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SHELTER AND SUBSISTENCE AT 5GN344, A HIGH ALTITUDE SHORT-TERM CAMP NEAR ALMONT, COLORADO

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INTRODUCTION

In 1979 Centuries Research, Inc. conducted test excavations on several sites for the Mount Emmons Project of AMAX Inc. The Mount Emmons project is a proposed molybdenum mining and milling operation west and south of Crested Butte, Colorado in the northern Upper Gunnison Basin (Figure 1). Site 5GN344 is one of 21 prehistoric and historic sites tested in Alkali Basin, a proposed mill and tailing area for the Mount Emmons Project. The Basin is 8 km northwest of Almont in central Gunnison County.

Discovery of 5GN344 occurred during a Class III, 100% inventory of Alkali Basin in the summer of 1978 (Wood and Baker 1979; Black, et al. 1980). Projectile points on the surface suggested the existence of Late Prehistoric and Archaic components. The possibility of multiple occupations, the diversity and large areal extent of lithic materials, and the relatively high elevation of the site indicated that further work was warranted. Accordingly, controlled test excavations were conducted the following summer (Black, et al. 1981).

The following discussion documents utilization of a high altitude environment by hunter-gatherer groups during at least two prehistoric time periods. Firm evidence for grass seed procurement and processing is described, as is the remains of a temporary shelter, the latter being a rare find in previous mountain research. All excavation at 5GN344 was under the field direction of the author. Steven G. Baker acted as principal investigator. This study was conducted under the provisions of permit #47-79 held with the U.S. Forest Service. The site is in the Taylor River District of the Gunnison National Forest.

ENVIRONMENTAL SETTING

Alkali Basin is located in the Upper Gunnison Basin at the south end of the Elk Range in the Southern Rocky Mountains physiographic

province (Thornbury 1965:322). It consists of over 8,200 acres bounded on the north by Red Mountain, on the east by the East River, on the south by Flat Top Mountain, and on the west by the Ohio Creek-Alkali Creek drainage divide. Alkali Creek, a small intermittent stream, drains the Basin to the east into the East River. Most of the Basin is underlain by Mancos shale of Cretaceous age, and the hummocky appearance of Basin slopes is a result of past slumping and landsliding of this shale.

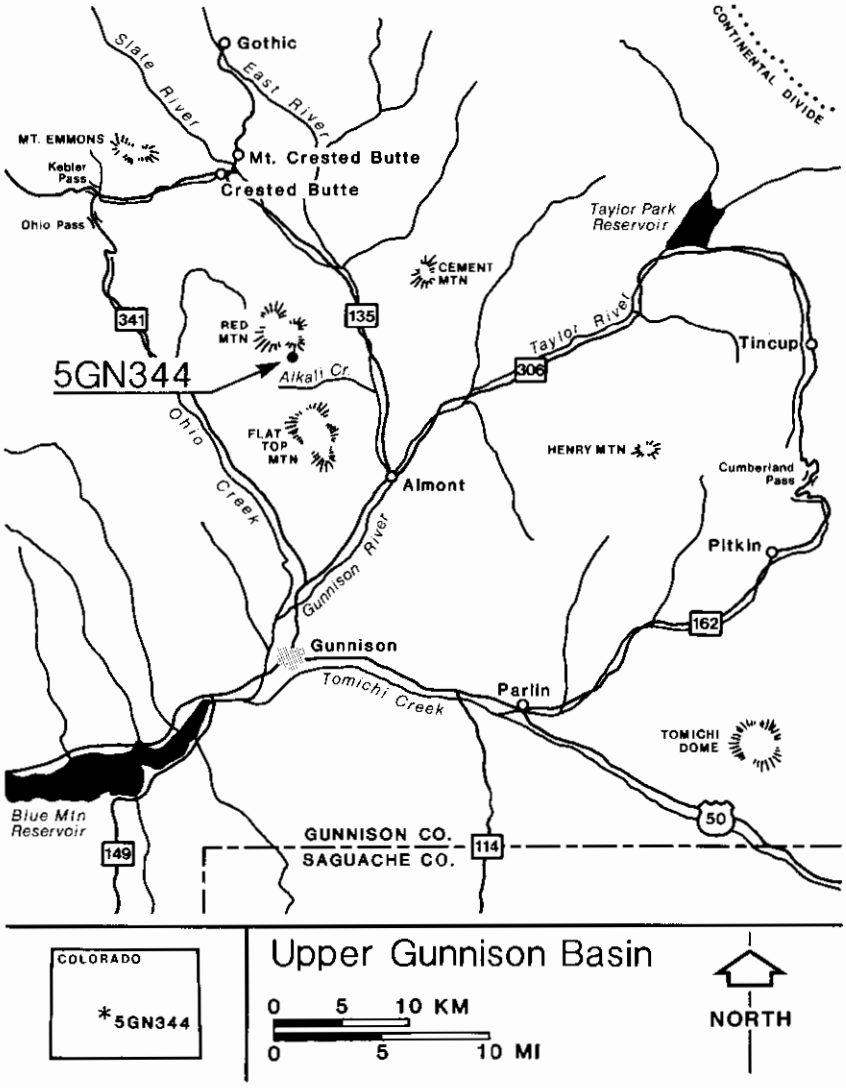


FIGURE 1. Map of the Upper Gunnison Basin showing the location of site 5GN344.

Both Red Mountain and Flat Top Mountain are capped by Miocene-Pliocene basalt flows, supported on the former by a section of Mesa Verde group sandstones. These sandstones form a steep escarpment north of 5GN344. The site itself rests on a knoll of Mancos shale littered with basalt boulders.

Elevations in the Basin range from just over 8,300 feet on the valley floor to 11,653 feet on Red Mountain. Located on the north rim of the Basin at an elevation of 10,360 feet, the 5GN344 site area commands an excellent view of much of the surrounding countryside. In the area of the site, the landscape is characterized by a series of knolls and small, marshy basins and ponds. Two other sites, a lithic scatter on a hillock to the west and a historic camp in an aspen grove to the east, adjoin the knoll upon which 5GN344 is located (Figures 2 and 3). Water is readily available in the area in the form of a cattail-ringed pond 150 m to the east near the historic camp and aspen grove. Even in dry years, Alkali Creek, 2.4 km to the south, usually has at least a small flow of year-round water. Prehistorically, water may have been even more abundant than today. Recent geological research indicates that a lake was once present in Alkali Basin. Beginning about 12,000 years ago, this lake apparently filled the valley to elevations sometimes as high as 9,120 feet. It then slowly drained until its disappearance about 3,000 years ago (Charles Robinson personal communication).

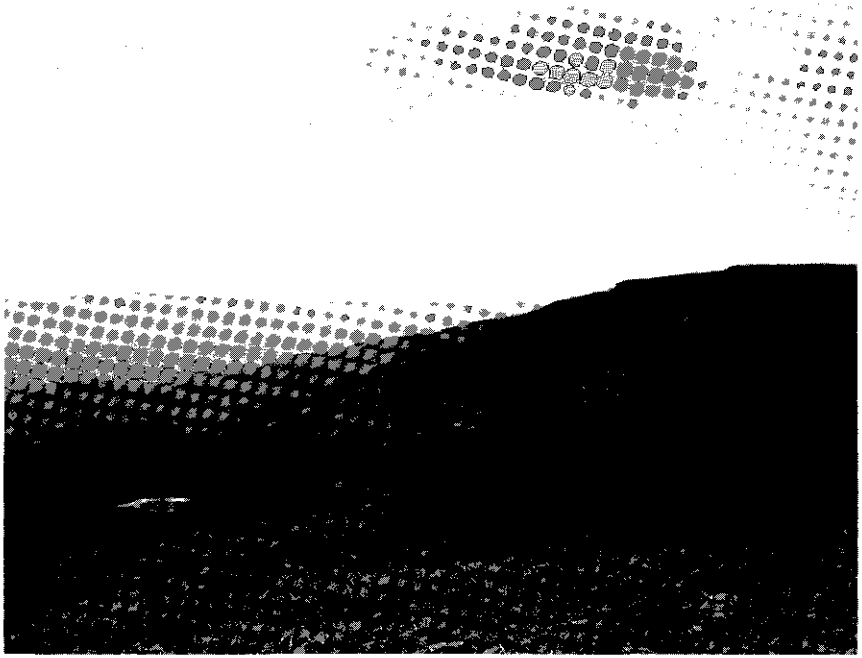


FIGURE 2. Overview of 5GN344 site area looking south. The site occupies the crest of the hill at the right of the two lone trees. Flat Top Mountain is visible in the background.

The climate of the Basin is characterized by long, cold winters and short, cool summers. Mean annual precipitation is estimated at 20 in (50 cm), with a mean July temperature of 55° F (13° C) (Markgraf and Scott 1981:233). Snowfall accounts for much of the annual precipitation in this area, and the field crew experienced one snow squall during the August excavations. Soils in the Basin are of two main orders: Entisols and Mollisols. Entisols, particularly Ustic Torriorthents, are widespread on younger surfaces underlain by unstable shales (Walsh 1979). Surficial silt loam layers, such as at 5GN344, also are widespread and indicate past loess deposition. Mollisol development, especially as Cryoborolls, is limited to bunchgrass-covered slopes and valley bottoms (Hunter and Spears 1975; Walsh 1979).

Vegetation of the Basin is characterized primarily as a sagebrush rangeland. Big sagebrush (*Artemisia tridentata*) is the predominant shrub, but also present are snowberry, bitterbrush, rabbitbrush, serviceberry, mountain mahogany, and a wide variety of grasses and forbs (Woodbury 1962; Langenheim 1962; Hunter and Spears 1975). The riparian community along Alkali Creek includes blue spruce, willows, tamarisk, corn husk lily, shrubby cinquefoil, cattails, sedges and grasses. These species also occupy moist swales and pond margins near 5GN344. Scattered groves of aspen dot the south-facing slopes below Red Mountain, while the north-facing hillside below Flat Top Mountain is covered

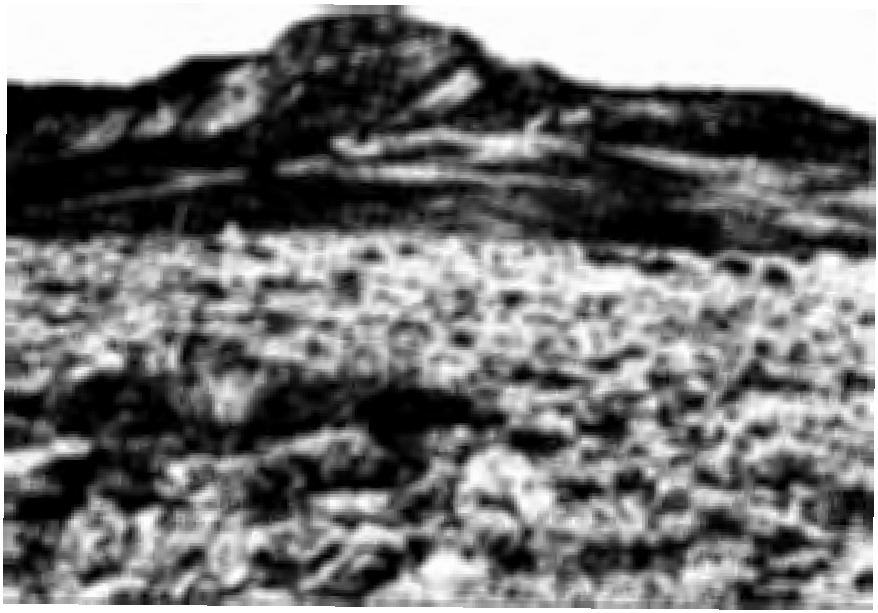


FIGURE 3. View of 5GN344 looking north with excavations in progress. The south escarpment of Red Mountain forms the backdrop.

by a dense aspen-conifer woodland. Engelmann spruce and alpine fir grow on upper slopes and the crest of Red Mountain.

While the sagebrush community has dominated the local environmental setting (including the 5GN344 area) for thousands of years (Scott 1981a; Markgraf and Scott 1981), other ecological zones were readily available for exploitation within a short walk from the site. However, palynological analyses of lacustrine sediments in the Basin (Markgraf and Scott 1981; also see Petersen 1982) suggest that prior to 4,000 years BP different environments prevailed. Between ca. 15,000-10,000 years ago the entire Basin area apparently was covered in a subalpine spruce-pine forest reflecting cooler, moister Pleistocene conditions. A somewhat warmer but still moist climate ensued as a predominantly limber(?) pine forest occupied the Basin for nearly 6,000 years. Just over 4,000 years ago the brief pinyon pine expansion into the Basin area may have occurred, with conditions similar to today's shrub-dominated environment appearing at 4,000 years BP. As will be suggested below, the occupation of 5GN344 apparently began just as the shift to present environmental conditions took place.

Generally typical of the Rocky Mountain region, the faunal resources of the area today include herds of mule deer and elk, although aboriginal populations probably also could have found black bear, bison, bighorn sheep, and pronghorn antelope. Other mammals and rodents that might have been hunted include the jackrabbit, cottontail, coyote, red fox, beaver, porcupine, muskrat, marmot, pika, squirrel, chipmunk, sage grouse and blue grouse.

METHODS

After a resurvey of the 5GN344 site area, the site boundaries were flagged. Those boundaries, the site datum, all pertinent natural and man-made features, and all finished tools on the surface were mapped. The site area was then marked off in 1 m x 1 m units oriented to the cardinal directions, utilizing the site datum as the central axis of the grid. Units were identified by the coordinates of the northeast corner of each square. The datum was given the coordinate of ON, OE. Since the long axis of the site far exceeded the width of the scatter (at 140 m x 45 m), the site was arbitrarily divided into three sections of approximately equal size (sections A, B and C in Figure 4) in order to maximize the areal coverage of the sample units. These were arbitrary sections since the surface artifact did not appear to be differentiated into any discernible activity areas. Thus, we were able to draw a stratified random sample involving 15% of the 1 m^2 units within each section. However, time limitations prevented excavation of the full 15% sampling fraction and only 25.5 units (0.75% of the ca. 3400 m^2 site area) were examined.

Of the 1 m^2 units drawn in the sample, fewer were excavated in sections A and C as it became apparent in the testing that cultural material was sparsely distributed away from the crest of the knoll. Nine units were completed in section A in the western third of the site, 13.5 test squares were dug in section B around the crest of the knoll, and three

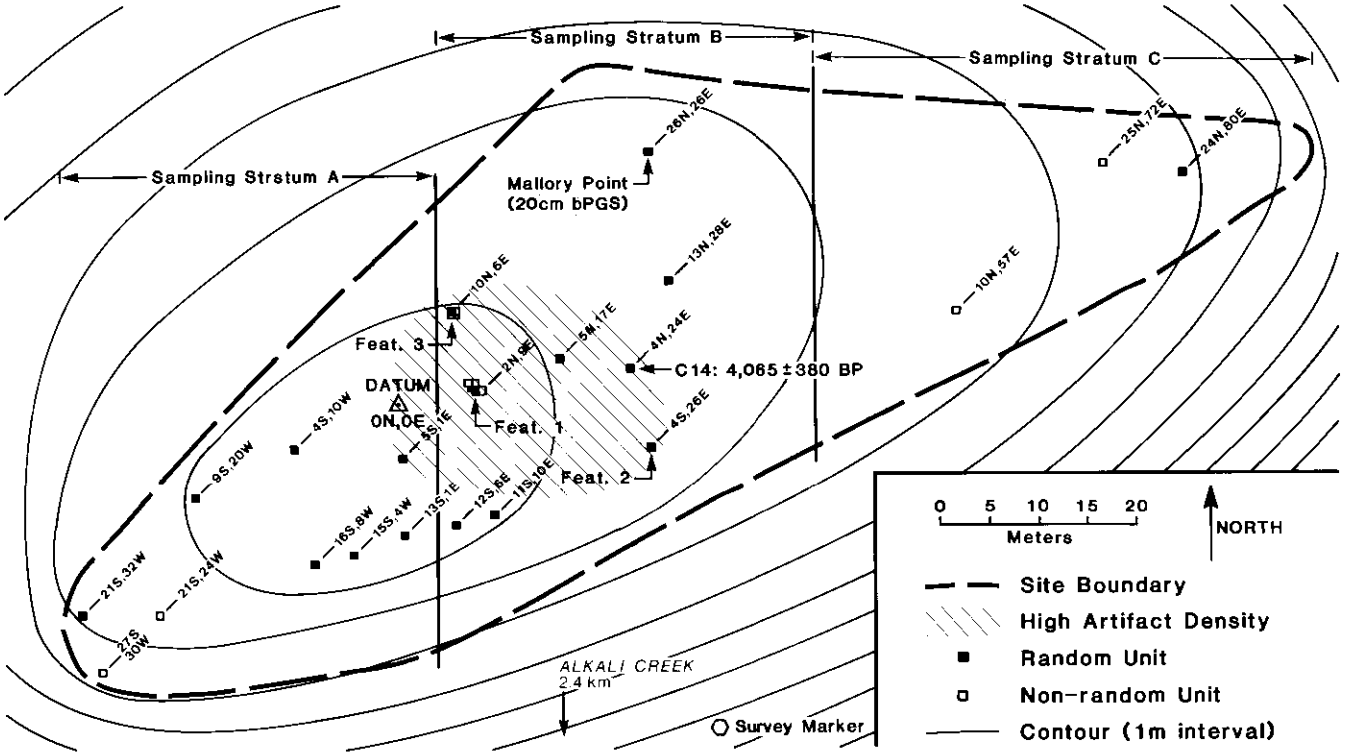


FIGURE 4. Plan view map of 5GN344 showing location of excavated test squares and area of main lithic concentration.

squares were excavated to the east in section C. Of these 25.5 units, 8.5 were non-random selections. Three of those non-random squares (TP [Test Pit] 10N, 57E; 25N, 72E; and 27S, 30W) were excavated where ground stone was observed at the surface. Excavations 30 km to the southwest in the Curecanti Basin had indicated that subsurface features often were present below surface concentrations of ground stone artifacts (Stiger personal communication, 1981:102; Jones 1982:17).

One non-random square (TP 21S, 24W) was excavated over what appeared to be some upright slabs representing a cist or hearth (it was a natural, fortuitous slab arrangement), and 4.5 of the units (N ½ of TP 9N, 6E; W ½ of TP 10N, 7E; NW ¼ of TP 9N, 7E; TP 3N, 7E; TP 3N, 8E; TP 2N, 9E; and NE ¼ of TP 2N, 7E) were excavated adjacent to two randomly selected squares (TP 10N, 6E and 2N, 8E) where features had been located. All of these 4.5 units were in section B, and two non-random units were dug in each of the other two sections.

Vertical controls were maintained by excavating in natural levels when present, and other times in 10 cm arbitrary levels below a 5 cm thick arbitrary level dug at the surface; all cultural fill was screened through ¼" hardware cloth. All tools were mapped via triangulation to a local datum (generally the highest corner of the test square) and given unique field specimen (F.S.) numbers. Debitage was bagged together according to the level in which the flakes were found, and each level received individual F.S. numbers. All pollen, soil and carbon samples taken were recorded on catalog sheets, as were all maps and photographs. All features discovered were given feature numbers and they were mapped and photographed. Completed levels and test squares were described in detailed notes, maps and photographs. All collected artifacts have been catalogued and are curated at Fort Lewis College in Durango, Colorado.

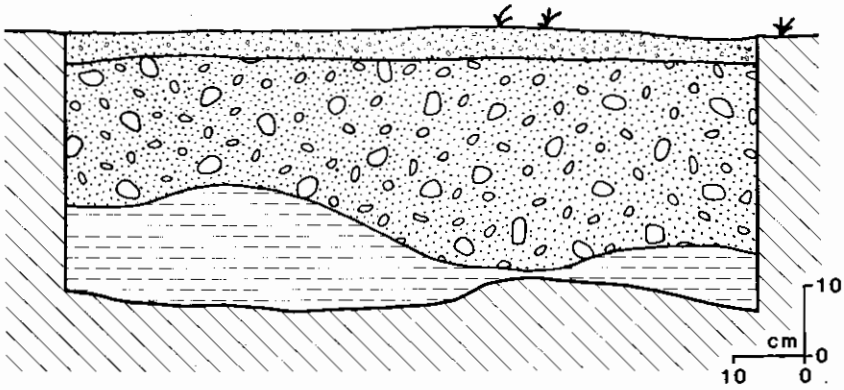
RESULTS

The excavation program was conducted from August 23 through September 21, 1979, resulting in the completion of 25.5 1 m^2 test units (Figure 4), or ca. 0.75% of the site area. Most of the units were excavated to a depth of 25-30 cm to a culturally sterile hard-packed yellow clay of Mancos shale origin. Exceptions occurred in units with features and where soil was exceptionally rocky. Typically, three natural levels were identified (Figures 5 and 6). The top 2-4 cm is a brown to dark grayish-brown, gravelly silt. Below is a 15-20 cm thick level of brown to dark grayish-brown, stony and bouldery silt loam. The third level is the culturally sterile, very hard-packed pale brown to dark yellowish-brown clay. The abrupt level 2-level 3 change from brown silt loam to yellowish-brown clay suggests that the upper two soil levels have developed out of a superimposed loess deposit. A probe into the clay layer in TP 5S, 1E on the crest of the knoll revealed that the clay extends more than 40 cm below the silt loam level at that location. The profile at 5GN344 most closely resembles Soil K as described by Walsh (1979:39-40), an Argic Pachic Cryoboroll.

Subsurface artifactual material was not evenly distributed over the

site. Almost no artifacts were recovered from subsurface levels in sections A and C, whereas cultural material and features were prevalent on and near the crest of the knoll in the western half of section B. This area coincides with the densest surface concentration of lithics found on the site. The evidence suggests that the sparse surface scatter in sections A and C does not represent significant aboriginal activity. Rather, the excavated materials and dense surface scatter on, and near, the crest of the knoll show that the original site boundaries probably included only a 27 m E-W by 22 m N-S area in section B (Figure 4).

Where subsurface materials are present, they are confined to the upper loess deposit, above the hard-packed yellow clay which underlies the entire site area. Thus, for the most part, artifacts are buried no more deeply than 20 cm. In section B, three features were uncovered in association with lithic remains. None of these were beneath the ground stone surface finds, as had been hypothesized from trends observed at sites in the Curecanti Basin. In fact, the only non-randomly selected test units to yield substantial subsurface artifacts or features were those excavated adjacent to features uncovered in randomly selected squares. It would appear either that *concentrations* of ground stone are better indicators of subsurface activity areas than single ground stone tools,



Gravelly dark yellowish brown (10YR4/4, dry) silt with artifacts.

Stony and bouldery dark yellowish brown (10YR4/3, dry) silt loam with artifacts.

Hard-packed light yellowish brown (10YR6/4, dry) clay.

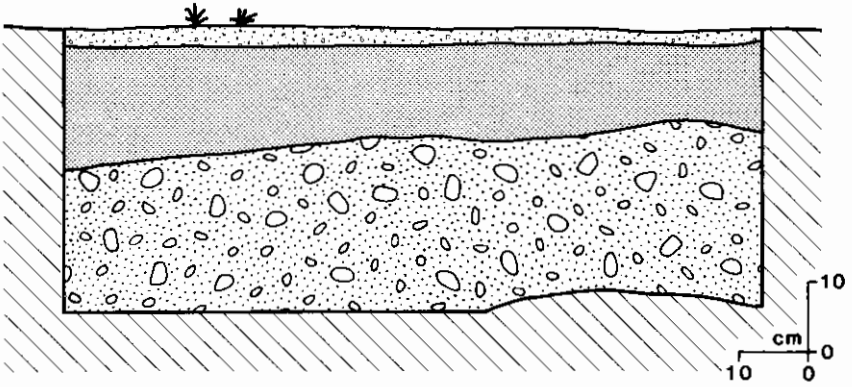
Unexcavated

FIGURE 5. Stratigraphic profile of north wall of TP 21S, 32W toward the west edge of 5GN344, stratum A.

or that the activities represented at 5GN344 are distinct from the cultural patterns observed in the Curecanti Basin.

Feature 1 is a set of five post molds in the form of circular areas of blackened earth 4-10 cm in diameter and 3-5 cm deep (Figures 7 and 8). All were found at a depth of 6 cm below the present ground surface on the crest of the knoll. The post molds are oriented such that four (molds A-D; Figure 7) form a rough arc, with the fifth (E) found to the northeast at a point nearly equidistant between the outermost molds in the arc (A and D). Three of the molds (A-C) lie almost in a straight line spaced 30 cm apart each, and were the first stains uncovered in the randomly selected unit TP 2N, 8E. Surrounding squares also were excavated to determine the size of the structure. Lithic artifacts were recovered in all of these units throughout the 6 cm of excavated fill, both inside and outside the area enclosed by the molds.

Although excavation in this area was limited, the impression one receives upon examination of the five post molds is that they represent a small structure such as a windbreak or wickiup about 1.8 m x 1.0 m in size. The four molds that form a shallow arc (A-D) are arranged such that the convex side of the arc faces southwest, the direction of prevailing winds in the summer and fall (cf. Smith 1974:35). It is postulated that these four molds represent poles supported by a forked pole to the northeast (post mold E). Such brush-covered wickiups were commonly



Gravelly dark grayish brown (10YR4/2, dry) silt with artifacts.

Compacted dark brown (10YR4/3, dry) mixed silt loam and clay with artifacts.

Stony dark brown (10YR3/3, dry) silt loam.

Unexcavated

FIGURE 6. Stratigraphic profile of north wall of TP 5N, 17E near the crest of the knoll at 5GN344, stratum B.

constructed by Shoshonean groups in the Great Basin-Colorado Plateau area in historic times (e.g., Jennings 1978:239; Smith 1974:33-36, Plates 20-21), and the ca. 1.4 m² structure at 5GN344 appears similar in size and shape. The five excavated stains, thus, represent a structure large enough for only one or two persons.

It is possible that other post impressions are present to the north and east in unexcavated areas adjacent to Feature 1. However, considering the average distance between post molds (30 cm) and the near linear arrangement of stains A-D, this is not considered likely. If more post molds are present and stains A-D are only a portion of a circular or semicircular arrangement of posts, then the structure would have to have been a very large one indeed. Further, if the structure is semicircular to circular, then more than one center support pole would have been required given the projected size of such a shelter. The small

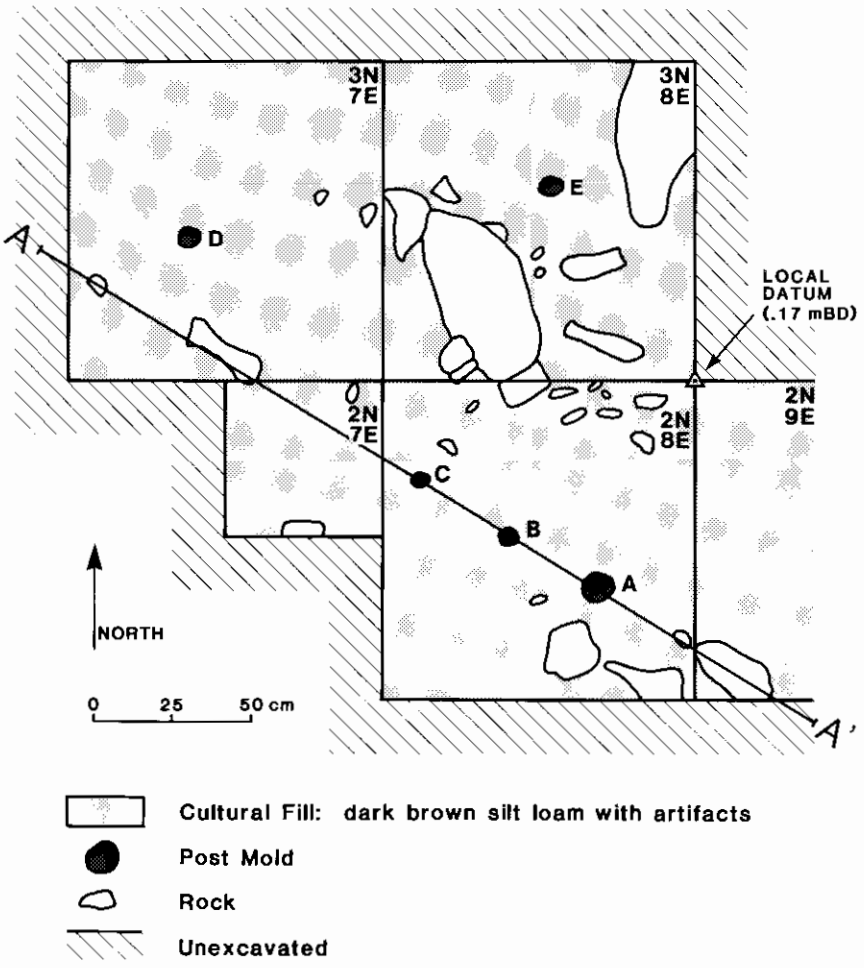


FIGURE 7. Plan view of Feature 1 post molds at 5GN344.

diameter of stain E (6 cm) suggests a slender pole incapable of supporting a great amount of weight.

The available evidence suggests that stains A-E represent the maximum extent of Feature 1. Most likely, the structure was a small pole wickiup covered with brush and/or hides, and functioned as a temporary autumn shelter for a small hunting and gathering party. The age of the structure cannot be directly ascertained but two lines of evidence, namely hafted bifaces and radiocarbon dating, suggest a Middle Archaic date.

A Mallory projectile point (Frison, et al. 1974; Lobdell 1973, 1974; cf. Benedict 1975, 1979) was recovered 30 m northeast of Feature 1 in the silt loam level at a depth of 20 cm in TP 26N, 26E (Figure 11e), and a stemmed point with rounded oblique shoulders was recovered from the surface (Figure 11b). A Middle Archaic date, ca. 5,000-3,000 years BP, is postulated for such projectiles in the Upper Gunnison Basin (Kvamme and Black n.d.). A charcoal sample recovered 16 m east of Feature 1 from cultural fill at depths of 20-55 cm in TP 4N, 24E yielded an uncorrected date of 4,065 $\pm$ 380 years BP (Gx-7115). It should be noted that the charcoal sample was very small, and only represents an average date for the lower portions of the artifact-bearing level at 5GN344. However, Buckles (1978) reports a similar date of 4,210 $\pm$ 80 years BP (QL-1233) from a lithic site (5LK159) in Lake County that yielded a Mallory point.

In addition, the hafted knife found on the surface (Figure 11d) compares very favorably with "type 2g" specimens reported by Leach (1970: Plates 2f, 4d-g) from Occupation Level 8 in Deluge Shelter dated at 3,260 $\pm$ 120 BP (GXO-897). Of the twenty artifacts recovered during excavation of Feature 1, eleven are of siltstone and nine of quartzite (see Table 2). Both the stemmed point and hafted knife also are of quartzite, while the Mallory point is made of chert. The Late Prehistoric period point (Figure 11a) is of chalcedony, a material type not represented in the immediate area of Feature 1.

It could be argued that the dating evidence for Feature 1 is inconclusive, and that the shallow depth of the post molds (6 cm) indicates a younger age for the structure. In fact, one of the projectile points found at the surface in 1978 is of the small corner-notched variety diagnostic of the Late Prehistoric period after ca. AD 400 (Figure 11a). The bulk of data, however, indicates an Archaic age. Both the charcoal sample and the Mallory point were recovered from the same silt loam level as Feature 1 (at 20 cm below surface) albeit at distances of 16 m and 30 m from the latter. While the crest of the knoll where Feature 1 is located is quite rocky with a thin loess cover, the charcoal sample and Mallory

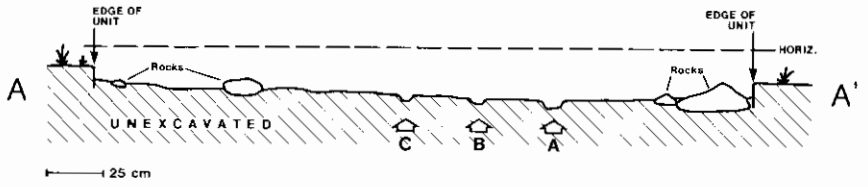


FIGURE 8. Profile of Feature 1 post molds A, B and C at 5GN344.

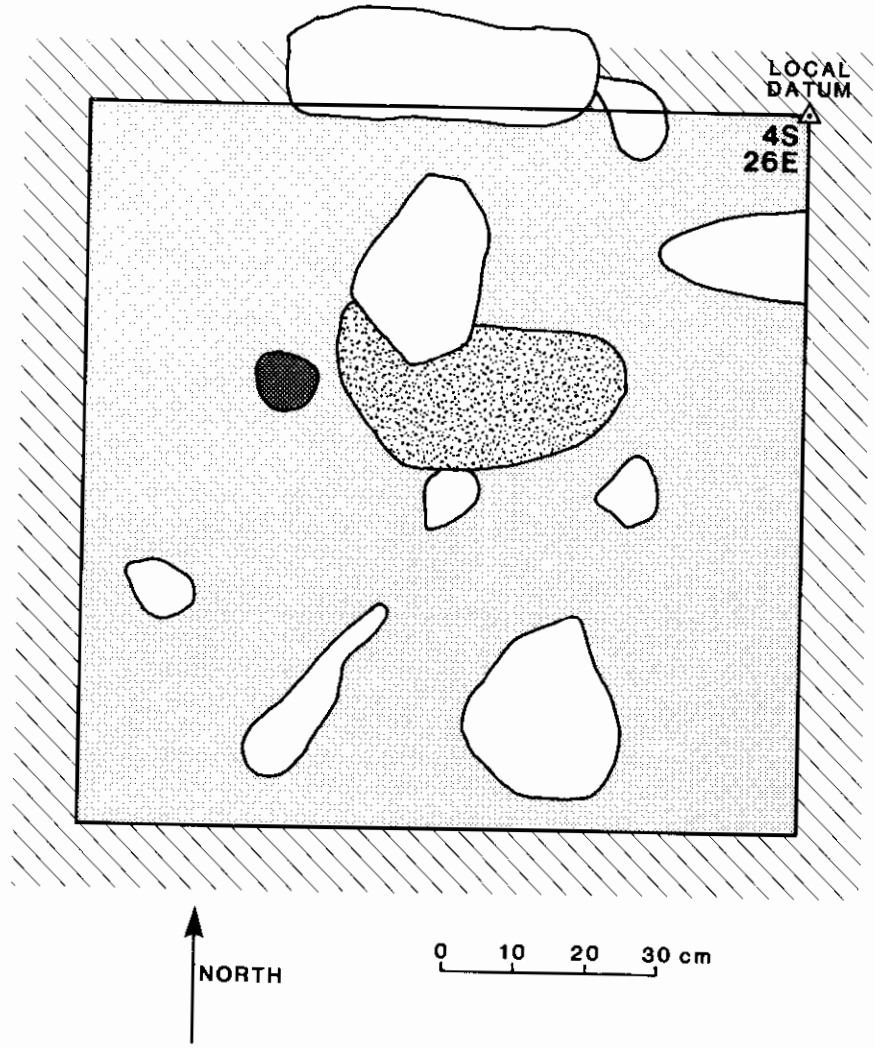


FIGURE 9. Plan view of 5GN344 Feature 2 ash lens and charcoal stain in TP 4S, 26E.

point were found in units on the slopes of the knoll where the eroded hilltop soil is deposited. The loess cover above the clay on the slopes is thicker and artifacts are more deeply buried. Finally, structures of great age are not unknown among hunting-gathering cultures. Frison (1978:118) and Irwin-Williams, et al. (1973:45) report Paleo-Indian habitations. Both Euler and Stiger (1981) and Stiger (1981) report jacal-like structures from the Curecanti Basin that date to the Early and Middle Archaic periods between 6,500 and 4,000 years BP. Recent work in Middle Park near Granby (Wheeler and Martin 1982) suggests similar Early to Middle Archaic period jacal-like structures were in use there.

Feature 2 is a lens of gray ash found at a depth of 5 cm in TP 4S, 26E at the south edge of the site (Figure 9). It is oblong in shape, measuring 30 cm E-W by 15 cm N-S and 2 cm in thickness. The ash is easily distinguished from the surrounding loess by its pale gray color and uniformly fine texture. None of the surrounding soil or rock is burned, suggesting the ash is a secondary deposit removed from a hearth or other burned feature at the site. One orange chert flake (Cat. #5GN344-31x) was recovered from the surface loess horizon, but no other artifactual material was found in this unit.

Feature 3 is a fairly large area of dark stained earth on the crest of the knoll about 7 m north of Feature 1 (Figure 10). Most of the stain is along the south edge of the randomly selected unit TP 10N, 6E. To determine the full extent of the feature, selected units (N ½ of TP 9N, 6E; NW ½ of TP 9N, 7E; and W ½ of TP 10N, 7E) adjacent to TP 10N,

FIGURE 10. View of 5GN344 Feature 3 charcoal stain in TP 10N, 6E looking north. The feature extends into unexcavated areas to the south and east.

TABLE 1. 5GN344 Field Specimen Log[1]

F.S.[2] No.	T.P.	Level (Depth)	Horiz. Loc.[3]	Artifact(s)	Comments
1	27S, 30W	Surface (1.84 m bd[4])	46 cm N & 0.0 cm W	Quartzose sandstone handstone	See Fig. 12; unifacially ground
2	16S, 8W	L-1 (0-5 cm)	——	1 chert interior flake	——
3	5S, 1E	L-2 (.26 m bd)	97 cm from SW 81 cm from NW	1 quartzite interior flake	——
4	2N, 8E	L-1 (.27-.30 m bd)	——	2 interior flakes (1 siltstone/1 quartzite)	——
5	2N, 8E	L-2 (.30-.33 m bd)	Qver Feat. 1	1 siltstone secondary flake	——
6	10N, 57E	Surface (2.13 m bd)	43 cm E & 40 cm S	Sandstone millingstone fragment	Unifacially ground
7	12S, 6E	L-1 (.37-.44 m bd)	——	1 utilized siltstone interior flake	——
8	3N, 7E	L-1 (.25-.28 m bd)	——	1 siltstone interior flake/2 quartzite flakes (secondary & interior)	
9	3N, 7E	L-2 (.28-.31 m bd)	Over Feat. 1	3 interior flakes (1 siltstone/2 quartzite)	——
10	2N, 7E	L-2 (.25-.28 m bd)	——	1 siltstone interior flake	——
11	10N, 6E	Surface (.27 m bd)	——	1 siltstone interior flake	——
12	2N, 9E	L-1 (.27-.30 m bd)	——	2 siltstone flakes (1 secondary/1 utilized interior)	
13	2N, 9E	L-2 (.30-.34 m bd)	——	3 interior flakes (2 siltstone/1 quartzite)	
14	3N, 8E	L-1 (.25-.28 m bd)	——	1 utilized quartzite secondary flake/1 quartzite interior flake/1 siltstone interior flake	——
15	10N, 6E	L-2 (.31 m bd)	In Feat. 3	1 utilized siltstone interior flake	——
16	10N, 6E	L-2 (.31 m bd)	——	1 retouched & utilized siltstone interior flake	——
17	3N, 8E	L-2 (.28-.31 m bd)	Over Feat. 1	1 siltstone secondary flake/1 quartzite interior flake	——
18	9N, 6E	Surface (.10 m bd)	N end of T.P.	2 siltstone flakes (1 secondary/1 interior)	——

19	9N, 6E	L-1 (.20-.26 m bd)	N ½ of T.P.	1 chert interior flake	——
20	9N, 6E	L-2 (.27-.30 m bd)	N ½ of T.P.	1 siltstone interior flake	——
21	26N, 26E	L-1 (1.15 m bd)	SW corner	1 retouched & utilized chert interior flake	——
22	25N, 72E	Surface (2.79 m bd)	30 cm from SW, 79 cm from SE	Sandstone handstone fragment	Unifacially ground
23	26N, 26E	L-2 (.20 m bd)	NW corner	1 utilized chalcedony interior flake	——
24	10N, 7E	L-1 (.20-.23 m bd)	W ½ of T.P.	1 siltstone interior flake	——
25	9N, 7E	Surface (.10 m bd)	W ½ of T.P.	1 siltstone interior resharpening flake	——
26	10N, 7E	L-2 (.30-.31 m bd)	SW ¼ of T.P.	1 utilized siltstone secondary flake	——
27	9N, 7E	L-1 (.24 c bd)	SW ¼ of T.P.	1 siltstone secondary flake	——
28[5]	26N, 26E	L-2 (1.27 m bd)	16 cm from S & 10 cm from W	Chert projectile point	See Fig. 11e; Mallory type
31	4S, 26E	L-1 (.80-.84 m bd)	——	1 chalcedony interior flake	——
32	10N, 6E	L-3 (.39 m bd)	——	1 siltstone interior flake	——
33	10N, 6E	L-2 (.31-.36 m bd)	——	3 siltstone interior flakes	——
34	5N, 17E	L-3 (.69 m bd)	——	1 siltstone interior flake	——

—Surface finds from 1978 survey not included.
[2]—Catalog numbers are identical with the addition of the letter "x."
[3]—No location given for artifacts found during screening.
[4]—bd equals below datum.
[5]—FS 29 plus 30 were determined in the lab not to be artifacts.

6E were excavated. Feature 3 was first encountered at a depth of 8 cm and extends down 3-5 cm. Horizontally, the stain covers the south half of TP 10N, 6E and most of the northwest quarter of TP 9N, 7E. No charcoal or partially burned wood is present. Lithics occur throughout the soil to a depth of 20 cm, and one flake was found in the feature itself (see Table 1). It is believed that the feature represents a camp fire used for a brief time during the occupation of the structure in Feature 1. Flotation of a soil sample from Feature 3 yielded two charred seed glumes resembling Indian ricegrass, suggesting use as a roasting hearth for seeds (Gasser 1981).

TABLE 2. Metric Data for Collected Lithic Tools

Specimen[1]	Material	Length (cm)	Width (cm)	Thick. (cm)	Comments
Handstone					
5GN344-1x	Quartzose sandstone	10.5	6.9	4.2	Unifacial
5GN344-22x	Sandstone	——	5.1	2.0	Small fragment, unifacial[2]
Millingstone					
5GN344-6x	Sandstone	——	——	1.8	Small fragment, unifacial
Proj. Point					
5GN344-2	Quartzite	——	2.60	0.57	Width between notches—1.39 cm; Archaic corner-notched type
5GN344-3	Quartzite	——	2.63	0.41	Possible Mallory point base
5GN344-4	Chalcedony	——	1.96	0.50	Width between notches—1.30 cm; Late Prehistoric corner-notched type used as knife
5GN344-5	Quartzite	——	2.43	0.54	Neck width—1.09 cm; possible Middle Archaic stemmed point type
5GN344-28x	Chert	——	2.50	0.40	Width between notches—1.20 cm; Middle Archaic Mallory side-notched type
Hafted Knife					
5GN344-1	Quartzite	7.00	3.90	0.89	Neck width—2.14 cm; possible Middle Archaic knife type
Blank					
5GN344-7	Chalcedony	6.27	4.46	1.25	Unmodified biface
5GN344-15	Quartzite	4.44	3.25	0.88	Unmodified biface
Side Scraper					
5GN344-6	Chert	4.45	4.55	0.64	Two modified edges
End Scraper					
5GN344-8	Quartzite	5.74	3.90	0.90	Wear on naturally steepened edge
Retouched Flake					
5GN344-?	Quartzite	6.37	4.17	1.98	From 1978 grab sample, no cat. no.
5GN344-?	Quartzite	2.70	2.05	0.38	From 1978 grab sample, no cat. no.
5GN344-17	Quartzite	1.99	2.36	0.55	From 1978 grab sample
5GN344-?	Siltstone	3.00	1.49	0.62	From 1978 grab sample, no cat. no.
5GN344-?	Siltstone	2.46	2.50	0.34	From 1978 grab sample, no cat. no., used for cutting
5GN344-?	Siltstone	2.97	2.46	0.73	From 1978 grab sample, no cat. no.
5GN344-?	Siltstone	2.62	2.20	0.96	From 1978 grab sample, no cat. no.
5GN344-?	Siltstone	2.58	3.20	0.96	From 1978 grab sample, no cat. no., used for scraping
5GN344-7x	Siltstone	1.7	1.6	0.3	Bifacial attrition
5GN344-12x	Siltstone	3.7	4.2	1.0	Two utilized edges
5GN344-14x	Quartzite	2.1	1.6	0.5	Edge rounded concave side

5GN344-15x	Siltstone	1.8	1.4	0.3	Dorsal attrition and edge rounding
5GN344-16x	Siltstone	1.6	1.2	0.4	One lateral edge is utilized, opposite edge is retouched
5GN344-21x	Chert	2.8	1.8	0.3	Two utilized edges, one is also retouched
5GN344-23x	Chalcedony	1.1	1.2	0.2	Ventral attrition and edge crushing
5GN344-25x	Siltstone	0.7	0.8	0.2	Use wear on proximal end
5GN344-26x	Siltstone	1.9	2.9	0.7	Dorsal attrition

Specimens without "x" suffix were collected during 1978 survey.
- Measurements not given for broken specimens.

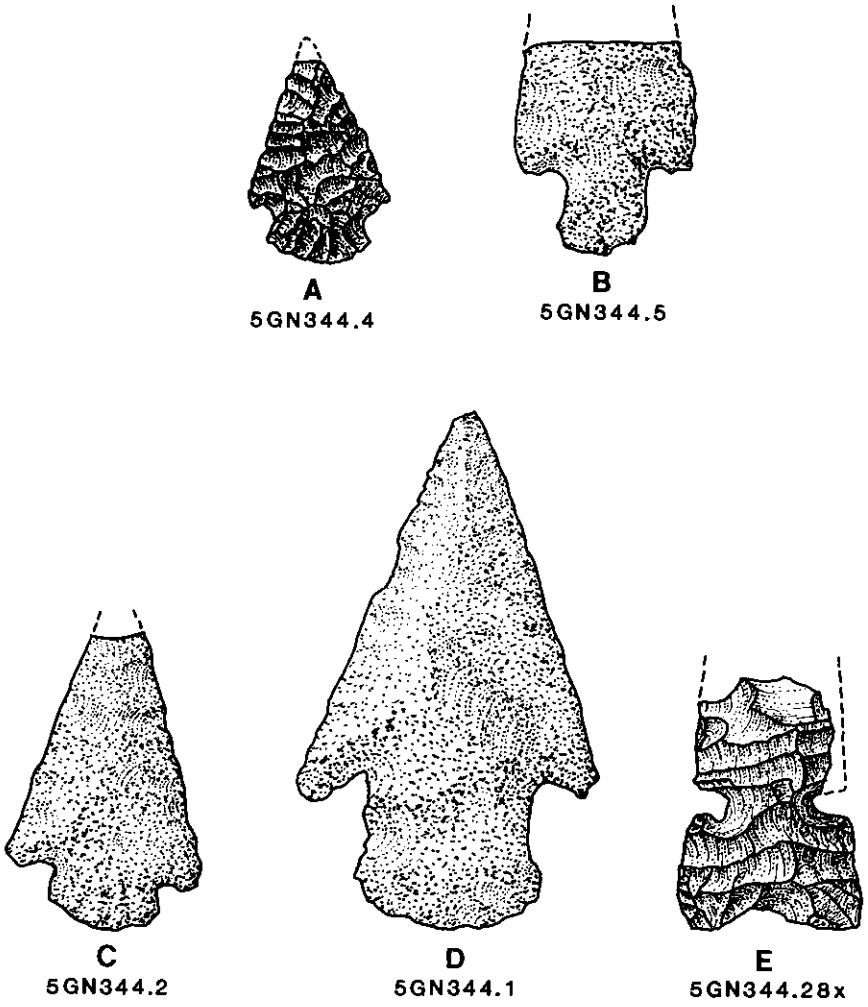
No other distinct features were encountered, but several small, amorphous stains were found in four units near the crest of the knoll. None of these stains were as dark, extensive and distinct as Feature 3, thus their origin is not conclusively demonstrated to be cultural. However, these stains were found only near the crest of the knoll, where subsurface cultural material and features are prevalent. In fact, flotation of one of these stains (at .77-.80 m below datum in TP 5N, 17E) produced charred grass stems and three burned seeds resembling wheat-grass (Gasser 1981).

ARTIFACTS

The lithic assemblage at 5GN344 is not large, but does include a wide array of tools. Five whole and fragmentary projectile points, two scrapers, one knife, two bifaces, 17 modified flakes, two handstones and one millingstone fragment have been collected along with quartzite, chalcedony, chert, and especially siltstone debitage (Figures 11 and 12, Tables 1, 2). This evidence, along with the confined nature of the scatter on and near the crest of the knoll and the presence of the temporary shelter (Feature 1) and hearth (Feature 3), classify the site as a short-term camp (Kvamme and Black n.d.).

One topic of interest at 5GN344 concerns the discovery of a Mallory point (Figure 11e) at a depth comparable to that at which charcoal was radiocarbon dated to 4,065 $\pm$ 380 years BP (Gx-7115). Even acknowledging the small size of the charcoal sample and resulting large sigma value, the date conforms quite well to figures reported for similar points at the Scoggin site in southern Wyoming (4,540 $\pm$ 110 years BP, RL-174, Lobdell 1973), at the Dead of Winter site in Lake County, Colorado (4,210 $\pm$ 80 years BP, QL-1233, Buckles 1978), and at Sudden Shelter in central Utah (4,425 $\pm$ 85 years BP, UGa-904, Jennings et al. 1980).

Benedict (1975, 1979) contends that Mallory-like points have temporal primacy in the Colorado high country over similar projectiles found on the Northwestern Plains, based on a date of 5,730 $\pm$ 145 BP (I-5020) from the Albion Boardinghouse site west of Boulder, Colorado. Even he admits (1975:6) this interpretation is conjectural, however, and all other



A Late Prehistoric corner-notched point, chalcedony.
B Middle Archaic stemmed point, quartzite.
C Archaic corner-notched point, quartzite.
D Archaic hafted knife, quartzite.
E Middle Archaic Mallory side-notched point, chert.

FIGURE 11. Artifacts recovered from 5GN344.

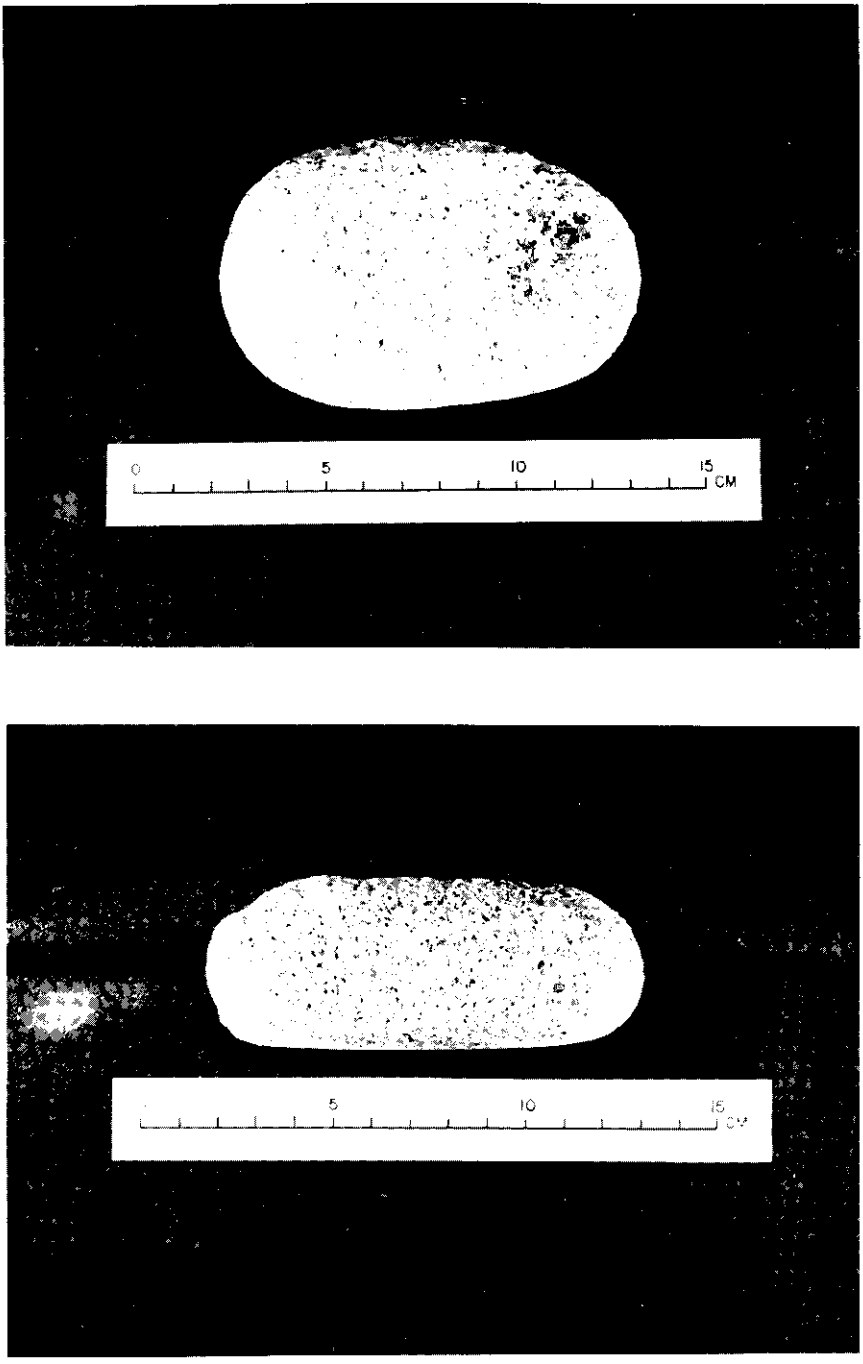


FIGURE 12. Handstone (a) top view and (b) side view, recovered from the ground surface of TP 27S, 30W (cat. #5GN344-1x).

available evidence indicates a post-5,000 years BP appearance (hence, post-Altithermal) for this widespread style, which is believed affiliated with McKean complex materials (but see Guthrie 1981:43-44; cf. Lobdell 1974 and Gooding 1981:13 & 27). Holmer (1978) calls such specimens San Rafael side-notched points in the Basin-Plateau area and dates them between 4,600 and 3,700 years BP, a slightly restricted temporal range from the 5,000-3,000 years BP time span quoted from the Northwestern Plains (Frison, et al. 1974) where the point type was defined.

Finally, discovery of a temporary structure (Feature 1) and probable roasting hearth (Feature 3) at 5GN344 provides excellent support for the lithic site typology developed by Kenneth Kvamme for the Upper Gunnison Basin (Kvamme 1980; Kvamme and Black n.d.). Based on site size, artifact density, tool diversity, tool-to-debitage ratios, and other feature and lithic artifact characteristics Kvamme identified seven different site types. These include habitations, short-term camps, chipping sites, tool kit sites, quarries, hunting blinds and tool sharpening sites. At 5GN344 site size and artifact density are moderate, and both tool diversity and the tool-to-debitage ratio are high, indicative of a variety of activities having taken place such as at a short-term camp, but not as intensely as at a habitation (long-term camp). Thus, the site would be classified as a short-term camp regardless of the presence of the temporary shelter or roasting hearth. Such an objective classification system holds great promise in the initial analysis of lithic site function, particularly in the burgeoning number of cultural resource inventories conducted by contract archaeologists throughout Colorado and the intermountain west.

DISCUSSION

The wide range of projectile point styles represented here (Figure 11) suggests that the knoll saw repeated use as a temporary camp site. Both animal and seed procurement and processing, as well as tool finishing and resharpening, appear to have been among the activities performed as inferred from the artifacts and flotation samples (no faunal remains were found). Early autumn (August-October) was probably the season when these activities took place, since grass seeds would ripen then at this high elevation and game animals such as deer and elk would not have completed their migration to lower valleys. However, the time of occupation in any one year probably did not last long, perhaps on the order of a few days.

That the area provides a diverse range of resources is obvious; conifer woodlands, aspen groves, sagebrush-grasslands, and lush marshes and lakeshores are all within a half hour's walk from the knoll. Markgraf and Scott (1981:233), using palynological data from Alkali Basin, suggest that climatic changes toward present conditions occurred between 5,000 and 4,000 years BP, including a brief pinyon pine expansion shortly before 4,000 years BP. By 4,000 years BP vegetation zones were essentially similar to today's, so that the Middle Archaic occupants of 5GN344 likely encountered the overall environmental diversity we see

today. (It should be noted that the radiocarbon dates reported by Markgraf and Scott, and the date from 5GN344, are uncorrected. Using the bristlecone pine calibration table of Damon, et al. [1974] would increase the age of the Middle Archaic period component at 5GN344, and the age of the onset of modern environmental conditions, to ca. 4,600 calendar years BP.)

It is apparent that 5GN344 was a favored high altitude short-term camp site, utilized at various times through the Middle Archaic and Late Prehistoric periods. The presence of a prehistoric wickiup-like structure in the Colorado mountains is itself a significant discovery regardless of its actual age, and the wide range of artifact, pollen, and macrofloral evidence gathered here further enhances the importance of this site.

These data provide hard evidence for Archaic adaptive patterns in a high altitude environment. They are especially welcome for understanding the archaeology of the Southern Rocky Mountains, above the limits of pinyon growth wherein aboriginal groups are said to have spent much of their time, particularly in the spring and fall seasons (Grady 1980; Stiger 1981). The evidence for grass seed procurement and processing indicates late season exploitation at higher altitudes of plants also available earlier in the year at lower elevations, rather than utilization of floral resources limited to sub-alpine environments. Thus, Steward's (1938) model of Shoshonean subsistence patterns is at least partially applicable to Colorado mountain Archaic groups, based on these limited data. Of course, grasses were not the only floral resources exploited prehistorically. Scott (1981b), Gasser (1981), and Weber (1982) provide direct evidence for prehistoric use of bee plant, prickly pear cactus, bulrush, false buckwheat and mustard in the Colorado mountains (also see Scott and Seward 1981, Stiger 1982, Klesert and Seward 1982).

Evidence of prehistoric structures utilized by hunter-gatherer groups likewise has been generally lacking in the mountains. Previous research indicated their first appearance on the Great Plains (e.g., Irwin-Williams, et al. 1973; Frison 1978; Shields 1980). Fortunately, more investigators are becoming sensitized to the possible presence of structures at lithic sites; recent excavations in Curecanti National Recreation Area (Euler and Stiger 1981; Stiger 1981; cf. Jones 1982) and near Granby (Wheeler and Martin 1982) revealed probable structures in Archaic contexts that complement the 5GN344 data. Even given their elusiveness in detection, however, it should surprise no one that Archaic groups built temporary shelters. Our excavation crew who endured biting winds and snow squalls in summery August would attest to that. It is interesting that these temporary structures in the high mountains appear to conform in size and shape to ethnographically described shelters of hunter-gatherer groups in adjacent areas of the northern Colorado Plateau (Jennings 1978; Smith 1974). It remains to be seen what diversity in prehistoric shelters will emerge through time and space upon further research.

While the age of Feature 1 is subject to dispute, its characteristics as a temporary shelter seen in the light of the recent evidence for more substantial structures in the Curecanti Basin lead to hypotheses regard-

ing the prehistoric hunter-gatherer seasonal round. If Feature 1 is contemporaneous with the Archaic jacal-like structures at Curecanti—and only more research can decide this issue—then a plausible reconstruction of prehistoric movements in the Upper Gunnison Basin might be as follows (cf. Black 1982:165-168).

Base camps were established along major stream systems such as the Gunnison River and Tomichi Creek, and were occupied for weeks at a time. Favored camp sites were near tool stone outcrops and on landforms affording vantage points for observation of game. The ecological diversity of the Upper Gunnison Basin would suggest that enough resources could be procured in the immediate area of the base camps to sustain the occupants through the spring and summer months. Approaching cooler weather, however, would necessitate stockpiling of goods for the coming winter months. In Binford's (1980) terminology, these groups would be considered collectors rather than foragers. At such times, far ranging forays into the high country for late season collecting of floral resources and big game hunting would take place. Seed crops that could be collected earlier in the season near the low elevation base camps would just be ripening in the autumn months at the higher altitudes—such as at 5GN344.

If limber or ponderosa pine forests covered much of the Upper Gunnison Basin between 10,000 and 4,000 years ago (Markgraf and Scott 1981), the riverside base camps may have been sheltered enough from bitter winds and cold air drainage effects to serve as winter encampments. The few cist-like features found at Early Archaic Curecanti sites may have functioned as storage structures for goods brought in by high country resource procurement parties. Particularly between 5,000 and 4,000 years BP, if the postulated short-term pinyon pine expansion is correct (Markgraf and Scott 1981:233), late season resources collected at 5GN344-type camps may have supplemented a pinyon nut harvest and allowed a more sedentary existence within the Upper Gunnison Basin into the winter months. Pooling of resources by coalesced bands and storage efforts by individual groups are alternative strategies that may have been employed prehistorically to reduce risks involved in a winter occupation (Wiessner 1982). Given the relative scarcity of cist-like storage features found at most Curecanti sites, it is difficult to assess the degree to which storage of subsistence goods was employed in the pre-4,000 BP era based on present evidence.

Compared to the ameliorated conditions during the brief pinyon pine expansion, by 4,000 years BP the environment of the Upper Gunnison Basin apparently had cooled slightly and deforested to its present shrub-dominated appearance. If the climate over the past 4,000 years was comparable to today's, the Basin may have been too open and windy to make a winter occupation reasonable. Thus, a migration to warmer valleys such as the Uncompahgre might have taken place once late season hunting and collecting had ceased to be productive. The *apparent* lack of structural evidence at Curecanti after ca. 4,000-3,500 years BP (Euler and Stiger 1981; Stiger 1981; Jones 1982) may reflect increased year-round mobility of aboriginal groups since that time. This mobility is ex-

emplified in ethnographic descriptions of the local Ute occupation (e.g., Stewart 1966, 1973; Smith 1974; Petersen 1977). Concomitantly, resource stockpiling strategies for winter use may have been altered; e.g., migrations to wintering grounds may have begun somewhat earlier in the fall in order to collect and cache sufficient resources at those more distant winter camps (cf. Steward 1938:232-233). Historic Ute economic patterns may not be directly comparable to the prehistoric seasonal round, since acquisition of the horse allowed the Utes to store greater amounts of food and support larger winter encampments (e.g., Smith 1974:121-124).

Numerous assumptions are implicit in this reconstruction and, of course, future research may radically alter the details. For instance, while the seasonality of use of 5GN344 is fairly certain, much less is known about the duration or time of year of the occupations at Curecanti. It is possible that the jacal-like technology in use there allowed a winter occupation (Stiger personal communication), although the severity of Curecanti winters and the proximity of warmer western valleys argues against it for the post-4,000 BP era. It is also possible that Curecanti events were local precocious developments unrelated to happenings elsewhere in the Upper Gunnison Basin, including 5GN344. On present evidence, however, I would suggest that 5GN344 is a typical high altitude autumn camp site where floral and faunal resources were procured, at least partially processed, and transported to low elevation base camps for winter use. Only future research can assess the accuracy of this model.

CONCLUSIONS

Test excavations were conducted at 5GN344 in the Alkali Basin south of Crested Butte, Colorado in 1979. Surface and subsurface evidence indicates the site was occupied at least twice, during the Middle Archaic and Late Prehistoric periods, as a short-term camp. Three features were identified, including a post mold arrangement thought to be the remains of a temporary wickiup-like structure. Artifact and macrofloral evidence for both faunal and floral resource procurement and processing also has been recovered. The site's intrinsic archaeological importance has resulted in its evaluation as eligible for the National Register of Historic Places. More extensive excavations are recommended if future impacts threaten the site area.

The results of excavations such as at 5GN344 should inspire more detailed inspections of sites in the mountains. While preservation is generally poor in the high country, archaeological sites are a relatively untapped resource against which many of the hypotheses developed from ethnographic data can be profitably tested. The Colorado mountains were not merely stopover places for Indians enroute elsewhere. They contain an abundance of floral, faunal, and lithic resources highly sought by prehistoric groups. The Upper Gunnison Basin was one such valued place, and future research can do nothing less than enhance our appreciation of that value.

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