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APPENDIX B

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A NATIVE AMERICAN BURIAL FROM 48YE1, FISHING BRIDGE PENINSULA, YELLOWSTONE NATIONAL PARK

BY

GARY A. WRIGHT, ROBERT PROULX, AND THOMAS KOENIG

In 1941, a Native American burial was discovered at Fishing Bridge Peninsula, Yellowstone National Park. The burial was that of a female about 40 to 45 years of age; the skeleton exhibits several severe pathologies. We date the burial to the Late Plains Archaic about 1150 to 1200 B.C. She was accompanied by at least one domesticated dog, and perhaps by a second dog and several artifacts.

Reports of Native American burials are still relatively rare for Wyoming. The comparative data were summarized some years ago by Gill (1974) and are occasionally updated (e.g. Eakin 1980). The purpose of this paper is to add to this data set through the description of a single burial from Yellowstone National Park.

HISTORY OF DISCOVERY AND REPORTING

The burial was discovered during the course of sewer construction on the Fishing Bridge Peninsula on the lowest terrace of the Yellowstone River near its outlet from Yellowstone Lake on August 27, 1941 (Condon 1948). The skeleton was removed by the construction crew, and was not examined in situ by a professional investigator. While the removal of the burial was underway, the incident was reported to David Condon, then Chief Naturalist for Yellowstone National Park. He visited the site, collected what osteological and artifactual materials he could obtain, screened the fill from the burial pit,

and interviewed the laborers. In 1948, he published a description of the burial, including an age and sex estimate in the Yellowstone Nature Notes (Condon 1948). This article has since been reprinted twice, but without the illustrations, once in the Plains Archeological Conference Newsletter (1948, Vol. 5, No. 1) and later in the Plains Anthropologist (1961, Vol. 6).

The site (below) was designated as 48YE1 on July 7, 1958, by an archeological survey party from Montana State University (Taylor 1964). Since the initial report, the burial has been referred to only rarely (e.g. Taylor 1964: 59-62; Wright et al. 1978: 25). This is fortunate since some of the information in Condon's (1948) original paper is either incorrect or cannot be verified.

THE SITE

The site is located on the Fishing Bridge peninsula on the east side of the Yellowstone River on the lowest terrace at the outlet of Yellowstone Lake at about 2362 m elevation (Taylor 1964; Koenig 1982). Although the site has been heavily disturbed by nearly a century of construction and prior artifact collecting, chipping debris can still be found over an area in excess of 15,000 m^2. Two other sites are found east of the outlet--48YE398 and 48YE419; both are on the north shore of Yellowstone Lake. Also nearby are sites 48YE304 along the western shore of the Yellowstone River at the outlet and 48YE380 and 48YE381 along the beach on the western shore of Yellowstone Lake (Wright et al. 1978). Overall, from this set of 6 sites we have a series of projectile point types that begin with late Paleo-Indian styles and extend into the Late Prehistoric Period (Taylor 1964; Wright et al. 1978). Absolute dates for 48YE1 as a whole range from 2695 B.C. to A.D. 1300 (Koenig 1982).

SITE STRATIGRAPHY AND DATES

During the summer of 1980 test excavations were conducted at 48YE1 as part of a larger National Park Service mitigation project at Fishing Bridge. The Field crews from the Midwest Archeological Center were directed by Wright; Koenig supervised the excavations at 48YE1. While on the site we were in communication with Condon who is now retired and living in Vernal, Utah. He informed us that the burial was recovered at the corner of Cabin 16 in the area where seasonal employees are housed. Since this portion of the site was not included in the mitigation package, we made no tests directly at the burial location. Thus, in order to ascertain the correct stratigraphic placement of the burial, it is necessary (a) to reconstruct the stratigraphic sequence for the terrace from the test pits in closest proximity to Cabin 16, and (b) compare that sequence with the depositional data recorded by Condon (1948).

The test pits under consideration are units 2, 4, 5, 6, and 7 (Koenig 1982). They were placed along the lowest terrace and are situated approximately 30 m west of Cabin 16. Each was a 1 x 1 m unit and was excavated to sterile soil. Each test unit may be separated into four clearly definable soil zones. Vertical depths for each soil zone exhibit little variability from unit to unit; most of the variability can be accounted for by surface elevation fluctuations.

Charcoal was rare except in the Charcoal Zone. The dates for the depositional units have been estimated from a series of obsidian hydration analyses made on flakes submitted from the various stratigraphic levels (Table 1). These analyses were performed by Joseph Michaels (MOLAB, State College, Pennsylvania). The age of the burial was determined by extrapolating from Condon's (1948) notes to our proposed depositional sequence; the burial pit could then be

placed into our stratigraphic framework. We were unable to obtain a direct C-14 date for the burial itself because it had been treated with a heavy glue, probably alvar. This rendered the specimen unfit for C-14 analysis (Robert Stuckenrath, Jr., personal communication). We can isolate four depositional units in the terrace.

A. Soil Zone 1 is a light medium brown loess with some sand. It has a consistent depth from the surface to 20 cm in each test pit. Three hydration dates from Zone 1 of 985, 926, and 903 B.C. (Table 1) indicate that the deposition of this unit began around 1000 to 1100 B.C.

B. The Charcoal Zone is a layer of charcoal and burned wood about 5 to 10 cm thick within the bottom of Soil Zone 1. It extends to the interface of Soil Zones 1 and 2. Condon (1948) stated that a layer of charcoal was present throughout the Fishing Bridge Peninsula, and that it represented a forest fire. But we were able to define it clearly only in units 6 and 7. There are two dates: 1129 and 1338 B.C. (Table 1). However, since the 1338 B.C. date is stratigraphically inconsistent with dates from the top of Zone 2 (and note its large standard deviation), it is here rejected. We suggest that the Charcoal Zone dates around 1100 to 1150 B.C.

C. Soil Zone 2 is a medium to dark brown loess with a high sand content. Pebbles are present, and the soil is extremely compact. Depth is 20 to 50 cm in all units except test pit 6 where it dips to 60 cm below surface. There are two dates of 1177 B.C. from the upper portion of this zone (Table 1). There are two additional dates from Soil Zone 2, both underlying the 1177 B.C. determinations: 1652 and 1738 B.C. (Table 1). We suggest that the formation of the zone began about 2000 B.C. and ended around 1150 B.C.

D. Soil Zone 3 is a medium brown to gold sand with a high content of pebbles

and gravel. The zone is less compact than Soil Zone 2. Depth is approximately 50 to 70 cm below surface. We have two dates of 2287 and 2575 B.C. (Table 1). We suggest a temporal range of 2000 to 3000 B.C. for Soil Zone 3.

E. Soil Zone 4 is a yellow/gold sand and gravel which grades into a fine grained beach sand. It begins at ca. 70 cm except in test pit 4 where it first appears at 55 cm. There are no dates for this soil zone, but it should predate 3000 B.C.

Condon (1948: 37-38) described the burial pit as ovate in shape; 5'7" (ca. 170 cm) (north-south) and 7'5" (ca. 226 m) (east-west). It was 40" (ca. 100 cm) in depth. It began 5" to 8" (13 to 21 cm) below the present ground surface and cut through the underlying strata into a layer of sand. The fill was a mixture of two or more geologic strata and pieces of charcoal. The top of the burial pit was marked by 37 flat rocks varying in size from 2 x 2" to 6 x 6" (ca. 5 x 5 cm to 15 x 15 cm). These had to have been intentionally placed on the top of the grave, and were probably carried there from the channel of the Yellowstone River. Immediately overlying the rock layer was a lense of charcoal which was uncut by the burial pit.

This undisturbed charcoal layer thus provides an excellent stratigraphic marker for correlation purposes. It begins at the interface of our Soil Zones 1 and 2 in test pits 6 and 7. Above we dated the initiation of the formation of Soil Zone 1 at 1000 to 1100 B.C. and the Charcoal Zone at ca. 1100 to 1150 B.C.

The rock layer which marks the top of the burial pit was, according to Condon (1948: 37, Fig. 3), just below the charcoal lense, and was at a maximum depth of 21 cm. This would place it at the top of our Soil Zone 2. We have

a date of 1177 B.C. from the 20-25 cm level at the top of Soil Zone 2 in test pit 2 and another of 1177 B.C. from the 30-35 cm level in test pit 6; the latter date is 10 to 15 cm directly below the Charcoal Zone. Together, these data suggest a minimum age of 1150 B.C. and a maximum age of ca. 1200 B.C. for the construction of the burial pit. With a depth of 100 cm the burial pit would have cut completely through Soil Zones 2 and 3 into Soil Zone 4. This would then account for the soil mixture in the pit fill reported by Condon (1948).

Finally, from test unit 6 we recovered an obsidian broad corner notched point from the 10-15 cm level in Soil Zone 1 immediately overlying the Charcoal Zone. We recovered a second obsidian broad corner notched point in test pit 6 from the 20-25 cm level in Soil Zone 2 immediately underlying the Charcoal Zone. The two points are typologically consistent with the temporal-stratigraphic sequence proposed here. Together the data are indicative of a Late Plains Archaic age for the burial.

THE SKELETON

The skeleton had already been removed from the burial pit prior to Condon's arrival at Fishing Bridge. The laborers informed Condon (1948: 37) that it had been placed face down in a flexed position with the head oriented about 10° to the south of west.

Some parts of the skeleton are relative complete and in generally good condition. Both the cranium and mandible are complete and have only minor postmortem disruption or deterioration. Although only one long bone is absent, many of those present are fragmented to one degree or another, some with factured shafts that have been reconstructed. Eleven vertebral segments have

remained from the cervical, thoracic and lumbar regions, almost all of which have undergone decomposition of the anterior centrum borders. Most of this destruction appears to be the result of postmortem processes rather than degeneration associated with aging. The right innominate is all that remains of the pelvic girdle. The smaller bones of the hands and feet were apparently too disintegrated for their recovery (see Condon 1948). Fragmented remains from the ribs, sternum, and scapulae have also survived. By and large, even though the skull is the only complete part of the skeleton, the post-cranial remains are sufficient to be of value.

The cranial and some post-cranial measurements of metric traits that were taken are given in Table 2. As stated, the skull and mandible were complete so that no estimations because of reconstructions were necessary for cranial metrics. However, it should be pointed out that the plastic preservative used completely covers every bone and therefore may affect the measurements taken since the thickness of the preservative is not known. It is doubtful that this alters the measurements by more than a few millimeters, which would be equivalent to differences due to interobserver error. It should be noted that Table 2 gives the measurements made in this investigation. Not all of them correspond with Condon's (1948: see table on page 42). Each of our measurements were taken twice and found to be consistent. Some of the measurements differ from Condon's by a minimal amount, others are substantially different. This difference probably comes from the use of different standards of measurement. Our investigation followed those in Brothwell (1963: 79-88).

Since the dentition is complete and all epiphyses are fully closed an age in excess of 20-23 years is assumed. Age determination then, must rely on criteria of morphological changes associated with the aging process. Con-

don's (1948) age estimation for this individual was 35-50 years old. Our assessment complies with this but we would narrow the estimate to between 40 and 45 years. This estimation is based on all available indicators, e.g. pubic symphysis, cranial suture closure, dental attrition, and auricular facets (See Lovejoy et al., n.d. for the use of auricular facets as an aging criteria). Some of these indicators are notably poor aging criterion when used by themselves, but used together and in conjunction with radiographic evidence they should provide a reliable estimation.

The original report states that the sex of the skeleton is male (Condon 1948). Our assessment is not in agreement. Although not all of the continuous traits are fully 'female' in appearance, the majority suggest that the individual's sex was in fact female. The skull lacks a high forehead and frontal bossing but the supro-orbital ridges are small and the orbital borders are sharp. In addition, the mastoid processes are small and the nuchal area is not extensively marked. The mandibular indicators are also consistent with female characteristics having an obtuse gonial angle and small pointed chin. The post-cranial skeleton is also indicative of the female sex with a wide greater sciatic notch and a preauricular sulcus present.

Enough of the long bones were recovered in good condition for a reconstruction of stature. Our estimate comes from the formulae established by Genoves' (1967) Mesoamerican study since these standards are the only ones established based on a native American population. Using the two femora and the left tibia yield a stature of approximately 154.22 cm, or 5 ft. ½ in.

This differs markedly from Condon's (1948) original estimate of 5 ft. 9 in. and may be due to any one of a number of factors. It is not clear in his

report as to exactly how the stature was estimated: "After assembling the remains into a semblance of their former order it has been determined that the individual was probably 5 feet, 9 inches tall..." (Condon 1948: 41). Perhaps he measured the length of the reconstructed skeleton laid out on a table and used length as height. If he did in fact use long bone measurements and ratios of long bones to stature to attain his estimate then the difference between our stature estimate and his may be due to observer differences in measurement. In addition, this would be compounded by the use of different standards, especially since he had determined the sex as male. Regardless of the means by which the original estimate was made, we are confident that the individual's stature was closer to 5 ft. ½ inch than 5 ft. 9 in.

Coinciding with the tall estimate of stature, Condon (1948) reported that the individual had a "fairly broad" build, citing pelvic and scapular bones as the indicators. In contrast, we find the individual to be small and almost feeble in morphology. Contributing to this appearance is a general lack of robusticity among the long bones and a vast array of pathologies, none of which are noted in the original report.

Unusual in its pathological condition is a marked depression on the posterior region of the skull. Beginning at approximately the mid-point of the sagittal suture, the depression spreads in a "V" shape posteriorly with a circular (1 cm) depression in the center (Fig. 1). Radiographs, however, do not show any internal pathology of the bone (Fig. 2). This condition bears such a remarkable similarity to that described by Stewart (1975) that a diagnosis of cranial dysraphism seems most appropriate. The lack of any endocranial disturbance in this case suggests only small meningocele involvement (Stewart 1975). In addition to the dysraphism, a large portion of the skull

exhibits a microporotic condition with other smaller depressed areas of increased microporosity. Whether these anomalies are related or not is indeterminate, but the latter does not appear to have been a major pathological problem for the individual.

Dental pathologies appear on both the mandibular and maxillary teeth and include premortem tooth loss, abscessing, caries, hypoplasia, and periodontal disease. With the exception of recession of the alveolus in the mandible, the dental pathologies are relatively minor in their state of affection (Fig. 3).

Post-cranially the extent of pathology is not nearly as mild. Of the eleven either wholly or partially preserved long bones, seven are pathologic. Both femora have a remarkable twist to the shaft such that when the head and neck are held in anatomical position the patellar surface is angled medially. The fibulae are severely bowed and twisted (Fig. 4 and 5). The bowing of these two bones results in their shafts being positioned directly behind the shaft of the tibiae rather than paralleling them. Since none of the other bones show any signs of osteoporosis or bowing, rickets and osteomalacia are probably not causes of this condition. We cannot satisfactorily explain it at this time.

The last of the pathologies is by far the most severe in relation to the health of the individual. Figures 6 and 7 show a marked area of disruption in the right ileum. The radiograph gives no clear indication that sclerosis had occurred around the wounded area. This suggests, as does the fact that a great deal of the area has been affected, that the infection may have been acute, rapidly invading the bone, rather than a chronic infestation. This is also supported by the lack of periostitic or osteitic changes. The condition may

have been caused by infection of an open wound or any internal infection in the pelvic area. It is unfortunate that the left inominate was not preserved. It may very well be that this pathology reflects the cause of death of this individual. Even if it does not, the pathology was probably quite painful and hampered the health of the individual.

As a last note Condon remarks on the similarity of his cranial measurements to those of the Pauite of Nevada, but admits that defining "Who the Indians were that made this burial can only be a matter of conjecture" (1948: 42). Because of the variations within populations, morphological affinity based on a single skeleton can not be well substantiated. This is especially true in this case since Condon is comparing a ca. 1150 B.C. skeleton to an historic Indian group. Instead of trying to place this skeleton within a morphological group we would simply like to add to the data base of the few skeletons there are from this area by comparing this female to the other females of different dates (see Table 3).

CANIS REMAINS

Condon (1948: 41) reported that two dogs were buried with the individual. Their positions relative to the human were not described. However, when we unpacked the osteological material, we discovered that portions of only one dog were present (Fig. 8). We have the following: (a) cranium with the left maxilla complete and containing I2-C and P4-M2 and the right maxilla containing C and P4-M2; (b) the mandible which is broken between i3 and c on both sides, and the left half with c and p3-m3 and the right half with c and p2-m3 [there was no p1 eruption in either half mandible]; (c) an ulna; (d) rib fragments, and (e) one vertebra. The cranium was crushed and badly reconstructed and

covered with a thick layer of alvar. We did not attempt a new reconstruction. The only metric data given here are dental measurements.

The remains may be typed as domesticated dog (Canis familiaris) rather than coyote (C. latrans) on the basis of several characteristics which are evident in this specimen including (a) the backward band of the posterior border of the cornoid process, (b) the curvature of the tooth rows, (c) the fact that the medial cusp of m1 is only half as large as the lateral cusp, and (d) the fact that only two of the cusps on p4 are developed (see Krantz 1959).

Its dentition ages the dog at approximately 6 to 7 months. Permanent canine eruption occurs between 5 and 6 months (Miller et al. 1964; Table 13-1). However, in this speciment the permanent canines are visible anteriomedial to the corresponding deciduous canines in the maxilla; this phenomenon lasts for 2 to 3 weeks in domesticated dogs. In addition, the eruption of M2 and M3 occurs at 6 to 7 months. Since both of these molars are present and the deciduous canines are still in place in the maxilla, these characteristics should age the dog to approximately its seventh month.

On the basis of the dental measurements, the specimen can be placed at the lower end of the size range of the eight series defined by Haag (1948: 225-238, Table 25). Comparative data are given in Table 4. This table presents the 48YE1 specimen along with the means from the two smallest series--the Kentucky shell-heap and Alabama shell-heap dogs--the slightly larger Woodland-Mississippi dogs, and for contrast the Wyoming wolf-dog hybrids from the Vore site 48CK302 (Walker 1980) which are far larger in size.

ARTIFACTS

Condon (1948) reported several artifacts from the work crew. He listed a pestle, a "pounding stone", 4 arrowheads, 1 spearpoint, 1 knife, 1 drill, and 1 elk antler flaker (Condon 1948: 38, 41, Fig. 1). By the early 1960s, the pestle, pounding stone, and elk anter flaker had disappeared from the Mammoth Museum where they were being stored (Taylor 1964: 60). Taylor (1964: 119-121, Fig. 15H, I, K) described 5 points from 48YE1 and illustrated 3 of them, but he did not specifically identify any of them as originating from the burial itself. Three of them are corner notched, and 2 are side-notched. Taylor also has a drawing of a drill from 48YE1 and a "triangular side-notched blade" which he did state was found in the burial (Taylor 1964: 134, Fig. 18F, 20B).

When we received the skeletal material on loan in 1978, we also requested the artifacts which are catalogued as "burial, Fishing Bridge". Our request was refused, but we did view what still remained of the collection in 1980 at the Mammoth Museum. We recorded 1 obsidian biface (=Taylor's triangular side-notched blade), 2 obsidian flakes with unifacial retouch, 1 obsidian drill, 8 flat stones from the rock pavement overlying the top of the burial pit, and 2 points with shallow side-notches. Typologically, the points are temporally too late in time to be considtent with the date suggested here for the burial.

Since Condon did not himself see the artifacts in place, it is impossible for us to ascertain which ones go with the burial, which ones came from the pit fill or the overlying stratigraphic levle (Soil Zone 1) which was disturbed during the digging of the sewer line, and which ones might derive from surface collections from the site. Our own surface collections have produced a variety of points including lanceolate, indented base, corner notched, and side-notched forms. Condon obtained the artifacts from the workmen who had dis-

covered the grave and who had already removed its contents. Association of any of these artifacts with the burial can only be accomplished through presumption; it cannot be demonstrated satisfactorily.

SUMMARY

We have here reported on a Native American burial from 48YE1, Fishing Bridge Peninsula, Yellowstone National Park. We have dated the burial to the Late Plains Archaic around 1150 to 1200 B.C. The individual was a female about 40 to 45 years of age. She showed numerous pathologies including bowing and twisting of the femora and fibulae and one from either an internal infection or an open wound in the pelvic area. Cranial and long bone measurements are given along with comparative data from other prehistoric females, but no attempt is made at an ethnic or tribal identification.

We have presented Condon's (1948) description of the accidental discovery of the burial pit and the information he elicited from the work crew. The details of the interment cannot now be confirmed. He reported two domesticated dogs, but we received only one; this one we described. None of the presumed artifacts were made available to us for a detailed analysis.

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TABLE 1

Obsidian hydration dates from 48YE1[1]

Sample No. SUNYA-	Test Pit, Depth cm	Soil Zone	Age B.C.
4	2, 5-10	1	903 ± 241
7	4, 0-5	1	926 ± 218
9	5, 15-20	1	985 ± 289
13	7, 15-20	Charcoal	1129 ± 209
11	6, 15-20	Charcoal	1338 ± 510
12	6, 30-35	2	1177 ± 161
5	2, 20-25	2	1177 ± 338
14	7, 35-40	2	1652 ± 253
15	7, 50-55	2	1738 ± 254
10	5, 65-70	3	2287 ± 213
8	2, 55	3	2575 ± 143

[1]Samples run by MOHLAB, State College, Pennsylvania.

TABLE 2

48YE1 Skeletal Measurement, cm

Cranial:	
Maximum length	17.4
Maximum Breadth	13.6
Basion-Bregma	12.1
Basion-Nasion	9.1
Basion-Alveolus	9.7
Upper-facial Height	7.0
Bimaxillary Breadth	9.5
Bizygomatic Breadth	11.1
Nasal Height	5.0
Nasal Breadth	2.5
L. Orbital Breadth	4.0
R. Orbital Breadth	3.8
L. Orbital Height	3.6
R. Orbital Height	3.5
Palatal Length	4.9
Palatal Breadth	3.5
Minimum Frontal Breadth	8.7
Biasterionic Breadth	10.7
Cranial Index	78.1
Mandibular	
Intercondylar Width	9.8
Bigonial Breadth	8.0
Foramen Mental Breadth	4.4
L. Minimum Ramus Breadth	3.5
R. Minimum Ramus Breadth	3.2
Symphyseal Height	2.8
Maximum Mandibular Length	10.7
L. Coronoid Height	5.4
R. Coronoid Height	5.3

Postcranial:	
Femur	
R. Maximum Length	40.40
L. Maximum Length	39.70
R. Minimum A-P Diameter	2.44
L. Minimum A-P Diameter	2.36
R. Minimum Trans. Diameter	3.22
L. Minimum Trans. Diameter	3.21
Tibia	
R. Maximum Length	--
L. Maximum Length	33.80
R. Maximum A-P Diameter	3.10
L. Maximum A-P Diameter	3.19
R. Maximum Trans. Diameter	2.13
L. Maximum Trans. Diameter	2.17
Humerus	
R. Maximum Length	28.50
L. Maximum Length	--
R. Maximum Diameter	2.26
L. Maximum Diameter	--
R. Minimum Diameter	1.46
L. Minimum Diameter	--
Fibula	
R. Maximum Length	31.30
L. Maximum Length	32.10

TABLE 3

Comparative cranial measurements (in millimeters)

	Gordon* Creek ca. 7750 B.C.	Y8YE1 1150-1200 B.C.	Laramie** 2000-3000 B.C.	Turk*** ca. A.D. 1280
Maximum length	173	174	179	172
Maximum Breadth	138	136	(132)	129
Basion-Bregma Height	---	121	---	122
Basion-Nasion	---	91	(105)	99
Bizygomatic Breadth	---	111	(134)	---
Nasal Height	47	50	40	48
Nasal Breadth	---	25.5	28	24
Left Orbital Height	---	36	34	35
Right Orbital Height	29	35	36	---
Left Orbital Breadth	---	40	39	40
Right Orbital Breadth	37	38	40	---
Minimum Frontal Breadth	---	87	92	93
Intercondylar Width	118	98.5	125	---
Bigonial Breadth	96	80.5	98	---
Cranial Index	79.70	78.10	73.74	75.00

*from Breternitz et al. 1971, Table 2, page 174.

**from Agogino 1961, page 204.

***from Birkby and Bass 1963, Table 1, page 109.

()estimations.

TABLE 4

48YE1 Canine measurements and comparative means, cm

	48YE1	Kentucky Shellheap[1]	Alabama Shellheap[1]	Woodland-Mississippi[1]	Wyoming Wolf-Dog Hybrids[2]
12. Orbit to Alveolus I1	67.4	65.1	68.2	67.8	107.2
19. Alveolus I1 to M2	78.1	80.0	82.4	83.2	121.5
20. Alveolus Canine to M2	66.5	66.8	68.4	71.3	101.7
21. Alveolus P1 to M2	54.3	55.8	56.7	59.2	83.4
22. Alveolus P2 to M2	48.4	49.7	50.3	50.5	74.4
23. Alveolus M1 to M2	15.3	15.8	15.7	16.6	22.2
24. Length carnassial P4	16.3	16.1	16.1	18.1	24.4
26. Alveolus canine to M3	74.1	75.5	77.3	79.7	
28. Alveolus p2 to m3	58.1	58.8	60.0	62.0	
29. Alveolus p3 to m3	51.0	50.6	51.1	53.1	
30. Alveolus p4 to m3	41.1	40.4	40.6	42.1	
31. Alveolus m1 to m3	31.1	30.4	30.2	31.7	
32. Length carnassial m1	19.5	18.6	18.7	19.3	

[1]Mean values from Haag (1948: Table 25).

[2]Mean values from Walker (1980: Table 29).

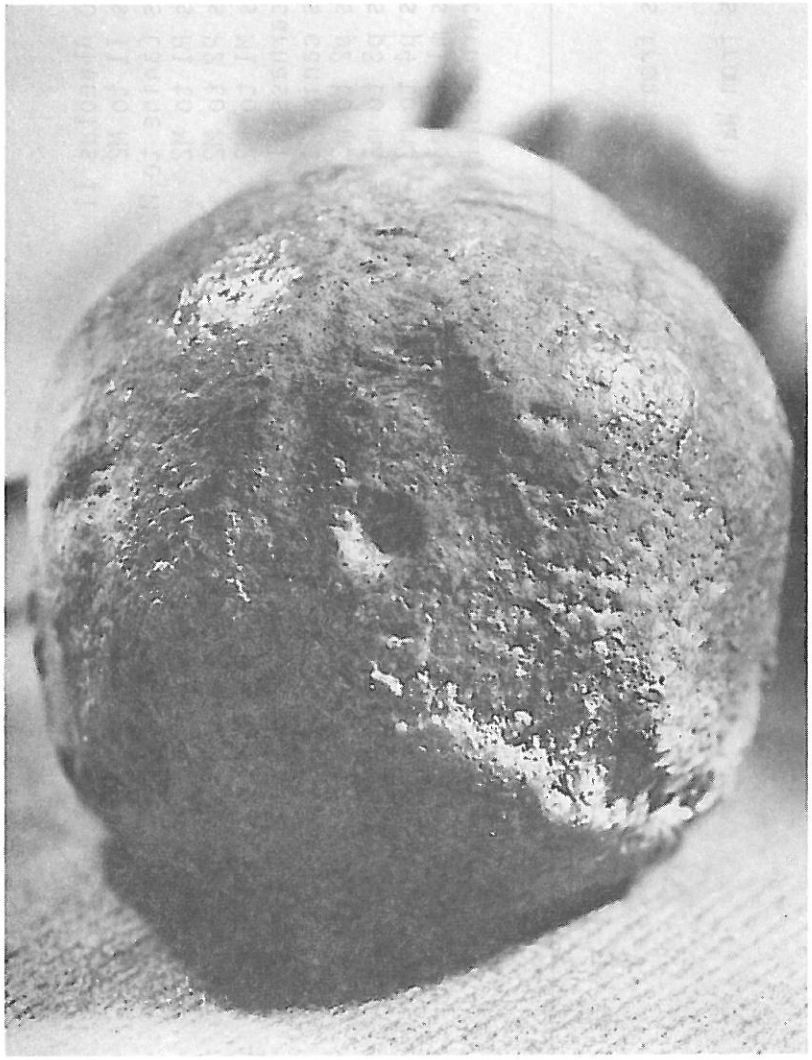


Fig. 1:

"V" shaped depression on the posterior of the cranium along the sagittal suture characteristic of cranial dysraphism. Also evident are the microporotic condition and other depressions possibly related to tumors.

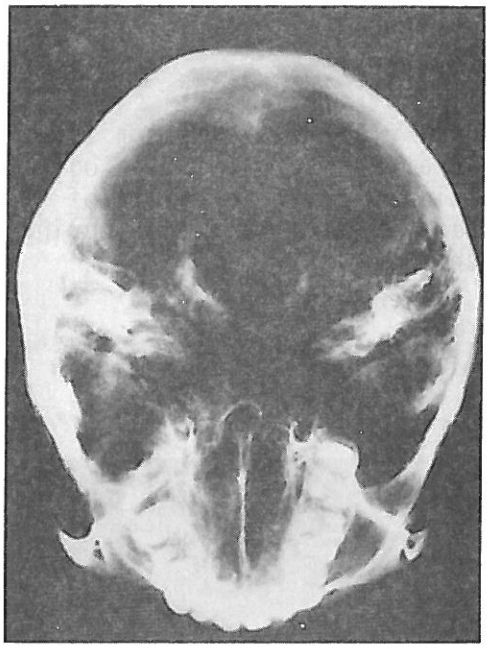
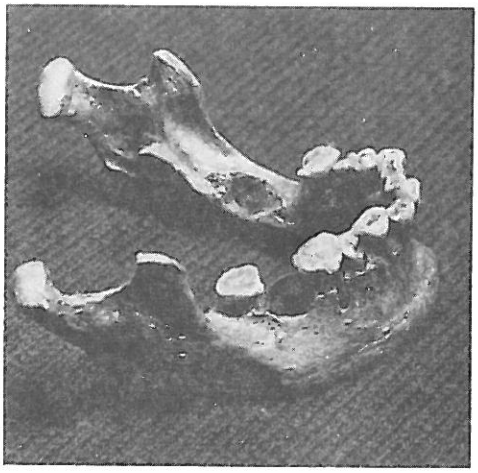


Fig. 2 (left):

Base view radiograph of the cranium. The area of interest is at the top of the figure, which shows no internal pathology.

Fig. 3 (right):

Mandible from the female burial. Noticeable are: the state of attrition; periodontal disease around the premolars and first molars; an abcess around the molar root socket in the lower half; and bone resorption on the upper half indicating premortem loss.



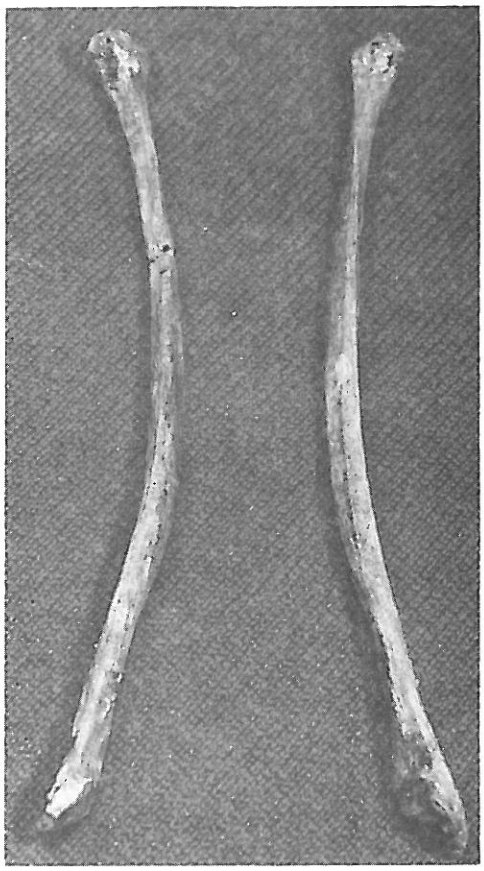


Fig. 4 (left):

Left and right fibulae from the burial at 48YE1. The pathological condition may be the result of pressures from other bones during growth.

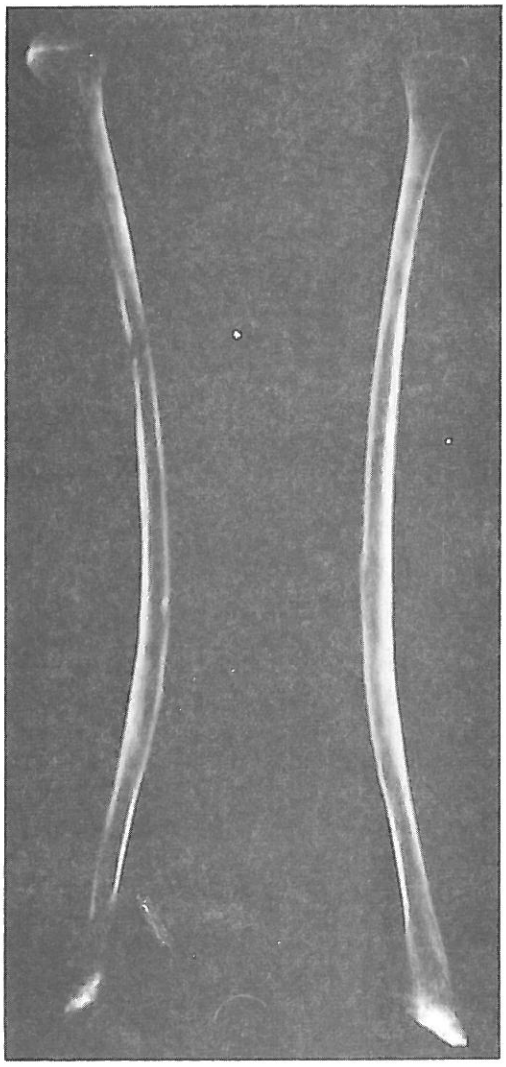


Fig. 5 (right):

Radiographs of pathological fibulae. The presence of normal cortical thickness suggests the cause is not a metabolic disorder.

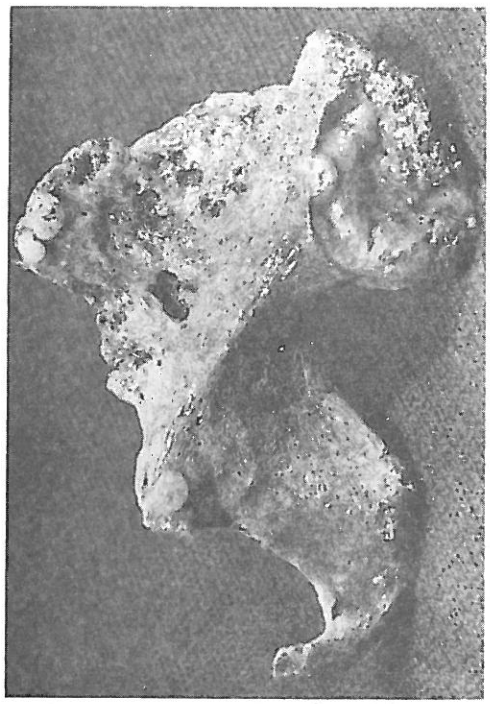
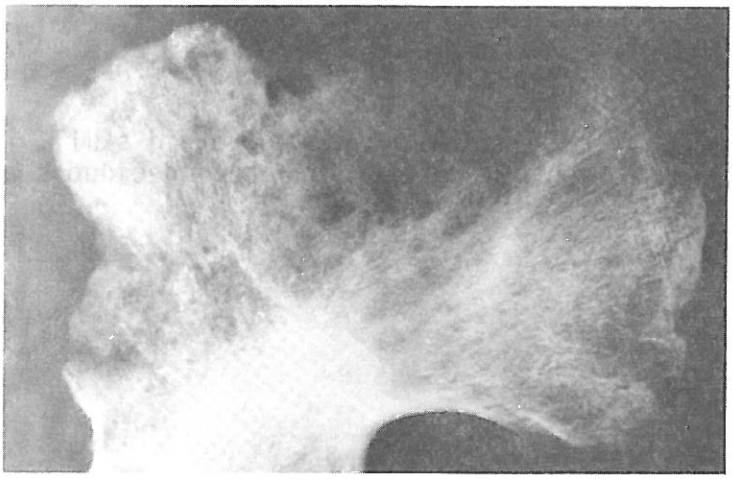


Fig. 6 (left):

The female's right ileum showing areas of decomposition at the anterior and superior borders and an area of infection in the center of the blade above the arcuate line.

Fig. 7 (right):

Radiograph of the right ileum. The lack of sclerosis around the affected area suggests an acute infection.



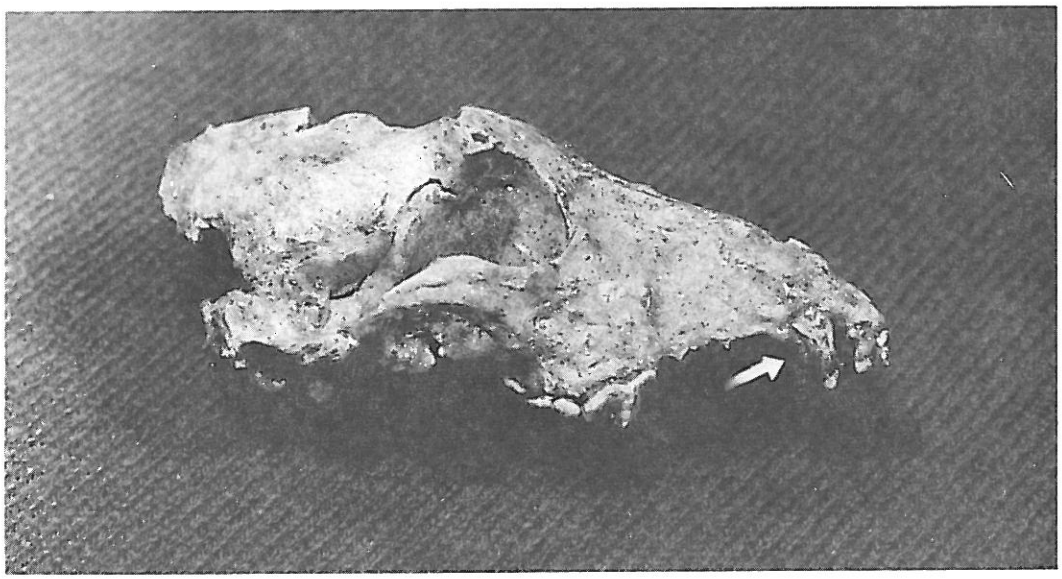


Fig. 8:

Right view of canid skull. Arrow points to presence of both deciduous and permanent canines.

PETROGLYPHS AT BEEHIVE ROCK

CARBON COUNTY, MONTANA

by Thomas H. Lewis

Site 24CB618 SW Conner
NE¼NE¼SE¼
Sec 9 T 35 R 22E

Beehive Rock is an isolated dome of sandstone on the heights about Young's Point on the Yellowstone River. One approach is by farm roads leading about nine miles from Joliet. The site is in grass and pine, and offers an observation point for many miles in all directions. It is near a long-deserted ranch house and corrals, but the country is now virtually empty of habitations. The sandstone exposed here contains many purplish, hollow concretions. The glyphs are heavily vandalized, evidently early in this century. Wolf Canyon lies to the west, and Cole Creek to the south. Detailed access data, describing a series of partly-obliterated roads, is given in the site report.*

The glyphs are all faint, eroded, and are cut into weathering sandstone. The incision lines are shallow and knife-thin. The sandy footing contains a scattering of fractured quartzite pebbles with cutting edges.

Fig. 1 Narrow-waist personage with elaborate headdress, 37 cm.

Fig. 2 Shield warrior with weapon and a broom-like structure across the legs, 40 cm.

Fig. 3 Head with elaborate headdress, 35 cm.

Fig. 4 "Tipi", 20 cm.

Fig. 5 X-shape, 28 cm.

Fig. 6 "Tipi", 20 cm.

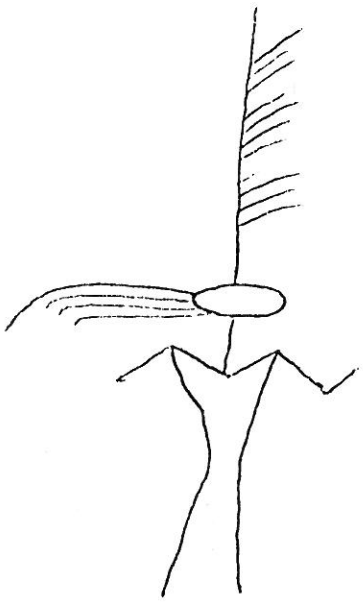
Fig. 7 Two tipis, old, eroded

Fig. 8 Four faint geometric figures. One resembles a lance head, 19 cm.

Fig. 9 Circle, faint

The site report of 1971 describes additional tipi-like glyphs, very faint, and an additional rectangular bodied personage with headdress similar to Figs. 1 and 3. Worked chips were reported at the base of the panels.

*Just north of Joliet turn north from US 212 onto gravel road. After 3.5 miles cross divide into Yellowstone drainage. At 7.1 miles turn right. At 7.9 miles cross Cole Creek and turn half-left up hillside. At 9.0 miles use center road on edge of plateau, turn left to rock outcrop at 9.4 miles.



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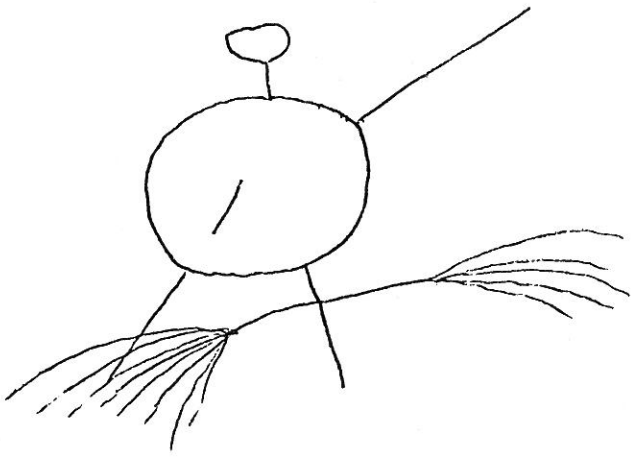

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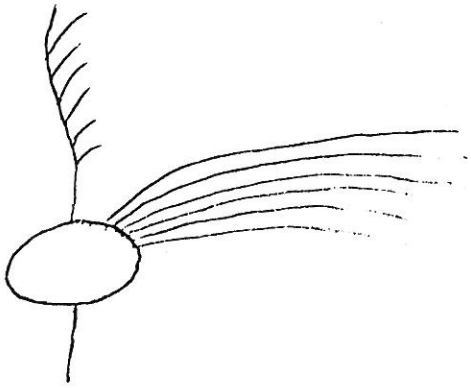

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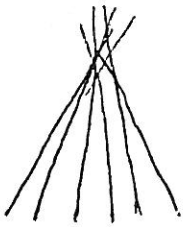
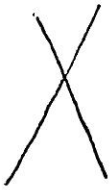


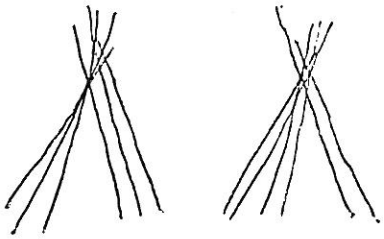
4

Scale drawings



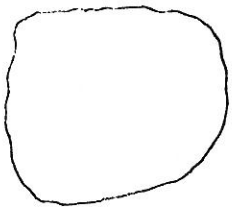
5. 28 cm

6. 20 cm



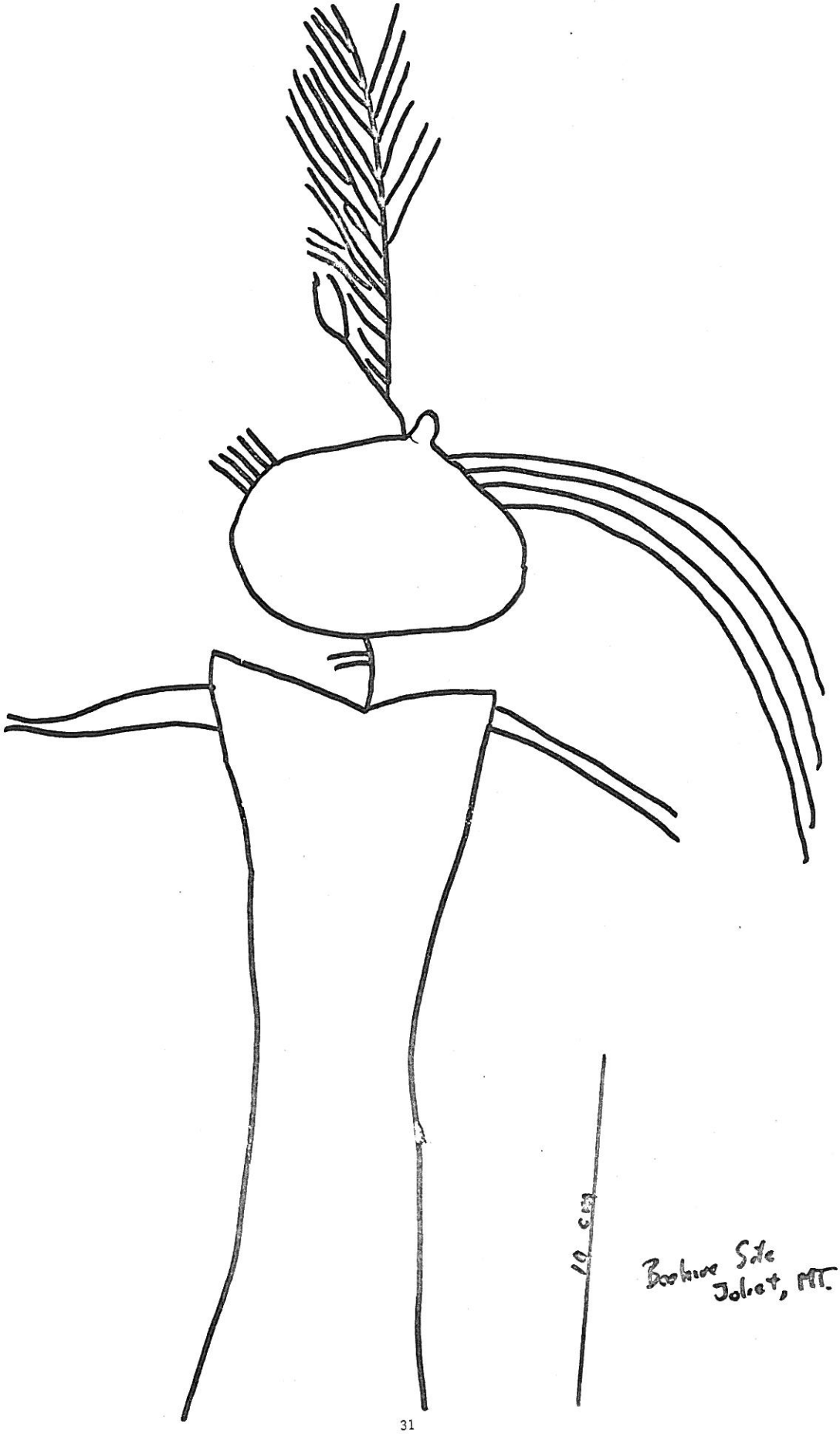
7. 15 cm

8.



9 cm

Scale drawings


10 cm
Bookhout Site
Joliet, MT.