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The Avery Ranch Site Revisited

by

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ABSTRACT

*Recent excavations were undertaken at the Avery Ranch site (5PE56) in Pueblo County, southeastern Colorado. Earlier excavations were conducted in the 1960s by the University of Denver, and the site was test excavated in 1984 by Centennial Archaeology, Inc. Recent work was confined to two architectural units, a large, open C-shaped structure and a smaller roofed structure of polygonal shape. The site is a multifunctional camp, possibly representing a single major episode of occupation in the fall of the year. Four major activity areas are present, of which three are architectural. A foraging economy is apparent, evidenced by large quantities of butchered bison bone and charred seeds of wild plants. A communal bison kill near the site is suggested. Most plant seeds are of the genus *Chenopodium* (goosefoot). Maize is present although evidence is limited. The Avery Ranch site was occupied during the A.D. 13th century by an Apishapa (Middle Ceramic period) group. Closest cultural affinities are with central and southern Plains groups of the Plains Village Tradition.*

INTRODUCTION

The Avery Ranch site (5PE56) is a complex prehistoric site located on the Fort Carson Military Reservation in northern Pueblo County, Colorado. The site has been known to archaeologists for at least 25 years and perhaps as long as 60 years, and its history of investigation is as lengthy and complex as that of any site in eastern Colorado. It was probably first observed by E. B. Renaud as part of his investigations of the "Turkey Canyon District" in the 1930s (Renaud 1930, 1931a, 1931b, 1932), although the information in Renaud's notes and publications is cursory. The site was first recorded in 1963 by the University of Denver (DU) (Withers 1964). Excavations were undertaken by DU personnel on two occasions in the middle and late 1960s, and the site became the partial basis for one DU Master's thesis (Ireland 1968) and complete basis for another (Watts 1971). Originally referred to as the Wand site, it was renamed Avery Ranch by Watts (1971). It was re-recorded and further test excavated by CAI in 1984 (Zier and Kalasz 1985), and surviving ar-

chitectural features were subjected to mitigative excavations by CAI in 1985 and 1986 (Zier et al. 1988).

ENVIRONMENT

The Avery Ranch site occupies a high point on the eastern rim of Turkey Canyon a short distance south of the Pueblo-El Paso County line (Fig. 1). The eastern canyon rim is abrupt in most places, overlooking sheer cliffs of Dakota Sandstone. Between the base of the cliffs and the edge of the Turkey Creek floodplain are boulder-strewn talus deposits. The vertical distance between the rim and the floodplain varies between a few meters and seventy meters. Turkey Creek, an Arkansas River tributary, does not have a perennial surface flow, but there are indications of a significant subsurface flow at all times.

Turkey Canyon coincides approximately with a north/south trending ecotone between shortgrass steppe to the east and juniper-dominated shrub thicket characteristic of the lower slopes of Booth Mountain to the west



Figure 1. View south along Turkey Canyon rim to Avery Ranch site location (arrow).

(Zier et al. 1987; Alexander et al. 1982). A narrow riparian zone straddles Turkey Creek. The fauna of the site vicinity is diverse and includes many species native to both high plains and foothills environments. Mid-to-late Holocene archaeological faunal inventories may be found in Zier et al. (1988: 239-242), and Zier (1989: 35, 196).

The Fort Carson area currently exhibits a midlatitude, semiarid continental climate characterized by strict seasonality in temperature and precipitation patterns and relatively great diurnal temperature ranges during all parts of the year. In general terms, winters are cold, summers hot, and rainfall light. Precipitation records from the vicinity indicate mean annual accumulations of 305-380 mm. Eighty percent of all precipitation falls during the six-month period from April through September, much in the form of high-energy, sometimes violent thunderstorms. Snowfall accumulation averages approximately 915 mm annually (Zier et al. 1987).

DESCRIPTION OF EXCAVATIONS

Physical Description of Site

Four distinct activity areas are present at the site (Fig. 2), of which three are architectural.

The largest area is represented by Structure 1, a three-sided enclosure situated near the point of the Turkey Canyon rim at the western extremity of the site. Structure 2 is a smaller, isolated architectural unit positioned adjacent to the rim 16 m northeast of Structure 1. Centered 14 m southeast of Structure 1 is a complex consisting of an architectural unit and associated activity locus, designated Features 1 and 2 by DU in the 1960s. Approximately midway between this complex and Structure 2, and situated 10 m due east of Structure 1, is a second complex consisting of a large refuse-filled natural bedrock depression and two associated slab-and-post-hole alignments (DU Features 3, 4, and 5). This locus does not include true architectural units.

Other nonarchitectural features consisting of probable hearths have been clearly identified only along the eastern perimeter of the site (Fig. 2). Eleven such features were exposed by U.S. Army pit-seeding operations (an erosion control measure) in early 1986. They were not formally excavated and are not described further.

University of Denver Excavations, 1960s

In 1965 DU conducted excavations in the Feature 1-2 and the Feature 3-4-5 areas (Fig. 3), and also excavated a large test pit near the feature later designated Structure 2 by CAI

(Ireland 1968) (Fig. 2). In 1969 Watts (1971, 1975) expanded earlier excavations in both the Feature 1-2 and Feature 3-4-5 areas. He also excavated a small test pit in the feature later designated Structure 1 by CAI as well as a pit in a rock shelter at the base of the cliff beneath the site.

Ireland (1968) concluded that the site was a short-term camp of "Apishapa focus" affiliation, exhibiting two possible domicile structures and abundant evidence of bison, deer, and elk butchering. Based on a general association with similar sites in the Arkansas River drainage, its age was estimated at A.D. 1300 (Ireland 1968: 96). Watts (1971, 1975) concluded that Avery Ranch was a single-component site exhibiting a primary concern with faunal procurement, and that it represented a bison butchering camp that was some distance from a kill site. He disagreed with Ireland's interpretation of Apishapa focus affiliation, instead viewing Avery Ranch as a local Franktown focus manifestation. He estimated the date of occupation at A.D. 900 to 1150 (Watts 1971: 133).

Centennial Archaeology, Inc. Excavations, 1985-1986

Structure 1

Structure 1 is a C-shaped stone alignment that opens to the north (Figs. 2, 4). Length of the alignment is 33.5 m; overall structural dimensions are 15.8 m (east-west) by 10.0 m. Alignment rocks are generally 30 cm to 1 m in length. Most are slabs and all are of unmodified sandstone. No upright slabs remained at the time of excavation, with the exception of bases broken off at or near ground level. Sandstone bedrock outcrops in two low ridges 1-2 m wide within the structure (Fig. 4). Exterior to the alignment and adjacent to a sharp bend along its southwestern margin is a small three-sided enclosure of large upright slabs, designated Str. 1/Feature 2.

An excavation grid oriented N 36 degrees E was overlain on the eastern portion of Structure 1 (Fig. 4) in an area of undisturbed soil deposition. Individual grid units measured 1 m by 1 m. An isolated test unit (Test Pit 6) was excavated inside the southwestern corner of the structure.

The interior of Str.1/Feature 2 was also excavated; its dimensions are approximately 1 m by 1 m.

Deposition within Structure 1 ranges in thickness from 0 to 60 cm. Soil depth is greatest in the eastern and southern sectors of the structure. An idealized stratigraphic profile is comprised of three principal units (Fig. 5), corresponding to A, B, and C soil horizons. Unit B is the principal cultural stratum. The underlying Unit C is largely sterile, although artifacts, bone, and charcoal have been introduced as a result of rodent, insect, and earthworm activity, and possibly through intentional prehistoric excavation of shallow pits.

The volume of rubble suggests that the Structure 1 wall was possibly multi-row, comprised of massive vertical sandstone blocks and slabs generally 0.5-1.0 m in length and up to 0.5 m wide. The slabs were closely spaced and positioned such that flat surfaces were oriented parallel with the axis of the alignment. The wall was constructed by supporting large upright slabs with smaller sandstone blocks and slabs, most of which were placed horizontally. Tiers of several small blocks/slabs were probably used at a given location. Horizontal buttressing is most apparent adjacent to the flat surfaces of the primary upright slabs, i.e., those facing toward or away from the structure interior. Lateral buttressing of the main upright slabs is also evident, with the use of smaller, vertically set blocks. Possible approaches to wall construction are illustrated in Figure 6. The wall was substantial but not highly formalized in construction design or technique.

Str. 1/Feature 2 is a probable cist. Abundant charcoal, bone fragments, charred seeds, and lithic debitage were found up to 50 cm deep. Most is burned, but the slabs comprising the feature are not, suggesting that some fill washed in from Structure 1 proper. The feature may also have been used as a disposal site following abandonment as a cist.

Eight Structure 1 radiocarbon dates, including four from 1984 test excavations, range between A.D. 910 and A.D. 1290 (calibrated) (Table 1).

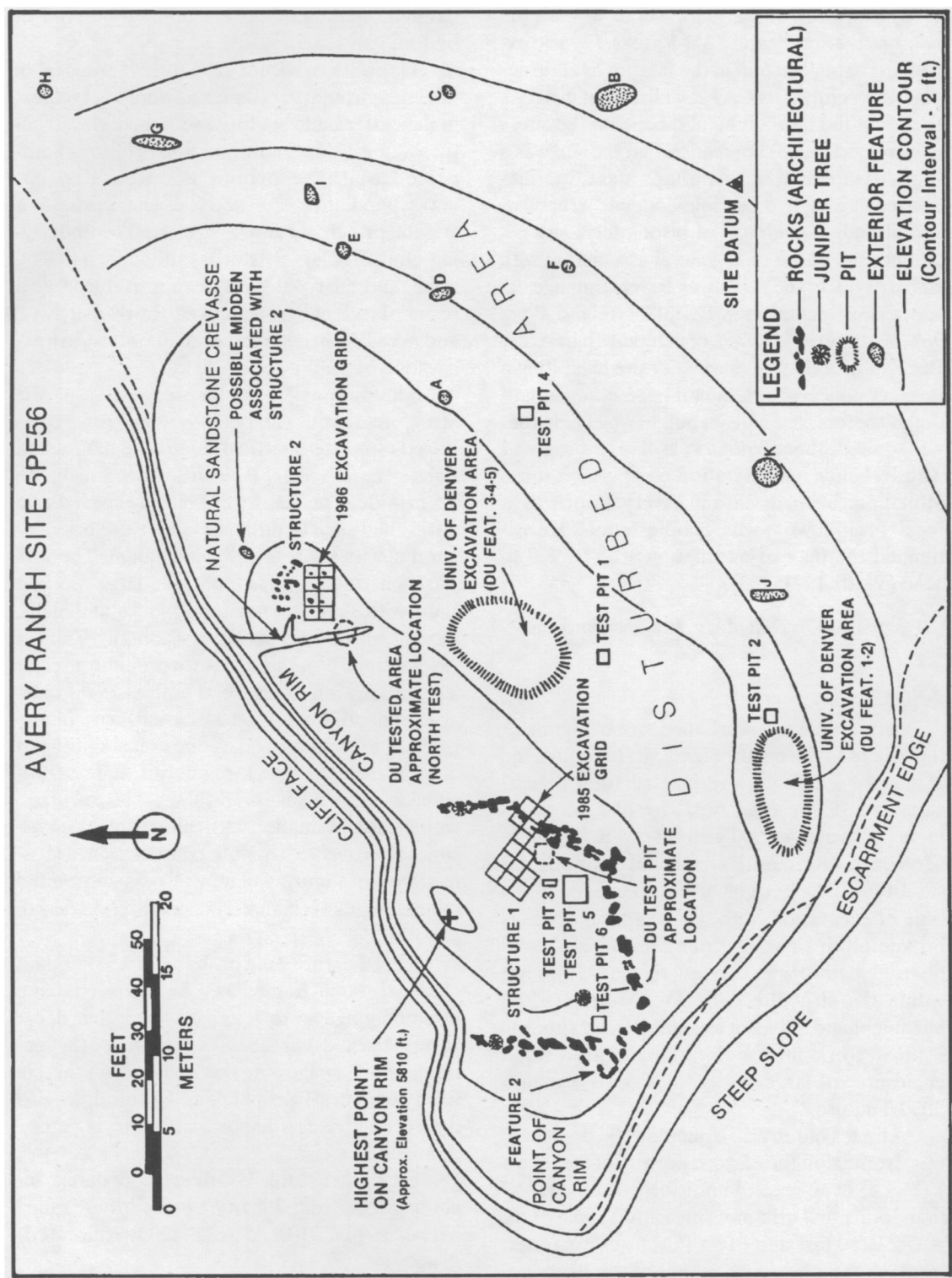


Figure 2. Map of Avery Ranch site.

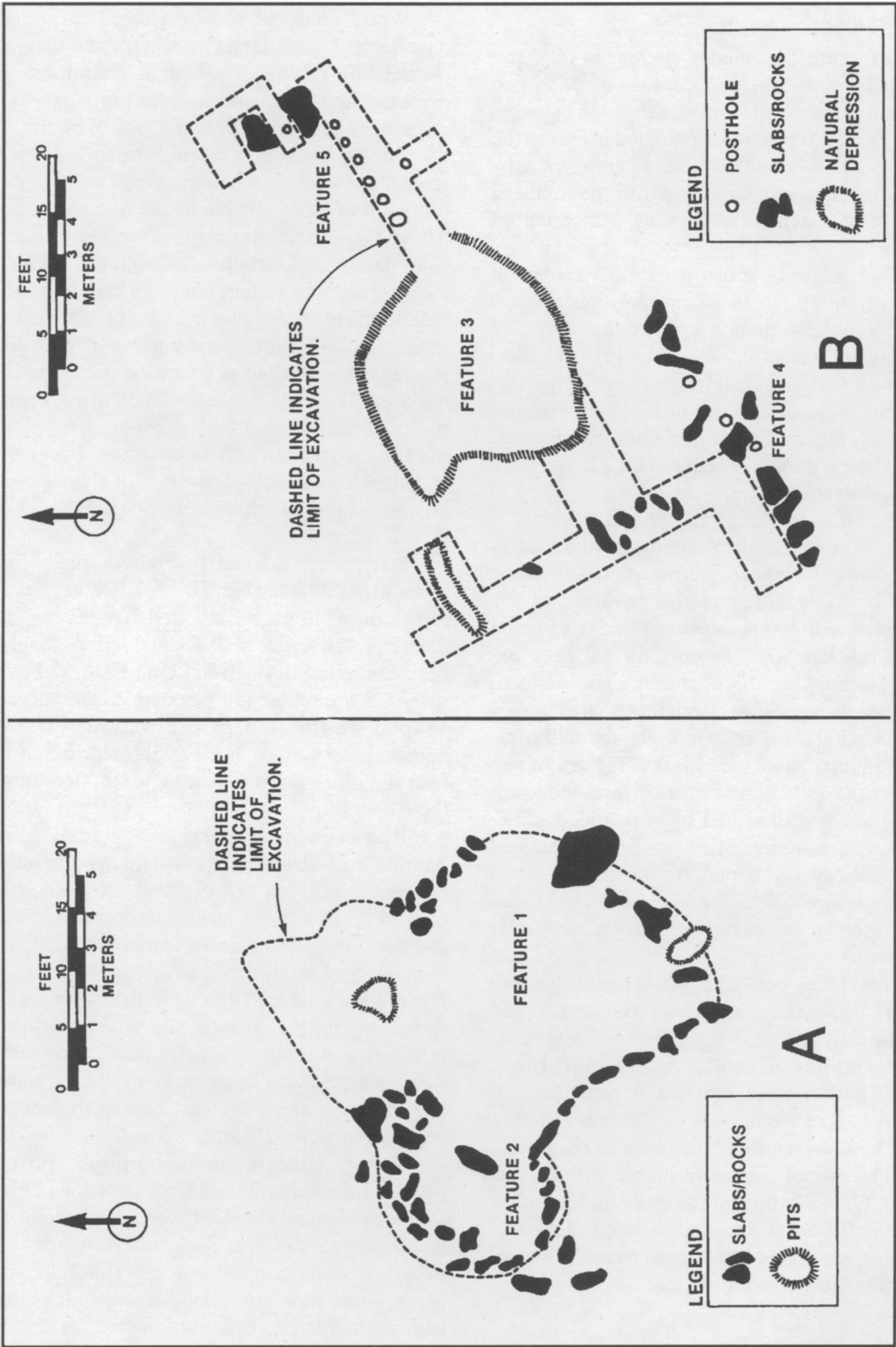


Figure 3. Maps of University of Denver Features 1 and 2 (A) and Features 3, 4, and 5 (B). (Redrawn from Ireland 1968: Figure 16, and Watts 1971: Figure 12).

Structure 2

Structure 2 is roughly circular in plan and 4.5 m in diameter, and consists of unshaped sandstone slabs and blocks up to 40 cm in length (Fig. 7). Soil deposition is confined mainly to the southern portion of the structure area. A 4 m by 2 m excavation block was laid over the southern half of the structure, its long axis oriented east/west.

Soil deposition in Structure 2 ranges in depth from 10 cm to 35 cm. A single general stratigraphic sequence approximates that of Structure 1 except in detail, comprising superimposed A, B, and C horizons. The principal difference between Structures 1 and 2 is the relatively higher density of rubble and charcoal in the latter, particularly in soil Unit B, the main cultural stratum.

Seven postholes (Str. 2/Features 3, 4, 6, 7, 10, 11, 14) comprise two alignments which intersect at an angle of 128 degrees at Str. 2/Feature 10 (Fig. 7) and denote the positions of the southern and southeastern walls. Six of seven holes (all but Str. 2/Feature 6) had been excavated into the C horizon, in some cases to bedrock. Juniper posts were inserted, then supported with a collar of upright or outflaring, small tabular sandstone blocks (Fig. 8). In one instance (Str. 2/Feature 3), an articulated lower rear bison leg shim had been pounded in between collar stones. Most postholes contained remnants of unburned or partially burned upright juniper posts. Str. 2/Feature 6 lacks supporting collar stones but exhibits a partial collar of burned clay daub.

Two other postholes, Str. 2/Features 8 and 12, are within the structure interior and may be functionally paired (Fig. 7). These features exhibit smaller diameter posts than those described above, neither penetrating to bedrock. One has a crude stone support collar. Both have deteriorated juniper post remnants.

The overall volume of rubble in the Structure 2 fill is insufficient to justify high standing rock walls. Superimposed stepped slabs and blocks suggest that some stone coursing was integral to the wall construction.

Wood charcoal was recovered in abundance from Unit B/Unit C contact, and is in turn overlain by rubble. Very small quantities of oxidized daub, occasionally with grass impressions, were recovered from the Unit B matrix.

The living surface within Structure 2 is irregular and evidences a minimum of intentional preparation. It mostly coincides with the Unit B/Unit C contact and consists of packed silt with charcoal and artifacts pressed into the uppermost 1-2 cm. The surface contours undulate and tend to mirror the configuration of bedrock. In several areas bedrock served as the living surface. Intentional floor preparation is evident in one area (Feature 13) where clay daub had been packed against low, sharp ledges of outcropping sandstone to soften the floor contours. The mass of daub is 5 cm thick and covers a roughly square area measuring 27 cm (east/west) by 25 cm (Fig. 7).

Str. 2/Features 5 and 9 are hearths on the interior living surface (Fig. 7). Str. 2/Feature 5 is a large amorphous hearth at least 90 cm in diameter. It overlies bedrock and had probably been excavated through soil Unit C. Str. 2/Feature 9 is a circular (54 cm diameter) saucer-shaped depression in the natural clayey occupational surface. It is heavily oxidized, with heat discoloration penetrating up to 4 cm into the clayey silt.

Reconstruction of the architectural configuration of Structure 2 is partly hypothetical because only about half of the floor space was exposed. Posthole alignments along the southern and southeastern margins of the excavation grid intersect at an obtuse angle and represent a total of 3.9 m of wall. A polygonal (possibly hexagonal) structure with east/west oriented, opposing walls on the north and south sides is suggested. The structure exhibits at least one entryway along the east end of the south wall, between Str. 2/Features 7 and 10.

Evenly spaced, upright juniper posts provided the basis for wall construction. Thin wooden poles and clay daub were also structural components. Walls were not built primarily of stone but blocks and slabs were probably incorporated into wall bases. Rubble concentrations indicate that stones collapsed inward, although

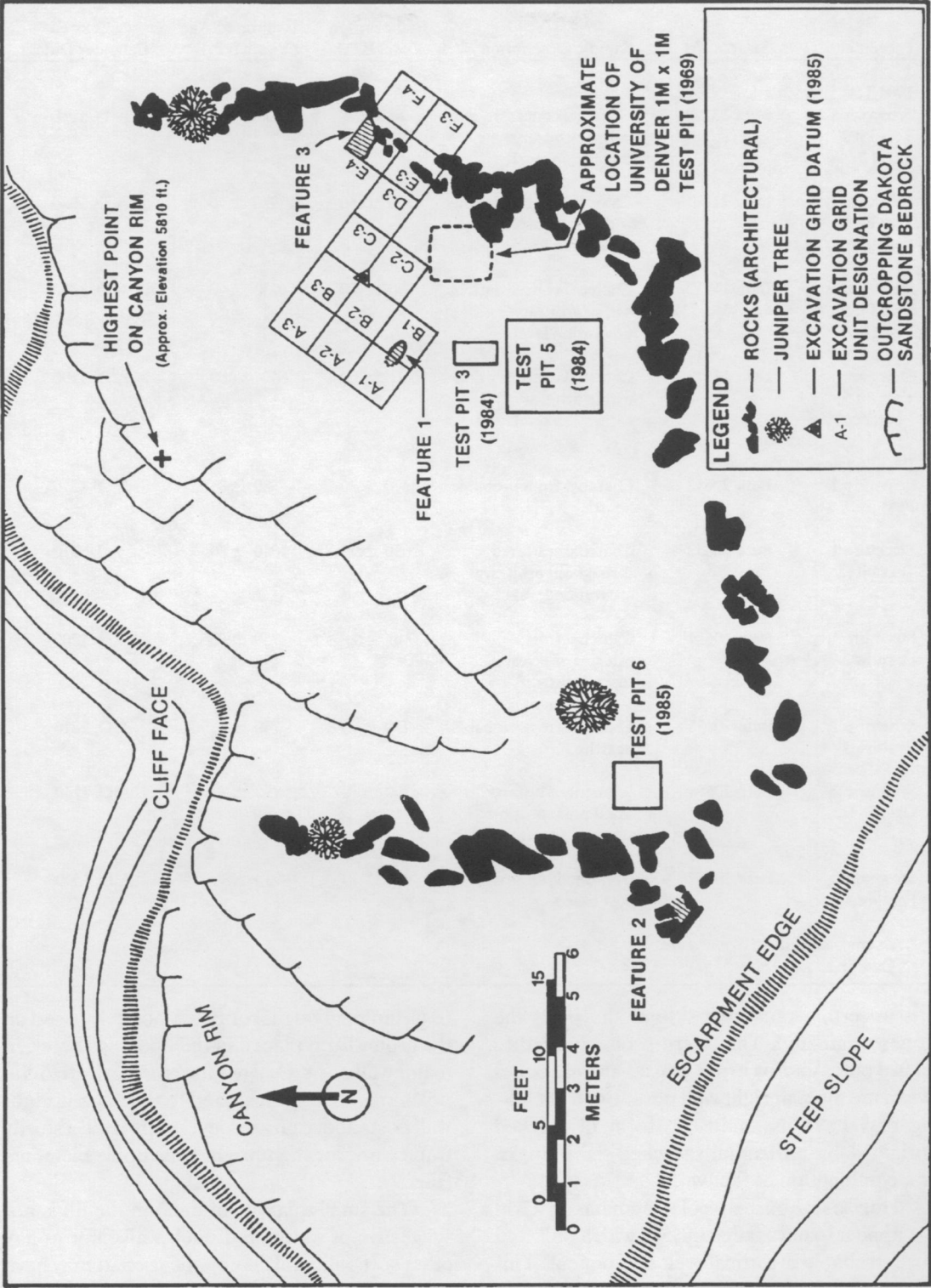


Figure 4. Map of Structure 1 showing excavation units and features.

Table 1. Avery Ranch Site Radiocarbon Dates.

Provenience	Sample No.	Sample Description	Radiocarbon Years B.P.*	Calibrated Age (Years B.P.)**	Calibrated Calendar Date
<u>1984 Test Excavations</u>					
Structure 1, Test Pit 3, Level 3	Beta-11210	Charcoal concentration within arbitrary excavation level	680 ± 70	690 ± 70	A.D. 1260
Structure 1, Test Pit 5, Level 3	Beta-11211	Charcoal concentration within arbitrary excavation level	930 ± 60	920 ± 70	A.D. 1030
Structure 1, Test Pit 5, Level 4	Beta-11212	Charcoal concentration within arbitrary excavation level	940 ± 80	930 ± 90	A.D. 1020
Structure 1, Test Pit 5, Level 5	Beta-11213	Charcoal concentration within arbitrary excavation level	640 ± 100	660 ± 100	A.D. 1290
<u>1985-86 Excavations</u>					
Structure 1, Feature 1	Beta-20652	Charcoal from probable hearth	670 ± 80	680 ± 85	A.D. 1270
Structure 1, Test Pit 6, Level 2	Beta-20653	Charcoal scattered throughout arbitrary excavation level	1050 ± 70	1040 ± 80	A.D. 910
Structure 1, Feature 2	Beta-20654	Charcoal from exterior of possible storage cist	740 ± 60	750 ± 70	A.D. 1200
Structure 1, Feature 3	Beta-20655	Charcoal from probable hearth	730 ± 90	740 ± 90	A.D. 1210
Structure 2, Grid B-1, Level 2	Beta-20656	Segment of burned wood pole, possible structural remnant	790 ± 70	790 ± 80	A.D. 1160
Structure 2, Feature 4	Beta-20657	Unburned juniper post base	920 ± 70	910 ± 80	A.D. 1040
* Assumes half-life of 5,568 years.					
** Damon et al. 1974.					

it is uncertain on which side of the posts the stones originated. They were probably used to secure poles and/or brush placed against or between the main upright wall posts. Such anchoring may have assumed the form of stacked upright slabs, horizontally stacked slabs/blocks, or a combination of the two.

Horizontal burned pole remnants in Grid B-1 appear to have fallen inward with a wall, and were probably a vertical wall component. This evidence suggests upright placement of brush

(e.g., juniper boughs) or poles, possibly based on the ground and placed in the openings between major wall posts. One or more rows of horizontal poles may have been affixed to the main upright wall posts above ground level to provide a sturdy framework for the upright brush/pole elements (Fig. 9).

The small quantity of daub in the fill is not suggestive of wattle-and-daub walls, nor of any other sort of liberal clay application. It may have been applied to stones at wall bases to affix the

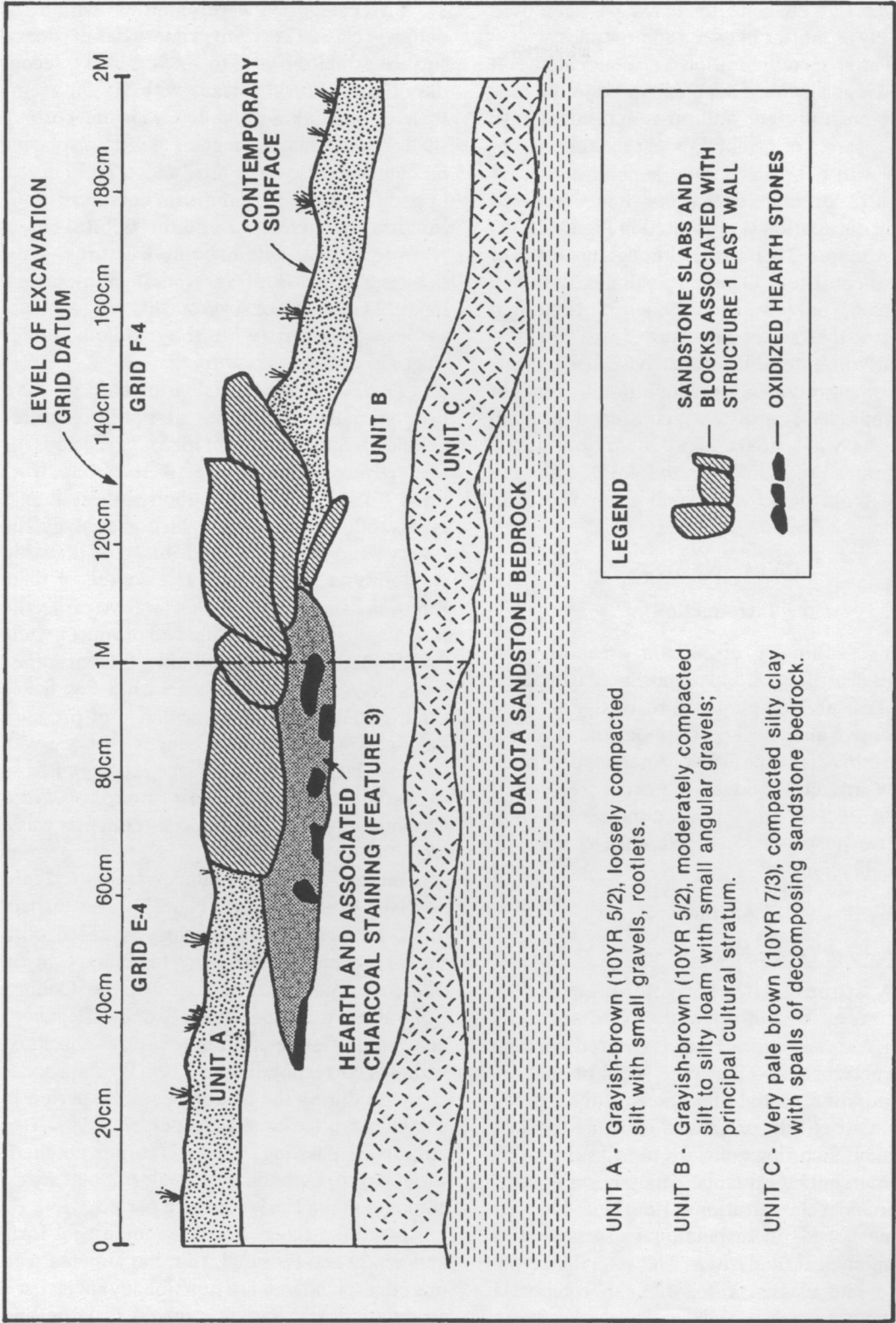


Figure 5. Profile showing soil units in Structure 1.

wooden wall elements, or may have been used sparsely as mortar between some stones.

The roof configuration is also speculative. It would logically have been anchored to the tops of the main upright wall posts and might have been a series of cribbed or parallel cross supports with a brush or pole superstructure. A sketch of Structure 2 as it may have appeared during occupation is presented in Figure 10.

Structure 2 is burned although evidence of fire is inconsistent. Of seven postholes in the wall alignment, only two show evidence of burning. The fire that swept Structure 2 was not particularly hot, and may either have been short-lived or suppressed by precipitation. A very hot fire would have consistently consumed the main upright wall posts. Radiocarbon dates (calibrated) of A.D. 1040 and A.D. 1160 were taken from wood structural components in Structure 2 (Table 1).

DATA ANALYSIS

Introduction

The following discussion presents summaries of artifactual and nonartifactual material analyses, and emphasizes results. For comprehensive analytical descriptions the reader is referred to Zier et al. (1988). Analyses described below are confined to materials recovered during 1985-86 excavations, although for comparative purposes some reference is made to DU collections.

Artifacts

Lithic and Ground Stone Artifacts:

A stone artifact assemblage of 993 specimens was analyzed. Systematically recovered collections from excavated contexts in Structures 1 and 2 are the focus of analysis. The imposed spatial limitations of the excavations restrict interpretations of stone tool use and manufacturing activities to tasks occurring within architectural units. Analysis employed a hierarchical classification system (Fig. 11), with sorting based on inspectional assessment of morphological similarities. The assemblage was sorted into classes, categories, subcategories, and types.

Five categories were identified within the debitage class. These are primary flakes (dorsal surface exhibiting 90% to 100% cortex), secondary flakes (dorsal surface with 1%-90% cortex), tertiary flakes (completely lacking cortex), shatter (amorphous, angular debris displaying no characteristic flake attributes), and curved, lipped flakes having significant curvature along longitudinal axes. Abundant debitage was recovered from within both structures. Most debitage consists of very small non-cortical flakes. The small size suggests that reduction activities were restricted to the middle and later stages of tool manufacture.

Tool tabulations emphasize the predominance of bifaces at both structures (Table 2). Bifaces account for 51.7% and 50.0%, respectively, of the tools recovered from Structures 1 and 2 (Fig. 12). Although these implements reflect a common reduction strategy, the Avery Ranch bifaces exhibit considerable variability in size, shape, and degree of flake removal. In general, stemmed bifaces (projectile points) are finely flaked finished products, while unstemmed and unclassifiable bifaces range from large, thick specimens with a few flakes removed and little or no evidence of pressure flaking, to small, thin specimens that are well flaked. The number of bifaces recovered from the structures, and their morphological variability, suggest that bifacial reduction was a major activity.

Eighteen stemmed bifaces are sorted into five type classifications (Fig. 13). The inspectional projectile point typology is based on a similar morphological sorting for Piñon Canyon Maneuver Site artifacts, Las Animas County, Colorado (Anderson 1990). Sixteen specimens are small flange stemmed (side-notched) varieties corresponding to Reed/Washita styles common during the Middle Ceramic period in southeastern Colorado (Anderson 1990). Two are small expanding stemmed (corner-notched) varieties corresponding to Scallorn point styles, common in the Early Ceramic period.

Modified flakes are a common tool form and are generally small, thin implements with fine edges. Unifaces are functionally specialized modified flakes that are relatively large and

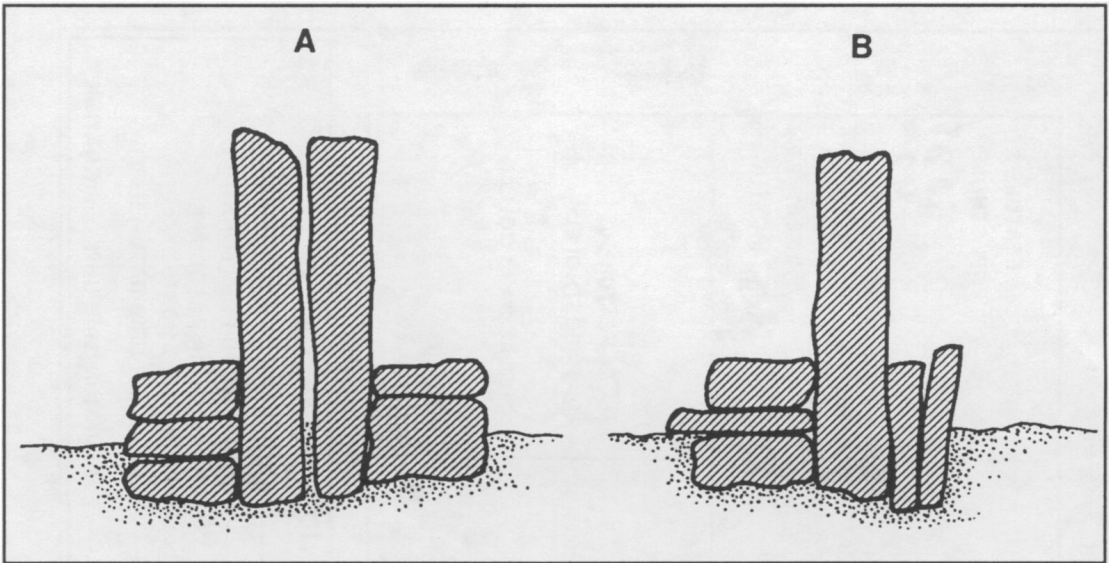


Figure 6. Alternatives for wall construction method, Structure 1 (Not to scale).

carefully made. The areas of acute angle pressure flaking and use-wear indicate that they served as hafted or unhafted scraping implements.

Ground stone artifacts are expedient and unformalized. Metates are thin, flat or basined slabs which reflect minimal effort in shaping. Manos are stream cobbles with one or two ground facets and pecked, battered, or occasionally ground margins.

A variety of lithic materials is evident in the collection. Since only limited information is available about lithic sources and properties, comprehensive material categories such as chert, chalcedony, and quartzite are employed in describing variation. Numerous local and nonlocal sources are probably represented. Chert, chalcedony, and quartzite account for over 95% of all chipped stone tools and debitage. The debitage collection exhibits relatively higher percentages of quartzite, whereas the tool collection is comprised of higher frequencies of chert. Not surprisingly, a recent survey in the site vicinity has shown quartzite to be available in abundance at local sources (Van Ness et al. 1990).

Chipped stone apparently arrived at the site already reduced to a bifacial form or, to a lesser extent, as large flakes fashioned into scrapers. Bifaces are generally of materials not available

locally. Bifaces were further reduced to create a range of forms including the highly patterned, stylized stemmed varieties. Flakes resulting from biface reduction, particularly those of exotic, finer edged materials, served as expedient or minimally modified tools. Ground stone implements originated as simple, thin slabs and were subjected to minimal modification, or rounded oblong cobbles characterized by a range in degree of modification.

Ceramic Artifacts

Ceramic analysis was conducted of 144 sherds from 1985-1986 excavations. Ceramics were classified into wares (a broad group having one common surface feature [see Shepard 1980: 318-319]), then sorted into categories (exhibiting similarities in surface treatment and color, texture, wall thickness, rim form, and to a lesser extent, temper size). Attributes are vessel form (bowl, jar), rim form (direct, everted, inverted), hardness (Moh's scale), color (Munsell), particle size, surface texture, surface finishing, surface topography, and paste texture (Zier et al. 1988: 163-165; Bennett 1974; Shepard 1980).

Six wares are identified. These are: Cord-marked ware (3 categories), Plain ware (3 categories), Polished ware (2 categories), Incised ware (3 categories), Vertically Indented ware (1 category), and Wiped ware (1 category)

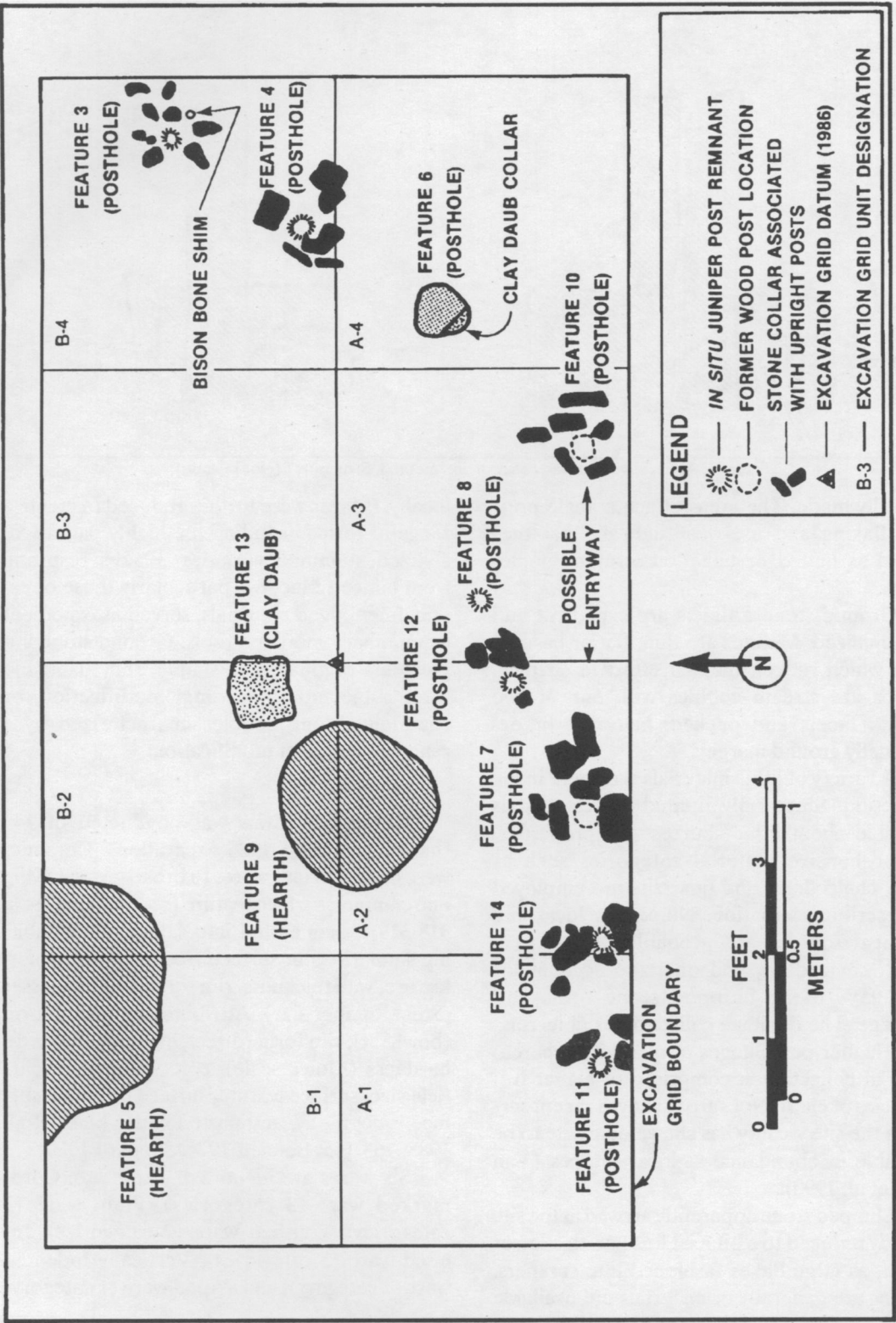


Figure 7. Map of Structure 2 showing excavation units and features.

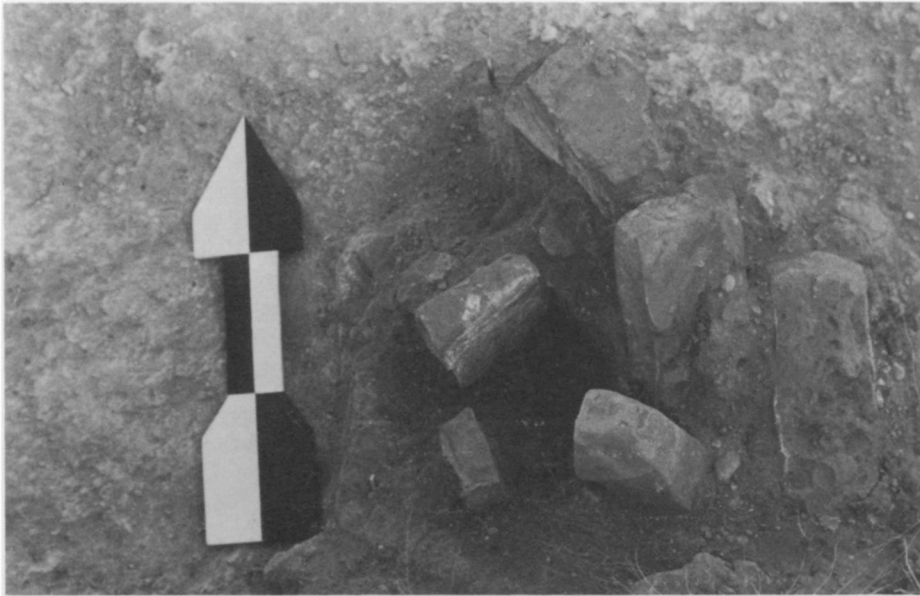


Figure 8. Overhead view of collar of upright stones surrounding posthole (Structure 2, Feature 10).

(Table 3). Forty-nine eroded and/or highly fragmentary sherds are simply classified as “unidentified” because surface attributes could not be recorded.

Color, paste texture, and temper attributes are similar among 10 of 13 identified categories; other attributes such as thickness, surface treatment, and rim form vary. This suggests that most pottery was locally produced using similar construction and firing techniques, but that variations occurred, mainly in exterior surface finishing. The only categories believed to be nonlocal are Cord-marked ware/Category 3 (possibly northeastern Colorado), Polished ware/Category 1 (area of origin unknown), and Vertically Indented ware/Category 1 (possibly northern Rio Grande area). These three categories are each represented by one sherd. Based on literature comparisons, ceramics comprising five of the six Avery Ranch wares are estimated to date ca. A.D. 1000-1300; the remaining ware, Vertically Indented, is estimated to date ca. A.D. 1300-1600 (Zier et al. 1988: 169-201, Table XVI).

A conservative approach was taken in estimating minimum vessel numbers because of the variability in surface treatment that can occur on a single vessel. No more than one vessel is postulated for each category (13 mini-

mum). The actual number of vessels represented by the collection is probably somewhat higher; for example, sherds of Cordmarked/Category 3 were recovered from both Structures 1 and 2.

Forty-seven sherds were recovered from Structure 1, 41 from Structure 2, and 56 from miscellaneous surface proveniences (including hearths exterior to structures) elsewhere on the site (Table 3). The distribution by ware and category indicates little substantive difference between Structures 1 and 2.

Bone Artifacts

Sixteen bone tools were recovered from 1985-1986 excavations. Six functional categories and one miscellaneous/unidentifiable category are identified. Functional categories are awl (3), possible scraper (1), spatulate tool (3), wrench (1), incised bone (1), and bead (1). Examples of four categories with specimens large enough to illustrate are depicted in Figure 14.

Of 16 bone tools, eight each are derived from Structures 1 and 2. Structure 1 yielded a slightly wider range of tool types, consisting of one each of the following: awl, scraper, wrench, and bead; four miscellaneous tools were also found in Structure 1. Structure 2 yielded all three spatulate tools, two awls, the incised bone tool,

and two miscellaneous tools. Bone tools were also recovered in substantial numbers during earlier DU excavations and include so-called awls, punches, wrenches, flaking tools, and miscellaneous items (Ireland 1968: 61-68; Watts 1971: 78-83).

These collections indicate large-scale manufacture and use of bone tools at the site. A range of functions may be inferred: fleshing/hide working (including manufacture of clothing and footwear), possibly arrow manufacture or bow preparation, lithic tool production and maintenance, and adornment. The assemblage is well represented and diverse and many tools are also formalized morphologically, suggesting that modification and use of mammal bone were cultural practices and do not just reflect the availability of bone resulting from a large game kill. It is also apparent that expedient tools with little or no prior modification were used.

Nonartifactual Materials

Faunal Remains

Nearly 3,300 complete or fragmentary bones and teeth were recovered during 1985-86 excavations. Faunal materials were found in Structures 1 and 2 as well as in seven of ten sampled exterior features. The present analysis emphasizes these materials but also integrates faunal data excavated from Test Pits 3 and 5 in Structure 1 in 1984 (Zier and Kalasz 1985). The total bone count is therefore 3,839 in the faunal inventory presented in Table 4.

Faunal collections retrieved by DU in the 1960s were re-examined, although not systematically re-analyzed, as an adjunct to 1985-86 data analysis. The earlier faunal assemblage is principally bison (98%). Other species identified are *Canis cf. latrans* (coyote), *Lynx rufus* (bobcat), and *Cervus canadensis* (elk). A few artiodactyl long bones were also noted (deer/antelope size). No rodent or rabbit bones are present in the DU collections, a fact that may reflect excavation techniques.

Eight mammal genera are identified in the 1984-86 assemblage, ranging downward in size from bison to harvest mouse. Lizard and bird bones, unidentifiable as to species, were also

recovered (Table 4). Most identifiable bones are of bison; most of the unidentifiable bones are of large mammals, and are believed to be mainly bison as well. Bone counts in Table 4 are divided among Structure 1, Structure 2, and exterior features.

Bison remains confirm general interpretations by Ireland (1968) and Watts (1971, 1975) that part of the bison butchering process did not occur at the Avery Ranch site (Zier et al. 1988: Table XXIII). Most identifiable bone elements of the post-cranial skeleton are appendicular and consist of both front and rear legs. Bones of the lower extremities are included. In addition to limb bones are vertebrae, scapulae, and rib fragments; all but ribs occur in limited numbers. Cranial, mandible, and tooth fragments are well represented. Absent or scarce are certain elements of the axial skeleton, particularly sacra and pelves. In general, then, the axial skeleton is poorly represented with the exception of crania and mandibles, while limb bones are abundant.

It appears that, with some possible exceptions, bison carcasses were partially dismembered at or near the kill site and certain portions of the carcasses were transported to the Avery Ranch site. Considering the bulk and weight of bison parts represented by the Avery Ranch site bone assemblage, it seems improbable that the kill site(s) was far from Avery Ranch. Frison's (1978: 314-316) generalized description of Plains bison butchering techniques is largely applicable to the Avery Ranch site. Long bones were split open, presumably to facilitate marrow extraction. Many bones were then reduced further to small fragments for bone grease extraction. The highly fragmented condition of limb bones indicates that they were used most consistently for bone grease production. The scarcity of intact long bone articular surfaces suggests that epiphyses in particular were favored for bone grease extraction (see Vehik 1977).

There are no significant differences in bison bone inventories between Structures 1 and 2. Distinct differences do exist in species variability. While just two species (bison, deer) were identified from Structure 2, Structure 1 yielded remains of bison, antelope, deer, harvest

mouse, northern pocket gopher, spotted ground squirrel, black-tailed prairie dog, jackrabbit, and unidentified bird. Even controlling for rodent species, which may be post-occupational, Structure 1 evinces significantly higher species diversity than Structure 2, particularly with regard to large and medium-sized mammals.

Macrobotanical Remains

Nineteen flotation samples and five botanical specimens were analyzed from 1985-86 excavations (Zier et al. 1988:Appendix C). Botanical specimens are macrofloral items recovered during excavation and are not from flotation contexts. Over 11,350 identifiable macrobotanical remains were recovered of which approximately 97% are seeds. The remaining items consisting of berries, corn cob fragments, pine needles, and twigs. Goosefoot (*Chenopodium* sp.) seeds dominate the Avery Ranch macrobotanical assemblage. Their abundance and distribution, the mixture of heat-altered seeds with apparently unaltered seeds, the lack of seeds of other abundant weeds in undisturbed samples, and the observation that goosefoot is not common in the present environment suggest that they are representative of prehistoric use. The ethnographic literature supports the notion that goosefoot was an important prehistoric foodstuff (Zier et al. 1988: 232-234).

Four other species of charred remains suggest prehistoric plant use. Juniper (*Juniperus* cf. *monosperma*) and Piñon pine (*Pinus* cf. *edulis*) were probably used for fuel, although both may have been foodstuffs. Charred hedgehog cactus seeds (*Echinocereus* sp.) suggest consumption of the fruits. Corn (*Zea mays*) remains were identified in nine of the flotation samples and one botanical specimen. These remains are generally single-cupule cob fragments and are too fragmentary to permit identification of race or subspecies.

Thirty-two charred seeds or seed fragments representing a minimum of 11 species were also recovered. These include globe mallow (*Sphaeralcea* cf. *coccinea*), grass family (*Poaceae*), pea family (*Leguminosae*), chokecherry (*Prunus* cf. *virginiana*), sunflower

(*Helianthus*), sunflower family (*Compositae*), hackberry (*Celtis*), Indian ricegrass (*Oryzopsis hymenoides*), probable sedge (cf. *Carex*), purslane (*Portulaca*), pink family (*Caryophyllaceae*), and 17 unidentified seeds. One grass family and two mallow family seeds were recovered during 1984 Structure 1 test excavations (Zier and Kalasz 1985:Appendix A). There is no apparent pattern to the distribution of plant remains. Economic uses are reported in the ethnographic literature for all of these taxa, and the remains may represent intentional prehistoric use. All of the taxa grow in the general vicinity at the present time. The paucity of seeds suggests either limited use or poor preservation. It is also possible that the seeds are the result of incidental charring and subsequent inclusion in the archaeological contexts.

SYNTHESIS AND CONCLUSIONS

Chronological Placement

Nine of 10 radiocarbon dates from the site may be assigned to either of two clusters (Table 1). The earlier cluster consists of three dates between A.D. 1020 and 1040; two are from Structure 1 and one is from Structure 2. The later cluster is composed of six dates between A.D. 1160 and 1290. Five are from Structure 1 and the remaining date from Structure 2.

Artifacts styles, as well as their horizontal and vertical distributions, are suggestive of a single major occupational episode, probably during the Middle Ceramic period, ca. A.D. 1200s. It should be noted, however, that two Scallorn-like points characteristic of the preceding period were recovered. It is uncertain if these artifacts are associated temporally with the earlier radiocarbon date cluster and are thus representative of a significant, discrete ca. A.D. 1000s component, or if they are the product of earlier short-lived occupation(s) of the area. Small sites of Early Ceramic period age are common on and near the Turkey Canyon rim (Zier and Kalasz 1985; Van Ness et al. 1990). It is certain that the most substantial occupation of the Avery Ranch site occurred during the Middle Ceramic period. If the radiocarbon dates do in fact represent a single major episode of occupa-

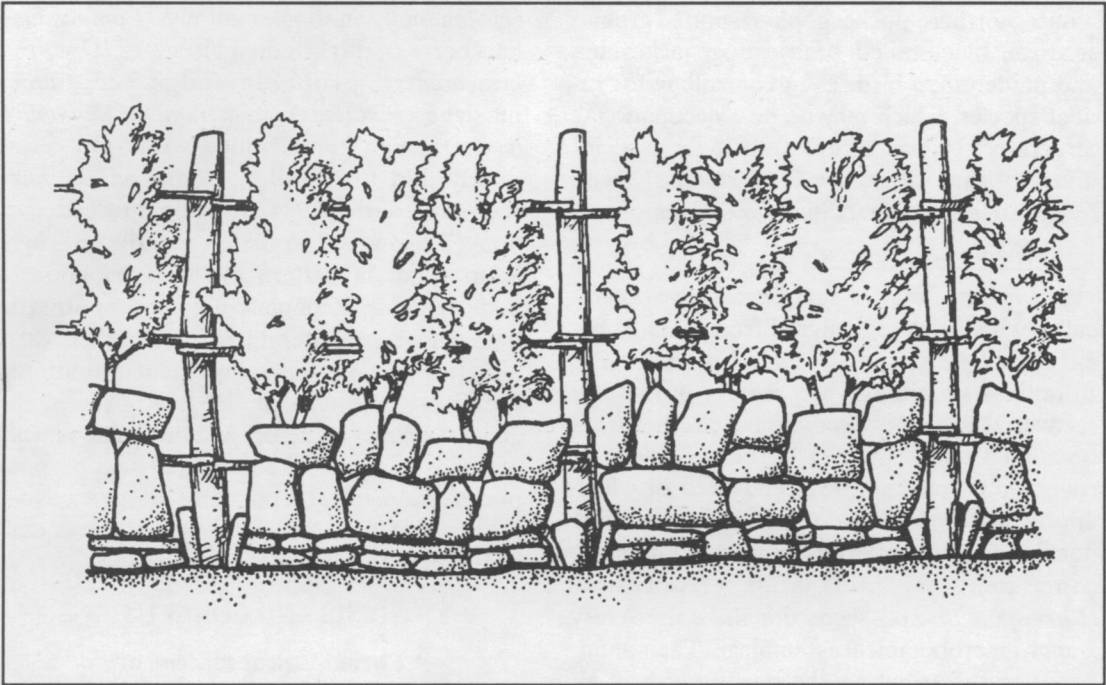


Figure 9. Structure 2, possible method of wall construction. (Frontal view, from exterior).

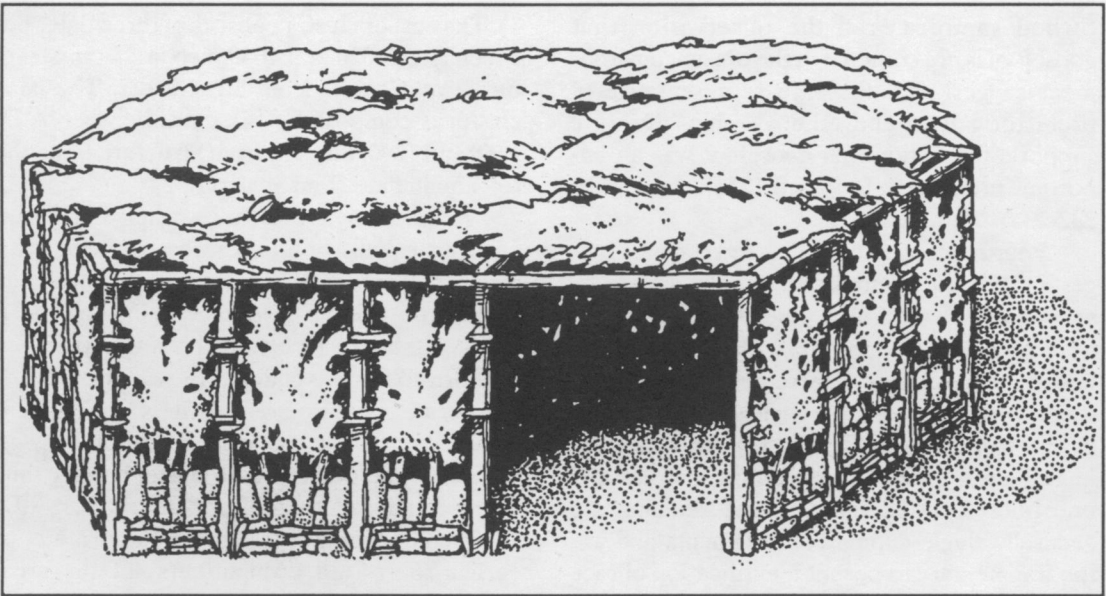


Figure 10. Structure 2, hypothetical architectural reconstruction.

tion, any of three factors could account for two temporal clusters: use of old wood in fires or as structural timbers; dating of inner rings of old, larger trees; and instantaneous increases in atmospheric carbon which may create seemingly bimodal date distributions (Blakeslee 1983).

Subsistence Practices and Seasonality

Bison bone is abundant at the site. Occurring in limited quantities are remains of deer, antelope, elk, jackrabbit, and indeterminate bird. The ubiquity of bison bone suggests that bison

Table 2. Tool Comparisons, Structures 1* and 2**

Tool Type	Structure 1		Structure 2	
	Count	Percent	Count	Percent
Stemmed Biface-Projectile Point	8	13.8	8	16.0
Stemmed Biface	0	0.0	2	4.0
Unstemmed Biface	8	13.8	9	18.0
Stemmed Biface-Drill	1	1.7	0	0.0
Unclassifiable Biface	13	22.4	6	12.0
Uniface	7	12.1	2	4.0
Modified Flake	9	15.5	18	36.0
Notched Flake	1	1.7	0	0.0
Mano	4	6.9	1	2.0
Metate	4	6.9	3	6.0
Shaft Abrader	1	1.7	0	0.0
Unclassifiable Tool	2	3.5	1	2.0
Totals	58	100.0	50	100.0
* 4.75 cubic meters were excavated = 12.2 tools per cubic meter				
** 2.05 cubic meters were excavated = 24.9 tools per cubic meter				

processing was a primary site function. Presence/absence data on bone elements indicate that the latter stages of butchering and processing, including marrow extraction and bone grease manufacture, took place at the site, but that the kill(s) and initial field dressing and quartering occurred elsewhere.

Charred seeds and other native plant remains indicate the existence of an economic component far less salient than bison but perhaps as important. The seeds of *Chenopodium* were gathered in quantity and processed throughout the site. Of equal interest is the near absence of evidence for processing of wild grass seeds despite the presence of numerous economic species in the region. Thus, although a range of usable species occurs both archaeologically and in the contemporary environment, utilization patterns tended to favor a more restricted range and actually emphasized a single species.

Corn remains are present but are nowhere abundant; they do not compare in quantity with the more common wild plant remains. Archaeological evidence here does not dispel the widely held notion of corn as a minor dietary supplement, or hedge against shortages of other foods, during the Middle Ceramic period (e.g., Zier et al. 1987: 2-26). The occurrence of corn cob fragments at Avery Ranch and complete

cobs elsewhere along Turkey Creek (Van Ness et al. 1990) does strongly suggest that corn was locally grown.

Interpretation of seasonality is largely inferential. Bison may be hunted at any time of the year and may be taken in large or small numbers. However, bison herding behavior is such that conditions for mass kills are most favorable during the fall of the year. The faunal assemblage is thus suggestive of a fall kill, although this notion is by no means conclusive. *Chenopodium* seeds mature and become available in late summer or early autumn (Zier et al. 1988: 232-234, 237) and may be eaten when first available, or can be stored. Their presence in Str. 1/Feature 2 fill may indicate that at least some storage was occurring at Avery Ranch. This evidence suggests habitation at some time after late summer.

The Avery Ranch site was probably occupied during the latter part of the year, between late summer and early winter. Winter to spring habitation is also possible considering the apparent vegetal storage capacity at the site. Midspring to late summer habitation is least probable given bison behavioral patterns and the unlikelihood that significant quantities of vegetal foods would have been stored into the following growing season.

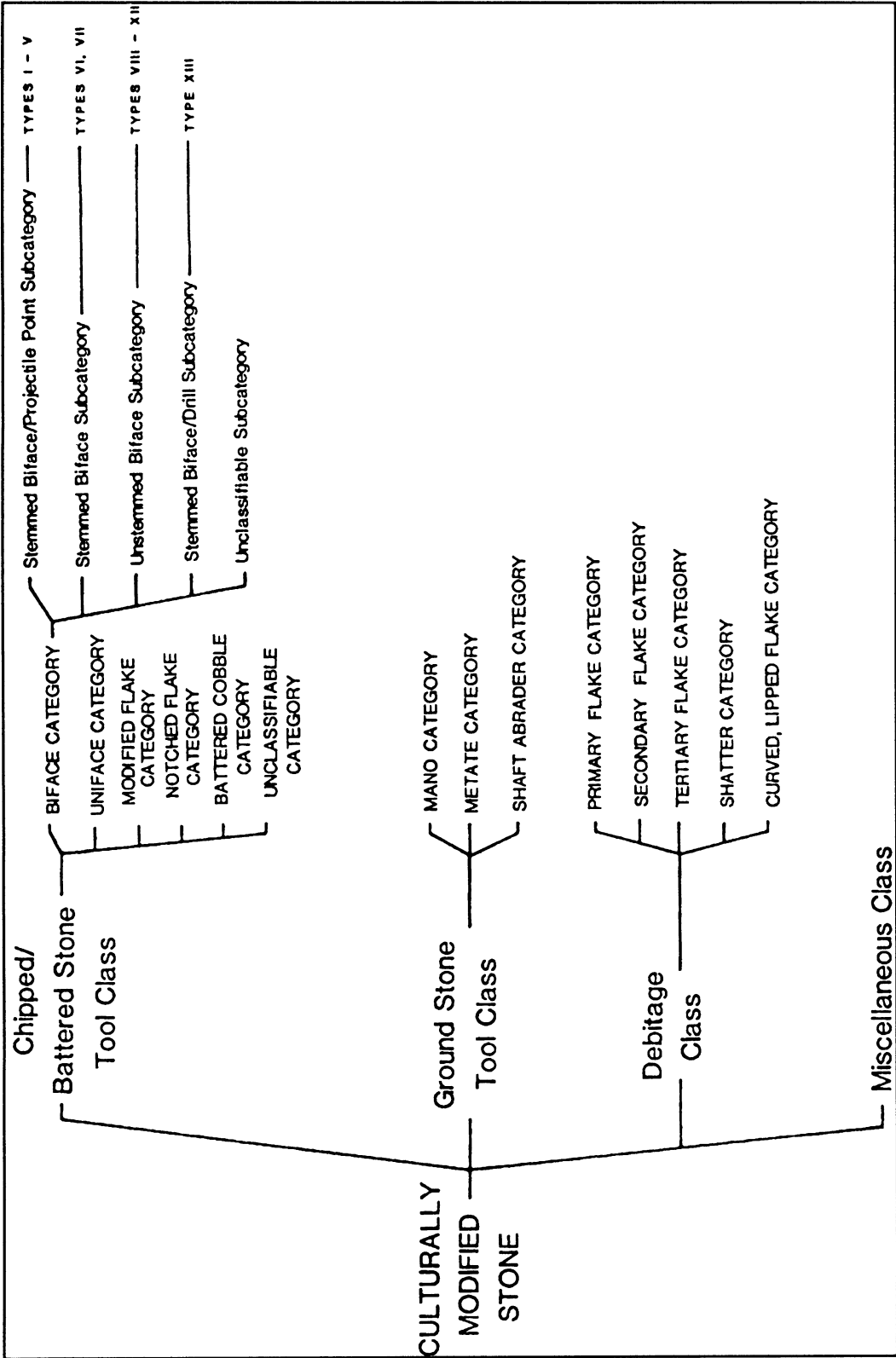


Figure 11. Lithic artifact classification system.

Table 3. Avery Ranch Site Ceramic Data.

Ware	Category	Description	Provenience (Numbers of Sherds)				Total Sherds
			Origin*	Str. 1	Str. 2	Gen. Surf.	
CORD-MARKED	1	Obliterated to unobliterated cord-marked (exterior), black to gray paste, thin-walled, coarse temper, vertical to everted rims.	L	31	14	26	71
	2	Obliterated cord-marked, black paste, thick-walled, coarse temper, slightly incurving rim.	L	1	0	0	1
	3	Irregular and obliterated cord-marked, reddish yellow to pink to gray paste, medium walled, coarse temper rim, form unknown.	N	0	0	1	1
PLAIN	1	Plain surface, brown to dark gray paste, thick-walled, coarse temper, possibly everted rim.	L	0	0	1	1
	2	Plain surface, black paste, very thin-walled, medium temper, everted rim.	L	1	0	0	1
	3	Plain surfaces, mostly black paste, medium-walled, medium to coarse temper, rim form unknown.	L	5	0	5	10
POLISHED	1	Polished rim and exterior surface, black paste, thick-walled, medium temper, restricted neck with possibly incurving rim.	N	1	0	0	1
	2	Slight polish on one or both surfaces, gray to pinkish gray to reddish brown paste, thick-walled, medium to coarse temper, rim form unknown.	L	0	1	2	3
INCISED	1	Deep, wide incisions on exterior surfaces, dark gray paste, thin-walled, coarse temper, direct rims.	L	0	2	0	2
	2	Lightly polished surface with variable incisions, black paste, medium-walled, coarse temper, rim form unknown.	L	1	0	0	1
	3	Narrow parallel incisions on exterior surface, black paste, thin-walled, coarse temper, rim form unknown.	L	0	0	1	1
* L = Local; N = Nonlocal.							

Table 3. Avery Ranch Site Ceramic Data, Continued.

Ware	Category	Description	Provenience (Numbers of Sherds)				Total Sherds
			Origin*	Str. 1	Str. 2	Gen. Surf.	
VERTICALLY INDENTED	1	Obliterated, parallel linear depressions on exterior surface below rim, black to dark brown paste, medium-walled, fine temper, rim direct or angled slightly inward.	N	0	0	1	1
WIPED	1	Horizontal wiped exterior surface, dark gray paste, thick-walled, coarse temper, vertical or slightly everted rim.	L	0	0	1	1
UNIDENTIFIED			L	7	24	18	49
* L = Local; N = Nonlocal							

Architecture, Intrasite Functional Variability, and Social Implications

Excavations have exposed four primary activity areas: Structure 1, Structure 2, and DU Features 1-2 (all architectural); and DU Features 3-4-5 (non-architectural).

Structure 1 is large, curvilinear in plan, and unroofed. Structure 2 is far smaller, polygonal, and had a roof. Material culture assemblages from Structures 1 and 2 overlap to a great extent, although the overall tool diversity in Structure 1 is significantly greater than that in Structure 2 (Zier et al. 1988: 210-213). Nonartifactual materials are also more diverse in Structure 1, although again the degree of overlap is considerable. Structure 1 is probably an open, communal work area within which were conducted both male-and female-oriented activities. The inferred functional range includes lithic manufacture and maintenance, possibly arrow manufacture or bow preparation, bison and smaller mammal processing (including latter stages of butchering, probable hide preparation and use, and bone grease rendering), vegetal food processing, and storage. Lithic tool use was more diverse in Structure 1 and included both cutting and scraping. Manos and metates are somewhat less common in Structure 1 than 2 (given the area excavated), a fact which may indicate a preference for food processing within residential units. The respective ground stone assemblages may also represent different ac-

tivities. Food storage is indicated by a cist and is suggested by the presence of a potentially large number of ceramic vessels.

Structure 2 is a probable single-family residence. Several activities were conducted here although the activity range is smaller than that inferred for Structure 1. Lithic manufacture and/or maintenance was carried out here as in other areas of the site. Lithic tool use was confined largely to scraping functions, perhaps associated with animal processing (e.g., hide preparation). The principal bone tool types recovered from Structure 2 (awls, spatulate tools) may also be associated with hide working. Closely spaced interior postholes may represent a utility rack. No direct evidence of storage was found although the remains of several ceramic vessels may relate to this function. Processing of vegetal foodstuffs is suggested by several metates. Flotation data from Str. 2/Feature 5 indicate that the hearth functioned in both animal and plant preparation, the former very likely including bone grease manufacture. Ceramic vessels in the structure may also be associated with this activity.

The architectural zone comprised of DU Features 1-2 resembles Structure 2 in gross characteristics. This locality is probably a residential structure with associated exterior work area. The DU Features 3-4-5 locality is a probable exterior activity area oriented toward bison processing (Watts 1971). The great volume of bone suggests that bison parts brought

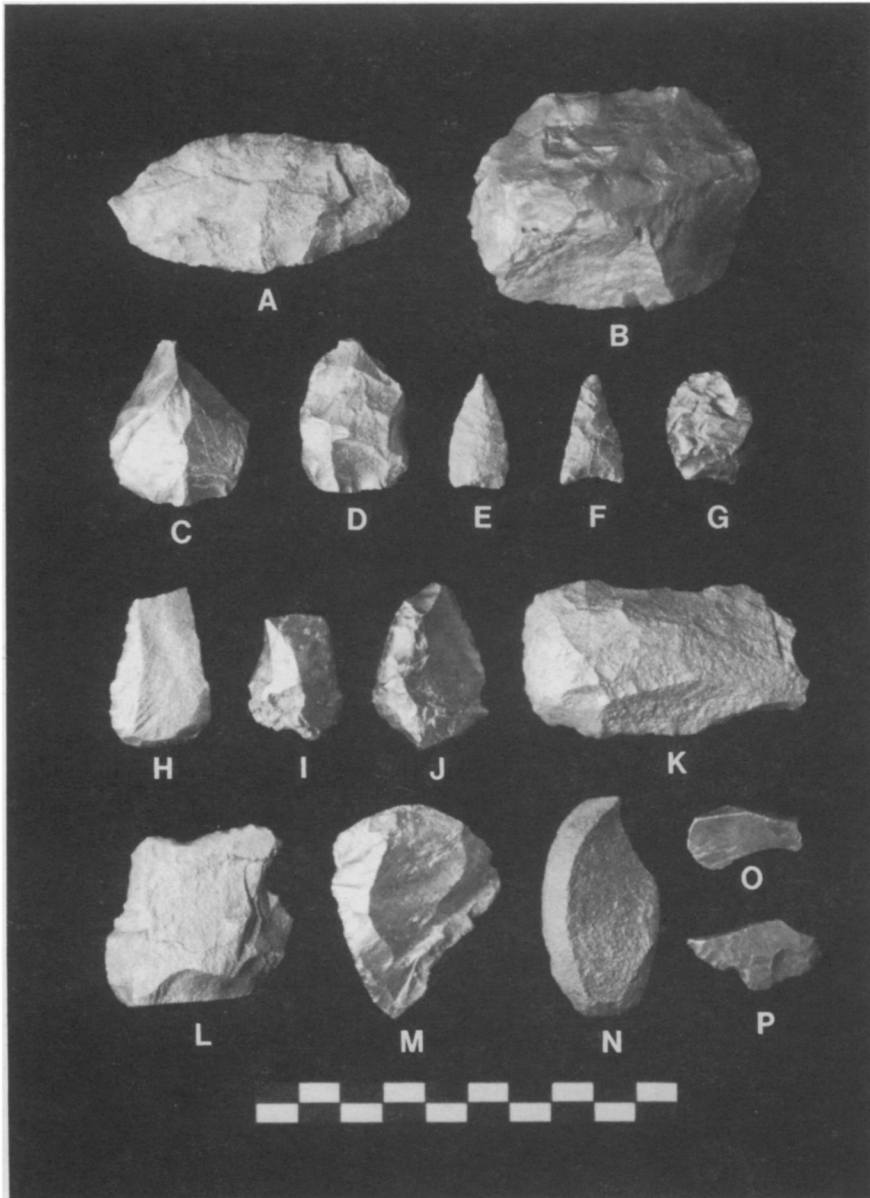


Figure 12. Lithic artifacts: unstemmed bifaces, unifaces, modified flakes, and notched flakes.

to Avery Ranch from the kill location(s) were further butchered here, possibly in communal fashion. Feature 3 is evidently a disposal location and is dominated by butchered bison bone. Certain bone elements and other animal parts were conveyed from the Feature 3-4-5 area to other areas of the site following initial on-site processing for such purposes as marrow extraction, bone grease manufacture, and hide working. Features 4 and 5, both non-architectural

post alignments, likely represent large racks constructed for the purpose of curing meat. Abundant charcoal and ash in this area of the site may also relate to curing or rendering.

The Avery Ranch site displays a symmetry of plan that may be more than accidental. It is striking if one accepts the interpretation of Structure 1 as a communal, multifunctional activity area and Structure 2 and DU Features 1-2 as residential units. A midline bisecting the site

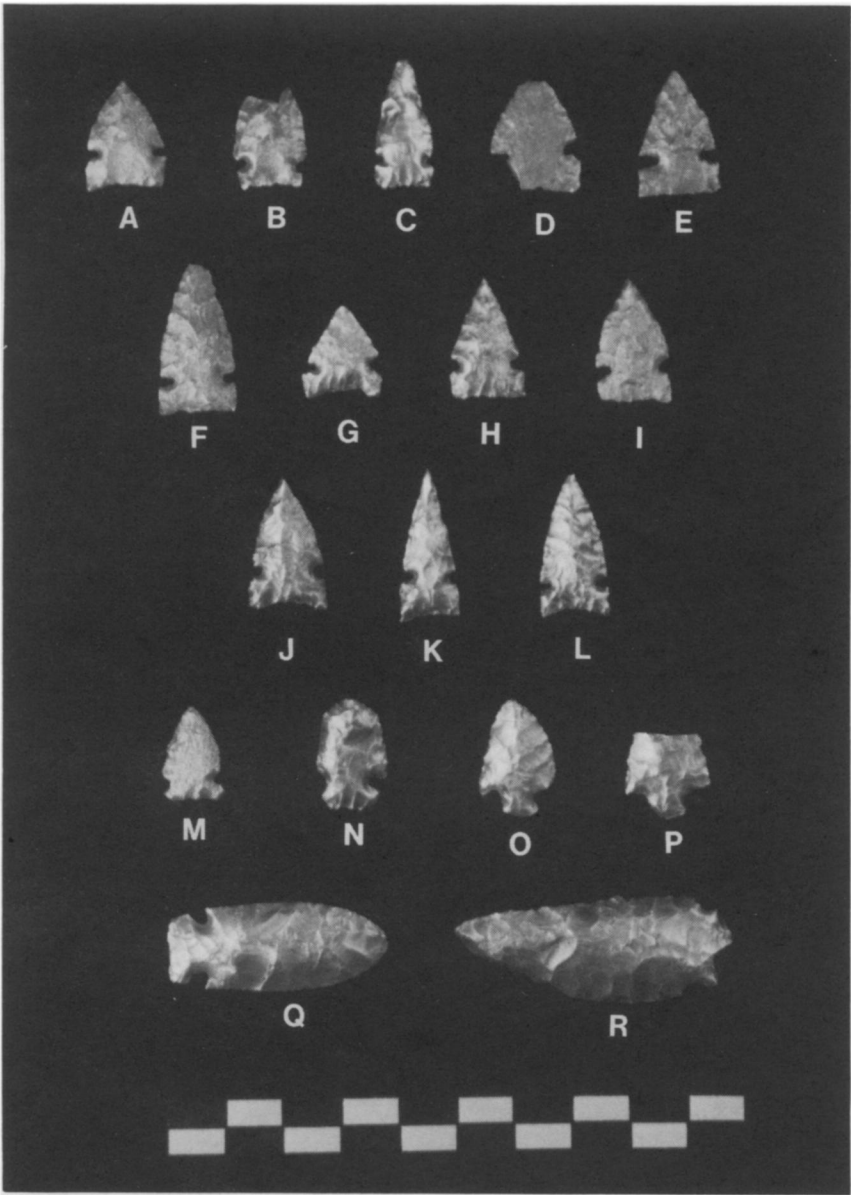


Figure 13. Stemmed bifaces (projectile points). A through I are Type I; J through L are Type II; M is Type III; N is Type IV; O and P are Type V; Q is Type VII; R is Type VI.

into northern and southern halves may be drawn eastward from the projection of the Turkey Canyon rim, through Structure 1 and the DU Features 3-4-5 activity area (Fig. 2). Activity loci along this axis are functionally diverse and communal. An entryway in the Structure 1 wall opened eastward along the axis. To the north of the midline and lying along the southwest/northeast-trending canyon rim is one residential unit, Structure 2, with a south wall entryway facing in-

ward toward the central site area. To the opposite (south) side and located along the northwest/southeast segment of rim a similar distance from the midline is the second residential locality, DU Features 1-2. The geographical site center is approximated by the location of the major bison processing area, DU Features 3-4-5. Smaller activity areas represented by hearths of various sizes and configurations are scattered around the eastern edge of the site, to the east

Table 4. Faunal Inventory from 1985-1986 Excavations. (Includes 1984 Test Data from Structure 1).

Identification	Number of Specimens				MNI*
	Str. 1	Str. 2	Exterior Features	Total	
Class Reptilia					
Order Squamata					
Indet. small Lizard	0	0	1	1	1
Class Aves					
Indet. Bird	3	0	0	3	3
Class Mammalia					
Order Lagomorpha					
Family Leporidae					
<i>Lepus</i> sp. (Jackrabbit)	1	0	0	1	1
Order Rodentia					
Family Sciuridae					
<i>Cynomys ludovicianus</i> (Black Tailed Prairie Dog)	3	0	0	3	1
<i>Spermophilus</i> cf. <i>spilosoma</i> (Spotted Ground Squirrel)	1	0	0	1	1
Family Geomyidae					
<i>Thomomys talpoides</i> (Northern Pocket Gopher)	1	0	0	1	1
Family Cricetidae					
cf. <i>Reithrodontomys</i> (Harvest Mouse)	1	0	0	1	1
Order Artiodactyla					
Family Cervidae					
<i>Odocoileus</i> sp. (Deer)	4	3	1	8	2
Family Antilocapridae					
<i>Antilocapra americana</i> (Pronghorn)	3	0	1	4	1
Family Bovidae					
<i>Bison bison</i> (Bison)	156	114	4	274	ca. 6
Indeterminate Large Mammal**	1,337	333	400	2,070	—
Indeterminate Medium Mammal**	8	0	0	8	—
Indeterminate Small Mammal**	21	0	0	21	—
Indeterminate Mammal	1,002	206	235	1,443	—
Total	2,541	656	642	3,839	N/A
* MNI = Minimum Number of Individuals					
** Small = Cottontail and smaller; Medium = Jackrabbit, Coyote, Fox; Large = Deer, Antelope, Bison					

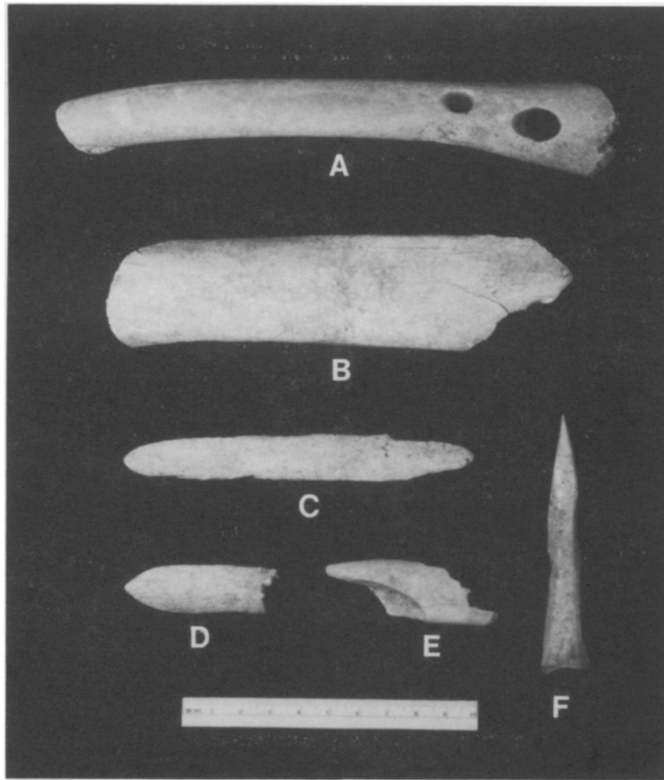


Figure 14. Bone tools: A-wrench, B-scaper, C and D-spatulate tools, E-miscellaneous worked bone, and F-awl.

of architectural and major activity zones. This layout suggests the presence of two family units, spatially segregated for residential purposes but sharing two work areas. One area is tied directly to animal processing, while the second is generalized and multifunctional. It is possible that family groups not residing at the site also participated in bison killing and butchering, considering the massive quantities of bone at the site.

Cultural Relationships: The Avery Ranch Site in a Regional Context

The term “Apishapa” as a prehistoric cultural descriptor was first coined by Withers (1954) and nurtured by Campbell (1969). The Apishapa concept crystallized as a result of Lintz’s (1984) integrative analysis of the Antelope Creek phase of the Texas-Oklahoma Panhandle area. Lintz posited *in situ* development from an existing cultural base in the Panhandle/southeastern Colorado/northeastern New Mexico area. Observing general temporal

and cultural similarities with the greater Plains region, he developed the concept of the Upper Canark regional variant of the Plains Village tradition (Lintz 1984). Apishapa and Antelope Creek phases were identified as roughly contemporaneous western and eastern elements, respectively, of the Upper Canark variant. Thus, Lintz provided the first truly integrated context for the Apishapa concept. As defined by Lintz (1984: 46-52), Apishapa phase attributes include site types consisting of stone/slab enclosures, surface encampments, and rock shelters; flexed, single pit burials lacking grave goods; a generalized foraging-and-horticultural economic orientation; generalized lithic and ground stone industries, including small side-notched projectile points; common manufacture and use of bone tools; globular cord-marked pottery; and social organization marked by a lack of status differentiation. Lintz (1984: 47-48) suggests a temporal span for the Apishapa phase of A.D. 1100-1350.

As employed here, Apishapa is synonymous with the Middle Ceramic period of the Ceramic stage in southeastern Colorado (Zier et al. 1987: 2-10 to 2-12). This period in southeastern Colorado is viewed simply as an areal manifestation of the regional Plains Village pattern. Data from Fort Carson and the lower Purgatoire region suggest encompassing dates of A.D. 1000 to 1400 (Zier and Kalasz 1985; Zier et al. 1987; Kalasz 1988).

Apishapa economic patterns are proving difficult to characterize because of the sheer range of resources used, the local variation in modes of exploitation, and the possibly variable use of cultigens. Avery Ranch site data suggest that Michlovic (1986) is correct in stating that generalized Plains hunter-gatherer subsistence patterns tend to become specialized when bison are available (i.e., that bison represent a preferred food source). Apishapa cultural ecology is best described in terms of potential physical and biotic resources of the Apishapa region (e.g., Lintz 1985), for individual sites or site complexes are not likely to mirror the full spectrum of aboriginal economic pursuits.

The nature of human interactions within the Apishapa area is unknown. Avery Ranch site data do, however, tend to corroborate Lintz's (1984: 52) characterization of Apishapa populations as relatively isolated. Ceramics suggest only limited contact with groups outside the immediate area. Lithic data are not suggestive of significant contact with, or movement into, the northeastern New Mexico or Oklahoma-Texas Panhandle areas, although no comprehensive source studies of Apishapa lithic assemblages have been undertaken. Considering the proximity of contemporaneous Upper Purgatoire complex groups to the area of Apishapa occupation, the overall lack of interaction between these two distinctive populations is surprising.

Kalasz (1988) has observed a chronological trend of increasing social integration and residential permanence among post-A.D. 1000 populations in the lower Purgatoire River drainage of southeastern Colorado. He suggests that efficiency in food storage techniques facilitated semisedentism in areas strategically

located with respect to a range of biotic, physical and hydrological resources. Lintz (1984) has suggested that the Antelope Creek populations suffered from environmentally induced food stress which culminated in abandonment of that area by ca. A.D. 1500. The Apishapa area was probably abandoned earlier—perhaps by A.D. 1400. Environmental deterioration most likely was in the form of drought, perhaps a Plains extension of the “Great Drought” of the late 13th century Pueblo Southwest. It is not at all certain that an Apishapa population would have responded to food stress in the same manner as the Antelope Creek population, or that stress would even have been perceived in the same manner, given the greater agricultural dependency of the latter. However, if Kalasz' notion of progressive Apishapa semisedentism is correct, one may envision increasing pressure on specific resource-rich zones during a period of climatic deterioration. Once the carrying capacity of those zones was critically reduced, drastic demographic changes resulted, culminating in regional abandonment.

Apishapa cultural ecology is still poorly defined. Settlement data clearly indicate that Apishapa populations were concentrated in the many networks of small and large canyons that are prevalent in the region (Campbell 1969; Andrefsky 1990). In southeastern Colorado it is axiomatic that Apishapa sites will be found where Dakota Sandstone is massively exposed. Floral, faunal, and water resources are manifested in these localities in a series of microhabitats that are absent elsewhere in the region, or at least far less concentrated. Additional excavation of sites in these areas coupled with intensive examination of natural resource potential will be necessary to fully characterized Apishapa exploitation patterns and to explain responses to environmental stress.

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