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ANTHROPOLOGY

PRELIMINARY REPORT ON THE 1979 EXCAVATIONS AT THE CLARY RANCH SITE

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During the summer of 1979 excavations at the Clary Ranch Site (Ash Hollow, Garden County, Nebraska) demonstrated the presence of a Late Paleoindian bison-butcher site. Bison tooth-eruption patterns indicate that the kill took place in late spring to early summer. Turtle and canid bones were also recovered. The presence of Frederick and Meserve points suggests an antiquity of more than 8,500 yr for the site.

† † †

INTRODUCTION

The habits of the early occupants on the Great Plains are fairly well understood. It is known, or at least supposed, that they were hunters and gatherers who relied principally on bison for food and raw materials. It is presumed that they lived in fairly small groups and occasionally congregated into larger groups either by accident or design. Certain raw materials such as Alibates Dolomite and Knife River Flint were sufficiently esteemed that they were carried far from their sources in the Texas panhandle and northwestern North Dakota, respectively.

During the last decade it has become increasingly evident that not all Paleoindian sites were occupied for the same reason. More importantly, archaeologists have been developing techniques to distinguish one kind of site from another. It is even possible to determine the season in which a site was occupied. This kind of information can only be acquired through the use of careful field techniques and meticulous record keeping. Necessary information usually is not available for sites excavated more than a decade ago because field notes were not sufficiently detailed. In many instances debitage and animal bones were discarded in the mistaken belief that they could provide no useful information.

Excavations at the Clary Ranch Site are providing new and more complete information about early man on the Great Plains. It is the first recorded kill and butchering site associated with materials of the Frederick Complex. Moreover, it is the first excavated Paleoindian bison kill which took place in the spring. When excavations are completed, much more information about the behavior of the early inhabitants of the Great Plains is expected.

THE CLARY RANCH SITE

The Clary Ranch Site (25Gd106) was reported to the University of Nebraska State Museum in 1970 and was visited by several members of the Museum staff. Because the Museum had no archaeologist at that time, nothing further was done until 1978. In November 1978 we tested the site through the use of a coring tool in order to estimate its extent. In 1979 extensive test excavations were made. A part of the data gathered at that time is included in this report.

Before excavation, the site was visible only as an intermittent, horizontal exposure of bison bones and flint chips included in old valley-fill (Terrace-2) deposits for a distance of some 300 m along the north-facing bank of Ash Hollow Creek in Garden County, Nebraska (Fig. 1). Most of the old valley-fill had been eroded so that about 2 m of colluvial and eolian sediments covered the occupational level, but some 15 m overlie the occupation level at the western end of the site.

The site shows in the exposure as a low bench or terrace-remnant against the Late Tertiary Ash Hollow Formation. Underlying the bone bed are sediments interpreted as the

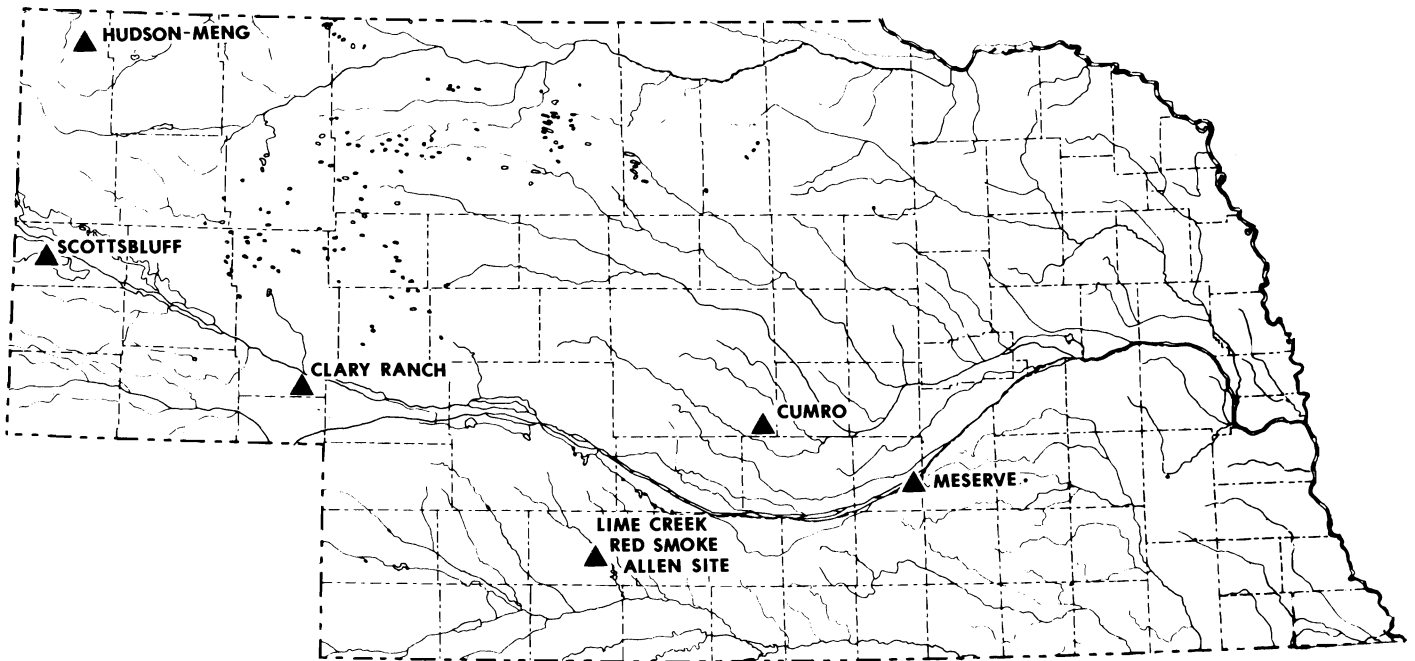


FIGURE 1. Location of the Clary Ranch Site and other selected Paleoindian sites in Nebraska.

remnants of an old bog containing charred wood and hackberry seeds. Since only one bone was found in the lower sediments, we believe that the site was dry, probably a meadow, at the time of occupation. The bone bed is in a water-laid buff silt which contains hackberry seeds and snail shells. Some of the bone-bearing deposits were eroded by a high-energy flood which deposited a pavement of large lime-cemented siltstone slabs above the bone deposit. Subsequently the entire fill was capped by recent alluvium. Soil samples from the bone bed and bog deposits were examined by Margaret R. Bolick, palynologist, University of Nebraska State Museum. No pollen was found.

METHODS

Overburden was removed from the bone bed utilizing contractors' earth-moving equipment. Survey datum points were established within and at the margin of the site and a 1-m grid system was laid out. The bone bed was exposed with hand tools consisting of trowels, paint brushes, ice picks, and dissecting needles. The bone-bearing sediment was moist and easily worked after initial exposure but became hard and nearly unworkable after several hours. Wash bottles were used to keep the sediment moist. Each square that was worked was allotted a page in a graph-paper notebook and the provenience of every bone and artifact within that square was recorded and field numbers assigned. A mosaic of the bone and artifact distribution of the entire site was constructed. A 5-ft contour

interval map of the Clary Ranch Site area was made using a plane table and alidade, and the area excavated in the 1979 field season was plotted. Elevations were derived from a bench mark 1.2 km east of the site.

The fragile condition of the bones permitted the exposure of only 50 m² in the time available. The bones were exposed and allowed to dry before several coats of preservative were applied. The fossils were then encased in plaster jackets and transported to the Museum laboratory. About 40% of the *Bison* material and all of the non-bison bones collected in the 1979 field season have been prepared. Matrix samples were wet screened yielding a varied gastropod fauna, which has not yet been studied. Additional screening may produce small vertebrates as well. All of the Clary Ranch artifacts and fossils discussed in this report are housed in the collections of the University of Nebraska State Museum (UNSM).

THE BONE BED

Bones in the bone bed were badly broken and almost wholly disarticulated. No bone larger than a metapodial was unbroken and most metapodials were also broken. There were only a few articulated bone units discovered in the 50 m² excavation. Such heavy butchering leaves the strong impression that the people were extracting every possible bit of nourishment from the bones of seven to eight bison. This would not be surprising in a winter kill site where more food

would be difficult to obtain. But, in a summer kill such heavy utilization is difficult to explain. It may suggest that many people were present.

It is difficult to determine the arrangement of the bone bed on the basis of excavations to date. The margin has been reached only on the south side, and we are close to the creek on the north. The bed continues to the east and west for a considerable distance. It is known that areas of dense bone accumulation are separated by areas in which there are few or no bones. The bone concentrations are more like lines of bones than piles. A better understanding of the configuration of the bone bed must wait until next season.

ARTIFACTS

During the 1979 excavations only two stone artifacts and thirteen flakes were recovered. In addition, a crude knife was found in the slump from an unexcavated portion of the site. Several flakes and a point tip were collected from the slump in 1978. Most of the flakes appear to have been resharpening flakes. No bone with a use mark or patterned wear has yet been identified.

Stone Artifacts

The two complete bifacial artifacts recovered from the bone bed in 1979 would ordinarily be classified as projectile points. However, closer inspection reveals step-fracturing, crushing, and faceting along the edges of the blades, suggesting that they may have been used as knives immediately prior to discard.

Artifact 1. Artifact 1 is a Frederick Point which functioned as a knife (Fig. 2a). It is made from yellow-brown Republican River Jasper (Carlson and Peacock, 1975, a Nebraska State Historical Society mimeographed article entitled *Lime distribution in Nebraska*) which outcrops along the Republican River in southwestern Nebraska. The oblique, parallel flaking characteristic of Frederick points is somewhat obscured by resharpening even though this technique was retained for some of the reworking. A slight alternate bevel is found on the right side of the blade. Several short basal thinning flakes have been removed from each side of the base giving it a somewhat wedge-shaped cross-section. Both basal and lateral grinding are present. Crushing, step-fracturing, and some faceting are evident along the blade edges. Measurements are presented in Table I.

Artifact 2. Artifact 2 is a Meserve Point which functioned as a knife (Fig. 2b). It was fashioned from dark-pink chalcedony with white inclusions, perhaps derived from Flattop Butte in northeastern Colorado. The blade is alternately

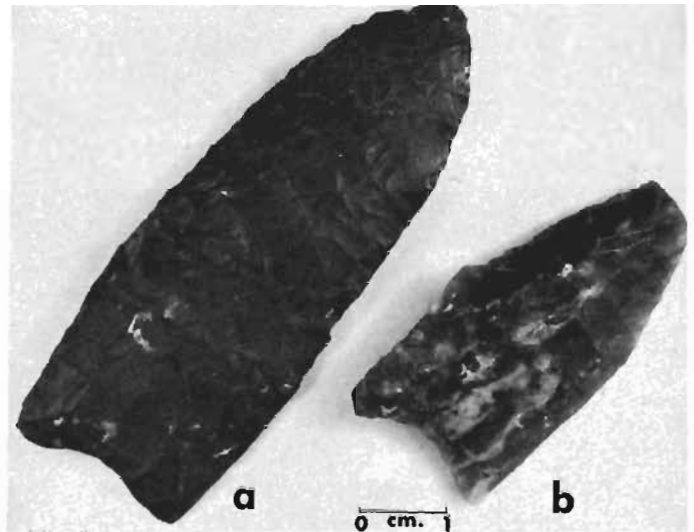


FIGURE 2. Stone points (knives) from the Clary Ranch Site. a. Frederick Point (L=6.5 cm), Republican River Jasper. b. Meserve Point (L=4.05 cm), Flattop Chalcedony. Scale applies equally to both points.

TABLE I. Metric attributes of points from the Clary Ranch Site.

Attribute*	Meserve Point (A79-22-1)	Frederick Point (A79-22-2)
Length	4.05	6.50
Width	2.00	2.50
Thickness	0.60	0.70
Basal width	2.00	2.10
Hafting width	2.00	2.35
Hafting thickness	0.60	0.55
Concavity depth	0.50	0.30

*Measurements in centimeters.

beveled on the left side, one edge being much more prominently beveled than the other. The original flaking pattern is difficult to determine because of reworking, but several horizontal, parallel flakes are visible on the obverse side of the point. Several basal thinning flakes have been taken from the base, leaving a wedge-shaped cross-section. Both basal and lateral grinding are present. Some faceting and step-fracturing are visible on the steeply beveled edge. The other edge is distinctly rounded, partially obliterating old step-fractures. The

measurements of this point are presented in Table I. The shoulder visible on the left side of the point in Figure 2 is 1.6 cm from the top of the basal concavity.

Artifact 3. A very thin projectile point tip made of brown agate with black inclusions was found on the slump during our visit in 1978. The thin, finely flaked tip is not similar to either of the two complete points recovered in 1979, but it is similar to the well-made Pelican Lake points often found in the Nebraska Sand Hills. Edge wear is very slight.

Artifact 4. This artifact was picked up from the slump of an unexcavated portion of the site by a visitor during the 1979 excavations. It is a thick, unifacial knife made from a pebble of greenish-brown agatized wood of the sort found in the local gravels. Crushing and step-fracturing are visible along the working edge.

Bone Artifacts

Although many bones showed spiral fractures, impact fractures, or butchering marks, no bone tool has been identified. However, one canid humerus had been ringed and snapped (Fig. 3), probably for the manufacture of some other artifact such as a bone bead.

FAUNAL REMAINS

Only three vertebrate taxa were found at the Clary Ranch Site during the summer of 1979, but additional work at the site including wet-screening is expected to reveal more. The



FIGURE 3. Ringed and snapped canid humerus (UNSM 78004). Total length is 3.93 cm.

Clary Ranch Local Fauna includes box turtle (*Terrapene ornata*), dog or coyote (*Canis* sp.), and bison (*Bison* sp.). Four or five species of snails appear to be present, but the invertebrate fauna will not be discussed in this report.

SYSTEMATIC DESCRIPTIONS

- Class Reptilia
- Order Chelonia
- Family Emydidae
- Terrapene ornata* (Agassiz)
- Ornate Box Turtle

Referred Specimens

Left anterior portion of carapace, UNSM 78000; costal fragment, UNSM 78001.

Discussion

The partial carapace is referred to the ornate box turtle even though some differences are noted. The shell is not as domed as in several modern individuals, and it is somewhat larger. Holman (1969:173) also found that *T. ornata* material from the Sangamon (Late Pleistocene) of Denton County, Texas, was somewhat larger than Recent individuals. The damaged nuchal most resembles *Terrapene* in that it is smooth, unkeeled, and unserrated. In these respects it differs from other emydid genera. Peripherals six through eight are longer than they are high.

The species is present but not common in some Middle to Late Pleistocene local faunas of the central Great Plains (Preston, 1979). It was also present at the Allen Site (UNSM Collecting Locality Ft-50) on Medicine Creek in southwestern Nebraska. It is commonly found today in treeless open areas of western Nebraska and is extremely independent of water (Hudson, 1958:94).

- Class Mammalia
- Order Carnivora
- Family Canidae
- Canis* sp.
- Undetermined Canid

Referred Specimens

Partial left articulated humerus and ulna, UNSM 78002; distal end right humerus, UNSM 78003; distal end left humerus,

UNSM 78004 (Fig. 3); proximal 3/4 right femur, UNSM 78005; two partial pelves, UNSM 78006 and 78007.

Discussion

At present it is not known whether this material represents coyote (*Canis latrans*) or domestic dog (*Canis familiaris*), and it is almost impossible to assign *Canis* post-cranial elements to a species (Walker, 1975:220). Even though the material falls within the size range of the coyote, its specific identity is uncertain because a coyote-sized dog (*Canis familiaris*) has been reported from an archaeological site in Canada (Wilson, 1975:209). The domestic dog has been reported from sites as old as 8,400 B.C. (Lawrence, 1968:43). At least two individuals are present in the Clary Ranch Site.

Order Artiodactyla

Family Bovidae

Bison sp.

Bison

Referred Material

Seventy-seven units consisting of partial horn cores, skull fragments, maxillae, mandibular rami, vertebrae, scapulae, ends of long bones, metapodials, carpals, tarsals, and phalanges, UNSM 78008-78084. Articulated bones were assigned a single permanent number.

Discussion

All of the long bones are fragmentary, the only complete elements being carpals, tarsals, and phalanges. Based on duplication of elements and aging of individuals at least seven bison individuals are present, ranging in age from about 3 mo to a mature individual which was about 10 yr old. No fetal remains have been found.

Only six partial rami and five maxillae were available for determining ages. Three of the rami and one maxilla are of an age group just more than 3 mo (0.3 yr) old (Figs. 4a and 5a,b). Four maxillae and one ramus (Fig. 4b) are of the 2.3 yr group; one ramus (Fig. 5c) may belong to the 4.3 yr group. Only one mature adult, more than 5.3 yr is present. No representative of the 1.3 or 3.3 yr groups has been found. Frison (1978a:51) found several individuals at the Vore Buffalo Jump, a Late Prehistoric site in northeastern Wyoming, which were 1-2 mo old. These individuals are apparently just slightly younger than the Clary Ranch specimens. It seems probable that a single kill event occurred at the Clary Ranch Site in early summer. This is quite unusual in that most prehistoric communal bison kills excavated to date took place during the fall (Reher, 1974:114).

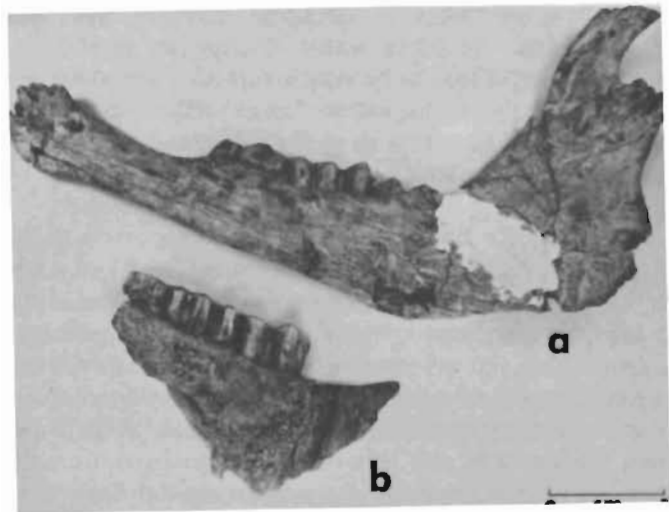


FIGURE 4. Bison tooth-eruption in two left mandibular rami. a. UNSM 78023, 0.3 yr. b. UNSM 78022, 2.3 yr. Total length of ramus a is 27.9 cm. Scale applies equally to both rami.

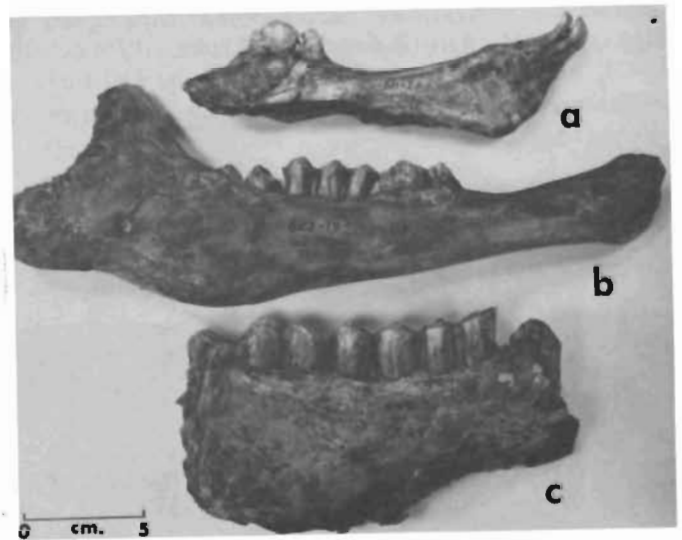


FIGURE 5. Bison tooth-eruption in three right mandibular rami. a. UNSM 78025, 0.3 yr. b. UNSM 78024, 0.3 yr. c. UNSM 78021, 4.3 yr. Total length of ramus a is 17.3 cm. Scale applies equally to all three rami.

The criteria which have been used for sex determination in bison, such as horn core length and curvature, mandible widths (Reher, 1973:94), and measurements of metapodials (Bedord, 1978), are taken from remains which are poorly preserved or nearly absent from our sample. It should be

noted, however, that some specimens are much larger than others, perhaps indicating sexual dimorphism. In addition, more bulls might tend to be associated with a site which was operated in early summer rather than one which was operated during the fall. Future work at Clary Ranch, however, may show a normal distribution of sizes.

Many of the bison remains show butcher marks in the form of scratches (Fig. 6), impact fractures (Fig. 7), or gouge marks. Such marks are seen on some mandibular rami, distal ends of humeri, dorsal spines of thoracic vertebrae, proximal ends of tibiae, and on some ribs. Other elements show obvious breakage from butchering such as the removal of dorsal spines from thoracic vertebrae, separation of the ball of the femur from the diaphysis, and removal of the dorsal arch from the atlas. As yet no systematic study of the skeletal elements to compare butchering techniques at the Clary Ranch Site with other sites has been made.

No attempt is made here to assign any of the Clary Ranch bison material to a specific taxon as only two horn cores are available and both are from relatively young animals. The size range of the material available falls within the size ranges of both the Scottsbluff bison (Barbour and Schultz, 1932; Schultz and Eiseley, 1935 and 1936) population and the Lipscomb population (Barbour and Schultz, 1936; Schultz, 1943), both collections of which are in the University of Nebraska State Museum. Undoubtedly this material can be referred to an extinct form.

CONCLUSIONS

Excavations in 1979 revealed that the Clary Ranch Site is a Late Paleoindian site occupied by people who used Frederick and Meserve points as knives. No radiocarbon date is yet available but the site's antiquity should be similar to the 8,690±380 B.P. date obtained for the Frederick level at the Hell Gap Site (Frison 1978b: Table 2.5) and the 8,862±260 B.P. date for the Meserve Site (Wedel 1961: 74).

Tooth-eruption patterns of a small sample of bison dentition indicate that the site was occupied in the early summer. Nevertheless, the animals were heavily butchered to the point of nearly complete disarticulation and the breakage of such poorly productive marrow-producing bones as metapodials. No bone larger than a metapodial was unbroken.

Future excavations in other parts of the site may reveal kill-and-camp areas with which to test preliminary conclusions and which should contribute to our knowledge of Late Paleoindians on the High Plains.

ACKNOWLEDGMENTS

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FIGURE 6. Butchering marks on a distal left humerus (UNSM 78045). Length of longest scratch is 0.67 cm.



FIGURE 7. Impact fractures on a distal left humerus (UNSM 78045). Total length is 14.8 cm.

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