

Some Archaeological Problems of the Montana Plains, With Special Reference to Inscription Cave

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For the past five seasons archaeological field work has been carried on by the Montana School of Mines and other agencies, in central and eastern Montana. The very large area to be covered, the difficulty of reaching many sites without long trips afoot or on horseback, together with lack of funds and of workers—all have necessitated making of much of the work a mere reconnaissance.

Only three intensive diggings have been carried on: the first, in the summer of 1936 at Ash Coulee, Prairie County, near Terry, with N. Y. A. help; the second, from June 15, 1937 to the present time at Inscription Cave, Yellowstone County, eight miles south of Billings, with W. P. A. labor and supervision; the third, during 1937, near Red Lodge. I shall consider first the general features as far as we understand them from our preliminary work, and second a brief summary of the work at both Ash Coulee and Inscription Cave.

Even the most cursory examination of both the Yellowstone and Missouri valleys and their tributaries will produce evidence of widespread and intensive prehistoric activity. Camp sites dot the map wherever springs or streams are suitably located on flat ground. Search for stratified open sites such as those at **Stearns Creek** in Nebraska has so far proved unsuccessful, except as will be noted later, at Inscription Cave.

Circles of rocks, the so-called "tepee-rings," mark many of the lowland camps. Typical stone artifacts—knives, scrapers, points, hammerstones, drills, awls, etc.—abound in many of the open camps. Burned and unburned bone, usually deteriorated, and an occasional bone implement or ornament, quanti-

ties of chips, and in a few places human burials, mark these open camps. Pottery is found everywhere in southeastern Montana, and as far west as Billings on the Yellowstone, Roundup on the Musselshell, and Great Falls on the Missouri. The greatest concentrations of pottery are at Ash Coulee and at the Hagen campsite on the Yellowstone near Glendive, which has been worked by Oscar T. Lewis, present chief field man at Inscription Cave.

Rock circles and long lines of rock piles are common both on the Plains and in the intermontaine valleys. That some of the "tepee-rings" were actually used instead of stakes to hold down the edges of tepees is an indisputable fact, evidenced by eye-witnesses. Thousands of these circles, however, lie on uplands far from wood or water. In few of these is it possible to find even a flint chip, or the charcoal from a single fire-pot. Their usefulness may always remain problematical. Perhaps they served no practical purpose and were merely "spirit tepees." The long lines of rocks, leading as many of them do apparently without pattern, straight over the hills, are also puzzling. Attempts to orient these lines with cardinal directions, with landmarks or burial grounds, or with known sources of water, have all failed. Some of the sets of rock circles and some of the lines of rocks, however, are part of the widespread early habit of buffalo driving or stampeding.

The Buffalo Drive appears to the archaeologist (the man with his eyes on the ground) to have taken three general forms. In the first type, the early Indians made use of a killing fall, a Buffalo Cliff, a sheer drop sufficiently high to kill the animals as they were

driven over. Most prominent of the Buffalo Cliffs in Montana are on the Madison River, six miles south of Logan, on the Yellowstone River south of Livingston at Emigrant, on the Marias River south of Shelby, and on Cut Bank Creek near Browning.

The second type is the Buffalo Trap, into which the animals were driven. Most of these are at the head of narrow coulees back of which are broad, flat uplands. Some still show the holes in which logs were set up and made into a corral. The bison were driven into the log corral and then killed as they crowded along the fence. Some of the traps were probably used in winter, after the snow had filled the heads of the coulees. The bison would bog down and become easy prey for the hunters.

Near these drives, which must have supplied large quantities of meat at one killing, are the old camps and the drying and smoking fires. Some of these camps are marked by ancient rock circles which probably were used practically in the setting up of tepees. Back of the actual spot where the stampede culminated, long lines of rock piles in the shape of a V lead away over the level ground. These may have been markers for those participating in the drive, where they could hide in the tall grass until time to jump up shouting and waving poles, bows, or pieces of leather to frighten the bison into stampeding.

Thousands of arrow-points, most of them quite small, have been dug from the bones at these drives. Careless amateurs have ruined one site after another in their eagerness to collect points, not stopping to think that they might be destroying for all time valuable scientific data. Most of these drives almost certainly were prehistoric. Absence of trade objects and of horse bones in the buried deposits supports this theory. After the Indians got horses, they could ride into the edge of

a herd and kill what meat they needed. A few of the drives were used with horses and riders to stampede the bison, as late as 1850.

Ash Coulee and Hagen Site.

Both at Ash Coulee, five miles southeast of Terry, and at the Hagen campsite four and one-half miles southwest of Glendive, large quantities of pottery sherds have been recovered—about ten thousand fragments from each site. Along with the pottery are the familiar stone artifacts of the Plains Indians, together with quantities of bone, an occasional bone implement, and parts of human skeletons. Both of these sites, in common with most of those on the Plains, are on open terraces, so that perishable material has been leached away.

At Ash Coulee the old camp has been plowed for forty years until no stratification of the material remains. Mixed through the top soil, twelve to twenty inches thick, is the cultural evidence of extensive occupation over a long period of time. The decorated pottery is all incised in geometric designs. Although the decoration is crude, the ware itself is remarkably resistant to weathering. Ceramic tests seem to show that this pottery was from Fort Union clays which lie under the topsoil and are interbedded in the Fort Union coal seams exposed along Ash Coulee. The tempering is also principally a white sand found along the valley.

At the Hagen site, most of the artifacts have been found in peculiar cone-shaped holes, more than five feet deep, about thirty inches in diameter at the top and sixty inches at the bottom. In these holes are quantities of pottery sherds, most of them cord-marked in patterns entirely different from those at Ash Coulee; hoes made from bison shoulder-blades; fire-burned rocks; and hundreds of broken human bones. Even the jaws are smashed, and some of them burned, indicating possible cannibalism.

Obviously, these semi-agricultural people whose remains are found in south-eastern Montana migrated there from either the East or the South. After many more years of field work, we hope to be able to trace these migration routes, to identify the travellers, and possibly to determine the relative age of the different groups.

Inscription Cave.

The group of rock shelters known as the Indian Caves, eight miles south of Billings, on the old Coburn Hill road, have been known for many years for the red and black pictographs found on the walls of Inscription Cave. The small valley now known as Empty Gulch and the caves themselves have been a favorite picnic ground for Yellowstone County people for many years, but it was not until this spring that the significant discovery was made by H. S. Barringer, of Billings, and Mr. and Mrs. Jim Browne, of Denver, that the floor of the present cave is underlain by a series of remarkable deposits extending to a depth of twenty-five feet or more, and showing human habitation almost throughout.

The caves are really erosional recesses at the foot of the Eagle Sandstone rimrocks. These have resulted from weathering in the soft shaly sandstone below the massive layer which forms the vertical cliffs of the rimrock. This erosion progresses until the shaly layer has entirely disappeared, leaving the roof of massive sandstone. Eventually the caves entirely disappear and a sheer wall of sandstone remains, with huge blocks at its base.

In Inscription Cave the intermittent stream which flowed over the top of the rimrock gradually over a long period of time wore away the sandstone until a large block fell, making a recession of about fifteen feet at the edge of the cliff. This allowed the waterfall, as it struck the large blocks of rock

at the foot of the cliff, to turn back into the cave itself, and cut a channel in the lower part of the cave. This channel was cut into the material which had accumulated on the old cave floors, exposing four levels of human habitation extending to a depth of thirteen and one-half feet vertically. Two of the old floors, one at a depth of four and one-half to five feet below the present surface of the lower cave, and the other four to five feet below the first, are continuous and apparently cut straight across the channel of the intermittent stream.

The material exposed was uncovered by the stream pouring over the cliff during heavy rains. As soon as Mr. Barringer and Mr. Browne had satisfied themselves that the old cave floors had been occupied by early Indians, as evidenced by fireplaces, flint and bone implements, and many animal bones, they communicated with me, turned the information over to the Montana Society of Natural History, and urged that excavation be started at once to prevent vandalism by careless amateurs. With the cooperation of the State Highway Commission, which employed Walter T. Vanaman as surveyor, the Montana Society of Natural History, which leased the land for one year, the Montana School of Mines, which sponsored the project, the Billings Commercial Club and other civic organizations which were interested in the value of the work for the tourist trade, the Department of Education and Recreation of the Works Progress Administration, which is furnishing the labor and the supervision, a camp was set up at the caves June 15, with Heilbronner, Phelan, Vanaman, and myself on the ground at all times.

Nationwide newspaper stories were released simultaneously by the Associated Press and the United Press the Sunday after we arrived, and aroused so much interest that more than three

hundred people came out to see what had been discovered. This flow of visitors has continued steadily ever since, until our register now shows that more than six thousand people have visited the caves since June 15. These people have come from all parts of the United States and from several foreign countries. They have been conducted through the caves by one of the men mentioned above, and so far as we know, the visitors have disturbed nothing.

Material as dry as the day is was crushed by rock falling from the roof, fireplaces, beds where Indians had slept, intimate household utensils, and bones of animals burned and still showing human tooth marks, have been found under tons of rock in Inscription Cave. No evidence of contact with white men has been found. Glass beads and metal implements are entirely absent.

Other old camps of the pre-horse Plains Indians have been in the open, exposed to rain and soil alteration. In these the perishable material has entirely disappeared, leaving only stone, hard bone, and pottery fragments such as those which have been found near Terry and Glendive.

No pottery has been found in the Indian Caves. Apparently the aboriginal occupants were bison hunters with no knowledge of agriculture.

In Inscription Cave have been found buckskin string with braided yucca interspaced with shell from the Pacific coast, amulets made of carved bone incised in a geometrical design on both sides, bone beads of heavy animal bone, incised and drilled, and fragments of hematite showing marks cut with a stone knife.

In the floor beds were fragments of a human skull, human teeth and other human bones. Arrow shafts and waste pieces showing marks of stone knife cutting were found, as were a shaft

showing arrow-straightener marks and a broken arrow straightener. There were shavings and chips cut with stone knives and axes, bone dressing tools wrapped with buckskin, pieces of soft buckskin, knives and other implements made of bone, polishing stones, scrapers, knives of various kinds of flint, peelings of Indian turnip and fragments of roasted Indian turnip, bison hoofs, bison horns, and other animal horns. We found bird bones and animal bones of many varieties, from rattlesnake and packrat to bison. Some of the bird bones showed stone saw marks, and there were also bird bone beads. A small stream boulder with pictograph in black was found. We have some very beautiful pictures in red and black on the bottom side of slab rock fallen from the ceiling showing both animal and human figures.

Although more than seven thousand individual specimens have been removed and catalogued, no attempt will be made in this paper to identify tribes on typological evidence. No striking difference can be noted between the stone artifacts from Inscription Cave and those from other prehistoric Plains sites. The cut wood lacks other similar material for comparison. The bone implements also do not differ from those taken from other Plains excavations. A careful correlation with available and properly documented historical and ethnological material may help identify the early occupants of Inscription Cave.

The importance of northwest Plains archaeology lies in possible discovery of early man after his crossing from Asia and his migration up the MacKenzie Valley, as well as in tracing subsequent movements of later peoples. Our preliminary survey shows that only through the intensive field work we hope to carry on in the next few years can these knotty problems begin to be solved.