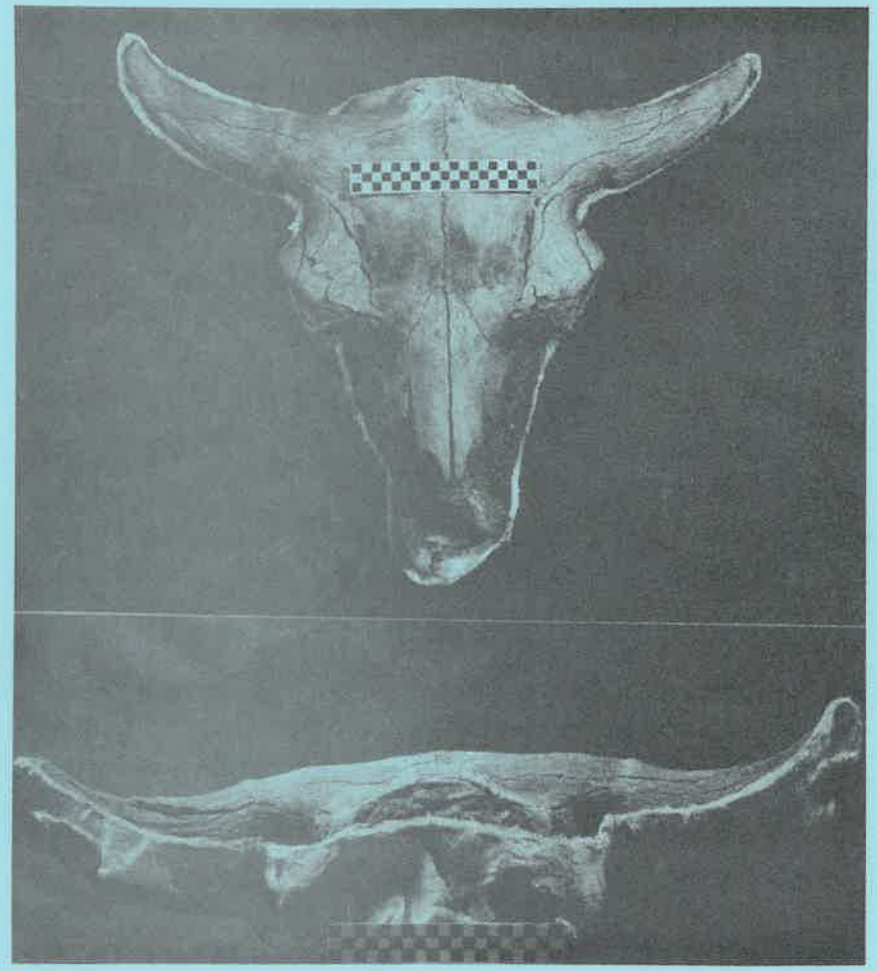
THE WYOMING ARCHAEOLOGIST



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THE WYOMING ARCHAEOLOGIST
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Membership period is from January through December. All subscriptions expire with the Fall/Winter Issue and renewals are due the first part of January each year. Continuing members whose dues are not paid by March 30 of the new year will receive back issues only upon payment of $5.00 per issue. If you move or have a change of address, please notify the Executive Secretary/Treasurer. Your *WYOMING ARCHAEOLOGIST* will not be forwarded unless a payment of $1.00 is received for return and forwarding postage. Back issues in print can be purchased for $5.00 each. Back issues out of print are available at $0.15 per page.

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THE WYOMING ARCHAEOLOGIST
VOLUME 36 (3-4), FALL 1992

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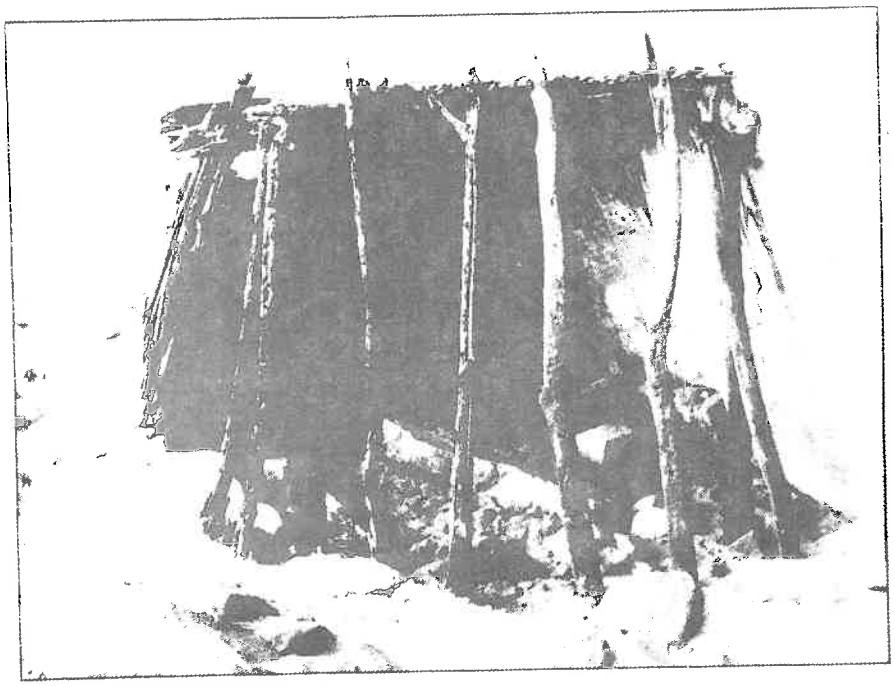
$2,900 REWARD

FOR INFORMATION LEADING TO THE CIVIL OR CRIMINAL CONVICTION OF THE VANDALS RESPONSIBLE FOR THE MALICIOUS DESTRUCTION OF THE THREE ROOF RUIN ARCHEOLOGICAL SITE IN ESCALANTE CANYON WITHIN GLEN CANYON NATIONAL RECREATION AREA.

Sometime before July 11, 1991, vandals removed wooden beams from the roof and walls of the structure and used them as firewood in a campfire. The beams were part of the original structure and were between 800 and 1200 years old.

The National Park Service and private citizens who are outraged at this wanton destruction of a prehistoric ruin have pledged the reward money.



If you saw anything in the Escalante Canyon near that time, or you have any information concerning this thoughtless act of vandalism, please contact:

Chief Ranger Larry B. Clark
Glen Canyon National Recreation Area
P.O. Box 1507 • Page, Arizona 86040
Ph. 602-645-8883

The Superintendent of Glen Canyon National Recreation Area reserves the sole right to determine whether the information provided led to the conviction and/or whether any reward should be divided between different individuals whose information was equally responsible for a conviction. No government employee acting under the scope of employment is entitled to receive any part of the reward.

ANNOUNCEMENTS

Governor Mike Sullivan signs the proclamation for Wyoming's first Archaeology Week. Looking on, from left to right, are Dr. George C. Frison, Professor of Anthropology at the University of Wyoming and former State Archaeologist; Mary Hopkins, Manager of the State Historic Preservation Office Cultural Records; Susan Carlson, President of the Wyoming Archaeological Society; and Dr. Mark E. Miller, State Archaeologist. Hopkins and Miller were statewide coordinators for Wyoming Archaeology Week.

WYOMING'S FIRST ARCHAEOLOGY WEEK

submitted by
Mark E. Miller and Mary Hopkins

Our first ever Wyoming Archaeology Week took place between April 19-25, 1992, and it was a real success! The general public became involved with professional and avocational archaeologists in numerous educational efforts which encouraged public participation in archaeology. Wyoming's program has been a grass roots effort combined with a state based committee to help coordinate and promote the various activities.

Minimal funding and other limitations necessitated the support of a variety of sponsors and agencies, including the State Archaeologist's office, the University of Wyoming, Wyoming SHPO, State Department of Commerce, Wyoming Archaeological Society, junior colleges, federal agencies, and other professional and avocational groups. Without the involvement of these entities, and the dedicated effort by countless volunteers, Wyoming Archaeology Week would not have become a reality.

Our goal was to encourage communities to conduct one or more activities which promote the research and educational potential of Wyoming archaeology. A colorful poster showcasing the Vore Buffalo Jump was produced to inaugurate the week. Governor Sullivan signed a proclamation to kick-off the activities. Over 60 events were scheduled by 20 communities around the state. These events reached thousands of Wyoming residents and tourists.

Various types of educational approaches were used in these events, such as hands-on public participation projects and group tours. An extremely successful event was the Cheyenne High Plains Archaeology Day. The program was held at the Cheyenne Botanic Gardens, and featured tipis, a mock archaeological excavation, flint knapping, and a hide painting booth. Similar educational efforts were used in Cody, Worland, Powell, Rock Springs, and Rawlins. Each was well attended. For example, over 1500 school children toured the archaeology fair held at the Jeffrey Center in Rawlins.

Group tours were given at Fort Fred Steele, Outlaw Cave, Spanish Diggings, and Pine Bluffs, to name a few. These tours enabled the public to experience the excitement of Wyoming's cultural heritage and to learn from professionals involved in archaeological research.

Featured speakers included Margaret Jodry and Dennis Stanford of the Smithsonian Institution, and George Frison of the University of Wyoming. We are fortunate to have such scholars work on archaeological research relevant to Wyoming. Many other local professional archaeologists spent time giving lectures and slide presentations in various communities.

Public archaeology efforts such as these can be extremely successful, but they should proceed cautiously to prevent compromising the archaeological resources of the state. Professionals must nurture their relationship with avocational archaeologists, a relationship based on mutual respect and support. We hope Wyoming Archaeology Week increased the public awareness of, and sensitivity to, our archaeological record. Through such educational efforts, we ensure that Wyoming's cultural resources are available to scientific research and protected for future generations. Thanks to all who gave so generously of their time.

NEW BOOK REVIEW EDITOR NAMED

submitted by
Mark E. Miller

In the spring of 1985, we inaugurated a book review section for *The Wyoming Archaeologist*. This addition to the journal has provided valuable information to subscribers who have wanted to read further into special topics. The readership has seen reviews of several publications relevant to regional archaeology. Hopefully, many of you have added some of these books to your libraries.

It has been my pleasure to serve as Book Review Editor since we began this effort. However, due to increasing demands on my time, I can no longer continue in this capacity. With this issue of the journal, I am turning over the reins to Dave McKee, a very capable scholar who now lives in Saratoga. Dave is a former student in the Anthropology Department, and presently works as an archaeologist with the Forest Service, volunteering much of his time to the Cherokee Trail Chapter of the Wyoming Archaeological Society.

I am sure the members of the Society will greatly benefit from Dave's role as Book Review Editor. He has a keen ability in the field, and is particularly sensitive to the interests of Wyoming's citizens. I wish him the best in this job and offer any assistance he may need. Thanks to all of you as well for the opportunity to work on the journal as Book Review Editor. Good Luck Dave!

1992 WORK AT HELL GAP

submitted by
Sandra Hanson

The summer of 1992 saw several changes at the Hell Gap site. The earlier (1960s) excavations were partially opened to obtain data that will enable researchers to better interpret the information recorded during those years. Dr. George C. Frison led the operation. The site was recovered again late this summer to protect it this winter.

Also, the Hell Gap Headquarters were expanded. A complete kitchen, laundry area, shower and restroom were built onto the existing building. The work was done by Russell Construction of Douglas, Wyoming. The Lingle State Bank donated $500 to the project.

NEW DISPLAY AT CARBON COUNTY MUSEUM

submitted by
Bonnie Johnson

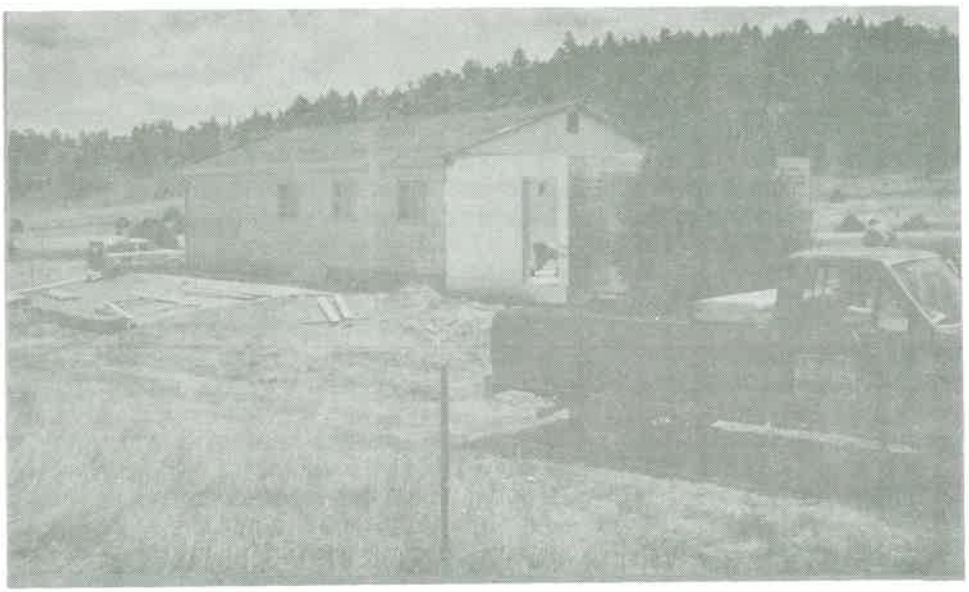
Our new Rawlins Chapter museum display project is now finished and in place at the Carbon County Museum in Rawlins.

The display contains a Plains chronology, a manufacturing sequence, and examples of flaked stone tools. Casts were obtained from H & R Casting in cody, and the manufacturing sequence was flintknapped by Mike Peterson of Laramie. Sites featured with pictures are the Colby site, Scoggin site, and the Vore site.

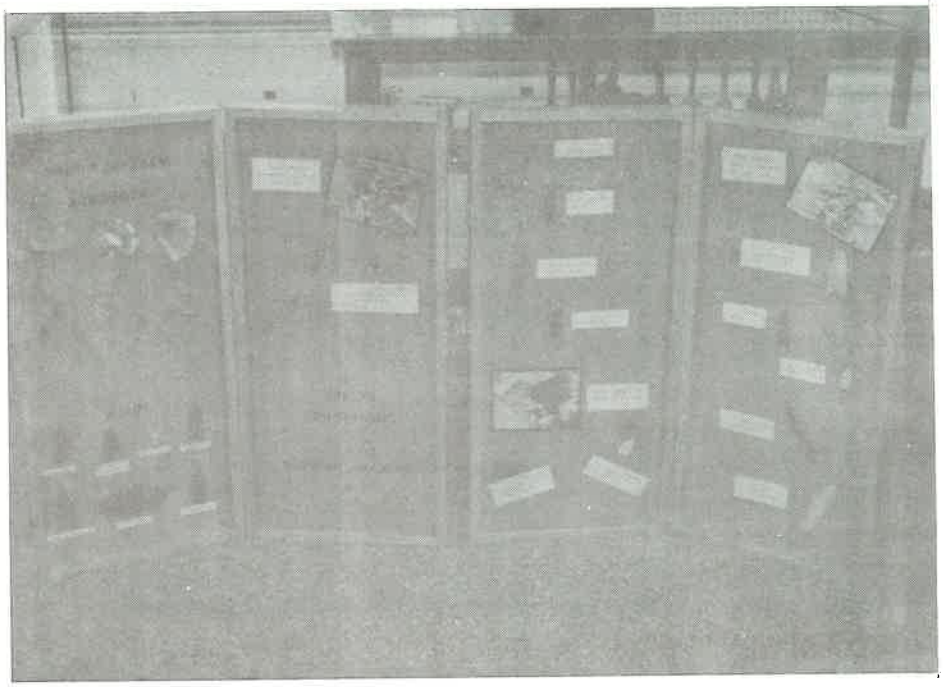
The cases are hardwood with glass fronts and hinged to fold inward and latch. They are portable and can be used by schools and other groups as an educational aid. They were the focal point of the chapter's display at the Carbon County Archaeology Fair in April.

Our thanks to the many members of our chapter who helped with the project, and extra special thanks to George Brox who made the cases. The display was made possible by a 2/3 matching grant by the Wyoming Archaeology Support Fund, and we are grateful to them for their support.

Dr. George Frison and members of the High Plains Chapter looking at the Hell Gap Site.



On-going construction at the Hell Gap site headquarters building.



New archaeology display made by Rawlins Chapter at the Carbon County Museum.

SALT WELLS STAGE STATION EXCAVATED

submitted by
Russ Tanner and Danny Walker

The Oregon-California Trails Association held their 10th Annual Convention in Rock Springs this summer. Part of the activities included a three day excavation at the Salt Wells Stage Station east of Rock Springs. The excavations were sponsored by the Bureau of Land Management, with the assistance of Western Wyoming College, the Wyoming State Archaeologist's Office, and the Sweetwater County Chapter of WAS.

The Salt Wells Stage Station was built in the mid-1860s by Ben Holladay as part of his Overland Stage Route. The station was abandoned within four years of its construction. Its location was lost until 1982 when relocated by Bureau of Land Management archaeologists. Since then, ongoing investigations have been conducted at the site. The work in 1992 has greatly expanded our knowledge of the site, including a previously unrecognized separate stable building, a solid flagstone floor in the living area of the main building, and details about daily life in a late 1860s stage station in western Wyoming.

One tentative conclusion, even before this years excavations, is that the Holladay Overland stations were much better constructed and maintained than earlier stations such as those described by Mark Twain, in *Roughing it,* and by British adventurer Sir Richard Burton. This idea was supported by the excavations conducted this year.

The project was an excellent example of an archaeological excavation using volunteers that have a sincere desire to learn about history and archaeology. The Bureau of Land Management extends their sincere appreciation to all persons who helped with the excavations.

Oregon-California Trails Association members digging at the Salt Wells Stage Station.

Overview of Salt Wells Stage Station. East wall lies along centerline of photograph.

THE SOUTH BAXTER BRUSH SHELTER SITE: AN EARLY SHOSHONEAN OCCUPATION IN SOUTHWEST WYOMING

by
Ted Hoefer III, Steven D. Creasman, Dirk Murcray, and Joseph Bozovich

INTRODUCTION

The South Baxter Basin Brush Shelter site (48SW5176) was initially recorded in 1982 by Western Wyoming College (WWC) for Chevron Chemical Company. The site was described as a Late Prehistoric occupation that contained hearths, ceramics, shell beads, small projectile points, large mammal bone fragments, and the remains of a burned structure that was interpreted as the remains of a hunting blind (O'Brien et al. 1983). A reevaluation of the site in the fall of 1990 revealed that 15-30 loci in the site contained what looked like remains of brush shelters or windbreaks.

While the Sweetwater County Chapter was selecting a possible Support Fund project, several sites near Rock Springs, Wyoming, were evaluated in terms of research potential, logistics, and the experience level of the chapter members. The South Baxter Brush Shelter site was chosen as the research project because: first, the site contained data on Late Prehistoric subsistence and settlement, second, this data was contained in shallow and easily excavated deposits, and third, the site was easily accessible from Rock Springs. The goals of the excavation were first, to describe the character and distribution of brush shelters on the site, second, to describe the internal structure of two to three shelters, third, to obtain materials with which to date the site, preferably charcoal samples for radiocarbon analysis, and fourth, to describe the subsistence remains recovered at the site.

LOCATION AND ENVIRONMENT

The site is located near the head of an ephemeral drainage that drains northeast into the South Baxter Basin (Figure 1). South Baxter Basin is part of the larger Baxter Basin which forms the interior of the Rock Springs Uplift. The Rock Springs Uplift is a large north-south trending anticline that separates the Green River Basin to the west from the Great Divide and Washakie Basins to the east. The city of Rock Springs is located three miles northwest of the site.

The site is located in a heavily dissected upland approximately one mile from the western edge of South Baxter Basin. The topography to the west consists of high hills, scarps, and steep ridges cut by ephemeral drainages that flow into Bitter Creek to the north or Sweetwater Creek to the south. East lies the flat floor of South Baxter Basin. The elevation at the site is 2030 m (6660 ft). The site area encompasses 33600 m^2 (8.3 acres).

The site is situated along the northwest flank of a small seasonal drainage that flows into South Baxter Basin. The drainage has cut a narrow valley. The terrain on the southeast side is slightly steeper than that on the northwest. From the small flood plain, the ground climbs to a terrace/bench on which the lower part of the site is located. The terrace/bench is formed by a rock ledge about 4.6 m (15 ft) above the drainage. The lower terrace/bench climbs to another small rock ledge. The second ledge leads to a ridge crest 12.2 m (40 ft) above the site. The ridge wraps around to the north of the site area. The second rock ledge forms a high bench on the southwest of the site. These topographic features form a cul-de-sac around the site with its opening to the southeast.

Climatically, the Rock Springs Uplift can be considered a semi-arid steppe. Average rainfall at the Rock Springs airport 8.0 km (5.0 miles)

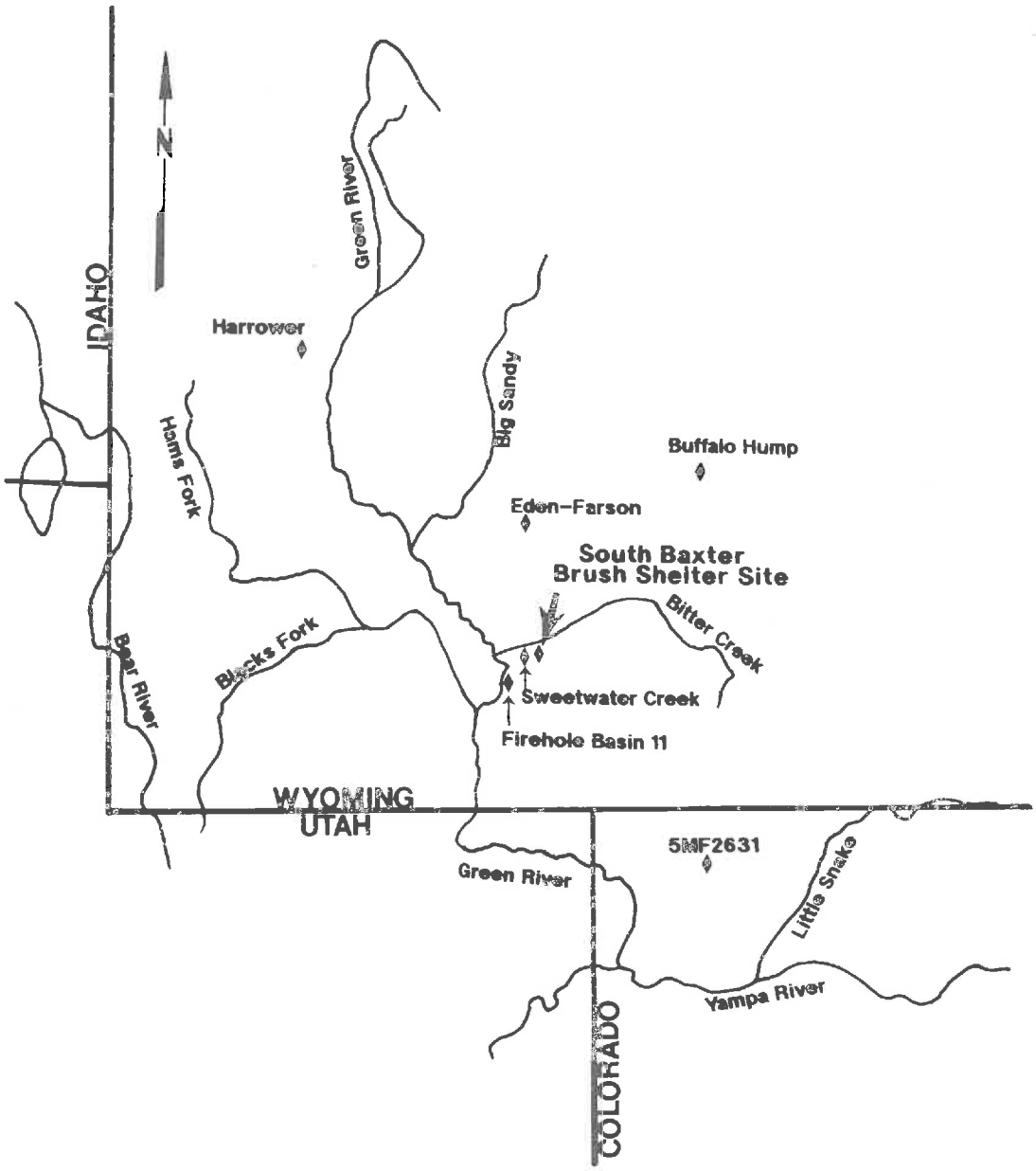


Figure 1: Map showing location of South Baxter Brush Shelter site and other western Wyoming and northwestern Colorado sites mentioned in text.

northeast of the site is between 20.3 and 22.9 cm (8.0-9.0 in) annually. However, a high evapotranspiration rate limits the effective moisture to 10.2-17.8 cm (4.0-7.0 in) (NOAA 1976). The mean summer temperature is 28.4° C (83.2° F) and the mean winter temperature is -1.5° C (29.3° F). The growing season is limited to less than 110 days.

The site area is located in a vegetation zone transitional between a sagebrush community and a juniper woodland. *Artemisia tridentata* (sagebrush) is the dominant vegetation on the site. *Juniperus osteosperma* (juniper) trees are located around the perimeters of the site. *Sarcobatus vermiculatus* (greasewood) is present in, and next to, the drainages. Other plants on the site include *Oryzopsis hymenoides* (Indian ricegrass), *Agropyron* spp. (wheatgrass), *Chrysothamnus*

spp. (rabbitbrush), *Opuntia polycantha* (prickly pear cactus), and various low forbs.

Soils on the site are limited. The dominant surface exposure is sandstone slabs of the Baxter Formation and a coarse residual sand eroding off the slabs. In limited areas of the site, finer-grained sands and silts have accumulated. These areas are on the lower portions of the slope and consist of sandy silts and colluvium. For the most part, the cultural materials are confined to the surface or are within 25 cm of the surface.

INVESTIGATION METHODS

The site investigations consisted of four major tasks. The first task involved mapping the entire site to define the spatial relationships between brush shelter locales and concentrations of cultural material. The second task was to excavate a 16 m^2 block over a charcoal stain in the center of Shelter 1, which was the hunting blind reported when the site was recorded in 1982. The third task was to map and collect all of the surface material associated with Shelter 16. The last task was to excavate a 21 m^2 centered over a surface pottery scatter (Pottery Scatter 3).

Horizontal control was maintained separately for each separate investigation areas. The grid setup in Shelter 1 had a southwest corner reference of 1000N/1000E. The grid over the pottery scatter was referenced as 100N/100E, and the surface collection grid over Structure 16 was 10N/10E. All of the collections in these investigation units were done by 1 m^2 units. Vertical control was maintained from the southwest corner of each block. However, since most of the material was surficial or just below the surface, vertical distribution was limited. The depth of the excavations varied from 5 to 25 cm. No matter the depth, the excavations took out the overlying sand or silt as a natural level that terminated at bedrock. The sediment from the excavation units was screened through 1/8" hardware mesh.

Materials such as debitage, bone fragments, and ceramic sherds were bagged as lots from each 1 m^2 unit. Each lot was then assigned an appropriate field specimen number. These numbers, along with provenience data, were recorded in a log book and were used to track the artifacts through subsequent laboratory analysis and curation. Tools and artifacts recovered *in situ* were assigned individual field specimen or ancillary specimen numbers.

When features were encountered, a plan view was drawn and then the feature was cross sectioned. Samples for radiocarbon and flotation analysis were taken from each feature. Profile views and photographs were taken of each feature and the remainder of the fill was removed. Additional drawings and photographs were taken and a feature form was completed.

Only Shelters 1 and 16 were mapped and surface collected. It was originally hoped that three structures could be mapped and collected, but time and labor constraints intervened. Each structure was mapped and collected by first imposing a grid over the structure and associated artifact scatter. This aided in mapping the juniper logs, rocks, and cultural materials. The debitage and bone fragments from each 1 m^2 unit were then collected as lots and the tools were plotted *in situ*.

The site was mapped using a transit set over the 1982 datum and a stadia rod. The mapping consisted of recording the relevant topographic and cultural features on the site. The transit was also used to map in surface artifacts not associated with the excavation or collection blocks.

All of the material collected from the site was returned to the WWC laboratories where members of the Sweetwater County Chapter cleaned, cataloged, and described the materials.

RESULTS

Radiocarbon Dates: A major objective of the research at the South Baxter Brush Shelter site was to obtain charcoal samples for radiocarbon analysis. Charcoal was obtained from Feature 2 in Shelter 1 and from Feature 3 in Pottery Scatter 3. Feature 2 returned a radiocarbon age of 570 $\pm$ 50 years B.P. (BETA-41036) and Feature 3 returned a radiocarbon age of 500 $\pm$ 50 years B.P. (BETA-41037). The corrected dates at two standard deviations for these dates are 520-670 and 496-627 years B.P., respective-

ly. This date range places the site in the Firehole Phase of the Late Prehistoric Period (Metcalf 1987).

Site Mapping: Another goal of the investigation was to describe the distribution of brush shelters and cultural material across the site. The survey of the site resulted in the recording of 25 locations believed to be the remains of brush shelters, four ceramic scatters, and seven fire hearths not associated with brush shelters (Figure 2). Lithic debitage, several stone tools, and isolated pieces of fire-cracked rock were spread over the site.

The locations thought to be remains of brush shelters were all similar in content and spatial arrangement. Except for Shelter 1 and the five highly eroded shelters, the shelters exhibited two to five cut juniper logs directly upslope from small scatters of lithic debitage, fire-cracked rocks and bone fragments. Shelter 1 exhibited cut logs on both the east and west sides of a hearth cluster. Several logs on the site displayed cut ends. In 13 of the shelter locations, oxidized and charcoal-stained areas that may be the remnants of small hearths were noted. The hearths were located near the middle of the area defined by the scatter of logs, lithic debitage, and bone fragments. Lithic debitage and fire-cracked rock were found sporadically across the site, but heavy concentrations occurred only in association with the juniper logs. The area encompassed by the juniper log and cultural material scatters averaged 25-30 m^2 in size.

The distribution of shelters across the site area suggests that the site was reoccupied and some shelters were cannibalized to construct later shelters. The shelters are clustered in a band on the slope midway between the top of the ridge and the drainage. One shelter is near the top of the slope and another is near the drainage. Reuse of the site is shown by overlapping shelters and overlapping shelter activity areas. The reuse of limbs from older shelters is suggested by presence of hearths and debitage/bone clusters and the absence of juniper branches. The similar radiocarbon dates of 500 and 570 years B.P. also indicate reuse of the site. Instead of the 24 shelters representing a small village, the shelters probably represent the repeated use of the site over several years.

Shelter 1 (1000N/1000E): When the site was originally recorded in 1982, one possible structure was recorded. This structure consisted of a few cut juniper logs and a charcoal stain (Figure 3a). The feature was interpreted as a possible hunting blind. An excavation grid was set up to determine the nature of the charcoal stain and to look at the internal configuration of the feature during the present investigations.

The area interpreted as Shelter 1 consisted of six juniper logs. Three of the longer (1.0-1.5 m) logs were found on the east side of the charcoal stain. Three shorter logs (75 cm) were located on the west side of the charcoal stain. Near the shorter logs was a juniper stump with cut marks. Upon excavation, the charcoal stain turned out to be an ash dump associated with two hearths. Feature 1 was a small basin-shaped pit filled with charcoal-stained sand. The feature measured 100 x 72 cm and had a maximum depth of 13 cm. Feature 2, dated at 570 years B.P., was a deeper bowl-shaped pit filled with charcoal, fire-cracked rock, and fragments of large mammal bone. The feature measured 60 x 56 cm and was 21 cm deep. The feature was filled with large chunks of juniper and sagebrush charcoal, with the feature walls being heavily oxidized. Flanking the features on the north and south were two large sandstone slabs. The slabs were not ground or otherwise altered and both differed from the exposed bedrock on the site. The function of these slabs was not determined. An irregularly shaped area of charcoal-stained sand was found next to the features.

Cultural material found in the 16 m^2 of excavated area included 138 pieces of lithic debitage, 160 large mammal and bison bone fragments weighing 144.8 g, and four stone tools. The stone tools included a side and end scraper, a tri-notched projectile point base, a retouched flake, and a biface fragment. All of this material was found in the area between the hearths and the charcoal stain.

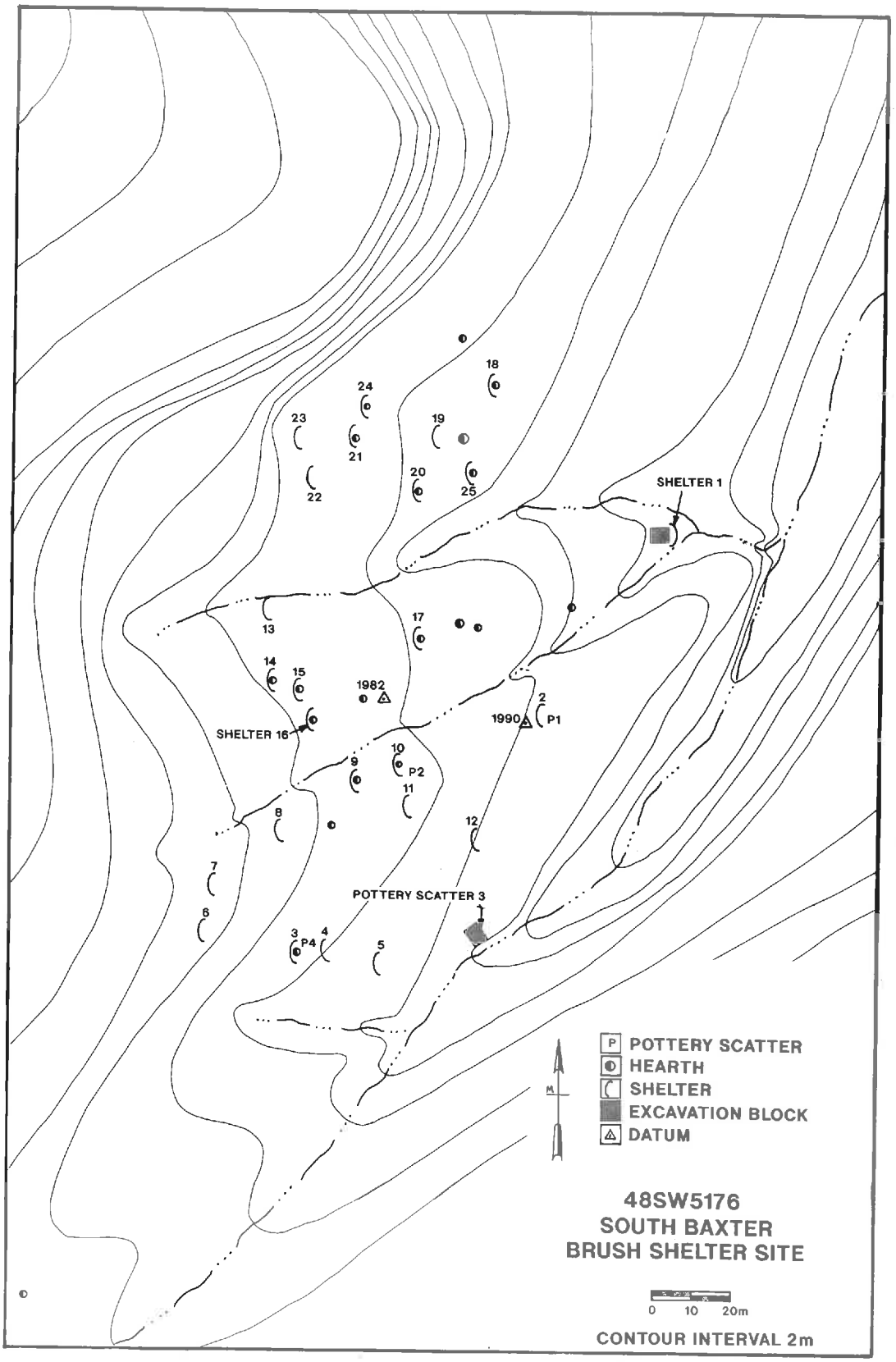


Figure 2: Contour map of South Baxter Brush Shelter site.

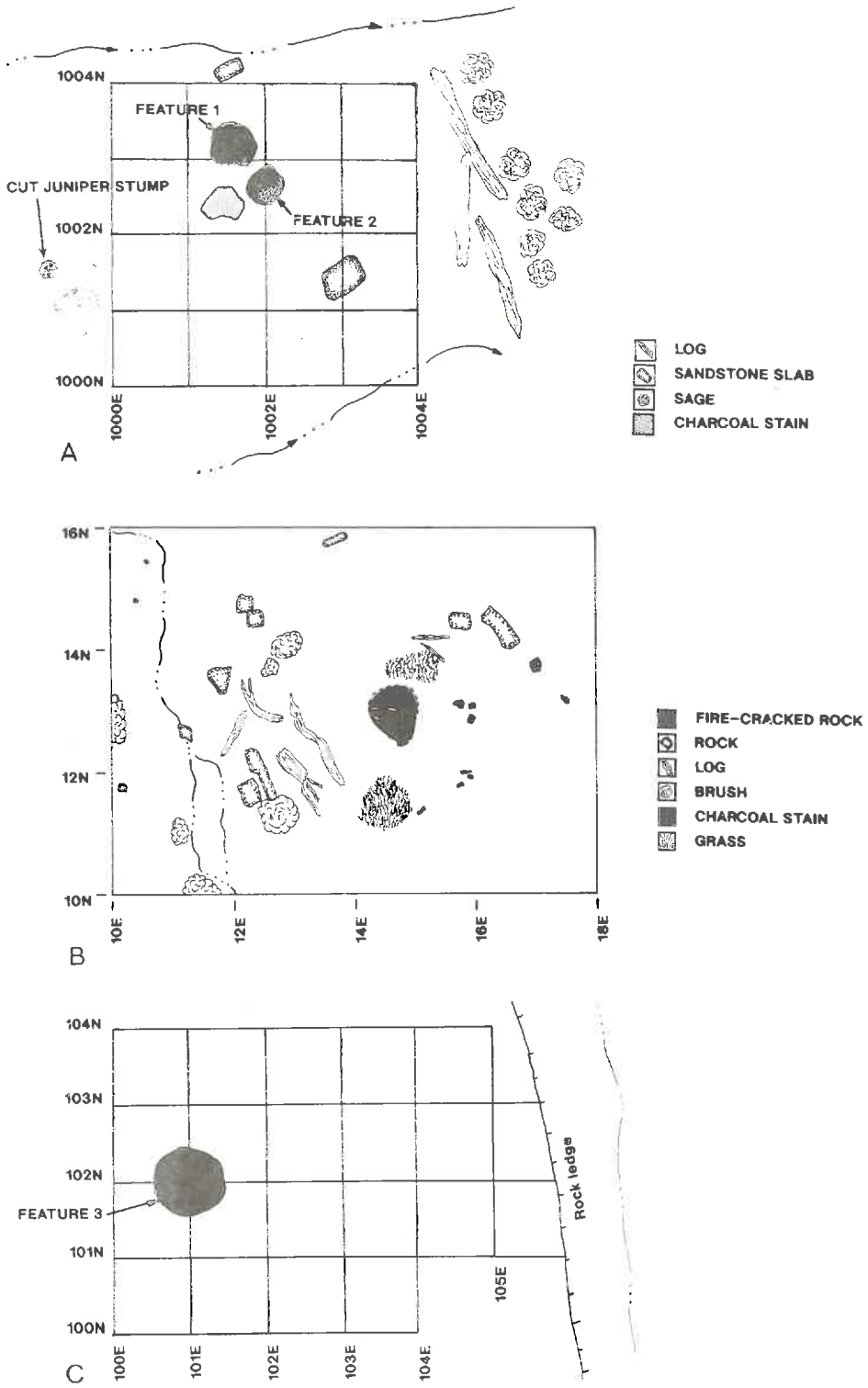


Figure 3: Investigation units at site 48SW5176. A: Shelter 1; B: Shelter 16; C: Pottery Scatter 3.

Shelter 16 (10N/10E): During the mapping of the site, several concentrations of cultural materials were found associated with large tree limbs. The tree limbs appeared to be juniper, ranging in diameter from as small as 8-10 cm to as large as 30 cm. In some concentrations, a single limb would be present while in others as many as four to six were evident. On closer inspection a pattern began to emerge in the relationship among the tree limbs, artifacts, fire-cracked rock, and hearths (when present) forming the cluster. Artifactual remains were consistently located east of the limbs, down slope, around a hearth, or with fire-cracked rock. The pattern is reminiscent of the household structure of the San Bushman report by Yellen (1977) and the structure of wickiups at the Bustos Wickiup site reported by Simms (1989). The limbs may represent the remains of the frame for a brush shelter or wind break.

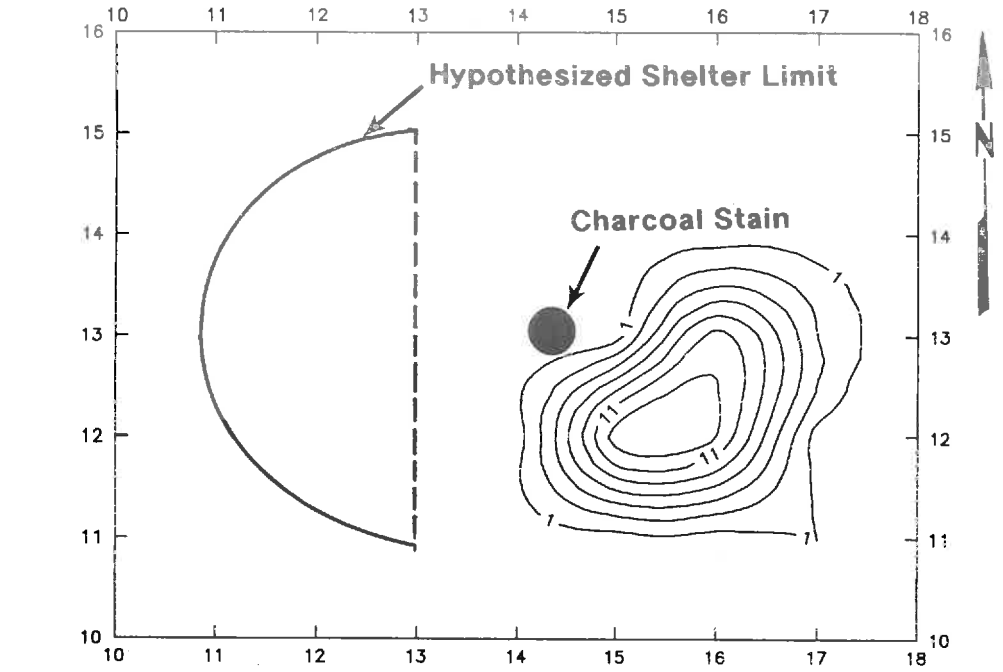
Shelter 16 (Figure 3b) is the best preserved of the hypothesized brush structures. Along with its associated hearth and artifact scatter, it is believed to represent a family use area. To

record the spatial patterning of the structure and associated remains, an area covering 48 m^2 was mapped. Tools, rocks, and tree limbs were point plotted. The ground was almost free of vegetation so that cultural material was easily observed and mapped. Lithic debitage was not point plotted but collected from each 1 m^2 unit. The density of flakes and bone within the mapped area was plotted (Figure 4). The size of the mapped area was defined by the general limits of surface artifacts. The brush structure is defined by a cluster of four juniper logs flanked on the west by a shallow arc of large sandstone rocks (Figure 3b). The logs are believed to be remains of the superstructure or framework that supported a brush, bark, or hide covering. The large rocks may have served as anchors to weigh down the edges of the cover.

The area confined by the rocks and covered by the logs is three to four m^2. This area was almost free of artifacts and other debris, as was the space west of the structure. In front, or east, of the structure was the work/cooking area for the household. Central to the work area was a hearth about 1.5 m from the structure. The space between the structure and the hearth was fairly free of debris. Northeast of the hearth were two large rocks and two small logs. East and southeast of the hearth were fire-cracked rocks, bone, and several tools. Lithic debitage was most highly concentrated around the hearth and toward the large rocks to the northeast. The distribution of the cultural materials clearly expresses variation in the use of space within the household unit. It would appear that most activities were conducted around the hearth. Refuse was tossed to the eastern side of the hearth. Flaked lithic tool manufacture occurred around the hearth area, primarily to the northeast between the hearth and large rock. The area between the hearth and the brush structure was kept free of trash as was the structure itself. The structure probably served as a sleeping area and place to store important personal items.

Pottery Scatter 3 (100N/100E): During the mapping of the site, a surface scatter of pottery was found on the southern edge of the site. The scatter was found around a large sagebrush a few meters west of a rock ledge and a few meters northeast of a large juniper tree. The surface scatter consisted of about 50 sherds, including several refitted rim sherds. The scatter appeared to be eroding from a thin slopewash soil overlying the rock ledge. To acquire a larger pottery sample and determine the context of the sherds, a 21 m^2 excavation block was placed over the scatter (Figure 3c). The block was excavated in 1 m^2 units and in a single stratigraphic level. The excavations encountered a shallow, basin-shaped hearth situated on the northwest side of the block, upslope from the rock ledge. The feature measured 85 x 75 cm in diameter and 10 cm deep. Several fire-cracked rocks were noted in the excavation units, primarily downslope from the hearth. The feature appears to have been partially disturbed by slopewash erosion and then reburied by colluvial and eolian deposits. Charcoal from the feature returned a radiocarbon age of 500 years B.P. Artifacts recovered from the grid included 196 ceramic sherds, 46 pieces of debitage, one Desert Side-notched projectile point, and one shell bead. Faunal material recovered consisted of 52 bone fragments weighing 67 grams. Identifiable elements included a pronghorn metapodial, and an artiodactyl rib fragment.

The artifacts and bone are inferred to be associated with the hearth. The material undoubtedly has been displaced by slopewash, but most of the artifacts lie close to the hearth. The density of debitage, pottery, and bone around the hearth and across the excavation block was mapped (Figure 5). The pattern of material dispersion was similar to that seen in Shelter 16. Debitage tended to be clustered next to the hearth on the northern and southern sides. The debitage density rapidly dropped off with distance from the hearth. The distribution of pottery sherds showed similar clusters on either side of the hearth. However, the greatest concentration of pottery occurred east and downslope from the hearth. In Shelter 16, the area east of the hearth served as a toss zone for refuse. The distribution of bone closely paral-



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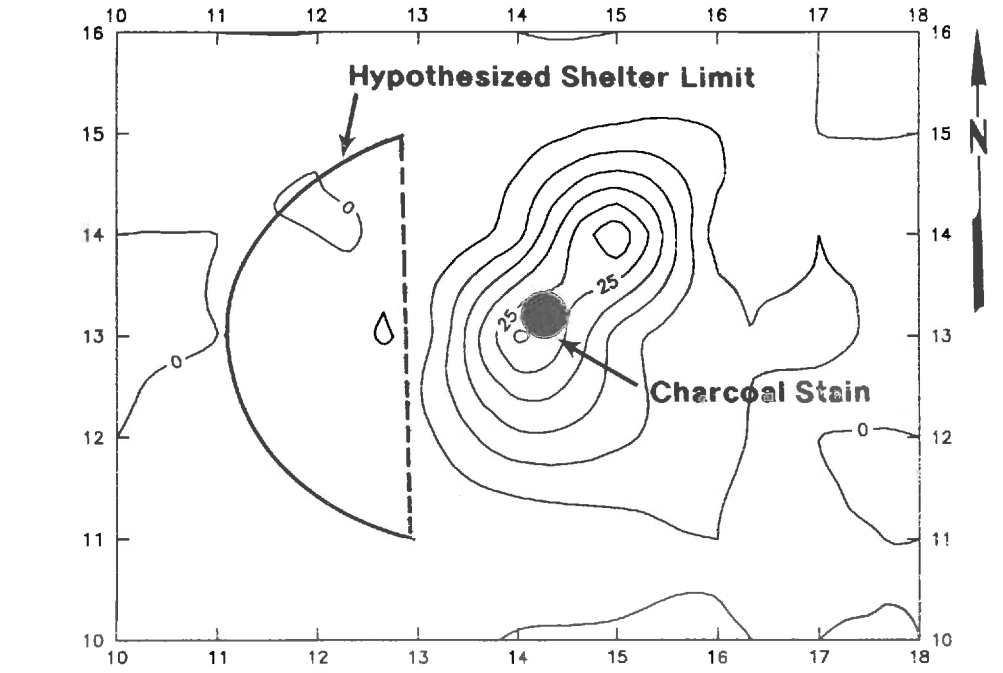

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Figure 4: Shelter 16 density maps: A: bone elements (2/m²); B: debitage (5/m²).

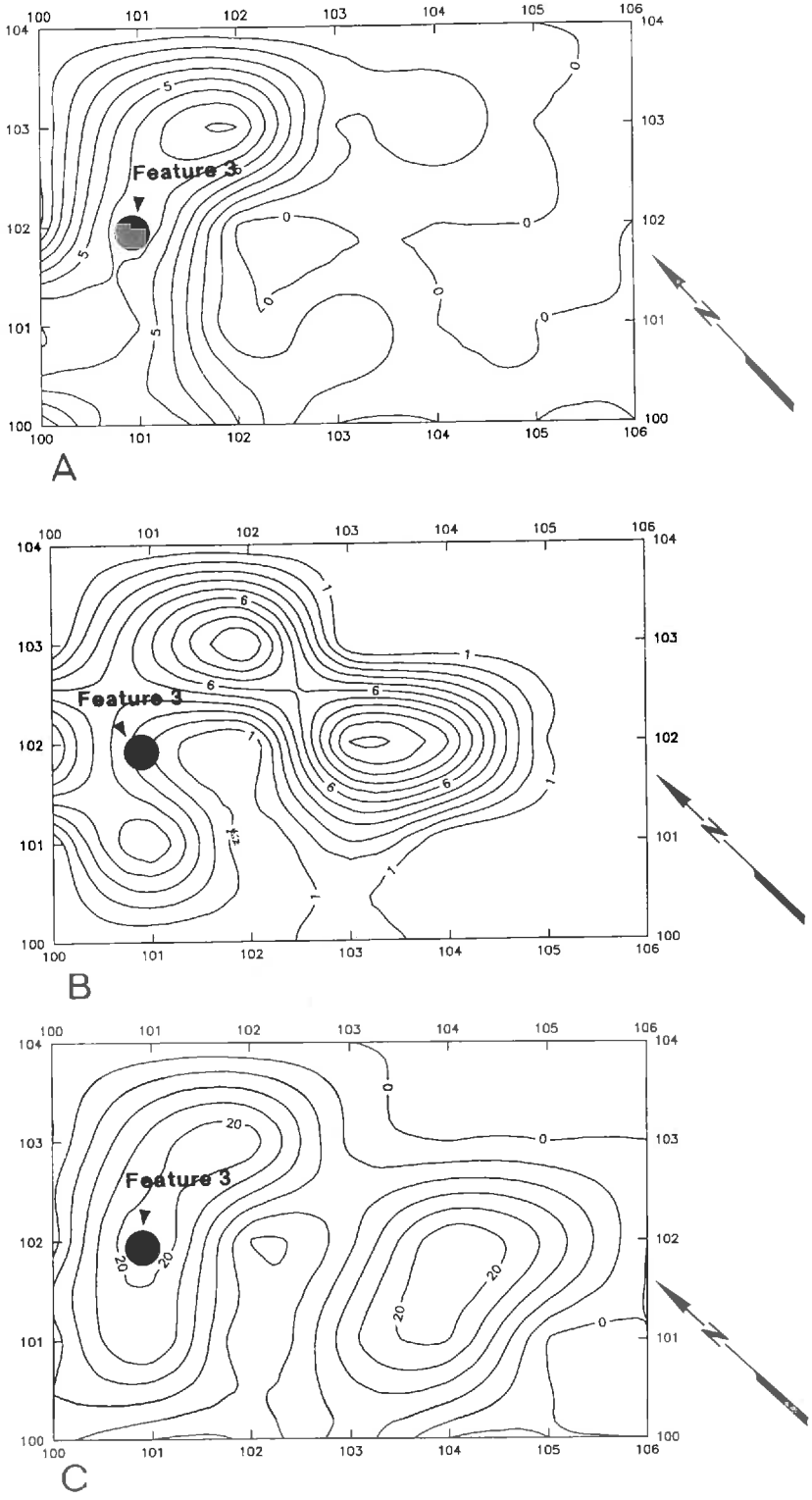

Figure 5: Pottery Scatter 3 density maps: A: debitage (1/m²); B: bone elements (1/m²); C: ceramic sherds (4/m²).

leled the sherd distribution. Again, concentrations of material were seen on two sides of the hearth with a toss zone downslope. The areas west and northwest of the hearth were fairly clean of materials.

ARTIFACT ANALYSIS

The investigations at the South Baxter Brush Shelter site resulted in collection and analysis of 38 stone tools, 392 pieces of lithic debitage, 316 ceramic sherds, and four shell beads (Table 1). The tools collected during this investigation were classified by technological stage. That is, each tool is classified according to the amount of energy put into the production of the tool. For example, a chert cobble that exhibited only a trimmed edge was classed as a preblank. If that same cobble was reduced to an artifact that can no longer be thinned and exhibited fine edge retouch, then it was classified as a final biface. Tools in any stage of this reduction continuum can be removed from the sequence and used. Morphological attributes (size, shape) were used to divide the technological classes into discrete types.

Projectile Points (n=11): The projectile points collected from the site comprise two types and two fragmentary points that are untyped.

Type I: Two projectile points are Desert Side-notched projectile points

Tool Type	Shelter 1	Shelter 16	Pottery Scatter 3	General Surface	Total
Projectile Point	1	0	1	9	11
Final Biface	0	1	0	8	9
Preform	0	1	1	3	4
Blank	0	0	0	2	2
Indeterminate Biface	1	1	0	1	3
Scraper	1	0	0	1	2
Retouched Flake	1	2	0	4	7
Shell Bead	0	1	1	2	4
Ceramic Sherd	0	0	196	120	316
Total	4	5	199	150	358

Table 1: Artifacts recovered from 48SW5176.

(Figure 6a-b). These projectile points exhibit deep side and basal notches and triangular blades. Baumhoff and Byrne (1959) originally defined the Desert Side-notch type and subsequent refinement of the point. The point and its subsequent refinement as a true type have been the subject of studies by Holmer and Weder (1980), Thomas (1981), and Holmer (1986). Although the point style is similar to the Plains Side-notched (Kehoe 1966), the association of the points and Shoshonean ceramics strongly indicates the Desert Side-notched style. Desert Side-notched points have also been found locally with Shoshonean ceramics at the Eden-Farson site (Frison 1971) and at Firehole Basin 11 (Metcalf and Treat 1979). Specimen RS67.26 (Figure 6a) is fashioned from obsidian and is complete except for one tang and the extreme end of the tip. The obsidian used to make the point came from Wright Creek near Malad, Idaho. The other specimen (RS67.92; Figure 6b) is from a pelagic chert and consists of the basal portion only.

Type II: Type II projectile points have been classified as Cottonwood Triangular points. Cottonwood Triangular points are defined as small, unnotched, thin, triangular projectile points (Lanning 1963; Thomas 1981). Seven points collected from the site have been classified as Cottonwood Triangular points (Figure 6c-e). Six of the points are proximal-medial fragments and one is complete. The base width of these points ranges from 110.0 to 17.0 mm (mean = 14.7 mm) and the thickness ranges from 2.3 to 3.6 mm (mean = 2.8 mm). All of the points were made from small flakes that in several cases required minimal facial thinning. The flake scars on four of the points do not extend completely across the face(s) of the point. Three of the points are made from a pelagic chert, three are fashioned from quartzite, and one is made from obsidian.

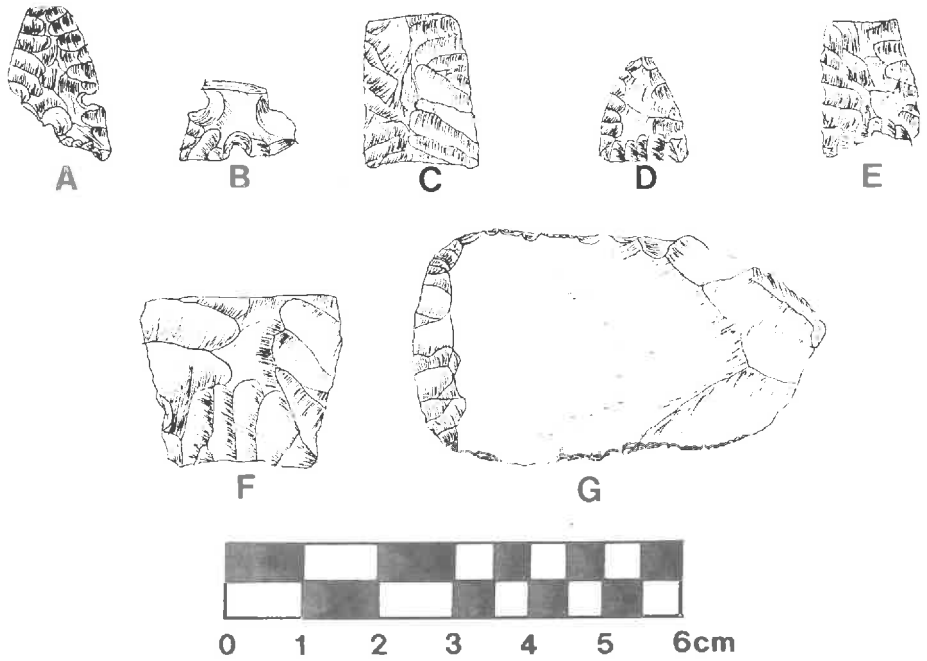

Figure 6: Selected artifacts from 48SW5176: A-B: Desert Side-notched projectile points; C-E: Cottonwood projectile points; F: knife base; G: scraper.

Untyped: Two projectile point fragments were not classified into known types. Both points are medial fragments and both display the upper portion of the notches. However, it was not possible to decide whether the points were corner-notched or side-notched.

Final Bifaces (n=9): Final bifaces are artifacts that have been thinned to such an extent that further reduction is not possible. Final bifaces are thin in cross section and display fine edge retouch. The only further modification that is possible is the addition of hafting elements or similar features.

The final bifaces collected from the site can be divided into three sets based on the condition of the artifact. Because the artifacts are fragmentary, division into specific types would be tenuous at best. Four of the specimens are triangular pieces that appear to be the distal ends of projectile points or knives. The second set consists of four specimens that are the medial sections of an unknown tool type. One of these specimens (RS67.73) is fashioned out of obsidian that has been traced to a source on Wright Creek near Malad, Idaho. The final specimen is the proximal portion of what appears to have been a knife (Figure 6f). This quartzite tool (RS67.82) is broad (26.0 mm), thick (6.0 mm), and has a thinned base. The blade broadens as it moves away from the base. All of the final bifaces exhibit biconvex cross sections.

Preforms (n=4): Preforms represent the next stage in the bifacial reduction continuum. Preforms have been thinned to the extent that little or no cortex or platforms remain. The lateral and terminal edges have been regularized and edge retouch may be present. The four preforms recovered from the site are all fragments that vary in size and orientation. Two terminal fragments, a medial-lateral fragment, and a medial fragment were collected. Given the fragmentary nature of these tools, it is difficult to discuss morphological differences. All of the fragments possess biconvex cross-sections and all display a random flaking pattern. One specimen (RS67.78) was fashioned

from a piece of obsidian that has been traced to a Wright Creek source near Malad, Idaho.

Blanks (n=2): Blanks are artifacts that have been bifacially thinned but are still thick and blocky, and may retain some cortex on one or both faces. These artifacts contain platforms for further facial reduction. Specimen RS67.75 is a medial-terminal fragment of a large blank (67.0 x 71.0 x 10.0 mm) fashioned out of an opaque piece of pelagic chert. Specimen RS67.79 is fashioned out of obsidian and measures 47.0 x 32.0 x 6.0 mm. It appears that a large flake was bifacially thinned to produce the artifact. Source analysis using X-Ray fluorescence indicates that the obsidian originated on Wright Creek near Malad, Idaho.

Retouched Flakes (n=9): Retouched flakes are flakes that have been unifacially and/or bifacially retouched along one or more margins to produce a patterned tool. Nine retouched flakes were collected during the project. Seven are small flakes or flake fragments exhibiting unifacial or bifacial retouch along one lateral edge. The other two retouched flakes (RS67.81 and RS67.90) are larger flakes that have been unifacially retouched along both lateral margins and a terminal margin. The retouch along the terminal margin has produced steep edge angles. The artifacts are commonly called side and end scrapers. Specimen RS67.81 is thin (6.0 mm) and appears to be a finished tool (Figure 6g). Specimen RS67.90 is large (86.0 x 64.0 x 21.0 mm) and blocky; it contains many platforms for further flake removal, suggesting that this scraper was not yet finished. The retouched flakes are fashioned from several types of pelagic chert, quartzite, and obsidian.

Indeterminate Bifaces (n=3): Indeterminate bifaces are bifacially flaked tool fragments. These fragments are so small that the technological stage cannot be determined. The three biface fragments collected from the site include two chert fragments and a quartzite fragment. One specimen exhibits extreme heat crazing.

Debitage: Lithic debitage was collected from the two excavated areas and from the surface collection grid over Shelter 16. The investigation resulted in 392 pieces of lithic debitage collected for laboratory analysis (Tables 2, 3, and 4). In each grid, tertiary flakes (70%) dominate the collection. Flake fragments are also common except in Pottery Scatter 3. Primary flakes and secondary flakes, indicative of the early stages of tool manufacture, make up only 3.5% of the total collection. In each collection grid, flakes smaller than 15.0 mm account for 50% or more of the collection. Flakes larger than 30.0 mm account for only 6% of the collection. Quartzite (46%) is the dominant tool stone on the site, but various local cherts (43%) are present in high frequencies. Obsidian (11%) comprises the remainder of the assemblage.

The debitage assemblage from the site indicates little early-stage tool manufacturing was taking place. Nearly finished tools were being finished or refurbished on the site. The lack of early-stage bifacial tool types also supports this assertion.

Ceramics: The ceramic sample from the site was recovered from four distinct sherd scatters. The sample consists of Pottery Scatter 1 (n=115); Pottery Scatter 2 (n=2); Pottery Scatter 3 (n=196); and Pottery Scatter 4 (n=3). The ceramic collection represents at least three distinct vessels (scatters 1, 3, 4). The two small sherds from Pottery Scatter 2 are similar to pottery from Scatters 1 and 3, but the small sample size precludes specific assignment. The association of Pottery Scatter 2 with brush shelters 10 and 11 and spatial separation from the other pottery scatters may suggest a fourth pottery vessel. The three distinct pottery vessels are described below.

Vessel A (Pottery Scatter 3):
Color:
Core: black, carbonized
Interior: 10YR gray to pale brown
Exterior: 10YR gray to pale brown
Fracture: regular

	Chert	Quartzite	Obsidian	TOTAL	Row %
Primary Flake					
n	0	0	0	0	
Column %	0.00%	0.00%	0.00%		
Row %	0.00%	0.00%	0.00%		0.00%
Secondary Flake					
n	0	4	0	4	
Column %	0.00%	8.33%	0.00%		
Row %	0.00%	100.00%	0.00%		2.90%
Tertiary Flake					
n	68	19	8	95	
Column %	89.74%	39.58%	57.14%		
Row %	71.58%	20.00%	8.42%		68.84%
Flake Fragment					
n	2	18	5	25	
Column %	2.63%	37.50%	35.71%		
Row %	8.00%	72.00%	20.00%		18.12%
Bifacial Thinning Flake					
n	4	0	1	5	
Column %	5.26%	0.00%	7.14%		
Row %	80.00%	0.00%	20.00%		3.62%
Shatter					
n	2	7	0	9	
Column %	2.63%	14.58%	0.00%		
Row %	22.22%	77.78%	0.00%		
TOTAL	76	48	14	138	
%	55.07%	34.78%	10.14%		100.00%

Table 2: Debitage recovered from Shelter 1, site 48SW5176.

Core texture: medium tempered, primarily 0.5 mm with occasional pebbles to 2.0-3.0 mm
Temper: quartz sand
Surface finish: slightly rough (temper showing through) to smooth both on the interior and exterior
Surface decoration: none
Rim form: irregular (Figure 7a-b); generally an outward flare, a flattened top, slight exterior lip, and thinning toward the top.
Body form: slightly shouldered
Base form: flat bottom with a slight flange

	Chert	Quartzite	Obsidian	TOTAL	Row %
Primary Flake					
n	3	2	0	5	
Column %	3.95%	1.77%	0.00%		
Row %	60.00%	40.00%	0.00%		2.40%
Secondary Flake					
n	1	1	1	3	
Column %	1.32%	0.88%	5.26%		
Row %	33.33%	33.33%	33.33%		1.44%
Tertiary Flake					
n	55	74	15	144	
Column %	72.37%	65.49%	78.95%		
Row %	38.19%	51.39%	10.42%		69.23%
Flake Fragment					
n	4	18	1	23	
Column %	5.26%	15.93%	5.26%		
Row %	17.39%	78.26%	4.35%		11.06%
Bifacial Thinning Flake					
n	11	2	1	14	
Column %	14.47%	1.77%	5.26%		
Row %	78.57%	14.29%	7.14%		6.73%
Shatter					
n	2	16	1	19	
Column %	2.63%	14.16%	5.26%		
Row %	10.53%	84.21%	5.26%		9.13%
TOTAL	76	113	19	208	
%	36.54%	54.33%	9.13%		100.00%

Table 3: Debitage recovered from Structure 16, site 48SW5176.

(Figure 7c)
Thickness:
Rim: 7.5 mm
Neck: 9.0 mm
Shoulder: 9.0 mm
Body: 7.0 mm
Base: 10.0-11.0 mm

Remarks: The estimated diameter of the mouth of the vessel is 40.6 cm (16 in). The vessel appears to be a very wide mouth, slightly shouldered jar. The body tapers to a small, 10.2-12.7 cm (4.0-5.0 in) diameter, flat-bottomed

	Chert	Quartzite	Obsidian	TOTAL	%
Primary Flake					
n	1	0	0	1	
Column %	5.88%	0.00%	0.00%		
Row %	100.00%	0.00%	0.00%		2.17%
Secondary Flake					
n	0	1	0	1	
Column %	0.00%	5.00%	0.00%		
Row %	0.00%	100.00%	0.00%		2.17%
Tertiary Flake					
n	15	16	6	37	
Column %	88.24%	80.00%	66.67%		
Row %	40.54%	43.24%	16.22%		80.43%
Flake Fragment					
n	0	0	0	0	
Column %	0.00%	0.00%	0.00%		
Row %	0.00%	0.00%	0.00%		0.00%
Bifacial Thinning Flake					
n	0	2	3	5	
Column %	0.00%	10.00%	33.33%		
Row %	0.00%	40.00%	60.00%		10.87%
Shatter					
n	1	1	0	2	
Column %	5.88%	5.00%	0.00%		
Row %	50.00%	50.00%	0.00%		4.35%
TOTAL	17	20	9	46	
%	36.96%	43.48%	19.57%		100.00%

Table 4: Debitage recovered from Pottery Scatter 3, site 48SW5176.

base. Sherds were recovered from the surface (n=59) and excavation (n=137). Sherds from Vessel A are associated with a hearth (Feature 3). Charcoal from the hearth returned a radiocarbon age of 500 years B.P.

Creasman et al. (1990) have developed a classification of the prehistoric ceramics in southwest Wyoming. The classification recognizes two pottery traditions characterized as an Early Tradition, pre-A.D. 1300, and a Late Tradition, post A.D. 1300. The Late Tradition is associated with the Shoshonean occupation

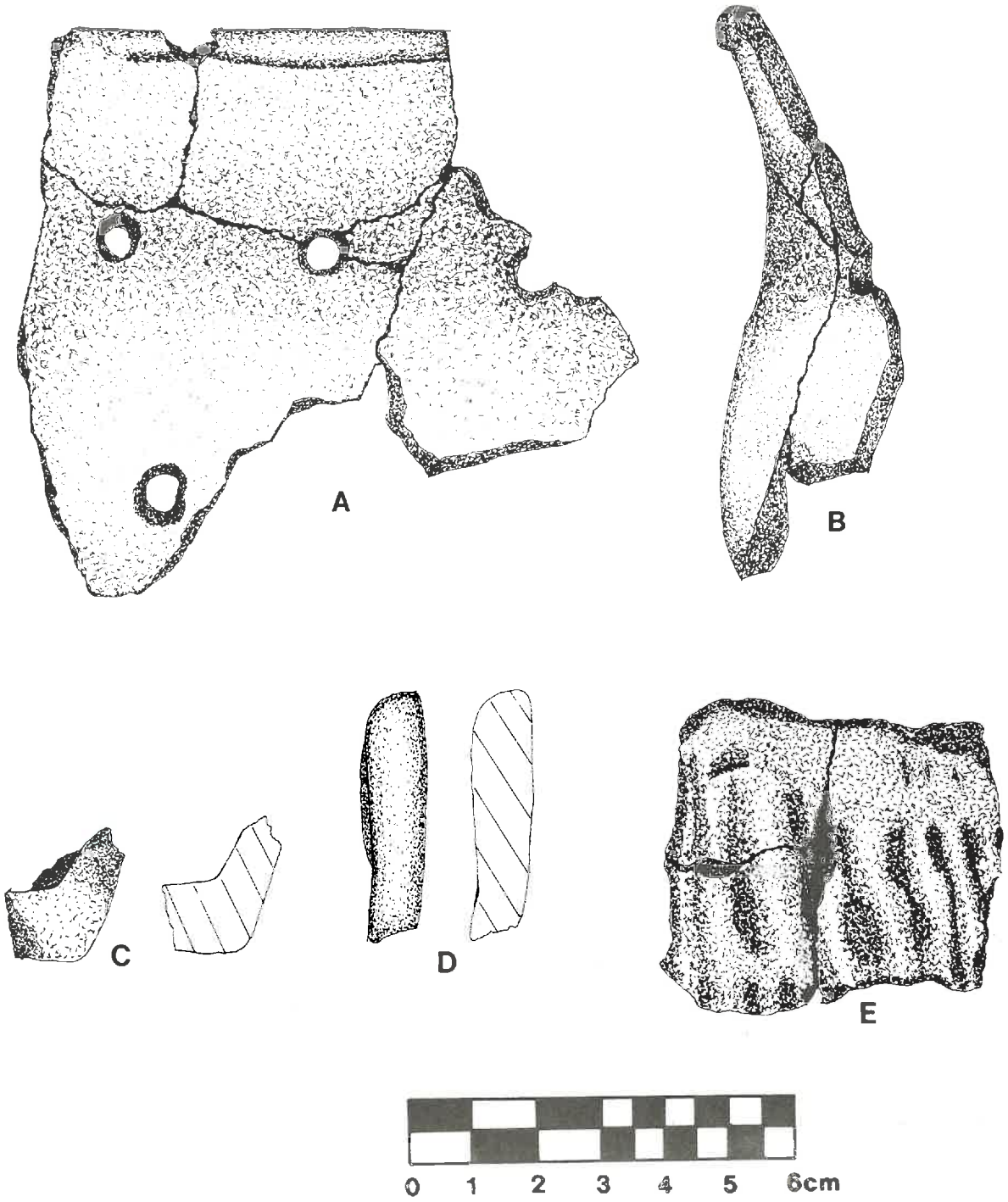

Figure 7: Ceramics from 48SW5176. A: vessel A, view with patch holes; B: vessel A, rim and shoulder profile; C: vessel A, base profile; D: vessel B, rim form; E: vessel C, body sherd.

and includes two types, Boars Tusk and Skull Point gray wares. The Skull Point type appears later, post A.D. 1400, than the Boars Tusk type. The major differences between the types are primarily vessel form, Skull Point being a shouldered jar and Boars Tusk being flower pot and globular shaped. Creasman et al. classified Vessel A from this site as Skull Point Gray Ware (1990:6-7).

Vessel B (Pottery Scatter 1):

Color:
Core: black, carbonized
Interior: 10YR gray to pale brown
Exterior: 10YR gray to pale brown
Fracture: regular to slightly friable
Core texture: medium tempered, temper 0.5-1.0 mm partial to 1.0-2.0 mm
Temper: quartz sand
Surface finish: exterior slightly rough (temper showing through) to smooth, interior smooth
Surface decoration: none
Rim form: straight, abruptly tapering to a rounded top (see Figure 7d)
Body form: globular
Base form: unknown
Thickness:
Rim: 9.0 mm
Neck: 9.0 mm
Shoulder: ?
Body: 8.0-10.0 mm
Base: ?
Remarks: The estimated diameter of the vessel mouth is 20.3-25.4 cm (8.0-10.0 in). The vessel appears to be a wide mouth globular jar. There is no indication of shouldering or base form. The scatter is associated with Structure 2. Creasman et al. classified Vessel B as Boars Tusk Gray Ware (1990:6) based only on a cursory examination. The vessel, based on now known body and rim form, should be assigned to the Boars Tusk Gray Ware type.

Vessel C (Pottery Scatter 4):

Color:
Core: black, carbonized
Interior: 10YR gray to pale brown
Exterior: 10YR gray to pale brown
Fracture: regular to slightly friable
Core texture: medium tempered, temper 0.2-0.5 mm, occasional particle to 2.0 mm
Temper: quartz sand
Surface finish: interior slightly rough (temper showing through) to smooth, exterior rough
Surface decoration: parallel indentations 6.0-7.0 mm in width, created by finger or tool, partially obliterated (see Figure 7e)
Rim form: unknown
Body form: unknown
Base form: unknown
Thickness:
Rim: ?
Neck: ?
Shoulder: ?
Body: 8.0-10.0 mm
Base: ?
Remarks: The three sherds fit together to form a larger body sherd. The sherds were recovered from the vicinity of Structures 3 and 4. Creasman et al. (1990:7) suggested that fingernail and finger-impressing body decoration may indicate the Skull Point type. This form of body treatment is more common in the pottery (Uncompaghre Brownware) of Numic speakers (Utes) to the south in western Colorado and eastern Utah (Eighmy 1990). If this style of body decoration does prove to be a Ute pottery trait, its occurrence would demonstrate a direct exchange relationship between the Ute of Colorado and Shoshoni of Wyoming in prehistoric times. Taxonomically, we suggest the fingernail and finger-impressed, full body decoration vessel be termed Firehole Fingernail. It is also suggested that Boars Tusk and Skull Point Gray Wares be referred to as Boars Tusk and Skull Point Plain because of the variation of surface color that includes grays, light browns, and reddish browns.

Beads:

Four small beads were recovered from the site. The beads are shells that have had holes

drilled through the middles. The beads are 6.5 to 7.5 mm in diameter and are white in color. Two of the shells were found on the surface, one was found in association with Shelter 16, and one was recovered from the excavation unit at Pottery Scatter 3.

FAUNAL REMAINS

The investigations resulted in the collection of 256 bone elements weighing 227.8 grams. Most of the bone elements were small (less than 2 cm) fragments that could not be identified to as to element or taxon. The identifiable bone includes a bison (*Bison bison*) rib fragment, a pronghorn metapodial fragment, and an artiodactyl rib fragment. The bison bone was recovered from Shelter 1, and the pronghorn and artiodactyl bone were recovered from the excavation units at Pottery Scatter 3. Shelter 16 contained weathered fragments of large mammal bone and tooth enamel. Fragments of large mammal bone were also found associated with Shelter 1 and Pottery Scatter 3.

MACROFLORAL REMAINS

The fill from Features 1 and 2 was floated to remove the organic fraction to look for macrofloral remains such as charred seeds. The methods used to float the samples are detailed in Amidon (1992). Feature 1 contained juniper and big sage charcoal, but no charred seeds. Feature 2 also contained juniper and sage charcoal, and six charred juniper seed fragments. It could not be determined if the charred juniper seeds were accidently introduced into the feature or whether the seeds were being used as a food. Harrington (1967) has documented aboriginal use of juniper berries. If the juniper berries were being used as a food, then the site may have been occupied in the fall when the berries ripened (Harrington 1967).

DISCUSSION

The investigations at the South Baxter Brush Shelter site (48SW5176) resulted in collection of flaked stone tools, ceramics, and faunal material from a Late Prehistoric Period occupation. The investigations also documented the presence of at least 25 brush shelters. The artifacts and features on the site suggest that the site was occupied by Shoshonean peoples who possibly reoccupied the site during a single year or over several years. The radiocarbon dates indicate the occupation may have occurred toward the beginning of the Numic settlement of the area.

The assertion that the cultural materials represent a Shoshonean occupation is based on the presence of ceramics, Desert Side-notched and Cottonwood projectile points, radiocarbon dates, and the presence of artifacts made out of southeastern Idaho obsidian.

The site is radiocarbon dated between 496 and 670 years B.P. (A.D. 1280-1454). This date range corresponds with the A.D. 1350 date offered by Butler (1983) for the Shoshonean arrival in Idaho. Dates in the eastern Great Basin are slightly earlier, beginning by A.D. 1000 (Marwitt 1986). Shimkin (1947, 1986) asserts that the Shoshone arrived in Western Wyoming around A.D. 1500. Wright (1978), on the other hand, suggests the Shoshoneans arrived in western Wyoming between A.D. 1400 and 1500. The date [illegible] the South Baxter Brush Shelter site falls within Shimkin's, Wright's, and Butler's estimates for the Shoshonean arrival in Wyoming and Idaho. Three other sites in the region, Firehole Basin 11 (Metcalf and Treat 1979), the Harrower site (Thompson 1991), and 5MF2631 (Murcray and Creasman n.d.) have yielded dates ranging between A.D. 1260 and 1430. All three of these sites contained Desert Side-notched projectile points and Intermountain Ware ceramics, although the Harrower site may be a mixed assemblage. Site 5MF2631, like South Baxter, also contains brush shelters.

The South Baxter artifact assemblage exhibits traits that have been used to suggest a Shoshonean occupation. Desert Side-notched points and ceramics classified as Intermountain Wares have been used to signify Shoshonean occupations in the Great Basin and western Wyoming by Fowler et al. (1973), Frison (1971), and Holmer and Weder (1980). The ceramics linked to Shoshonean occupations, including the ceramics from this site, have been labeled Boars Tusk

and Skull Point wares (Creasman et al. 1990) and Firehole Fingernail. Cottonwood Triangular projectile points occur throughout the intermountain West in Numic occupations dating after A.D. 1300 (Holmer 1986). Cottonwood Triangular points have been found in association with Shoshonean ceramics at Gatecliff Shelter (Thomas 1983) and Hogup Cave (Aikens 1970). Desert Side-notched points have been found in association with Intermountain Wares at Eden-Farson (Frison 1971), Mummy Cave (McCracken et al. 1978), O'Malley Shelter (Fowler et al. 1973), and Hogup Cave (Aikens 1970). It is difficult to accurately associate Cottonwood points with ceramic assemblages because these points are often misclassified as other types of bifacially flaked tools (Holmer 1986).

Finally, it can be argued that the South Baxter Brush Shelter site represents a Shoshonean occupation based on the source analysis of four obsidian artifacts. The artifacts, including one Desert Side-notched point, were made from obsidian originating in southeastern Idaho. Whether this obsidian arrived at the site through trade or other processes, a connection with the Great Basin, and hence Numic groups, has been established. Additional obsidian source investigations in the future will undoubtedly provide more information concerning aboriginal trade and/or migration routes. The presence of the southeastern Idaho obsidian may provide a link between the theories of Butler (1983) and Wright (1978) on the timing of the arrival of the Shoshoneans in Wyoming.

Due to a lack of components dating to the Late Prehistoric Firehole phase, it is difficult to assess Shoshonean settlement patterns before acquisition of the horse. The South Baxter Brush Shelter site suggests hunting of bison and pronghorn. The site does not provide any good evidence for plant usage other than the possible exploitation of juniper berries. Bison and other artiodactyls (deer or pronghorn) were being used at 5MF2631, and pronghorn were being processed at Firehole Basin 11. The only seasonality evidence at any of the sites is a fetal artiodactyl rib from 5MF2631, which would suggest a late winter or early spring occupation. The use of brush shelters at South Baxter and 5MF2631 may represent a cold-season adaptation. Gilman (1987) notes that preconditions for use of pit houses are a nontropical climate, a biseasonal settlement pattern, and a reliance on stored foods. While brush shelters are not quite the same as pit houses, they would be very functional during the colder seasons of the year. The shelters at South Baxter also could represent the remains of windbreaks or sun shades, and, therefore, would not represent cold-weather structures. Whatever the season of occupation, the South Baxter brush shelters were probably used for only short periods of time. The lack of middens and well-defined drop and toss zones (Binford 1983) suggests the shelters were limited-occupation structures.

The brush shelter remains on the site have added some data to a growing body of information on aboriginal architectural remains in the Wyoming Basin. The shelter remains represent either windbreak structures or possibly wickiups. The size of the concentrated areas of debitage and bone next to the shelter remains averages 20-30 m^2. The size of the Late Prehistoric Uinta phase Buffalo Hump (Harrell 1989) house pit and adjacent activity area is 36 m^2. The house pit and activity area at the Early Archaic Sweetwater Creek house pit (Newberry and Harrison 1986), which is only two miles southwest of South Baxter, is also larger. The brush shelters at South Baxter and 5MF2631 are also simpler in design than the Archaic Period house pits. The Archaic Period house pits (Hoefer 1988) contain interior hearth and storage/roasting pits and are partially excavated into the ground. The Shoshonean brush shelters are not excavated into the ground and do not contain storage or roasting pits. At South Baxter, the hearths are small basins just outside the shelters. At 5MF2631, the hearths are small basins inside the shelters. The Eden-Farson site (Frison 1971) also contains the remains of brush lodges that are different from the earlier house pits. In many ways, the Shoshonean shelters are similar to the Bushman huts recorded by Yellen (1977). Bushman shelters are often small and have hearths in front

of, not inside, the shelters. The Bushmen commonly used their shelters for sun shades and storage, and not cooking or sleeping areas. Most of the activities took place in front of the shelter. The South Baxter shelters may have functioned in a similar fashion.

These architectural differences suggest a possible long period of cultural continuity from the Early Archaic into the Late Prehistoric Uinta Phase. Through this period, shelter form remained recognizably the same. However, as the Shoshone began occupying this area, it appears the form of their shelters changed. Archaic peoples may have used shelters similar to the brush shelters reported here, but time has served to erase any traces of these shelters. As of yet, no Shoshonean period house pits with intentionally excavated floors have been found. This apparent change in architectural styles, along with the use of Desert Side-notched and Cottonwood projectile points and Intermountain Ware ceramics, provides additional support for the idea that the Shoshoneans represent a different cultural group than the earlier inhabitants of the region. Aikens (1966), Wright (1978), and Aikens and Witherspoon (1986) have all suggested that the pre-Shoshonean inhabitants of the intermountain West were Athabaskan speakers. These people were then displaced by the Numic speakers, including the Shoshones and the Utes. If this scenario is correct, then the South Baxter Brush Shelter site is a key site in analyzing this transition. Future research documenting other Shoshonean period architectural remains, should concentrate, in part, on finding whether the change in shelter form indicates a cultural transition or simply reflects seasonal variation in shelter form.

ACKNOWLEDGMENTS

The archaeological investigations at the South Baxter Basin Brush Shelter site were performed as a joint effort between the Sweetwater County Chapter of the Wyoming Archaeological Society (WAS) and Western Wyoming College. The project was initiated by the WAS-Sweetwater County Chapter after monies became available to the chapter through the University of Wyoming/WAS Archaeological Support Fund. This fund was established through a generous grant by Mr. Joseph Cramer. The purpose of the fund is to promote cooperation between archaeological professionals and the WAS to encourage professionalism among WAS members. The Sweetwater County Chapter decided to initiate investigations at the South Baxter Brush Shelter site to learn and implement site recording and excavation techniques. The project also included laboratory cataloging, analysis, and report preparation. Archaeologists from Western Wyoming College guided the field and laboratory work, provided equipment, transportation, and laboratory space, and assisted in the report preparation.

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Just have to do something about these "Pot-Hunters!"

A *BISON BISON BISON* SKULL FROM 48CR4897, SEMINOE RESERVOIR, CARBON COUNTY, WYOMING

by
Danny N. Walker

ABSTRACT

A complete bovid cranium was found eroding from the shore of Seminoe Reservoir during 1989 archaeological investigations at the reservoir. Based on size and morphological characters, the skull is from a mature male animal. Taxonomically, the skull can be referred to the extant Plains subspecies of American Bison, *Bison bison bison.* The record increases the known sample size of Archaic/Late Prehistoric Period bison skulls. It also provides critical information on Holocene size reduction in the North American bison population. A revaluation of the *Bison* skull from the nearby Scoggin site reaffirms that specimen also can be referred to *B. b. bison*, but with genetic input from *B. b. athabascae*, the Wood bison.

INTRODUCTION

Bison remains are among of the most commonly found and reported prehistoric animal remains found eroding from stream and river terraces in Wyoming (Walker 1986, 1987). This is primarily because of their larger size [compared with *Odocoileus* sp. *(deer), Antilocapra americana* (pronghorn), and other similar sized or smaller animals]. Many people are also interested in *Bison* remains because they often suggest presence of a prehistoric kill site with its associated artifacts. It is easier to see *Bison* bones than small artifacts, but the bones might suggest presence of the artifacts. Another reason is probably related to the desire of John Q. Public to find a *Bison* skull for display on the family room wall above the fireplace. While most such skulls never make it to a research institution for comprehensive analyses, occasional specimens are recovered and properly curated and examined.

Over the past 100 yrs, numerous isolated specimens, and even more skulls from prehistoric kill sites, have been collected and placed in museums. These have then formed the data base on which the taxonomy of *Bison* has been established (see Skinner and Kaisen 1947; McDonald 1981, Walker and Boyce m.s.). Many would feel we now know all we need about the taxonomy of this species and don't need to collect additional skulls. Yet, there are still critical gaps in our knowledge of *Bison* behavior and evolution. Two of these gaps are why *Bison* body size decreased during the Holocene, and exactly when most of this body size decrease occurred. Was it early in the Holocene, mid-Holocene, or late? Many prehistoric *Bison* kill sites have yielded skulls that have proven critical to answering these questions. Still, there are many time periods and regional areas where specimens from such kill sites have not been reported. Isolated skulls can be used to examine this question from specific regions, even if we cannot place an exact age on the specimens.

For these reasons, it is critical we continue to increase our data base on isolated *Bison* skulls. They are not just something to look at and then ignore; they can provide needed, specific important data necessary for answering such paleoenvironmental and evolutionary questions. We must continue to collect and examine *Bison* skulls and not just consider them as recreation/family room decorations. A *Bison* skull recovered from 48CR4897 at Seminoe Reservoir in Carbon County, Wyoming is one such specimen. The skull was found during archaeological investigations at the reservoir in 1989, collected, and analyzed. This analysis is

presented here.

THE 48CR4897 SKULL

Archaeological site 48CR4897 is located where Hurt Creek flows into Seminoe Reservoir (Figure 1). The site lies within two km of the historical North Platte River channel, now permanently inundated by the reservoir. During low water periods, 48CR4897 is exposed on the upper reaches of the reservoir pool. Over the years, surface collections by avocational archaeologists have yielded diagnostic artifacts from the Middle Archaic to Late Prehistoric Periods. During formal archaeological recording of the site in 1989, large bovid limb bones, vertebrae, and ribs were found eroding from the surface in one area of the site. At first these bones were felt to be *Bos taurus* (domestic cow), and some may be. Several complete or nearly complete carcasses of this species were noted on various beaches around the reservoir.

Two upper tooth rows were partially exposed near the eroded limb bones. To determine if the bones were domestic cow or *Bison,* a preliminary trowel test was excavated to locate any horn cores that might be on the skull. Horn cores are the prime morphological character by which domestic cow and *Bison* skulls can be separated (Olsen 1961). This trowel probe showed the horn cores on this skull were the shape of *Bison* and not domestic cow. The skull was in danger of being eroded and destroyed at the next high water period. Therefore, a decision was made to collect the skull for preservation and eventual analysis.

As stated above, the skull was eroding from the upper reaches of the reservoir pool area (Figure 2). It was exposed in the side of a stabilized sand dune on the north bank of Hurt Creek. The extant ground surface was at the level of the two maxillary tooth rows and the occipital condyles. The skull was lying on a reddish clay matrix, and surrounded by a greenish sandy clay sediment. The contact between the two sediments was slightly above the lower surface of the skull.

A one by one meter excavation unit was established on magnetic north over the area felt to enclose the skull (Figure 2). Following removal of the fresh snow cover, this unit was excavated to a level where most of the skull was exposed (Figure 2). This excavation revealed the skull was in good shape, with both horn cores complete (Figure 3). The skull was lying at an orientation of 45° west of magnetic north, with the anterior end (i.e., nose) of the skull pointing southeast. While the skull was in good condition, the condition was not good enough to allow direct removal of the skull without additional preparation.

The skull was then photographed (both color slides and black-and-white) for documentation of its *in situ* position. Following this recording, additional excavations were conducted at the bottom of the skull to prepare it for plaster jacketing. This is a technique where burlap strips impregnated with plaster of paris or medical "redi-wraps" are placed around fossil bone to enable a better recovery rate. Skulls such as this must be collected with this technique if they are to be properly collected for preservation. Following this jacketing, the skull was then transported to the University of Wyoming, Department of Anthropology, Comparative Osteology Laboratory for curation and analysis.

Once the skull was adequately stabilized, standard measurements (Skinner and Kaisen 1947) for *Bison* skulls were taken. Several standard measurements could not be taken because measurement points were still covered with the plaster jacket. The time and expense necessary for exposing these reference points was felt to be not sufficient for the limited additional data that would result. Following collection of the measurement data, the skull was assigned an accession number (48CR4897-2) and placed in the University of Wyoming, Department of Anthropology Museum Research Collection.

DISCUSSION

Taxonomy

Taxonomy of *Bison* is an on-going topic in paleontology and zooarchaeology. Every researcher who is interested in the topic ends with a personal view on what characters should be

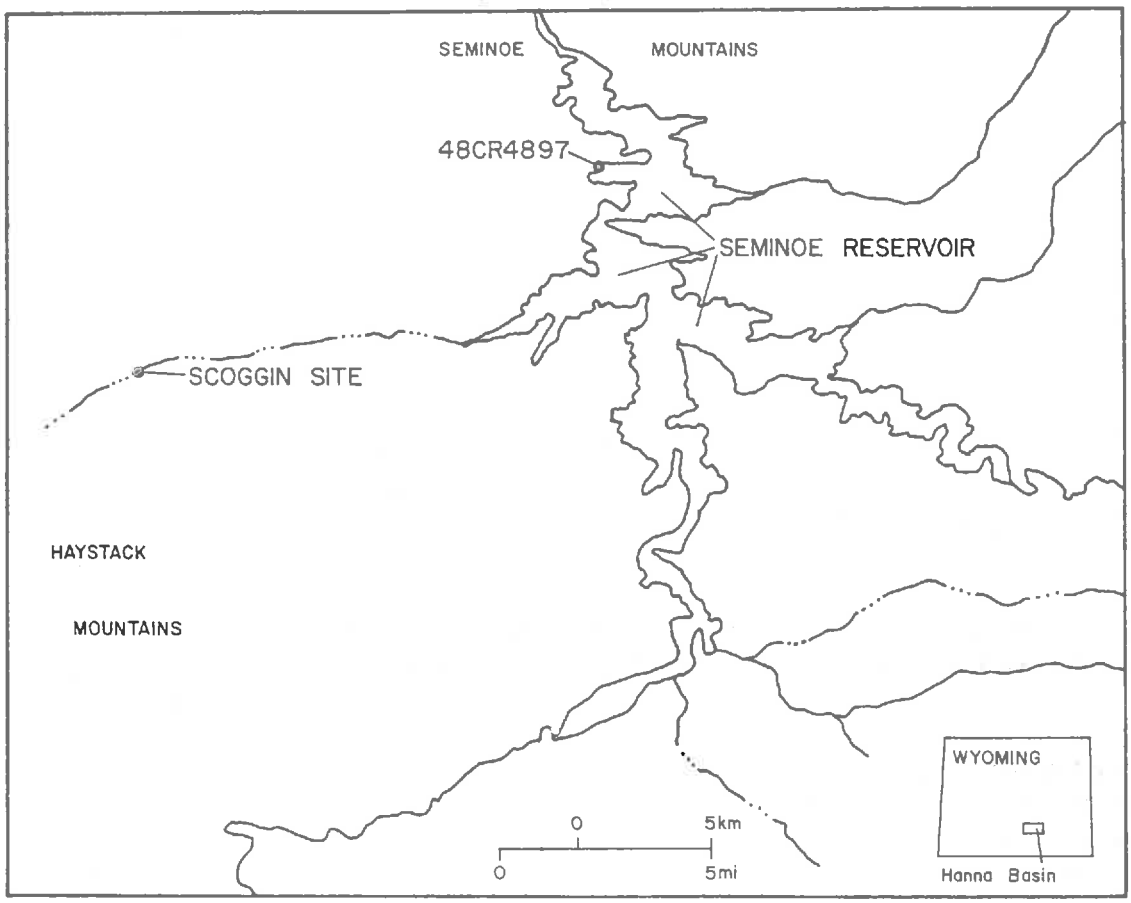

Figure 1: Locality map of a portion of the Hanna Basin, southcentral Wyoming, showing relationship between Seminoe Reservoir, site 48CR4897, and the Scoggin site.

used for taxonomic criteria and what the result of taxonomic placement of specific animals should be (Skinner and Kaisen 1947; Wilson 1974a, 1974b, 1975; McDonald 1981; Walker and Boyce 1984, m.s.; de Jong 1986; Walker 1986). The same specimens might be assigned to different species by different researchers (Wilson 1974a; McDonald 1981). These problems are especially apparent when dealing with Late Pleistocene or Early Holocene specimens. When working with Middle or Late Holocene specimens, these problems are not as apparent. Taxonomists agree that after about 6-7000 yrs ago, all *Bison* specimens can be referred to the living, extant species: *B. bison.*

From archaeological and geological relationships, this skull from 48CR4897 probably can be aged to the late Holocene period. Artifacts recovered from the site suggest the dune areas are not older than Middle Plains Archaic. The reddish clay matrix on which the skull was resting might correlate with a similar appearing red soil dated elsewhere in southcentral Wyoming at around 5000 yrs (William Eckerle, personal communication, January 1990). There was no field indication the skull would be from older sediments.

General morphological characteristics (Figure 3) and size (Table 1) show the skull can be referred to *B. bison* [see McDonald (1981) and Meagher (1986) for formal description and definition of the genus and species]. The skull does not exhibit the larger size (Figures 4, 5) or morphological characteristics of the late Pleistocene and early Holocene *B. antiquus* (Wilson 1974a; McDonald 1981). Based on postulated

Figure 2: View of *Bison* skull at 48CR4897. Note relationship of skull, resting on reddish clay soil dated elsewhere at around 5,000 yrs to edge of reservoir . View is west.

age for the enclosing sediments, the skull also cannot be referred to the early Holocene subspecies *B. b. occidentalis* (Walker 1986; Walker and Boyce m.s.). The skull is also too small to be from that subspecies (Figures 4, 5, 6; Table 1; McDonald 1981).

There are two subspecies of *Bison bison* recognized from the late Holocene: *B. b. bison* and *B. b. athabascae* (Wilson 1975; McDonald 1981; de Jong 1986; Walker 1986; Walker and Boyce m.s.). *B. b. bison* has, historically, been considered the Plains form, with *B. b. athabascae* called the mountain or wood bison. Both subspecies have been recorded historically from Wyoming (Long 1965; Clark and Stromberg 1987). Various morphological differences in skulls of these two subspecies are the most commonly used method by which they have been separated. Some size differences are also apparent (Figures 4, 5, 6). This skull from 48CR4897 shows the classic morphology of *B. b. bison*, and not *B. b. athabascae*. On selected skull measurements, it falls generally at, or just above, the mean for *B. b. bison*. These measurements on this skull fall below the mean, and even within the lower end of the range for *B. b. athabascae*. This suggests the 48CR4897 skull should be referred to *B. b. bison*.

de Jong (1986) addressed the question of *B. b. athabascae* taxonomy through statistical applications of various numerical taxonomy techniques. That study resulted in determining the subspecies was a valid taxonomic form, distinct from *B. b. bison*. One technique by which this determination was made was through a ratio diagram (Simpson 1941) comparing *B. b. athabascae* and *B. b. bison*. *B. b. occidentalis* was used for the comparison standard. Skull measurements available for the 48CR4897 skull were compared to de Jong's (1986) ratio diagram (Figure 6). The 48CR4897 skull closely parallels the mean for *B. b. bison* through these measurements. It is distinct from *B. b. athabascae*. This ratio diagram and comparison also suggests the 48CR4897 skull should be referred to *B. b. bison*.

Lobdell (1973a, 1973b) discussed taxonomy of a single male *B. bison* skull from the Scoggin site, 17.6 km southwest of 48CR4897 (Figure 1). Measurements on that skull suggested to Lobdell a remote possibility existed for it to represent *B. b. athabascae*:

> "It has been advised that this one bull probably represents a very large animal of the above nomenclature [*B. b. bison*] . . . although there is considerable overlap with indices tabulated for *Bison bison athabascae* . . . The Scoggin skull

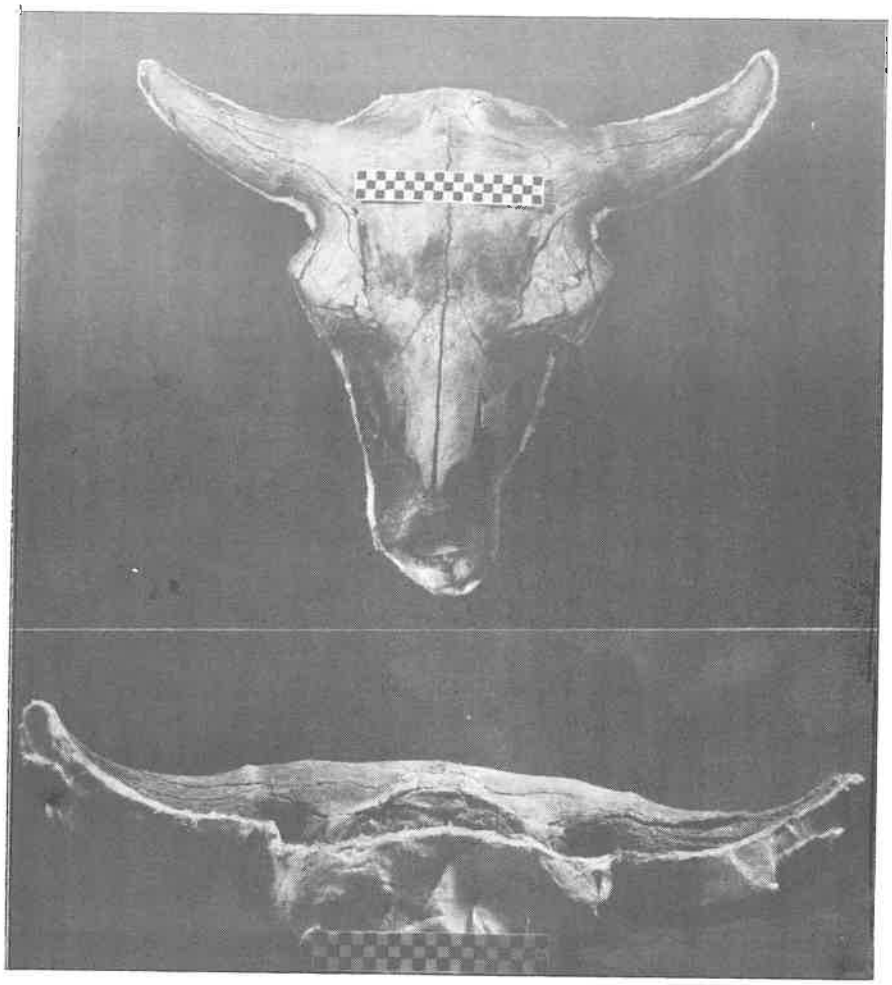

Figure 3: *Bison* skull from 48CR4897 following laboratory curation and preservation. Upper view is dorsal surface. Lower view is posterior view.

> is probably a modern form of *Bison*. It is possible that this skull is indicative of the *athabascae* form. This relationship seems remotely feasible as the site location is close to the eastern-most range recognized for this group . . . Many indices overlap for both *bison* . . . *athabascae* . . . I agree with the initial conclusion; the skull represents a very large *Bison bison bison.* Yet, it appears possible that some relationship with *athabascae* should not be entirely ruled out . . ." (Lobdell 1973b:27).

Wilson (1975) made the following observations about this Scoggin site skull:

> "a single small male bison comparable in size with somewhat above-average individuals of the modern form. Since the skull was from a fully mature male, its importance is considerable: its tip-to-tip measurement of but 620 mm falls well below the minimum for *B. bison occidentalis.* Lobdell . . . attempted to put forth a possible relationship with *B. bison athabascae,* the wood bison, but his arguments were far from convincing . . . when the specimen is placed within the context of earlier and later finds . . . it is shown to be extremely small, rather than extremely large, for its time period . . ." (Wilson 1975: 215-216).

This question on the Scoggin site *Bison* taxonomy has never been satisfactorily resolved and probably will never be. Additional excavations at the Scoggin site in 1985 did not result in recovery of more crania (Miller 1986). If such crania could have been recovered, we might have been able to work with a population on the taxonomy of the Scoggin site *Bison*.

However, since the 48CR4897 skull is larger in many measurements than the Scoggin skull (Table 1), we need to reexamine the question again. If the Scoggin site bull is *B. b. athabascae* because of its larger size (Lobdell 1973a,

	STANDARD MEASUREMENT DESCRIPTION	48CR4897-2	SCOGGIN
1.	Spread of horn-cores, tip to tip	650 mm	620 mm
2.	Greatest spread of cores on outside curve	659 mm	640 mm
3.	Core length on upper curve, tip to burr	200mm	230 mm
5.	Length, tip of core to upper base at burr	184 mm	192 mm
12.	Transverse diameter of core at right angle to longitudinal axis	94 mm	91 mm
13.	Width between bases of horn cores	230 mm	-----
14.	Width of cranium between horn cores and orbits	281 mm	288 mm*
15.	Greatest postorbital width	345 mm	330 mm*
16.	Anterior orbital width at notch	264 mm	-----
17.	Width of skull at masseteric processes above M1	193 mm	189 mm
18.	Rostral width at maxillary-premaxillary suture	114 mm	120 mm
21.	Angle of posterior divergence of horn core	60°	60°
22.	Angle of proximal horn core depression	16°*	15°
O-P	Length, occipital crest to premaxillae tip	547 mm	560 mm
O-T	Length, occipital crest to tip of nasals	439 mm	455 mm
O-N	Length, occipital crest to nasal-frontal suture	240 mm	235 mm
N-T	Length, nasal bones	203 mm	-----
Index 4	Horn core length (M.3/M.14 x 100)	71	80
Index 6	Orbital protrusion (M.14/M.15 x 100)	81	81
	1. Standard measurements from Skinner and Kaisen (1948). 2. Some measurements not taken on 48CR4897-2 because ventral surface of skull is in plaster cast. 3. Scoggin skull measurements from Lobdell (1973a, 1973b). 4. * = estimated measurement due to bone fragmentation.		

Table 1: Comparative skull measurements between male *Bison* skull 48CR4897-2, Seminoe Reservoir and male *Bison* skull from Scoggin site.

1973b), than 48CR4897 also should be *B. b. athabascae*. This skull is more complete than the Scoggin skull, and as stated above, shows classic *B. b. bison* morphology. On the ratio diagram used by de Jong (1986) to separate the two subspecies, the 48CR4897 skull parallels the *B. b. bison* curve (Figure 6). However, the Scoggin skull, plotted on the same ratio diagram

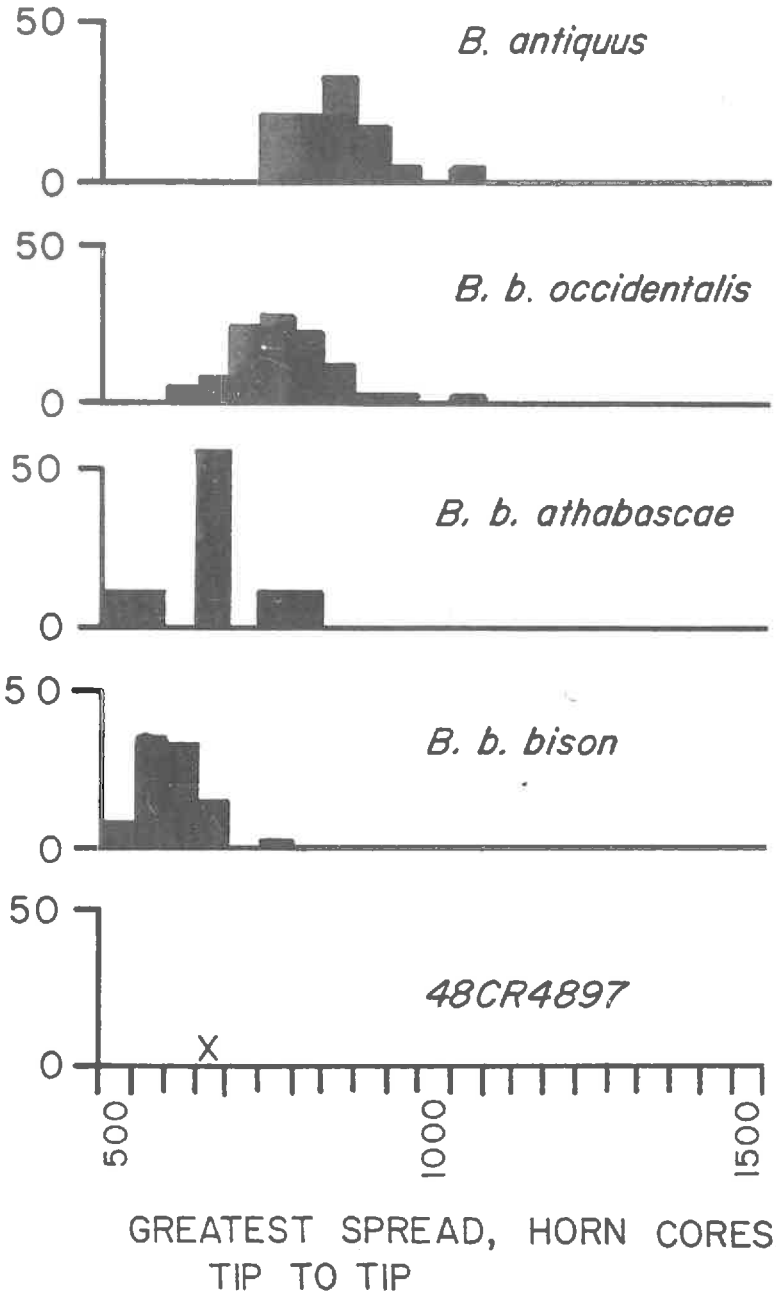

Figure 4: Plot of greatest spread of horn cores, tip to tip [adapted from McDonald (1981:Figure 30)]. Note from 48CR4897 falls midrange of *B. b. bison* scale.

(Figure 6) is not as clearly defined. Most measurements fall between de Jong's means for *B. b. bison* and *B. b. athabascae,* or tend toward the *B. b. athabascae* mean. The appearance of following the *B. b. athabascae* curve is not as clear as the 48CR4897 skull follows the *B. b. bison* curve.

What we may be seeing here is a situation similar to that described by Wilson (1974a) from the Casper Bison Kill site. Wilson saw phenotypic characters in that single population of both *B. b. occidentalis* and *B. antiquus,* even on the same specimen. Wilson (1974a) proposed gene flow between a northern and southern phenotype to be exhibited by the Casper site specimens. The Scoggin skull may represent an animal with both *B. b. bison* and *B. b. athabascae* phenotypes. This would explain why Lobdell (1973a, 1973b) saw both phenotypes being displayed, but also why Wilson (1975) felt the skull was just a large *B. b. bison.*

Holocene Bison size reduction

Among the critical questions asked when dealing with North American Bison are why, how, and when *Bison* body size was reduced at the end of the Pleistocene and beginning of the Holocene. Why and how have probably been adequately addressed, at least based on of our present stage of knowledge of *Bison* life histories (De Jong 1986; Geist 1971, 1978, 1983; Geist and Karsten 1977; Guthrie 1970, 1976, 1980, 1984a, 1984b; Walker 1986; Walker and Boyce 1984, m.s.). These can be summarized by a phenotypic and eventual genetic response to lessening of the seasonal resource bottleneck at the end of the Pleistocene. As the Holocene climate became more equable, the

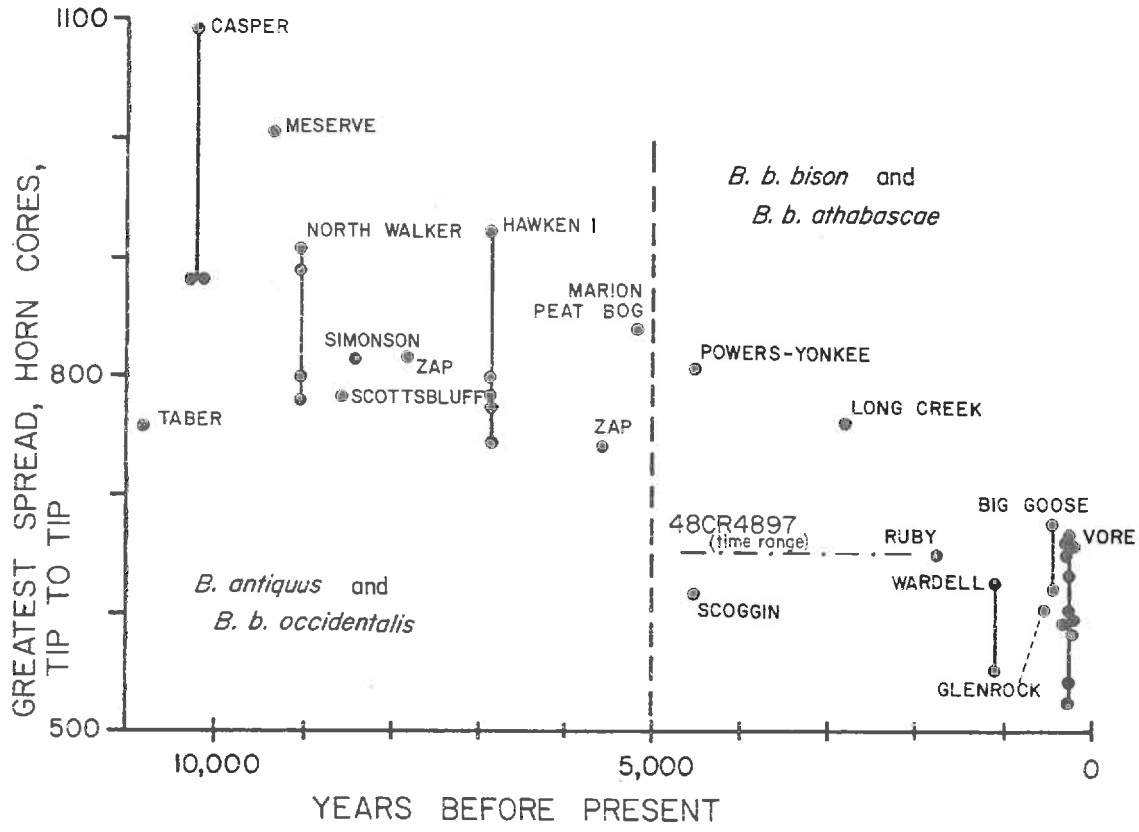

Figure 5: Plot of greatest spread of horn cores, tip to tip against time [adapted from Wilson (1975)]. Note position of 48CR4897 skull relative to other middle and late Holocene specimens.

growing season lengthened and there were fewer climatic seasonal differences between summer and winter. This allowed smaller body-sized animals to better compete for resources with less inter-specific competition.

When modern *Bison bison bison* achieved the body size we feel typically defines the animal (McDonald 1981; Meagher 1986) remains unanswered. Animals recovered from the Hawken site in northeastern Wyoming (Frison et al. 1976) have been referred to *B. b. occidentalis*. This site dates at 6500 yrs. The Scoggin site skull discussed above referred to *B. b. bison* dates at 4500 yrs. Thus, somewhere between 6500 and 4500 yrs ago, this modern subspecies of bison had developed. Because the 48CR4897 skull is as large or larger than the Scoggin skull and it may also date as old as 5000 yrs, it too appears to be from this critical time period when *Bison* body sized reached its "modern" form.

Wilson (1974b), in a discussion of *Bison* remains from these same two sites, noted:

> ". . . This interval corresponds very closely with the Altithermal (Hypsithermal) interval of the Rocky Mountain area (. . . 6,500 to 4,000 years B.P.) and a causal relationship is probable" (Wilson 1974b:96).

If the ideas of climatic seasonality becoming more equable while resource seasonality decreased are true, these events might have peaked during this Altithermal period. The classic idea of the Altithermal is a period when the North American climate reached its warmest during the Holocene (Richmond 1965). This would have been when the climate reached its most equable state and resource seasonality would have been least. These conditions would thus have resulted

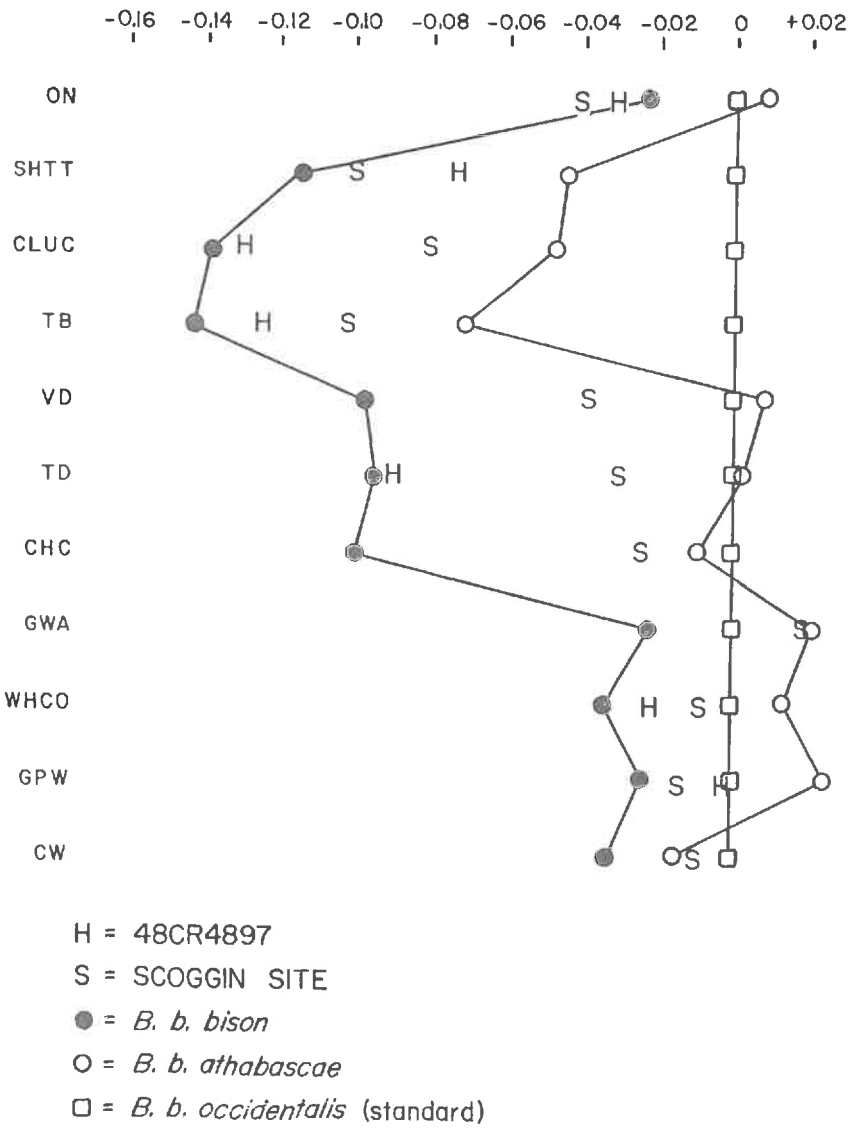

Figure 6: Ratio diagram for skull dimensions in *B. b. bison, B. b. athabascae* and *B. b. occidentalis* [adapted from de Jong (1986:Figure 16)].

in the attainment of the modern *Bison bison bison* and *Bison bison athabascae.*

Individual age of the animal

Artiodactyls may be most accurately aged by tooth eruption and wear (Larson and Taber 1980). These eruption schedules have been established for both upper and lower dentitions of modern *Bison* (Frison and Reher 1970; Frison et al. 1976). Both maxillary rows remain covered by the enclosing plaster cast on the 48CR4897 skull and thus unavailable for laboratory analysis. However, because these were the portions of the skull exposed in the field, we know weathering had obliterated the occlusal surfaces of these teeth. This weathering thus precludes aging the animal by dental wear.

Wilson (1975) presented preliminary data on age related allometric growth for modern *Bison.* Plotting two skull measurements (greatest post-orbital width and cranial width between horn cores and eye orbits) against known ages, Wil-

son (1975) illustrated two logarithmic curves for estimating ages of *Bison*. Superimposing the greatest postorbital width of the 48CR4897 skull onto Wilson's graph (Figure 7, upper), an intersection is reached at an estimated age of 10 yrs. An estimated age of 12 yrs is reached when the cranial width between horn cores and eye orbits is plotted (Figure 7, lower). Wilson (1975) gave no indication which measurement was felt to be the more accurate. Regardless, we can say the 48CR4897 skull is a mature bull skull, probably between 10 and 12 yrs old at death.

This would place the animal represented by the skull in its prime of life. What could be seen of the tooth rows in the field did not suggest any advance stage of wear. This indicates the animal was not old enough to have started to enter old age. Because this animal would be in its prime, the next question to arise would be what caused the animal's death? Any number of natural causes can result in a prime animal's death: bad winters, broken legs, disease, infection, etc. No indication was seen if any of these factors entered into the death. There was also no indication present on the skull of cultural modifications, nor were any artifacts recovered near the skull or in the water screening from the surrounding matrix. However, this absence should not preclude the possibility of human intervention in the animal's death.

SUMMARY

A complete, adult, male *Bison bison bison* cranium was found eroding from archaeological site 48CR4897 on the shore of Seminoe Reservoir during 1989 archaeological investigations at the reservoir. While the skull was recovered from an archaeological site, no indication was present to suggest cultural affiliation of the skull. However, this lack of evidence must not be assumed to imply there was no cultural association. Since the only faunal material to be analyzed from the site was this skull, we cannot automatically assume the skull was not related to the site occupation because there is no direct evidence for such. Examples abound in the literature of *Bison* skulls and other remains recovered from archaeological sites where, if examined out of context, no suggestion of their cultural association would be seen.

Taxonomically, the skull can be referred to the extant Plains subspecies of American Bison, *Bison bison bison*. Metrically and morphologically, the skull can be placed well within the mean for the subspecies as presently defined (de Jong 1986; McDonald 1981; Walker 1986; Wilson 1974a, 1975).

The record increases the known sample size of Archaic/Late Prehistoric Period bison skulls. Because of its proposed age, it provides critical information on the time period during the Holocene when a major body size reduction was occurring in the North American bison population. The adult male *Bison* sp. skull from the nearby Scoggin site (17.6 km southwest) (Lobdell 1973a, 1973b; Miller 1985) has also been discussed in this same context (Lobdell 1973a, 1973b; Wilson 1974b, 1975). That skull has been used to note this body size reduction (from large bodied, large horned, late Pleistocene varieties) had reached its peak by around 5000 yrs (Lobdell 1973a, 1973b; Wilson 1975). A revaluation of that *Bison* skull (from the Scoggin site) during the present study reaffirms that particular specimen should be referred to *B. b. bison,* as originally proposed. However, it also appears there was genetic input from *B. b. athabascae,* the Wood bison. The skull from 48CR4897 does not show this possible relationship to *B. b. athabascae*. As stated above, it appears as "classic" *B. b. bison.*

Perhaps the greatest contribution this skull has made to science is to point out the value of examining all such isolated, non-archaeological finds in both a paleontological and archaeological manner. If this skull had not been collected, we might never have known there is a possibility both *B. b. bison* and *B. b. athabascae* populations were present and intermingling in the Hanna Basin during the middle Holocene. The value of the specimen, taxonomically and evolutionarily, cannot be stressed enough. We, as both professional and avocational archaeologists, have an obligation to continually address concerns such as these, even if not personally

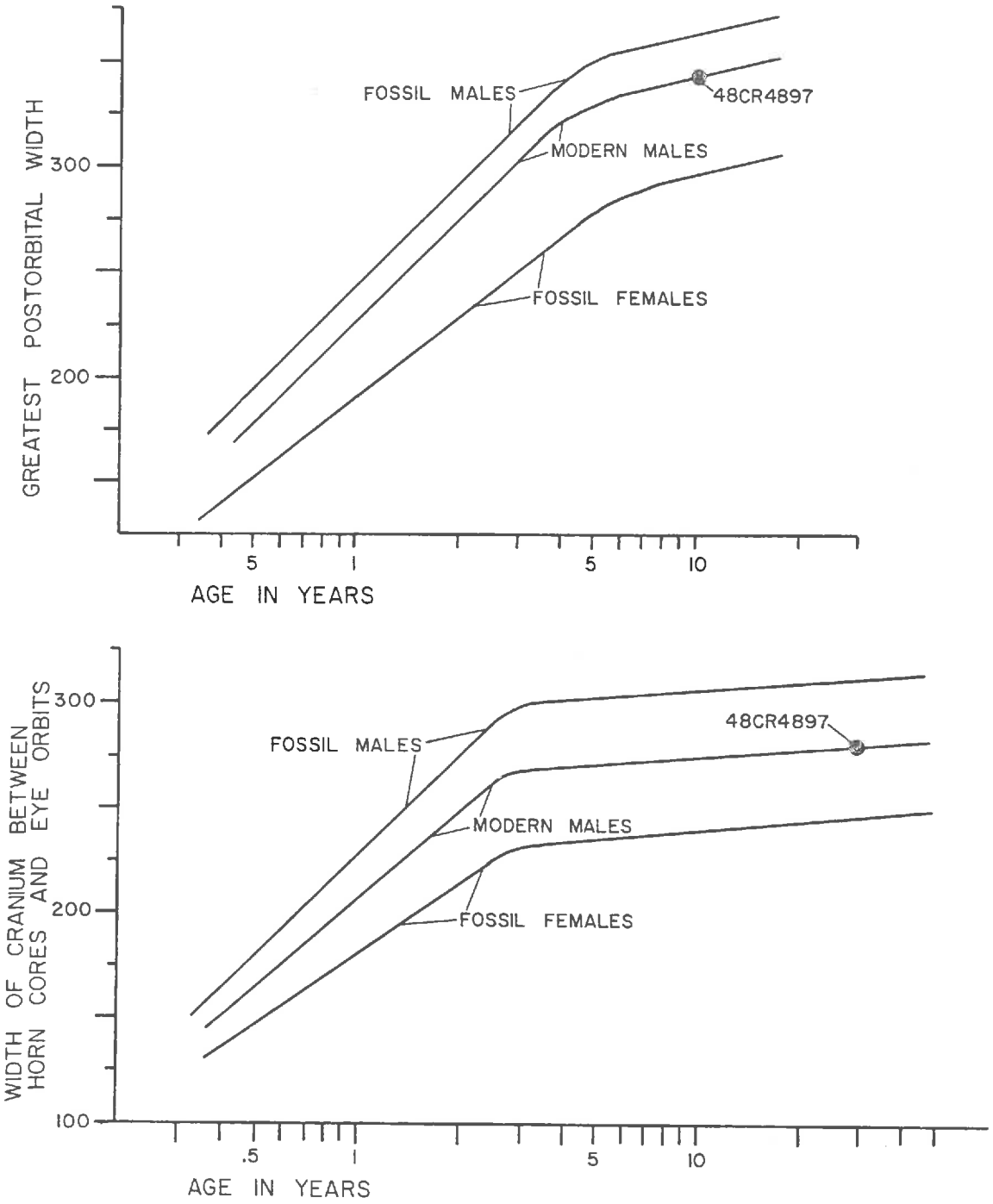

Figure 7: **Semi-log charts comparing greatest postorbital width and cranial width to individual age in late Pleistocene and modern *Bison* skulls [adapted from Wilson 1975].**

interested in the topics.

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BOOK REVIEWS

Consumer Choice In Historical Archaeology. Edited by SUZANNE M. SPENCER-WOOD. Plenum Press, New York. 1987. 418 pp. $39.50 (cloth).

Occasionally, there is an arrogance by some archaeologists and historians that the sources used by the other camp are inadequate, perhaps even unnecessary. This leads to inadequate analyses. Happily, it seems that archaeologists tend more toward using all available information than is often the case with historians. In the real world of historical archaeology, full understanding of a site and the processes that formed it cannot be gained in the absence of in-depth research in each field.

Combining historical data with archaeological data can refine our picture of the past by making it much fuller and more detailed. From an archaeological perspective, historical information can greatly enhance our understanding of the archaeological record in a given site. This increased comprehension of past human behavior can then be combined with more general archaeological theories to enable us to better comprehend human behavior. Contrary to what some critics believe, historical information combined with historical archaeological data can complement archaeology and anthropology by adding to our knowledge of human behavior.

According to Spencer-Wood, "the essays in this volume present efforts toward measuring expenditure and consumption patterns represented by commonly recovered artifacts and food bone. These patterns of consumption are examined together with evidence from documentary sources that provide information on occupations, wealth levels, and ethnic affiliations of those that did the consuming" (p. ix). By addressing questions of the relationship(s) between material culture and socioeconomic status, Spencer-Wood argues "these efforts lead toward a fuller understanding of the relationship between people and material culture, and represent strides toward a fuller realization of the interpretive potential of archaeology" (p. ix).

While historians often need to expend greater effort in learning what material culture remains could tell them, archaeologists could likewise benefit from more in-depth analyses of the historic artifacts they recover. These objects can do much more than simply serve as chronological indicators. The papers in this book attempt to discuss ways to interpret the presence and frequency of various historic artifacts in a site(s).

The authors come from museum, academic, and cultural resource management backgrounds, and bring a variety of perspectives to the papers. However, just as mid-nineteenth century Americans regarded the West as the Great American Desert, the organizers of this book seem to think the West suffers from a dearth of intellectual precipitation. Although the title suggests the book is general in focus, the selection of authors and topics has a definite eastern bias. The material contained in the various chapters is theoretically interesting and stimulating, and can be useful to any researcher. However, the data are often of less use to westerners.

The book's sixteen chapters are organized into four parts. The unifying theme is how the selection of goods was determined both by availability and socioeconomic status. These "goods," subsequently recovered as artifacts from the archaeological record, are the result of consumer choice, as the title says. Not everyone bought or used the same goods. The goods varied from house to house, town to town, and region to region. Documentation of different assemblages can reveal much about families, communities, and geographical regions. Artifact analyses in historic sites are often over-simplified. This volume attempts to correct the problem.

Part I looks at eighteenth to early nineteenth century commercial agricultural economy. Part II looks at mid-nineteenth century commerce and industrialization, while Part III examines several nineteenth and early twentieth century urban sites. The final section consists of one chapter by Mark P. Leone and Constance A. Crosby titled "Epilogue: Middle range theory in historical archaeology."

Several chapters consider different artifact classes as indicators of status and class of the individuals who selected and paid for them. Not surprisingly, artifact classes include ceramics; but they also include vertebrate fauna and fish remains, gravestones, and other artifact classes as socioeconomic indicators. Some chapters are not so specific with regard to assemblages, and look at settlement patterns, etc.

All thing considered, this is a useful book for either archaeologists or historians. It is informative about the activities of other researchers at various locations and institutions. It offers new insights for understanding and interpreting historic sits, and challenges readers to improve the quality of their work, whatever that might be.

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Beamers, Bobwhites, and Blue-Points: Tributes to the Career of Paul W. Parmalee. Edited by JAMES R. PURDUE, WALTER E. KLIPPEL, AND BONNIE W. STYLES. Illinois State Museum Scientific Papers, Volume XXIII and The University of Tennessee, Department of Anthropology, Report of Investigations, No. 52. 1991. 436 pp., figures, tables, references cited. $19.50 (paper).

If one were to sit back and consider what a volume dedicated to the career of Dr. Paul W. Parmalee would have to include, this work would by no means fall short of that expectation. The volume consists of 29 papers authored by 40 individuals covering three major areas of zooarchaeology. The editors have divided these papers into the headings of "Methodology and Taphonomy," "Paleoecology," and "The Human Use of Fauna." The volume also includes a paper on Dr. Paul Parmalee's contribution to the discipline of zooarchaeology and a bibliography of his accomplishments. I know that the work of Dr. Parmalee sparked my interests in the analysis of faunal materials from archaeological sites. Without a doubt, this volume will encourage others into this discipline.

There is something in this volume for everyone interested in zooarchaeology. There are papers concerning Yak taxonomy by Stanley Olsen, carcass transport and utilization by R. Lee Lyman, description of fossil Peccary remains from Tennessee by Neil Robison, and three separate papers on microfauna and humans by Donald K. Grayson, Carl R. Falk, Holmes A. Semken, Jr., and Thomes R. Whyte. The diversity of the volume is excellent and this diversity is what makes the volume so appropriate and appealing.

Within this wealth of information, there are several papers that I found most interesting. Lynn Snyder's paper on ethnohistoric and archaeological utilization of dogs is excellent and provides data on the nutritional value of dog flesh along with data on other carnivores. Her nutritional analysis suggests that during times of the year when game animals such as bison were fat poor, domestic dogs were important sources of nutrients, especially fat, for Native Americans. Snyder concludes that dogs, which are efficient scavengers, were an important element of prehistoric and historic Native American subsistence. This was especially so during certain times of the year when food stress and insecurity prevailed.

The paper by Drs. Semken and Falk is significant since it fully demonstrates the importance of small mammals found in archaeological contexts. Micromammals found in such contexts

are often dismissed as intrusive elements of the archaeological matrix with little, if any, paleoecological significance attached. Semken and Falk take the position (shared by many) that micromammal remains, "bioturbated or not," may be contemporaneous with the cultural occupations of a site. Their analysis of micromammals from the Walth Bay site, which includes examinations of bone density, abundance, randomness of distribution, and stratigraphic concentration of species, strongly suggests the contemporanity of these species with the cultural components. They stress that micromammals found in these contexts are legitimate indicators of climatic and environmental conditions at the time of occupation.

Stephanie Livingston's paper on western Great Basin bird utilization stresses the importance of avifauna to the prehistoric inhabitants of Humbolt Sink. Livingston documented the avifauna, especially large birds like coots, grebes, and herons, comprised most of the diet in several western Great Basin sites. Those data indicate that large terrestrial mammals played no more than a peripheral role in the subsistence economy of the Humbolt Sink area for the last 3000-5000 years. The data challenge the notion that marsh ecosystems can provide only backup resources. Livingston questions the ranking of marsh resources as "low" in terms of regional subsistence strategies. In my opinion, the avifauna has long been overlooked in faunal assemblages. Dr. Livingston's contribution to this volume should offer additional encouragement for better understanding on how prehistoric peoples used birds. The suggestion that prehistoric peoples collected juvenile herons and other waterfowl during peaks of availability for storage is especially intriguing. Archaeological evidence for this pattern should be examined for other culture areas as well.

The quality, diversity, and production of this volume is excellent. The Illinois State Museum has produced another volume of great interest to archaeologists dealing with the analysis and interpretation of archaeological faunal material.

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The Seven Visions of Bull Lodge. Edited by GEORGE HORSE CAPTURE. 1992. University of Nebraska Press. Lincoln and London. 125 pp. $8.95 (paper).

As professional or avocational archaeologists, we are concerned with the study of human behavior through analysis of the cultural materials left behind. Unfortunately, it is a rare occasion when we seek to understand the spiritual nature of archaeological sites or the peoples we claim to study. *The Seven Visions of Bull Lodge* provides us with that rare glimpse into the life of a Native American spiritual leader.

Bull Lodge (born ca. 1802, died 1886) was a healer, warrior, medicine man, and keeper of the Feather Pipe, among the *A'aninin*, or People of the White Clay, otherwise known as the Gros Ventres of Montana. The story of this spiritual leader was handed down by his daughter, Garter Snake, in the early 1930s to Fred P. Gone, another tribal member. At the time, Fred Gone was collecting cultural histories on the Fort Belknap Reservation for the W.P.A. Writers Project during the depression. The book is divided into two primary sections. In the first section, "The Seven Visions of Bull Lodge," Garter Snake recounts stories from the four primary life phases of her father. In the second section, the story of the Feathered Pipe is told.

to become a spiritual leader, Bull Lodge experienced seven visions on seven different butte tops. These visions provided Bull Lodge with spiritual power for healing and gifts to aid him in his rise to prominence as a medicine man and warrior. Each vision story, as told by Garter Snake, is rich in the cultural history of the *A'aninin*. In the next phase of his life, Bull Lodge achieved status as a warrior. Garter

Snake recounts the details of three successful war parties led by her father against the Crow Nation. At the end of each war party, Bull Lodge sacrifices a horse on one of his vision quest butte tops, as repayment for the spiritual gifts he had received there earlier.

In the third phase of his life, Bull Lodge makes the transition from warrior to healer. Again, the stories of several healing ceremonies performed by Bull Lodge, and witnessed by Garter Snake, are not only fascinating to read, but provide wonderful insight into the practices of a Native American healer. It is during this phase of his life, as a healer, that Bull Lodge becomes the Keeper of Chief Medicine Pipe, which is called the Feathered Pipe. In the fourth section of the book, "The Last Experience," Garter Snake recounts the last days in the life of Bull Lodge. Even during this last phase, Bull Lodge was heavily influenced by the supernatural. He experienced visions with told of his death and possible resurrection after death. In the end, resurrection was not possible, because the buffalo had disappeared. This is an interesting twist of fate, considering the historic time period (late 1880s), during which this occurred.

In the second major section of this book, Garter Snake recounts the story of the origin of the Feathered Pipe and the passing down from Keeper to Keeper of this sacred object over five generations. If the owner of the pipe had more than one child, the Keeper was obligated to choose one as his pipe child. Garter Snake was chosen by Bull Lodge for this task.

In summary, *The Seven Visions of Bull Lodge* provides the reader with a colorful and insightful history into the life of a spiritual leader of the Gros Ventres. Most importantly, this publication represents the efforts of the *A'aninin* people to research and preserve their own cultural history. Through his research, George Horse Capture and others have discovered a wealth of ethnographic data in the W.P.A. files. Horse Capture asks future researchers to treat this body of data with respect, and a remembrance that these oral histories belong to the people themselves. Hopefully, the next time the readers of this review finds themselves on a butte top studying a Native American site, they will look beyond the material remains, and reflect with respect on the cultural values represented there.

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