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A PALEO-INDIAN BISON KILL IN THE PANHANDLE OF NEBRASKA

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ABSTRACT: Initial excavation of the Hudson-Meng Paleo-Indian site was begun in September, 1971. Work by volunteer labor continued until mid-November when the site was closed because of winter storms and frozen ground. The discovery of an unusually large Scottsbluff point, *in situ* in the ribs of one of the animals indicates association of the Plano Complex and extinct bison. The bone bed is a single occupation event, representing a butchering floor activity near the actual kill site. Absence of skull fragments and lower long bones indicate quartering or halving the animals at the kill with transfer to the butcher area. Testing in the field season of 1971 indicates a site at least 35 meters by 15 meters, with the limits of the bone bed yet to be determined.

A Paleo-Indian Bison kill was discovered and partially excavated in the Panhandle of Nebraska, during the fall of 1971. Under extended permit No. 2720 with USDA-FS, Chadron State College began detailed excavation in an area of bison bones, tested by the college since 1968. The previous tests had not revealed conclusive evidence as to whether the site was a natural accumulation of bison bones, or whether it was an archaeological accumulation. Testing had revealed the lack of skulls, and a random orientation of the other skeletal members of what was presumed to be extinct bison.

The excavation was undertaken with several purposes in mind: 1) to attempt to recover evidence of human activity, 2) to allow detailed faunal analysis of the bison remains, 3) to use the excavation as a field techniques experience for students at Chadron State College.

By noon the first day of excavation, a large Paleo-Indian projectile point (Fig. 1) of the Scottsbluff variety of the Cody Complex was discovered, *in situ*, in the rib cage of one of the bison. With the human association established, the site was named the Hudson-Meng site (Nebraska 25-SX-115) in honor of the two individuals most responsible for its protection over a period of years and for their services in bringing it to professional attention.

Excavation was carried out on a volunteer basis by students, staff and interested persons, as schedules and weather permitted. Work was begun September 19 and the site was closed for the winter on November 18, with the exception of several test pits which were worked as weather permitted.

In addition to detailed excavation, a program of testing was initiated, to determine the extent of the bone bed. Results of excavation and testing in the 1971 season indicate a single event, continuous bone bed at least 35 meters long by 15 meters wide. The north, west and south limits of this bone

accumulation are yet to be determined. The faunal remains are one to three bones thick in a nearly continuous blanket, over the area tested. Overburden varies from zero to nine feet in thickness.

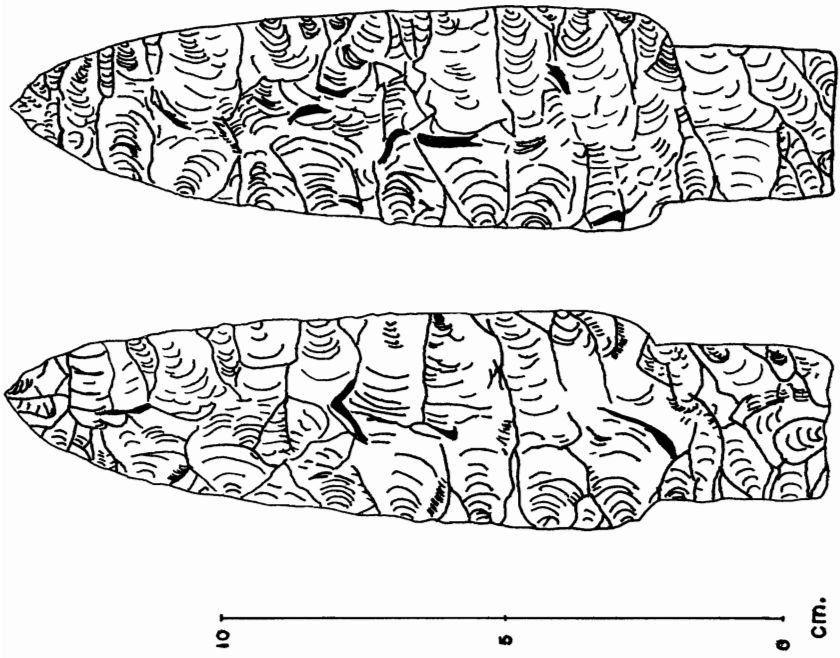

Fig. 1. Scottsbluff projectile point recovered from *Bison* rib cage. Line equals 10 cm.

The site was laid out in one meter squares, each square numbered and excavated as a unit. Testing had shown no overlying cultural material, so overburden could be removed until bone was encountered, with detailed excavation begun at that point. The square was excavated leaving all bone in place, photographed, mapped to scale, and as the faunal material was removed, each bone was given a field number designating the metric square and the number of that bone within the square. This data was also put on the field map, to allow identification of skeletal elements on the faunal map. A network of test pits was developed in an attempt to find the limits of the bone bed.

Bone condition varied from pulverant, in near surface exposure, to very hard and well-preserved under overburden areas. Some specimens were hardened with a 4:1 mixture of Elmer's glue and water, to allow removal.

Cleansing, permanent numbering and analysis were completed in the earth science research laboratory at the college.

The faunal analysis of the 1971 excavations is reported in Hoffman *et al* (Trans. Nebraska Acad. Sci. vol. 2). The results of this analysis indicate a bison population resembling those of the Lubbock, Texas (Sellards 1952) and Plainview, Texas (Sellards, et. al. 1947) localities as noted in the original reports and in the Bonfire Shelter report from Val Verde, Texas (Lorrain & Dibble, 1968). The remains recovered from the excavations of 1971 plus those exposed by excavation and testing indicate a population of 150-200 animals.

Analysis of the faunal material, its stratigraphic position, and the associated cultural material indicates the site to be a single occurence event. The absence of skulls and hooves indicate probable discard of low meat yield portions of the carcass, at the kill site. That is to say, that the bone bed and associated artifacts are the butchering area (butchering floor) immediately adjacent to the kill area. This can be tested, as one of the problems in the forthcoming field season.

The kill site is a situation similar to that at the Olsen-Chubbuck site in Southeastern Colorado (Wheat 1967, 1972). The spring area was the probable factor of herd concentration and location. It could also provide the trap. A second spring, just east of the site has eroded a deep narrow wash; up to 30 feet deep and 10-20 feet wide. A herd of animals could be stampeded into such a wash, being killed by the fall and the trampling of following animals, with as much efficiency as dropping them over a cliff; as is done in the classic buffalo jumps of the archaic to historic periods.

Faunal analysis is incomplete, the results of the 1971 excavations representing 48 square meters of the bone bed which totals over 525 square meters, as outlined by excavation and test pits.

The bones indicate a single occurence event and represent a butchering floor adjacent to the kill site. Plots of the skeletal elements, by bone and by portions of the carcass indicate tentative butchering patterns. Further excavation and analysis should confirm such phenomena.

Metric attributes of astraguli, calcanea, metacarpal and metatarsal elements were taken in an attempt to sex and age the animals, as well as to determine the species. A study by Sellards (1955) of astraguli from several Texas and New Mexico sites indicate that modern bison have an astraguli volume averaging less than 100 cubic centimeters. Extinct species of bison have volumes averaging greater than 100 cubic centimeters. The 33 complete specimens from the Hudson-Meng site range from 70 to 130 cubic centimeters, with an average of 95 cubic centimeters. At this time, we do not have a large enough sample to accurately determine the species. No horn cores or skulls have been recovered.

From scatter diagrams of the metric attributes of the skeletal elements listed above, it appears that the remains excavated in the 1971 season represent 24 animals, adults, and apparently half bulls, half cows.

At this time, no absolute dates are available for the site. Charcoal is present in small fragments among the bones but as yet not enough has been collected to allow a charcoal date. Bone and bone collagen dating is in process.

The projectile point serves as a relative age marker, fitting within the Plano substage of the Lithic (Willey & Phillips 1958). That it represents the Cody Complex is also accepted. Affinity to both Scottsbluff and Alberta points is noted. The size and flaking is more representative of the Alberta point, whereas the shape and style is more representative of the Scottsbluff point. Dr. H.M. Wormington (personal communication) has suggested it is a possible transition point between Alberta and Scottsbluff. This sequence is represented in stratified excavations at Hell Gap, Wyoming (Irwin, 1968).

The projectile point is 144 mm long, 37 mm wide, 9 mm thick. The material is "Knife River Flint", presumably from the source as described by Clayton, Bukley and Stone (1970). The point is unbroken, weighs 57.2 grams. The base is shouldered (31mm), basally ground, and slightly indented. Flaking is bifacial, bilateral, percussion probably by soft hammer techniques, showing good control and precision. Small retouch and use flakes are evident on the cutting edge.

The point was located, *in situ* in the collapsed rib cage of one bison. Analysis of the point and its position indicates the probability of its use as a knife in the butchering area. Its symmetry and style indicate it to be a projectile point. If paleo-Indians used spears with a detachable foreshaft, there is no reason why a spear point would not be utilized as a knife as well, especially during butchering activity.

In addition to the projectile point, eleven man-made flakes were recovered from the excavation of the bone bed. Seven flakes were of quartzite, the remainder of Knife River Flint.

The site will be investigated further during a five-week field session, offered as a field school, during the summer of 1972.

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