

**THE PREHISTORIC SOCIAL LANDSCAPE OF THE ROSWELL OASIS  
AND THE 1980 EXCAVATIONS AT THE ROCKY ARROYO SITE (LA 25277)  
CHAVES COUNTY, NEW MEXICO**

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# TABLE OF CONTENTS

	Page
List of Figures.....	v
List of Tables.....	v
Acknowledgments.....	vi
1. INTRODUCTION.....	1
2. SITE CONTEXT.....	5
Natural Setting.....	5
Cultural Setting.....	8
3. EXCAVATIONS AT THE ROCKY ARROYO SITE.....	13
Structure Description.....	18
4. PORTABLE MATERIAL CULTURE.....	21
Hunting Related Artifacts.....	21
Projectile Points and Preforms.....	21
Food Processing Artifacts.....	21
Manufacturing Tools.....	25
Scrapers.....	25
Awls.....	25
Recreational, Ornamental, or Ceremonial Artifacts.....	25
Pipe.....	25
Gaming Pieces.....	25
Mano.....	29
Pendant.....	29
Tubular Bone Beads.....	29
<i>Olivella</i> Shell Bead.....	30
Bone Tube.....	30
Hematite Cylinder.....	30
Miscellaneous Artifacts.....	30
Large Biface Fragment.....	30
Red Clay Tablet.....	30
Lozenge-shaped Antler Artifact.....	31
Worked Sherds.....	31
Flake Tools (Utilized Flakes).....	33
Pottery.....	33
Chupadero Black-on-white.....	36
Lincoln Black-on-red.....	36
El Paso Polychrome.....	37
Corona Corrugated.....	37

## TABLE OF CONTENTS, *continued*

	Page
4. MATERIAL CULTURE, <i>continued</i>	
Pottery, <i>continued</i>	
St. Johns Polychrome and Springerville Polychrome.....	37
Minimum Numbers of Vessels (MNV).....	38
Comparison of the Assemblages.....	40
Integrity of the Deposits in Feature 2.....	41
Chipped Stone Manufacturing Debris (“Debitage”).....	41
Cores.....	41
Core Reduction Flakes.....	42
Tool Stone Raw Materials.....	42
Local Gray Cherts.....	42
Imported Chert.....	43
Other Cherts.....	44
Chalcedonies.....	44
Miscellaneous Materials.....	44
Unmodified Minerals.....	44
Anhydrite.....	44
5. DATING.....	45
Radiocarbon Dating.....	45
Ceramic Dating.....	45
6. FLORAL AND FAUNAL REMAINS.....	49
Pollen Analysis of the Rocky Arroyo Site, A Pilot Study, <i>by Stephen A. Hall</i> .....	49
Introduction.....	49
Methods.....	49
Pollen Preservation.....	50
Pollen Concentration.....	50
Paleovegetation.....	50
Ethnobotany.....	52
Summary.....	52
Faunal Remains.....	52
7. DISCUSSION.....	53
8. SUMMARY AND CONCLUSIONS.....	63
Appendix A. CHAVES CO. ARCHAEOLOGICAL SOCIETY, <i>by Jack A. Ross</i> .....	75
Appendix B. UNUSUAL ADOBE ITEMS FROM THE ROCKY ARROYO SITE.....	77

## FIGURES

	Page
1. The Roswell area, showing the location of Rocky Arroyo and other sites.....	2
2. The Rocky Arroyo site, showing the local terrain and plant cover.....	5
3. Plan of the Rocky Arroyo site.....	13
4. Close-up of site, showing extent of digging by CCAS.....	14
5. Feature 2 before the start of our excavations.....	14
6. Plan of Structure 2, with profiles of the floor features.....	16
7. Stratigraphic profile of Structure 2 fill.....	17
8. Structure 2 after excavation.....	19
9. Projectile points.....	23
10. Thickness versus weight in Washita, Harrell, and “Fresno” Points.....	24
11. Miscellaneous artifacts.....	26
12. Bone and shell artifacts.....	27
13. Bone awls, complete and fragmentary.....	28
14. Gaming pieces made from turtle plastron.....	29
15. Fragments of a red clay tablet.....	31
16. Worked sherds.....	32
17. El Paso Polychrome rim profiles.....	38
18. Hair ornament with a plumed serpent/Quetzalcoatl motif.....	64
19. Photograph of adobe items found on the floor of Feature 1.....	78

## TABLES

1. Projectile Point Data.....	23
2. Pottery Frequency Distributions.....	34
3. Pottery Percentage Distributions for the Major Types.....	35
4. INAA Composition of Groups for Chupadero Black-on-white.....	37
5. Minimum Numbers of Vessels by Pottery Type, for Selected Excavation Units.....	39
6. Percentages of Minimum Numbers of Vessels by Pottery Type.....	39
7. Percentages of MNVs by Combined Categories.....	40
8. Summary of Debitage from Feature 2.....	41
9. Descriptive Statistics for Core Reduction Flakes from Feature 2.....	42
10. Percentages of Lithic Raw Materials for Debitage.....	43
11. Radiocarbon Dates from Feature 2.....	45
12. Dates of Selected Pottery Types.....	46
13. Results of Pollen Analysis.....	51
14. Selected Pottery of the Roswell Oasis, Glencoe Phase, and Lincoln Phase.....	56

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## Chapter 1

### INTRODUCTION

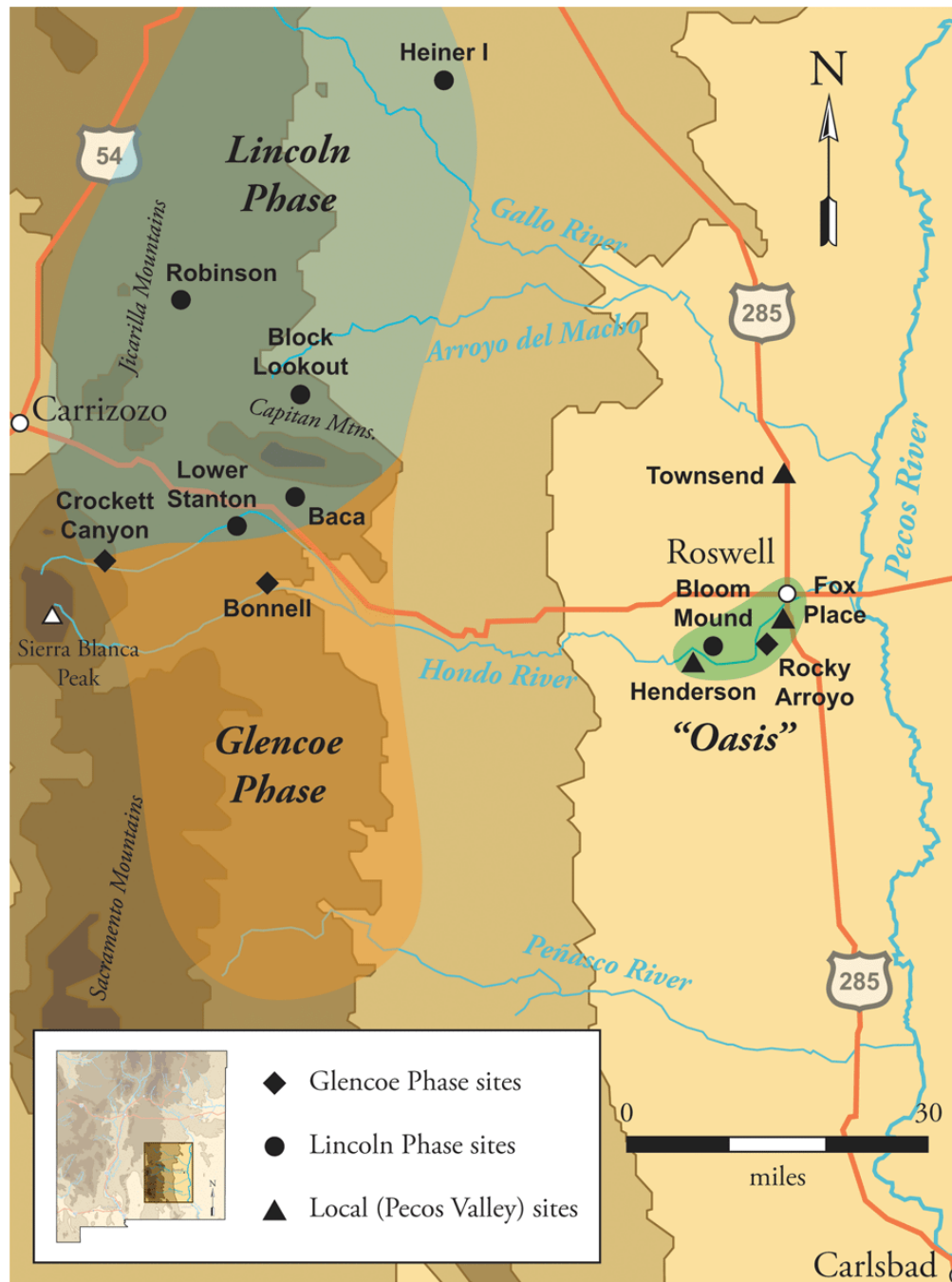
In many ways, the Roswell area prior to the coming of Euro-Americans in the mid-1800s was a veritable oasis for prehistoric humans. Life-sustaining surface water was everywhere. The surrounding plains abounded with animals, fish were plentiful in the streams, and migratory birds were bountiful in the spring and fall. Nonetheless, few archaeologists have shown an interest in the area. One reason for this indifference is an absence of appropriate construction materials, such as stone and timbers, for building structures that would leave remains readily identifiable by archaeologists. Without such ruins to quicken their interest, the area remained mostly invisible to archaeology until the late 20th century.

This neglect is changing. The first few steps taken by W. L. Wolfe (1931), J. H. Kelley (1984), and A. J. Jelinek (1967) have now given way to a variety of contract archaeology and research projects (see Parry and Speth 1984; Rocek and Speth 1986; Speth 1983, 2004; Sebastian and Larralde 1989; Wiseman 2002, 2004).

This report describes excavations at one prehistoric site near Roswell, which I call the Rocky Arroyo site (LA 25277) (Figure 1). The site was found by Jack A. Ross, who was connected with Walker Air Force Base (now decommissioned and, in part, the Roswell Industrial Air Center). In the 1950s Ross affiliated himself with the Roswell Museum and Art Center and worked with the artifact collections from Bloom Mound. He also taught children's classes on archaeology, including field excursions (surface collecting and digging) to places such as Bloom Mound and "Missouri Plaza" (Plaza San José). About this time he formed and led the second incarnation of the Roswell Archaeological Society, which he called the Chaves County Archaeological Society (Wiseman 2000a). In the early 1970s Ross was briefly affiliated for archaeological purposes with the Roswell District of the U.S. Bureau of Land Management. This affiliation came to an end a year or two later when the BLM began hiring trained archaeologists for each of their districts.

In the early to mid 1970s Ross found a site on the Brown Brothers Ranch southwest of Roswell and began excavating there using members of the RAS/CCAS as diggers (Ross 1975, reproduced as Appendix A). He designated the site CC-BR-78. By the time CCAS work ceased at the site, Ross' volunteers had dug extensively in the 20 by 30 m midden and had located and either partly or completely exposed three large pit structures. Although I visited the site on numerous occasions during Ross' excavations and visited his home to view artifacts from the site, I did not become actively involved in the site or the materials until after he ended his fieldwork. On my last visit to his home, Ross showed me the interesting adobe objects that his volunteers had recovered from the floor in the northwest corner of the structure I call Feature 1 (Appendix B).

Few details of Ross' work at Rocky Arroyo have survived. Based on remembered snatches of conversation and my later work at the site, Ross and his crew found three pit structures and what appeared to be two smaller, unexcavated pit structures in addition to the large midden. The approximate dimensions of the partly or fully excavated structures are as follows: Feature 1, 4 by 4 m; Feature , 5 by 5 m; Feature 3, 4 by 5 m. All three structures were about 2 m deep.



**Figure 1.** The Roswell area, showing the location of Rocky Arroyo and other sites.

Ross told me that one or more walls of Feature 3 were painted but by 1980, no traces of paint remained to confirm his report. On another occasion, I asked Ross about the projectile points from the site, for I had found one on a backdirt pile awaiting screening (no one else, including Ross, was at the site at the time). He told me that he let the CCAS members keep the points “because they worked for free in the hot sun”!



By the late 1970s, Ross' interest in and work at the site ceased. Deterioration of the excavations and structures began in earnest. After consulting with John Speth, who was working at the Garnsey sites at the time, I made the decision to become directly involved at Rocky Arroyo. I obtained permission from the landowner, Mr. Byron Brown of the Brown Brothers Ranch, to complete the excavation of Feature 2 and recruited three volunteer excavators for work in the fall of 1980. Shortly afterward, Bill Turney, a civil engineer in Santa Fe, instrument-mapped the site and tied it into a nearby section marker. He also suggested a clever way to place hidden permanent markers at the site that will allow our mapping grid to be established. With financial assistance from Speth, I then hired a bulldozer operator and backfilled the site.

Many years later I was invited by Ross' daughter to advise her regarding the collections and records her father had made over the years. She permitted me to take collections and records of which I could make good use or for which I could find a good home. However, I obtained no collections from Rocky Arroyo other than a couple boxes of unprovenienced sherds. I was able to find only minimal excavation notes and drawings (but no photographs) concerning the site or the digging that Ross and his volunteers had done there.

Preliminary information derived from my work at Rocky Arroyo has already been presented in a variety of papers and reports (Wiseman 1985, 2002; see also Emslie et al. 1992). This report presents the results of the excavation of Feature 2 and an analysis of artifacts and other materials retrieved from its fill and from artifact piles that Ross' workers had left behind.

The Rocky Arroyo site is located on patented (private) land. No federal, state, or other public monies were expended on the field work and no permits were required. Facilities for the analysis of the artifacts and the production of this manuscript were provided by the Office of Archaeological Studies, Museum of New Mexico (State of New Mexico) while I was a state employee (through 1999), and then during my tenure as a Research Associate of the OAS beginning in 2000. The collections and field records for the study are curated at the Laboratory of Anthropology/Museum of Indian Arts and Culture, Santa Fe.



## Chapter 2

### SITE CONTEXT

#### Natural Setting

This section is repeated almost verbatim from a previous report (Wiseman 2002:3–4), with changes and additions appropriate for the Rocky Arroyo site. In some ways the physical appearance of the Roswell area, excluding its city and farms, has not changed much over the past 100 years. It was, and still is, a plains environment with broad expanses of grass and scrubland, and with trees almost entirely limited to water courses (Figure 2).



**Figure 2.** The Rocky Arroyo site, showing the local terrain and plant cover.

But to naturalists and ecologists, the changes have been profound. At an early Jornada Conference held in Portales years ago, I read the following description of the Roswell area based on eyewitness accounts of Euroamerican pioneers in the late 1800s:

In the early days the soil was covered with grama grass ... There was not an indigenous tree anywhere to be seen, except along the banks of the Hondo, which were dotted with ash and hackberries, with occasional specimens of boxwood, elm, and walnut. These tree were nature's arbor for thousands of wild grapevines ... Antelope were more plentiful than cattle and there were thousands of quail and

rabbits with ducks, geese, and sandhill cranes in season ... Six rivers within four miles [6.4 km] ... literally alive, all of them with fish. Catfish, sunfish, bull pouts, suckers, eels, and in the two Spring Rivers and the two Berrendo ... splendid bass. The four rivers are so pellucid that you can discern the smallest object at their greatest depth ... The North Spring River ... is as transparent as crystal and about forty feet [12 m] wide ... The Hondo is opaque and the Pecos ... fully as large as the Rio Grande [and] so red with mud that any object is obscured as soon as it strikes the water. Here is where the immense catfish are caught ... Eels five and six feet [1.5–1.8 m] long are common. Bass in the clear streams from two to four pounds [0.9–1.8 kg] is an average ... The appetite of bass and perch so voracious that the unhooking of them from lines ceased to be a sport [Shinkle 1966:14, 16, 115, 118].

The “modern regional environmental boundaries had come to approximate their modern extent” by 2000 B.C. (Wills 1988:57), so it is probably safe to assume that the oasis-like conditions described by Shinkle existed during the occupation of the Rocky Arroyo site. Specifics about the Roswell environment, between the 1880s and the present, are summarized below.

Originally, the Rocky Arroyo site was next to the channel of Rocky Arroyo, a major tributary of the Rio Hondo that joined the Hondo 800 m north of the site. Today, this stretch of Rocky Arroyo has been made a part of the Hondo through upstream re-channeling to curtail flooding. Today, the Rocky Arroyo site is several kilometers east of where the two streams emerge from Six Mile Hill and enter the broad Pecos valley. The site is on an almost imperceptible rise (a natural levee) in the floodplain of the Rocky Arroyo/Hondo, at an elevation of 1130 m above mean sea level. The Pecos river, into which the Hondo empties, is 18 km east of the site.

The local surface geology consists of alluvial sediments deposited by the Hondo and Rocky Arroyo. San Andres Limestone (Permian) outcrops as low hills 4 km west of the site (Dane and Bachman 1965). San Andres chert, in the form of small concretions eroding from the San Andres, was used as tool stone by the prehistoric peoples of the Rocky Arroyo site and other villages in the area (see Phillips et al. 1981).

Soils at the site are of the Bigetty association, a group of loams, silty clay loams, and clay loams of the fine-silty, mixed, thermic Cumulic Haplustolls (Hodson et al. 1980). These deep soils are good for growing crops, especially irrigated crops. In prehistoric times, dry farming probably would have been successful mostly, perhaps solely, next to streams where the water table would have been the highest. The present-day normal annual precipitation of about 280 to 300 mm (11 to 12 in) at Roswell is generally insufficient for dryland farming (but see below).

Locally, surface water was plentiful before 1900. Several spring-fed streams (the North, Middle, and South Berrendo rivers and the North and South Spring rivers) of artesian origin flowed year round. However, these streams are all downstream from the Rocky Arroyo site, and it is not clear whether any springs formerly occurred as far up the Hondo and the Rocky Arroyo as the site (none are listed in White and Kues [1992]). Prehistoric peoples also had the waters and resources provided by the Rio Hondo, which has its source in the Sierra Blanca to the west, and the Pecos River, with its source in the Sangre de Cristo range in distant north-central New Mexico. An

intermittent stream today, the Hondo flowed year round prior to Euroamerican settlement in the late 1800s (Klasner 1972:39).

Studies of stream bank stratigraphy of the Hondo and the Rocky Arroyo for the Two Rivers Dam and Reservoir project offers the following comments. The study was conducted several kilometers upstream from the Rocky Arroyo site.

Rocky Arroyo has probably always been characterized by variable and sometimes violent stream flow, as suggested by the gravel and silt layers in its terraces. The Hondo, in contrast, seems to have changed its nature through time. There, basal gravels suggest strong peak flows during the late Pleistocene. With that period's close, however, gentle and fairly uniform stream flow resulted in the deposition of uniform fine silts.

Resumption of permanent flow for the ceramic period is indicated by the top silt level. This evidence for a permanent stream is reinforced by Speth's (1981 personal communication; see Speth 2004) finds of muskrat and other water oriented remains in Lincoln phase deposits. (If any corresponding deposition took place in Rocky Arroyo, it was limited.)

Continuation of the live stream into the nineteenth century is indicated by the 1866–1867 survey noted earlier, and by IF-24, a bridge across the old channel of the Hondo. The channel in question is so meandering that it only could have been made by a fairly constant slow stream across a high water table (Phillips et al. 1981:70).

Judging by the deep silty soils encountered at the Rocky Arroyo site, many of the comments offered above do pertain to this stretch of Rocky Arroyo as well as to the Rio Hondo.

According to the pioneer accounts cited earlier, the vegetation of the Roswell area at the time of Euroamerican settlement consisted of grama-dominated grassland, with trees common only along certain watercourses such as the Rio Hondo. Dick-Peddie (1993) classifies the site area as desert grassland. By way of contrast, Kuchler (1964) posits that the potential natural vegetation was creosotebush-tarbrush association, consisting of “fairly dense to very open vegetation of shrubs, dwarf shrubs and grass.”

One of the attractions of the Roswell area was the variety and abundance of wildlife. While not as abundant today as in the past, antelope, rabbits, and other species used by prehistoric peoples are still fairly common. Until the late 1800s, the Pecos river formed the western boundary of the range of the southern Great Plains bison herd, though small herds and individuals evidently crossed the Pecos and ranged westward. The Pecos river, along with the Bitter Lakes Wildlife Refuge at Roswell, is a flyway for ducks, geese, and many other migratory bird species.

Roswell's climate today is characterized by mild winters and warm summers. The normal mean January temperature is 3.3 degrees C (38 degrees F). In July, it is 25.9 degrees C (79 degrees F). The yearly mean is 14.7 degrees C. (59 degrees F) (Gabin and Lesperance 1977). The average frost-free season exceeds 200 days (Tuan et al. 1973).

The mean normalized annual precipitation, currently summer-dominant, is 295 mm (11.6 in), with 210 mm (8.3 in) falling in the growing season (April through September) and the rest in the non-growing season of October through March (U.S. Department of Commerce 1965).

Precipitation averages and seasonality are more problematic than the above statements suggest. The averages were calculated from data for the period A.D. 1878 to 1960, and like all averages, summarize ranges of individual values that can be quite large. This is especially true of the Roswell data, as shown by a study of precipitation data (Wiseman 2001). In that particular study, data averaged on the basis of five-year intervals show one interval (1891–1895) in which the average annual precipitation was 508 mm (20 in) per year, or nearly twice the average of 295 mm (11.6 in) for the total study period of 1878 to 1960. The graph produced for this series of 5 year intervals shows that the 1891–1895 wet period was at the top of a trend that then steadily declined to the period of 1906–1910, which averaged 254 mm (10 in) per year. These data appear to represent climatic fluctuations on the order of a few hundred years.

### **Cultural Setting**

For several decades, the prehistoric cultures of the southeast quadrant of New Mexico have been defined as belonging to the Jornada Branch of the Mogollon (Lehmer 1948; Corley 1965; Leslie 1979). The region east of a series of mountain ranges (the Gallinas, Jicarillas, Capitans, Sierra Blanca, Sacramentos, and Guadalupe) was designated the Eastern Extension of the Jornada Mogollon (Corley 1965; Leslie 1979). Other major additions to our knowledge of the region's prehistory include studies by A. J. Jelinek (1967), Katz and Katz (1985), and J. H. Kelley (1984). Useful summaries of these and other studies include Sebastian and Larralde (1989) and Hogan (2006). These last two volumes also present theoretical perspectives, resource management guidance, and themes for future research.

At the time that Corley (1965; see also Leslie 1979) proposed that the archaeology east of the Pecos river be attributed to the Jornada Mogollon, it seemed like a good idea. He and other members of the Lea County Archaeological Society (LCAS) had documented true pit houses (i.e., deep pit structures used for habitation) at the Merchant site (Leslie 1965) that were like Southwestern structures. The pottery found with these structures included many of the same types common in sites in the Jornada region proper and especially in the Sierra Blanca country. The match seemed a good one, especially since Texas archaeologists had yet to discover the remains of structures just over the line in Texas (the Antelope Creek phase of the northern Texas Panhandle excepted). Also, pottery at the Texas sites, while duplicating the main Jornada Mogollon types (the Antelope Creek phase again excepted), usually involved very few sherds at any one site, indicating that the pottery was the result of trade.

Quite a few years have passed since these initial formulations. Although much of the story still needs to be fleshed out, it is clear that using "Jornada Mogollon" to designate all prehistoric remains in southeastern New Mexico is no longer tenable. A full reformulation of cultural taxonomy and cultural histories for southeastern New Mexico should be available in the not too distant future (Wiseman n.d.). For the time being, I offer the following summary.

Jane Kelley's (1984) cultural sequences of Glencoe and Corona/Lincoln for the Sierra Blanca highlands may be similar in some regards to the Jornada Mogollon sequence for the greater El Paso region (Lehmer 1948), but they embody sufficient divergences to warrant their own separate culture-level designation. Art Jelinek's (1967) archaeological remains in the Middle Pecos valley (Roswell to Fort Sumner) are even less like those of the El Paso region. As will be discussed below, the Middle Pecos remains probably represent a unit intrusion from the Gran Quivira region of central New Mexico rather than an indigenous development as Jelinek implies. The cultural remains centered on the Guadalupe mountains, including those along the Seven Rivers drainage north of the Guadalupe (Wiseman 2010), Cornucopia Draw west of the Guadalupe (Phippen et al. 2000), and the Pecos valley in the vicinity of Carlsbad (Katz and Katz 1985), are very clearly part of the eastern Trans-Pecos culture lying primarily to the south in Texas (Miller and Kenmotsu 2004).

This leaves the land east of the Pecos river and west of the north-south boundary between New Mexico and Texas. Yes, the pottery on prehistoric sites in that region is almost all Jornada Mogollon, but the structures (excepting those of the Ochoa phase in southern Lea county) are generally of two kinds: floors of brush structures (wickiups) and tiny pit houses of varying depth. Both kinds of structures are insubstantial and therefore nothing like the later, large pit houses of the Jornada Mogollon of the El Paso region (i.e., farming Jornada Mogollon). Rather, they are most likely the houses of hunter-gatherers. Also, no substantial pueblo-style adobe buildings similar to the El Paso phase villages of the El Paso region have been found anywhere east of the south-central mountain chain—except in the Roswell area.

The exception—the Roswell area—was clearly oasis-like in terms of natural resources, especially the abundant water. Based on known and informally reported archaeological remains, the heart of the Roswell oasis was between Six Mile Hill on the west, the Pecos River on the east, the North Berrendo River on the north, and the south Spring River on the south. The “epicenter” of the oasis appears to have been along the Rio Hondo in and to the west of the city of Roswell. Unfortunately, city growth and gravel quarries have covered or destroyed an unknown number of prehistoric sites in this area. To my knowledge this oasis-like character occurs nowhere else in southeastern New Mexico, though small, lush areas of a few hectares do occur here and there. It is undoubtedly this large oasis-like environment that caused the Roswell area to become an archaeological anomaly enigmatic within southeastern New Mexico. Nowhere else in this vast region do we have a Bloom Mound of about 25 pueblo rooms or a 75–100 room Henderson Pueblo. The Rocky Arroyo site, with its three (or more) large, deep pit structures, is unique among local excavated sites, but several other sites apparently just like it lie between the Roswell city limits and the Two Rivers dam and reservoir about 20 km (12 mi) upstream.

So what do we know about the prehistory of the Roswell oasis? The short answer is, not nearly enough! Paleo-Indian use of the area has been documented by site survey (site records at ARMS indicate pre-Clovis, Clovis, Folsom/Midland, and Late and Terminal Paleo-Indian occupations) but none of those sites has been excavated or otherwise studied in detail. Many Archaic projectile points have been found around Roswell, but no Archaic sites have been systematically investigated. Part of the problem is that intense surface artifact collecting by Roswell residents over the past 100 years has greatly skewed late 20th century perceptions of the nature and artifact

contents of these sites. Thus, the many thermal-feature-and-lithic-artifact sites in and around Roswell are difficult to translate into statements about the age and intensity of local land use.

Professional archaeological investigations in the Roswell oasis began in earnest in the late 1970s (excepting Kelley's limited work at Bloom Mound in the mid-1950s). Thus far, all of the investigated sites date to the pottery-using Late Prehistoric period (or Formative period). When John Speth began his excavations at the Garnsey Bison Kill in the late 1970s, the site was initially suspected of being Paleo-Indian, but the radiocarbon dates proved that the bison kill took place during the Protohistoric period (Speth 1983). Speth's work at the nearby Garnsey Spring Campsite (Parry and Speth 1984) dealt mainly with Late Prehistoric occupations. From then on, Speth's work focused on the Late Prehistoric period, with many excavation seasons at the Henderson site and then at Bloom Mound (e.g., Rocek and Speth 1986; Speth 2004). In the meantime, construction of the Roswell Relief Route led to studies of the Fox Place (LA 68188; Wiseman 2002) and two limited excavations along the Middle Berrendo (Wiseman 2004). Unfortunately, prehistoric sites excavated prior to new construction along U.S. Highways 70, 285, and 380 were near but not within the Roswell oasis (Akins 2001; Bullock 1999; Wiseman 1996a, 2000b, 2003). A survey of Two Rivers Dam and reservoir (Phillips et al. 1981) shed light on the west end of the Roswell oasis but was not followed by excavation.

Because so much of the archaeological investigations in and around the Roswell oasis have been at sites of the Late Prehistoric period (ca. A.D. 1250 to 1450/1500), this period is coming into focus. As of yet, no phase names have been assigned, though Kelley (1984) suggests that Bloom Mound might belong to her Lincoln phase. However, similarities to phases and sequences in surrounding regions do exist and are mentioned in this report. More to the point, a major reason for *not* coining new phase names is the fact that sites representing cultural manifestations from multiple surrounding regions appear to be present at Roswell, signaling an oasis-like convergence of peoples. Not all investigators in the region agree with this interpretation, however, as is discussed below.

The remains dating from A.D. 1250 to 1450/1500 at Roswell are interpreted in two different ways by the two archaeologists most active in the Roswell area. John Speth sees the four main excavated sites—the Fox Place, Rocky Arroyo, Henderson, and Bloom Mound—as the homes of successive generations (?) of the same culture if not the same people. During the extended occupation, architectural preferences shifted from pit houses to pueblos (Speth and LeDuc 2007). Villages started with small, shallow pit houses (the Fox Place in the mid-1200s), which were followed by large deep pit houses (Rocky Arroyo, about 1300), then by an open pueblo with multiple contiguous surface (Henderson in the early and middle 1300s), and finally by a compactly built pueblo (Bloom Mound, in the late 1300s and early 1400s). Although radiocarbon dates are available for all of these sites, the overlapping radiocarbon dates and date ranges tend to obscure the actual temporal relationships among the sites. To untangle the situation, Speth and DeLuc (2009) employ a variation of rim sherd measurement and seriation of El Paso Polychrome jars, resulting in the relative temporal placement of the sites just outlined.

At all four sites, the prehistoric inhabitants subsisted by farming, by gathering wild plant foods, and by collecting and hunting wild animals. By Late Henderson times, bison became a much more important part of the diet, trade goods (especially pottery) were also much more important,



and several lines of evidence suggest a shift in social and economic organization towards a Plains Village-like pattern. During Bloom Mound times, for reasons discussed in detail by Speth and Newlander (n.d.), the inhabitants of Bloom Mound appear to have stopped hunting bison because of warfare and other friction with Southern Plains groups. Once Bloom Mound was abandoned, local people no longer lived in pueblos, nor did they support themselves in part by growing maize. This occurred sometime in the A.D. 1400s.

The other interpretation of prehistoric life in the Roswell oasis sees people from at least three different backgrounds using the area and interacting. One group probably consisted of the original inhabitants of the Roswell region and is represented by the Fox Place. I see the Fox Place houses as continuations of the small oval pit house tradition seen at earlier sites in the region—for example, the Townsend site on Salt Creek several kilometers north of Roswell (Akins 2001). Brush-structure or “wickiup” floors are also present at Townsend, though this type of house has not been found (yet) at Rocky Arroyo. Following Gilman (1987), the wickiups were warm-weather habitations and the small pit houses were used during cold weather.

I further believe that one of the main reasons that the Fox Place inhabitants were at that location is to take part in interactions focused on the socioreligious room, Feature 10 (Wiseman 2002). Or perhaps the pit house village was already established when Feature 10 was built to bring the villagers into a specific religious or economic orbit (or both). Every aspect of that structure—its size, shape, number and layout of floor features, and well-plastered floor and walls—contrasts starkly with the simply made, tiny pit houses at Fox Place and at the earlier Townsend site. No wickiups were found at the Fox Place, very possibly because of extreme bioturbation of the aboriginal ground surface.

On the other hand, Feature 10 at the Fox Place is in all major construction characteristics like structures at middle and late Glencoe phase sites such as Bonnell and Crockett Canyon (Farwell et al. 1992; Kelley 1984). Because the pottery assemblage at the Fox Place contains a heavy component of Jornada Brown, *the* pottery of the Glencoe phase (Kelley 1984), I see Feature 10 at the Fox Place as resulting from contacts with, and probably initiated by, people of the Glencoe phase. (As I will discuss shortly, Glencoe phase people may have been the inhabitants of the Rocky Arroyo site). Given its wall painting and certain minor floor features, Feature 10 most likely served a socioreligious function rather than as a habitation (Wiseman 1996b). I interpret its origin and presence at the Fox Place as a probable example of proselytization of Roswell area hunter-gatherers by Glencoe phase people (Wiseman 2002).

Consistent with Speth’s interpretations for the Henderson site, based in part on human biological data (Rocek and Speth 1986), I accept the possibility that Fox Place descendants were among the inhabitants of the Henderson site (and may have helped establish that settlement). To my way of thinking, this would be an example of a hunter-gatherer people emulating the lifestyle of a more sedentary group with whom they were in close contact. Because Henderson is a pueblo, the hunter-gatherers there were also aware of Lincoln phase people and their approach to housing. However, the poorly constructed walls and irregular shapes and sizes of some of the rooms at Henderson seem more of a cross between large Glencoe pit houses and the Lincoln phase pueblos, suggesting that the hunter-gatherers had attempted to make a pueblo-like structure through emulation rather than under direct instruction.

The second group of people that inhabited the Roswell oasis derive from the Glencoe phase of the Sierra Blanca country (Kelley 1984). As I detail later in this report, Rocky Arroyo is probably one of several Glencoe immigrant sites in the Roswell oasis. Unfortunately, some candidate sites have been consumed by urban development and gravel operations. Glencoe house construction characteristics are discussed further in the description of Feature 2 at Rocky Arroyo.

The third group of people to move into the Roswell oasis derives from the Lincoln phase of the Sierra Blanca-Ruidoso country. Kelley (1984) suggests that Bloom Mound could be assigned to that phase; I accept her suggestion based on architecture, material culture, and dating. The pueblo was built using narrow, well-made adobe walls that define small rooms with fairly regular shapes and sizes. The floors are adobe and some of the rooms have fire pits and, occasionally, other features suggesting use as living rooms. (Other rooms lack floor features, suggesting use for storage.) The pottery includes the major types for the Lincoln phase (although indented corrugated sherds are fewer than would be expected at a Lincoln phase site, and El Paso Polychrome appears to have been the dominant cooking and storage pottery). Probably the only thing that could negate a Lincoln phase assignment for Bloom Mound is the human skeletal material (i.e., we need studies that build on the results detailed by Rocek and Speth [1986]). Unfortunately, the human remains obtained from Bloom by the Roswell Archaeological Society were lost when the Roswell Museum and Art Center flooded in the mid-1950s. That leaves us with the few individuals obtained by Speth from his excavations at Bloom over the last decade (Newlander and Speth 2009). We anxiously await the results of studies of these materials.

Two noteworthy aspects of Bloom Mound, based primarily on the early digging done by the Roswell Archaeological Society, are the large numbers of trade items (especially the hundreds to thousands of discoidal beads) and the prevalence of burned human remains. One individual was found where he fell on the floor of the socio-religious structure (Kelley 1984, Appendix 6). The remains of other individuals had been scooped up and hastily buried in a jumbled mass, in one of the pueblo rooms. The as yet unreported remains obtained by Speth may also include individuals who died by violence but were formally interred. Speth suggests that the violence was perpetrated by distant peoples from Central Texas, perhaps because of disputes over bison hunting areas on the nearby Southern Plains (Newlander and Speth 2009). However, other evidence of violence in the Sierra Blanca country to the west (where Corona/Lincoln and Glencoe peoples had a long, perhaps contentious history [Wiseman 1997; Spurr 2007]) and at the Salt Cedar site north of Midland, Texas (Collins 1968) raise the possibility that violence was widespread, perhaps even endemic to the region.

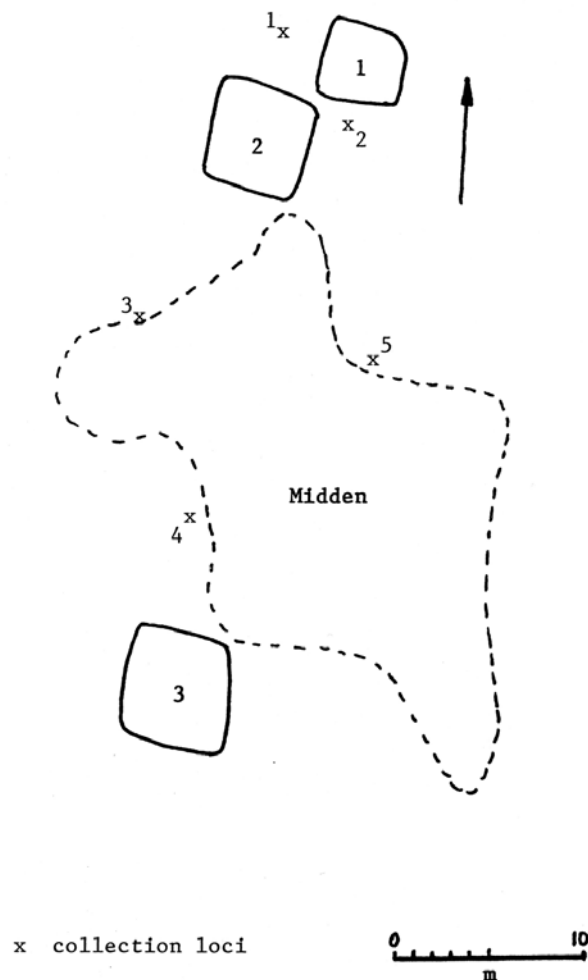
The demise of Bloom Mound brings us to the end of the documented Late Prehistoric farming occupations in the Roswell oasis. Did violence cause the abandonment of the entire region as well as of Bloom? Where did the survivors go? It is reasonable to assume that there were survivors, for enemies would not be expected to bury their victims. The area definitely was not left unused, because somebody was killing bison in the area during the interval between the abandonment of Bloom Mound and the coming of the Spanish (and the Apaches? [Gunnerson 1979]) in the early to middle 1500s. The Garnsey Bison Kill site just east of the Pecos river and due east of Roswell yielded evidence of several ambush episodes of Bison, including individuals and small groups of these animals, during the middle to late 1400s (Speth 1983; Wiseman 2006).

### Chapter 3

#### EXCAVATIONS AT THE ROCKY ARROYO SITE

Before 1970, the Rocky Arroyo site appeared to be a very low, grassy mound on the floodplain of the Rio Hondo. The mound is a natural levee deposit 50 meters from the right (east) bank of the current channel of the Hondo. Originally, the grass sod was continuous and unbroken, hiding the archaeological site that lay below. Maximum elevation of the mound above the floodplain is about 50 cm, but the rise is so gradual that only a discerning eye can detect its presence.

Most of what we know about the site was discovered by Jack Ross' digging (Figures 3–5). As is mentioned elsewhere in this report, the primary features are a vast midden with at least three large, deep pit structures at its the north and south ends.



**Figure 3.** Plan of the Rocky Arroyo site. Based on a field map by William F. Turney.



**Figure 4.** Close-up of site, showing extent of digging by CCAS.  
Looking north from just south of Feature 3.



**Figure 5.** Feature 2 before the start of our excavations. Looking northwest.

Ross' pit structures are now Features 1 through 3. Ross' crew also encountered at least two human interments in the site, but their original and current locations are unknown.

I assume, but cannot prove, that Features 1 and 3 were fully excavated by Ross. Feature 2 was only partly exposed by Ross' crew, and my own volunteers and I completed the excavation in the fall of 1980. Feature 2 proved to be a large, nearly square, deep pit house (Figure 6). The CCAS had removed fill on a slant, starting at the surface at the structure's south end and reaching the floor along the north wall. They exposed a strip of floor about 1 m wide, starting about the middle of the east wall, extending north to the northeast corner, then west along the base of the north wall to the northwest corner. From there, they dug south for about two meters along the base of the west wall, where their work stopped. They then lay various items on the exposed floor and backfilled to a depth of 30 to 40 cm. The CCAS backfill deposits included a dark stratum sandwiched between two light strata—just as in the undisturbed fill in the southern part of the structure. Needless to say, it took my crew and me a while to distinguish the undisturbed fill from the backfill deposits. I had visited the site off and on during the CCAS excavations, so I knew about where they had dug and where they had not, but that knowledge only helped so much.

During the planning for the complete excavation of Feature 2, I had placed a 1 by 1 m test pit in the undisturbed fill to ascertain the nature of the remaining deposits. The test pit's location—the southeast quadrant of the structure—was designed to miss floor features. This spot turned out to be most unfortunate; the test came down in the one place that exposed the least information about the remaining fill and its contents. Actually, the fill of the test was devoid of stratigraphy and artifacts, except for a mano resting on the structure floor. Our subsequent excavations were a huge surprise. Thinking that I faced sterile pit fill, I had not brought excavation screens! Given the time available for fieldwork, had I suspected that we would find so much material, I probably would not have undertaken the excavation.

In October 1980 the field crew assembled and began the removal of the remaining fill in Feature 2. The first task, removing the disturbed fill and identifying the undisturbed fill, was a challenge until we recognized the previously mentioned duplication of strata. Once we were satisfied that the disturbed fill had been removed, removal of the undisturbed fill began. We began to encounter cultural materials, signaling the fact that at least some stratigraphy was present. Five strata were eventually defined (Figure 7), though only Stratum 3 contained substantial cultural deposits.

The pit for the structure had been excavated into a thick, natural caliche deposit. At the time of abandonment, Structure 2's floor was strewn with bison and deer/antelope bones. The wooden roof elements and posts of the structure were salvaged at that time, so the structure lay open to the elements. The first significant post-abandonment event was the collapse of the upper caliche deposits along the entire south wall, depositing caliche debris on the floor (Stratum 4). This pile of debris along the south wall (and especially in the southwest corner of the structure), with its surface slanting downward from southwest to northeast, largely determined the distribution of the later strata.

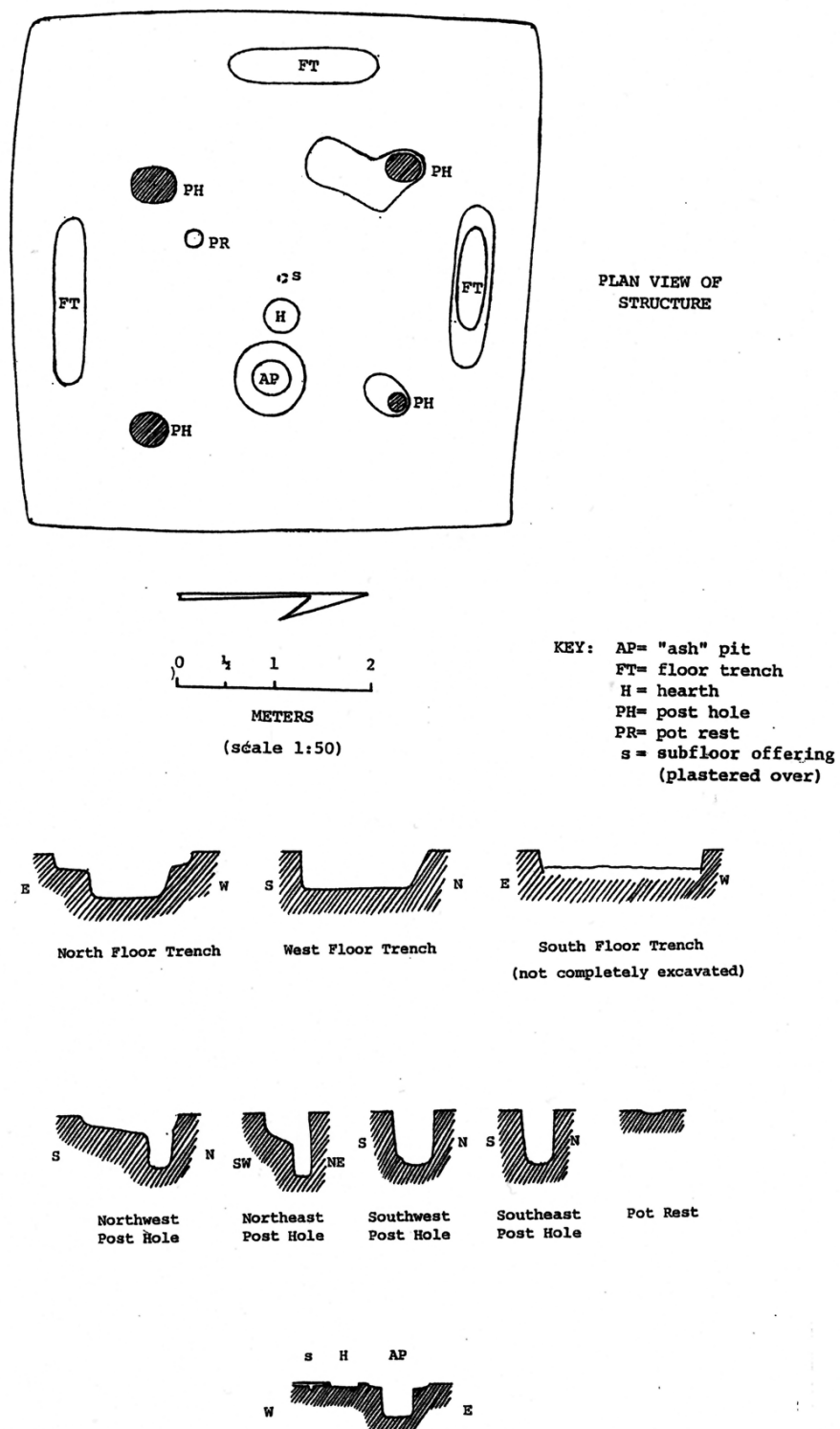


Figure 6. Plan of Structure 2, with profiles of the floor features.





Soon after the caliche slumped into the pit, the site's residents began dumping trash into the structure from its southwest corner, increasing the steepness of the cone of deposits. The intensity of this dumping (Stratum 3) varied through time and resulted in several minor lenses of cultural material. Some of these were deposited directly on other cultural lenses; some were separated by lenses of clean, natural fill and wall slump.

The thin trash lenses comprising Stratum 3 varied in texture and color. One prominent lens was white ash, but all others were shades of dark gray or black depending on the amount of charcoal. The "trashiest" lenses contained so many bones, especially fish bones, that their fill was bagged and returned to the lab for flotation. Although three rather distinct deposits of animal bones were found (and excavated separately), we did not have the time to excavate most of the individual lenses. Thus, the contents of most of the lenses are grouped within one provenience, Stratum 3. This procedure probably has not skewed our results to any great degree, for the thickness of Stratum 3 and its lenses was only 30 to 40 cm. However, the loss of information about what surely represented individual dump episodes is regrettable.

The bulk of Stratum 3, lying mostly above and south of the main trash lenses, was coarse-textured and contained little in the way of cultural materials. The coarseness of this part of the stratum derived from continued slumping from beyond the structure's south edge, but most of the materials were soil peds and adobe chunks (some burned) rather than caliche.

Filling subsequent to Stratum 3 was not culturally significant. Stratum 2 was lightly charcoal-stained, homogeneous, fine-textured silty loam containing occasional small charcoal lenses and a few cultural items. It did have a couple of clusters of animal bone. Stratum 1, which filled the structure to the surface, was essentially the same as Stratum 2 but was yellowish and lacked charcoal staining and bone clusters.

Stratum 0 was poorly defined and occurred wholly within Stratum 1. Its composition varied but essentially it was a series of alternating light and dark, homogeneous, fine-grained thin strata with rare sherds and other cultural items. It was mostly a combination of water-washed and wind-blown sediments, but its overall configuration was that of a rodent burrow.

### **Structure Description**

Feature 2 was a large square structure measuring  $5 \text{ m} \pm 6 \text{ cm}$  on a side and encompassing roughly 25 square meters of floor space (Figures 6 and 8). Depth below modern ground surface varied from 2.0 to 2.2 m. Irregularities in the original pit walls had been evened out with 3 to 15 cm of silty brown mud, and the entire pit was plastered with 1 to 2 cm of fine clayey sediment ("adobe").





**Figure 8.** Structure 2 after excavation. Looking west.

Because the superstructure was removed when the house was abandoned, the only details about the superstructure must be judged from surviving pit features. Given the height of the remaining wall plaster, the superstructure began either at or slightly above the modern ground surface. Precisely how the superstructure related to the *aboriginal* ground surface is unclear. The roof was supported by four posts set in from each of the four the corners of the room. Maximum possible post diameters were rather large (from 19 to 48 cm); post hole depths varied from 36 to 63 cm. Two of the posts were near pits, the configurations of which suggest to me that the pits were dug to assist in seating replacement posts (or in removing posts during abandonment?). Both of these auxiliary pits were less regular than is suggested by the feature plan, and both lacked the finishing plaster expected of formal features. Entry and egress to the structure would have been through a hatch in the roof, presumably located over the fire pit.

The floor was basically constructed like the walls: a base layer to even out the dips and high points of the original pit excavation, followed by a thin coat of fine mud plaster. Besides the roof support posts and the two auxiliary pits, several floor features were present. A circular, plastered fire pit was just east of the center of the room. The fire pit measured 37 cm across and 9 cm deep. A large, unplastered “ash pit” east of the fire pit had a funnel-shaped upper part and a cylindrical lower part. The upper opening was 68 to 73 cm across, the lower opening was 36 to 40 cm across, and the total depth was 43 cm. A small hole *below* the floor (described below) was

found a short distance west of the fire pit. The small hole, the fire pit, and the “ash pit” were aligned west to east. In the ancestral Puebloan world, such alignments in pit structures and ceremonial chambers often occur in association with a ventilator in the structure wall. However, no such ventilator was present at Feature 2.

The small hole located just west of the fire-pit had been plastered over at the time the floor material was laid down. It was 11 cm in diameter and 11 cm deep, and had not been finished with a coating of mud. It was filled with the silty loam typical of the site and gave us no hints as to its function. The floor material extended over this pit, indicating that the pit was not apparent or available during the use of the structure.

Readers familiar with Ancestral Puebloan ceremonial structures called “kivas” may conclude that the small pit just described served as a “sipapu,” the symbolic communication hole for interactions with Puebloan ancestors. The fact that it had been plastered over during the preparation of the floor negates this interpretation. However, a similar and similarly placed hole in Feature 10 of the nearby Fox Place (Wiseman 2002), was filled with clean sand surrounding a freshwater mussel (both valves were in their correct anatomical position). Three items were inside the mussel: an undrilled turquoise pendent blank, a whole *Olivella* shell bead, and a small white disc bead of shell. These items are symbolically important to modern Puebloan peoples and undoubtedly were important in the past. However, the mussel and its contents had been placed in the hole prior to laying the floor mud, indicating that the items served as a dedicatory offering when the structure was new, not as a sipapu-closing offering when the structure was abandoned. I suspect that the similar hole in the Rocky Arroyo Structure 2 served the same dedicatory purpose, except that the offering made was perishable and did not survive.

Three trenches were found in the room floor, parallel to the north, west, and south walls. The north trench had two parts, a smaller lower section and a larger upper section. The sizes of the three trenches were: north, 163 by 15 cm by 60 cm deep; west, 152 by 37 cm by 46 cm deep; south, 191 by 30 cm, depth unknown (this trench was filled with rock-hard “adobe melt,” and was not fully excavated).

The final floor feature was a small, shallow, basin-shaped depression near the southwest post hole. Its diameter of 24 by 18 cm and depth of 9 cm suggests that it functioned as a “pot rest,” a shallow hole to accommodate and stabilize a round-bottomed vessel. Its opening was not symmetrical, however, so it may have served some other function.

## **Chapter 4**

### **PORTABLE MATERIAL CULTURE**

Few formal artifacts were recovered from the fill of Feature 2. This is not surprising considering the limited quantities of trash encountered, nor should it be taken as indicative of cultural impoverishment. The numerous finds made by the CCAS in the extensive midden (Appendix A) are ample testimony to the one-time richness of the site. Thus, the inventory listed here is neither qualitatively nor quantitatively complete.

The descriptions of the formal artifacts are grouped according to assumed primary function (an inspiration from Kelley 1984). This approach, rather than the more traditional groupings based on materials and manufacture techniques, is more amenable to a straightforward consideration of site function, subsistence mode, and use of the landscape.

#### **Hunting Related Artifacts**

##### **Projectile Points and Preforms**

Twenty projectile points, all arrow points, were recovered (Figure 9). The data in Table 1 were obtained from J. D. Speth, who is making a detailed comparative analysis of projectile points for the region. To summarize the assemblage, 14 specimens are classified as Washita/Harrell points, four are “Fresnos,” and two are indeterminate.

When specimens are classified as Fresno points, a question always arises: are they simple triangles considered by the makers to be finished arrow points? Or are they production blanks (preforms) requiring a final stage of flaking to make them into projectile points? In an attempt to answer this question, what appear to be the two most significant attributes—thickness and weight—are plotted for all of the Washitas, the one Harrell, and the Fresnos (Figure 10). The Washitas and the Harrell form a tight, neat cluster in the lower left part of the graph, with a well-defined regression line approximated by the line in the graph. This is despite the fact that the sample is small and consists of both complete and fragmentary specimens. (The complete specimens are underlined.) A single Fresno lying within the cluster suggests that it is a finished projectile point. The other three Fresnos lie well beyond the cluster, effectively removing them from the category of finished projectile point. Thus, they should be considered to be preforms.

#### **Food Processing Artifacts**

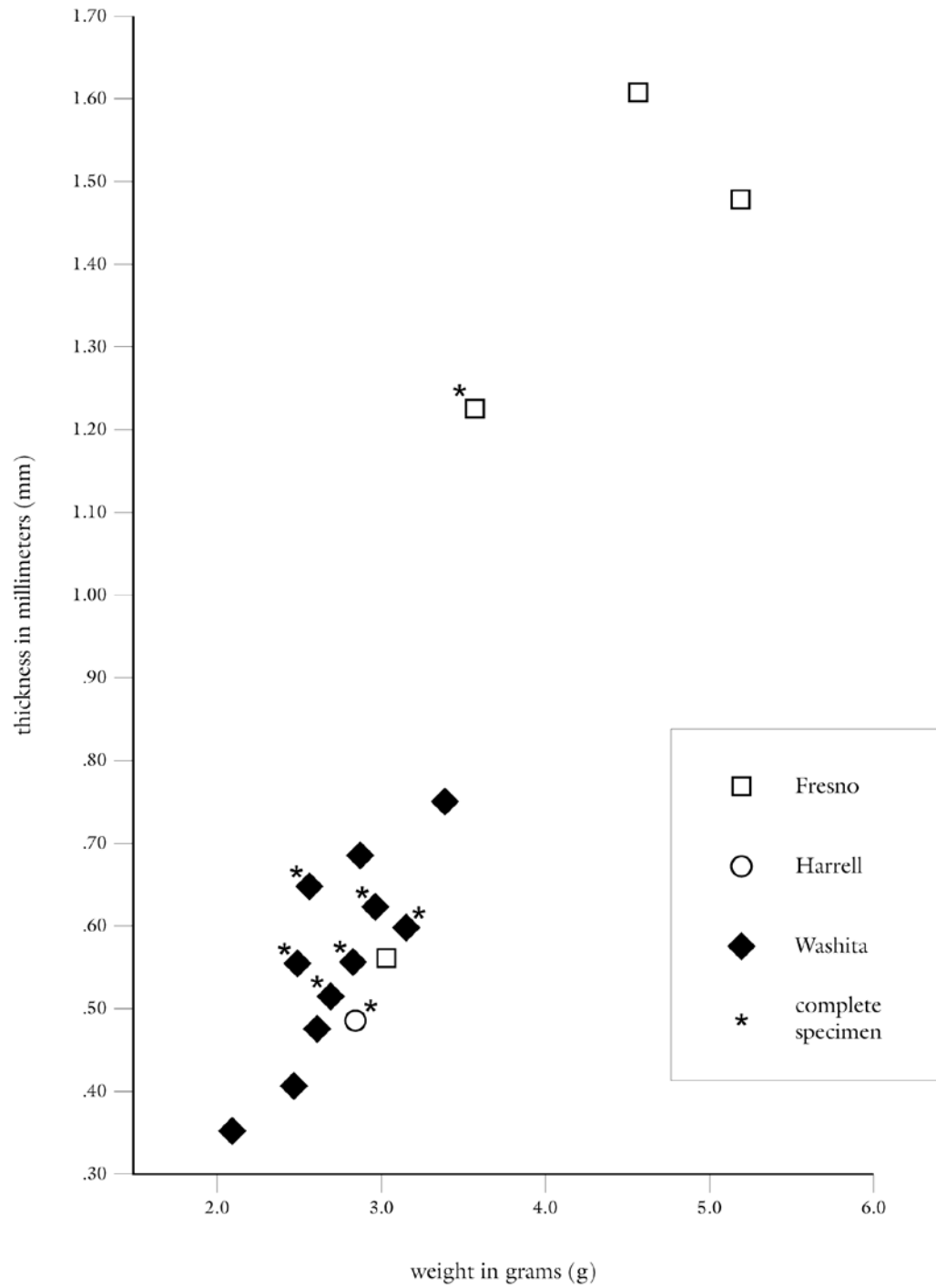
Although the CCAS recovered a number of manos and metates, my work recovered only one one-hand mano. But because this particular mano was used to grind red pigment, I cannot be certain that it was initially manufactured for processing foodstuffs. Instead, it is described below under the heading of Recreational, Ornamental, or Ceremonial Artifacts.



**Figure 9.** Projectile points. Top row: 9a–9e. Second row: 9f–9j. Third row: 9k–9p. Bottom row: 9q–9t.

**Table 1. Projectile Point Data.**

Figure Number	Type	Dimensions in mm			Weight (g)	Material	Part
		Length	Width	Thickness			
9f	Washita	23.9	10.8	3.0	0.62	gray chert	complete
9g	Washita	23.3	11.1	2.8	?	gray chert	complete
9n	Washita	21.6	12.4	3.1	0.60	gray chert	complete
9l	Washita	21.6	10.7	2.7	0.49	gray chert	complete
9h	Washita	19.4	11.6	2.9	0.55	gray chert	complete?
9a	Washita	?	11.9	2.9	0.68	gray chert	base and part of blade
9b	Washita	?	9.9	2.7	0.50	gray chert	blade
9k	Washita	25.9	11.6	2.6	0.65	chalcedony	complete
9m	Washita	20.4	11.7	2.5	0.55	chalcedony	complete
9j	Washita	?	12.0	2.5	0.40	chalcedony	base and part of blade
9c	Washita	?	11.5	2.9	?	chalcedony	blade
9d	Washita	?	11.5	3.4	0.75	red chert	blade
9i	Washita	?	12.1	2.1	0.35	miscellaneous	base and part of blade
9o	Harrell	15.7	13.1	2.8	0.48	chalcedony	complete
9r	Fresno	25.7	14.6	3.6	1.23	gray chert	complete
9s	Fresno	?	14.9	5.2	1.48	gray chert	base
9e	Fresno	?	12.7	3.0	0.56	red chert	base fragment
9t	Fresno	?	?	4.6	1.61	red chert	base and part of blade
9p	Indet.	?	?	3.6	0.68	chalcedony	blade midsection
9q	Indet.	?	26.3	4.7	2.72	miscellaneous	base



**Figure 10.** Thickness versus weight in Washita, Harrell, and “Fresno” Points.

## **Manufacturing Tools**

### **Scrapers**

The one end scraper, from Stratum 3, is made of yellow and gray chert, measures 35 by 21 by 8 mm, and weighs 6.2 g (Figure 11c). Although it is not as carefully made as many typical Plains end scrapers, it is shaped very much like them and appears to be functionally equivalent to them. The one detail that indicates that it would not have functioned quite as well as the Plains examples is the fact that the scraping edge, having been fashioned from the proximal end of the flake, is inherently less sharp because of the angle caused by the remnant of the bulb of force.

Two side scrapers came from Stratum 3; neither is carefully made. One, of dark brown chert, is an edge-modified flake measuring 55 by 31 by 8 mm and weighing 15.4 g (Figure 11a). A freshwater mussel valve scraper is too fragmentary to discern the original configuration of the tool (Figure 12f) (see Wiseman 2002:56–59 for a full description of these tools and their manufacturing sequences). The working edge is serrated. The species is probably *Cyrtonaias tampicoensis*; it would have been available in the Rio Hondo or the Rio Pecos.

### **Awls**

Two complete, one near-complete, and five fragmentary bone awls were recovered (Figure 13). The complete specimens are from split large mammal long bones and measure 91 by 15 by 6 mm and 86 by 19 by 10 mm. The near-complete specimen is made from a split rib of a large mammal and measures 182 by 20 by 4 mm. Three of the fragmentary specimens are made from split ribs, one from a split long bone, and the last from a split metapodial. Aside from tip preparation, the degree of bone modification varies from perfunctory to fairly extensive. However, in no instance was the modification so thorough that identification of the original bone element was prevented. The two split rib awls are from Strata 1 and 2; the other awls are from Stratum 3.

## **Recreational, Ornamental, or Ceremonial Artifacts**

### **Pipe**

The one pipe consists of carefully smoothed and polished brownware pottery (Figure 11e). The overall dimensions are 66 by 24 by 11 mm. The bowl is 28 mm long and 16 mm in diameter. The opening of the mouthpiece is 5 mm in diameter. The pipe had been burned in a fire and had broken into several fragments that were recovered from Strata 2 and 3.

### **Gaming Pieces**

Five pieces of turtle plastron (all from Stratum 3) were edge-ground into oval, sub-rectangular, and more or less circular shapes (Figure 14). The three longer examples range from 26 to 33 mm long, 9 to 11 mm wide, and 2 to 3 mm thick. The two rough ovals are 10 to 11 mm in diameter and 3 to 4 mm thick, and have partial holes drilled into the smooth faces. None is otherwise decorated or modified.





**Figure 11.** Miscellaneous artifacts. Top row: a, edge-trimmed flake; b, large biface fragment; c, end scraper; d, red ochre with grinding facets. Bottom row: e, conical pottery pipe; f, lozenge-shaped antler artifact.





**Figure 12.** Bone and shell artifacts. Top row: a, bone tube; b, incised bone bead; c, plain bone bead; d. *Olivella* shell bead. Bottom row: e, mussel shell pendant; f, mussel shell scraper fragment.



**Figure 13.** Bone awls, complete and fragmentary.



**Figure 14.** Gaming pieces made from turtle plastron.

### **Mano**

A one-hand mano was recovered on the floor of Feature 2, in the room's southeast quadrant. The mano was used to grind red pigment, leading to its inclusion here rather than in the Plant Food Processing section. It has a single grinding surface that is slightly convex along both axes. Aside from the grinding surface and some pecking and grinding on the opposite face, the rest of the artifact is unmodified. The mano measures 108 by 93 by 57 mm, weighs 765.5 g, and is made of either Capitan alaskite (aplite, "granite") or white quartzite.

### **Pendant**

A large pendant was roughly ground down from a subrectangular section of a freshwater mussel valve, probably *Cyrtonaias tampicoensis* (Figure 12e). The pendant measures 65 by 33 by 2–5 mm and has the suspension hole located near the center of one of the long edges. The pendant was found in Stratum 3.

### **Tubular Bone Beads**

Two tubular bird bone beads came from Stratum 3. One is plain and measures 21 by 10 by 9 mm (Figure 12b). The other is incised and measures 26 by 8 by 7 mm (Figure 12c). The ends of each bead were ground smooth; on the plain bead, both ends taper slightly due to the grinding. The incised bead's design is a continuous line extending from one end of the bead to the other.

### ***Olivella* Shell Bead**

This fragment of a whole-shell bead, from Stratum 3, measures 12+ by 6 by 5 mm (Figure 12d). The spire end is missing.

### **Bone Tube**

A plain tube made from bird bone has both ends ground smooth (Figure 12a). It measures 98 by 7 by 6 mm. Although I first assumed that this item is an ornament, it might be a sucking tube for curing. It could also have been used for drinking water from natural depressions in rocks while traveling. The bone tube was found in Stratum 3.

### **Hematite Cylinder**

A small piece of hematite was shaped a cylinder by grinding facets on all of its surfaces, presumably to remove material for use as pigment (see the *mano* described above). Found in Stratum 3, the cylinder measures 13 by 6 by 4 mm and weighs 0.4 g (Figure 11d).

## **Miscellaneous Artifacts**

### **Large Biface Fragment**

A fragment (half?) of a large, irregular biface measures 25+ by 40+ by 8+ mm and is made from off-white to light gray and brown chert (Figure 11b). Presumably it is a first stage biface originally destined to be made into a tool or projectile point. The biface fragment came from disturbed fill.

### **Red Clay Tablet**

Five fragments appear to be part of a single tablet of red clay, which was tempered with copious amounts of silvery mica and occasional tiny dark minerals (Figure 15). Microscopically, the mica fragments have textured surfaces that are mostly contorted, perhaps indicating derivation from a schist. In bright sunlight, this item would have sparkled noticeably. Several small areas on both faces are smudged from fires, but it is not clear whether the burning happened during firing of the piece or during exposure to fires later on. The fragments were recovered from Stratum 2, Profile C–C' and from disturbed fill.

Three of the tablet fragments conjoin to make a piece that is 11 cm long, 6.5 cm wide, and 0.9 to 1.0 cm thick. One end is squared (though not complete), and the two longitudinal edges are more or less parallel. The tablet was formed on a rock slab: one surface (molded against the slab) is completely flat while the other surface was hand-finished and undulates slightly. The edges are squared along the flat surface face and rounded along the undulating surface. Although both longitudinal edges were smoothed while the clay was wet, they were not straightened and are somewhat wavy.



**Figure 15.** Fragments of a red clay tablet.

### **Lozenge-Shaped Antler Artifact**

A small section of cancellous antler tissue was cut and ground into a long oval shape (Figure 11f). It measures 54 by 20 by 16 mm. Its use is unknown. This item came from Stratum 1.

### **Worked Sherds**

Five worked sherds, none perforated, were found. One was carefully shaped: a subrectangular Chupadero Black-on-white jar sherd with a dot design and thoroughly ground edges (Figure 16c). This sherd measures 41 by 30 mm. The other four worked sherds are rough disks whose edges were crumbled into shape (Figure 16a, b, d, e); their maximum diameters range from 40 to 92 mm. The rough disks were made from a Chupadero Black-on-white jar sherd, from two Lincoln Black-on-red bowl sherds (in Three Rivers style), and from an El Paso Polychrome (?) jar (?) sherd. This last sherd has both Sierra Blanca gray syenite and large amounts of clear quartz for temper; the surfaces are carefully polished but bumpy because of protruding temper.

Such worked sherds are usually identified as gaming pieces, but I have my doubts. The rectangular Chupadero example, the larger Lincoln example, and the El Paso (?) example all came from Stratum 3. The circular Chupadero example came from Stratum 4 and the smaller Lincoln example came from the “ash pit” fill.





**Figure 16.** Worked sherds. Top row: a, Chupadero Black-on-white jar sherd; b, Lincoln Black-on-red bowl sherd (Three Rivers style); c, Chupadero Black-on-white jar sherd. Bottom row: d, Lincoln Black-on-red bowl sherd (Three Rivers design style); e, El Paso Polychrome (?) sherd made in the Sierra Blanca region.

### **Flake Tools (Utilized Flakes)**

Fourteen flakes possess a total of 16 edges modified by use-wear.

Eight flakes have single edges with unifacial use-wear; lengths of the use-wear patterns range from 9 to 22 mm (mean of 12.5 mm).

Two flakes have single edges with bifacial use-wear, with lengths of 14 and 26 mm.

Two flakes have two use-worn edges each; all four edges are unifacially worn. The lengths for one flake are 18 and 25 mm and for the other, 8 and 16 mm.

One flake has a notch, which measures 10 mm across and 2.5 mm deep.

One flake has a projection defined by two unifacially use-worn edges; the wear lengths are 13 and 19 mm.

### **Pottery**

The collected pottery from Rocky Arroyo embodies 17 defined types and two residual categories. For the most part, sherds match the type descriptions quite well. Two sets of pottery collections are considered here (Tables 2 and 3). The first set—from my excavations in Feature 2—were analyzed for several attributes (see following paragraph). The data are presented in terms of the major proveniences, with minor proveniences grouped in a Miscellaneous category.

The second set consists of the Locus Collections. These sherds were rescued from artifact piles left around the edges of the CCAS excavations and are summarized as counts and percentages by pottery type but were not subjected to the analysis performed on the Feature 2 collections.

The Feature 2 sherds were analyzed for the following attributes: type, vessel form, minimum numbers of vessels represented (MNV), paste and temper (for Corona Corrugated and related sherds), instrumental neutron activation analysis (INAA) (for Chupadero Black-on-white sherds), and rim form (for El Paso Polychrome rim sherds). The determination of MNV was made for the larger lots but there was no attempt to identify individual vessels across lots within strata, or across strata. Thus, the MNV figures for the Feature 2 collections are inflated by an unknown amount. The problem is illustrated by sherds from a particularly distinctive corrugated jar that were noted in several lots.

Temper and paste examinations were made using a Bausch & Lomb binocular microscope set at 30 diameters. Illumination was supplied by a Fiber-Lite source.

**Table 2. Pottery Frequency Distributions.**

Type	Feature 2 Strata (0 Surface, 4 Deepest)						Collection Loci						Total
	0	1	2	3	4	Sub-total	1	2	3	4	5	Sub-total	
Chupadero B/W jar	8	7	49	221	95	380	11	56	36	11	16	130	510
Chupadero B/W bowl	4	0	7	12	7	30	6	7	7	2	1	23	53
Three Rivers R/T bowl	0	1	12	52	5	70	4	9	4	2	3	22	92
Lincoln B/R bowl	0	0	0	17	7	24	4	12	7	1	7	31	55
San Andres R/T bowl	0	0	0	1	0	1	0	0	0	0	0	0	1
Three Rivers Red Ware	2	3	17	45	9	76	2	23	11	4	17	57	133
El Paso Poly. jar	11	14	43	146	28	242	40	88	41	20	60	249	491
El Paso Poly. bowl	0	0	0	0	3	3	0	3	3	2	0	8	11
Corona Corrugated*	3	3	13	37	19	75	4	23	8	0	9	44	119
Santa Fe B/W	0	0	0	0	0	0	0	1	0	0	0	1	1
Magdalena (?) B/W	0	0	0	0	0	0	2	2	0	0	0	4	4
St. Johns Poly.	0	0	7	2	0	9	0	2	1	0	3	6	15
Springerville Poly.	0	0	1	0	0	1	0	0	0	0	0	0	1
Pinedale Poly.	0	0	0	0	0	0	0	2	0	0	0	2	2
Heshotauthla Poly.	0	0	0	0	0	0	0	1	0	0	0	1	1
Chihuahuan Poly.	0	0	0	0	0	0	1	0	0	0	0	1	1
Playas Red Incised	0	0	0	0	0	0	0	0	1	0	0	1	1
Sierra Blanca Variety	0	0	0	0	0	0	0	0	1	0	0	1	1
Pitoche (?) series utility	1	0	1	0	0	2	0	0	0	0	0	0	2
Jornada Brown	0	0	0	0	0	0	0	0	0	1	1	2	2
Unidentified	0	0	1	0	0	1	0	0	0	2	0	2	3
Total	29	28	151	533	173	914	74	229	120	45	117	585	1499

\*Includes variants.



**Table 3. Pottery Percentage Distributions for the Major Types.**

Type	Feature 2 Strata (0 Surface, 4 Deepest)						Collection Loci						Total
	0	1	2	3	4	All F2	1	2	3	4	5	All CL	
Chupadero B/W	41%	25%	37%	44%	59%	45%	23%	28%	36%	29%	15%	26%	38%
Three Rivers R/T	0%	4%	8%	10%	4%	8%	5%	4%	3%	4%	3%	4%	6%
Lincoln B/R	0%	0%	0%	3%	3%	3%	5%	5%	6%	2%	6%	5%	4%
Three Rivers Red Ware	7%	11%	11%	8%	5%	8%	3%	10%	9%	9%	15%	10%	9%
El Paso Polychrome	38%	50%	28%	27%	18%	27%	54%	40%	37%	49%	51%	44%	33%
Corona Corrugated*	10%	11%	9%	7%	11%	8%	5%	10%	7%	0%	8%	8%	8%
Other	3%	0%	7%	2%	0%	2%	4%	3%	3%	7%	3%	4%	2%
Column Total	99%	101%	100%	101%	100%	101%	99%	100%	101%	100%	101%	101%	100%
No. of sherds	29	28	151	533	173	914	74	229	120	45	117	585	1499

\*Includes variants.

## **Chupadero Black-on-white**

This pottery was one of the most widely traded types in the prehistoric Southwest. It is found throughout the region currently attributed to the Jornada Mogollon (Hayes 1981; Mera 1931) and in all adjacent regions of the Southwest (Casas Grandes or Paquimé; Mimbres; Middle Rio Grande; see Cosgrove and Cosgrove 1932; Smiley et al. 1953) and the Southern Plains of Texas (Krieger 1946). Recent instrumental neutron activation analysis (INAA) demonstrates that Chupadero encompasses at least seven compositional groups of clay and temper (Creel et al. 2002). However, a significant number of sherds do not conform to any of the seven groups, raising the possibility that one or more manufacturing locales remain to be discovered.

Eighteen Chupadero sherds from Rocky Arroyo were submitted for INAA characterization. Five of the seven composition groups established for Chupadero are represented among these sherds; one sherd could not be assigned to a group (Creel et al. 2002, Table 6.1). The composition groups and their known or suspected regions of manufacture are summarized in Table 4. Most vessels represented by these sherds were made in or near the Capitan or Jicarilla Mountains, in Lincoln County, about 100 km (60 miles) northwest of Rocky Arroyo. Eight of the sherds came from vessels made in central New Mexico, one in the Gran Quivira area and seven in the Quarai area. The distance to these areas is on the order of 200 km (120 miles). Finding this many vessels from central New Mexico sites is unusual; most such vessels were used in the villages where they were made, and were not traded away with any regularity (Clark 2006).

## **Lincoln Black-on-red**

All of the Lincoln sherds in the Feature 2 collections are more aptly termed Lincoln Black-on-terracotta, that is, they have black designs on the same light orange surface found on Three Rivers Red-on-terracotta. This similarity was noted in the original description for Lincoln Black-on-red by Mera and Stallings (1931).

The designs on all but one of these sherds are in what I call the Three Rivers style: multiple thin, parallel “bundles” of lines that travel around just below the rim on bowl interiors. On occasion, such bundles drop into and extend across the bottoms of the bowls (Class C designs in Stewart 1981, Figure 5), then rejoin the rim bundle on the opposite side. The bundles of lines that cross the bottom of the bowl usually have pendant triangles attached to an outside line. One sherd has the Three Rivers pattern with the addition of a checkerboard of diamonds nestled in the space between two line bundles that pass each other somewhere in the bottom of the bowl.

By way of contrast, some Lincoln sherds from the Loci Collections have redder surfaces and designs in what I call the Lincoln style. In the latter, the designs are mostly arranged in bands that circle the interior of the bowl just below the rim, often leaving the bottom design free (Class A designs, especially the simpler ones, in Stewart 1981, Figure 2). Although the line widths in the Lincoln style are somewhat wider than those of the Three Rivers style, the artistic relationship between the two is obvious.

**Table 4. INAA Composition Groups for Chupadero Black-on-white .**

<b>INAA Composition Group*</b>	<b>No. of Sherds</b>	<b>Manufacturing Locale (all in New Mexico)</b>
1a	6	Lincoln County, Robinson site (LA 46326) area
1b	2	Lincoln County, Robinson site area
1c	1	Lincoln County, Robinson site area
2a	1	Torrance County, Gran Quivira (LA 120) area
2b	7	Torrance County, Quarai (LA 95) area
Unknown	1	Stay tuned
Total	18	

\*Data from Creel et al. (2002, Table 6.1).

### **El Paso Polychrome**

Two features of the El Paso Polychrome from Rocky Arroyo must be mentioned. The first is that a large percentage of the bottom sherds are blackened on the exterior surfaces. Some even possess a crust of carbonized matter. Obviously, these vessels were used extensively for cooking.

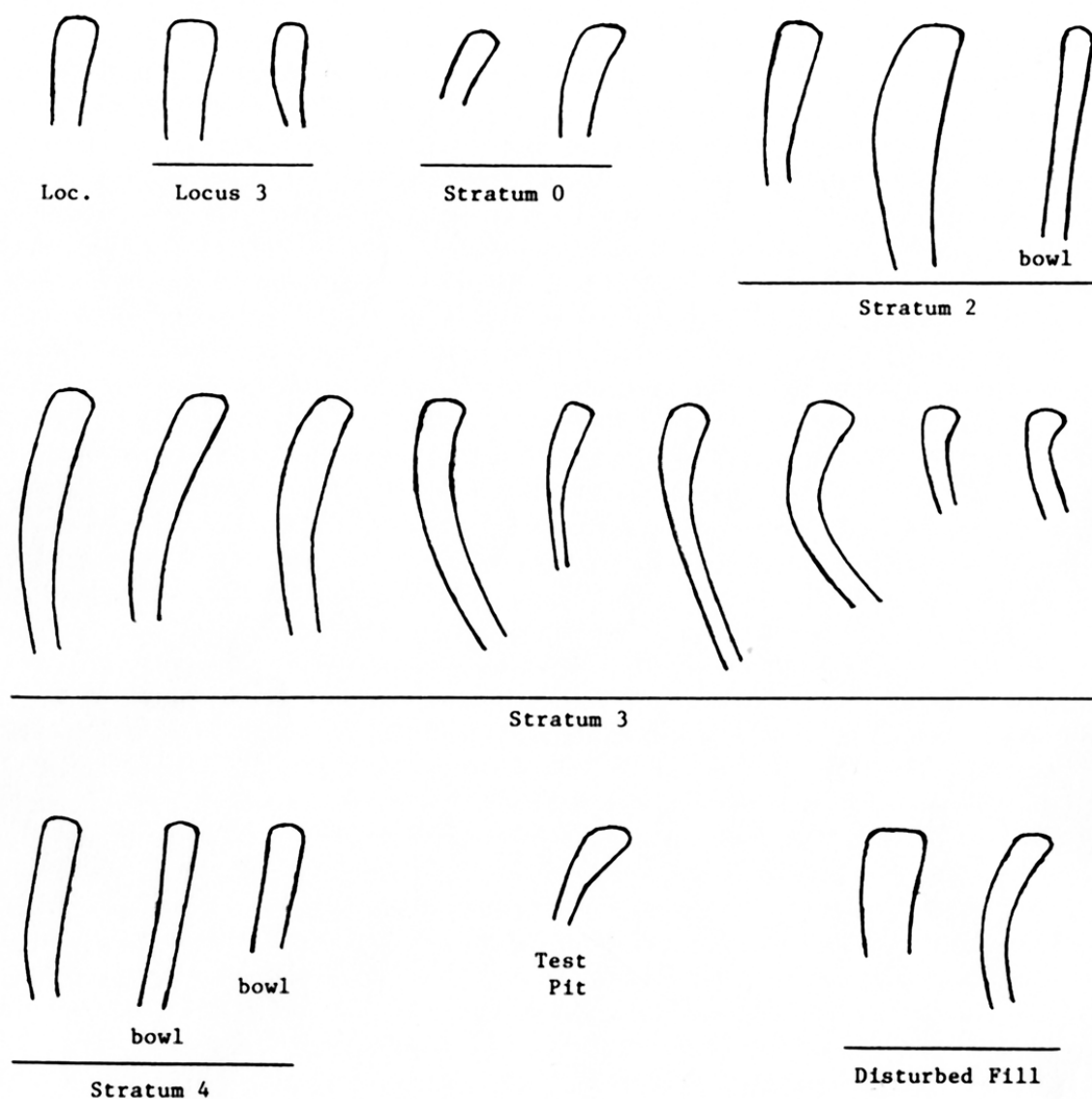
Second, most of the profiles of the 23 rim sherds—20 from jars and three from bowls (Figure 17)—range from parallel-sided to moderately thickened toward the lip. Two profiles, possibly from the same small vessel, have the outward eversion and accentuated thickening (the classic comma shape) of the latest El Paso Polychrome.

### **Corona Corrugated**

Most of the indented corrugated sherds from Rocky Arroyo have the quartz mica schist temper characteristic of Corona Corrugated (Hayes 1981; Warren 1981). Perhaps a half dozen sherds from the Feature 2 collections have other tempering materials. In some cases the temper is very similar to that sometimes observed in Jornada Brown sherds from Sierra Blanca sites, suggesting a shared origin. In one or two cases, the temper is very similar to Capitan alaskite (aplite, granite) but this identification needs to be confirmed through petrography.

### **St. Johns Polychrome and Springerville Polychrome**

Several different vessels of St. Johns are represented in the Rocky Arroyo collections. One of particular note is a partly restorable bowl with narrow (4–5 mm) exterior white lines and an atypical interior design. My first inclination was to type the sherd as Heshotauthla Polychrome (or simply Heshota Polychrome). The decision to type it as Springerville Polychrome (*sensu* Carlson 1970) was based on the orange slip and the fact that the “black” paint is a matte brown mineral paint rather than a subglaze or glaze. Whatever the label, this vessel is clearly late, probably from the last quarter of the 13th century.



**Figure 17.** El Paso Polychrome rim profiles.

### Minimum Numbers of Vessels (MNV)

The estimations of MNV are based on the Feature 2 collection lots, not on strata or on the structure as a whole. Thus, the numbers provided below do not take into account vessels represented by sherds in different excavation lots. The purpose of this exercise was to get an idea as to how pottery types and vessel forms relate to one another. As will be seen, some patterning seems apparent in spite of the less than completely rigorous analytical procedure. The four lots chosen for the exercise had large numbers of sherds and identified vessels (Table 5). Percentages are presented in two ways, by type (Table 6) and by ware (Table 7).

**Table 5. Minimum Numbers of Vessels by Pottery Type, for Selected Excavation Units.**

<b>Pottery Type</b>	<b>Stratum 2, Bone Cluster 2</b>	<b>Stratum 3 Fill</b>	<b>Stratum 3 Floor Fill</b>	<b>Stratum 4 Fill</b>	<b>Total</b>
Chupadero B/W jar	8	15	10	15	48
Chupadero B/W bowl	4	5	2	3	14
San Andres R/T bowl	0	1	0	0	1
Three Rivers R/T bowl	5	11	2	1	19
Lincoln B/R bowl	0	4	6	1	11
El Paso Poly. jar	4	5	2	2	13
El Paso Poly. bowl	0	0	0	1	1
Corona Corrugated*	3	5	4	1	13
St. Johns Poly. bowl	1	0	0	0	1
Springerville Poly. bowl	1	0	0	0	1
Total vessels per lot	26	46	26	24	122
Total sherds per lot	104	286	94	105	589

\*Includes variants.

**Table 6. Percentages of Minimum Numbers of Vessels by Pottery Type.**

<b>Pottery Type</b>	<b>Stratum 2, Bone Cluster 2</b>	<b>Stratum 3 Fill</b>	<b>Stratum 3 Floor Fill</b>	<b>Stratum 4 Fill</b>	<b>Combined Lots</b>
Chupadero B/W jar	31%	33%	38%	63%	39%
Chupadero B/W bowl	15%	11%	8%	13%	11%
San Andres R/T bowl	0%	2%	0%	0%	1%
Three Rivers R/T bowl	19%	24%	8%	4%	16%
Lincoln B/R bowl	0%	9%	23%	4%	9%
El Paso Poly. jar	15%	11%	8%	8%	11%
El Paso Poly. bowl	0%	0%	0%	4%	1%
Corona Corrugated*	12%	11%	15%	4%	11%
St. Johns Poly. bowl	4%	0%	0%	0%	1%
Springerville Poly. bowl	4%	0%	0%	0%	1%
Column Total	100%	101%	100%	100%	101%

\*Includes variants.

**Table 7. Percentages of MNVs by Combined Categories.**

<b>Combined Category</b>	<b>Stratum 2, Bone Cluster 2</b>	<b>Stratum 3 Fill</b>	<b>Stratum 3 Floor Fill</b>	<b>Stratum 4 Fill</b>	<b>Combined Lots</b>
Chupadero B/W	46%	43%	46%	75%	51%
San Andres-Three Rivers-Lincoln	19%	35%	31%	8%	25%
El Paso Polychrome	15%	11%	8%	13%	11%
Corona Corrugated*	12%	11%	15%	4%	11%
Other	8%	0%	0%	0%	2%
Column Total	100%	100%	100%	100%	100%

\*Includes variants.

Examination of these tables, especially Table 7, reveals several points of interest. Key among them, Chupadero black-on-white was always the most common pottery during the period represented by the Feature 2 deposits. Generally speaking, Three Rivers Ware (San Andres, Three Rivers, and Lincoln) was the next most common pottery, followed by the El Paso and Corona wares (cooking and storage vessels), which were about equally common and, in combination, almost as common as Three Rivers Ware.

When form/function are considered, Chupadero jars predominate. Bowls (Three Rivers Ware) and cooking/storage vessels (El Paso/Corona) alternate as the second and third most common categories.

### **Comparison of the Assemblages**

A comparison between the Feature 2 and the Locus assemblages shows the expected similarities in major types, but the intrusive sherds differ, suggesting temporal or exchange pattern differences. Both provenience groups have St. Johns Polychrome, suggesting partial contemporaneity, but later types (such as Pinedale Polychrome and Heshotauthla Polychrome) in the Locus collections indicate that they date somewhat later than the Feature 2 assemblage. Both Pinedale and Heshotauthla are thought to have started about A.D. 1275 (Breternitz 1966; Smith et al. 1966).

The Locus collections also contain a broader range of intrusive types than the Feature 2 assemblage. These include Santa Fe Black-on-white, Magdalena(?) Black-on-white, imported Playas Red (as opposed to the Playas Red made locally), and unspecified Chihuahuan (Casas Grandes) polychrome in addition to the Pinedale and Heshotauthla. As the Feature 2 assemblage is larger than the combined Locus collections, sample size is probably not a factor in these differences. As time passed, it appears, the occupants of Rocky Arroyo intensified their extra-regional exchange relationships. Earlier on (during the filling of Feature 2), these connections appear to have been restricted to west-central New Mexico and adjacent parts of Arizona. Later occupants (perhaps the next generation or so) also had contact with people in northern Mexico and north-central New Mexico.

## Integrity of the Deposits in Feature 2

The vessel identification study (MNV) revealed that the sherds of a particularly distinctive Corona Corrugated jar were recovered from at least three proveniences (Stratum 1 in the Main Wall Balk, Bone Cluster 2 in Stratum 2, and the fill of Stratum 3). Two types of activities could account for this. For sherds from a single vessel deposited into a single stratum, rodent disturbance (whether or not detected by archaeologists) could move some sherds into nearby strata. Or if the structure filled quickly, sherds from a single vessel that were lying about might wind up in several strata. I have seen several instances of this last phenomenon in other sites through vessel identification studies, leading me to question our commonly-held assumptions about well-defined stratigraphy.

## Chipped Stone Manufacturing Debris (“Debitage”)

The Feature 2 excavations yielded 718 pieces ofdebitage, here defined to include flakes, cores, pieces of shatter, and minute flakes and flake fragments. Almost all of thedebitage came from Stratum 3. In view of the quick accumulation represented by the Feature 2 deposits, alldebitage lots were analyzed as a single provenience (Table 8). An additional 480 tiny pieces of knapping debris were recovered from flotation processing but were not included in the counts or the analyses. In the sections that follow, only selected attributes are discussed. Details of the analysis can be obtained by contacting the author or examining the curated records.

**Table 8. Summary of Debitage from Feature 2.**  
(All proveniences combined)

Category		Number	Percent
Cores		8	3.4%
Flakes	Decortication	4	85.3%
	Core reduction	161	
	Platform rejuvenation	3	
	Biface thinning	21	
	Miscellaneous small	14	
	Subtotal, flakes	203	
Shatter		27	11.3%
Total		238	100.0%

## Cores

The cores from Feature 2 vary greatly but they have one important attribute in common: they are poorly developed. At least three core sources are represented: cobble, pebble, and flake. The pebbles are of finer materials such as the different-colored cherts; their largest dimension prior to knapping was about 5 cm. In their final form their weights are under 12 g. Cobble-based cores are generally of coarser materials such as quartzites; before knapping their maximum dimension could have been 10 cm or more. Today, their weights range from 64 to 300 g.

## Core Reduction Flakes

Flakes constitute the largest debitage category (Table 8), with 161 examples. Complete specimens are most common (62 percent of the category). Every other condition is also represented—almost complete and proximal, distal, lateral, and medial fragments. The large percentage of complete flakes is unusual and reflects the fact that the flakes tend to be small and thick. This, in turn, is attributable to the small sizes of the pieces available for use as cores.

More specifically, the average core reduction flake can be characterized as about 2.5 cm (1 in) long, almost as wide, and one-fourth to one-third as thick (Table 9). For every dimension, the mean value is smaller than the median value. The ranges and standard deviations are large, indicating no standardization in size and weight. Again, these attributes appear to be due mainly to raw materials coming in small pieces.

**Table 9. Descriptive Statistics for Core Reduction Flakes from Feature 2.**

Statistic	Dimensions (mm)			Weight (g)
	Length	Width	Thickness	
Mean	22.60	22.27	6.13	3.54
S.D.	9.08	8.32	2.97	3.96
Median	30.50	26.50	8.50	13.80
Range	6–55	5–48	1–16	0.2–28.0
Number used*	102.00	111	130	99

\*Measurements of fragmentary flakes are included whenever the relevant values before breakage could be determined.

One general measure of core reduction/flake production success is the incidence of hinged and stepped distal edges of flakes. That is, hinge-terminated and stepped-edge flakes represent a partial or near total failure to develop cores and to produce flakes useful as informal tools or as blanks for making formal tools. Hinged or stepped flakes represent wasted material, time, and effort. Although we cannot know how many usable flakes were recovered from the site or converted into formal tools, we can gain insight into knapping success by comparing the ratios of hinged and stepped flakes to flakes with feathered terminations (i.e., successful detachments).

For Rocky Arroyo Feature 2, the ratio of failed:successful removals is 49:127, for a failure rate of 38.6 percent. This high rate, if accurate, might be expected given the small core sizes (again, probably reflecting the sizes of raw materials). Unless a device is used to hold small cores as they develop, the risk of smashing fingers while knapping is a constant. This is probably the main reason for the high percentage of hinged and stepped flakes in the assemblage.

## Tool Stone Raw Materials

Four general groups of materials are represented among the chipped stone debris: local gray cherts, other cherts, chalcedonies, and miscellaneous materials (Table 10). Each of these groups comprises a wide range of variability and is described in more detail.



**Table 10. Percentages of Lithic Raw Materials for Debitage.**

<b>Material</b>	<b>Cores</b>	<b>Core Reduction Flakes</b>	<b>Misc. Small Flakes</b>	<b>Tiny Flake Debris</b>	<b>Shatter</b>
Local gray chert	0.0%	64.6%	58.3%	65.7%	70.4%
Edwards chert	0.0%	11.2%	0.0%	0.0%	0.0%
Other chert	0.0%	1.9%	13.9%	15.0%	11.1%
Chalcedony	0.0%	7.5%	19.4%	11.6%	0.0%
Miscellaneous	100.0%	14.9%	8.3%	7.7%	18.5%
Column Total	100.0%	100.1%	99.9%	100.0%	100.0%
Number of Items	8	161	36	481	27

### **Local Gray Cherts**

This category includes 19 variations based on colors, color combinations, transitions between colors (clear-cut boundaries versus gradations from one color to another), inclusions, and textures. All of the variations occur in cherts exposed in the San Andres Formation (Permian). The nearest outcrops are 8 km to the west (at Six Mile Hill); from there, the San Andres forms the surface geology all the way to the Sierra Blanca. All of the raw material I have seen exposed in the formation has been in the form of irregular concretions measuring up to 10 cm across.

The colors in the local gray cherts range from white and off-white through all shades of gray, yellow-gray, brownish-gray, and grayish-brown. A flake may have a uniform color or a combination of colors. When two or more shades of a color are present, they can have sharp boundaries or grade seamlessly into each another. Bounded colors can take the form of rounded or oval shapes and stripes. Many examples have speckles of gray, black, or brown.

Textures also vary widely, sometimes within the same piece of material (and therefore within individual flakes). The finest-textured, or cryptocrystalline, examples are as smooth and homogeneous as the finest cherts found on the North American continent. However, these examples are rare and occur mainly as small pieces. The bulk of the gray cherts range from somewhat coarse (for cryptocrystalline stone) to textures comparable to fine quartzite and even siltstone.

Internal fractures, small vugs or voids, and small pockets of crystals or crystalline material occur with some frequency. One of the more interesting variations is a dull gray variety with moderate graininess and occasional, well-developed, individual hematite crystals. At least three different crystal forms were noted among the Rocky Arroyo flakes.

### **Imported Chert**

Three flakes were identified as material brought to Rocky Arroyo from central or west-central Texas, based on ultraviolet light analysis. The UV data are corroborated by other criteria including color and exceptionally fine texture. One flake is Edwards Chert and the other two are possible Edwards Chert. All three flakes were recovered from Bone Cluster 2 of Stratum 2.

## **Other Cherts**

The seven varieties included in this category are mostly jasper and related colorful materials. For the most part, these materials are cryptocrystalline and chalcedonic (thin edges are slightly translucent). All are red, either completely so or as the major color. Other color variations include white, medium gray, light brown, reddish-chocolate brown, purple, orange-red, yellow, and black. For the most part, these materials occur as pebbles in gravel deposits along the Pecos River several kilometers east of Rocky Arroyo. The flakes and cores are small, even compared to the other flakes and cores from the Rocky Arroyo site..

## **Chalcedonies**

Five varieties of chalcedony are present within the Rocky Arroyo assemblage. Color variations range from single colors to as many as four colors in a single piece. Two—light gray and medium to dark gray or gray-brown—are reminiscent of certain gray cherts and may simply be varieties of those cherts. The other three—red; medium gray, red, and yellow; and light gray, light gray-brown, dark brown, and rose—are sufficiently different that they probably derive from the Pecos River gravels mentioned earlier.

## **Miscellaneous Materials**

This group of chipped stone material rocks includes quartzites, igneous rocks, massive white quartz, fossil bone, and several sedimentary rocks of uncertain composition. The quartzites are the most common category within this group and include white, purple, dark gray, and dark gray/off-white examples. Of these, the purple variety is the most common. Unclassified igneous rocks include dark gray and dark gray-green examples. A medium gray rhyolite has clear feldspar phenocrysts. The Pecos River gravels are the suspected source of all of these miscellaneous materials.

## **Unmodified Minerals**

### **Selenite**

Three fragmentary sheets of selenite lack any type of human modification. The largest measures 102 by 64 by 7 mm and the smallest measures 45 by 36 by 4 mm. Although their use at Rocky Arroyo is unknown, they are manuports probably gathered in the vicinity of Comanche Hill, some 20 km east of the site.

### **Anhydrite**

The assemblage includes three unmodified small lumps of anhydrite (or perhaps gypsum). The pieces range in weight from 1.2 to 15.4 g; they may also have come from Comanche Hill or thereabouts. They could have been collected as a source of white pigment, but lack grinding facets or other indication of use.

## Chapter 5

### DATING

Two types of dating are available for the Rocky Arroyo site: radiocarbon studies and pottery assemblage analyses, the latter including El Paso Polychrome rim profiles.

#### Radiocarbon Dating

John Speth submitted four charcoal samples from floor features and selected strata in Feature 2 to Beta Analytic for radiocarbon assay. The samples were pooled wood charcoal drawn from the fill of the fire pit, the “ash pit,” and two different loci within Stratum 3. When averaged and calibrated, they produced a date of cal. A.D. 1265. Although the individual dates (Table 11) are in only partial stratigraphic agreement with one another, the averaged calibrated date is in fairly good agreement with the dates from the fire pit and the ash pit. Thus, a mid thirteenth century date for Feature 2 is both reasonable and likely.

**Table 11. Radiocarbon Dates from Feature 2.**

Lab No.	Provenience	Raw Date	13C Fract.	14C Corr.	Calibrated Date A.D.	Sample Description
Beta-14073	Fire pit	760 ± 50	-22.23	800 ± 50	1207(1245)1267	Pooled wood charcoal
Beta-14704	Ash pit	650 ± 50	-18.57	75 ± 50	1244(1267)1279	Pooled wood charcoal
Beta-14075	Stratum 3 ash lens	660 ± 40	-24.71	660 ± 40	1279(1287)1380	Pooled wood charcoal, mostly twigs and reed fragments
Beta-14076	Stratum 3, Bone Stratum 3	820 ± 40	-23.72	84 ± 40	1257(1265)1271	Pooled wood charcoal, mostly twigs and reed fragments
Average				76 ± 22	1257(1265)1271	

Note: old (Libby) half life of 5570 years, age referenced to A.D. 1950. Conventional dates calibrated according to Stuiver and Pearson (1986); presented here with one-sigma range (calibration date in parentheses). Calibrations based on University of Washington Quaternary Isotope Laboratory Radiocarbon Calibration Program, Revision 2.0 (Stuiver and Reimer 1986).

#### Ceramic Dating

The pottery types in the Feature 2 and Locus collections can be used to outline the periods of occupation at Rocky Arroyo (Table 12).

**Table 12. Dates of Selected Pottery Types.**

Pottery Type	Dates A.D.	Source
Chupadero B/W	1150–1450/1500	Breternitz 1966; Snow 1986
Three Rivers R/T	1150–1375/1400?	See text.
Lincoln B/R, Three Rivers Style	1275–1375?	See text.
Lincoln B/R, Lincoln Style	1330/1350–1400?	See text.
El Paso Poly., early	1000/1100–1250	Miller 1995
El Paso Poly., late	1250–1450	Miller 1995
Santa Fe, B/W	1175–1425	Habicht-Mauche 1993:10, Table 2
St. Johns Poly.	1175–1300	Breternitz 1966
Springerville Poly.	1250–1300	Carlson 1970:45
Pinedale Poly.	1275–1350	Breternitz 1966
Heshoutauthla Poly.	1275–1400	Smith et al. 1966
Corona Corrugated	1225–1460	Hayes 1981

Both collections share several basic types for the region: Chupadero, Three Rivers, Lincoln, El Paso Polychrome, St. Johns Polychrome, and Corona Corrugated. Of these, the most useful types for dating are Three Rivers, Lincoln, El Paso, and St. Johns. Springerville, Pinedale, and Heshoutauthla were less common at Rocky, having been traded long distances to the site. Nevertheless they are useful for dating the occupation of the site as a whole because they have short manufacturing spans.

El Paso Polychrome is useful for dating because of the shift from earlier rim forms to later ones about A.D. 1250 (Miller 1995:212). As was shown earlier, all but one of the El Paso rims from Rocky Arroyo are earlier forms, but many of them verge on the later forms given their thickening and tendency towards lip eversion. Two rims from the same vessel conform fairly well with the late form because of its nearly comma-shaped cross-section. Thus, a mid A.D. 1200s date is suggested by the El Paso Polychrome rims.

Smiley et al. (1953) reported the same *estimated* date for the end of Three Rivers Red-on-terracotta and the start of Lincoln Black-on-red—A.D. 1300. However, it has been clear for some time that the manufacturing dates for these two types actually overlap, perhaps by several decades or more, even if the details have yet to be established.

The explanation for the overlap between Three Rivers and Lincoln appears to be as follows. I suspect that the relationship of Lincoln to Three Rivers is very similar to that of Chaco Black-on-white to Gallup Black-on-white, Mesa Verde Black-on-white to McElmo Black-on-white, and Tonto Polychrome to Gila Polychrome. Chaco, Mesa Verde, and Tonto are late-end, mostly synchronous (though of limited production, quantity, and distribution), specialty variants of Gallup, McElmo, and Gila, respectively. I suspect that the inception and manufacturing of Lincoln largely overlaps with the late end of Three Rivers, and that the end dates for both are the same or very nearly so. In this scenario, Lincoln would be a late-dating specialty form of Three Rivers, and the prevailing type in some communities but not others.

As I just alluded to, the beginning and end dates for both types are somewhat up in the air. Once they are firmly dated, I suspect that the end date for Three Rivers will be 1375 or even 1400, and that the start date for Lincoln (especially the Three Rivers design style) will be about 1275.

It seems clear that the Lincoln design style (a narrow band, with or without formally defined internal design panels, circling bowl interiors just below the rim) of Lincoln Black-on-red is inspired by Rio Grande Glaze A Red (aka Agua Fria Glaze-on-red, Rio Grande Glaze I, etc.), a type that apparently started in the Albuquerque region about A.D. 1315. Given a little time for the spread of the idea from to the Sierra Blanca, the start date of the Lincoln style may be as late as A.D. 1330 to 1350. These suggestions are mostly guesswork, but they make sense in light of current pottery type and design style associations.

In fixing an end date for Rocky Arroyo, the absence of Rio Grande Glaze A Red is significant. Small numbers of that type are commonly found in almost all very late assemblages in the Sierra Blanca and Roswell regions. Jack Ross reports having seen the type in his collections from Rocky Arroyo (Appendix A). However, because Rio Grande Glaze A Red and Heshotauthla Polychrome are almost identical in appearance, especially as small sherds, the best way to distinguish them is through microscopic examination of paste and temper. Unfortunately, I was unable to find most of Ross' collections from Rocky Arroyo when I was invited to make suggestions as to their disposition following his death. For now, the absence of Rio Grande Glaze A Red in the collections currently available for study suggests an end date of the Rocky Arroyo occupations sometime in the early A.D. 1300s. The one factor that might argue for a somewhat later date is the single Lincoln Black-on-red sherd with a Lincoln design style. As I discussed earlier, that style may have appeared as early as about A.D.1330.

In summary, the available pottery evidence suggests an the occupation of the Rocky Arroyo site between the mid A.D. 1200s and the first half of the 1300s. If actual dates must be indicated, A.D. 1250 to 1330 will suffice for now. These dates may well be refined in the future. The four radiocarbon dates from Feature 2 are in concert with the early part of this dating estimate. The pit structure appears to have been used in the mid A.D. 1200s, perhaps during the 1260s.



## Chapter 6

### FLORAL AND FANAL REMAINS

The macrofloral remains (from excavation and flotation) from the Rocky Arroyo site have not yet been examined by specialists. At least seven charred sections of maize cobs were picked by hand from my Feature 2 excavations and from the piles of cultural materials that Ross left along the sides of the CCAS excavations. In his report on pollen, provided immediately below, Stephen Hall notes the presence of maize pollen in all six pollen samples taken at the site. Two of the samples produced 5.4 and 5.6 percent corn pollen. Although Hall is reluctant to state unequivocally that the occupants of the Rocky Arroyo site were *growing* maize, that conclusion seems obvious to me. The reader is referred to Hall's report for other taxa that may have been used as food, medicine, for rituals, etc.

#### Pollen Analysis Of The Rocky Arroyo Site, A Pilot Study

*Stephen A. Hall*

##### Introduction

Six pollen samples were collected by R. N. Wiseman from the temporary balk of fill left against the south half of the west wall of Feature 2, a pit structure at the Rocky Arroyo Site. The samples represent the following stratigraphic contexts.

Sample No. 9	Structure floor contact
Sample No. 2	Vertical center of Stratum 3
Sample No. 3	Contact between Strata 3 and 2
Sample No. 4	Vertical center of Stratum 2
Sample No. 5	Contact between Strata 2 and 1
Sample No. 7	Contact between Strata 1 and 0

All six samples contain pollen grains of maize (*Zea*), the highest percentage (5.6 percent) occurring in Sample No. 3. The pollen samples also contain grains of narrow-leaved cat-tail (*Typha angustifolia*), indicating the presence of moist habitats very near the site when the layers were being deposited. The cat-tail record may in part be the result of ethnobotanical activities.

##### Methods

The pollen samples were processed by techniques that have been developed for coarse-grained sediments, such as occur at archeological sites. Each sample was oven-dried, weighed, and washed in hydrochloric acid. A spike of *Lycopodium* spore tablets (Batch 201890), each tablet containing  $11,300 \pm 400$  spores, was introduced to each weighed sample. Tabulation of lycopod spike grains along with fossil pollen allows the calculation of the pollen concentration (pollen grains per gram oven-dried weight) of the material processed. After the hydrochloric acid wash,

the samples were washed in hydrofluoric acid and in a second application of hydrochloric acid. The organic fraction was then recovered by heavy liquid separation using zinc chloride (specific gravity, 1.955). The organics were washed in a heated acetolysis solution, stained with Safranin O, and mounted on glass slides in a medium of glycerin jelly, glycerol, and water. Pollen counting was completed at 400X with a Nikon Model S-Cb equipped with plan achromat objectives.

### **Pollen Preservation**

As a general index of pollen preservation, indeterminable grains were tabulated during pollen counting. Indeterminables are pollen grains that cannot be identified with certainty owing to grain deterioration. Indeterminable frequencies range from 14 to 22 percent at Rocky Arroyo, representing a modest amount of pollen assemblage deterioration that falls within Hall's (1981) Stage 2 preservation class. The pollen content of Rocky Arroyo sediments has not been significantly altered by post-depositional deterioration and should provide useful paleo-vegetational data if a detailed pollen analytical investigation were undertaken.

### **Pollen Concentration**

The concentration of pollen grains in the Rocky Arroyo material is comparatively high, ranging from 1,660 to 40,900 grains per gram and averaging 12,300 grains per gram of processed sediment. Pollen concentration analysis is a second check on the quality of preservation of a pollen assemblage and its reliability for interpretation. The six samples from Rocky Arroyo contain more than 1,000 grains per gram, the general cut-off value below which pollen assemblages are scrutinized for possible alteration by post-depositional grain destruction. Both V.M. Bryant, Jr. (personal communication) and Hall (1981) independently arrived at the 1,000 grains/gram criterion.

### **Paleovegetation**

The samples from Rocky Arroyo (Table 13) are too few to build a comprehensive picture of past vegetation and vegetational history. Also, this pilot study did not include analysis of modern surface material. As a result there is little firm basis for comparing the Rocky Arroyo pollen record with the local modern vegetation. However, a pollen study of the Garnsey Bison Kill Site (Hall 1984) provides information that can be used to evaluate the Rocky Arroyo material. The Garnsey Bison Kill Site occurs on the east side of the Pecos River opposite the Rocky Arroyo Site. The Garnsey Site is a series of kills of 35 bison dated A.D. 1450 to 1500. Pollen was recovered from sediments associated with the kill site, resulting in a detailed vegetational record for about A.D. 1350 to 1550 and perhaps later, and that indicates the occurrence of a major drought during the 15th century. The general character of the vegetation as represented by pollen at Garnsey is paralleled by the Rocky Arroyo pollen spectra, indicating the presence of a dry grassland vegetation during the accumulation of sediments at Feature 2.



**Table 13. Results of Pollen Analysis.**

Sample No.	9	2	3	4	5	7
Stratum	fc	3	3/2	2	2/1	1/0
Pollen Types						
<i>Picea</i>	0.9	0	0	0	0	0
<i>Pseudotsuga</i>	0.4	0	0	0	0	0
<i>Pinus</i>	4.4	(2)	8.9	7.2	5.7	2.8
<i>Juniperus</i>	1.3	0	3.7	2.2	1.9	0.9
<i>Quercus</i>	0.4	0	0.9	0	0.5	0
cf. <i>Fraxinus</i>	2.2	0	0.9	0.4	0.5	1.4
cf. <i>Populus</i>	0	0	0.5	0	0	0
<i>Artemisia</i>	1.8	(1)	6.1	3.1	0.9	12
<i>Ambrosia</i> type	27.0	(6)	21.0	17.0	30.2	10.6
<i>Aster</i> type	0	0	1.9	6.7	2.4	0.5
<i>Chenopodium</i> type	5.3	0	10.3	11.2	12.3	33.2
<i>Ephedra torreyana</i> type	11.9	0	6.1	11.2	5.2	1.4
Gramineae	14.6	(1)	6.1	12.6	17.0	6.9
<i>Zea</i>	2.7	(6)	5.6	5.4	(+)	2.3
<i>Tidestromia</i>	0.4	0	1.4	0.4	1.9	1.4
<i>Eriogonum</i>	0.4	0	1.4	0.0	0.5	0.0
Malvaceae	1.3	0	1.4	0.4	2.8	0.0
Onagraceae	0.4	0	0.5	0.4	0.5	0.0
<i>Typha angustifolia</i> / <i>sparganium</i>	1.3	(2)	3.3	2.7	0.9	3.2
Cyperaceae	0.0	0	0.5	0.0	0.0	0.0
Fern spores, undiff.	0.4	0	0.0	0.0	0.0	0.0
Leguminosae	0.0	0	0.5	0.4	0.0	0.0
Ligulifloreae	0.0	0	0.0	0.0	0.5	0.0
Polygonaceae	0.0	0	0.0	0.0	0.5	0.0
Indeterminate	22.1	(3)	16.4	17.0	14.6	21.2
Unknown	0.4	(1)	2.3	1.3	1.4	2.3
Pollen Sum	226.0	22	214.0	223.0	212.0	217.0
Pollen concentration/gram	3560	1660	4280	19200	3740	40900

Sample No. 2 contained a large amount of charcoal and a small amount of pollen; too few grains were tabulated to justify calculating percentages. For the other five samples, only one trend in relative frequencies is apparent: *Chenopodium* type percentages increase throughout the stratigraphic sequence, from bottom to top. The increasing abundance of chenopod plants could have several explanations and the significance of the trend is not clear. *Pinus*, *Juniperus*, and *Quercus* percentages are all within the range of variability observed at Garnsey. The high frequencies of *Ephedra* also parallel the Garnsey record.

All of the samples contain pollen of narrow-leaved cat-tail (*Typha angustifolia*), indicating the nearness of moist habitats although not necessarily permanently standing water. Sample No. 3 also contains some sedge (*Cyperaceae*) pollen.

### **Ethnobotany**

Each of the six samples contain pollen of maize (*Zea mays*). The pollen grain diameters range from 80 to 100 micrometers. Sample No. 7 contained a cluster of six grains (counted as one). *Zea* was not counted in Sample No. 5, but a scan of the slides resulted in the observation of one grain. The strong presence of *Zea* pollen, as much as 5.6 percent (in Sample No. 3), indicates that the prehistoric occupants of the Rocky Arroyo Site were using and perhaps raising maize.

Narrow-leaved cat-tail pollen could also be present in Feature 2 sediments as a utilized plant. It and other local plants were doubtless used by prehistoric people, yet it is impossible to distinguish pollen grains of heavily utilized plants from pollen of the same plants that were not used, yet were present locally. Such is the dilemma of ethnobotanical pollen analysis.

### **Summary**

1. The sediment samples from the Rocky Arroyo Site contain abundant, well-preserved pollen grains indicating that a detailed pollen investigation of the site would provide valuable information on past vegetation and ethnobotanical trends.
2. The presence of maize (*Zea mays*) pollen in every sample (5.6 percent in Sample No. 3) indicates strong utilization of maize at the site.
3. Narrow-leaved cat-tail pollen in all samples probably indicates the existence of moist places in the valley near the site and possibly the use of cat-tail by inhabitants of the Rocky Arroyo Site.

### **Faunal Remains**

The faunal sample obtained from Rocky Arroyo is highly varied. Aside from the expected species (bison, antelope, deer, cottontails, jackrabbits, etc.), one of the more stunning aspects, at least at the time of the excavations some 30-plus years ago, was the finding of large quantities of fish, especially catfish (Wiseman 1985).

John Speth has recently completed a manuscript on the bison remains from Rocky Arroyo. He will submit it for publication to *The Artifact*, the journal of the El Paso Archaeological Society. The expected publication date is 2013. A second manuscript, concerning the non-bison fauna from Rocky, will be prepared once the analyses of the remains are completed.

## Chapter 7

### DISCUSSION

Feature 2 is very much like structures of the middle and late Glencoe phases in the Sierra Blanca country west of Roswell. Being large and square, it is most like Houses 1 and 15 at the Bonnell site (Kelley 1984), the large structure at the Angus site (Wiseman 1996b; see also Zamora 2000), and Pit House BB at the Crockett Canyon site (Farwell et al. 1992). It is also very similar to the large, deep structures at Lincoln phase sites—for example, Structure 7 and Feature 4 at the Block Lookout site (Smokey Bear, LA 2112) (Kelley 1984, Wiseman et al. 1976) and Room F at Bloom Mound (Kelley 1984). All of these structures have unusual features that set them apart from the other structures at their respective sites and lead most archaeologists to suggest that they had a ceremonial function (Wiseman 1996b). The term Southwestern archaeologists normally use in this context is “kiva,” referring to a well-documented ceremonial structure of the Ancestral Puebloans and their modern descendants. For several reasons I prefer to use the less “loaded,” less specific term “socioreligious structure” (Wiseman 1996b). For me, the floor trenches (aka floor vaults or floor drums) are Feature 2’s most significant details, given their probable use as floor drums. Ritualists dance on wooden planks placed over pits in modern Pueblo kivas to simulate thunder, to attract rain clouds, and to encourage rainfall, and presumably were used in the same way by their ancestors (Ellis 1967). Other possible explanations for these floor features have been offered, but all relate to ritual use (for instance, Roberts 1932:59–60; Wilshusen 1989:103–105). Thus, it is reasonable to suggest that Feature 2 at Rocky Arroyo functioned as a socioreligious structure.

For years now I have been intrigued with the notion that certain archaeological manifestations in southeastern New Mexico reflect different ethnic groups. Now that we are obtaining more and more information about the archaeological sites in the Roswell Oasis, the possibility of defining the different ethnic groups in that locality has grown to the point where it is worth discussing in a preliminary way. I will outline the basics as I see them, with an emphasis on the Rocky Arroyo site. As this is a trial formulation, modifications will undoubtedly occur in the future. The three groups I propose can be called the Local People, the Glencoe People, and the Lincoln People.

Much of my thinking about the identification of ethnicity or social groups in the archaeological record relies mainly on architecture and less so on portable material culture such as pottery. In saying this, I am *not* suggesting that all structures and examples of architecture found anywhere in the world necessarily reflect ethnicity. What I *am* saying is that every once in awhile, structures in a given region are found to be distinctive in one or more ways, raising the possibility that they are conveying information about ethnic or other social divisions. While this approach will raise many colleagues’ eyebrows (see, for instance, Akins 2001:310–313; Speth 1988), I ask them to consider reading a recent paper that discusses one example in particular detail (Wiseman 2007).

In addition to architecture, I use three classes of portable material culture in this particular analysis. In general, pottery assemblages are widely recognized for their potential to convey behavioral information and have long been used by Southwestern archaeologists to evaluate

cultural, social, and economic relationships, trade or exchange, and relative dating. Throughout this paper I refer to the basic pottery assemblage as Jornada Mogollon, meaning most or all of the following core types—Chupadero Black-on-white, Corona Corrugated, Jornada Brown, Three Rivers Red-on-terracotta, Lincoln Black-on-red, and El Paso Polychrome—are present. At given sites it is the exact list of these types, and their frequencies, that seem to distinguish social or ethnic groups. While most late sites in the Sierra Blanca country have at least some Corona Corrugated, for example, only Lincoln phase sites have large amounts of the type because it was the primary utility pottery of that phase. The presence of large amounts of Corona Corrugated is part of the definition of the Lincoln phase. The same is true of Jornada Brown with respect to Glencoe phase sites.

However, as discussed in the paragraphs to follow, social/ethnic groups characterized by a certain pottery type can lose that identifier in a foreign setting such as the Roswell Oasis, perhaps because of the proximity and social and economic interactions among those groups in an alien setting. I refer to the fact that two groups in the Roswell Oasis (Glencoe and Lincoln) adopted El Paso Polychrome as their primary utility ware in lieu of their respective traditional wares. The third group, the Local People, adopted Jornada Brown in their earlier settlement (The Fox Place) but shifted to El Paso Polychrome in their later one (Henderson).

The question then becomes, why this shift to El Paso Polychrome at Roswell but not back in the home territories, where Glencoe and Lincoln villages continued to make and use their traditional utility pottery types (even along their shared border, the Rio Bonito valley)? I suspect that the answer has to do with the fact that (as far as we can demonstrate) almost all of the pottery at sites in the Roswell Oasis was made elsewhere. This raises the additional question as to why the primary pottery of a fourth region (El Paso) became the main utility pottery for all three groups in the Roswell Oasis? As the name implies, El Paso Polychrome was made in the desert lowlands of the greater El Paso region. However, some El Paso Polychrome also seems to have been made in the Sierra Blanca country. So-called Jornada Polychrome (Mera 1943) appears to be nothing more than El Paso Polychrome made on a vessel with Jornada Brown paste, with the surfaces carefully polished in the manner of Jornada Brown. Did potters from the El Paso region move into the Sierra Blanca highlands and continue their craft, at least for a while, while using Sierra Blanca materials and habits?

When it comes to the Local People at the Fox Place and later at Henderson, the issue probably is more straightforward. The Local People evidently did not make pottery themselves but acquired it from others. Given the presence of the Glencoe-like structure at the Fox Place, it is easy to postulate that the structure was either built by Glencoe people or inspired by their examples. As the local people acquired their pottery from others, the acquisition of Jornada Brown from Glencoe people would naturally follow. But, as time progressed and contacts with Glencoe peoples and Lincoln peoples increased (especially after groups of these peoples had moved into the Roswell Oasis, to sites such as Rocky and Bloom Mound), a shift to the acquisition and use of El Paso Polychrome would also have been natural (or unavoidable) because the newcomers had also made the change. To reiterate an important factor that should be kept in mind for the remainder of this discussion, the current perspective is that *none, or practically none*, of the pottery at the Roswell Oasis sites, including the villages of Local people, Glencoe people, and Lincoln people, was made at Roswell. Tempering material studies indicate that *most, if not all*, of

the sherds recovered from excavations at these sites represent vessels traded into the oasis from the west, most likely the Sierra Blanca and points further northwest and southwest (Wiseman 2002, 2004). These vessels represent the Jornada Mogollon types (sometimes referred to as “local” when speaking of assemblages from Roswell sites) as well as those more traditionally believed to have constituted trade wares.

I chose two other artifact classes to monitor in this study. Over the years, I have noticed that bone gaming pieces (or “dice”) and freshwater mussel shell ornaments appear to be common and predictable in late Glencoe phase sites but occur only occasionally and in smaller numbers in Lincoln phase sites. These impressions are buttressed by a search of the relevant literature. In late Glencoe sites, bone gaming pieces are frequently recovered in groups of 6 to 11 items (Farwell et al. 1992:110, 112; Kelley 1984:425–426) but in Lincoln phase sites, they usually occur as single items or not at all.

Freshwater mussel shell items and manufacturing debris are a common feature in the larger Late Glencoe sites, but small Glencoe and Lincoln phase sites yield only occasional ornaments of this material and no manufacture debris (Kelley 1984:429–430; Urban 2000:175–185). Also, freshwater mussel shell, usually in the form of small, non-descript fragments but occasionally as ornaments and tools (see Wiseman 2002), is found in most “camp” sites lying east of the mountains in southeastern New Mexico.

Since Rocky Arroyo and the archaeological manifestations under consideration here generally date after A.D. 1200, I introduce only those sites and periods directly relevant to the discussion. That is, for the Sierra Blanca region, I discuss only the latest defined phases, the late Glencoe and the Lincoln. The architecture and portable artifacts of the preceding early Glencoe and Corona phases are sufficiently different as to be of no particular interest in this discussion. I do introduce information from the earlier Townsend site north of the Roswell Oasis because of its importance in providing more time depth for the local inhabitants of the Pecos Valley in general and the Roswell Oasis in particular.

\* \* \*

As I mentioned previously, the three socially distinct groups that I believe to be present in the Roswell Oasis are: (1) Local People—the long-established population of the Pecos River Valley; (2) Glencoe People—immigrant Glencoe phase people from the Sierra Blanca country; and (3) Lincoln People—immigrant Lincoln phase peoples, also from the Sierra Blanca country but perhaps ultimately from the Gran Quivira area of central New Mexico.

The Local People inhabited the Roswell Oasis for centuries (perhaps more than a millennium) before the local appearance of Glencoe and Lincoln peoples. Although the Local People’s presence might have been expected, based on local sites of the Archaic period, their definition as a group is suggested by skeletal characteristics first noted and discussed for the late-dating Henderson site (Rocek and Speth 1986). Occupations of these people have now been proposed for the Townsend site (LA 34150) and Fox Place (LA 68188) (Wiseman 2002).

The *Townsend site* is 23 km (14 mi) north of Roswell, well outside the Roswell Oasis. As I see the situation, three types of structures are present at Townsend (Akins 2001). Although Akins does not use the term (she prefers the generic term “structure”), one type of structure is actually the floor of a brush hut or wickiup. Another is a very small pit house and the third may or may not be a separate type. Structure 2, the wickiup, was indicated by a 2.90 by 3.25 m, saucer-shaped, slightly depressed (18 cm deep) floor with an area of 7.1 m<sup>2</sup>. The structure included a north-facing lateral entry. Floor features included a central fire pit and a nearly complete ring of small, peripheral post holes that anchored the frame of the superstructure. A structure excavated by Bullock (1999) east of Roswell and the Pecos River was similar to, but not as elaborate as, the Townsend wickiup.

Structures 4, 5, and 6 in Area A and Structure 1 in Area B at Townsend were tiny oval pit houses that vary somewhat in size (1.35 to 1.88 m in greatest dimension), floor area (1.4 to 3.6 m<sup>2</sup>), and depth (0.22 to 0.82 m). Two had one-step entries, to the north and northeast. Floor features varied widely; some had central fire pits or ash concentrations, others did not. A few roof support post holes might or might not be present; none were symmetrically placed. These structures were duplicated at sites such as King Ranch and the Fox Place (Wiseman 1981, 1988, 2002).

The pottery assemblage at Townsend is basically Jornada Mogollon (Table 14). In this case, the primary types include, from most common to least common, El Paso Brown, Jornada Brown, Chupadero Black-on-white, Three Rivers Red-on-terracotta, and Corona Corrugated. Lincoln Black-on-red is absent at Townsend.

**Table 14. Selected Pottery of the Roswell Oasis, Glencoe Phase, and Lincoln Phase.**

(Row totals are less than 100 percent, due to excluded types.)

<b>Site/Phase</b>	<b>Chup. B/W</b>	<b>Corona Corr.</b>	<b>Jornada Brown</b>	<b>El Paso Brown</b>	<b>El Paso Poly.</b>	<b>Three Rivers R/T</b>	<b>Lincoln B/R</b>
Townsend	9%	<1%	39%	48%	0%	3%	0%
Fox Place	19%	10%	46%	0%	11%	4%	0%
Rocky Arroyo, Feature 2	45%	8%	0%	0%	27%	4%	2%
Henderson	17%	10%	<1%	0%	53%	15%	3%
Bloom Mound	7%	6%	8%	0%	56%	1%	8%
Late Glencoe (Bonnell)	9%	4%	57%	0%	16%	4%	2%
Lincoln (Corona)	35%	44%	9%	0%	<1%	<1%	<1%
Lincoln (Sierra Blanca)	27%	47%	8%	0%	9%	3%	4%

Akins (2001:259) feels that freshwater mussel ornaments were manufactured at Townsend, but reasons that the shells probably had to be brought in from the Pecos river. Townsend is about 16 km (10 mi) west of the Pecos.

No gaming pieces were recovered from Townsend.

For Townsend, seven of 10 two-sigma radiocarbon dates fall within the period cal A.D. 655 to 980. The other three fall within the period cal A.D. 890 to 1275. The one archaeomagnetic date from Townsend produced combined curve-intercepts between A.D. 625 and 950. Clearly, most of the materials excavated at the Townsend site date to the second half of the first millennium A.D., or between A.D. 650 and 1000. The last three radiocarbon dates presumably reflect a lesser occupation between A.D. 1000 and 1300.

In summary, the Townsend site includes tiny pit houses and wickiups. The pottery assemblage is dominated by El Paso Brown and Jornada Brown. The residents evidently manufactured items (jewelry? tools?) from freshwater mussels. No bone gaming pieces or dice were recovered from the rather extensive excavations. The structures clearly indicate the site occupants were local people, who made mussel shell artifacts and traded with peoples in the mountains to the west. The El Paso Brown pottery suggests contact with El Paso region people, the Jornada Brown suggests contact with Glencoe phase people, and the Chupadero Black-on-white and Corona Corrugated suggest contact with Corona or early Lincoln phase people or both.

*At the Fox Place*, 11 structures were excavated (Wiseman 2002). Nine are virtually identical in size and nature to Akins' tiny pit houses, one is similar to Akins' currently undefined type, and one is very similar to Glencoe phase pit houses such as those at the Bonnell site (LA 612) (Kelley 1984, Appendix 5). No wickiup floors were found at the Fox Place, but if once present would not have been preserved due to the extensive animal burrows.

The pottery assemblage at the Fox Place consists of Jornada Brown, Chupadero Black-on-white, El Paso Polychrome, Corona Corrugated, and Three Rivers Red-on-terracotta. Lincoln Black-on-red constitutes less than one percent of the sherds.

The Fox Place excavations produced large amounts of freshwater mussel shell, in the form of small fragments (manufacturing debris?), tools, and ornaments (Wiseman 2002). The shells could have been collected as close as the lower reaches of the Hondo—and if not there, certainly from the Pecos itself. The Fox Place is 16 km (10 mi) west of the Pecos.

As I mentioned earlier, eight gaming pieces made of turtle plastron, mammal long bone, and pottery were recovered from the Fox Place.

Both radiocarbon determinations and archaeomagnetic dates are available for the Fox Place. All of the two-sigma radiocarbon dates fall within the period cal A.D. 1063 to 1479. Two archaeomagnetic samples (18 cubes) from Feature 10, the Glencoe-like structure (see below), produced a date between A.D. 1230 and 1365. Thus, the excavated components and materials at the Fox Place date to the first half of the second millennium, most likely between A.D. 1200 and 1400.

Assuming that the components, artifacts, and dates are representative of the full ranges of occupations of their respective sites, the occupation of the Fox Place took place mostly after Townsend was abandoned. This conclusion is buttressed by the pottery assemblages.

In summary, the structures at the Fox Place were almost all tiny pit houses of the kind noted at the Townsend site and at other sites in the Roswell area. The dominant pottery type, Jornada Brown, suggests closest ties with Glencoe phase peoples to the west. A strong association with Glencoe peoples is also indicated by the presence of the Glencoe phase-like structure. The continued importance of Chupadero Black-on-white plus the presence of Corona Corrugated and a sherd or two of Lincoln Black-on-red indicate continued but perhaps less strong contact with Lincoln phase peoples. The Fox Place inhabitants continued to make ornaments and tools from mussel shell and presumably continued the game played with bone gaming pieces or dice.

My first impression of the *Henderson site*, a 75 to 100 room pueblo, was that it was the home of immigrants who entered the Pecos valley from the west. However, details of the architecture at Henderson, as revealed by excavation, show that many of the rooms have varied shapes (square to long rectangular) and sizes (2.5 by 2.8 m to 3.0 by 5.6 m; 7.0 to 16.8 m<sup>2</sup>). The walls of some rooms were poorly built and highly variable in thickness (sometimes within the same wall). These details suggest to me that the builders were not particularly familiar with, and certainly were not skilled in, the construction of above-ground houses. In some cases, the walls are so amateurish as to be humorous (see, for instance, Figures 2.4, 2.5, and 2.6 in Speth 2004). Excavator error seems an unlikely source for these defects because of the slow, methodical manner in which the excavations were conducted (as I observed at the time). Some of the rooms also had floors below ground level—Speth (2004) uses the term “bathtub rooms”—suggesting a holdover from the earlier use of small pit houses.

The principal pottery types at Henderson are El Paso Polychrome, Chupadero Black-on-white, Three Rivers Red-on-terracotta, Corona Corrugated, and Lincoln Black-on-red. Jornada Brown and its variants are virtually absent (Table 14). El Paso Polychrome was the primary cooking pottery. Numerous intrusive types from throughout New Mexico, east-central Arizona, and northern Mexico occur in very small numbers.

Numerous freshwater mussel shells, fragments, ornaments, and tools were recovered from Henderson (Speth and McKay 2004).

In an e-mail, Speth stated that, “[a]side from the set [of bone gaming pieces] at Henderson with the burial, there may have been somewhere between half a dozen and a dozen others” (Speth to Wiseman, September 20, 2012).

Radiocarbon dates place the two periods of occupation of Henderson in the late A.D. 1200s and the late 1300s or early 1400s (Speth 2004). Somewhat at variance with these dates, a seriation of El Paso Polychrome jar rims suggests the two occupations took place during the early to mid 1300s (Speth and LeDuc 2007). Whichever way one wishes to go in the matter, the main occupation was in the 14th century A.D.

Because of the human skeletal evidence (Roczek and Speth 1986:148–164) and a number of other criteria, the Henderson site and its occupants were eventually interpreted as reflecting long term residents and local cultural developments in the Pecos valley and environs (Speth 2004).



In summary, the structures at Henderson include the tiny pit houses characteristic of the Roswell area's early inhabitants. The pueblo seems to be an attempt to duplicate Pueblo style architecture like that common in the Lincoln phase of the Sierra Blanca region to the west. However, the sloppy, uneven character of the walls, combined with the wide range of sizes and shapes, indicate a lack of experience with building this type of structure. The pottery assemblage is basically the same as at the Fox Place, except that El Paso Polychrome replaced Jornada Brown as the main cooking and storage ware. This shift was in concert with the movement of Glencoe and Lincoln phase peoples into the Roswell Oasis and the shift among those peoples to the use of El Paso Polychrome to cook and store food. Henderson people continued to make mussel shell items and to engage in games involving bone gaming pieces or dice.

\* \* \*

The second group living at the Roswell Oasis were middle to late Glencoe phase migrants from the Sierra Blanca country. Kelley (1984) applies the Glencoe phase designation to Ceramic period prehistoric sites in the high country on the east side of the Sierra Blanca. The sites are between the Rio Peñasco on the south and the Rio Bonito on the north. The salient characteristic of these people was that they *always* lived in pit houses (despite the length of the phase and their proximity to pueblo-using Lincoln phase peoples). They also made and used plain Jornada Brown pottery as their primary pottery type throughout their existence in the homeland. When Kelley formulated the phase, she did not see sufficient variation in material culture to warrant its subdivision (despite lasting 1000 years, more or less).

Middle and late Glencoe phase pit houses vary greatly in size but tend to be square to rectangular and measure several meters on a side (e.g., 3 by 4 m). They average 0.5 to 1.5 m in depth and can have plastered floors and walls, central fire pits, and (often) four-post roof support holes in the floors. socioreligious rooms are basically the same as the habitations but are almost exactly square and generally much larger (on the order of 6 by 6 m).

Middle to late Glencoe pottery assemblages are dominated by Jornada Brown, followed by Chupadero Black-on-white, El Paso Polychrome, Three Rivers Red-on-terracotta, Corona Corrugated, Lincoln Black-on-red, and a large number of imported types represented by a few sherds each.

Late Glencoe peoples, especially those in the larger villages, worked copious amounts of fresh water mussel shell into beads, pendants, and scrapers. Given the freshwater mussel use by the long-term inhabitants of southeastern New Mexico east of the mountains, one wonders whether the raw materials for this craft were acquired by the Glencoe peoples from groups such as the Local People of the Roswell Oasis.

The late Glencoe people also had a propensity for gaming (and gambling?) as shown by the frequent presence of bone "gaming pieces" or "dice" in their sites.

Based on pottery, the late Glencoe phase dates to the first half of the second millennium A.D., between 1000–1100 and ca. 1400.

Excavated late Glencoe sites, aside from Kelley's (1984, Appendix 4), include the Crockett Canyon, Filingin, and Angus sites (Farwell et al. 1992; Zamora and Oakes 2000).

In the Roswell Oasis, the only Glencoe-like site to be excavated to date is Rocky Arroyo. As I describe in this report, the one documented square pit house had the plastered floor and walls and basic floor plan (central fire pit and four-post roof support system) of Glencoe structures. Evidently, no pueblo-style structure was ever present at the site. The pottery assemblage is Jornada Mogollon but the Jornada Brown of typical Glencoe sites was replaced by El Paso Polychrome. Evidence of mussel shell working and of games involving bone dice or gaming pieces is also present.

In summary, Glencoe phase sites of the Sierra Blanca country are characterized by the use of pit houses of various sizes (for both habitation and ceremonial activities). In the Glencoe mountain homeland, the most common pottery was Jornada Brown, used for cooking and food storage. The Glencoe people made jewelry from freshwater mussel shells and engaged in games that involved bone items of distinctive shape and size. Rocky Arroyo fits the Glencoe cultural pattern except for the fact that El Paso Polychrome, not Jornada Brown, was the primary utility ware. These observations are amplified later in this chapter.

\* \* \*

The third group that both Kelley (1984) and I believe moved into the Roswell Oasis are Lincoln phase people. In the Sierra Blanca country where Lincoln phase sites are most common, excavated sites include Block Lookout (aka Smokey Bear, LA 2112), Block Headquarters, Baca (aka Baca Sawmill), Lower Stanton, Salas, and Robinson (Kelley 1984, 1991; Shelley and Wenzel 2002; Wiseman 1975; Wiseman et al. 1976). All of these sites have Pueblo-style architecture, with one dozen to several dozen contiguous rooms arranged either in linear blocks or in two or more linear blocks placed around open spaces or plazas (i.e., single-plaza pueblos). The walls, made of adobe, adobe and rock, or rock, are usually fairly narrow and of uniform thickness, suggesting single story rooms. Large, deep, square to slightly rectangular, subterranean structures believed to be ceremonial are often present, especially within the plazas.

The pottery assemblages of Lincoln phase sites are dominated by Corona Corrugated, often followed closely by Chupadero Black-on-white (Table 14). Jornada Brown and its variants, El Paso Polychrome, Three Rivers Red-on-terracotta, and Lincoln Black-on-red occur in smaller numbers. Various imported types are always present, but usually in very small numbers.

Gaming pieces or dice are occasionally found in Lincoln phase contexts but usually as single pieces (Kelley 1984:267) rather than as the groups or "sets" found at late Glencoe sites.

Freshwater mussel shell ornaments occur in small numbers in Lincoln phase sites but are not accompanied by the shell debris indicative of manufacturing (Kelley 1984:268). Perhaps the items were received occasionally in trade, from late Glencoe phase peoples.

Several tree-ring dates are available for four sites that either belong to the Lincoln phase or date to the same period and have the same general pottery assemblage, but are on the periphery of the

Lincoln phase territory (Lower Stanton Ruin, LA 9102 [Shelley and Wenzel 2002; Smiley et al. 1953]; Three Rivers site, LA 1231 [Cosgrove and Cosgrove 1965]; Armstrong ruin, LA 1225 [Mesa 1940; Smiley et al. 1953]; LA 2945 [Wendorf 1956]). The last two sites are in the Gallo drainage southeast of the village of Corona, in northern Lincoln County. Some archaeologists would assign (or have assigned) Three Rivers, Armstrong, and LA 2945 to the Lincoln phase (Kelley 1954, for instance), however, the Three Rivers site is west of the Sierra Blanca rather than east of it in the Lincoln phase territory as currently defined. In my revision of southern New Mexico culture history (Wiseman n.d.) I further suggest that the two Gallo sites are more appropriately assigned to the Gran Quivira region of central New Mexico. Regardless of cultural historical assignment, the few tree-ring dates for all four sites are essentially the same, indicating occupations in the mid-1300s (Robinson et al. 1972, 1973). Many more dates will be required to precisely define the time span of the Lincoln phase.

Radiocarbon determinations are available for only two Lincoln phase sites, Robinson and Lower Stanton. The four calibrated, one-sigma dates from Lower Stanton range from A.D. 1300 to 1480 (Shelley and Wenzel 2002), while the latest dates from the long-lived Robinson site represent the A.D. 1200s and 1300s (Stewart et al. 1991).

In the Roswell area, Bloom Mound is the primary (and perhaps only) site assignable to the Lincoln phase. Bloom Mound has for years been thought of as a nine to 10 room pueblo aligned north-south, with a deep subterranean socioreligious room (Kelley's Room F) to the east. Recent work by Speth indicates that the site is most likely a square pueblo with a small, fully enclosed plaza containing Room F. Speth also found a series of small, rectangular pit houses just north of the pueblo, but their temporal and cultural relationship to the pueblo occupation is not yet defined (Speth 2005; Speth and LeDuc 2007:45, Figure 18).

The pueblo itself was well built. The rooms were of roughly equal size, and each wall was of equal thickness throughout its length. The adobe included enough clay to make a strong wall. The fact that we have virtually no information about the rooms' floor features (Kelley's work excepted) is because the CCAS excavators either overlooked such features or failed to record them. The socioreligious room is comparable in most details to Lincoln phase socioreligious structures.

At the present time, pottery assemblage data are available only for Kelley's (1984) work at the site. She completed excavation of Room F (which had been started by the Roswell Archaeological Society) and fully excavated Room G in the pueblo. Her data (1984:476, Table 36) indicate a Jornada Mogollon assemblage including El Paso Polychrome, Lincoln Black-on-red, Chupadero Black-on-white, corrugated ware (presumably Corona Corrugated), and Three Rivers Red-on-terracotta (Table 14). Here again, El Paso Polychrome is the primary utility ware. The large percentage of Lincoln Black-on-red reflects a late date, which is also supported by a seriation of El Paso Polychrome rim sherds (Speth and LeDuc 2007:45, Figure 18).

Kelley (1984:470) reports the recovery of six charred "slender, elongated [gaming] pieces and a round one" (for a total of seven) from the floor of the socioreligious structure (Room F) at Bloom. Also, she recovered an unburned seventh elongate piece elsewhere during her work at

the site. In an email to me (dated September 20, 2012), Speth remembers that finds of bone gaming pieces were “uncommon” and “rare” during his work at Bloom.

Regarding ornaments, Kelley (1984:472) states: “Mussel shell is not prominent, but it is presumed that some of the shell pendants and a ‘mother-of-pearl’ ornament reported in the scrapbook were made of this shell.” We cannot fully evaluate the amount of shell until Seth’s final report on his work at Bloom becomes available.

No radiocarbon or other dates have been published for Bloom Mound. Speth and Leduc’s (2007) El Paso Polychrome rim seriation indicates that of the Fox Place, Rocky Arroyo, Henderson, and Bloom Mound, Bloom is the latest. They suggest that Bloom dates primarily to the late A.D. 1300s and early 1400s. The last part of this time frame is somewhat later than indicated by the pottery assemblage, but a full understanding of that assemblage is not possible until completion of Seth’s work on the site.

Kelley’s (1984:489) reasons for suggesting a Lincoln phase assignment for Bloom Mound duplicate only some of my criteria and include others that I do not use. The latter include a carved stone “incense burner” (Kelley 1984, Plate 75b), a “notched” bone awl, a bone finger ring, and some 1700 small discoid beads of stone and shell. She sees these items, plus the dominance of El Paso Polychrome, as indicating “close contacts with the El Paso phase” sites in the El Paso region.

In summary, the Lincoln phase in the Sierra Blanca, its homeland, is characterized by well-made Pueblo-style architecture, a Jornada Mogollon pottery assemblage dominated by Corona Corrugated as the cooking and storage ware, and occasional mussel shell ornaments and bone gaming pieces.

Bloom Mound is now seen as a small plaza pueblo with a socioreligious structure in the plaza. A series of small pit houses underlying the northern part of the pueblo still need to be identified in terms of social affiliation and date. The pottery assemblage is Jornada Mogollon and assignable to the Lincoln phase, but the dominant utility ware is El Paso Polychrome rather than Corona Corrugated. Mussel shell ornaments are uncommon but, contrary to expectations for a Lincoln phase site, bone gaming pieces are fairly numerous. Overall, Bloom Mound qualifies as a Lincoln phase settlement, the difference in dominant utility pottery notwithstanding.

## Chapter 8

### SUMMARY AND CONCLUSIONS

This report reflects two goals. The first is to describe excavations at the Rocky Arroyo site (LA 25277) near Roswell some 30 years ago, and to present results from that work. The second is to make a case for the presence of three distinct social groups (ethnic groups?) in the Roswell Oasis during prehistoric times. The first group is the Local People, who inhabited the Roswell Oasis for at least two centuries—probably many more—prior to A.D. 1400 (or whenever the area was abandoned by farming communities). Within the Roswell Oasis, Local People lived at the Fox Place and the Henderson sites. Local Peoples' sites outside the oasis, but still in the region, include Townsend, King Ranch, and presumably many others. The second group consisted of migrants bearing Glencoe phase culture from the Sierra Blanca region to the west; these people lived at Rocky Arroyo and probably other pit house villages in the Roswell Oasis. The third group also consisted of migrants and bore Lincoln phase culture from the Sierra Blanca region; Lincoln people probably lived at only one site in the Roswell Oasis, Bloom Mound.

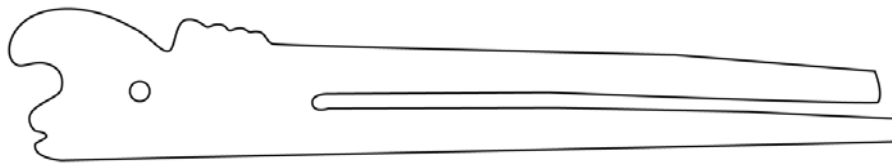
As I see it, the Rocky Arroyo site is attributable to the Glencoe phase as defined by Kelley (1984). The primary reasons for this assignment are the presence of at least three pit houses and the apparent absence of a pueblo-style structure, the Jornada Mogollon pottery complex, and the many examples of turtle plastron gaming pieces and freshwater mussel shell ornaments and manufacturing debris. The primary problems with a Glencoe phase assignment for Rocky Arroyo are the paucity of Jornada Brown pottery and the importance of El Paso Polychrome pottery as the primary utility ware.

As I stated earlier, under certain circumstances architecture may be the best single defining characteristic, signal, or symbol of social or ethnic differences. As I discuss in more detail elsewhere (Wiseman 2007), habitations sometimes reflect the sense of identity and world view of a particular people and can be attributed to them with a fair degree of certainty when and where such habitations are found.

Items of portable material culture, on the other hand, are readily traded or copied, and in many ways are more amenable to rapid change induced or aided by outside stimuli. An excellent example in the Roswell Oasis is El Paso Polychrome pottery. El Paso Polychrome is characteristic of, and helps define, El Paso phase villages in the greater El Paso region of far west Texas, northeast Chihuahua, and south-central New Mexico. It occurs as a minor type in most late villages in the Sierra Blanca country, whether those villages are assigned to the Glencoe phase or the Lincoln phase. But at Rocky Arroyo and Bloom Mound, El Paso Polychrome is *the* utility pottery (as judged from the fact that many sherds in each village have carbon-encrusted exterior surfaces). The implication seems clear. For some reason the inhabitants of socially or ethnically distinct villages in the Roswell Oasis adopted El Paso Polychrome as their preferred utility ware when, back in their regions of origin, the Glencoe people used Jornada Brown and the Lincoln people used Corona Corrugated for this purpose.

As I see it, the Roswell Oasis' Local People (at the Fox Place and Henderson, in this case) used pottery supplied to them by their contacts to the west—Jornada Brown from Glencoe peoples, in the case of the earlier Fox Place, El Paso Polychrome from either or both Glencoe and Lincoln villages, in the case of the later Henderson site. The reasons for this shift are as yet incompletely understood, but perhaps the answer lies in the trade network that apparently extended from the El Paso region to Roswell then possibly northward to Pecos Pueblo in north-central New Mexico (Kelley 1984). Or, given Pecos Pueblo's slightly later rise to prominence (late A.D. 1400s onward), perhaps the Roswell Oasis was itself one of the first points in the trade nexus between the Southwest and the Southern Plains (Kessel 1979).

Although this is not the place to fully discuss the role of the El Paso region in an exchange network connected to the Roswell Oasis and on to the Southern Plains, a couple of Roswell area finds are pertinent to such a study. Long ago Schaafsma and Schaafsma (1974) presented a case for the movement of the katsina complex, including the plumed serpent or Quetzalcoatl, out of Mexico, through the El Paso region, and on to the Pueblos of northern New Mexico and Arizona. Depictions of the plumed serpent and his cognate take a variety of forms, some quite detailed, others less so. One of the simpler, more widespread forms is of a serpent with the forward-projecting "horn," an open mouth, and a stylized feather ruff on the back behind the head. Two examples of this form are currently known for the Roswell area. One is a wall painting in Feature 10, a socioreligious structure at the Fox Place (Wiseman 2002). The other is a hair ornament recovered from Bloom Mound (Figure 18) (Kelley 1984:471, Plate 72a).



**Figure 18.** 18. Hair ornament with a plumed serpent/Quetzalcoatl motif. Adapted from Kelley 1984:471, Plate 72a. Length is about 12.7 cm.

The last two items of material culture that I tracked during this study suggest a late Glencoe derivation and affiliation for the inhabitants of Rocky Arroyo. These are (1) the frequency of mussel shell ornaments and manufacturing debris, and (2) the occurrence of a group of gaming pieces or "dice." Both seem to be characteristic of Glencoe peoples, one of their industry and the other, presumably, their inclinations for relaxation or whatever activity these items represent.

And finally, the Rocky Arroyo site can probably be more appropriately referred to as a *middle* Glencoe phase occupation rather than *late* Glencoe. Although Kelley (1984) does not designate such a sub-period, I propose its existence, both at the Crockett Canyon site in the Sierra Blanca and now at Rocky Arroyo. At both sites, the latest intrusive pottery type normally found at late Glencoe sites (such as Rio Grande Glaze A Red, aka Agua Fria Glaze-on-red or Glaze I) are not present at Rocky or Crockett Canyon. Also, the details of the structures and the pottery assemblages at Rocky and Crockett Canyon clearly postdate the structures and pottery assemblages documented at early Glencoe sites (Kelley 1984).

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## Appendix A

### CHAVES CO. ARCHAEOLOGICAL SOCIETY

*Jack A. Ross*

[The text that follows is a verbatim copy of a Jack Ross's report on his excavations at LA 25277, as published in *Awanyu* (Vol. 3, No. 3, pp. 3–5, 1975). The text is reproduced here with the permission of the Archaeological Society of New Mexico. I have inserted bracketed comments with alternative interpretations or clarifications of Ross' statements. RNW]

Site Excavation: The site is approximately 3 miles due east of the Bloom Mound (p. 65, Transactions of the 5th Regional Arch. Symposium for SE New Mexico and Western Texas, 1969). However, the only major difference is the fact the site had not been destroyed possibly by siege and fire. All rooms are within extremely close tolerance as to measurements of those of the Bloom Mound. Another major difference is the fact this site has a plaza surrounded by pit house type rooms whereas the Bloom Mound was a double unit type dwelling also of the pit house type.

[The "double unit type" in this case refers to a 10 room pueblo-style building, *not* pit houses. RNW]

Of extreme interest is the tremendous "Midden!!". We have excavated numerous pit houses in this area; however, we have as yet to uncover a site with a midden of the magnitude in this instance. Trenching from the east for approximately 30 feet we encountered nothing but midden deposit to a depth of 2.5 meters containing broken bone tools, thousands of assorted chips, flakes, points, blades, and assorted tools, either broken during use or broken during manufacture.

[This account of Ross' work was published in 1975, several years prior to completion of his work at the site and prior to his discovery of several aspects of the site. His statement of 2.5 meters of midden depth includes excavation into the fills of one or more of the pit structures that underlay parts of the midden. The average depth of the midden where it was not underlain by a structure was about 1 m. RNW]

Thousands of potsherds have been removed from the midden and a tentative sherd count reflects the dominant types as Chupadero, El Paso Polychrome, Three Rivers Red on Terra Cotta. Intrusive types range from Chihuahua Polychrome, Ramos Polychrome, Middle Rio Grande Glaze types, Socorro B/W, a few sherds of Casas Grandes. A complete analysis and total overall sherd count will be included in the finalization of the project.

[To my knowledge, no final report was ever written or appeared in print nor did I see any notes, tables, or manuscripts among his papers following his death. RNW]

Of unusual interest is the tremendous amount of fresh water shell beads, pendants, worked and semi-worked pieces, plus the large amount of shell cores! I have as yet to read anything on fresh

water shell cores and have put these specimens in a special category and will endeavor to prepare a paper on the various types of shell cores recovered. They are many and varied. This is something we did not encounter on the Bloom Mound to the above extent. In themselves, they are most interesting and pose quite an interesting problem.

[I have no idea what Ross means by the term “shell cores”. I recovered a large number of shell items from the Fox Place (Wiseman 2002:56–59), including several dozen scrapers made from sections of the valves of *Cyrtonaias tampicoensis*, a fresh water mussel probably taken from the bed of the Rio Hondo or possibly, the Rio Pecos a few kilometers to the east. As far as I know, no paper on “shell cores” was written by Ross. RNW]

Several full grooved mauls or hammers, plus several small poled and double bitted axes have since been recovered. Some are complete but most are damaged.

Partially burned bison, deer, antelope, rabbit, bird, and other skeletal remains have been recovered in an ash or lens bed 2.5 to 3 meters from top soil. We used a dozer to remove the overburden to a depth of 18 inches before we arrived at a contact zone. It is in this tremendous midden we have managed to collect the above cited materials. Animal and bird types when properly identified with a surety will be cited along with other facts in the original paper and completion of the site excavation. Corn was abundant at the site, varying in size and diameter.

Two burials thus far have been exposed. They were friable and hopelessly disarticulated. These were located in the midden; tentative identification are those of young male adults gleaned from identifiable fragments.

Broken slab metates, manos, hammerstones, lap pallets, and fire-burned rock were recovered and examined, as were the large portions of bone which were found rather to be cut quite cleanly with a sharp instrument as opposed to shattering or breaking.

[The comment about clean cuts on bones implies the use of metal knives, but no such tools were available to the prehistoric inhabitants of LA 25277. On the other hand, the sharp instruments making those cuts could have been trowels and shovels wielded by the excavators. I had a similar problem and result when excavating the Fox Place about 3 km north of Rocky Arroyo and in the same physical relationship to the stream channel. Even though both sites are on the valley floodplain next to formerly live streams, the soils are very dry, even at depth, because the streams are dammed (Rocky Arroyo and Rio Hondo) and rarely have water. RNW]

The majority of the pottery belongs to the brownware complex. A type of red-on-brown ware is present that is unfamiliar at this point. Vessel and rim forms are similar to the El Paso Polychrome type, however. The paste appears to be tan and lacks the extremely large tempering particles so characteristic of the latter type. Possibly an aberrant form of El Paso Polychrome? Further study and evidence will be needed to establish it as a definite type.

As I state in the Bloom Mound report, I feel this site, its proximity to Bloom Mound and contextual similarities represent one of the easternmost sedentary villages, since it is located close to the junction of the Hondo and Pecos rivers (actually, the site lies 40 yards on the eastern

floodplain bank of the old Hondo river bed). The beginning date of site activity is a bit uncertain; however, I feel that in view of known pottery types that it was slightly before A.D. 1300, although the presence of Glaze I along with the absence of later glazes might well place the terminal date close to A.D. 1450 (?). Jack A. Ross.

## **Appendix 2**

### **UNUSUAL ADOBE ITEMS FROM THE ROCKY ARROYO SITE**

In July 1977 Jack Ross called my office in Santa Fe to inform me that he had found an unusual adobe object while digging in the Rocky Arroyo site (LA 25277), which he called CC-BR-78. I went down to see this object—actually, two objects that appear to have been part of the same, larger object. The objects came from the floor in the northwest corner of a structure I subsequently designated Feature 1. A description of what I understand to have been the placement and associations of these items is repeated below from the Feature 1 feature form for the site. I wrote the original notes from memory in 1980 (or thereabouts) when I became actively involved in the site.

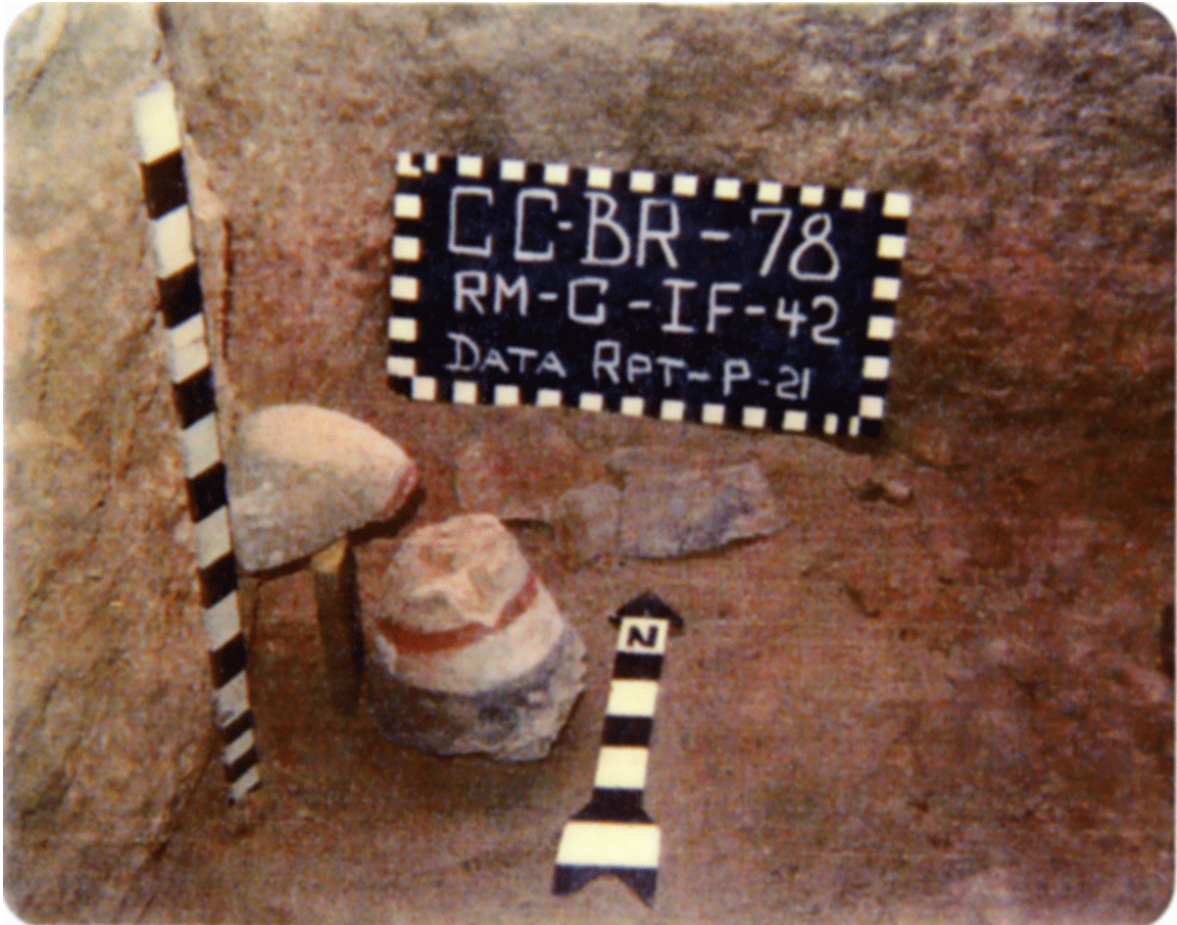
In early May 1997, Patrick H. Beckett of Las Cruces showed me the Ross correspondence file he compiled back in the mid to late 1970s and early 1980s, while the editor of the Archaeological Society of New Mexico's journal *Awanyu*. The file also contained two photographs of the adobe objects taken after they had been removed from context; one is reproduced as Figure 19. Ross evidently had placed them back in their approximate positions for the photographs (note the support sticks in the photos). I do not know the unit of measure on the photo sticks.

Ross told me in 1977 that the upper adobe piece was actually found resting near the floor between the larger adobe cone and the wall, evidently having fallen there upon deterioration of the structure. I had photocopies made of the two photographs and sent one set back to Beckett. He graciously permitted me to keep the photo prints for the LA 25277 file at the Laboratory of Anthropology/Museum of Indian Arts and Culture in Santa Fe.

From the section "Other Floor Features" on the feature form for Feature 1:

"Fragmentary conical adobe feature set with adobe on a thin bed (ca. 3 cm.?) of unknown white, soft powdery substance, the whole being [on the floor] in the northwest corner of the structure. Adobe feature (ca. 20 cm. largest diameter, ca. 17 cm. smallest diameter, ca. 15-17 cm. high) painted in three horizontal wide bands of (bottom to top in ca. 5 cm. widths) black, white, and red. Small curved conical piece of adobe may have attached to the top of the larger one and connected the latter to the wall of the structure."

Evidently the top part of the larger cone was broken prior to discovery. The base was broken away from its seating [by Ross] in order to take it into the laboratory. As shown by the photograph, my earlier comment regarding the width of the red band is in error.



**Figure 19.** Photograph of adobe items found on the floor of Feature 1.