

# MUSEUM OF NEW MEXICO

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OFFICE OF ARCHAEOLOGICAL STUDIES

## ARCHAEOLOGY OF THE MOGOLLON HIGHLANDS: SETTLEMENT SYSTEMS AND ADAPTATIONS

edited by Yvonne R. Oakes and Dorothy A. Zamora

### VOLUME 2. SITE DESCRIPTIONS

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LA 37917 (AR-03-06-06-00825)  
ROCKY HILL

Yvonne R. Oakes

Rocky Hill was first recorded by the NMSHTD (Koczan 1982) during an initial survey of highway right-of-way along U.S. 180. The site was subsequently rerecorded and mapped by Oakes (1989). It was identified as a heavy scatter of unknown affiliation with almost 1,000 lithic artifacts extending along a ridge on both sides of U.S. 180. Numerous flakes of chert, chalcedony, and Luna blue agate were visible on the site surface. Tertiary and secondary flakes of obsidian were also present. Koczan (1982) notes that all stages of lithic reduction seemed to occur on the site.

Before excavation, the site was tested (Oakes 1990) to evaluate the depth and extent of cultural material within the proposed right-of-way including an additional 12 m of TCP (temporary construction permit area) along the north side of the highway. Eight test pits were hand-excavated on the site and as a result, it was determined that the lithics were to be found both on and below the site surface. In addition, the presence of charcoal-flecked soil in several of the test pits suggested that the site had cultural integrity. The recovery of four probably Middle to Late Archaic period projectile points and lack of ceramic artifacts indicated that the site might be of the Archaic period, dating possibly between 4500 B.C. and A.D. 200.

Subsequent excavations uncovered several more Archaic points but the C-14 dates obtained suggest a range of dates from the late 1400s to the early 1800s for the site, possibly representative of repeated Athabaskan occupations. Several concentrations of lithic artifacts were isolated, some in association with small pits containing burned dirt. Only one sherd was found, on the southern edge of the site and on the surface. It is likely not related to the extensive lithic scatter.

Site size based on visible surface artifacts was originally estimated at 9,300 sq m (Oakes 1989). After the testing program, it was reduced to 5,880 sq m (Oakes 1990). Site size was adjusted upward after excavation to produce a boundary of 112 m (north-south) by 76 m (east-west) with a site area of 6,810 sq m (Fig. 2.80).

Nearby sites include LA 70188 (AR-03-06-06-00830) and LA 78439 (AR-03-06-06-00835) on adjacent ridges to the west. These are also lithic artifact scatters with components dating to both the Archaic and the pro-

tohistoric periods. Downslope, along U.S. 180 to the east, are LA 37919 (AR-03-06-06-00826) and LA 70189. The first is another lithic artifact site of probable Athabaskan affiliation and the other is a small Reserve phase roomblock with a later Athabaskan occupation.

#### SITE SETTING

Rocky Hill is situated on a south-west facing ridge within the Gila National Forest (Fig. 2.81) and overlooks the Pine Lawn Valley in the distance. The ridge is directly adjacent to the southern base of the San Francisco Mountains. Dry Leggett Canyon runs .4 km to the south-west as an intermittent stream, but can produce substantial flows during rainy periods. Elevation of the site is 2,036 m (6,680 ft). The ridge is densely populated with low oak, piñon, yellow pine, some alligator juniper, juniper, and scattered prickly pear. However, there are small open areas between clusters of trees or shrubs.

The ground surface is covered with heavy duff and small rocks. Site surface is gently sloping to the east with steeper elevation changes outside of the site boundaries. Wild game, including deer, bear, elk, mountain lion, coyote, and javelina are common in the surrounding forest. Small oak and pinyon trees are concentrated in this area and their products would have been available prehistorically as a source of potential food. The topographic setting of the site is not conducive to agricultural pursuits.

#### RESEARCH OBJECTIVES

Research goals set forth in the data recovery plan (Oakes 1990) were based on the premise that Rocky Hill was a Middle to Late Archaic campsite because of the recovery, during testing, of four Archaic projectile points with no associated pottery. The site was to be examined in terms of biface manufacture and maintenance by Archaic populations. Subsistence strategies were to be addressed through an analysis of stone tools. The potential recovery of subsistence items, such as floral and faunal remains, from the small pits found during testing were to provide important information on resource use, seasonality of acquisition, and whether or not long-range storage or caching was involved.

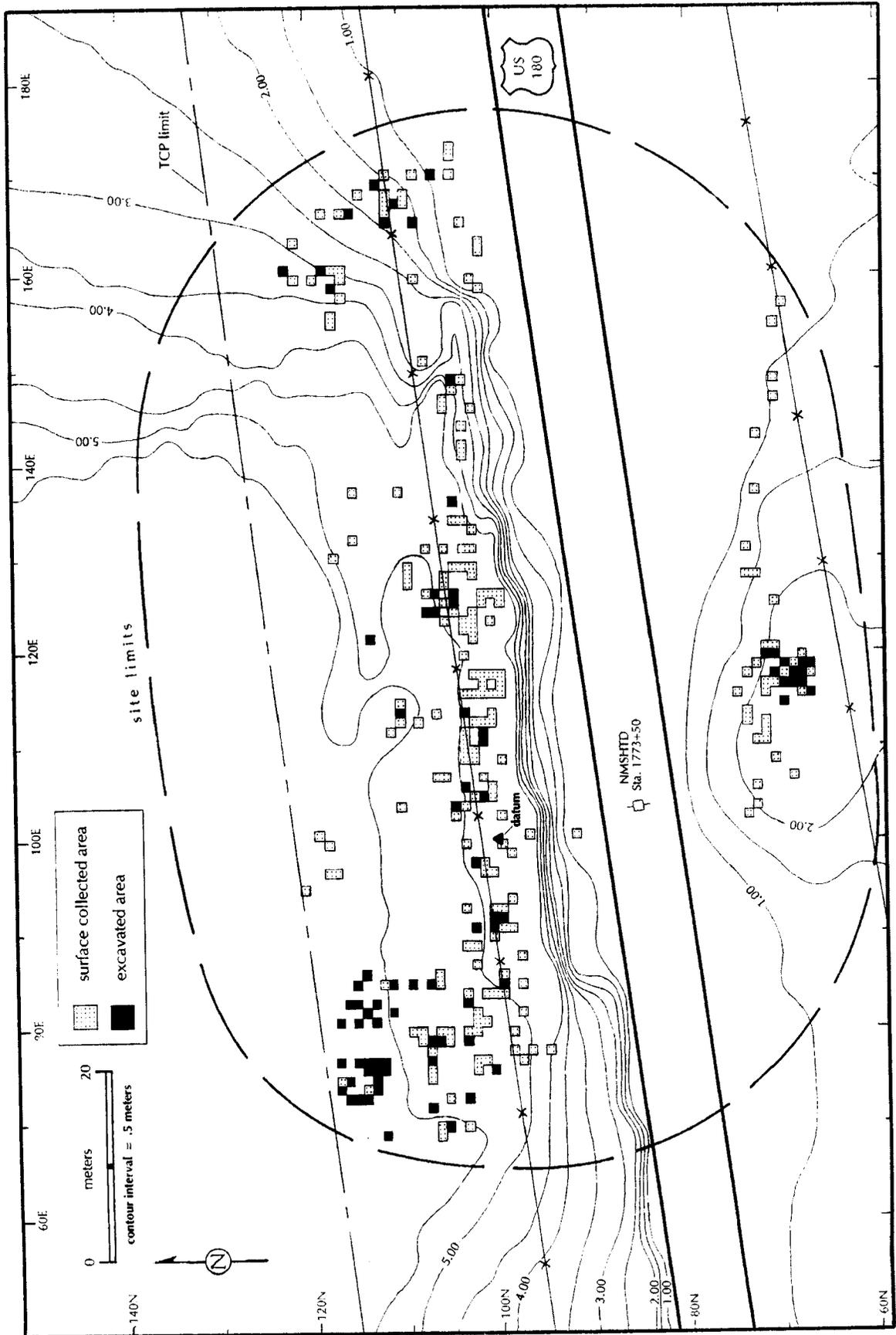


Figure 2.80. IA 37917, plan view of Rocky Hill.



Figure 2.81. Rocky Hill environs. Note large numbers of rocks on the ground, facing northwest.

As it turns out, the site proved to have an Athabaskan occupation based on the three radiocarbon dates obtained. Early Athabaskan peoples, prior to employing the horse to enhance mobility, were extremely similar in their subsistence strategies to Archaic populations, with both moving frequently over the landscape and relying heavily on hunting, foraging, and collecting for sustenance needs. Therefore, the data recovery plan for LA 37927 is as appropriate for studying Athabaskan adaptations as it is Archaic. Even less is known about early Athabaskan settlement patterns and resource utilization in the Mogollon Highlands. Thus, we addressed the same research questions as stated above with Athabaskan adaptations in mind.

#### EXCAVATION PROCEDURES

Surface artifacts were scattered along the gently sloping ridge for a distance of 112 m on the north side of U.S. 180. A small portion of the site is also on the south side of the highway. Approximately 30 percent of the site contains fairly heavy underbrush and the remaining open areas frequently are covered with heavy pine duff. However, concentrations of lithic artifacts were visible across the site. A testing program was implemented to determine the depth and extent of cultural materials

(Oakes 1990).

Eight 1-by-1-m test pits were placed at various locations on the site in areas of artifact concentrations, and one (Grid 104N/105E) was placed within a small depression. They extended from 20 to 40 cm (average of 31.1 cm) below the present ground surface. Auger tests were also conducted at the bottom of each test pit to confirm the presence of culturally sterile soil, which is a very dense, plastic, reddish brown to dark brown clay (Munsell color 7.5YR 3/2 to 10YR 5/3). The fill above this sterile substrate is a hard-packed sandy loam with gravels and small cobbles often present.

Five of the test pits (1, 2, 6, 8, and 9) produced small amounts of charcoal in the upper 20 cm of fill. Two of the pits (6 and 8) had possible compacted surfaces at 27 and 16 cm respectively. Because of the limited nature of the testing it was not possible to determine if these were the bottoms of small pits, hearths, or former utilized extranural surfaces. The site was recommended for further archaeological investigation.

During the testing program, 51 lithic artifacts were collected from eight test pits and the site surface. Included in this count were four projectile points, two biface fragments, and a uniface. The points include one partial basalt corner-notched point of probable Archaic affiliation, one rhyolite San Pedro point, and two basalt

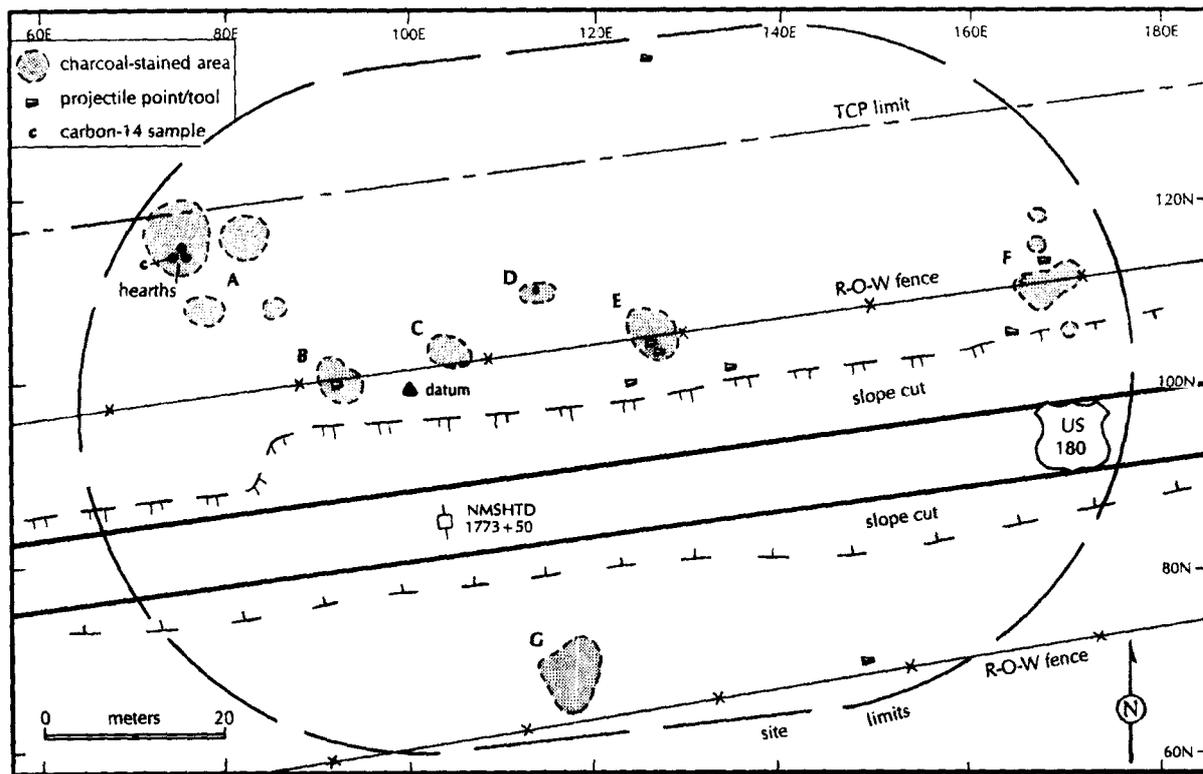


Figure 2.82. LA 37917, charcoal-stained areas, A-G.

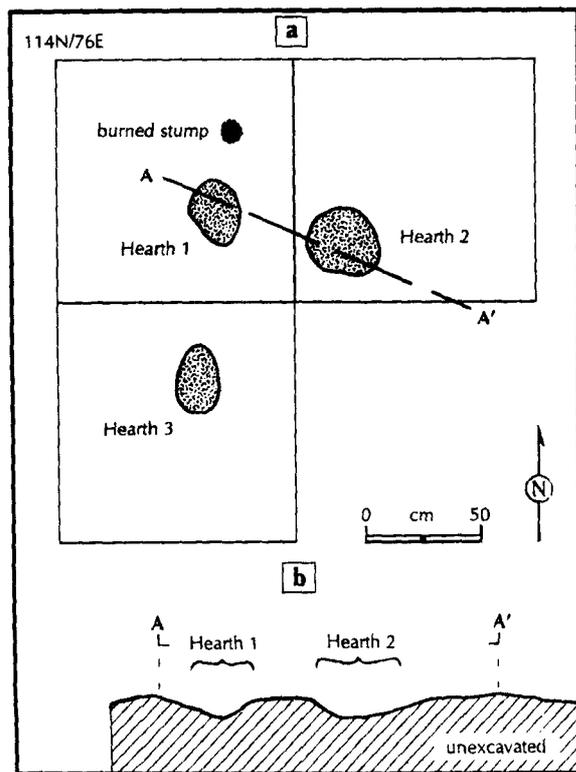


Figure 2.83. Charcoal-filled pits and hearths in Area A.

Augustin points. These four types are thought to have been made during the Middle to Late Archaic period from ca. 4500 B.C. to A.D. 200.

Excavation procedures at LA 37917 were conducted in 1990. First, using a transit and stadia rod stationed at a main datum (Grid 100N/100E), a series of 1-by-1-m grids aligned north-south were laid out over the site. During the course of fieldwork, two additional subdatums were also established. Then, all surface artifacts were pinflagged. Selection of areas for further investigation was based on an evaluation of the testing program and the clustering of the remaining surface artifacts. Those units which produced charcoal flecking, possible pits, and higher numbers of artifacts were expanded through hand-excavation.

Testing previously determined that the soil became culturally sterile after the very plastic, reddish brown clay was reached. This level was easy to follow over the entire site. Soil matrix above the sterile reddish brown clay was consistently a sandy loam grading to a dark brown clay. All cultural fill was removed with hand tools to the depth of this substrate. No definite stratigraphic breaks were observed. Where fill was over 10 cm in depth, arbitrary levels 1 (0-10 cm) and 2 (10+ cm) were used to separate cultural materials. All fill was screened through ¼-inch mesh.

As a result of testing and excavation procedures

within the right-of-way and TCP areas, 275 sq m (81 grid squares excavated and 194 collected) were examined with excavations reaching a mean depth of 22.8 cm; 18.5 cu m of soil were removed from the site.

### CULTURAL UNITS

Seven discrete areas of subsurface charcoal-flecked soil were isolated through the excavations at Rocky Hill (Fig. 2.82). From three of these (Areas A, D, and F) radiocarbon samples were obtained for dating the site. These charcoal areas seem to represent cultural features such as former hearths or locales for expediently built fires because of the definite association of artifacts with them.

Area A consisted of four tightly grouped charcoal-stained areas. The largest contained three closely associated, charcoal-filled hearths (Fig. 2.83). All are small depressions, irregular in shape, and all produced charcoal. A radiocarbon and a macrobotanical sample were taken from Hearth 1. Another macrobotanical sample was obtained from Hearth 3. Dimensions of the three hearths are:

Hearth 1: 26 by 20 by 7 cm

Hearth 2: 30 by 31 by 6 cm

Hearth 3: 28 by 16 by 7 cm

Their small size and shallowness suggest a single use in each case. No artifacts were found within the hearths; however, they did cluster around them.

Area B had several grids with fist-sized rocks mixed with the charcoal flecking in the fill. Maximum depth of excavations in this area was 26 cm but no hearth or pit was found. Artifacts in Area B were concentrated near the grids containing charcoal.

Area C was another locus of charcoal-flecked soil containing small, unburned rocks. Stained soil in this area extended to 41 cm below the surface, one of the deepest areas on the site. Artifacts were recovered from throughout the fill. No compacted surfaces, hearths, or pits could be found, however.

Area D is a small area that contained only three artifacts but charcoal-flecked soil was present to a depth of 40 cm where numerous unburned rocks were concentrated. No cultural features were evident. This is the only charcoal concentration that did not have higher frequencies of artifacts clustered around it. Because of the density of charcoal, however, a C-14 sample was taken and used to assist in dating the site.

Area F contained four closely clustered charcoal-stained areas. The largest had a fairly large charcoal stain surrounded by numerous artifacts. Several fist-sized rocks were present in the fill, which reached a depth of

38 cm. Artifacts were also found within this fill; however, no cultural surfaces were found. A C-14 sample was taken from this fill.

Area G was a large charcoal scatter located on the south edge of the site. Two test pits in this area uncovered a possible surface at 29 cm below the ground level that consisted of a very thin (2 cm) layer of sand at the bottom of the sparse charcoal-flecked fill and the beginning of a red clay level. Another sand lens was found 2 cm below the first one. These surfaces disappeared when attempts to trace them were made. Within the fill, few artifacts and a small number of rocks were encountered. However, the four faunal fragments recovered from the site were from the fill of Area G. All were burned. A bone awl was also found here. While no cultural features were identified, this area most likely once contained a hearth or roasting pit because of the possible surfaces and the presence of burned faunal remains and charcoal.

### ARTIFACTS

A total of 671 artifacts were recovered from Rocky Hill. Most (99.1 percent) are lithic artifacts with an additional four faunal fragments, one bone awl, and a single sherd.

#### *Ceramics*

The single sherd is an Alma Plain Ware and indicates a Mogollon association from A.D. 250 to 1300. Because it was the only ceramic found, and it was located on the edge of the site, it is considered intrusive and not relevant to the main site occupation.

#### *Lithic Artifacts*

The lithic artifacts as sorted by morphological type and material are listed in Table 2.25. Luna blue agate and chert are available within site boundaries and account for 55.2 percent of the material types. The high number of core flakes from these two materials implies that quarrying was a primary activity on the site.

Of the eleven bifaces recovered, seven are projectile points (Table 2.26). Five of the seven, plus a bifacial tool, have an association with charcoal-stained areas (see Fig. 2.82). Another five of the seven points (71.4 percent) could be considered to date from the Middle to Late Archaic periods. Two basalt points are Augustin points, which usually have a Middle Archaic date range from about 3500 B.C. to 1500 B.C. Three other points are similar to San Pedro types, which date to the Late Archaic period generally between 1500 B.C. and A.D. 250. One point is too fragmentary and cannot be classified. Another small, crudely made, unnotched obsidian point

Table 2.25. Summary of Lithic Artifacts, LA 37917

Cells: Count Row Percent Column Percent	Artifact Morphology						Row Total	
	Angular Debris	Core Flake	Biface Flake	Tested Cobble	Core	Uniface		Biface
Chert	40 24.0% 31.0%	117 70.1% 23.8%	2 1.2% 11.1%	2 1.2% 11.1%	2 1.2% 11.1%		4 2.4% 36.4%	167 100.0% 25.1%
Chalcedony	3 37.5% 2.3%	5 62.5% 1.0%						8 100.0% 1.2%
Luna Blue Agate	62 31.0% 48.1%	131 65.5% 26.7%		2 1.0% 59.0%	5 2.5% 50.0%			200 100.0% 30.1%
Obsidian	5 5.3% 3.9%	74 77.9% 15.1%	14 14.7% 77.6%				2 2.1% 18.2%	95 100.0% 14.3%
Igneous	2 25.0% 1.6%	5 62.5% 1.0%				1 12.5% 50.0%		8 100.0% 1.2%
Basalt	3 5.4% 2.3%	48 85.7% 9.8%				1 1.8% 50.0%	4 7.1% 36.4%	56 100.0% 8.4%
Rhyolite	14 12.3% 10.9%	96 84.2% 19.6%	2 1.8% 11.1%		1 9% 100.0%		1 9% 9.1%	114 100.0% 17.1%
Metamorphic		5 71.4% 1.0%			2 28.6% 20.0%			7 100.0% 1.1%
Quartzite		6 100.0% 1.2%						6 100.0% 9%
Quartzitic sandstone		4 100.0% .8%						4 100.0% .5%
Column Total	129 19.4% 100.0%	491 73.8% 100.0%	18 2.7% 10.0%	4 6% 100.0%	10 1.5% 100.0%	2 3% 100.0%	11 1.7% 100.0%	665 100.0% 100.0%

Table 2.26. Projectile Points, LA 37917

Cells: Count Row Percent Column Percent	Material Type				Row Total
	Chert	Obsidian	Basalt	Rhyolite	
Unidentified projectile point		1 50.0% 50.0%			2 100.0% 28.6%
Medium lateral notched	1 33.3% 50.0%		1 33.3% 33.3%	1 33.3% 100.0%	3 100.0% 42.8%
Augustin point			2 100.0% 66.7%		2 100.0% 28.6%
Column Total	2 28.6% 100.0%	1 14.3% 100.0%	3 42.9% 100.0%	1 14.3% 100.0%	7 100.0% 100.0%

is clearly not an Archaic point and we speculate that it may be associated with the Athabaskan occupation of the site. An almost identical, but broken, obsidian point was seen on the initial survey of the site (Koczan 1982) but was not relocated during excavations. Curation of Archaic projectile points by Athabaskan peoples may be a pattern of Athabaskan lithic utilization within the

Mogollon Highlands, as this seems to have occurred on other excavated sites on this project, such as the Old Peralta site, LA 43766.

#### Bone Tools

A single bone awl was found in Area G associated with

a concentration of artifacts and charcoal-stained soil.

## ANCILLARY STUDIES

### *Faunal Remains*

Four faunal fragments were recovered from the southern portion of the site. These consist of mid-to-large-sized mammal bones, one of which can be identified as deer. All were located in the fill within the single charcoal-stained area south of the highway. All were burned. Hunting of these larger mammals by site occupants is implied.

### *Macrobotanical Remains*

Two flotation samples were examined from Rocky Hill. Only uncharred plant remains were recovered from Hearths 1 and 3 of Area A, including poverty weed and portulaca seeds, juniper leaves, and pine needles. These are most likely modern contaminants. Wood charcoal identified from LA 37917 was predominantly juniper with small amounts of piñon and undetermined conifer. These taxa would have been locally available.

## DATING METHODS

Three radiocarbon dates were obtained for Rocky Hill (Table 2.27). All three C-14 dates strongly indicate an Athabaskan presence at three discrete localities on the site. Also, five pieces of obsidian from the site were submitted to the Obsidian Hydration Laboratory at UCLA for dating. Four of the five pieces produced dates ranging between 13,694 B.C. and 2392 B.C. Only one date, at A.D. 1372, comes fairly close to matching the radiocarbon dates obtained.

To summarize these radiocarbon data, Area A has a strong 2-sigma calibrated date between A.D. 1640 and 1950. The intercept dates range from 1700 to 1920. The conventional date of  $1830 \pm 100$  seems to fall in the middle of this range. Area D has a 2-sigma calibrated range

of A.D. 1400 to 1950 with intercept dates between 1530 and 1630. Area F has a strong 2-sigma calibrated range of A.D. 1400 to 1530 with an intercept date of 1440. While the problem of using old wood in these burned areas may exist, creating the reading of earlier dates, the resultant later time frames would still likely indicate an Athabaskan occupation. However, given the above dates, there seems to be multiple Athabaskan occupations with statistical manipulation finding no significant overlap between the three dates at the 95 percent confidence level. Area D does statistically overlap slightly with each of the other two dates, but because of its spatial separation from the other areas, it likely represents a separate occupation.

While most of the lithic material on the site is non-diagnostic, five of the seven projectile points suggest an Archaic presence on the site or curation of Archaic points by Athabaskans. These points are scattered over the ridge and range in time from Middle to Late Archaic. They vary quite a bit stylistically and include Augustin, San Pedro, and a large, corner-notched type.

## SITE INTERPRETATION

Rocky Hill would seem to have a history of repeated use during both the Athabaskan and Archaic periods. The specific environmental attributes of the site may have attracted populations from both periods even though the ridge and the surrounding area are densely covered with shrubs and brush, open patches are few, the ground is covered with rocks, and agriculture is not a viable pursuit. However, the presence of abundant wild game and the availability of piñon nuts and acorns from the vicinity would be most attractive to both Athabaskan and Archaic hunters and gatherers.

Occupation during either period was apparently of short duration. The three hearths in Area A are very small, single-use facilities, and the combination of erosion and repeated use of the ridge seems to have blurred the visibility of any remaining hearths or roasting pits that likely were present. Artifacts cluster into discrete

Table 2.27. C-14 Dates for LA 37917

Unit	Beta No	Age B.P.	Calibrated 1 Sigma Date	Calibrated 2 Sigma Date	Intercept Date	Context
114N/76E	57449	120±100	A.D. 1670-1950	A.D. 1530-1950 1640-1950	A.D. 1700, 1720, 1820, 1850, 1860, 1920	Area A
111N/113E	57450	330±130	A.D. 1440-1670 1780-1790 1950-1950	A.D. 1400-1950	A.D. 1530, 1560 1630	Area D
112N/164E	64061	460±70	A.D. 1420-1480	A.D. 1400-1530 1550-1640	A.D. 1440	Area F

areas around these potential hearth areas.

While there are a variety of Archaic projectile points on the site, there were no C-14 dates to match an Archaic occupation. Because both populations primarily used ground surfaces only, the later Athabaskan use of the ridge may have obliterated all trace of any earlier Archaic occupation. Or it may be that Archaic peoples used the area very minimally, for hunting or expedient gathering, and left only a few projectile points. Therefore, while Athabaskan groups seem to have definitely had short-term campsites on the ridge, we cannot be as positive about Archaic peoples utilizing the area.

The recovery of three radiocarbon dates placing the site occupation into the Athabaskan period sporadically from about A.D. 1490 to 1830 is extremely important. Rocky Hill is only one of a very few sites in the Mogollon Highlands that have been identified as

Athabaskan. While 13 percent of the lithic artifacts show burning, these artifacts do not cluster into particular areas or into the charcoal localities on the site. The presence of burned and unburned materials together in the same depositional levels argues for purposeful heat-treating of those 81 artifacts by site occupants.

In summary, we conclude that Rocky Hill, as an attractive resource location for hunter-gatherer groups, was occupied repeatedly during the protohistoric period by Athabaskan populations— never for very long periods or by very many people. The area was probably used as a short-term campsite with activities definitely including hunting, quarrying of Luna blue agate and cherts, and very likely subsistence gathering of acorns and piñon nuts. The hunting and gathering resources suggest that there probably was a fall seasonal pattern to these occupations.