

- <sup>6</sup>Coulter, H. W. *et al.* 1965. Map showing extent of glaciations in Alaska. *U.S. Geological Survey: Miscellaneous Geological investigations map*, I-415.
- <sup>7</sup>Livingstone, D. A. 1955. Some pollen profiles from Arctic Alaska. *Ecology*, 36: 587-600.
- <sup>8</sup>———. 1957. Pollen analysis of a valley fill near Umiat, Alaska. *American Journal of Science*, 255: 254-60.

## Bison Antiquus from the Northwest Territories

A partial skull of a bison from the Northwest Territories of Canada has been identified as *Bison antiquus* on the basis of craniometrics and photo-interpretation<sup>1</sup>. The skull (Figs. 1 to 3) was found in mid-July 1967 by an Indian friend (name unknown to me) of Jack Turner of Nahanni Butte, Northwest Territories. Turner, recognizing that the horn cores were much larger than those of modern bison, shipped the specimen to the University of Calgary for identification.

I have been unable to visit the discovery site but Turner states that it was on the Liard River 3 miles (4.80 km.) above the mouth of the Blackstone River on the opposite shore (61°5'25"N., 123°0'W.). It was half buried near the water's edge at the base of a 60-foot (18 m.) bank. The bank is composed entirely of alluvial sand and silt; an underlying stratum of blue clay is exposed during periods of low water. Even though the skull may have been washed from its original location, its excellent condition suggests that it had not been transported far. However, no attempts to date have been made to locate other parts of the skeleton *in situ*.

The posterior portion of a skull of a mature individual, including the horn cores, is present. The anterior part, including part of one orbit, is missing. The horn cores are large, extend from the skull almost at right angles to the longitudinal axis of the skull, are depressed proximally, and swing upwards at the tips (see Figs. 1 and 2).

When considering the average cranium measurements for bison species as given by

TABLE 1. Measurements of Bison Skulls of Several Species (averages are from Skinner and Kaisen).

(All measurements are in millimetres. For the Liard River specimen, averages of measurements from both sides are considered where possible.)	average for <i>B. athabasca</i>	average for <i>B. crassicornis</i>	average for <i>B. bison</i>	average for <i>B. antiquus</i>	average for <i>B. occidentalis</i>	Liard River specimen
Horn core spread; tip to tip	665	963	581	881	747	877
Horn core spread; outside curve	683	986	612	—	782	897
Upper curve core length; tip to burr	216	409	186	281	279	302
Lower curve core length; tip to burr	255	458	233	336	340	370
Length; core tip to upper base at burr	189	265	168	245	243	266
Vertical core diameter; 90° to long. axis	85	98	74	98	91	106
Core circumference; 90° to long. axis	271	324	235	320	290	336
Greatest width at auditory openings	263	284	258	—	275	325
Condylar width	130	136	125	—	131	141
Depth; occipital crest to upper border of foramen magnum	—	—	—	—	—	119
Depth; occipital crest to lower border of foramen magnum	149	159	150	—	158	162
Transverse core diameter; 90° to longitudinal axis	92	110	78	107	98	113
Width between base of cores	—	—	—	—	—	260
Cranium width between core and orbit	288	288	264	319	299	319
Greatest post-orbital width	355	349	317	353	351	393
Angle of posterior core divergence	—	—	—	—	—	80°
Angle of proximal core depression	—	—	—	—	—	15°
Index of horn core curvature	135	125	139	138	140	139
Index of horn core compression	92	90	95	93	93	94
Index of horn core proportion	80	126	79	88	97	90
Index of horn core length	75	143	71	89	95	95

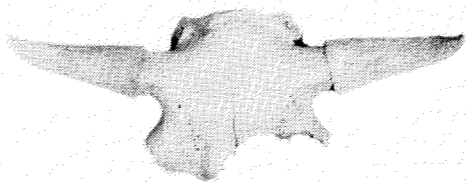


FIG. 1. Dorsal view.



FIG. 2. Post-cranial view.

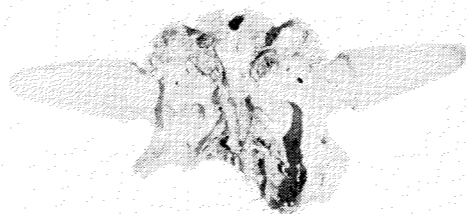


FIG. 3. Ventral view.

Skinner and Kaisen<sup>1</sup>, it is evident that the measurements for the Liard River specimen are closer to those of *B. antiquus* than to any of the other species (see Table 1). The extension of the proximally depressed horn cores almost at right angles to the longitudinal axis of the skull, taken in conjunction with the craniometrics of the specimen, indicates that it is referable to *B. antiquus*. This is the most northerly recorded occurrence of the species.

#### ACKNOWLEDGEMENTS

I wish to thank Morris F. Skinner for helpful suggestions and his tentative identification of the specimen as *B. antiquus* on the basis of photographs; Dr. Grayson E. Meade and Dr. Richard G. Forbis for help with the manuscript; and Dr. Leonard V. Hills and Dr. Meade for photographic assistance.

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#### REFERENCE

- <sup>1</sup>Skinner, M. F. and O. C. Kaisen, 1947. The fossil bison of Alaska and preliminary revision of the Genus. *American Museum of Natural History Bulletin*, 89 (3): 130-256.

## Observations on Ice Regions of the Arctic Ocean

On 7 March 1968 the six members composing the field party of the Plaisted Polar Expedition left Ward Hunt Island (83°07'N., 75°W.) on a traverse across the pack ice of the Arctic Ocean. Using small (250 lb. 18 h.p.) open, gasoline-powered snowmobiles (Bombardier *Skidoo*) the party reached the geographical north pole on 19 April 1968 after 44 days on the ice. The expedition's purpose was not scientific and the members of the field party with scientific backgrounds were limited to an electronics executive (D. Powellek), a high school geography teacher (G. Pitzl) and a physician (A. Aufderheide). Surface observations of the Arctic Ocean's pack ice at high latitudes at this time of year are so rare that publication of such observations may be useful even though made by personnel untrained in this science.

#### LOGISTICS

Except for a few days camped on the ice waiting for leads to freeze or storms to abate, the party was moving continuously, limiting the opportunities for actual ice measurements. Four snowmobiles were used each towing an 8-foot sled loaded with food, fuel and camping supplies. Pressure ridges were a constant obstacle; some of them were bypassed and some simply overridden. A frustratingly large number had to be attacked with ice axes and shovels to prepare a path. Leads were traversed either by waiting for them to freeze or by anticipating and taking advantage of temporary contact between floes edging the lead. The broad weight distribution of the snowmobile worked to our advantage permitting traverse by machine when prohibitive by foot. Limited daylight initially permitted only 4 or 5 hours of operation daily, but by the middle of the traverse as much as 16 of the 24 available hours were used for travel. The weather was generally good with a clear sky and little or no wind prevailing except for a 6-day storm at about 85°N. and another 2-day storm near 87°N. (both westerly winds). Temperatures of -62°F. (-52°C.) at departure rose gradually to -20°F. (-29°C.) at the terminus (except for transient, precipitous rises during the storms). Position was determined with marine bubble sextant observations of sun (and occasionally moon) altitudes<sup>1</sup>. The westerly direction of the wind was apparently so constant that a northerly heading could be maintained even on overcast days by consistently crossing the tightly packed snow drifts or sastrugi at right angles. The party was evac-