 *The Campus Site: A Prehistoric Camp at Fairbanks, Alaska.* University of Alaska Press, Fairbanks.

Morrison, David A.
1984 The Late Prehistoric Period in the Mackenzie Valley. *Arctic* 37(3):195–209.

Nelson, Nels C.
1935 Early Migration of Man to America. *Natural History* 35(4):246–251.
1937 Notes on the Cultural Relations Between Asia and America. *American Antiquity* 2:267–272.

Osgood, Cornelius
1940 *Ingalik Material Culture*. *Yale University Publications in Anthropology* No. 22. Yale University Press, New Haven.

Pearson, Georges A., and W. Roger Powers
2001 The Campus Site Re-Excavation: New Efforts to Unravel Its Ancient and Recent Past. *Arctic Anthropology* 38(1):100–119.

Phillips, S. Colby, and Robert J. Speakman
2009 Initial Source Evaluation of Archaeological Obsidian from the Kuril Islands of the Russian Far East Using Portable XRF. *Journal of Archaeological Science* 36(6):1256–1263.

Plaskett, David C.
1977 *A Late Prehistoric Athabascan Campsite in Central Alaska*. M.A. thesis, Department of Anthropology, University of Alaska, Fairbanks.

Potter, Ben A.
2008 A First Approximation of Holocene Inter-Assemblage Variability in Central Alaska. *Arctic Anthropology* 45(2):89–113.

Rainey, Froelich G.
1939 Archaeology in Central Alaska. *Anthropological Papers of the American Museum of Natural History* 36:351–405.
1940 Archaeological Investigations in Central Alaska. *American Antiquity* 4:299–308.

Reimer, Paula J., M. G. L. Baillie, E. Bard, A. Bayliss, J. W. Beck, P. G. Blackwell, C. Bronk Ramsey, C. E. Buck, G. S. Burr, R. L. Edwards, M. Friedrich, P. M. Grootes, T. P. Guilderson, I. Hajdas, T. J. Heaton, A. G. Hogg, K. A. Hughen, K. F. Kaiser, B. Kromer, F. G. McCormac, S. W. Manning, R. W. Reimer, D. A. Richards, J. R. Southon, S. Talamo, C. S. M. Turney, J. van der Plicht, and C. E. Weyhenmeyer
2009 IntCal09 and Marine09 Radiocarbon Age Calibration Curves, 0–50,000 Years cal BP. *Radiocarbon* 51(4):1111–1150.

Reuther, Joshua D., Molly Proue, Justin M. Hays, Heather Hardy, and Victoria Florey

2009 Data Recovery at Locus 1B of HEA-062, the Nenana River Gorge Site, Interior Alaska. Report for the Alaska Railroad Corporation. Northern Land Use Research, Inc., Fairbanks.

Reuther, Joshua D., Natalia S. Slobodina, Jeffrey T. Rasic, John P. Cook, and Robert J. Speakman

2011 Gaining Momentum: Late-Pleistocene and Early-Holocene Archaeological Obsidian Source Studies in Interior and Northern Eastern Beringia. In *Explaining Lithic Assemblage Variability Across Beringia*, edited by T. Goebel and I. Buvit, pp. 270–286. Texas A & M University Press, College Station.

Shinkwin, Anne D.

1979 Dakah De'Nin's Village and the Dixthada Site: a Contribution to Northern Athabascan Prehistory. *Mercury Series* Paper 91, Archaeological Survey of Canada, Hull, Quebec.

Stimmell, Carole

1994 Going to Pot: A Technological Overview of North American Arctic Ceramics. In *Threads of Arctic Prehistory: Papers in Honour of William E. Taylor, Jr.,* edited by David Morrison and Jean-Luc Pilon, pp. 35–56. *Archaeological Survey of Canada Mercury Series*, Paper 149, Canadian Museum of Civilization, Hull, Quebec.

Stuiver, Minze, and Paula J. Reimer

1993 Extended ^{14}C Database and Revised CALIB Radiocarbon Calibration Program. *Radiocarbon* 35:215–230.

Stuiver, Minze, Paula J. Reimer, and Ron W. Reimer

2012 CALIB 6.0. Program and electronic documentation, http://calib.qub.ac.uk/calib/.

Ward, G. K., and S. R. Wilson

1978 Procedures for Comparing and Combining Radiocarbon Age Determinations: A Critique. *Archaeometry* 20:19–31.

West, Charles E.

1978 *Archeology of the Birches Site, Lake Minchumina, Alaska*. M.A. thesis, Department of Anthropology, University of Alaska, Fairbanks.

Williams, Liz, Chelsie Venechuk, Davin L. Holen, and William E. Simeone

2005 Lake Minchumina, Telida, Nikolai, and Cantwell Subsistence Community Use Profiles and Traditional Fisheries Use. *Technical Paper* No. 295, Alaska Department of Fish and Game, Division of Subsistence, Juneau.

Workman, William B.

1976 Archaeological Investigations at GUL-077: A Prehistoric Site near Gulkana, Alaska. Unpublished report. Alaska Methodist University, Anchorage. Manuscript on file, Alaska Office of History and Archaeology, Division of Parks and Outdoor Recreation, Alaska Department of Natural Resources, Anchorage.