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Cover: Waterhouse obsidian turkey-tail biface. Photo courtesy Robert M. Yohe II.

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ARTICLES AND REPORTS

DESCRIPTION AND ANALYSIS OF THE MATERIAL CULTURE OF SITE 10-CN-6, MIDDLE SNAKE RIVER, IDAHO

A. Craig Hauer and Lisa Hughes
Boise State University

In the summer of 1968, a small group of students from then Boise State College, under the direction of Dr. T. Virginia Cox, began test excavations of the Warwick site (10-CN-6). The site is located in the Snake River Canyon, on the northwest edge of Celebration Park Recreation Area, south of Melba. Survey forms from 1971 locate the site on the Walters Butte Quad, USGS, at NE 1/4, NW 1/4, T 1, R 2, section 36. The excavations were conducted just west of the Warwick house site. Although unable to relocate the house foundation for this paper, the authors believe the site may lay beneath what is now a Boy Scouts of America campground. This campground is located directly west of the parking lot for the Celebration Park Interpretive Center.

At the time of excavation the site was located on private land. John Warwick, the land owner, related to Cox that the previous owner had uncovered approximately 5,000 artifacts before selling the land. The area had been extensively looted. John Warwick, a faculty member at the college, agreed to an excavation on his property by the Boise State College students (Cox, personal communication).

The excavation of a 1 x 2 meter pit, to a depth of approximately 2 meters recovered no cultural materials. Further excavations consisted of a trench extending from a looter's pit where lithic debris were exposed. Cox recalls the trench dimensions being approximately one meter wide by 10 to 15 meters long and extending 30 centimeters below the surface (Cox, personal communication). Consultations with the site excavator suggest that Trench A-E and Units 1-3 should be treated as a single unit, from which the materials described in this paper were recovered.

Unfortunately, little provenience data was recorded. The notes, which were written on artifact bags, have since faded. The labeling of sections within the trench does not follow any order that was decipherable by the authors. We did not have access to field notes that may have been taken nor does a photographic record exist. Therefore this paper is mainly a descriptive analysis of the cultural materials, focusing on the prehistoric remains.

PREVIOUS RESEARCH

Tuohy (1958) first recorded 10-CN-6 during an early archaeological survey of the area. He described the site as a "campsite," with mussel shell and lithic debris visible on the ground surface, and considered the site may have been an extension of 10-CN-5. Koko and Keeler (1971) also surveyed the area in response to the proposed Guffey Falls dam project and reported that the site was connected to 10-CN-5, and that looting was evident. They reported finding shell, lithics, and "metates" in the backfill left from amateur excavations.

Murphey (1977) conducted an archaeological survey of the area for the Bureau of Land Management. He described sites 10-CN-6 and 10-CN-5 on single record form, but made no distinction as to which site contained material or where the boundaries of one site ended in relation to the other. Materials present at the time were "mussel shells, fire cracked rock, [and] 2 hand stones." He classified the area as a habitation site and noted extensive pot holes as deep as 1.5 meters.

The surveys of Keeler and Koko (1971), and Murphey (1977), in conjunction with those of Tuohy (1958), have documented approximately 200 archaeological sites which form the Guffey Butte-Black Butte Archaeological District. These sites represent a wide range of activities spanning several thousand years.

Archaeological excavations in the area have been ongoing since Louis Schellbach's 1929 excavation of "Schellbach Cave" (Schellbach 1967). A cache of fish remains and fishing gear recovered from this site has engendered discussion as to the importance of anadromous fish in the recent prehistoric period along the Snake River (e.g Pavesic, Follet and Statham 1987, Gould and Plew 1994).

Other excavations in the area include 10-AA-15, which appears to be a mussel collecting station (Tuohy and Swanson 1960). Near Marsing, Gruhn (1964) described sites 10-OE-128 and 10-OE-129, also revealing large quantities of mussel shells, large Humboldt points, and large corner and side notched projectile points. House depressions dating to 4000-5000 years ago were associated with extensive deer and mussel remains at

Figure 1. Map Showing the General Location of 10-CN-6.

Givens Hot Springs (Green 1982, 1993) while the Cromwell site near Marsing was described by Huntley as a mussel collecting station. To the east at Big Foot Bar Plew (1980) has described extensive shell remains in association with a small house depression and cottonwood triangular points.

Further excavations in the area were conducted in 1990 by the Idaho State Historical Society at 10-CN-7. The collection includes projectile points, knives, groundstone, lithic debitage, bone and shell. Davis estimates that 10-CN-7 represents an occupation dating between 5000 and 300 B.P. based on comparison with 10-CN-9 and 10-CN-300 (Davis 1990).

In the summer of 1995, Boise State University conducted test excavations approximately 10-15 miles east of 10-CN-6. Excavations at 10-AA-12, 10-AA-14, 10-AA-188, and 10-AA-189 do not support traditional assumptions of extensive riverine use of the area in prehistoric times (Sayer, Plager and Plew 1995:50). Additional excavations were conducted at 10-AA-306 where processing tools, projectile points, and hearth features were associated with large quantities of shell and bone (Sammons and Myler 1995).

During the 1996 field season Boise State University conducted excavations at 10-CN-1 approximately 1/2 mile downstream from 10-CN-6. Analysis of materials collected led the researchers to conclude that 10-CN-1 is a multi-component site with seasonal occupations ranging from the Middle Archaic to the early 19th century. The material record indicates seasonal use of a number of species, and related processing activities (Sayer, Plew and Plager, 1997).

Although only Givens Hot Springs has produced radiocarbon dates that suggest occupations between 6000 and 600 B.P. (Green 1982:42-43), the range of material cultures described in reports, and noted above, suggest use of the riverine environment from Early Archaic times (7000-8000 BP).

MATERIAL RECORD

This section describes the material assemblage which was categorized using Winter's (1969) functional classification scheme of weapons, domestic tools, fabricating tools and general utility tools. These categories are further divided into specific types.

Artifact descriptions include: artifact laboratory number followed by a general description, including the material type, dimensions, manufacturing technique, and comparable types. The general description uses standard reference (i.e. dorsal, ventral, lateral and medial margins, plano-convex). Dimensions are given in the following order of length, width, and thickness. Manufacturing techniques recognized are secondary percussion and pressure flaking, which was determined by flake scar width. Orientation of the flake scars are defined where possible. Artifacts were not weighed as variations in material type and morphology are sufficiently great as to exclude weight as a useful variable.

Pottery is described using Munsell hues in the following order: (E)xterior, (I)nterior, and (C)enter Luster, texture, and temper are noted.

WEAPONS

Projectile points:

A21) Obsidian Humboldt-like projectile point (41mm L x 12mm W x 5mm T). This specimen is slightly plano-convex in cross section with a straight base. The specimen exhibits irregular pressure flaking, trending perpendicular to the margins. Comparable types: Aikens (1970:43, Figure 23 b) Thomas (1988:328, Figure 116 g-h). See Figure 2d.

A31) Obsidian Elko Corner-Notched projectile point (34mm L x 27mm W x 7mm T). The specimen is plano-convex in cross section with a concave base. The distal end and the right lateral margin of the proximal section are missing. The specimen exhibits irregular pressure flaking trending diagonally towards the base along both margins. Comparable types: Aikens (1970:38) Plew (1985:164, Figure 31 d-e). See Figure 2b.

A25) Obsidian Elko Corner-Notched projectile point (20mm L x 17mm W x 4mm T). The specimen is missing the distal end which broke along a diagonal axis from left to right. The specimen exhibits irregular pressure flaking along the margins and secondary flake scars on the dorsal and ventral surfaces. Comparable types: Aikens (1970:38) Thomas (1983:183). See Figure 2c.

A9) Obsidian Desert Side-Notched projectile point (18mm L x 15mm W x 4mm T). The specimen is plano-convex in cross section. The side notches are shallow with rounded base corners and a concave base. The distal end of the specimen appears to have been retouched. The specimen

exhibits irregular pressure flaking trending proximally. Comparable types: Aikens (1970:37) Plew and Woods (1985:30, Figure 5 k). See Figure 2a.

DOMESTIC ITEMS

Groundstone:

A3) Basalt pestle fragment (45mm L x 39mm W x 36mm T). The specimen exhibits a pecked, rounded distal end which is incomplete due to exposure to fire.

A23) Basalt pestle mid-section (55mm L x 52mm W x 22mm T). The specimen is circular in cross section and exhibits pecking on the lateral margin.

A24) Basalt pestle (81mm L x 54mm W x 50mm T). The specimen is incomplete with the proximal end rounded and no evidence of modification. The distal end is flat with a rounded lateral edge, which exhibits pecking. The cross section of the specimen is circular. See Figure 3b.

A34) Elongated basalt ground stone specimen (155mm L x 37mm W x 27mm T). The specimen is slightly spheroid in cross section tapering to a fractured distal end. The proximal end, similar to the distal end, ends abruptly in a fracture that is perpendicular to the long axis of the specimen. Both ends do not exhibit modification. The lateral margin exhibits pecking. See Figure 3c.

Pottery:

A10) Shoshoni Ware. Body sherd (54mm L x 48mm W x 8mm T). The specimen has a dull luster with the following hue: E: 10yr 5/3, I: 10yr 4/1, C: 10yr 6/2. The texture is a medium grain size with a mica and quartzite temper.

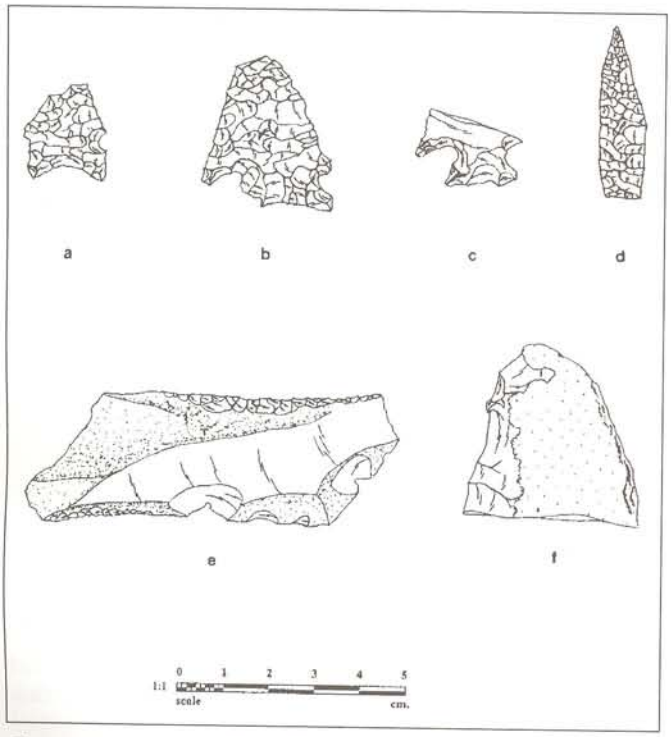

Figure 2. a, Desert Side-Notched Point; b, Elko Corner-Notched Point; c, Elko Corner-Notched Point; d, "Humboldt-like" Point; e, Basalt Scraper; f, Seam Knife.

A11) Shoshoni Ware. Body sherd (45mm L x 39mm W x 7mm T). The specimen has a dull luster with the following hue: E: 7.5yr 5/3, I: 10yr 5/2, C: 10yr 6/1. The texture is a medium to fine grain size with a mica and quartzite temper.

A12) Shoshoni Ware. Body sherd (34mm L x 24mm W x 6mm T). The specimen has a dull luster with the following hue: E: 10yr 5/2, I: 2.5y 5/1, C: 10yr 5/2. The texture is a medium to coarse grain size with a mica and organic temper and quartzite granule size inclusions.

A13) Shoshoni Ware. Body sherd (14mm L x 12mm W x 7mm T). The specimen has a waxy-dull luster with the following hue: E: 10yr 5/3, I: 10yr 4/1, C: 10yr 5/2. The texture is a medium to coarse grain size with a shell and organic temper.

A26) Shoshoni Ware. Body sherd (56mm L x 42mm W x 10mm T). The specimen has a dull luster with the following hue: E: 10yr 6/3, I: 10yr 4/1, C: 10yr 6/2. The texture is a coarse grain size with an organic temper and quartzite granule size inclusions.

A26) Shoshoni Ware. Body sherd (70mm L x 49mm W x 9mm T). The specimen has a dull luster with the following hue: E: 7.5yr 5/3, I: 10yr 4/1, C: 7.5yr 6/3. The texture is a coarse grain size with a quartzite temper and quartzite granule size inclusions.

A27 and A27a) Southern Idaho Plain Ware. Rim and body sherd (128mm L x 85mm W x 9mm T). The specimen has a dull luster with the following hue: E: 7.5yr 5/3, I: 10yr 3/1, C: 10yr 7/2. The texture is a medium-fine grain size with an organic temper and quartzite medium size inclusions. The rim is rounded and wavy, A27a is part of the same specimen. See Figure 3a.

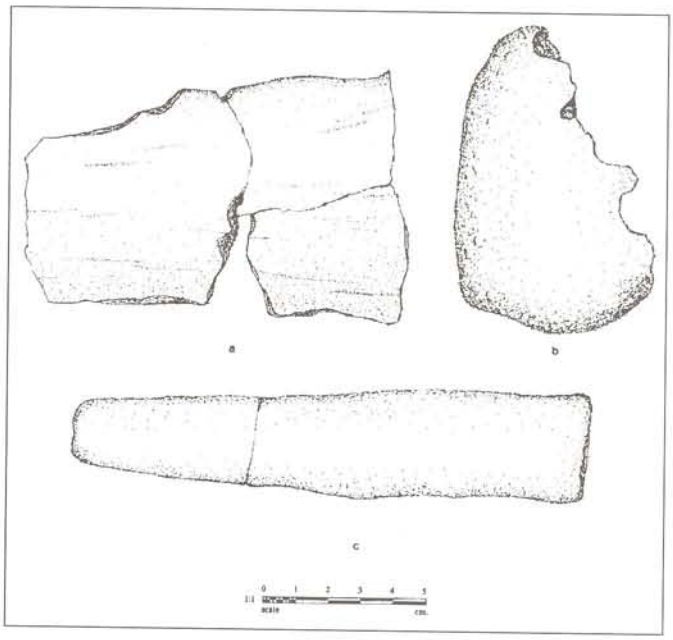

Figure 3. a, Ceramic Rim Sherd; b, Basalt Pestle Fragment; c, Elongated Groundstone Fragment.

A30) Shoshoni Ware. Rim sherd (29mm L x 27mm W x 7mm T). The specimen has a dull luster with the following hue: E: 10yr 4/1, I: 10yr 5/1, C: 10yr 7/2. The texture is a medium grain size with a quartzite temper. The rim is flat and flaring in cross section.

GENERAL UTILITY TOOLS

Bifaces:

A4) Obsidian biface base and mid-section fragment. The specimen has irregular pressure flaking (13.5mm L x 17.1mm W x 5mm T).

A33) Chalcedony biface fragment (25mm L x 18mm W x 4.5mm T). The specimen exhibits heat treating with irregular pressure flaking along the margins. At one corner there is a small 'notch' from a single pressure flake.

A18) Basalt biface, (23mm L x 21mm W x 7mm T) the specimen has a hinge fracture trending across the width of the distal edge and exhibits irregular pressure flaking.

Knives:

A5) Chert knife fragment mid-section (42mm L x 18mm W x 8mm T). The specimen exhibits secondary percussion flaking on the dorsal and ventral surfaces with pressure flaking along the lateral margins.

A17) Distal fragment of an obsidian knife (20mm L x 15 mm W x 7mm T). The specimen exhibits secondary percussion flaking on medial surfaces and pressure flaking trending perpendicular along the margins. The specimen has a hinge fracture trending along the width of the proximal end.

A36) Green chert knife mid-section fragment (22mm T x 10mm W x 8mm T). The specimen exhibits pressure flaking along the lateral margin.

A7) Silt stone seam knife fragment, (34mm L x 18mm W x 5mm T). The specimen exhibits bifacial pressure flaking along one margin. See Figure 2e.

Scrapers:

A14) Obsidian scraper (35mm L x 20mm W x 10mm T). The specimen exhibits bifacial pressure flaking along the proximal and right lateral margins with cortex present on approximately 80% of the dorsal surface.

A37) Chalcedony side scraper (36mm L x 21mm W x 6mm T). The specimen is triangular in shape and unifacially worked along the lateral margin with cortex present on approximately 80% of the surface.

A38) Basalt scraper (86mm L x 23mm W x 10mm T). The specimen exhibits unifacial pressure flaking along both lateral and distal margins. On the dorsal surface a large secondary percussion flake scar trends along the length. Cortex is present on the dorsal surface. See Figure 2e.

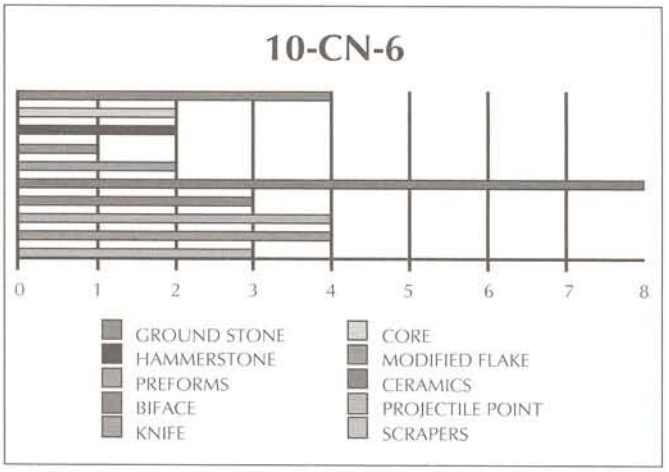

Figure 4. Distribution of Artifacts, 10-CN-6.

Modified Flake:

A35) Chert modified flake (20mm L x 10mm W x 2mm T). The specimen has unifacial pressure flaking along the distal margin.

Preforms:

A15, A22) Two obsidian preforms A15 (34mm L x 23mm W x 8mm T) and A22 (31mm L x 31mm W x 8mm T). Both specimens exhibit bifacial secondary percussion and some pressure flaking scars.

Hammerstones:

A1) Quartzite hammerstone (68mm L x 56mm W x 34mm T). The specimen is triangular in shape with battering along two lateral margins.

A20) Basalt hammerstone (130mm L x 50mm W x 45mm T). The specimen is elongated, river worn cobble triangular in cross section, with battering on the distal end.

Cores:

A39, A40) Two multidirectional basalt cores A39 (92mm L x 91mm W x 51mm T) and A40 (126mm L x 69mm W x 51mm T).

Historic materials are associated with early 20th century use of the area. These materials include assorted pieces of metal, including nails, bolts, and a suspender clamp. Also present were both plastic and glass fragments. It is not clear that the materials are directly associated with activities that occurred at the site. The assemblage is too small to have statistical value in assessing probable function.

NON-ARTIFACTUAL MATERIAL

A summary of all non-artifactual materials appears in Table 1. Bone was collected during the 1968 season, but consists of only 19 individual specimens, with 8 green and 7 charred items. Thirty-two mussel fragments were collected. Lithic debitage constitutes the majority of the non-artifactual material. The small and highly fragmented faunal collection did not require analysis beyond raw counts.

Table 1. Provenience Data, 10-CN-6

SECTION/ LEVEL	LITHIC DEBRIS			BONE		SHELL	ARTIFACTS										
	OB	CCS	BAS	GR	CH		S	K	P	B	C	PR	M	H	CO	G	HI
TRENCH A																	
BACKFILL	1																
TRENCH B																	
0-25 cm	1	1			1		1				4						
38cm												1					
S.1/L1				1													
S.1/L3							1										
S.2/L1				2													
S.2/L3	2	1	1														
S.1/L4			4			9	1										
S.3	1	1															
BACKFILL	1																
TRENCH E																	
S.1	17	9	4						1					1			
S.2	7	3	2	4		6											
S.3	39	15	6		4	1			1		1	1				2	1
S.6	3	2	4								3						
S.7	4	3			1												2
S.8	3	3		1	4	16			1	1							
S.9/0-30.5cm		1														1	1
S.9/30.5-55cm	2	1															
S.10		1			1												1
TRENCH 1																	
SURFACE	1	7															
	23	12	8					1		1				1		1	
TRENCH 2																	
0-25cm	15	13	12					1	1				1		2		1
	14	23	14					1									
TRENCH 3																	
55cm	13	7	6					1									
BACKFILL	1		1							1							2

S-scraper, K-knife, P-projectile point, B-biface, C-ceramics, PR-preform, M-modified flake, H-hammerstone, CO-core, G-groundstone, HI-historic

LITHIC DEBITAGE

A total of 313 flakes were collected. Of this debitage, obsidian accounts for the major proportion at approximately 47%, while CCS constitutes 33%, and basalt the remaining 20%. The debitage was also divided by size ranges, with flakes in the range of 1.01-2.25 cm representing almost one-third of the assemblage. Only 18 flakes (N=313) measure between .01-.25 cm. Flakes measuring .26-1.0 cm number 42 while those measuring 2.26-6.25 cm number 82. Finally, flakes that measure larger than 6.25 cm number 71. The small amount of late stage flakes (18) in conjunction with the high proportions of larger flake sizes (195) may indicate on site manufacturing activity very possibly from local materials as is evidenced at 10-CN-1 (Sayer, Plew and Plager, 1997).

RESIDUE ANALYSIS

Four artifacts were submitted for protein residue analysis (Margaret Newman, personal communication). Results were negative for two projectile points, A21, and A31. A38, a basalt scraper returned positive results for cat protein, and a seam knife, A7, tested positive for human

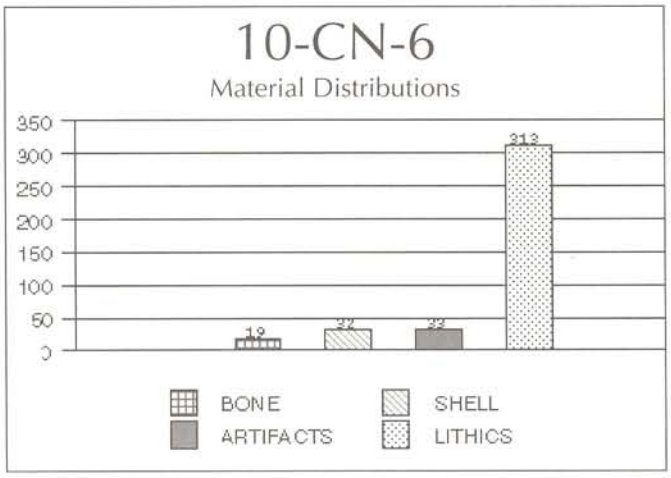

Figure 5. Comparison Distributions of Artifactual and Non-Artifactual Materials, 10-CN-6.

protein. These results proved not to be beneficial in answering questions of artifact function or overall site use.

SUMMARY AND CONCLUSIONS

Materials from 10-CN-6 were collected in 1968 from a single test trench. Minimal documentation of the excavations remain. Consultations with the site excavator suggest that Trench A-E and Units 1-3 should be treated as a single unit. With this in mind, the following observations about the site can be made.

The age of the deposit is established inferentially by the presence of both Elko, Desert Side-Notched and Humboldt projectile points as well as Shoshoni and Southern Idaho Plain Ware. This suggests an age range of c. 5000-900 B.P. (Aikens 1970; Butler 1978; Plew 1990:24, 1979; Thomas 1983, 1988). Unfortunately, a lack of site integrity precludes making more refined temporal determinations possible.

Based upon the materials examined, 10-CN-6 was most likely a short term habitation site characterized by a rather generalized assemblage (see Gould and Plew, 1996; Plew and Sayer 1995). This is based upon the diversity of the tool assemblage where ceramics (19.51%) along with knives, and groundstone (9.76% each) make up the majority of the collection. Bifaces and scrapers represent 7.32% of the assemblage while preforms, hammerstones, and cores account for 4.88% of the assemblage. Obsidian represents the predominate raw material. Historic debris is also common but can be accounted for by the excavation's proximity to the foundation of the Warwick structure and appears unrelated to the prehistoric component.

The overall distribution of artifacts reflects both Winter's (1969) domestic items and generalized tools functional class, in which 27 of the 31 prehistoric remains can be grouped (see Figure 3). While the large numbers of ceramics sherds may imply a processing of food, the lack of hearth features and the noted lack of documentation fails to articulate any discernable relationship between ceramics and subsistence (see Plew and Bennick 1990).

The range of the materials collected at 10-CN-6 appears similar to other sites in the area (Sammons and Myler 1995, Sayer et al. 1997). The noted absence of mussels at 10-CN-6 does not indicate specialized shell utilization as suggested by investigations at 10-AA-15, 10-AA-188, or 10-AA-306 (Sammons and Myler 1995, Sayer et al. 1995, Tuohy and Swanson 1960). Hunting activity, though suggested by the presence of projectile points, is not strongly supported by the faunal evidence. This, however, may be the result of sampling and recovery bias.

As suggested by the temporal distributions of the artifactual assemblage, 10-CN-6 can be considered a multiple component site. Unfortunately, component relationships could not be determined due to the lack of site integrity. Considering the proximity to other area sites (Schellbach Cave, 10-AA-10, 10-AA-188, 10-CN-5, and 10-CN-1, among others) , it is likely that the area has been periodically occupied in varying degrees over the past several thousand years. However, the artifactual and faunal assemblage from 10-CN-6 does not reflect the range and density of materials expected at collector locations (Binford 1982) and discussed by Gould and Plew (1996). Acknowledging sampling bias, the material assemblage may reflect more mobile foragers (Bettinger 1978, Binford 1982, Gould and Plew 1996, Plew and Sayer 1995), who visited the locations periodically.

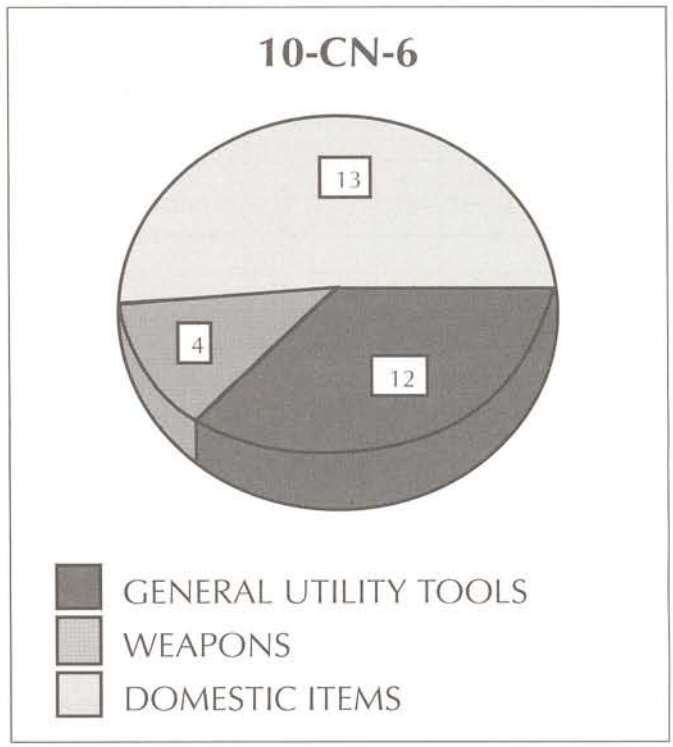

Figure 6. Distribution of artifacts using Winter's Functional Classification.

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SHORT CONTRIBUTIONS

BOOK REVIEW

THE ORGANIZATION OF NORTH AMERICAN PREHISTORIC CHIPPED STONE TOOL TECHNOLOGIES

Edited by Philip J. Carr. International Monographs in Prehistory, Archaeological Series, Ann Arbor, Michigan, 1994.X+136pp., soft-cover, $18.50, maps, illustrations, tables, references

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This book provides a useful compendium of papers dealing with technological organization of chipped stone tool assemblages (cf. Bamforth 1991; Shott 1989). As stated by Carr in Chapter 1, the "goal of this volume is to explore current methods and theories concerned with the organization of stone tool technology through a variety of cases". The volume contains eleven chapters of which eight are case studies and three are shorter commentaries on future directions by Simek, Torrence and Kelly.

The second chapter by Amick examines Folsom assemblages from New Mexico and Western Texas and posits that inferences from raw material procurement and mobility may be inferred from analysis of Folsom points, channel flakes and preforms. The focus of his discussion is that the behavioral/organizational context can be the basis from which significant inferences can be drawn relating to construction of behavioral activities. Amick's paper importably demonstrates the need to move toward broader contextual investigations of organization.

Carr infers the nature of mobility patterns at an Archaic site in Middle Tennessee. Using Binford's (1980) forager-collector model he provides a series of reduction stage expectations for each of three site types: forager residences, collector residences and collector field camps. Examining local and non-local raw materials distribution the organization of the chipped stone tool technology is used to interpret the mobility of the occupants of the site. The paper demonstrates the need to and potential of testing the archaeological expectations of the forager-collector model.

In chapter 4, Ingbar argues that raw material proportions are best understood within the entire context of stone tool production, use, maintenance and discard. Through a series of "simulations" which he compares to the Hanson site, a Folsom context, he demonstrates how technological systems may produce patterns that will be definable at "varying analytic scales and across different sets of attributes." Ingbar's paper appropriately addresses the issue of how sources may be of variable utility depending upon the form of technological organization.

Examining an Early Plains assemblage from the Central Rocky Mountains, Larson employs the use of minimum analytic nodule analysis as the basis for what she terms an "holistic" approach to analysis of chipped stone tool assemblages. Arguing for the study of debitage and stone tool data, she discusses tool design, labor investment, curation and on site tool production.

Odell examines "ambiguous " results from an analysis of hunter-gatherer mobility in the Lower Illinois River Valley. Employing use-wear analysis he reconsiders the relationship of retouch polar coordinates and utilized polar coordinates in reassessing his earlier analysis. He importably observes the usefulness of examining "ambiguous" results "because it causes us to come to grips with the reality of multivariate and occasionally conflicting influence on the prehistoric peoples we are studying."

Chapter 9 by Parry reviews nine major North American prismatic blade industries within a context of craft specialization, mobility and subsistence. He argues that blade industries represent independent developments reflecting local factors. While concerned with factors leading to the development of blade technologies, he emphasizes mobility as a key to why people adopt blade technologies arguing as do Price and Feinman (1993:47) that blades represent a more efficient use of raw material. Following other authors of the volume, Parry argues for a more integrated approach linked to new studies in use wear and spatial distributions of tools and debris.

Sassaman examines biface production variability over 7,000 years of prehistory in the Upper Coastal Plain of South Carolina. He demonstrates that biface production assemblages differ in size, scale and location in relation to quarries and to habitation sites and also in the degree of specialization. The changes are seen as reflecting changes in settlement impacting opportunities for raw

material acquisition. He argues for a relationship between social relations of production and the technical strategies used to produce tools. Employing the concept of risk avoidance, he observes that such strategies became more elaborate when early populations encountered demographic shortages and later when larger populations faced decreased resources. Sassaman argues that biface strategies were embedded "within social efforts to create and maintain alliances through biface exchange and ceremonial uses."

The final three chapters are, as noted, commentaries on the papers. They reflect by their titles: "The Organization of Lithic Technology and Evolution: Notes from the Continent" (Simek); "Strategies for Moving on in Lithic Studies" (Torrence) and "Some Thoughts on Future Directions in the Study of Stone Tool Technological Organization" (Kelly), discussions which are not only evaluative and critical but generalizing as to the nature of a condition of "stasis" in lithic studies. Simek and Kelly correctly observe the failure of many studies to effect "middle range" linkages. As Simek notes explanations must go "beyond context-specific descriptions of systems states to identifying the selective forces—be they environmental and /or social that cause particular technological systems to develop and evolve." Of the three commentaries, Torrence offers the most substantive criticism of individual papers. She offers thoughtful critiques of the mobility-sedentism and technology continuum and of the relations between social and technical strategies for risk management. She argues for the need to emphasize theory building focusing upon sameness as a means of avoiding the circularity and simplicity of studies which commonly deal with "relationships between lithics and something else".

This is a good volume containing papers which well reflect contemporary thinking about organizational variability in chipped stone assemblages. Though it is clear that there remain biases toward certain approaches or concepts of relatedness as is evidenced by the common use of Binford's forager-collector continuum, it is also encouraging that many of the papers address the need for broader and more integrated approaches, a theme elaborated by the discussions of Simek, Torrence and Kelly and one which should guide lithic studies over the next decade. Though the volume raises more questions than it resolves issues, it stands as an important contribution and one which will provide a beginning point for future researchers.

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ADDENDUM TO X RAY FLUORESCENCE AND OBSIDIAN HYDRATION RESULTS FROM THE ANALYSIS OF A TURKEY TAIL BIFACE FROM THE WATERHOUSE COLLECTION

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In Volume 19, Number 1, the above titled article appeared without the two figures referred to in the text. Both are important to the article, since the first figure (Fig. 1) provides general geographic orientation regarding the location from which the obsidian turkey-tail biface (catalog number 10-WN-X-141) was likely collected, and the second (Fig. 2) consists of a drawing of the artifact.

To put these two figures into some context absent the entire text of the article as it appears in Idaho Archaeologist 19(1), a broken obsidian biface was noted in the Dr. Waterhouse artifact collection in possession of the Archaeological Survey of Idaho. Given the fact that this is the only known obsidian turkey-tail biface associated with the Western Idaho Archaic Burial Complex (WIABC), it was viewed as an opportunity by the author to gain information regarding the source of the raw material and comparative age of this unique implement. X-ray fluorescence and obsidian hydration analysis were conducted by Dr. Thomas Jackson of Pacific Legacy in Los Aptos, California. The results indicate that the source material for the obsidian was Timber Butte, a common southwestern Idaho obsidian quarry area, and the specimen has a mean obsidian hydration rim thickness of 5.3 microns. Following comparisons with similar Timber Butte obsidian hydration values from artifacts associated with a turkey-tail biface collected from a recent archaeological investigation in Weiser at the Hetrick site (10-WN-469) (Rudolph 1995), the Waterhouse specimen could be as old as 10,000 years B.P. (this age applies to close stratigraphic associations of Cascade, Windust, and "Gatecliff" projectile points with hydration values ranging from 4.7 to 6.5 microns and radiocarbon assessments of 9,730 +/- 60 B.P. [Beta-78722; CAMS-17780] and 9,850 +/-110 B.P. [Beta-78880] at the Hetrick site). However, since so little data are available with respect to Timber Butte hydration rates and other variables that may effect the rate of water absorption through time in different depositional settings, these conclusions are extremely tentative at this point.

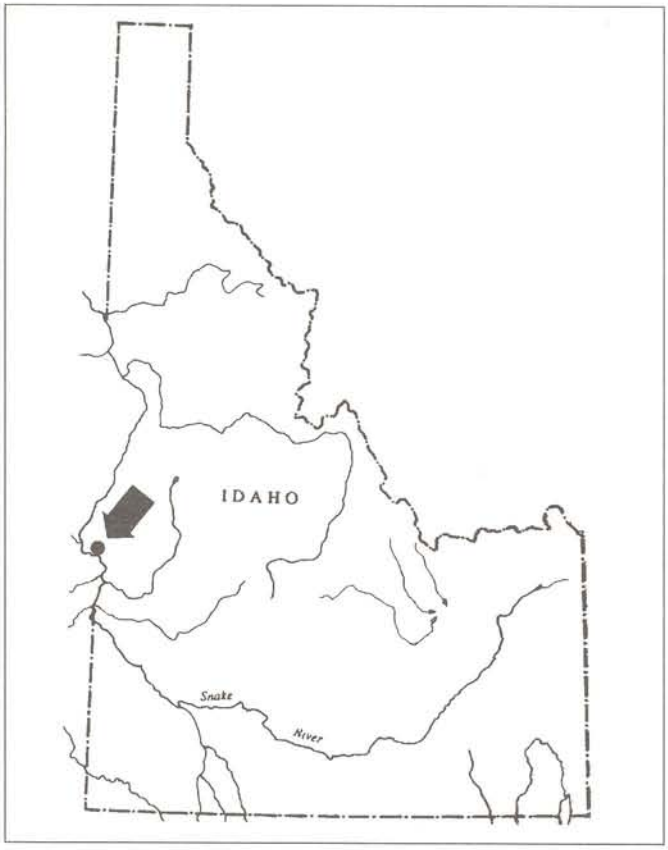

Figure 1. General location of Weiser where the obsidian turkey-tail biface described in this report was recovered.

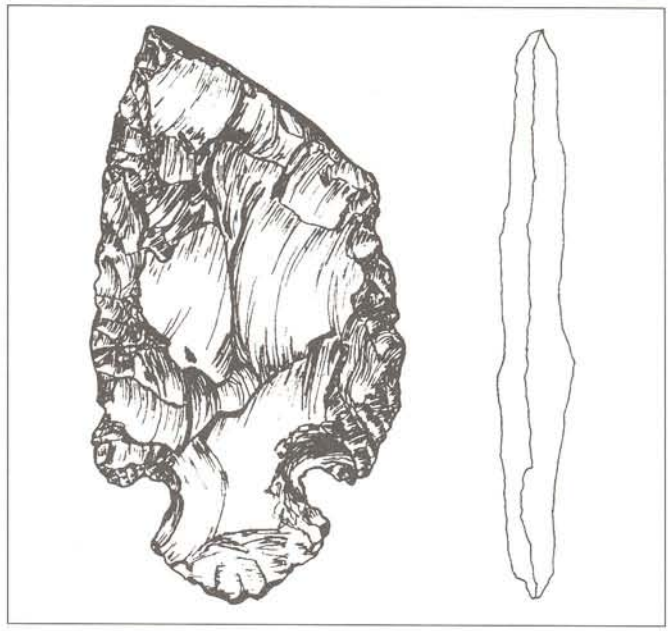

Figure 2. Illustration of the Waterhouse obsidian turkey-tail biface (10-WN-X-141). Scale 1:1.

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