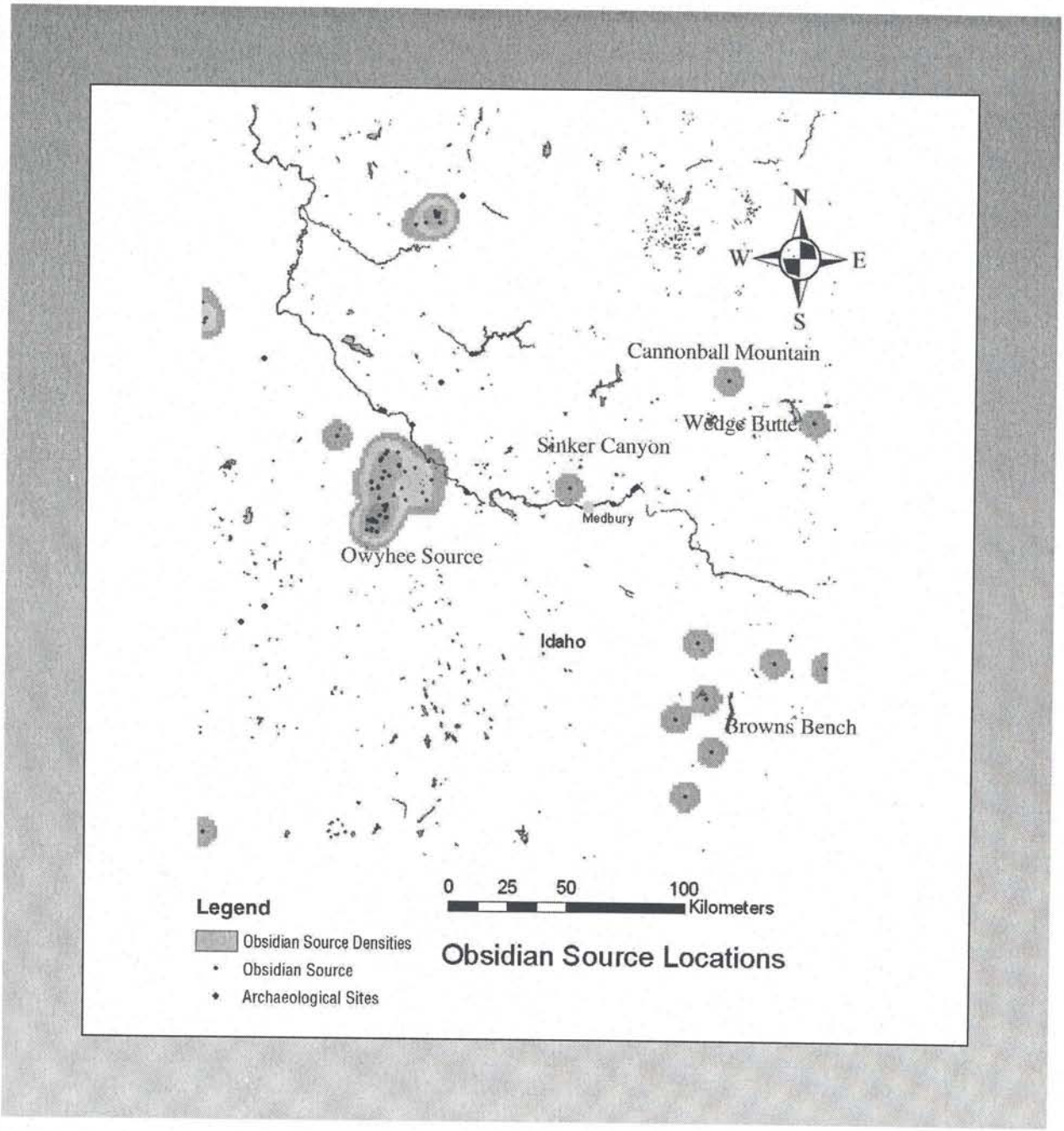
Idaho ARCHAEOLOGIST



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Cover Photo: Obsidian Source Locations

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ARCHAEOLOGICAL TEST EXCAVATIONS AT THE MEDBURY SITE (10-EL-1367), SOUTHWEST IDAHO

Mark G. Plew and Christopher A. Willson

INTRODUCTION

The Medbury site (10-EL-1367) is located approximately one and one-half miles southeast of the town of Hammett, Idaho and to the northeast of the old Medbury Ferry Crossing (Figure 1). The site was originally brought to the attention of the senior author by Elton Bentley and Dorian Dufin, the land owner, and was first visited in July 1995 by Boise State University to assess its potential as a possible field site for the summer Archaeological Field School. The site, which has been known for a number of years to local collectors, was at the time of Boise State's initial visit impacted by several years of plowing and cultivation of alfalfa and by extensive rodent activity. In October 1995, students from Boise State University excavated five 1 X 2 meter test units to a depth of one meter below the surface. The purpose of the excavation was to assess the stratigraphic context of the site and establish the range of materials present and the probable age of the deposit.

SITE DESCRIPTION

The Medbury site is located on the northside terrace of the Snake River approximately one and one-half miles southeast of Hammett, Idaho. The site proper is situated approximately 40 meters north of the river's edge and covers an area approximately 80 X 70 meters (Figure 2). At the time of the test excavation the field was covered by stubble from an alfalfa cutting. The surrounding area is covered by scattered stands of sagebrush with riparian vegetation including willows along the river's edge. The site is defined by a medium (5-10 flakes per meter) scattering of lithic flakes, ceramic sherds and thermally altered rock, mussel shell and "green" and charred bone. Several formal artifacts, including a Desert-Side-Notched point, were observed on the surface of the site. Additionally significant were evidence of charcoal and ash staining exposed on the surface of the site.

PREVIOUS ARCHAEOLOGICAL RESEARCH

During the past three decades a number of excavations have been conducted between the towns of Hammett and Hagerman. These sometimes minor excavations have produced considerable evidence of Late Archaic activity. Sites include Indian Cove, Bell Mare, Three Island Crossing, the Knox site, Clover Creek, Kanaka Rapids, Bliss, the Hagerman Fish Hatchery site and the Crutchfield site.

On the south bank of the Snake River near Indian Cove and 1.5 miles south of Hammett, Idaho, Young (1986) excavated a shallow round saucer-shaped structure measuring 15 cm at its greatest depth. A central fire pit was associated with a radiocarbon date of 4170+/-80 B.P. A range of artifacts including Humboldt points was earlier collected from the site. The majority (78%) of the lithic flake assemblage consists of thinning and late stage flakes.

Three Island Crossing located near Glenns Ferry, Idaho is characterized by a diverse artifact assemblage (n=1,413) and a significant faunal collection consisting of deer, rabbits and fish (NISP=19,000+) remains. The site, based upon radiocarbon dates between 580+/-180 B. P. and 970+/-60 B.P., suggests a minimum of three occupations. A single structure with interior fire pit and two one meter-wide storage pits were recorded (Gould and Plew 2001a).

At the Knox site just north of King Hill, Idaho, evidence of processing and manufacturing activities was noted (Plew, Huter and Benedict 2002). Though the earliest use of the site dates to Middle Archaic times, the majority of the occupations are of Late Archaic age. Early stage reduction of basalt was a primary activity and is thought to be associated with the Bell Mare basalt quarry some five miles to the east (Plew and Chavarria 1992). In addition, a small storage pit and large roasting pit measuring more than a meter in diameter were present.

Clover Creek site (10-EL-22) at King Hill is purported to have contained evidence of houses in association with pottery and fish remains (Butler and Murphey 1983). More recent excavations (Plew and Gould 1990) suggest that a primary activity was early stage lithic reduction associated with a nearby basalt quarry. Hydration dates establish the age of the site between ca. 900 and 1,000 years B.P. (see also Gould and Plew 1996).

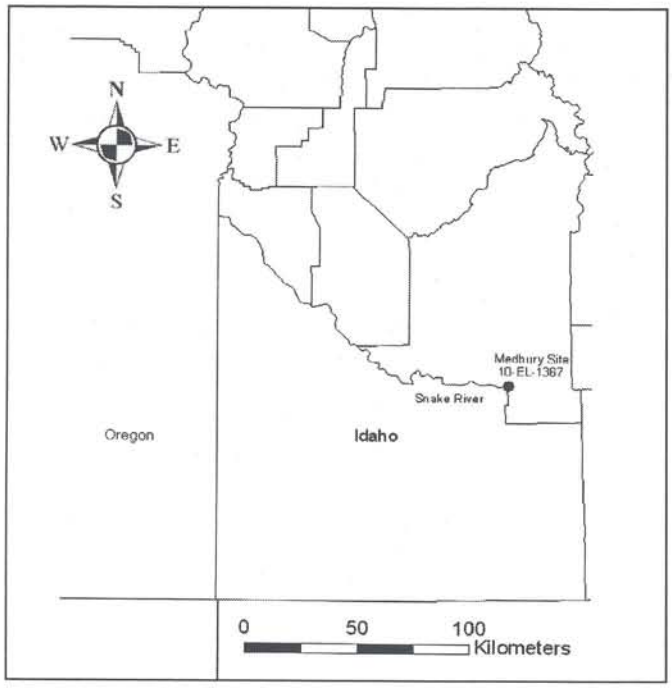


Figure 1. General Location Map of the Medbury Site 10-EL-1367.

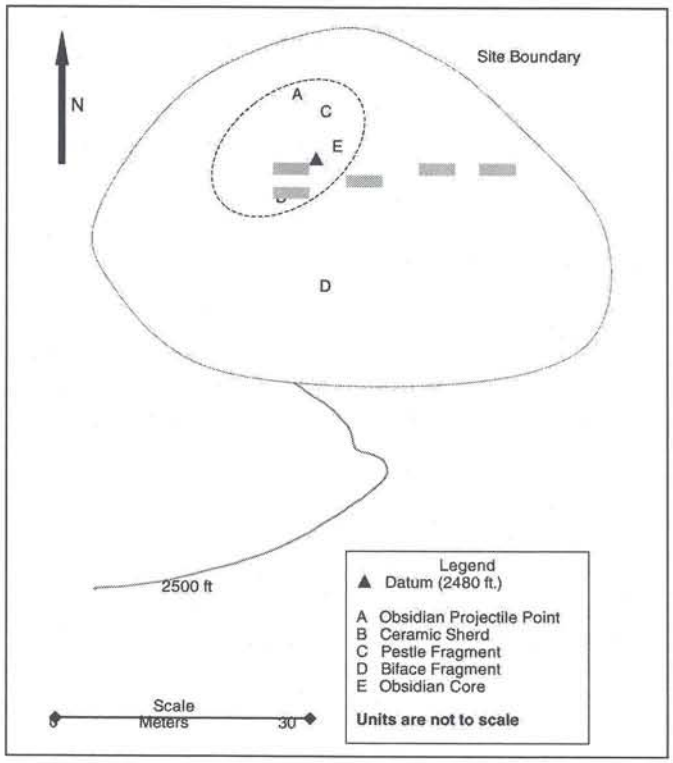


Figure 2. Plan Map Showing General Locations of Test Units at the Medbury Site.

Upstream at Bancroft Springs, Butler and Murphey (1982) excavated a possible house pit associated with materials of Late Archaic age at site 10-EL-216. Additional investigations of several sites at Kanaka Rapids upstream from Bancroft Springs led to the discovery of a house structure at 10-GG-273, defined by the presence of a rectangular stone foundation with postholes (Butler and Murphey 1983). The Kanaka sites contained predominantly domestic and general purpose tools (Butler and Murphey 1983; Plew 1988, 1990). Fish remains as well as mussel shells were recovered from some of the Kanaka sites.

Near Bliss, site 10-GG-1 dates between 900 and 250 years B.P. (Plew 1981). Located atop a large terrace on the north side of the Snake River, 10-GG-1 contains four separate cultural components and a varied assemblage, including many weapons and domestic items, as well as extensive faunal remains which include salmon. Analysis of the faunal assemblage suggests a spring use of the location (Plew 1981:154-155). More recent excavations at Area B, an 18th century component (Gould and Plew 2001b), have documented large roasting pits associated with deer, fish and large canids.

At the Hagerman National Fish Hatchery (10-GG-176), Pavesic and Meatte (1980) describe occupational surfaces and saucer-shaped lenses which they consider to be house features dating between 500 and 1,000 years B.P. Based on limited test excavations, the authors interpret the site as a historic fishing village (Pavesic and Meatte 1980:23, 75-76). More recent excavations at the site (Landis and Lothson 1983) do not corroborate this idea. The faunal assemblage contained no evidence of fish, and the rather sparse tool assemblage contained no fishing equipment.

Murphey and Crutchfield (1986) conducted excavations at the Crutchfield site (10-GG-191) on Billingsley Creek just north of Hagerman. Crutchfield contained evidence of a Late Archaic occupation dating between 600-700 B.P. A variety of material items were recovered, including bone and stone tools, fish remains, and shell fragments from a rock-lined cache pit from which a C-14 age of 620 ± 80 years B.P. was obtained (Murphey and Crutchfield 1986:76). Two oval, saucer-shaped house structures, one containing a hearth and the other having external posts, were noted in association with the tool and faunal assemblages.

FIELD STRATEGY AND METHODS

A site datum was established on the eastern edge of the terrace some 100 meters from the Snake River and positioned to surrounding landmarks. An E-W baseline was laid out in ten-meter units with four 1 X 2 units staked along and north-south of the baseline, which extended some 100 meters across the terrace. Elevational readings

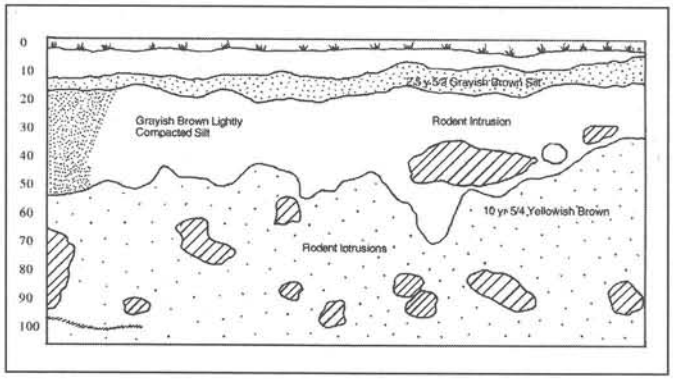


Figure 3. Stratigraphic Profile of East Wall, 8-10-S, 10-11E, 0-100 cm

were taken at ten-meter intervals within the grid system with a topographic map prepared prior to excavation. The units were excavated in arbitrary 10 cm levels (Figure 3). All sediments were screened through 1/8-inch hardware mesh with artifacts and ecofactual remains collected and bagged by material type per unit level. Test units were located in areas where artifact and debitage concentrations were most pronounced.

ARCHAEOLOGICAL FEATURES

Test excavations at the Medbury site identified no discrete archaeological features. Investigations did, however, as noted above observe areas of relatively dense concentrations of artifacts and debitage in association with charcoal staining and thermally altered rock (Figure 3). It is possible that plowing and other agricultural activities may have destroyed or reconfigured features. This may have included fire hearths and possible steaming/roasting areas that appear to have occurred within the plow zone at other Late Archaic sites in the area (e.g. Plew, Huter, Benedict 2002). Though studies suggests that plow zone disturbance does not greatly impact our ability to delineate site areas and artifact densities, they may affect observations regarding function and cultural affiliation (see Ammerman 1985; Fink 1984)

MATERIAL CULTURE

Cultural materials were typed and categorically classified using Winter's (1969) functional classification scheme. Units include weapons (projectile points), domestic tools (groundstone and ceramics), fabricating (cores, hammerstones) and general utility tools (knives, scrapers and worked flakes) (Figure 4). Size ranges are given in centimeters by length, width and thickness respectively.

A. Projectile Points

1. **Desert Side-Notched** (Figure 4; a)
   Number of Specimens: 4
   Artifact Number: A10, A11, A12, A20
   Form and Description: Triangular blade elements with well defined straight to somewhat convex margins. Bases are relatively broad and convex. One specimen is bi-convex in cross-section.
   Size Range: 3.0-1.9 x 1.9-1.1 x 1.4 cm
   Material Type: Obsidian
   Provenience: 8S-10E , 30-40cm , 8S-10E, 23-30 cm; Surface

2. **Rose Spring Corner-Notched** (Figure 4; c-e)
   Number of Specimens: 4
   Artifact Number: A9, A15, A19, A26
   Form and Description: Blades are triangular in outline with convex margins and broad corner-notches. The tip is missing on one specimen which appears broken at the mid-section. Bases are generally expanding or convex.
   Size Range: 2.5-1.5 x 0.7 x 0.2-0.3 cm
   Material Type: Obsidian, CCS
   Provenience: Surface

3. **Small Corner-Notched Point** (Figure 4; b)
   Number of Specimens: 1
   Artifact Number: A14
   Form and Description: Specimen has sloping shoulders which extend to a convex base. The artifact is biconvex in cross-section.
   Size Range: 1.3 x 0.5 x 0.3 cm
   Material Type: ignimbrite
   Provenience: 8-10S, 10-11E - 50-60cm

4. **Projectile Point Tips**
   Number of Specimens: 3
   Artifact Number: A13, A17, A22
   Form and Description: Bi-convex at cross-section. The blade is triangular with convex margins. Blade edge has irregular concave features.
   Size Range: 0.8 cm x 0.5 cm x 0.1 cm
   Material Type: Obsidian
   Provenience: 8-10S, 10-11E - 50-60cm, Surface; 7-8S, 0-2W - 10-20cm

5. **Side-Notched Point Fragment**
   Number of Specimens: 1
   Artifact Number: A22
   Form and Description: This specimen consists of a base. It appears that the base was wider than the blade width.
   Size Range: 0.8 cm x 0.5 cm x 0.1 cm
   Material Type: Obsidian
   Provenience: 7-8S, 0-2W - 20-30cm

B. Cores

Number of Specimens: 3
Artifact Number: A1, A3, A5
Form and Description: Specimens exhibit minimal cortex and appear to be nearly exhausted.
Size Range: 3.6 cm x 3.1cm
Material Type: Obsidian (A1) Basalt (A5) Chalcedony (A3)
Provenience: 3-4S, 17-19E - 0-10cm (A1); 8-10S, 10-11E - 20-30cm (A5); 9-10S, 0-2W - 40-50cm (A3)

C. Hammerstones (Figure 4; k-l)

Number of Specimens: 3
Artifact Number: A2, A6, A7
Form and Description: Specimen A2 exhibits proximal/distal modification. It is plano-convex and ovate. Artifact A7 is halved and modification is present on the proximal end of the specimen. Item A6 is a fragment of a much larger specimen that is broken and exhibits wear on its proximal end.
Size Range: 3.3 c m x 2.2 cm x 1.3 cm
Material Type: Basalt
Provenience: 7-8S, 0-2W - 0-10cm (A2); 9-10S, 0-2W - 40-50cm (A6); 8-10S, 10-11E - 30-40cm (A7)

D. Worked Flakes/Bifacial Worked Flakes (Figure 4; g-j)

Number of Specimens: 7
Artifact Number: A4, A8, A16, A18, A29, A32, A34
Form and Description: Specimens exhibit lateral and distal edge unifacial or bifacial modification.
Size Range: 14.33 cm x 11.6 cm x 2.83 cm
Material Type: Obsidian (A34), Basalt (A8, A16, A18, A29), Chert (A4, A32)
Provenience: 3-4S, 17-19E, - 40-50 cm (A4); 3-4S,

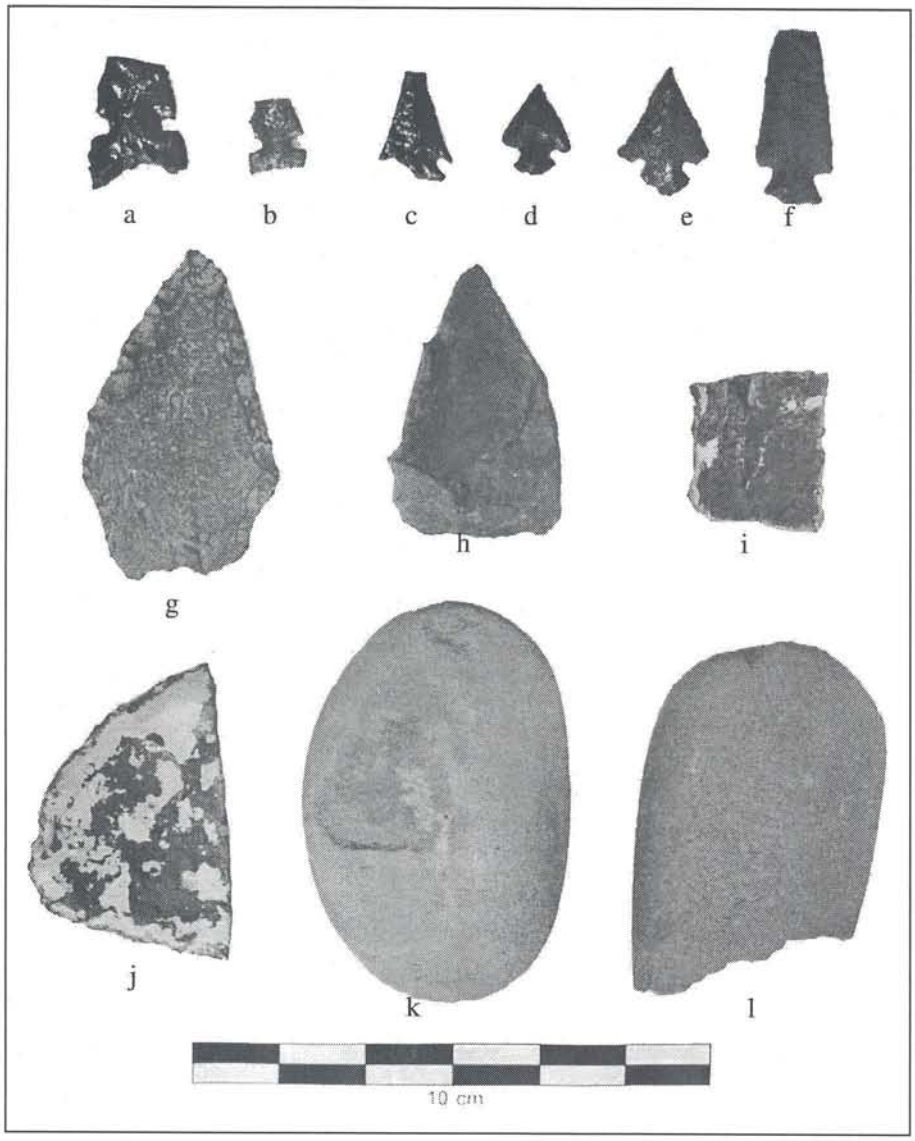


Figure 4. a, Desert Side-Notched Point; b, Small Side-Notched Point; c-e, Rose Spring Corner-Notched Point; f, Corner-Notched Point, g-j, Worked Flakes; k-l, Hammerstones.

17-19E - 20-30cm (A8); Surface (A16); Surface (A18); 0-10cm (A32); 3-4S, 17-19E - 20-30cm (A34)

E. Ceramics

Number of Specimens: 12
Artifact Number: A38-A49
Form and Description: Intermountain gray ware with a coarse sand temper. Specimen A43 is a relatively straight rim.
Size Range: L/W 4.5 cm x 0.7 cm
Material Type: Clay/sand

FUNCTIONAL DISTRIBUTION ANALYSIS

Analysis of the Medbury site assemblage suggests some richness of artifact types and very little unevenness between categories (Figure 5 and Table 1). Among the 41 artifacts recovered by test excavations 39 were included in the analysis. Of these, (35%) are weapons (n=14), the general utility category (22%) is comprised of hammerstones (n=3), and worked flakes (n=7). Twelve ceramic sherds account for the domestic category (29%) but are likely from no more than a couple of vessels. Some fabricating of chipped stone tools occurred at the site as partially evidenced by cores (n=3) that comprise 7% of the total assemblage. In addition to one historic fragment, which has not been included here, three small

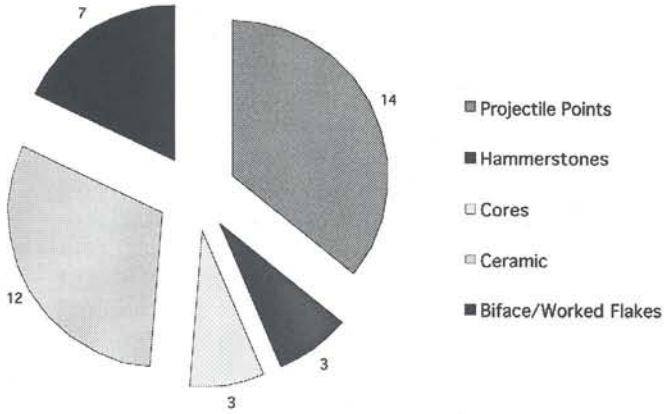
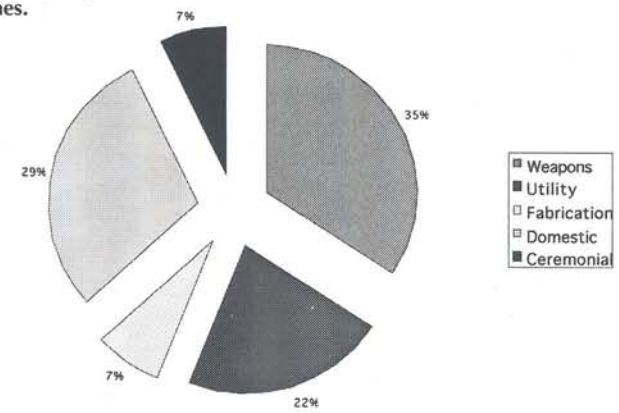


Figure 5. Frequency Distribution by Artifact Type.



Functional Category		Percent
Weapons	14	35
Utility	9	22
Fabrication	3	7
Domestic	12	29
Ceremonial	3	7
	41	100

Figure 6. Distribution of Artifacts Types using Winter's (1969) Functional Categories.

lumps of red ochre were recovered and are included in Winter's ceremonial category and make up the remaining 7% (Figure 6).

Given the multiple uses of ochre we have excluded it from this analysis. Raw material distributions for projectile points indicate a high frequency of use of obsidian in the manufacture of projectile points, though local materials were being utilized as well for the manufacture of expedient tools. Basalts, common to the region, appear to be used frequently (Figure 7).

XRF SOURCING DATA OF OBSIDIAN

Recent XRF analysis of obsidian materials (Willson 2005) suggests that obsidian was required regionally from several known sources in southwest Idaho. These include Brown's Bench, located on the border of Idaho and Nevada, in the South Hills near Twin Falls, Idaho, the Owyhee source located in the Owyhee mountains to the west, and Cannonball Mountain to the northeast (Figure 8). Although no patterns can be described regarding the way in which these materials were acquired, the obsidian sources are located fewer than 50 kilometers from the site location and are well within the expectations for distance described by Holmer (1997) and Plager (2001).

TABLE 1. ARTIFACT CATALOG

Spec.#	Description	Provenience	Depth	Comments
1	Basalt Core	3-4S, 17-19E	0-10 cm	
2	Hammerstone	7-8S, 0-2W	0-10 cm	
3	Core	9-10S, 0-2W	40-50 cm	
4	Worked Flake	3-4S, 17-19E	40-50 cm	
5	Core Fragment	8-10S, 10-11E	20-30 cm	
6	Hammerstone	9-10S, 0-2W	40-50 cm	
7	Hammerstone	8-10S, 10-11E	30-40 cm	
8	Biface	3-4S, 17-19E	20-30 cm	
9	Rose Spring Point	7-8S, 1W		East Sidewall
10	Desert Side Notched Point	3-4S, 17-19E	10-20 cm	
11	Desert Side Notched Point	8S, 10E	0-10 cm	Fragment
12	Desert Side Notched Point	8S, 10E	20-30 cm	Missing tip
13	Projectile Point Tip	8-10S, 10-11E		
14	Corner Notched Point	8-10S, 10-11E	50-60 cm	
15	Rose Spring Point	Surface C	0-10 cm	Missing tip
16	Biface Fragment	Surface A	0-10 cm	
17	Projectile Point Tip	Surface E	0-10 cm	
18	Biface Fragment	Surface B	0-10 cm	
19	Rose Spring Point	3-4S, 17-19E	50-60 cm	
20	Projectile Point	Surface D	0-10 cm	
22	Projectile Point Tip	7-8S, 0-2W	20-30 cm	
26	Rose Spring Point	3-4S, 19-21E	0-10 cm	Fragment
29	Biface Fragment	8S, 10E	30-40 cm	
30	Projectile Point Tip	7-8S, 0-2W	10-20 cm	
32	Biface Fragment	Unknown	10-20 cm	
34	Biface Fragment	3-4S, 17-19E	20-30 cm	
38	Ceramic	3-4S, 19-21E	10-20 cm	
39	Ceramic	3-4S, 19-21E	10-20 cm	
40	Ceramic	3-4S, 17-19E	40-50 cm	
41	Ceramic	3-4S, 17-19E	30-40 cm	
42	Ceramic	3-4S, 19-21E	10-20 cm	
43	Ceramic	3-4S, 19-21E	30-40 cm	
44	Ceramic	3-4S, 17-19E	30-40 cm	
45	Ceramic	3-4S, 17-19E	20-30 cm	
46	Ceramic	8-10S, 10-11E	60-70 cm	
47	Ceramic	7-8S, 0-2W	10-20 cm	
48	Ceramic	3-4S, 17-19E	20-30 cm	
49	Ceramic	3-4S, 17-19E	20-30 cm	

LITHIC DEBITAGE

Test excavations recovered a total of 2,560 lithic flakes. Analysis of the lithic debitage consisted of sorting the materials by size and raw material type. Flake size ranges included 2,253 (88%) items measuring within a range of .26-1.0 cm in square area. Two hundred and two items fell within a range of 1.0-2.25 cm and 101 within a range greater than 2.25 cm square (Figure 9). Of these, only a few cortical flakes were recovered. Though three cores were recovered, suggesting some manufacturing activity at the site, the overall flake to tool ratios indicate resharpening and retooling activities. Sorting debitage by raw material type indicates that 55% of the total number of flakes are obsidian, while 24% are basalt and 21% cryptocrystalline flakes (Figure 10).

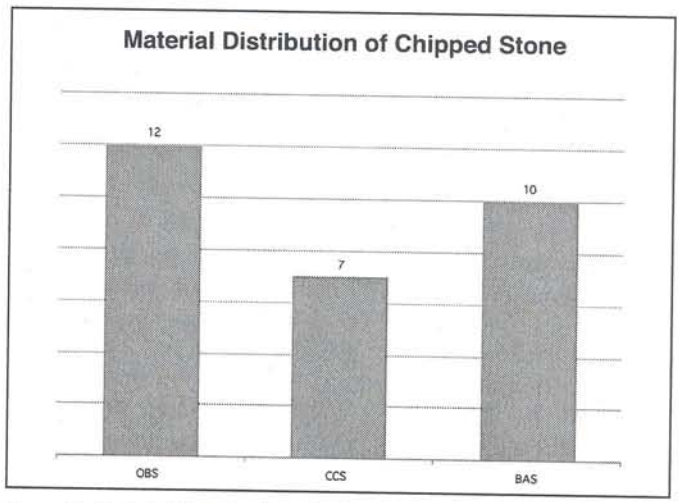


Figure 7. Material Distribution of Chipped Stone.

FAUNAL AND BOTANICAL REMAINS

Faunal remains were separated into vertebrate and invertebrate remains and sorted according to categories of identifiable, unidentifiable, green, and charred. The majority of the unidentifiable bones, which were small and highly fragmented, is rather evenly divided between green (n=715) and charred (n=690). Forty specimens of identifiable bone are charred while 29 are green. Osteological analysis indicates the presence of rabbit and deer bones but does not allow an estimate of the

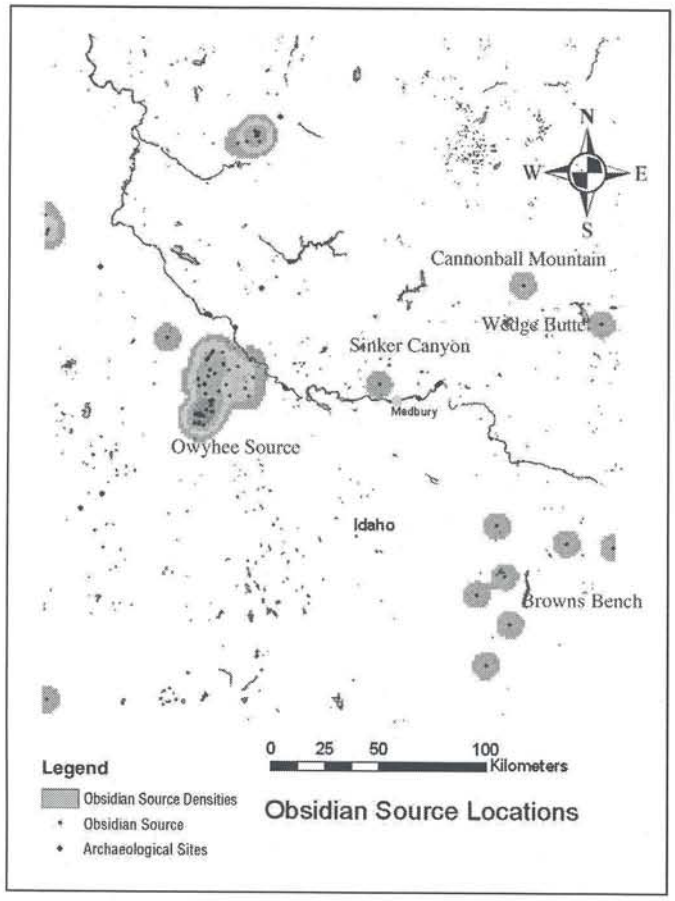


Figure 8. Obsidian Source Locations.

minimum number of individuals present. The exception are 22 salmon (*Onchorynchus tshawytscha*) and one catostomid vertebrae (see Plew and Plager 1999). The relatively high percentage of charred remains, ca. 50%, suggests purposeful disposal in firepits/hearths. Invertebrate remains consisting of sp. *Margaritifera* include 665 uncharred specimens weighing 1,478 grams. Only a single specimen was charred (Figure 10). A small number of hackberry seeds recovered are generally not thought to be associated with cultural activities. Notably, none are directly associated with areas of more intense activity.

THERMALLY ALTERED ROCK

Thermally altered rock (TAR) was found in four units but varied in level frequency. Unit 3-4S, 19-21E produced 165 specimens within the upper eighty centimeters of the unit. Units 8-10S, 10-11E produced 103 TAR between 20 and 80 cm bpd while unit 9-10S, 0-2W produced 55 specimens between 20 and 50 cm bpd. Unit 7-8S, 0-2W contained 7 specimens of thermally altered rock within the 20-30 cm bpd level (Figure 11 and Table 2). The greatest single quantity of thermally altered rock (n=65) was recovered in Unit 8-10S, 10-11E, level 60-70 cm bpd suggesting the possible presence of feature. The majority of specimens measured between 2-3 centimeters in length. A few specimens measured as large as six centimeters in length. All specimens are fragments of quartzite river cobbles.

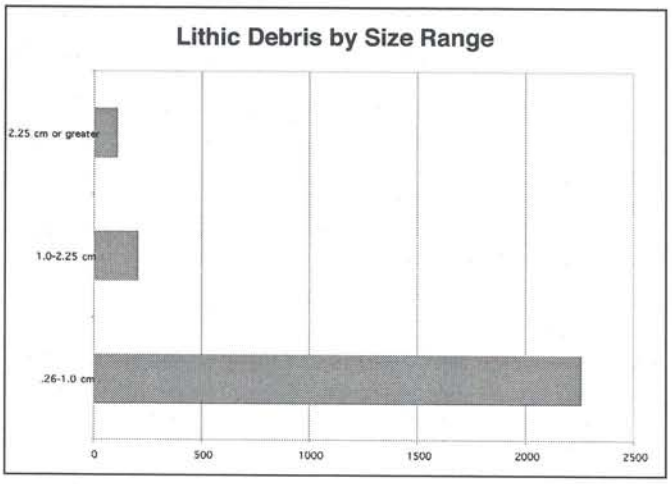


Figure 9. Lithic Debris by Size Range.

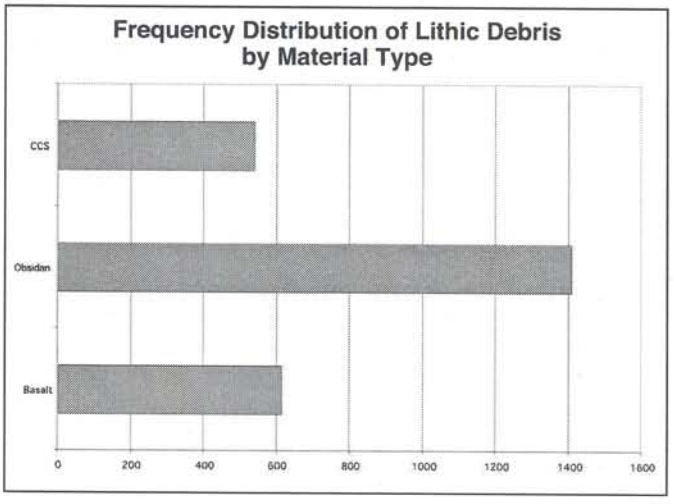


Figure 10. Frequency Distribution of Lithic Debris by Material Type.

TABLE 2. FREQUENCY DISTRIBUTION OF THERMALLY ALTERED ROCK

Unit	8-10S, 10-11E	7-8S, 0-2W	9-10S, 0-2W	3-4S, 19-21E
Depth				
0-10				
10-20			20	40
20-30	5	7	24	23
30-40	11		5	13
40-50	5		6	15
50-60	12			29
60-70	65			30
70-80	5			10
80-90				5
Totals	103	7	55	165

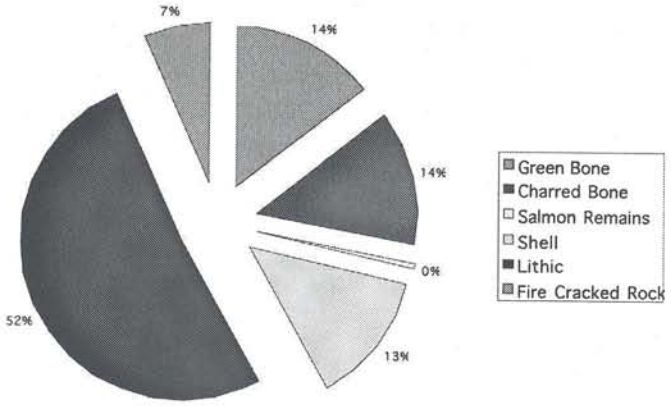


Figure 11. General Distribution of Materials.

CONCLUSIONS

Archaeological evidence from the Medbury site indicates that the location was used by Late Archaic groups who may have visited the site on more than one occasion. On the basis of the recovered data it would appear that occupations were of short-term duration. This assumption is based on the rather meager cultural and ecofactual assemblage recovered and the absence of clearly discernible features. Notably, however, the fact that many faunal remains are charred suggests the presence of fire hearths at least at one time. During visits to the site, activities included fishing, mussel collecting and some hunting as reflected by the presence of very limited numbers (NISP) of rabbit and deer remains within the site. Significant quantities of thermally altered rock may suggest that steaming and/or boiling occurred.

Tools were limited to four types and include projectile points and fragments (n=11), worked flakes (n=6), cores (n=3) and hammerstones (n=3). A large number of very small late stage lithic flakes (88%) suggests on-site maintenance, though some may represent late stage biface reduction or flakes struck from small locally acquired basalt and cryptocrystalline cores. This is further indicated by the distribution of raw materials. Fifty-five percent (55%) of the lithic assemblage was manufactured from obsidian while 24% were produced from basalts and 21% from cryptocrystalline materials. Toolstones were acquired from the Owyhee, Brown's Bench, and Cannonball Mountain sources which are within a distance of approximately 50 kilometers from Medbury.

The activities indicated by tools, debitage and ecofactual remains recovered from the Medbury site suggest activities of the kind often associated with highly mobile foragers (cf. Gould and Plew 2000). Though sample sizes vary considerably among the sites tested within the area, the assemblage from the Medbury site in comparison fits more closely the assemblages and occupations at Kanaka Rapids (Butler and Murphey 1983) and to a lesser extent Indian Cove (Young 1986) and Hagerman Fish Hatchery sites (Pavesic and Meatte 1980). Though the latter sites contained evidence of features which include a possible structure at Indian Cove and purported structures at Hagerman, they are characterized by relatively small and uneven assemblages which do not suggest long-term uses of the sites. In contrast, excavations at Bliss (Plew 1981; Gould and Plew 2001a, 2001b) and the Crutchfield site (Murphey and Crutchfield 1985) produced evidence of relatively more extensive occupations associated with features in the case of Bliss and structures in the case of Three Island Crossing and Crutchfield. Though the evidence from test excavations at the Medbury site is inconclusive in comparison to data from other sites within the area, it appears that the site represented very limited and specific use. Medbury, Kanaka Rapids, Bonus Cove Ranch (Yohe and Neitzel 1998), among other small and relatively insignificant sites in southwestern Idaho, help to delineate more clearly the range of site types that reflect the totality of activities comprising the settlement-subsistence patterns of local Snake River populations.

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SHORT CONTRIBUTIONS

COMMENTS ON BISON FREEZERS AND HUNTER-GATHERER MOBILITY: ARCHAEOLOGICAL ANALYSIS OF COLD LAVA TUBE CAVES ON IDAHO'S SNAKE RIVER PLAIN

Mark G. Plew

Henrikson's (1996, 2003) archaeological investigations of ice caves on the eastern Snake River Plain have focused much needed attention on a very unique aspect of the archaeology of southern Idaho. A recently published paper in *Plains Anthropologist* presents additional data on ice caves and reiterates many of the conclusions presented in her earlier publication on Bobcat Cave (1996); a paper positing that ice caves on the eastern Snake River Plain were used as facilities for long-term storage of bison during and as a result of the Altithermal. The intent of this paper is not to detract from the significance of the discovery that ice caves were sometimes used for storage or caching, but to provide an assessment of the interpretations of data presented by Henrikson that raise questions regarding the certainty of some of the author's assertions. A number of arguments made in her most recent paper do not logically derive from the data and are not demonstrated by it. The paper fails to address alternative explanations of the findings or create an appropriate context for the arguments presented. There are a number of allusions to particular facts that are intended to imply the significance of the research but without appropriate development. As well, the paper does not develop fully the research implications of her work.

For example, Henrikson asserts that her data documents that bison were preferred for long-term storage and that this challenges Julian Steward's arguments that bison were unimportant to the diet of inhabitants of the region (Henrikson 2003:263), a discussion which is not addressed in the body of the paper. To the contrary, Steward writes: "buffalo hunting so outweighed the advantages of seed gathering that Northern Shoshoni families separated and scattered out to harvest plant foods only during a small portion of the year" (Steward 1938:231).

A paper that purports to address bison use and storage in the context of hunter-gatherer mobility might well discuss the archaeological context within which the role of bison has been previously evaluated. While Butler, the major writer about bison in Idaho is cited, his work is not discussed. Perhaps this is the reason the paper does not mention the historic Challis Bison Jump so well known to Idaho archaeologists (Butler 1971a). This is particularly interesting since the author states that there is no evidence of "plains-style" bison jumps in Idaho. Remarkably, "The Origins of the Upper Snake Country Buffalo," Butler's (1971b) seminal work on bison in the Upper Snake and Salmon River country, is not even mentioned though this work addresses a number of important issues relating to the use of bison in Idaho. In some instances her conclusions would be strengthened by reference to what is known of bison use within Idaho and the surrounding area. A recent paper by Plew and Sundell (2000) entitled, "Archaeological Occurrence of Bison on the Snake River Plain" documents the presence of bison on eastern and western Snake River Plains over a period of 12,000 years, demonstrates its presence in many environmental contexts and its increase in use in the Late Archaic period. It concludes, as does Henrikson (2003: 282-283), that bison were taken as encountered and that multiple strategies were employed (see Plew and Sundell 2000: 110-111). It concurs with Butler's (1971b) conclusion that bison were commonly utilized but did not contribute significantly to the overall diet, an argument seemingly at odds with the ethnographic accounts. The implications of these efforts are ignored by the author though she reiterates their conclusions in a number of instances. How carefully the author has reviewed the regional literature is as well questioned by her reference to bison hunting during winter snows (Henrikson 2003:283). The reference in her text should be not to Butler but rather to Liljeblad's ethnographic account cited in Butler (1971).

The author asserts that bison were preferred for long-term storage since other ungulates are virtually absent from ice caves (Henrikson 2003:263). This does not logically follow from the data presented. Her findings indicate that bison were used and occasionally stored in ice caves apparently over a period of several thousands of years. Though interesting and important, nothing more can be inferred beyond this given the evidence provided by the author. The authors' assertions regarding the

absence of other ungulate remains contradict the data presented. Though the absence may be explained in a number of ways, none indicate that bison are preferred within the local diet breadth.

An additional presumption of the paper appears to be that bison was being stored during the summer though the author does not explicitly state this. One infers based upon her earlier references to the "Altithermal" that she believes this to be a summer storage strategy (Henrikson 1996). If the "long-term" storage which the author describes is part of a winter pattern one wonders if the facilities would vary. The author presumes that numerous antler tines found in ice caves are ice picks used to dislodge frozen meat and/or to chip ice for drinking water (see Henrikson 1996: 17, "the ice may have served as source of drinking water or as cold storage for meat..."). Perhaps, but could these caches of tines reflect an attempt to preserve by cold or in special locations, items that were extremely valuable? Until the author presents evidence of season of use, which is critical to many of her assertions, it will remain impossible to know whether the strategy reflects "long-term" storage . . . or short-term caching.

In this regard, Henrikson reports in the case of Scaredy Cat Cave that high ratios of sagebrush pollen indicates that sagebrush was brought into the cave during the fall blooming season. Though much caution should be taken in interpreting the pollen data, if in fact meat is being stored in ice caves in the fall, does this mean that it is for winter storage? Since the author has not firmly established the seasonal context of use of ice caves, should we consider that living in an eastern Snake River Plain ice cave in winter might not be so bad? Henrikson (1996:6) has observed that the temperature in the upper chamber of Bobcat Cave is 55 degrees Fahrenheit during the summer and fall and notes that while temperature readings were not taken during the winter at Bobcat Cave, the temperatures of caves in the area remain relatively constant throughout the year. If native peoples are living in or near ice caves during the winter, aspects of Henrikson's arguments need to be reassessed. In this regard, the author does not mention that Baker Cave III located just north of Minidoka, Idaho on the eastern Plain (described in her text as Baker Cave, Plew, Pavesic and Davis 1987), contained the selectively butchered remains of 17 bison and was occupied during the mid-winter period (see also Gough 1990 for discussion of a possible winter kill). Further, a review of the literature pertaining to other storage strategies in the area would be useful as a measure of the relative importance of "bison freezers."

The reader senses that the author rushes to judgment in deciding short of a thorough analysis that these sites functioned only as "bison freezers." It is as though the idea of finding bison remains frozen within ice in desert caves is so unique that it overrides a thoughtful consideration of the data. For example, the author does not provide a complete analysis of the artifact assemblages. This analysis should guide any functional assessment of the activities conducted at and within ice caves. Unfortunately, there is no detailed description or analysis of the artifacts even though chipped stone tools, lithic waste, digging sticks, basketry and beads have been recovered. Though artifact types are listed in the text, raw counts are also combined in tables which relate the vertical distributions of artifacts and faunal remains (see Table 3). Yet, even the presentation is not uniform as shown in Table 6 where flake types are reported only for surface probes at Scaredy Cat Cave. Particularly frustrating is the absence of any discussion of the horizontal distribution of artifacts and features which makes adequate evaluation of how features are associated with radiocarbon dates virtually impossible. Tables summarizing the horizontal and vertical distributions of artifacts, ecofacts and features as well as plan maps showing the respective distributions would greatly strengthen the effectiveness of her discussion. Though Henrikson provides a summary of the explorations outside the caves (an important consideration) these data are not adequately detailed. Regrettably, many of these issues plagued the author's original monograph on Bobcat Cave (see Jenkins 1997 for discussion).

Of further concern is that faunal data presented by the author is not as compelling as is consistently implied. At Bobcat Cave, 220 bone fragments were recovered from test units in the lower chamber. Of these, 39 are rodent remains. Henrikson (2003:270) writes: "the remaining specimens, 191 range from 2.0 to 30.0 cm in length and appear from their size and cortical thickness to be large mammal long bone fragments. In fact, the cortical thickness of most fragments falls within the size range of bison." She writes that a total of 29 diagnostic (presumably bison remains) were recovered from the lower chamber. These are represented in Table 2. Unfortunately, it is unclear which are bison and which are large artiodactyl remains. Indeed, as with other tables in this paper, the delineation of counts is confusing and does not appear to reflect the number of elements discussed in the text.

At Scaredy Cat Cave the author reports 182 individual fragments, 53 of which are canid and ursid remains (considered to be associated with the site having been utilized as a bear den prehistorically). She reports 33 diagnostic faunal remains (presumably bison) in Table 4. She then writes, "While many of these could be identified as *Bison bison*, some could only be designated as large artiodactyls or large mammal. The remaining 96 specimens appear to be large mammal long bone fragments, many of which fall within the size range of bison." Table 4 tabulates bison and large artiodactyls bones but makes no clear distinction between species. This means that 152 (83%) of the remains are not, at least as reported, clearly bison.

In the case of Tomcat Cave a total of 142 items are reported. Of these, 44 are rodent remains, four are marmot remains and one is a bear scapula. Also reported as part of the remains are "92 fragments classified as either *B.bison*, artiodactyls or large mammal." Again, a significant percentage of the remains are not clearly bison. Of further note is an inconsistency between numbers

reported in the text and in the tables. By way of example, Table 4. lists a total of 4 femur fragments (bison or artiodactyl?) but then tabulates 8. In Table 9, 5 scapula fragments are listed (bison or artiodactyl?) but 8 are tabulated under proximal, distal, right? The author asserts that bison were preferred for long-term storage since other ungulates are virtually absent from ice caves (Henrikson 2003:263). The data while indicating that bison were in some instances being stored do not support the sweeping assertions made by the author. It would be helpful for the reader to know who conducted the faunal analysis, the condition of the bone and whether there is evidence of butchering or other modifications of the bone. Though the author notes in some instances that rodent remains exhibit no modifications, she does not discuss whether large mammal remains exhibit signs of modification. Though minor inconsistencies in data presentation do not entirely undermine her thesis, they raise questions regarding it.

Based upon the data presented in support of the "bison freezers" hypothesis, the paper provides an extensive discussion of how cold storage relates to "transport decisions." Though hypothetically clear that a relationship exists, the author's assertions regarding bison storage are again underdeveloped. Though providing an overview of ethnographic research from the Arctic and Africa which discusses differing transport cost strategies she does not detail the factors that would condition these decisions on the Snake River Plain. It is obvious that cold storage inhibits bacterial contamination and not surprising that 75% of the remains from the caves are high utility items or that transport costs are related to proximity of kill. The question is what conditions the relative optimality of differing strategies seasonally and over time. Analysis of butchering patterns would be useful in evaluating and perhaps determining the strategies used and this in turn important in assessing transport cost decisions. The author should consider Suzanne Miller's analysis of the bison assemblage from Baker Cave III in which she describes a "bashing" technique of disarticulation. Perhaps some of the use-wear on hammerstones found in the ice caves reflects this pattern.

The conclusion to the paper begins with the statement "Bison represent the only identifiable faunal remains recovered from cold storage caves." A careful reading of the paper suggests that the reality is a bit different. More importantly, the presence of what are identifiable remains (bison?) cannot be the basis for the sweeping assumptions/assertions made in this paper. Henrikson's work at this point demonstrates that ice caves were used at times as storage facilities. She fails to develop alternative interpretations while seemingly rushing to very specific conclusions that do not entertain how the use of "bison freezers" are integrated with the overall subsistence strategies of local peoples (see also Jenkins 1997:302). The author's observation that bison were successfully utilized and often acquired during single hunting events utilizing differing strategies follows Butler (1971a, 1971b) and Plew and Sundell's (2000) earlier conclusions. Though MNIs from a number of archaeological sites containing bison are relatively low, as noted by the author, the numbers may reflect a variety of factors as noted previously. In the case of Baker Cave III, the 17 bison remains may be quite significant in time and place since the importance of bison to the annual diet vs. its importance on a seasonal basis as conditioned by a number of variables must be considered.

Henrikson (1996,2003) has made an important contribution to our knowledge of the range of prehistoric storage strategies on the eastern Snake River Plain. Her examination of ice caves provides a tantalizing glimpse of the potential diversity yet to be discovered on the plain. She reasonably documents that ice caves were used for storage and that many of those investigated to date contain some bison remains. She further demonstrates that such sites were used by aboriginal hunters over a period of several thousands of years. What would greatly enhance our understanding of the significance of her findings is a more thorough reporting of the artifactual assemblages, including discussion of the horizontal and vertical distribution of features and associations with the reported radiocarbon dates, a clearer delineation of the faunal data, determination of the seasonal use of ice caves (which might suggest alternative explanations of the use of the sites), and a more developed discussion of the factors that might have conditioned the pattern she describes.

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ABSTRACTS FROM THE 32ND ANNUAL IDAHO ARCHEOLOGICAL SOCIETY CONFERENCE

Boise, Idaho
October 22, 2005

KEYNOTE ADDRESS

Protecting Cultural Heritage Resources: From the Pre-Antiquities Act Period to the Present
Martine McAllister, Archaeological Research Investigations

PAPER ABSTRACTS

Block 49 Pioneer Cemetery – Evidence of Nineteenth Century Mormon Mortuary Practices
Shane Baker, Idaho Power Company

Salvage excavations at the Block 49 Pioneer Cemetery in Salt Lake City, Utah presented a unique opportunity to examine nineteenth century Mormon mortuary practices as reflected by the earliest cemetery in Utah. Complete excavation of all identifiable burials in the cemetery allowed a population-level examination of both mortuary practices and the osteobiology of the religious colonists who founded Salt Lake City. Data from the cemetery demonstrate that Mormon burial practices during this time reflect both changing patterns in contemporaneous mortuary behavior in nineteenth century American culture, as well as some behaviors unique to the Mormon subculture. Mortuary behavior, as well as osteobiology, indicates that the Mormons were distinct from other early immigrant populations in the Intermountain West. The distinct characteristics of Mormon mortuary behavior may partially reflect the theological developments that originated during the period the group was residing in Nauvoo, Illinois.

Underwater Archaeological Surveying Techniques in Low Visibility Environments
Nicholas Belluzzo, Boise State University and Ray Leicht, Bureau of Reclamation

This paper presents the application of underwater search and recovery methods for the survey of underwater archaeological sites in low-visibility situations. Current procedures developed for the proper surveying of underwater archaeological sites assume adequate underwater visibility. However, in reservoirs and shallow lake settings, limited visibility situations introduce numerous confounding factors that must be resolved to ensure accurate survey documentation. Methods developed for search and recovery are well suited to high-resolution documentation in these types of settings.

Residential Mobility and Variation in Ceramics: An Idaho Case Study
Patricia Dean, Idaho State University

The relation between residential mobility and variation in ceramics has been noted but determining the degree of residential mobility from surface sites produced by a highly mobile population is problematic. This study first categorizes selected pottery-bearing sites by simply noting major topographic and environmental features, with their implied functional differences. A summary of major attributes in the two pottery groups of Idaho (thick and thin) is then presented and correlated with the site categories. This study concludes that each pottery group occurs in every topographic category but are found together only at sites that have a number of other artifact classes. This implies that lower residential mobility can be identified not by the presence/absence of either pottery type but by the occurrence of both.

Baby Canyon Rock Art Recording Project, Arizona
Jennifer Huang, Bureau of Reclamation

The Baby Canyon Rock Art Recording Project in the Agua Fria National Monument, a joint endeavor of the BLM and the Deer Valley Rock Art Center in Phoenix, Arizona, represents a new level of documentation and analysis in rock art research. This presentation will introduce the various innovations utilized by the project in both methodology and overall philosophy. Techniques including viewshed analysis, digital photography and the aspect ratio tool, and in-field data collection by PDA will be discussed. In addition, the use of overarching research questions, created before fieldwork began and which guided the data collection process, will be outlined.

Impacts on Archaeological Resources within Southwestern Idaho
Tedd Jacobs, Boise State University

Changes in standards and practices have led to a resurvey of cultural resources within the Idaho Army National Guard training area south of Boise, Idaho. The objective is to reassess 31 archaeological sites and perform pedestrian survey to identify and protect resources that may have been overlooked by previous surveys. Monitoring by Boise State University provides an addition of ten years of baseline data that will aid in ascertaining the extent of geomorphic impacts, public and military usage and the effect of grazing overtime on archaeological resources in desert environments.

Use of Sedimentology in Reconstructing Past Environments
Tedd Jacobs, Boise State University

Sediment studies help in evaluating post depositional changes, aid in paleo-environmental reconstruction of archaeological contexts and provide data that can be used to assist in evaluating processes of site formation

and relationships between people and environmental change. Excavations at 10-CN-6, an archaeological site situated along the Snake River, exposed stratigraphic sequences overlaying large boulders deposited by the Bonneville Flood, occurring around 14,500 B.P. Sediment samples were collected from these sequences in an effort to better understand depositional context and address depositional-related issues including formation, soil and sediment transport, weathering, and alteration.

Innovative Techniques for Instructing Alaska Native Archaeological Skills

Michael Livingston, Idaho State University

In ancient times, technical skills required years to learn. Many of these skills have been lost. Some archaeologists have learned information that they want to share with others. But, with limited time, how do you design a class to share archaeological information in a meaningful manner? In researching the ancient technology of Alaska Native sea kayak construction, I have developed an innovative class in which students can build a 1/3 scale model kayak, learning sea kayak terminology and ancient wood working techniques such as bow drilling. You can learn creative techniques to adapt my class design to your area of research.

Test Excavations at Shock and Awe Rockshelter, City of Rocks

E.H. Lohse, C. Cordell, C.W. Cullen, D. Ellis, R. Hitchcock, N. Holmberg, Idaho State University

The 2005 archaeological field school, in cooperation with the National Park Service, Idaho State Parks and Recreation, and the Idaho Historical Society, conducted test excavations at the Shock and Awe Rockshelter, City of Rocks National Monument. Investigation was required because of potential adverse impacts associated with climbers using the nearby rock faces. Two 1 x 2 m test pits were excavated into the site surface, revealing intact cultural and natural stratigraphy, and a number of cultural features. A particularly interesting feature was a stone-lined storage pit. Analysis is in progress but this paper will present preliminary results of our work.

Schitsu'umsh Culture Program Development

Quanah Matheson, John Hartman, Jill Wagner, Coeur d'Alene Tribe

The Schitsu'umsh, Coeur d'Alene Tribe, are moving from a "one man" cultural resource operation to a Cultural Resource Management Program with an archive facility, professional staff, and the capability to carry out archaeological and ethnographic research. Until recently, tribal historians have maintained archives and coordinated culture resource management efforts. These duties are now distributed across the cultural resource staff. With tribal elders and the culture committee remaining wholly involved, program staff work toward THPO status and full participation in regional cultural resource management. The staff take advantage of recent advances in technology and the expertise available through mainstream education to coordinate with, and enhance the legal leverage of, tribal elders' oral histories and cultural insights. J. Hartman, B.S. Cartography, U of Idaho, is trained as a cartographer and started with the tribe's GIS program in 2000. His Names-Places project gathers Snchitsu'umshtsn names and information about places in the aboriginal territory and has recently been expanded to a nationwide effort through USGS. Q. Matheson, B.A. Anthropology, WSU, was hired in 2003 as the tribal anthropologist, giving the program its first official contact person for cultural resource compliance and consulting. With the completion of the new storage facility, he is expanding his successful efforts to repatriate remains and cultural items. J. Wagner, Ph.D. Anthropology, WSU, has worked with the tribe since her dissertation research in 1995, and was hired by the tribe in August 2004 to assist with evaluation and oversight of the Avista Utilities Spokane River Hydro Dams Relicensing Project cultural resource efforts. Her first year with the program was dominated by a TCP pilot study for the relicensing.

Prehistoric Use of Lava Tube Caves on the Eastern Snake River Plain, Idaho

Julie-Anna Rodman, University of Idaho

On the eastern Snake River Plain, near Big Southern Butte, are a number of unique lava tube caves. The caves contain evidence of prehistoric human use including hunting, food processing and storage, lithic tool manufacture, and hide preparation. The caves include Raptor Cave, Coyote Lair, Roadside Cave, Corroded Abode, Swiss Cheese Cave, Hikers Oasis, Power Line Cave, Bobcat Cave, and Condor Cave. Archaeological excavations have been conducted in Bobcat Cave, Raptor Cave, and Roadside Cave. Bobcat Cave was excavated in 1987 and 1989 by Idaho State University and BLM archaeologists. Bobcat Cave contains extensive rock art, and excavations in the lower cold chamber produced evidence of food storage and possible water collection activities. Raptor and Roadside Caves were being damaged by pothunters and in 2003 and 2004 University of Idaho and BLM archaeologists conducted excavations to determine the extent of the damage and rehabilitate the caves. Raptor Cave contains significant rock art, including images of bison and shield-bearing warriors. The cave also contains year-round ice and may have provided water in the high desert. Roadside Cave contains extensive lithic and ceramic artifacts. This paper presents the results of these excavations and a discussion of the surrounding unexcavated caves.

Dating the Undated: Obsidian Hydration Analysis as a Relative Dating Technique

Matthew Seddon, SWCA Environmental Consultants

Despite tremendous potential, obsidian hydration analysis as a dating technique has been underutilized in the intermountain west. In part, this has been due to misunderstandings about the nature of obsidian hydration as a dating technique. This paper provides an overview to developing and using a relative obsidian hydration chronol-

ogy to assign sites and site components to chronological periods. Techniques for developing source-specific relative chronologies are discussed, followed by examples of the successful application of obsidian hydration in relative age assessments of archaeological site components.

Difficulties in Addressing Hunter/Gatherer Behavior Using X-Ray Fluorescence Analysis
Chris Willson, Boise State University

Recent literature regarding hunter-gatherer behavior suggests that lithic sourcing data from X-Ray Fluorescence (XRF) analysis can be used to discern mobility patterns and establish territories of prehistoric/historic aboriginal peoples (Jones et al. 2003). However, research currently being conducted at Boise State University suggests that XRF analysis is not an adequate method for analyzing behavior and demonstrates that thoughtful consideration of the numerous variables associated with hunter-gatherer behavior is a more appropriate method for analytical interpretation.

Pit Cooking and Intensification in the American Southwest and Pacific Northwest
Pei-Lin Yu, Bureau of Reclamation

Pit cooking leaves durable, measurable remains and is relevant to the study of resource intensification. This paper examines pit cooking as a means to explore and quantify the initial conditions for incipient Southwestern food production: the desert foraging lifeway.

First, analytical tools for variability in pit ovens, and a model statement about the role of pit cooking in intensification, were drawn from an ethnographic frame of reference governing pit oven function, physical variation, and contexts of use. Using those tools, hypothetical statements were developed for the relationship between pit oven cooking, Southwestern habitat variation, and subsistence intensification.

Hunter-gatherer subsistence and mobility for the Basin and Range and Colorado Plateau provinces of the Southwest were modeled using Binford's (2001) environmental and ethnographic data base, and archaeological pit ovens and cooking sites were compared between the two Southwestern regions in order to test the hypothetical statements and evaluate the utility of the model. The study results show that the Basin forager niche was narrowing, increasing dependence upon plants and accelerating intensification of pit cooking. Thus, Basin initial conditions favored substantial investment in agriculture. Plateau foragers had a broader subsistence niche in which pit-cooked foods were among many options, and Plateau initial conditions favored adoption of agriculture as an adjunct subsistence strategy. Comparison of related data from the Pacific Northwest interior showed that pit-cooking played a vital but different scalar role in financing aggregations in a highly stable, aquatically-dependent foraging system. The study concludes that material traces of pit cooking vary in a predictable, measurable manner with the foraging system state.

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