DRY CREEK: A LATE PLEISTOCENE HUMAN OCCUPATION IN CENTRAL ALASKA

Wm. Roger Powers
Anthropology Program
University of Alaska
Fairbanks, Alaska

Thomas D. Hamilton
Geology Department
University of Alaska
Fairbanks, Alaska

INTRODUCTION

The Dry Creek site, discovered by C.E. Holmes in 1973, is located in central Alaska about 180 km southwest of Fairbanks (Fig. 1). It occupies a late Pleistocene outwash terrace at the forest-tundra ecotone within the Nenana Valley, close to the north flank of the Alaska Range. The following discussion is based on preliminary field work carried out in 1973 and 1974.

The archaeological components of the Dry Creek site are stratified within a two m section of eolian sediments and paleosols which overlie glacial outwash deposits (Fig. 2). Test excavations here have isolated three cultural components of late Pleistocene age and one of Holocene age. Vertebrate fossils have been discovered in the two lowest components, and datable charcoal is present in most of the paleosols. The absence of severe postdepositional disturbance of the sediments has helped make Dry Creek an optimal locality for the study of human adaptation to late Quaternary environments in the North. Thus, among known Alaskan sites of this antiquity, Dry Creek is unique.

SITE GEOLOGY

The outwash at the base of the section was deposited close to the front of the Healy glacier when it stood at its maximum position (Fig. 1). This event probably occurred during early Wisconsin (Zyrianka) time (more than 50,000 BP). A hiatus of unknown duration separated outwash deposition from subsequent loess accretion.

The lower loess units (Loesses 1-5, Fig. 2) and intervening paleosols (Paleosols 1-3) appear to represent late glacial tundra or tundra-steppe conditions. Glacial meltwater streams probably still extended down the Nenana Valley, maintaining broad barren floodplains which served as source areas for loess. Forests probably were absent from the entire region, and the character of the fossil tundra soils, rodent burrows and frost structures at the Dry Creek site indicate that this area at least was treeless. Loesses 2, 3 and 4 contain stone chips, artifacts and other evidence for prehistoric human occupation (Fig. 2). The remaining units appear to be culturally sterile.

Nine radiocarbon dates on charcoal have been obtained from the Loess 1-5 sequence (Fig. 2). These show severe inconsistencies which are puzzling because careful stratigraphic mapping shows smearing within each paleosol complex near the bluff face, but no mixing of any complex with any other. The two oldest samples (SI-1544 and SI-1938) which would appear to date around 19,000 and 24,000 years BP, probably should be rejected because of their very small size and resulting high counting errors. Both samples had to be heavily diluted during radiocarbon analysis, and are considered suspect for this reason (R. Stuckenrath, written communication). Sample SI-1936, yielding a date of 12,080 $\pm$ 1025 BP, also has a very high counting error, and may also be questioned. The remaining dates, although still somewhat inconsistent, suggest that the highly deformed Paleosol 3 is broadly of very late Pleistocene to early Holocene age. This interpretation is consistent with an inferred episode of intense periglacial activity associated with the final readvance of the Riley Creek glacier about 10,000 years ago (Thorson and Hamilton 1977). The remaining date on Paleosol 2 (9340 $\pm$ 195 - SI-2329) is consistent with the date of 10,690 $\pm$ 250 (SI-1561) on Palesol 1 and the date of 11,120 $\pm$ 85 (SI-2880) for the first archaeological component. The two oldest paleosols evidently formed during a period of relatively mild conditions which date between approximately 13,000 and 10,500 years BP elsewhere in Alaska (Hamilton 1974a). Although 10,690 $\pm$ 250 BP had previously been taken as the "official" age of the main occupation of Dry Creek (Hamilton 1974b), it now is clear that this date merely suggests an approximate minimum age for the two oldest occupations. Early human occupation at the site evidently began about 11,000 years ago and continued intermittently for more than a millennium.

The upper sequence of loess beds, windblown sand sheets, and paleosols was deposited under environmental conditions markedly different from those of the older soils and sediments. Buried subarctic brown soils containing large charcoal fragments indicate forest growth on the sandy sediments which were localized

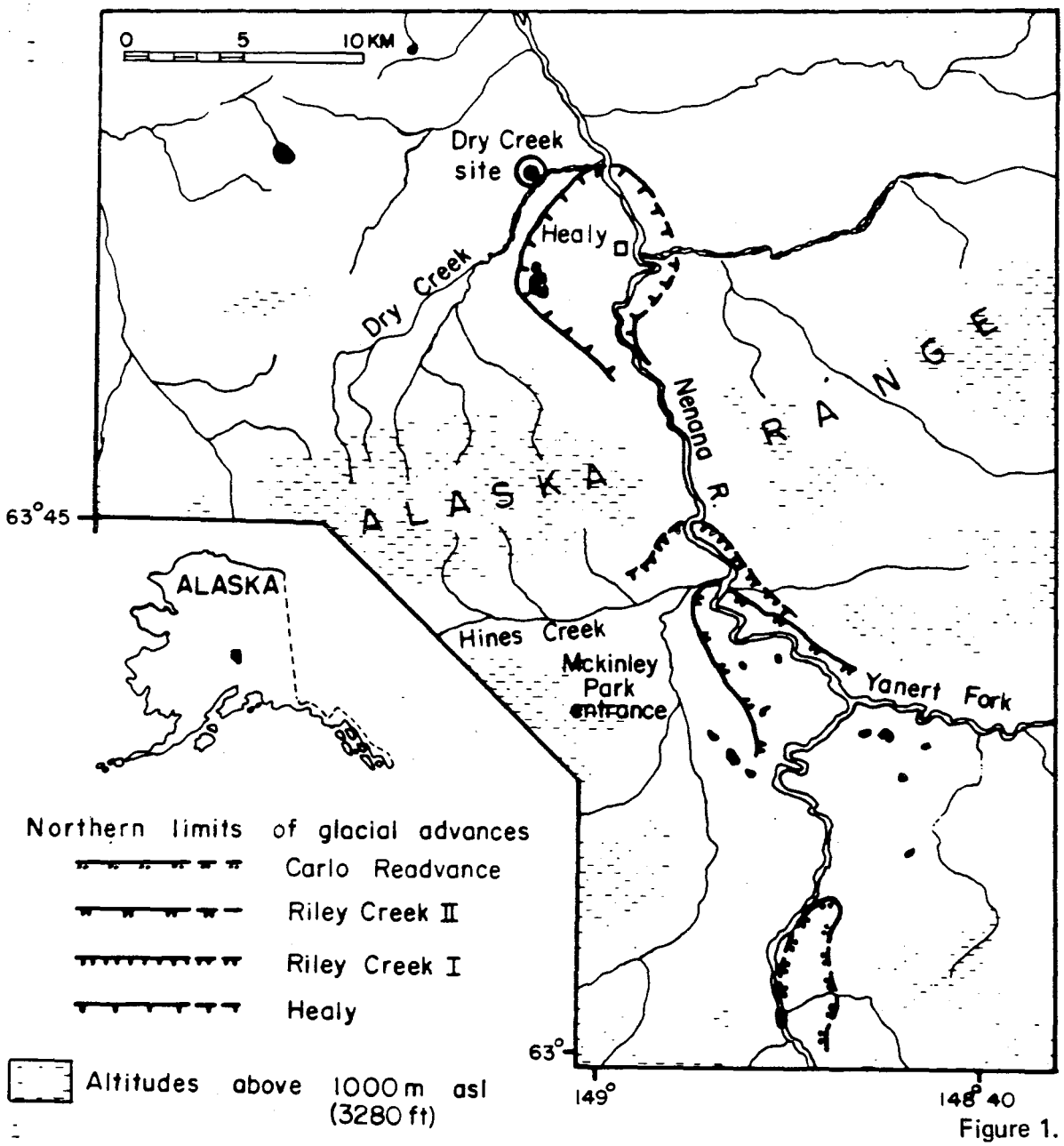
0 5 10KM
Dry Creek site
Healy
Dry Creek
Nenana R.
ALASKA RANGE
63°45
ALASKA
Hines Creek
Mckinley Park entrance
Yanert Fork
63°
149°
148°40
Northern limits of glacial advances
Carlo Readvance
Riley Creek II
Riley Creek I
Healy
Altitudes above 1000 m asl (3280 ft)

Figure 1.

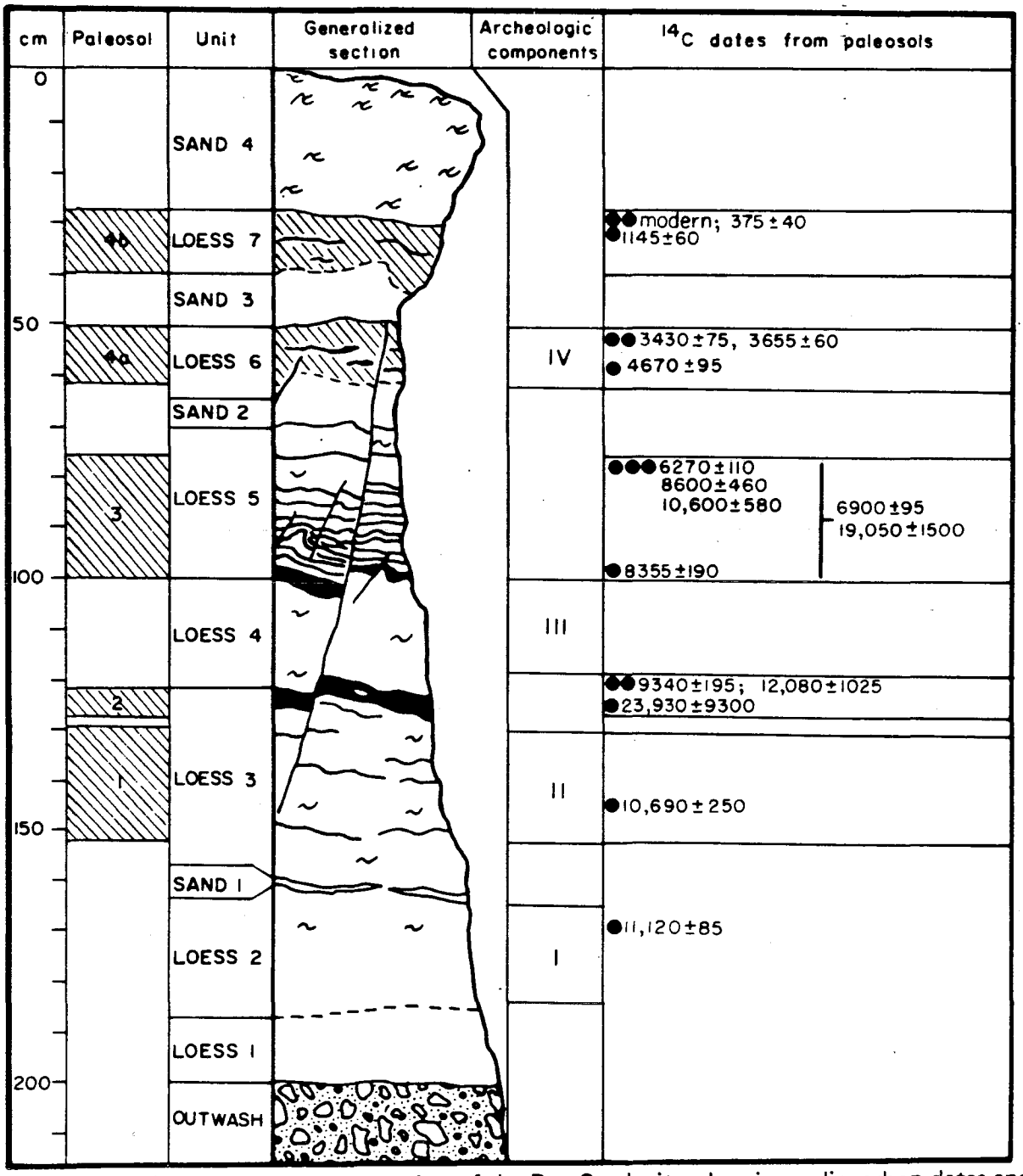

Figure 2. Generalized stratigraphic section of the Dry Creek site, showing radiocarbon dates and location of archaeological components.

along the bluff edge. Four concordant radiocarbon dates (Fig. 2) indicate that forest became established at the site during middle Holocene time and that intermittent human occupation occurred between about 4700 and 3600 radiocarbon years BP.

ARCHAEOLOGICAL COMPONENTS

Four stratigraphically distinct cultural horizons or components have been distinguished at the site. The total number of remains for these components is 2,827 of which 99 percent are flakes, blades, cores and tools of diverse lithologies, and 1 percent water-rounded cobbles and small boulders recovered from positions within the loess and presumed to have cultural significance. We will concern ourselves only with the three oldest components in the following discussion.

Component I: N = 310

Depth: 170-190 cm below datum. Stratigraphic position: loess 2 (Fig. 2). *Content*: 282 flakes, one large blade-like flake, one flake core, three retouched flakes, one small triangular biface in three pieces, two possible burins, one chopper and six scrapers, associated with ten stones and three bone fragments.

The remains of this component were found primarily away from the bluff edge, although there were two large flake clusters and scattered flakes near the cliff edge. Unidentifiable faunal remains were discovered here in direct association with a retouched flake and several other unworked flakes.

Component II: N = 1,791

Depth: 130-160 cm below datum. 95 percent of the remains between 145-155 cm. *Stratigraphic Position*: soil stringers in loess 3 (Paleosol 1, Fig. 2). *Content*: 1,716 flakes, six retouched flakes, three blade-like flakes, five blades, 11 microblades, one end scraper, six side scrapers (three classic Siberian *skreblo*), two choppers, four elongate bifaces , two biface fragments, one asymmetric lozenge-shaped edge ground point, two wedge-shaped microblade cores, 19 large stones and pebbles, two anvil stones, one hammer stone, and ten bone specimens.

Previously, this was the only component known at the site and has been referred to as the main cultural horizon. Component II is separated from Component I by a thin sand sheet. These two components are stratigraphically distinct and nowhere are they found in the sand. The materials recovered from this level were distributed throughout the excavated area. There are two primary areas of concentration: (1) along the edge of the bluff where all microblades and microblade cores are situated as well as the anvil stones, and the elongate bifaces and local concentration of flaking debris, and (2) near the rear of the trench and centered around an accumulation of cobbles and small boulders with charcoal scattered diffusely throughout. This feature is clearly a hearth. Scattered around this hearth are excellent examples of side scrapers, a small obsidian biface with extremely worn edges plus other artifacts and an incredibly high frequency of flaking debris. It is in this part of the site that Component II is represented by a thin occupation clearly delineated as a single surface.

Component II also has added significance in that there is a great deal of vertebrate material scattered around the hearth areas and away from it. One specimen from the very rear of the trench is a mandibular portion of *Bison* sp. [1] Other teeth were recovered from the edge of the bluff in direct association with a large biface and a chopper. This specimen has been identified as belonging to a horse (*Equus* sp.).

Component III: N = 578

Depth: 100-120 cm below datum. *Stratigraphic Position*: loess 4 (Fig. 2). *Content*: 573 flakes, one blade-like flake, three blades, one biface.

This component is concentrated in two distinct areas: one, just back from the bluff edge in the front area of the trench where scattered flakes and a biface fragment were located; and a second, at the edge of the bluff where there was an extremely local concentration of flakes and three blades.

The remains of cultural activity at the Dry Creek site cluster in two separate areas in all three components: the bluff edge and several meters back from the front of the bluff. The distribution of the cultural remains hints strongly at the possibility of at least two separate activity areas: a workshop at the front of the bluff and a habitation area further back from the bluff. This situation is most striking in Component II.

DISCUSSION

Knowledge of the late Pleistocene prehistory of Alaska is practically nonexistent. Some authors have postulated the presence of hunting groups dating back to about 13,000 to 15,000 BP. The presence of fractured bison calcanei and a horse scapula at the Trail Creek caves led Larsen (1968) to postulate the presence of the Arctic big game hunters in Alaska during the late Pleistocene, although they left no concrete evidence of their activity in the form of tools. In discussing the Akmak Complex at Onion Portage, Anderson (1970b) postulated that the American Paleoarctic Tradition may date to about 13,000 BP.

The age of the Components I and II places human occupation well within and beyond the time range of three early dated complexes in central and northern Alaska. Lower levels of the Chindadn Complex at the Village site on Healy Lake, upper Tanana Valley, date between

11,000 and 10,000 radiocarbon years BP (Cook and McKennan, 1970; Hamilton 1973). Locality 1 of the Gallagher Flint Station on the Sagavanirktok River at the north flank of the Brooks Range dates 10,540 ± 150 BP (Dixon 1975). The Akmak Complex from Onion Portage on the Kobuk River in northwestern Alaska possibly dates about 9,857 ± 155 years BP (Anderson 1970a, 1970b). In addition, the Denali Complex of Interior Alaska has been estimated to date from between 10,000 and 8,000 years BP (West 1967).

Limited comparisons can be drawn between Dry Creek and two other early Alaskan sites. Dry Creek does show certain similarities to the Akmak Complex and is in part consistent with the definition of the Denali Complex and is in part consistent with the definition of the Denali Complex (West 1967). The Denali Complex, geographically the closest to Dry Creek, includes bifaces, blades, microblades, microblade cores, core tablets, rejuvenation flakes, boulder chip scrapers, end scrapers and Donnelly-type burins. The Akmak Complex includes a series of large core bifaces, polyhedral cores including Campus-type microcores, elongate bifaces, unifacially worked flakes and burins (Anderson 1970b). Anderson (1970a) has suggested that Akmak and Denali are related and may be contemporaneous. Both of these complexes are characterized by the association of a blade technology and bifacial tools (primarily elongate knife or point-like forms), plus the burin technique. As expected, there is variation in the specific forms of all these artifact categories, but in general, these complexes are broadly similar to Dry Creek.

Dry Creek differs both from the Gallagher Flint Station and from the Chindadn Complex. The assemblage from locality 1 of the Gallagher Flint Station is described as being basically a core and blade technology lacking bifacial pieces (Dixon 1975) and, in this sense, differs significantly from Dry Creek. The Chindadn assemblage is composed of tear-drop-shaped "Chindadn points", blade-like flakes or blades, a *pièce esquillée*, a transverse burin, and a dihedral angle burin (Cook and McKennan 1970). Even though the Chindadn artifacts fall into the same categories as the Dry Creek material, specific forms differ significantly from one another. Clearly, substantial cultural variability existed at this time in Alaska.

Close relationships appear to exist between the Akmak and Denali complexes of Alaska and the Siberian Late Paleolithic.

One of the important results of recent research has been the recognition of a distinctive Late Upper Paleolithic culture -- the Diuktai Culture -- which occupied the Aldan basin the major river valleys of northeastern Siberia (Mochanov 1969, 1970, 1972a, 1972b, 1973; Dikov and Dikova 1972; Powers 1973). The archaeological content of the Diuktai culture includes:

bifacially worked flint spear points and triangular and oval knives; disc-shaped, Levallois and wedge-shaped cores: central and lateral multifaceted burins, massive semilunar skreblos and miniature end scrapers on blades (Mochanov *in* Powers 1973).

The known radiometric ages of Diuktai occupation are 18,000 ± 180 BP and about 10,360 ± 900 BP (Powers 1973; Mochanov 1975).

A late Pleistocene culture characterized by an association of bifacial tools (points) and a blade technology with wedge-shaped cores therefore occupied northeastern Siberia during the final cold phase (Sartan Glaciation) of the Upper Pleistocene. Mochanov (1973) has noted close similarities between the Diuktai Culture and both the Akmak and Denali complexes. He suggests that the remnants of populations of the Diuktai Culture moved into Alaska about 10,500 years BP where it is represented by the Akmak Complex.

Our Dry Creek data tend to support this idea, but suggest that Diuktai elements may have entered Alaska somewhat earlier than 10,500 BP.

FOOTNOTE

(1) Identification of Dry Creek faunal material was carried out by R. Dale Guthrie of the Division of Life Sciences, University of Alaska, Fairbanks.

REFERENCES

Anderson, D.D., 1970a. Microblade traditions in northwestern Alaska. *Arctic Anthropology* 7(2):2-16.

Anderson, D.D., 1970b. Akmak - an early archeological assemblage from Onion Portage, northwest Alaska. *Acta Arctica, Facs.* XVI. Copenhagen.

Cook, John P. and Robert A. McKennan, 1970. The Village Site at Healy Lake, Alaska: an interim report. Paper presented at the 35th Annual Meeting of the Society for American Archaeology, Mexico, D.F.

Dikov, N.N. and T.M. Dikova, 1972. Issledovaniia no Kolyme i Kamchatke (Investigations on the Kolyma and Kamchatka). *Arkheologicheskie orkrytiia 1971 goda,* p. 252. Moscow.

Dixon, E. James, Jr., 1975. The Gallagher Flint Station, an early man site on the north slope, Arctic Alaska, and its role in relation to the Bering Land Bridge. *Arctic Anthropology* 12(1):68-75.

Hamilton, T.D., 1973. Quaternary glaciation of the Brooks Range, northern Alaska. In *9th INQUA Congress Abstracts,* pp. 136-137. Christchurch, New Zealand.

Hamilton, T.D., 1974a. Radiocarbon chronology of Alaska - A progress report. *Geological Society of America Abstracts* 6(7):774.

Hamilton, T.D., 1974b. Geological setting of Early Man in Alaska. *Geological Society of America Abstracts with Programs* 6(7):773-774.

Larsen, H., 1968. Trail Creek: final report on the excavation of two caves of the Seward Peninsula. *Acta Arctica, Fasc. XV.* Copenhagen.

Mochanov, IU. A., 1969. Diuktaiskaia verkhnepaleoliticheskaia kul'tura i nekotorye aspekty ee genezisa (The Diuktai Upper Palaeolithic culture and certain aspects of its genesis). *Sovetskaia arkheologiia* 4:235-239.

Mochanov, IU. A., 1970. Diuktaiskaia peshchera - novyi paleoliticheskii pamiatnik Severo-Vostochnoi Azii (Diuktai Cave - a new palaeolithic site in Northeast Asia. *Po Sledam drevnykh kul'tur Yakutii,* pp. 40-64. Yakutsk.

Mochanov, IU. A., 1972a. Novye dannye o Beringomorskom puti zaseleniia Amerika (New data on the Bering Sea route of the peopling of America). *Sovetskaia etnografiia* 2:98-101. Moscow.

Mochanov, IU. A., 1972b. Issledovanie paleolita no Indigirke, Kolyme i zapadnom poberezh'e Okhotskogo moria (Research on the Palaeolithic of the Indigirka, Kolyma and the west coast of the Sea of Okhotsk). *Arkheologicheskie otkrytiia* 1971 goda, p. 151. Moscow.

Mochanov, IU. A., 1973. Early migrations to America in the light of a study of the Dyuktai Paleolithic Culture in Northeast Asia. Paper prepared for the IXth International Congress of Anthropological and Ethnological Sciences, Chicago, 1973.

Powers, W.R., 1973. Palaeolithic man in Northeast Asia. *Arctic Anthropology* 10(2):1-106.

Thorson, R.M. and T.D. Hamilton, 1977. Geology of the Dry Creek site; a stratified Early Man site in Interior Alaska. *Quaternary Research* 7(2):149-176.

Wahrhaftig, Clyde, 1958. Quaternary geology of the Nenana River Valley and adjacent parts of the Alaska Range. *U.S. Geological Survey Professional Paper* 293-A. p. 1-68.

West, F.H., 1967. The Donnelly Ridge Site and the definition of an early core and blade complex in central Alaska. *American Antiquity* 32(3):360-382.

EARLY MAN IN AMERICA

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