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Descriptive Analyses of Two Late Prehistoric Burials From Southwestern Idaho

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Data relating to prehistoric human skeletal material from the northern cultural Great Basin are scant, especially for the period dating within the last 2,000 years. Recent discoveries of two separate prehistoric inhumations in southwestern Idaho resulted in professional data recovery efforts by the Idaho State Historical Society. The radiometric assessments of the remains place the date of the interments at approximately 900 and 1,300 years ago. Descriptions of each burial and associated artifacts serve as a baseline for future studies in human paleobiology in this region.

THE human osteological record for the extreme northern cultural Great Basin, which includes portions of southeastern Oregon and southern Idaho, is extremely limited. With the exceptions of the Mecham site (Gruhn 1960), the Braden site in western Idaho (Harten 1975, 1980; Butler 1980), and the Buhl burial (Green et al. 1998), there have been no reported professional excavations of prehistoric human skeletal material for southwestern Idaho. In addition, the Manning site provided osteometric data for an isolated skull removed from a rockshelter (Gruhn 1961). The oldest of these human remains, the Buhl burial, was recovered from gravel deposits in a sand and gravel quarry in 1989. A radiocarbon assay on a portion of the Buhl skeleton returned results of 10,675 ± 95 RCYBP (Beta-43055; ETH-7729) (Green et al. 1998).

The remains of 14 individuals from the Braden site near Weiser, Idaho, have been dated to 5,790 ± 120 RCYBP (WSU-1487 [Butler 1980]) and 6,590 ± 90 RCYBP (Beta-90555 [Yohe and Pavesic 1996, 1997]). The Mecham burial is estimated to date between 1,250 and 750 B.P. based on artifact types (Gruhn 1960), while the Manning site skull is of indeterminate age (Gruhn 1961). In short, the biological anthropological data base for any one period in prehistory in this region is minimal.

In 1992 and 1996, the Office of the Idaho State Archaeologist was contacted about two separate burials that were encountered as the result of accidental discoveries of human remains on private and state land. The first burial was discovered during a land-leveling operation on the Royalon Farms in Payette, Idaho. The second burial, which was found by a Boy Scout troop leader, was eroding from a creek embankment south of Marsing, Idaho. The artifacts and radiometric assessments place both burials in an age range between 900 and 1,300 years B.P. The importance of these discoveries and the subsequent analysis of both the skeletal remains and the artifacts is that they represent the first professional studies of prehistoric burials of less than 1,500 years of age in more than 35 years, and add important information to a limited data base.

THE ROYSTON BURIAL (10-PE-20)

The Royston burial site (10-PE-20) is located off Washoe Road in Payette, Idaho. The gravesite lies in a farm field across from the Royalon Farms Dairy (Fig. 1). On May 5, 1992, a heavy equipment operator for Royalon Farms discov-

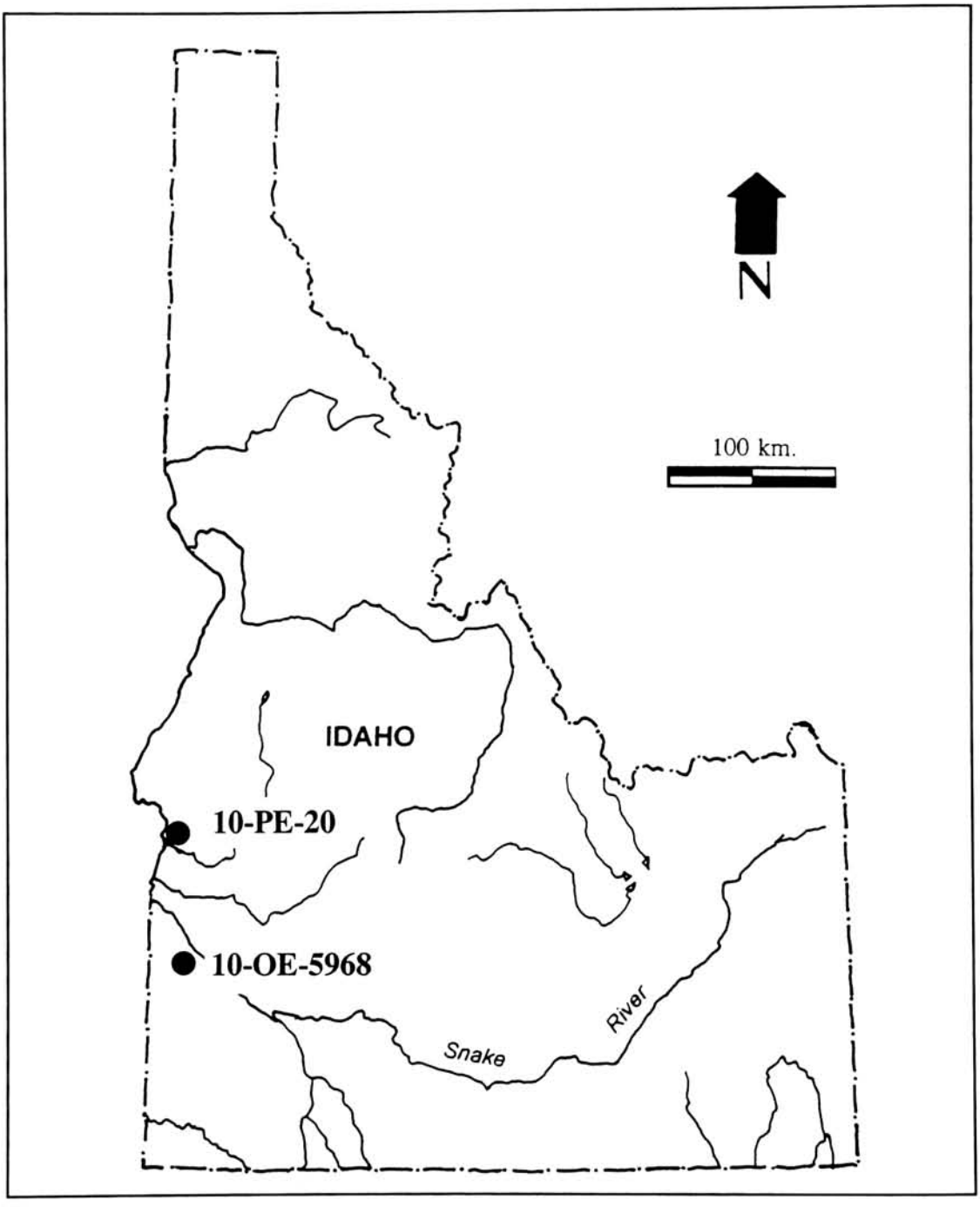


Fig. 1. Locations of the Royston (10-PE-20) and Hardtrigger Creek (10-OE-5968) burial sites in western Idaho.

ered the burial during the removal of two feet of soil from the field during land-leveling operations. The first foot was strictly plow zone, but upon leveling the second foot, the operator no-

ticed a dark circle about one meter in diameter. Digging continued until a human skull was uncovered. The Idaho State Historical Society then received an anonymous phone call about the grave and responded by asking the Payette County Sheriff's Office to investigate the situation in the event that the remains might be that of a homicide victim or missing person. The Sheriff's Office quickly retrieved the bones and artifacts and concluded that the remains were prehistoric in nature. The Idaho State Historical Society crew arrived the following day to screen the loose dirt and to excavate the remaining grave materials, retrieving many additional artifacts and human bones. Subsequent to the discovery, and pursuant to state statute, the state archaeologist at that time, Tom Green, sent a letter to the Shoshone-Bannock tribal chairman explaining the circumstances of the recovery of the human remains and requested input regarding future disposition of the remains and grave goods following scientific analysis. No response to the letter was ever received and analysis was delayed until the spring of 1997.

The vegetative community surrounding the Royston burial site changes seasonally since the field is currently farmed, but prehistorically it would have been mixed sage scrub. The site is located on a high terrace between the Payette and Snake rivers at an elevation of 663 m. (2,175 ft.) asl. The site falls within the ethnographic territory shared by the Northern Paiute and Northern Shoshone Indians. The remains found at the site seem to represent an isolated burial since no other graves or cultural materials were found in the field, nor were any other sites or artifacts observed in the surrounding area.

The Burial

Due to the coarse recovery methods employed by the Sheriff's Office in the recovery of the skeletal elements and artifacts from the burial site, no detailed information is available regarding the positioning of the skeleton or the relationship of various artifacts to the human remains. However, during the excavation undertaken by the Idaho State Historical Society, many additional artifacts, some small skeletal elements, and charcoal samples for radiocarbon assays were retrieved. An area two $m.^2$ was exposed around the burial feature and screened separately from the contents of the burial pit. All of the soils were screened through 1/8-in. hardware mesh and soil samples for flotation studies were collected.

Among the findings of the excavation were ash and numerous burned artifacts. The burial pit contained burned artifacts, as well as charcoal and oxidized soil, but none of the human bones showed any evidence of thermal alteration. This suggests that certain personal belongings were burned in the grave before the body was placed inside. Along with the burned artifacts, bone and flaked stone artifacts, including several projectile points, were retrieved. These are described below in greater detail. The skeletal remains recovered were those of an adult male. The bone preservation was found to be generally good, with the exception of the postmortem damage to the skull caused by the land-leveling operation and the initial hasty removal of the bones. The skull was damaged extensively; the only portions recovered were the mandible, the maxilla, and the base of the skull. Many of the postcranial bones exhibited shovel scrapes, indentations, and breaks.

Burial Pit Description

The burial pit feature was first noted at approximately 30 cm. below the surface after the initiation of ground-leveling activities. The burial pit appeared as a dark circle 1.5 m. in diameter with the skull protruding from the ground surface (Fig. 2). The pit continued to a depth of approximately 80 cm. below the surface of the plowed field. As noted above, the actual positioning of the skeleton within the burial pit is unknown due to the manner of its removal. The bottom of the feature was filled with charcoal

Fig. 2. Photograph of the Royston burial pit after the removal of the burned artifacts from the bottom.

and burned artifacts, apparently the result of the burning of the grave goods prior to the actual inhumation. Only one distinct soil stratum, a homogeneous fine sandy-silt deposit, was distinguished during the excavation.

Chronology

A charcoal sample from the bottom of the burial pit was submitted to Beta-Analytic, Inc., for radiocarbon assay. Since the charcoal represents organic materials burned just prior to or during the burial ceremony and was found in direct association with the skeleton, this sample is believed to provide a fairly accurate date for the remains.

The sample yielded a range of 1,050 ± 60 RCYBP (Beta-53630) to 850 ± 70 RCYBP (Beta 53631). These dates are consistent with the presence of both Eastgate and Rose Spring points in the burial (see below; also see Thomas [1981]; Holmer [1986]).

Associated Artifacts

Many artifacts were found with the Royston burial, including four Eastgate points, three Rose Spring points, two unclassified points, three bifacial arrow point preforms, and five bifaces (including a drill, a knife or spear fragment, and a core). Also recovered were 28 burned bone shuttle fragments, a bone handle (?) fragment, a polished bone spatulate tool, a bone awl, and a sandstone abrader. Five or six shell or bone beads were found during the initial investigation, but were apparently lost in transport from the site in 1992 and were not available for this analysis. The only nonhuman faunal material recovered were the intrusive remains of a small sciurid (cf. *Eutamius* sp.).

Flaked Stone Artifacts. ***Projectile Points***. Four Eastgate and three Rose Spring projectile points were recovered from the bottom of the burial feature (Fig. 3a-g, Table 1). Two other points, consisting of one distal end and one midsection (Fig. 3h-i), could not be typologically classified. Rose Spring and Eastgate points are believed to represent distinct styles of projectile points, differentiated by preform type (ovate versus triangular) and notching (basal versus corner/side) (see Bettinger 1989; Yohe 1991, 1992).

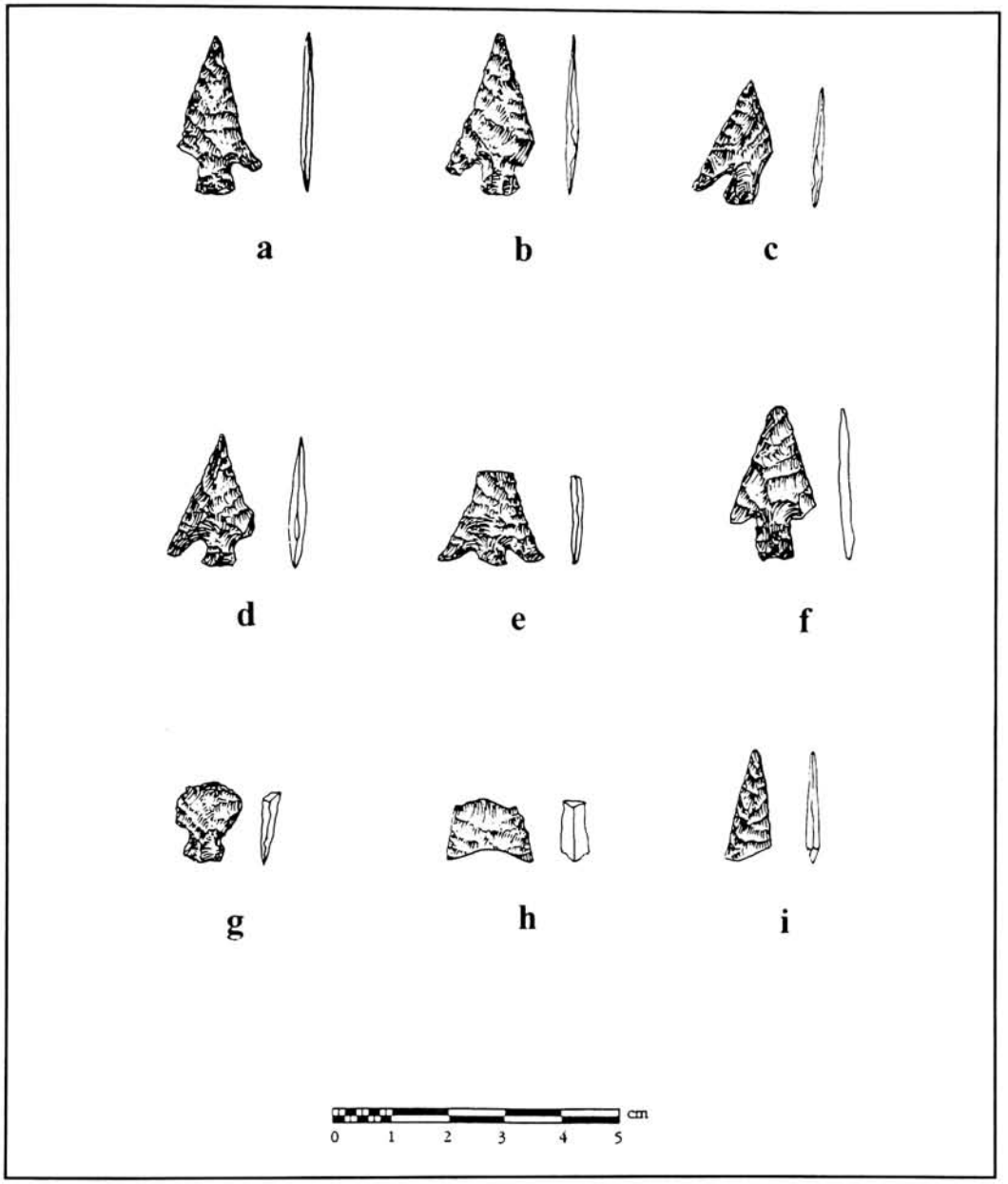


Fig. 3. Projectile points from the Royston burial: (a) Cat. No. 10PE20-11 (Eastgate); (b) Cat. No. 10PE20-17 (Eastgate); (c) Cat. No. 10PE20-14 (Rose Spring); (d) Cat. No. 10PE20-13 (Eastgate); (e) Cat. No. 10PE20-15 (Eastgate); (f) Cat. No. 10PE20-12 (Rose Spring); (g) Cat. No. 10PE20-9 (Rose Spring); (h) Cat. No. 10PE20-20; (i) Cat. No. 10PE20-10.

Bifaces. Eight bifaces were also retrieved from the burial soils (Fig. 4, Table 2). Three of these (Fig. 4a-c) are interpreted as arrow point preforms, one of which appears to be a preform for an Eastgate point (Fig. 4b). Two other specimens (Fig. 4f-g) may be bifacial flake blanks. Figure 4d shows a broken drill, Figure 4e depicts an artifact interpreted as a distal knife or

Table 1
ATTRIBUTES OF PROJECTILE POINTS FROM THE ROYSTON BURIAL (10-PE-20)[a]

Cat. No.	Type[b]	Length	Width	Base Width	Neck Width	Thickness	Weight	Fig.
10PE20-9	Rose Spring	13.6[c]	10.9	6.3	5.1	2.8	0.1	3g
10PE20-10	--[d]	18.5[c]	--	--	--	2.4	0.1	3i
10PE20-11	Eastgate	26.6	14.5	6.4	5.0	2.4	0.2	3a
10PE20-12	Rose Spring	26.1	15.3	6.3	5.3	2.5	0.4	3f
10PE20-13	Eastgate	22.3	15.9	5.9	5.2	2.9	0.3	3d
10PE20-14	Rose Spring	20.4	10.8	4.9	4.5[c]	2.4	0.1	3c
10PE20-15	Eastgate	16.7[c]	18.1	5.3	5.1	3.0	0.3	3e
10PE20-17	Eastgate	27.6	15.8	5.3	6.4	3.0	0.4	3b
10PE20-20	--[d]	8.4[c]	15.4[c]	--	--	4.5	0.4	3h

[a] Metrics are in mm. and g.
[b] Following Bettinger (1989) and Yohe (1991, 1992).
[c] Incomplete measurement.
[d] Typologically unclassified.

spear fragment, and Figure 4h is a bifacial core.

Bone Artifacts. ***Shuttles***. During the excavation many fragments of what are interpreted to be bone shuttles were recovered. Figure 5 is a photograph of three partial shuttles and Figure 6 is a photograph of a representative sample of numerous other shuttle fragments. The metric attributes of these artifacts are found in Tables 3 and 4, respectively.

Shuttles were typically used for the manufacture of fish and/or rabbit nets (Stewart 1941; Fowler 1989). Modified bone pieces interpreted as shuttles were identified at Sudden Shelter (Plimpton 1980), but otherwise are virtually unknown archaeologically in the Great Basin. The Royston shuttles, in general configuration and size, resemble the ethnographic specimen illustrated in Fowler (1989:88; also see Fowler and Liljeblad 1986) minus the notching on the ends. Stewart (1941) noted the use of carved wooden shuttles or simple stick shuttles among the Northern Paiute, but no bone examples.

Bone Handle. A fragment of a large mammal long bone shaft, found in the bottom of the burial pit, is interpreted as a bone handle for a stone knife (Fig. 7a). This artifact appears to have been made from the long bone shaft of a deer-sized mammal. A possible hafting groove is located eight mm. below the fire-polished end of the bone tube, and is three mm. wide. Two pieces of this specimen were recovered, the largest fragment measuring 51.5 x 15.4 x 3.9 mm.

Polished Bone Spatula. A short, spatulate, broken bone tool with extremely polished edges (Fig. 7b) was also recovered from the burial. Fashioned from a deer-sized rib, it measures 95.4 x 13.9 x 5.3 mm.

Bone Awl. A bone awl (Fig. 7c) broken in six pieces was also identified in the artifact assemblage. In its original state, it was likely greater than 15 cm. in length. This specimen, like the other bone pieces, was manufactured from a large mammal bone, probably from the inferior border of an artiodactyl scapula. Its greatest width is 16.6 mm., and its maximum thickness is 8.4 mm.

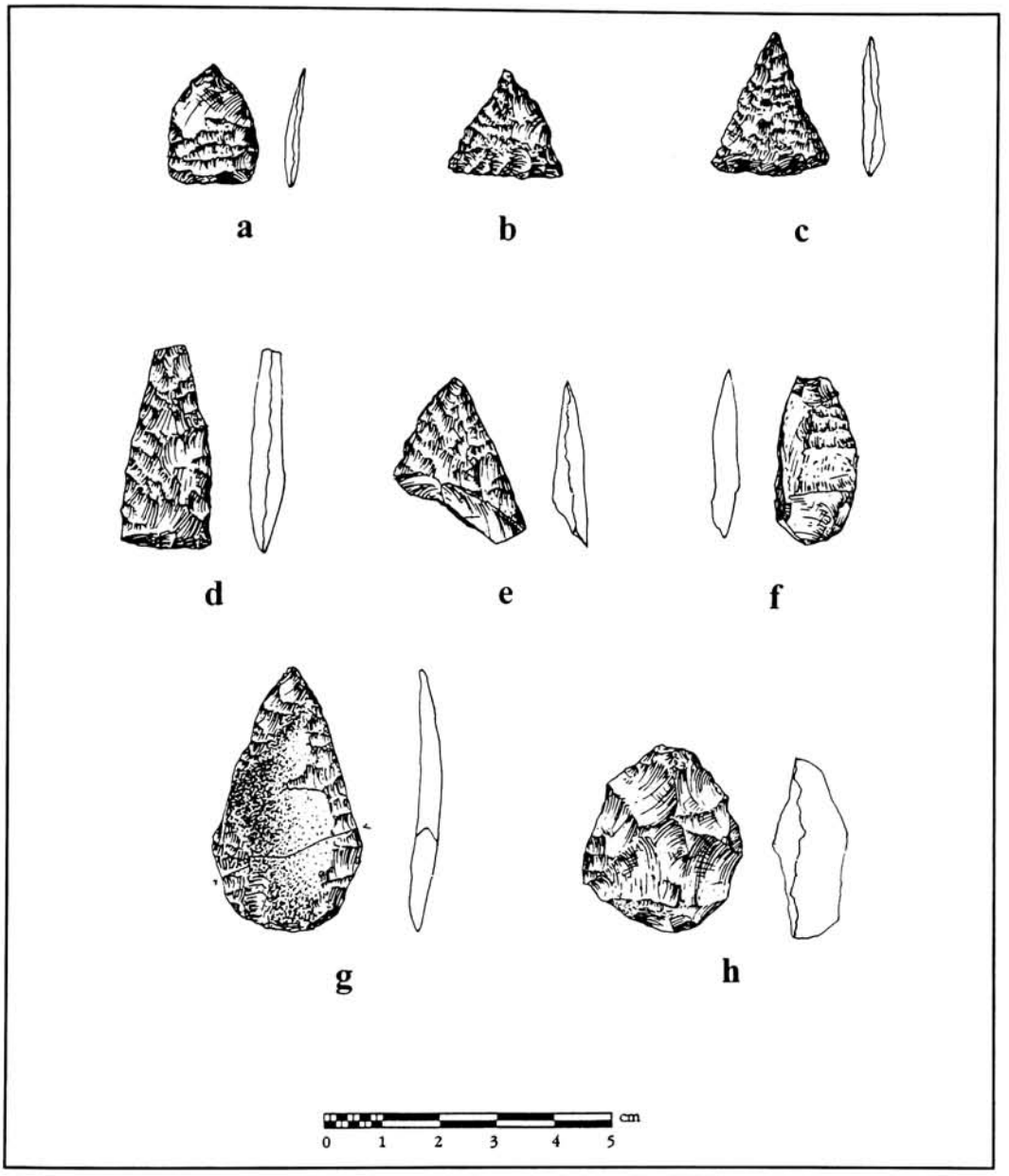


Fig. 4. Bifaces from the Royston burial: (a) Cat. No. 10PE20-8 (preform); (b) Cat. No. 10PE20-16 (preform); (c) Cat. No. 10PE20-7 (preform); (d) Cat. No. 10PE20-1; (e) Cat. No. 10PE20-2; (f) Cat. No. 10PE20-5; (g) Cat. No. 10PE20-4; (h) Cat. No. 10PE20-3.

Sandstone Abrader. A fragmentary sandstone abrader was found at the bottom of the burial pit (Fig. 8). This artifact is bifacially grooved and measures 42.4 x 36.3 x 18.0 mm., and weighs 27.7 g. Along with the projectile points and obsidian blanks, this specimen appears to be part of a flintknapping kit that apparently belonged to the deceased.

Human Remains

Once the materials collected from both the Sheriff's Office and State Historic Preservation

Table 2
ATTRIBUTES OF BIFACES FROM THE ROYSTON BURIAL (10-PE-20)[a]

Cat. No.	Material	Length	Width	Thickness	Weight	Fig.
10PE20-1	cryptocrystalline	35.0	14.3	6.0	3.1	4d
10PE20-2	cryptocrystalline	29.3[b]	24.0[b]	5.8	2.5	4e
10PE20-3	obsidian	32.2	27.1	11.5	7.3	4h
10PE20-4	cryptocrystalline	45.3	24.9	4.7	5.6	4g
10PE20-5	cryptocrystalline	29.1	13.5	4.7	1.7	4f
10PE20-7	obsidian	24.8	19.8	3.2	0.6	4c
10PE20-8	obsidian	20.1	15.3	2.8	0.5	4a
10PE20-16	obsidian	18.2[b]	21.0	2.7	0.4	4b

[a] Metrics are in mm. and g.
[b] Incomplete measurement.

Office archaeologists were combined, an almost complete skeleton was represented (Fig. 9). The skeleton was missing phalanges from both feet and hands, the right patella, right innominate, one left rib, and a majority of the skull, including the frontal and most of the parietals. All other bones were present and, other than the postmortem damage described above, the bones were very well preserved. With the exception of both maxillary third molars, the left mandibular canine, the left mandibular premolar, and the left mandibular central incisor, all teeth were present.

The skeletal remains underwent osteological analysis by the authors of this study some years subsequent to the collection. This included an inventory of all material collected, osteometric analysis, observations of nonmetric traits and pathologies, and X-rays of the right tibia, right femur, right humerus, mandible, and a lumbar vertebra. Assessments of age, sex, and stature were also performed. All observations were recorded using the standard recording forms for data collection of human remains (Buikstra and Ubelaker 1994). The cranial and postcranial measurements are delineated in Tables 5 and 6, respectively. The results of the evaluation of sex, age, stature, and pathologies are provided in more detail below.

Sex. Based on skeletal size, os coxae morphology, and cranial indicators, the sex of the Royston individual was determined to be male. The skeleton was robust, which generally indicates a male. On the pelvis, the absence of preauricular sulci and a ventral arc, along with the morphology of the subpubic concavity and ischiopubic ramus ridge, are characteristics that are all consistent with that of an adult male. Additionally, the greater sciatic notch was very narrow (less than 65°), which is also characteristic of males. Observations of the cranium were limited due to the small portion that was recovered. However, both the left and right mastoid processes were fully intact, large in size, and very prominent, and the mental eminence was prominent, features that are again consistent with those of a male.

Age. The age assessment was made by examining the morphology of the ends of the sternal ribs, the pubic symphysis, the pelvic auricular surface, and the extent of cranial suture closure. The left pubic symphysis was very well preserved, allowing for an in-depth observation of the surface morphology for comparison with the

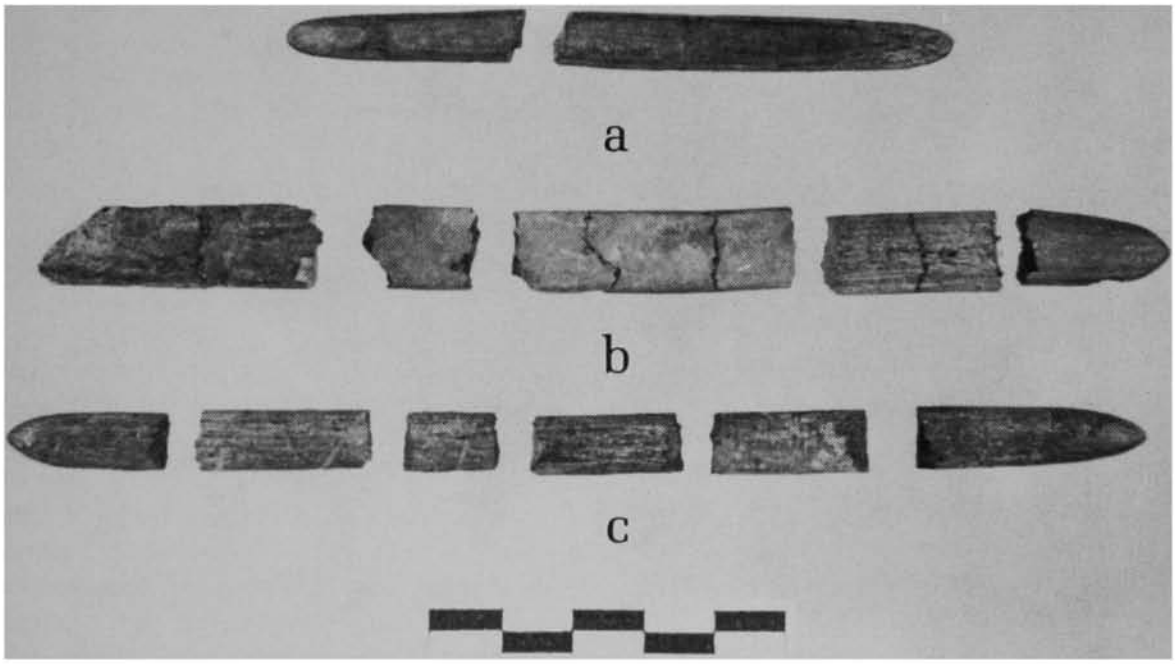


Fig. 5. Partial bone "shuttles" from the Royston burial: (a) Cat. No. 10PE20-54; (b) Cat. No. 10PE20-56; (c) Cat. No. 10PE20-55.

scoring systems of both Todd (1921a, 1921b) and Suchey-Brooks (Brooks and Suchey 1990).

Only two ribs (both first ribs) from the Royston burial retained their costochondral surfaces, in spite of the preservation of all but one rib. As a rule, the assessment is usually made on the fourth rib (İşcan et al. 1984, 1985). The morphology of the sternal ends of the first two ribs is consistent with the İşcan et al. (1984) Phase 5 (34.4 to 42.3 years).

The Royston individual scored a Phase 6 (30 to 35 years of age) using the Todd (1921a) pubic symphysis scoring system. Comparing the surface morphology of the skeleton to casts of standard pubic symphysis topography in the Suchey-Brooks scoring system for males, this individual scored a Phase 3 (mean age = 28.8, range 22 to 43 [see Suchey and Katz 1986]). Assessment of the auricular surface of the os coxae indicated that it is consistent with Phases 3 and 4 (30 to 39 years of age [Lovejoy et al. 1985; Meindl and Lovejoy 1989]).

Since cranial sutures generally close with increasing age, the observable sutures were evaluated.[1] Only three sutures could be observed on the skull, the midlambdoid on the external cranial vault and the incisive and anterior median palatine on the palate. The midlambdoid and anterior median palatine had significant suture closure but were not complete. The incisive suture was completely closed. By young adulthood (20 to 34 years of age) the incisive suture has already closed, and by middle adulthood (35 to 49 years of age) the anterior median palatine remains at least partially open (Mann et. al 1987).

Osteophytic lipping of the vertebrae was also noted and considered in the age evaluation, although it can also be an indicator of lifestyle.

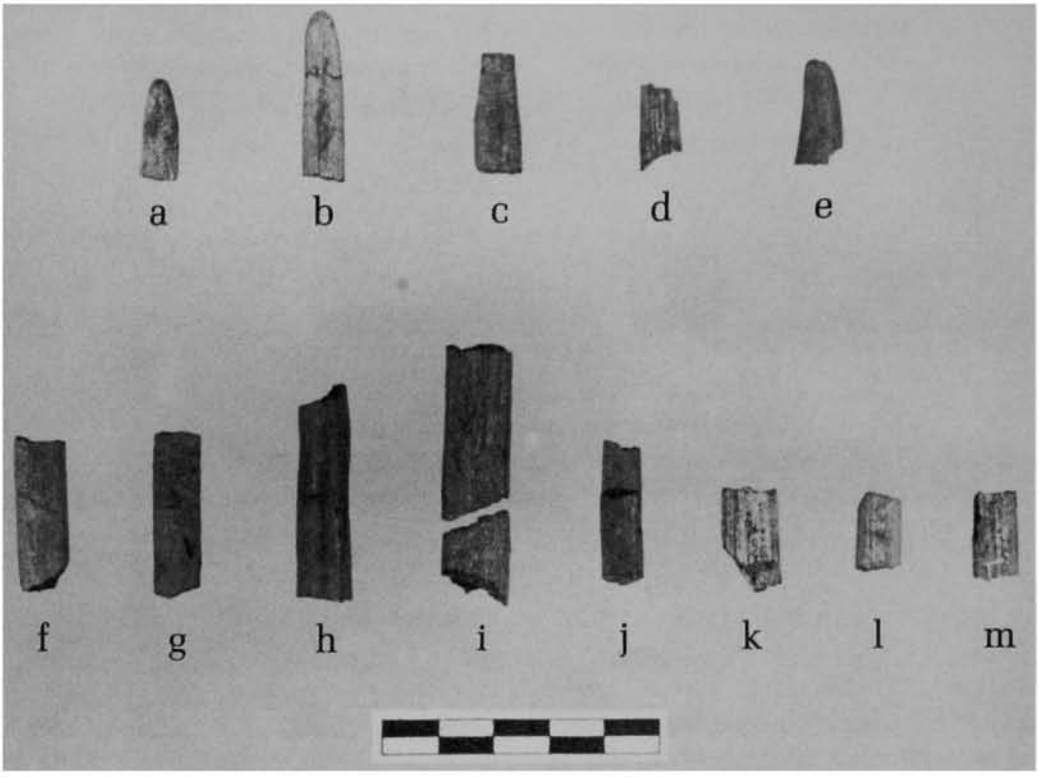


Fig. 6. Bone shuttle fragments from the Royston burial (by catalog number): (a) 10PE20-50; (b) 10PE20-53; (c) 10PE20-33; (d) 10PE20-40; (e) 10PE20-51; (f) 10PE20-31; (g) 10PE20-30; (h) 10PE20-29; (i) 10PE20-52; (j) 10PE20-48; (k) 10PE20-35; (l) 10PE20-39; (m) 10PE20-38.

All of the vertebrae exhibited minor to moderate osteoarthritic lipping, which usually appears during middle adulthood (Stewart 1958).

Comparing all of the above information, but giving more weight to the observation of the pubic symphysis, the Royston individual appears to have died between 30 and 40 years of age.

Stature. Using several regression equations provided by Trotter and Gleser (1958), the living stature of the Royston individual was estimated to be approximately 5 feet 4 inches to 5 feet 6 inches (165 cm. $\pm$ 3.18 cm.; see Table 7). Formulae for the tibiae were not used in light of problems discovered in the tibial measurements used by Trotter on the original Mongoloid and Mexican skeletal samples (Jantz et al. 1995).

Pathologies. Even with X-ray observations, the number of pathologies noted was limited. Radiographs of the right femur, right tibia, right humerus, and a lumbar vertebrae were taken and observed to contain no Harris lines, which are indicators of interruptions to the growth process, perhaps in response to disease or nutritional stress (Harris 1933; Brothwell 1981). The only significant pathologies that were apparent were the osteophytic lipping of the vertebrae, abnormalities of the sacrum, extreme dental attrition, and caries in the maxillary molars (see below).

Minor osteophytic lipping of the vertebral centra was observed on all vertebrae, with significant lipping present on the thoracic and lumbar vertebrae. A majority of the bone spurs on the vertebrae occurred on the right inferior as-

Table 3
PARTIAL BONE SHUTTLES FROM THE ROYSTON BURIAL (10-PE-20)[a]

Cat. No.	Maximum Width	Maximum Thickness	Fig.
10PE20-54	51.0	3.67	5a
10PE20-56	49.8	5.09	5b
10PE20-55	52.1	4.38	5c

[a] Metrics are in mm.

pect of each vertebra. Five of the thoracic vertebrae (T5, T6, T8, T10, and T12) and four of the lumbar vertebrae (L1 through L4) exhibited the most prominent expressions of this condition. Vertebral osteophytes are characteristic of osteoarthritis, which causes degenerative changes during the normal process of aging, usually beginning during the late third to fourth decades of life.

Abnormalities of the sacrum included congenital incomplete closure of the proximal spinous process, resulting in a sacral hiatus (partial spina bifida; Fig. 10). Additionally, the first coccygeal vertebra did not completely fuse dorsally or proximally at the apex of the sacrum, whereas the first and second sacral vertebrae were fused normally. The significance of this abnormality from a functional standpoint is indeterminate, but was likely not debilitating.

Attrition of the occlusal surfaces of the teeth is extreme. The wear on both the mandibular and maxillary teeth commenced on the buccal edge and gradually increased towards the lingual aspect of the canines, premolars, and molars, giving the teeth a pronounced slanted appearance. The greatest wear was on the first molars and the least amount of wear was on the premolars and the third molars. However, the third molars did have small caries at the base of the enamel. The second mandibular molars exhibited large symmetrical caries that affected the entire pulp cavity of both molars. No other teeth showed signs of caries but they had little enamel

Table 4
BONE SHUTTLE FRAGMENTS FROM THE ROYSTON BURIAL (10-PE-20)[a]

Cat. No.	Maximum Width	Maximum Thickness
10PE20-50	5.9	3.60
10PE20-53	6.8	2.46
10PE20-33	7.7	4.30
10PE20-40	6.9	3.88
10PE20-51	7.4	4.23
10PE20-31	8.2	4.57
10PE20-30	7.8	2.65
10PE20-29	9.2	5.93
10PE20-52	11.2	5.51
10PE20-48	6.8	4.79
10PE20-35	9.5	5.39
10PE20-39	7.2	2.57
10PE20-38	7.5	2.78

[a] Shown in Figure 6. Metrics are in mm.

remaining. Minor calculus deposits were present at the base of the mandibular molars. No abscesses were noted but the left mandibular canine and the left mandibular premolar were lost premortem, and much of the surrounding tissue had been resorbed. The left mandibular central incisor was lost postmortem. An occlusal view of the maxilla and mandible is provided in Figure 11.

Summary of Osteological Analysis. Based on the osteological analyses that were performed on the Royston individual, the skeletal remains have been determined to represent those of an adult male, 30 to 40 years of age, who stood 5 feet 4 inches to 5 feet 6 inches in height. There is no evidence of nutritional stress or extreme trauma during his life, and other than the profound dental attrition, some caries, the vertebral lipping, and the sacral abnormality, no other pathologies were noted.

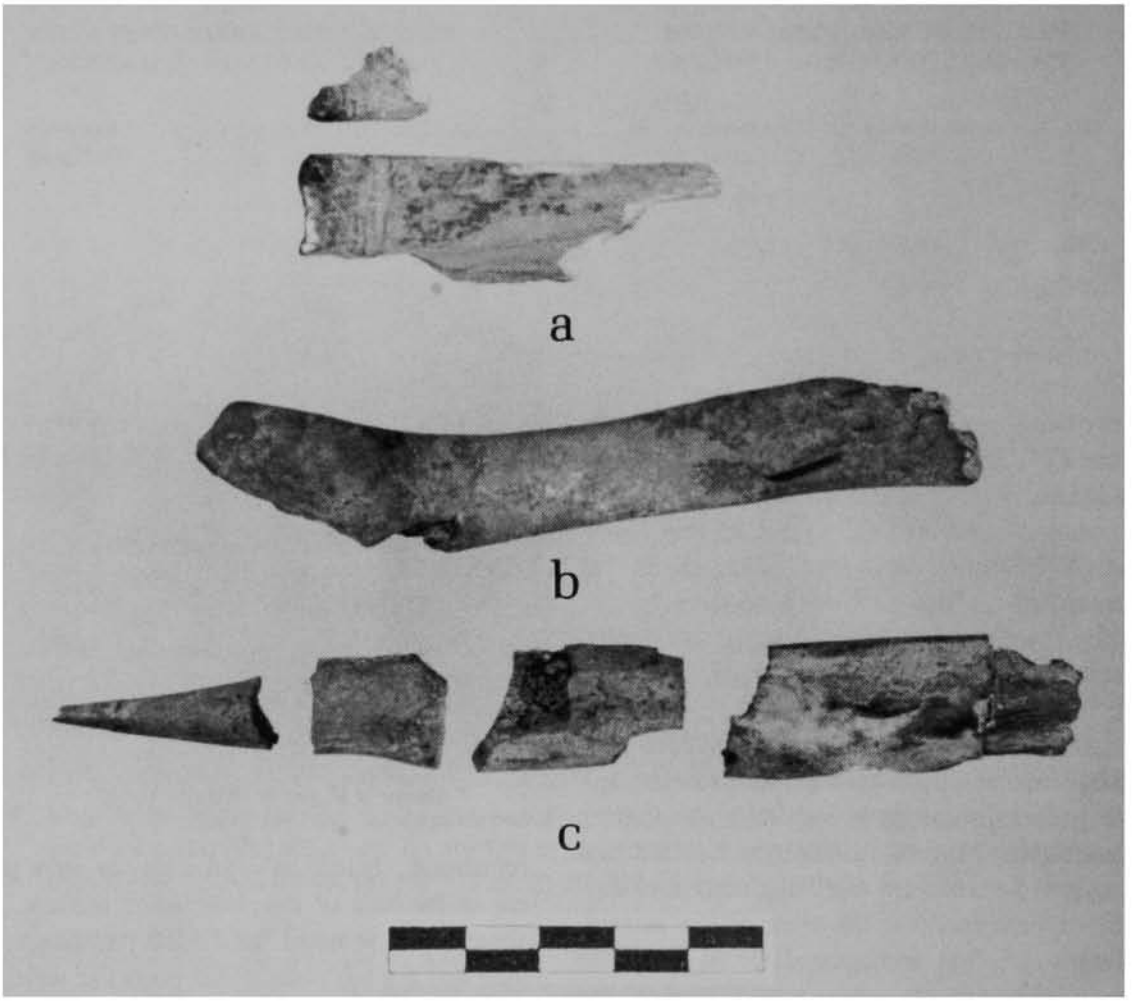


Fig. 7. Additional bone artifacts from the Royston burial: (a) bone handle (Cat. No. 10PE20-21); (b) bone spatula (Cat. No. 10PE20-26); (c) bone awl (Cat. No. 10PE20-57).

THE HARDTRIGGER CREEK BURIAL (10-OE-5968)

The Hardtrigger Creek burial site (10-OE-5968) is located on the north side of the Hardtrigger Creek drainage in the northern foothills of the Owyhee Mountains, approximately five miles south of the Snake River near Marsing, Idaho. On September 25, 1996, the senior author was contacted by the Bureau of Land Management state archaeologist and a law enforcement official regarding the discovery of human bones eroding out of a wash at the site. The discovery was made by a local Boy Scout troop leader who thought the two bones that had eroded out (both human tibiae) were bison remains, but he later suspected that the remains might be human when he found two associated projectile points.

The find was originally believed to have been on federal land, but careful placement on the USGS quadrangle, with the assistance of a Global Positioning System unit, indicated that the remains were actually on a section of state land. Pursuant to state law, the senior author contacted

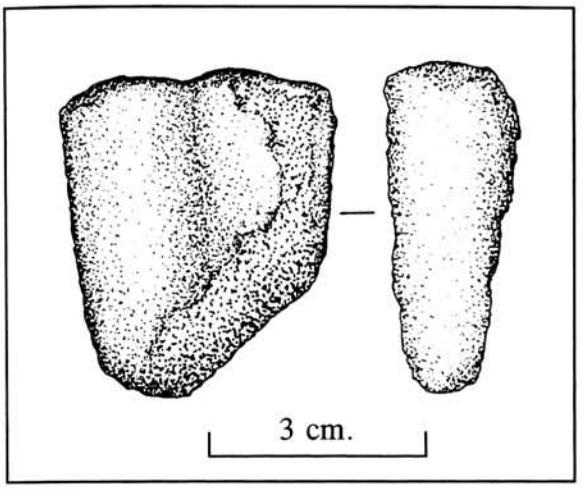


Fig. 8. Sandstone abrader (Cat. No. 10PE20-19) from the Royston burial.

the cultural resource coordinator for the Shoshone-Paiute Tribes at the Duck Valley Indian Reservation in Owyhee, Nevada, at which time permission was granted to remove the remains in an effort to save the burial contents from vandalism. The burial was excavated by the senior author and two volunteers the following day.

The vegetative community at the Hardtrigger Creek site consists of flora characteristic of northern Great Basin sagebrush steppe, dominated by *Artemisia tridentata*. The burial was found in the northern edge of the stream channel at an elevation of 902 m. (2,960 ft.) asl., and like the Royston site, seems to represent an isolated burial with no evidence of cultural activity on the present-day surface of the site area. As with the Royston discovery, this site also falls within the ethnographic territory shared by the Northern Paiute and Northern Shoshone.

The Burial

Upon arriving at the burial locality, several boulders were observed overlying the human remains that were eroding out of the embankment. A north/south baseline was established and a series of auger holes 10 cm. in diameter was placed in an effort to delimit the extent of the apparent rock cairn and human remains (which were approximately one meter below the present ground surface), while checking for the presence

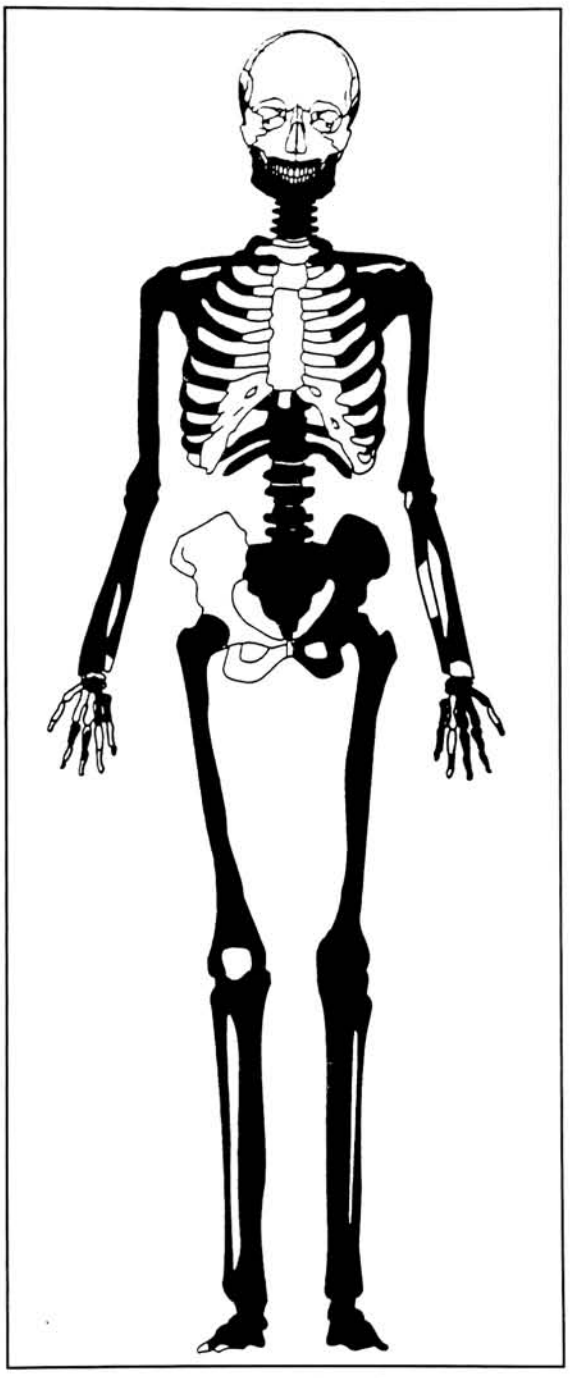


Fig. 9. Graphic representation of human skeletal elements recovered from the Royston burial site (indicated by the shaded areas).

Table 5
CRANIAL MEASUREMENTS OF THE ROYSTON HUMAN SKELETON[a]

Attribute	Measurement (in mm.)
Maxillo-alveolar breadth	63.4
Maxillo-alveolar length	50.6
Foramen magnum length	32.0
Foraman magnum breadth	31.7
Mastoid length	35.0
Chin height	31.7
Height of mandibular body	28.5 L (resorbed)/30.2 R[b]
Breadth of mandibular body	13.6 L/14.5 R
Bigonial width	114.4
Bicondylor breadth	131.0
Maximum ramus breadth	36.6
Minimum ramus breadth	45.8
Maximum ramus height	65.6
Mandibular length	104.7
Mandibular angle	120°

[a] Following Buikstra and Ubelaker (1994).
[b] L = left, R = right.

of cultural materials in the overlying soils. The auger testing indicated the absence of cultural materials above the cairn, so the presumed culturally sterile overburden was carefully removed by shovel to a level 20 cm. above the rock cairn (occasional shovels of soil were screened through 1/8-in. hardware mesh to check for possible cultural materials that might have been missed in the auger holes). All remaining soil directly above the cairn was screened. None of the screened soils above the cairn resulted in the recovery of human bone or artifacts.

The excavation revealed an elaborate cairn burial consisting of 30 boulders and cobbles placed over what appeared to be the remains of an adult male (Fig. 12). All soils within the grave were screened with 1/8-in. mesh and charcoal, flotation, and pollen samples were all collected during the course of excavation. The boulders were primarily granitic in composition with a mean size of 30 x 18 x 14 cm. and weighing up to 15 kg. Eleven of the boulders comprising the cairn were found to be hopper mortar bases, which are described in greater detail below. In addition, four Eastgate arrow points were recovered from the area around the left hip. Apart from an unusual concentration of charcoal from the area inside the left arm (which seemed to be part of a single carbonized stick or wand), no other artifacts or features were found with the skeleton. However, a single half of a bivalve of the freshwater mussel *Margaritifera* was found approximately 20 cm. west of the right knee and appears to have been intentionally placed in the grave.

The skeleton was flexed with the upper torso

Table 6
POSTCRANIAL MEASUREMENTS OF THE ROYSTON HUMAN SKELETON[a]

Attributes	Measurements (in mm.)[b]
Clavicle	
Maximum length	158.0
Anterior diameter at midshaft	10.4
Superior diameter at midshaft	13.1
Scapula	
Height	166.4 R
Breadth	104.1 R (101.6 L)
Humerus	
Maximum length	310.0
Epicondylar breadth	61.3
Vertical diameter of head	45.3
Maximum diameter at midshaft	21.8
Minimum diameter at midshaft	16.3
Radius	
Maximum length	248.0 R
Anterior-posterior diameter at midshaft	11.4 R
Medial-lateral diameter at midshaft	15.2 R
Ulna	
Maximum length	259.0[c]
Anterior-posterior diameter	13.2
Medial-lateral diameter	16.2
Minimum circumference	40.0
Sacrum	
Anterior length	134.5 (first coccygeal included)
Anterior superior breadth	110.5
Maximum transverse diameter of base	69.5
Os Coxae	
Height	216.0
Iliac breadth	152.0[c]
Pubis length	76.2
Ischium length	91.0[c]
Femur	
Maximum length	434.0
Bicondylar breadth	425.0
Epicondylar breadth	80.0
Maximum head diameter	44.7
Anterior-posterior subtrochanteric diameter	25.2
Anterior-posterior midshaft diameter	26.7
Medial-lateral midshaft diameter	26.7
Midshaft circumference	85.0
Tibia	
Maximum length	353.0
Maximum proximal epiphyseal breadth	73.3
Maximum distal epiphyseal breadth	50.4
Maximum diameter at nutrient foramen	42.4
Medial-lateral diameter at nutrient foramen	33.7
Circumference at nutrient foramen	110.0
Fibula	
Maximum length	340.0
Maximum diameter at midshaft	14.5
Calcaneus	
Maximum length	83.0
Middle breadth	51.0

[a] Following Buikstra and Ubelaker (1994).
[b] All measurements are on the left element, except where indicated by R (for right).
[c] Estimated measurement due to bone erosion.

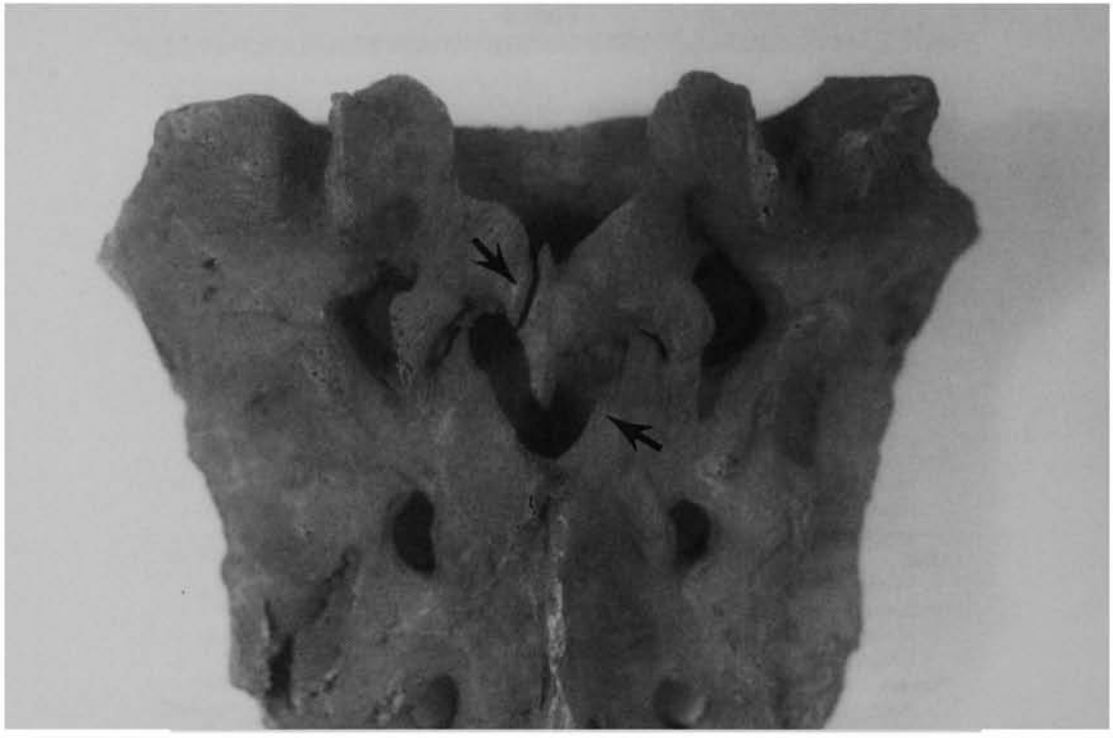


Fig. 10. Posterior view of the sacrum of the Royston skeleton with anomalies identified by the arrows.

Table 7
HEIGHT ESTIMATION OF THE ROYSTON HUMAN SKELETON

Regression Equations[a]	Royston Stature Estimation Results
1.22 (Fem + Fib) + 70.24	1.22 (43.4 + 34.0) + 70.24 = 164.6 ± 3.18
1.67 (Hum + Rad) + 74.83	1.67 (31.0 + 24.8) + 74.83 = 168.0 ± 4.16
2.40 Fib + 80.56	2.40 (34.0) + 80.56 = 162.16 ± 3.24
2.68 Hum + 83.19	2.68 (31.0) + 83.19 = 166.27 ± 4.25
3.54 Rad + 82.00	3.54 (24.8) + 82.00 = 169.80 ± 5.57
2.15 Fem + 72.57	2.15 (43.4) + 72.57 = 165.88 ± 3.8

[a] Following Trotter and Gleser (1958:120). All measurements are in cm.

slightly twisted, and was facing southwest (Fig. 13). Bone preservation was found to be generally good, with the exception of damage to the face and right side of the skull, which was apparently caused by rodent intrusion as evidenced by krotovinas around and under the cranium. The lower legs had been exposed in the eroding embankment, and several elements of the feet, as well as numerous boulders from the cairn, had fallen into the bottom of the wash. Screening of the soil that had eroded out of the burial yielded various foot elements but no artifacts.

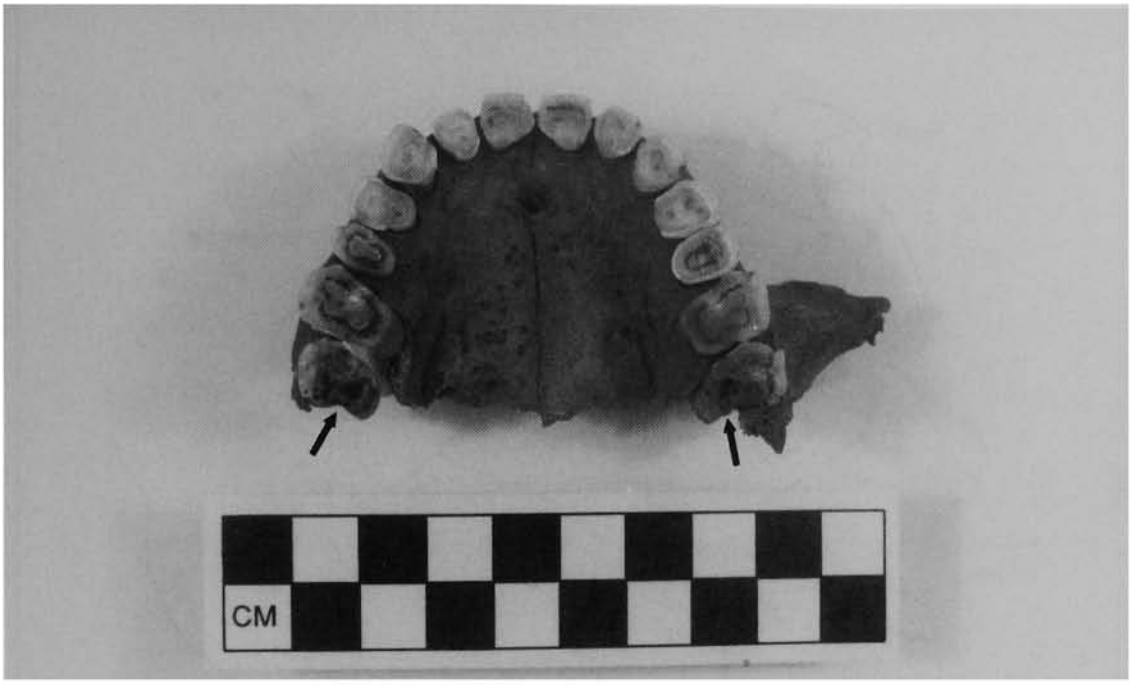


Fig. 11. Occlusal view of the maxilla of the Royston skeleton. Note the extreme wear and the caries indicated by the arrows.

Stratigraphy

Five distinct soil strata were discernible in the north wall of the unit following the excavation of the burial (Fig. 14). Of particular interest is a thin (10-cm. thick), apparently cultural stratum occurring just above the rock cairn feature containing charcoal flecks and a midden-like gray coloration but no artifacts. The absence of any evidence of prehistoric human activity on the present-day ground surface within several hundred meters of the site suggests either that the body was buried in a location far from ancient human activity, or that any evidence of human occupation of the area is more deeply buried. The occurrence of this "cultural" layer at the same level (approximately 80 cm. below the surface) that was evident in several exposed areas of the cutbank up to 40 m. east of the burial seems to support the latter view.

The position of the skeleton within five cm. below the cairn suggests that the body was buried in a shallow pit, covered by only a small amount of dirt, then enveloped with rocks, which were then overlaid with 10 to 15 cm. of soil. This interpretation is supported by the presence of the "cultural" level, if it is, in fact, anthropogenic.

Chronology

Following the taxonomic identification of carbonized wood removed from the interior of the grave (see discussion below), 6 g. of charcoal were submitted for radiocarbon assessment. As it was believed that the wood pieces may possibly have represented an artifact of unknown function that was burned prior to interment with the body (which is consistent with the ritual pattern of the Royston burial), it was felt that this

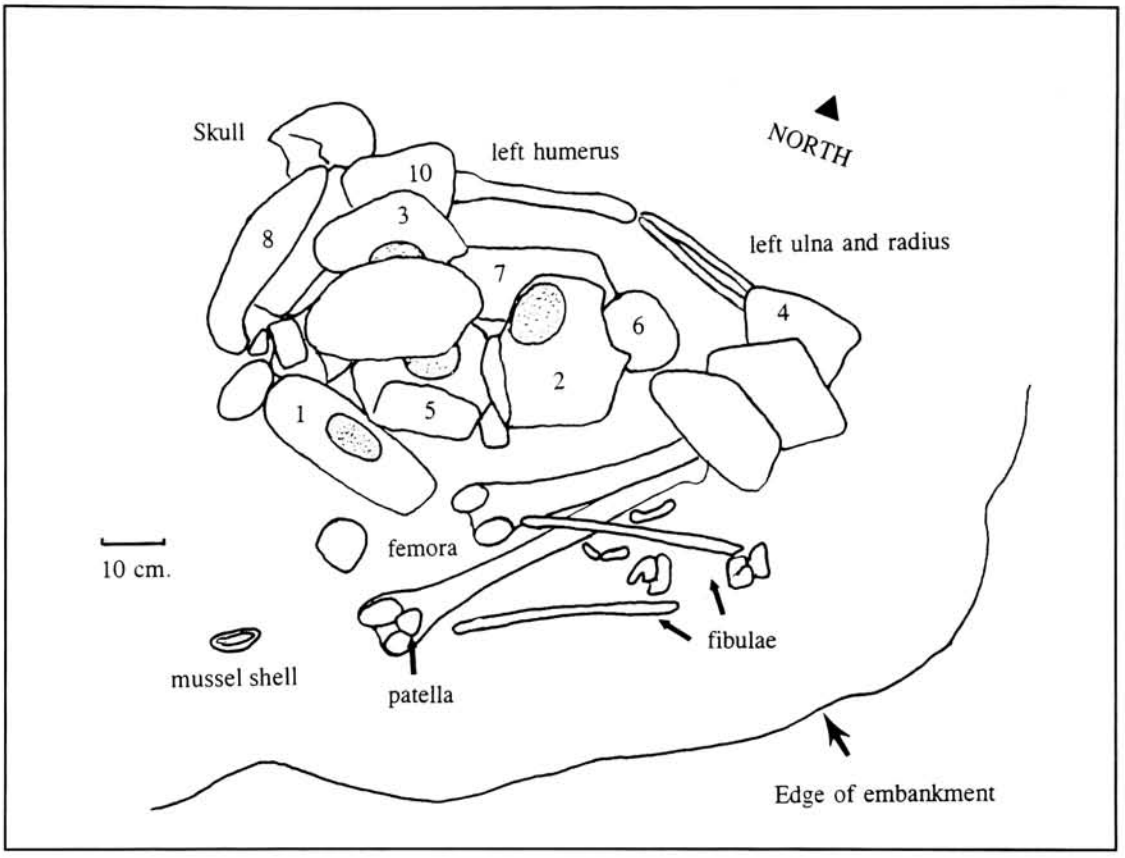


Fig. 12. Plan view (slightly oblique) of the Hardtrigger Creek burial feature. Numbers refer to catalog numbers of specific hopper mortar bases. One mortar base (Cat. No. 10OE5968-9) had eroded out of the embankment and was found in the wash.

sample would provide a fairly accurate date for the human remains. The sample was submitted to Beta-Analytic, Inc., for radiocarbon assay and yielded a date of 1,310 ± 70 RCYBP (Beta-98424), calibrated to between A.D. 660 and A.D. 785 at one sigma (Stuiver et al. 1993).

The radiocarbon assessment is consistent with the presence of Eastgate projectile points in the burial, which are typically considered coeval with Rose Spring points (hence the term "Rosegate" [Thomas 1981]; also see Heizer and Hester [1973]). This projectile point typology provides a temporal range spanning from A.D. 700 to A.D. 1300 in the Great Basin (Hester and Heizer 1973; Thomas 1981; Holmer 1986).

Associated Artifacts

Three projectile points and 11 hopper mortar bases represent the formed artifacts found with the burial. A fourth projectile point found by the Boy Scout troop leader who discovered the site was lost while in transit to his home. As mentioned earlier, a carbonized stick approximately 20 cm. long was found next to the left forearm. Although no modification was obvious during analysis, its context within the burial suggests that it was some type of artifact. The stick has been taxonomically identified as *Salix* (sp.) (Cummings and Moutoux 1997). The *Margaritifera* shell described above is unmodified and

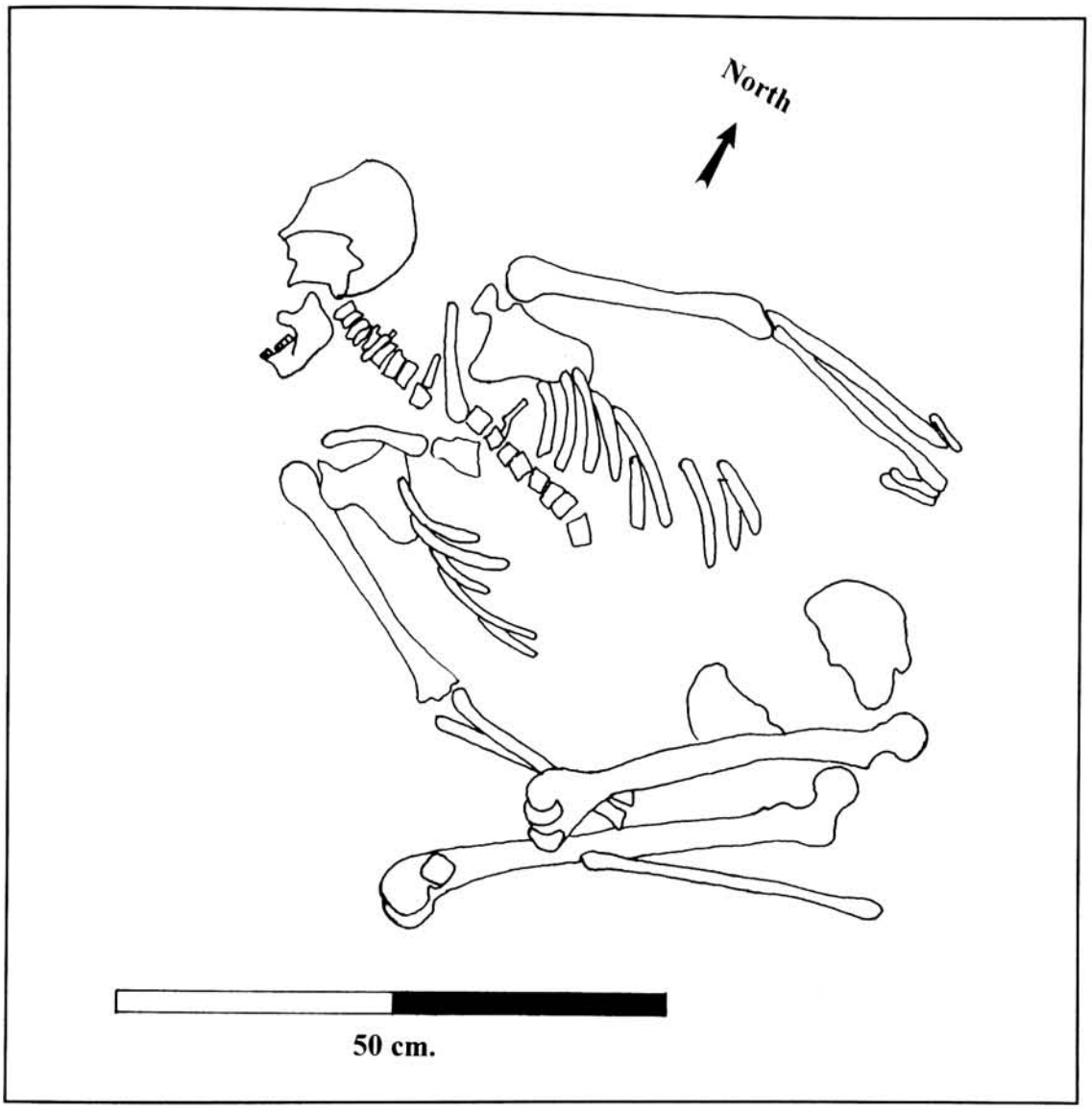
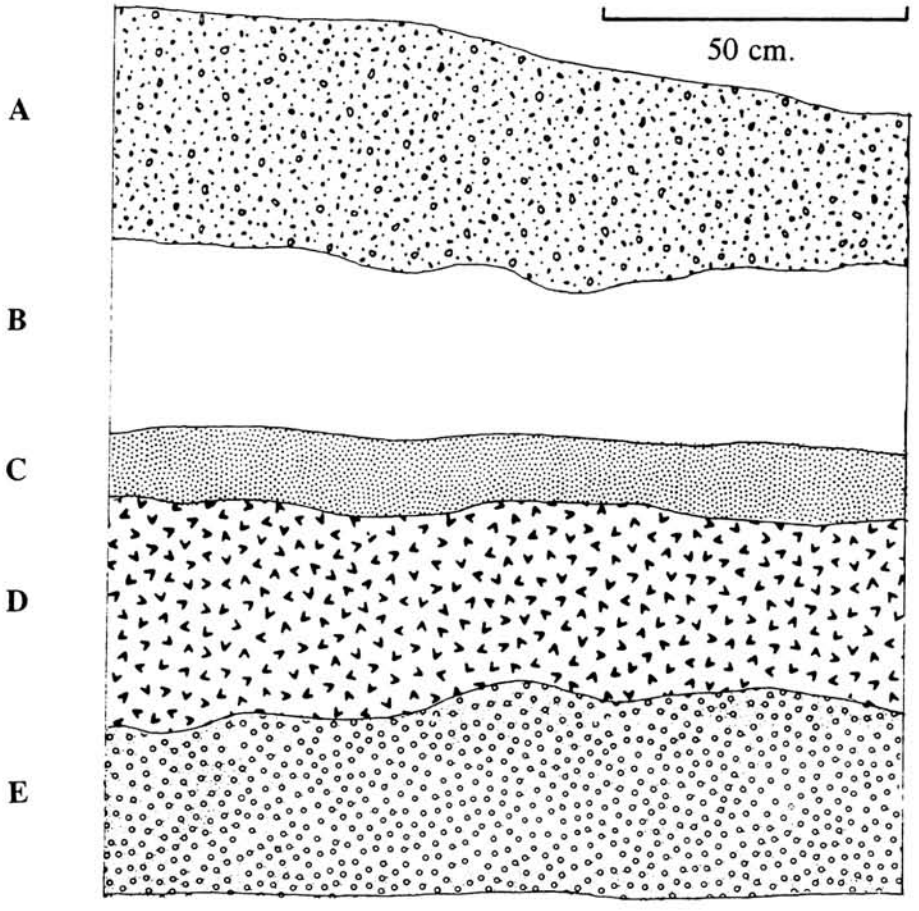


Fig. 13. Plan view of the Hardtrigger Creek skeleton subsequent to the removal of the rock cairn.

represents the only nonhuman faunal material from the assemblage.

Projectile Points. Three Eastgate projectile points were recovered from the left hip area of the skeleton, two manufactured from obsidian and one from chert (Fig. 15 and Table 8). The two obsidian points were sent to Pacific Legacy, Inc., for sourcing. The trace element values for the points were found to be consistent with the Toy Pass source in southwestern Idaho (T. Jackson, personal communication 1997). Protein residue analysis on the three projectile points revealed positive results for human on one of the points (Fig. 15a) and deer on another (Fig. 15b) (Newman 1997).

The clustering of the arrow points near the left hip suggests that they may have been placed in a satchel on the waist upon burial. Interest-



A Loose loam with angular clasts; 10YR 5/3; pH 8.6

B Consolidated loam; 10YR 5/4; pH 9.1

C Grayish loam with organics (cultural stratum); 10YR 5/2; pH 9.1

D Loose loam with angular clasts and decomposing granite (burial stratum); 10YR 6/3; pH 9.3

E Clayey loam with few clasts; 10YR 6/4

Fig. 14. Stratigraphy associated with the Hardtrigger Creek burial (north wall profile).

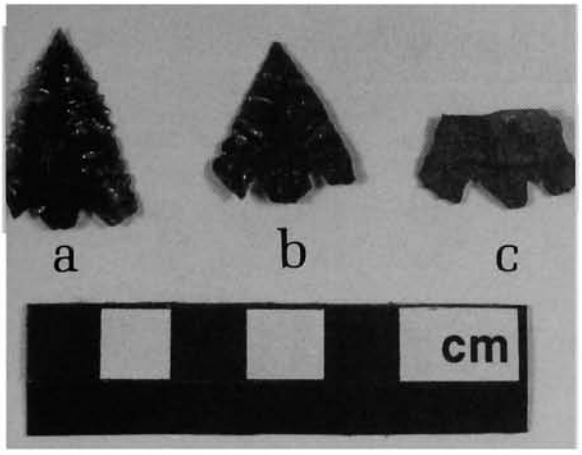


Fig. 15. Projectile points from the Hardtrigger Creek burial: (a) Cat. No. 10OE5968-11 (obsidian); (b) Cat. No. 10OE5968-12 (obsidian); (c) Cat. No. 10OE5968-13 (chert).

ingly, one point (Fig. 15c) is missing its distal end, the result of a predepositional bending fracture, a common breakage that could be attributable to either the process of manufacture or use (see Flenniken and Raymond 1986; Woods 1987).

Hopper Mortar Bases. A total of 11 large hopper mortar bases was found within the cairn covering the skeleton at 10-OE-5968. The attributes of these specimens are listed in Table 9 and illustrations of three representative specimens are shown in Figure 16.

Of particular interest was the mortar found closest to the skull (Cat. No. 10OE5968-10). This specimen, made of basalt, has a number of small vesicles, including one at the approximate center of the upper surface. In this central vesicle, three pieces of ground large mammal bone were observed to be jammed tightly into the stone pocket (Fig. 17). Another small piece of pounded and abraded bone was noted in another smaller vesicle. The use of milling implements for grinding bone has been described ethnographically and supported immunologically through the use of protein residue analysis on groundstone artifacts (Yohe et al. 1991; Newman and Winfrey 1995). Protein residue analysis of the surface of this mortar base provided positive results for bear (Newman 1997).

Human Remains

Excavation of the burial revealed a nearly complete skeleton, lacking only the elements of the right hand, several tarsals and phalanges of the feet, and four lumbar vertebrae. All teeth were present in the left maxilla, and only the left and right second premolars were absent from the mandible. Some degradation of the bone was evident, especially on the dorsal surfaces of the long bone elements on the right side of the body. Rodent damage was evident on the face, and rodent gnawing was observable on a few of the long bones. The left tibia was bowed, cracked, and sun-bleached owing to exposure to the elements as a result of the erosion of the embankment.

Once removed from the field, the skeletal remains were subjected to osteological analysis. This included an inventory of elements present, osteometric analysis, observations of nonmetric traits and pathologies, an X-ray of the right tibia to determine the presence or absence of Harris lines, and an assessment of age, sex, and stature. As with the Royston burial, the standard recording forms for data collection from human remains were used following Buikstra and Ubelaker (1994). The cranial and postcranial osteometric measurements are provided in Tables 10 and 11. Age, sex, stature, and pathology evaluations are described in more detail below.

Sex. The sex of the Hardtrigger individual was determined to be male based on multiple pelvic and cranial indicators, as well as general skeletal robustness. The absence of preauricular sulci on the pelvis, as well as the morphology of the ilium, obturator foramen, and os pubis, are traits that are all consistent with that of an adult male. Observations of the cranium revealed

Table 8
ATTRIBUTES OF PROJECTILE POINTS FROM THE HARDTRIGGER CREEK BURIAL (10-OE-5968)[a]

Cat. No.	Material	Length	Width	Thickness	Neck Width	Base Width	Weight	Fig.
10OE5968-11	obsidian	27.3	19.2[b]	3.9	5.9	--	1.3	15a
10OE5968-12	obsidian	22.2	19.3	3.2	5.9	6.6	0.6	15b
10OE5968-13	chert	--	22.3	4.1	6.4	--	0.9	15c

[a] Metrics are in mm. and g.
[b] Incomplete measurement.

prominent expressions of the nuchal crest, supraorbital margin, and mental eminence.

Age. Indicators of age included the morphology of the pubic symphysis and the auricular surface, and cranial suture closure. Use of the sternal end of the fourth rib, a consistently reliable age indicator in adults (İşcan et al. 1984, 1985; Stout et al. 1994), was not possible with this individual since none of the sternal surfaces of the ribs were preserved. Approximately two-thirds of the pubic symphysis was preserved on the left innominate, allowing for an assessment of surface morphology to compare with the scoring systems of both Todd (1921a, 1921b) and Suchey-Brooks (Brooks and Suchey 1990). Using the Todd (1921a) pubic symphysis scoring system, the Hardtrigger Creek individual scored a Phase 5 (27 to 30 years of age). Using casts of standard pubic symphysis topography for the Suchey-Brooks scoring system for males, this individual scored a Phase 4 (mean age = 36.8, range 23 to 59 [see Suchey and Katz 1986]). The morphology of the auricular surface of the os coxae was consistent with Phases 4 to 5 (35 to 44 years of age [Lovejoy et al. 1985, Meindl and Lovejoy 1989]).

The sutures of the cranial vault were evaluated using the stages proposed by Meindl and Lovejoy (1985). Externally, only the pterion was found to be completely obliterated, and there was only minimal closure of the midcoronal suture. Complete obliteration of the internal sutures was noted for the sagittal, lambdoidal, and coronal sutures. Using composite scores to evaluate the chronological age of the lateral-anterior sites (pterion, midcoronal, sphenofrontal, inferior sphenotemporal, superior sphenotemporal), a mean age of approximately 38 years was determined (see Meindl and Lovejoy 1985). Complete closure of the endocranial sutures is usually found in older adults (Krogman and İşcan 1986), although in a known-age, multiracial sample of 195 individuals (144 males, 51 females), Baker (1984) found that complete endocranial closure was found in individuals as young as 26 years of age.

Degenerative osteophytosis ("lipping") of the vertebral centra (Stewart 1958) was also considered in the age evaluation. None of the vertebral centra observed (four lumbar vertebrae are absent) from the Hardtrigger skeleton exhibited evidence of osteoarthritic lipping, which is the most common condition in white males older than 34 years of age (Stewart 1958). After comparing all of the above chronological information, the Hardtrigger individual was judged to have died between 30 and 45 years of age.

Stature. Using various formulae as outlined by Trotter and Gleser (1958) (excluding those for the tibia; see Jantz et al. [1995]), the living stature of the Hardtrigger individual was estimated to be 5 feet 5 inches to 5 feet 8 inches (170 cm. $\pm$ 4.16 cm.) (Table 12).

Pathologies. The hard tissue pathologies

Table 9
ATTRIBUTES OF HOPPER MORTAR BASES FROM THE HARDTRIGGER CREEK BURIAL (10-OE-5968)[a]

Cat. No.	Length	Width	Thickness	Basin Diameter	Weight	Material	CIEP Results	Comments	Fig.
100E5968-1	23.0[b]	22.0[b]	19.0	11.0 x 10.0	15.0	basalt	--	double-sided mortar (bifacial); broken in two places	--
10OE5968-2	30.0	25.0	9.0	13.0	8.9	basalt	negative	edge-modified/ground base; deep basin (1.5 cm.)	16a
10OE5968-3	27.5	20.5	11.0	9.0	9.0	granite	--		--
10OE5968-4	31.0	26.5	13.0	9.0	11.3	granite	--		--
10OE5968-5	29.0	27.0	15.0	10.0	17.5	basalt	--		--
10OE5968-6	28.0	23.0	15.0	11.0	15.3	granite	negative	deep basin (1 cm.)	16b
10OE5968-7	40.0	27.0	11.5	12.0	20.5	granite	bear		16c
10OE5968-8	39.0	28.0	11.0	10.0	14.2	basalt	--		--
10OE5968-9	29.5	22.0	13.0	9.0	8.5	red cinder	--	shaped; not found *in situ*	--
10OE5968-10	30.0	27.0	13.0	10.0+	14.1	basalt	bear	amorphous grinding area; bone ground into vesicles; ochre stain	--
10OE5968-11	33.0	23.0	8.0	9.0	--	basalt	--	weight value not available	--

[a] Measurements are in mm. and kg.
[b] Incomplete measurement.

noted were limited. A radiograph of the right tibia was taken to ascertain the presence or absence of Harris lines (Harris 1933; Brothwell 1981). There were no indications of Harris lines or other abnormalities in the X-rays.

Five bilaterally symmetrical, healed lesions were noted on both parietal bones of the skull (Fig. 18). All are approximately 3 cm. in length. These wounds could have resulted from a series of random blows to the skull, but the symmetry of the wounds suggests a different, although unknown, scenario. What was initially interpreted as additional healed bone scarring with bilateral symmetry was found on the anterio-medial aspect of the tibial shafts in the form of four small furrows on each bone that are consistently about four cm. in length with spacing averaging 40 mm. on both tibiae. These were later determined to be idiosyncratic nutrient furrows.

Only one occurrence of osteoarthritis was noted on the entire skeleton. This is an osteophytic spur on the right clavicular notch of the manubrium. As discussed above, there was an unusual absence of degenerative osteoarthritis on the vertebrae for an individual in this age group.

Attrition of the occlusal surfaces of the teeth was extreme, with the least amount of wear being on the third molars of the mandible and the maxilla (all of which had erupted). All teeth other than the third molars exhibited complete absence of enamel on the occlusal surfaces (Fig. 19). Minor calculus deposits were present at the base of all molars and incisors, but no dental caries were evident. No abscesses or antemortem tooth loss were observed.

Summary of Osteological Analysis. In summary, it has been determined that the Hardtrigger skeleton represents the remains of an adult male, 30 to 45 years of age, who stood 5 feet 6 inches to 5 feet 8 inches in height. There is no evidence of nutritional stress during his formative years, but possible bone scarring on the skull suggests at least one episode of fairly se-

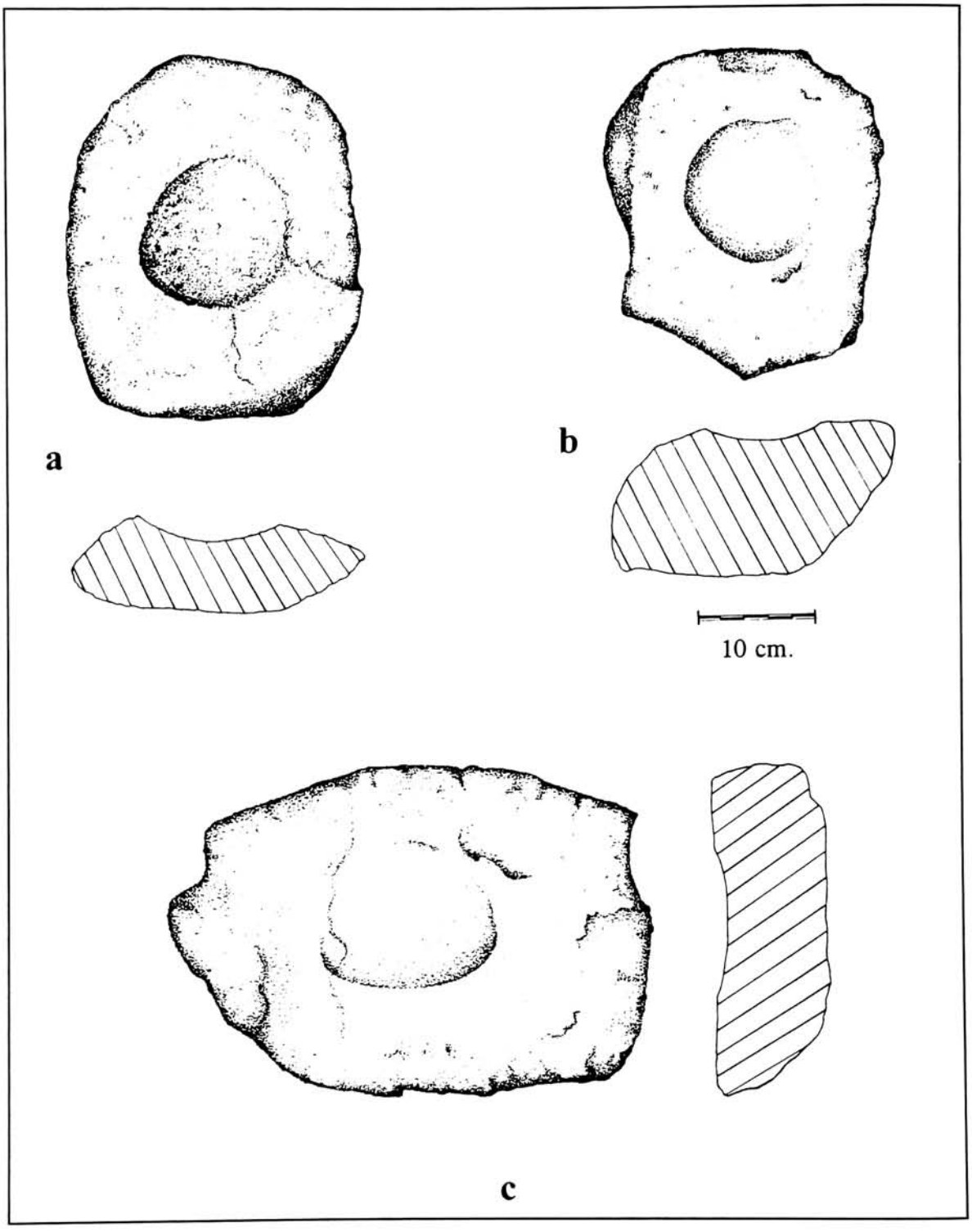


Fig. 16. Representative hopper mortar bases from the Hardtrigger Creek burial: (a) Cat. No. 10OE5968-2; (b) Cat. No. 10OE5968-6; (c) Cat. No. 10OE5968-7.

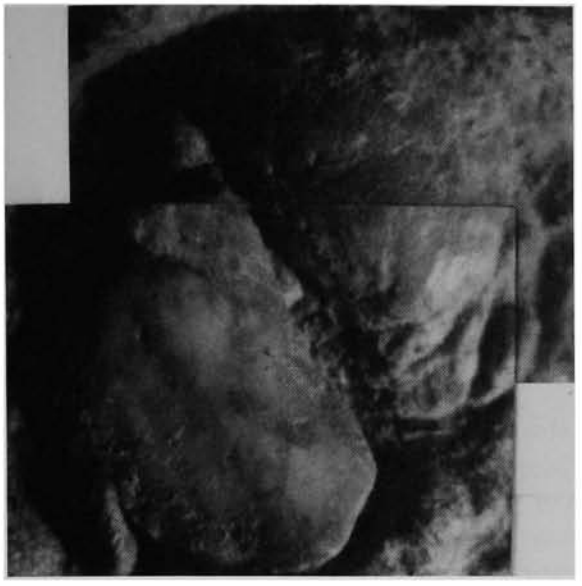


Fig. 17. Photomicrograph of polished bone fragments in vesicle of hopper mortar base from the Hardtrigger Creek burial (Cat. No. 10OE-5968-10). Magnification is 10X.

vere trauma during some phase of this individual's life. It is also noteworthy that this individual exhibited very little evidence of osteoarthritis, an uncommon occurrence for someone of this age.

Faunal and Botanical Remains. In an effort to obtain possible dietary information from the human remains within the Hardtrigger Creek burial, two soil samples, each approximately a liter in size, were collected from the abdominal cavity and thorax of the skeleton for microbotanical and faunal analysis. A control sample of material was collected from a higher stratum outside the burial for comparative purposes. Part of the sample was sieved through a series of graduated screens of various sizes (Nos. 20, 40, 60, and 230) and microsorted with the use of a binocular microscope. The other half of the sample, along with the control sample, was sent to PaleoResearch Laboratories for microsieving and pollen analysis.

Neither of the microscreened samples revealed microfaunal or microbotanical remains of cultural significance. The results of the pollen analysis showed no statistically significant difference between the control sample and the abdominal soils (Cummings and Moutoux 1997). The pollen identified in the control and abdominal samples are summarized in Figure 20.

Table 10
CRANIAL MEASUREMENTS OF THE HARDTRIGGER CREEK HUMAN SKELETON[a]

Attribute	Measurement (in mm.)
Maximum cranial length	155.0[b]
Maximum cranial breadth	128.0
Basion-bregma height	132.0
Minimum frontal breadth	99.0
Upper facial breadth	105.0
Biorbital breadth	94.0[b]
Interorbital breadth	27.0
Frontal chord	109.0
Parietal chord	107.0
Occipital chord	96.0
Foramen magnum length	39.0
Foramen magnum breadth	30.0
Mastoid length	27.0
Chin height	34.0
Height of mandibular body	30.0
Breadth of mandibular body	12.0
Bigonial width	106.0
Bicondylar breadth	115.0[b]
Minimum ramus breadth	36.0
Maximum ramus breadth	44.0
Maximum ramus height	71.0
Mandibular angle	110°

[a] Following Buikstra and Ubelaker (1994).
[b] Estimated measurement due to bone erosion.

DISCUSSION

As noted above, the information pertaining to the two skeletons described herein represent the bulk of human osteometric data for the northern extreme of the cultural Great Basin dating within the last 2,000 years. Of the two other burials of

Table 11
POSTCRANIAL MEASUREMENTS OF THE HARDTRIGGER CREEK HUMAN SKELETON[a]

Attribute	Measurement (in mm.)[b]
Clavicle	
Maximum length	159.0
Anterior-posterior diameter at midshaft	11.0
Superior-inferior diameter at midshaft	13.0
Scapula	
Height	155.0
Breadth	100.0
Humerus	
Maximum length	315.0[c]
Vertical diameter of head	45.0
Maximum diameter at midshaft	21.0
Minimum diameter at midshaft	17.0
Radius	
Maximum length	255.0
Medial-lateral diameter at midshaft	12.0
Ulna	
Anterior-posterior diameter	13.0
Medial-lateral diameter	14.0
Femur	
Maximum length	452.0
Bicondylar length	449.0
Maximum head diameter	45.0
Anterior-posterior subtrochanteric diameter	24.0
Medial-lateral subtrochanteric diameter	31.0
Anterior-posterior midshaft diameter	28.0
Medial-lateral midshaft diameter	28.0
Midshaft circumference	90.0
Tibia	
Maximum length	380.0
Maximum distal epiphyseal breadth	50.0
Maximum diameter at nutrient foramen	36.0
Medial-lateral diameter at nutrient foramen	24.0
Circumference at nutrient foramen	97.0
Fibula	
Maximum diameter at midshaft	15.0

[a] Following Buikstra and Ubelaker (1994).
[b] All measurements are on the right element.
[c] Estimated measurement due to bone erosion.

Table 12
HEIGHT ESTIMATION OF HARDTRIGGER CREEK HUMAN SKELETON

Regression Equations[a]	Stature Estimation Results
1.67 (Hum + Rad) + 74.83	1.67 (31.5 + 25.5) + 74.83 = 170.02 ± 4.16
2.68 Hum + 83.19	2.68 (31.5) + 83.19 = 167.61 ± 4.25
3.54 Rad + 82.00	3.54(25.5) + 82.00 = 172.27 ± 5.57
2.15 Fem + 72.57	2.15(45.2) + 72.57 = 169.75 ± 3.8

[a] Following Trotter and Gleser (1958:120). All measurements are in cm.

similar age in the region (Corn Creek and Mecham; see below), only one (the Mecham burial) has published osteometric information (Gruhn 1960:10-11), and this is limited due to the fragmentary nature of the skeleton. Therefore, until more data from this time period become available for this region, no statistically meaningful comparisons can be made between these scant remains and those found in surrounding areas of the Columbia Plateau and the remainder of the Great Basin.

Corn Creek (10-LH-124) is located downstream from the confluence of the Middle Fork and main Salmon River in eastern Idaho, an area that is claimed by both the Northern Shoshone and the Nez Perce. At Corn Creek, Holmer and Ross (1985) reported the discovery of a simple flexed burial facing south. The burial, representing one adult male approximately 45 to 55 years of age, was discovered in the floor of a house feature. This burial, which contained no associated artifacts, is believed to date to approximately 800 B.P. based on a radiocarbon assessment on burned bark covering the burial (770 ± 70 RCYBP; no laboratory number listed). Unfortunately, no osteometric data were provided in the report describing these remains.

The other burial of similar age (1,250 and 750 B.P.) from western Idaho, the Mecham burial (Gruhn 1960), had been so badly disturbed by rodent burrowing activity that its original orientation and positioning were impossible to determine. Although one adult female was identified in this burial, other remains were subsequently found that indicated a later, secondary interment. Interestingly, two *Margaritifera* (sp.) valves were recovered from the grave, the same genus as the single valve from the Hardtrigger burial. Unlike the Corn Creek burial, the Mecham grave contained numerous grave goods, including both dart and arrow points, several stone preforms and blanks, cores, a stone pipe, and several bone tubes of various sizes.

In addition, a possible disturbed cairn burial from a cave in north-central Nevada was discovered during excavations at Ezra's Retreat (26-HU-300) in the early 1970s (Kobori 1979). A rock pile is noted in the level illustration above the burial (Kobori 1979:241), but there is no discussion of the possible relationship to the human remains, which consisted of a partial, tightly flexed burial over a large rock.

Cairn burials with mortars are reported from the Plateau at the Wildcat Canyon site (Dumond and Minor 1983) and the McGraw Creek site (Warren et al. n.d.). At the Wildcat Canyon site (35-GM-9), located on the Columbia River, a female skeleton with several millingstones and millingstone fragments positioned over the top of the remains were found. The human remains dated to approximately 1,430 B.C. (3,380 ± 160 RCYBP; Gak-1669). At McGraw Creek in Hell's Canyon, Oregon, an unflexed female skeleton of similar age was recovered from under the floor of a pithouse overlaid with mortar bases and rocks (Warren et al. n.d.). Also in

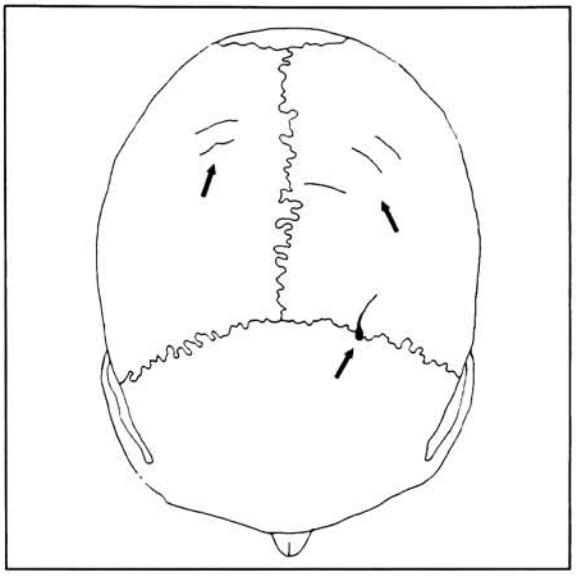


Fig. 18. Bone scarring on the cranial vault from the the Hardtrigger Creek skeleton.

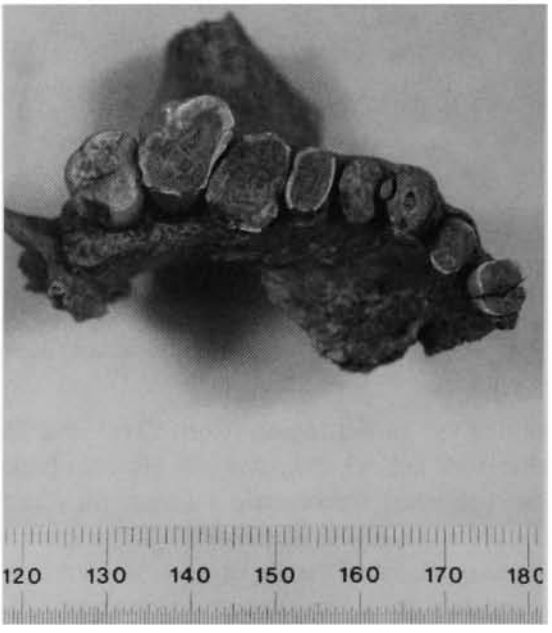


Fig. 19. Occlusal view of partial maxilla from the Hardtrigger Creek skeleton.

Oregon, Tasa (1995a, 1995b) reported large cobbles, many of which had been ground to varying degrees, overlaying a cemetery of tightly flexed skeletons at the Crates Point Cemetery site (35-WS-221), approximately three miles north of The Dalles on the Columbia River. The graves were oriented in various directions and were generally lacking in burial goods.

To the north and west of the Royston and Hardtrigger sites is Malheur Lake in Oregon where, in 1988 and 1989, 45 prehistoric human burials representing 53 individuals of both sexes and varying ages had been exposed by fluctuating lake activities over the preceding decade (Hemphill 1992). The U. S. Fish and Wildlife Service contracted with Heritage Research Associates to perform field recovery over two seasons, as well as osteometric analyses on the remains. Although many of the burials had been disturbed by natural agencies, several were in excellent condition. The ages of the burials all appeared to be within the last 1,000 years based on a number of radiocarbon assessments on various skeletons. Only a small number of burials (n = 10) contained burial goods, and none were cairn burials. Only one of the burials, that of a mature female, contained hopper mortar bases. Positioning of the skeletons was highly variable (Hemphill 1992).

Regional ethnographic burial data are incongruous with the patterns described in this report for the two Late Prehistoric Period western Idaho burials. Among the Western Shoshone, burial practices were variable by location, including cremation, burial in rock talus slopes, and interment in caves (Thomas et al. 1986). The Northern Paiute typically would wrap the flexed body in skins, where it would then be placed in a crevice, cave, or buried on a hill (Fowler and Liljeblad 1986). Steward's (1941:319) Snake River Shoshoni informant denied the use of rock-covered burials, although other Shoshoni of Nevada reported using this technique.

Although both of the western Idaho burials discussed herein date to approximately the same time period, there are marked differences between the two, as well as a few similarities. Both bodies were buried in open areas, away

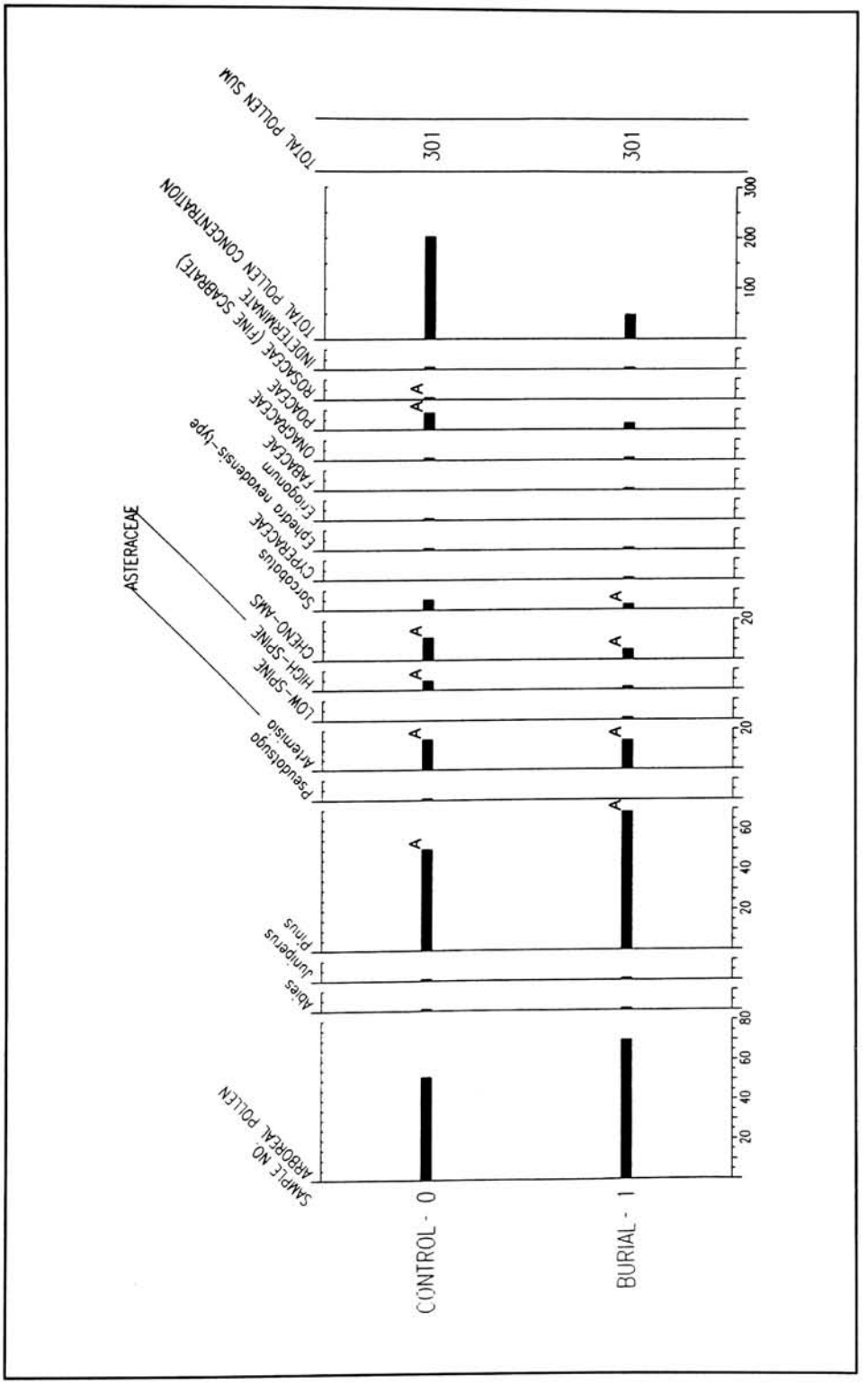


Fig. 20. Diagram comparing pollen profiles from the control sample and the Hardtrigger Creek burial abdominal sample.

from areas of long-term occupation. The Royston burial was interred with numerous utilitarian artifacts that were apparently burned in the burial pit prior to the deposition of the body. In contrast, the Hardtrigger burial contained only a few artifacts, including the small willow stick, that had been burned. While the practice of burning personal possessions following one's demise is fairly common among Great Basin groups ethnographically (Steward 1941; Fowler and Liljeblad 1986), these items were not typically interred with the body at burial.

Additionally, the Hardtrigger individual was placed under approximately 250 kg. of rocks, many of which were identified as mortar bases, while the Royston remains were not associated with a cairn. Cairn burials, which were apparently common in the Plateau region prehistorically, have no parallels to date among the limited number of burials known from the northern cultural Great Basin. Finally, the circumstances surrounding the initial discovery of the Royston burial and the nature of the damage to the skull suggest that the individual may have been seated vertically in the burial pit, while the Hardtrigger skeleton was flexed and faced southwest.

Based on an admittedly small sample size, the two western Idaho Late Prehistoric Period burials described in this report appear, at this point, to represent burial techniques that are unique in the region. It is hoped that the information provided here will benefit future biological anthropologists and archaeologists as a greater data base accumulates.

NOTES

1. It is recognized that despite the resurgence of the popularity of using cranial sutures as a tool for age determination, it is still problematic (see Hershkovitz et al. 1997) and always should be used in conjunction with other aging methods.

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