UNIVERSITY OF COLORADO STUDIES / SERIES IN ANTHROPOLOGY NO. 17

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Archaeological Excavations in Dinosaur National Monument, Colorado-Utah, 1964-1965

Assembled by David A. Breternitz
Professor of Anthropology
University of Colorado



UNIVERSITY OF COLORADO PRESS / BOULDER, COLORADO, AUGUST 1970

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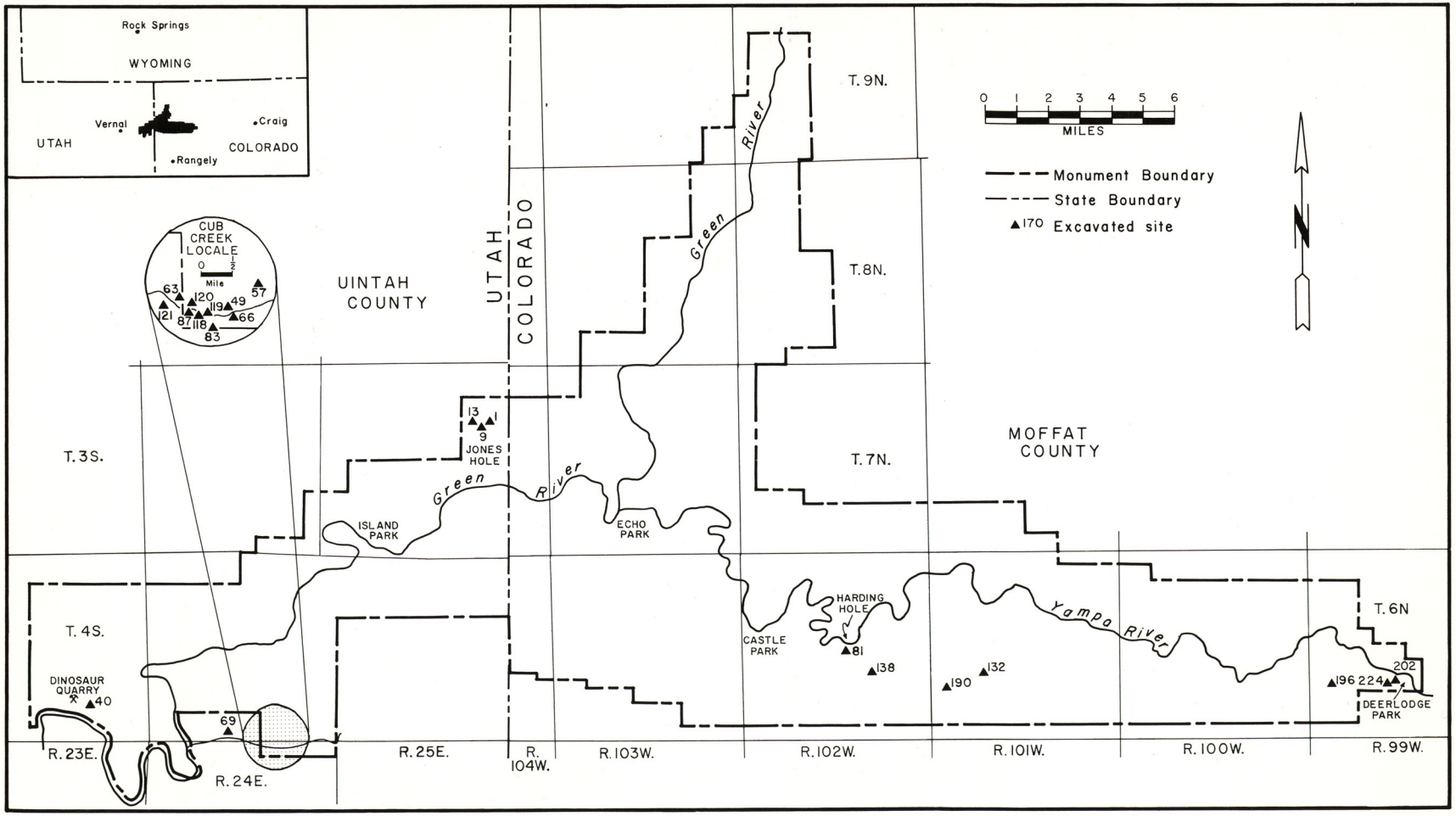


Figure 1. Map of Dinosaur National Monument showing locations of excavated sites.

INTRODUCTION

by
David A. Breternitz

The following site reports with summary and conclusions comprise the final report of a three-year archaeological project conducted in Dinosaur National Monument in 1963, 1964, and 1965. A contract was issued to the University of Colorado by the National Park Service to undertake an archaeological survey and compile an Archaeological Base Map for the Monument. Excavations were undertaken then at selected sites found during the survey. A report of the archaeological survey results has been prepared (Breternitz 1965), but there are no plans to formally publish this document. The site reports contained herein are based on excavations conducted during 1964 and 1965.

Contract negotiations between the University and the National Park Service were initiated by Dr. Wilfred D. Logan, Regional Archeologist, Midwest Region. All the NPS funds were expended in accordance with Memorandum of Agreement 14-10-0232-783 and Amendments Nos. 1, 2, and 3. The continued interest and encouragement of Dr. Logan and of Dr. John M. Corbett, Chief Archeologist, NPS, are sincerely acknowledged.

Financial assistance during the 1964 field season was also given to the project by the Dinosaur Nature Association, the University of Colorado Development Foundation, and the University Committee for the Coordination of Research. These were indeed timely and permitted us to continue full-scale field work when certain other funds were withdrawn.

Some of the site reports that follow were prepared by two groups of Undergraduate Trainees in Archaeology, a training program sponsored by the National Science Foundation (Grants GE-2364 and GE-8163). Dr. Robert H. Lister directed these projects. In 1963 each of the eight trainees spent four weeks participating in the archaeological survey. In 1964 these same eight trainees conducted excavations in Dinosaur for five weeks and then returned to the Boulder Campus to analyze the excavated material and write their site reports. The 1964 work was financed by the Dinosaur Nature Association, the University Development Foundation, and the Committee for the Coordination of Research. In 1965 the NSF again sponsored a group of six trainees who spent five weeks excavating in Dinosaur and then wrote up this work during the 1965 fall semester. Supervision of all field excavation and report writing was done under my direction.

Although some of the sites located by survey parties in 1963 were subsequently excavated, only those persons who actually participated in the 1964 and 1965 excavations are listed below. All are University of Colorado anthropology students, except where noted:

1964

Undergraduate Trainees

Duane C. Anderson
Francis A. Calabrese
Gloria Bauer Harrell
Thomas E. Higel
Calvin H. Jennings
Delmer E. Sanburg, Jr.
Sandra Cook Wade
William D. Wade

Crew Members

Carol Haloin Anderson
Donna L. Arndt
Thomas G. Bowen
Kay Weakley Fleming
Sara L. Hartley (volunteer; New York, N.Y.)
Philip J. Herne (Dinosaur, Colo.)
Larry L. Leach (graduate field assistant)
Donna F. Maronde
Sue McCabe Fairer
Stanley Rhine
Alan C. Swedlund
Donald J. Tegtman

1965

Undergraduate Trainees

Donna L. Arndt

Robert W. Biggs
Robert J. Burton
E. Donald Lageson
Donna F. Maronde
Alan C. Swedlund

Crew Members

Carol Haloin Anderson
Duane C. Anderson (graduate field assistant)
Terje G. Birkedal
Catherine E. Cross
James E. Hahn
Sara L. Hartley (New York, N.Y.)
Brian D. Hayden
Philip J. Herne (Dinosaur, Colo.)
Larry L. Leach (graduate field assistant)
Katherine M. Lee
James J. Peros
Marguerite Saslow (volunteer; Portland, Ore.)

Barbara B. Breternitz, who served as cook, and Cory D. and Susan L. Breternitz comprised the balance of the field excavation parties.

The splendid cooperation of Superintendents Earl M. Semingsen and Daniel J. Tobin, Jr., and their fine staffs made the field work not only possible, but enjoyable and highly productive. In particular, the assistance of Chief Naturalist Harold J. Brodrick and District Ranger James Todd contributed greatly to completion of the field work. Technicians Floyd Wilkins and James Adams were able to actively participate in field operations for short periods of time, and their assistance is sincerely appreciated.

Mr. Bus Hatch, Hatch River Expeditions, Vernal, Utah, provided complimentary river transportation into Harding Hole in 1965. This sizable contribution to the project is gratefully acknowledged.

Local residents of the Monument area were encouraging and cooperative. Their assistance contributed greatly to our success, specifically: Harry Aumiller, Rial Chew, Stanley Chew, Mr. and Mrs. George D. Chew, Mr. and Mrs. Dean Chew, Mrs. Olive Evans, Mr. and Mrs. R. Bruce MacLeod, Mrs. Charles Mantle, Crawford MacKnight, Mrs. Josephine Bassett Morris (deceased), and William Raper. In particular, the MacLeods have assisted us as well-informed, interested, and always encouraging friends.

Dr. J. Richard Ambler has given freely of his time and thoughts concerning the archaeology of the Uintah Basin and a special note of thanks is due to Dr. Jesse D. Jennings for his interest in the Dinosaur National Monument Project, from its inception to publication.

Site Excavation Reports

Twenty of the 22 sites excavated in 1964 and 1965 are reported herein. The location of these sites is shown in Figure 1, page iv. This map will serve as the location reference for all individual reports and is referred to in each report as "Frontispiece."

The list of sites, authors of reports, their academic level, and additional remarks are listed in Table 1. The site number designations are those of the University of Colorado Museum Archaeological Survey.

The site reports are basically descriptive. The Summary and Conclusions chapter at the end of this report attempts to summarize the large amount of descriptive material into meaningful temporal, spatial, and cultural units.

For several reasons the site reports are somewhat uneven in their content: The reports written earliest in the project did not have the benefit of as much cumulative archaeological knowledge of the area as did later investigations; these earliest reports were written more independently than later reports. No overall typological categories were used during the first excavation season, and some of the reports were written from someone else's notes—always a drawback. Finally, most of the reports represent first efforts at this activity by the authors; some of the students were only sophomores or juniors when they wrote their site reports.

The general climatic and environmental descriptions that most of the authors included in their original manuscripts have been deleted in favor of the more specific site situation data for the individual sites. A general picture of the environmental, geological, and climatic situation of the Dinosaur region may be found in Broderick (1964), Miller (1964), Murie and Penford (1955), Shelford (1963), and Untermann and Untermann (1954).

TABLE 1. List of excavated sites, authors, and remarks.

Site Name, Number, and Year Excavated	Author of Report	Class in College When Report Prepared	Remarks
Deluge Shelter, 42UN1, 1965	Robert J. Burton	Senior, Undergraduate Trainee	Testing results not included herein as subsequent extensive work in 1966 and 1967, conducted by Larry L. Leach, will be published separately
42UN9, 1965	Robert J. Burton	Senior, Undergraduate Trainee	Contained herein
42UN13, 1965	Robert J. Burton	Senior, Undergraduate Trainee	Contained herein
Swelter Shelter, 42UN40, 1964-65	Larry L. Leach	Graduate student	Contained herein
Wagon Run Site, 42UN49, 1965	Donna F. Maronde	Junior, Undergraduate Trainee	Contained herein
Wholeplace Village, 42UN57, 1965	Terje G. Birkedal and Brian D. Hayden	Sophomores	Contained herein
Boundary Village, 42UN63, 1964	Larry L. Leach	Graduate student	Master's Thesis—published separately as Univ. of Utah Anthro. Paper, No. 83, 1966
Arrowhead Point Campsite, 42UN66, 1964	Donna L. Arndt	Junior	Contained herein
Cub Creek Village, 42UN69, 1965	David A. Breternitz		Contained herein
Fremont Playhouse, 42UN83, 1965	Donna L. Arndt	Senior, Undergraduate Trainee	Contained herein
Sheep Shelter, 42UN87, 1965	Donna L. Arndt	Senior, Undergraduate Trainee	Contained herein
Burnt House Village, 42UN118, 1965	Robert W. Biggs	Junior, Undergraduate Trainee	Contained herein
The Dam Site, 42UN119, 1965	David A. Breternitz		Contained herein
The Ford Site, 42UN120, 1965	David A. Breternitz		Contained herein
MacLeod Site, 42UN121, 1965	David A. Breternitz		Contained herein
Serviceberry Shelter, 5MF81, 1965	E. Donald Lageson and Alan C. Swedlund	Sophomore and Junior, Undergraduate Trainees	Contained herein
5MF132, 1964	Sandra Cook Wade	Senior, Undergraduate Trainee	Contained herein
The Seeps Campsite, 5MF138, 1964	Delmer E. Sanburg, Jr.	Junior, Undergraduate Trainee	Contained herein
Baker Cabin Spring Site, 5MF190, 1964	Francis A. Calabrese	Junior, Undergraduate Trainee	Contained herein
Disappointment Circles, 5MF196, 1964	Gloria Bauer Harrell	Junior, Undergraduate Trainee	Contained herein
Deerlodge Midden, 5MF202, 1964	Duane C. Anderson and Thomas E. Higel	Seniors, Undergraduate Trainees	Contained herein
Lowell Spring Site, 5MF224, 1964	Calvin H. Jennings and William D. Wade	Seniors, Undergraduate Trainees	Contained herein

Categories of Excavated Sites

There is nothing sacred about the grouping of sites or the format of presentation of the individual sites, except that they seem to fit into four general categories. Within these categories, the order of presentation is determined on the basis of geographic proximity, the actual order in which the sites were dug, and cultural similarity.

Category I Sites—Open Dwelling Sites (Fremont)

These sites are described first because they have definite structures, are fairly well established culturally and temporally, and have the advantage of comparative work done by Ambler (1966) and Leach (1966). Wholeplace Village (42UN57) has a variety of structures and considerable artifactual material; Wagon Run (42UN49) also has Fremont structures; both sites are in proximity and comparable with Boundary Village (Leach 1966). Fremont Playhouse (42UN83) is included for good measure.

Category II Sites—Dwelling Sites with Surface Structures, Wholly or Partially Fremont

The MacLeod Site (42UN121) and Burnt House Village (42UN118) have both semi-subterranean and surface structures. The Dam Site (42UN119), Cub Creek Village (42UN69), and The Ford Site (42UN120) fit better in this category than any other.

Category III Sites—Open Campsites

These sites generally lack dwelling structures, and the material recovered is varied both in content and probably in temporal associations. The Lowell Spring Site (5MF 224) and Deerlodge Midden (5MF202) are "buried" occupation sites in Deerlodge Park; The Disappointment Circles (5MF196) are nearby, but still remain an enigma. Site 5MF132 has occupation evidence dating back to the Middle Prehistoric Period. The Baker Cabin Spring Site (5MF190) has evidence of possible Paleo-Indian Period occupation from the surface, historic Anglo occupation below the surface, and other time and cultural mixtures. The Seeps Campsite (5MF138) is a nondescript campsite. Arrowhead Point Campsite (42UN66) is included in this category rather than Category II because the dwelling areas are buried and there are actually no walls, only living floors.

Category IV—Rock Shelters

Swelter Shelter (42UN40) has the oldest assemblage of artifacts and the greatest stratigraphic depth of any of the sites reported herein. Serviceberry Shelter (5MF81) shows cultural affinities toward the west. Sheep Shelter (42UN87) is a storage and occupation site in close proximity to Fremont habitation sites. Sites 42UN9 and 42UN13 were subjected to testing operations only.

Deluge Shelter (42UN1) was only tested in 1965. Further extensive excavations were undertaken in 1966 and 1967 (see Leach 1967), and the detailed report of this work will be issued separately.

Table 2 lists all the named sites excavated in Dinosaur National Monument, whether described in this report or in previous publications.

Table 2. List of named excavated sites in Dinosaur National Monument.

Site	No.	Additional Reference
Arrowhead Point Campsite	42UN66	
Baker Cabin Spring Site	5MF190	
Boundary Village	42UN63	Leach 1965, 1966
Burnt House Village	42UN118	
Cub Creek Village	42UN69	
The Dam Site	42UN119	
Deerlodge Midden	5MF202	
Deluge Shelter	42UN1	Leach 1967
Disappointment Circles	5MF196	
Ely Caves	42UN45	Sheets 1969
The Ford Site	42UN120	
Fremont Playhouse	42UN83	
Hells Midden	5MF16	Lister 1951
Lowell Spring Site	5MF224	
The MacLeod Site	42UN121	
Mantle's Cave	5MF1	Burgh and Scoggin 1948
Marigold's Cave	5MF9	Dick MS
The Seeps Campsite	5MF138	
Serviceberry Shelter	5MF81	
Sheep Shelter	42UN87	
Swelter Shelter	42UN40	
Wagon Run Site	42UN49	
Wholeplace Village	42UN57	

Artifact Categories and Typology

The editing of the 20 site reports attempts to correlate the basic artifact types with the general descriptive categories used in the final report of the Archaeological Survey (Breternitz 1965). These artifact classifications are summarized below; the alternate artifact designations, when used, are correlated in Table 3 (see inside back cover).

Ground Stone Implements

Basically, ground stone implements are manos and metates, but this overall classification includes artifacts sometimes called handstones, grindings, milling stones, grinding slabs, etc.

Manos are classified as: (a) uniface, unshaped; (b) uniface, shaped; (c) biface, unshaped; (d) biface, shaped; and (e) wedge-shaped (more than one adjacent grinding surface). "The shaped manos are believed to have been used for corn grinding and they are usually quartzite while the unshaped varieties, thought to be used for seed processing, are more often sandstone" (Breternitz 1965: 108).

Metates are classified as: (a) slab, uniface; (b) basin, iface; and (c) trough.

Miscellaneous artifacts of ground stone are dealt with the individual authors, as necessary; these include lishing stones, shaft smoothers, and stone balls.

AKED STONE IMPLEMENTS

Projectile Points. The projectile points are classified unnotched and notched. The notched classification is ther broken down into stemmed, diagonal-notched, and e-notched categories. The types and range in form are icated in Figure 2. Individual examples of each type illustrated in the individual site reports.

Type 1, Unnotched Points

1A, Unnotched, round base, blade edges slightly convex, slight medial ridge, basal thinning. This type was established to accommodate a Cascade Point found at the Baker Cabin Spring Site. It was the only example of this type found.

1B, Unnotched, round base, triangular to parallel blade.

1C, Unnotched, round base, triangular blade, large; probably are, in fact, blades.

1D, Unnotched, straight base, parallel blade, usually larger and better made than Type 1E.

1E, Unnotched, straight base, parallel to triangular blade, small.

1F, Unnotched, concave base, triangular blade.

Type 2, Notched-stemmed Points

2A, Stemmed, straight base and stem, basal and

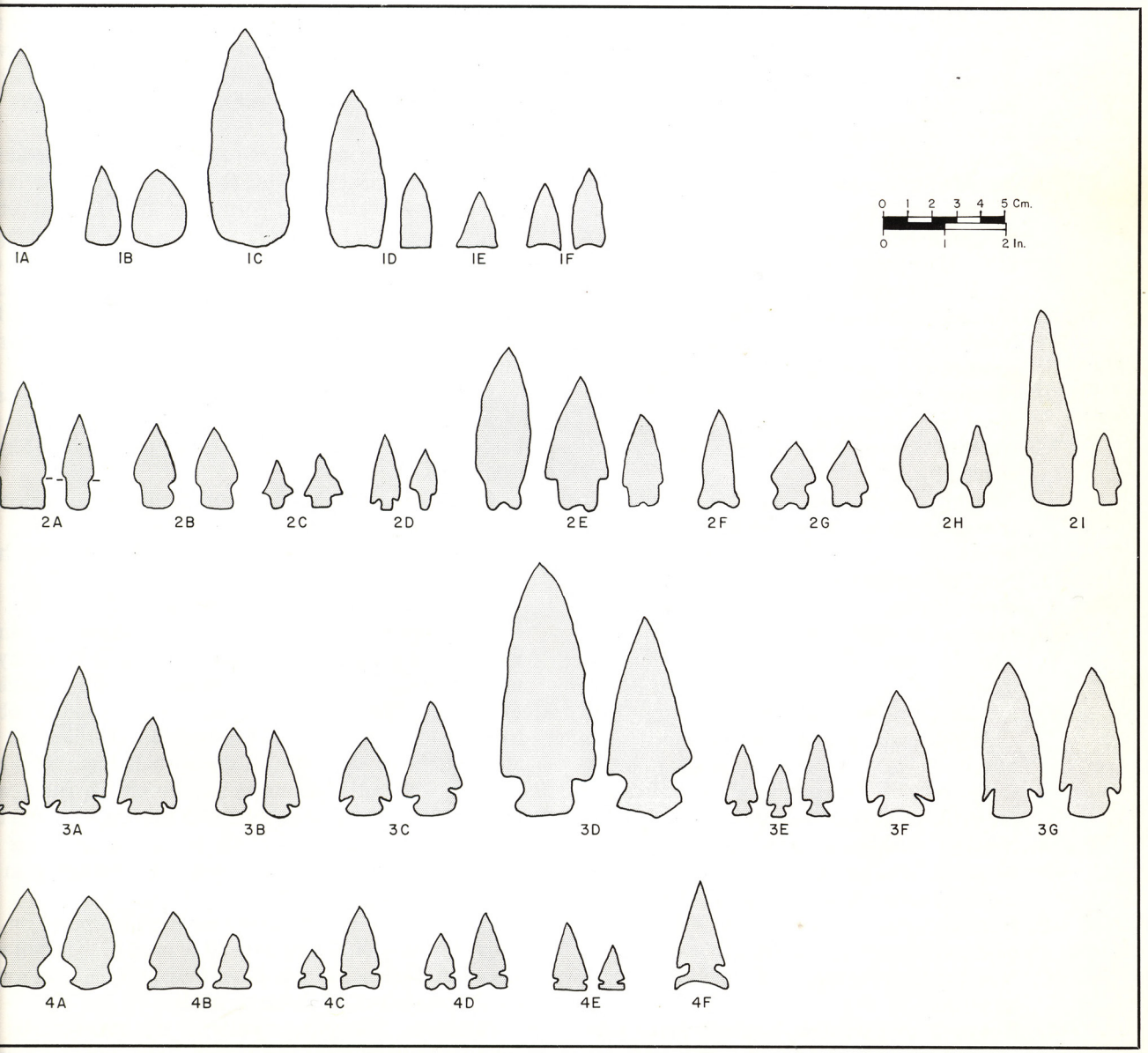


Figure 2. Projectile point types showing basic range in form.

stem edges ground, slight shoulder. This type includes a Scottsbluff point from Site 5MF132.

2B, Stemmed, straight to slightly convex base, straight stem, prominent shoulder, triangular blade.

2C, Stemmed, straight to convex base, narrow and generally straight stem, barbed, concave blade edges, small.

2D, Stemmed, straight to convex base, straight stem, shouldered or barbed, triangular blade, small.

2E, Stemmed, indented base, straight stem, definite shoulder, triangular blade. This type includes points commonly called McKean.

2F, Stemmed, indented base, straight stem (blade?) expanding at base into "fishtail" shape, parallel blade.

2G, Stemmed, indented base, expanding stem, triangular blade.

2H, Stemmed, contracting stem, slight to prominent shoulder.

2I, Stemmed, straight, rounded, and diagonal bases, straight to contracting stem, slight shoulder, triangular blade. The large versions of this type are probably blades and are thought to be a diagnostic of the Fremont Culture. They are in fact also listed under blades as (D) "Fremont blades."

Type 3, Notched—Diagonal-notched points

3A, Notched, straight base, expanding stem, diagonal notches, triangular blade.

3B, Notched, straight to convex base, single diagonal notch, triangular blade.

3C, Notched, convex base, diagonal notches, triangular blade.

3D, Notched, convex base, wide diagonal notches, triangular blade, large; may be blades or knives.

3E, Notched, straight to convex base, straight to expanding stem, diagonal notches, small.

3F, Notched, straight to convex base, slightly expanding stem, diagonal notches, triangular blade.

3G, Notched, straight to convex base, straight to slightly expanding stem, diagonal notches relatively "high" on stem, triangular blade. Could possibly be considered as a stemmed projectile point type also.

Type 4, Notched—Side-notched Points

4A, Notched, straight to convex base, shallow and wide side-notches, triangular blade.

4B, Notched, straight base as wide or wider than blade, side-notched, triangular blade.

4C, Notched, concave base, side-notched, triangular blade.

4D, Notched, concave and notched base, side-notched, triangular blade, relatively small.

4E, Notched, straight base, side-notched, triangular blade, relatively small.

4F, Notched, concave base wider than blade, "comma-shaped" side - notches, triangular blade.

Blades. Blades are distinguished from scrapers and knives on the basis of overall, bifacial chipping. The division of projectile points and blades is subjective in some cases and the distinction is somewhat arbitrary. Blades are categorized on the basis of shape, and usually the specimens are incomplete. They are typed as: (a) round ends, (b) pointed ends, (c) square ends, (d) "Fremont blades," and (e) stemmed blades. Specimens that do not fit into these broad categories and some complete specimens are treated separately and so described in the individual site reports.

Scrapers and Knives. These artifacts are treated together in the belief that knives can be used for scraping and that scrapers can be used for cutting. Ideally, scrapers have a unifacial retouched working edge, and knives are bifacially chipped. However, this idealized categorization does not hold up.

Scrapers are classified as: (a) worked flakes, retouched or worked percussion flakes; (b) "cobble" flake scrapers, percussion flakes with a portion of the original cobble cortex present and unaltered; (c) "spokeshave" scrapers on a flake, with a retouched, concave working area; (d) end scrapers, percussion flakes retouched or worked only at the end; and (e) keeled scrapers, on percussion flakes.

Knives are retouched flakes, and are sometimes termed "flake knives."

Drills and Gravers. Drills are classified on the basis of their bases: (a) bases completely retouched, and (b) bases unretouched or unaltered from the original percussion flake.

Flake gravers have a fine working tip on an otherwise unaltered percussion flake.

Notched Pebbles or Net Sinkers. These pebbles have been notched, by percussion, on two sides and are believed to have functioned as net sinkers.

Hammerstones. "In general, hammerstones are singularly undistinguishable; however, some distinction may be made regarding the type of cobble used for battering" (Breternitz 1965:129). They are classified as (a) cobble hammerstones, the ends and projections of otherwise unaltered cobbles show the effects of battering; (b) split cobbles, with battering marks usually on the ends; and, (c) naturally fractured cobbles with battering on the ends.

Choppers. The tools classified as choppers are all heavy, percussion-flaked, and show use or battering on the cutting-chopping edge.

Cores. Cores are distinguished from choppers on the basis of percussion flaking over all or most of their surfaces. They lack evidence of use, other than as a material source for the production of flakes or blades.

Ceramics. The vast majority of the pottery from the excavated sites in Dinosaur National Monument is Turner

Gray: Cisco Variety, a grayish, smoothed, calcite-tempered pottery associated with the Fremont Culture. Other types are usually described on the basis of their individual characteristics.

MISCELLANEOUS ARTIFACTS

These artifacts are described individually, as necessary. Included are such artifacts as:

Stone. Pendants, perforated disk, chipped discoid, beads, gaming piece, pipe.

Bone. Awls (a-articular head unaltered; b-articular head modified; c-articular head removed), bone pin, gaming pieces, beads, pendant, notched bone, drilled long bone.

Antler. Flaker.

Shell. Pendants.

Metal. Projectile point.

Various minerals and fossil specimens, sometimes altered as beads, are noted as they appear in the individual site reports. They include: belemnites, crinoid stems, calcite, hematite, petrified wood, and turitella shells.

CORRELATION CHART

Table 3 (pocket, inside back cover) lists the artifact categories briefly described above and correlates the various terminologies used by the individual authors of the site reports.

CATEGORY I SITES

OPEN DWELLING SITES (FREMONT)

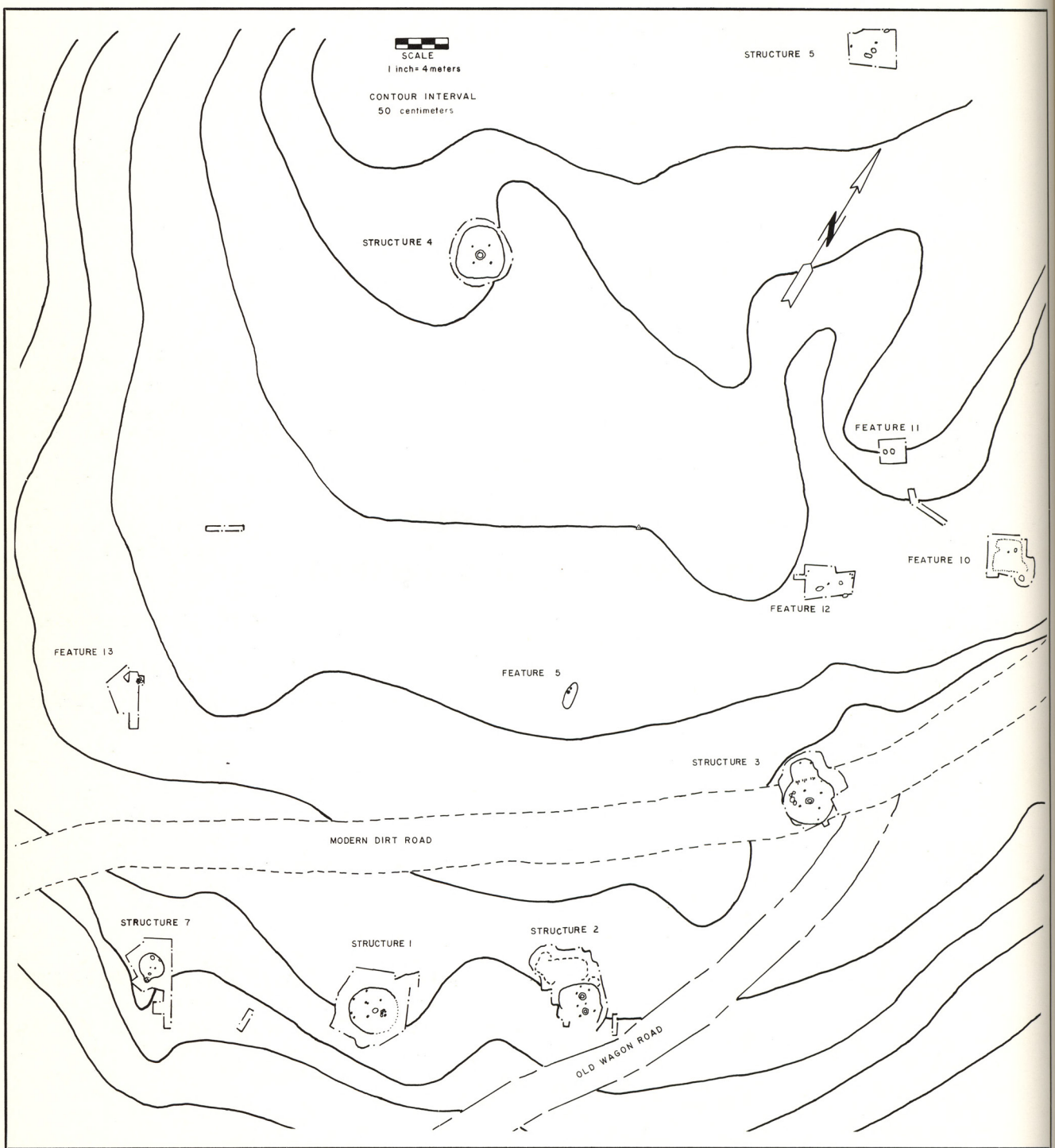


Figure 2. Site map of Wholeplace Village, 42UN57.

WHOLEPLACE VILLAGE, 42UN57

by
TERJE G. BIRKEDAL AND BRIAN D. HAYDEN

INTRODUCTION

Wholeplace Village is situated on private property within the Monument, and permission to excavate was granted by the owner, Mr. Harry Aumiller. During excavation, and when the extent of the site suddenly became apparent from test trenching, and when the authors looked upon the size of the site with despair, one of them said, "Welp, there's the village," and the other replied, "But the whole place?" And the site name was decided upon then.

SITE DESCRIPTION

Wholeplace Village, 42UN57, lies in the southwestern portion of Dinosaur National Monument in the Cub Creek drainage near the old Morris ranch and northwest of Jensen, Uintah County, Utah (Frontispiece). Its exact location is SW¼ of SW¼, Section 35, Township 4 South, Range 24 East.

The site lies on a low broad flat sandy rise that slopes down from the northwest to the southeast. A stream tributary of the Green River, Cub Creek, runs along the stream terrace near the base of the slope. There has been some erosion, but on the whole it is slight and concentrated near the base of the slope and on the sides. The rise is broad and low and about 200 m. wide at the site's position. The village appears concentrated at the lower portion of the hill, yet this is a distance of at least 150 m. (Fig. 2). The rise is probably formed in part from the alluvial outwash from the erosion of the 1,000-ft.-high Weber formation, which lies some 700 m. up the slope (Untermann and Untermann 1954).

Cub Creek drainage forms a flat-bottomed valley between a ridge of Weber sandstone and smaller ridges of Moenkopi, Chinle, and Navajo sandstone. Recent arroyo cutting by Cub Creek has created a deep narrow gully, but in prehistoric times the creek was probably level with the valley floor, affording an excellent source of water for horticulture (Leach 1966:88). No cultural material was found on the flood plain, which had been burned and plowed over (Breternitz 1965:25).

The vegetation of the site is typical of an arid lowland region and consists of sagebrush, greasewood, beeweed, Russian thistle, prickly pear cactus, saltbrush, and bladderpod; junipers are found only 150 m. away on the edges of the sandstone buttes.

Surface artifacts were concentrated near the lower portion of the rise and took the form of chips, sherds, firepits in the road that crosses the site, and charcoal-flecked earth. The thin top layer of soil is buff-colored sand, while the deeper layer is a darker red-brown sandy, hard soil, and in some areas is a white clayey soil. The soil contained in sub-surface structures is very dark and charcoal-flecked.

EXCAVATION PROCEDURE

Since the site covered such a broad area on the slope, and structure locations were unknown because of the uncertainty of the surface clues, an arbitrary test trenching method and a feature system was used in excavation. Five somewhat parallel trenches were run up the rise from near the base of its southern extent (Fig. 2). In addition, the north side of the road cut was faced up where dark soil appeared. North of the road, test trenches were dug wherever a likely concentration of cultural material occurred on the surface.

When a structure was located, the soil above it was taken off in arbitrary levels of approximately 5 cm. until the wall line became visible (Fig. 3). Then the remaining fill lying on and just above the floor was screened.

The 16 test trenches resulted in the location and at least partial excavation of 13 features, of which 7 were architectural structures. All excavations were completely backfilled.

ARCHITECTURE

All the structures in the site were basically circular shallow depressions with concave floors and postholes. Otherwise, there was no true architectural unity. However, the majority of the houses showed some preparation of a level floor surface, which resulted in a slight wall of the native

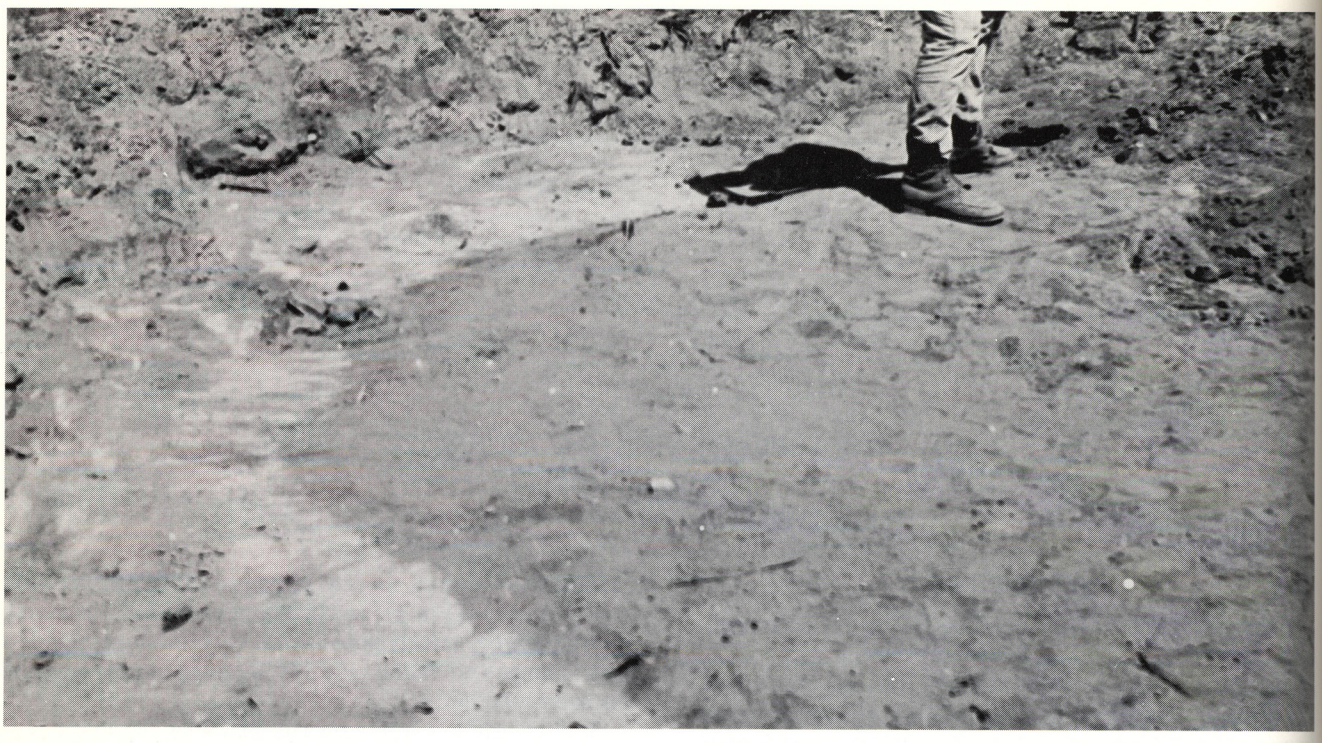


Figure 3. Excavation of Structure 1 showing whitish sterile soil and dark fill at edge of floor area being exposed by stripping operations.

soil caused by the original excavation into the slope. Most of the houses lacked a southern wall, for the original inhabitants did not have to dig in the slope edge to level the floor. In the structures that were in an almost level area, such as Structures 4 and 5, the wall appeared to have been no more than the limits of the slight depression cut by the builders in removing the thin layer of sandy topsoil and flora rooted in the soil, to establish a stable floor base.

The structure types were based only on internal differences since no superposition was apparent. Because of the great amount of internal variance, even in the structures of a specific type, an arbitrary classification, based on the nature of the hearths, was established. They are described in order of their discovery, and the depth is the maximum depth of the floor.

TYPE I STRUCTURES

These structures have basin-shaped unlined hearths.

Structure 1 (Fig. 4)

Dimensions. North-south diameter, 5.25 m.; east-west diameter, 5.40 m.; maximum depth, 0.60 m., from highest ground surface.

Walls. Walls were very low and ill-defined and were formed by the original leveling of native soil to level the structure floor. Definite walls were found only on the northwest side of the structure.

Floor. There was no evidence of floor preparation other than the original leveling of ground surface. The floor was compacted white clayey soil, and the same appeared beneath the floor. The maximum depth of the floor fill was 0.30 m. The floor was slightly concave, curving up near the north wall. Two burned beams lay on the floor, pointing toward the center of the structure.

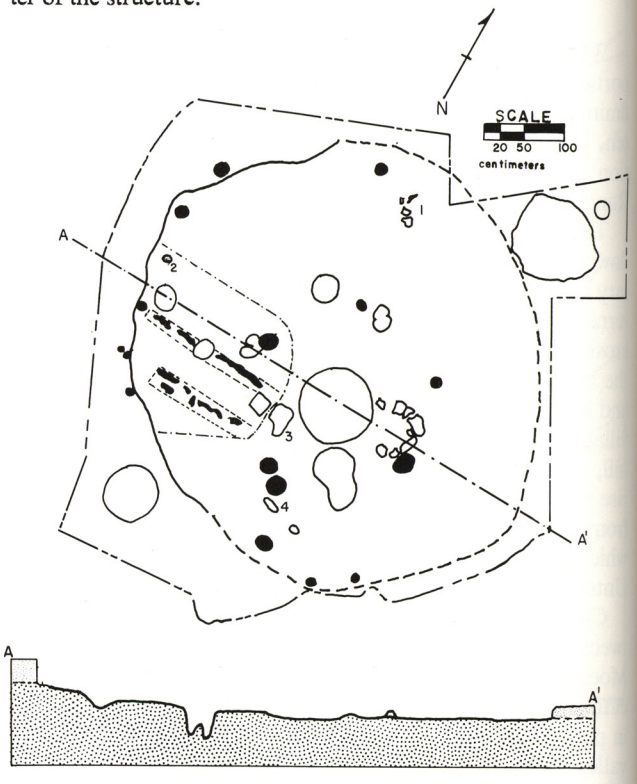


Figure 4. Structure 1, plan and cross-section. Floor contact artifacts: 1, teeth and bone fragments; 2, chopper; 3, metate; 4, mano.

Hearths. There were two hearths, one an unlined basin-shaped hearth (Hearth 1), and one rock-lined hearth (Hearth 2), both a bit off-center but directly next to each other. Both hearths were 8 cm. deep. There was no apparent superposition of the hearths and hence it was impossible to tell which was the older.

Pits. A large circular U-shaped ash pit, 24 cm. deep, showed secondary enlargement. Three smaller cists were located inside the structure, and two were found just outside the house on the north, one shallow and broad and the other small and shallow. A medium-sized shallow cist was outside the house to the south.

Postholes. Five major postholes encircled the structure, and the remains of the burned bases of six posts were found without holes in the same perimeter. These could have been used to prop up a sagging roof. The walls of the postholes were straight, indicating a vertical wall of jacal-type construction. Four main postholes formed a rectangular pattern around the basin hearth. Two of these main postholes showed secondary support from two to three touching postholes. There were also a few random postholes.

Floor Contact Material. These included deer teeth and jaw fragments, one chopper, one trough metate fragment, and one mano.

Remarks. Burned adobe and two large beams found in the structure suggested that the structure had burned. A large mound of red clay, 1.5 by 2.0 by 0.12 m., covering the burned beams, indicated wall and roof structure of jacal construction.

Structure 5 (Fig. 5)

Dimensions. This structure was very shallow and eroded. The only measurement obtained was the maximum depth of 10 cm. from the surface.

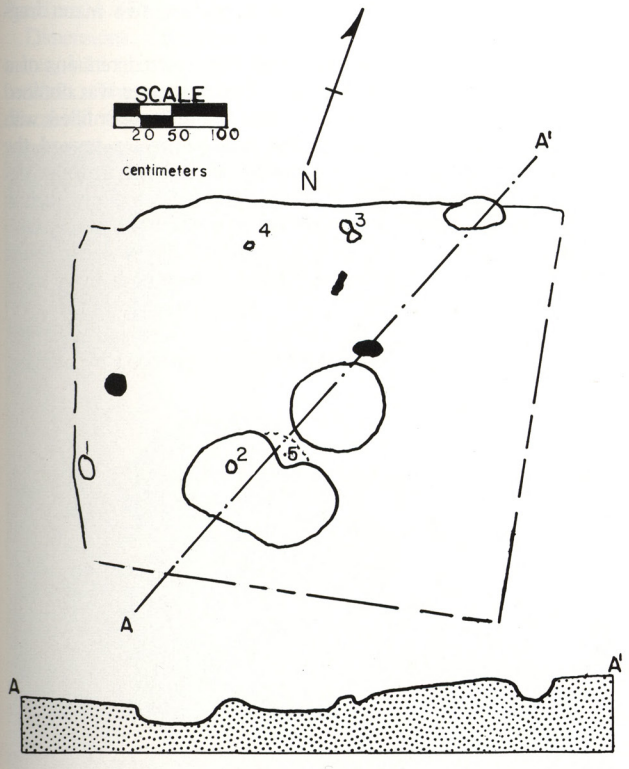


Figure 5. Structure 5, plan and cross-section. Floor contact artifacts: 1, metate fragment; 2, bifacial mano; 3, trough metate fragments; 4, hammerstone; 5, metate fragment.

Walls. The only indication of a wall was on the north side, created by the original excavation to expose the structure floor.

Floor. The floor was of compacted red-brown soil from aboriginal excavation, creating a shallow basin. The soil beneath was the same red-brown soil but darker.

Hearths. There were two hearths, one basin-shaped and the other rock-filled. The shallow basin-shaped hearth with charcoal and gray ash fill seemed to be nearer the center of the structure and was 10 cm. deep. The other fire pit was irregular and filled with rocks. It also had a fill of charcoal flecks and gray ash, and was 15 cm. deep and about 1 m. in diameter.

Pits. One rock-filled oblong cist, 15 cm. deep, was found in the north wall.

Postholes. The remains of only two postholes were found. These were dug vertically. One near the edge of the excavation was 35 cm. deep and the one near the basin hearth was only 5 cm. deep.

Floor Contact Material. Included were three fragmented metates, one mano, and one hammerstone.

Remarks. This structure sat on the flattest part of the rise and was also closest to the surface. Therefore, it was most subject to erosion by wind and rain wash. The structure also appeared to have been burned, for a beam measuring 25 by 10 cm. radiating out from the center of the house was found on the floor.

TYPE II STRUCTURES

Type II structures are characterized by their adobe-collared, adobe-sectioned hearths, which were centrally located. They have four centrally placed postholes surrounding the collared

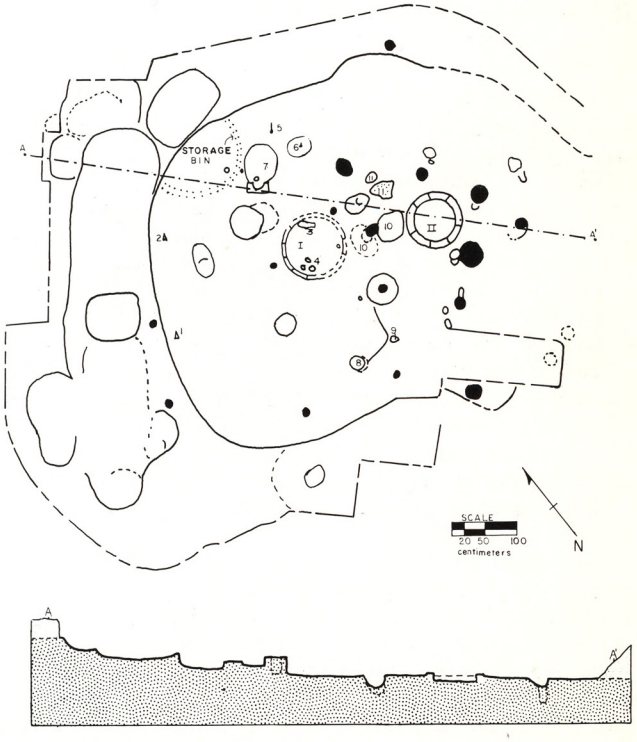


Figure 6. Structure 2, plan and cross-section. Floor contact artifacts: 1, projectile point; 2, blade tip; 3, burned wood; 4, stone lid, hammerstone, and mano fragment; 5, bone awl; 6, drill; 7, mano fragment; 8, large flake scraper; 9, chopper; 10, clay-covered ash pit; 11, pecked grinding rock with hammerstone.

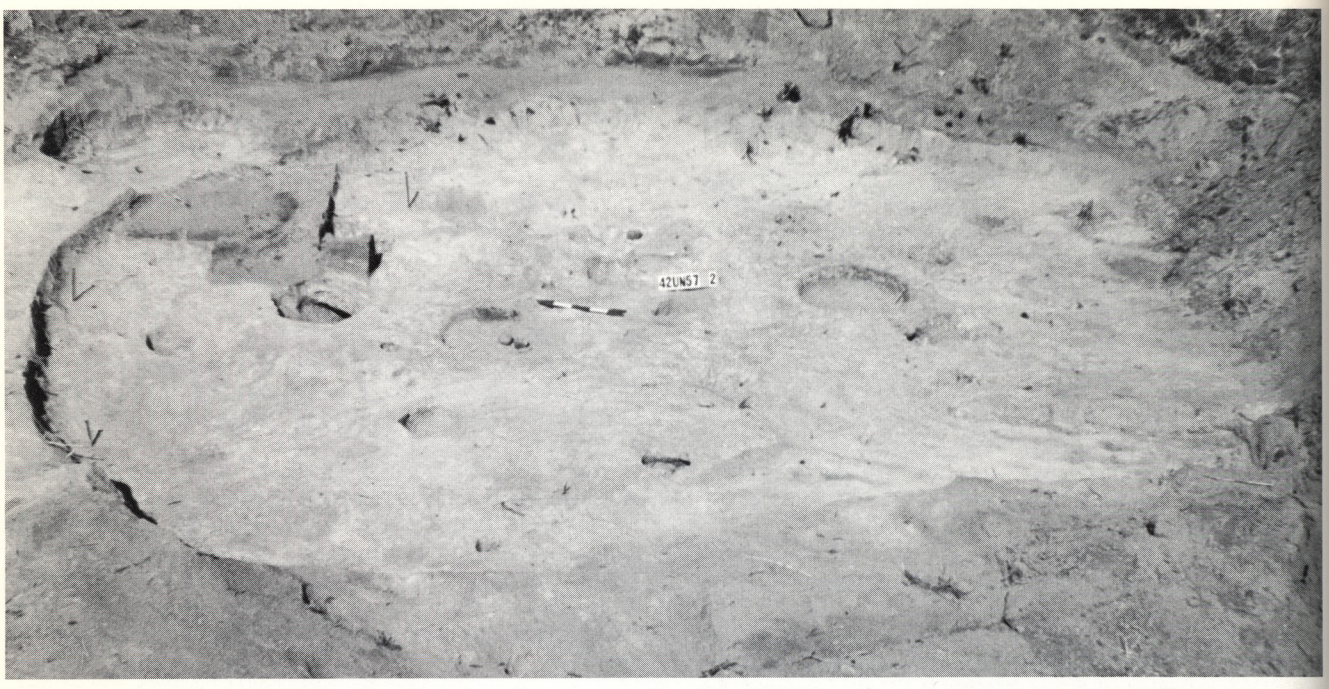


Figure 7. Structure 2 excavated. Note storage bin against "back" wall.

hearth. Secondary postholes were found along the perimeter in one house, but there were no clear indications in other houses. All structures had random postholes. These Type II structures correspond to Level II houses at Boundary Village (Leach 1966:92).

Structure 2 (Figs. 6-7)

Dimensions. North-south diameter, 5.5 m.; east-west diameter, 6.1 m.; maximum depth, 0.70 m. from present surface.

Walls. The walls were formed from the original leveling of the floor and were cut out of the native soil. They were curved and low, surrounding approximately one-half of the structure, but did not extend to the southern part of the house.

Floor. A slightly concave floor was made of compacted white clayey soil, which was also present beneath the floor.

Hearths. Two hearths were present. Hearth 1 appeared the older and was adobe-collared and 8 cm. deep with ashy fill and a piece of burned beam in its fill. It lay near the center of the house and showed heavy erosion or wear since very little of the collar remained. To the south was another, better preserved hearth that was also collared and of the same depth, but slightly smaller in diameter. This hearth also had pieces of charcoal and an ashy fill.

Pits. Eight pits of two types were found. Five pits were deep at one end and sloped up to the floor steeply. They ranged from 22 to 35 cm. in depth and from 25 to 50 cm. in diameter. One sealed ash pit had been covered by red clay when full and is included in this type. The second type was shallow, flat-bottomed, and bell-shaped. There were two such pits, 6 to 12 cm. deep and 25 to 30 cm. wide. Artifacts were found in both types of pits.

Postholes. Seven centrally located straight postholes, ranging from 22 to 44 cm. deep, were dug in shallow pits, and three were double postholes with smaller secondary postholes connected to them. These were arranged around the two hearths in a rough rectangular pattern. There were also four perimeter postholes and six randomly placed ones. One of these was near an ash pit and superimposed on a deeper and previous posthole.

Floor Contact Material. Found were one projectile point, one blade tip, one flake scraper, one drill, one chopper, one stone lid, one bone awl, two hammerstones, two mano fragments, and one grinding rock set in the floor.

Remarks. Against the north were the charred remains of a semicircular storage bin (Fig. 8). The perimeter was outlined by small upright burned sticks, and inside it was filled with gray ash. On the outside of the wall perimeter toward the northwest, about 0.50 m. away, were some large irregular depressions. There was also a straight-sided, shallow, slightly concave trench, attached to the north wall of the house, with somewhat raised walls of compacted white clayey earth. Next to it was a shallow pit separated from the house by a small earth ridge.

The burned sticks in the wicker storage bin and a burned beam in the structure indicate possible destruction by burning.



Figure 8.

Structure 3 (Fig. 9-10)

Dimensions. North-south, 6.50 m.; east-west, 6.80 m.; maximum depth, 0.80 m. from present surface.

Walls. Again, the walls resulted from the cutting down into the up-slope side; the north wall was particularly prominent.

Floor. The floor was slightly concave and of compacted sandy red soil. Underlying it was the same soil but darker in color (see Remarks section).

Hearth. The hearth was centrally located, adobe-collared, and 10 cm. deep. It was filled with gray ash and pieces of charcoal.

Pits. Directly next to the hearth lay a small circular U-shaped ash pit, 15 cm. deep, with a fill of gray ash. There were three large shallow basin-shaped pits to the left of the hearth. Also, an oblong shallow pit was almost connected to a large basin pit.

Postholes. There were four main supports surrounding the hearth, ranging from 40 to 50 cm. deep. Ten internal perimeter postholes, smaller than the main support holes, were uncovered. One of the main postholes had a secondary smaller posthole next to it, indicating extra support. Also in the oblong pit were a pair of postholes each 35 cm. deep.

Floor Contact Material. One blade, one piece of chipped sandstone, four hammerstones, two smoothing stones, two manos, two horn cores, and five bone awls were found.

Remarks. This house was the largest of all the structures and had a feature none of the others had. In its northern end was a roughly semicircular antechamber whose floor was higher than the rest of the structure, creating a semicircular low bench feature. The beginnings of this raised floor may have marked the limits of the original structure before it was extended into an antechamber.

Structure 4 (Fig. 11-12)

Dimensions. North-south diameter, 5.0 m.; east-west diameter, 4.25 m.; maximum depth, 0.15 m.

Walls. The walls were no more than the limits of the slight concavity of the floor.

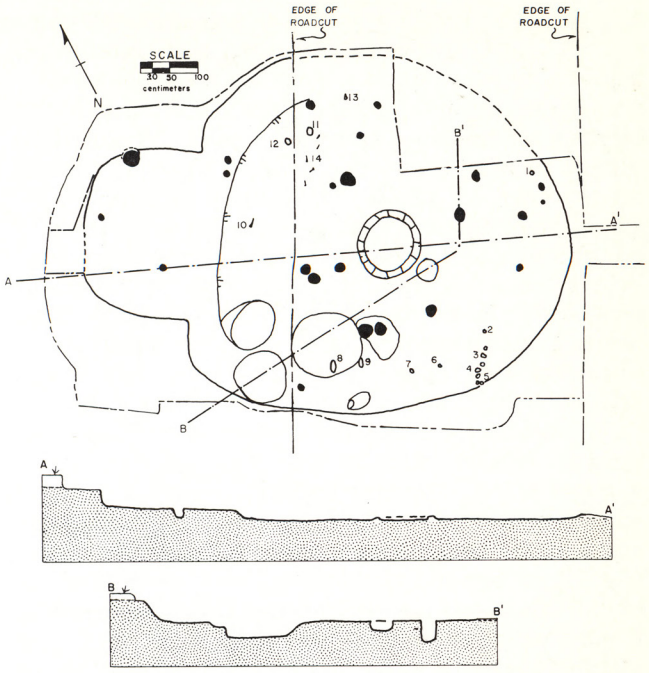


Figure 9. Structure 3, plan and cross-section. Floor contact artifacts: 1, 2, 3, 12, hammerstones; 4, 6, 7, 11, smoothed stones; 5, chipped sandstone; 8, 9, manos; 10, horn core; 13, blade; 14, bone awls.

Floor. The slightly concave floor was of hard compacted red sandy soil, while the soil beneath was the same, but darker in color.

Hearth. A circular adobe-collared hearth 20 cm. deep and heavily eroded was in the center of the structure.

Postholes. Four large centrally located postholes surrounded the hearth. They were rimmed and partially lined with bentonite, an impermeable clay that protected the posts against mois-



Figure 10. Structure 3 excavated. Note road in foreground and raised antechamber on far side of structure.

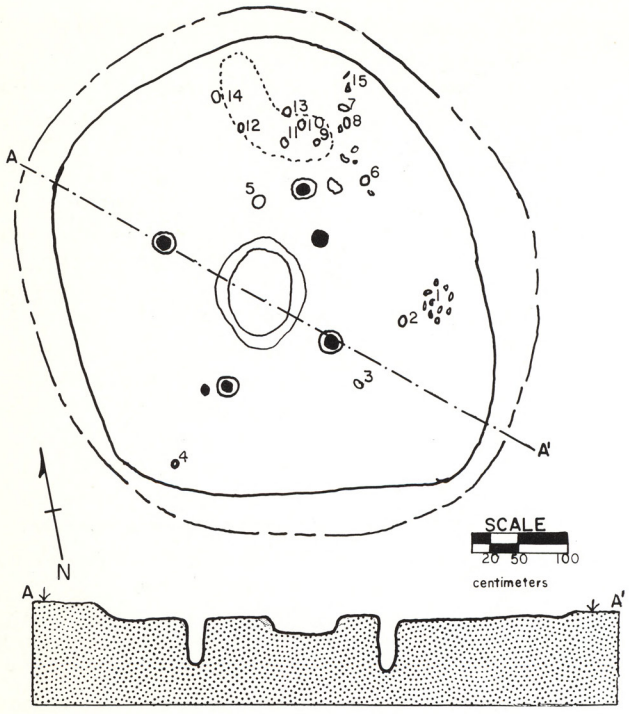


Figure 11. Structure 4, plan and cross-section. Floor contact artifacts: 1, pendant cache; 2, 11, 14, manos; 3, 6, 13, grinding stones; 4, stone ball; 5, 9, 10, 12, hammerstones; 7, cist cover; 8, smoothing stone; 15, bone and unnotched projectile point.

ture. The postholes ranged from 46 to 54 cm. deep. Only two smaller unlined random postholes were in the structure.

Pits. None.

Floor Contact Material. A pendant cache, one projectile point, one cist cover, four hammerstones, four manos, one smoothing stone, three fragmentary grinding stones, one stone ball, and one bone awl were found.

Remarks. In addition to the pendants, the interesting thing about this house was the bentonite-lined postholes. Also, the crescent-shaped rock pile at the north wall does not appear in any other structures at the site. All the rocks were burned and a dark ash covered them. Along with the unworked rocks were mano fragments, hammerstones, and pieces of cist cover.

TYPE III STRUCTURES

Type III structures were characterized by the lack of a hearth. The post arrangement was random, and the structure was smaller than any of the other houses.

Structure 7 (Fig. 13)

Dimensions. North-south diameter, 2.1 m.; east-west diameter, 2.6 m.; maximum depth, 0.25 m.

Walls. A very definite west wall, 15 cm. high, was well formed by digging down into the white clayey subsoil. The eastern walls were imprecise, grading into the subsoil.

Floor. A well-flattened, concave, compacted floor was made of the white clayey soil.

Hearth. None.

Pits. There were six pits including one slab-covered cist containing artifacts. The cist was 45 cm. deep and 55 cm. across. One other notable pit was 60 cm. deep, flat-bottomed,



Figure 12. Structure 4 excavated. Arrow indicates magnetic north and is 50 cm. long.

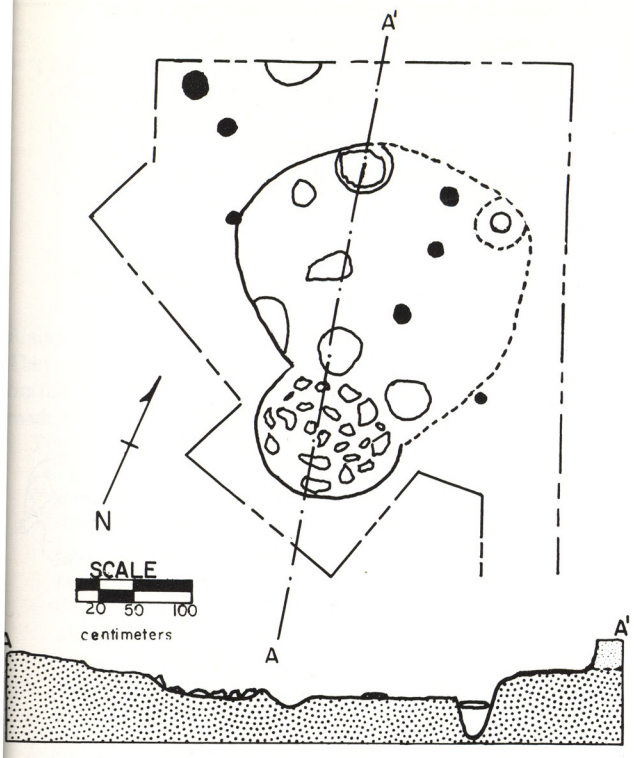


Figure 13. Structure 7, plan and cross-section.

and bell-shaped. Its bottom diameter was 45 cm., and the top diameter was 20 cm. Other pits ranged from 10 to 42 cm. deep and 25 to 40 cm. in diameter.

Postholes. Three postholes inside the structure were found in a rough north-south line. They ranged from 10 to 40 cm. deep and one had a raised clay collar and was filled with stones. Two postholes were just above the walls of the structure on the east and west sides. Two others, 30 and 35 cm. deep, were in a rough east-west line on the northwest side of the structure, about 0.5 m. away from the wall.

Floor Contact Material. One chopper, one mano fragment, and one hammerstone were found.

Remarks. The structure had a later intrusive firepit above part of the south wall. This large stone-lined firepit appeared very similar to those reported by Leach (1966) at Boundary Village. It could be associated with later occupation by Ute. This was the smallest structure at the site and the only one without a hearth; however, it had many cists and could have been a storage building.

ARCHITECTURAL SUMMARY

The structures at Wholeplace Village share certain architectural characteristics, giving them a strong, cohesive appearance. However, within this system there is great variation in the form of specialization and other variations on important features. All the structures have unprepared, slightly concave floors, formed by removing topsoil and vegetation or by creating a level floor on a slope. The walls are very low to nonexistent and are formed solely from the original leveling of the structure floor.

The upright postholes found in all the structures suggest a flat roof with vertical walls. Also, the burned adobe with post impressions from Structure 1 and the red adobe lying above its floor indicate a jacal-type roofing and siding. All the structures have a basic circular shape.

Other features show wide variance, but the principal feature that can be used in grouping structures is the form of the hearth. Type I houses have unlined basin-shaped hearths; Type II houses have adobe-collared hearths; Type III has no hearth at all. Within this typology, the structures show individual variations. For example, Structures 1 and 5 have the same type of uncollared hearths, yet Structure 1 has four large posts centrally located around the hearth and perimeter postholes; Structure 5 shows only two postholes, one inside the house, the other near the wall beyond the floor. Structure 1 has an additional rock-rimmed circular hearth; Structure 5 has a large, irregular rock-filled hearth beside the unlined basin hearth.

All the structures placed in the adobe-collared category, or Type II, have a four-post pattern around a centrally located hearth. In other aspects, they are dissimilar. Structure 2, for instance, has two adobe-collared hearths showing the building of another at a later date and the addition of two more centrally located posts. Also it has the remains of a storage bin against the north wall. Structure 3 has an antechamber attached, which is raised above the floor at the north wall. Structures 2 and 3 do have internal perimeter postholes in common along with random support postholes, which are also found in Structure 1, which is Type I. Structure 4, with an adobe-rimmed hearth, has a feature not found in any other structures: central postholes lined with bentonite. This structure also contains a burned crescent-shaped pile of stones on the floor.

Structure 7, the Type III structure, lacks any hearth. No pattern of postholes is observable. The structure is smaller than all the rest and has several pits in the floor, including a slab-covered cist. For these reasons it seems probable that it was used as a storage building.

None of the structures is superimposed. The structures with adobe-collared hearths, however, are very close in type to those that Leach (1966:98-104) describes as a later development, succeeding unlined basin hearths.

Pits vary in the individual structures. Flat-bottomed, bell-shaped, small oblong pits, small to large basin-shaped circular pits, and deep circular U-shaped pits are most common. There is no apparent correlation between pit types and structure types. Ash pits are not confined to any special type of structure other than those with no hearth.

The village appears to have been without a formalized settlement pattern, except for the almost complete occupation of the point of the rise near Cub Creek. Probably no more than five or six of the structures were occupied at any one time, along with their associated storage areas and pits.

MISCELLANEOUS ARCHITECTURE

Feature 10 is an irregular large square-shaped depression, 80 cm. deep at the maximum, with a small oblong pit, one small posthole, and a round basin ash pit 23 cm. deep outside its northern edge. Its floor is highly irregular, and its dimensions are 3.5 by 3.0 m.

Feature 11 appears to be an isolated basin firepit about 2 cm. deep and 85 cm. in diameter. Next to it is an ash

pit 20 cm. deep. This may be the remains of an old structure; however, because no other occupation evidence was found, it appears to be only an isolated hearth.

Next to Features 10 and 11 is Feature 12, which seems to be some sort of storage area. In it is a shallow irregular pit containing three postholes and a large cache of burned corn. Close to this cache location is a large, flat-bottomed, bell-shaped cist, 45 cm. deep. Beyond it, about 1 m. away, is a large, deep, white clay-line, U-shaped pit, 60 cm. deep. Next to it is another small posthole. There are some burned rocks and ash about 1.5 m. north of this last pit. Two smaller and shallower pits are in the same area. The floor is highly irregular, and there are no definite limits to the feature. The presence of four random postholes and some burned adobe suggest a lean-to affair over a storage or outdoor grinding area.

Six meters north of the road and 16 m. west of Structure 3 is a long oval pit, Feature 5, approximately 3.0 m. long, 0.80 m. wide, and 0.40 m. deep, appropriately called "the bathtub." Calcite-tempered Turner Gray: Cisco Variety sherds, a piece of shaped sandstone, chips, ash, and charcoal filled the pit. At one end, near the side of the pit, are two deep postholes. This pit could have been used as a trash pit, but the postholes seem to disqualify this idea.

Five meters north of the road there is an isolated rock-lined firepit, which is only 10 cm. down in the fill. Two of the stones are unidentifiable types of metate fragments. Another similar feature is intrusive in the wall of Structure 7 (Fig. 13). This last intrusion is a large circular rock-lined firepit, 60 cm. in diameter, in the structure's wall and some 25 cm. below the surface. These two firepits appear very similar to those found stratigraphically above the structures at Boundary Village (Leach 1965:89-90), and could indicate later occupation at the site by transient groups, probably Ute ancestors.

Lithic Materials Analysis

The Wholeplace Village lithic assemblage consisted of two main divisions: flaked stone and ground stone implements. There are several different functional groups under each of these two main divisions. The projectile points are typed under the classification system set up in Bretternitz (1965:109-122). In the following, all measurements are in centimeters and taken only on dimensions that are complete.

Flaked Stone Implements

Projectile Points

Type 1, Unnotched

Type 1B (Fig. 14A-C)

Total. Six.

Description. Basically triangular points with rounded bases. Two were percussion-flaked with one having a flake scar on both sides. Others showed random percussion and pressure flaking.

Materials. Chert (5), quartzite (1).

Provenience. Structure 2, fill (5); Structure 4, north wall, floor (1).

Dimensions. Length, all 2.7 cm.; width, 1.4 to 1.7 cm.; thickness, 0.3 to 0.4 cm.

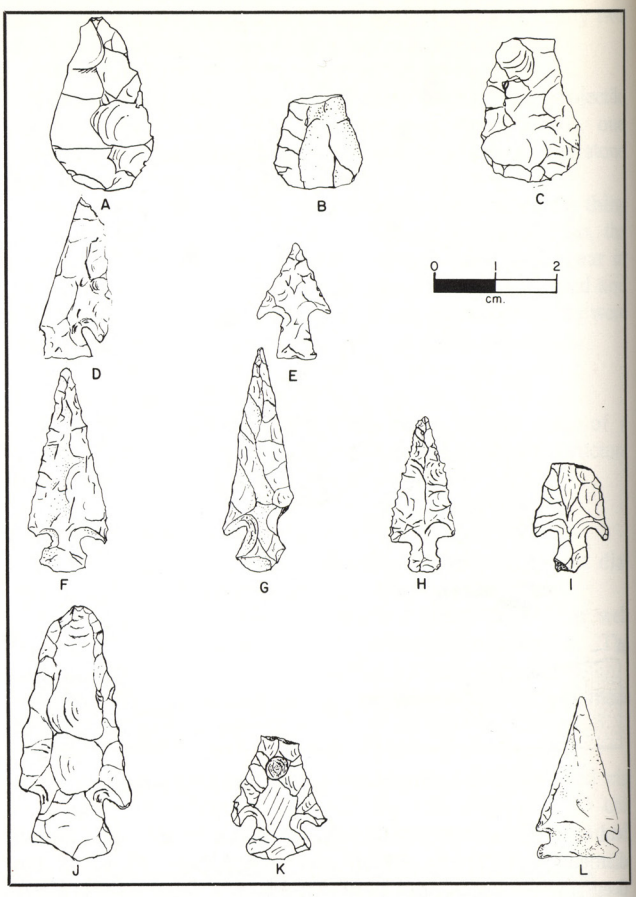


Figure 14. Projectile points. A-C, Type 1B; D, Type 3A; E, Type 2C; F-K, Type 3E; L, Type 4E.

Type 2, Stemmed

Type 2C (Fig. 14E)

Total. One.

Description. Stemmed, straight base, straight stem, barbed, straight to slightly concave blade margins.

Material. Quartzite.

Provenience. Structure 3, fill.

Dimensions. 1.8 by 1.2 by 0.3 cm.

Type 3, Diagonal-notched

Type 3A (Fig. 14D)

Total. One.

Description. Diagonal- or corner-notched, straight base, expanding stem, deep and narrow notches, convex blade margins.

Material. Chalcedony.

Provenience. Structure 2, fill.

Dimensions. 2.5 by 0.2 cm.

Type 3E (Fig. 14F-K)

Total. Six.

Description. Slender, triangular, corner-notched points with expanded stems, smaller than the shoulders; slightly pronounced to nearly no barbing. Four points were a combination of percussion and pressure flaking. Patination occurred on one point. One point was made from a flake, with the flake scar showing; two showed parallel flaking with one being slightly serrated.

Materials. Chert (4), quartz (2).

Provenience. Structure 1, fill (1); Structure 2, fill (3), floor (1); Structure 4, fill (1).

Dimensions. Length, 2.6 to 4.1 cm.; width, 1.1 to 1.8 cm.; thickness, 0.4 to 0.5 cm.

Type 4, Side-notched

Type 4E (Fig. 14L)

Total. One.

Description. Triangular blade with straight base, stem as wide as shoulders, random percussion and pressure flaking with secondary pressure flaking along edges. Flake scar on one side.

Material. Chert.

Provenience. Structure 2, fill.

Dimensions. 2.1 by 1.4 by 0.3 cm.

Blades—This category has a large variety of shapes and types. They are morphologically close to projectile points, but are on the whole too large to be used as such. Blades appear to be made for use as knives or as cutting tools.

Type 1 (Fig. 15B, G)

Total. Five.

Description. Small, unnotched, leaf-shaped, bifacially worked knives or blades with rounded bases. Some were only percussion-flaked; others showed a combination of percussion and pressure flaking. One showed parallel flaking on one side. Two had the original flake scars and all tended to be crude with irregular edges.

Material. Chert.

Provenience. Structure 2, fill (2); Structure 7, fill (1); surface (2).

Dimensions. Length, all 4.0 cm.; width, 1.8 to 2.9 cm.; thickness, 0.5 to 0.9 cm.

Type 2 (Fig. 15C)

Total. One.

Description. Unnotched, bifacially worked oval blade with round base and round blunt tip, finely worked by percussion and random pressure flaking with secondary sharpening of the edges by pressure flaking. The sides were relatively flat without a median line; the smooth edges show use.

Material. Chert.

Provenience. Structure 4, fill.

Dimensions. 6.0 by 2.4 by 0.6 cm.

Type 3 (Fig. 15D)

Total. One.

Description. This artifact is an example of a "Fremont blade," sometimes classified within the projectile point Type 2I in other reports. It was long, slender, triangular, and had a thick blade with a slightly defined straight stem. The base was relatively straight, the tip was ground smooth, and the cutting edges showed use.

Material. Tiger chert.

Provenience. Structure 3, fill.

Dimensions. 7.9 by 2.0 by 0.8 cm.

Type 4 (Fig. 15E)

Total. Two.

Description. Triangular blades with large straight-sided or very slightly expanded stems. Shoulders were wider than the stem and the base was almost straight yet showed some rounding. They were flat without a median ridge; percussion-flaked with secondary parallel pressure flaking along edges. None had tips intact and the thin nature indicated hafting.

Material. Chert.

Provenience. Structure 2, fill (1); surface near Structure 5(1).

Dimensions. Width, 3.1 and 3.4 cm.; thickness, 0.5 cm.

Type 5 (Fig. 16)

Total. One.

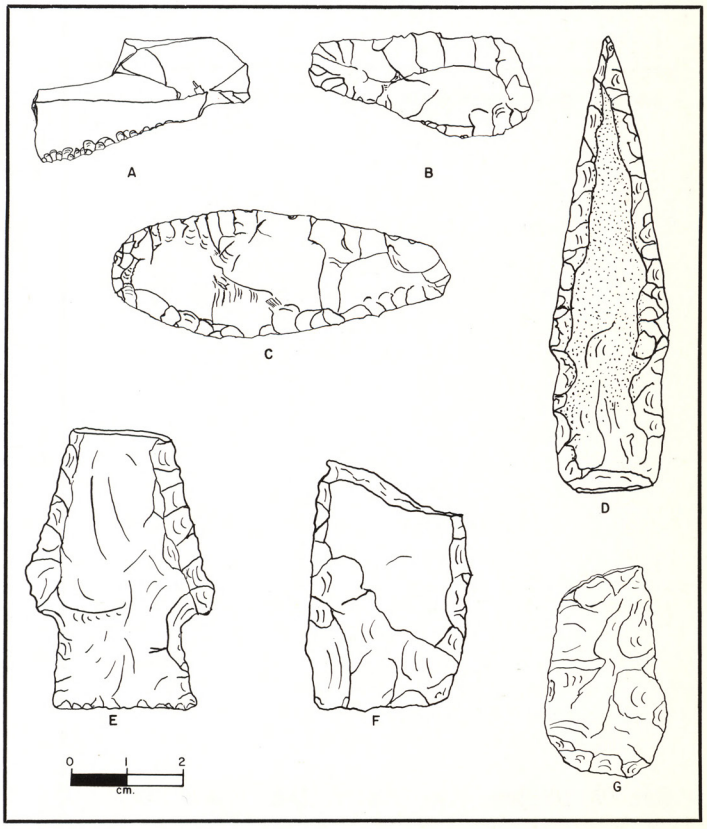


Figure 15. Flake knife and blades. A, flake knife; B, G, Type 1 blade; C, Type 2 blade; D, Type 3 blade; E, Type 4 blade; F, Type 6 blade.

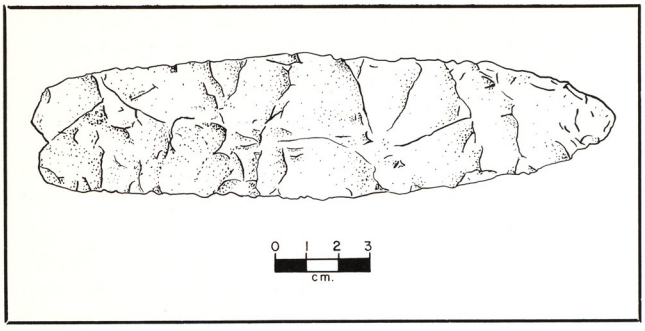


Figure 16. Type 5 Blade.

Description. Very large, thick, lancelot-shaped blade; the base was slightly convex with small nicks. Large, crude flaking indicated the use of percussion flaking in a random manner.
Material. Quartzite.
Provenience. Surface of Feature 13.
Dimensions. 18.9 by 4.4 by 1.4 cm.

Type 6 (Fig. 15F)
Total. One base fragment.
Description. The blade was straight-based with curved sides showing percussion flaking with parallel pressure flaking on edges.
Material. Chert.
Provenience. Structure 3, floor.

Flake Knives (Fig. 15A)
Total. Two.
Description. These flake knives were worked on one edge only of a crude flake, either bifacially or unifacially. One had a serrated edge indicating use as a saw. Parallel pressure flaking was used.
Material. Chert.
Provenience. Structure 1, fill (1); Structure 2, fill (1).
Dimensions. Length, 2.5 and 4.0 cm.; width, 2.0 and 2.1 cm.; thickness, 0.6 and 0.7 cm.

Scrapers—Scrapers are any artifacts that have been worked either bifacially or unifacially and used as a scraping implement.

Type 1, Bifacially Chipped Flake Scrapers (Fig. 17A-C)
Total. Nine.
Description. Although they showed a large variation, all were made from flakes; four showed percussion and five had random percussion and pressure flaking. Two were keeled and had fairly flat bottoms; four were flat, thin, and small; three were crude, large, and thick.
Materials. Chert (7), quartzite (2).
Provenience. Structure 1, fill (2); Structure 2, fill (1); Structure 3, fill (4); Feature 12, fill (1); Surface (1).
Dimensions. Length, 3.0 to 5.1 cm.; width, 1.8 to 4.0 cm.; thickness, 0.6 to 1.8 cm.

Type 2, Unifacially Chipped Flake Scrapers (Fig. 17D-F)
Total. Seven.
Description. Made from flakes with only one edge worked. Percussion flaking was used on six, random pressure flaking was used on one, and the original flake shape was retained on all the specimens.
Materials. Chert (6), quartzite (1).

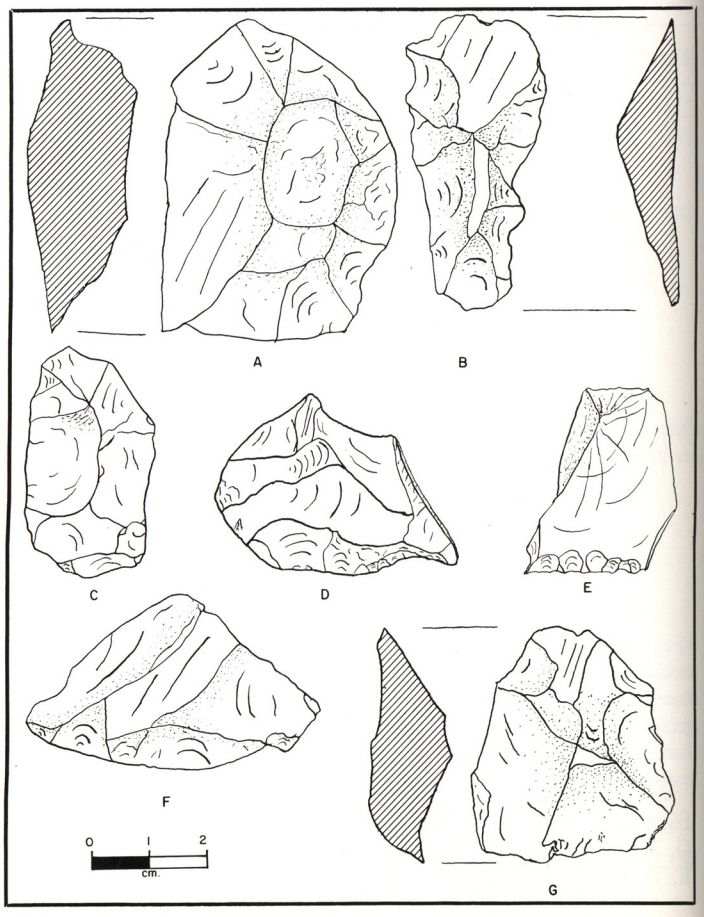


Figure 17. Scrapers. A-C, Type 1; D-F, Type 2; G, Type 3.

Provenience. Structure 1, fill (2); Structure 2, fill (1), floor (1); Feature 13, fill (1); Surface (2).
Dimensions. Length, 2.9 to 5.5 cm.; width, 2.0 to 4.7 cm.; thickness, 0.4 to 1.6 cm.

Type 3, Core Scrapers (Fig. 17G)
Total. One.
Description. Made from the original core as opposed to a flake origin; it was thick and formed by percussion.
Material. Chert.
Provenience. Surface.
Dimensions. 4.0 by 3.5 by 1.5 cm.

Drills

Type 1, Expanded Base (Fig. 18A-C)
Total. Seven.
Description. Percussion flaking with secondary pressure flaking on the shaft in a random to parallel pattern. However, two specimens showed only evidence of percussion flaking on the shaft in a random to parallel pattern. Howing. There was a large variation in base structure and shaft length. Those with only percussion flaking are crude flakes upon which a shaft has been formed.
Materials. Chert (6), chalcedony (1).
Provenience. Structure 2, fill (3); Structure 2, floor pit (1); Structure 3, fill (1); Surface near Feature 13 (1); Surface (1).
Dimensions. Length, 4.6 to 5.1 cm.; width, 1.6 to 3.5 cm.; thickness, 0.4 to 1.5 cm.

Type 2, Unexpanded Base (Fig. 18D).
Total. One.
Description. The drill had a plain shaft, was slightly wider at the base, and was made by percussion with some random pressure flaking.
Material. Chalcedony.
Provenience. Structure 1, fill.
Dimensions. 4.1 by 1.4 by 0.9 cm.

Choppers
Total. Three.
Description. The large, irregular, bifacially percussion-flaked choppers were made from large cores, with the original cortex still present. One had a battering surface and flaked surface, plus a flaked surface for use as both a chopper and a hammerstone.
Materials. Chert stream cobble (2), quartz cobble (1).
Provenience. Structure 1, floor (1); Structure 2, floor (1); Structure 7, rock-covered cist (1).
Dimensions. Length, 7.6 to 8.2 cm.; width, 6.5 to 8.6 cm.; thickness, 2.5 to 5.0 cm.

Hammerstones (Fig. 19 A-B)
Total. 14.

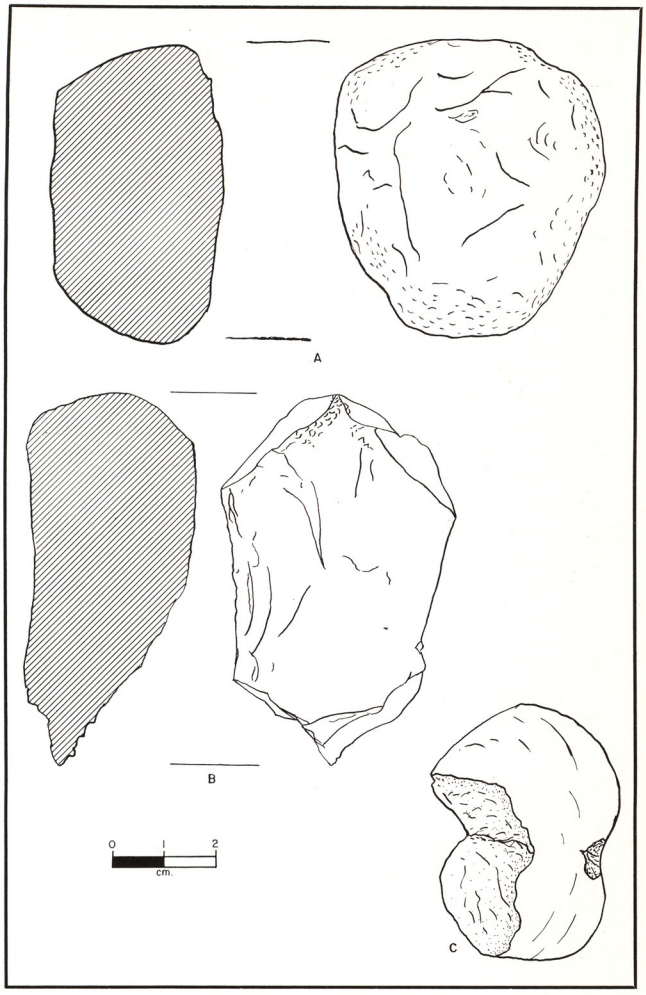


Figure 19. Hammerstones and net sinker. A-B, hammerstones; C, net sinker.

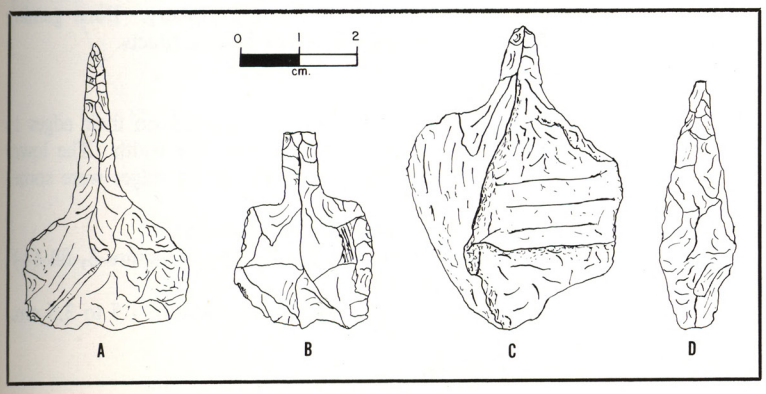


Figure 18. Drills. A-C, Type 1 drills; D, Type 2 drill.

Description. Large, irregular, discoidal cobbles that have pitted battering surfaces causing most to be rounded. One specimen has a pointed striking surface at one end.
Materials. Quartz cobble (13), chert cobble (1).
Provenience. Common to all the structures, both in the fill and on the floors, with some found on the surface of the site.
Dimensions. Length, 3.6 to 5.5 cm.; width, 3.6 to 4.3 cm.; thickness, 2.1 to 3.8 cm.

Cores
Total. Four.
Description. Cobbles used as sources of flakes, showing large random flaking by percussion. Some retained part of the original cobble surface; some were perhaps used as small choppers.
Material. Chert.
Provenience. Structure 1, fill (2); Structure 3, fill (1); Surface near Structure 5 (1).
Dimensions. Length, 5.1 to 6.2 cm.; width, 3.0 to 5.2 cm.; thickness, 2.0 to 2.1 cm.

Fish Net Sinker (Fig. 19C)
Total. One.
Description. Small stream cobble notched by percussion flaking on two sides to make a possible attachment to a fish net.
Material. Chert stream cobble.
Provenience. Structure 2, fill.
Dimensions. 4.9 by 3.6 by 2.4 cm.

Ground Stone Implements

Metates—Metates conform to two categories: parallel-sided trough metates, which we associate with maize agriculture, and simple, flat, seed-grinding milling stones.

Type 1, Trough Metates (Fig. 20)
Total. Two.
Description. Parallel-sided trough metates that were pecked on the grinding surface and also shaped on the outside.
Material. Fine-grained sandstone.
Provenience. Structure 1, floor (1); Structure 5, floor (1).
Dimensions. Length, 41.5 and 58.0 cm.; width, 25.5 and 29.5 cm.; thickness, 9.6 and 10.0 cm.

Type 2, Milling Stone
Total. One.
Description. Large thick block of stone, unshaped, one face pecked in a circular fashion to make a grinding surface. The bottom had some random pecking marks.
Material. Fine-grained sandstone.
Provenience. Structure 2, set into floor.
Dimensions. 31.4 by 25.3 by 8.2 cm.

Manos
Type 1, Unifacially Shaped Manos
Type 1A, Loaf-shaped manos (Fig. 21A)
Total. Four.
Description. Loaf-shaped and unifacial.
Material. Fine-grained sandstone.
Provenience. Structure 3, floor (2); Structure 5, floor (1); Surface (1).
Dimensions. Length, 17.7 to 18.7 cm.; width, 6.7 to 8.0 cm.; thickness, 8.0 to 9.6 cm.

Type 1B, Oblong, rounded manos (Fig. 22A)
Total. Three.
Description. These were not nearly as thick as the loaf-shaped Type 1A manos, but were usually well shaped with an oval cross-section.
Material. Fine-grained sandstone.
Provenience. Structure 1, fill (1); Structure 4, floor (1); Structure 7, cist (1).

Type 1C, Wedge-shaped Manos (Fig. 22C)
Total. One.
Description. Low and rounded with a converging grinding surface forming a sharp median ridge; also shaped.
Material. Fine-grained sandstone.
Provenience. Structure 4, floor (1).
Dimensions. 22(?) by 6.7 by 6.1 cm.

Type 2, Unifacial Unshaped Manos
Type 2A, Unifacial unshaped oblong manos (Fig. 22B)
Total. Two.
Description. Oblong unshaped river cobbles used unifacially as manos.
Material. Fine-grained sandstone.
Provenience. Structure 3, floor (1); Structure 4, floor (1).
Dimensions. Length, 12.4 and 13.2 cm.; width, 6.3 and 9.6 cm.; thickness, 4.5 and 6.0 cm.

Type 2B, Unifacial unshaped circular mano (Fig. 22D)
Total. One.
Description. Round, flat, palm-sized river cobble with one grinding surface.
Material. Fine-grained sandstone.
Provenience. Structure 4, floor.
Dimensions. Diameter, 8.0 cm.; thickness, 3.5 cm.

Smoothing Stones
Total. Four.
Description. These small, unshaped stream pebbles or sandstone pieces were utilized for polishing or fine grinding. The stream pebbles showed a smooth area of wear, and one sandstone specimen had longitudinal striations.
Materials. Gneiss (2), sandstone (2).
Provenience. Structure 1, fill (1); Structure 3, floor (2); Structure 4, floor (1).
Dimensions. Length, 6.2 to 8.8 cm.; width, 3.0 to 5.2 cm.; thickness, 1.9 to 3.6 cm.

Stone Balls
Total. One.
Description. Generally round, formed by pecking; an example of a common type of Fremont artifact.
Material. Fine-grained sandstone.
Provenience. Structure 4, floor.
Dimensions. Maximum diameter, 5.8 cm.; minimum diameter, 5.2 cm.

Gaming Pieces—These artifacts were made of both stone and bone, and according to Wormington (1955:72) they are a common artifact of the Northern Periphery. Bone gaming pieces are also discussed with other bone artifacts.

Type 1, Trapezoidal (Fig. 23A-B)
Total. Three.
Description. Fine-grained and ground on their edges to make a flat trapezoid longer than the width. The lower margins were straight, while the upper edges were somewhat rounded.
Material. Gray, fine-grained sandstone.
Provenience. Structure 2, fill (1); Structure 3, fill (1); Structure 4, fill (1).
Dimensions. Length, all 5.0 cm.; width, 1.5 to 3.5 cm.; thickness, 0.5 to 0.9 cm.

Type 2, Circular

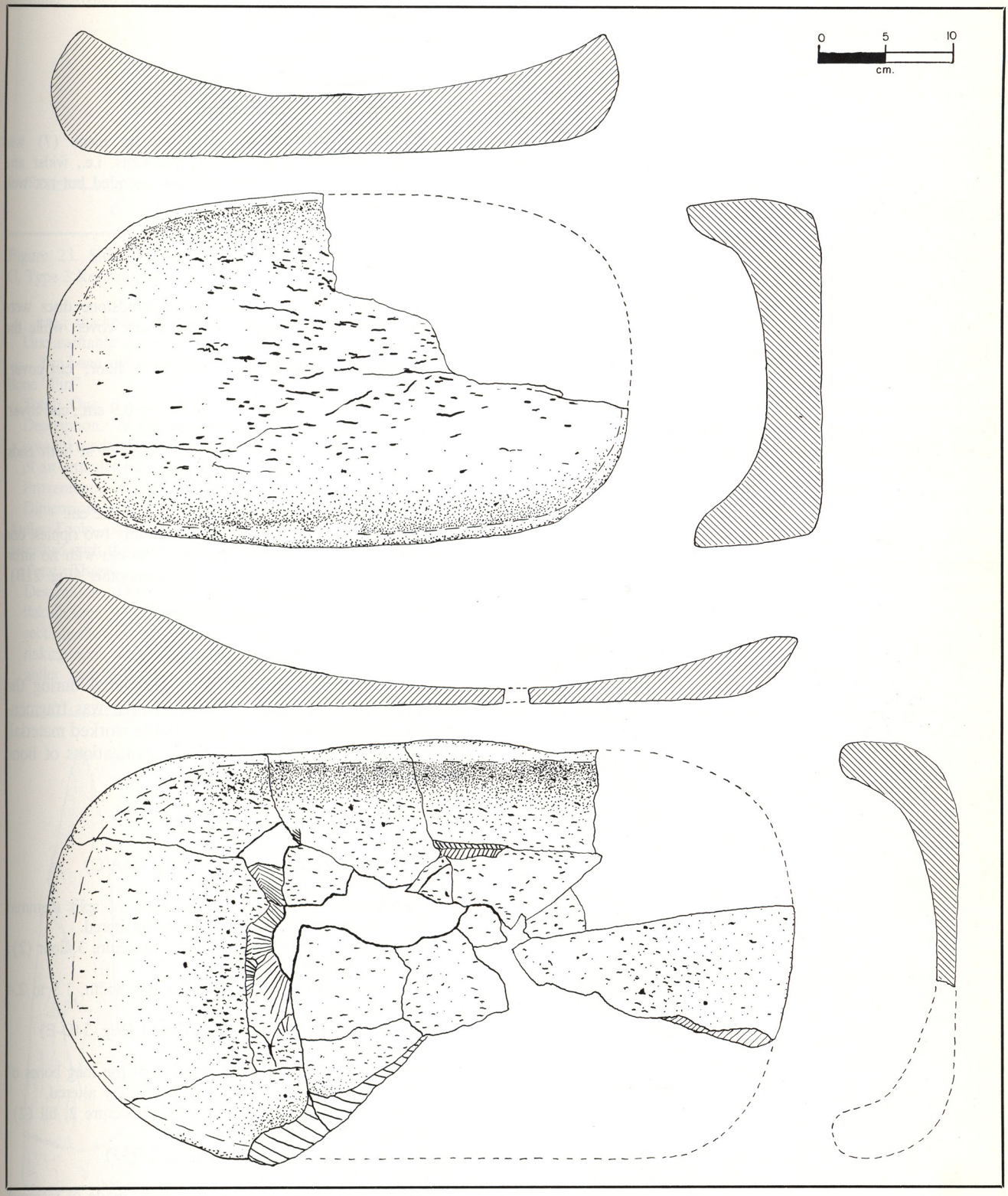


Figure 20. Metates, Type 1.

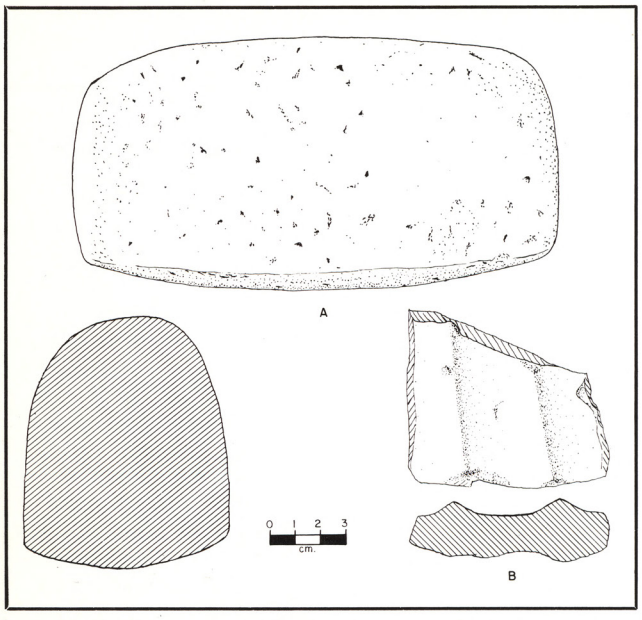


Figure 21. Mano and rippled sandstone object. A, Type 1A mano; B, rippled sandstone—use unknown.

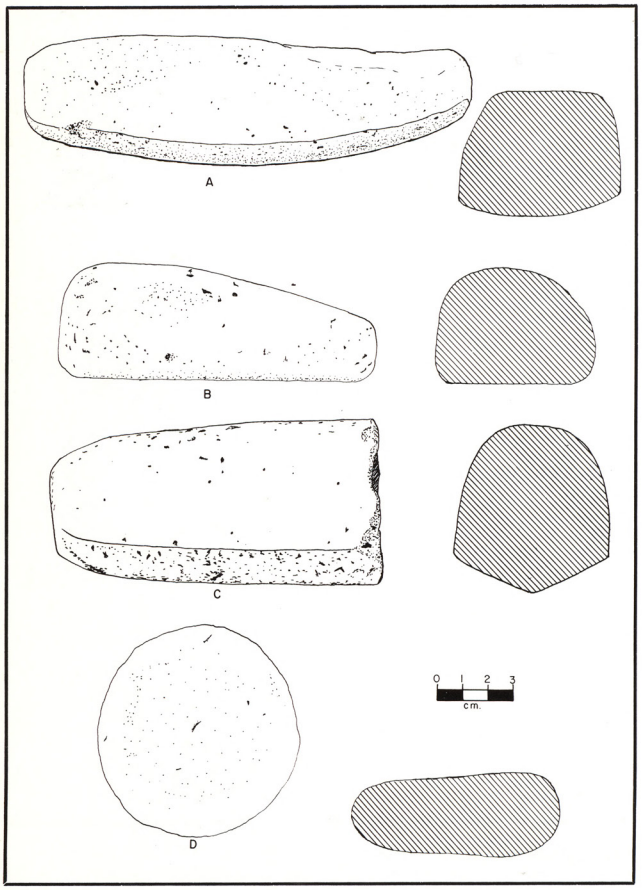


Figure 22. Manos. A, Type 1B; B, Type 2A; C, Type 1C; D, Type 2B.

Total. One.
Description. Circular and flat with a ground edge. The circular form was extrapolated from a heavily patinated fragment.
Material. Calcite.
Provenience. Structure 3, fill.
Dimensions, 2.8 by 1.6 by 0.4 cm.

Type 3, Rectangular (Fig. 23C)
Total. One.
Description. This rectangular gaming piece (?) was shaped similarly to plain bone pendants, i.e., wider and thicker at one end. The face was rounded but not well formed.
Material. Calcite.
Provenience. Structure 3, fill.
Dimensions. 2.4 by 1.2 by 0.6 cm.

Miscellaneous

1. Two fine-grained circular-shaped sandstone discs were found. The larger appeared to be a cist cover, while the smaller was probably a pot cover.
Provenience. Pot cover: Structure 2, floor; cist cover: Structure 4, floor.
Dimensions. Pot cover, 7.2 by 6.6 by 0.9 cm.; cist cover, 19.0 cm. in diameter, 1.0 cm. thick.
2. One cylindrical object of calcite, broken at both ends, striated longitudinally, semi-shaped.
Provenience. Structure 3, fill.
Dimensions. Length, 8.4 cm.; diameter, 4.2 cm.
3. One piece of rippled sandstone had only two ripples, one on each side. The surface was very smooth with no striations apparent. It was possibly a shaft smoother (Fig. 21B).
Provenience. Structure 3, fill.
Dimensions. 7.5 by 6.1 by 2.1 cm.

Bone Analysis

Over 400 pieces of bone were recovered during the excavation of Wholeplace Village. Much was fragmentary and unidentifiable. The identifiable worked material, however, came largely under the classifications of bone implements and bone ornaments.

Bone Implements

Bone Awls

Type 1, Unaltered Articular Head (Fig. 24A-C)
Total. Four.
Description. These awls were made of split mammal long bones with the articular heads unaltered.
Provenience. Structure 1, fill (1); Structure 3, floor (2); Structure 4, floor (1).
Dimensions. Length, 5.8 to 8.4 cm.; width, 1.5 to 2.4 cm.; thickness, 1.1 to 1.4 cm.

Type 2, Articular Head Partially Altered (Fig. 24D-E)
Total. Six.
Description. In addition to splitting of the long bones of mammals, the articular head was partially altered.
Provenience. Structure 1, fill (1); Structure 2, fill (2); Structure 5, floor (3).

Type 3, Articular Head Missing (Fig. 24F-J)
Total. Four.
Description. These splinter bone awls, made of mammal long bone, had the articular head removed.
Provenience. Structure 2, fill (1), floor (1); Structure 3, floor (2).
Dimensions. Length, 4.1 to 7.1 cm.; width, 1.0 to 1.2

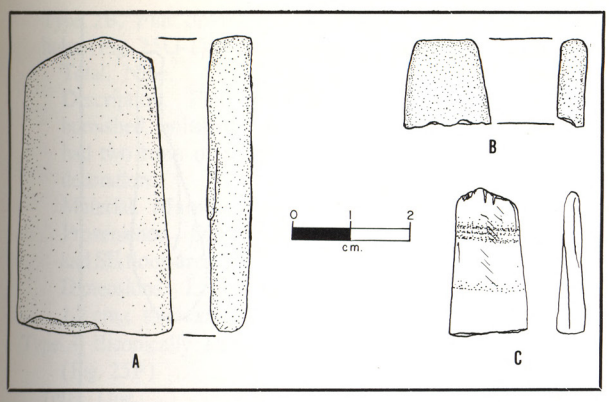


Figure 23. Stone gaming pieces. A-B, Type 1 Trapezoidal; C, Type 3 Rectangular.

cm.; thickness, 0.4 to 0.6 cm.

Unclassifiable

Ten bone awls were too fragmentary for classification.

Bone "Pin"

Total. One.

Description. A mammal rib, with a blunted end, was supposedly used as a "pin." This was weathered with a remnant of an articular head.

Provenience. Structure 2, fill.

Dimensions. 13.5 by 1.0 by 0.5 cm.

Antler Tools—Although not actually bone, these artifacts are described with the bone tools for convenience.

Total. Three.

Description. One deer antler tine was probably used as a flaking tool. Another antler tool was a larger, broken midsection showing wear at one end; it probably served as a flaking tool also. Three portions of a very disintegrated antler were also found; its use was unknown.

Provenience. Structure 3, floor (2); Structure 5, fill (1).

Dimensions. Length, 5.0 to 11.5 cm.; width, 1.2 to 2.4 cm.; thickness, 1.2 to 1.5 cm.

BONE ORNAMENTS

Pendants—A total of 59 pendants was found. Of these, 57 came from Structure 4. They, along with three bone beads, to be described later, may have constituted a necklace.

Type 1, Tear-drop Shaped

Type 1A, White, mostly ungulate canine teeth (Fig. 25A-B, D)

Total. Seven.

Description. Biconically drilled ungulate canine teeth, bulging at the base.

Provenience. Structure 4, fill and SE floor area.

Dimensions. Length, 2.4 to 2.6 cm.; width, 1.1 to 1.4 cm.; thickness, 0.6 to 0.8 cm.

Type 1B, Bone imitations of Type 1A (Fig. 25C)

Total. 11.

Description. Five of the carved bone imitations of Type 1A pendants were partially burnished and polished. All were biconically drilled.

Material. Mammal bones.

Provenience. Structure 4, fill and SE floor area.

Dimensions. Length, 2.8 to 3.3 cm.; width, 1.1 to 1.5 cm.; thickness, 0.6 to 0.9 cm.

Type 2, Flat Oblong Pendants

Type 2A, Plain (Fig. 25E-F)

Total. 31.

Description. Flat, oblong-shaped, biconically drilled, burnished, and polished.

Material. Mammal long bones.

Provenience. Structure 4, fill and SE floor area.

Dimensions. Length, 2.5 to 3.3 cm.; width, 1.2 to 1.6 cm.; thickness, 0.2 to 0.5 cm.

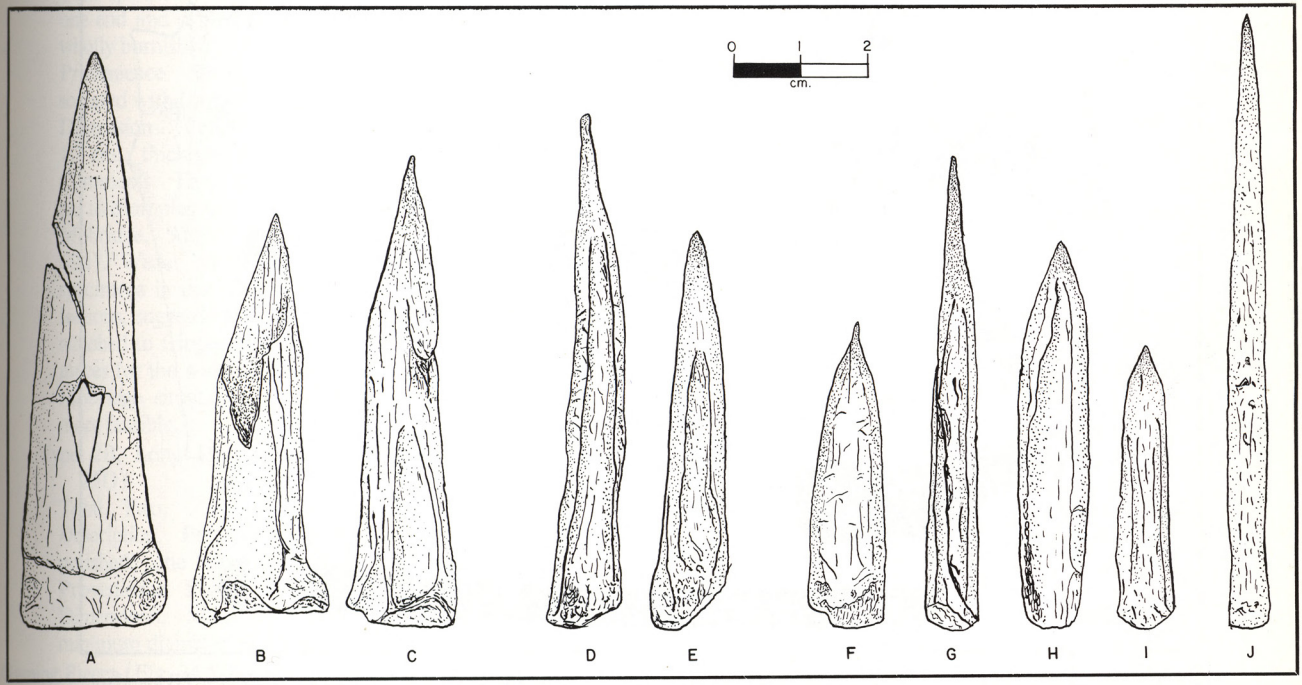


Figure 24. Bone awls and bone pin. A-C, Type 1 awls; D-E, Type 2 awls; F-I, Type 3 awls; J, bone pin.

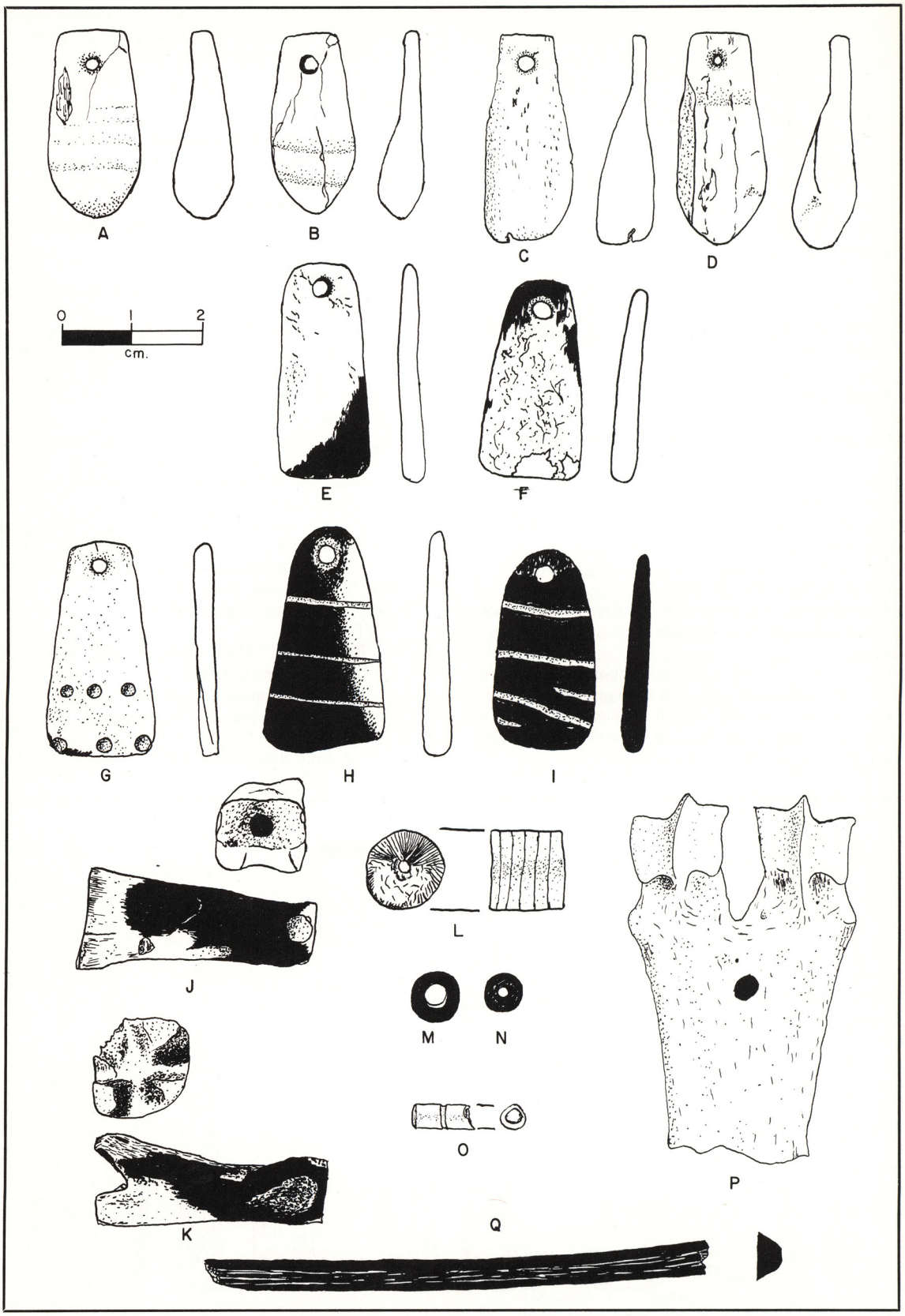


Figure 25. Bone pendants, beads, and miscellaneous bone. A-B, D, Type 1A pendants; C, Type 1B pendant; E-F, Type 2A pendants; G-I, Type 2B pendants; J-K, Type 2A beads; L-N, Type 1 beads; O, Type 2B bead; P, Type 3 pendant (?); Q, burnished, polished bone object.

Type 2B, Flat oblong pendants with incised or drilled holes (Fig. 25G-I)

Total. Nine.

Description. Flat, oblong-shaped, biconically drilled, burnished, polished, incised decoration. One specimen had two rows of partially drilled holes at its base for decoration.

Material. Mammal long bones.

Provenience. Structure 1, fill (1); Structure 4, fill and SE floor area (8).

Dimensions. Length, 2.5 to 3.3 cm.; width, 1.3 to 1.7 cm.; thickness, 0.3 to 0.5 cm.

Type 3, Biconically Drilled Articular Head of Long Bone (Fig. 25P)

Total. One.

Description. The articular head of a mammal long bone was drilled biconically and smoothed at the cut end.

Provenience. Structure 2, fill.

Dimensions. 5.2 by 3.3 by 2.1 cm.

Beads—Ten beads were found; some were made of fossilized material. For convenience, these as well as the bone beads have been included in this section.

Type 1, Cylindrical Squat Beads (Fig. 25 L-N)

Total. Four.

Description. Always with a central biconically drilled hole; sometimes burnished.

Materials. Bone (1), lignite (2), crinoid stem (1).

Provenience. Structure 2, fill (2); Structure 3, fill (1; crinoid); Structure 4, fill (1).

Dimensions. Maximum diameter, 0.6 to 1.4 cm.; minimum diameter, 0.1 to 1.1 cm.

Type 2, Long Hollow Bone Beads

Type 2A, Cut and drilled mammal foot bones (Fig. 25J-K)

Total. Four.

Description. Long foot bones were cut at both ends (one specimen was deeply incised, but not pierced, at one end and drilled at the other end), and partially or wholly burnished.

Provenience. Structure 4, fill and SE floor area, associated with the pendant cache.

Dimensions. Length, 3.2 to 3.6 cm.; width, 1.5 to 1.7 cm.; thickness, 1.4 to 1.5 cm.

Comments. These perforated phalanges appear identical to examples associated with a male burial from near Mobridge, South Dakota (Wedel 1955:127, Plate 62d). Wedel, on the basis of comparative ethnological specimens in the United States National Museum collections, suggests two possible uses, namely: as bangles attached to fringes or thongs on clothing, or as gaming pieces for the widespread ring-and-pin game. As in the Mobridge situation, the latter explanation seems the more feasible.

Type 2B, Long Hollow Bones, Highly Polished (Fig. 25O)

Total. Two.

Description. Parts of long hollow bones were highly polished; one bone had circular incising.

Provenience. Feature 12, fill.

Dimensions. Maximum diameter, 0.9 and 1.0 cm.; minimum diameter, 0.4 and 0.7 cm.

Gaming Pieces (Fig. 26A-B)

Total. Two.

Description. The rectangular pieces had rounded ends. One surface was concave and showed cancellous structure; the other side was convex and smoother. One piece was badly deteriorated. Neither of the specimens had any apparent paint or incising.

Material. Mammal bone.

Provenience. Structure 2, fill (1); Structure 3, fill (1).

Dimensions. Length, 3.4 and 4.6 cm.; width, both 1.1 cm.; thickness, 0.5 and 0.6 cm.

Miscellaneous

1. Long bone (Fig. 25Q). A broken piece of mammal long bone with a flat bottom and a convex top was very thin and fragile, as well as very highly polished and burnished.

Provenience. Structure 4, fill and SE floor area, associated with the pendant cache.

Dimensions. 8.5 by 0.6 by 0.4 cm.

2. One piece of small, thin, white snail(?) shell was found on the floor of Structure 2.

3. Bone fragments unidentifiable as implements or ornaments.

Total. 275. Worked fragments (34); unworked fragments (238); burned, worked, and unworked fragments (81).

Rodent Bones. Mandible fragments (4), femur fragment (1), long bone fragments (3), vertebra (1).

Ungulates. Burned teeth (6), mandible fragments (9), horn core fragments (3). The teeth and mandible fragments were found on the floor of Structure 1.

Fish. Vertebra (1).

Unidentifiable. Metacarpals (3), long bone fragments (21), long bone articular head fragments (8).

CERAMICS

The ceramic material from Wholeplace Village can be uniformly classified as Turner Gray: Cisco Variety (F. Lister 1960:218). There are two main sub-categories: vessels and effigies. The latter is made of different clay and may have been imported.

Turner Gray: Cisco Variety

Total. 449 sherds. Rim sherds (16; one-third of a pot rim was reconstructed, mouth 10.5 cm.); calcite temper only (412); calcite temper with some quartz (24); quartz temper only (13).

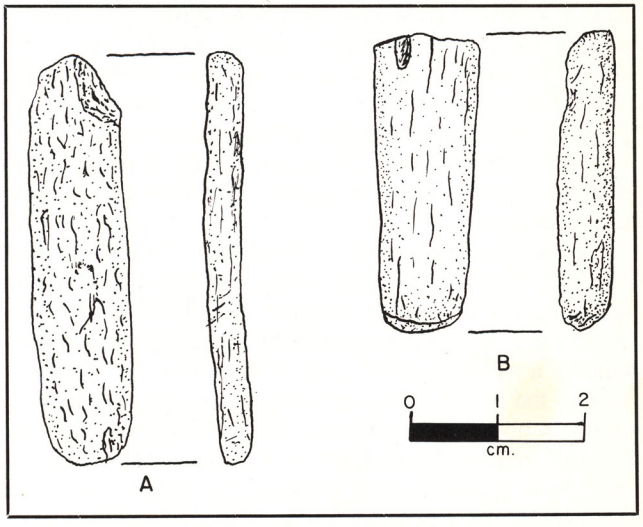


Figure 26. Bone gaming pieces.

Description. Sherds were light gray to black, calcite-tempered, with an occasional mingling of quartz grains. Surfaces were rough to smoothed and had no applique or indications of incising or paint.

Provenience. Structure 1, fill and floor (32); Structure 2, fill and floor (162); Structure 3, fill (35); Structure 4, fill and floor (129); Structure 5, surface (31); Structure 7, fill and floor (2); Feature 4, fill and floor (38); Feature 10, fill (10); Feature 13, fill (2); Surface (8).

Effigy

Total. Two adjoining fragments.

Description. This long, shaped fragment (possibly anthropomorphic arm or leg) had gray siltstone temper and sparse sand temper, and was unfired, gray, and without applique.

Provenience. Structure 4, fill.

Dimensions, taken from reassembled fragments, 5.5 by 1.3 cm. in diameter.

Agricultural Material

Total. One whole corn cob and 52 cob fragments.

Description. The whole cob was 10-row corn.

Provenience. Structure 2, fill (1 cob fragment); Structure 3, fill (4 cob fragments); Feature 12, fill and floor (1 whole cob, 47 cob fragments.

Dimensions (of whole 10-row cob). Length, 4.4 cm.; diameter, 1.5 cm.

Pigments

Found were six fragments of limonite from Structure 3, fill; and three pieces of round hematite-laden sandstone and pure hematite from Structure 2, fill.

Fossils

Found were three belemnite fossil fragments, burned. Dimensions, 3.1 by 1.2 cm. in diameter.

Conclusions

Wholeplace Village is characterized by variation in its food staples, mano types, projectile point types, and architecture. The presence of projectile point types ranging from percussion-flaked unnotched points to pressure-flaked, serrated, corner-notched, expanded convex base points indicates a variety of technology as well as affirming hunting as a base for staple products. Manos varied from loaf-shaped unifacial manos to round unifacial cobble manos. The latter may have been used for seed grinding, while the presence of a cache of burned corn affirms the use of maize by the Fremont. Finally, a net sinker and one fish vertebra indicate as least some utilization of Cub Creek or the Green River.

The architecture appears fairly cohesive in form of construction, but nevertheless it exhibits internal variation and specialization in use. It is based on a basin floor, jacal construction structure supported by internal posts and containing a central hearth. A central post arrangement around the hearth, along with perimeter posts, is the most common post pattern. The presence of both basin-shaped hearths, in Type I structures, and adobe-rimmed hearths, in Type II structures, may indicate two stages of Fremont occupation. At Boundary Village, Type II structures occur stratigraphically above Type I structures (Leach 1966: 92). The main structures show some minor variations such as the use of bentonite in some postholes. There are several suggestions of remodeling also, consisting of superimposed postholes and an apparently abandoned firepit next to an apparently newer one.

Specialization appears in Structure 7 and Feature 12. Feature 12 has no defined shape, only a few unpatterned postholes, storage pits, and a cache of corn pointing to a lean-to-like construction for protecting storage areas. Structure 7 is very small and has no hearth, but has firm walls, a rock-covered cist, and a bell-shaped cist. These features seem to indicate that its function may have been one of storage.

Other variations occur in small adjacent structures. Feature 5 is rectangular with two postholes at one end, probably serving some specialized function. A similar structure without postholes is attached to Structure 2 and next to it is a pit on the same level as the floor, but separated from the floor by a small ridge in line with the walls. These features are perhaps architectural addenda for storage. One may also postulate the possible development in Wholeplace Village of the antechamber feature as seen in Structure 3. This feature may have begun as an auxiliary structure such as those in Structure 2, and perhaps later was incorporated into the main structure.

There are no stone structures or masonry at Wholeplace Village, and there is no apparent pattern to house locations.

In contrast to the variable lithic technology, the ceramic work of the Fremont at Wholeplace Village is very consistent. Almost all pottery is calcite-tempered Turner Gray: Cisco Variety. The presence of an unbaked, siltstone-tempered figurine fragment, however, indicates probable trade and/or contact with the Fremont of the Turner-Look Site, Nine Mile Canyon, or Range Creek, because these were the areas in which siltstone temper was used (Wormington 1955:175; Ambler 1966), . . . it is virtually absent around Cub Creek.

Several additional cultural traits or occurrences that are present at Wholeplace Village deserve noting. In Structure 2 there is evidence of a burned storage receptacle set against a wall. There were no burials or human bone fragments found. The usage of effigies is open to speculation. However, in regard to religion, there are, within approximately 1,000 m. of the site, several petroglyph panels. Pieces of both hematite and limonite were found in the fill of structures indicating decorative or perhaps ceremonial usage. The pendant cache and the petroglyphic representations of such necklaces point to a religious or perhaps prestige use of pendants. Finally, a highly polished slender burnished shaft of bone (Fig. 23Q) must be left open to speculation, but its delicate thinness and length would seem to rule out any functional use, except in symbolic cases such as ceremony or rites. Gaming pieces of stone and bone indicate use of games or perhaps amusement or divination. One of these pieces shows considerable similarity to a gaming piece found during the same season at Serviceberry Shelter, a site that shows affiliations with the culture of the plains. This points to possible contact

with plains areas, as mentioned by Wormington (1955: 179) and Aikens (1966).

Finally, through the south wall of Structure 7, a large stone-lined shallow-basin firepit was intruded from a higher level. A similar firepit was found close to the surface in Feature 13. No other artifacts were found with these firepits. It is plausible that the people who built these firepits were the ones who occupied the region (site) after the Fremont people left, or else were the descendants of the Fremont. Two other such intrusive firepits, similar in all respects to these two at Wholeplace Village, were uncovered during the same excavation season at Sheep Shelter and Wagon Run Site. The general morphology of these firepits indicates that they were probably made by nomadic hunting and gathering groups, possibly the Ute or their ancestors, who would camp in one area for several days and then move on to a new campsite. On the basis of evidence from Wholeplace Village alone, we cannot take sides in the discussions of the demise of the Fremont and origins of historic groups in the region, such as the Ute.

WAGON RUN, 42UN49

by
DONNA F. MARONDE

SITE DESCRIPTION

Wagon Run, 42UN49, is located northeast of Jensen, Uintah County, Utah, in the NW¼, Section 2, Township 5 South, Range 24 East, U.S.G.S. Split Mountain Quadrangle (Frontispiece).

The site is designated Wagon Run because of an old wagon road dissecting its southern portion (Fig. 2). This road was bladed periodically, resulting in increased erosional activity, thus washing away the southern portion of the site in addition to destroying a part of the southern periphery of Structures 2 and 4.

EXCAVATION PROCEDURE

Some surface artifacts were removed and recorded during survey activities in 1963 and 1964. These finds include three fragments of projectile points, two blade fragments, one scraper, one mano fragment, and seven potsherds. Charcoal was noted in the area, with material exposed in the old wagon road cut. This cultural evidence was the basis for excavation of the site.

Pre-excavation photographs and pollen and soil samples were taken, the vegetation geology of the site area was noted, and further surface collections were made.

A system of arbitrary test trenches were dug in areas with concentrations of lithic material and burned soil (Fig. 2). Trenches were begun downslope approximately 2.0 m. from the area of concentration. Four structures were located by the 14 trenches dug. Many of the trenches revealed charcoal or adobe levels with scattered artifacts throughout, an indication of cultural occupation. Trenches were dug to sterile levels, then abandoned. In two instances, subsequent fire hearths, possibly of recent historic Ute origin, were encountered in the trenches; these were recorded as features.

In searching for evidence of a pit structure, the excavators noted carefully any changes in soil color or texture. The reddish surface soil was then taken down to the level of the darkened soil which marked the fill of the structures. If evidence indicated that the feature was an area of habitation, a structural designation was given. Once the periphery of darkened soil was entirely exposed, the fill of the structure was removed and screened.

As Wagon Run was not a burned site, an adobe layer indicating the collapse of the roof was encountered beneath the fill. Under the adobe layer, between the fallen wall-roof and the floor, was the fill. The floor was a well-packed surface; beneath this was the sterile soil.

ARCHITECTURE

The four structures excavated at Wagon Run were built into the slope of the hill overlooking the flood plain of Cub Creek. To have a flat surface for the floor of the house, it was necessary to level the slope in all the houses having a southern orientation.

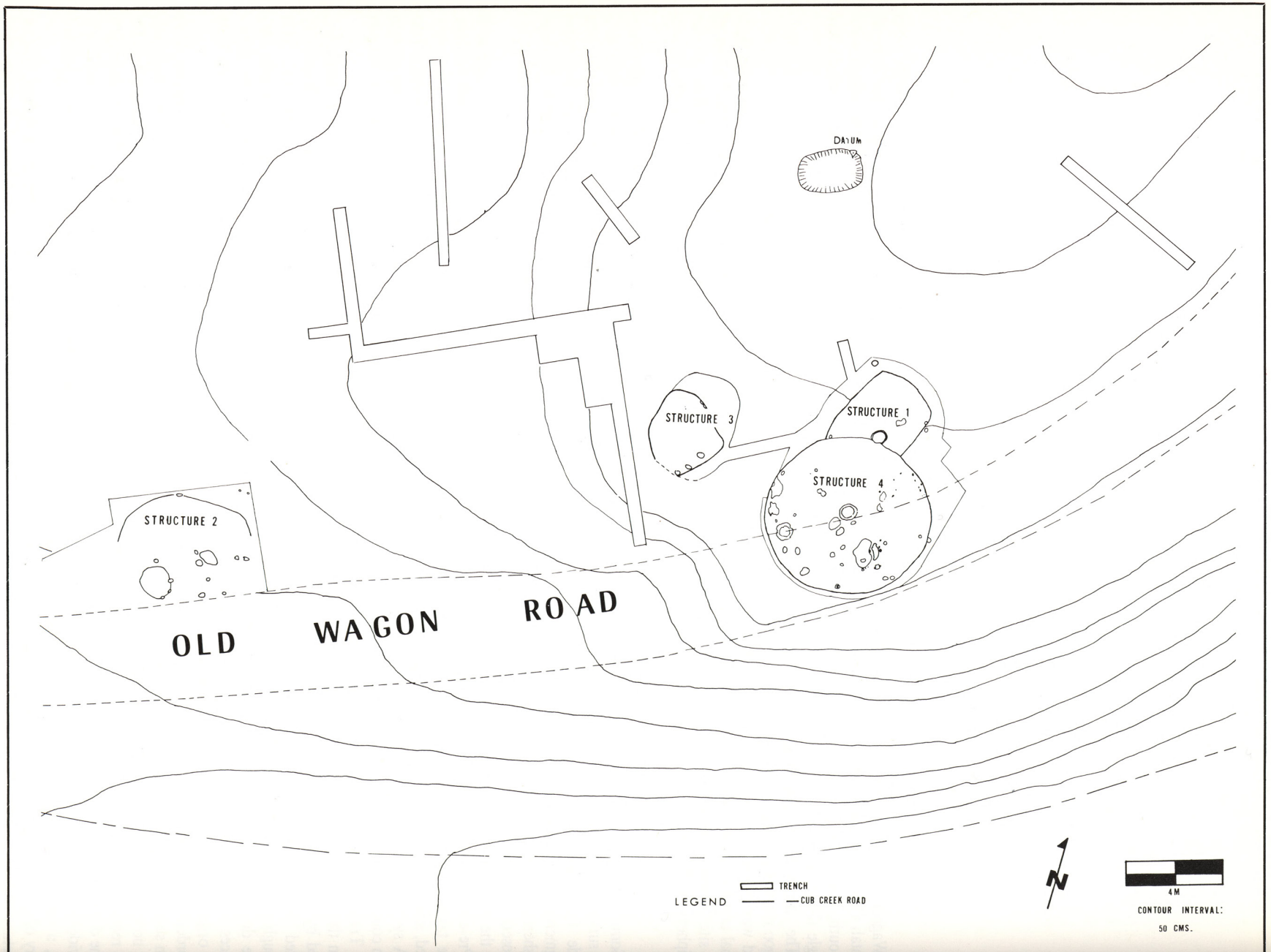
I prefer to designate these habitation units as pit structures rather than pithouses because, as Leach (1966:91) explains, these structures "are neither roofed-over pits, nor are they houses built within pits." All of the structures found at Wagon Run are roughly circular, each of them having a fire hearth of some sort, cists or pits, and postholes.

Type I and II structures of Wagon Run correspond with Leach's Type I and II structures of Boundary Village (Leach 1966:91-2). Type I structures have a roughly circular floor plan with randomly placed postholes. This type also has shallow basin-type hearths which are located off-center. Structures 2 and 3 represent this type at Wagon Run.

Type II houses have at least three central postholes, usually surrounding an adobe-rimmed hearth. Secondary postholes rim the perimeter of the circular structure. This type also has storage pits of various types. Another important feature is the basin-type ash pits within the structure; these are lacking in the first type. Structure 4 at Wagon Run fits into this category.

A third structure type is represented by Structure 1 at Wagon Run. This unit was superimposed over Structure 4 and represents an amalgamation of both Types I and II. Although there was a centrally located adobe-rimmed fire hearth, there was no accompanying ash pit or centrally located postholes. Instead, the postholes are located around the periphery of the structure.

Only one superposition of pit structures occurs, that of Structure 1 over Structure 4. Structure 1 is later than


DATUM
STRUCTURE 1
STRUCTURE 2
STRUCTURE 3
STRUCTURE 4
OLD WAGON ROAD
TRENCH
LEGEND
CUB CREEK ROAD
4 M
CONTOUR INTERVAL:
50 CMS.

Structure 4 since a posthole from the former unit was encountered in the fill of the latter. Hence, Structure 4 could well represent Occupation Level 1, and Structure 1 could be a second occupation level. A third level could also be described, that of the two firepits which are younger than any of the pit structures and encountered above Structure 1 and in one of the test trenches. Structures 2 and 3 cannot definitely be placed into an occupation level designation; they could have existed at the same time as either Structure 4 or Structure 1, or they could have been occupied earlier than either of these two structures.

TYPE I STRUCTURES

Both structures showed signs of heavy erosion; the southern portion of Structure 2 was demolished by the old wagon road cut. Structure 3 was eroding out of the slope of the hill with extreme exposure to the elements. Hence, the dimensions given are approximate.

Structure 2 (Fig. 3).

Dimensions. North-south, approximately 4.0 m.; east-west, approximately 5.25 m.

Walls. There was no evidence of wall structure; the only evidence of the periphery of the structure was a change in the soil color.

Floor. The floor was level and a portion was lined with adobe. There was a sprinkling of ash throughout this adobe. The remainder of the floor was hard-packed sandy soil.

Hearth. The hearth was lined by three rocks and was ash-filled. It was located off-center toward the southwest periphery and was relatively large in size, about 1.20 m. in diameter and only 0.06 m. in depth.

Pits. Many small pits were evident throughout the unit, but it is difficult to state whether these were postholes, cists, or merely depressions. One of these pits was an ash-filled cist measuring 33 cm. wide and 62 cm. deep.

Postholes. East of the hearth were 17 scattered postholes. There was no way of determining which might be major post supports as there was no apparent pattern. Depth ranged from 6 to 30 cm.

Floor Contact Material. There was an abundance of cores and hammerstones.

Remarks. The adobe-lined floor was unique in that such had not been encountered previously in structures excavated in the Dinosaur region. Such floors are common in Fremont sites further south, and they are frequently found in Anasazi pithouses.

Structure 3 (Fig. 4)

Dimensions. North-south, approximately 5.5 m.; east-west, approximately 4.7 m.

Walls. Only the eastern and a portion of the northern wall remained; the wall was a hard-packed sandy soil, gently sloping upward.

Floor. The floor was hard-packed sandy soil, slightly concave with an irregular contour, which possibly resulted from the leveling of the hill slope for the original excavation.

Hearth. This was an unlined shallow basin with a slight fill of ash. It was not centrally located, but rather was more northern in position. It measured 50 cm. in diameter and was 3 cm. deep.

Pits. The only pit (cist) encountered was shallow; 50 cm. in diameter and 4 cm. deep. A small sandstone slab lay vertically in the pit.

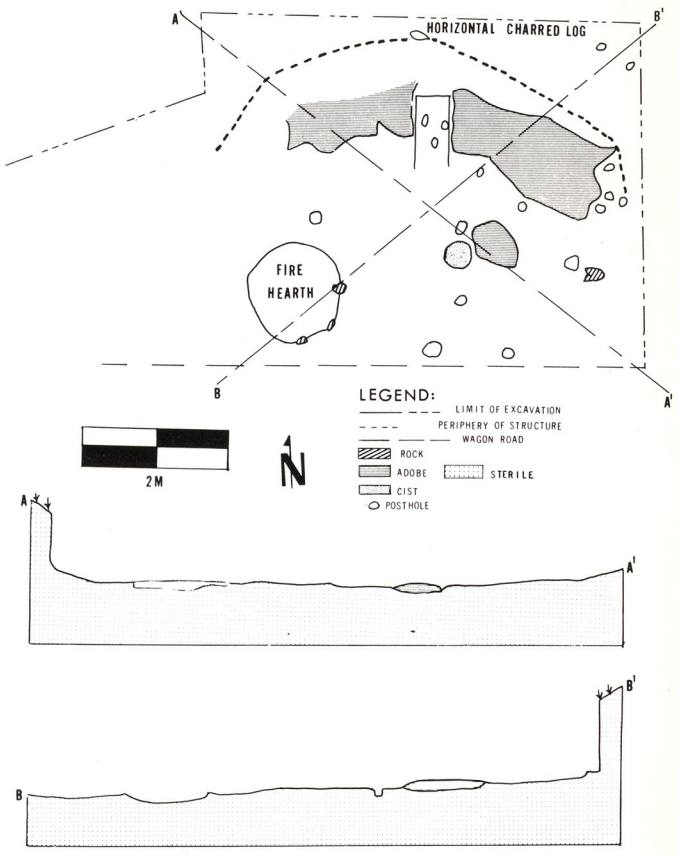


Figure 3. Structure 2, plan and cross-section.

Postholes. Eight postholes were encountered; three were inside the unit toward the eastern wall; three were immediately outside, on the southern periphery; the other two were next to each other south of the firepit. No postholes were found north or west of the hearth, probably due to the heavy erosion. The depths ranged from 10 to 25 cm.

Floor Contact Materials. These included half a purple clay ball, a stone ball, and many pieces of well-worked sandstone which were possibly pendants or gaming pieces.

Remarks. Unfortunately, Structure 3 was horrendously eroded.

TYPE II STRUCTURE

There was only one representative of this type structure at Wagon Run. However, it was the most complete and was considerably larger than the other three structures.

Structure 4 (Fig. 5-6)

Dimensions. North-south diameter, 6.6 m.; east-west diameter, 7.5 m.

Walls. The walls of this structure were well defined and continuous around the entire house. Even though the wagon road cut a segment of the southern portion of the structure, the walls were only slightly sheared. They were gently sloping and of hard-packed sandy soil. A vertical sandstone slab was encountered along the northwest wall, possibly to prevent slumpage. This slab showed evidence of grooves (shaft straightening lines?) along with marks pecked into its face.

Floor. The floor was very slightly concave, of hard-packed sandy soil, and the adobe from the fallen roof literally peeled away from the floor surface. There was a small patch of adobe lining, 1.0 by 0.45 m., in the northwest portion of the house.

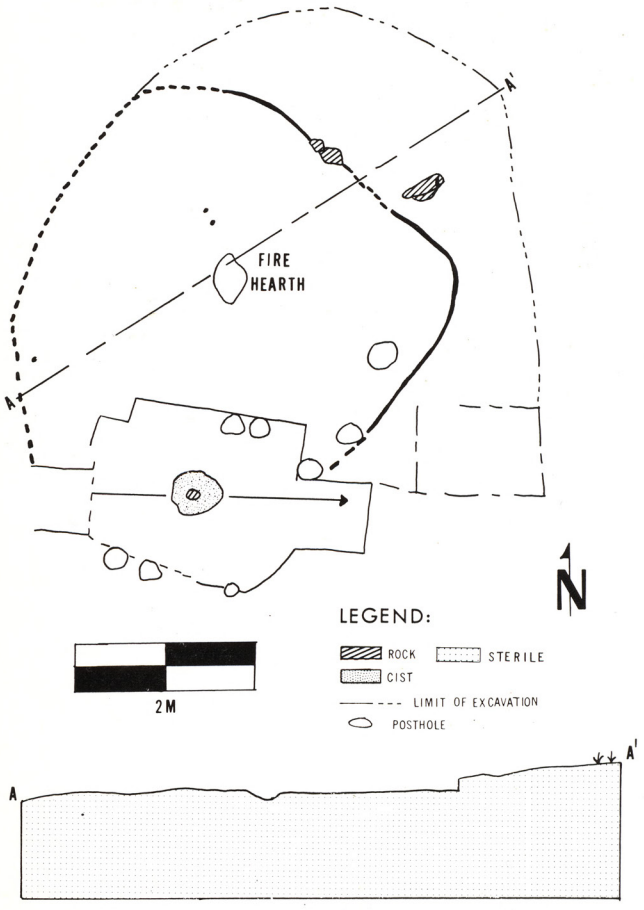


Figure 4. Structure 3, plan and cross-section.

Hearths. Two adobe-rimmed fire hearths were encountered in Structure 4. Hearth 1 was centrally located with an adobe "brick" rim; it was accompanied by an adjacent ash pit. Hearth 2 was not as finely done as Hearth 1 and was located 70 cm. from the western wall. The rim had no "bricking" effect and there was an ashpit in association, approximately 50 cm. away. The upper portions of Hearth 2 had been partially cut away by road-grading activities. Both hearths were filled with ash.

Pits. Three storage cists were found. The largest was 95 cm. in diameter and 54 cm. deep, containing a cist cover in the fill, and the quantity of rock found to the side of this cist probably washed in from the outside. The other two cists ranged in diameter from 40 to 50 cm., and in depth from 17 to 28 cm. The two other pits found are the ash pits already mentioned in connection with the hearths. Ash pit 1 was 53 cm. in diameter and 25 cm. deep. Ash pit 2 was 30 cm. in diameter and 2 cm. deep. Both ash pits were filled with ash.

Postholes. Twenty-two postholes were found scattered throughout the structure. Three postholes were located around the central hearth (Hearth 1). Depths of all postholes ranged from 6 to 54 cm.

Floor Contact Material. On the floor were found one mano, two polishing stones, one shaft straightener, one blade, ten hammerstones, two stone balls, and the bottom of a Turner Gray: Cisco Variety jar or pitcher.

TYPE III STRUCTURE

Structure 1 was the only representative of this type at Wagon Run; the southern wall of the house was built over Structure 4, thus eliminating pertinent features.

Structure 1 (Fig. 5-6)

Dimensions. North-south diameter, 2.5 m.; east-west diameter, undetermined.

Walls. The gently sloping northeast wall was the only portion of the wall remaining. The remainder of the structure not destroyed by the superposition over Structure 4 was distinguishable only by change in soil color.

Floor. The hard-packed sandy soil floor was a slight concavity scooped away as the area was leveled for the house.

Hearth. A centrally located adobe-rimmed hearth showed only slight ash in its fill. It was 10 cm. deep.

Pit. One cist, 22 cm. in diameter and 3 cm. deep, was located approximately 1.0 m. northeast of the hearth.

Postholes. Five postholes were associated with this house; four of them were inside the house and the fifth located 30 cm. southeast of the wall periphery. These postholes were randomly located and ranged in depth from 6 to 28 cm. One of the postholes was in the fill of Structure 4 and enabled us to



Figure 5. Structures 1 and 4 after excavation. Arrow indicating magnetic north is 50 cm. long. Meter stick is calibrated in 10 cm. increments.

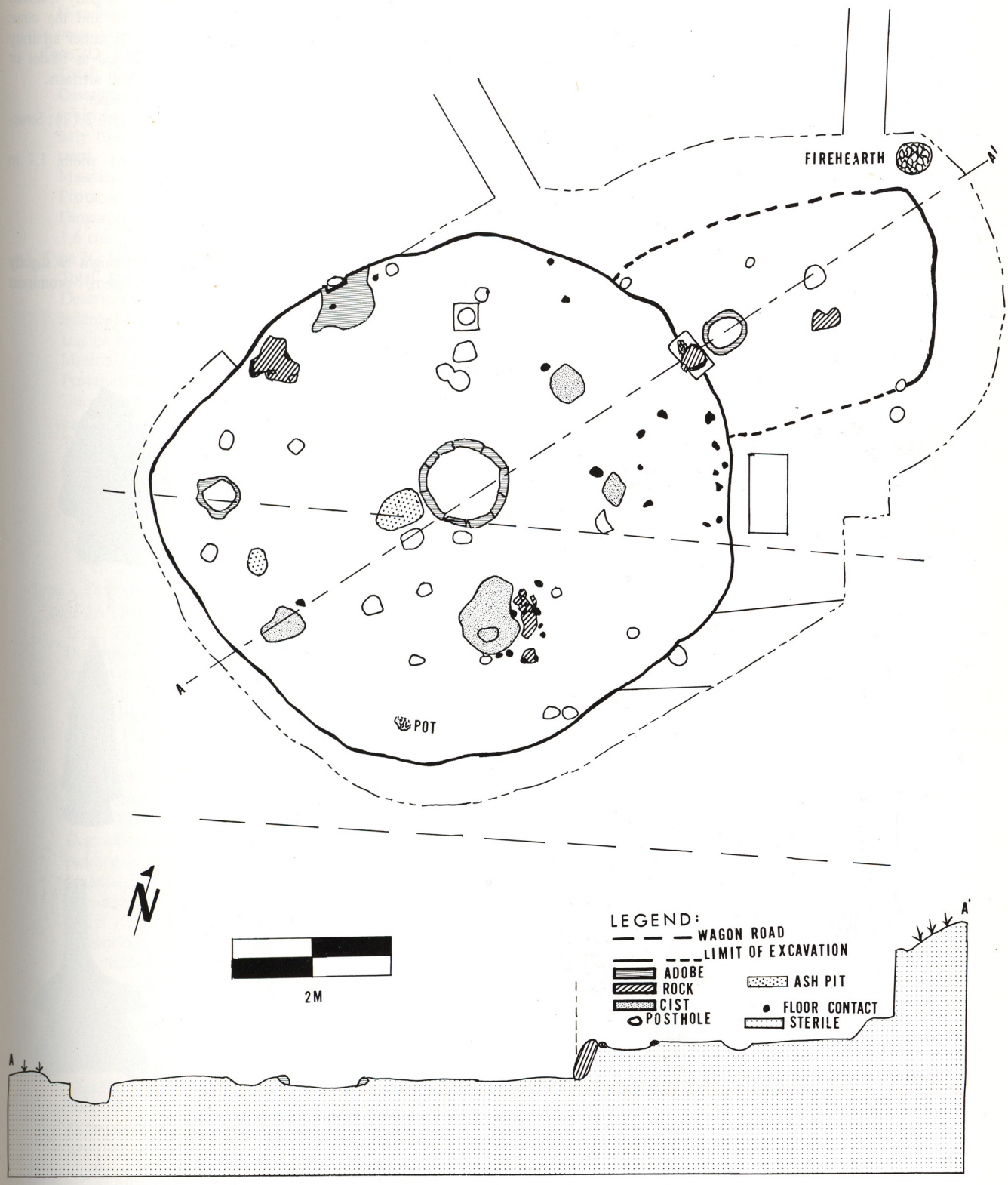


Figure 6. Structures 1 and 4, plan and cross-section.

determine that Structure 1 was built later than and partially over Structure 4.

Floor Contact Material. The only floor contact material was two sandstone slabs, one lying over a vertical rock slab associated with Structure 4.

Lithic Materials Analysis

The lithic materials found have been divided into two categories: flaked stone and ground stone implements. Basic typologies are based on Breternitz (1965). All measurements are given in centimeters and taken only on dimensions that are complete.

Flaked Stone Implements

Projectile Points

Type 1, Unnotched Points

Type 1B (Fig. 7a-d)

Total. Seven.

Description. Unnotched, straight to slightly rounded base; one edge of blade was convex and the other straight. The Type 1B classification is rather arbitrary as these artifacts could have functioned as blades or knives, or possibly they were unfinished artifacts.

Materials. Chert, chalcedony, and jasper.

Provenience. Structure 1 (2); Structure 2 (1); Structure 4 (2), unknown (2).

Dimensions. Length, 3.0 to 5.0 cm.; width, 1.7 to 2.4 cm.; thickness, 0.5 to 1.0 cm.

Type 2, Notched-stemmed Points

Type 2B (Fig. 7i)

Total. Two.

Description. Small, stemmed, with straight to slightly convex base; generally straight stem, prominent

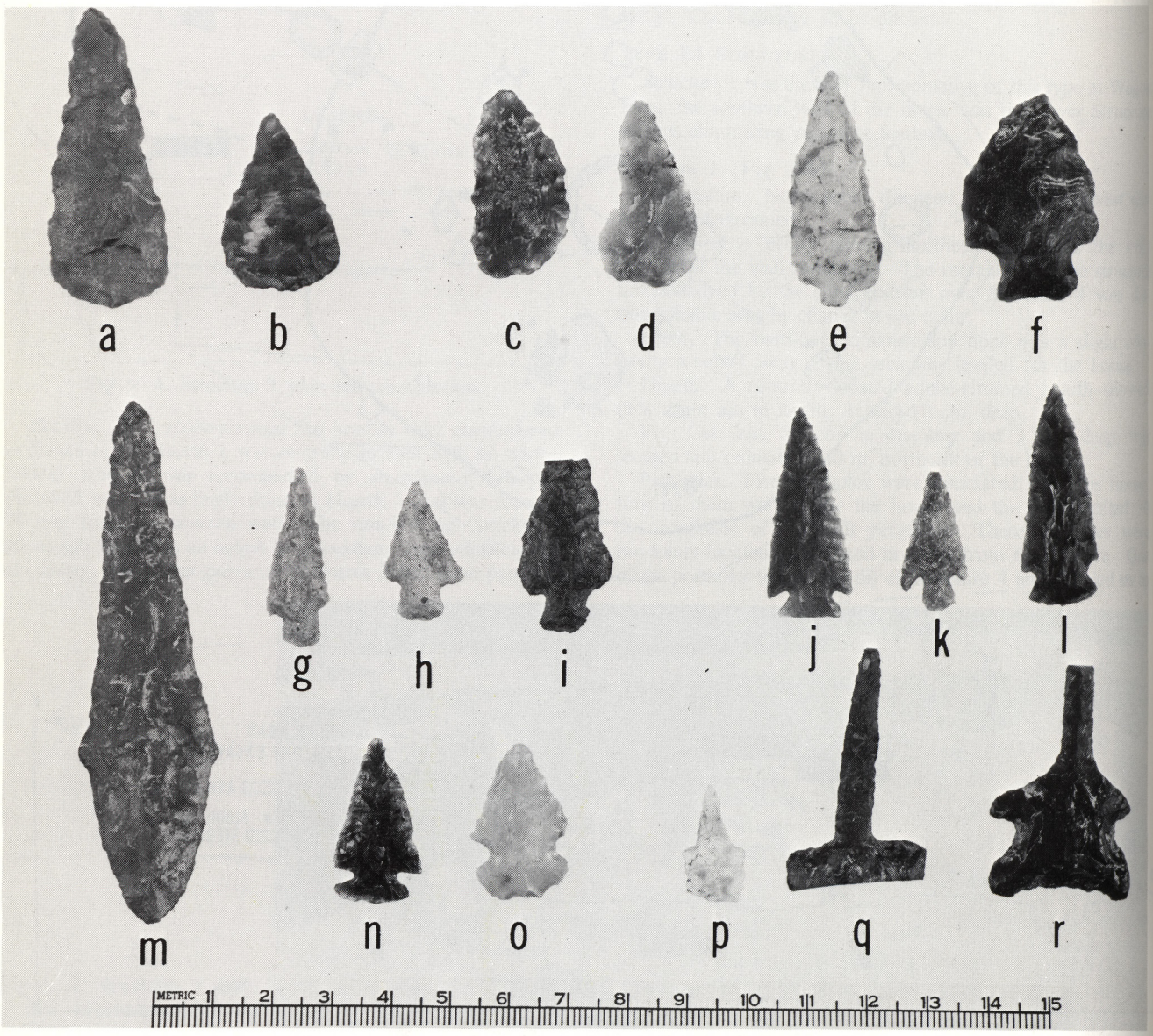


Figure 7. Projectile points, blade, and drills. a-d, Type 1B projectile points; e, Type 2H projectile point; f, Type 2G projectile point; g-h, Type 2D projectile points; i, Type 2B projectile point; j, Type 3A projectile point; k-l, n, Type 3E projectile points; m, Type 1 blade; o, Type 4A projectile point; p, Type 2 drill; q, Type 3 drill; r, Type 1 drill.

shoulder, and triangular blade.
Material. Quartzite.
Provenience. Test trench.
Dimensions. Length, 2.3 cm.; width, 1.4 cm.; thickness, 0.4 cm.

Type 2D (Fig. 7g-h)
Total. Three.
Description. Stemmed, straight to convex based, straight-stemmed, shouldered, or barbed points, regularly triangular blade. One example was slightly serrated.
Materials. Chert (1), quartzite (1), quartz (1).
Provenience. Test trench; surface.
Dimensions. Length, 2.3 to 3.0 cm.; width, 0.8 to 1.6 cm.; thickness, 0.2 to 0.5 cm.

Type 2G (Fig. 7f)
Total. One.
Description. Stemmed projectile point with slightly indented base, expanding stem, definite shoulder, triangular blade.
Material. Chert.
Provenience. Structure 2.
Dimensions. 3.3 by 2.5 by 0.5 cm.

Type 2H (Fig. 7e)
Total. Four.
Description. Contracting stem and slight shoulder (?).
Materials. Chert, chalcedony, and quartzite.
Provenience. Structure 1 (1); Structure 2 (1), Structure 4 (2).
Dimensions. Length, 3.0 to 3.9 cm.; width, 1.1 to 1.5 cm.; thickness, 0.4 to 0.7 cm.

Type 3, Diagonal-notched Points

Type 3A (Fig. 7j)
Total. Five.
Description. Corner- or diagonal-notched points with straight bases, expanding stems, and triangular blades.
Materials. Chert, chalcedony, quartz, and quartzite.
Provenience. Structure 1 (2); Structure 3 (1); Structure 4 (1); surface (1).
Dimensions. Length, 2.3 to 3.6 cm.; width, 1.4 to 3.0 cm.; thickness, 0.3 to 0.6 cm.

Type 3E (Fig. 7 k-l, n)
Total. 11.
Description. Corner-notched with convex bases, expanding to fairly straight stems, and triangular blades.
Materials. Chert and chalcedony.
Provenience. Structure 1 (2), Structure 2 (1); Structure 3 (2); Structure 4 (5); unknown (1).
Dimensions. Length, 2.9 to 3.9 cm.; width, 1.2 to 1.6 cm.; thickness, 0.2 to 0.5 cm.

Type 4, Corner-notched Points

Type 4A (Fig. 7o)
Total. Two.
Description. Triangular bladed point, side-notched, convex base with wide, shallow side-notches.
Material. Chert.
Provenience. Structure 2.
Dimensions. Length, 2.5 cm.; width, 1.5 cm.; thickness, 0.5 cm.

Blades—Various artifacts categorized as blades could probably just as well be classified as projectile points or referred to as knives. The blade designation is a general one; only one complete blade was found (Fig. 7m) and it has been included in the Type 1 category; other workers have classified similar artifacts as Type 2I projectile points or called them "Fremont blades." The remainder of the blade specimens consists of three tips, nine bases, and one midsection.

Type 1, Round End
Total. Seven.
Description. Rounded bases, parallel blades, and fairly crude in appearance.
Materials. Chert (5), quartzite (2).
Provenience. Structure 1 (1); Structure 4 (1); surface (1); unknown (4).
Dimensions. Width, 1.7 to 3.3 cm.

Type 2, Pointed End
Total. Three.
Description. Large blade tips, pointed or triangular in shape.
Materials. Tiger flint (2), quartzite (1).
Provenience. Structure 4 (2); surface (1).
Dimensions. Width, 2.9 to 4.7 cm.

Type 3, Square End
Total. Two.
Description. Only the base remained and was straight to slightly concave; the edges were basically parallel.
Material. Chert.
Provenience. Structure 4 (1); surface (1).

Drills

Type 1, Concave Base (Fig. 7r)
Total. One.
Description. Concave base, corner-notched, sloping shoulder effect, and broken tip.
Material. Chert.
Provenience. Structure 1, fill.
Dimensions. Length, approximately 4.0 cm.; width, 2.5 cm.; thickness, 0.6 cm.

Type 2, Short Tip (Fig. 7p)
Total. Two.
Description. The drill tips were short and could possibly be called perforators rather than drills. Bases only slightly worked, slight shoulder.
Material. Quartz.
Provenience. Structure 4 (1); unknown (1).
Dimensions. Length, 2.0 and 2.5 cm.; width, both 1.1 cm.; thickness, both 0.4 cm.

Type 3, Shouldered Base (Fig. 7q)
Total. One.
Description. In this shouldered drill part of the base had been removed.
Material. Chert.
Provenience. Structure 2, fill.
Dimensions. 4.0 by 2.4 by 0.5 cm.

Scrapers—Following Leach (1966:114), any artifact showing reworking either bifacially or unifacially and which could be utilized as a scraping tool is considered a scraper. Flakes that have been reworked, but which could fit into a cutting or perhaps scraping category, are designated as utilized flakes.

Type 1, Percussion Flaked (Fig. 8c-d)
Total. Two.
Description. Both specimens were made from a core by the percussion technique. Secondary retouching occurs to sharpen the scraping edge of the artifact. One was flat on the bottom, while the other had a more or less humped effect on both sides.
Materials. Chert (1), quartzite (1).
Provenience. Structure 2 (1); Structure 4 (1).

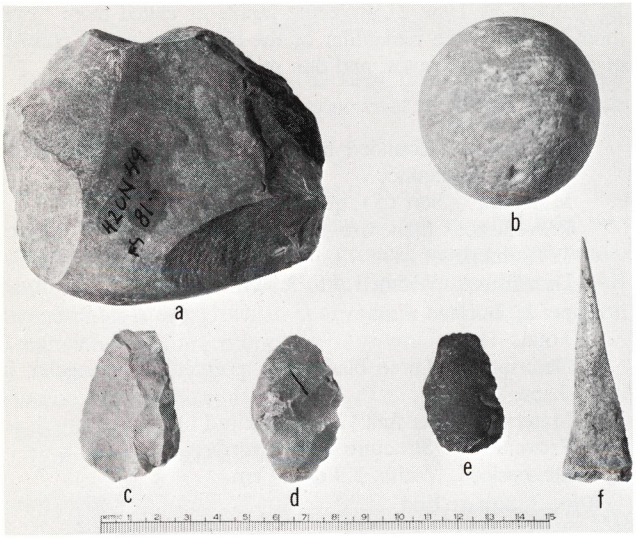


Figure 8. Scrapers, chopper, stone ball, and bone awl. a, chopper; b, stone ball; c-d, Type 1 scrapers; e, Type 2 scraper; f, bone awl.

Dimensions. Length, 4.6 and 4.7 cm.; width, 3.0 and 3.1 cm.; thickness, 1.6 and 1.9 cm.

Type 2, Bifacially Flaked (Fig. 8e)

Total. One.

Description. Made from a broad flat flake with all edges being retouched. One side was flat and the other had a slight hump.

Material. Chert.

Provenience. Structure 2.

Dimensions. 3.9 by 2.6 by 1.1 cm.

Utilized Flakes

Total. 26.

Description. Any flake chipped off of a core which had secondary chipping along only one edge.

Materials. Chert (15), tiger flint (1), chalcedony (4), jasper (2), quartzite (1), quartz (3).

Provenience. Found in every unit excavated, including test trenches and on the surface.

Choppers (Fig. 8a)

Total. One.

Description. Produced by percussion flaking that left much of the original cortex of the cobble.

Material. Quartzite.

Provenience. Structure 4, fill.

Dimensions. 10.7 by 8.5 by 4.0 cm.

Cores

Total. 19.

Description. The only apparent alteration appeared to be the removal of flakes by the percussion method.

Materials. Chert and quartzite.

Provenience. Structure 1, fill (1); Structure 2, fill (4); Structure 3, fill (3), floor (1); Structure 4, fill (3), surface (2); unknown (5).

Hammerstones

Total. 63.

Description. These artifacts were used for pecking, hammering, and percussion flaking. Primarily, the ends and protuberances were utilized.

Materials. Chert, quartzite, quartz, and limestone cobbles.

Provenience. These artifacts were found in every unit of the site.

Ground Stone Implements

This category consists of artifacts produced by grinding, pecking, and abrading.

Metate

Total. One.

Description. Basin-shaped fragment.

Provenience. Test trench.

Manos—(Note: Corn cobs were encountered in every structure except Structure 2; the evidence is inconclusive as to the mano type or types that may have been used in grinding this corn.)

Loaf-shaped (Fig. 9)

Total. One.

Description. This mano, the only complete one found at Wagon Run, was loaf-shaped, had a single grinding surface, was shaped by pecking and grinding, and could be used with both hands.

Material. Quartzite.

Provenience. Structure 4, fill.

Dimensions. 15.5 by 6.6 by 4.3 cm.

Type 1, Uniface, Unshaped

Total. Seven fragments.

Description. Unifacially ground one-hand manos.

Type 2, Uniface, Shaped

Total. Eight fragments.

Description. Bifacially ground one-hand manos.

Type 3, Biface, Unshaped

Total. Three fragments.

Description. Unifacially ground two-hand manos.

Type 4, Biface, Shaped

Total. One fragment.

Description. Bifacially ground two-hand mano.

Shaft Smoothers

Total. Six.

Description. Fragmentary, except one, with longitudinal grooves believed to have been utilized for such activities as smoothing arrow shafts.

Material. Sandstone.



Figure 9. Mano, Type 4. Both grinding surfaces shown.

TABLE 1. Artifact inventory.

Artifact	No. Individual Types	Totals
Projectile Points		34
Type 1B, Unnotched, straight to rounded bases	7	
Type 2B, Stemmed, straight base and stem	2	
Type 2D, Stemmed, straight to convex base, straight stem, barbed	3	
Type 2G, Stemmed, indented base, expanding stem	1	
Type 2H, Stemmed, contracting stem	4	
Type 3A, Corner-notched, straight base	5	
Type 3E, Corner-notched, convex base	11	
Type 4A, Side-notched, convex base, wide and shallow side-notches	1	
Blades		12
Type 1, Round end	7	
Type 2, Pointed end	3	
Type 3, Square end	2	
Drills		4
Type 1, Concave base	1	
Type 2, Short tip	2	
Type 3, Shouldered base	1	
Scrapers		3
Type 1, Percussion flaked	2	
Type 2, Bifacially flaked	1	
Utilized Flakes		26
Choppers		1
Cores		19
Hammerstones		63
Metates, Basin-shaped		1
Manos		20
Loaf-shaped	1	
Fragments, Type 1-4	19	
Shaft Smoothers		6
Stone Balls		4
Polishing Stones		6
Shaped Sandstone		5
Type 1, Trapezoidal, unpainted	4	
Type 2, Trapezoidal, painted	1	
Pendants		1
Beads		10

Provenience. Structure 1 (2); Structure 4, fill (1), floor (1); (noted previously as the large sandstone slab on the floor and described with discussion of the structure); test trenches (2).

Stone Balls (Fig. 8b)

Total. Four.

Description. Produced by grinding and smoothing. Although not numerous, they are thought to be diagnostic of the Fremont Culture.

Material. Fine-grained sandstone.

Provenience. Structure 2, fill (1); Structure 3, floor (1); Structure 4, floor (2).

Dimensions. Diameters, 3.4 to 5.7 cm.

Polishing Stones

Total. Six.

Description. Pebbles altered on one surface by smoothing, possibly used in the manufacture of pottery.

Materials. Usually, small stream pebbles.

Provenience. Structure 2, fill (1); Structure 3, fill (3); Structure 4, floor (2).

Shaped Sandstone

Type 1, Trapezoidal, Unpainted (Fig. 10a)

Total. Four.

Description. Shaped flat sandstone artifacts with a basic trapezoidal shape.

Provenience. Structure 3 (2); Structure 4 (2).

Dimensions. Width, 2.6 to 7.5 cm.; thickness, 0.3 to 0.9 cm.

Type 2, Trapezoidal, Painted (Fig. 10c)

Total. One.

Description. Black marks appeared on one surface of the trapezoid. If one placed the widest point of the trapezoid at the top, the design would appear to be two eyes, a black line 0.8 cm. wide running parallel to the eyes at approximately 1.0 cm. below them. Approximately 0.9 cm. below this black line there was a thin line running parallel once again, with several other thin lines perpendicular to it.

Provenience. Structure 3.

Dimensions. Maximum width, 4.2 cm.; minimum width, 2.5 cm.; length, 8.0 cm.; thickness, 0.3 cm.

Remarks. Sandstone pendants are a diagnostic trait of the Fremont. These objects are normally trapezoidal in shape with the greatest width at the base and a biconical perforation in the

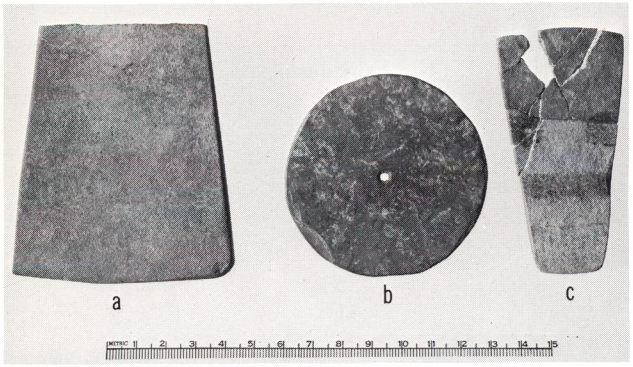


Figure 10. Shaped and painted stone artifacts. a, Type 1 shaped sandstone; b, perforated slate pendant; c, Type 2 shaped sandstone.

upper portion of the trapezoid (Leach 1966:122). At Wagon Run, one broken and four complete trapezoidal sandstone objects were encountered, plus numerous other fragments. However, none of these artifacts showed any evidence of perforation. Some or all of the Wagon Run specimens could have served as gaming pieces(?).

ORNAMENTAL OBJECTS

Perforated Disc (Fig. 10b)

Total. One.

Description. Nearly circular slate pendant with a biconical perforation directly through its center; shaped by grinding and polishing.

Provenience. Structure 4.

Dimensions. Diameter, 6.7 cm.; thickness, 0.4 cm.

Beads

Total. Ten.

Description. All of the specimens were small disc-shaped objects perforated in the center.

Materials. Polished bone (5), gilsonite (2); calcite (1); crinoid stems (2).

Provenience. Structure 1 (4); Structure 4 (5); test trench (1).

Shell—One small unaltered fresh-water gastropod was found in the fill of Structure 4.

Ochre—Eight pieces of red and yellow ochre were found in Structure 1 and a large chunk of yellow ochre was found in Structure 4.

BONE

No human skeletal remains were encountered; bones of rodents were found in Structures 1 and 4. A bone awl (Fig. 8f) was the only worked bone artifact found.

CERAMICS

A total of 406 sherds of Turner Gray: Cisco Variety (F. Lister 1960:218) were found at Wagon Run. Of these, 127 were found clustered together on the *floor of* Structure 4; as several of these sherds fit together, they probably belong to the same pot. However, as most of the sherds are quite small and as no rim sherds were found, a reconstruction of the pot is quite impossible.

Twenty-nine sherds were unearthed from Structure 1, 25 from Structure 2, 62 from Structure 3, 157 from Structure 4, 19 from test trenches, and 14 from the surface.

CONCLUSIONS

A comparison of Wagon Run with other Fremont sites, particularly Boundary Village, leads to the inevitable conclusion that the culture uncovered may be included as a part of the northeastern Fremont culture. The evidence for this conclusion is visible in both architecture and material culture.

ARCHITECTURE

There are several similarities to Boundary Village: all of the structures are circular in plan, they contain a fire hearth that is more or less centrally located, they include interior storage pits, and they show evidence of interior supports. The features that delineate the three styles of architecture are: (a) a variation of shallow basin and adobe-rimmed fire hearths between Type I and Type II structures; (b) a variation of the centrally located post supports of Type II, as opposed to the peripheral supports of Types I and III; and (c) ashpits in Type II that do not appear in either Types I or III. It appears that the similarities among the four structures are more striking than are the differences.

Because of the superposition of Structure 1 over Structure 4, there is no doubt about two occupational time periods: how soon after Structure 4 was abandoned and Structure 1 occupied is impossible to postulate. However, a brief examination of the material culture recovered in each unit demonstrates the difficulty encountered in supposing that the occupants of the two structures were not of the same cultural group. Obvious affiliation with the same culture exists, the difference between the units being that of the individual in the culture rather than a group difference. It is interesting to note that Structure 4 has a representative of all the artifacts found in the other three units at the site.

MATERIAL CULTURE

Definite diagnostic Fremont traits are represented by the artifacts unearthed at Wagon Run: stone balls, ceramics (Turner Gray: Cisco Variety), "Fremont blades," and shaped sandstone "pendants." In addition, the abundance of Type 3E projectile points is indicative of Fremont peoples.

FREMONT PLAYHOUSE, 42UN83

by

DONNA L. ARNDT

SITE DESCRIPTION

Fremont Playhouse, 42UN83, and previously designated as 42UN80 (Gunnerson 1957:44), is located at the quarter section corners of Sections 2 and 3, Township 5 South, Range 24 East, in Dinosaur National Monument (Frontispiece). The site is cut by the existing road (Fig. 2). A structure was indicated by scattered, stick-impressed, burned adobe and chipping debris.

Fremont Playhouse is situated on a small knoll made up of the alluvial deposits of the South Fork of Cub Creek and wash material probably from the Navaho Formation. A large outcropping of the Navaho is located to the south of the site.

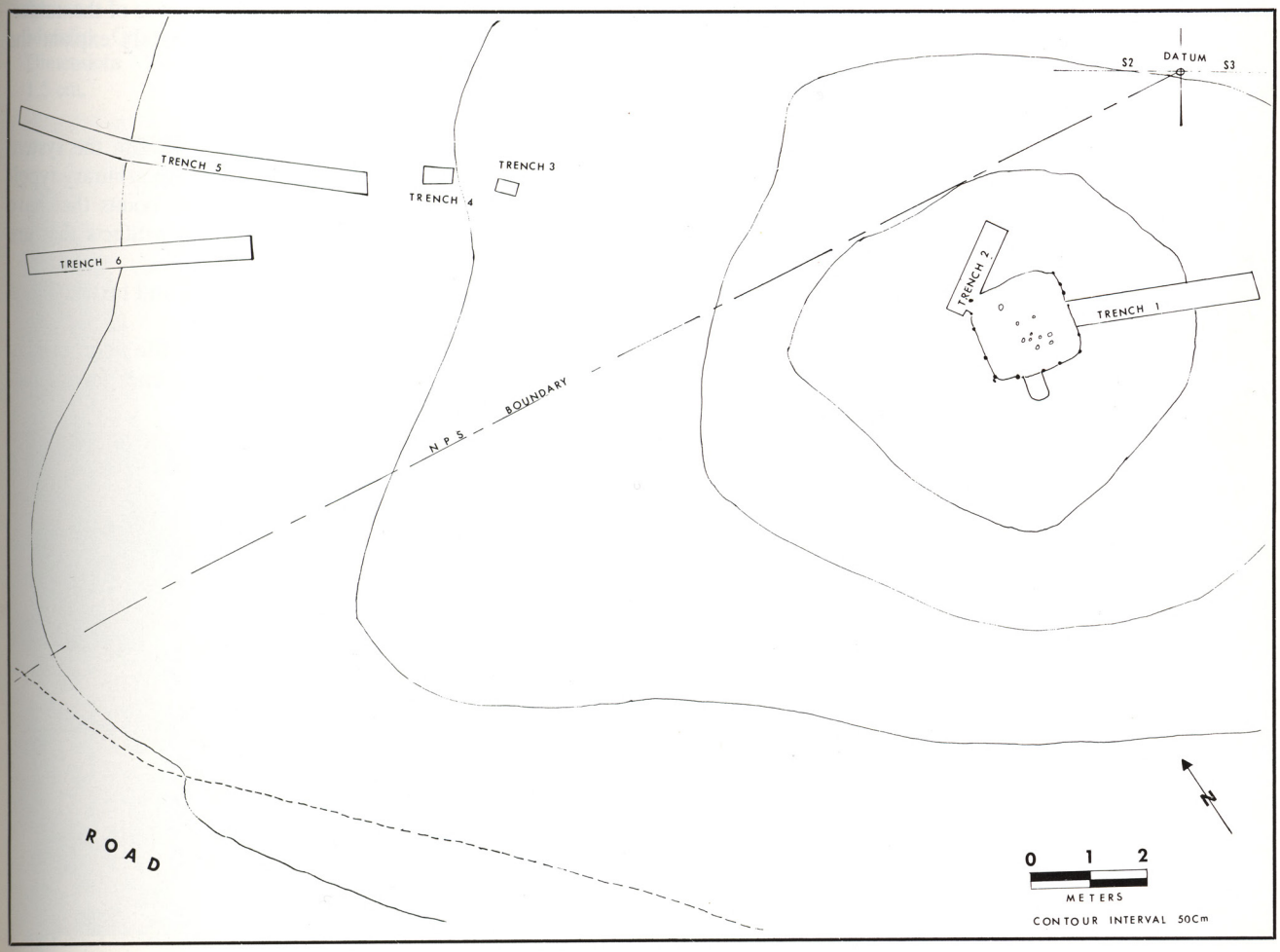


Figure 2. Site map of Fremont Playhouse, 42UN83.

Excavation Procedure

Site photographs and surface pollen samples were taken prior to the beginning of excavation. Two trenches, 75 cm. wide, were begun at approximately a 60-degree angle outside the central concentration of the burned adobe. The first evidence of the existence of a structure was a posthole found in Trench 2 (Fig. 2). When this was found the excavation of the trenches was stopped: Trench 1 just missed the outside of the structure; Trench 2 cut part of the structure away. The fill of the trenches consisted of mixed charcoal-sand and chunks of adobe. It was noted that the charcoal-sand fill was lying on top of a hard, red, sandy layer and it was possible to trace the limits of the structure by troweling away the charcoal layer. During excavation, all material was shoveled and screened.

Four other test trenches were dug west of the structure but they did not yield any cultural remains.

A final trench was dug below the floor of the structure, which determined that there were no underlying features or artifacts.

All excavations were backfilled.

Structure

Fremont Playhouse consisted of a pithouse-like structure, square in shape with rounded corners (Fig. 3-4). It had a depth of 0.30 m. and a length and width of 1.80 and 1.90 m., respectively. The walls were originally made of adobe, but only a layer of adobe rubble remains; the structure had been destroyed by fire. An entry was found on the south side of the structure and it had been partially disturbed by a previously dug "pothole." No ventilator or other wall openings were defined. The floor was covered with burned roofing material below which was a thin layer of light gray ash. Scattered remnants of a hearth still remained on the floor; no ash pit was found, nor were there any sub-floor pits. There were 14 postholes surrounding the structure, the four corner posts being extremely well defined. These main posts were slanted inward at about a 45-degree angle. Burned wood and charcoal were found in all the postholes, which is further evidence that the structure burned. A hard, red, clay-like sand made up the floor. All the artifacts recovered were either on or just above the floor, and a deposit of burned corn was encountered just before reaching the floor. The artifacts consisted of five projectile points or blades, a net sinker, six bone awls, three bone gaming pieces, and a couple of miscellaneous bone tools. No pottery was found at the site.

It is hard to say whether the pithouse structure was used as a habitation, for storage, or as a sweat lodge. Due to its small size and its isolation from nearby sites the author would be inclined to believe that the structure was probably used for storage; however, the presence of the numerous artifacts makes it difficult to definitely explain the structure as a storage area.

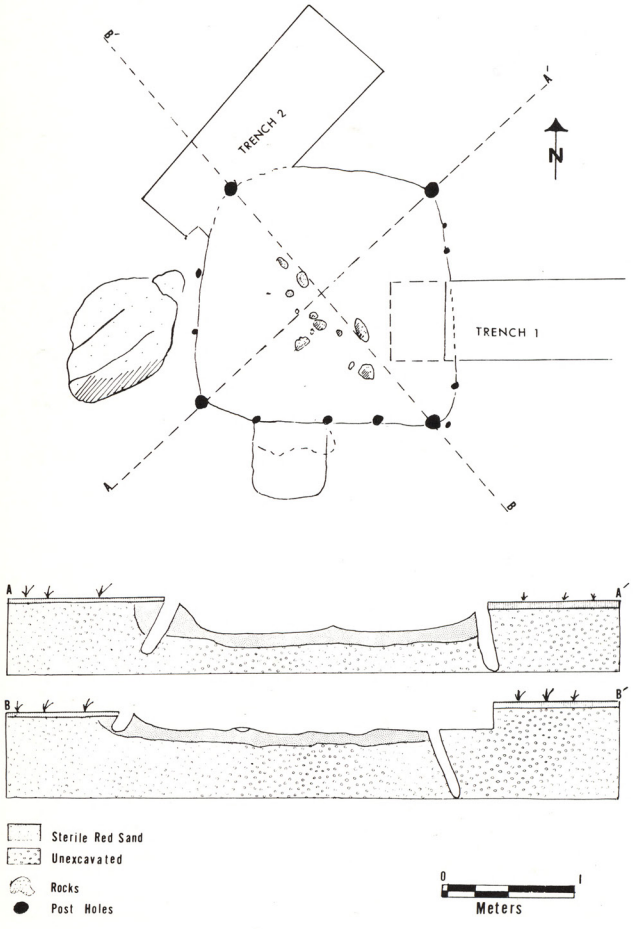


Figure 3. Fremont Playhouse, plan and cross-sections.

Artifacts

The typology for projectile points is from the system set up by Breternitz (1965:109-123). An arbitrary typology was formulated for those projectile points that have previously been untyped and for those artifacts that are not projectile points.

All measurements are in centimeters and taken only on complete specimens.

All the artifacts were found on the house floor, making it impossible to formulate any time sequence for the material.



Figure 4. Fremont Playhouse after excavation. Arrow indicating magnetic north is 50 cm. long.

CHIPPED STONE

Projectile Points and Blades

Type 1B (Fig. 5d-f)

Total. Three.

Description. These unnotched projectile points or small blades had round to straight bases, and triangular to parallel blades.

Materials. Chert (2), quartzite (1).

Dimensions. Length, 5.0 to 7.0 cm.; width, 3.0 to 3.5 cm.; thickness, 0.5 cm.

Type 1C (Fig. 5a)

Total. One.

Description. This was an unnotched, rounded base point with a large triangular blade.

Material. Black chert.

Dimensions. Length, 1.0 cm.; width, 3.0 cm.; thickness, 0.5 cm.

Type 3A (Figure 5c)

Total. One.

Description. This notched projectile point had a straight base, diagonal notches, and a triangular blade.

Material. Chert.

Dimensions. Width, 1.5 cm.; thickness, 0.5 cm.

Net Sinker (Fig. 5b)

Total. One.

Description. This was a small cobble that was percussion-flaked to form two notches, presumably for attachment to a fish net.

Material. Quartzite.

Dimensions. Length, 8.0 cm.; width, 4.0 cm.; thickness, 1.5 cm.

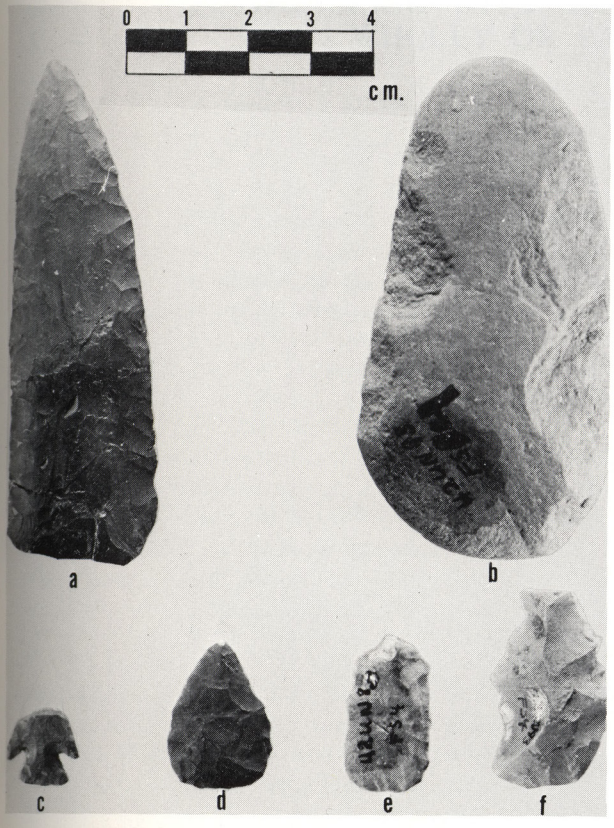


Figure 5. Projectile points and net sinker. a, Type 1C projectile point; b, net sinker ; c, Type 3A projectile point; d-f, Type 1B projectile points.

BONE

Bone Awls (Fig. 6a-f)

Total. Four complete and two tips.

Description. These were splinter bone awls, made from mammal long bones, probably deer.

Bone Gaming Pieces (Fig. 6g-i)

Total. Three.

Description. These pieces of cut and polished animal bone are thought to have been used as gaming pieces.

Dimensions. Length, 3.6 to 7.8 cm.; width, 1.4 to 1.9 cm.; thickness, 0.5 to 1.0 cm.

Miscellaneous Bone Artifacts

Drilled Long Bone (Fig. 6j)

Total. One.



Figure 6. Bone artifacts. a-f, splinter bone awls; g-i, gaming pieces; j-k, miscellaneous worked bone.

Description. This cut animal bone, probably deer, was drilled through one side.
Dimensions. Length, 5.2 cm.; width, 2.5 cm.; thickness, 1.5 cm.

Worked Bone (Fig. 6k)
Total. One.
Description. An oval-shaped piece of animal long bone, probably deer, had been altered on one end.
Dimensions. Length, 4.5 cm.; width, 2.5 cm.; thickness, 1.0 cm.

Corn

A batch of burned corn was recovered from the fill just above the floor. Botanical analysis has not yet been completed.

Chronology

The excavated material from the site is the only relatively dependable basis from which a date could be obtained. Most of the artifacts compare favorably with material from other Fremont sites, which would date the material between A.D. 1000-1150.

Conclusions

The Fremont Playhouse is thought to be a manifestation of the Fremont Culture mainly because of the comparisons of the artifactual remains of the site with other Fremont sites in the immediate vicinity. However, the site lacks the usual Fremont ceramics, and the small squarish structure, with a basic four-post roof support, is the only one of its kind known from the Dinosaur region.

Because of its small size it is possible that the structure was used for storage or as a sweat lodge, but the presence of the bone awls and other artifacts would indicate that it was used for something else, possibly a sleeping area or else for the manufacture of clothing and tools.

CATEGORY II SITES

DWELLING SITES WITH SURFACE STRUCTURES, WHOLLY OR PARTIALLY FREMONT

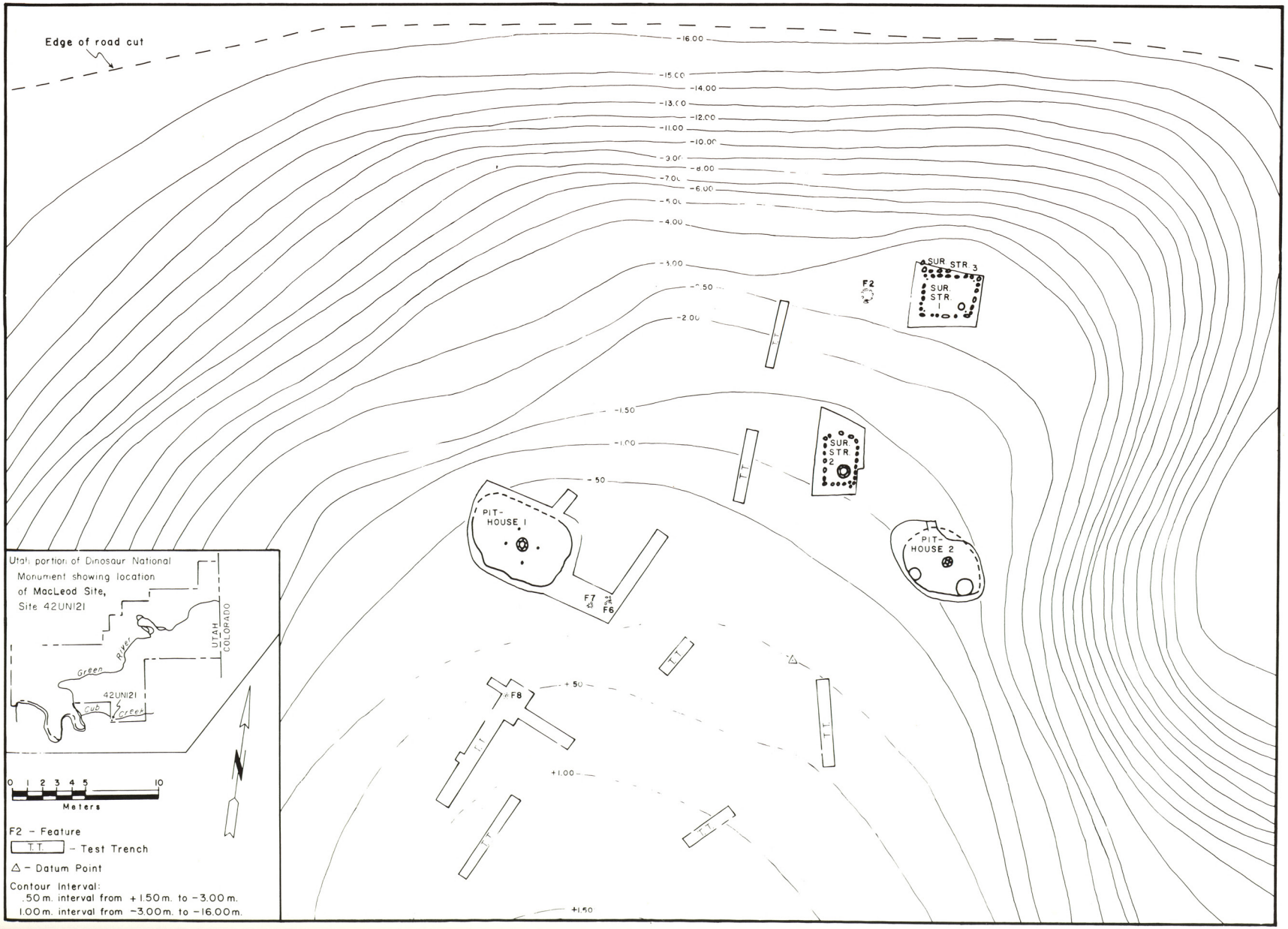


Figure 2. Contour map of the MacLeod Site, 42UN121.

THE MACLEOD SITE, 42UN121

by

DAVID A. BRETERNITZ

INTRODUCTION

The MacLeod Site, 42UN121, is located in T4S, R24E, SW¼ of the SW¼ of Section 34, Uintah County, Utah, approximately 0.4 miles west by the present paved road from the boundary of Dinosaur National Monument (Frontispiece).

The site was reported to the 1964 University of Colorado Field Party in Dinosaur National Monument by Mr. and Mrs. R. Bruce MacLeod. The site was named after our primary informants as a means of acknowledging our appreciation for the cooperation, information, and encouragement the MacLeods gave our project from 1963 through 1965, and subsequently.

During our 1965 summer field work in the Cub Creek locale, the site was again brought to our attention by Mr. Richard (Ted) Bader, Supervisor for the Bureau of Public Roads, who reported that archaeological materials had been noted by highway construction workers while making a deep cut for the new paved road being built into the area. Examination of the site did indeed reveal that part of the site had been destroyed by road construction activities and that the remaining portions of the site were either within the highway right-of-way or on adjacent Bureau of Land Management land. Excavation was initiated to salvage the remaining portion of the site before further construction and before it became known to persons who might attempt indiscriminate private excavations. As a matter of fact, the two surface structures visible at the outset of our investigations contained "potholes" (Fig. 2).

An Antiquities Act permit for excavation of the MacLeod Site was obtained from the Department of the Interior. The interest and cooperation of the BLM personnel from the Vernal office is greatly appreciated, particularly Mr. Odell Fransen, Mr. Tom Owen, and Mr. Goldenstein.

Actual excavation supervision, note taking, mapping, and field cataloging at the site were the responsibility of two undergraduate students in anthropology, Carol H. Anderson and Catherine E. Cross. The line drawings of artifacts were drafted by Gordon L. Lelander, and the photographs were prepared by Robert J. Burton.

SITE DESCRIPTION

The MacLeod Site is situated at an altitude of about 5,050 ft. above sea level on a gravel terrace rising approximately 50 ft. above the flood plain of Cub Creek. The loose, sandy, surface soil on the terrace is immediately underlain by more compacted sandy-clayey soil which, in turn, rests on the gravel matrix of the main body of the terrace. Junipers and sagebrush are the principal vegetation, with some bunchgrass in areas where the surface has not been deflated by wind and water erosion (Fig. 3).

EXCAVATION PROCEDURE

Prior to excavation, the site area was submitted to intensive surface collecting. Significant amounts of artifacts were collected from the surface because of the lack of ground cover and attendant wind and water erosion effects. Areas of concentration of surface artifacts and chipping detritis were noted and a pollen sample taken.

Four obvious structures/features were visible prior to excavation—the complete and partial rock outlines near the edge of the road cut (Surface Structures 1 and 3), the rock outline of Surface Structure 2, and the slab-lined cist designated as Feature 2 (Fig. 2).

Surface Structures 1 and 2 contained rather recent "potholes," and these were expanded and "faced" to give clues as to the type of fill within the structures and to try to detect floor levels, if possible.

A total of 11 exploratory trenches were dug in attempting to locate sub-surface features and structures. These were dug in areas that looked the most promising, based on the topography and the concentrations of surface artifactual material. As some of the trenches proved to be within sub-surface structures, specifically Pithouses 1 and 2, their outlines were obliterated in the process of subsequent excavation and they do not appear as test trenches in Figure 2.

Upon completion of excavation, photography, and mapping, all excavation units were completely backfilled.



Figure 3. Looking north across the MacLeod Site. Site occupies the end of the terrace beyond the telephone pole. Cub Creek lies in the arroyo in the middleground; Bee Rock is in the left middleground; Split Mountain arroyos can be seen above Bee Rock.

Architecture

Architectural features at the MacLeod Site consisted of two pithouses (this term will be used although these dwellings are not, in the strict sense of the word, true pithouses), the two complete and one partial surface structures, the slab-lined cist (Feature 2), two rock-lined firepits (Features 6 and 7), and a bell-shaped storage pit (Feature 8). These architectural units will be described in the order listed above.

Pithouse 1 (Fig. 4-5)

Dimensions. Diameter, average about 7.25 m.; depth, average about 0.25 m.

Walls. The periphery of the floor area was determined by a slight rise of about 10 cm., which marked the lower base of the walls of the pithouse.

Entrance. A ramp entrance extended to the east; it was 30 to 40 cm. wide.

Floor. The floor was compacted, hard, reddish, sandy-clayey soil except in the area at the base of the entrance, which had a patch of adobe floor plaster.

Hearth. The centrally located hearth was made of adobe, which showed joints or cracks, probably the result of differential drying of the adobe during construction.

Pits. There were four sub-floor pits, generally located in a semicircle on the north side of the hearth. Between the entrance and the hearth was an ash pit. Another pit occurred within the area near the patch of plastered floor, at the foot of the entrance; it may have served as a water catchment sump for water that might have run into the living area during rainstorms.

Postholes. There was a basic arrangement of pairs of four postholes to the northeast, southeast, southwest, and northwest of the hearth. The pairing may indicate remodeling or reinforcement of the main roof support posts. Secondary posts (wall posts) occurred around the edge of the floor area.

Floor Contact Material. One mano, one metate, one stone ball, one polishing stone, one cist cover, five hammerstones, three projectile points, five blades, three choppers, one belemnite, one turritella shell, and seven potsherds.

Remarks. Pithouse 1 was the only definite Fremont Culture pithouse excavated in the Cub Creek locale having a complete ramp entry. Otherwise, it was typical of similar Fremont struc-

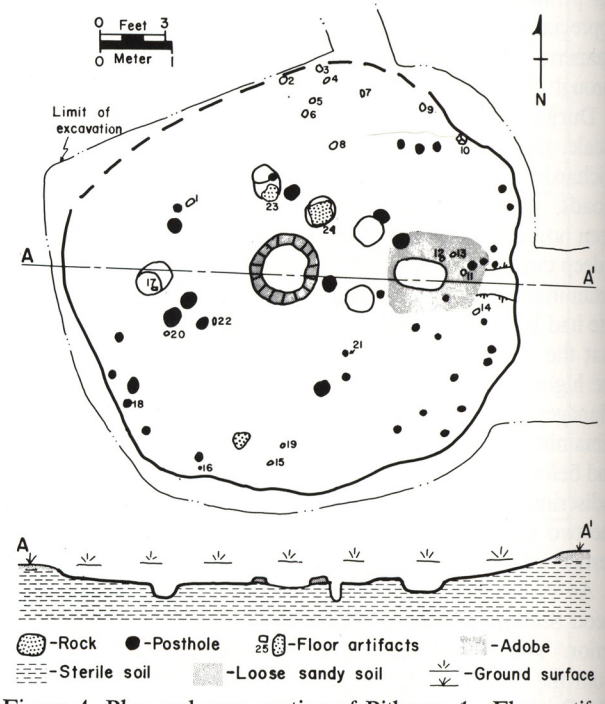


Figure 4. Plan and cross-section of Pithouse 1. Floor artifacts are: 1, mano; 2, chopper; 3-4, potsherds; 5-6, hammerstones; 7, blade; 8-9, hammerstones; 10, 3 sherds; 11, hammerstone; 12, sherd; 13-14, choppers; 15, blade; 16, polishing stone; 17, blade fragment; 18, blade fragment and unnotched projectile point; 19, stone ball; 20, sherd and belemnite; 21, turritella shell; 22, blade fragment; 23, chopper; 24, cist cover.



Figure 5. Pithouse 1 after excavation (photo board designation erroneous). Arrow indicates magnetic north and is 50 cm. long.

tures in size, construction, and material culture in association. The number and nature of the artifacts found on the floor at the north edge of the living area indicate that this was a working area within the pithouse.

In addition to the variety of artifacts found directly on the floor, the shallow fill of the dwelling contained an unusual number of artifacts, when compared to similar, nearby excavated structures. The following artifact categories and number of specimens were recovered from the fill: 8 manos, 1 metate, 37 identifiable projectile points, 25 untypable projectile points, 16 blades, 11 scrapers, 10 knives, 1 drill, 1 flake graver, 2 net sinkers, 9 hammerstones, 1 chopper, 11 cores, 2 stone beads, 13 various fossil specimens, and 116 potsherds.

PITHOUSE 2 (Fig. 6)

Dimensions. Diameter, approximately 7.00 m.; depth, average 0.10 to 0.15 m.

Walls. A shallow upcurve of the floor area at the edge of the structure marked the low base of the walls where this evidence was not completely eroded away.

Entrance. None was located, but if there was an entrance originally, it was probably toward the east in the area of the pithouse which was almost completely missing due to erosion.

Floor. The floor was the compacted, hard, reddish, sandy-clayey soil that underlies the entire site.

Hearth. The hearth was a shallow basin in the approximate center of the floor area, and was constructed of segments of hand-modeled adobe.

Pits. Five sub-floor pits occurred in the southwest half of the floor area. Two pits appeared to be joined, due to subsequent erosion of the upper limits of the pits; one small pit had a cist cover *in situ*.

Postholes. No definite pattern of postholes was evident, due to the highly eroded floor area to the north and east of the hearth.

Floor Contact Material. None.

Remarks. Figure 7 illustrates that over half this pithouse eroded away prior to excavation. However, originally Pithouse 2 was probably a smaller dwelling than Pithouse 1.

SURFACE STRUCTURES 1 AND 3 (Fig. 7-8)

Dimensions. Surface Structure 1: east-west interior measurement, 4.50 m.; north-south interior measurement, aver-

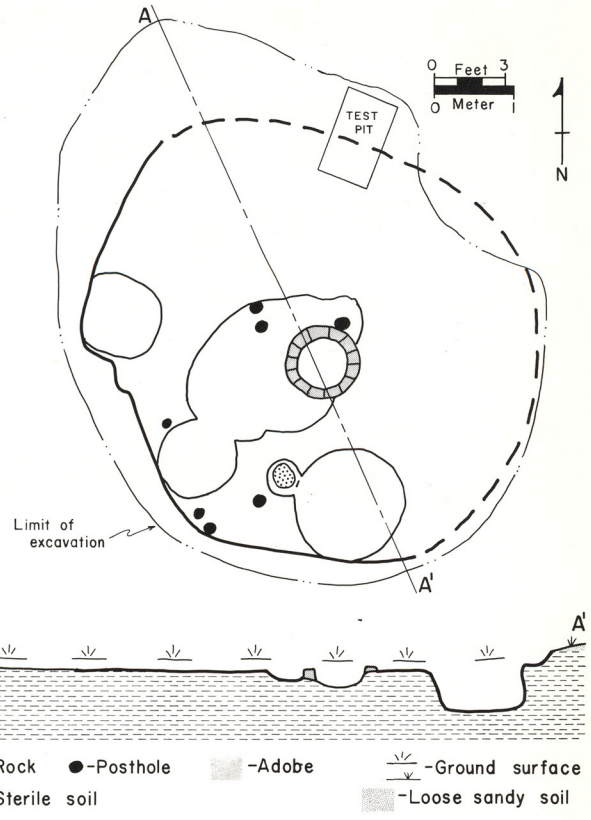


Figure 6. Plan and cross-section of Pithouse 2.

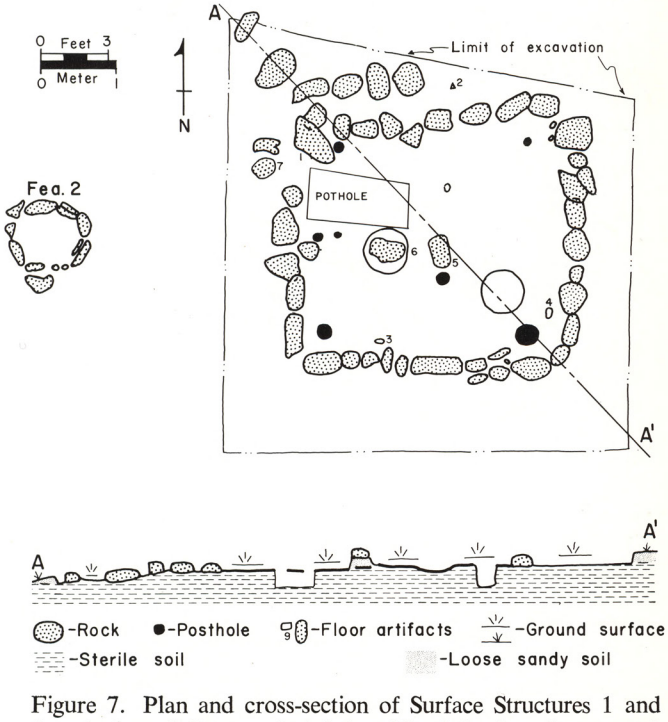


Figure 7. Plan and cross-section of Surface Structures 1 and 3 and plan of Feature 2 (cist). All of Surface Structure 3 destroyed by road construction activities except the southwest corner of the structure. Floor artifacts are: 1, trough metate; 2, projectile point tip; 3-4, manos; 5, slab metate; 6-7, cist covers.



Figure 8. Surface Structures 1 and 3 after excavation. Note road cut grade stakes and roadbed in upper portion of photo. Arrow indicates magnetic north.

age 4.00 m.; depth below present surface, average 0.10 m. Surface Structure 3: no data available.

Walls. There was a single row of sandstone boulders. In Figure 8, the apparent double wall on the northwest corner of Surface Structure 1 is actually the remnants of Surface Structure 3.

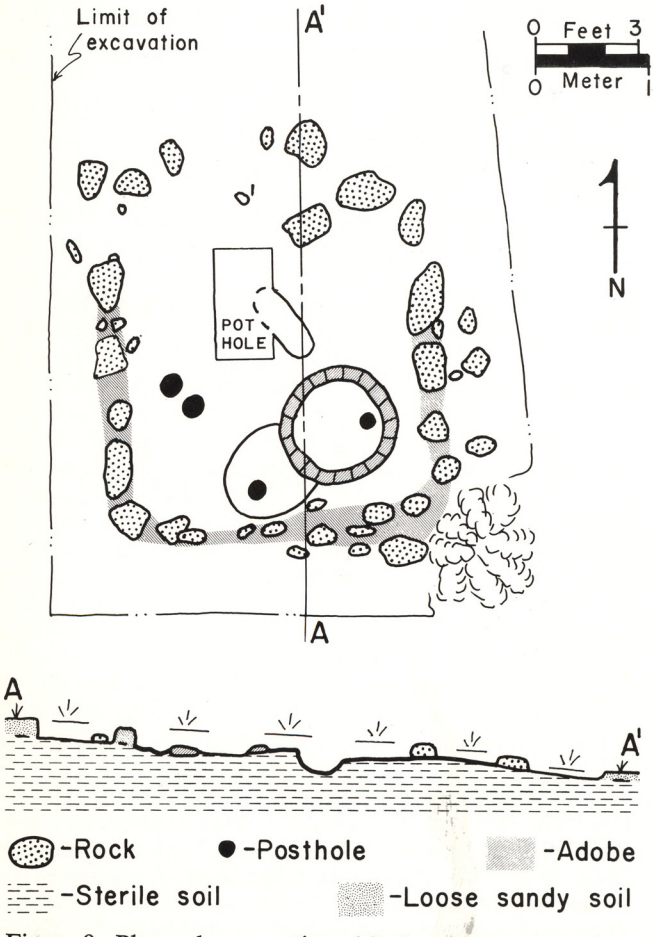


Figure 9. Plan and cross-section of Surface Structure 2. Floor artifact: 1, chopper.

Entrance. None definitely located.

Floor. Hard, compacted, reddish, sandy-clayey subsoil.

Hearth. The hearth was an unlined shallow basin in the southeast corner of the room.

Pits. A covered sub-floor cist was located near the center of the west half of the room.

Postholes. The primary roof supports were located in the four corners of Surface Structure 1. There were also three secondary roof support postholes.

Floor Contact Material. Surface Structure 1: one trough metate, one slab metate, two cist covers, one projectile point tip.

Remarks. It is unfortunate that excavation was not initiated prior to the destruction of Surface Structure 3 by road construction activities.

SURFACE STRUCTURE 2 (Fig. 9-10)

Dimensions. East-west interior measurement, 3.50 m.; north-south interior measurement, approximately 4.00 m.; depth below present surface, average 0.25 m.

Walls. The walls were a single row of sandstone boulders; at the south half of the room the boulders had originally been set in adobe.



Figure 10. Surface Structure 2 after excavation. Arrow indicates magnetic north.

Entrance. None located.

Floor. Hard, compacted, reddish, sandy-clayey subsoil.

Hearth. The basin-shaped hearth was bounded by a jointed, hand-modeled rim.

Pits. The shallow sub-floor pit adjacent to the hearth may have functioned as an ash pit. Another sub-floor pit (elongated), was partially destroyed by a recent pothole.

Postholes. There was no definite posthole pattern, and the posthole shown within the hearth may have served some purpose other than to support the roof.

Floor Contact Material. One chopper.

Remarks. The lower or north end of the structure had suffered from erosion and construction features were consequently obscured. Surface Structure 2 was the only surface structure excavated in the Cub Creek locale showing evidence of an adobe mortar base for the wall boulders. This is probably due to fortuitous preservation, however, and should not be considered a unique feature.

OTHER ARCHITECTURAL FEATURES

Feature 2, Slab-lined Cist

The location of Feature 2 in relation to Surface Structures 1 and 3 is shown in Figure 8; the excavated cist is shown in Figure 11. The cist was 70 by 90 cm. in diameter and 35 cm. deep. Twelve chips and flakes were the only material culture items found in association, but the cist had been partially cleaned out prior to our activities.

Feature 6, Rock-lined Firepit

Feature 6 was located approximately 4.00 m. east of Pithouse 1 (Fig. 2). It was approximately 75 cm. in maximum diameter, 20 cm. deep, and partially filled with rocks and charcoal flecks; associated with the pit were two nearby metates. The firepit was on a level above that of Pithouse 1 (see comments following description of Feature 7). One hammerstone, 1 polishing pebble, 2 scrapers, 15 chips and flakes, 3 belemnites, and 1 potsherd were found within the firepit.

Feature 7, Rock-lined Firepit

Feature 7 was about 1.00 m. southwest of Feature 6 and about 3.25 m. east of Pithouse 1. It was a small cluster of eight rocks in a rough circle about 50 cm. in diameter. No material culture items were found in the firepit.

Comments. Features 6 and 7 were both associated with two nearby metates, and on a level above that of Pithouse 1. There were no diagnostic artifacts associated with either firepit. It is quite possible that they represent use of the site following the Fremont occupation, as shown by the dwelling structures previously described. Similar situations, where firepits apparently postdate the Fremont occupation, have been recorded at other sites in the Cub Creek locale, such as at Boundary Village (Leach 1965:21), Wagon Run (Site 42UN49), and Wholeplace Village (Site 42UN57). These higher and later firepits are thought to be evidence of protohistoric or historic use of the site areas by such groups as the Ute.

Feature 8, Bell-shaped Cist

Feature 8 was located during testing operations approximately 8.00 m. south of Pithouse 1 (Fig. 2). The cist was 25 cm. in diameter at its mouth, belled out to a maximum width of 35 cm., and was 22 cm. deep. No material culture items were found in association.

MATERIAL CULTURE

Basically, the artifact categories noted below follow those established by Breternitz (1965) and presented in the introduction to this volume. Artifacts in floor contact are noted separately from those found in the fill. See Table 1 for itemized listing of artifacts recovered.

TABLE 1. Artifacts recovered from the MacLeod Site.

Artifact (Type)	No. Individual Types	Totals
Ground Stone		
Manos		21
(A)	11	
(B)	4	
(C)	4	
(D)	2	
Metates		4
(A)	3	
(C)	1	
Shaft smoothers		1
Polishing pebbles		9
Stone balls		2
Chipped Stone		
Projectile points		84
(1B)	32	
(1E)	3	
(2I)	1	
(3D)	1	
(3E)	13	
(4E)	1	
Unidentified	33	
Blades		32
(A)	9	
(B)	10	
(C)	1	
(E)	10	
Complete specimens	2	
Scrapers		31
(A)	26	
(B)	1	
(C)	1	
(E)	3	
Knives		18
Drills		3
(A)	1	
(B)	1	
(C)	1	
Flake gravers		2
Net sinkers		2
Hammerstones		27
(A)	27	
Choppers		8
Cores		20
Stone beads		2
Miscellaneous		
Mineral specimens		12
Petrified wood	8	
Calcite	4	
Fossils		21
Belemnites	17	
Crinoid stem	1	
Turritella shells	3	
Pottery		
Sherds		185
Total Number Specimens		484



Figure 11. Feature 2 (cist) cleaned out. Note gravels of underlying terrace in bottom of cist. Arrow indicates magnetic north and is 25 cm. long.

Ground Stone Implements

Manos

Type A, Uniface, Unshaped

Total. 11.

Materials. Sandstone (8), quartzite (3).

Provenience. Pithouse 1 (6); Test Trench 2 (1); Surface (4).

Type B, Uniface, Shaped

Total. Four.

Materials. Quartzite (2), sandstone (2).

Provenience. Surface Structure 2 (1); Test Trench 4 (1); Surface (2).

Type C, Biface, Unshaped

Total. Four.

Materials. Quartzite (2), sandstone (2).

Provenience. Pithouse 1 (2); Test Trench 2 (1); Surface (1).

Type D, Biface, Shaped

Total. Two.

Material. Sandstone.

Provenience. Surface.

Metates

Type A, Slab Metates

Total. Three.

Materials. Quartzite (1), sandstone (2).

Provenience. Pithouse 1, floor (1); Surface Structure 1, floor (1); Surface (1).

Type C, Trough Metate

Total. One.

Material. Sandstone.

Provenience. Surface Structure 1, built into wall.

Shaft Smoother

Total. One.

Description. Fragment of artifact with longitudinal groove.

Material. Sandstone.

Provenience. Pithouse 1.

Polishing Pebbles

Total. Nine.

Description. Pebbles and small cobbles, usually stream-worn, which have been utilized on one or more faces for polishing and rubbing.

Materials. Chert (2), quartzite (5), sandstone (2).

Provenience. Pithouse 1, floor (1); Pithouse 1 (1); Pithouse 2 (1); Feature 6 (1); Test Trench 2 (1); Surface (4).

Stone Balls

Total. Two.

Description. Artificially rounded by grinding; of unknown use (see Anderson 1967).

Materials. Chert (1), quartzite (1).

Provenience. Pithouse 1, floor (1); Pithouse 2 (1).

Chipped Stone Artifacts

Projectile Points

Type 1, Unnotched

Type 1B (Fig. 12j-l)

Total. 32.

Description. Unnotched, round base, triangular to parallel blade.

Materials. Chert (18), chalcedony (7), jasper (2), quartzite (5).

Provenience. Pithouse 1, floor (3); Pithouse 1 (22); Pithouse 2 (1); Surface Structure 1 (1); Surface Structure 2 (1); Test Trench 4 (1); Surface (3).

Type 1E

Total. Three.

Description. Unnotched, straight base, parallel to triangular blade, small.

Material. Chert.

Provenience. Pithouse 1.

Type 2, Stemmed

Type 2I (Fig. 12i)

Total. One.

Description. Stemmed, straight base, straight stem, slight shoulder, triangular blade.

Material. Chert.

Provenience. Pithouse 2.

Type 3, Diagonal-notched

Type 3D

Total. One.

Description. Notched, convex base, wide diagonal notches, triangular blade, large.

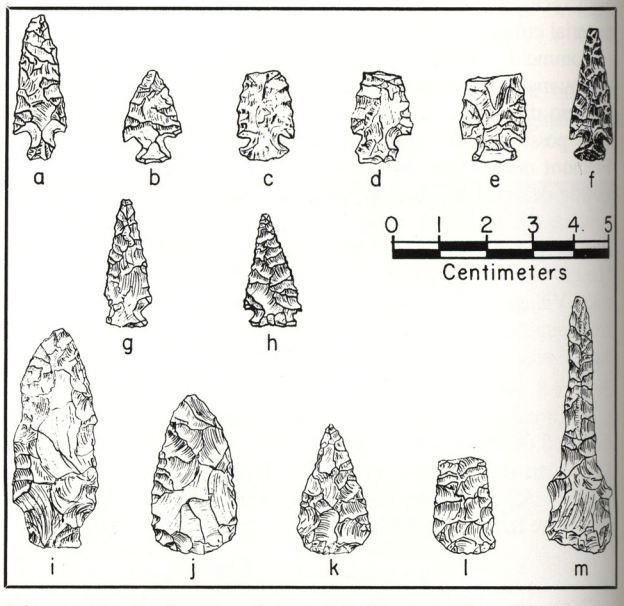


Figure 12. Projectile points and drill. a-g, Type 3E projectile points; h, Type 4E projectile point; i, Type 2I projectile point; j-1, Type 1B projectile point; m, Type A drill.

Material. Chert.
Provenience. Pithouse 1.

Type 3E (Fig. 12a-g)
Total. 13.
Description. Notched, straight to convex base, straight to expanding stem, diagonal notches, small.
Materials. Chalcedony (2), chert (7), quartzite (4).
Provenience. Pithouse 1 (10); Surface Structure 1 (2); Surface (1).

Type 4, Side-notched

Type 4E (Fig. 12h)
Total. One.
Description. Notched, straight base no wider than blade, side-notched, triangular blade.
Material. Chert.
Provenience. Pithouse 1.

Unidentified
Total. 33.
Description. Untypable bases, midsections, and tips.
Materials. Chalcedony (2), chert (21), quartzite (10).
Provenience. Pithouse 1 (25); Surface Structure 1 (3); Test Trench 4 (1); Surface (4).

Blades—All the blades noted below were incomplete specimens. Only two whole blades were recovered from the MacLeod Site. One specimen, made of chert and found in Pithouse 1, was round on one end and pointed on the other end. The other complete specimen was pointed on one end and square on the other end; it was found in Pithouse 1 and was made of quartzite.

Type A, Round End
Total. Nine.
Materials. Moss agate (1), chert (7), quartz (1).
Provenience. Pithouse 1 (4); Pithouse 2, cist (1); Surface Structure 1 (3); Surface (1).

Type B, Pointed End
Total. 10.
Materials. Chert (5), jasper (1), quartzite (4).
Provenience. Pithouse 1, floor (2); Pithouse 1 (6); Surface Structure 1 (2).

Type C, Square End
Total. One.
Material. Quartzite.

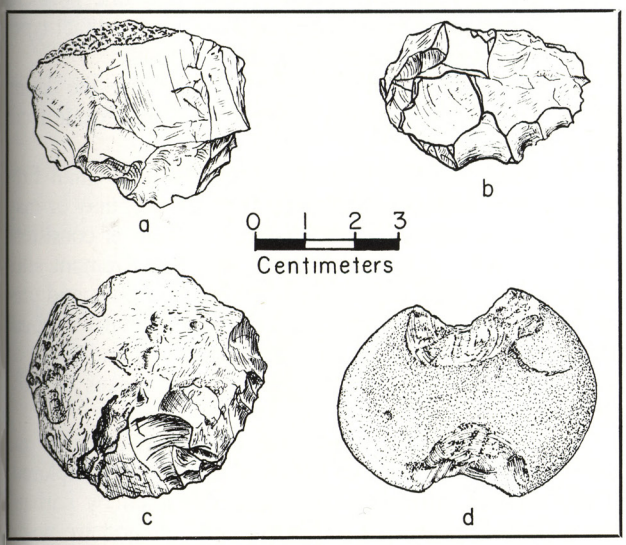


Figure 13. Scrapers and net sinker. a-b, Type A scrapers; c, Type B scraper; d, net sinker.

Provenience. Pithouse 1.

Blade Fragments, type unknown
Total. 10.
Materials. Chalcedony (1), chert (5), jasper (2), quartzite (2).
Provenience. Pithouse 1 (5); Pithouse 2 (1); Surface (4).

Scrapers

Type A, Retouched or Worked Percussion Flakes (Fig. 13a-b)
Total. 26.
Materials. Chalcedony (2), chert (13), jasper (5), quartz (3), quartzite (3).
Provenience. Pithouse 1 (8); Pithouse 2 (2); Surface Structure 1 (3); Feature 6 (2); Test Trench 2 (1); Test Trench 4 (1); Test Trench 7 (1); Surface (8).

Type B, "Cobble" Scrapers (Fig. 13c)
Total. One.
Description. Percussion flakes, with portion of unaltered original surface of cobble present.
Material. Chert.
Provenience. Pithouse 1, floor.

Type C, "Spokeshave" Scraper on Flake
Total. One.
Description. Retouched, concave scraping surface.
Material. Chert.
Provenience. Pithouse 1.

Type E, Keeled, on Percussion Flake
Total. Three.
Materials. Chert (2), quartzite (1).
Provenience. Pithouse 1 (2); Surface Structure 1 (1).

Knives
Total. 18.
Description. Retouched flake knives-scrapers on percussion flakes.
Materials. Chalcedony (1), chert (12), jasper (1), quartzite (4).
Provenience. Pithouse 1, floor (2); Pithouse 1 (10); Pithouse 2 (2); Surface Structure 1 (1); Feature 2 (1); Test Trench 2 (2).

Drills

Type A, Bases Completely Retouched (Fig. 12m)
Total. One.
Material. Quartzite.
Provenience. Pithouse 2.

Type B, Bases Unretouched or Unaltered from Original Flake.
Total. One.
Material. Chert.
Provenience. Pithouse 1.

Type C, Drill Shaft Fragments
Total. One.
Material. Chert.
Provenience. Pithouse 1.

Flake Gravers
Total. Two.
Description. Fine working tip on otherwise unaltered percussion flake.
Material. Chert.
Provenience. Pithouse 1 (1); Pithouse 2, cist (1).

Net Sinkers (Fig. 13d)
Total. Two.
Description. Pebbles notched by removal of percussion flakes.
Material. Quartzite.

Provenience. Pithouse 1.

Cist Covers—These artifacts are noted on the architectural plans and are sandstone slabs shaped around the edges and used as covers for sub-floor cists and pits.

Hammerstones

Type A, Cobble Hammerstones

Total. 27.

Description. Battered on ends and projections, otherwise unaltered.

Materials. Chalcedony (5), chert (16), quartz (4), quartzite (2).

Provenience. Pithouse 1, floor (5); Pithouse 1 (9); Pithouse 2 (2); Feature 6 (1); Test Trench 2 (1); Surface (9).

Choppers

Total. Eight.

Description. Split cobbles with chopping edge.

Materials. Limestone (1), chert (3), quartz (1), quartzite (3).

Provenience. Pithouse 1, floor (3); Pithouse 2 (1); Surface Structure 2 (2); Feature 2 (1); Surface (1).

Cores

Total. 20.

Description. Percussion-flaked cores with no other evidence of utilization.

Materials. Chert (13), jasper (1), limestone (2), quartz (2), quartzite (2).

Provenience. Pithouse 1 (11); Pithouse 2 (5); Test Trench 2 (1); Test Trench 5 (1), Surface (2).

MISCELLANEOUS STONE ARTIFACTS, MINERAL SPECIMENS, AND FOSSILS

Stone Beads

Disk Bead (Fig. 14b).

Total. One.

Material. Slate.

Provenience. Pithouse 1.

Biconically Drilled Bead (Fig. 14c)

Total. One.

Material. Fine-grained, hard, white stone.

Provenience. Pithouse 1.

Mineral Specimens

Petrified Wood

Total. Eight.

Description. Flakes and small unaltered nodules of petrified wood, probably collected locally from the Chinle or Morrison formations.

Provenience. Pithouse 1 (6); Surface Structure 1 (1); Test Trench 2 (1).

Calcite

Total. Four.

Description. Small unworked sheets.

Provenience. Pithouse 1.

Fossils

Belemnites

Total. 17.

Description. Fragments of *Pachyteuthis* (*Belemnites*) *densus;* probably collected locally from the Curtis formation.

Crinoid Stem

Total. One.

Provenience. Pithouse 1.

Turritella Shells.

Total. Three.

Description. Fossilized shells probably locally available, but exact geologic context unknown.

Provenience. Pithouse 1, floor (1); Pithouse 1 (2).

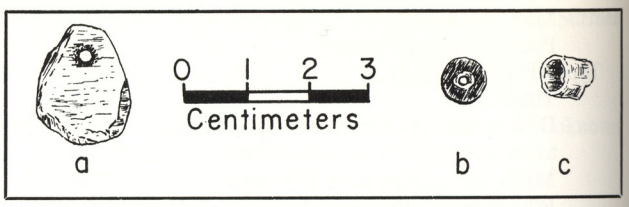


Figure 14. Shell pendant and stone beads. a, shell pendant; b, slate disk bead; c, biconically drilled white stone bead.

SHELL ARTIFACTS

Shell Pendant (Fig. 14a)

Total. One.

Description. Biconically drilled, species unknown.

Provenience. Surface Structure 2.

POTTERY

All ceramics recovered from the MacLeod Site are Turner Gray: Cisco Variety (F. Lister 1960:233). A total of 185 sherds were found, and no whole or restorable vessels were recovered.

Provenience. Pithouse 1, floor (3 sherds, 1 jar base, 1 jar rim sherd); Pithouse 1, fill (116); Pithouse 2, cist (1); Pithouse 2, fill (50); Surface Structure 2 (1); Feature 6 (1), Test Trench 1 (1); Test Trench 5 (1); Surface (9).

CONCLUSIONS

Basically, four architectural dwelling units were excavated; two pithouses and two surface structures. The pithouses are of the same general type found at other sites in the Cub Creek locale, such as Boundary Village, Wagon Run, and Wholeplace Village. The pithouses from all these sites represent the same occupation period or phase.

The surface structures appear to represent a somewhat later occupation of the site than the pithouse occupation, but this is based on architectural typology and nothing else. There are only three projectile points and one potsherd from the two surface structures, and these are artifact types found much more abundantly in the pithouses.

No new information is available concerning the dating of the Fremont occupation in the Cub Creek locale from these excavations.

The MacLeod Site is another example of a small Fremont village with two architectural styles that may or may not be contemporary. The material culture is consistent with the range of material found at other Fremont sites in the locale. The abundance of projectile points and presumed skin-working tools, coupled with the relatively small number of corn-grinding tools and pottery, is indicative of an emphasis on hunting as the primary means of subsistence.

Although part of the site was destroyed prior to our excavations, probably two-thirds of the site was explored. The MacLeod Site may have been occupied by perhaps three related nuclear or extended families, and we might suppose that people belonging to a lineage-sized social unit were the primary inhabitants.

BURNT HOUSE VILLAGE, 42UN118

by
ROBERT W. BIGGS

SITE DESCRIPTION

Burnt House Village, 42UN118, is located in Uintah County in the Utah portion of Dinosaur National Monument, about 10 miles northeast of the town of Jensen, in the SE¼ of the NE¼ of Section 3, Township 5S, Range 24E. The site is situated at the confluence of Cub Creek and South Fork, minor tributaries of the Green River (Frontispiece).

The long finger-like ridge on which Burnt House Village was built is an erosional remnant protruding out into the flood plain from the Navajo formation in a roughly south-north direction (Fig. 2). The 175-m.-long ridge is defined by arroyo drainages on the east and west. The overall slope along the ridge top is less than ten percent. The soils of the southern or upper portion of the ridge, just below the Navajo Sandstone outcrop, are a very fine reddish-tan clay containing some sand, while the soils of the knoll forming the northern or lower tip of the ridge are cobbley, containing more sand and less clay. The native red clay of the upper end of the ridge becomes quite hard and loses its reddish tinge when baked in the sun.

After a dam broke on Cub Creek in 1915, the meandering stream course became deeply entrenched into the dark red clay soils of the flood plain for miles up and down the canyon. Prior to this erosion, Cub Creek and South Fork meandered over the flood plain depositing soils only 15 to 20 m. below the surface of the north tip of the ridge upon which Burnt House Village is situated.

EXCAVATION PROCEDURE

Surface indications for the existence of a site consisted of an ashy clay layer and a hearth exposed in the road cut, three stone-outlined enclosures on the northern tip of the ridge, and fragmentary projectile points and chipping detritus along the ridge.

Pollen samples and artifacts were collected from the surface, and photographs were taken before excavation began. The fill of the structures was sifted through a one-quarter-inch mesh screen.

Since the excavated units cluster into two areas on opposite ends of the ridge, and because the road divides the site into roughly the same two areas, the site was divided into Section I, consisting of the southern or upper part of the ridge; and Section II, the rocky knoll at the northern tip of the ridge. A distance of 40 m. lies between the architectural structures of Section I and those of Section II.



Figure 2. Burnt House Village, looking north. Structure 1 in foreground; planetable over Datum A; Structure 2; two individuals standing in Area A; Area B adjacent to road; Section II on rocky knoll at north end of ridge; three individuals standing in front of Structure 4 near Datum B; floodplain of Cub Creek; Navajo Sandstone formation in background.

Very little charcoal and ash were found in the rocky soils between the two concentrations of buildings.

SECTION I (Fig. 3)

The south side of the road cut was faced to create a cross-section of the ash-blackened clay layer and what at first appeared to be a number of house floors. This vertical facing revealed an ashy sand-clay layer 20 cm. thick capping the native clay soils of the ridge top.

A baseline, parallel with the road cut facing, was established to keep horizontal control over the cultural material until the limits of architectural units could be established. Excavation along the southwest side of the baseline revealed Structure 3, a "perform" or "blade" cache, and several pits. Three 75-cm.-wide exploratory trenches were excavated down through the cultural level into the native clay. These trenches extended across the ridge perpendicularly from the baseline. Trench A exposed no features; Trench B revealed a "storage" pit and a posthole; and Trench C established the northwestern limits of Structure 3. A 3-m. wide strip was excavated down to the native clay during the search for architectural features related to the posthole in Trench B. This strip, an expansion of Trench B, was perpendicular to the baseline and extended 13 m. to the eroded southwestern slope of the ridge, exposing seven more pits and giving a cross-section of the ridge. A small 1- by 2-m. test hole was sunk just inside the resulting L-shaped excavation unit. This excavation complex, excluding Structure 3, was designated "Area B." By scraping and sweeping the roadbed, the remnants of three more pits were outlined northeast of the baseline.

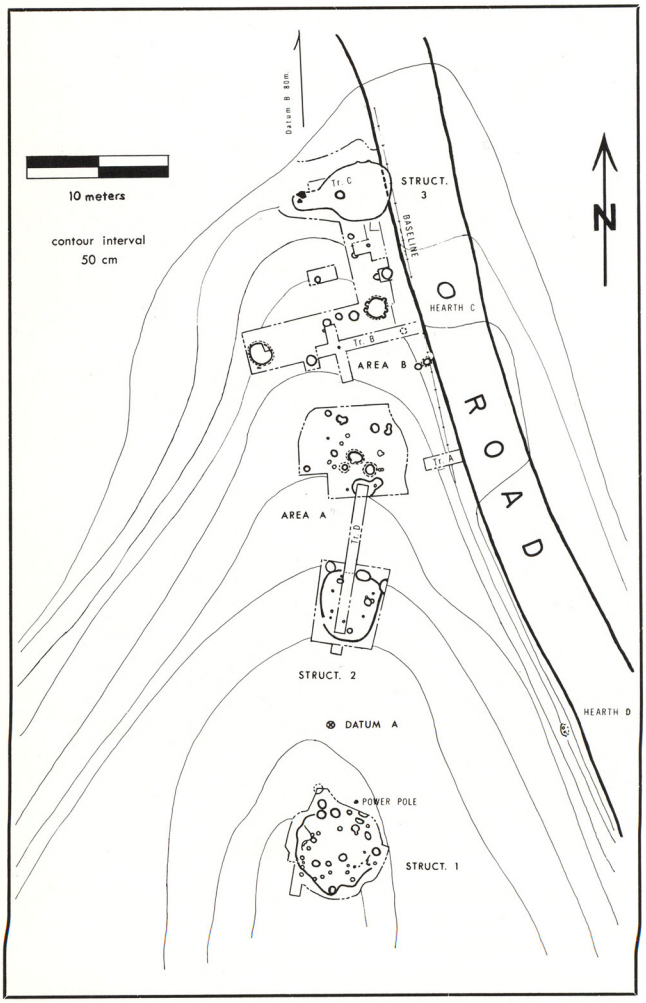


Figure 3. Site map, Section I. Double broken line indicates limits of excavation; trenches indicated by "Tr."

Trench D was laid out in a north-south direction along the top of the ridge, extending down from the Navajo Sandstone outcrop toward Area B. Since the native clay lay less than 15 cm. from the surface at the north end of the trench, a large unit, designated "Area A," was cleared to observe the pattern of the pits. Pollen and soil samples were taken from all the pits in Area A. Structure 2 was observed in the profile of the north segment of Trench D and excavated as a unit with "floor artifacts" being distinguished from "fill artifacts."

The western edge of Structure 1 was encountered in the southern segment of Trench D. When the perimeter of the structure was established, a test hole was begun in its center to follow the floor up to the walls. However, the finding of human skeletal remains on the house floor at the bottom of the test hole necessitated opening an adjacent area to avoid disturbing them.

The center segment of Trench D, running between Structures 1 and 2, was not finished due to lack of time. Other structures could possibly be found here or to the northeast of Structure 1.

Hearth D was exposed in the road bank directly east of Structure 1.

SECTION II (Fig. 4)

Preliminary drawings of the rock-outlined structures were made before excavation began. A north-south trench was excavated just east of the center of Structure 4; another trench was dug perpendicularly to the first through the center of the building. The structure was then excavated in quarters. Since the floor of the unit was not distinguishable during excavation, all artifacts were left on pedestals, and a standing profile balk was left extending from the center to the north side of the structure. Soil samples were collected from the distinct soil levels within the structure and below the floor.

The original north-south trench through Structure 4 was extended farther north through Structures 5 and 6, both of which were excavated as units with distinction made between floor and fill artifacts.

A test pit was dug just under the edge of the ridge to the east of Structure 5 in search of a trash midden. The absence of cultural materials suggests that erosion of the cultural soils from the top of the ridge was responsible for the thick ashy clay deposits found in this area. If the area had been a deliberate trash midden, a concentration of cultural materials would be expected.

ARCHITECTURE

INTRODUCTION

The floors of six structures were encountered during the excavation of Burnt House Village. Three of the structures

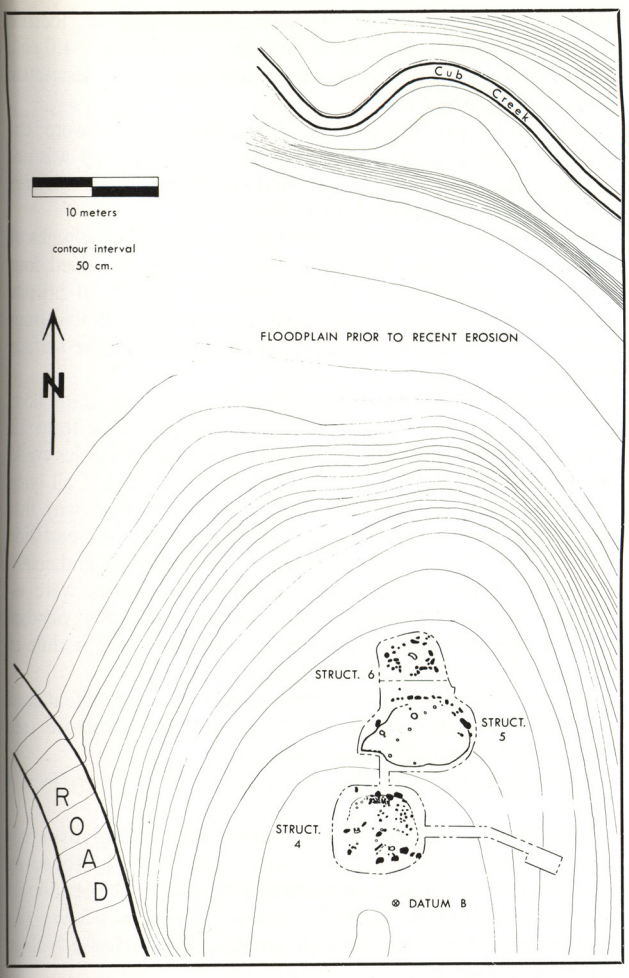


Figure 4. Site map, Section II. Double broken line indicates limits of excavation.

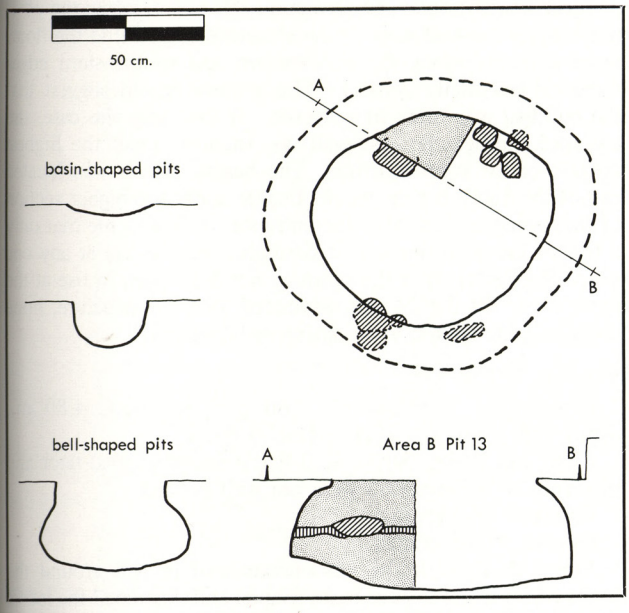


Figure 5. Basin and bell-shaped pits and Pit 13 of Area B. Diagonal hatching—rocks; vertical hatching—charcoal lens containing charred maize kernels; stipple—unexcavated portion of pit fill.

were semi-subterranean, having saucer-shaped floors that were dug into the clay soils of the southern end of the ridge. Structures 4 and 6 were surface structures, possibly as a consequence of the difficulty of digging subterranean floors in the rocky soils of the northern end of the ridge. In both surface structures, a perimeter of cobbles and standstone boulders encircled the floor area. This perimeter of rocks apparently functioned as wall foundations for the superstructure of the building in the absence of the wall bases formed by the floor pit of the semi-subterranean buildings. Structure 5 was partially surface and partially subterranean, due to the slope of the rocky knoll into which it was built. The perimeter of rocks embraced only the portion of the floor that was not subterranean (Fig. 11).

All the houses were roughly circular or ovoid in floor plan. Some exhibited evidence of lateral entrances. The posthole patterns were quite irregular and varied with the individual structure. No postholes were found in Structure 6. The hearths of these houses were basin-shaped and lacked adobe collars. The floors of several structures exhibited a number of other pits that may have been storage cists.

DEFINITION OF PIT TYPES

The 61 pits or cists found on the site can be divided into two distinct shape classes: basin-shaped pits and bell-shaped pits (Fig. 5). A basin-shaped pit has its greatest diameter at the pit's mouth, while a bell-shaped pit has a narrow mouth and its greatest diameter in a subsurface plane near the bottom of the pit. All except two of the bell-shaped pits have rounded or concave bottoms; the two exceptions being Pits 12 and 13 of Area B (Figs. 5, 15).

Basin-shaped Pits

Pit Number	Diameter (cm.)	Depth (cm.)
1	27	11
2	61	18
3	60	18
4	—	20
5	78	26
6	38	21
7	32	20
8	62 × 70	21
9	43 × 68	12
10	—	—
11	33 × 55	9
12	52	12
13	40	12
14	45 × 60	11

Bell-shaped Pits

Pit Number	Diameter (cm.)	Depth (cm.)
15	Mouth 28 Maximum 43	29

STRUCTURES

Structure 1 (Fig. 6-7)

Dimensions. North-south, 6.50 m.; east-west, 5.60 m.

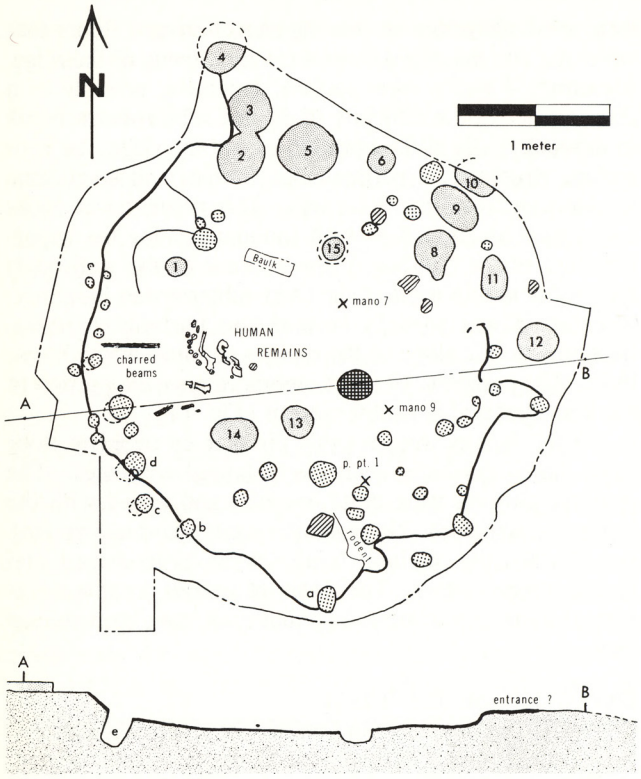


Figure 6. Structure 1, plan and cross-section. Double broken line—limit of excavation; diagonal hatching—rocks; grid—fire hearth; large stipple—postholes in plan and cultural level in cross-section; small stipple—pits; heterogeneous stipple in cross-section—native sandy clay soil.

Depth from present surface, 0.68 m.; depth from native surface, 0.49 m.

Floor and Walls. The floor and bottom of the walls were formed by a pit excavated into the native clay. In several places, segments of the walls were not well defined.

Entrance. A well-defined compact section of floor along the east wall probably represented the position of an entrance.

Hearth. The hearth was distinguishable from a number of basin-shaped pits only by its charcoal fill and its location slightly east of the center of the structure. Diameter, 44.0 cm.; depth, 18.0 cm. (see Human Remains section for description of possible surface hearth).



Figure 7. Structure 1 after excavation. Entrance(?) east of north arrow; hearth southeast of arrow; human remains and semicircle of burned stones to west; standing balk behind photo board indicates depth of floor from recent ground surface.

Pits. Both bell-shaped and basin-shaped pits were encountered. Since the northeastern portion of the wall was not well defined, it was not certain whether all the pits in this area were within the limits of the structure.

Pits 4 and 10 were not completely excavated. Two chunks of sandstone were found in Pits 2 and 7. Pit 3 contained four rocks and four fragments of a cist cover. The fill of all pits was a tan clay-silt containing mixed ash, indistinguishable from the fill of the structure and the trash scattered over the surface of the site.

Postholes. The 37 postholes found on the structure floor ranged in diameter from 8 to 40 cm., and in depth from 12 to 64 cm. No recognizable pattern of main support poles could be identified. However, holes b, c, d, and e (Fig. 6), all lying on the west side of the house, were angled in such a way that their respective poles would lean toward the east-north-east side of the house. The clusters of holes on the northeast and southeast sides of the structure suggest that these poles were essentially vertical. Posthole "a" contained the only pendant found at the site and posthole "b" contained a large nodule of soft hematite and a fragment of wood.

Human Remains. The charred skeletal remains of at least two individuals were found on the floor of the structure (see Human Remains section).

Floor Artifacts. Projectile point, Type 1B(a): two Type 4 manos.

Discussion. The burned roof beams and skeletal materials found on the floor suggest that Structure 1 was destroyed by fire. These features will be discussed further in the section of this report concerned with the Human Remains. Since this structure was one of the more productive, Burnt House Village was named after it.

The position of the beams lying along the periphery of the building suggest that they may have been poles of a tepee-like or forked-stick hogan-like structure. However, while the postholes along the west edge of the structure angled into the floor, those clustered along the northeastern and southeastern edges were all essentially vertical. This pattern would suggest that the building was more of a lean-to. If this were the case, the entrance through the east wall was situated under the highest portion of the superstructure. The hearth, which was located east of the floor's center, would also be under the higher section of the ceiling and closer to the entrance. It is possible that only a few of the great number of postholes were in use at any one time. Similarly, all of the pits may not have been in use at the same time. Of the 14 pits associated with the structure, none contained enough ash to be designated "ash pits."

Structure 2 (Fig. 8)

Dimensions. North-south, 4.60 m.; east-west, 4.80 m.; depth from present ground surface, 0.30 m.

Floor and Walls. Structure 2 had a saucer-shaped floor and the limits of the structure were not well defined.

Entrance. Not located.

Hearth. None located.

Pits. All eight of the pits encountered in and around the limits of Structure 2 were basin-shaped and contained the loose, ashy clay-silt fill found in the fill of the structure. Pit 2, covered by a flat sandstone slab, contained the base of a Type 2B projectile point. Pit 8 contained three fist-sized rocks. No ash pits were discernible.

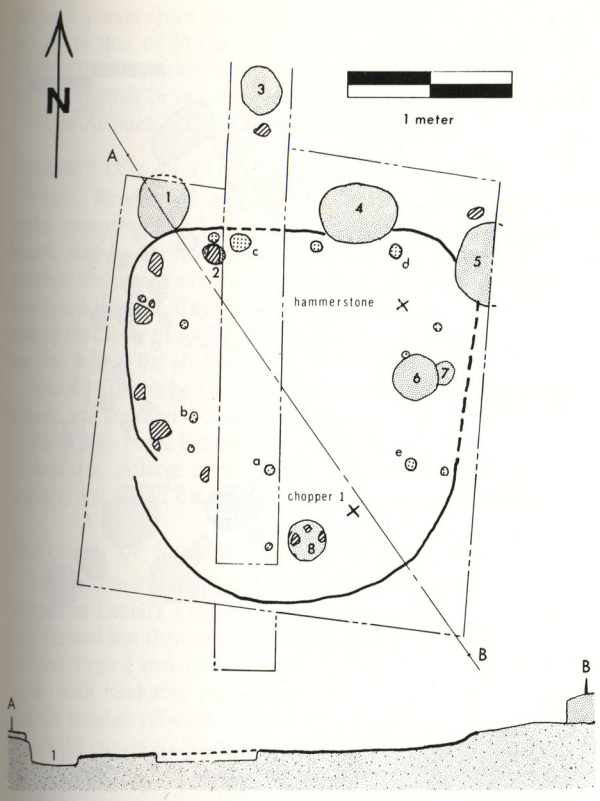


Figure 8. Structure 2, plan and cross-section. Double broken line—limits of excavation; diagonal hatching—rocks; large stipple—postholes in plan and cultural level in cross-section; small stipple in plan—pits; heterogeneous stipple in cross-section—native sandy clay soil.

Basin-shaped Pits

Pit Number	Diameter (cm.)	Depth (cm.)
1	69	15
2	30	11
3	22	60
4	77 × 94	35
5	100	12
6	56	23
7	26	23
8	50	20

Postholes. Six of the 13 postholes (a, b, c, d, e, and f) stood out in distribution, diameter, and depth (all over 20 cm. deep) as those of the primary support posts. They formed a pattern that was roughly rectangular, with holes a and b representing the southeast corner. The secondary posts tended to round this rectangular pattern into a roughly circular one. All postholes were set vertically.

Floor Artifacts. One chopper, one hammerstone.

Structure 3 (Fig. 9)

Dimensions. NNW-SSE, 2.9 m.; WSW-ENE, 5.9 m.; depth below native surface, 0.41 m.

Floor and Walls. The floor was formed by a pit dug into the native clay of the ridge. The irregular floor was ovoid in plan and roughly saucer-shaped in cross-section. The floor curved up sharply around its perimeter forming well-defined walls. The south wall of the house pit rose 0.35 m. from the floor to the native ground surface, while the north wall rose only 0.15 m. due to the slope of the ridge.

Entrance. A trench, 1.0 m. long, 0.40 m. wide, and 0.30 m. deep, extended southwest from the floor and may have been the subterranean portion of an entrance.

Hearth. A basin-shaped pit, 47 cm. in diameter and 20 cm. deep, located near the center of the floor, contained concentrations of ash and charcoal.

Pits. None.

Postholes. No definite postholes were found in or around the structure although two small irregularities in the north wall might be interpreted as post abutments.

Floor Artifacts. The only materials from the floor were the three fist-sized rocks and the sandstone slab found near the poorly defined north wall of the entrance. While there were no floor artifacts, the fill of the structure contained one Type 1B(b) and three Type 3E projectile points, one Type 1 mano, and the only two potsherds found on the site.

Blade Cache. A cache of eight artifacts (one Type 1B(a) and two Type 1B(b) projectile points; two Type 1A and two Type 2B blades; one turtleback scraper and one flake scraper) and two flakes were found in a shallow pocket on the native surface, 45 cm. outside the south wall (Fig. 9).

Discussion. Although Structure 3 lacked the postholes, pits, and floor artifacts found in the rest of the pit structures, its size

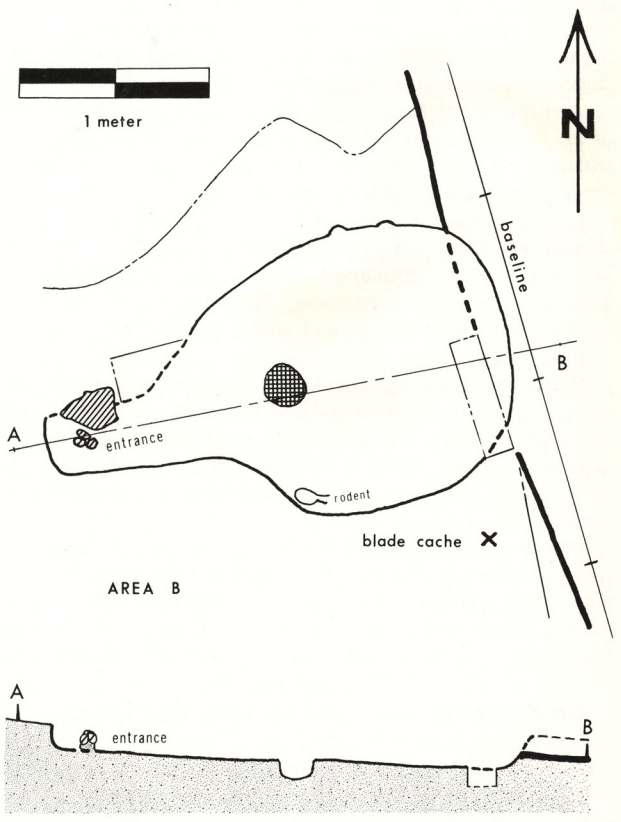


Figure 9. Structure 3, plan and cross-section. Double broken line—limit of excavation; diagonal hatching—rocks; grid—fire hearth; heterogeneous stipple—native sandy clay soil; heaviest solid line—edge of road cut.

and morphology, the central hearth, and the associated cultural materials suggest that it was a dwelling. Due to the lack of definite postholes, speculation on the nature of its superstructure are limited. The native clay walls of the pit may have served as wall bases for a superstructure built over the pit, or the structure may have been built entirely within the pit depression. The three rocks and the sandstone slabs found in the entrance may have served as part of the north wall of the entrance trench.

Structure 4 (Fig. 10)

Dimensions. North-south, 7.1 m.; east-west, 6.5 m; depth from surface, 0.09 m. These dimensions are approximate since the limits of the structure were not well defined.

Floor. The floor differs from those previously described in two ways: it was built on the native ground surface instead of in a pit, and it appears to have a prepared sand floor covering the gravel and rocks which protruded from the ridge's surface. A floor level was not distinguishable during excavation, but all artifacts were pedestaled as they were found and a balk profile from the center of the structure to its northern edge was left unexcavated. After the remainder of the floor had been cleared, it was found that all of the artifacts sat on small pedestals of sand, and an 8-cm.-thick layer of ashy, fine sand extended the full length of the profile of the unexcavated balk. This sand lens overlying the native soil tended to gradually disappear toward the eastern edge of the house and it stopped abruptly at the rocks defining the northern limits of the dwelling.

Walls. The perimeter of the house was not well defined; however, a roughly circular arrangement of rocks surrounding the floor area was detected from the surface before excavation began. After excavation, the rocks protruding from the native ridge surface tended to make this pattern less obvious, yet the concentrations of stone along the northern and eastern edges of the floor were still distinguishable, as seen in the plan of the structure. These cobbles and sandstone fragments showed no signs of having been deliberately shaped.

Hearths. Two hearths were found; both were irregular-shaped basins containing rocks, ash, and charcoal. Hearth 1 was 31 by 39 cm. in diameter, 9 cm. deep, and contained one Type 1A blade and seven rocks. Hearth 2 was 12 by 26 cm. in diameter, 10 cm. deep, and contained three rocks.

Pits. None.

Postholes. The largest of the 14 postholes was situated near the center of the structure and had a diameter of 30 cm. and a depth of 56 cm. The peripheral postholes, well distributed around the center posthole, were smaller in diameter, were less than 30 cm. deep, and were perpendicular to the ground surface.

Profile. The unexcavated balk showed three distinct soil zones above the native gravels of the ridge: zone 1. Surface to 6 cm. deep, sandy loam and surface vegetation. zone 2. Six to 10 cm. deep, orange to red clay with mixed charcoal, might have been roofing material. zone 3. Ten to 18 cm. deep, sand with mixed ash, probably a prepared floor.

Floor Artifacts. One Type 1 and one Type 2 mano; three hammerstones.

Discussion. The diameter and depth of the center posthole, compared to the peripheral postholes, suggest that the center pole may have been larger in diameter and possibly taller than the peripheral posts, making it necessary to put it in a deeper hole for stability. If the center pole stood higher than the peripheral posts, it is possible that the structure had a conical or pyramidal type of roof. The unshaped cobbles and sandstone boulders encircling the floor area may have served as some form of foundation for the building's superstructure.

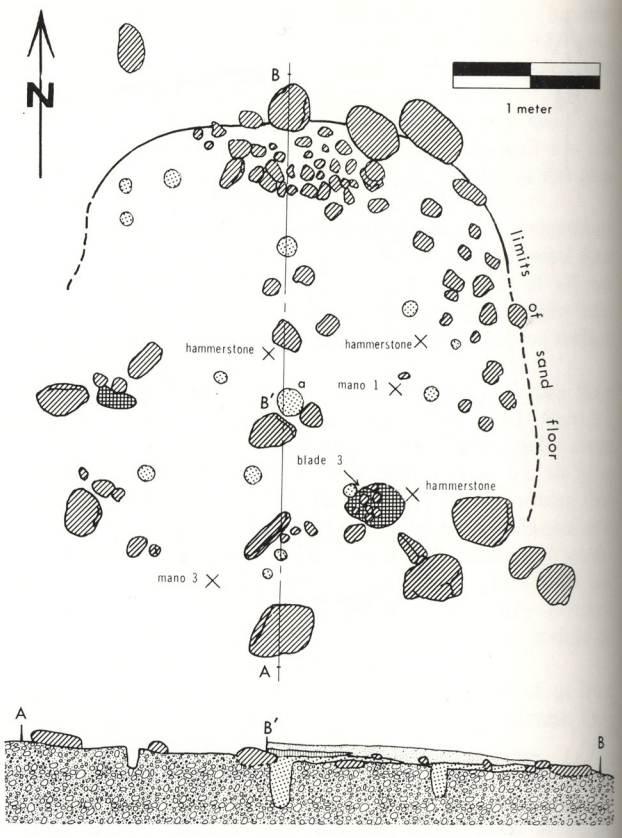


Figure 10. Structure 4, plan and cross-section (profile balk between B and B′ not shown in plan). Heavy black line—distinguishable limits of sand floor; diagonal hatching—rock; grid—fire hearths; large stipple—sand filled postholes in plan and sand floor and sand filled postholes in cross-section; vertical hatching—red clay containing charcoal; heterogeneous stipple—tan surface loam; cobble symbol—native gravel subsoil.

Structure 5 (Fig. 11-12)

Dimensions. East-west, 8.0 m.; north-south, 5.5 m. Maximum depth from ground surface, 0.61 m.; minimum depth, 0.10 m.

Floor and Walls. Since Structure 5 was built on a slope, it was necessary for the aboriginal builders to remove dirt from the uphill portion of the pit to obtain a relatively level floor. This had the effect of leaving a 61-cm.-high wall on the south side of the pit and hardly any wall on the north side. A semicircle of 23 sandstone slabs defined the north and part of the east wall since the pit was quite shallow along these edges. The fill of the house was an ashy sand with occasional streaks of red clay, which might be roofing clay.

Hearth. Although no definite hearth was found, one or both of the basin-shaped pits may have functioned as such.

Pits. The two basin-shaped pits contained soil indistinguishable from the ashy sand fill of the structure.

Postholes. The seven remaining holes, having diameters under 25 cm. and depths ranging from 10 to 40 cm., are assumed to have been postholes.

Entrance. The short trench, 1.50 m. long and 1.90 m. wide,

projecting west from the oval-shaped pit of the structure, was similar to that of Structure 3. Four sandstone boulders protruded from the north wall of the entrance trench, but it is not certain whether or not these rocks were purposely placed.

Floor Artifacts. Three hammerstones.

Structure 6 (Fig. 11-12)

Floor. Structure 6 consisted of a circular arrangement of rocks, approximately 1.5 m. in diameter, surrounding a central hearth. Although a few centimeters of sandy soil containing ash overlaid the native sand and gravel of the floor, no difference was noted between those soils inside and those around the outside of the circle of rocks, nor was there any evidence of building clay within the shallow fill of the circle.

Hearth. The only pit within the small structure was basin-shaped and contained charcoal in its fill.

Postholes. None located.

Artifacts. A large core chopper, the only possibly associated artifact, was found on the surface prior to excavation.

DISCUSSION OF STRUCTURES

Most of the structures at Burnt House Village exhibit the attributes of Leach's (1966) Type I structures at Boundary Village located less than one-half-mile to the northwest. Leach has defined Type I structures as having roughly circular floor patterns, with randomly placed postholes, and shallow basin-type hearths located off-center. Structure 1 of Burnt House Village comes the closest to fitting these criteria and varies only by having a relatively central hearth. Structures 3 and 6 also vary

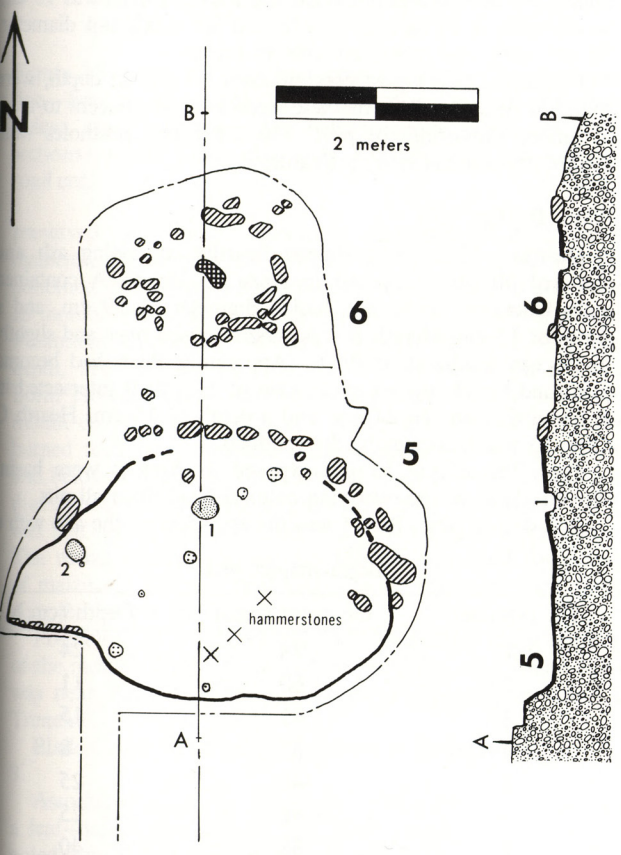


Figure 11. Structures 5 and 6, plan and cross-section. Double broken line—limit of excavation; diagonal hatching—rocks; grid—fire hearth; large stipple—postholes; small stipple—pits; cobble symbol—native gravel subsoil.



Figure 12. Structures 5 and 6, after excavation. From left to right: entrance to Structure 5; west wall of excavation trench running north on left side of Structure 6; central hearth of Structure 6 not excavated at time of photo; entrenched channel of Cub Creek shown at top of photo.

from the type definition by having central hearths and by the absence of postholes. Perhaps the simplest way of describing the structures using Leach's classification would be that they do not have the characteristics of his stratigraphically later Type II Structures. None of the Burnt House Village structures exhibit central adobe-rimmed hearths with associated ashpits, surrounded by a positive pattern of three or four main central support posts with secondary perimeter posts outlining the structure.

Some of the differences between the houses at Burnt House Village and those at Boundary Village can be attributed to environmental differences. Because of the relatively flat ridge top, it was evidently necessary to level an area for the construction of Structure 5 only, whereas this was required for all the structures of Boundary Village due to the slope of the hillock.

The relatively crude appearance of the structures, compared to those found on the other side of the flood plain at Boundary Village, probably can be attributed to differences in the soils. The hard clay and cobbley soil of Burnt House Village made the aboriginal excavation of house pits more difficult than did the sand ridges across the creek. The rock-outlined surface structures located on the rocky knoll of Section II resulted. These rock-outlined structures were of particular interest at the time of excavation because, prior to that time, none had been found in the Cub Creek vicinity. It is emphasized that these are not the "masonry structures" encountered elsewhere in the Fremont area, nor are they "vertical slab foundations" (Wormington 1955:172). Instead, these stones may have served as basal support for jacal walls. Surface structures were encountered in three other sites in the area (the MacLeod Site, 42UN121; the Ford Site, 42UN120; and the Dam Site, 42UN119) and were found with pit structures having both Type I and Type II architectural features.

Apparently these stone foundations were not used in the pit structures. The edges of the house pit must have sufficed as wall bases since stone foundations are found only where the floor lies close to the ground surface, and the pit wall is absent as in the northern half of Structure 5 and the northern portion of the entrance of Structure 3. Little more than speculation can be offered for the construction of the walls and roofs of the buildings since the two beam fragments of Structure 1 are the only remnants of a superstructure found at the site.

Area A (Fig. 13-14)

Feature 1. Feature 1 was a kidney-shaped depression with a posthole in the center of the eastern half. A posthole just outside the west end of the depression may also be associated with the feature. It was 2.60 m. east-west; 1.30 m. north-south, and 0.8 m. below the native clay ridge surface. One Type 3E projectile point was found in association.

Pits. Sixteen pits were exposed in Area A, of which 13 were basin-shaped. The soils of the overlying cultural level fill all pits.

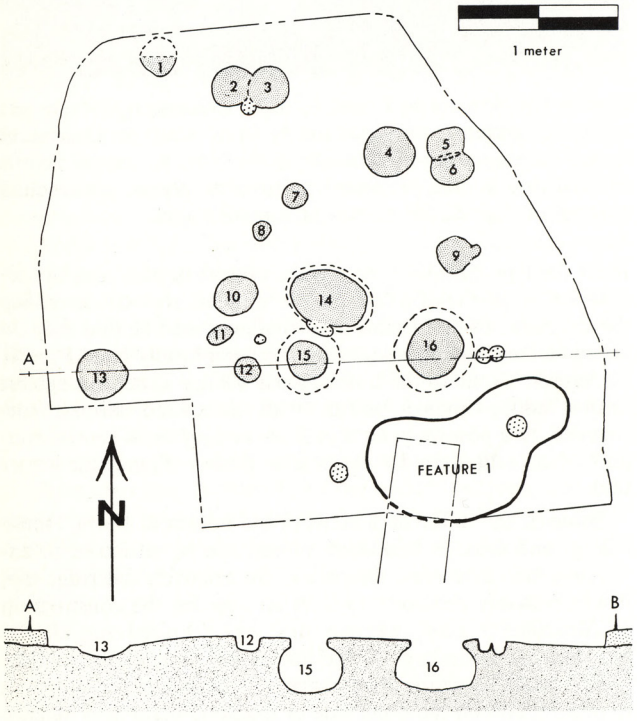


Figure 13. Area A, plan and cross-section. Double broken line—limit of excavation; large stipple—postholes in plan, cultural level in cross-section; small stipple—pits in plan; heterogeneous stipple in cross-section—native sandy clay soil.



Figure 14. Area A, after excavation. Trench D in foreground; two girls are sitting in Area B; Pit 11 of Area B is visible in road bed to right of girls.

Basin-shaped Pits

Pit Number	Diameter (cm.)	Depth (cm.)
1	Excavation incomplete	
2	55	8
3	52	15
4	61	15
5	55	15
6	49	15
7	29	9
8	15	8
9	45	18
10	15	10
11	35	30
12	32	18
13	61	15

Pits 2 and 3 intersected, as did Pits 5 and 6. Pit 2 contained two fire-burned rocks and a flake, while Pit 11 contained four rocks and a flake. Pits 4, 12, and 13 also contained flakes.

Bell-shaped pits: There were three bell-shaped pits in Area A. Pit 14 had an orifice diameter of 100 cm. and a maximum diameter of 110 cm. It was 40 cm. deep and contained three flakes. Pit 15 was 51 cm. in diameter at its mouth, had a maximum diameter of 80 cm., a depth of 80 cm., and contained two burned and five unburned rocks. Pit 16 was 75 cm. in diameter at its mouth, 106 cm. at its maximum diameter, 55 cm. deep, and was filled with 30 rocks.

Postholes. Seven postholes, all over 15 cm. in depth, were found in Area A. Five of these were located adjacent to a pit or among clusterings of pits. The other two postholes were apparently associated with Feature 1.

Area B (Fig. 15)

Hearths. Three basin-shaped hearths containing ash and charcoal fills were exposed in Area B. Hearth A contained eight blackened rocks and had a diameter of 59 cm. and a depth of 15 cm. Hearth B was superimposed over and slightly to the east-southeast of Pit 6. Apparently Pit 6 had become filled and the aboriginal excavation of Hearth B intersected it. It had a diameter of 61 cm. and a depth of 15 cm. Hearth C (Fig. 3) was truncated by the roadbed.

Pits. Ten of the 13 pits exposed in Area B were basin-shaped. Soils of the overlying cultural level filled all pits.

Bell-shaped pits: Pit 11 was the only one on the site with a

Basin-shaped pits

Pit Number	Diameter (cm.)	Depth (cm.)
1	78	24
2	60	11
3	41	15
4	52	8
5	40	25
6	80	25
7	38	40
8	20	10
9	41	15
10	50	15

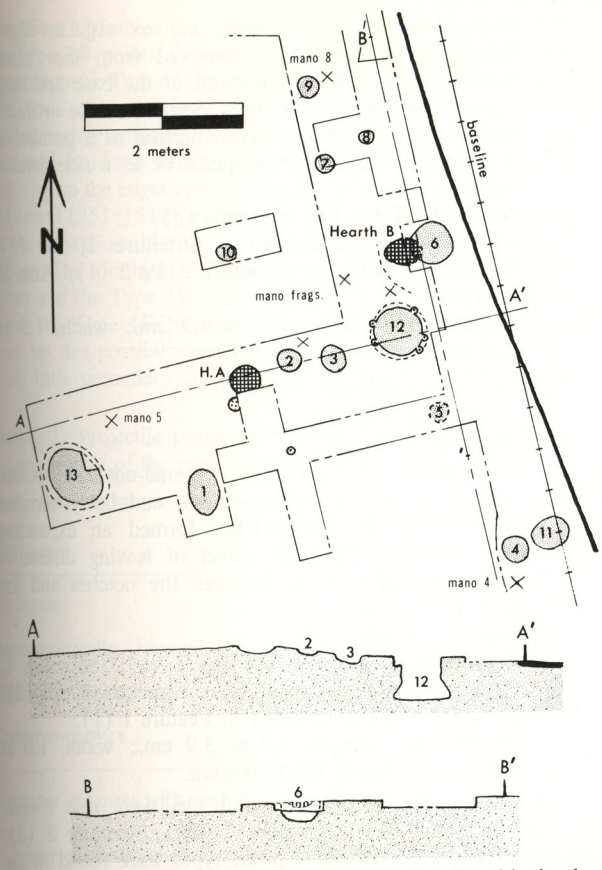


Figure 15. Area B, plan and cross-sections. Double broken line—limit of excavation; grid—hearths; large stipple—postholes; small stipple—pits; heterogeneous stipple in cross-sections—native sandy clay soil; heaviest solid line—edge of road cut.

preserved mud lining. Maximum diameter, 95 cm.; mouth diameter, 70 cm.; depth, 50 cm. Pit 12 was large and flat-bottomed, containing a lens of 43 fist-sized rocks 60 cm. below its mouth. Five post abutments rimmed the mouth of the pit. Maximum diameter, 140 cm.; mouth diameter, 98 cm.; depth, 110 cm. Pit 13 (Fig. 5) was the largest pit found at Burnt House Village, with a charcoal lens 60 cm. below the mouth covering the entire pit. Within this lens were 51 fire-burned rock fragments and charred kernels of maize. Above and below this lens was the ashy clay-silt of the cultural level that covers the ridge and fills the other pits. Apparently the pit was half full of dirt and trash when the contents were burned. The maize kernels suggest that the pit was used for storage of maize. A notched drill and a blade fragment were found near the bottom of the pit.

Postholes. In addition to the post abutments along the edge of the mouth of Pit 15, two other postholes were found. One was near Pit 2 and the other stood in apparent isolation in Trench C.

Blade Cache. This feature has been described with Structure 3.

Associated Artifacts. Two Type 3 and four Type 4 manos, a leaf-shaped end scraper, two blade bases, and the artifacts noted from Pit 13 were found.

Living and Storage Area

The area between Structures 2 and 3, sampled by excavation units Area A and Area B, was probably a combination storage-living area. There were three definite hearths plus a total of 26 basin- and bell-shaped pits. The level of burned maize in the large bell-shaped Pit 13 of Area B suggests that it and the other five bell-shaped pits of the living area and the sixth in Structure 1 were used for food storage. Foodstuff was found in identical pits at Mantle's Cave in Castle Park (Burgh and Scoggin 1948:32).

At Burnt House Village, 45 shallow, basin-shaped pits lacking evidence of use as fire hearths were found. Burgh suggests that those found in Mantle's Cave were the bottoms of pits that were truncated by a reduction of the occupation level. This explanation seems unlikely for the shallow pits of Burnt House Village since the lowering of the occupation level would have obliterated the postholes associated with the pits. The shallowness of some of these pits, several of them less than 10 cm. deep, would make them impractical as storage cists. Possibly some of these shallow basins were the bottoms of above-ground storage structures made of bark, sticks, and mud, like those of the caves on the Fremont River (Morss 1931: 58).

The intersection of Hearth B and Pit 6 of Area B and the evidence suggesting that Pits 12 and 13 were half full of dirt and trash at one aspect of their use indicates that not all the pits were in use at the same time. New pits and granaries were probably built as they were needed, and others became filled with trash after they were emptied.

The concentration of manos, blades, scrapers, and flakes suggests that this was also a working area for the preparation of food and possibly the manufacture of implements.

Stone Industry

The artifacts have been sorted into a number of "descriptive groups" (Davis 1963:191) on the basis of selected attributes. To facilitate comparison of the materials with other sites recently excavated in the Dinosaur region, the author has aligned the nomenclature of these descriptive groups with those of Breternitz (1965) and Leach (1966). The word "type" is not meant to imply a type in the sense of a "grouping of attributes with definable space and time distribution" (Davis 1963:197), but only as a descriptive group.

Ideally, attributes of the more diagnostic artifacts should be linked to individual specimens rather than to the distinctive groups so that the data could be easily reorganized. The data could then be manipulated into more meaningful units, such as culturally defined types, as additional data makes these attribute clusters discernible. However, for conciseness and conformity to the typology used in the other reports, the format established by Breternitz (1965) and Leach (1966) has been utilized.

Chipped Stone Industry

Projectile Points—The projectile points were the most numerous and most diagnostic of the stone artifacts recovered from Burnt House Village. A total of 30 classifiable points and point fragments were found. The author has taken the liberty of adding some attributes and modifying definitions of other attributes under these descriptive categories defined by Breternitz (1965), so that the Burnt House Village points can be easily compared to projectile points of other Fremont Culture sites as described by Burgh and Scoggin (1948), Leach (1965, 1966), Lister (1951), and Wormington (1955). These sources plus Binford (1963) were of great assistance in defin-

ing the attributes.

Type 1, Unnotched

Type 1B(a) (Fig. 16a)

Total. Two.

Description. Triangular points, convex base, straight edges, thin in cross-section compared to Type 1A blades, regular edges.

Material. Chert.

Provenience. Structure 1, floor (1); blade cache near Structure 3 (1).

Dimensions. Length, 3.5 cm.; width, 1.5 and 2.5 cm.; thickness, 0.4 and 0.5 cm.

Type 1B(b) (Fig. 16b-d)

Total. Six.

Description. Leaf-shaped points, convex base, convex edges, thin in cross-section, regular edges.

Material. Chert.

Provenience. Surface collection, Section I (1); Structure 3, fill (1); Blade cache near Structure 3 (2); Area B, fill (2).

Dimensions. Length, 3.7 to 4.5 cm.; width, 2.1 to 2.5 cm.; thickness, 0.5 to 0.7 cm.

Type 2, Notched-stemmed

Type 2B (Fig. 16e-i)

Total. Nine.

Description. Stemmed, rounded base points; leaf-shaped blade, convex base, convex regular edges. Whether the notch was removed from the "blade blank" at the point of juncture of the base and edge elements or above this point determines the artifact's appearance, and thus its classification as a parallel to expanded tanged stemmed point or as a side-notched point.

Materials. Chert (4), quartzite (5).

Provenience. Surface (1); Structure 1, fill (5); Structure 2, fill (1); Structure 2, Pit 2 (1); Area B, fill (1).

Dimensions. Length, 2.9 to 4.9 cm.; width, 1.3 to 2.4 cm.; thickness, 0.5 to 0.7 cm.

Type 3, Notched, Diagonal-notched

Type 3E (Fig. 16j-n)

Total. 14.

Description. Triangular, diagonal-notched points; convex to straight bases, straight and finely serrated edges. The diagonal notches formed an expanding tang and often had the effect of leaving distinctive barbs protruding down between the notches and the edges of the blade.

Material. Chert.

Provenience. Surface, Section II (1); Structure 1, fill (5); Structure 2, fill (2); Structure 3, fill (3); Structure 5, fill (2); Area A, Feature 1 (1).

Dimensions. Length, 2.0 to 3.9 cm.; width, 1.0 to 2.2 cm.; thickness, 0.3 to 0.4 cm.

Comments. Nine projectile point tips were also found: Surface, Section I (1); Structure 1 (3); Structure 2 (2); Structure 5 (3). All of these point types were found in the Fremont levels of Hell's Midden and at Boundary Village.

Of the two types of notched points, the corner-notched (Type 3E) were technically more refined than the stemmed (Type 2B). All but two of the Type 3E points were biconvex or asymmetrically biconvex in transverse section, while only three of the Type 2B points displayed this feature (Table 1). All but three of the Type 3E points were concavo-convex in longitudinal section, having been formed on a curved flake (Table 2).

The primary chipping scars of the Type 3E points were obscured by the concoidal, continuously patterned secondary chipping scars. Removal of these secondary chips at the same point on both faces of the artifact often created a slight serra-

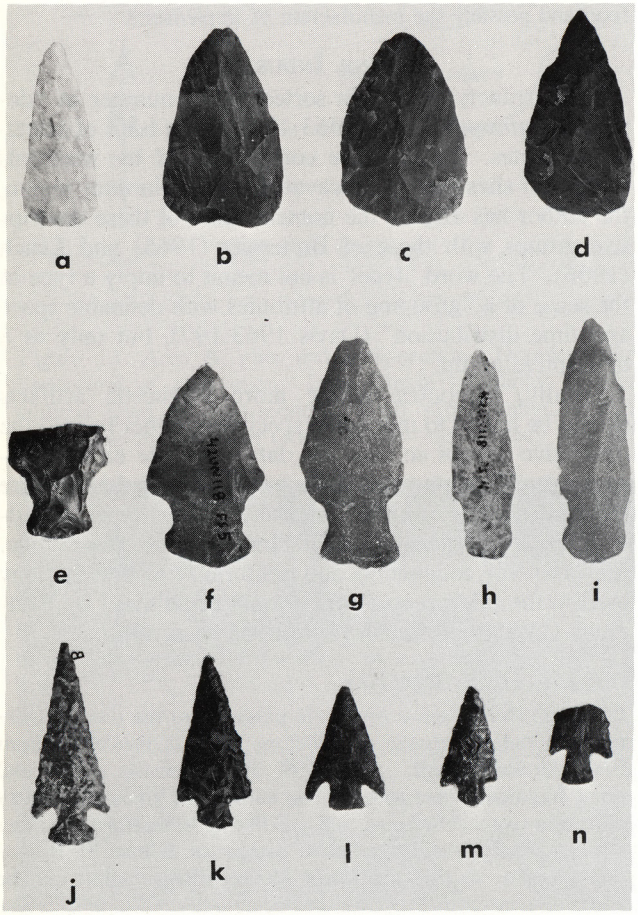


Figure 16. Projectile points. a, Type 1Ba (pt. 1); b-d, Type 1Bd (pts. 6, 5, 4); e-i, Type 2B (pts. 13, 12, 10, 16, 15); j-n, Type 3E (pts. 21, 20, 29, 19, 26). Length of a, 3.5 cm.

Table 1. Projectile points, geometric attributes of the transverse section of the blade, observed at its midpoint.[a]

Attribute	No. of Points Type 1A	Type 2B	Type 3E
Biconvex	2	1	8
Asymmetrically biconvex	2	2	3
Convexo-triangular	1	—	1
Asymmetrically bitriangular	—	1	—
Plano-convex	1	3	1
Plano-triangular	1	—	—

[a]Number of points with each attribute given.

tion effect. Most of the primary chipping scars observed on the Type 2B points fell within Binford's (1963) diminutive size category. Two of the curved points lacked primary chipping scars as one surface exhibited the original flake surface. The secondary chipping scars of the Type 2B points were also concoidal in shape, but in this case placed discontinuously in touching up the edges and in shaping the haft element.

Lister (1951:15) has suggested that the Type 1B unnotched points served as blanks for the finished notched projectile points. The similarities between the Type 1B(a) unnotched points and the Type 2B notched points and the similarities between the Type 1B(b) unnotched and the Type 3E notched point up this possibility. Also, the Type 1B points show relatively little secondary chipping.

TABLE 2. Projectile points, geometric attributes of the longitudinal section of the point, observed on its longitudinal axis.[a]

Attribute	No. of Points		
	Type 1A	Type 2B	Type 3E
Biconvex	1	1	6
Asymmetrically biconvex	3	2	3
Plano-convex	2	1	2
Concavo-convex	2	4	1

[a]Number of points with each attribute given.

Lister also suggests that some of the Type 2B stemmed points were used as knives rather than projectiles. Binocularscopic analysis showed that the edges of four of these eight points exhibited abrasion to a greater degree than in any of the other projectile points. However, no definite wear patterns were observed on the faces adjacent to the edges (see Semenov 1964:93). It will be necessary to conduct a detailed analysis of a larger sample of materials, with some form of experimental controls, before conclusions can be made.

Blades (bifacially prepared flakes)

Flakes exhibiting bifacial retouching along one or more edges are considered to be "blades" in this report for the purpose of easier correlation with the terminology used by Bretternitz (1965) and the other reports in this publication. The term "knife" has been applied to this category of artifacts by Burgh and Scoggin (1948:44-47) and Wormington (1955:53).

A few of the artifacts of this category were probably used as scrapers instead of cutting implements. When the blade's cross-section near an edge was relatively thick and the flaking formed an irregular edge, the implement's cutting ability was lessened and the artifact was probably used as a scraper. When the blade's cross-section near an edge was thin and the flaking had formed a regular edge, the artifact was probably used as a knife. Most of these blades were probably hafted.

Since this category of "blades" would include a number of specialized artifact forms recognized as having particular functions, such as projectile points and drills, these artifacts will be described in separate categories.

Type 1, Pointed Blades

Type 1A (Fig. 17a-c)

Total. Five.

Description. Leaf-shaped to triangular; convex base; convex edges; generally thick, with at least one edge which has been secondarily flaked into a regular cutting edge.

Material. Chert.

Provenience. Blade cache near Structure 3 (2); Structure 4, Hearth 1 (1); Area B (2).

Type 2, Non-pointed Blades

Type 2A (Fig. 17d-f)

Total. Three.

Description. Ovate, thick, percussion flaked, irregular edges.

Material. Chert.

Provenience. Surface, Section I (1); Structure 1, fill (2).

Dimensions. Length, 4.1 to 4.9 cm.; width, 2.3 to 3.0 cm.; thickness, 1.0 to 1.9 cm.

Type 2B (Fig. 17g-i)

Total. Three.

Description. Ovate, thin, percussion flaked with some retouch, regular edge. Differ from projectile point Type 1B by lacking point.

Material. Chert.

Provenience. Blade cache near Structure 3 (2); Area B (1).

Dimensions. Length, 3.2 to 4.2 cm.; width, 2.0 to 2.2 cm.; thickness, 0.5 to 0.8 cm.

Fragments—Ten fragments of blades—tips, bases, and edge fragments—were found which could not be typed.

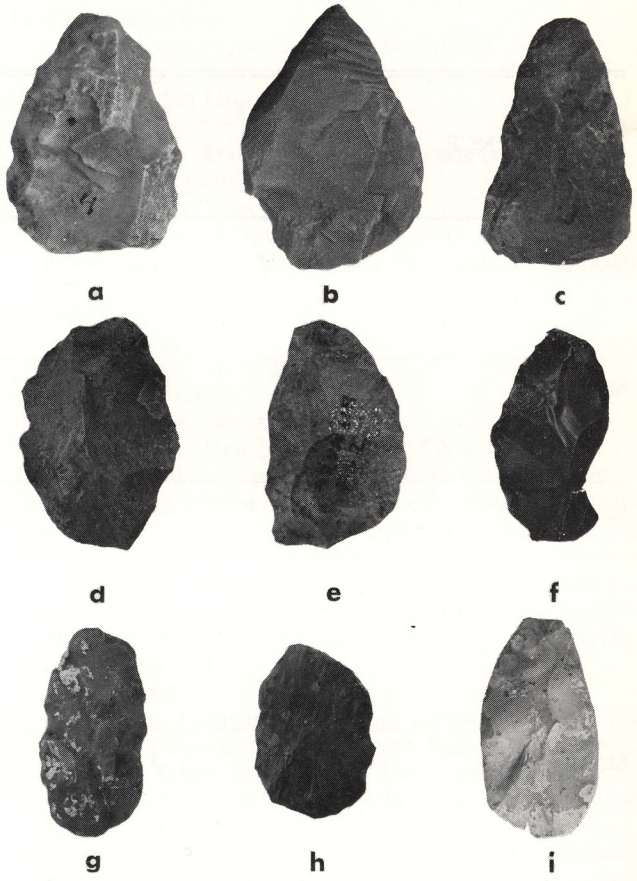


Figure 17. Blades. a-c, pointed blades Type 1A (blades 4, 5, 3); d-f, non-pointed blades Type 2A (blades 6, 7, 8); g-i, ovate blades Type 2B (blades 11, 10, 9). Length of a, 4.8 cm.

Table 3. Distribution of cores and flakes.

PROVENIENCE	MATERIAL							
	Quartzite	*Chert*						*Chalcedony*
	yellow-gray	red	pink	brown	white	gray	black	white
Surface	30	1	38	1	—	10	13	5
	2*		1*			1*		
Struct. 1	80	14	32	34	—	60	58	10
	1*			4*		1*		
Struct. 2	30	—	75	33	—	46	55	22
Struct. 3	—	—	51	29	—	53	15	5
Struct. 4	3	3	—	2	—	10	3	—
Struct. 5	3	—	14	5	—	7	9	1
Struct. 6	—	—	—	2	1	3	—	1
Area A	2	—	15	5	—	29	4	—
				1*				
Area B	22	14	18	16	1	23	7	1
		1*		1*				
Total	170	32	243	127	2	241	164	45
	3*	1*	1*	6*	—	2*	—	—
						14 cores		1024 flakes and chi

*Signifies core count; all others are chips and flakes.

Materials. Chert (6), quartzite (4).
Provenience. Surface, Section I (1); Surface, Section II (1); Structure 2, fill (3); Structure 4, fill (1); Area B (3); Area B, Pit 13 (1).

Scrapers (unifacially prepared flakes)—Flakes exhibiting unifacial retouch along one or more edges are considered to be scrapers, although thinner cross-sectioned specimens could have been used as cutting tools also.

Turtleback Scraper (Fig. 18a)
Total. One.
Description. Turtleback scraper, prepared edges, parallel sides and convex ends.
Material. Chert.
Provenience. Blade cache near Structure 3.
Dimensions. Length, 7.8 cm.; width, 3.9 cm.; thickness, 2.0 cm.

Leaf-shaped End Scraper (Fig. 18b)
Total. One.
Description. Flake retouched on one end.
Material. Chert.
Provenience. Area B.
Dimensions. Length, 4.2 cm.; width, 3.1 cm.; thickness, 1.0 cm.

Flake Scraper (Fig. 18c)
Total. One.
Description. Irregular flake with convex prepared edge near bulb of percussion.

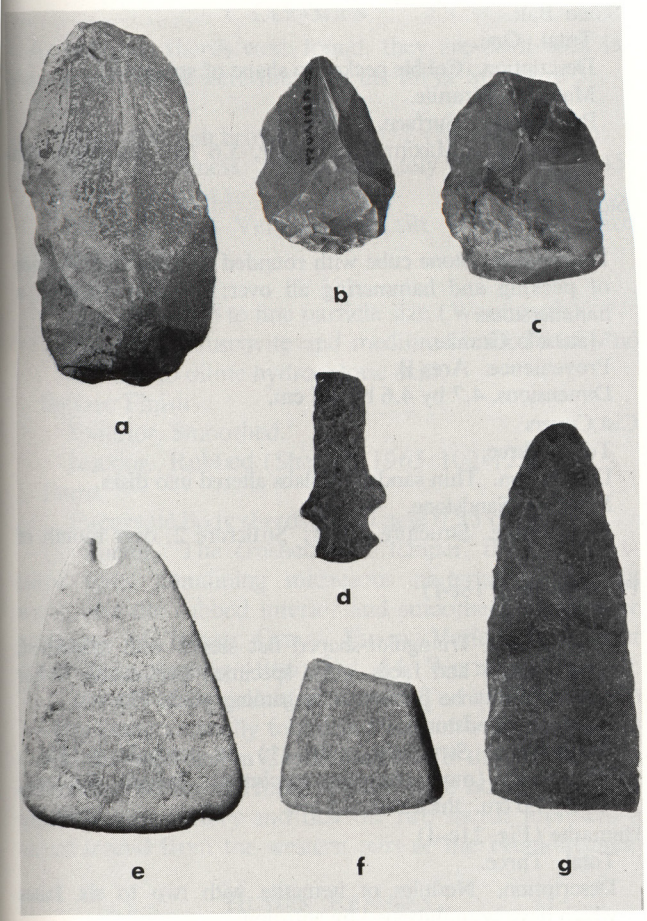


Figure 18. Scrapers, drill, pendant, gaming piece, blade. a, Scraper 1; b, Scraper 2; c, Scraper 3; d, Drill 1; e, pendant; f, gaming piece (?); g, blade tip 12. Length of a, 7.8 cm.

Material. Chert.
Provenience. Blade cache near Structure 3.

Drills
Notched drill (Fig. 18d)
Total. One.
Description. Rounded base with two side notches.
Material. Quartzite.
Provenience. Area B, Pit 13.
Dimensions. Length remaining, 4.0 cm.; width of base above haft element, 2.0 cm.; diameter of shaft, 0.6 cm.

Drill shaft
Total. One.
Description. Tip of drill.
Material. Jasper.
Provenience. Structure 2, fill.
Dimensions. Diameters, 0.3 and 0.5 cm.

Cores and Flakes—Cores and flakes showing no sign of further preparation were discarded in the field after provenience and description of the individual specimens were recorded. This data is summarized in Table 3. Undoubtedly, many of the flakes were used as cutting and scraping tools; however, only two specimens showed minutely chipped edges, assumed to be indicative of a utilized flake.

Choppers (Fig. 19)
Total. Three.
Description. Chopping instruments exhibit either deliberate preparatory flaking on one or both faces or evidence of percussion flaking through use. These are relatively asymmetrical or triangular in form, with no evidence of hafting.
Material. Quartzite.
Provenience. Surface, Section II (1); Surface, Structure 6 (1); Structure 2, floor (1).
Dimensions. Length, 10.9 to 11.2 cm.; width, 3.6 to 8.3 cm.; thickness, 2.1 to 2.8 cm.
Weight. Six to 11 oz.

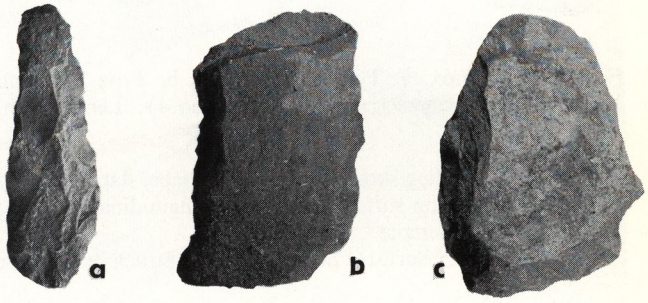


Figure 19. Choppers. a, chopper 1; b, chopper 2; c, chopper 3. Length of a, 10.9 cm.

GROUND AND PECKED STONE INDUSTRY

Manos

Type 1, Loaf-shaped, Unifacial (Fig 20a)
Total. Three.
Description. Loaf-shaped unifacial manos, pecked and ground to shape; convex grinding surface.
Material. Quartzite.
Provenience. Structure 3, fill (1); Structure 4, floor (1); unknown (1).

Type 2, Elongated Adjacent Bifaces (Fig. 20b)
Total. Two.
Description. "Keeled" grinding surfaces adjacent to one

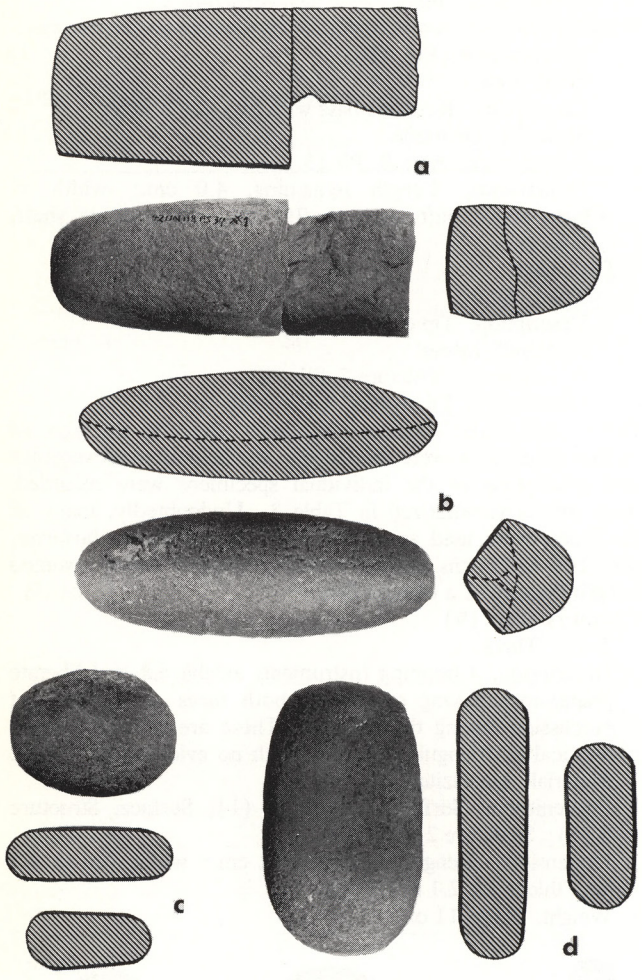


Figure 20. Manos. a, Type 1 (mano 1); b, Type 2 (mano 3); c, Type 4 (mano 9); d, Type 3 (mano 4). Length of b, 19.0 cm.

another, grinding surfaces pecked to shape, flat to slightly convex grinding surfaces along the longitudinal plane.
Material. Quartzite.
Provenience. Surface, Section I (1); Structure 4, floor (1).
Dimensions. Length, 19.0 cm.; width, 6.3 and 6.4 cm.; thickness, 4.4 and 6.4 cm.

Type 3, Rectangular Bifacial Manos (Fig. 20d)
Total. Two.
Description. Flat and roughly rectangular manos with evidence of shaping by pecking and grinding; ends also showed wear through grinding.
Material. Quartzite.
Provenience. Area B.
Dimensions. Length, 10.9 cm. and 14.8 cm.; width, 9.0 and 10.0 cm.; thickness, 3.7 and 4.7 cm.

Type 4, Unshaped River Cobbles, Unifacial and Bifacial (Fig. 20c)
Total. Seven.
Description. Unprepared river cobbles generally utilized on one surface; one bifacial specimen.
Materials. Quartzite and sandstone river cobbles.
Provenience. Surface (1); Structure 1, floor (2); Area B (4).
Dimensions. Length, 7.1 to 8.4 cm.; width, 6.9 to 7.1 cm.; thickness, 3.8 to 4.9 cm.

Grinding Slabs
Total. Two.
Description. Unifacially utilized stone slabs; grinding basin pecked.
Material. Sandstone.
Provenience. Surface, Section I.
Dimensions. Length, 34.0 and 44.0 cm.; width, 23.0 and 30.0 cm.; thickness, 10.0 and 11.0 cm.

Trough Metate
Total. One.
Description. Trough metate with pecked grinding area.
Material. Quartzite.
Provenience. Surface, Section I.
Dimensions. Length, incomplete; width, incomplete; thickness, 5.0 cm.

Hammerstones
Total. 19.
Description. Cobbles with battering scars on ends and protrusions.
Material. Vein quartz.
Provenience. Surface, Section I (4); Surface, Section II (1); Structure 1 (6); Structure 2, floor (1); Structure 4, floor (3); Structure 5 (3); Area B (1).

Stone Ball
Total. One.
Description. Cobble pecked to shape of spheroid.
Material. Granite.
Provenience. Surface, Section II.
Dimensions. Maximum diameter, 5.6 cm.; minimum diameter, 5.5 cm.

Stone Cube
Total. One.
Description. Stone cube with rounded corners and evidence of pecking and hammering all over; possibly used as a hammerstone.
Material. Granite.
Provenience. Area B.
Dimensions. 4.7 by 4.6 by 4.5 cm.

Cist Covers
Total. Three.
Description. Thin sandstone slabs altered into disks.
Material. Sandstone.
Provenience. Structure 1 (2); Structure 2, over mouth of Pit 2 (1).

Pendants (Fig. 18e-f)
Total. Two.
Description. Triangular-shaped flat stones with smoothed, rubbed edges and faces. One specimen perforated; other could possibly be portion of a gaming piece (?).
Material. Sandstone.
Provenience. Structure 1, fill (1), in posthole a (1).
Dimensions (more complete specimen). Length, 6.1 cm.; width, 4.6 cm.; thickness, 0.5 cm.

Hematite (Fig. 21c-d)
Total. Three.
Description. Nodules of hematite with two to six faces which have been flattened by abrasion.
Provenience. Structure 1, posthole b (1), fill (2).
Dimensions. Length, 3.1 to 3.3 cm.; width, 2.0 to 2.8 cm.; thickness, 1.5 to 1.6 cm.

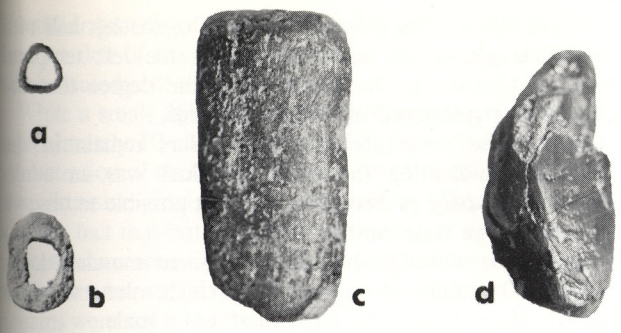


Figure 21. Bone beads and hematite. a-b, bone beads; c-d, hematite with wear striations. Length of c, 3.3 cm.

BONE INDUSTRY

Bone Awl

Total. One.

Description. Tip of awl made from splinter of animal long bone.

Provenience. Structure 1.

Bone Beads (Fig. 21a-b)

Total. Two.

Description. Thin polished bone beads made from rodent long bones.

Provenience. Structure 1.

CERAMICS

As only two sherds were found, they are dealt with in some detail. Both were found in the fill of Structure 3.

Paste

Color. Grayish brown. 10YR5/2 (Munsell 1954).

Micro Hardness. Approximately 1.38 to 1.45 (Moh's Scale 4).

Particle Size. Very fine to silt (Wentworth size classification).

Temper

Size. Medium to fine particle size (Wentworth)

Material. Muscovite and medium crushed rock; no reaction to dilute hydrochloric acid.

Surface Finish

Exterior. Smoothed.

Interior. Rubbed (Shepard 1965:102-125).

Form.

Excurvate body sherds; thickness 0.35 cm.

Comments. The crushed rock temper, the finely textured paste containing micaceous materials, the thick walls, and the rubbed interior and smoothed exterior are attributes of Turner Gray: Emery Variety (F. Lister 1960:287; Ambler 1966: Fig. 54; Wormington 1955: 73), instead of the calcite-tempered Turner Gray: Cisco Variety pottery usually found in Fremont sites in the Cub Creek drainage and in Castle Park. It is thought that the inhabitants of Burnt House Village were not manufacturing their own pottery and that the two sherds represent a vessel traded from the western part of the Fremont area.

HUMAN REMAINS

The human remains recovered from the floor of Structure 1 belong to at least two individuals (Figs. 22-23). All bone was fragile, which made reconstruction difficult.

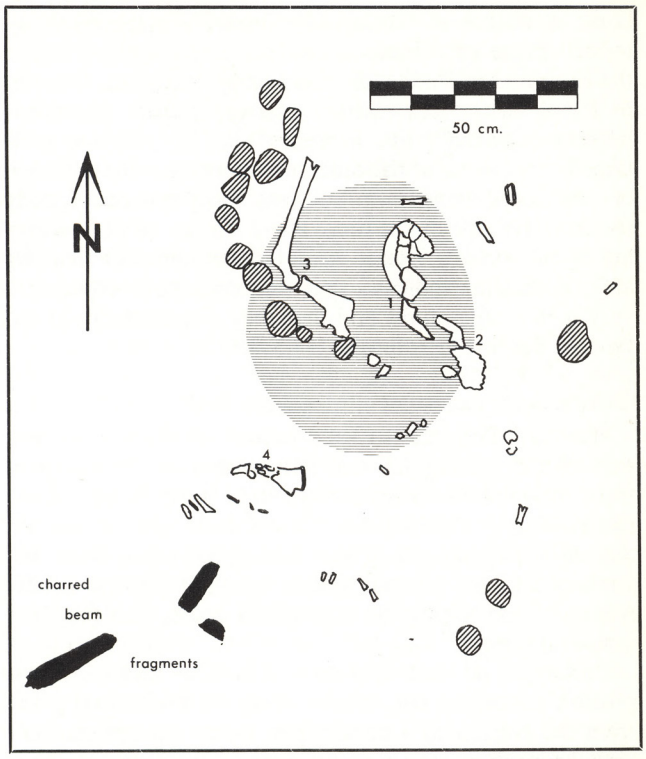


Figure 22. Human remains from floor of Structure 1. 1, Calotte and Mandible 1; 2, Temporal 2 and Mandible 2; 3, right femur and articulated ilium; 4, ilium and sacral fragments; diagonal hatching—rocks; horizontal hatching—fire-hardened floor; solid black—charred roof beam fragments.



Figure 23. Photograph of fragmentary skeletal remains on floor of Structure 1.

Only portions of two craniums and articulated mandible fragments, plus one femur midsection were reconstructed. Most of the data concerning the identification and association of skeletal material was derived from field notes and drawings completed before the bone fell apart during removal from the clay and ash fill matrix.

Exposure to Fire

All human bone recovered showed evidence of exposure to fire, which may partially explain the quantities of small fragments. The cancellous interiors of almost all of the

bone, as well as the surfaces, are charred black. The interior surface of cranium fragments are blackened, while the exterior surface is often covered by a calcium crust up to 1 mm. thick. The charred interior, in some places exhibiting a glazed crust, indicates that the cranium contained some tissue at the time of its burning. The presence of articulated bones also suggests the presence of body tissue at the time of the fire. There was no obvious warping of the bone by intense heat, but the apparent fissuring and calcification indicates that the bones were exposed to very high temperatures and that they were not dry at the time of the fire (Brothwell 1963:19).

Calotte and Articulated Mandible Half

Calotte. The reconstructed portion of the calotte consists of the midsagittal and left portion of the occipital from the lambdoid suture down to a break 5 cm. below the external occipital protuberance, fragments of the left and right parietals along the midsagittal plane from the lambdoid to the coronal suture, a small portion of the frontal to the left of the midsagittal plane, and the right temporal bone.

Although no measurements could be taken, it was possible to make a craniogram along the midsagittal plane from the bregma to a point 5 cm. below the external occipital protuberance. This craniogram shows no evidence of occipital or lambdoidal cranial deformation (Figure 24).

The cranial bones range between 0.5 cm and 1 cm. in thickness and the exterior occipital protuberance and other muscle ridges are prominent, suggesting that the individual may have been a male. Most of the bones were broken along the sutures, so no attempt will be made to describe suture fusions.

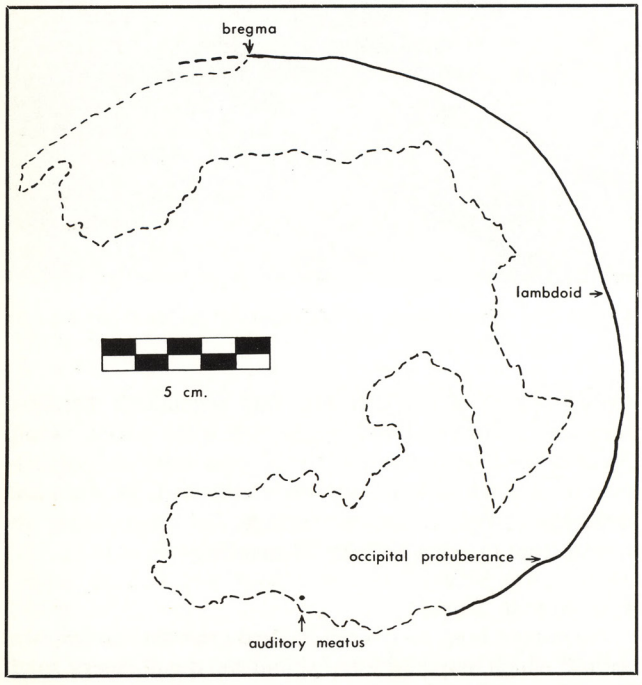


Figure 24. Craniogram of Calotte from floor of Structure 1.

Mandible 1. The fragment consists of the left half of a mandible which was articulated with the left temporal bone of Calotte 1. It is burned to the degree that the enamel has splintered off the tooth cores.

Age. The remnants of three molars remain in the mandible, indicating that the individual was an adult. Due to their poor preservation it is not possible to observe the amount of wear on the teeth.

Sex. The mandible half has prominent muscle attachments and a relatively square chin which, along with the calotte, suggests that the individual was a male.

Measurements. Since portions of the gonion edge and the gnathion were broken, measurements from these points were impossible. Intercondylar width is 4.6 cm.; minimum ramus breadth, 3.4 cm.

Second Articulated Left Temporal and Mandible

Temporal 2. The specimen is quite fragmentary. The squamosal area and that beneath the mandibular fossa were not preserved. The delicate zygomatic process suggests that the individual was a female.

Articulated Left Mandible, Fragment 2. The ascending ramus was the only preserved portion of the mandible. The intercondylar width (4.1 cm.) and the minimum ramus breadth (3.2 cm.), as compared to that of Mandible 1, support the guess that Temporal 2 belonged to a female.

Femur and Articulated Innominate (No. 3)

Femur. The midsection and most of the proximal end of a right femur was reconstructed from 19 fragments. Since the specimen was severely charred, no speculation will be offered as to the sex of the individual.

Innominate. Articulated to right femur just described. The specimen was not preserved.

Second Innominate and Nearby Sacrum Fragments (No. 4)

Whether the innominate was left or right was not recorded in the field and its poor preservation made it impossible to determine in the laboratory.

Unidentified Bone Fragments

The rest of the skeletal materials consisted of fragments most of which were under 2 cm. in length. The total amount of the material recovered would not account for one of the individuals. Portions of bones not charred by fire were not preserved, suggesting a possible fate for the missing quantity of bone material.

Associations

The charred skeletal remains lay on the floor to the west of the fire pit. The right femur and articulated ilium, Calotte 1 and Mandible 1, and Temporal 2 and Mandible 2 lay on a scorched portion of the floor within a semicircular arrangement of 11 fire-blackened fist-sized rocks. Other portions of the skeletal materials along with three more scorched rocks were scattered to the south and east.

Charred fragments of two fallen roof beams extended from the west side of the structure toward the human remains. No associated artifacts were found.

While a small thin lens of yellow clay was encountered approximately 10 cm. above and slightly to the east of the concentration of skeletal materials, no convincing evidence of an intrusive grave pit was discernible. This, combined with the fact that both the skeletal materials and the nearby roof beams were intensively charred and were scattered on the fire-burned floor, is convincing evidence that the remains were not intrusive.

Conclusions

The two left mandible halves articulated to temporal regions indicate portions of the craniums of at least two individuals are present. The fragmentary and incomplete nature of the skeletal materials limits the reliability of the identification of the sex of the individuals; however, on the basis of the little material available, Calotte 1 and Mandible 1 appear to belong to an adult male, while Temporal 2 and Mandible 2 may belong to a female.

The semicircular arrangement of fire-blackened stones, which overlays a scorched and baked portion of the native clay floor, would appear to be the remnants of a fire hearth. If it was a hearth, the situation of the human remains in and around it would suggest they were deliberately burned. The charred beams lying just to the west may have resulted from the fire spreading to the superstructure of the house.

A similar association has been encountered in Structure B of the Turner-Look Site near Cisco, Utah, where seven fragments of the craniums of a child and an adult were found within the fill of a central fire pit with a double adobe rim. Structure B was the only building exhibiting evidence of burning. Three other structures contained skeletal materials: Structure A had a human femur on the floor and a mandible on the fill of a pit, Structure E contained skull fragments in the upper part of its fill, and in Structure H the only sub-floor burial of an infant was found (Wormington 1955:13-32).

Wormington has said that the association of disarticulated, cracked, or broken human skeletal material scattered in and around fire hearths is suggestive of cannibalism (p. 87). Due to the poor preservation of the charred fragments of bone found in Structure 1 of Burnt House Village, it is difficult to establish whether or not they were deliberately cracked open. Most, if not all, of the fragmentation of these materials was probably caused by exposure to intense heat and later by weathering processes.

Wormington also suggests that the finds of cranium fragments in the refuse area and of the mandible in Structure A may be the remains of trophy heads. With this in mind, it is feasible to speculate that the Burnt House Village materials did not consist of two complete individuals at the time of their burning.

BURNT HOUSE VILLAGE AND ITS CONTEXT IN DINOSAUR NATIONAL MONUMENT PREHISTORY

The presence of Fremont cultural materials in Dinosaur National Monument was recognized by Burgh and Scoggin (1948), Lister (1951), and Dick (m.s.) in the course of their excavations in Castle Park during the 1940's and 1950. The recent survey by Breternitz (1965) and excavations by Leach (1965) and others contained in this report have shown that the sites of the Cub Creek drainage are also associated with the Fremont Culture as first defined in central Utah by Morss (1931). Table 4 shows that Burnt House Village shares most of the traits of the other local Fremont sites investigated prior to the 1965 field season.

Since there is no evidence of cultural stratigraphy at Burnt House Village, and since the artifacts of the two sections of the site are typologically the same, there is little reason to doubt that both the pit structures and the rock-outlined surface structures were inhabited contemporaneously. The shallow refuse layer scattered over the ridge top and the lower frequency of artifacts per structure than at Boundary Village would suggest that the Burnt House Village occupation was relatively short.

While the scarcity of artifacts in Section II of the site could be attributed to the fact that they were more likely lost in the clay soils of Section I than on its rocky knoll, this argument seems less applicable to chipping detritus, which in most cases was left where it fell. Ten times as much chipping detritus was found in the houses of Section I as in the houses of Section II. If the number of occupants and the rate of detritus accumulation of the three houses of Section I were not greatly different from that of Section II, then the significant difference in amount of materials suggests that the stone-outlined structures were not occupied as long as the pit structures. If this is the case, the stone-outlined structures may have been added to the rocky tip of the ridge as the population grew within the site.

Due to the incomplete chronological picture of the Fremont occupation of the area, because of the small number of sites excavated prior to 1965, it is difficult to place temporally the occupation of Burnt House Village relative to the occupations of other Fremont sites of the Monument. Most of the artifact types and varieties are found in all the Fremont levels at Hells Midden and at Boundary Village. Where typological breaks do occur in the stratigraphy the number of artifacts representing the type is so small that absence of the type in other levels can often be the result of sampling error.

Probably the firmest statement of the relative temporal position of the Burnt House Village materials to other local Fremont sites rests on the comparison of architectural features, which tend to correspond with the stratigraphically lower Type I buildings at Boundary Village. None of the structures contained collared fire hearths with associated ash pits, nor the posthole configuration featured in the later Type II buildings.

At Boundary Village, 305 Turner Gray: Cisco Variety sherds were found in the five Type II structures, while only 73 were found in the four earlier Type I structures. The two sherds recovered from the excavation of the six structures and a living-working area would indicate that ceramics were not abundant at Burnt House Village.

TABLE 4. Some traits in Fremont Sites.[a]

Artifact	Site					
	Burnt House Village	Boundary Village	Hells Midden	Mantle's Cave	Turner-Look	Arrowhead Point Campsite
Houses						
Horizontal coursed masonry				X	X	
Rock-outlined structures	X					
Non-masonry pit structures	X	X				X
Postholes	X	X			X	X
Hearths						
Adobe collared	X			X	X	
Non-collared basins	X	X	X	X	X	X
Masonry Granaries				X		
Basin and Bell-shaped Cists	X	X		X	X	
Choppers	X	X	X	X	X	X
Scrapers (variety)	X	X	X	X	X	X
Non-stemmed, Oval-triangular Blades	X	X	X	X	X	X
Lanceolate Knives	X	X	X	X	X	X
Projectile Points						
Triangular leaf-shaped unnotched	X	X	X		X	X
Leaf-shaped stemmed or shallow shoulder notched	X	X	X	X		X
Triangular corner-notched	X	X	X	X	X	X
Triangular side-notched		X	X	X	X	X
Hafted Drills	X	X	X	X	X	
Trough Metates	X	X	X	X	X	X
Basin Grinding Slabs	X	X	X	X	X	X
Manos						
Long loaf-shaped, single facet	X	X			X	
Long adjacent bifaces	X	X	X	X	X	X
Rectangular-oval opposite bifaces	X	X	X	X	X	
Shaped and unshaped unifacial	X	X	X	X	X	X
Hammerstones	X	X	X		X	X
Stone Balls	X	X		X	X	X
Triangular Stone Pendants	X	X				
Gaming Pieces		X	X	X	X	X
Bone Awls	X		X	X	X	X
Bone Tubes and Beads	X		X	X	X	X
Ceramics						
Calcite-tempered		X	X	X	X	X
Crushed rock tempered, micaceous paste	X				X	
Skeletal Materials						
Buried					X	
In fill or on floor of house	X				X	X
Associated with burned structures	X				X	X
In and around hearths	X				X	X
Burned bone	X					X
Unburned bone					X	
Cradleboard deformation					X	
No cradleboard deformation	X				X	X
Disarticulated body portions	X				X	X

If in fact the two sherds are not of the local calcite-tempered Cisco Variety, then it is possible that the sherds represent a trade vessel, and the community was not manufacturing ceramics. However, it should be recognized that the small number of other artifacts increases the chance that the scarcity of sherds is merely due to sampling error.

It is suggested here, on the basis of the stratigraphically early architectural features and the scarcity of ceramics, that Burnt House Village represents an early Fremont occupation of the Cub Creek drainage. However, before any firm statement can be made concerning the site's chronological position, a series of tree-ring or radiocarbon dates, an investigation of additional sites, and an analysis of a larger body of material is necessary.

CONCLUSIONS

Although most of the inferences and conjectures derived from the excavation of the site have been included in sections of the report pertaining to the description of the materials, a few general conclusions concerning the settlement at Burnt House Village remain.

The occupants of the site practiced both horticulture and hunting—the subsistence pattern reflected in other Fremont sites. Many of the pits were undoubtedly used for storing horticultural products. Pit 13 of Area B contained charred kernels of maize. Possibly other domesticated plant crops were grown, but such evidence is lacking in the site. Crops were most likely grown on the well-watered flood plain of Cub Creek just below the tip of the ridge. Although horticulture was important enough for the people to establish settled villages, the importance of hunting is reflected in the number of projectile points, scrapers, and cutting tools found, even though there was a notable absence of bone. The condition of the unburned portions of the skeletal materials suggest soil conditions apparently were not favorable for preservation of bone and other perishables. Most likely seeds, berries, and other forms of wild vegetation were important supplements to their subsistence. No net sinkers or other evidence of fishing were found.

The position of the site along the ridge top, commanding a field of vision both up and down the drainage, is typical of the Fremont settlement pattern. The linear layout of the village was undoubtedly determined by the shape of the ridge. As Wormington (1955:87) states for the Turner-Look buildings, the houses are "of a size to accommodate a nuclear family." She suggests that the seven structures of the Turner-Look Site may represent a community occupied by an extended family. The six buildings of Burnt House Village would be compatible with this form of social organization.

The manos, blades, scrapers, and chipping detritus concentrated around the hearths exposed in Area B suggest that in favorable weather work related to food preparation and tool manufacture was done outside the structures in somewhat of a living-working area. Trash seemed to be randomly scattered over the site. No particular midden area was found, although there was an unusually large amount of cultural materials from the fill above the floor of Structure 3, suggesting that it might have been used for a dumping area.

Burnt House Village lacked the clay figurines considered an important trait of the Fremont Culture. Apparently ceramics were not used extensively. These things, along with the absence of collared hearths with associated ash pits found in other local sites, suggest that the materials of Burnt House Village represent an early Fremont settlement in the Cub Creek drainage.

THE DAM SITE, 42UN119

by
David A. Breternitz

Introduction

The Dam Site, 42UN119, is located in the NE¼ of the NE¼ of Section 3, Township 5 South, Range 24 East (Frontispiece). The site was not recorded until the summer of 1965 and it was chosen for excavation on the basis of surface indications that led us to believe that rock-outlined surface structures might be present.

The site is within the boundaries of Dinosaur National Monument but on a parcel of land presently under the jurisdiction of the state of Utah. Permission to conduct excavations was granted by Mr. Max C. Gardner, Director, Utah State Land Board (as per letters dated August 4, 1964, and April 15, 1965).

Excavations at the site were directed by Marguerite Saslow.

Ecological Situation

The Dam Site is situated on a gravel remnant at the south end of an earthen dam built prior to 1915. The dam subsequently washed out and Cub Creek has cut a deep channel around the gravel remnant on the east, south, and west. Consequently, access to the site is feasible only by approach from the north along the crest of the remaining portion of the earthen dam (Fig. 2).

Excavation Procedure

A combination of trenching and stripping was used to expose the sub-surface conditions associated with the two generally flat areas on the site. These areas are designated Features 1 and 2 (Fig. 3). Later expansion of the excavation limits of Feature 1 disclosed the large storage pit designated Feature 3. All excavated material was either troweled or put through a one-quarter-inch mesh screen, but artifact recovery was sparse, probably due to the shallow and washed condition of the site.

Excavation Results

Architecture

Feature 1 is the only definite dwelling unit on the site, and due to the eroded condition of the site (Figs. 3-4), the limits of the feature are present only at the south wall. This south wall shows a variety of construction techniques. including a lip of soil, vertical sandstone slabs, and a wall trench behind the upright slabs that probably served as the footing for the perishable portion of the wall. A ramp "entry," delimited at its junction with the floor area of Feature 1 by vertical sandstone slabs, inclines upward and to the south toward the area of Feature 2.



Figure 2. Looking northwest towards the Dam Site. Site is located on "island" in the middleground. Split Mountain in the background.

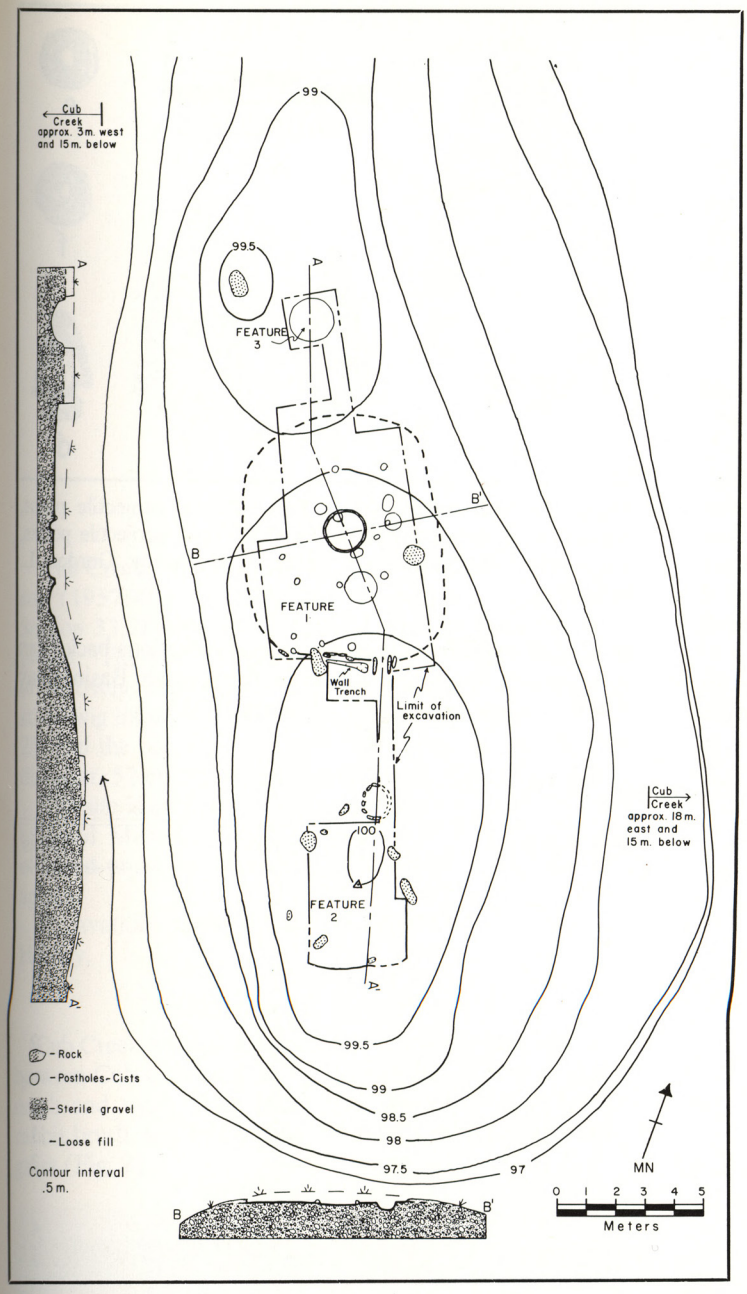


Figure 3. Map of the Dam Site, plan and cross-sections.

Floor features in Feature 1 are the primary basis for designating this portion of the site as a dwelling unit. The central feature is a clay-rimmed hearth showing the joints caused by differential drying of each section of the clay rim where adjacent portions were fitted into place. At the south edge, and adjoining, the hearth is an ashpit bounded on its north margin by a sub-floor sandstone slab that separates the ash pit from the hearth. The main roof support basically appears to be four posts around the hearth, a feature common in most of the pit structures in the Cub Creek locale, which also have clay-rimmed hearths. Also present are two basin-shaped sub-floor cists and a sandstone cist cover that lay on the floor at the east side of the feature.

Feature 2 is located at the highest point on the gravel remnant at the south end of the site. Formerly there must have been a living surface that is now almost entirely eroded. A shallow rock-outlined hearth is the only positive feature remaining.

Feature 3 is not associated with any definite living surface. It was filled with very dark ash, was devoid of any cultural material, and was originally dug from the level of



Figure 4. Feature 1, the Dam Site, looking north. Feature 3 unexcavated.

sterile gravel. It measured 1.5 m. in diameter and was 0.5 m. deep.

Artifacts

The artifacts recovered are listed in Table 1, and certain selected specimens are illustrated in Figure 5. Only 28 artifacts were recovered from the entire site, making cultural identification on this basis conjectural. However, a total of five potsherds of Turner Gray: Cisco Variety were found, all associated with the fill of Feature 1.

Conclusions

The Dam Site appears to represent a late variant of the Fremont occupation in the Cub Creek locale. Cultural identification as Fremont is proffered on the basis of the five sherds of Turner Gray: Cisco Variety; the projectile points, which although few in number all fall within the range of points found at other Fremont sites in the region; and, finally, the clay-rimmed hearth and adjacent ash pit and associated posthole pattern of Feature 1. Feature 1 comes close to fitting Leach's (1966:91-2) description of a Type I house from Boundary Village.

Assigning the site to a (the?) late occupation in the Cub Creek locale by Fremont peoples is also based on the finding of some structures, usually on elevations back from a stream or river, elsewhere in the Uintah Basin (Day 1965:2, Gunnerson 1957, Reagan 1931).

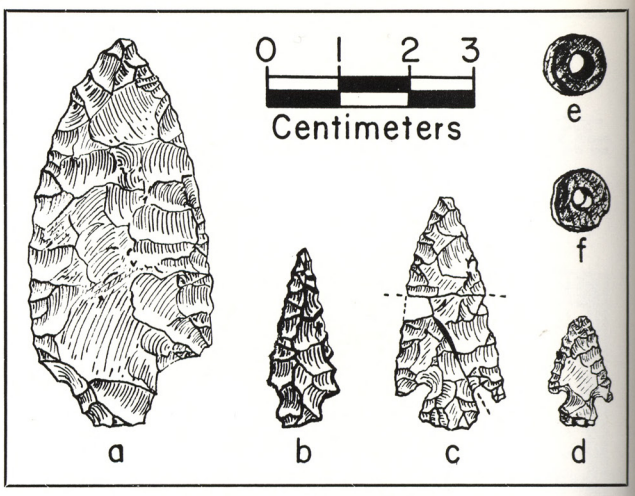


Figure 5. Artifacts from the Dam Site. a, projectile point, Type 2H; b, projectile point, Type 2I; c-d, projectile points, Type 3E; e-f, black stone beads. (Drawn by Gordon L. Lelander).

Table 1. Artifacts from the Dam Site.

Artifacts (Type)	Surface	Fill, Feature 1	Fill, Feature 2	Totals
Manos				
Uniface, unshaped (A)	—	1	—	1
Uniface, shaped (B)	1	1	—	2
Biface, shaped (D)	1	1	—	2
Metates				
Slab, uniface (A)	1	—	1	2
Projectile Points				
Type 2I	—	1[a]	—	1
Type 2H	—	1[a]	—	1
Type 3E	1[a]	1[a]	—	2
Blades				
Round ends (A)	1	3	—	4
Fragments	—	1	—	1
Scrapers and Knives				
Worked flakes	2	1	1	4
Flake knives	—	1	—	1
Hammerstones				
Cobble	3	—	—	3
Beads				
Black, stone	—	2[a]	—	2
Miscellaneous				
Belemnite	1	—	—	1
Yellow ochre	—	1	—	1
Pottery				
Turner Gray: Cisco Variety	—	5	—	5
Total	11	18	2	33

[a]Illustrated in Figure 5.

CUB CREEK VILLAGE, 42UN69

by
David A. Breternitz

Introduction

Cub Creek Village, 42UN69 and 42UN81 by Gunnerson (1957:46), is located in the N½ of the SW¼ of Section 33, Township 4 South, Range 24 East (Frontispiece). The site was chosen for excavation on the basis of relatively abundant surface material, burned adobe with stick-twig impressions suggesting a possible structure (Fig. 2), and the presence of a well-used bedrock mortar (top diameter, 52 cm.; base diameter, 30 cm.; depth, 33 cm.).

The site is on land under the jurisdiction of the Bureau of Land Management, and permission to excavate was obtained under an Antiquity Act Permit issued by that agency.

Excavations were under the supervision of Sara L. Hartley.

Ecological Situation

Cub Creek Village is situated on a gravel ridge that lies between Cub Creek on the south and Beach Draw on the north and west. The ground is sparsely covered with rabbit brush, sagebrush, bladder plants, and short bunchgrass (Fig. 2).



Figure 2. Cub Creek Village, before excavation. Jim Adams standing beside area of burned adobe and previous test hole. Looking generally south at Chew fields in middleground.

Excavation Procedure

A test trench was dug from the south and low edge of the supposed structure toward the concentration of burned adobe on the surface. The area of burned adobe previously had been privately investigated by Mr. Crawford MacKnight, who originally directed us to the site.

All excavated material was put through a one-quarter-inch mesh screen, including that dirt removed by troweling. Upon completion of excavation the site was completely backfilled.

Excavation Results

Architecture

In the single structure uncovered the only definite

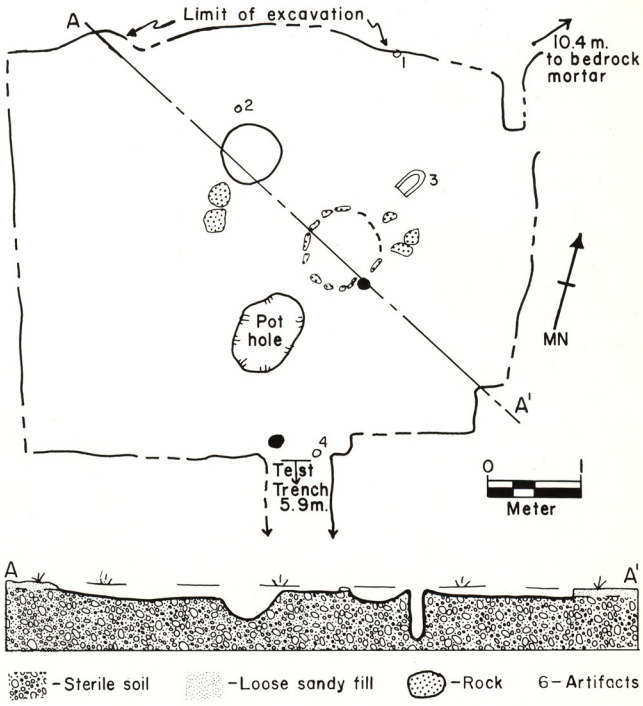


Figure 3. Cub Creek Village Structure, plan and cross-section. Floor artifacts; 1, hammerstone; 2, slate fragment; 3, trough metate; 4, hammerstone.

architectural features were the rock-outlined hearth, a shallow cist, and two postholes. Two hammerstones and a trough metate fragment helped to define the floor level. No evidence of the limits (walls) of the structure were determined (Fig. 3).

ARTIFACTS

Most of the artifacts recovered from the site were from the surface; these and the excavated materials are tabulated in Table 1, some are illustrated in Figure 4.

CONCLUSIONS

Cub Creek "Village" is obviously a misnomer, or at least it represents an overstatement of the importance of the site. The artifacts are not numerous or diagnostic enough to even permit a positive identification of the cultural affinities of the site. There are no ceramics to indicate that the site is Fremont. The two net sinkers (Fig. 4e) indicate some interest in fishing activities, and they also occur at other sites in the Green River-Cub Creek locale (42UN57, 63, 66, 121, 125) that are, indeed, Fremont sites.

Early settlers in the immediate area reported to R. Bruce and Marion MacLeod (personal communication) that there "used to be" a series of aboveground storage structures on the site. If this statement is based on fact, then all of these structures have subsequently been destroyed, leaving no surface traces at all.

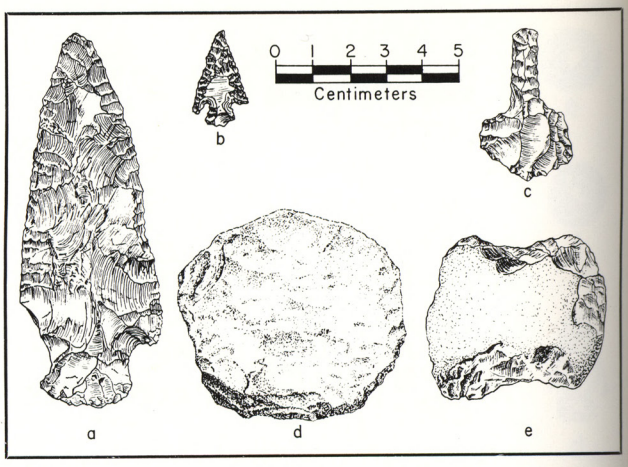


Figure 4. Artifacts from Cub Creek Village. a, projectile point, Type 3D; b, projectile point, Type 3E, c, drill; d, chipped disk; e, notched pebble (net sinker). (Drawn by Gordon L. Lelander).

The dating and cultural affinities of the site are open to question. However, identification as a Fremont, or later, storage and workshop site, based on the presence of the structure, the bedrock mortar, and the abundance of surface lithic material, seems to be the most probable explanation for the culture and function of the site.

TABLE 1. Artifacts from Cub Creek Village.

Artifacts (Type)	Surface	House Fill and Trench	Floor Contact	Totals
Manos				
Uniface, unshaped (A)	1	—	—	1
Projectile Points				
Type 3A, B, or C(?)	—	1	—	1
Type 3D	1[a]	—	—	1
Type 3E	2[a]	—	—	2
Unidentified	1	—	—	1
Blades				
Round ends (A)	2	—	—	2
Pointed ends (B)	2	—	—	2
Square ends (C)	1	—	—	1
Scrapers and Knives				
Worked flakes (A)	6	—	—	6
Cobble flakes (B)	2	—	—	2
Keeled scrapers (E)	1	—	—	1
Flake knives	3	1	—	4
Drills				
Worked base	1[a]	—	—	1
Notched Pebbles (Net sinkers)	*1*[a]	*1*	—	2
Hammerstones				
Cobble	—	—	2	2
Split cobble	1	—	—	1
Natural cobble	*2*	—	—	2
Chipped Discoid	1[a]	—	—	1
Miscellaneous				
Belemnite	*1*	—	—	*1*
Yellow ochre	—	1	—	1
Total	*29*	*4*	*2*	*35*

[a]Illustrated in Figure 4.

THE FORD SITE, 42UN120

by

DAVID A. BRETERNITZ

INTRODUCTION

The Ford Site, 42UN120, is located in the NW¼ of the NE¼ of Section 3, Township 5 South, Range 24 East (Frontispiece). It is situated on the point of a sagebrush-covered gravel ridge just to the northwest of the ford that crosses Cub Creek, at the fork of the South Fork-Blue Mountain and Cub Creek-Morris Ranch roads. The site was excavated to provide a larger sample of material from sites with rock-outlined surface structures in the Cub Creek locale. Excavations were supervised by Katharine M. Lee.

EXCAVATION PROCEDURE

A test trench was dug from the northeast toward the rock-outlined surface structure and then continued toward the west, on the outside of the north wall (Fig. 2). No definite strata were identified. Then the fill inside the rock walls was removed; this fill consisted of washed, sterile fill and a level of sparse charcoal flecks that lay on the sterile subsoil that comprised the "floor" of the structure. Toward the lower (southern) edge of the structure these strata were highly eroded, very thin, and indistinct. After the structure was cleared and random test pits put down at promising locations over the site, the excavations were backfilled.

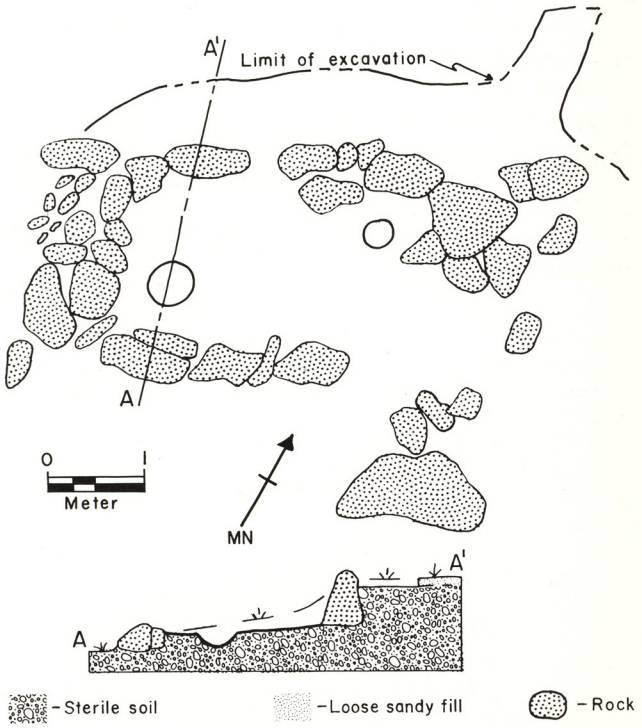


Figure 2. The Ford Site structure, plan and cross-section.

EXCAVATION RESULTS

ARCHITECTURE

The single structure was delineated by large sandstone boulders that enclosed an area of approximately 1.5 by 4.0 m. (Fig. 2). Two shallow sub-floor cists were the only floor features. The floor itself was indefinite and best defined by the termination of the charcoal-flecked soil lying directly above the "floor." The lower southern edge of the floor area was badly eroded and very shallow.

ARTIFACTS

Most of the artifacts were recovered from the surface of the site (Table 1). The diagnostic artifacts are illustrated in Figure 3. No ceramics were found at the site.

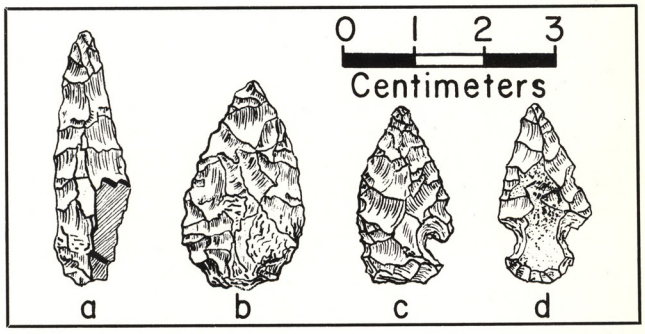


Figure 3. Artifacts from the Ford Site, a drill shaft; b, projectile point, Type 1B; c, projectile point, Type 3B; d, projectile point, Type 3E. (Drawn by Gordon L. Lelander).

Conclusions

The lack of Fremont ceramics and the dearth of diagnostic, associated lithic materials precludes an identification of the structure or the site as definitely belonging to the Fremont Culture. The single structure seems to indicate utilization of the site by a small social group, probably for a short time.

Table 1. Artifacts from the Ford Site.

Artifacts	Surface	Test Trench	Fill of Structure	Totals
Manos				
Uniface, unshaped	1	—	—	1
Projectile Points				
Type 1B	—	1[a]	—	1
Type 3B	1[a]	—	—	1
Type 3E	1[a]	—	—	1
Unidentified	1	—	—	1
Blades				
Fragment	—	—	1	1
Scrapers				
Worked Flakes	3	—	—	3
Hammerstone				
Cobble	1	—	—	1
Chopper	2	—	—	2
Drill Shaft	1[a]	—	—	1
Total	11	1	1	13

[a]Illustrated in Figure 3.

CATEGORY III SITES

OPEN CAMPSITES

THE LOWELL SPRING SITE, 5MF224

by

CALVIN H. JENNINGS AND WILLIAM D. WADE

INTRODUCTION

The Lowell Spring Site was recorded in 1963 as 5MF223 and 5MF224 (Breternitz 1965:93-4). During the period of excavation it was determined that the two designations had been applied to the same site. The area excavated is that originally designated as 5MF223 and it is located in the NW¼ of the NW¼ of Section 25, Township 6 North, Range 99 West (Frontispiece).

SITE DESCRIPTION

The site is located on a minor drainage approximately 450 m. south of the Yampa River and the Deerlodge Park Ranger Station (Frontispiece and Fig. 2). The site is protected on the west by a Dakota-capped Morrison ridge (Untermann and Untermann 1954) and is on an open, sloping sagebrush flat. The area is watered by a permanent spring, Lowell Spring, which gives the site its name.

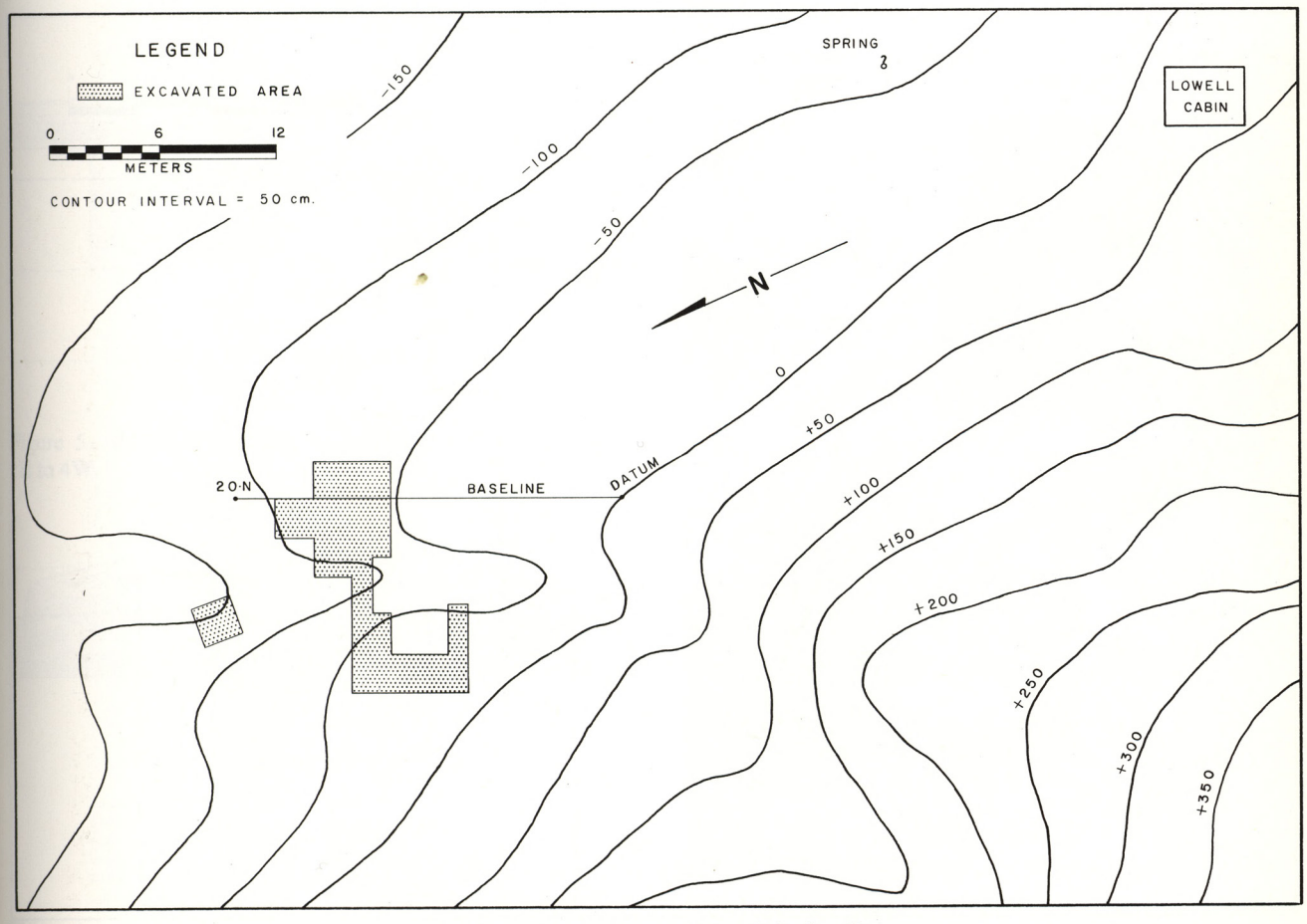


Figure 2. Contour map of Lowell Spring Site.

The flat has been cut by two arroyos in the immediate area of the site, and in one of these arroyos several firepits were exposed that prompted the excavation activities.

Excavation Procedure

The site was dug in arbitrary units, each 2 by 2 m. square, and in levels of 25 cm. each (Figs. 2-3). Excavation was begun on the east side of the arroyo directly over a lens of ashy sand exposed in the arroyo near its bottom.

As excavations proceeded, trenches were opened on the west side of the arroyo. The major erosion pattern is such that the area on the east side of the arroyo is lower than on the west, necessitating the addition of two extra excavation levels, designated 1A and 1B.

The deepest square excavated was 14/OW, which was taken through 13 levels or to a depth of 330 cm. below ground surface.

Stratigraphy

The stratigraphic interpretation of the site is based on changes in the color of the sand fill. The fill has been discolored at certain levels by the deposition of ash and charcoal. These gray levels, referred to as gray sand in the profiles (Figs. 4-8), are associated with the various occupations of the site.

The striking stratigraphic feature of the site is the erosion pattern exposed by the excavation. The site was cut by an earlier arroyo which, in the area excavated, ran about 2 m. east of the present course and 25 cm. above it. During the erosion process of the early arroyo, it cut partly through the gray sand layer excavated as level 8, evidently after the period of occupation had ended. The early arroyo was later filled with sterile sand and cultural materials from later occupations.

The modern arroyo has cut through a part of the fill of its forerunner and through the gray sand of level 8. It was the presence of the gray sand in the side of the modern arroyo that attracted interest to the site.

There are four occupation levels at site 5MF224. The first is quite near the surface on the west side of the arroyo. This level yielded pottery of Turner Gray: Cisco Variety. The next two levels overlap, comprising the excavation levels 2 through 6 and 4 through 8. The upper portion of the second occupation level shows signs of considerable disturbance by erosion. The fourth occupational level is made up of excavation levels 11 through 13.

These occupation levels vary greatly in thickness over the site and, in the case of the middle levels, it is difficult to determine the exact nature of the relationship between the areas on either side of the arroyo.

The second occupation level has a slope away from the spring and toward the arroyo on its surface, indicating the

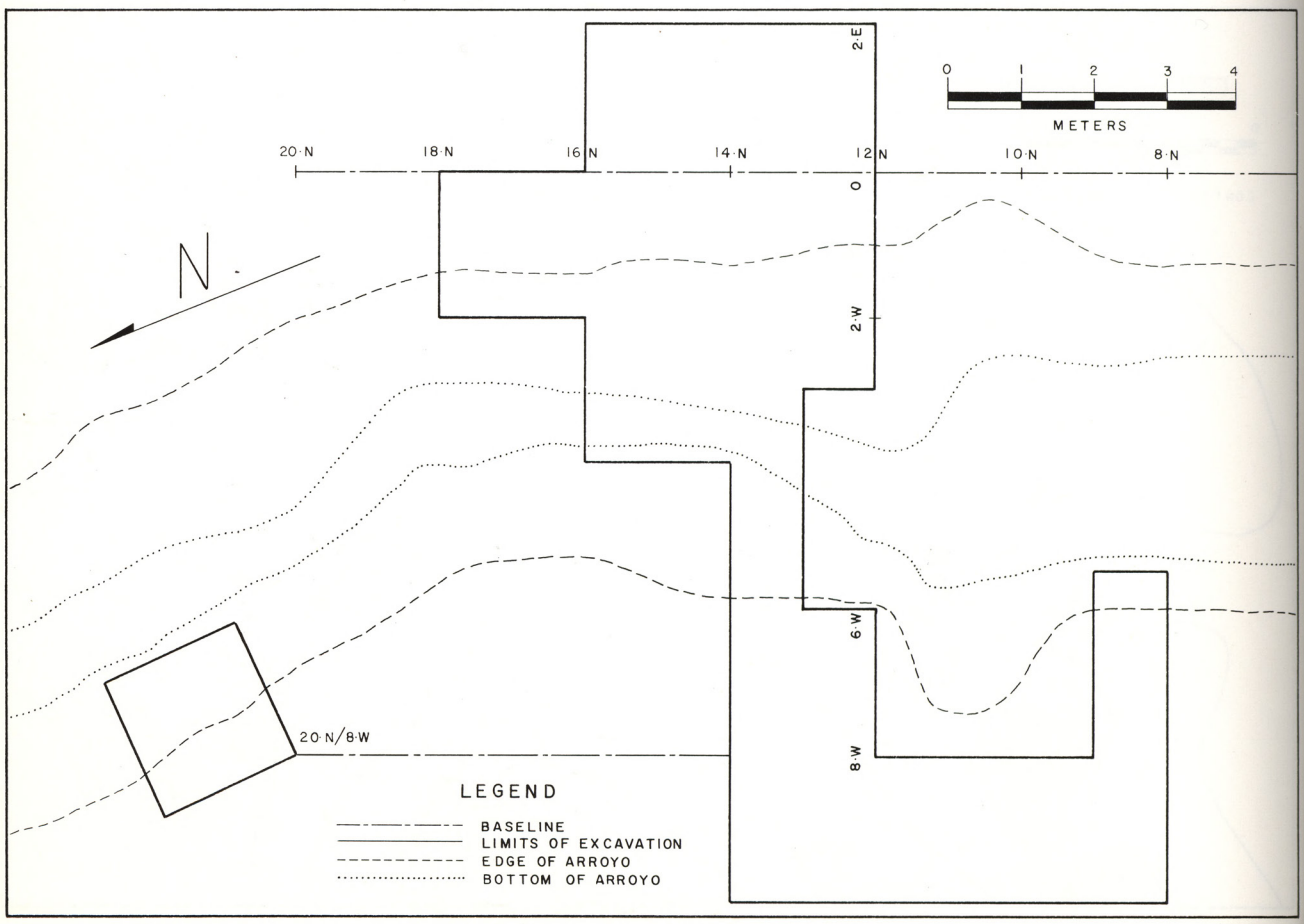


Figure 3. Detail map of excavation units.

existence of a mound somewhere between the arroyo and the spring.

Firepits are associated with the upper levels of occupation. These firepits are quite similar to those described by Buckles (1959:38) as part of the Late Middle and Late Prehistoric Horizons of Wyoming.

The fourth occupation level was inadequately sampled, but in the materials analysis there was a significant change in materials use, indicating a change in the culture of the inhabitants of the area.

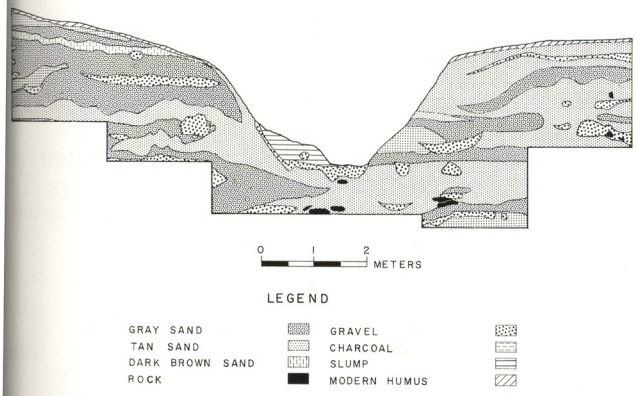


Figure 4. Cross-section of arroyo.

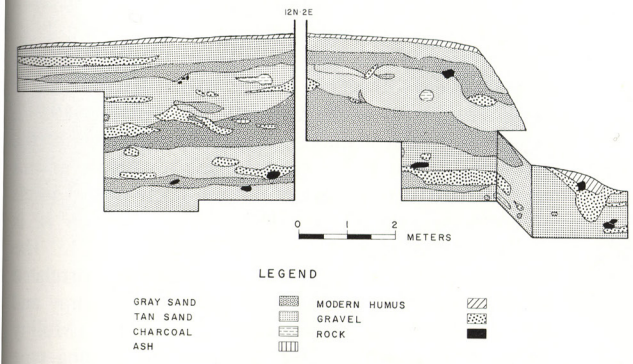


Figure 5. Profile of east side of arroyo: 12N to 18N and 2E to 4W.

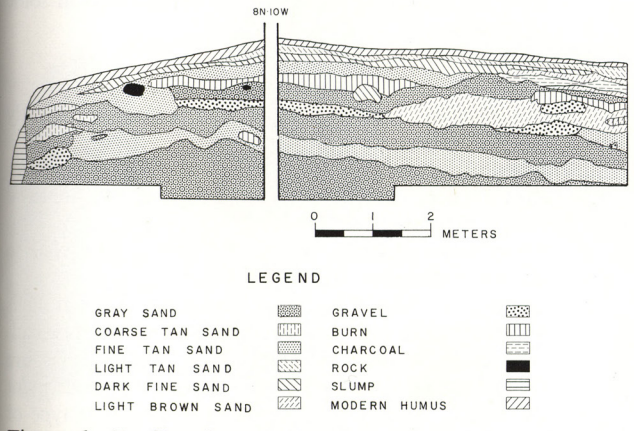


Figure 6. Profile of west side of arroyo: 8N to 14N and 5W to 10W.

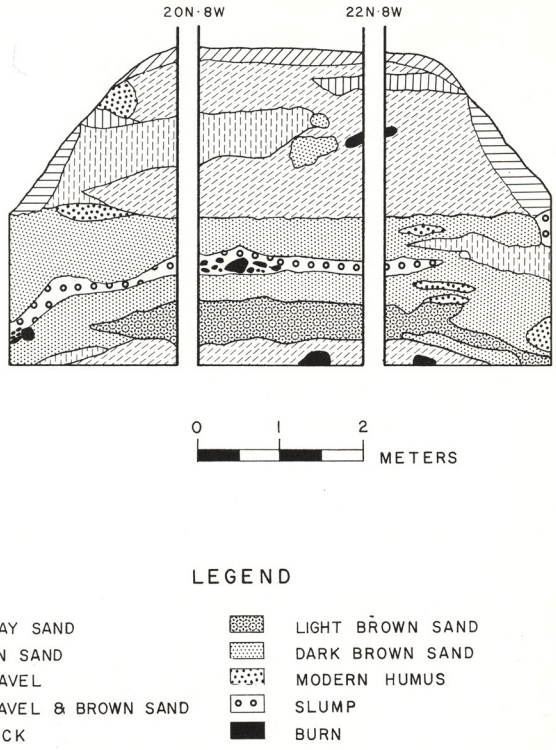


Figure 7. Profile of 20N/6-8W, 20-22N/8W, and 22N/6-8W.



Figure 8. Cut across arroyo, excavation not completed. Looking from east side of arroyo towards 10W near top of photo.

Table 1. Correlative data on firepits from Site 5MF224.

Firepit	Unit	Level	Dimensions (cm.)	Depth (cm.)	C-14 Sample	Artifacts
1	12N/OW	II-III	35×50	26	Yes	—
2	12N/2E	II-III	62×74	15	Yes	—
3	12N/OW	IV	45×57	15	Yes	2 fire-cracked manos, 1 bone fragment, 4 flakes
4	12N/2W	V-VII	35×40	5		2 projectile points, 4 flakes, 1 drill
5	8N/4W	III	?×46	12	Yes	—
6	8N/4W	III-IV	?×52	15	Yes	—

Material Culture

Features

A total of six features, all firepits, were found in excavating this site. Table 1 contains the data pertinent to these firepits.

All of the firepits were basin-shaped, and all but Firepit 4, which was water-washed and badly eroded, were rock-filled. Firepit 3 was partially slab-lined. Firepits 5 and 6 were exposed in the west side of the arroyo and were half-eroded. These two firepits were directly superimposed with approximately 5 cm. of fill separating them vertically. The slight separation of these two firepits suggests that they may have been contemporaneous, and if so, constitute but a single feature. All of the firepits occurred roughly within 1 m. of each other stratigraphically and are all of the same type.

One of the slabs making up a part of the rim of Firepit 4 is a piece of Weber Sandstone that had been placed horizontally in the hearth so that the edge formed a portion of the rim. On this flat surface two small holes had been ground, 58 mm. apart. Both holes had a diameter of 12 mm. Firepit 4 also contained two small projectile points (Fig. 9, IVa-b). Points similar to these are found in the Late Middle Prehistoric and Late Prehistoric Periods in Wyoming (Buckles 1959).

Aside from these two projectile points, none of the firepits contained any diagnostic artifacts. The basin-shaped rock-filled hearths, like the projectile point mentioned above, are commonly found associated with Late Middle Prehistoric in Wyoming and in the Uncompahgre Plateau area (Wormington and Lister 1956) of west-central Colorado.

Flaked Stone

Projectile Points

A total of 41 specimens identified as projectile points were recovered. Of this total, 17 were unidentifiable tips and midsections. The remaining 24 complete or identifiable points are classified as:

Type I, Indented Base. Seven specimens including one complete point and six basal fragments.

Type II, Leaf-shaped. Six specimens including two complete points, two basal fragments, and two partial points.

Type III, Corner-notched. The nine specimens include four complete points, three basal fragments, and two partial points.

Type IV, Concave Base. Two specimens include one nearly complete point and one basal fragment.

These types are based on the initial typology developed for the Dinosaur National Monument Survey. The Type IV points do not appear in the initial survey typology (Breternitz 1964:6-9).

Type I, Indented Base

Type Ia-g (Fig. 9, Ia-e)

Total. Seven.

Description. Stemmed, indented base points, with some internal variation (see Comments, below).

Materials. Chert (5), quartzite (1), "flint" (1).

Provenience. Level 2 (1); Level 3 (1); Level 4 (2); Level 5 (1); Level 7 (1); Level 8, at depth of 2.25 m. (1).

Dimensions. Widths vary from 1.2 to 1.9 cm.

Comments. Specimen Ia bears a strong resemblance to the Hanna points of the Great Plains (Wheeler 1954), as well as to the stemmed, indented base points of the peripheral Great Basin (Lister 1953). Points of this general type were found in the pre-horticultural levels of Hells Midden (Lister 1951:18). Specimen Ig is similar to the McKean point (Wheeler 1952). The McKean points of Wyoming are generally correlated with a generalized hunting and gathering economy and date from periods earlier than 2000 B.C. (Mulloy 1954). The McKean type precedes the Hanna type in Wyoming. This McKean was found in Level 4, 1 m. above the provenience of the Hanna point (Specimen Ia) indicating the degree of disturbance in some of the site.

Type IIa-d (Fig. 9, IIa-d)

Total. Four.

Description. Triangular unnotched points with slightly rounded bases.

Material. Chert.

Provenience. Level 10 (1); arroyo slump material (1); unknown (2).

Dimensions. Length, 3.3 to 5.5 cm.; width, 2.0 to 2.3 cm.; thickness, 0.5 to 0.6 cm.

Comments. Points IIa-c have been reported from Hells Midden in the late pre-horticultural and the horticultural levels (Lister 1951:15, 39). These points are referred to as blanks by Lister, although he does point out that ". . . they may represent a triangular type of projectile point which was hafted without the aid of

stem or notches" (p. 15). Wormington and Lister (1956:86) list "unnotched, triangular points" as a part of the Uncompahgre Complex held in common with the Late Middle Prehistoric in Wyoming. Points like specimen IId have been reported from Luster Cave (Wormington and Lister 1956:98) and from Danger Cave (Jennings 1957:134).

Type IIe (Fig. 9, IIe)
Total. One.
Description. Small laurel leaf-shaped point.
Material. Brown chert.
Provenience. Level 1A.
Dimensions. Length, 2.1 cm.; width, 1.2 cm.; thickness, 0.3 cm.
Comments. Only one point of this type was found at site 5MF224, but the type has been reported from the Turner-Look Site in eastern Utah (Wormington 1955:51).

Type IIf (Fig. 9, IIf)
Total. One.
Description. Triangular point with straight base.
Material. Brown quartzite.
Provenience. Level 1A.
Dimensions. Length, 2.6 cm.; width, 1.7 cm.; thickness, 0.4 cm.
Comments. This type of point has been reported from the Turner-Look Site (Wormington 1955:51), Luster Cave (Wormington and Lister 1956:98), and Danger Cave (Jennings 1957:130). These points also appear in the materials from the McKean Site (Mulloy 1954), Signal Butte (Strong 1935), and Birdshead Cave (Bliss 1950).

Type IIIa,i (Fig. 9, IIIa,i)
Total. Two.
Description. Corner-notched with straight base.
Material. Brown chert (1), jasper (1).
Provenience. Level 2 (1); unknown (1).
Dimensions. Length, 3.7 cm.; width, 1.5 to 2.0 cm.; thickness, 0.3 to 0.4 cm.
Comments. This type is reported from the Taylor Site, the Moore and Casebier sites (Wormington and Lister 1956), and Hells Midden (Lister 1951:15).

Type IIIb (Fig. 9, IIIb)
Total. One.
Description. Diagonal-notched with concave base.
Material. White chert.
Provenience. Level 4.
Dimensions. Length, 3.7 cm.; width, 2.3 cm.; thickness, 0.5 cm.

Type IIIc (Fig. 9, IIIc)
Total. One.
Description. Corner-notched, straight to convex base, slightly expanding stem.
Material. Brown chert.

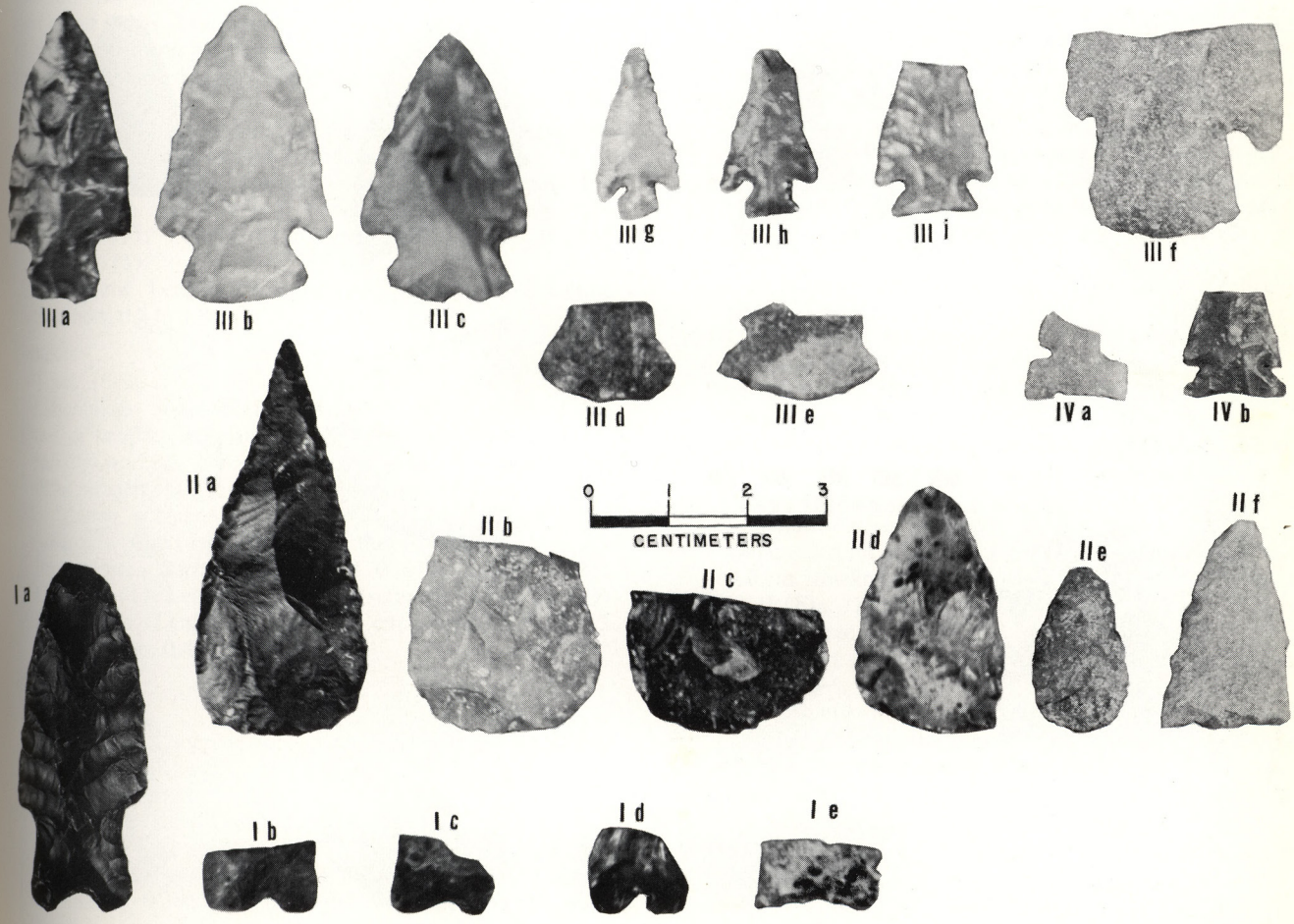


Figure 9. Projectile points. Type and specimen designations indicated as they appear in the text.

Provenience. Level 4.
Dimensions. Length, 3.4 cm.; width, 2.2 cm.; thickness, 0.6 cm.
Comments. The three points representing Types IIIa, b, and c are quite similar to one another. Points of these types are also present at Danger Cave (Jennings 1957:118); Hells Midden (Lister 1951:15); the Taylor Site, Roth Cave, and Glade Park (Wormington and Lister 1956); as well as at Signal Butte (Strong 1935); and the McKean Site (Mulloy 1954) in the Plains.

Type IIId-e (Fig. 9, IIId-e)
Total. Two.
Description. Corner-notched with rounded bases.
Material. Brown quartzite.
Provenience. Level 3.
Dimensions. Width, 2.7 cm.

Type IIIf (Fig. 9, IIIf)
Total. One.
Description. Corner-notched, convex base, slightly expanding stem.
Material. Tan quartzite.
Provenience. Level 3.
Dimensions. Width, 2.7 cm.; thickness, 0.4 cm.
Comments. This type of point has been reported from only two sites in Dinosaur National Monument: Deluge Shelter (Leach 1967) and Arrowhead Point Campsite (Arndt, herein).

Type IIIg-h (Fig. 9, IIIg-h)
Total. Two.
Description. Small corner-notched points with straight to convex bases and straight to expanding stems.
Material. Brown chert.
Provenience. Level 0 (1); Level 3 (1).
Dimensions. Width, 1.0 and 1.2 cm.; thickness, 0.3 and 0.3 cm.
Comments. One specimen was found associated with Turner Gray: Cisco Variety pottery in Level 0. This is an association that commonly occurs in the western portion of Dinosaur National Monument in Fremont Culture sites; the type has also been reported from the horticultural levels of Hells Midden (Lister 1951:15, 39), the Turner-Look Site (Wormington 1955:52), and the Taylor Site and Glade Park (Wormington and Lister 1956).

Type IVa (Fig. 9, IVa)
Total. One.
Description. Side-notched point with concave base.
Material. Gray quartzite.
Provenience. In rock-filled firepit 4 of Levels 5 and 6.
Dimensions. Width, 1.3 cm.; thickness, 0.2 cm.
Comments. Points of a similar type have been re-



Figure 10. Blades. Specimen designations keyed to descriptions in text.

ported from Juke Box Cave (Jennings 1957:176), the Turner-Look Site (Wormington 1955:52), Signal Butte (Strong 1935), the Plains of San Augustin (Hurt and McKnight 1949:184), and Hells Midden (Lister 1951:15).

Type IVb (Fig. 9, IVb)

Total. One.

Description. Side-notched point with straight to concave base.

Material. Pink quartzite.

Provenience. In rock-filled firepit 4, Levels 5 and 6.

Dimensions. Width, 1.3 cm.; thickness, 0.2 cm.

Comments. This specimen is similar to types reported from the McKean Site (Mulloy 1954), Pictograph Cave (Bliss 1950), the Plains of San Augustin (Hurt and McKnight 1949:185), and Hells Midden (Lister 1951:15).

Gravers

Total. Two.

Description. Broken projectile points with tips reworked as gravers.

Material. Chert.

Provenience. Level 5 (1); Level 11 (1).

Dimensions. Length, 2.3 cm.; width, 1.6 and 2.0 cm.; thickness, 0.4 and 0.7 cm.

Blades (Fig. 10a-j)—A total of 28 fragments or whole blades was recovered during the course of the excavation. Of this number, only ten were complete enough to provide information about shape. Little can be said about the diagnostic value of these implements as they appear in all sites that have lithic material, and their design is fairly uniform.

Total. 10.

Description. Bifacial tools shaped by both percussion and pressure flaking. All had round to pointed ends.

Materials. Chert (4), quartzite (4), quartz (1), jasper (1).

Provenience. Level 0 (1); Level 1 (1); Level 1A (2); Level 5 (1); Level 6 (1); Level 7 (1); Level 8 (2); Level 12 (1).

Dimensions. Length, 5.3 to 9.6 cm.; width, 3.1 to 5.2 cm.; thickness, 0.7 to 1.0 cm.

Scrapers

Total. Eight.

Description. Seven of the percussion flakes modified for use as scrapers were unifacially worked and one was bifacially worked. Six specimens fall into the category of flake scrapers, one is a cobble scraper, and one is an end or "thumb" scraper.

Materials. Chert (6), quartz (1), flint (1).

Provenience. Surface (1); Level 0 (1); Level 1 (2); Level 1A (1); Level 2 (2; 1 is end scraper); Level 11 (1).

Dimensions. Length, 3.3 to 10.7 cm.; width, 1.7 to 5.3 cm.; thickness, 0.4 to 2.0 cm.

Choppers

Total. Four.

Description. Chopping tools with working edge produced by percussion flaking.

Material. Quartzite.

Provenience. Level 0 (1); Level 8 (1); unknown (2).

Dimensions (one specimen). Maximum diameter, 9.0 cm.; minimum diameter, 7.6 cm.; maximum thickness, 2.0 cm.

Comments. Tools similar to the measured chopper were found in several other sites at the eastern end of the Monument. One notable case was site 5MF146 (Breternitz 1965:75), which seemed to be a source of the brown quartzite in question.

Hammerstones (Fig. 11)

Total. Five.

Description. Battered cobbles.

Materials. Quartz (2), quartzite (2), jasper (1).

Provenience. Surface (2); Level IA (1); Level 3 (2).

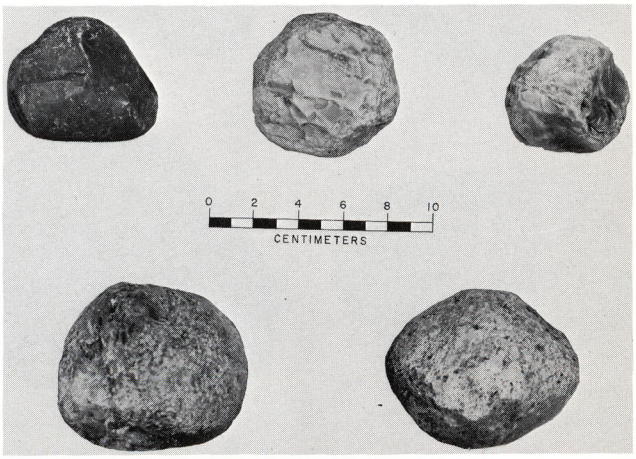


Figure 11. Hammerstones.

GROUND STONE

Manos—Twenty mano fragments defy classification, and material and provenience information are not complete for the sample of manos.

Type Ia (Fig. 12, Ia)

Total. One.

Description. Prepared unifacial mano with obvious signs of having been selected and worked before being put into use. There was extensive pecking on all but the grinding surface. The general appearance is that of a small loaf of bread.

Dimensions. Length, 15.1 cm.; width, 6.0 cm.; thickness, 5.0 cm.

Comments. Wormington (1955:176) used the rectangular mano as one of the traits of the Fremont Culture.

Type Ib (Fig. 12, Ib)

Total. Nine.

Description. Unprepared unifacial manos whose primary characteristic was the lack of any intentional working to prepare the tool.

Materials. "River cobbles."

Dimensions. Length, 10.3 to 11.3 cm.; width, 6.7 to 9.6 cm.; thickness, 5.6 cm.

Type II (Fig. 12, II)

Total. Three.

Description. Bifacial manos with no apparent preparation for use.

Dimensions. Maximum diameter, 0.7 cm.; minimum diameter, 8.7 cm.; thickness, 5.6 cm.

Comments. One of the broken Type II manos came from Level 11, the deepest provenience from which any grinding stone was found during excavation.

Metates

Total. Three.

Description. All were basin metates. One had a single grinding surface and two were bifacial.

Materials. Sandstone (3).

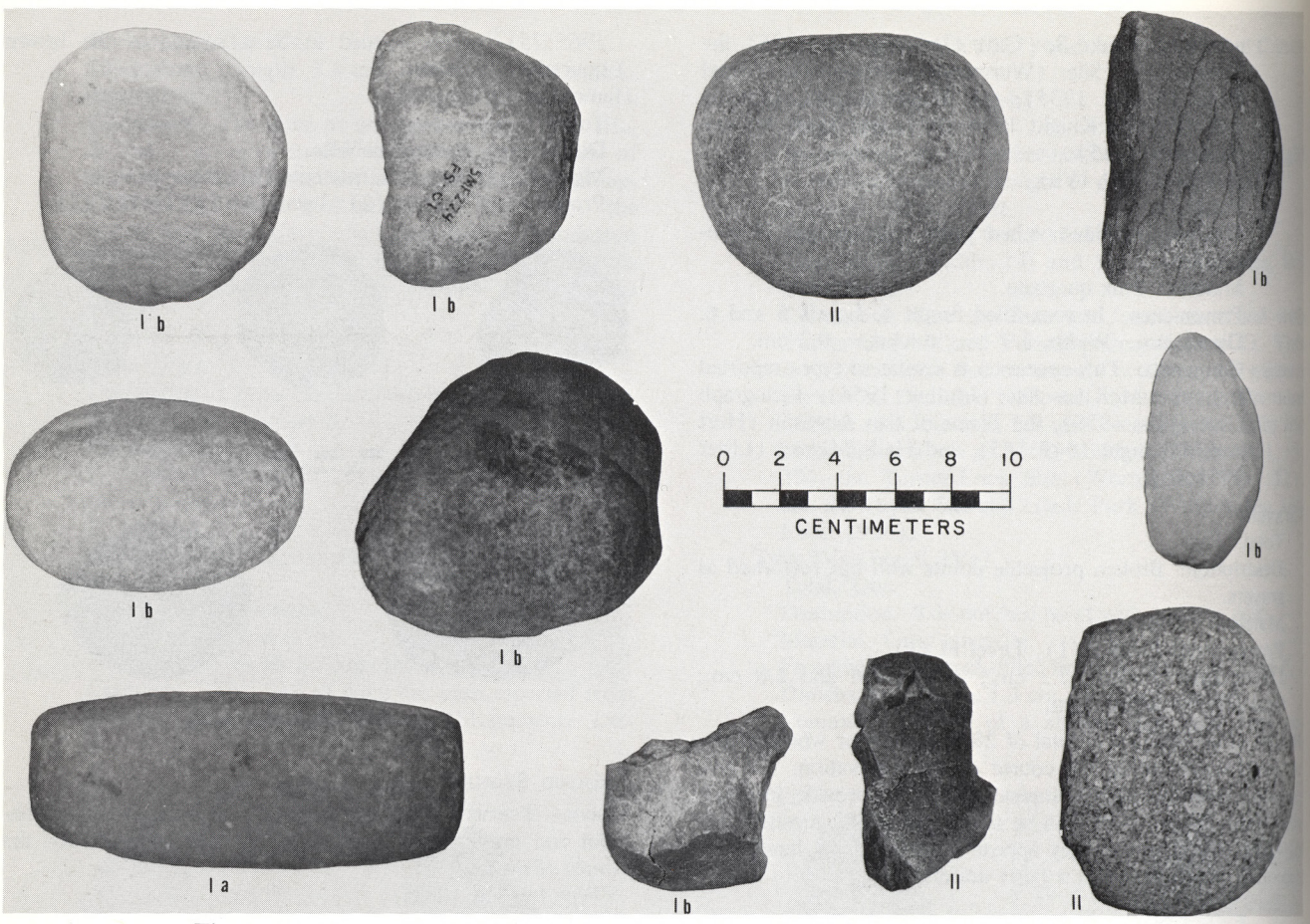


Figure 12. Manos. Type Ia, prepared unifacial; Type Ib, Unprepared unifacial; Type II, Bifacial.

Provenience. Surface (2); arroyo wall, level indeterminate (1).

Dimensions (specimen from arroyo wall, Figure 13). Length, 53.2 cm.; width, 33.1 cm.; thickness, 14.8 cm. Groove in metate is 24.3 cm. long, 1.8 cm. wide, and 0.5 cm. deep.

POTTERY

Total. Three sherds.

Description. Turner Gray: Cisco Variety (F. Lister 1960: 233), with typical calcite temper of this Fremont Culture pottery.

Provenience. Upper levels (30 to 90 cm. in depth) of the west side of the arroyo.

BONE

Fourteen minute bone fragments and two fragments of teeth were found in the upper levels of the site as follows:

Level	*No. of Fragments*
Surface	3
0	10
1A	1
1	1
4	1

These bone fragments were too small and nondesript to be practically identifiable. In addition, the low frequency allows little to be said which would aid in the definition of the site. However, it should be noted that all of the bone fragments were located generally and none were recovered from

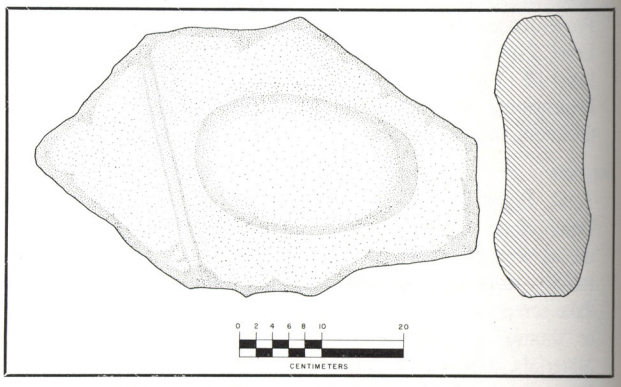


Figure 13. Metate, bifacial, basin-shaped.

firepits or burned areas. The tooth fragments were non-human, probably from mountain sheep.

MATERIALS ANALYSIS

The detritus recovered from the Lowell Spring Site was sorted on the basis of the type of petrographic materials used. The categories established were: chert, flint, jasper, shale, quartz, quartzite, and "other" containing satinspar, agate, obsidian, and sandstone.

The proportion of detritus per category per level was then calculated (Table 1). This table indicates that in the lower levels of the site, quartz was used for chipping more than in the upper levels and that the opposite re-

TABLE 1. Proportion of materials at the Lowell Spring Site.[a]

Level	Chert	Flint	Jasper	Shale	Quartz	Quartzite	Other
Surface	.49	.06	.03	—	.02	.40	—
0	.37	.06	.04	.01	.02	.50	—
1A	.37	.09	.03	.01	.01	.48	—
1B	.50	.07	.03	—	.01	.38	.01
1	.43	.08	.03	.03	.03	.40	—
2	.41	.11	.03	.02	.01	.42	—
3	.45	.09	.01	.01	.04	.40	—
4	.40	.07	.02	.03	.04	.44	—
5	.48	.07	.02	.01	.04	.40	—
6	.50	.08	.04	.02	.06	.30	—
7	.40	.02	.03	.01	.05	.49	—
8	.19	.02	.03	—	.05	.71	—
9	.52	.02	.02	—	.25	.19	—
10	.60	.07	.03	—	.14	.16	—
11	.63	.02	.08	—	.24	.03	—
12	.65	.08	.01	.01	.20	.05	—
13	.57	—	—	—	.29	.14	—
Total Proportion	.44	.07	.03	.01	.05	.40	—

[a]Proportion of materials per type per level and per type of total. Proportions under .01 not shown.

lation obtains for quartzite. Chert, flint, and jasper seem to have about the same usage in all levels. Shale and "others" are at best limited and sporadic in terms of use.

The authors hypothesize that the relationships were significant and indicative of a change in preference by the aboriginal occupants of the site. This hypothesis was tested by means of the Friedman two-way analysis of variance and Spearman's rank correlation coefficient (Siegel 1956: 166-72, 202-13) at the 0.05 level of significance.

Using the Friedman test, flint, jasper, shale, and members of the "other" category were excluded from analysis on the grounds that their relative scarcity in the Deerlodge Park area made them too subject to minute cultural variation. The computation of X^2_r yielded a value of 47.79. The organization of classes for this test allowed two degrees of freedom. The value 47.79, when interpreted as chi-square with two degrees of freedom, is significant far beyond the .001 level, allowing the authors to accept their hypothesis that the inhabitants of the Lowell Spring Site did show preference for different lithic materials at different times.

As corroborative evidence, the data were compared using the Spearman test to determine the degree of correlation of use between the materials. The values for r_s are as follows:

Chert-quartzite	.757
Chert-quartz	−.121
Quartz-quartzite	−.609

The above correlations were tested for significance (Siegel 1956:212) with the chert-quartz relationship the only one falling below the .05 level.

The results of the above analysis indicate a change in preference for materials. The cause for change cannot be postulated beyond the most general statement, which recognizes all of the rational causes of cultural change. The relation of this change to the stratigraphic situation was discussed earlier in the section on stratigraphy, page 84.

DATING SAMPLES

POLLEN

Prior to excavation, surface pollen samples were taken from ten locations, five on either side of the arroyo, in the immediate vicinity of the excavations. Before the site was backfilled, a series of stratigraphic pollen samples was taken from units 12N/8W and 12N/6W. Twenty-eight samples were taken, at 10-cm intervals, in columns cut back 4 cm. into the walls to assure uncontaminated sampling. The lower 12 samples were obtained from the north wall of unit 12N/6W, and the upper 16 samples were taken from the west wall of unit 12N/8W.

In depth, these samples ran from 30 through 180 cm. in 12N/8W, and from 150 through 260 cm. in 12N/6W, or from levels 0 through 8. There is no overlap in depth, since the ground surface of 12N/6W is approximately 40 cm. lower than that of 12N/8W.

CARBON-14

In all, six radiocarbon samples were obtained, five of which came from firepits. A sixth sample was obtained in level 5 of unit 14N/0W, which contained a general charcoal and ash layer.

TREE-RING SAMPLES

Two samples of charred wood were also obtained, one from a depth of 173 cm. (level 2), and one from a depth of 195 cm. (level 3) in unit 8N/8W. These samples might provide, in addition to a short series for tree-ring analysis, species identification or carbon-14 dates.

CONCLUSIONS

The determination of the cultural position of the Lowell Spring Site is dependent on the projectile point typology,

the occurrence of pottery and firepits, and the stratigraphic sequence. The other artifacts are neither diagnostic nor present in large enough numbers to provide an adequate sample. Three statistical tests were applied to the material excavated, two of which have already been described; the third will be mentioned below.

On the basis of the generally outlined data, the authors see the Lowell Spring Site as a Fremont and pre-Fremont site. The existence of calcite-tempered pottery and miniature triangular-bladed projectile points indicate that the Fremont were the last aboriginals to occupy the site. This Fremont occupation is probably contemporaneous with the later stages in the filling of the early arroyo.

The occupation of levels 2 through 6 is attributable to a people with a hunting and gathering complex similar to that found in the pre-horticultural levels at Hells Midden (Lister 1951) and in the Uncompahgre complex (Wormington and Lister 1956).

The appearance of traits found in the Late and Late Middle Prehistoric horizons of Wyoming such as Hanna and probably McKean projectile points, as well as slab-lined, rock-filled firepits (Wheeler 1952, 1954; Wormington and Lister 1956) support this contention. The simultaneous presence in levels 2 through 6 of Plains and Uncompahgre traits is indicative of a period of possible contact between the two areas. It is also possible that these traits are indicative of participation in a more generalized tradition, i.e., Archaic. Following this line of reasoning it is necessary to place the Wyoming Late Middle and Late Prehistoric Horizons, the Uncompahgre complex, and levels 2 through 6 of site 5MF224 on the same level of distribution or, in other words, refer to them as local variations of the Archaic tradition.

The culture represented by levels 11 through 13 is represented at this time solely by detritus. The materials analysis indicated that the site was occupied by people of a different cultural affiliation than those occupants of the overlying levels.

The typable artifacts were subjected to a contextual analysis (Dempsey and Baumhoff 1963), which yielded nearly the same results as have been reached above by different means. The test is not dependable in this case because of the inadequacy of the sample and the degree of stratigraphic disturbance in the area cut and filled by the early arroyo.

In summation, the Lowell Spring Site has been the scene of periodic occupation over a considerable period of time. The presence of the Hanna and McKean points places the period of occupation for levels 4 through 8 at about 2500 B.C. (Wheeler 1954). Beneath this level exists yet another, which certainly has great antiquity.

DEERLODGE MIDDEN, 5MF202

by

DUANE C. ANDERSON AND THOMAS E. HIGEL

SITE DESCRIPTION

Deerlodge Midden, 5MF202, is located in the NW¼ of the NE¼ of Section 28, Township 6 North, Range 99 West, in Deerlodge Park, Dinosaur National Monument (Frontispiece). The site is located on a low terrace directly above the Deerlodge Park Ranger Station (Figs. 2-3).

Deerlodge Park is a topographic low area surrounded by outcrops of the Morrison formation to the south, with thin Curtis and the combined Navajo-Entrada formations to the west and north (Untermann and Untermann 1954).

The surface indications of aboriginal occupation were sparse, probably because of previous surface collecting. It was noted that the terrace on which the site was located exhibited a change in vegetation from thick sage to small greasewood and grasses. The hypothesis that this change might reflect pedological differences caused by human occupation proved to be incorrect on the basis of the following evidence: (a) the site was transversed by the flora change; (b) piles of sage were found just east of the site indicating that the hill had purposely been cleared in recent times; (c) the small size of the greasewood suggested that they were young plants; and (d) once the large sage was cleared, the greasewood and grasses could easily move into the area.



Figure 2. Deerlodge Midden during excavation, looking northeast.

The survey report (Breternitz 1965:88) indicated that the road into the Park Service campground cut through the site, but a statistical analysis of the concentration of materials by level in the test pits indicated that the area cut by the road actually was peripheral to the site. One firepit was observed on the surface of the road. It was isolated and almost completely destroyed, and no cultural materials were found in association. However, it was at a level that could be associated with the occupation level of the site.

The stimulus for excavation of the site was its potential stratigraphic record. Originally conceived to be a midden, the site proved to have two components: a buried open habitation site and an historic component on the surface.

EXCAVATION PROCEDURE

The quarter-section marker for Sections 21-28, located on the site, was chosen as the permanent datum (Fig. 3). From that point a baseline was projected to the apparent concentration of the site. Two test units, each 2-m. square, were dug, one along the baseline and the other arbitrarily at the western edge of the site. Later, additional test pits were dug to locate areas of cultural concentration within the site. A series of exploratory holes was dug with a posthole digger in an attempt to define the limits of the site.

Excavated units were either 2-m squares or 1- by 2-m. rectangles. Arbitrary 25-cm. levels were dug by shovel, and all the material was sifted through one-quarter- or one-half-inch mesh screen as it was excavated. Pollen samples were taken from the surface and from a wall of the deepest unit.

The excavation units were backfilled and an attempt was made to completely obliterate all evidences of digging.

CHRONOLOGY

The dating of Deerlodge Midden is a difficult problem. No radiocarbon dates have been obtained either for this site or for other sites in the immediate area. Other pos-

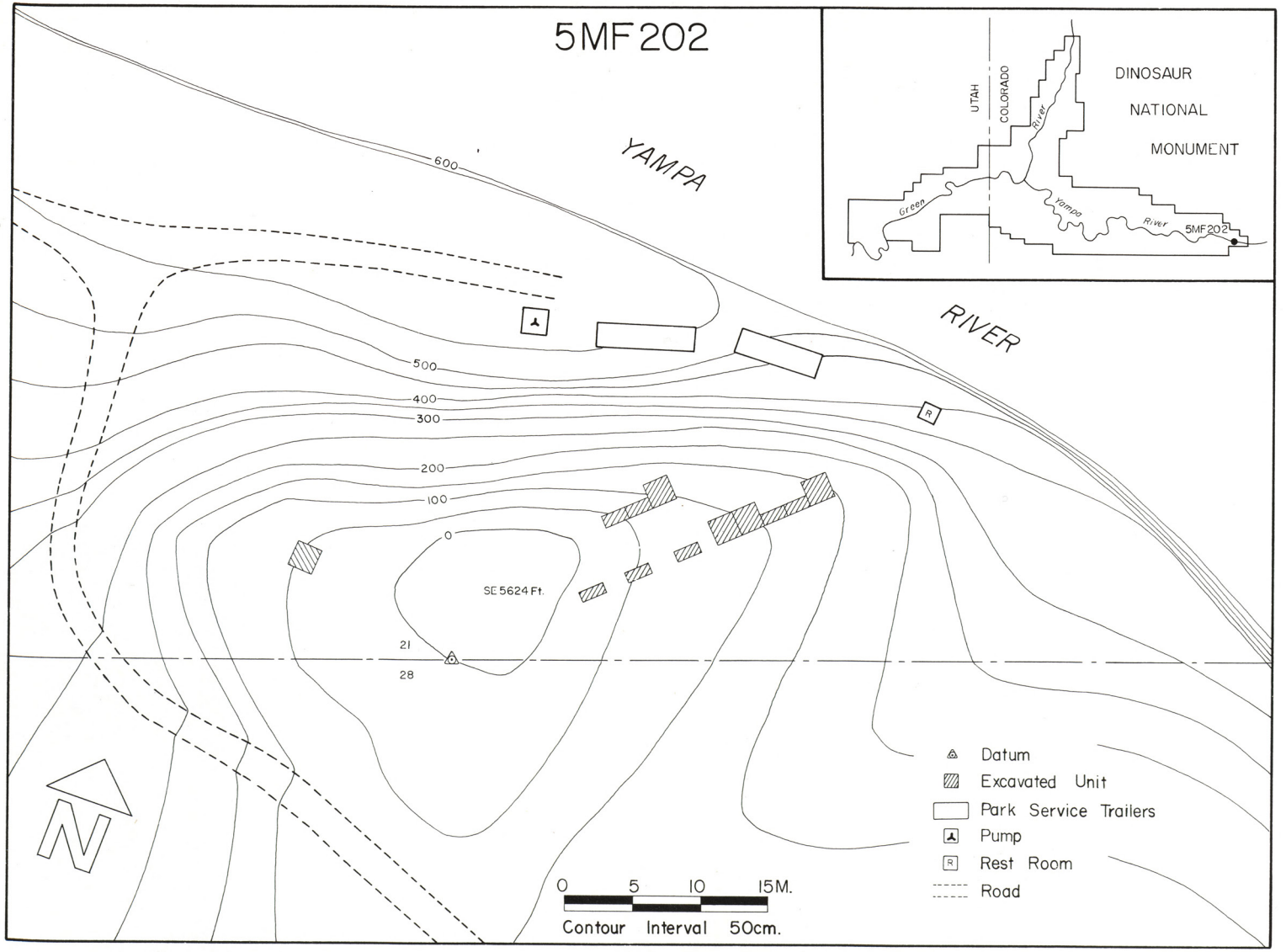


Figure 3. Site map of Deerlodge Midden.

sible methods of dating employ relative techniques and comparisons.

A study of river terrace development has been employed to relatively date the site. A hypothetical sequence of events is proposed, illustrating developmental stages (Fig. 4). As the river migrated back and forth and downcut, it left the site eroding out in the side of the terrace. If the hypothetical sequence is valid, the site is older than the downcutting that produced the upper terrace. The fact that the site is presently some 11 m. above the river suggests some antiquity, but how much time is involved is not known.

The five-stage sequence (Fig. 4) is proposed on the basis of evidence from the field profile sheets. A generalized profile along the baseline (Fig. 5a) shows the natural stratigraphy on top of the terrace with all layers present. Another generalized profile (Fig. 5b) is from a trench near the edge of the terrace. At this position, Level 3 pinches out and Level 2 is only partially present. Level 1 (the modern humus layer) overlies the deposits unconformably. This unconformity indicates that the cultural deposits have been truncated by the downcutting of the Yampa River with subsequent development of the modern humus as colluvium.

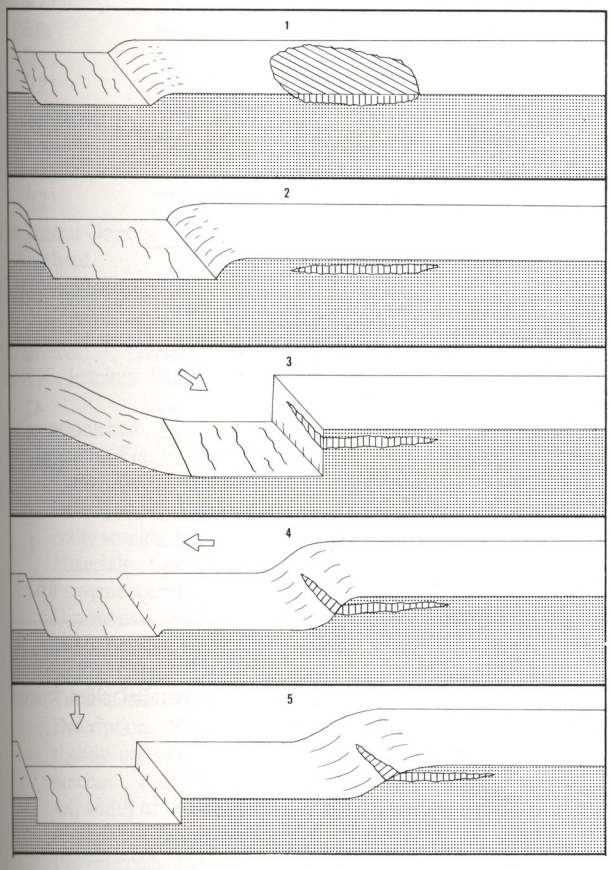


Figure 4. River terrace development. Stages: 1, aboriginal campsite located on river terrace or floodplain; 2, campsite abandoned and covered by wind-blown sand; 3, river swings to right and downcuts through the site: 4, river swings to the left; 5, river downcuts to the present level.

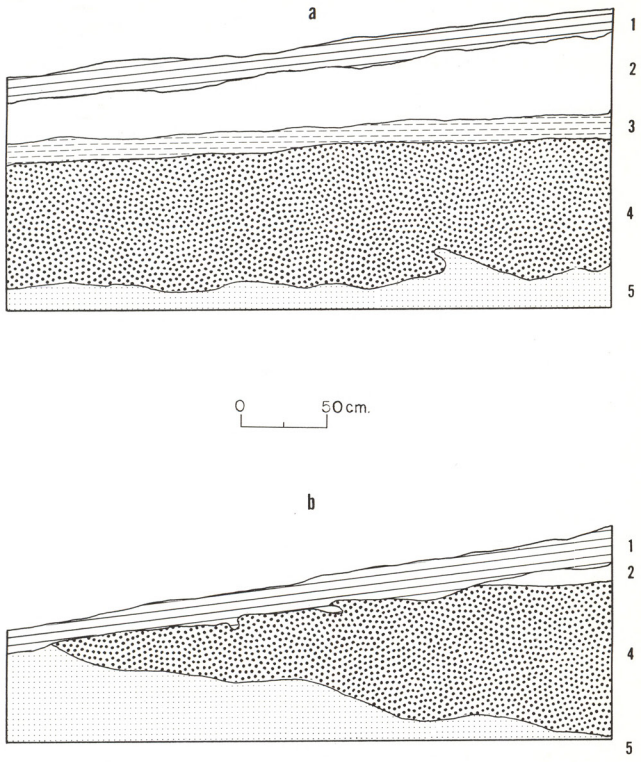


Figure 5. Profiles. a, generalized profile from a trench on top of the terrace; b, generalized profile from a trench near the edge of the terrace. Stratigraphic levels: 1, modern humus; 2, brown subsoil; 3, tan sand; 4, blackish-brown cultural level; 5, sterile sand.

It should be noted that this method of relative dating is not valid if the site was actually deposited on top of the terrace after it had been produced. This does not seem likely, for it is difficult to visualize the burial of the cultural deposits on top of a hill. In addition, the present erosional processes operating on the hill are actually eroding out the material and not preserving it.

The material from Deerlodge Midden has proven to be helpful in the temporal placement of the site. Excluding the surface specimens, the excavated material compares favorably with the Late Middle Prehistoric Period in the northwestern Plains and with the Desert Culture in the Great Basin, both generally termed the Archaic stage.

It was hoped that the material from Deerlodge Midden woud fit into the sequence found at the Lowell Spring Site, a quarter of a mile away, because of the latter site's relatively long chronology (see previous report by Jennings and Wade). Unfortunately, such was not the case.

The only other method of relative dating that might be employed would be the establishment of a pollen profile for the area with which pollen samples from Deerlodge Midden could be compared.

ARTIFACTS

The projectile points from site 5MF202 are categorized according to the projectile point typology formulated for the 1963 Dinosaur Survey material (Breternitz 1964:6-9). Additional categories are assigned to specimens not

Table 1. Artifact distribution by stratigraphic level.

Items (Type)	Level Surface	1	2	3	4	5	Totals
Flaked Stone							
Projectile points							
(1F)	—	—	—	—	1	—	1
(1G)	—	—	—	—	1	—	1
(2B)	—	—	—	—	2	—	2
($2B_1$)	—	—	—	—	1	—	1
($2B_2$)	—	—	—	—	1	—	1
(2E)	1	—	—	—	—	—	1
(4A)	—	—	—	—	3	—	3
(4C)	—	—	—	—	1	—	1
(6C)	—	—	—	—	3	—	3
(6D)	—	—	—	—	1	—	1
(6E)	1	—	—	—	—	—	1
(6F)	1	—	—	—	—	—	1
(6G)	1	—	—	—	—	—	1
Knives							
(1)	—	—	1	—	2	—	3
Blades							
(1)	—	—	—	—	3	—	3
(2)	—	—	2	—	2	—	4
(3)	2	—	—	—	4	—	6
Scrapers							
(1)	—	—	1	—	1	—	2
(2)	—	—	1	—	2	—	3
(3)	—	—	—	—	2	—	2
(4)	—	—	—	—	2	—	2
(5)	1	—	1	—	3	—	5
Choppers	—	—	—	—	2	—	2
Drills							
(1)	—	—	—	—	1	—	1
(2)	—	—	1	—	—	—	1
Cores	—	—	2	—	8	—	10
Utilized flakes	—	2	6	—	14	—	22
Ground Stone							
Manos							
(1)	—	—	—	—	8	—	8
(2)	—	—	—	—	7	—	7
Fragments	—	—	8	1	33	—	42
Metates	2	—	6	—	10	—	18
Pottery	1	—	—	—	—	—	1 (sherd)
Ornamental Objects							
Bone bead	—	—	—	—	1	—	1
Shell pendant	—	—	—	—	1	—	1
Total	10	2	29	1	120	—	162

represented in the 1963 collections on the basis of typologies used by Jennings (1957) and Lister (1951). Artifacts other than projectile points were typed by the authors. Table 1 presents a relative distribution of all artifacts by stratigraphic level. Table 2 gives bibliographic data for cross-reference of employed typologies.

All types were generally found throughout the cultural deposits, with no definite stratigraphic separation.

Chipped Stone

Projectile Points

Unnotched

Type 1F (Fig. 6A)

Total. One.
Description. Leaf-shaped with parallel sides, convex base.
Material. Quartzite.
Provenience. Level 4.
Dimensions. 2.2 by 1.5 by 0.4 cm.

Type 1G (Fig. 6B)

Total. One.
Description. Leaf-shaped with triangular sides and straight base.
Material. Chert.
Provenience. Level 4.
Dimensions. 1.8 by 1.8 by 0.4 cm.

TABLE 2. Artifact correlation with bibliographic references.[a]

Items (Type)	Bibliographic Reference 1 (Rocky Mtn. Natl. Park)	2 (Hells Midden)	3 (Uncompahgre)	4 (McKean Site)	5 (Salt Lake Caves)	6 (North Great Basin)	7 (Danger Cave)	8 (Birdshead Cave)	9 (Signal Butte)
Flaked Stone									
Projectile Points									
(1-G)		p. 16		p. 446	p. 115		p. 130	p. 189	
(2-B)		p. 19		p. 446				p. 189	Pl. 24
(2-B_1)						p. 98	p. 122		
(4-A)				p. 446	p. 105		p. 104	p. 189	
(4-C)							p. 120		
(6-C)				p. 446			p. 125	p. 189	
(6-E)	42 Pl. 5	p. 18		p. 446			p. 110		Pl. 25
(6-G)				p. 446				p. 189	
Knives									
(1)	47 Pl. 6	p. 20	p. 72				p. 136		
Blades									
(2)		p. 20		p. 447			p. 137		Pl. 24-25
(3)				p. 447			p. 147		
Scrapers									
(4)		p. 24					p. 158		
Choppers									
(1)			p. 61				p. 156	p. 189	Pl. 25
Drills									
(1)		p. 21							
(2)	47 Pl. 6								Pl. 24-25
Ground Stone									
Manos									
(1)							p. 213		Pl. 25
(2)		p. 28		p. 452			p. 213		
Ornamental Objects									
Bone bead			p. 60		p. 116	Fig. 65			
Shell pendant					p. 41	Fig. 66			

[a]References: 1, Husted 1962; 2, Lister 1951; 3, Wormington and Lister 1956; 4, Mulloy 1954; 5, Steward 1937; 6, Cressman 1942; 7, Jennings 1957; 8, Bliss 1950; 9, Strong 1935.

Corner-notched

Type 2B (Fig. 6C-D)

Total. Two.

Description. Large corner-notched points with generally straight bases.

Materials. Chert.

Provenience. Level 4.

Dimensions. 3.2 and 1.5 by 2.3 cm. and 2.5 by 0.3 and 0.5 cm.

Type $2B_1$ (Fig. 6E)

Total. One.

Description. Stemmed triangular form with straight or slightly convex blade edge and relatively deep, broad notches. Base thinned and expanded to almost the full width of the blade.

Material. Chalcedony.

Provenience. Level 4.

Dimensions. 4.5 by 2.1 by 0.5 cm.

Type $2B_2$ (Fig. 6F)

Total. One.

Description. Small corner-notched point with generally straight base.

Material. Jasper.

Provenience. Level 4.

Dimensions. 2.1 by 1.6 by 0.5 cm.

Type 2E (Fig. 6G)

Total. One.

Description. Larger corner-notched point with concave base.

Material. Chert.

Provenience. Surface.

Dimensions. 4.7 by 3.5 by 0.5 cm.

Type 6F (Fig. 7B)

Total. One.

Description. Very broad triangular blade form with deep, narrow corner notches, long slender tang, and short, broad base almost as wide as the blade.

Material. Chert.

Provenience. Surface.

Dimensions. 2.4 by 2.4 by 0.3 cm.

Side-notched

Type 4A (Fig. 6H-J)

Total. Three.

Description. Side-notched with straight base.

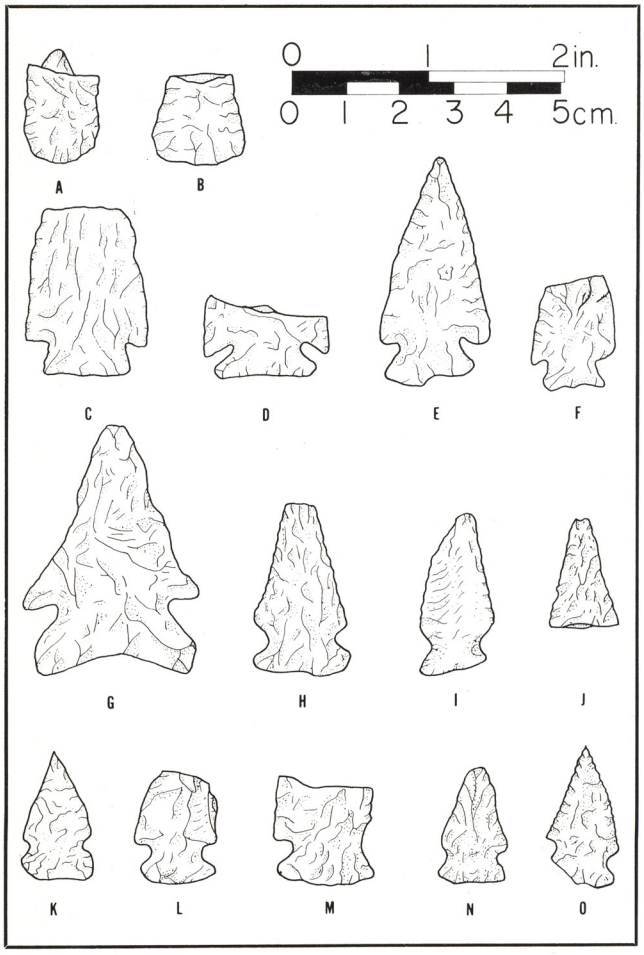


Figure 6. Projectile points. A, Type 1F; B, Type 1G; C-D, Type 2B; E, Type $2B_1$; F, Type $2B_2$; G, Type 2E; H-J, Type 4A; K, Type 4C; L-N, Type 4A O, Type 6D.

Materials. Chert (1), jasper (1), chalcedony (1).
Provenience. Level 4.
Dimensions. 2.0 to 3.2 by 1.5 to 1.9 by 0.4 to 0.5 cm.

Type 4C (Fig. 6K)
Total. One.
Description. Side-notched with base wider than blade.
Material. Chert.
Provenience. Level 4.
Dimensions. 2.5 by 1.4 by 0.4 cm.

Type 6C (Fig. 6L-N)
Total. Three.
Description. Triangular blade with deep side-notches and broad expanding base.
Materials. Chert (2), quartzite (1).
Provenience. Level 4.
Dimensions. 1.8 to 2.3 by 1.2 to 1.8 by 0.5 cm.

Type 6D (Fig. 6O)
Total. One.
Description. Side-notched with rounded base and triangular serrated blade.
Material. Chert.
Provenience. Level 4.
Dimensions. 2.7 by 1.4 by 0.5 cm.

Stemmed

Type 6E (Fig. 7A)
Total. One.
Description. Metal (trade product or locally made?) point with thin stem and elongated triangular blade. Shoulders slope inward to a narrow contracting stem with serrated edges. Produced by sawing and grinding.
Material. Iron.
Provenience. Surface.
Dimensions. 8.6 by 1.9 by 0.2 cm.

Type 6G (Fig. 7C)
Total. One.
Description. Stemmed point with indented base.
Material. Chert.
Provenience. Surface.
Dimensions. 1.3 by 1.6 by 0.5 cm.

Knives

Type 1 (Fig. 7D-E)
Total. Three.
Description. Thin, bifacially flaked, with one edge straight and one edge convex; roughly triangular with straight base.
Materials. Chert (1), quartzite (1), quartz (1).
Provenience. Level 2 (1); Level 4 (2).

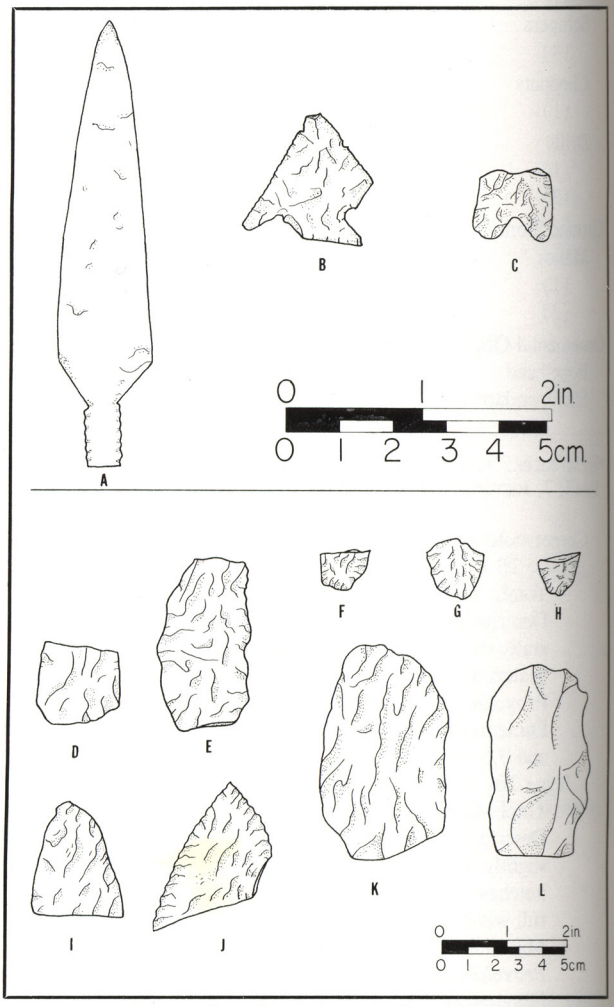


Figure 7. Projectile points, knives, and blades. A, Type 6E projectile point; B, Type 6F projectile point; C, Type 6G projectile point; D-E, Type 1 knives; F-H, Type 1 blades; I-J, Type 2 blades; K-L, Type 3 blades.

Dimensions. 3.0 to 7.0 by 2.1 to 3.0 by 0.5 to 0.7 cm.

Blades

Type 1 (Fig. 7F-H)

Total. Three.

Description. Small, ovoid, bifacially flaked blades.

Materials. Chert.

Provenience. Level 4.

Dimensions. 1.5 to 2.0 by 1.5 to 2.0 by 0.5 cm.

Type 2 (Fig. 7I-J)

Total. Four.

Description. Large, broad, bifacially flaked blades exhibiting good workmanship.

Materials. Chert (3), quartzite (1).

Provenience. Level 2 (2); Level 4 (2).

Dimensions. 2.5 to 6.0 by 3.0 to 4.5 by 0.5 to 1.0 cm.

Type 3 (Fig. 7K-L)

Total. Six.

Description. Large, thick, bifacially flaked blades with parallel edges.

Materials. Chert (5), quartzite (1).

Provenience. Surface (2); Level 4 (4).

Dimensions. 3.5 to 7.8 by 3.5 to 4.7 by 1.0 to 1.5 cm.

Scrapers

Type 1 (Fig. 8A-B)

Total. Two.

Description. Thin, bifacially flaked around only part of perimeter of percussion flake.

Materials. Chert (1), quartzite (1).

Provenience. Level 2 (1); Level 4 (1).

Dimensions. 4.5 and 4.7 by 3.8 cm. and 4.7 by 1.6 and 1.6 cm.

Type 2 (Fig. 8C-D)

Total. Three.

Description. Thick, oblong, bifacially worked scrapers on percussion flakes. Medium amount of chipping and entire perimeter worked.

Materials. Chert (2), quartzite (1).

Provenience. Level 2 (1); Level 4 (2).

Dimensions. 4.5 to 5.3 by 2.9 to 3.7 by 1.0 to 1.3 cm.

Type 3 (Fig. 8E-F)

Total. Two.

Description. Long, truncated, oval percussion flakes worked unifacially.

Materials. Chert (1), quartz (1).

Provenience. Level 4.

Dimensions. 7.5 and 8.0 by 3.5 cm. and 4.7 by 1.2 and 1.9 cm.

Type 4 (Fig. 8G-H)

Total. Two.

Description. Thin, finely pressure-flaked bifacially to form circular perimeter.

Material. Chert.

Provenience. Level 4.

Dimensions. 4.0 and 5.0 by 4.0 cm. and 4.5 by 0.9 and 0.9 cm.

Type 5 (Fig. 8I-J)

Total. Five.

Description. Crescent-shaped with one edge worked bifacially by pressure flaking.

Materials. Chert (4), quartz (1).

Provenience. Surface (1); Level 2 (1); Level 4 (3).

Choppers

Type 1 (Fig. 8K)

Total. Two.

Description. Thick unifacially percussion-flaked cobbles, ovoid to oblong.

Materials. Quartzite (1), quartz (1).

Provenience. Level 4.

Dimensions. 5.7 and 7.0 by 4.0 cm. and 7.0 by 3.5 and 3.5 cm.

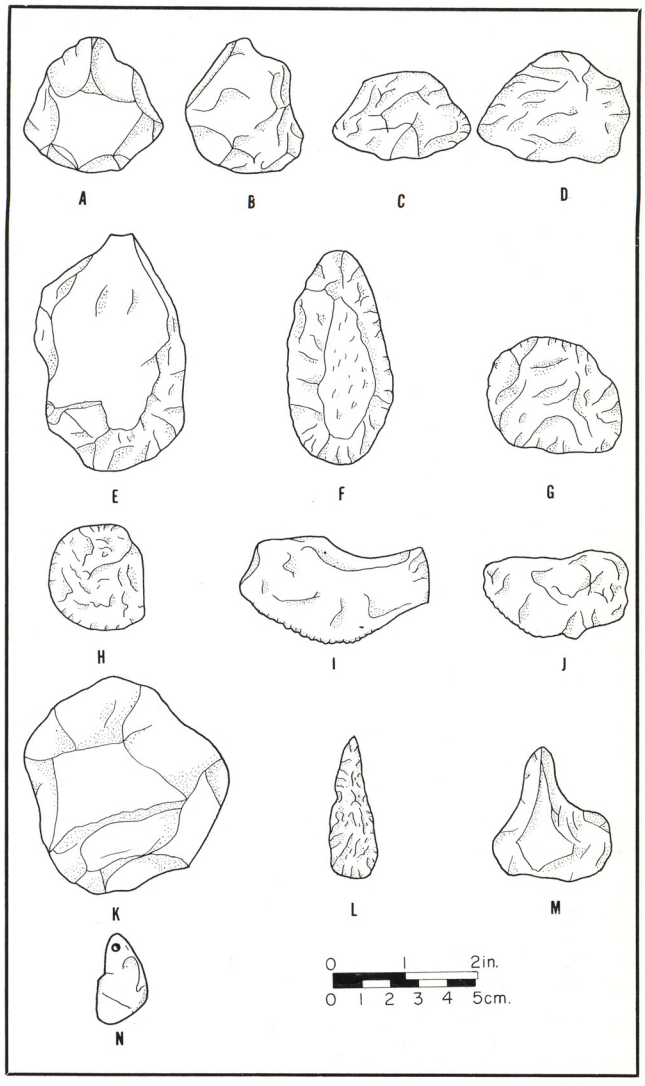


Figure 8. Scrapers, chopper, drills, pendant. A-B, Type 1 scraper; C-D, Type 2 scrapers; E-F, Type 3 scrapers; G-H, Type 4 scrapers; I-J, Type 5 scrapers; K, Type 1 chopper; L, Type 1 drill; M, Type 2 drill; N, shell pendant.

Drills

Type 1 (Fig. 8L)

Total. One.

Description. Convex flake retouched by pressure flaking.

Material. "Flint."

Provenience. Level 4.

Dimensions. 5.1 by 1.1 by 0.6 cm.

Type 2 (Fig. 8M)

Total. One.

Description. Expanded base, thick with short stem.

Material. Quartz.

Provenience. Level 2.

Dimensions. 4.5 by 4.2 by 1.6 cm.

Utilized Flakes—Chips or flakes with retouching that produces a cutting edge. A variety of siliceous material is represented.

Table 3. Chip and bone distribution by arbitrary levels.

No., % Distribution per Level	Level 1	2	3	4	5	6	7	8	Totals
No. Chips	514	508	779	439	235	139	50	—	2,664
% / Level	19	19	29	16	9	6	2	—	100
No. Burned Bone	20	22	32	103	109	43	45	—	374
% / Level	5	6	8	27	28	12	14	—	100
No. Unburned Bone	135	51	144	219	112	52	35	—	748
% / Level	19	8	20	23	16	8	6	—	100
Total Bone	155	73	176	322	221	95	80	—	1,122
% / Level	13	7	16	29	20	8	7	—	100

Chips—Chips exhibit no evidence of utilization and a variety of siliceous material is represented. Table 3 shows an analysis of chip distribution by arbitrary levels. Correlation with natural stratigraphy is not implied or directly inferable.

Ground Stone

Manos

Type 1

Total. Eight.

Description. Unifacial one-hand manos made from unmodified cobbles. The grinding surface was not well defined and the artifacts were shaped through usage.

Materials. Quartzite, basalt, and sandstone are represented.

Provenience. Level 4.

Dimensions. Average size, 12.0 by 8.9 by 5.4 cm.

Type 2

Total. Seven.

Description. One-hand bifacial manos with pecked and ground perimeters.

Materials. Quartzite and sandstone.

Provenience. Level 4.

Dimensions. Average size, 10.9 by 7.7 by 5.2 cm.

Metates

Type 1

Total. 18.

Description. Unifacial grinding slabs produced by grinding and sometimes pecking.

Material. Sandstone.

Provenience. Surface (2); Level 2 (6); Level 4 (10).

Ornamental Objects

Bone Bead

Total. One.

Description. Short, tubular animal long bone made by cutting and grinding.

Material. Small animal long bone shaft.

Provenience. Level 4.

Dimensions. 1.0 cm. long, 0.7 cm. in diameter.

Shell Pendant (Fig. 8N)

Total. One.

Description. Teardrop-shaped with perforation on small end. Made by grinding and polishing.

Material. Shell of unidentified mollusk.

Provenience. Level 4.

Dimensions. 3.0 by 1.5 by 0.2 cm.

Pottery

Plain Gray Ware

Total. One sherd.

Description. Rimsherd, unslipped, polished sand temper. It was placed in the general classification of "Shoshonean" by Breternitz (1965:138).

Provenience. Surface.

Dimensions. 2.2 by 2.0 by 0.6 cm.

Comparative Analysis

Comparison of the materials from Deerlodge Midden with those of other sites is rather tenuous. The typologies formulated are not necessarily significant since they are based on such a few specimens. Fortunately, some of our references contain descriptions of types based on large numbers of specimens. These offer fair standards by which we can compare the individual specimens from Deerlodge Midden.

Projectile points proved to be of little value in defining or dating the site. No definite sequence or typological periods could be described because of the scarcity of specimens. There is a likely relationship based on projectile points and other artifacts with the Great Basin, the latter portion of the pre-horticultural hunting and gathering stage at Hells Midden, and such sites on the Northwestern Plains as Birdshead Cave and the McKean site (see Table 2). The metal projectile point compares with a specimen found during a survey of Rocky Mountain National Park (Husted 1962:Pl. 5) and is "trader-made" rather than an Indian-made type (Cropley 1968:6).

The knives found were fragmentary, but appear to be of a type found throughout the region. Some of the blades are similar to those found in Hells Midden, Danger Cave, and Northwestern Plains sites (Table 2).

The scrapers, choppers, and drills are relatively undiagnostic. Their importance is not in comparative possibilities, but merely in defining the economic level of the culture as possibly hunting-gathering.

The two mano types are similar to types described by Jennings (1957:213) and Mulloy (1954:52). This suggests relationships with both pre-horticultural Great Basin and Northwestern Plains (Table 2).

The bone bead and the shell pendant both lack chrono-

logical interpretive value but both are similar to Great Basin forms (Table 2).

NON-ARTIFACTUAL REMAINS

FIREPITS

Five firepits were recorded; one, mentioned previously, in the road, and four in the excavated units. The latter were in proximity to one another and in the same stratigraphic position, low in the cultural level. The firepits are not rock-lined, but merely filled with broken fire-burned rocks and charcoal flecks. All are roughly circular and approximately 40 cm. in diameter.

BONE

A fairly large amount of burned and unburned splinters of bone were recovered, most of them unidentifiable. Judging from the size of many of the splinters, it appears that some relatively large animals are represented. Other bones include those of rodents and birds.

The main concentration of bone was within the cultural level, and more unburned than burned specimens are present. A percentile distribution, by arbitrary 25-cm. levels, is shown in Table 3. Correlation with the natural stratigraphy is not inferable or implied by Table 3.

DISCUSSION AND CONJECTURES

Originally conceived to be a site that would archaeologically define the eastern end of Dinosaur National Monument as being unrelated to the Great Basin, Deerlodge Midden apparently represents an area sharing traits found in both the Great Basin and the Northwestern Plains. Later historic evidence, because of a cultural discontinuity, probably represents an influx of people. Lack of abundant material for dating and comparison limits the interpretation.

Site 5MF202 contains two components, an early occupation and a later Historic occupation. There is a definite break in the stratigraphic sequence, which is supported by statistical data. Lying directly on the cultural layer are two stratigraphic units: the tan sand and the brown subsoil (Fig. 5, Levels 2 and 3). Lying unconformably on the brown subsoil is another unit, the modern humus (Fig. 5, Level 1), which contains stone chips possibly from both the supposed Historic component and the buried cultural layer. Although artifacts are found in both Levels 2 and 3 (Fig. 5a), statistical concentration is in Levels 4 and 1 (Fig. 5a,b). For practical purposes the presence of material in Levels 2 and 3 can be attributed to intrusion by rodent activity, plant action, or natural geologic processes. In effect, Levels 2 and 3 are culturally sterile and form a definite boundary isolating the lower component. If the chips in Level 1 do not relate to the Historic occupation, their concentration may be explained as being brought up by plant and rodent action, after which erosion of the fine sand left the chips as a residue.

Further evidence for the separation of the two components is based on topological considerations. Metal projectile points do not occur with a prehistoric assemblage.

The culture represented in Level 4 (Fig. 5) apparently lies within the pre-horticultural stage. This assumption is supported by the relative geologic dating and by comparison of material inventories of both the horticultural and pre-horticultural stages. Material relative to the pre-horticultural stage includes the abundance of burned and unburned bone splinters; a particular variety of projectile points, milling stones and grinding slabs; and numerous scrapers. If the Fremont Culture is defined as horticultural, the following Fremont traits and hence horticultural traits, which could be expected to occur in a campsite, are lacking: corn, trough metates, two-hand manos, storage cists, pottery, figurines, spindle whorls, and bone awls. In view of these facts, the hunting and gathering stage at Deerlodge Midden may represent "Proto-Fremont"; if the Fremont Culture actually did develop out of the Desert Culture, as is seemingly demonstrated at Hells Midden (Lister 1951).

The cultural material from Deerlodge Midden compares equally well with sites in the Great Basin and the Northwestern Plains, though there are differences in the total assemblages of both regions. It is possible that the eastern end of Dinosaur National Monument lies in a cultural contact zone between these two areas, as well as being on a natural region boundary (MacPhail 1963:Fig. 3).

The site covered a small area and seemed to have been occupied over a relatively long period of time. Evidence for a rather lengthy occupation is attested to by the thickness of the cultural layer and also by the variety of projectile points, which may indicate an evolutionary change.

Sporadic occupation is implied by a lack of well-defined firepits. Only four firepits were found, but numerous fire-cracked rocks and blackened soil in the cultural layer may indicate that others were present and destroyed. The location of the site implies discontinuous use, for a site in the open is not conducive to year-around habitation. Also, a hunting and gathering culture would tend to be migratory.

Historic occupation, possibly Ute, is indicated by the presence of a metal projectile point, and possibly by the gray-ware sherd that is not typical of the Fremont Culture. The Historic material is best explained as artifacts left by a nomadic group, possibly a hunting party.

DISAPPOINTMENT CIRCLES, 5MF196

by

GLORIA BAUER HARRELL

SITE DESCRIPTION

Disappointment Circles, site 5MF196, is located in the SW¼ of the NE¼ of Section 31, Township 6 North, Range 99 West (Frontispiece). The site is described as "Campsite on the second terrace of a point above Disappointment Creek. Material concentrated in three large circular areas devoid of sage cover. Areas about 30 feet in diameter and 75 feet across" (Breternitz 1965:87). Although the site yielded only a scant assortment of cultural material, it is the object of speculation concerning its origin and use.

EXCAVATION PROCEDURE

The "circles" were assigned numbers, Ring 1 and Ring 2 (Fig. 2). Because of the vagueness of the third "circle," it was not investigated.

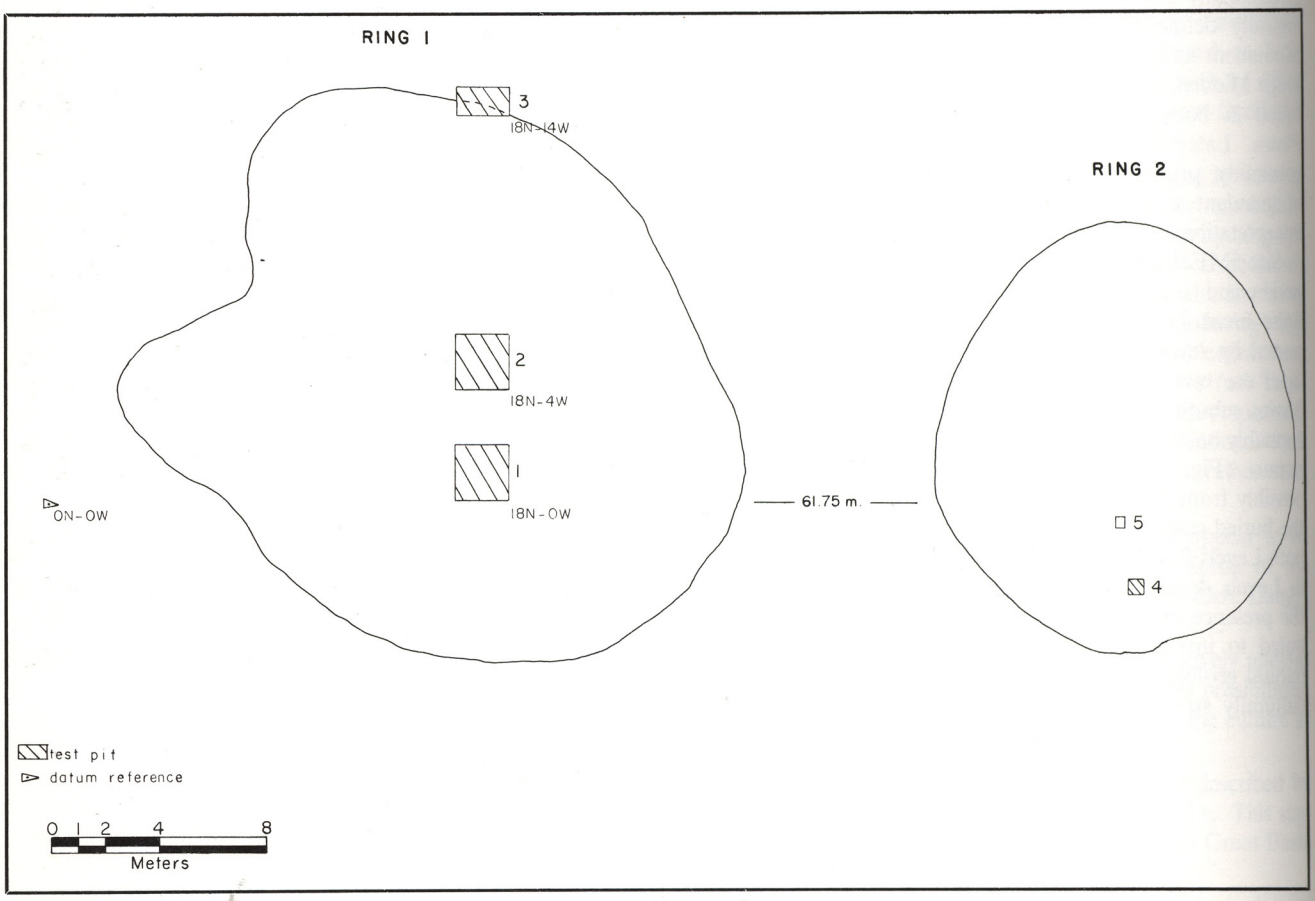


Figure 2. Sketch map of Disappointment Circles, Site 5MF196.

The surface collection produced many flakes and chips, and a few scrapers were found on Ring 1. Nothing was found within the area of Ring 2.

A north-south baseline intersecting both rings was established. Test pit 1 in Ring 1 was opened up first because of the presence of the large trough metate *in situ* (Fig. 3). This metate was embedded in the earth so that only one of its edges was visible on the surface. In total, four test pits were dug.

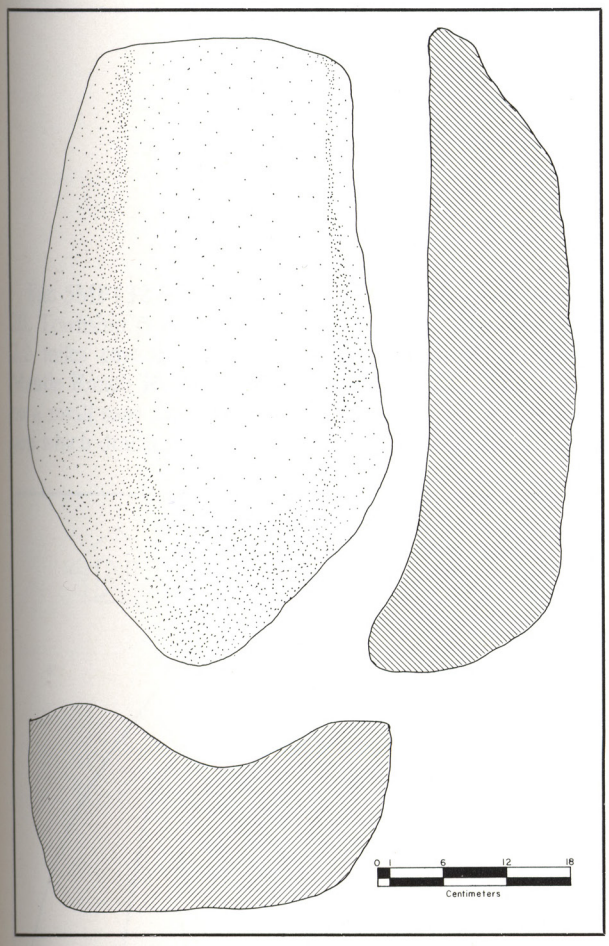


Figure 3. Closed trough metate.

MATERIAL COLLECTED

No projectile points were found. A total of 276 chips and flakes were collected; 45 of these were retouched. The greatest number of chips and flakes were made of chert, sandstone, and quartzite.

Scrapers
Total. Eight.
Description. Unifacially chipped side scrapers on flakes. Two were bifacially worked on one edge.
Materials. Chert (3), quartzite (5).
Provenience. Surface (5); 0-20 cm. (3).

Choppers
Total. Three.
Description. Battered cores with bifacial percussion-chipped working edge.
Materials. Chert (2), quartzite (1).
Provenience. Surface (2); 20-40 cm. (1).

Hammerstones
Total. Two.
Description. Cores or cobbles used for battering.
Material. Chert.

Cores
Total. Five.
Description. Cobbles from which flakes have been removed.
Materials. Chert (4), quartzite (1).
Provenience. Surface (3); 0-20 cm. (2).

Mano
Total. One.
Description. Unifacial ovoid mano found resting in the trough metate. It can be considered Type A in Wormington's (1955:47) classification.
Material. Sandstone conglomerate.
Dimensions. Length, 13.9 cm.; width, 6.1 cm.; thickness, 6.9 cm.

Metate (Fig. 3)
Total. One.
Description. Closed-end trough metate. It can be considered Type B in Wormington's (1955:44) classification.
Material. Sandstone.
Provenience. Square 18N/0W, on the surface in association with the mano.
Dimensions. Length, 58.0 cm.; width, 38.0 cm.; thickness 19.0 cm.

CONCLUSION

The Disappointment Circles site contains cultural material only in the top 3 cm. of excavation. The three large circular areas devoid of sagebrush yielded the greatest number of chips and flakes on the surface. The only significant cultural material found at the site was the trough metate and associated mano, both from the surface of Ring 1. The stratigraphy of the site is composed of the 3-cm. layer of top soil and an undetermined depth of hard red earth, the Moenkopi formation, below that. The paucity of material culture and the location of the site are the basis for assigning the name "Disappointment Circles."

Site 5MF196 could be defined as a chipping site, except for the presence of the mano and metate. The metate is made of a tan sandstone not native to the immediate vicinity. The mano is fashioned from a conglomerate of large gravel and sand that could have come from the bottom of the creek bed.

One of the traits of the Great Plains Tradition is the occurrence of "tipi rings." These rings vary in size and increase in number as one goes eastward into southeast Wyoming. With an absence of hearths, as is the case at site 5MF196, these tipi rings appear to serve a ceremonial rather than a practical function (Malouf 1960:3-5). Moomaw (1960:5-9) comes to the same conclusions and adds that a large quantity of manos and metates are found in the area of the rings with an absence of, or very few, other materials. Wormington (1955) also lists, as a principal trait common to the Fremont Culture and the Late Prehistoric Horizon of the Northern Plains, circles that serve no obvious utilitarian function. All these tipi rings have in common one thing that is completely absent

at site 5MF196; the circles have been outlined by rims of cobbles or small boulders.

Perhaps the origin of the circles can be explained by livestock activity. It is known that when sagebrush is trampled on for a short period of time, it has a tendency to die, and the sage is usually replaced by grass. Another possibility arises if one considers that the areas devoid of sagebrush could have been blighted with a fungus similar to the one that creates "fairy rings" on one's front lawn.

Presently, however, no definite answer can be given as to the origin and function of the "circles" at site 5MF196.

SITE 5MF132

by
SANDRA C. WADE

SITE DESCRIPTION

Site 5MF132 is in the NW¼ of the NE¼ of Section 20, Township 6 North, Range 101 West, approximately 2.2 miles east of the Baker Cabin turn-off along the Mantle Ranch Road (Frontispiece, Fig. 2). The site is on a small sage flat bounded on the north by a side canyon which drains into Pothole Canyon and by the Mantle Ranch Road on the south. The flat is flanked on the east and west by small washes covered with piñon and juniper.

EXCAVATION PROCEDURE

Two test pits were dug in the area with the greatest concentration of surface material. These tests were made where the flat sloped off gently toward the north and west,

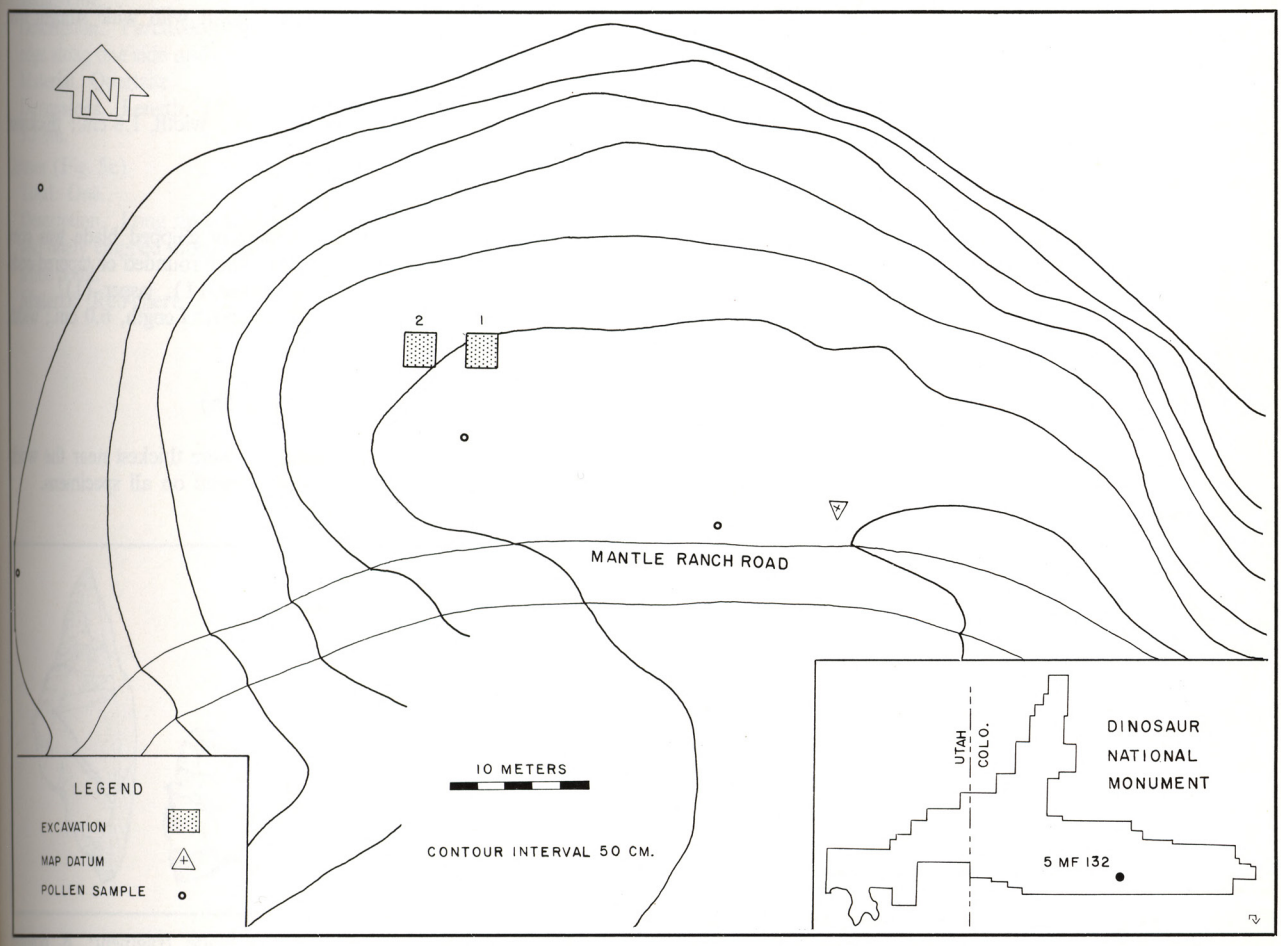


Figure 2. Site map of 5MF132.

but where it was still several feet above the level of nearby outcrops of Weber sandstone.

All cultural material from the site was found within 6 cm. of the surface in a layer of loose tan soil and vegetable material ranging from 4 to 7 cm. thick. Beneath the surface layer was a sterile layer of hard-packed dry red clay, which graded into a layer of caliche. After reaching the caliche level, no further excavation was attempted.

Artifacts

All artifacts recovered are lithic material. They are described below. Where a length is listed for a projectile point fragment, the length is of the fragment, not an extrapolation of possible total length. None of the projectile points recovered were whole.

Projectile Points

Scottsbluff Point (Fig. 3b)

Description. This Scottsbluff point had the typical oblique parallel flaking and ground base associated with the type. The point had been reworked and therefore was probably out of context (see Conclusion, below).

Material. Red chert.

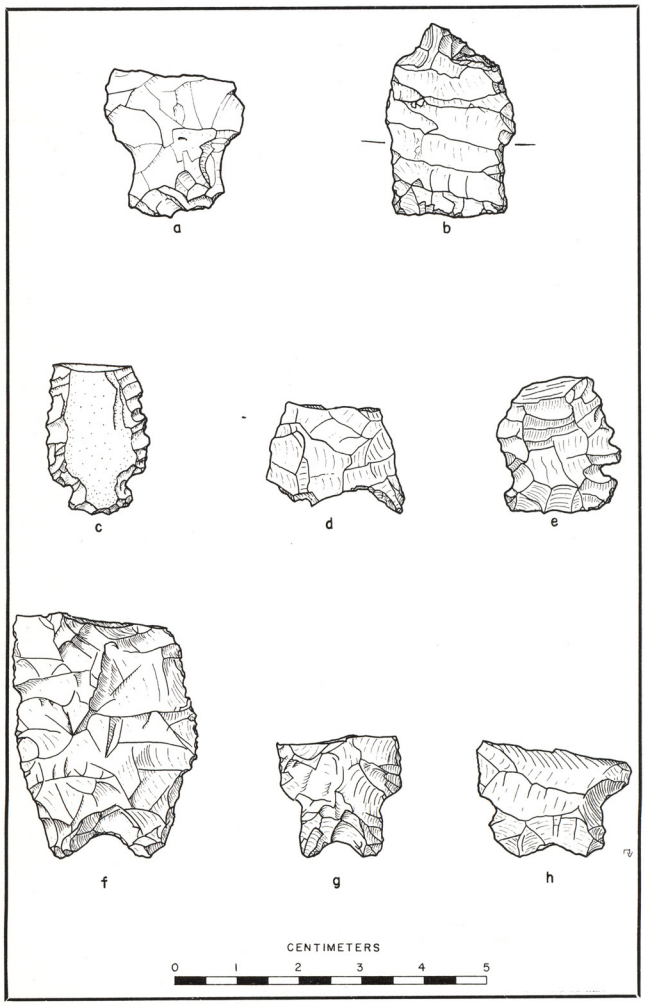


Figure 3. Projectile points. a, stemmed point; b, Scottsbluff point; c-d, corner-notched fragments; e, side-notched serrated point; f, McKean point; g-h, stemmed, indented base points.

Provenience. Surface.

Dimensions. Length, 3.0 cm.; width, 1.9 cm.; thickness, 0.4 cm.

McKean Point (Fig. 3f)

Description. Irregularly flaked, lanceolate-shaped, indented base point which falls into the category of McKean.

Material. Tan chert.

Provenience. Surface.

Dimensions. Length, 3.9 cm.; width, 2.7 cm.; thickness, 0.5 cm.

Stemmed, Indented Base Points (Fig. 3g-h)

Total. Two.

Description. Basal fragments, irregularly flaked, of stemmed, indented base points. One stem was straight-sided and one was slightly expanding.

Materials. Red chert (1), red quartzite (1).

Provenience. Surface (1); Test Pit 2, 4 cm. deep (1).

Dimensions. Length, 1.8 and 1.7 cm.; width, 2.1 and 2.5 cm.; thickness, both 0.6 cm.

Corner-notched Points (Fig. 3a, d)

Total. Two.

Description. Both corner-notched points were fragmentary, with one having a convex base.

Materials. Red chert (1), yellow chert (1).

Provenience. Surface.

Dimensions. Length, 2.3 and 1.6 cm.; width, 1.6 and 2.2 cm.; thickness, both 0.4 cm.

Side-notched, Serrated Point (Fig. 3e)

Description. Side-notched point with wide straight base and serrated blade edges.

Material. White chert.

Provenience. Surface.

Dimensions. Length, 2.1 cm.; width, 1.8 cm.; thickness, 0.4 cm.

Blades (Fig. 4a-c)

Total. Six.

Description. Only one bifacially chipped blade was complete, but all specimens had either rounded or tapered ends.

Materials. Chert (4), quartzite (1), jasper (1).

Dimensions (complete specimen). Length, 6.0 cm.; width, 2.2 cm.; thickness, 0.9 cm.

Scrapers

Snub-nosed End Scrapers (Fig. 5b)

Total. Three.

Description. These scrapers were thickest near the working end, which was well worked on all specimens.

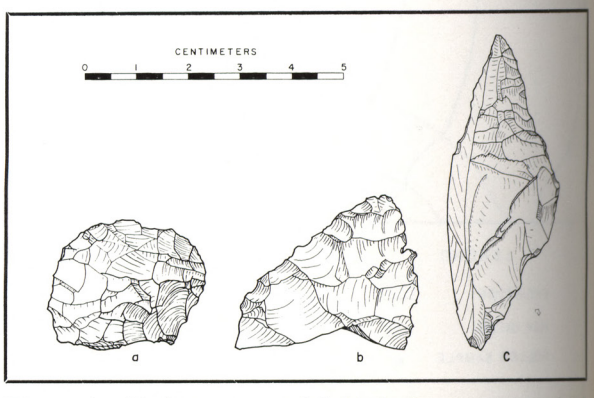


Figure 4. Blades. a, rounded blade fragment; b, pointed blade fragment; c, bifacially chipped blade.

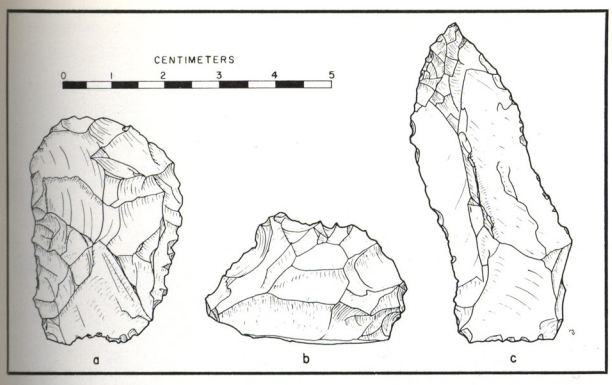


Figure 5. Scrapers and graver. a, bifacially worked side scraper; b, snubnosed end scraper; c, graver.

Material. Chert.
Dimensions. Length, 2.6 to 4.5 cm.; width, 2.3 to 3.4 cm.; thickness, 0.7 to 1.0 cm.

Side Scrapers (Fig. 5a)
Total. Two.
Description. Percussion flakes which were bifacially worked around the entire edge of the artifacts.
Materials. Tan chert (1), red chert (1).
Dimensions. Length, 3.9 cm.; width, 3.0 to 3.5 cm.; thickness, 0.7 to 0.9 cm.

Chopper
Total. One.
Description. Percussion-flaked cobble with crude working edge along one side and on both ends.
Material. Quartzite.
Dimensions. Length, 17.8 cm.; width, 6.8 cm.; thickness, 3.2 cm.

Graver (Fig. 5c)
Total. One.
Description. Long and narrow, triangular in cross-section, and finely chipped along both sides; the end was tapered to a fine point.
Material. Red chert.
Dimensions. Length, 5.7 cm.; width, 2.3 cm.; thickness, 1.0 cm.

Core
Total. One.
Material. Dark chert.
Dimensions. Length, 9.1 cm.; width, 4.5 cm., thickness, 4.6 cm.

CONCLUSIONS

Site 5MF132 was evidently a chipping area only. The lack of sub-surface cultural material plus the absence of firepits, middens, or evidence of habitation all indicate that the area was not occupied for any length of time.

Several of the projectile points have been classed with types whose ages vary by several hundred years. Since the cultural material from the site does not extend beneath the surface, no evidence is present to support discontinuous use of the site other than the variety of projectile point types.

An alternate suggestion to that of discontinuous use considers the fact that this area is marginal to several larger cultural areas (Great Plains, Great Basin, and Colorado Plateau); thus the site cannot be expected to show a clear, well-defined association from any one period within any of these areas.

Scottsbluff points have been given ages ranging from 7,000 to 9,000 years (Wormington 1957:123, 132) and the specimen from site 5MF132 is, then, a much earlier type than any of the other projectile points found. Because it has been reworked, the Scottsbluff point is taken to be out of context. That is, 5MF132 is not an "Early Man" site; the Scottsbluff point has been brought into contact with material made at a much later period than that period during which Scottsbluff points were used.

The remaining projectile points probably reflect a variety of influences from the larger cultural areas adjoining this region.

BAKER CABIN SPRING SITE, 5MF190

by

FRANCIS A. CALABRESE

SITE DESCRIPTION

The Baker Cabin Spring Site, 5MF190, is located on Johnson Draw, in the NW¼ of the SW¼ of Section 30, Township 6 North, Range 101 West (Frontispiece, Fig. 2). The Baker Cabin Spring is four-tenths of a mile up Johnson Draw from the Mantle Ranch Road. The spring marks the northern limits of site 5MF190.

The topography of the site is rugged. There is a rise in elevation from approximately 6,320 ft. at the spring to approximately 6,480 ft. at the southern extremity of the site, about three-tenths of a mile up Johnson Draw. However, the area adjacent to the present-day creek bed of Johnson Draw and 200 ft. west of the creek is relatively flat. The flat area runs the length of the site, which is covered with large boulders. Near the spring and creek bed there are box elder and cottonwood trees. These merge with sagebrush, bitterbrush, clump grass, piñon, and juniper farther east and west of the creek up the slopes of Johnson Draw.

Surface indications show that the Baker Cabin Spring

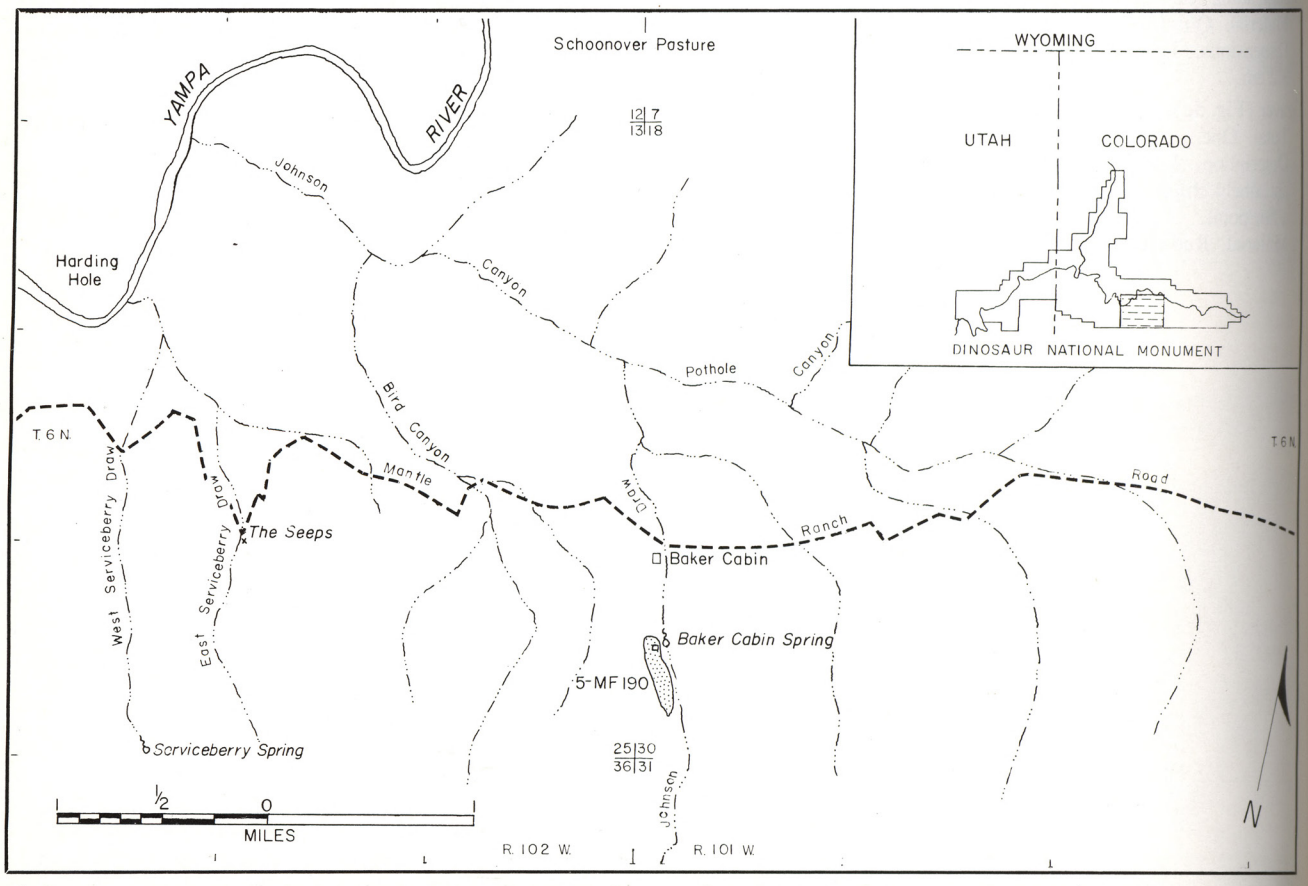


Figure 2. Detail location map of the Baker Cabin Spring Site and The Seeps Campsite.

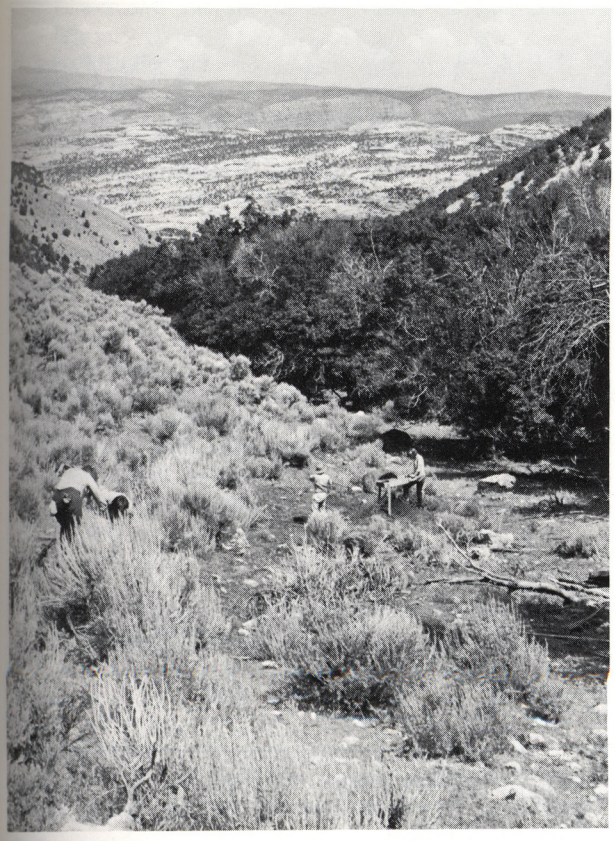


Figure 3. Baker Cabin Spring Site, looking north. Work in progress in Unit 1.

Site is an open campsite (Fig. 3). The site was first reported by Charles R. Scoggin (1941:8) as Site B7 and relocated in the summer of 1963 (Breternitz 1965:85). Surface collections from the site, both from the survey and during actual excavation, indicate use of the site over a long period of time, and perhaps extensively. Surface material collected included 5 projectile points, 25 blade tools, 86 scrapers, 13 choppers, 1 mano, 152 utilized flakes, and an assortment of burned bone. Also noted was an area resembling a midden.

Perhaps the single most important reason for undertaking excavation was the recovery from the surface, in 1963, of the Cascade Point. This artifact gives indications of a possible "early" utilization of the site.

EXCAVATION PROCEDURE

Following the acquisition of a surface collection, pollen samples were obtained from the present ground surface, and then a series of test trenches was excavated in Units 1, 2, and 3 (Fig. 4).

Due to the great length of the site and the dense vegetation cover, it was impossible to maintain a single baseline. Thus, a baseline was set up, north-south, parallel to the creek bed, for Units 1, 2, and 3.

Test trenches were excavated in 20-cm. levels. Each test trench was excavated through two 20-cm. levels of sterile material to determine the depth of cultural remains. An attempt was made to record all cultural material *in situ*. The dirt from each level was passed through a one-quarter-inch mesh screen, which was necessary because of the extreme rockiness of the soil. It required much use of the pick to loosen the soil, making it difficult to keep exact control.

The western limit of the site is marked by a rapid rise in elevation from the flat near the creek bed. The southern limit appears to be just south of the datum of Unit 1. The northern limit is the spring and cabin. The eastern limit was never definitely found, but it probably coincides with the rapid rise in elevation of the draw.

It was found that the midden-like soil was the most productive. Thus, the northernmost test trench of Unit 1 was expanded to test these soils further.

The site was mapped as three separate units due to its length, the dense vegetation, and lack of time. However, elevations and distance of each unit were mapped in relation to the datum of Unit 1.

STRATIGRAPHY

The stratigraphy of Unit 1 is poorly defined. In the southernmost trench of Unit 1, a dark gray, loosely consolidated soil was revealed. It appeared to be limestone-

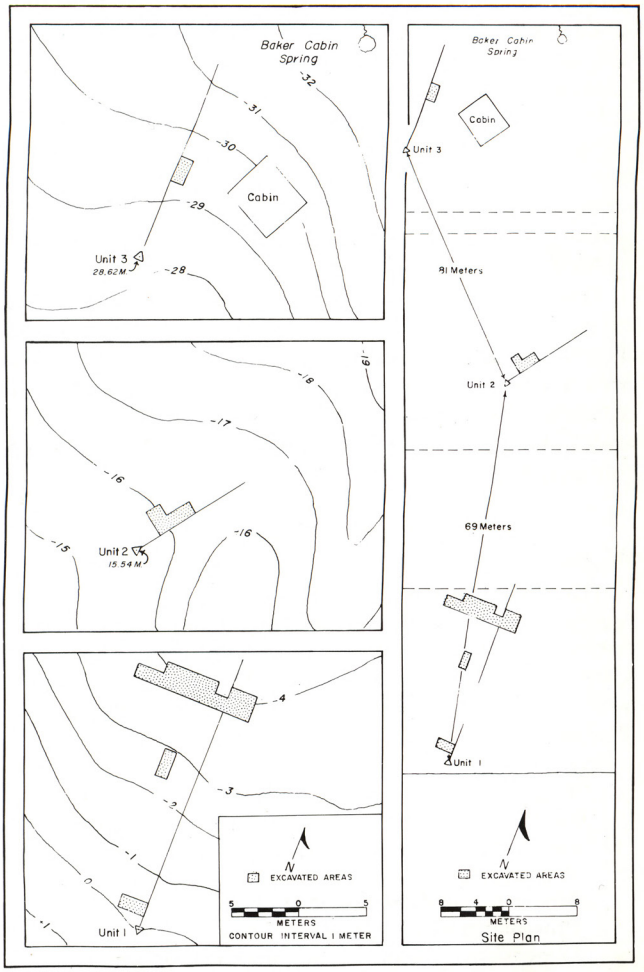


Figure 4. Contour map and unit relationships of Baker Cabin Spring Site.

derived, but contained great amounts of decomposed charcoal, which gave it the gray color. This soil also contained large, intermittent charcoal flakes, but they were not concentrated enough to be considered firepits. This gray soil was found down to 40 cm. below the surface. At a depth of 40 cm. a rocky, tan, compacted clay was encountered, which was devoid of cultural material. Two levels of this soil were removed. In the central test trench of Unit 1, the gray material extended to a depth of 60 cm. and was followed by the tan soil just noted. Little or no cultural material was found below the dark gray soil.

In the northern and most important portion of Unit 1, the dark gray soil extended to a depth of 80 cm. Here, the original test trench was taken down to 120 cm., through 40 cm. of the same tan soil described earlier. In the eastern extension of the main excavation of Unit 1 there were lenses of stream gravel within the dark gray soil. These lenses were sterile, and probably represented past wandering of the stream bed, or slope wash. Thus, the above gray soil follows the slope of the underlying tan soil. It is possible that these are typical soil horizons found in arid regions, Horizon A (leached) and Horizon B (unleached).

In Unit 1, arbitrary levels A through D, which will be referred to in this paper, correspond to the dark gray soil.

The stratigraphy of Unit 2 was quite distinct from that of Unit 1. At 0 to 5 cm., a recent humus level was encountered. Below this, from 5 to 40 cm., a tan sandy soil with dark gray lenses of unconsolidated charcoal existed. Between 40 and 65 cm. there were large rocks mixed with a dark soil, and at 65 to 80 cm., dark gray soil containing small rocks. From 80 to 100 cm., the deposit was a gray soil with large and small rocks. No cultural material was found below 60 cm.

Unit 3 again differs from the two previously described units. To a depth of 20 cm., a brown soil was found. This was followed, between 20 and 80 cm., by a dark brown soil with large rocks, shale, and gravel. This soil appears to be well leached. At 80 to 100 cm. river gravel was found. Evidently the stream had meandered through this area at one time.

Material Recovered

Flaked Stone Artifacts

The flaked stone artifacts recovered from the Baker Cabin Spring Site were manufactured by both pressure and percussion flaking. The types of stone used included chert, chalcedony, quartzite, vein quartz, and obsidian. The typology used in this paper treats the artifacts by their function and shape.

Projectile Points

Type I (Fig. 5d)
Total. One.
Description. Small corner-notched or stemmed, with basal notch. The tangs and upper quarter of the point were missing.
Material. Coral-colored chalcedony.
Provenience. Unit 1, Level A.
Dimensions. Width, 1.7 cm.; thickness, 0.5 cm.

Type II (Fig. 5i)
Total. One.
Description. Large corner-notched point with concave base.
Material. Red-brown quartzite.
Provenience. Unit 1, Level D.
Dimensions. Width, 2.25 cm.; thickness, 0.5 cm.

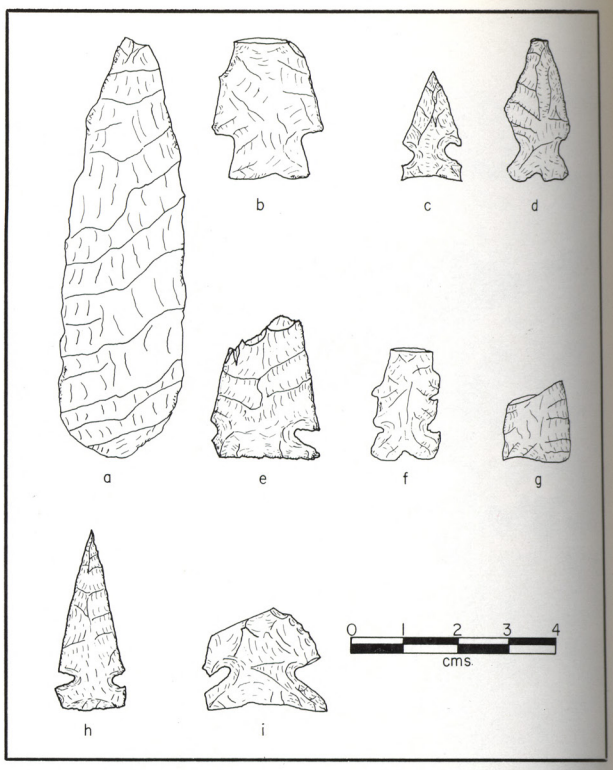


Figure 5. Projectile points. a, Type IX; b, Type X; c, Type III; d, Type I; e, Type IV; f, Type VII; g, Type V; h, Type VI; i, Type II.

Type III (Fig. 5c)
Total. One.
Description. Small side-notched point with concave base.
Material. White chalcedony.
Provenience. Unit 1, Level A.
Dimensions. Length, 2.3 cm.; width, 1.3 cm.; thickness, 0.25 cm.

Type IV (Fig. 5e)
Total. One.
Description. Large corner-notched point with a straight base; broken.
Material. Chert.
Provenience. Unit 1, Level B.
Dimensions. Thickness, 0.4 cm.

Type V (Fig. 5g)
Total. Two.
Description. Small leaf-shaped points with straight to concave bases.
Material. Chert.
Provenience. Surface (1); Unit 1, Level C (1).
Dimensions. Width, 1.5 cm.; thickness, 0.25 cm.

Type VI (Fig. 5h)
Total. One.
Description. Medium-sized side-notched point with straight base that was wider than the blade.
Material. Tan chalcedony.
Provenience. Unit 1, Level C.

Dimensions. Length, 3.2 cm.; width, 1.3 cm.; thickness, 0.3 cm.

Type VII (Fig. 5f)

Total. One.

Description. Small side-notched point with basal notch.

Material. Chert(?), specimen misplaced in laboratory.

Provenience. Unit 2, Level B.

Dimensions (approximate). Length, 2.8 cm.; width, 1.2 cm.

Note: Five incomplete projectile points found during excavation were not diagnostic (see Table 1 for their distribution).

Type VIII

Total. One.

Description. Small corner-notched point with convex base narrower than the blade.

Material. White chalcedony.

Provenience. Surface.

Dimensions. Length, 2.9 cm.; width, 1.1 cm.; thickness, 0.3 cm.

TABLE 1. Distribution of artifacts from excavation units.

Artifacts	Unit	Levels A	B	C	D	E
Projectile Points	1	4	2	3	2	—
	2	—	1	—	—	—
	3	—	—	—	—	—
Drills	1	—	—	1	1	—
	2	—	—	—	—	—
	3	—	—	—	—	—
End Scrapers	1	3	4	—	—	—
	2	—	—	—	—	—
	3	—	—	1	—	—
Side Scrapers	1	2	2	—	2	—
	2	—	1	—	—	—
	3	—	—	1	—	—
Blades	1	1	1	4	4	—
	2	—	1	—	—	—
	3	—	—	1	—	—
Flake Knives	1	—	—	—	1	—
	2	—	1	—	—	1
	3	—	2	—	—	—
Choppers	1	—	1	2	1	—
	2	—	2	—	—	—
	3	—	—	—	—	—
Manos	1	—	—	1	—	—
	2	—	—	—	—	—
	3	—	1	—	—	—
Bone Artifacts	1	—	—	2	—	—
	2	—	—	—	—	—
	3	—	—	—	—	—
Miscellaneous	1	2	—	—	—	—
	2	4	—	—	—	—
	3	—	—	—	—	—
Total		16	19	16	11	1

Type IX (Fig. 5a)

Total. One.

Description. Cascade Point. Large leaf-shaped point with oblique parallel flaking. The convex base was thinned and there was a medial ridge.

Material. Black and white speckled chert.

Provenience. Surface.

Dimensions. Length, 7.5 cm.; width, 2.3 cm.; thickness, 0.5 cm.

Type X (Fig. 5b)

Total. One.

Description. Medium-sized stemmed point with a straight base.

Material. Brown chert.

Provenience. Surface.

Dimensions. Width, 1.8 cm.; thickness, 0.4 cm.

Note: Two projectile points from the surface were too fragmentary to be typed.

Drills

Type I (Fig. 6a-b)

Total. Two.

Description. The expanded bases offered enough area for them to be hand held, or they could have been hafted.

Provenience. Unit 1, Level C (1), Level D (1).

End Scrapers

Type IA (Fig. 7c)

Total. Two.

Description. Made from a pear-shaped flake that was removed from a core by percussion. These scrapers were unifacially worked. There was an upper rounded surface with a hump toward the forward edge and a lower surface which represented the plane of cleavage. There were three worked edges, the leading edge or snub, one straight edge, and one concave edge.

Provenience. Unit 1, Level B.

Dimensions. Average length, 5.2 cm.; average width, 4.5 cm.; average thickness, 1.7 cm.

Type IB (Fig. 7d)

Total. Three.

Description. Made from pear-shaped flakes that were removed from a core by percussion. There was an upper rounded surface with a hump toward the forward edge. There were three unifacially pressure-flaked working edges—the leading edge and two straight edges.

Provenience. Unit 1, Level A (1) and Level B (1), Unit 3, Level C (1).

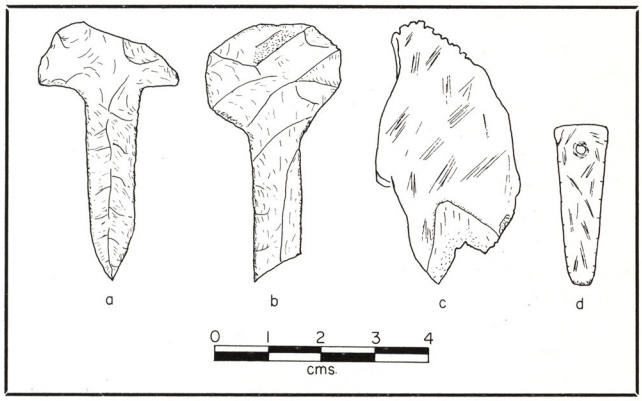


Figure 6. Drills, notched bone, bone pendant. a-b, Type I drills; c, notched bone; d, bone pendant.

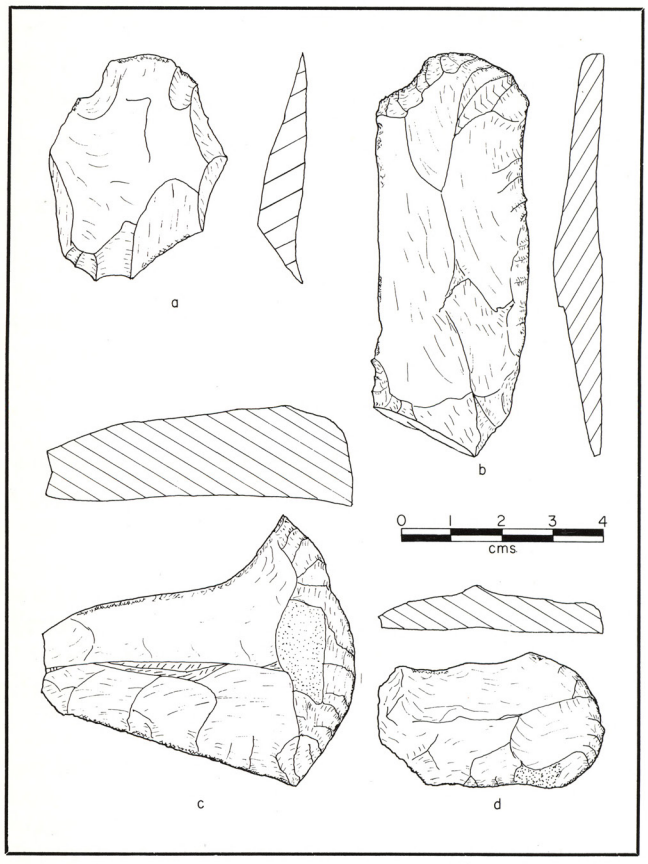


Figure 7. End scrapers. a, Type ID; b, Type IC; c, Type IA; d, Type IB.

Type IC (Fig. 7b)
Total. One.
Description. Made from an elongated flake that was removed from a core by percussion flaking. There was an upper rounded surface with a hump toward the center of the scraper and a lower surface which represents the plane of cleavage. This scraper was unifacially worked, and because of its length it is considered to be a combination side and end scraper.
Provenience. Unit 1, Level A.
Dimensions. Length, 8.0 cm.; width, 3.0 cm.; thickness, 1.3 cm.

Type ID (Fig. 7a)
Total. Two.
Description. These scrapers, made from percussion flakes, had a rounded upper surface with a hump toward the forward edge. They lacked the chipping refinement of the other end scrapers, and only the snub end had secondary pressure flaking.
Provenience. Unit 1, Level A (1) and Level B (1).
Dimensions. Average length, 5.0 cm.; average width, 3.3 cm.; average thickness, 1.5 cm.

Side Scrapers

Type IA (Fig. 8d)
Total. Four.
Description. These scrapers appeared to be made on percussion flakes. Working edges were pressure flaked and the tools were bifacial.
Provenience. Unit 1, Level B (1) and D (2); Unit 2, Level B (1).

Type IB
Total. One.
Description. Large percussion flake made into a scraper by bifacial pressure flaking, which occurred only along the bulbous end of the flake.
Provenience. Unit 3, Level C.
Dimensions. Length, 7.5 cm.; width, 4.3 cm.; thickness, 1.2 cm.

Type IC
Total. One.
Description. Large percussion flake unifacially worked to produce a scraping edge.
Provenience. Unit 1, Level B.

Type ID (Fig. 8e)
Total. Two.
Description. Small, elongated, unifacially pressure-flaked flakes. One had all four edges worked and the other had one worked edge and was incomplete.
Provenience. Unit 1, Level A.
Dimensions. Average width, 2.5 cm.; average thickness, 0.8 cm.

Blades

Type IA (Fig. 8a-c)

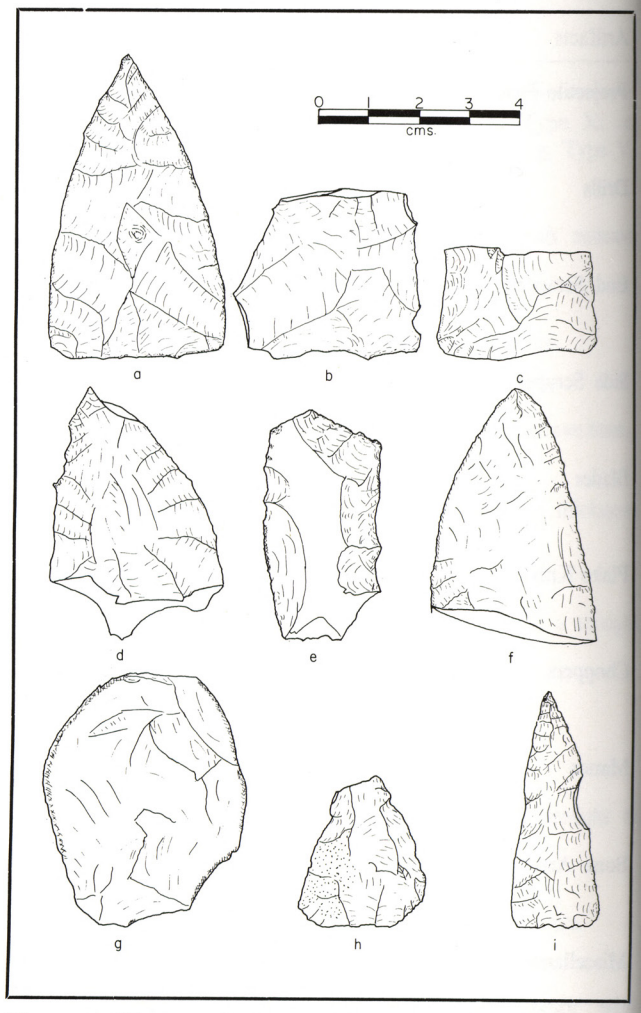


Figure 8. Side scrapers, blades, and flake knife. a-c, Type IA blades; d, Type IA side scraper; e, Type ID side scraper ; f, Type IB blade; g, Type I flake knife; h-i, Type IC blades.

Total. Three.
Description. Triangular blades with straight bases; bifacially pressure flaked.
Provenience. Unit 1, Level C (1) and Level D (1); Unit 3, Level C (1).
Dimensions. Average length, 5.8 cm.; average width, 3.5 cm.; average thickness, 0.5 cm.

Type IB (Fig. 8f)
Total. Three.
Description. Tips of blades made by bifacial pressure flaking. Bases of all specimens were missing.
Provenience. Unit 1, Level A (1) and Level B (1); Unit 2, Level B (1).

Type IC (Fig. 8h-i)
Total. Two.
Description. Small unifacially worked blades, but with some pressure-flaked chips removed from unworked side. One straight-based and one with convex base. Both sides uniformly sloped to a point on each blade.
Provenience. Unit 1, Level C.
Dimensions. Average length, 4.5 cm.; average width, 2.1 cm.; average thickness, 0.4 cm.

Note: Four tips of what appear to be blades were found; however, they were too small to be classified (see Table 1 for their distribution).

Flake Knives

Type I (Fig. 8g)
Total. Five.
Description. Large flakes with at least two edges worked by unifacial pressure flaking.
Provenience. Unit 1, Level D (1); Unit 2, Level B (1) and Level E (1); Unit 3, Level B (2).

Choppers

Type I
Total. Six.
Description. Small to large cobbles bifacially worked by percussion flaking into chopping tools. Four were ovoid, one rectangular, and one fragmentary.
Provenience. Unit 1, Level B (1), Level C (2), Level D (1); Unit 2, Level B (2).
Dimensions. Average length, 8.7 cm.; average width, 6.4 cm.; average thickness, 2.3 cm.

Chips and Flakes—A large number of chips and flakes was recovered from site 5MF190. Some of these chips and flakes showed signs of retouching or utilization. Table 2 shows their distribution.

GROUND STONE ARTIFACTS

Manos

Type I (Fig. 9)
Total. Two.
Description. Rectangular bifacially ground manos with leading and trailing edges present, and battered ends.
Provenience. Unit 1, Level C (1); Unit 3, Level B (1).
Dimensions. Average length, 10.9 cm.; average width, 8.6 cm.; average thickness, 5.2 cm.

BONE ARTIFACTS

Bone Pendant (Fig. 6d)
Total. One.
Description. Both surfaces of the pendant were very flat and polished. The edges were shallowly notched and the perforation was drilled biconically.
Provenience. Unit 1, Level C.

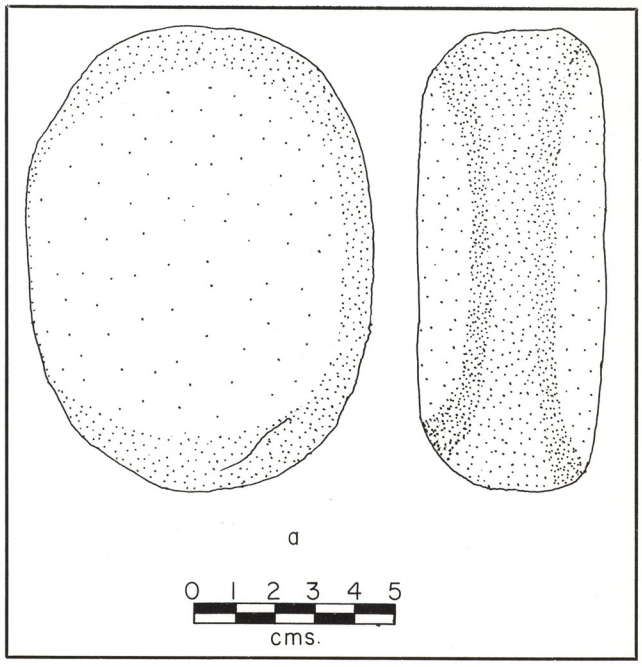


Figure 9. Mano, Type I.

Dimensions. Length, 3.1 cm.; width, 1.1 cm.; thickness, 0.25 cm.

Notched Bone (Fig. 6c)
Total. One.
Description. A fragment of animal long bone with one serrated edge which could have been used as a scraper or flesher or even a rasp.
Provenience. Unit 1, Level C.
Dimensions. Length, 4.7 cm.; width, 2.4 cm.; thickness, 0.4 cm.

MISCELLANEOUS ARTIFACTS

One shoe eyelet with leather still attached, one medium-sized metal button with four holes, one small plastic button

TABLE 2. Distribution of chips and flakes.

Level	Material	Units 1	2	3
A	Worked and retouched	10	0	1
	Total	373	21	23
	%	27.5	34.1	16.8
B	Worked and retouched	10	0	6
	Total	250	22	65
	%	18.4	35.4	47.4
C	Worked and retouched	22	0	2
	Total	318	11	39
	%	23.5	16.6	28.4
D	Worked and retouched	11	1	0
	Total	412	5	7
	%	30.3	8.1	5.2
E	Worked and retouched	0	0	0
	Total	4	3	3
	%	0.3	4.8	2.2

Table 3. Distribution of bone.

Level	Bone	Units 1	2	3
A	Burned	4	2	8
	Total	21	3	12
	%	9.1	5.7	40.0
B	Burned	9	4	7
	Total	62	47	8
	%	27.0	88.8	60.0
C	Burned	12	—	—
	Total	75	2	—
	%	32.6	3.7	—
D	Burned	8	—	—
	Total	72	1	—
	%	31.3	1.8	—
E	Burned	—	—	—
	Total	—	—	—
	%	—	—	—
F	Burned	—	—	—
	Total	—	—	—
	%	—	—	—

with four holes, and one blue glass trade bead were found at the 10-cm. level of Unit 2 (see description of Feature 1).

One bullet casing (25-20 Marlin) and one piece of flat rolled metal, possibly tin, were found between the surface and 10 cm. of Unit 1. These two objects could have easily been churned under by modern livestock activity of the area.

Faunal Remains

Burned and unburned bone was found at most levels (Table 3). Most of this bone was fragmentary and unidentifiable.

Two large bones, a mandible and a long bone, were tentatively identified as either bison or large elk. Other bones include those from the following animals: deer, mountain sheep, mountain goat, rodent, mule, and rabbit.

Firepit

A firepit, designated Feature 1, filled with small fire-cracked rocks, was found at a depth of 10 cm. in Unit 2. Within the crude perimeter of the fire-cracked rock was a red-orange clay, probably disintegrated rock, mixed with ash. Associated with Feature 1 was an eyelet of a lace-type boot, and one chip. Also found at the same level were the blue glass trade bead, a metal button, and a plastic button, mentioned previously. It appears that this firepit represents a combination of White and aboriginal activity. A charcoal sample was taken, but it has not been submitted for a date.

Conclusions

The apparent profusion and mixture of projectile points throughout the various levels and on the surface make it almost impossible to relate this site to any other excavated in Dinosaur National Monument. In most sites excavated, large corner-notched points usually preceded smaller corner-notched points. This stratigraphic occurrence is not the case at the Baker Cabin Spring Site. A large corner-notched point, Type II, is found in Level D, followed by a side-notched point, Type VI, Level C, and then another corner-notched point, Type IV, Level B. Possible explanations for this sequence include: (a) differential erosion, i.e., one area being eroded while another was not; (b) continual, consistent erosion during and between times of occupation; or (c) a combination of both factors. The artifacts show no evidence of stream erosion, thus leaving the wind as the predominant mechanism of erosion.

The Cascade Point found on the surface was probably transported into the site. No chips or flakes of the same material as the Cascade Point were found at the site. The recovery from the surface of the site of this Cascade Point prompted excavation. However, recent work in Idaho has shown Cascade Points lasting into Historic times (Max Pavesic, personal communication), so the initial thinking that this type represented an "early" occupation of the site may be erroneous.

The multitude of scrapers, blade tools, and bone (burned and unburned) indicates a primary subsistence on wild game. The grinding implements found would indicate some dependence upon vegetal plants.

The site was probably occupied periodically, over a long period of time. There is no evidence to indicate continuous occupation.

THE SEEPS CAMPSITE, 5MF138

by

DELMER E. SANBURG, JR.

SITE DESCRIPTION

Site 5MF138 is a camping and chipping area in the SW¼ of the SW¼ of Section 23, Township 6 North, Range 102 West (Frontispiece and Fig. 2; also see Fig. 2 of the preceding paper by Calabrese). It is approximately 75 yards south of a spring known as The Seeps. It was chosen for excavation because of the presence of three fire-pits and a collection of artifacts from the surface which suggested a possible lengthy occupation.

The site is situated on a finger-like bluff whose sides are very steep and whose slope is level for some 50 m. until it meets the hill from which it protrudes. The bluff is thickly covered by juniper, piñon, sagebrush, and prickly pear cactus. There are three clearings with blackened soil along the flat portion of the bluff, each of which is about 10 m. across and about 5 m. apart. In the middle clearing, a firepit (Feature 1) was located and excavated.

EXCAVATION PROCEDURE

Because little was found in Area 3 (Fig. 2), most of

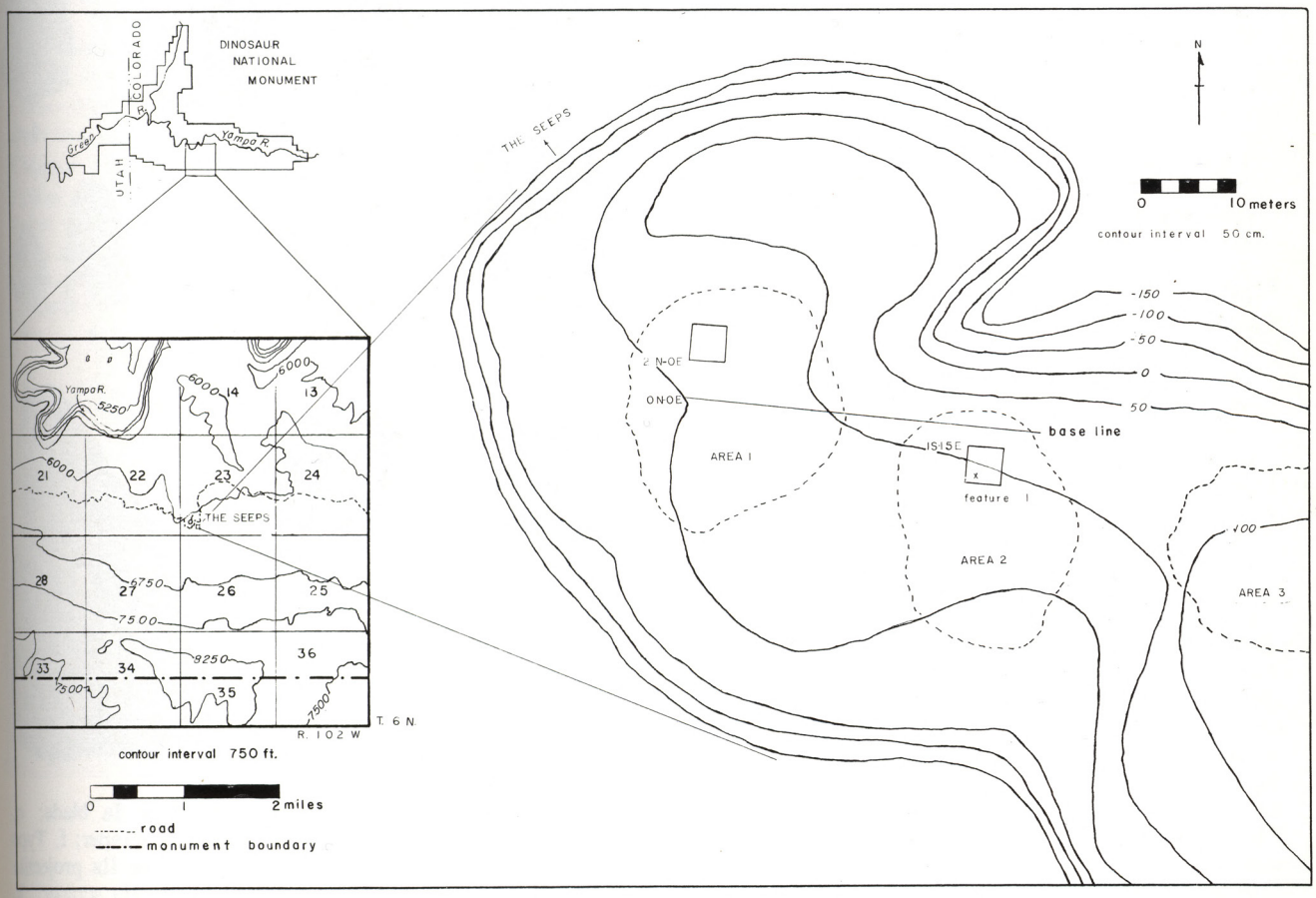


Figure 2. The Seeps Campsite and surrounding area.

the work was done in Areas 1 and 2. Two test pits were established initially, the first at 2N/0E in Area 1 and the second in 1S/15E around the firepit in Area 2.

Test pit 2N/0E was excavated to a depth of 25 cm. The layer containing cultural material was 6 cm. thick and composed of brownish-black disturbed soil resting on an extremely hard layer of sterile clay. From 25 to 50 cm. the soil was found to be culturally sterile. Test pit 1S/15E was excavated to a depth of 10 cm., the firepit (Feature 1) was recorded, and a charcoal sample was taken.

Feature 1 being the only definite cultural feature found, the site was declared superficial, and was mapped and backfilled.

Materials Collected

Ground Stone

Manos

Type I
Total. One.
Description. Flattened, rectangular, bifacial mano. There was evidence of pecking on the grinding surfaces and on the end.
Provenience. Half from surface and half from Area 1.

Type II
Total. One.
Description. Rounded bifacial mano. Shaped almost to a spheroid by grinding and pecking. Secondary work was evident from a deep encircling groove which could indicate hafting of the worn-out mano for use as a pounder or maul.
Provenience. Surface.

Flaked Stone

Projectile Points

Type I (Fig. 3g)
Total. One.
Description. Corner-notched, rounded base, straight sided, small.
Material. Jasper.
Provenience. Surface, Area 1.
Dimensions. 2.0 by 1.2 by 0.3 cm.

Type IIa (Fig. 3h)
Total. One.
Description. Leaf-shaped point with straight base, large.
Material. Chert.
Provenience. Surface.
Dimensions. 3.6 by 2.0 by 0.4 cm.

Type IIb (Fig. 3i)
Total. One.
Description. Leaf-shaped point with rounded base, small.
Material. Chert.
Provenience. 4 cm. deep in square 2N/0E.
Dimensions. 2.3 by 1.5 by 0.3 cm.

Drill (Fig. 3a)
Total. One.
Description. Drill or punch made from flake, by removal of large chips; tip broken. Drill shaft triangular in cross-section.
Material. Chert.
Provenience. Area 2.
Dimensions. Drill shaft, 0.2 by 0.4 cm.

Blades

Type Ia (Fig. 3b)
Total. One.
Description. Small laurel-leaf blade.
Material. Jasper.
Provenience. Surface.
Dimensions. 3.3 by 2.4 by 0.6 cm.

Type Ib (Fig. 3c)
Total. Two.
Description. Large laurel-leaf blades.
Material. Chert.
Provenience. Surface.
Dimensions. 5.8 and 6.9 by 3.8 cm. and 4.1 by 0.7 and 0.9 cm.

Type II (Fig 3d)
Total. One.
Description. Long lancet-shaped blade, narrow in comparison with other blades, shaped by percussion flaking.
Material. Chert.
Provenience. Surface.
Dimensions. 4.9 by 2.5 by 1.0 cm.

Scrapers

Type Ia (Fig. 3e)
Total. Three.
Description. Large, round bifacially worked scrapers which could be used on three sides.
Materials. Chert (2), quartzite (1).
Provenience. Surface.
Dimensions. 4.2 to 4.9 by 4.1 to 4.5 by 1.6 to 1.8 cm.

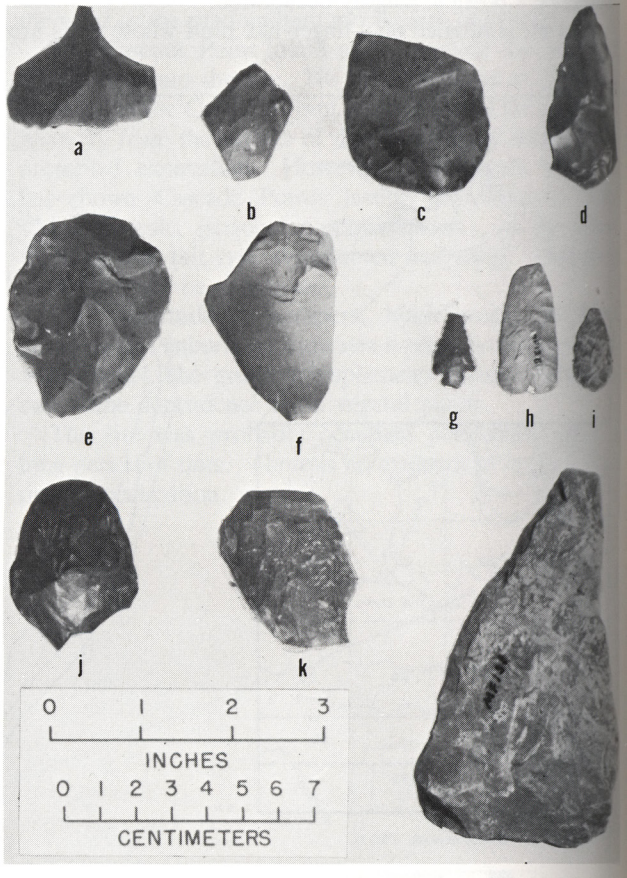


Figure 3. Lithic artifacts. a, drill; b, Type Ia blade; c, Type 1b blade; d, Type II blade; e, Type Ia scraper; f, Type Ib scraper; g, Type I projectile point; h, Type IIa projectile point; i, Type IIb projectile point; j, Type IIa scraper; k, Type IIb scraper, 1, Type III scraper.

Type Ib (Fig. 3f)
Total. One.
Description. Bifacially worked, ovoid-shaped; worked on only one portion of the edge.
Material. Chert.
Provenience. Surface.
Dimensions. 5.4 by 3.8 by 1.2 cm.

Type IIa (Fig. 3j)
Total. Two.
Description. Unifacially worked, ovoid-ended end scrapers; considerable secondary chipping on the working end.
Material. Chert.
Provenience. Surface.
Dimensions. 4.5 and 4.9 by 3.6 cm. and 4.2 by 1.1 and 1.5 cm.

Type IIb (Fig. 3k)
Total. One.
Description. Unifacially worked, flattened-end end scraper.
Material. Quartz.
Provenience. Surface.
Dimensions. 4.3 by 3.3 by 0.8 cm.

Type III (Fig. 3l)
Total. Three.
Description. Large, triangular-shaped, unifacially worked on one edge.
Material. Chert.
Provenience. Surface.
Dimensions. 7.8 to 10.5 by 6.8 to 7.1 by 2.3 to 2.5 cm.

Hammerstones—Three chert hammerstones were found on the surface. They were battered on all sides, somewhat rounded, and measured from 7.4 to 8.0 cm. long, 6.3 to 6.9 cm. wide, and 4.3 to 5.5 cm. thick.

Cores—Four cores were found on the surface. Two were of chert and two of quartzite.

Chopper—One chert chopper was found on the surface.

Flakes and Chips—Eighty-six large, utilized, and reworked flakes were found on or within 6 cm. of the surface. Over 165 chips were found; 100 were on the surface and the rest no deeper than 6 cm. None of them was larger than 2 cm. in diameter.

BONE

Between the surface and a depth of 6 cm. in test pit 2N/0E, a lower jaw of a jackrabbit, a small mammal rib, and several unidentifiable pieces of larger mammal bone were found.

CONCLUSIONS

The materials found indicate that this was a camping and chipping site used by a hunting and gathering type of people. This is apparent in the lack of pottery, metates, middens, signs of foundations for dwellings, depth of the culture layer, and any evidence of agriculture. Only lithic remains, useful in hunting, and small manos, typically associated with hunting and gathering peoples, were found.

The only diagnostic artifacts from the site are projectile points. Type I appears to be similar to points typical of the Fremont Culture of the region (Gunnerson 1957: 25-6, 29; Wormington 1955:51-2). This places a tentative date of A.D. 700-1150 on the site (Kidder 1962:25; Wormington 1951:72). Triangular blanks of the same nature as the Type 2 points have been recorded at Hells Midden (Lister 1951:10-17), with Fremont Culture pottery in association.

It is possible that this is a hunting site maintained by people from a Fremont village. It has been suggested that such sites were established, then used on a seasonal basis by people from Fremont villages (Gunnerson 1957:38-40). The surrounding terrain is excellent for such a purpose: the presence of a spring and cover make it attractive to game, thus giving hunters more of a chance to return with a kill. Fremont remains have been found within six miles of the site at Hells Midden, and other sites in Castle Park, making it even more possible for such a site to exist.

Although the idea advanced is plausible, there is no way to irrefutably prove it. In fact, the only statement that can be advanced with substantial backing is that the site was a camping and chipping area inhabited by a hunting and gathering people.

ARROWHEAD POINT CAMPSITE, 42UN66

by
DONNA L. ARNDT

INTRODUCTION

Arrowhead Point Campsite, 42UN66, was initially reported to the University of Colorado Archaeological Survey party in 1963 by Mrs. Olive Evans, Mr. Crawford MacKnight, and Mrs. Josephine Bassett Morris (deceased).

Permission to excavate the site, which is located on state land, was granted by Mr. Max C. Gardner, Director, Utah State Land Board.

During final editing and revision of this report, Bruce J. Bourque redrafted all the illustrations of excavation units, and Robert J. Burton prepared the site excavation photographs.

SITE DESCRIPTION

Arrowhead Point Campsite is located in the Cub Creek locale, in the SW¼ of the NW¼ of Section 2, Range 24 East, Township 5 South (Frontispiece). The site is situated in a sandy saddle between two prominent Navajo sandstone outcrops that rise above the flood plain of Cub Creek (Fig. 2).



Figure 2. Location of Arrowhead Point Campsite. The site is in the saddle between the two high sandstone outcrops in the middle distance. The flood plain of Cub Creek is in the foreground. Looking south-southeast.

In the general vicinity of Arrowhead Point Campsite is an abundance of sagebrush on the creek flats, numerous cottonwood trees growing along Cub Creek and near the site on the slopes of the ridge and saddle are juniper and prickly pear cactus.

The sandy saddle of the ridge between the Navajo Sandstone outcrops that are locally known as Fortification Rock and Arrowhead Point is moderately covered with juniper and consists of a series of open sandy areas initially separated by ridges of cross-bedded Navajo sandstone. The covering of sand is thin, 5 to 25 cm. deep, with bedrock underlying the sand. All the open areas have burned sand in evidence, and chipping detritus and artifacts are abundant. Four bedrock mortars and circular spiral petroglyphs occur on the nearby sandstone outcrops. Surface collection from the site consists of two projectile points, five blades, four scrapers, two mano fragments, one drill, nine retouched chips, and four Turner Gray: Cisco Variety sherds. Because of the above indications, the site was designated as being a campsite-petroglyph site, and testing and excavation was recommended (Breternitz 1965:27).

EXCAVATION PROCEDURE

An arbitrary datum point was established and designated as 0N/0W. The site was then gridded in 10-m. units (Fig. 3). Eight locations were tagged with metal pins indicating them as likely areas for excavation, based on surface concentrations of artifactual and burned materials. Initial test areas were staked off in 2-m. squares but, due to the shallow depth of the deposit, these dimensions were not retained in all cases. All units were excavated as one level. All units were dug by shovel, and all material was sifted through a one-half-inch screen. Upon reaching bedrock, each test area was swept with a broom, which served to expose postholes and ash pits that had been dug into the bedrock.

NON-ARTIFACTUAL REMAINS

BURIAL

Burial 1, that of a child approximately six years of age,

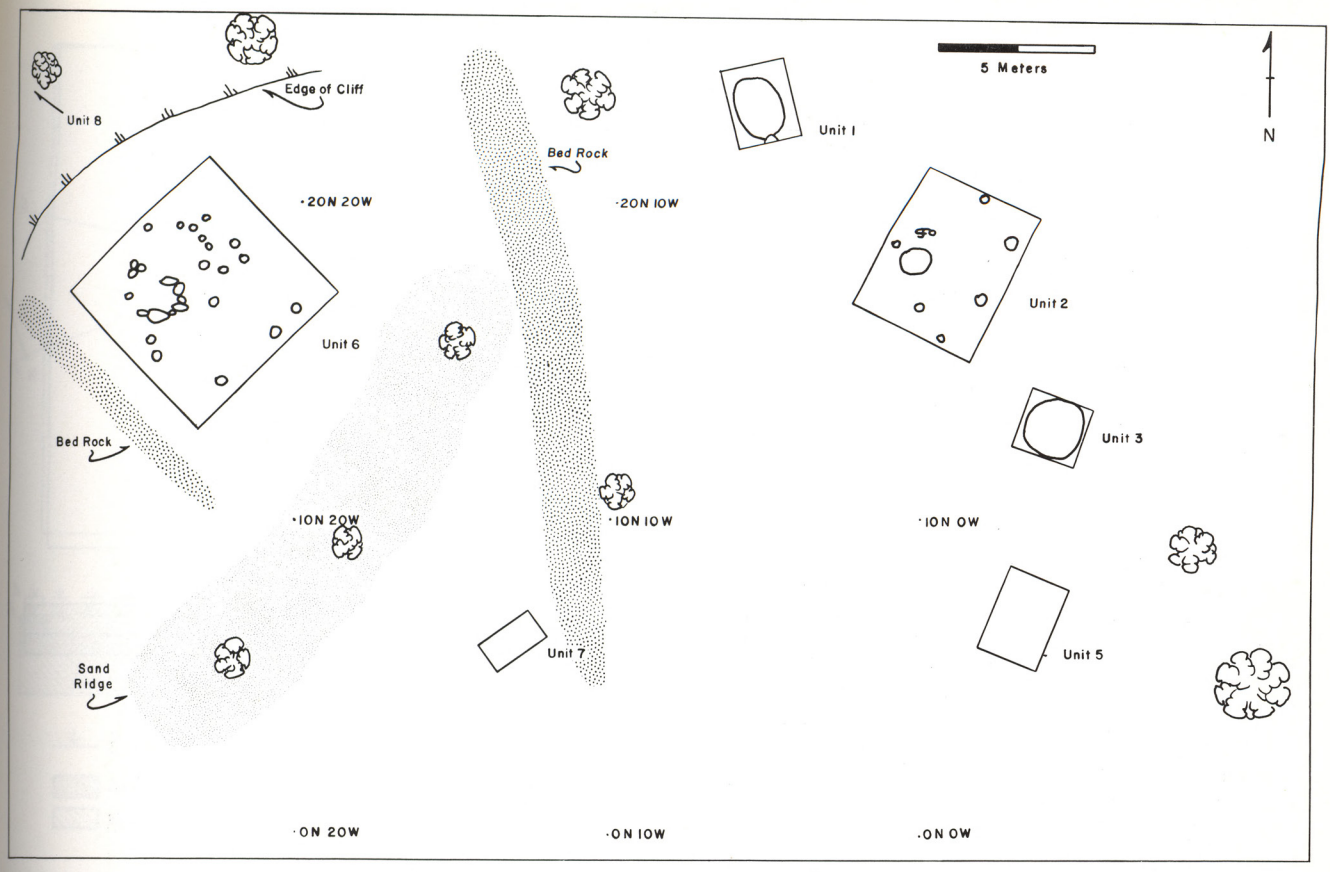


Figure 3. Site map of Arrowhead Point Campsite.

determined on the basis of the presence of the first molars (Kelso and Ewing 1962), was located in Unit 2 (Fig. 4-5) 15 cm. below the surface and resting on bedrock in a semi-flexed position with the head facing west. The maximum length of the burial was 57 cm., in a northwest-southeast direction. No artifacts were associated with the burial, but it was located within a structure defined by a series of adobe-filled postholes drilled into the bedrock. A circular spiral petroglyph, numerous round and oval ground depressions, and peck marks were found on the bedrock near the burial. The state of preservation and completeness was fair.

Cranium

The fragile skull was broken during excavation. Partial reconstruction revealed that too many cranial bones were missing to reach any conclusions concerning artificial or pathological deformation. The brow ridges are small and median, with little lateral development, and more or less continuous. No metopic suture is present and the frontal eminence slopes away from the plane of the face very slightly. Post-orbital constriction is slight, and there is no gabling of the skull. The nasal profile is straight, prognathism is slight, tooth wear is slight, and the incisors exhibit a medium shovel-shaped concavity.

Post-cranial Skeleton

The following bones are present: the axis and 5 cervical vertebrae, 11 thoracic and 5 lumbar vertebrae, 2 clavicles, 1 scapula, 1 humerus, 2 femurs, 2 tibias, 1 fibula, the fragmented pelvis, and rib fragments.

The cause of death is undetermined, and because of the lack of stratigraphy and associated artifacts, the burial does not provide any useful dating information.

CULTURAL FEATURES

Three structures were located during excavation, with two firepits in close association. Units 2, 6, and 8 are structures; Units 1 and 3 are firepits; Units 5 and 7 are undefinable; and Unit 4 is a test outside the area shown in Figure 3 that failed to produce any cultural material.

Structures

Unit 2. This structure was defined by five adobe-filled postholes which were dug into the underlying bedrock (Fig. 4). The "floor" was covered by 15 cm. of fire-burned and wind-blown sand and ashy fill. Associated with the structure were Burial 1, an ash pit, a circular spiral petroglyph on bedrock, and round ground and oval depressions and peck marks; the round holes were arranged in a semi-circle. Ten projectile points, nine blades (fragments), nine hammerstones, one chopper, one bone bead, and three mano fragments were found in Unit 2.

Unit 6. This structure was defined by 25 ash-filled postholes, varying in depth from 5 to 25 cm., drilled into bedrock, and by a semicircular rock-outlined firepit (Figs.

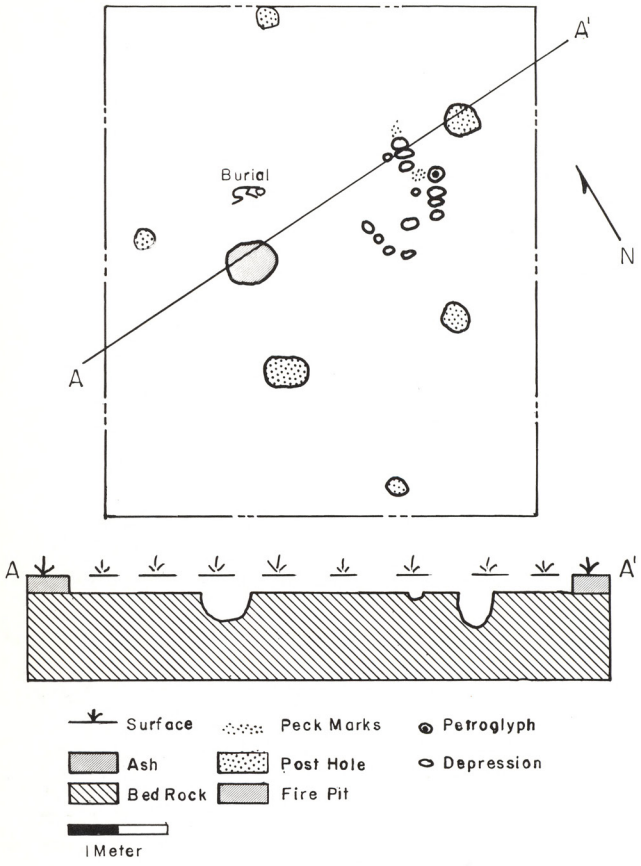


Figure 4. Unit 2.



Figure 5. Burial 1, in Unit 2.

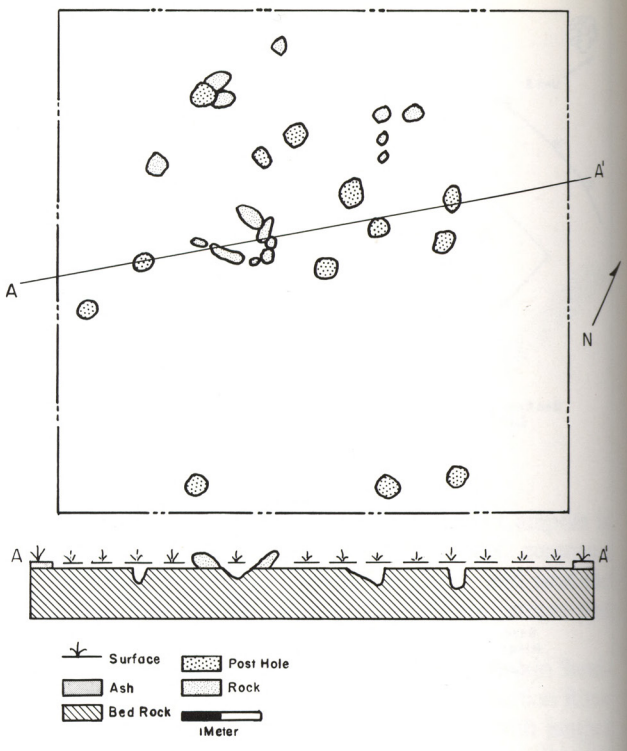


Figure 6. Unit 6.



Figure 7. Unit 6, after excavation, looking southwest.

6-7). The surface of the structure was covered by 5 cm. of ashy fill and wind-blown sand. The entire area was littered with stone chips and flakes and might have been a chipping location for the manufacture of artifacts. The associated artifacts were 8 projectile points, 1 stone ball, 10 Turner Gray: Cisco Variety sherds, 3 polished stone pebbles, 34 utilized flakes, 5 hammerstones, 6 mano fragments, and 1 broken metate.

Unit 8. This structure is located on a narrow ledge at the north side of the site (Fig. 8). The entire area was covered with 25 cm. of ashy fill, with burned adobe dispersed throughout. One posthole and one ash-filled depression defined the area. Numerous artifacts were found in association: four projectile points, six broken blades, one stone ball, one burned bone awl, three utilized flakes, five hammerstones, and six mano fragments, plus burned adobe. Immediately above Unit 8 were the four bedrock

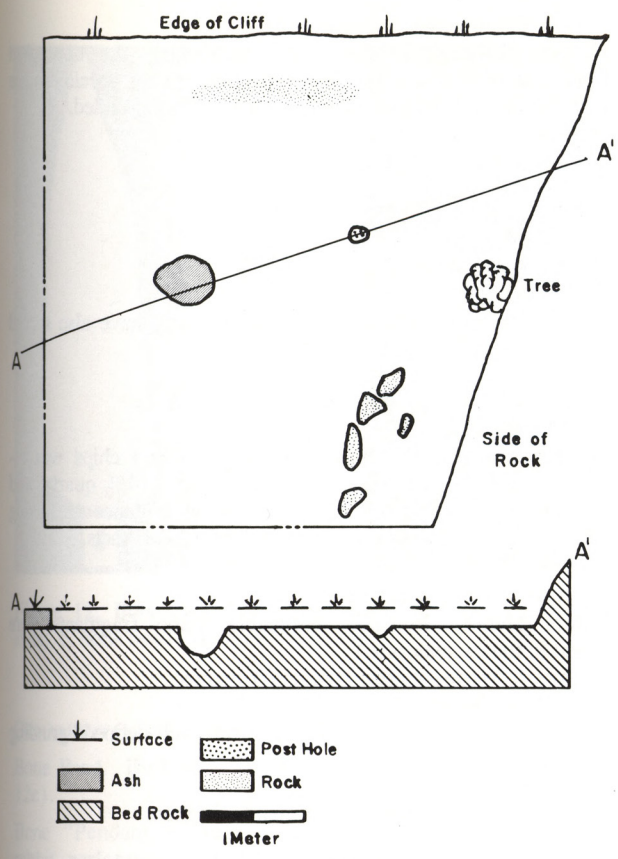


Figure 8. Unit 8.

mortars, and because all the mano fragments were broken, it is possible that they fell into the structure area from above.

Firepits

Unit 1. This circular firepit was defined by bedrock on the east, west, and south sides, and by a large sandstone slab on the north side (Fig. 9). Maximum diameter was 145 cm., with a depth of 67 cm. The pit was filled with ash and wind-blown sand. Associated artifacts were one projectile point, six blade fragments, one stone ball, six utilized flakes, one bone awl, and three belemnites.

Unit 3. A large circular firepit cut into bedrock was initially covered by 25 cm. of ashy fill. Maximum diameter was 156 cm., with a depth of 40 cm. No artifacts were associated with this firepit.

ARTIFACTS

The artifacts from Arrowhead Point Campsite are typed partially according to the typology formulated for the Dinosaur National Monument Survey (Breternitz 1965:107-135) and partially according to an arbitrary typology formulated by the author. Unclassifiable and incomplete specimens, particularly projectile points and blades, are not treated.

All the artifact types were found throughout the cultural deposits and, as there was no stratigraphic separation, the artifacts do not assist materially in making cultural or chronological assignments. Consequently, only summary treatment is given artifacts, except when their individual

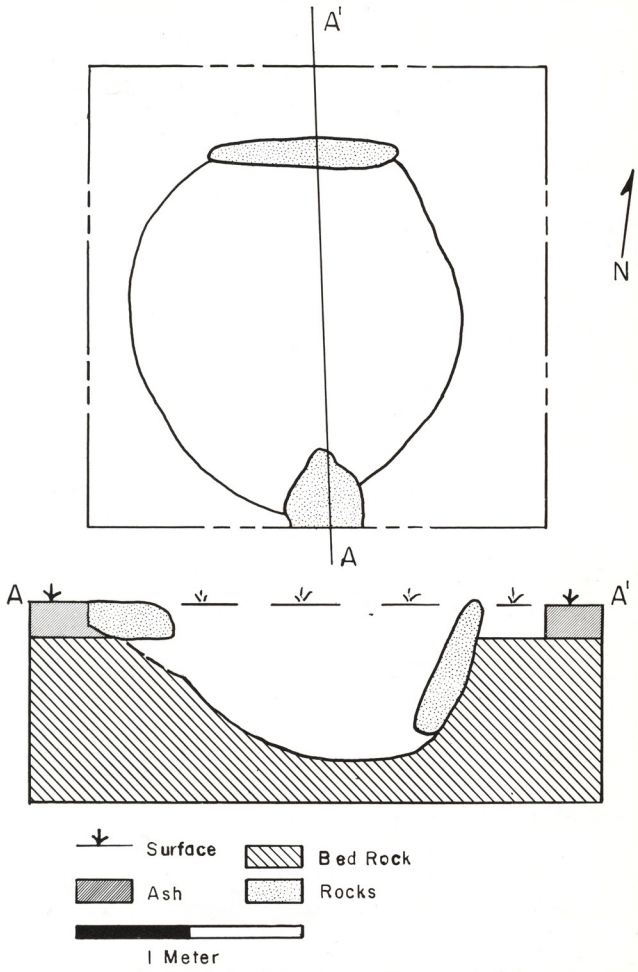


Figure 9. Unit 1.

merits justify the standard descriptive treatment used in the preceding papers.

CHIPPED STONE ARTIFACTS

Projectile Points (Typologically, this category certainly includes some "blades," which might be so categorized by other workers.)

Type 1, Unnotched

Type 1B

Total. One.

Description. Unnotched, round base, triangular blade.

Type 1C

Total. Two.

Description. Unnotched, round base, triangular blade, large. Probably a blade.

Type 1E (Fig. 10a-b)

Total. Six.

Description. Unnotched, straight base, triangular blade.

Type 1F (Fig. 10c)

Total. Two.

Description. Unnotched, concave base, triangular blade.

Type 2, Notched, Stemmed

Type 2D (Fig. 10d-e)

Total. Three.

Description. Stemmed, straight to convex base, barbed, some serration.

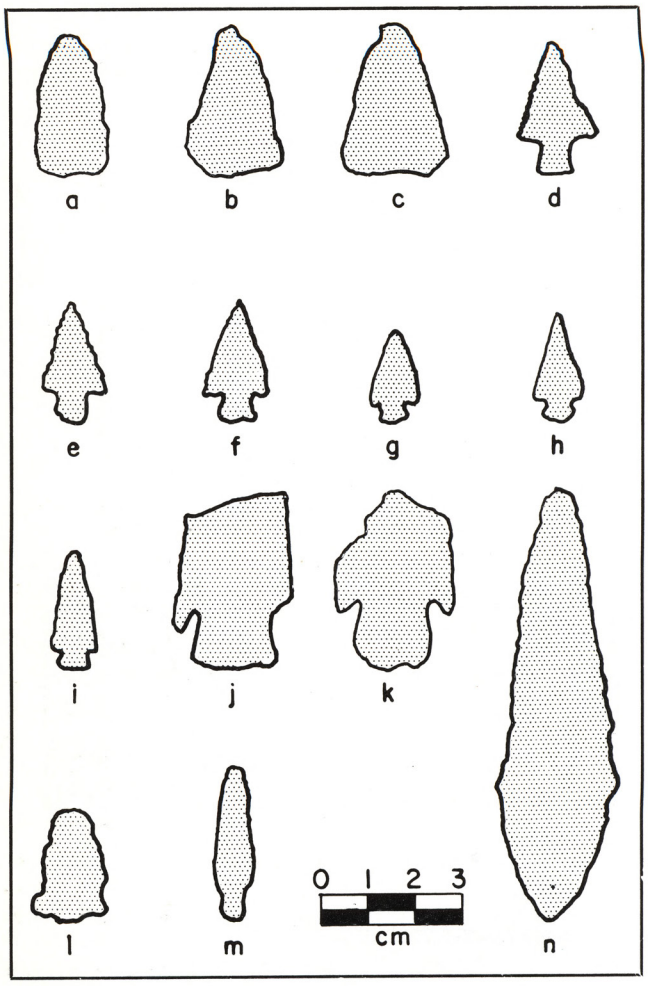


Figure 10. Chipped stone artifacts. a-b, projectile points, Type 1E; c, projectile point, Type 1F; d-e, projectile points, Type 2D; f-i, projectile points, Type 3E; j-k, projectile points, Type 3G; 1, projectile point, Type 4B; m, drill; n, projectile point, Type 2I.

Type 2I (Fig. 10n)
Total. One.
Description. Large shouldered point which is also referred to as a "Fremont Blade" by other workers.

Type 3, Notched, Diagonal-notched
Type 3A
Total. One.
Description. Diagonal-notched, straight base, triangular blade.

Type 3E (Fig. 10f-i)
Total. 10.
Description. Diagonal-notched, straight to convex bases, triangular blades, generally small.

Type 3G (Fig. 10j-k)
Total. Two.
Description. Diagonal-notched, straight to convex base, straight stem, barbed notches, triangular blade; could be classified as stemmed points, also.

Type 4, Notched, Side-notched
Type 4B (Fig. 10l)
Total. One.
Description. Straight base as wide as blade, shallow side-notches, triangular blade.

Blades. Some projectile points, particularly the unnotched types, might also be classified as blades. Other specimens are incomplete, but all are either pointed or round-ended.

Scrapers
Type 1, Flake Scrapers
Total. Six.
Type 2, Keeled Scraper, on Flake
Total. One.

Drill
Stemmed Drill (Fig. 10m)
Description. Elongate drill which could have also served as a projectile point.

Choppers
Percussion-flaked cobble-sized chopping tools
Total. Five.

Utilized Flakes and Chips—A total of 2,364 chips was recovered—66% were chert, 13% chalcedony, 11% quartz, and 10% quartzite. Some of the flakes show evidence of having been utilized, but they are not standardized artifacts.

Ground Stone Implements

Manos (Note: Fourteen untypable mano fragments were found in the excavations.)
Type 1. Wedge-shaped (trifacial) manos
Total. Three.
Description. Wedge-shaped with well-defined grinding surfaces.

Metate
Description. Shallow trough metate, broken.

Miscellaneous Stone Implements

Stone Balls. Concretions which have been artificially smoothed and rounded.

Hammerstones. Roughly circular or discoidal cobbles with battering on ends and protrusions.

Pecking stone. Ovoid cobble with battering evidence on both ends.
Remarks. Specimen was found in Unit 2 and was possibly used to make the numerous peck marks which were in association.

Polishing Stones. Small thin elliptical pebbles with evidence of use as polishers, possibly for smoothing pottery.
Total. Three.

Stone Pipe. Fragment of polished stone pipe with flaring bowl (Fig. 11a).
Material. Shaley stone.
Dimensions. Bowl, 2.0 cm. deep; diameters at ends of fragment, 1.5 and 3.0 cm.

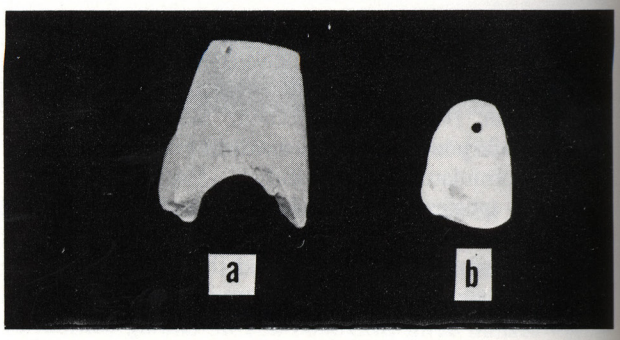


Figure 11. Stone pipe and shell pendant. a, stone pipe fragment; b, shell pendant.

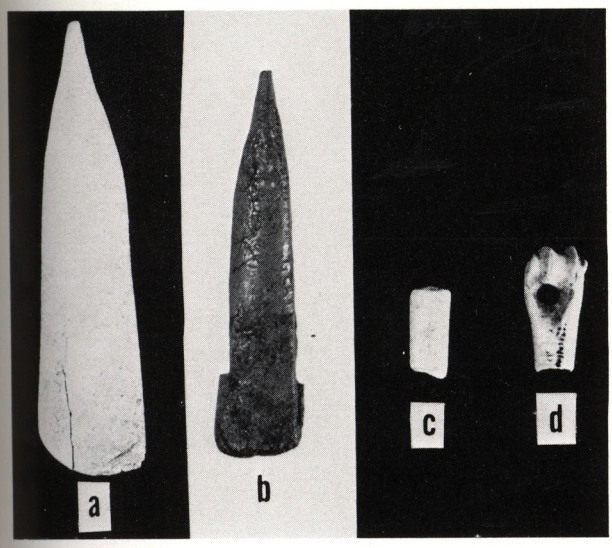


Figure 12. Bone awls, bone bead, bone "pendant." a-b, bone awls; c, bone bead; d, bone "pendant."

ORNAMENTAL OBJECTS

Bone Bead. Bird bone shaft, probably cut by incising (Fig. 12c).

Bone "Pendant." Distal end of rodent humerus, probably rabbit, perforated below the condyles (Fig. 12d).

Shell Pendant. Perforated shell of unknown variety (Fig. 11b).

Stone Beads. Discoidal beads made of blackish shale.
Total. Two.

Fossils. Three belemnites; could have been collected locally from the Curtis formation.

BONE ARTIFACTS

Bone Awls. Splinter bone awls made from animal long bones, probably deer (Fig. 12a-b).
Total. Two.

POTTERY

Twenty sherds of calcite-tempered Turner Gray: Cisco Variety were recovered.

CONCLUSIONS

The excavated material from the site is the only relatively dependable basis from which a date of occupation may be postulated. Most of the artifacts compare favorably with material from nearby Fremont Culture sites that perhaps date from between A.D. 950 and 1150.

The pottery found at Arrowhead Point Campsite is the typical Turner Gray: Cisco Variety associated with the Fremont Culture in northeastern Utah. Other Fremont-like artifacts include the "Fremont Blade" (projectile point Type 2I), the Type 3E projectile points, the mano and metate types associated with corn grinding activities, and stone balls.

The shallow pithouse type of dwellings, usually associated with the Fremont Culture at nearby sites, is not found at Arrowhead Point Campsite. Rather, it appears that some Fremont peoples utilized the site, particularly in the summer, as an intensive outdoor living area. The location of the site above the stream valley, and the piñon-juniper trees that provide shade, are factors that contribute to making the site a cooler habitation area than those nearby. However, shelters were erected to provide shade and were probably simple lean-tos or ramada-like structures (Wormington 1955:89).

It is also probable that site 42UN66 could very well have been utilized by groups earlier and later than the Fremont peoples.

CATEGORY IV SITES
ROCK SHELTERS

SWELTER SHELTER, 42UN40

by

LARRY L. LEACH

INTRODUCTION

Swelter Shelter, 42UN40, (Frontispiece), was subjected to preliminary testing and the pictograph panel was recorded during the summer of 1964. This work was performed under the field direction of Thomas G. Bowen. During the 1965 field season the remainder of the site was excavated under the author's direction.

The 1964 tests revealed an extensive time depth; however, a paucity of cultural materials was recovered. At that time, a small test trench, 2 by 1 m., was excavated to a depth of 1.50 m. The primary information gained by these tests was the fact that the site was unstratified. During the 1965 excavations a more extensive excavation area was opened (Fig. 2). The lack of natural stratigraphy was again confirmed; on the other hand, more cultural materials were recovered, some indicative of relatively early occupation of the site.

SITE DESCRIPTION

Swelter Shelter is located approximately one-quarter mile east of the Dinosaur Quarry exhibit and maintenance-living quarters area of the Monument, in the SE¼ of the SW¼ of Section 26, Township 4 South, Range 23 East (Frontispiece). The site is located in a small rock overhang (Fig. 3), which in turn is located in an extensive outcropping of Frontier sandstone (Untermann and Untermann 1954:80).

The area protected by the overhang is not extensive, being a maximum of 5.65 m. long and 3.25 m. wide. The opening of the shelter faces directly south thus catching the sun from early morning until late afternoon. The Frontier sandstone traps and reflects the heat of the sun so that the temperature within the structure is several degrees warmer than outside, thus producing a literal swelter shelter, hence the name.

The ceiling angle of the overhang is quite sharp, and during rain storms the water does not drip off the roof but runs down the inside (back) wall of the shelter. This angle precludes the formation of a distinct drip line.

The nearest permanent water supply is the Green River,

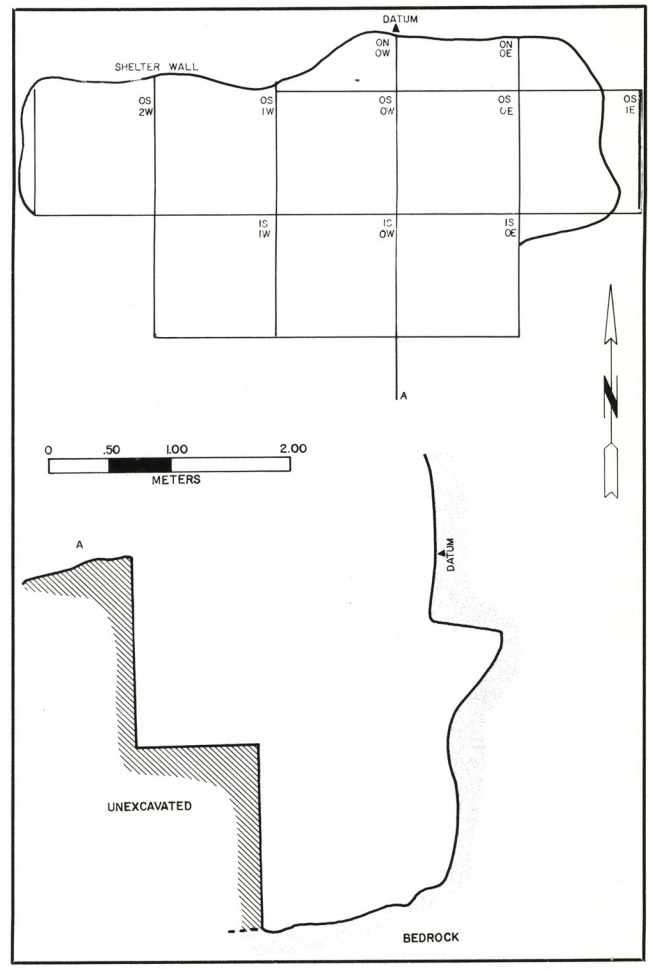


Figure 2. Plan and cross-section of Swelter Shelter.

approximately one-half to three-quarters of a mile to the south.

The soils within the shelter and those in the surrounding area appear to be composed primarily of weathered materials from the Frontier sandstone. These materials have the same composition as the sandstone, mainly small-



Figure 3. General view of Swelter Shelter, looking northwest from paved road.

grained quartz sands. This material is found at all levels within the excavated units.

Vegetation in the immediate vicinity of Swelter Shelter is very sparse. It consists primarily of scattered sagebrush with a few clumps of bunch grass and prickly pear cactus.

Excavation Procedure

In 1965 the test trench of 1964 was re-excavated and plotted on a sketch map. The original baseline was re-established, and the entire shelter was gridded into 1-m. squares. Due to the lack of natural stratigraphy, the grids were excavated in arbitrary levels of 25 cm. The grid system was separated into two areas east and west of the north-south baseline, and the units within the two areas were designated accordingly.

A total of ten 1-m. square units was dug to varying depths. All excavated material was screened through one-quarter-inch mesh shakers.

Features

Only three features were excavated from the Swelter Shelter site: two hearths and a cache of lithic materials.

Feature 1, Hearth

Description. Rock-filled excavated hearth pit; well preserved.
Location. Unit 1S-0W at a depth of 1.82 m.
Dimensions. Maximum length, 54.0 cm.; width, 48.0 cm.; depth, 15.0 cm.
Associations. Unidentifiable burned animal bones and large amounts of charcoal. A radiocarbon sample was obtained.

Feature 2, Hearth

Description. This hearth was of the same type as Feature 1. It was a shallow excavated pit with charcoal and rock fill; it was well preserved.
Location. Unit 1S-1W at a depth of 1.78 m.
Dimensions. Length, 47.0 cm.; width, 46.0 cm.; depth, 17.0 cm.
Associations. Although no artifactual materials were recovered, the abundant charcoal produced a radiocarbon sample.

Feature 3, Cache of Lithic Materials (Fig. 7)

Description. Small circular pit excavated into the existing floor of the shelter near the back wall.
Location. Unit 0N-0E at a depth of 1.72 m.
Dimensions. Diameter, 32.0 cm.; depth, 22.0 cm.
Associations. A total of 28 lithic implements were removed from this feature: blades, scrapers, and large utilized flakes. These artifacts are analyzed with other lithic materials from the site and their provenience noted.

Lithic Materials

Flaked Stone Implements

In the analysis of type and sub-type, only classifiable specimens have been utilized, and representative samples have been illustrated (see also Table 1).

Projectile Points—Due to the lack of natural stratigraphy in the site, all of the artifact proveniences are given with the unit in which they were found and the exact depth at which they were discovered.

Type 1, Unnotched

Type 1a, Unnotched, straight base (Fig. 4a)

Total. One.
Description. The base of the specimen was straight with slight basal thinning occurring on one face only. The overall appearance of the blades was sharply triangular; workmanship was by the percussion technique, which gives the point an effect of crudeness; there was no secondary flaking along the blade edges.
Material. Light gray quartzite.
Provenience. 0N-0E at 1.50-1.75 m.
Dimensions. 3.8 by 2.1 by 0.5 cm.

Type 1b, Unnotched, indented base (Fig. 4b)

Total. Two.
Description. The basal portions of these points were slightly indented, formed by the removal of one or two large flakes from both faces. One specimen had a ground base for approximately one-third of its total

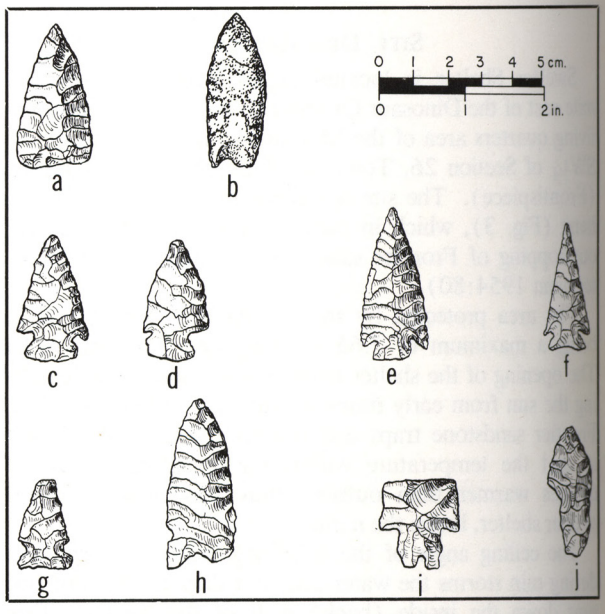


Figure 4. Projectile points. a, Type 1a; b, Type 1b; c-d, Type 2a; e, Type 2b; f, Type 2c; g, Type 3a; h, Type 3b; i, Type 4a; j, Type 4b. (Drafted by Marc Applebaum).

TABLE 1. Artifact inventory.

Artifact	No. Individual Types	Totals
Projectile Points		16
Type 1a, Unnotched, straight base	1	
Type 1b, Unnotched, indented base	2	
Type 2a, Corner-notched, round base	3	
Type 2b, Corner-notched, straight base	1	
Type 2c, Corner-notched, indented base	2	
Type 3a, Side-notched, straight base	3	
Type 3b, Side-notched, indented base	2	
Type 4a, Stemmed, indented base	1	
Type 4b, Single shouldered point	1	
Blades		16
Type 1a, Round ends, small	3	
Type 1b, Round ends	8	
Type 1c, Double-pointed	1	
Type 1d, Parallel-edged	1	
Backed Blades	3	
Drill		1
Gravers		2
Scrapers		22
Type 1, Bifacially flaked	9	
Type 2a, Unifacially flaked, flat surface	3	
Type 2 b, Unifacially flaked, concave surface	2	
Type 3, Core scraper	2	
Plano-convex	6	
Hammerstones		3
Utilized Flakes		99
Manos, Type 1, Bifacial		4

length. The points were lanceolate in shape and the blades were lensatic in cross-section. These points strongly resembled the McKean lanceolate points described by Mulloy (1954).

Materials. Tan chert (1), dark gray quartzite (1).

Provenience. Unit 1S-1W at 1.75-2.00 m. (1); Unit 0S-1W at 1.75-2.00 m. (1).

Dimensions. 42 cm. by 1.5 and 1.6 cm. by 0.5 and 0.6 cm.

Type 2, Corner- or Diagonal-notched Points

Type 2a, Corner-notched, rounded base (Fig. 4c-d)

Total. Three.

Description. The bases were uniformly rounded on the bottom and expanded so that the bases almost extended to the widest point of the blade. The corner notches were wide but shallow; the blades were straight-edged and triangular in appearance. The workmanship was of the pressure technique performed in a random fashion; there was some basal thinning, fashioned by the removal of several rather large flakes. Similar points have been found from Danger Cave (Jennings 1957) and other Great Basin sites, but the specific time period or cultural affiliation of these points is not presently known.

Material. Chert.

Provenience. Unit 0S-0E, 0.50-1.00 m. (1); Unit 1S-2W, 1.50-1.75 m. (1); Unit 0S-2E, 0-50-1.00 m. (1).

Dimensions. 2.9 to 3.4 by 1.7 to 2.0 by 0.4 cm.

Type 2b, Corner-notched, straight base (Fig. 4e)

Total. One.

Description. The base was straight and narrow, with some basal thinning done by the removal of several small flakes. Deep and narrow corner-notching. The blade was unifacially pressure-flaked in a parallel fashion resulting in a pronounced median ridge; the obverse side was unflaked and showed the original flake scar.

Material. Brown chert.

Provenience. Unit 1S-1W, 0.50-1.00 m.

Dimensions. 4.1 by 1.9 by 0.5 cm.

Type 2c, Corner-notched, indented base (Fig. 4f)

Total. Two.

Description. The basal indentation was slight but extended from edge to edge on the base; there was some basal thinning. The corner-notched bases were expanded and were almost as wide as the base of the blade. The blades were triangular with straight edges; one specimen had a slight serration on the blade edges. The flaking pattern was randomly done by the pressure technique.

Materials. Pink chalcedony (1), tan quartzite (1).

Provenience. Unit 0W-0N, 1.00-1.25 m. (1); Unit 1S-0E, 1.00-1.25 m. (1).

Dimensions. 3.1 and 3.4 by 1.8 and 2.1 by 0.4 cm.

Type 3, Side-notched Points

Type 3a, Side-notched, straight base (Fig. 4g)

Total. Three.

Description. The bases were straight, with some thinning by the removal of small flakes. The side-notches were wide and shallow; the blades triangular in shape with straight edges. The flaking was done randomly by the percussion technique; secondary retouching was done by pressure flaking along the blade edges.

Material. Chert.

Provenience. Unit 0W-0N, 1.50-1.75 m. (1); Unit 0S-0E, 1.50-1.75 m. (1); Unit 1S-1W, 0.50-1.00 m. (1).

Dimensions. Width, 1.2 to 1.5 cm.; thickness, 0.3 cm.

Type 3b, Side-notched, indented base (Fig. 4h)

Total. Two.

Description. The bases were deeply indented and produced by the removal of several small flakes. The single side-notch was shallow and produced by the removal of a single flake bifacially. The blade edges are slightly convex, resulting in a gently curving blade. The workmanship was of the pressure type of flaking done in a parallel oblique manner. These specimens resemble McKean points except for the single side-notch.

Materials. Brown chert (1), gray quartzite (1).

Provenience. Unit 0S-0W at a depth of 1.55 m.

Type 4, Stemmed Projectile Points

Type 4a, Stemmed, indented base (Figure 4i)

Total. One.

Description. The small basal notch was formed by the removal of a small flake from both sides of the base. The stem edges were not ground. The shoulders were deep, with a relatively long stem. The blade was broken, but the remaining portion was straight, parallel-sided. Flaking was by both the percussion and pressure techniques. This specimen resembled those points commonly referred to in the Basin area as Pinto Basin points.

Material. White chert.

Provenience. Unit 0S-2W, 1.74 m.

Dimensions. Width, 2.3 cm.; thickness, 0.5 cm.

Type 4b, Single-shouldered point (Fig. 4j)

Total. One.

Description. This point had one very pronounced shoulder which began approximately one-third of the way down from the tip of the point; this was also the widest portion of the specimen. Manufacture was entirely by the percussion technique. Points of this type are commonly referred to as Lake Mohave points and they denote some antiquity. They have been variously dated between 9000 and 2000 B.C. (Wormington 1957). According to its stratigraphic location in the site, the greatest depth at which a projectile point was found, it should be the earliest material datable by cross-reference.

Material. Clear chalcedony.

Provenience. Unit 1S-0E, at 1.85 m.

Dimensions. 3.5 by 1.6 by 0.7 cm.

Blades—The differentiation of blades from scrapers often rests only in the eye of the beholder. Many of those artifacts classified as blades could easily have been utilized as scraping tools and vice versa. The criteria used for the separation of these two kinds of artifacts is one based primarily on gross morphological differences: size, shape, and manufacturing patterns.

Type 1a (Fig. 5a)

Total. Three.

Description. Unnotched, with straight, almost parallel sides to the blade portion; the bases were generally shallowly convex. Manufactured by the percussion technique and showed some secondary retouch on the blade edges; in all cases they were bifacially flaked. Smaller than any of the other blade types.

Materials. Chert (1), quartzite (2).

Provenience. Unit 0S-1W, 1.75-2.00 m. (1); Unit 0S-2W, 2.00-2.25 m. (1); Unit 0N-1W, 1.25-1.50 m. (1).

Dimensions. 5.6 cm. (one specimen) by 2.3 to 2.5 cm. by 0.4 to 0.9 cm.

Type 1b (Fig. 5b)

Total. Five.

Description. These differ from Type 1a primarily in their dimensions. Convex blade edges that produced a rounded appearance; the basal portions ranged from a slightly convex shape to a definitely rounded base. Manufactured entirely by the percussion technique, which gave them a rather crude appearance. All showed some basal thinning.

Materials. Chert (2), chalcedony (2), quartzite (1).

Provenience. Unit 1S-0E, 1.50-1.75 m. (1); Unit 0N-0E, 2.25-2.50 m. (2); Unit 0S-2W, 2.00-2.25 m. (2).

Dimensions. 5.7 to 6.8 by 3.5 to 4.9 by 0.8 to 0.9 cm.

Type 1c (Fig. 5c)

Total. One.

Description. Long narrow blade with double points, so

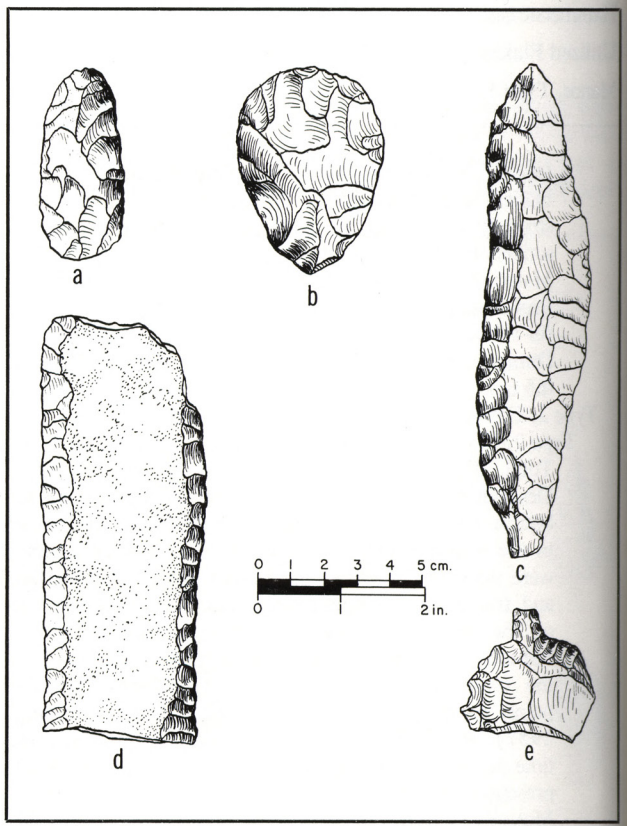


Figure 5. Blades and drill. a, Type 1a blade; b, Type 1b blade; c, Type 1c blade; d, Type 1d blade; e, flake drill. (Drafted by Marc Applebaum)..

it was difficult to determine which was the base and which was the blade tip. The blade edges were irregular and each showed an S-shaped curve. Both faces were flaked by percussion and also showed evidence of secondary pressure retouching.

Material. Pink chert.

Provenience. Unit 0S-1E, 0.60-0.75 m.

Type 1d (Fig. 5d)

Total. One.

Description. This specimen was incomplete (?) and therefore unclassifiable; however, it was unique enough to warrant description. The specimen was a large mid-section of a blade; only the blade edges had been worked and these by a pressure technique.

Material. Tabular limestone.

Provenience. Unit 0S-0E, 1.50-1.75 m.

Dimensions. 12.4 by 5.0 by 0.6 cm.

Drill

Flake Drill (Fig. 5e)

Total. One.

Description. Made on a large flake that bears the original flake scar. The only portions of the implement that were reworked were the drill shaft and the area where this joined the wide flaring base. The remaining portion of the shaft was diamond-shaped in cross-section. The tool was large and may or may not have been hafted.

Material. Pink chert.

Provenience. Unit 0S-0E, 2.00-2.25 m.

Dimensions. 3.8 (broken) by 4.4 by 0.6 cm.

Gravers

Unifacial Gravers (Fig. 6a)

Total. Two.

Description. These artifacts differed from the above category of drill in having a short stubby point; furthermore, the point was only unifacially flaked, resulting in one flat surface which was the original flake scar. The working points were rather large and flat and under microscopic examination appeared smooth and polished. Both the percussion and pressure techniques appear to have been utilized in their manufacture.

Materials. Chert (1), chalcedony (1).

Provenience. Unit 0S-0E, 2.00-2.25 m. (1); Unit 0N-0E, 1.50-1.75 m. (1).

Scrapers—Three main scraper categories are described below: bifacially flaked, unifacially flaked, and core scrapers. Other terms are often applied to scrapers: end, side, snub-nosed, etc. These units of analysis are often misleading and they tell little of the artifact. Scrapers are an amorphous category of artifact to begin with ; they are utilizable for a variety of tasks and materials.

Type 1, Bifacially Flaked (Fig. 6b)

Total. Five.

Description. Large bifacially shaped ovoid flakes. The primary method of manufacturing was percussion, with secondary retouching on the edges of all of the specimens. The remains of the original flake scar had been obliterated by subsequent manufacturing processes. Tools such as these have sometimes been described as ovate blades, but it is judged in this case that these specimens are too thick to be placed in the category of blades.

Materials. Chert (2), quartzite (2), chalcedony (1).

Provenience. Unit 0S-0E, 2.00-2.25 m. (1); Unit 0S-0W, 1.00-1.25 m. (1); Unit 0N-0W, 1.00-1.25 m. (1); Unit 1S-0W, 0.50-1.00 m. (1); Unit 1S-0W, 1.00-1.25 m. (1).

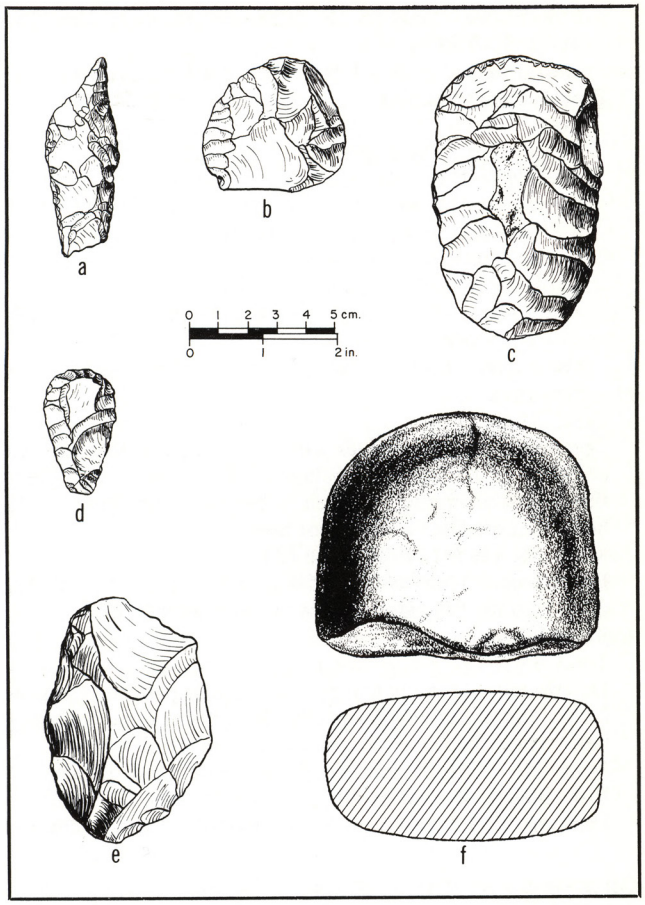


Figure 6. Graver, scrapers, and mano. a, unifacial graver; b, Type 1 scraper; c, Type 2a scraper; d, Type 2b scraper; e, Type 3 scraper; f, Type 1 mano. (Drafted by Marc Applebaum).

Dimensions. 4.5 to 6.5 by 2.7 to 4.2 by 0.9 to 2.7 cm.

Type 2a, Unifacially Flaked, Flat Surface Scrapers (Fig. 6c)

Total. Three.

Description. These appear to have been manufactured from either large percussion flakes or cores. Unifacially worked, leaving a flat plane on one side that was presumed to have been the working surface. Made by the percussion technique, with some secondary retouching on one of the specimens. Tools of this type have been called pulping planes and hump-backed or turtle-backed scrapers. They were rectangular to round.

Materials. Chert (2), quartzite (1).

Provenience. Unit 0S-1E, 0.25-0.50 m. (1); Unit 0N-0E, 1.50-1.75 m. (1); Unit 1S-0W, 0.50-0.75 m. (1).

Dimensions (one specimen). 9.7 by 5.9 by 1.5 cm.

Type 2b, Unifacially Flaked Concave Surface (Fig. 6d)

Total. Two.

Description. Essentially the same as Type 2a scrapers except that they had a concave undersurface. This concavity was not altered and was presumably the working surface of the artifact. The technique of manufacture was also different, being of the pressure technique. These artifacts were also much smaller, more triangular in shape, and could be termed end scrapers.

Materials. Chert (1), chalcedony (1).

Provenience. Unit 0S-1E, 0.25-0.50 m. (1); Unit 1S-0W, 0.50-0.75 m. (1).
Dimensions. 2.3 to 4.1 by 1.9 to 2.4 by 0.5 to 0.7 cm.

Type 3, Core (Fig. 6e)
Total. Two.
Description. The largest of all the scrapers, some might possibly be chopping tools. One of the specimens showed the remains of the outside of the nodule from which it was manufactured. Percussion was the only chipping technique used in the manufacture of these artifacts.
Materials. Chert (1), quartzite (1).
Provenience. Unit 1S-1W, 1.50-1.75 m. (1); Unit 1S-0W, 0.75-1.00 m. (1).
Dimensions. 4.9 to 7.1 by 3.4 to 5.4 by 1.9 to 2.0 cm.

Hammerstones
Total. Three.
Description. Large cobbles with a pointed end that showed evidence of having been battered. There was little intentional manufacturing in their formation and they could have been used for a variety of tasks.
Materials. Chert (1), quartzite (2).
Provenience. Unit 1S-0E, 1.50-1.75 m. (1); Unit 1S-0W, 0.75-1.00 m. (1); Unit 2S-1W, 0.75-1.00 m. (1).

Utilized Flakes
Total. 87.
Description. Artifacts that have no regular pattern of manufacture but are simply flakes used to perform some necessary task. Their shape can take any of a number of forms.
Materials. Chert, chalcedony, quartzite, and jasper.
Provenience. Found at all levels, in all units.
Dimensions. 3.5 to 4.6 by 2.7 to 3.4 by 1.7 to 2.1 cm.

Ground Stone Implements

Manos
Type 1, Bifacially Ground Manos (Fig. 6f)
Total. Four.
Description. Large cobbles that had been ground flat on opposite faces; none of the specimens showed any evidence of shaping other than through use; one specimen did show pecking marks on the grinding surface.
Materials. Sandstone cobbles (3), quartzite (1).
Provenience. Unit 0N-0E, 1.00-1.25 m. (1), 2.65 m. (1); Unit 0N-1W, 1.50-1.75 m. (1); Unit 1S-1W, 1.00-1.25 m. (1).
Dimensions. 5.8 to 12.0 by 6.2 to 9.3 by 4.9 to 5.7 cm.

Cache Materials

The cache of blades, scrapers, and utilized flakes mentioned previously was found in Unit 0N-0E at a depth of 1.72 m. (Fig. 7). This zone, 1.50 through 1.75 m., was dated as being between 3000-1500 B.C. and, since the cache was at the lowest portion of this zone, it would follow that it should be nearer the 3000 B.C. date. Because of that age, this material deserves special attention.

Blades
Type 1b Blades
Total. Three.
Description. Type 1b blades, as described previously .
Material. Chert.
Dimensions. 6.2 to 7.5 by 3.9 to 5.6 by 0.8 to 0.9 cm.

Backed Blades
Total. Three.
Description. This blade type has not been previously described in this paper. Bifacially flaked over all their surfaces by a combination of percussion and pressure. A transverse flake to their long axis had been knocked off, leaving a flat surface.
Material. Chert.
Dimensions. 5.7 to 5.8 by 3.0 to 4.0 by 0.6 to 0.9 cm.

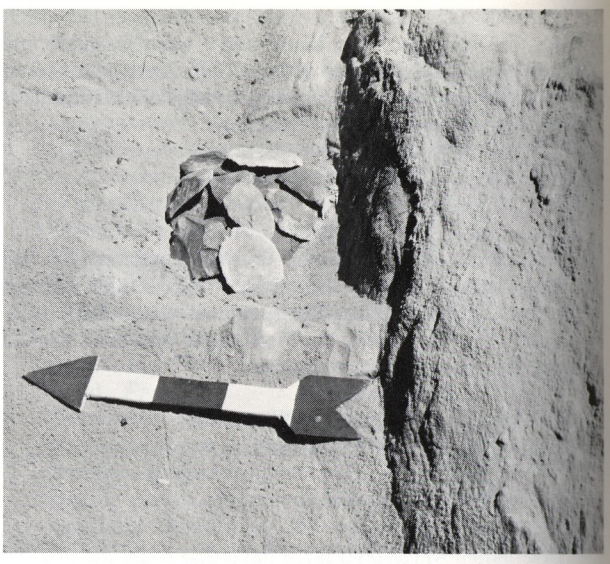


Figure 7. Blade cache *in situ*. Arrow is 25 cm. long.

Scrapers
Type 1 Scrapers
Total. Four.
Description. Type 1 scrapers, as described previously.
Material. Chert.
Dimensions. 5.0 to 6.8 by 4.1 to 5.6 by 1.2 to 1.4 cm.

Plano-convex Flake Scrapers
Total. Six.
Description. This scraper type has not been previously described in this paper. Large ovoid flakes having little retouch flaking. What flaking did appear was unifacial, and was, in all cases but one, done from the plano side of the artifact.
Material. Chert.
Dimensions. 5.7 to 7.8 by 3.1 to 4.9 by 0.7 to 1.1 cm.

Utilized Flakes
Total. 12.
Description. Artifacts not retouched in any way; recognized by the removal of minute wear flakes along the work edge or edges.
Material. Chert.
Dimensions. 6.2 to 7.8 by 1.2 to 4.0 by 0.9 to 2.2 cm.

Conclusions

The cultural history of Swelter Shelter is an extensive one, but there are difficulties involved in the interpretation of the available data. The first of these problems is the lack of natural stratigraphy, which makes any separation of cultural materials into discrete occupation units extremely tenuous. The only method whereby any knowledge of the time periods involved can be gained is by cross-reference to other sites and their dated cultural materials.

The most recent utilization at the site for which there is evidence is that of the Fremont. Although there were no

ceramics or other artifactual materials associating this site with the Fremont Culture, the rather extensive panel of rock art consists entirely of figures executed in the manner normally attributed to the Fremont peoples (Fig. 8).

In this rock art panel there is a total of 41 human or anthropomorphic figures. All of these figures fit nicely into the known range of Fremont pictographs and petroglyphs. The inverted trapezoid-shaped bodies and the horned headdresses are well known on other panels identified as Fremont. The 12 non-anthropomorphic identifiable figures, mostly representing deer, are also within the Fremont pattern (Wormington 1955). Also represented are various incomplete figures and what would appear to be simply random patterns pecked or drawn onto the wall of the shelter. The technique of using both pecking and painting in combination is also a Fremont characteristic.

The fact that no other Fremont cultural remains were found is a strong indication that the site was not extensively occupied by the Fremont people, and suggests that everyday activities were not carried out here and that the site was reserved for special purposes and activities.

The purpose of the figures is not known, but in ethnographically described cultures such figures are frequently used as sympathetic magic. Most of the pictograph and petroglyph sites in the Dinosaur National Monument region are not extensively occupied, and there is little material found beyond the panels themselves.

By classifying this rock art panel as Fremont, a possible date of between A.D. 1000 and 1100 for the most recent occupation of Swelter Shelter can be obtained.

The next possibly datable section of the site is that level from 0.25 to 1.00 m. This includes the projectile points classified in this paper as Types 2a and 2b, and two specimens of Type 3a. These are, respectively, corner-notched types with rounded expanded bases, corner-notched with narrow straight bases, and side-notched with a straight base. Exact dates are unknown for these point types from the Dinosaur National Monument region, which is on the northeastern periphery of the Great Basin. Projectile points of this type are common in the Basin region at a variety of time periods. This level is probably of a pre-Fremont date, but the exact time period of this zone is not certain.

The third occupation zone, which again is based on artifactual distinctions and depth within the site, is the 1.00- to 1.25-meter level. This group of materials, which includes projectile points of Type 2c, also cannot be dated precisely. Also in this level are scrapers and blades whose diagnostic qualities are not exact. Consequently, basing a very tenuous date upon cross references, it is possible that this material at this level may date between 1500 B.C. and A.D. 100.

In comparing the materials from the third occupation zone with that of other areas we are struck by the similarities between this material and that reported on by Jennings (1957), Rogers (1939), and the Campbells (1935). Projectile points manufactured in this style have been referred to as "atypical" Pinto-Gypsum (Rogers 1939). The dates given for this level in Swelter Shelter are purposely conservative, using as a guide the upper limits of the dates given for materials of similar morphology from other sites.

The next zone datable by a comparative technique is the 1.50- to 1.75-m. level. The projectile point material consists of Types 1a, 3b, and 4a. Type 1a is unnotched and is not diagnostic of any particular known and dated culture; it occurs at almost every time period. Projectile point Type 3b shows no resemblances to other materials found in this region. In overall appearance it resembles most closely a McKean point with a single side notch removed from the basal section. At this time it is of no value in dating this depth of the site. Type 4a, described previously as Pinto Basin, has the general configurations of those described by Rogers (1939), as being Type 3 Pinto points. This type of projectile point has been previously recovered from the Monument region (Lister 1951) and it is variously dated at between 9000 and 3000 years old (Wormington 1957). Using this data as a base, it is suggested that the 1.50- to 1.75-m. zone be very tenuously dated at between 3000 and 1500 B.C.

The last datable occupation at the site is the level between 1.75 and 2.00 m. Again, the dates are based upon comparisons with other dated projectile point types. The types under consideration at this zone are Types 1b and 4b, or McKean and Lake Mohave types, as they are more popularly known.

The Type 1b projectile points resemble very closely the McKean lanceolate point type as described by Mulloy (1954). These points are not datable very accurately; the level above them, at the McKean Site, is dated, however, by radiocarbon. That sample yielded a date of 3287 ± 600 years ago. Therefore, the materials from this lower level must be somewhat older. The materials from Swelter Shelter almost identically resemble those illustrated by Mulloy from this lower level. McKean points from Mummy Cave, near Yellowstone National Park, have recently been reported from deposits dating 2470 ± 150 B.C. (Wedel, Husted, and Moss 1968:184).

The second datable point recovered from this level is the Lake Mohave point. This point was at a depth of 1.85 m. in the site, or at the lowest portion of this zone. Lake Mohave materials carry with them some confusion, but they are fairly well known in the western boundaries of the Basin region. They are dated at between 9000 and 7000 B.C. (Wormington 1957; Bennyhoff 1958). In the author's opinion the materials from Swelter Shelter at this depth must again be conservatively dated at the upper levels of this known period. The date suggested for the zone of 1.75 to 2.00 m. is 7000 to 4000 B.C.

The reader should remember that the material culture retrieved from this site was sparse, and to more accurately assess its age in any way would require a prophetic judgment.

The site was excavated to bedrock where archaeological materials were found, although no diagnostic artifacts were

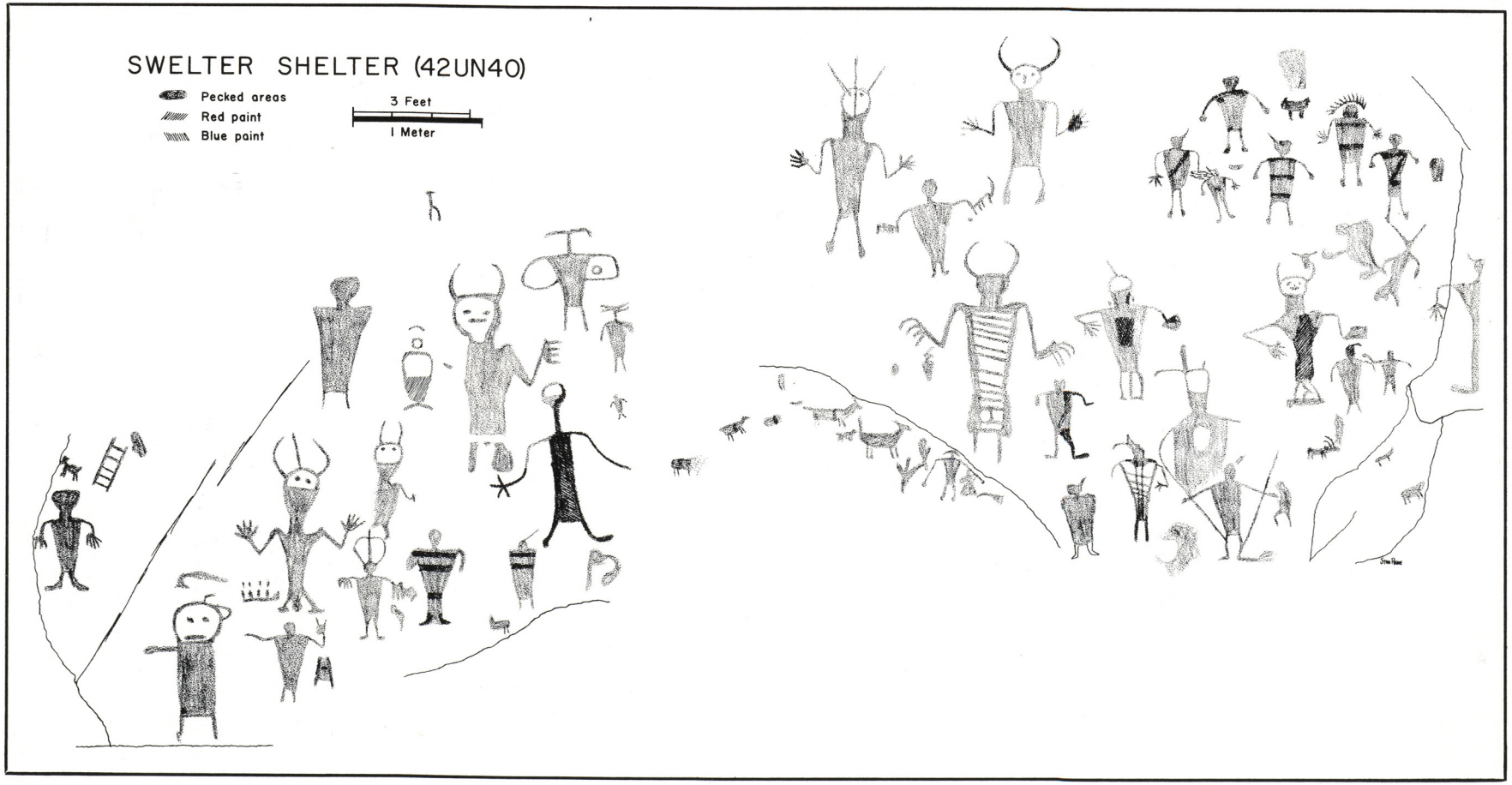


Figure 8. Petroglyph-pictograph (Prepared by Stanley Rhine).

recovered. These materials of flaking detritus and burned bone lay at a depth of 2.83 m. below ground surface. If the above chronological sequence is in any way accurate, this lowest material must be of extreme age. It is almost 1.00 m. below the last datable material, at approximately 7000 B.C.

SERVICEBERRY SHELTER, 5MF81

by
ALAN C. SWEDLUND AND E. DONALD LAGESON

INTRODUCTION

Serviceberry Shelter, 5MF81, is located on the south side of Serviceberry Draw, a tributary of the Yampa River in Harding Hole (Frontispiece, Fig. 2).

Transportation of personnel and equipment into Harding Hole from Deerlodge Park was by the Yampa River. This was accomplished through the cooperation of Hatch River Expeditions. The authors sincerely appreciate the courtesy shown by Mr. Bus Hatch and his boatmen. Transportation from Harding Hole was provided by the National Park Service.

SITE DESCRIPTION

Serviceberry Shelter is situated just above the confluence of Serviceberry Draw and the Yampa Canyon, directly beneath a rock overhang which forms part of the high sandstone cliff of the Park City formation on the south side of the two canyons (Fig. 2). The specific location is the SW¼ of the SE¼ of Section 15, Township 6 North, Range 102 West. It was first reported by Scoggin (1941:17), who designated it L28.



Figure 2. Serviceberry Shelter, looking south from across Serviceberry Draw. Excavated units are visible against rear wall of shelter.

Serviceberry Shelter contains a large stratified deposit of aboriginal fill material with lenses of water and wind-deposited sand. The deposit accumulated upon bedrock and gradually slumped outward as more material built up and was acted upon by weather. Slumpage was most marked in the central portion of the shelter where the greatest amount of fill had been deposited. Toward the center of the shelter the slumped material extended outward from the back wall a distance of 9 m. This slumped fill rested on a natural stream terrace, which continued north another 13 m. to a small rivulet in the bottom of Serviceberry Draw.

Serviceberry Shelter was selected for excavation on the basis of its accessibility, the fact that the fill of the site was being rapidly eroded away and intensively collected by river parties, and in the hopes that additional information could be gathered concerning the important but relatively unknown area in the vicinity of Harding Hole.

Box elder, chokecherry, serviceberry, yellow cedar, blue spruce, sagebrush, and greasewood were all observed in the immediate vicinity of the site. It should be noted that this vegetation is atypical when compared to the flora along the river in Harding Hole. Near the river the flora is characteristic of a more arid environment. This difference probably can be explained by the fact that in the immediate vicinity of the site the summer temperatures are cooler because of the shaded canyon bottom, and the seep drainage affords a more direct water supply than does the Yampa River.

EXCAVATION PROCEDURE

A datum point was arbitrarily established at the eastern end of the rock shelter; from this point a datum line 44 m. long was laid out on an east-west axis to the western end of the shelter. This datum line was marked off in 2-m. intervals, and the excavation units correspond to these intervals (Fig. 3).

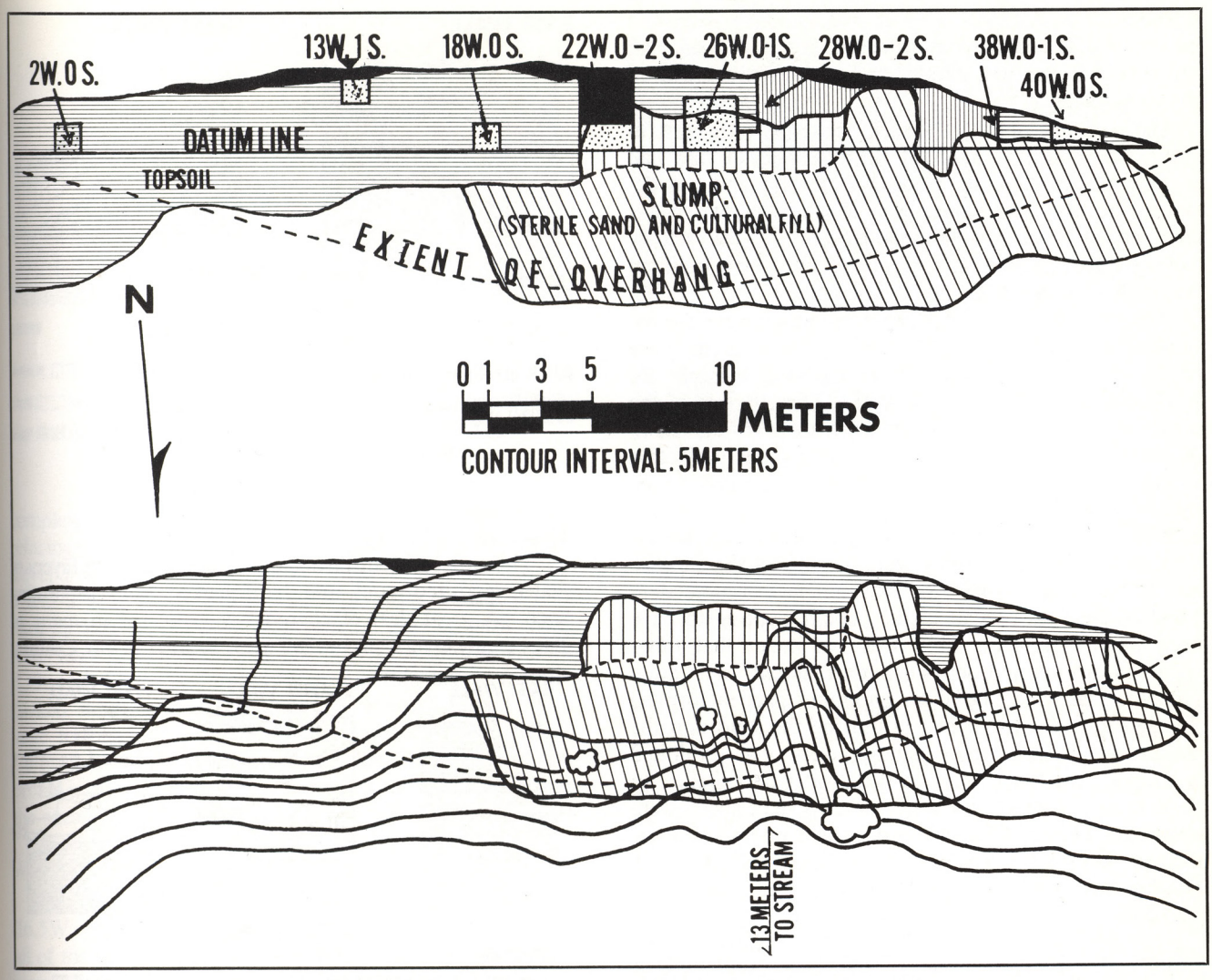


Figure 3. Site maps showing contours and location of excavation units.

Test units were dug in 2- or 1-m. squares except where prohibited by the back wall of the shelter. Lack of time prevented the digging of the entire site, so locations of the units were arbitrarily selected when trying to identify the spatial limits of the site. Unit 22W defined the eastern limit of the site. The western extreme of the site is believed to have been at approximately 43W (Fig. 3).

All of the fill was sifted through one-quarter-inch screens. Pollen samples were taken from the surface and a wall of the deepest unit, 40W. Profiles were taken from all the wall of each unit and from the refaced walls at 28-29W and 38W. Five radiocarbon samples were taken in areas of concentrated charcoal; however, no distinguishable firepits or hearths were present in the units excavated. These samples came from Cultural Levels 3 and 4 and from a fire-burned level found in Units 40W and 26W, and are possibly due to a generalized fire in the area.

STRATIGRAPHY

The natural stratigraphy of Serviceberry Shelter is the result of deposition, erosion, and rodent activity. The data presented below are based upon the excavation of three arbitrary test trenches, two wall profiles, and three shallow test pits (Fig. 3). In choosing the location for the various units, it was decided that the accumulation of an adequate sample of the material culture should be the primary concern. However, it was thought that by strategically placing our units in the least disturbed portion of the shelter we might also be able to correlate the different stratigraphic levels from unit to unit. Accordingly, the test trenches were located in places where maximum information could be obtained in a short period of time. As soon as sufficient information was obtained on the levels, the units were excavated by their natural strata.

Toward the east end of the shelter the fill material accumulated on the gradually sloping bedrock and it was apparent that a greater amount of material had been lost to erosion in this section of the site. The three small test pits revealed that two shallow layers of topsoil and sand covered the decomposed bedrock. It was noted that the thin layers of sand were mixed with large cobbles of

siliceous rock. The sand and rock were probably deposited by stream action shortly after the shelter was formed. An outcrop of jasper was present in the eastern extreme of the rock shelter.

The natural slope of the rock shelter is from east to west. Consequently, a lot of the fill material that had accumulated in the eastern end eroded away and was deposited farther down slope. The west end of the shelter contained a much greater quantity of fill. The steeply sloping bedrock allowed a greater depth to be built up before erosion and slumpage took place.

Running water was the chief erosive agent in the formation of the shelter. In great measure the natural curvature of the cliff face behind Serviceberry Shelter determined the resulting erosive action of the water. Directly east of the overhang, the cliff face is slightly convex toward the north. A stream of water flowing around this slight projection would naturally be slowed. Toward the west end of the shelter it would come into more direct contact with the cliff face, and the bedrock would be eroded much deeper. The major excavation units were located in the western end of the shelter where the most fill had accumulated. Most of the sand present in the deposit appears to have been water-deposited. This does not mean that other agents of erosion and deposition were absent; it is quite probable that wind played an important part in forming the shelter, and later helped in moving the sand into the shelter area. Only those sandy layers that exhibited horizontal striations were called water-deposited. In these levels, several fresh water or land snail shells were observed. These distinct water-deposited layers are intermediate between unlayered coarse sand and fine silt. Hard-packed sand was generally very fine and lacked striations.

The discussion below distinguishes between cultural levels and non-cultural levels. Although some cultural material was recovered in the non-cultural levels, this material was in very low frequency, and rodent activity may be an important factor. Occupation is implied in these levels, but the occupation would have been sporadic and for short durations. The cultural levels discussed are levels of distinctively darkened soil and of high frequencies of cultural material. A description of the deposits found in each unit follows.

Unit 22W. 0-2S. (Fig. 4)

This unit was relatively sterile. Topsoil intermixed with livestock manure was present toward the rear of the trench. In the profile of the west wall, it was evident that the topsoil had been eroded away, leaving sterile sand mixed with lenses of manure. Beneath the manure, sandy soil lay immediately above a level of water-deposited sand and siliceous rock. The west wall did not vary except that the sandy soil was charcoal-flecked, and decomposed sandstone was mixed with the water-deposited sand. A distinct cultural level was seen in the profile drawing of the west wall, and it was evident that the cultural levels did not extend eastward beyond this trench. The average depth of the deposit at baseline was 80 cm. At the rear

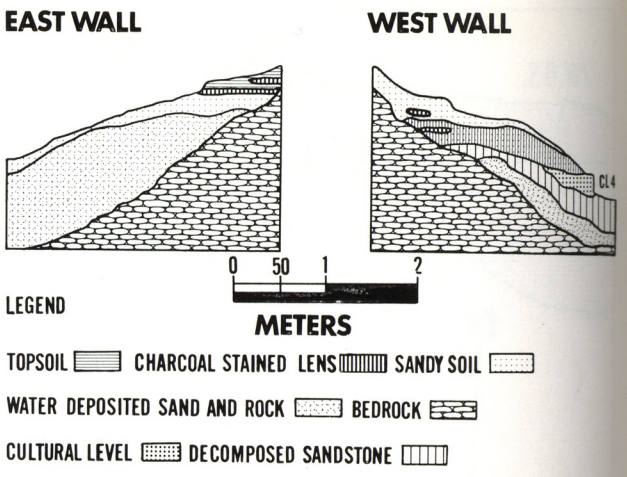


Figure 4. Profiles of Unit 22W.0-2S.

of the deposit, the average depth was 27.5 cm.

Unit 26W. 0-1S. (Fig. 5)

This unit had four distinct cultural levels, with layers of water-deposited sand and hard-packed sand separating each. A great deal of charcoal was present in many of these sandy layers. A burned area, located below Cultural

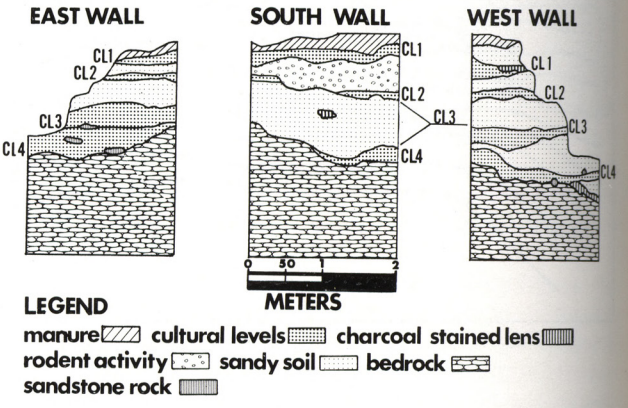


Figure 5. Profiles of Unit 26W.0-1S.

Level 4 in the west wall, was interpreted as a brush fire level. In the east and south walls Cultural Level 1 lay directly beneath the top level of manure. In the west wall, hard-packed sand separated the manure and Cultural Level 1. The entire rear wall of the unit was highly disturbed by rodent activity. Level 3 was present as an indistinct charcoal-flecked area, roughly 60 cm. wide. In the west wall, Cultural Level 3 showed up clearly once again. The east wall profile indicated that a thin layer of hard-packed sand separated Levels 3 and 4. The area between units 22W and 26W was faced, and the cultural level observed in unit 22W proved to be Level 4 found in 26W. Levels 1, 2, and 3 were completely eroded away, or never existed, between the two units.

Wall 28W-29W (Fig. 6)

This wall was profiled with much difficulty. The fill material was originally faced at 30W. After facing was

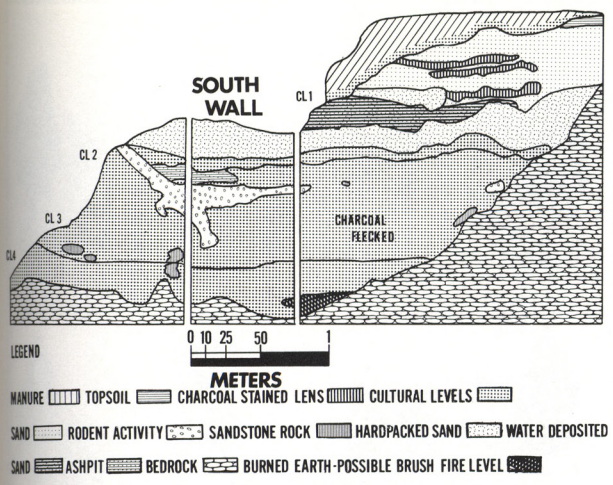


Figure 6. Profiles of Unit 28W-29W.

completed, 2 m. of the deposit slumped off, necessitating refacing at 28W-29W. Four cultural levels were observed. Level 1 was covered with a thick layer of manure. Levels 1 and 2 were separated by lenses of water-deposited and hard-packed sand. Several layers of coarse, dark sand were also present between the levels. Cultural Levels 2, 3, and 4 were separated by a very thin layer of hard-packed sand, and Levels 2 and 3 were disturbed by a large rodent hole. The brush fire level shows up below Cultural Level 4. In Figure 6, the lower east face of the profile is not shown as it was necessary to remove it during the excavations of 26W.

Wall 38W. 0-1S. (Fig. 7A-B)

The profiled wall at 38W was originally begun at 36.5W. Almost 2 m. of fill were lost by slumpage, but all of the slumped material was screened in an attempt to recover as much of the material culture as possible. A fifth cultural level was observed where the rapidly sloping bedrock leveled off at about 2.75 m. below the surface, forming a relatively flat floor. Between wall 28W and 38W the bedrock began to slope much more gradually un-

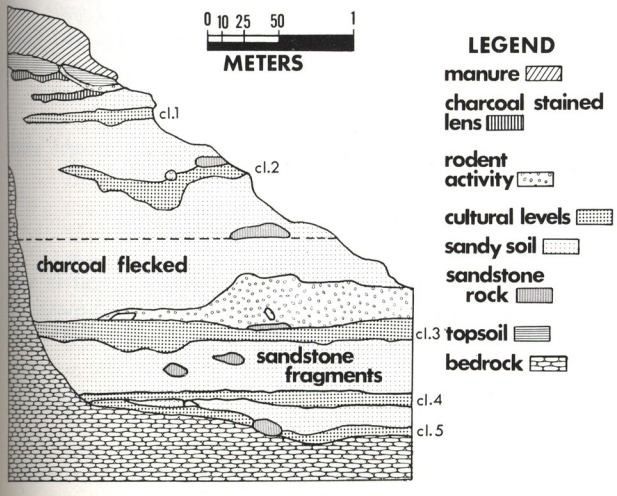


Figure 7A. Profile of wall 38W.0-1S.



Figure 7B. Photograph of wall at 38W during excavation.

til finally, at 28W, both the flat floor and Level 5 disappeared. Layers of manure, topsoil, and dark sand were present at the tip of the wall. Rodent activity had disturbed the layers of sand separating Levels 1, 2, and 3, and layers of decomposed sandstone were present between the last three levels.

Unit 40W. 0S. (Fig. 8)

In this unit the deposit reached a maximum depth of 2.90 m. The bedrock leveled off at about 2.60 m. creating a wide, flat floor. Layers of water-deposited sand separated five distinct cultural levels. A thick layer of manure was present at the surface, and two lenses of dark sand were noted. There was evidence of rodent activity on both

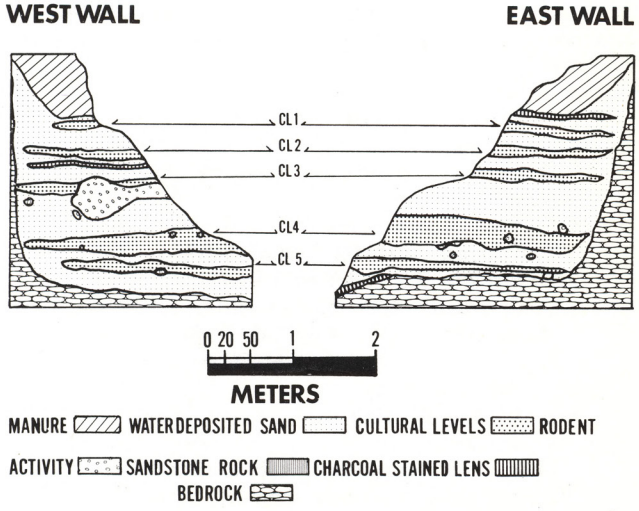


Figure 8. Profile of wall 40W.0S.

the east and west walls. The brush fire level was again present, at a depth of 2.80 m.

Summary of Stratigraphy

Five aboriginal occupation levels are defined in the rock shelter. The layers of sandy soil separating the cultural levels could very easily have resulted from periodic seasonal deposition. They do not necessarily reflect great antiquity. The absence of pottery and agricultural indicators suggests that Serviceberry Shelter was occupied by nomadic groups of hunters and gatherers. The abundant lithic material indicates that many artifacts were manufactured on the site.

Material Culture

The only material culture items recovered from Serviceberry Shelter that are truly diagnostic are the projectile points. The site showed a complete absence of pottery or other diagnostic tool types.

An unfortunate aspect of the site is that a portion was slumped, and refacing of the two sides of the slump area was necessary for obtaining profiles. Some of the cultural material from the slump-testing and from the refacing procedure could not be kept under strict enough controls for exact provenience. Therefore, some of our data cannot be assigned to their proper levels, and are so indicated in the following.

Core Tools

Cores

Total. 23.

Description. "Cores are distinguished from choppers on the basis of percussion flaking over all or most of their surfaces and lack of evidence of use, other than for a material source." (Breternitz 1965:130).

Materials. Chert (22), chalcedony (1).

Choppers

Total. Two.

Description. Percussion-flaked, unifacial or bifacial. Distinguishible from cores on the basis of evidence of use.

Material. Chert.

Flake Tools

Measurements are given for length, width, and thickness, in centimeters, and taken only on dimensions which are complete.

Projectile Points

Type 1, Unnotched

Type 1F (Fig. 9a; 10a)

Total. One.

Description. Unnotched, concave base, triangular blade.

Material. Jasper.

Provenience. 40W, 0S, Cultural Level 4.

Dimensions. 2.3 by 1.7 by 0.3 cm.

Comparisons: Campbell and Ellis (1952:Fig. 71); Haury (1950:272, Fig. 56); Husted (1965:164, Fig. 2a); Shutler and Shutler (1963:34).

Type 2, Stemmed Points

Type 2B (Fig. 9c; 10c)

Total. One.

Description. Stemmed, straight to slightly convex base, straight stem, prominent shoulder, triangular blade.

Material. White chert.

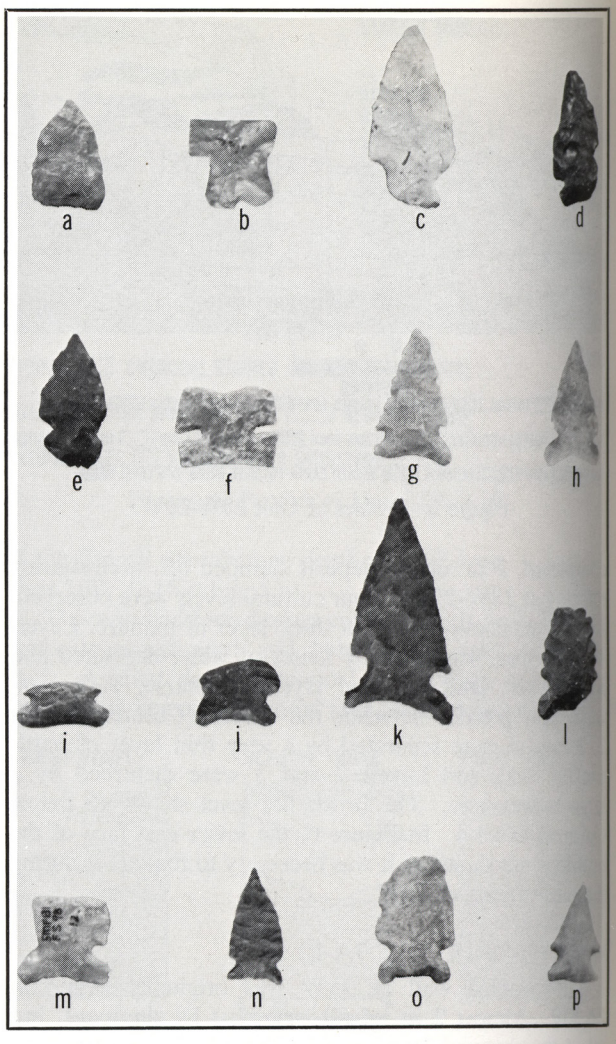


Figure 9. Projectile points. a, Type 1F; b, Type 2E; c, Type 2B; d-e, Type 4-A; f, Type 4C; g-o, Type 4F; p, Type 4B. Length of k, 4.5 cm.

Provenience. 40W, 0, Cultural Level 1.

Dimensions. 3.9 by 2.0 by 0.6 cm.

Comparisons. This point was crudely worked and of a general class of points that are considered quite common for late periods in both the Plains and Great Basin areas.

Type 2E (Fig. 9b; 10b)

Total. One.

Description. Stemmed, indented base, straight stem, definite shoulder, triangular blade.

Material. Brown chert.

Provenience. Surface.

Dimensions. Thickness, 0.5 cm.

Comparisons. This form of point is found in wide distribution throughout the western United States and is not strictly limited in time span. Mulloy (1954:446, Fig. 4); Lister (1951, 1953).

Type 4, Side-notched Points

Type 4A (Fig. 9d-e; 10d).

Total. Two.

Description. Notched, straight to convex base, shallow side-notches, triangular blade.

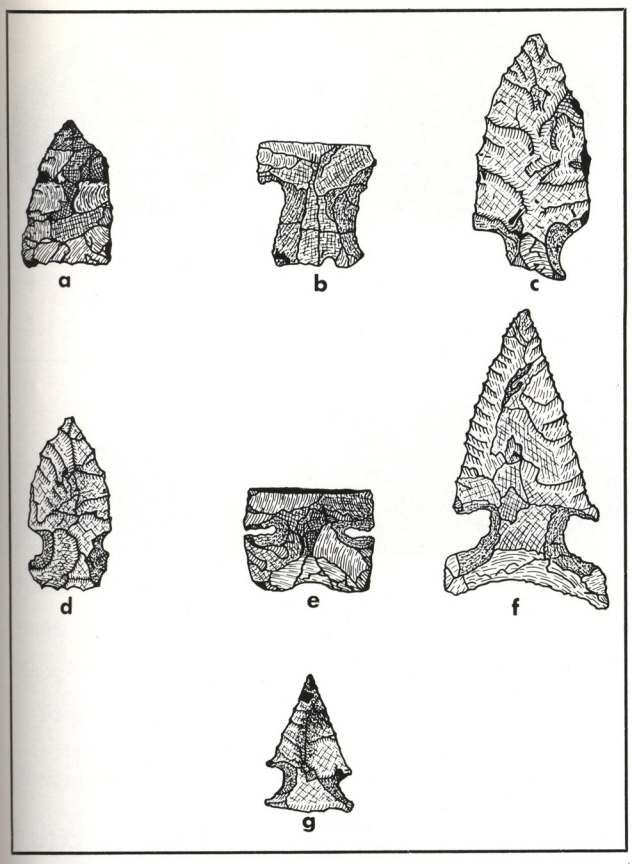


Figure 10. Projectile points. a, Type 1F; b, Type 2E; c, Type 2B; d, Type 4A; e, Type 4C; f, Type 4F; g, Type 4B. Length of f, 4.5 cm.

Material. Chert.
Provenience. 30-36.5W (1); 28W, Cultural Level 3 (1).
Dimensions. 2.8 by 1.6 by 0.4 cm.
Comparisons. Heizer and Baumhoff (1961:127, Fig. 5i).

Type 4B (Fig. 9p; 10g)
Total. One.
Description. Notched, side-notched, straight base, blade was triangular and distinctly concave.
Material. Pinkish chert.
Provenience. 40W, 0S, Cultural Level 3.
Dimensions. 2.3 by 1.5 by 0.4 cm.
Comparisons. Tuhoy (1963:Pl. 23h, Type 18); Wormington and Forbis (1965:Fig. 67e).

Type 4C (Fig. 9f; 10e)
Total. One.
Description. Notched, concave base, side-notched, triangular blade.
Material. Tan chert.
Provenience. 36.5-38W, Cultural Level 1.
Comparisons. This specimen is quite possibly a variation of the Harrel points of Suhm and Jelks (1962: Pl. 138), but this is not to suggest that they are culturally affiliated.

Type 4F (Fig. 9g-o; 10f)
Total. Nine.
Description. This type has been added to the original Dinosaur typology to accommodate a very distinctive point that had not heretofore been reported from the Monument. Notched, triangular blade, "comma-shaped" notches, bases as broad or broader than the blade, bases thinned and concave. Some specimens were serrated.
Materials. Chert (7), quartzite (2).
Provenience. 22W, 0S, Cultural Level 4 (1); 28-30W, level unknown (1); 36.5-38W, Cultural Level 4 (2); Wall facing at 36.5-38W, Cultural Level 4 (1); 40W, 0S, Cultural Level 3 (2); 40W, 0S, Cultural Level 4 (1); Surface (1).
Dimensions. 2.5 to 4.5 by 1.2 to 2.4 by 0.3 to 0.5 cm.
Comparisons. Baumhoff and Byrne (1959:Pl. 1s-x); Shutler and Shutler (1963:35); Gillin (1941:Pl. 7, nos. 3, 15, 20). The comparisons do not necessarily imply cultural affiliation between the projectile points from Serviceberry Shelter and the examples given, but are presented as possibilities and to facilitate future research.

Blades—Blades are defined as being worked from both sides of the edges around the entire perimeter of the artifact, and differentiated from scrapers and knives on this basis. Function of the specific artifact is not intended to be implied in this class.
Total. Six (Fig. 11a-f).
Description. Bifacially percussion-flaked; some specimens showed secondary pressure flaking along edges. Broad to narrow and generally ovate in form.
Materials. Chert (5), quartzite (1).
Provenience. Not given, but specimens appeared at all cultural levels.
Dimensions. 4.6 to 7.3 by 2.9 to 4.0 by 0.6 to 2.1 cm.
Thirty-eight non-diagnostic tips or bases and two blade midsections were found. Thirty-six were chert and four were made of quartzite.

Scrapers and Knives—"Ideally, scrapers are flaked implements with unifacial retouching, and knives show bifacial flaking" (Breternitz 1965:125). The authors wish to emphasize that we do not consider this definition to have any functional significance but that it is merely a descriptive category of formal attributes. As Breternitz has noted, the two forms could have been successfully used for either cutting or scraping. The scrapers and knives showed no formal changes in relation to the stratigraphic levels.

Scrapers
Class 1 (Fig. 11g-i)
Total. 13.
Description. Irregular, unifacial.
Materials. Chert (11), quartzite (2).
Class 2 (Fig. 11j)
Total. One.
Description. Geometric, unifacial.
Material. Gray chert.
Class 3 (Fig. 11k)
Total. One.
Description. Hafted, bifacial. This specimen was probably a broken and re-worked projectile point and should be placed in that category on a formal basis. However, its function has been interpreted as a hafted scraping or cutting tool.
Material. Brown chert.

Knives (Fig. 11l-m)
Total. Eight.
Material. Chert.

Utilized Flakes
Total. Ten.
Description. Utilized flakes are any flakes that show evi-

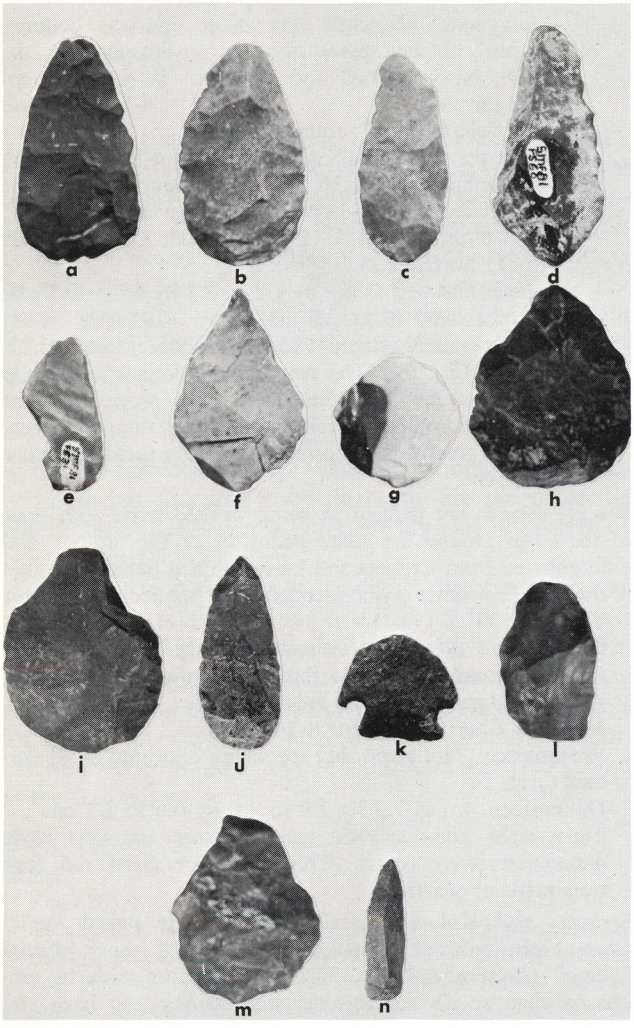


Figure 11. Blades, scrapers, knives, and utilized flake. a, blade 1; b, blade 2; c, blade 3; d, blade 4; e, blade 5; f, blade 6; g-i, class 1 scrapers; j, class 2 scraper; k, class 3 scraper; 1-m, knives; n, utilized flake. Length of a, 6.4 cm.

dence of utilization and are distinguished from scrapers and knives on the basis of randomness of the flake scars. One specimen (Fig. 11n) has a great number of flakes taken from each side, and it may have been used as a sawing tool.

Material. Chert (9), quartzite (1).

Flake Analysis—All of the unutilized flakes from Serviceberry Shelter were counted and sorted on the basis of material and provenience. Frequencies were calculated by percent in an attempt to correlate this material with the worked material culture. For a distribution of these frequencies and Chi-square tests, see Tables 1, 2, and 3. The significance of these tables is discussed in the Conclusions Section.

Hammerstones

Total. Two.

Description. Cobbles showing localized, non-random series of "peck-scars" on one or more spots on the surface.

Materials. Jasper (1), quartzite (1).

Ground Stone Tools

Manos

Type A (Fig. 12a-b)

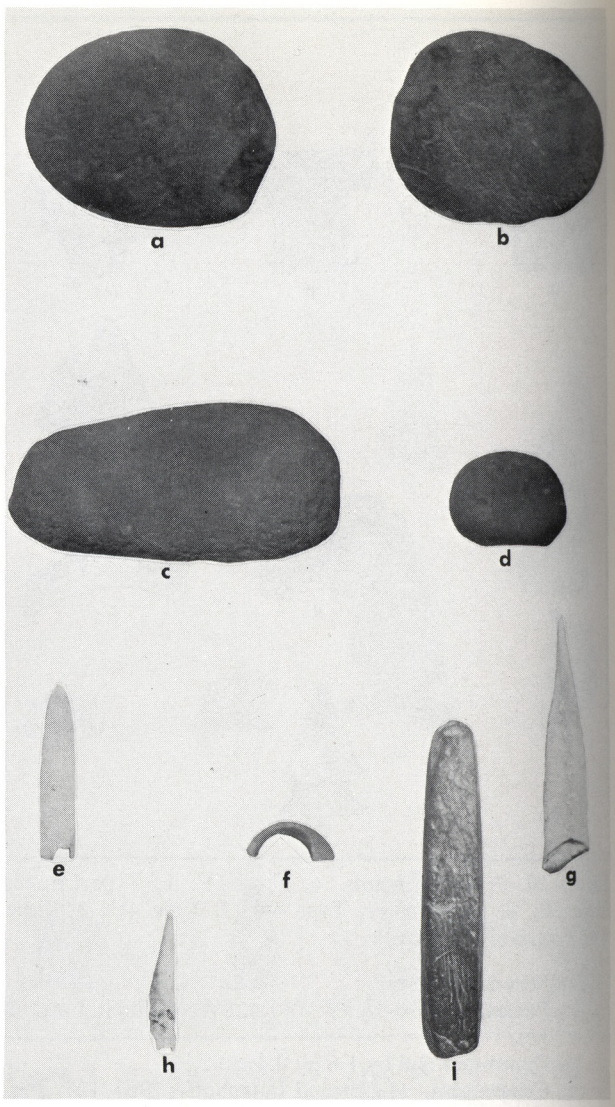


Figure 12. Ground stone, bone objects, and gaming piece. a-b, Type A manos; c, Type B mano; d, polishing stone; e, bone pendant; f, bone ring (?); g-h, bone awls; i, gaming piece. Length of e, 4.6 cm.

Total. Four.

Description. Uniface, unshaped.

Material. Red sandstone.

Type B (Fig. 12c)

Total. Two.

Description. Uniface, shaped.

Material. Red sandstone.

Comments. All of the manos appear to be the type commonly associated with slab or shallow basin metates. One Type B specimen was fireburned. The other Type B specimen had been also used as a hammerstone.

Polishing Stone (Fig. 12d)

Total. One.

Description. Small polished cobble which, if it were larger, would fall into the Type A mano category.

Material. Red sandstone.

Metates—The two specimens are fragmentary and appeared to be unifacial, slab-type metates.

TABLE 1. Distribution of flakes of known provenience by level and material.

Level	Chert No.	Chert %	Chalcedony No.	Chalcedony %	Quartzite No.	Quartzite %	Total (2,215) No.	Total (2,215) %
1	387	(81)	52	(11)	36	(8)	475	(100)
2	301	(84)	27	(7)	40	(9)	368	(100)
3	435	(80)	69	(13)	37	(7)	541	(100)
4	653	(85)	65	(8)	51	(7)	769	(100)
5	69	(96)	1	(1)	2	(3)	72	(100)

TABLE 2. Chi-square test showing correlation between stone material used and some lithic categories.[a]

Lithic Category	Chert	Chalcedony	Quartzite	Total
Flakes (4,183)	85	10	5	100
Points (19)	83	—	17	100
Blades (6)	83	—	17	100
Knives and Scrapers (22)	91	—	9	100
Total (4,230)	342	10	48	400

[a]Percentage proportions used as observed frequencies (d.f. = 6); chi-square = 41.5861; level of significance = .001.

TABLE 3. Chi-square test showing correlation between units 26W and 40W and their respective cultural levels.[a]

Level	Unit 26W	Unit 40W	Totals
1	54	184	238
2	10	30	40
3	116	237	353
4	171	243	424
Total	351	694	1,045

[a]1,045 flakes were used as the observed data (d.f. = 3); chi-square = 25.0192; level of significance = .001.

BONE ORNAMENTS AND IMPLEMENTS

Bone Pendant (Fig. 12e)
Total. One.
Description. Made of a thin section of bone, highly polished, and showed pecking on both sides.
Provenience. 26W, 0S, Cultural Level 4.
Dimensions. 4.6 by 1.1 by 0.2 cm.

Bone Ring(?) (Fig. 12f)
Total. One.
Description. Fragment of a possible bone ring.
Provenience. 40W, 0S, Cultural Level 2.

Bone Awls (Fig. 12g-h)
Total. Two.
Description. Fragmentary splinter bone awls; polished.
Material. Mammal bone, probably deer.
Provenience. Screening at 30-36.5W.

GAMING PIECE (Fig. 12i)
Total. One.
Description. Specimen appears to be wood on the basis of texture and density, but acts like shale when fragmented. The specimen was also burned.
Provenience. 26W, 0S, Cultural Level 3.
Dimensions. Width, 1.8; thickness, 1.3 cm.

UNWORKED BONE

The frequency of unworked bone did not seem to vary significantly from level to level or from unit to unit. Only five specimens were burned—two rodent jaws, a rabbit jaw, a ground squirrel jaw, and the distal end of the third phalange of a large artiodactyl (probably deer). Most of the material was very splintered and impossible to identify. These specimens came from slumped areas so that exact provenience was unknown.

CONCLUSIONS

CHRONOLOGY

Because the carbon-14 samples from the site have not been analyzed, there is no time placement dating available for Serviceberry Shelter. The projectile points are the only diagnostic material recovered and the relative dating is dependent upon these artifacts. From the law of superposition, the inference is that Cultural Level 5 is earlier than Cultural Level 1. No diagnostic material was recovered in the rather limited exposure of Cultural Level 5; therefore, any attempt to give this level a time placement would not only be speculative but completely unsupportable.

In Cultural Level 4, specimens of both Type 1F and

4F projectile points were recovered. Haury (1950) dates the Type 1F representatives in Ventana Cave as being of the Historic Period. Also, Baumhoff and Byrne (1959) date the Redding sub-type of the Desert Side-notched, a point which is more like Type 4E than anything else found in the site, as dating in the Historic Period.

However, the authors do not believe that this time period can necessarily be postulated for Serviceberry Shelter. Reasons for hesitancy are that although Type 1F is associated with the Historic Period in certain areas of the Great Basin, it is also a very common projectile point and its occurrence is not very restricted temporally; and Type 4F resembles the Redding subtype and is probably a Desert Side-notched point; the local variations of this category are many and widespread. The geographic distance between the two examples would, in part, support the possibility that Type 4F is merely a local variation; characteristic, but not unique.

(Note: Since the initial writing of this report, additional comparative material of possible significance has been published. Projectile points that are dead-ringers for Type 4F occur in Mummy Cave, near Yellowstone National Park, in Layer 21, dated by radiocarbon analysis at 3660 ± 280 B.C. (Wedel, Husted, and Moss 1968:184-5). The authors of the Mummy Cave report state that this is one of the types which are ". . . apparently found only in the montane region; their dates correspond to the Altithermal . . ." It is probably significant that the Type 4F points from Serviceberry Shelter occur primarily in Cultural Level 4.)

Depending on the source and the area from which comparisons are made, the sample of points from site 5MF81 could fall almost anywhere between Middle Prehistoric and the Historic Period. On the basis of comparative analysis and observance of the stratigraphy and associated artifacts in Serviceberry Shelter, the present deposition in the site possibly represents a relatively short span of time ranging somewhere within the dates 3600 B.C. to A.D. 1700. Unfortunately, without new or additional evidence, the dates cannot be more specific.

Occupation

Material from site 5MF81 suggests that the aboriginal inhabitants of the shelter were practicing a hunting and gathering subsistence pattern no more than 2,000 years ago. The grinding implements are ones most commonly associated with gatherers rather than agriculturists. The frequency and range of projectile points suggest a dependency on hunting. The projectile points are neither specific nor limited enough in type to assure that only one group inhabited the site, or that there was no interaction between groups.

Evidence for the origins of the inhabitants points to the west rather than the east. The projectile points are all variations thought to be typical of the Great Basin and Northwestern Plains groups. Little evidence is present for the High Plains groups. This again, as mentioned by Anderson and Higel (pg. 93) and Breternitz (1965), brings us to the conclusion that Dinosaur National Monument is an area where cultures from both sides of the Rocky Mountains are represented.

Serviceberry Shelter has introduced two interesting and important considerations for workers in this area:

1. The characteristic point—Type 4F—of which the presently known specimens are found only in this one excavated site in the Monument, have not been recorded in the collections of amateurs from this region (Breternitz, personal communication). Since this type is limited in this respect, it is hoped that future field and library work will direct workers to more possible source areas and a knowledge of its distribution in the immediate area. The predominance of the point type in Cultural Levels 3 and 4, with a complete absence of them in the upper levels and in nearby sites, is a significant archaeological problem.

2. The Fremont Culture, which is widespread in this region and found in the upper levels of many rock shelters, was in no way distinguishable at Serviceberry Shelter. Yet the ecology of the area does not appear unsuitable for their pattern of living. The complete absence of pottery and indications of agriculture or horticulture, when these exist in nearby sites, is another significant problem. These two considerations indicate an atypical situation at Serviceberry Shelter.

Although Serviceberry Shelter was not completely excavated, it is believed that a representative sample of the material present was found in the units excavated. The data in Table 2 have shown a very high non-random correlation between the stone materials used on the site and the artifacts recovered. This may well suggest that the lithic artifacts recovered were made on the site and not brought in from elsewhere. The data in Table 3 show that the cultural levels of Units 26W and 40W (located on either side of the slumped area, Fig. 3) did not correspond to each other. The slumpage, the natural slope of the rock shelter, and the variations in depth of manure and topsoil made it difficult to infer this on the basis of common sense alone. The percentages given in Tables 1 and 2 suggest that the lithic material sources or preferences did not change significantly in time or vary significantly in the expression of lithic tools.

It appears, then, that the four main cultural levels in Serviceberry Shelter were occupied by people of the same, or very close to the same, material culture; that the four- or five-component site represents a relatively short time span; that the lithic material and subsequent tools reflect some but not a great deal of material culture change; and that the most plausible origin of the culture of these people is to be found in the Great Basin Desert tradition.

SHEEP SHELTER, 42UN87

by
DONNA L. ARNDT

SITE DESCRIPTION

Sheep Shelter, 42UN87 and previously designated as 42UN89 by Gunnerson (1957:48), is located in the SE¼ of the NE¼ of Section 3, Township 5 South, Range 24 East (Frontispiece).

Sheep Shelter is a rock shelter in the Navajo sandstone formation, 20 m. long and 5 m. deep (Fig. 2), on the south side of Cub Creek. Abundant undergrowth of juniper and sagebrush grows in front of the shelter, which is in the shade throughout the day. The shelter has been utilized by sheep and cattle for some length of time as there is a thick deposit of manure over the entire floor area. Wild cherry trees grow on the edge of the shelter and in the back. There are numerous fall rocks in one corner of the shelter.

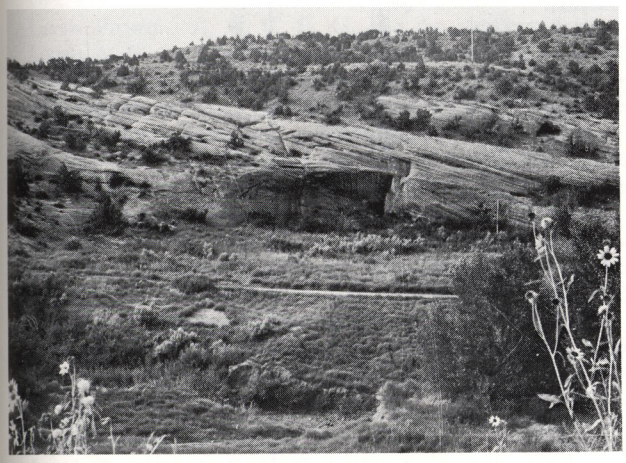


Figure 2. Sheep Shelter, looking south across Cub Creek.

EXCAVATION PROCEDURE

Before excavation was begun, an arbitrary datum point was designated at the west end of the shelter, and a baseline was established. The grid system was numbered from west to east by 1-m. intervals. South of the baseline, the grid was lettered from A-E, and north of the baseline A-C′ (Fig. 3). The excavation units were then divided up into 2-m. squares.

Both Gunnerson and Breternitz dug small test pits at the back and toward the middle of the shelter. Breternitz drew a profile of his trench and defined several stratigraphic levels. It was decided to begin excavation by digging a test trench from the baseline to connect up Breternitz's test trench, which had been excavated to the supposed sterile layer. Breternitz's test trench was re-excavated so that stratigraphic layers could be followed rather than arbitrary ones.

All the material except the hard-packed manure was shoveled and screened. Pollen and soil samples were collected from each area and level.

NON-ARTIFACTUAL REMAINS

INTRODUCTION

The stratigraphic levels in Sheep Shelter were first defined by Breternitz. In his test pit he noted the following levels: Level A, hard-packed sheep and cow manure, 18 cm. thick; Level B, mixed sand and manure with the sand a soft gray, 12 cm. thick; Level C, wind- and water-deposited buff-colored sand, 23 cm. thick; Level D, fall rock, 3 cm. thick; Level E, burned level, 4 cm. thick; Level F, thin layer of brown sand, 5 cm. thick; Level F_1, burned layer, 10 cm. thick; and Level G, mixed red sand and charcoal, 15 cm. thick.

CULTURAL LEVEL

Sterile red sand marks the original base level of the shelter. All these levels do not appear at all times. Levels A, B, C, E, and G are the main levels. The sandy layer and fall rock are all due to the weathering of the Navajo sandstone that forms the shelter.

The cultural remains present in Sheep Shelter consisted mainly of sub-floor pits, rocks with peck marks, pecked mortars, projectile points, pendants, bone awls, corn, one mano, a fragmental piece of gourd, and several well-defined fire hearths.

All of the artifacts, except a Type 3E projectile point

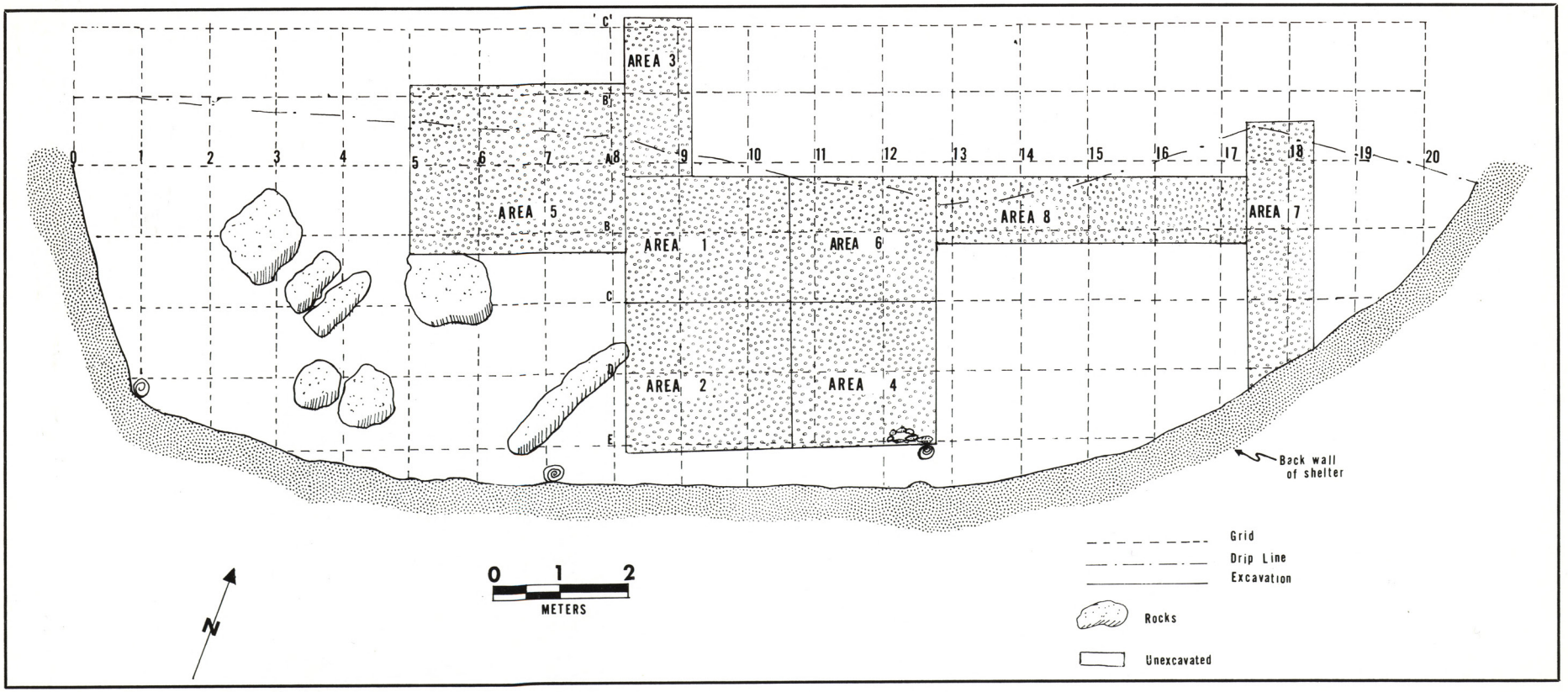


Figure 3. Site map showing excavation units.

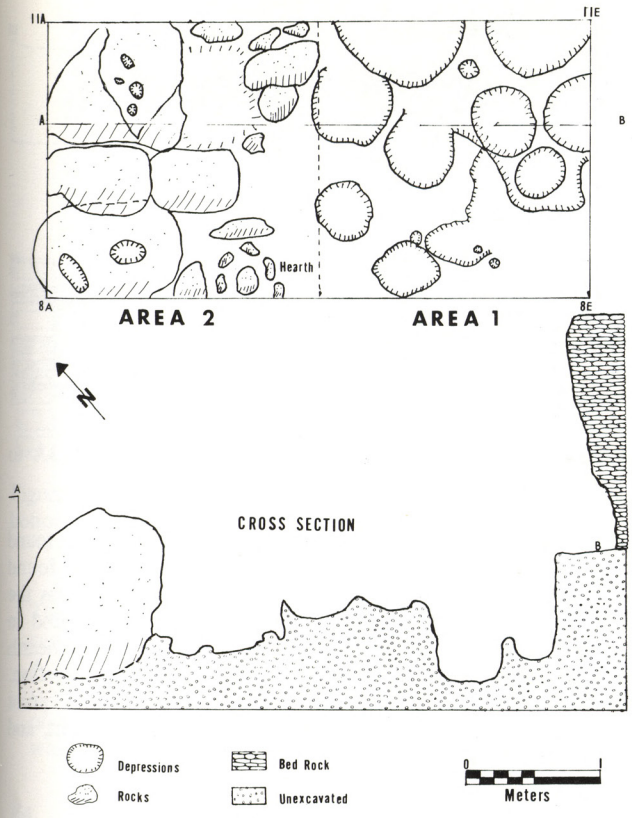


Figure 4. Areas 1 and 2, plan and cross-section.

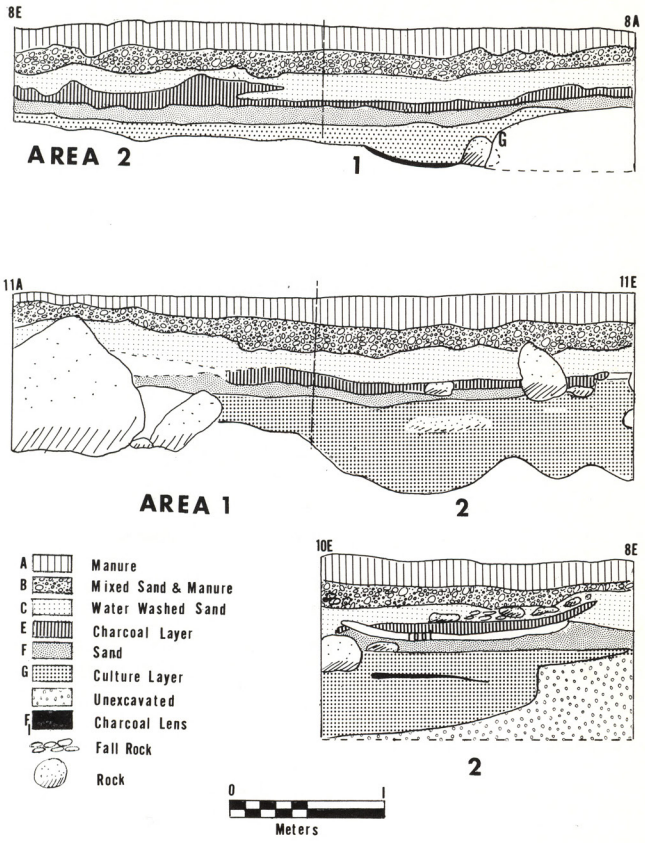


Figure 5. Areas 1 and 2, profiles. Top, south wall from 8E to 8A; middle, north wall, 11A to 11E; bottom, Area 1, east wall, 10E to 8E.

from Level C and a bone pendant from Level F_1, and 67% of the chips recovered, came from Level G.

Area 1

Grid Location. 8A-C and 11A-C (Fig. 4-5).

Levels Present. A, B, C, F, G, and the sterile red sand. Levels A, B, and C were sterile. The fall rock, or Level D, was missing, and Level E peters out. Level F and Level G were present and were continuous from Area 2. The sterile red sand was present and subfloor pits appeared. Some of the pits were rock-lined and the remnants of a fire hearth was ascertained in the area of 8B. Three large rocks were exposed in the process of excavation; the largest, in 10B, had been pecked, and one in the corner of 8A had two grinding depressions or mortars. Two distinct levels can be noted in the cross-section of Area 1 and Area 2, possibly indicating two temporal occupations.

Artifacts. Level G: one corner-notched point on a large stemmed point base, a bead fragment, and corn.

Area 2

Grid Location. 8C-E and 11C-E (Fig. 4-5).

Levels Present. A, B, C, D, E, F_1, G, and the sterile red sand. Levels A and B were sterile; Level C had a few chips; Level D consisted of small fragmented bits of rock that probably spalled off the shelter; Level E, or the charcoal layer, seemed to peter out the farther it extended along the wall 8A-8E. A brown layer consisting of organic material seemed to be on the same level as burned Level E. There was a rodent's nest in the corner of 8E, which was also on the same level as the organic material and burned Level E. Level F, or the thin, reddish-buff sandy layer, seemed to be continuous; Level F_1, which appeared to be a level, occurred only in Area 2, so is probably a lens. Level G consisted of a mixture of charcoal and red sand. Upon reaching the sterile red sand, nine sub-floor pits were found, and no cultural material was found in them.

Artifacts. Level F_1: polished bone pendant; Level G: one blade, one scraper, and polished bead fragments.

Comments. Breternitz's test trench, later re-excavated, was located in this area.

Area 3

Grid Location. 8A-C′ and 9A-C′ (Fig. 6).

Levels Present. B, C, D, E, F, G, and the sterile red sand. Levels B and C were sterile except for a few chips. Level D appeared only in one wall, $9C_1$-9A, but is not continuous. Level F appears in both walls but peters out in 8 A-C′. Level G is quite thick in both walls.

Artifacts. Level G: one stemmed expanding base point, one perforated bone disc, point fragments, a bone awl, and a large number of chips.

Comments. Area 3 was dug to test the limits of the site in front of the shelter.

Area 4

Grid Location. 11A-E and 13A-E (Fig. 7-8).

Levels Present. A, B, C, E, G, and the sterile red sand. As before, Levels A, B, and C were sterile. Level E was partially present; Level G was well defined. Gunnerson's test was found in Level G, extending about 30 cm. into it, but

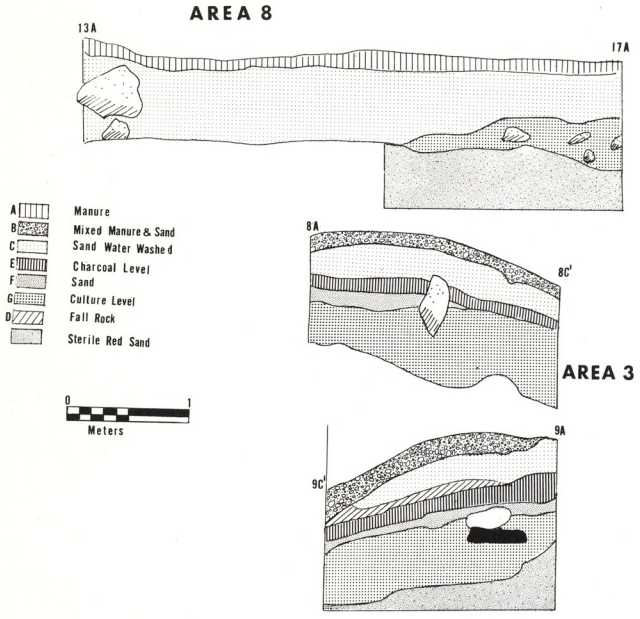


Figure 6. Areas 3 and 8, profiles. Top, north wall from 13A to 17A; middle, west wall from 8A to 8C'; bottom, east wall from 9C' to 9A.

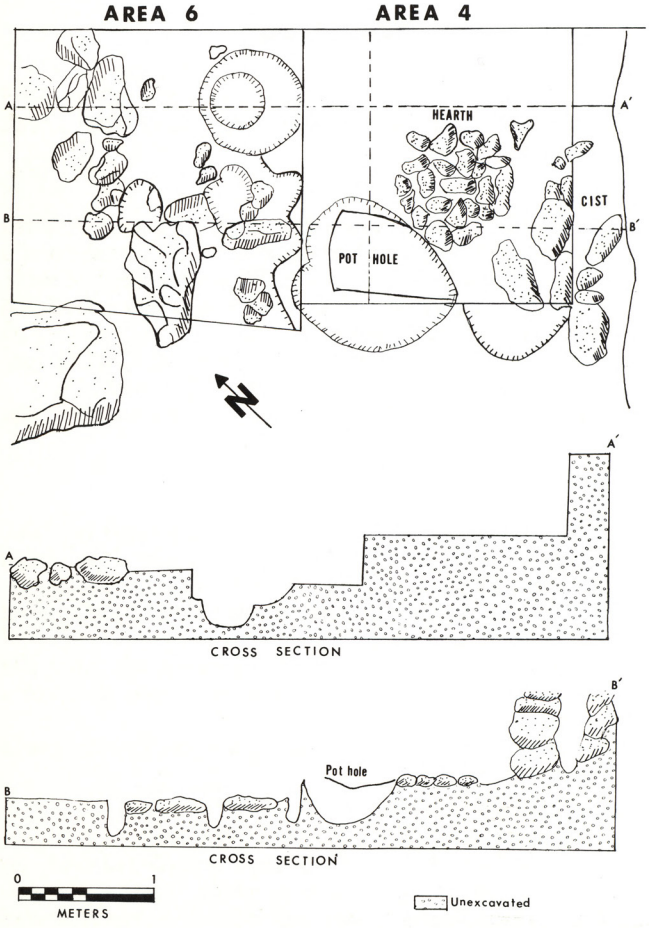


Figure 7. Areas 4 and 6, plan and cross-sections.

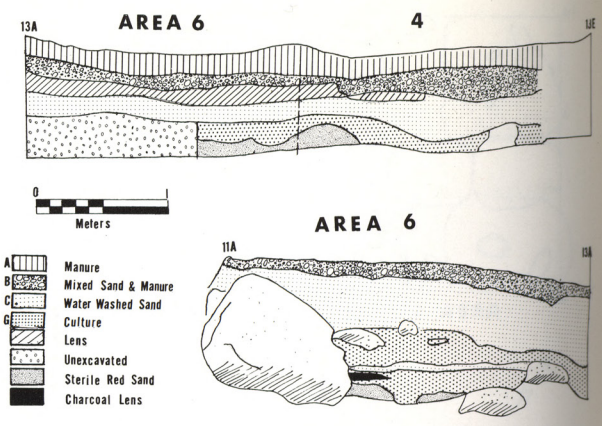


Figure 8. Areas 4 and 6, profiles. Top, east wall, 13A to 13E; bottom, north wall, 11A to 13A.

not to the floor of the shelter; aluminum foil was found near the bottom of the test. A rock-lined cist was found against the wall, and the back wall of the shelter was the back of this cist (Fig. 7). A rock hearth was found in front of the cist. A pit extended under the level of the hearth and could be further evidence of two periods of occupation. Artifacts. Level G: one small corner-notched point, point and blade fragments, a bone pendant, a bone ornament, and one bone awl.

Area 5

Grid Location. 5B-5B' and 8B-8B' (Fig. 9-10).

Levels Present. A, B, C, E, F, G, and the sterile red sand.

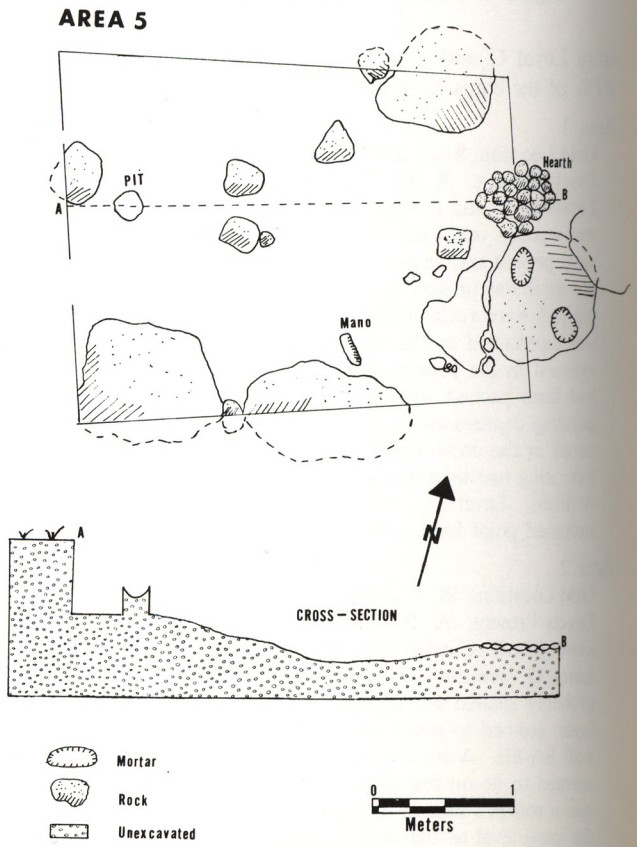


Figure 9. Area 5, plan and cross-section.

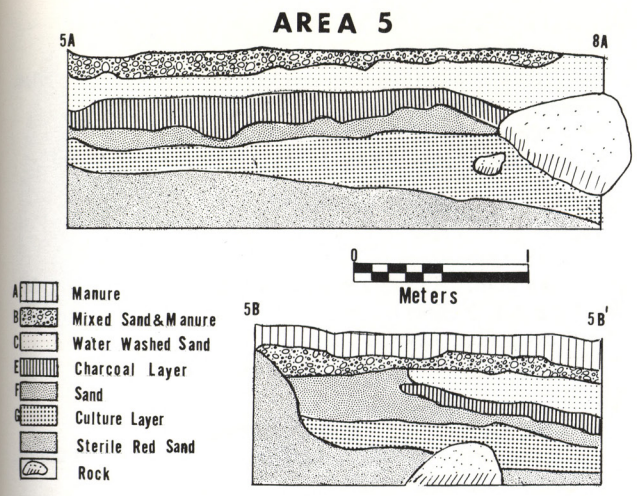


Figure 10. Area 5, profiles. Top, north wall, 5A to 8A; bottom, west wall, 5B to 5B′.

The layers here were well defined. Level A, the manure capping, thins out toward the front of the shelter.

A rock firepit was found, part of which had been revealed in Area 3. Four pits were located; all but one were on the same level. Three large rocks were exposed. There was an extremely fire burned area 60 cm. below the surface in which one projectile point, some bone, and several chips were found.

Artifacts. Level G: one mano *in situ*, one small corner-notched point, and point fragments.

Area 6

Grid Location. 11A-C, 13A-C (Fig. 7-8).

Levels Present. A, B, C, G, and the sterile red sand. Level G was well defined, but some of the other levels were hard to distinguish. Large rocks were encountered, as well as more pits.

Artifacts. Level G: three projectile points, a bead, three bone awls, a bone gaming piece, numerous chips, and some corn.

Area 7

Grid Location. 17A-D, 18A-D (Fig. 11-12).

Levels Present. A, C, G, and the sterile red sand. Level A was sterile. Two definite levels could be distinguished, 60 cm. and 110 cm. below the surface. There was a fire hearth on each of these levels.

Artifacts. Level C: one small stemmed projectile point; Level G: one point fragment.

Area 8

Grid Location. 13A-17A and 13B-17B (Fig. 6).

Levels Present. A, C, G, and the sterile red sand. Level C was the thickest level; the extent of Level G was relatively limited. Area 8 was dug to determine the stratigraphy be-

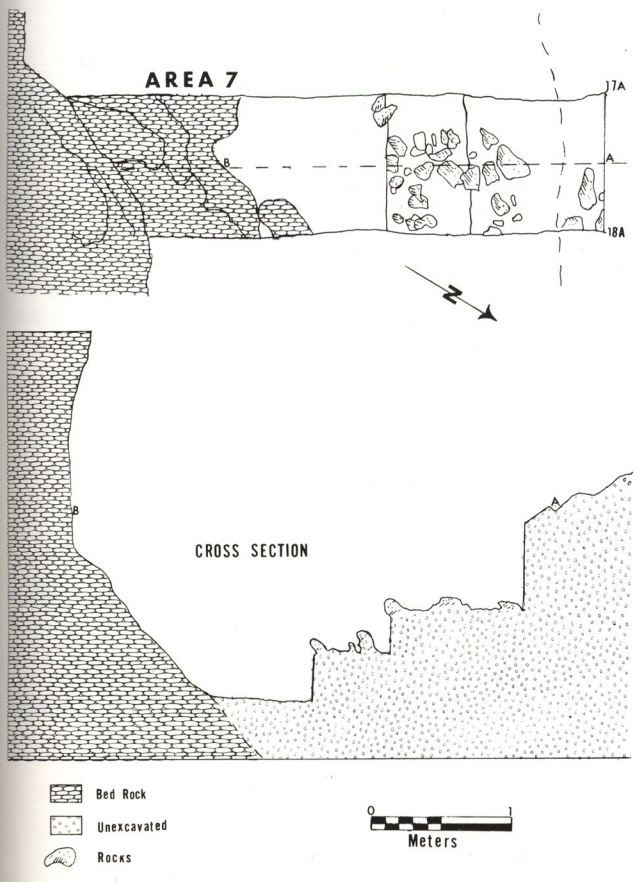


Figure 11. Area 7, plan and cross-section.

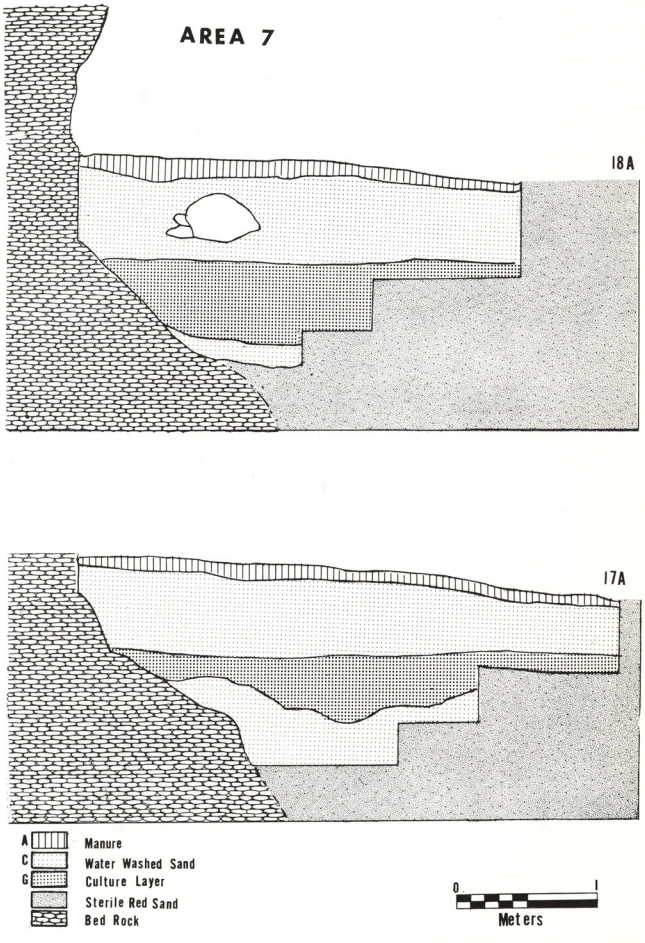


Figure 12. Area 7, profiles. Top, east wall, 18A to rear of shelter; bottom, west wall, rear of shelter to 17A.

tween Areas 6 and 7. There was a sharp dip toward Area 7 from Area 6 with only the above levels present.

Artifacts

Chipped Stone

Projectile Points

Type 1C (Fig. 13h)
Total. One.
Description. Unnotched, round base, blade edges slightly convex, slight medial ridge, basal thinning.
Material. Red chert.
Provenience. Level G, Area 5.
Dimensions. 4.0 by 1.9 by 0.4 cm.

Type 3A (Fig. 13f-g)
Total. Three.
Description. Notched, convex base, expanding stem, deep diagonal notches, triangular blade.
Material. Gray quartzite.
Provenience. Level G, Areas 1, 3, 6.
Dimensions. Width, 2.3 cm.; thickness, 0.4 to 0.7 cm.

Type 3E (Fig. 13a-e)
Total. Five.
Description. Notched, straight to convex base, straight expanding stem, diagonal notches, small.
Materials. Red and yellow chert.
Provenience. Level G, Areas 1, 3, 4, 5, 6.
Dimensions. 2.0 to 2.9 by 1.0 to 1.5 by 0.3 to 0.5 cm.

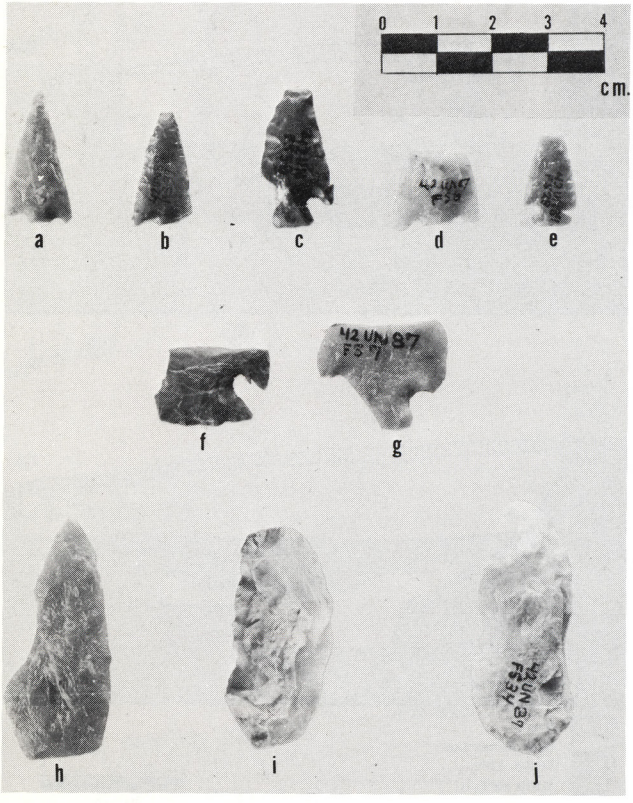


Figure 13. Projectile points and blades. a-e, Type 3E projectile points; f-g, Type 3A projectile points; h, Type 1C projectile point; i-j, blades.

Blades (Fig 13i-j)
Total. Two.
Description. Small, curved, crudely worked bifacial blades.
Material. White chert.
Provenience. Level G, Areas 2, 4.
Dimensions. 3.8 to 4.5 by 1.7 to 2.0 by 0.7 to 1.0 cm.

Scrapers

Type B
Total. One.
Description. Scraper on cobble flake.
Material. Yellow quartzite.
Provenience. Level G, Area 2.
Dimensions. 9.0 by 5.0 by 2.0 cm.

Type C
Total. One.
Description. Spokeshave scraper on flake with retouched, concave scraping surface.
Material. Red chert.
Provenience. Level G, Area 6.
Dimensions. 2.5 by 2.0 by 1.0 cm.

Type E
Total. One.
Description. Keeled scraper on percussion flake.
Material. White chert.
Provenience. Level G, Area 6.
Dimensions. 5.5 by 4.0 by 10. cm.

Ground Stone

Mano

Type A
Total. One.
Description. Unifacial one-handed mano with single grinding surface well defined.
Material. Red quartzite.
Provenience. Level G, Area 5.
Dimensions. 15.0 by 7.5 by 7.5 cm.

Bone

Ornamental Bone Objects

Polished Bone Pendants (Fig. 14g-h)
Total. Two.
Material. Animal bone.
Provenience. Level F, Area 2; Level G, Area 4.
Dimensions. 3.5 by 1.3 by 0.3 cm.

Polished Bone Beads (Fig. 14i-l)
Total. Four.
Material. Bird bone.
Provenience. Level G, Areas 1, 2.
Dimensions. Length, 1.0 to 3.5 cm.; diameter, 0.4 to 0.8 cm.

Polished Bone Ornament (Fig. 14m)
Total. One.
Description. Shape of capital "I," perforated in middle.
Material. Bird bone.
Provenience. Level G, Area 4.
Dimensions. 1.5 by 0.5 by 0.2 cm.

Perforated Bone Disc

Total. One.
Material. Bird bone.
Provenience. Level G, Area 3.
Dimensions. Diameter, 1.5 cm.

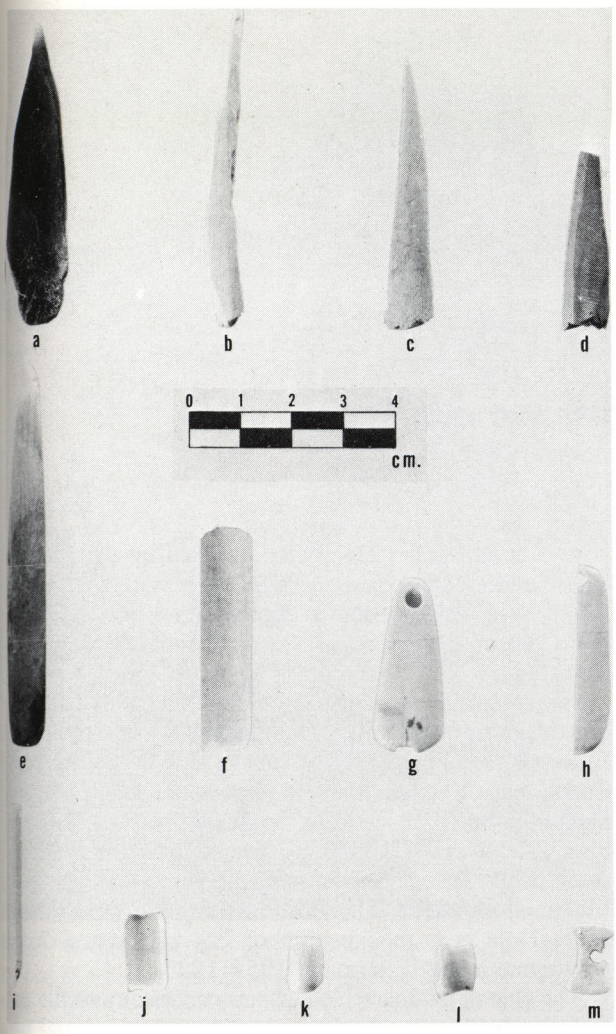


Figure 14. Bone awls, gaming pieces, pendants, beads and ornaments. a-d, bone awls; e-f, gaming pieces; g-h, polished bone pendants; i-1, bone beads, m, polished bone ornament.

Bone Gaming Pieces (Fig. 14e-f)
Total. Two.
Description. Rectangular pieces of bone with rounded ends.
Material. Animal bone.
Provenience. Level G, Area 6.
Dimensions. 4.3 to 7.5 by 1.0 to 1.1 by 0.3 to 0.4 cm.

Bone Awls (Fig. 14a-d)
Total. Four.
Description. Splinter awls made from mammal bone, possibly deer.
Provenience. Level G, Areas 3, 4, 6.
Dimensions. 5.3 to 6.5 by 0.6 to 1.5 by 0.3 to 0.4 cm.

MISCELLANEOUS

Gourd—One piece of gourd was found in Level G, Area 6; variety not known.

Corn—Scattered corn kernels were found in Level G, Areas 1, 2, 6.

CONCLUSIONS

Sheep Shelter is believed to be a manifestation of the Fremont Culture, based on favorable comparison of the recovered artifacts with those of other Fremont sites in the general vicinity. The site is a rock shelter with cultural evidence consisting of cists, pecked mortars, rock hearths, and stone and bone artifacts. There are two levels of occupation, the stratigraphic levels are well defined, but Level G is considered the primary cultural layer because most of the artifacts come from this level. It is also thought that this manifestation of the Fremont Culture is earlier than that of the pit houses found in the same general vicinity .

However, Sheep Shelter appears to be primarily a storage site, and this specialized utilization of a north-facing shelter may be the reason that the full range of Fremont material culture items were not recovered.

The projectile points compare well with Fremont sites in the Cub Creek locale, where Sheep Shelter is located, and these artifacts would indicate a rough date of A.D. 950 or 1000 to 1150 or 1200, if this is, indeed, a Fremont site. However, absolutely no ceramic material was recovered.

JONES HOLE: SITES 42UN9 AND 42UN13

by
ROBERT J. BURTON

INTRODUCTION

Three sites in the Jones Hole locale (Frontispiece; Fig. 2) 42UN1, 42UN9, and 42UN13, were tested in 1965.

Site 42UN1, subsequently named Deluge Shelter, was subjected to intensive excavation in 1966 and 1967 and is not dealt with herein. Leach (1967) reports stratified deposits of over 3 m. in depth, and a complete report of the site is currently in preparation.

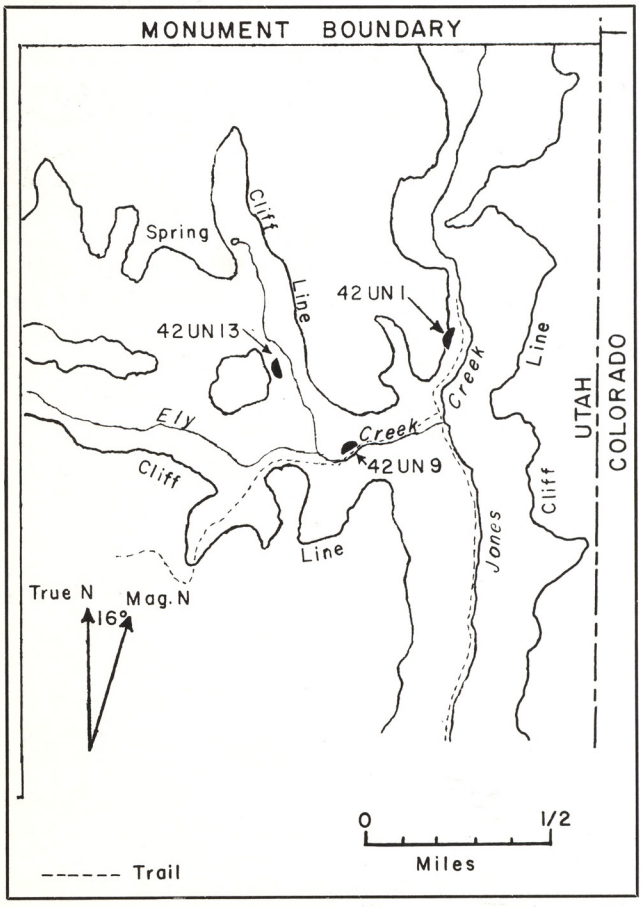


Figure 2. Map of Jones Hole showing specific site locations.

Access into Jones Hole was provided by the National Park Service and boat transportation from Jones Hole to Island Park was contributed by the Hatch River Expedition Company; these courtesies are, indeed, sincerely appreciated.

Jones Hole is surrounded by high cliffs, and has the only clear trout stream in Dinosaur National Monument, Jones Creek (Fig. 2). Ely Creek, a tributary of Jones Creek, cuts through massive Weber sandstone, leaving monoliths and box canyons scattered through the area. Sites 42UN9 and 42UN13 are located in this Weber sandstone, while Deluge Shelter is at the base of a cliff of the Morgan formation. The Island Park fault cuts through Jones Hole near the junction of Ely and Jones Creeks (Untermann and Untermann 1954:123).

The climate of Jones Hole shows conformity to the patterns in the Southwest, although with greater annual precipitation. In the winter, the canyon floor rarely receives snowfall of more than three or four inches during any one storm, and this quickly melts. Zero weather is uncommon and of brief duration.

The 1965 testing operations not only provided the impetus to do extensive work in Deluge Shelter, but stimulated the investigation of the nearby Ely Caves (Sheets 1969).

42UN9 SITE DESCRIPTION

Site 42UN9 is a shallow overhang of Weber sandstone on the west bank of Ely Creek. It was first reported by Stirland, and designated Site 9 (Stirland 1947:24; MacLeod 1959). The location is the NE¼ of the NW¼ of Section 13, Township 3 South, Range 25 East (Frontispiece; Figs. 2-3). The overhang is 0.5 to 1.5 m. deep and 7.5 m. long. The overhang is about 1.5 m. above the present ground level, and was about 2.5 m. high when the cultural deposit began. There was less of an overhang at the shelter during aboriginal occupation because of the slope of the back wall (Fig. 4).

The slope of the trash deposit falls off at a rate of about 3 m. per 10 m. of horizontal distance. The deposit is

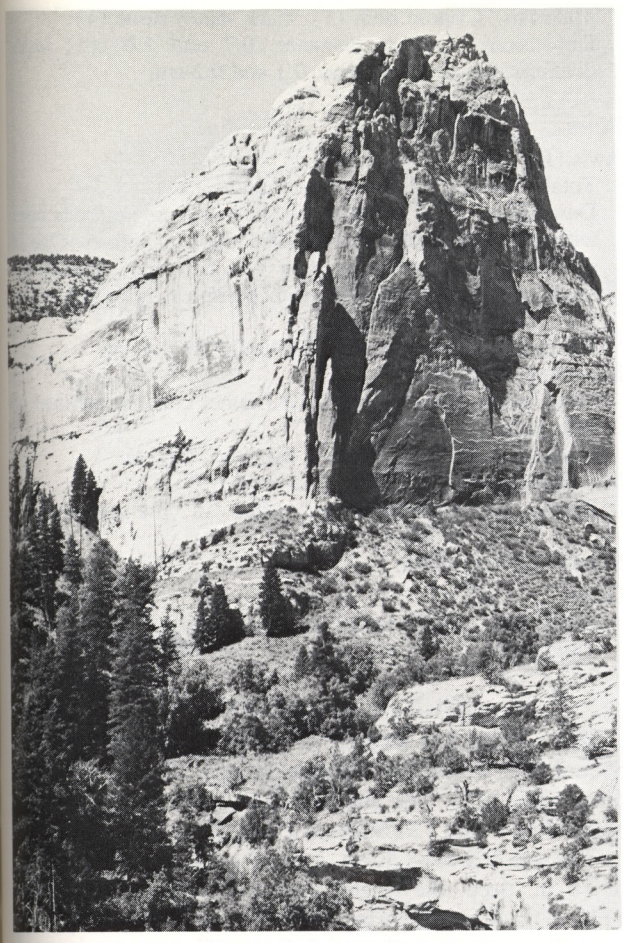


Figure 3. Site 42UN9 and surrounding country. Site is located in small overhang at lower portion of photo, near tall trees. Figure is standing beside trench in front of shelter.

about 6 m. wide from the bank of the creek to the wall of the overhang. The trash deposit was exposed by the cutting of Ely Creek.

A trench 0.75 m. wide was dug down to the sterile layer from the creek bank up into the shelter. As there was no natural stratigraphy, the cultural deposit was excavated as one level. The trench was extended to the north in the area of maximum deposit of cultural material, excavating down to sterile sand. Most of the cultural deposit was on the slope rather than in the overhang. This deposit was very black and rich in lithic material, chips, bone, and cobbles. The lower portions of the slope contained many cobbles and rocks, mostly fire-burned, while close to and under the overhang the soil was fairly free of cobbles and rocks.

The following animals were identified by Elaine Anderson of the University of Colorado Museum from the skeletal material recovered. Figures indicate the number of bones identified.

Citellus sp. (ground squirrel)	9
Sylvilagus sp. (cottontail)	10
Ovis canadensis (bighorn sheep)	2
Cynomys sp. (prairie dog)	2
Ondatra zibethica (muskrat)	2
Marmota flaviventris (marmot)	2
Odocoileus hemionus (mule deer)	1
Ursus americanus (black bear)	1
Fish	2
Bird	1

The site contained no ground stone implements, pottery, or pictographs, making cultural classification difficult. However, it is thought that the deposit derives from occupation by Fremont peoples who used the site for a hunting and fishing campsite over a period of time. There is no evidence indicating the deposit is of Ute or Shoshoni origin.

ARTIFACTS

LITHIC MATERIAL

Projectile points are classified according to the typology given in Breternitz (1965). Other material is described somewhat arbitrarily.

Projectile Points

Type 1B (Fig. 5j)

Total. One.

Description. Unnotched, irregular convex base, triangular blade.

Material. Brown chert.

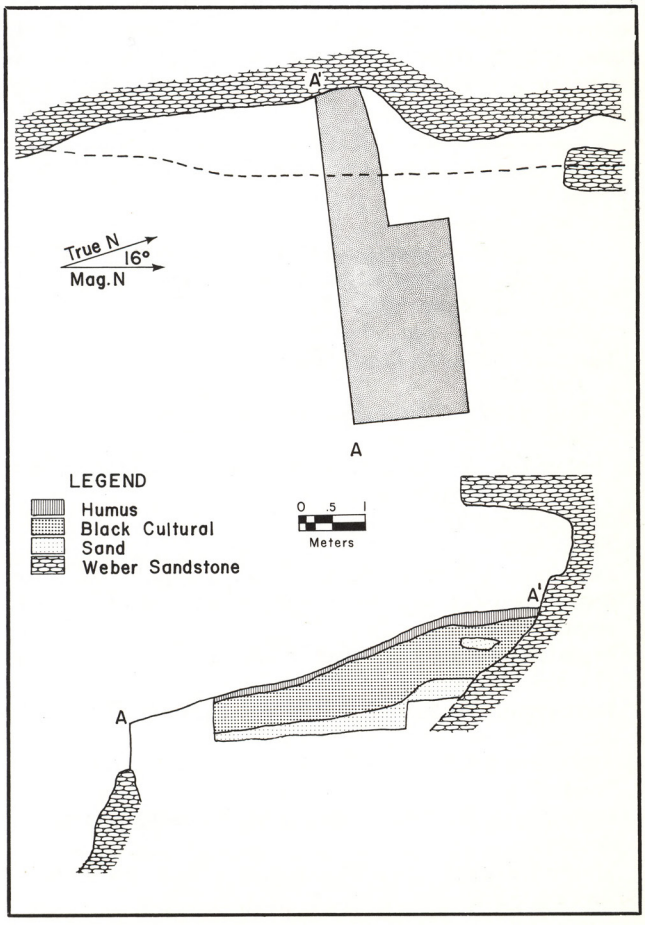


Figure 4. Site map and cross-section of site 42UN9.



Figure 5. Artifacts from 42UN9. a-d, bone awls; e, miscellaneous burned bone; f, bone bead; g-h, stone beads; i, blade; j, Type 1B projectile point; k-m, Type 3E projectile points; n, q, s, t, blades; o, scraper; p, r, unclassifiable projectile points.

Dimensions. 2.4 by 1.4 by 0.4 cm.

Type 3E (Fig. 5 k-m)

Total. Three.

Description. Corner-notched, convex to straight expanding stem, triangular blade; one with serrated edges.

Materials. Brown chert (2), red chert (1).

Dimensions. 2.2 to 2.9 by 1.1 to 1.6 by 0.3 cm.

Untypable Projectile Points (Fig. 5p, r)

Total. 12.

Description. Tips, midsections, and bases of projectile points.

Materials. Jasper (5), yellow chert (3), brown chert (2), chalcedony (2).

Blades (Fig. 5i,n,q,s-t)

Total. Six.

Description. None of the blades was complete, but three had pointed tips, one had a rounded tip, and two had a rounded base.

Materials. Jasper (2), black chert (2), brown quartzite (1), red quartzite (1).

Dimensions. Width, 1.9 to 3.3 cm.; thickness, 0.5 to 0.7 cm.

Scrapers (Fig. 5o)

Total. Five.

Description. Percussion flakes retouched along portions of the edges.

Materials. Jasper (1), yellow chert (3), black chert (1).

Beads (Fig. 5g-h)

Total. Two.

Description. Disc stone beads, drilled biconically.

Materials. Crinoid stem (1), black shaley stone (1).

Dimensions. Outside diameter, 0.7 and 1.0 cm.; inside diameter, 0.4 cm.; thickness, 0.1 and 0.2 cm.

Bone

Awls (Fig. 5a-d)

Total. One complete and three fragmentary.

Description. The complete awl showed use on both ends, with one end much more pointed than the other. One of the tips was pointed, the other was flattened. The fourth specimen was a midsection with polishing along the edges. All were splinter bone awls.

Dimensions. Complete awl, 8.0 by 0.7 by 0.4 cm.

Bone Bead (Fig. 5f)

Description. Tubular bead, bird bone, cut and polished on both ends.

Dimensions. Length, 0.9 cm.; diameter, 0.6 cm.

Miscellaneous (Fig. 5e)

Description. Partially burned bone; cut; use unknown.

Mineral Specimens

Ochre

Description. Small lumps of ochre; red (2), yellow (2), white (1).

42UN13 Site Description

Site 42UN13 is located in the SW¼ of the SW¼ of Section 12, Township 3 South, Range 25 East (Frontispiece; Fig. 2). The site was first reported by Stirland, who called it Site 13 (Stirland 1947:30).

The site is a cave 50 m. long, 7 to 35 m. high, and 10 to 15 m. deep, the largest cave overhang in Jones Hole (Fig. 6). A small spring-fed tributary of Ely Creek has eroded away part of the south floor. The overhang covers approximately 250 sq. m. of floor, not including the eroded section on the south. At the north end of the cave a small rise of about 4 m. disturbs what would otherwise be a fairly level floor. The protected part of the cave is extremely dry. A few dead bushes were the only vegetation found within the cave, contrasting with the rich humus layer and thick vegetation outside the cave. The cave faces the northeast, collecting the sunlight as soon as it clears the hills across the canyon.

An iron pot on the surface indicated recent occupation by fishermen. Otherwise, the surface collection provided no artifacts.

A datum line was set up, running approximately southeast to northwest and roughly parallel to the back of the cave. The datum point was a mark on the wall at the south end of the cave.

To determine the stratigraphy and occupation patterns 2-m. grids were dug inside the overhang. The interior grids were placed so as to cover as wide an area as practical, and yet close enough so that profiles of the walls would not be totally isolated (Fig. 6-7). Two trenches were dug in what was hoped to be the refuse area, but no cultural remains were encountered. The material was screened whenever possible, but especially when darker, possible cultural levels were encountered. All units were profiled on one wall, with grids A and C being profiled on two sides. Grids were lettered in the order of excavation.

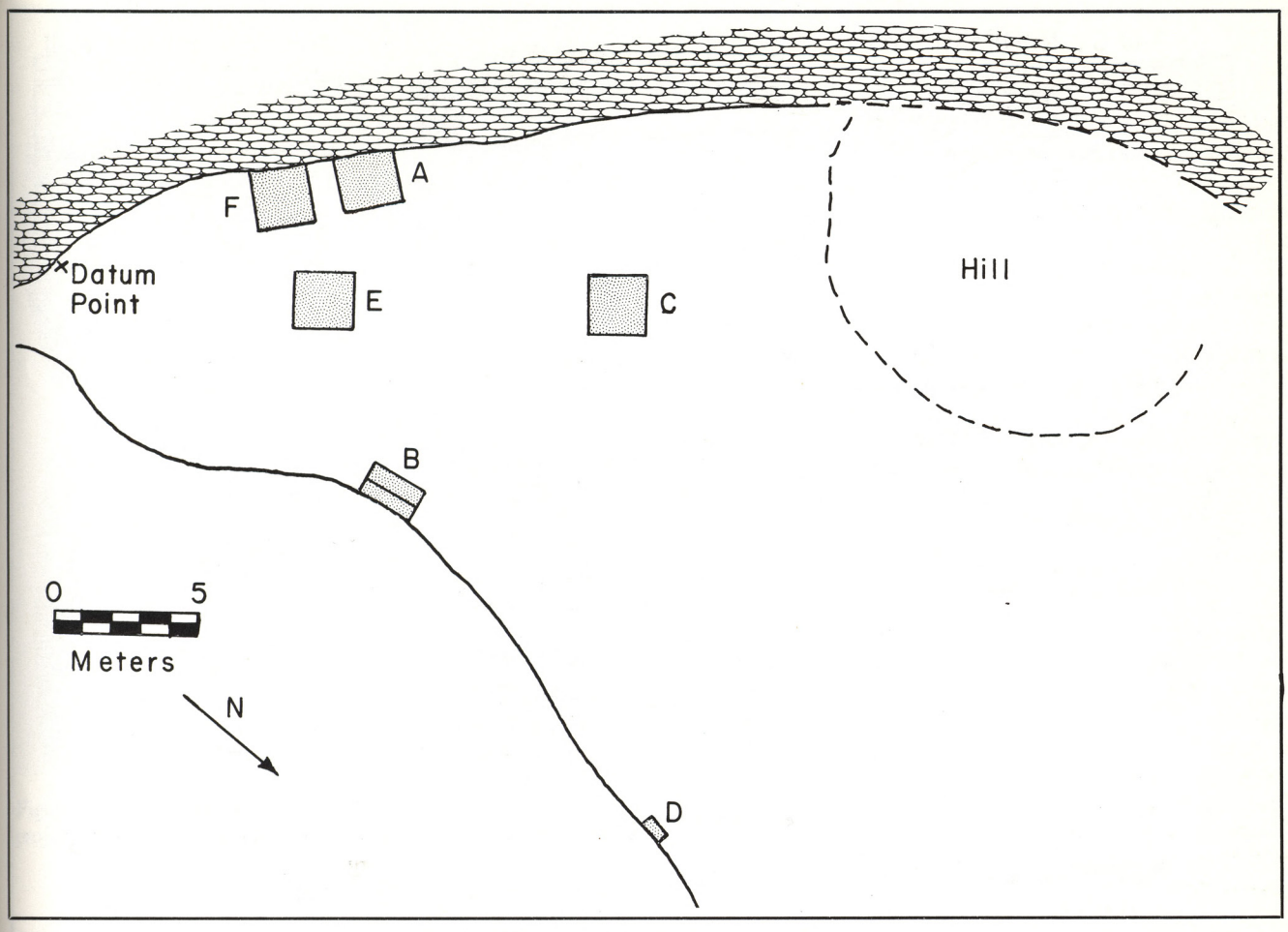


Figure 6. Site map of 42UN13.

Stratigraphy indicates a general layer of vegetation and manure on top, a cultural layer below this near the back of the cave, with a sand layer coming between on the east and south. Below the cultural layer is a sand layer, devoid of material, followed by a reddish wash. Beneath this wash is another cultural layer, and then another red wash, followed by sterile sand (Fig. 7). Due to the intense rodent activity, the stratigraphy is quite disturbed, so that interpretation is difficult. However, the flat floor of the cave was probably flooded at times, resulting in the red washes. The sections near the outside of the cave show much more involved stratigraphy, indicating the greater weathering action outside the protection of the cave.

The cultural levels were very sparse in material, and little indication of occupation was found. The finding of four blades in a cache in grid A, at the bottom of the second cultural level and against the cave wall, indicates the cave was used, at least once, as a storage site. Only two other lithic implements were found, no ground implements, no pottery, and only two pieces of worked bone, out of a total of 14.5 cu. m. of excavated soil.

Animals identified by Miss Anderson from skeletal material from the excavations are listed below in Table 1. Figures indicate the number of bones identified.

TABLE 1. Identified bones from excavation.

Animal	Grid A	B	E	F	Totals
Sylvilagus sp. (cottontail)	—	3	2	1	6
Neotoma sp. (wood rat)	—	—	—	3	3
Odocileus hemionus (mule deer)	1	1	2	—	4
Ovis canadensis (bighorn sheep)	—	—	—	4	4
Citellus sp. (ground squirrel)	—	—	2	—	2
Lynx rufus (bobcat)	1	—	—	—	1
Peromyscus sp. (deer mouse)	—	—	1	—	1
Microtus sp. (meadow mouse)	—	—	—	1	1
Total					22

Only one bone, that of a bobcat, shows working and polishing.

Any occupation appears necessarily slight and of brief duration. The presence of a very faint Fremont-type pictograph of a man indicates that the Fremont peoples used this cave, probably in the same manner as Mantle Cave, i.e., as a storage site (Burgh and Scoggin 1948).

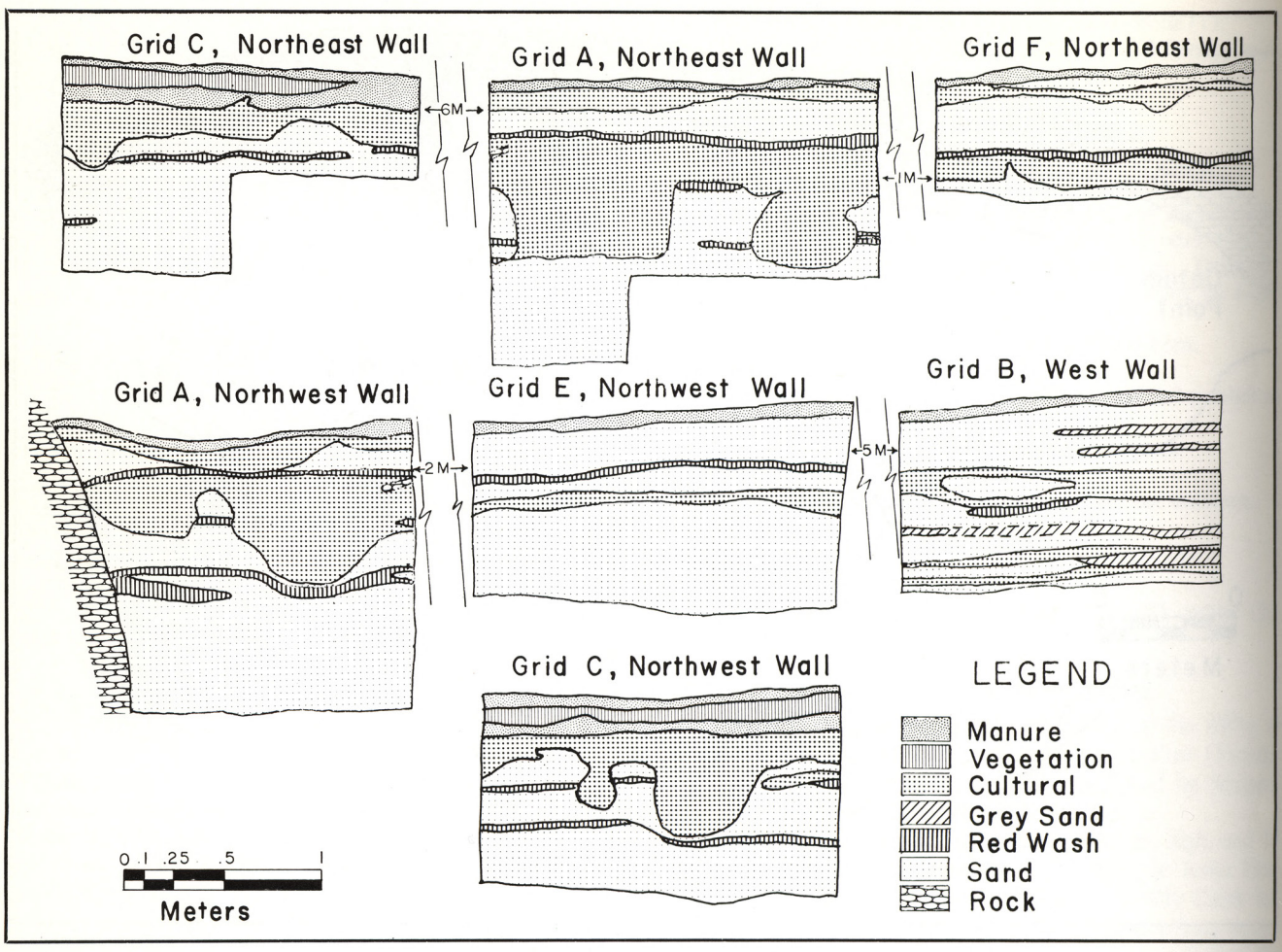


Figure 7. Profiles of grid walls, site 42UN13.

Artifacts

Lithic Material

Projectile Points

Type 4B (Fig. 8b)
Total. One.
Description. Side-notched, base as wide as blade, triangular blade, straight base.
Material. Jasper.
Provenience. Grid E, first cultural level.
Dimensions. 1.9 by 1.2 by 0.3 cm.

Blades—All four blades were found in a cache, grid A, second cultural level.

Type 1 (Fig. 8g-h)
Total. Two.
Description. Semi-rounded tip, base broken but probably rounded on one specimen; rounded base on other specimen; bifacially worked.
Materials. Purple chert (1), brown quartzite (1).
Dimensions. 9.6 and 11.0 by 4.1 and 4.2 by 0.8 and 1.0 cm.

Type 2 (Fig. 8f)
Total. One.
Description. Pointed tip, rounded base, bifacially worked. This blade had the finest workmanship of the four blades.
Material. Black banded chert.
Dimensions. 12.9 by 3.2 by 0.4 cm.

Type 3 (Fig. 8e)
Total. One.
Description. Semi-rounded base and tip, bifacially worked.
Material. Black chert.
Dimensions. 12.9 by 3.2 by 0.9 cm.

Drill (Fig. 8a)
Total. One.
Description. Squarish, bifacially chipped base.
Material. Brown chert.
Provenience. Grid A, second cultural level.
Dimensions. 4.6 by 2.1 by 0.4 cm.

Bone Artifacts

Awl (Fig. 8d)
Total. One.
Description. Both ends broken, worked and polished, made from the midsection of a *Lynx rufus* (bobcat) fibula.
Provenience. Grid A, second cultural level.
Dimensions. 6.5 by 0.4 by 0.2 cm.

Grooved Bone (Fig. 8c)
Total. One.
Description. Bone segment, broken along grooves on each end, groove started in middle.

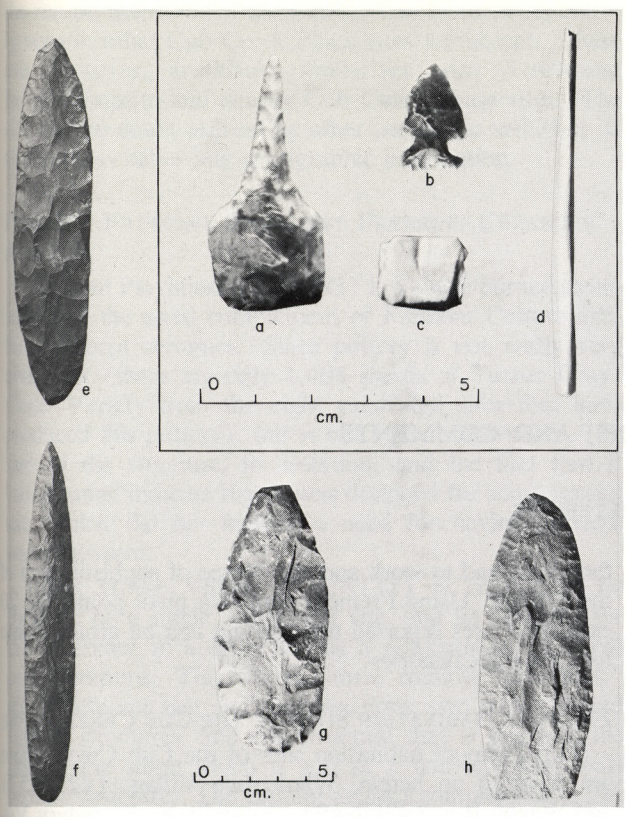


Figure 8. Artifacts from site 42UN13. a, drill; b, Type 4B projectile point; c, grooved bone; d, bone awl; e-h, blades.

Provenience. Grid E, first cultural level.
Dimensions. 1.6 by 1.3 by 0.4 cm.

CONCLUSIONS

The testing of sites 42UN9 and 42UN13 in Jones Hole has revealed that aboriginal occupation was most probably in the form of hunting and fishing groups. The lack of any grinding tools supports this hypothesis, as do the bones found during excavation. The animals are those that would be hunted, and the fish bones from Site 42UN9 indicate that the early inhabitants did some fishing. Pictographs generally are in the style of the Fremont Culture.

Site 42UN9, with its rich deposit of cultural material, was probably a campsite for hunting and fishing trips, with the artifacts indicating Fremont occupation.

Site 42UN13 was almost certainly not occupied for any long periods of time, if at all. The small number of chips found indicate that little tool making took place at this site, and the cache of blades found shows that the site was used, at least once, as a storage area.

SUMMARY, CONCLUSIONS, AND COMMENTS

by
DAVID A. BRETERNITZ

INTRODUCTION

Recent syntheses of the archaeology of northeastern Utah and adjacent regions have provided many thought-provoking new data and interpretations (Aikens 1966; Ambler 1966; Sharrock 1966). It might seem appropriate now to attempt to fit the material from Dinosaur National Monument into one or all of these hypotheses and interpretative schemes. However, in view of the amount of new data, I choose to look at the Dinosaur region as a separate entity. After presenting a summary of information and some ideas, this information will be evaluated with regard to the recent syntheses. In other words, the overwhelming amount of data contained in this report is taken as the central body of information and not considered as being marginal or peripheral to the archaeology of adjacent regions.

In summarizing the information available, reference will be made to the preceding individual reports. In addition, a key site in the final discussion is Deluge Shelter (Leach 1967), which is extremely important in the question of Fremont origins and possible cultural descendants of the Fremont peoples.

Several topics will be included in this summary: 1) a summary of the materials and sites reported herein; 2) a comparison of these new data with previously excavated and reported information; 3) establishment of a rough chronology for the Dinosaur National Monument region, and sub-regions or "districts," as is necessary and possible; 4) definition of the Cub Creek Phase of the Uintah Fremont for the western portion of the Monument; and 5) comments based on the data presented here and the cultural history-relationships proposed by other recent workers. The Fremont occupation(s) will serve as a pivot point for the discussions that follow; with the Fremont defined, it will be possible to work both backward and forward in time, as the data permit.

SITE SUMMARIES

The excavated sites are variously summarized by the individual authors, depending on the material with which they have had to work and the degree of sophistication of the authors. Using Fremont sites as a pivot point, the 20 excavated sites reported upon herein can be grouped into four general categories:

FREMONT HABITATION SITES OF THE CUB CREEK PHASE

Two Fremont habitation sites of the Cub Creek Phase are reported on herein, Wholeplace Village (42UN57) and Wagon Run (42UN49). In addition, Boundary Village (Leach 1966) falls into this category. The archaeological entity termed the Cub Creek Phase is specifically defined below.

FREMONT SITES WITH CUB CREEK COMPONENTS AND POSSIBLE ADDITIONAL OCCUPATIONS

The MacLeod Site (42UN121) has two "pithouses" that are the result of Cub Creek Phase occupation, plus three surface structures that may or may not belong to this phase.

The Dam Site (42UN119) is a surface structure differing in some details from the Cub Creek Phase dwellings, but these may simply represent a range of variation due to location and preservation. The site produced only a small amount of material culture, but the presence of five sherds of Turner Gray: Cisco Variety and the adobe-rimmed hearth suggest some relationship with the Cub Creek Phase.

The Lowell Spring Site (5MF224) has evidence of a late occupation by Fremont people in the form of three Turner Gray: Cisco Variety sherds from the upper occupation level. This late utilization of the site by Fremont hunters is nothing more than a campsite and is not a permanent occupation. Most of the Lowell Spring Site cultural remains are older than the Fremont Culture and represent hunting-gathering-foraging peoples using a convenient camping spot near a permanent water supply.

Arrowhead Point Campsite (42UN66) has three living floors with associated hearths and postholes that rest on bedrock. The shallowness of soil at the site may have influenced the type of structure constructed and may be

the reason that some of the architectural features commonly seen in other Cub Creek Phase sites are absent. There are, however, artifactual similarities with Arrowhead Point Campsite and nearby Cub Creek Phase sites. The site was no doubt utilized by other peoples as well, but its shallowness belies any stratigraphic information.

POSSIBLE FREMONT SITES, BUT FREMONT CERAMICS ABSENT

Fremont Playhouse (42UN83) is a single burned structure with the usual complement of Fremont Culture artifacts, except ceramics. Since pottery is not really very abundant (there are only 1,408 sherds of Turner Gray: Cisco Variety from the eight excavated sites that have produced this pottery), this is not a great drawback. The size of the structure, its isolation, and the fact that it burned may indicate that it was designed for some special use, which did not include a need for having ceramic vessels present.

Burnt House Village (42UN118) is considered by Biggs to be a single component site, and he accounts for the difference in architecture as a reflection of the local soil conditions. This site has three shallow "pithouses," all of different size and conformations, two rock-outlined surface structures, and one structure that is dug into the side of the slope which is sort of a half-pithouse, half-surface structure. The general artifact complement is like the Cub Creek Phase Fremont, but there are none of the commonly associated ceramics. Only two sherds of Turner Gray: Emery Variety were recovered from the site.

Cub Creek Village (42UN69) is a single surface dwelling with scanty material culture in association. There are no Fremont ceramics from this site, either. Identification of cultural affiliation of this site has been hedged.

The Ford Site (42UN120) is another single rock-outlined surface site with scanty material culture in association and, again, with no pottery.

At The Seeps Campsite (5MF138) the lack of ceramics is attributed to the suggestion that the site represents hunting activities by Fremont peoples who might not have ceramics in their possession while engaging in this activity. Lack of further data makes any definite statement untenable.

Sheep Shelter (42UN87) is primarily a storage site. The artifact inventory fits well with nearby Cub Creek Phase sites, and the fact that this rock shelter is north-facing and was not lived in may account for the lack of ceramics. Again, the cultural identity of this site is elusive.

Site 42UN9 is a campsite in a small overhang with material culture that appears to represent occupation by Fremont peoples. This interpretation is plausible, except for the lack of Fremont pottery. It is possible that hunters coming into Jones Hole would not bring their total material culture inventory on a hunting-fishing expedition (just as present-day hunters and fishers do not carry along all their possessions), but at nearby Deluge Shelter (Leach 1967) and Ely Caves (Sheets 1969), evidence of definite Fremont occupation does have Fremont pottery in association.

Site 42UN13 is also a cave overhang used primarily for storage. This site is the largest natural shelter in Jones Hole and it produced a disappointing return of archaeological material. The cache of four blades is the outstanding feature of the site, unless the lack of habitation evidence can be cited as important. The single, Fremont-like pictograph on the back wall does little to identify any of the scant material culture recovered from the fill of the cave.

SITES WITH NO EVIDENCE OF FREMONT OCCUPATION

Deerlodge Midden (5MF202) is a buried campsite with evidence of sporadic or seasonal occupation by foragers. The artifact inventory suggests use of the site by hunters and gatherers existing on an Archaic level of subsistence, and by extension, on an Archaic time level. In addition, the site was visited by historic groups. The metal projectile point and the "Shoshonean" potsherd collected from the surface bespeak of this late occupation, which can probably be identified with historic Utes.

Disappointment Circles (5MF196) remain an enigma, culturally and functionally. The only diagnostic artifacts from the site are the large trough metate and its associated mano. The most satisfatory explanation for the presence of the large cleared circles is to associate them with livestock activity and to ascribe the presence of the mano and metate as a fortuitous association which belies definite explanation.

Site 5MF132 is a chipping site with no depth. The Scottsbluff and McKean projectile points indicate use of the site area at a considerably distant time in the past. About all that can be inferred from this site is that the Dinosaur region has been used as a hunting ground for a long time.

The Baker Cabin Spring Site (5MF190) was investigated because of the large amount of surface lithic material, including the recovery of a Cascade point and the proximity of a spring, which would make it a desirable camping and hunting site. Excavations were discouraging in that there was no clear-cut stratigraphy and the typologically oldest artifact was a surface find. Extensive slope wash, erosion, and modern occupation of the site area have obviously disturbed the original condition of the site.

Swelter Shelter (42UN40) was excavated in an attempt to associate Fremont artifactual materials with the extensive petrograph panel at the site. However, there was no evidence of Fremont habitation of the shelter. The petrograph panel was obviously made late in the history of the site when the floor of the shelter had built up to the approximate present-day, pre-excavation level. The cultural material recovered was buried and represents utilization of the shelter by peoples with artifactual orientations toward the Great Basin. We may attribute the artifacts recovered, including the Lake Mohave projectile point, to Desert Culture (Archaic) peoples.

Serviceberry Shelter (5MF81) is, again, a campsite of foraging peoples. The artifactual complement indicates

that these people were not primarily Fremont and that cultural affiliation was toward the west, with the Archaic Desert Culture.

Conclusions

The Dinosaur National Monument survey report (Breternitz 1965:142-3) presented certain tentative conclusions concerning the prehistory of the region. Certain of these statements bear repeating, with additional comments now permissible on the basis of the information obtained from excavation.

(1) The archaeology of the Dinosaur National Monument region is basically aligned with the Desert Culture, through time. Influence from adjacent and distant areas is seen coming into the Dinosaur region at different times; however, this statement does not imply "migration" but rather items, ideas, and traits from other cultural traditions.

Specifically, the northwestern Plains appear to be a source of early lithic materials in the form of McKean and Scottsbluff points. The eastern portion of the Monument contains evidence for this contact or influence, and such avenues as the Little Snake River are natural contact routes with the northwestern Plains.

(2) The area west of Castle Park is archaeologically affiliated with the Fremont Culture, during the time period A.D. 1000 to 1150, on the basis of previous and current work and the recording of distinctive petrographs and pottery.

There are no habitation sites assignable to Fremont peoples east of Castle Park, unless we count the camp at Lowell Spring Site with its three sherds of Turner Gray: Cisco Variety as a habitation.

(3) East of Castle Park Fremont habitation sites and petroglyphs are not known, and the chipped and ground stone tools indicate an affiliation with the High Plains rather than the Fremont-Southwestern [or Great Basin] area. In other words, the eastern and western extremities of the Monument appear to represent two different archaeological traditions.

Statement (3) reiterates statement (2) and associated comments. And, near the center of the Monument, at Deluge Shelter (Leach 1967), we have a blending of the "eastern" and "western" traditions with one or the other appearing dominant at various times. It should also be borne in mind that Dinosaur National Monument is situated on a climatic and physiographic boundary (MacPhail 1963).

(4) The Monument area has been occupied for several thousand years and the type of sites recorded by the survey indicates that utilization is primarily that of peoples with a basically hunting-gathering-collecting subsistence pattern—the Desert Culture. The relationship of this economic way of life to the Fremont Culture is not presently clear, nor is the demise of the Fremont in the area understood.

The excavated material presented in these reports permits us to make additional definite statements about this situation which include a definition of the Cub Creek Phase of the Uintah Fremont.

The Cub Creek Phase

Preliminary Statement

Archaeological materials excavated in the Cub Creek locality permit us to define an archaeological manifestation termed the Cub Creek Phase. Its definition is presented here only with the idea that it can be altered and redefined when additional work is undertaken and the spatial distribution of the phase is better understood. The Cub Creek Phase is, primarily, defined on the basis of excavations at four sites—Boundary Village, Wholeplace Village, Wagon Run, and the MacLeod Site—which have at least 19 habitations and a myriad of associated artifactual and site location information.

In defining the Cub Creek Phase, those features that make it distinctive, that distinguish this phase from any similarly conceived archaeological units will be emphasized. Presently the spatial distribution of the Cub Creek Phase is small; it is known only from the Cub Creek locality. This distribution is thought to be similar to a "district," as conceived by Lehmer and Caldwell (1966).

In summarizing the architecture of the Cub Creek Phase, certain points should be borne in mind. Leach (1966:91-2) defined two house types for Boundary Village. These two types are stratigraphically significant. No other site of the Cub Creek Phase has such clear-cut stratigraphic evidence, although both house types do occur at the larger sites. Leach's Type I structures have a roughly circular floor plan with random postholes, shallow basin-type hearths, which are located off center, and basin and flat-bottomed intermural pits or sub-floor cists. His Type II structures are also roughly circular in floor plan, have at central adobe-rimmed hearth with surrounding central main roof support posts, secondary peripheral postholes, ash pits near the hearth, and bell-shaped and straight-sided pits or sub-floor cists. Although this distinction is, valid for Boundary Village, there are mixtures of the two types at Wholeplace Village (Structure 1) and at Wagon Run (Structure 1). Consequently, the Cub Creek Phase architecture will be defined to include both house types, plus the mixtures, with the notation that although the time period involved in the two architectural variations appears, to be relatively short, at any particular site the "sub-types" may be significant. There are no distinguishing artifactual differences in the material culture recovered from the Type I, Type II, or the "combination" structures at any of the Cub Creek Phase sites.

Traits of the Cub Creek Phase

Dates: A.D. 1000-1150. Future investigations and refined temporal controls may indicate that this time range extends about 50 years further at either end.

Spatial Distribution: At present, known only from the Cub Creek locality, Dinosaur National Monument.

Excavated Sites: Boundary Village (Leach 1965, 1966); Wholeplace Village, Wagon Run, and the MacLeod Site (site reports herein).

Additional Cub Creek Phase Sites (presently unexcavated): Spot testing and surface survey collections indicate that Elephant Toes Campsite (Site 42UN50) is a Cub Creek Phase site with at least four burned habitations.

Site Situation: All known sites are on sandy slopes, above the creek flood plain with no definite indications

that more than about five structures were occupied simultaneously.

Domestic Architecture: Based on Type 1 Structures 2, 3, 5, and 6 from Boundary Village; Structure 5 from Wholeplace Village; and Structures 2 and 3 from Wagon Run. Type II Structures 1, 4, 7, and 8 from Boundary Village; Structures 2, 3, and 4 from Wholeplace Village; Structure 4 from Wagon Run; and Pithouses 1 and 2 from the MacLeod Site. Combination Type I and Type II Structure 1 from Wholeplace Village; Structure 1 from Wagon Run. Structure 9 from Boundary Village and Structure 7 from Wholeplace Village are "oddballs" and will be discussed separately.

Shape—Roughly circular. Diameters of Type I Structures, 4.0 to 5.7 m.; average about 5.25 to 5.5 m. Diameters of Type II Structures, 3.85 to 7.5 m.; average about 6.5 to 7.0 m. Structure 3 at Wholeplace Village has a raised "antechamber."

Entrances—The only structure with a definite entrance is Pithouse 1 at the MacLeod Site, which is a short ramp. Evidence of entrances in all other structures is lacking due to erosion.

Walls—Where evidence is available, they are jacal. The edge of the floor area and base of the walls is indicated by a slight rise of native soil where the structure is dug into the hill slope. All are shallow.

Floors—Flat to slightly concave or saucer-shaped and made of packed sand. Remnants of adobe flooring are seen in three structures.

Hearths—Generally unlined basins in Type I Structures and adobe-rimmed in Type II Structures. May be more than one hearth per structure. Ashpits adjacent to the hearth are common in Type II Structures.

Pits—Generally basin and flat-bottomed pits in Type I Structures and bell-shaped and straight-sided pits in Type II Structures. Up to nine pits within floor area. Pits also occur outside structures.

Roofing—Type I Structures generally have encircling peripheral postholes at floor margins. Type II Structures have three to seven (four is standard?) central posts around the adobe-rimmed hearth and secondary wall posts around the floor margins.

Communal Architecture: None known.

Ceramics: Every sherd recovered in Cub Creek Phase association, approximately 1,280, is Turner Gray; Cisco Variety. One- and two-handled jars are the only shapes known. There is *no* decorated or intrusive pottery in association.

Ground Stone: Manos, uniface and biface, unshaped and shaped, plus wedge-shaped; Metates, trough and basin; polishing pebbles; shaft smoothers; stone balls.

Flaked Stone: Projectile points—Types 1B (unnotched, convex base) and 3E (diagonal-notched, small, convex base) most common; blades; "Fremont blades"; worked flake scrapers; drills; net sinkers; hammerstones; choppers; cores.

Ornaments and Miscellaneous: Bone and stone pendants; bone and stone gaming pieces; belemnites and other fossil objects.

Disposal of the Dead: Unknown.

Discussion

The diagnostic features of the Cub Creek Phase are:

Shallow circular dwellings of Type I, Type II, and combinations
Turner Gray: Cisco Variety pottery
Stone balls
Net sinkers
Projectile points of Type 1B and 3E (Type 1B projectile points may simply be preforms for making Type 3E points)
"Fremont blades" (large shouldered blades also classified as Type 2I projectile points)
Pendants and gaming pieces of bone and stone

Although stone balls, net sinkers, and "Fremont blades" are not numerous artifacts, they do make the assemblage of artifacts distinct. Fremont blades are thought to be a distinctive trait of the Uintah Fremont (see Ambler 1966: Fig. 64a). Anderson (1967) has recently discussed Fremont stone balls.

No treatment of the numerous distinctive petrographs in the Cub Creek locality is attempted here. A separate study of the petrographs of Dinosaur National Monument is currently being made, and, although it is generally assumed that many of these examples of rock art are of Fremont origin, it is premature to list them as diagnostic of the Cub Creek Phase. Indeed, these petrographs are not generally found at Fremont dwelling sites nor do the petrograph panel locations usually show definite evidence of also having served as habitation sites.

The Cub Creek Phase is defined rather rigidly, but there is no reason why the phase definition cannot be expanded or elaborated as new data becomes available. Particularly in regard to architecture, it should be noted that several additional structures may represent a range of variation or function and also belong to the Cub Creek Phase. These are defined below.

Structure 9 at Boundary Village: This partially excavated structure appears to be rectangular, with wall posts set in a trench. The highly eroded structure was dug through overlying Structure 6 and is the latest at the site. It may represent a late trend toward rectangular habitations.

Structure 7 at Wholeplace Village: It has been speculated that this small 2.1- by 2.6 m. structure, lacking a hearth, may be a storage unit associated with the Cub Creek Phase occupation. This idea seems plausible, and the different function of the structure would help to explain its divergence from the pattern of habitations.

Feature 1 at the Dam Site: This shallow eroded dwelling unit has a large adobe-rimmed hearth and adjacent ash pit. Typical Cub Creek Phase artifacts are associated, including five sherds of Turner Gray: Cisco Variety. There is also a southern ramp entry. The location of the feature on an isolated gravel remnant may account for structural variation.

Structure 1 at Fremont Playhouse: There were no ceramics recovered from this small rectangular pithouse,

but other artifacts are similar to those attributed to the Cub Creek Phase. Again, a functional difference of the structure may account for a lack of ceramics and structural divergences.

Units 2, 6 and 8 at Arrowhead Point Campsite: These three living floors rest on bedrock and consist of a series of postholes drilled into the rock and accompanying hearths. At least some utilization of the site was by Fremont peoples, based on ceramic and artifact similarities and, again, the lack of depth of the site may explain the structural differences. These units may also represent a seasonal, probably summer, occupation of the site by Cub Creek Phase peoples who simply constructed ramadas for protection from the elements and did not formalize the dwellings as seen in the larger, more permanent sites.

Spatial Distribution

The sites assigned to the Cub Creek Phase occupy a known area that is not much larger than two square miles, which may or may not represent its actual occupational limits. There are arguments both for and against considering the Cub Creek Phase as encompassing a "locality," in Willey and Phillips' (1958) terms, or thinking of this distribution as being on the level of a "district," in Lehmer and Caldwell's (1966) terms.

Relationships of the Cub Creek Phase to Sites with Rectangular Surface Structures

Four sites in the Cub Creek locality have rectangular, rock-outlined, surface structures — the MacLeod Site, Burnt House Village, Cub Creek Village, and the Ford Site. How do these sites relate to the Cub Creek Phase? The excavation evidence indicates that the artifact complement from these sites is similar to the Cub Creek Phase material culture, except for a lack of ceramics (the single sherd from the fill of Surface Structure 2 at the MacLeod Site and the two sherds of Turner Gray: Emery Variety from the fill of Structure 1 at Burnt House Village are disregarded in this statement). Are these sites and structures earlier or later than the Cub Creek Phase, or contemporaneous? I tend to consider them to be later, and occupied after the utilization of pottery passed from fashion, for unexplained reasons. I am not aware of any architectural sequence in surrounding regions where rectangular surface structures are earlier than semi-subterranean structures. Structure 9 at Boundary Village, the latest structure at the site, hints at a trend toward rectangular structures.

These surface sites are smaller and perhaps indicate a fragmentation of the society into smaller social units than seen in the Cub Creek Phase; various explanations of the demise of the Fremont Culture have been advanced, but workers are in general accord that there was movement, pressure from outsiders, climatic change, or whatever, which upset the pattern of living of the Fremont.

In other words, I cannot give a definite answer to the question of temporal or cultural placement of these surface structure sites from the western portion of Dinosaur National Monument. At the MacLeod Site we have two components present—two structures of the Cub Creek Phase, and two or three surface structures. At both the Ford Site and Cub Creek Village the structures are single units. The ringer is Burnt House Village where Biggs, with some justification, considers the site to have been occupied during a single time period, and which has a variety of architectural features.

The dating information and controls leave much to be desired for all the prehistoric occupations of the Dinosaur region, and they are the most frustrating aspect in attempting to assign definite calendrical dates to the various prehistoric occupations.

Dating of Prehistoric Occupations in Dinosaur National Monument

It is most convenient to discuss this problem and the little evidence available in the broad terms of Early, Fremont, and Post-Fremont occupations.

Early:

Hunting-gathering-foraging peoples have occupied the Dinosaur region for several thousand years, whether or not they be specifically identified with the Desert Culture of the Great Basin or with the High Plains. Swelter Shelter has a "Lake Mohave" point from the deepest portions of the cultural deposits; there is a McKean occupation in Cultural Level 12 in Deluge Shelter (Leach 1967); the Cascade point from the Baker Cabin Spring Site bespeaks affiliations toward the northwest; the Scottsbluff and McKean points from Site 5MF132 and the Duncan and Hanna points from the Lowell Spring Site show affiliations with hunters toward the east.

Consequently, we are dealing, roughly, with a time period beginning 7000 to 6000 B.C. and lasting, on an Archaic level of culture, until the introduction of pottery (the Fremont Culture) into the area. The variety of stemmed and notched projectile points used by peoples between the very earliest and the Fremont is available from many sites in the Dinosaur region, but is indicated most graphically from Deluge Shelter.

At Deluge Shelter (Leach 1967), the McKean occupation is capped by a sterile lens and then by fall rock upon which a more recent occupation rests. This next occupation above the McKean materials has a radiocarbon date of 1890 B.C. ± 210 (GX0898). The third cultural level above the McKean material has a radiocarbon date of 1310 B.C. ± 120 (GX0897). Finally, the cultural occupation immediately below the oldest, or Lower Level, Fremont has a radiocarbon date of A.D. 325 ± 95 (GX0896).

Fremont:

I prefer to begin the Fremont in the western portion of the Dinosaur region at about A.D. 1000, give or take not more than 50 years. Other than the two sherds of Turner Gray: Emery Variety from Burnt House Village, there are no trade sherds from the excavations conducted in 1964 and 1965 at 22 sites in Dinosaur National Monument. Additionally, the Dinosaur survey (Breternitz 1965) and

examination of local amateur collections failed to reveal any sherds that might be attributed to any time period earlier than the Late Pueblo II of the Anasazi. The few sherds that were found, in the eastern portion of the Monument, are of the general McElmo-Mesa Verde Black-on-white type. Ambler (1966) and Wenger (1956:103) also have a few trade sherds from the Anasazi area, and they all date from the Late Pueblo II and Early Pueblo III time period.

Survey and amateur collections from the eastern portion of the Monument have disclosed about three sherds of eastern derivation, of the cord-marked variety, known to have been made after A.D. 1000 in the western Plains area.

The Dinosaur region is the end of the Fremont world, and the sparse contacts with ceramic-producing peoples attest to this spatial situation.

The Fremont Culture of Dinosaur is best known from the Cub Creek Phase. Fremont is an overlay of distinctive traits, specifically small village sites, the manufacture and use of pottery, and corn growing. However, the Fremont never gave up a rather large dependence on hunting, as might be expected in a marginal agricultural region.

There were some contacts, as seen in the artifacts made of tiger chert (flint) from the Uintah Mountains and occasional small artifacts and chips of obsidian, which probably originated in the Yellowstone National Park region or from southwestern Utah.

I would end the Fremont occupation of the Dinosaur region at 1150 A.D. or 1200 at the very latest.

The last gasps of the Fremont are known best from Deluge Shelter (Leach 1967). In this site there are two definite Fremont levels. The older has Turner Gray: Cisco Variety pottery and the characteristic lithic categories noted for the Cub Creek Phase, specifically the small corner-notched projectile points of the 3E type. The Upper Fremont level at Deluge Shelter duplicates the earlier, except that the projectile point style has changed to the small side-notched points, generally thought of as beginning about A.D. 1150 and considered by many workers to be of Shoshonean origin, manufacture, or inspiration. These side-notched points fall into the Types 4C, 4D, and 4E categories, along with unnotched Types 1D and 1F which may be the preforms for the side-notched points.

A single radiocarbon date is available for each Fremont level at Deluge Shelter (Leach 1967). The Lower Level Fremont has produced a date of A.D. 735 ± 85 (GX0895), and the Upper Level Fremont has a date of A.D. 920 ± 85 (GX0894). I submit that these dates, as well as the three dates from cultural levels between the Fremont and McKean occupations, are too old. All five are charcoal dates obtained from features (firepits-hearths) within the cultural levels. The small bits of charcoal are residue from contained fire areas, and I believe that the peoples responsible for these fires used dead and dry wood for their fires. Support for the idea that the Deluge Shelter dates are too old is well supplied by information from the Navajo Reservoir District. Eddy (1966: Table 5) gives five carbon-14 dates from early ceramic occupations in the Navajo Reservoir District; in all five instances the radiocarbon dates are older than the well-dated ceramic units in association. The time period of discrepancy ranges from approximately 150 years to about 850 years. Intuition, comparative analysis, and the radiocarbon information support the idea that the two Fremont levels at Deluge Shelter are actually 200 to 300 years more recent than indicated by the radiocarbon dates.

POST-FREMONT:

At all four of the sites used to define the Cub Creek Phase we have Post-Fremont hearths, evidence of utilization of the site areas after abandonment of the habitations at these sites. These hearths are rock-filled and could date as late as Historic times; if so, they are probably Ute. Stewart (1958) documents the fact that the Ute occupied the region south of the Yampa and Green Rivers in Historic times while the Shoshoni lived to the north of the Yampa and east of the Green Rivers.

Deerlodge Midden also has evidence of historic utilization.

COMMENTS

Recent publications have been concerned with Fremont origins and the eventual cultural descendants. Aikens (1966) argues that the Fremont are of northwestern Plains, specifically Athapascan, origin who became partially acculturated to the Anasazi Pueblo Pattern.

Sharrock (1966:175) supports Aikens' arguments and agrees with a Plains origin for the Fremont.

Ambler (1966) attributes the Fremont Culture to a spread of traits from the Kayenta Anasazi, via the Virgin Branch. He divides the Fremont area into a series of regions, of which the Uintah Fremont is pertinent to these comments. Ambler sees more Uintah Fremont resemblances with western Utah than with the region where the Fremont were originally defined, his San Rafael Fremont. I concur with this general plan, as regards the Fremont occupation(s) in the western portion of Dinosaur National Monument. I would say for the material presented in this set of reports, that Fremont grew out of an Archaic level of culture with strongest affiliations to the Great Basin, as opposed to the northwestern Plains, as a result of the overlay of the traits of small sedentary villages, agriculture (actually, advanced horticulture), and pottery.

Rather than think of this difference of opinion as representing battle lines drawn along institutional lines, it should be viewed as interpretative divergences based on the material which each worker has treated. The Fremont area is large, encompassing most of Utah and the adjacent regions in western Colorado and southwestern Wyoming, and there is no more reason to believe that the cultural history of one region or locality or "district" exactly duplicates any other than there is to treat the Anasazi area as a single entity with identical backgrounds and duplicate end results.

The cultural predecessors of the Dinosaur National Monument region Fremont, specifically the western portion of the Monument, appear to be of the Great Basin

Desert Culture. In other words, Archaic level hunters and gatherers (foragers) adjusting to the local environmental situation. At this point I wish to deny the term "Fremont Basketmaker." Burgh and Scoggin (1948) had no other comparative material at their disposal when they reported the materials from Mantle's Cave; consequently, they looked in the only direction possible, the Four Corners region, and compared their artifactual complement with that from Basketmaker sites. There were some similarities and so the name, and associated dating, were attached. But, there is presently no concrete information on which to date the early Fremont in the Dinosaur region in the A.D. 400 to 800 period. The term "Fremont Basketmaker" has dropped from the literature and the associated dating should be dropped also, unless new data is recovered which permits its resurrection.

The demise of the Fremont is also a ticklish subject. Did they revert to a foraging subsistence due to climatic or population pressures, or abandon the region? Perhaps both suggestions have merit, or both were factors. In support of the former possibility I note the opinion of Omer Stewart who has good reason to state that Shoshonean-speaking peoples have been in the area under consideration for "thousands" of years (O. Stewart, paper presented at Pecos Conference, Windowrock, Arizona, 1964). Perhaps Shoshonean-speaking peoples did exert pressures on the Fremont of Dinosaur, or perhaps both groups belong(ed) to the same language family. Or possibly we have a situation similar to the Maya where the disappearance of a core of overriding traits marks the end of Maya civilization, but the "common people" continue to survive as they had in the past. These suggestions seem appropriate, in light of the available data, to suggest that the Fremont are Athapascan speakers. Aikens (1966:76-88) summarizes the linguistic evidence available, which can only be categorized as "inconclusive."

Turner Gray: Cisco Variety is *the* Fremont pottery from Dinosaur. A total of 1,461 sherds of this type were recovered from the excavations and on the survey. None of these sherds shows any surface manipulation! Turner Gray: Cisco Variety is a coil-and-scrape-manufactured pottery which is polished, uses calcite temper, and has non-thickened rims. This pottery type appears to be a blend of the characteristics cited for Promontory and Fremont pottery as discussed by Aikens (1966:33). There are regional differences in Fremont pottery, as noted by Aikens (1966:75). Calcite temper is cited as a common trait of Plains pottery (Aikens 1966:80) but it is not common along the Front Range in eastern Colorado, and Marvin Kivett (personal communication, 1966) says that the calcite-tempered pottery of the late Woodland in Nebraska and Kansas depends upon the area of its manufacture (local availability of calcite) and is not really that important.

Also concerning Plains contacts, Aikens (1966:86) says that there are tipi rings at or near Fremont sites in the Fremont territory generally. However, tipi rings are noted as possible features at only two of the 432 sites recorded in the Dinosaur region (see Breternitz 1965, and discussion by Bauer of Disappointment Circles, herein, p. 102). These two sites are located east of the Green River and north of the Yampa River where there are no known Fremont habitation sites.

The dating information available from the Dinosaur work also has implications regarding materials attributed to Fremont along the Front Range in eastern Colorado. At both the LoDaisKa Site (Irwin and Irwin 1959) and Magic Mountain (Irwin-Williams and Irwin 1966), Fremont pottery is reported. This pottery is not Fremont, but rather Shoshoni (Nelson and Graeber 1966; Nelson 1967:11; *Southwestern Lore* 1967:33-34). And the serrated projectile points, ascribed to Fremont origin, are not necessarily Fremont, either. Serration is an interesting variation on projectile points, but it is widespread and actually more frequent in northeastern Colorado than it is in the Fremont area (Wood 1967). It is also difficult to find Fremont at LoDaisKa and Magic Mountain for cultural levels thought to end at A.D. 1000, when this is about the time that Fremont was beginning, at least in the Dinosaur National Monument region.

Perhaps the Fremont and Promontory sites in northern Utah and southwestern Wyoming are of Plains origin and give rise to Dismal River, as Aikens suggests, but I doubt, on the basis of the evidence presented herein, that the Fremont of the Dinosaur region, specifically the Cub Creek Phase, ended up as Dismal River peoples; Husted and Mallory (1967) also question Aikens' hypothesis. I prefer to consider the descendants of the Fremont from the western portion of Dinosaur National Monument to be either the Ute who were residing in the region at the time of earliest European contact or the Shoshoni who went into and over the mountains toward the east where we find them protohistorically and historically.

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TABLE 3. Correlation of artifact categories and types for excavated sites—Dinosau

Site Name and No.	Boundary Village,	Wholeplace