THE HONDO–GLENCOE PROJECT: EARLY 1970s EXCAVATIONS ALONG THE RIO RUIDOSO, LINCOLN COUNTY, SOUTHEASTERN NEW MEXICO

By

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R.N.W.

Chapter 1

INTRODUCTION

In August and early September 1971, the Laboratory of Anthropology (LOA), Museum of New Mexico excavated three sites along the Rio Ruidoso in Lincoln county for the New Mexico State Highway Department (now the Department of Transportation or NMDOT) (Figure 1). The work actually encompassed two highway projects, the Glencoe project and the Hondo project. Initially, the field work was led by Stewart Peckham, assisted by Frank J. Broilo and Larry S. Wells. Broilo was later given charge of the project when Peckham returned to the office to continue his duties as the chief archaeologist for the LOA. Up to eight laborers were hired from local communities to complete the excavation crew.

The three sites excavated on this project, LA 5377, LA 5378, and LA 5380, are along a 4.5 mile (7.2 km) stretch of the Rio Ruidoso roughly centered on the Glencoe Cemetery. LA 5377 and LA 5378 are at the west or upstream end on this stretch, while LA 5380 is at the east or downstream end. All three sites lie on the north or left margin of the valley.

As was then the usual practice, post-excavation funds allowed only the production of brief preliminary report (Broilo 1973). The present report presents the results of analyses I performed on a volunteer basis using equipment, space, and other amenities provided by Eric Blinman, director of the Office of Archaeological Studies (OAS). The OAS grew out of the LOA highway salvage program and is now a sister agency of the Museum of Indian Arts and Culture/Laboratory of Anthropology within the Museum of New Mexico system.

Culture History of the Sierra Blanca Highlands

The Native American antiquities in the Sierra Blanca country almost certainly were noticed by persons of European ancestry as early as the mid-1800s (if not earlier, during military forays out of New Spain). At the time, Hispanics from the Rio Abajo district (Socorro region) of the Rio Grande Valley began settling the La Luz area, north of what is now the town of Alamogordo in northern Otero county. The same must have been true when Hispanic settlers moved to the Rio Bonito Valley and began farming, shortly before the U.S. Civil War, because these earliest settlers occupied some of the places where prehistoric people built their houses and farmed. The encounters with ancient remains must have continued when the U.S. Army established Fort Stanton in the mid-1850s. The soldiers were there to control the Mescalero Apache, who had clashed continuously with the Spanish (going back to the mid-1600s?) and then the Americans.

Thus, Euroamericans had long known that Native American antiquities were to be found throughout the Sierra Blanca. However, the first manuscript describing such remains was not prepared until 1925, when Burt and Hattie Cosgrove were invited by the El Paso Archaeological Society (EPAS) to excavate a pueblo ruin on the Three Rivers Ranch at the western edge of Sierra Blanca. (That manuscript [Cosgrove and Cosgrove 1925] was published in 1965, thanks to the initiative of Vernon Brook, then editor of the EPAS journal *The Artifact*.)

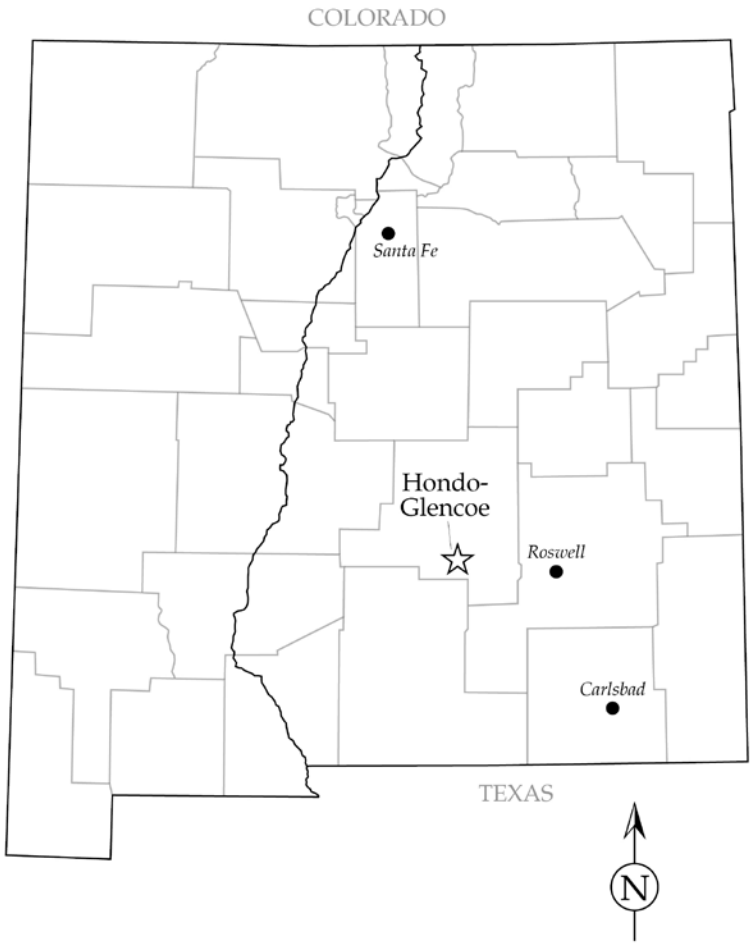

Figure 1. Project location.

Several years later, Eileen Alves (1932) published the first notice of artifacts from a site located along the Rio Bonito in the highland country on the east side of the Sierra Blanca.

The first synthesis of archaeological materials from the highlands of the Sierra Blanca appeared late in the 1940s (Lehmer 1948). However, the sites and materials with which Lehmer was personally familiar were in the Tularosa Basin, in what was later called the White Sands Missile Range, and in the Rio Grande Valley near Las Cruces. It is not clear how familiar he was with sites and artifacts from the highlands, but he included them in the region of occupation for what he called the Jornada Branch of the Mogollon Culture. Lehmer provided two sets of phases for the Jornada Branch: the southern phase sequence of Mesilla–Doña Ana–El Paso and the northern phase sequence of Capitan–Three Rivers–San Andres.

While the southern sequence found ready acceptance for sites in the basin where El Paso is located, the northern sequence was less popular, probably for two reasons. Very little work had been done in the northern area before Curry Holden began his studies (see below). Also, Lehmer did not make clear just where the southern sequence left off and the northern one took over. This

is a problem in, for example, the Alamogordo area next to the Sierra Blanca highlands. It does not help that in discussing the Sierra Blanca highlands, Lehmer (1948:84) stated that the available information indicated that northern phase sites and artifacts are northern variants of the Mesilla, Doña Ana, and El Paso phase patterns, and should be included in the Jornada Branch. Almost no professional excavation had been done in the Sierra Blanca up until then, but the pottery assemblages on the sites did greatly resemble those of the El Paso region, making this assumption seem reasonable.

And this is how things stood until the mid-1960s. In 1966, Jane Holden Kelley completed her doctoral dissertation, based on work started by her father, Curry Holden (a noted historian at Texas Tech College, later University) and completed by her in the mid-1950s. The thesis was finally published in 1984 through the auspices of John D. Speth at the University of Michigan. In that work, Kelley noted that the remains she had excavated did not look quite like the sites in the El Paso and Alamogordo areas and proposed a new set of phases, in two sequences, to describe what she and her father had found. Like Lehmer's sequences, Kelley's came in southern and northern variants.

The southern "sequence" includes only one named phase, Glencoe. This phase encompasses the highlands on the east side of Sierra Blanca from the Rio Peñasco on the south to the Rio Bonito on the north. Kelley divided the Glencoe into early and late sub-phases (using lower-case "e" and "l," respectively) because she did not feel that a formal separation was warranted. Her primary reason for this decision was the continued use of pit houses, but both sub-phases also used plain-surfaced brownware utility pottery. The principal distinction between early and late Glencoe was a shift from (1) the use of a few painted types to (2) the use of numerous painted types, both local and imported.

Subsequent work in the Sierra Blanca, especially in the northern part of the Glencoe area, has increased the available data from excavated sites, has exposed the variability present, and has led to a recent re-evaluation of the local archaeology (Wiseman n.d.). In that study I suggest that the Glencoe can be divided into four sub-phases: initial, early, middle, and late (bowing to Kelley by still using lower-case letters). The new divisions are again based on pottery assemblages, with the initial Glencoe phase having plain brown pottery with or without local red-slipped brown pottery. Thanks to new dates, we now know that the earliest Glencoe farmers were in place by the first half of the A.D 500s, well before Kelley's suggested dates for her early Glencoe of "early Pueblo III" (about A.D. 1100?). The date for the end of the late Glencoe phase is mostly conjectural, but the phase probably ended in the middle or late 1300s. Presumably, the local residents left the area once Glencoe pit houses and pottery disappeared, but we are not sure of this because hunting camps and hunter-gatherer sites are notoriously difficult to assign to specific groups and periods.

Kelley's northern Sierra Blanca sequence includes two phases, the Corona and the Lincoln. She defined the Corona/Lincoln territory as extending from the Rio Bonito on the south, where it shares this valley with the northernmost Glencoe sites, to the eastern highlands of the Gallinas mountains at the village of Corona in northern Lincoln county. The Corona phase structures, known as *cimientos* (Spanish for foundations), are pueblo-like in arrangement (rectangular rooms, occurring singly or as two or more attached rooms) and may be slightly sunken into the

ground. They generally lack mounding, suggesting that the walls were made of perishable materials such as those in jacal structures. The pottery assemblage is simple, consisting mainly of brownware and Chupadero Black-on-white and few or no imported types depending on the site. The Lincoln phase saw the appearance of pueblo-style structures, some possessing dozens or even 100 or more attached rooms, sometimes in linear room blocks and sometimes as four room blocks arranged around an open space or plaza. Lincoln phase pottery assemblages are characterized by a utility ware known as Corona Corrugated and by painted types including Chupadero Black-on-white, Three Rivers Red-on-terracotta, Lincoln Black-on-red, and, in the latest sites, a wide range of imported types representing cultures in northern Mexico and in southwestern, west-central, and north-central New Mexico. The variety of imported types in Lincoln phase sites, as well as in certain late Glencoe phase sites, is astounding.

Several attributes of the Corona and Lincoln phases strongly point to an intrusion from the Gran Quivira region of central New Mexico sometime about A.D. 1000. The Lincoln phase probably ended about A.D. 1400, but this is far from proven. The Corona/Lincoln phase people may then have withdrawn to central New Mexico (see H. P. Mera's contribution in Scholes and Mera 1940).

Because the Hondo-Glencoe project sites that are the subject of this report are Glencoe phase, the Corona/Lincoln sequence is not further discussed here.

The Glencoe Phase

The following descriptions of the sub-phases of the Glencoe phase are taken from a manuscript that presents a new perspective on southeastern New Mexico archaeology (Wiseman n.d.). Readers familiar with Jane Kelley's (1984) monograph on Sierra Blanca prehistory (the published form of her 1966 dissertation) will quickly recognize that the descriptions presented below are merely refinements on her basic work.

As I mentioned earlier, Kelley placed the Glencoe phase in the high country east of the Sierra Blanca, from the Rio Peñasco on the south to the Rio Bonito on the north. It is entirely possible that eventually, the northern limit of the earlier Glencoe sub-phases (prior to the advent of the Corona phase of the northern sequence) will be extended north of the Capitan mountains and perhaps into the Jicarilla mountains (that is, once earlier sites are excavated in those areas). In the paragraphs that follow, the early Glencoe and late Glencoe sub-phases are essentially those defined by Kelley. I have taken the liberty to define the initial Glencoe and middle Glencoe sub-phases based upon data that have come to light through excavations since 1966.

Initial Glencoe Sub-Phase

Although Kelley placed her early Glencoe sub-phase in the early Pueblo III period of the Pecos Classification (which was based on the archaeology of northern and northwestern New Mexico and adjacent parts of Colorado, Arizona, and Utah), she allowed for the possibility that earlier Glencoe remains would be found in the Sierra Blanca. I have suggested that the word "initial" be used to designate these earlier remains now that they have been identified, excavated, and dated;

please see my survey notes for LA 12150–12155, on file at ARMS, and Campbell and Railey (2008). Campbell and Railey's report describes a series of sites that SWCA Environmental Consultants (SWCA) and Parsons-Brinkerhoff (P-B) excavated for the N.M. Department of Transportation along the US 70 corridor down the Ruidoso valley, between Ruidoso and Riverside. The sites studied by the two firms represented Archaic period and Glencoe phase occupations and demonstrated that the Glencoe developed out of the local Archaic sequence. One of the more important results of the work is the dating of the probable start of Jornada Brown pottery production, to the early A.D. 500s (520–530?). If this date holds, it also pinpoints the start of the Glencoe phase, and therefore of the initial Glencoe sub-phase.

Initial Glencoe sub-phase sites include small, shallow, more or less circular pit houses with central fire areas (concentrations of wood ash on the floor). These structures are, in essence, a continuation of the type of structure that characterized the Late and Terminal Archaic periods in the area. The only real difference between the latest Archaic period sites and initial Glencoe sites is the addition of small numbers of plain brownware potsherds (at LA 5377, Arms and Railey [2008] call them El Paso Brown, but they more likely are Jornada Brown). Survey data indicate that later initial Glencoe structures are two to three times larger in diameter but still shallow; in some sites, these later structures appear as shallow depressions surrounded by small numbers of Jornada Brown sherds and occasional red-slipped Jornada Brown sherds (Rocek 2007; see my survey notes for the LA 12150–LA 12155 series of sites at ARMS). The latest initial Glencoe sites may have Mimbres Black-on-white Style I and II sherds. Large, bell-shaped and half-bell-shaped extramural storage pits, also carried over from the Late to Terminal Archaic period, may also be present. The somewhat later initial Glencoe sites appear to date from the late A.D. 500s to the 800s.

Early Glencoe Sub-Phase

Kelley's early Glencoe sub-phase features both round to oval and nearly square to rectangular pit houses, some of which are 1 m or more deep. The pottery is dominated by Jornada Brown but sherds with painted designs (especially Chupadero Black-on-white and possible heirloom pieces of Mimbres Black-on-white) mark the start of this sub-phase. Pit houses at Mescalero (Del Bene et al. 1986) produced both tree-ring and radiocarbon dates that indicate occupation during the mid to late A.D. 800s. I suspect that the early Glencoe ended by A.D. 1150.

Middle Glencoe Sub-Phase

By this period, pit houses were all more or less square to rectangular in plan and could be deep (1 to 2 m), shallow (about 0.5 m), or bank structures. The last were excavated into slopes, with the back walls being 1 m or so deep and the front walls being shallow or even at or near the surface. These structures occur singly and, even though they are pit houses, as small, closely spaced groups reminiscent of pueblo-style series of connected rooms. The pottery assemblages are dominated by Jornada Brown but also contain large numbers of locally made types (Chupadero Black-on-white and Three Rivers Red-on-terracotta) and small numbers of imported painted and utility types such as Mimbres Black-on-white Style III, Corona Corrugated, Playas group pottery, early Casas Grandes polychromes, Gila Polychrome, St. Johns Polychrome, Heshotauthla Polychrome, and Santa Fe Black-on-white. Notably absent are Rio Grande Glaze

Ware sherds and Lincoln Black-on-red. The absence of the these last two types suggests an end date of about A.D. 1300 for the middle Glencoe.

Late Glencoe Sub-Phase

The people of the late Glencoe sub-phase continued to live in pit houses built singly or as small groups of closely spaced units. At least two sites, Glencoe and Crockett Canyon, also have one-room or two-room units of *cimiento* construction, but it is not clear whether these were built and used by Glencoe people or were intrusions by Corona/Lincoln people. (If the latter, we can ask: were the Corona/Lincoln *cimientos* contemporaneous with or later than the Glencoe occupation?) As was the case throughout the Glencoe phase, the late Glencoe people mostly made or used Jornada Brown vessels, but they also used smaller amounts of Chupadero Black-on-white, Three Rivers Red-on-terracotta, late El Paso Polychrome, and Lincoln Black-on-red. Small numbers of various imported types continued to be traded into the villages. Some of these were also acquired during the middle Glencoe (see above) but one, Rio Grande Glaze A Red (Agua Fria Glaze-on-red or Rio Grande Glaze I), is especially notable and, along with Lincoln Black-on-red, signals that a site can be assigned to the late Glencoe sub-phase. Thus, the late Glencoe sub-phase lasted from about A.D. 1300 to about 1350 or perhaps later. Kelley (1984) believed that the Glencoe phase ended prior to the end of the Lincoln phase. Where the people went is unknown.

About the Reports by A. H. Warren and Gail Tierney

Chapter 2 is the report prepared for the Hondo-Glencoe project by the late A. H. Warren. In addition to geology and minerals, her report presents summaries of several other environmental aspects of the area (excluding vegetation, which is described in the subsequent report by Tierney), so I do not address those subjects here. Warren's report is presented in its entirety with only minor editing. Changes or additions in wording are indicated by brackets. The English units of measurement used in the original report are retained.

Chapter 3 is report prepared by Gail Tierney on the modern vegetation of the Hondo-Glencoe project area. Tierney's report partly duplicates information presented by Warren, but Tierney's sections present this information in slightly different ways so they are retained here. Tierney's report is also presented in its entirety, with only minor editing. Changes or additions in wording are indicated by brackets.

Chapter 2

GEOLOGY AND MINERAL RESOURCES OF THE RIO RUIDOSO VALLEY[1]

A. H. Warren

The Mogollon people who settled in the valley of the Rio Ruidoso nearly a thousand years ago, chose the benches and terraces along the valley sides on which to build their homes. These terraces, remnants of an old erosion surface, stand forty to eighty feet above the river, providing their pit houses with good drainage and safety from floods. The lenses of soft sand and silt that compose part of the old alluvial deposits underlying the terraces permitted relatively easy excavation of the pit houses, while the natural caliche in the soil helped stabilize the walls.

The bottom lands along the river undoubtedly were used to grow the crops of the Mogollon settlers, and the year-round flow of the Rio Ruidoso supplied their daily water. The abundant river cobbles and rocks on the steep valley slopes provided a ready source of materials for their tools.

The Countryside

The archaeological sites excavated by the Museum of New Mexico during the summer of 1971 are on the north side of the Rio Ruidoso near the little community of Glencoe, in Lincoln county, New Mexico. Glencoe is about 12 miles east of Ruidoso, on U.S. Highway 70. This is an area of deeply dissected highlands between the Sierra Blanca on the west and the broad alluvial plains of the Pecos valley on the east. Gently dipping sedimentary rocks of Permian age are intruded by numerous volcanic dikes of Tertiary age. The Rio Hondo and its tributaries, including the Rio Ruidoso, head in the mountains to the west and flow eastward through deep valleys to the Pecos river.

Reaching an elevation of 12,003 feet, Sierra Blanca is composed of early Tertiary volcanic rocks. North of the Glencoe area are the east-west trending Capitan mountains, a laccolithic intrusion with elevations over 10,000 feet. Elevations at Glencoe range from about 5700 feet to over 6500 feet on the higher mesas.

The Rio Ruidoso valley has steep walls rising from a nearly flat floor of the modern channel. The debris or talus slopes are broken at times by bedrock scarps and structural benches. Where softer bedrock underlies the valley floor, the valley widens to over a mile, but otherwise ranges from 1000 to 2000 feet in width. Bordering the valley are terrace remnants forming grassy benches forty to eighty feet above the channel. The terraces probably represent a former erosion surface that at the time when the channel of the Rio Ruidoso was graded to a higher base level, probably

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during Pleistocene. The terraces are found in the valleys of the Rio Bonito and Rio Ruidoso and may correlate with the Blackdom terrace of the eastern Rio Hondo basin near Roswell (Mourant 1963. [The Rio Bonito and Rio Ruidoso join at the village of Hondo, which is about 10 miles (16 km) east of Glencoe. From there down to the Pecos river, the combined streams are called the Rio Hondo.]

Drainages and Water Resources

The Rio Ruidoso has as its headwaters the slopes of the Sierra Blanca and has a perennial flow, although its waters may be diverted from the channel for irrigation. The channel is relatively shallow and narrow and is armored with large, rounded boulders of limestone, sandstone, chert, and volcanic rocks. Overbank flooding occurred during the summer rains in 1971.

A large spring south of Ruidoso Downs [upstream from Glencoe] has probably contributed water to the Rio Ruidoso for many centuries. Hale spring, which is now the water supply for Ruidoso Downs and the Agua Fria community, yields about 250 gallons per minute (Mourant 1963:39). The spring has been reported to have the remains of a prehistoric irrigation ditch dating back to 900 years ago (Ash and Davis 1964), on the hill slope below it. The highly mineralized waters have built up extensive terraces of tufa, many of which have been disturbed or removed in recent years by home owners who have used blocks of tufa for walls or other uses around their yards. One terrace remnant extends several hundred feet eastward from a point below the spring. A small overflow stream from the spring cuts through this early horizontal tufa outcrop. No evidence was found that this old terrace remnant was a prehistoric ditch; actually, an irrigation ditch would have served no useful purpose at this location high on the steep slope above the valley floor.

Climate

The climate of the Glencoe area is semiarid. Annual precipitation ranges from about 10 inches (Laboratory of Anthropology Notes 68b, 1971) at Hondo [downstream], 15 inches at Fort Stanton [west, upslope along the Rio Bonito from Glencoe], and 21 inches at Ruidoso [upstream from Glencoe]. Glencoe is located about half way between Ruidoso and Hondo. Mourant (1963: 7) remarks that today, “a few small areas are dry farmed, but in general ... irrigation is necessary for growing crops.”

Rocks of the Ruidoso Valley

Rocks of Permian, Tertiary, and Quaternary ages are found in the valley of the Rio Ruidoso, below the community of Ruidoso. Basically, the Permian sedimentary rocks include the Yeso and San Andres formations, although some workers in the area have recognized more stratigraphic units (Table 1). Tertiary volcanic rocks have intruded the sedimentary rocks. In addition to recent alluvium along the channels, there is a deposit of Pleistocene (?) alluvium, pediment, and fan gravel in the valley and its major tributaries.

Table 1. Generalized Section of Geologic Formations in the Rio Hondo Drainage, Lincoln County, New Mexico.

(Modified from Griswold (1959), Mourant (1963), and others not specified by Warren.)

System	Formation or Unit	Description
Quaternary	Alluvium	Clay, silt, sand, gravel; unconsolidated
	Terrace fan, pediment, gravel	Silt, sand, gravel; unconsolidated
Quaternary (?) and Tertiary (?)	Pediment gravel	Unsorted angular to rounded igneous, sedimentary, and metamorphic rocks
Tertiary	Volcanic	Andesite, diorite, microgranite, and rhyolite; dikes, sills, and stocks
	Cub Mountain Fm. (Note 1)	White to buff sandstones; conglomerate; purple and red shales; clay
Cretaceous	Mesa Verde Fm.	Gray, yellow, and buff quartzose sandstone; gray shale; coal
	Mancos Shale	Gray shale, sandy shale, gray thin-bedded limestone
	Dakota Sandstone	Red to buff quartzose sandstone; conglomerate, gray shale
Triassic	Chinle Fm.	Red and gray shale; white and gray dense limestone
	Santa Rosa Sandstone	Gray, yellow, and tan sandstone; thin-bedded limestone; red and gray shale; chert pebble conglomerate
Permian	Chalk Bluff Fm. (Note 2) or Artesia Fm. (Note 3)	Gypsum, dolomitic limestone, red sandstone and siltstone
	San Andres Limestone	Light to dark gray, evenly bedded limestone; minor gypsum; sandstone, siltstone; shale (includes the Glorieta Sandstone in southern Lincoln County) (Note 2)
	Hondo Sandstone	Light tan to dark red, medium-grained quartzose sandstone (Glorieta Sandstone equivalent)
	Yeso Fm.	Pinkish gray and yellow to red siltstone; gypsum; some limestone, dolomite, and shale
Note 1	Kelley and Thompson 1964; Cub Mountain formation is believed to be the previously named McRae formation of the Jornada del Muerto.	
Note 2	Mourant 1963	
Note 3	Griswold 1959	

The soft siltstones, sandstones, shale, and gypsum of the Yeso formation are the oldest rocks in the area. White, pink, yellow, light gray, and red beds are frequently tilted and folded below overlying limestone of the San Andres formation. Outcrops may be seen in the road cuts and steeper valley slopes. Where the easily eroded beds of the Yeso underlie the valley floor, the valley widens, in contrast to the narrowing walls where the more resistant San Andres limestone crops out. The Yeso also contains beds of light brown dolomite.

The San Andres limestone beds form scarps, cliffs, and steep debris slopes. The caves of the Fort Stanton area [north of Glencoe], many of which were inhabited by prehistoric man, are in the San Andres limestone. In the Glencoe area, the San Andres includes calcareous blocky sandstone, which has been named the Hondo Sandstone by Mourant (1963), and the equivalent of the Glorieta Sandstone of other areas in New Mexico. An upper unit of the San Andres which

contains gypsum beds has been called the Chalk Bluff formation by some writers and correlated with the Artesia formation of the Pecos valley by others.

Triassic and Cretaceous rocks can be found to the west and north, but do not crop out along the Rio Ruidoso. Igneous rocks of Tertiary age have intruded the sedimentary rocks of the Glencoe area. A large sill of a fine-grained igneous rock can be seen in a road cut less than one mile west of LA 5377.

Unconsolidated channel, alluvial fan, and pediment deposits of Quaternary (?) age are associated with an old erosion surface along the Rio Ruidoso. Now dissected, these alluvial deposits form terraces and benches from forty to eighty feet above the present channel level. At or near the surface the sediments may be consolidated by caliche (K horizon) of a fossil soil. The Quaternary (?) alluvium consists of poorly sorted lenses and beds of silt, sand, and conglomerate or gravel. The cobbles and boulders of the gravel include limestone, sandstone, chert, and volcanic rocks of the Sierra Blanca volcanics similar to the present-day channel and fan gravels.

Mineral Resources of the Rio Ruidoso Area

The mineral resources of a prehistoric people include the stones used for artifact manufacture; pigments and paints; clays and tempering materials used in pottery manufacture; and building materials such as rocks, adobe, and plaster. As a rule, prehistoric inhabitants of an area used local materials as much as possible. Other materials, such as pigments, paint, and stones for ornaments, were often brought in from distant places.

Artifact Materials

Light brown to gray to black chert occurs as nodules in the San Andres limestone and as rounded cobbles in the river and terrace gravels along the Rio Ruidoso. The occurrence is widespread, but sporadic, and the chert is often of poor artifact quality.

An outcrop of light-colored chert, including a banded variety, was located on a low ridge south of the Fort Stanton cemetery. The chert is similar to the so-called “finger-print” chert of the San Andres formation on Oso ridge in the Zuni mountains [of northwestern New Mexico]. Although the nodules found at the Fort Stanton outcrop were scattered, evidence of prehistoric gathering at the area included rejected flakes and broken hammerstones or choppers of non-local volcanic material. The chert is mainly tan and light gray to dark gray, often mottled, and sometimes fossiliferous. The centers of the nodules are usually lighter in color than the cortex. Banding may be present.

The outcrop is in the Chalk Bluff formation (Permian) according to Griswold (1959) or the upper part of the San Andres formation. Mourant (1963) has designated this unit as the Artesia formation in the Hondo valley and has correlated it with the Bernal formation in northern New Mexico and the upper San Andres formation in Socorro county. Although only one source of the chert was located, there are probably other outcrops and gathering areas in the vicinity.

Cobbles of fine-grained to glassy volcanic rocks, suitable for flaked artifacts, are found in the channel and terrace gravels of the Rio Ruidoso and Devil's canyon. The coarser-grained volcanic rocks are suitable for ground stone tools. A friable volcanic cobble with phenocrysts of gray feldspar found at LA 5378 very much resembles the tempering materials of Jornada Brown sherds found at the site.

Sandstone from the basal San Andres formation was used for manos and metates, as were volcanic cobbles and boulders. Claystone or hornfels was used for flaked artifacts, although no source was found for this material. A possible source would be the claystones of the Yeso formation, especially at contact with intrusive volcanic rocks. One ring fragment, found at LA 5380, is of a mottled brown claystone.

Intrusive materials found at the site include a glossy white chert of unknown source and a flake of quartz crystal. The latter may be from one of the mining districts in Lincoln county.

The several mining districts in the county would have provided adequate sources for various pigments and paints, such as hematite, magnetite, azurite, and malachite, although no specimens were found in the excavations.

Clay Sources

Lenses of plastic gray clay were found in outcrops of the Yeso formation in the Glencoe area. These have not been tested for ceramic properties, but they might be suitable if the gypsum content is not too high. The possible use of a volcanic rock with gray feldspar for tempering in pottery was mentioned earlier.

Building Materials

Only one of the excavated sites, LA 5380, contained masonry walls, the other pit houses being dug into the clays and silts of the ancient terrace deposits. Rectangular and slabby limestone and sandstone are abundant on the steep slopes above the sites, and apparently these were used to a minor extent in construction. A few hundred feet northwest of LA 5378 is an abandoned stone quarry in the San Andres limestone. The quarry was apparently worked in recent years.

The Archaeological Sites

LA 5377

This site is on the southern point of a terrace formed by an old pediment surface cut in the San Andres limestone. The pit house was excavated in a deep soil which covers the limestone outcrops. No axial river gravel was found on the terrace, although there is a gravel deposit on the bench about thirty feet below the site to the south.

LA 5378

The pit houses [at this site] are on a bench about eighty feet above the valley floor. The elevation is 5880 feet. The valley floor at this point is about 1000 feet wide. At the time the site was visited in mid-August, the channel of the Rio Ruidoso was running full from bank to bank and recently flooded overbank. The channel, which is fairly narrow and shallow, is about thirty feet wide. Open fields are on both sides of the tree-lined channel. LA 5378 is on a terrace across a deep arroyo cut into bedrock to the west.

The bench on which LA 5378 is situated is a river terrace rather than an old pediment, being built of axial river gravel. The terrace is now cut transversely by small tributary hill-slope arroyos. The steep debris slope and limestone scarps of the valley sides rise north of the site. The prehistoric pit houses are located on a gentle grassy slope of the terrace remnant. A lens of partially consolidated conglomerate crops out on the edge of the terrace. Below the conglomerate are the unconsolidated silt and sand into which the pit houses were dug.

A few hundred yards northeast of the site, at the base of a limestone scarp that forms a small box canyon, a small rock shelter with smoke-stained ceiling was probably used prehistorically.

LA 5380

This site is on a point of a ridge formed by the dissection of an alluvial fan. The site is about 40 feet above the valley floor. The valley flat is a little more than 1000 feet wide and contains cultivated fields. The valley itself, however, is over a mile wide north of the site. Coalescing alluvial fans from south-draining tributaries, which have now incised the fan deposits, were probably once graded to the same base level as the terraces or benches along the Rio Ruidoso.

The alluvial fans are composed of unconsolidated silt, sand, and gravel. The finer alluvium was selected for pit house construction. The gravel is composed mainly of limestone cobbles, but also includes some sandstone and volcanic debris.

Across the river from LA 5380 is a contemporary site located on a pediment or structural bench about 120 feet above the channel.

Chapter 3

BOTANICAL SURVEY OF THE GLENCOE SITES[1]

Gail Tierney

About 1000 years ago, there existed in the Ruidoso valley of southeastern New Mexico a culture that archaeologists refer to as the Jornada Branch of the Mogollon Culture (Lehmer 1948). Generally, these people were farmers and hunters, growing the standard aboriginal crops, corn, beans, and squash (Carter 1945), and hunting in an area once famous for [its] variety and abundance of game (Bailey 1913). The early people of the Ruidoso valley built their homes by digging rooms into the soft earth of the first and second benches above the bottomland of the Rio Ruidoso. It was in such aboriginal dwellings that the Museum of New Mexico archaeological team excavated during the course of a highway salvage project in August and September 1971. A brief botanical survey of these sites was conducted on August 11, 1971, and the results of this survey form the contents of this brief report.

Geography

The headwaters of the Rio Ruidoso lie on the eastern side of the Sierra Blanca in the north-south oriented Sacramento range. The Sacramento range includes such mountains as the Jicarilla and Capitan (above 9000 feet) and Sierra Blanca peak, which has an elevation of more than 12,000 feet. The Sacramento range lies isolated between two xeric valleys, the Tularosa basin on the west and the Pecos valley on the east. Both of these valleys have elevations of 4500 feet or lower.

In the vicinity of the Glencoe sites, the valley of the Ruidoso varies in width from about one-half mile at Glencoe and continuously narrows as it approaches its headwaters in the mountains. The valley is rich in alluvial fill and presently supports irrigated orchards of apple, peach, and cherry trees and such crops as barley, oats, rye, and wheat (Holden 1952). The Rio Ruidoso is usually considered a perennial stream, though it was completely dry in July 1971—the first such occurrence in 15 years. The water situation was probably never a serious problem to a people who were not totally dependent on agriculture. Springs on the south side of the Rio Ruidoso, opposite the Glencoe sites, have never stopped flowing since the first weather records were kept in the area in 1856 (Holden 1952). It is probable that flow from the nearby springs was even more prolific in prehistoric times before timber cutting and grazing.

[1] Originally published in 1971 as Laboratory of Anthropology Note No. 68c, by the Laboratory of Anthropology, Museum of New Mexico, Santa Fe. Reproduced with minor editorial changes and comments (in square brackets) by R. N. Wiseman.

Climate

The climate of the Glencoe area is semi-arid. The nearest weather recording stations show the following precipitation averages on an annual basis (New Mexico State Engineers Office 1956):

Station	Elevation (feet)	Precipitation (inches)
Ruidoso	6755	21.2
Fort Stanton	6230	15.1
Hondo	5235	10.3

[In terms of elevation, Glencoe is about half way between Ruidoso and Hondo. All three communities are located along the Rio Ruidoso. Fort Stanton is located along the Rio Bonito, a sister stream of the Ruidoso. The two streams meet at Hondo, where the name changes to Rio Hondo.]

According to Holden (1952), the Bonnell Ranch, half-way between the Glencoe sites, has been keeping a record of their frost-free days for some years and can expect a growing season that extends from May 2 to October 20, or 160 days. Temperature ranges from 0 degrees to 110 degrees Fahrenheit. Below zero temperatures are considered rare in this protected valley, but are common on the Pecos plains to the east and in the high mountains to the west. [The effective temperature is 13.2 to13.3 (Cordell 1979, Map 2).]

Life Zones

The excavated Glencoe sites are situated in the Upper Sonoran life zone. Characteristic vegetation for this zone is the Pinyon-Juniper association. The sites themselves are situated on benches with a southern exposure and, owing to the warm, dry elevation, the dominant tree is the Juniper. On the opposite side of the Rio Ruidoso, with a northwestern exposure, Pinyon is somewhat more prevalent.

The Sacramento mountain range must have been separated from other mountain masses for a long time, and this isolation has been reflected in its endemic plant and animal species; that is, the taxa isolated on this mountain masse evolved independently of their counterparts in other areas (Martin 1964). However, the dominant plants and animals are Rocky Mountain species (Bailey 1913).

The first site to be explored botanically was LA 5382 [located between LA 5380 and the village of Hondo]. Although not excavated, pottery from this site indicates an occupation date of circa A.D. 1000 to 1200. The following is a list of plants that seem to be associated with the site to the exclusion, or nearly so, of the surrounding area:

Atriplex canescens	Four-winged salt bush
Lesquerella intermedia	Bladder pod
Solanum eleagnifolium	White horse nettle
Astragalus sp.	Milk-vetch

Zinnia grandiflora	Wild zinnia
Nolina microcarpa	Bear grass
Acacia angustissima	White ball acacia
Opuntia arborescens	Cane cactus or cholla
Euphorbia ep.	Spurge
Gilia sp.	(This plant appears to be an aberrant form of whose identity I am uncertain. It is in the Museum of New Mexico Herbarium.)

LA 5378, the next site investigated, was excavated and was occupied during the Capitan phase (A.D. 900–1100). Significant plants were as follows:

Solanum eleagnifolium	White horse nettle
Calochortus sp.	Mariposa lily
Acacia texensis	Texas prairie acacia

The last site botanically surveyed was LA 5377. Pottery found during excavation of this site suggests a date of occupation during the period from A.D. 900 to 1100. Significant plants were:

Euphorbia sp.	Spurge
Calochortus sp.	Mariposa lily

None of the above-mentioned plants is common, but they were observed almost exclusively on prehistoric sites. Several species, such as Wolfberry and White horse nettle, I now consider possible indicators of prehistoric dwelling areas.

Since we are primarily interested in the economic possibilities of an area in regard to prehistoric exploitation, Table 2 includes all the plants collected or noted in the field with appropriate notation as to edibility, possible medicinal use, or other known use, such as utilitarian or ceremonial.

The list of plants in the table is by no means a complete list of the plants in the Glencoe area. Hopefully, such a list will become available with the publication of a manuscript by E. F. Castetter and W. C. Martin now in press. The plants herein mentioned were found in the washes that dissect the benches prehistorically occupied or the surrounding area within five miles of the sites, and includes the Upper Sonoran and Transition life zones.

Of the sixty-six species mentioned in this report, five are known through ethnological data to have been staples of certain Southwestern Indian tribes. These plants are Saltbush, Pinyon, Cholla, Honey mesquite, and Yucca. All but sixteen of the plants have some known economic value (beside use for grazing animals). Of the sixteen species on which I have no data, eight are so similar to other useful species that I find it difficult to believe that they would not have been separated in the aboriginal mind had an individual been intent on collecting a certain type of plant.

Table 2. Plants Found in the Glencoe Area.

Scientific Name	Common Name	Edible	Medicinal	Other
Acacia texensis	Texas prairie acacia	x		
Acer negundo	Box elder	x		
Artemisia sp.	Sage	x	x	x
Aster arenosa	Baby aster		x	
Astralagus sp.*	Milk-vetch	-	-	-
Atriplex canescens	Four-winged saltbush	x		x
Berberis haemetocarpa	Spiny-leaved barberry	x	x	x
Berberis repens	Oregon grape	x	x	
Bouteloua curtipendula	Side oats grama			x
Bouteloua gracilis	Blue grama			x
*Brickellia**	-	-	-	-
Calochortus sp.	Mariposa lily	x		
Cassia balkinoides	Desert senna	-	-	-
*Castilleja integra**	Indian paintbrush	-	-	-
Cercocarpus montanus	Mountain mahogany			x
Chrysothamnus sp.	Rabbit bush			x
Circium sp.	Thistle			x
Clematis sp.	Clematis		x	
Cucurbita foetedissima	Buffalo-gourd	x		x
Erotia lanata	Winter fat		x	
Euphorbia sp.	Spurge	x		x
Fallugia paradoxa	Apache plume		x	
Gaillardia puchella	Gaillardia			x
Gilia sp.	Blue gilia?	-	-	-
Helianthus annuus	Sun flower	x		x
Helianthus petiolaris	Sun flower	x		x
Hymenoxys richardsonii	Colorado rubber plant			x
Ipomoea sp.	Morning glory	-	-	-
Juglans major	Western black walnut	x		x
Juniperus deppeana	Alligator-bark juniper	x		x
Juniperus monosperma	One-seeded juniper	x	x	x
Lesquerellia intermedia	Bladder pod		x	
Lycium sp.	Wolfberry	x	x	
Mentzelia pumila	Blazing star	x		
*Mimosa borealis**	Catclaw mimosa	-	-	-
Mirabilis sp.*	Four o'clock	-	-	-
*Muhlenbergia pauciflora**	Mountain muhly	-	-	-
Nolina microcarpa	Bear grass	x		x
Opuntia arborescens	Cane cactus or cholla	x		
Opuntia phaecantha	Pad cactus	x		
Panicum obtusum	Vine mesquite	-	-	-
Parthenocissus vitacea	Woodbine, Virginia creeper	-	-	-
Penstemon virgatus	Wandbloom	-	-	-
Phoradendrum juniperinum	Juniper mistletoe	x		
Pinus ponderosa	Yellow pine	x	x	x
Populus angustifolia	Narrow-leaf cottonwood	x	x	x

Table 2. Plants Found in the Glencoe Area.

Scientific Name	Common Name	Edible	Medicinal	Other
Populus sargentii	Cottonwood	x		x
Prosopis juliflora	Common or honey mesquite	x	x	x
Quercus gambelii	Gambel oak	x		x
Quercus grisea	Gray oak	x		x
Rhus trilobata	Squaw bush	x		x
Salix sp.	Willow	x		x
Sambucus neomexicana	New Mexico elder	x	x	
Sphaeralcea sp.	Globe mallow	x	x	
Solanum eleagnifolium	White horse nettle	x		
Symphoricarpos longiflorus	Snow berry	-	-	-
Townsendia exscapa	Easter daisy	-	-	-
*Verbena bipinnafidia**	Spiked verbena	-	-	-
Vitis arizonica	Canyon grape	x		
Yucca angustissima	Spanish bayonet	x		x
Yucca sp.	A broad leaf type	x		x
Zinnia grandiflora	Wild zinnia		x	
*Zinnia pulmilla**	Wild zinnia	-	-	-
*These species are closely related to species known archaeologically or historically as being of some value to man.				

We know that the inhabitants of the Glencoe area had access to the buffalo of the eastern plains of New Mexico (a Lower Sonoran life zone) because a buffalo scapula hoe was found at a nearby site of the same general culture (Holden 1952). Also, the 8–10 row corn found at the same site suggests an early eastern agricultural affiliation.

Travel to the western side of the Sacramento range by the aboriginal inhabitants of the Glencoe area is indicated by the fragment of reed (*Arundia* sp.?) found at one of the Glencoe project sites. (Note: “Carrizozo” is the name of mountains and a town northwest of Ruidoso, and means “reed.”)

Observations and Conjectures

It was noted that the hills north of the Glencoe sites had southeastern exposures, and the ground was barren of trees for several acres. Perhaps these areas had been cleared for agriculture some time in the past. In the same vein, the tree cover in front of most sites remains, affording the occupants some protection from view from the valley bottom and from the wind.

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Chapter 4

METHODS

Nope, No Research Design

The Hondo/Glencoe Salvage project at sites LA 5377, LA 5378, and LA 5380 was conducted prior to regulatory requirements for formal research designs. However, in those days virtually all archaeologists carried implicit research designs in their heads based on general concepts of what might be present in the sites. The idea was that one should attempt to recover all data pertinent to the construction of a culture history for any and all sites investigated, especially those that were excavated. The findings could then lead to comparison of data with previously excavated sites and the working culture histories available at the time. And as always, the work at individual sites reflected the project director's current state of knowledge gained through academic training and personal experience, some of which were common to practically all archaeologists and others which were not.

Thus, an informal plan was developed before the work started. This plan was simple in scope—explore the site areas by means of series of trenches and test pits, especially in any flattish or depressed areas, and excavate and document any and all site features found. Where features were found to extend outside the trenches and test pits, excavations were expanded accordingly. Some trenches and test pits exposed the presence of cultural features; others merely confirmed that cultural features were not present and that cultural deposits and artifacts were either absent altogether or else were widely scattered across the sites. These less concentrated remains were considered to be of lesser importance to the overall picture. The idea was to locate the main site areas and features and to collect all of the artifacts and other information to the fullest extent possible without excavating the entirety of each site.

I did not become involved in the Hondo/Glencoe project until 2015, but I had learned early in my career that almost all of my projects of any consequence produced artifacts and other, very important data that I had not anticipated finding. Oftentimes, these unanticipated data turned out to be more important (or better preserved) than the data that had been anticipated (which may not have been found). Hence, I did not readily or easily embrace the idea of starting out a project with a formal research design that specified just what I was expecting to find and was then essentially required to investigate. I viewed the requirement of preparing a formal research design as placing blinders on researchers, as it did not encourage working with what one actually found and should follow up on. And, as too many (but not all) projects guided by formal research designs have since shown, whatever data found were forced into the working ideas and goals of the formal research design, oftentimes for an uncomfortable fit and the suspicion, or even strong conclusion on the part of those of us who preferred the old paradigm, that the whole process had wasted time, money, and opportunities.

Excavation Procedures

The procedures employed for the excavation of the Hondo/Glencoe sites were those in general use by the Laboratory of Anthropology at the time. However, some deviations were instituted for LA 5380. At LA 5377 and LA 5378, excavations were not controlled by a surface grid, but a surface grid was established for LA 5380. For all three sites, every excavation unit, whether an arbitrary surface collection area, test pit, test trench, strip area, or cultural feature, was placed where the archaeologist judged (or guessed) appropriate by experience and surface indications. Each excavation locus was then assigned a sequential feature number for record keeping and collection purposes. Excavations proceeded either by arbitrary vertical units (either by estimation, by length of a shovel blade, or by actual measurement), natural units, or cultural units as conditions warranted. At LA 5380, initial exploration involved selectively placed stripping units (rather than trenches) dug in six inch levels; the use of these levels evidently ceased when deeper excavations (such as in the pit house, Feature 5) were required.

For most heavy work (everything but small features and larger feature bottoms and floors), the fill was loosened by shovel, mattock, and railroad pick as conditions warranted. Areas outside structures tended to contain large numbers of rocks and pebbles, which made excavation difficult. Room fills and trash deposits over the pit houses contained some rock, but the organic nature of the sediments made excavation much easier. The darkness of the fills in and overlying the structures readily signaled easier digging and marked the presence of archaeological data awaiting the trowel!

After turning the loosened fill to retrieve artifacts such as sherds, chipped lithic debris, bones, and the like, the crew loaded the fill into wheelbarrows and removed it to designated dump areas off site. A skilled crew working in this manner usually misses few artifacts other than the tiniest flakes and the smallest animal bones (usually from rats, mice, and smaller species). But, today, of course, this technique is no longer considered to be effective and would not be used.

In large features, three vertical proveniences were used when natural and cultural stratigraphy were found to be absent: general fill (surface to 10 cm above bottom or floor), floor fill (10 to 1 cm above bottom or floor), and floor contact.

For finer work on feature floors/bottoms and around burials, the field crew used trowels, dental tools, whisk brooms, and other small tools as appropriate. Artifacts in contact with the floors of structures or in large cultural features were piece-plotted if they were thought to represent primary contexts. If they appeared to be the result of secondary deposition, either intentional (such as trash deposits) or not (such as erosion), the items were bagged as floor fill provenience. Unfortunately, it is not always clear from the labeling on bags whether specific artifact lots were from floor contact or floor fill proveniences. Evidently, no bulk soil samples for pollen analysis, flotation analysis, or other special studies were collected. Also, the notes and other records fail to mention whether fill was screened as a rule, or only under specific circumstances.

Before moving to the individual site descriptions, a few problems require mention. For this project, there is a dearth of completed feature forms and continuation sheets. These documents, which were supposed to be filled out for every feature excavated at a site, whether cultural

(structures, extramural pits, fire pits, burials, etc.) or excavations (test pits, trenches, etc.), are designed to provide accurate and complete descriptions and illustrations of each feature. Properly filled out, they provide the necessary information for describing and analyzing all aspects of the excavations when preparing a report of the project findings. Because of the dearth of these documents for the Hondo/Glencoe project, I had to refer to the field journal notes and sketches for much of the information used to create the current report. Not only has this process been challenging, the results are far from satisfactory because of the very nature of field notes. The blame for most of these problems can be attributed to one basic source—a poorly designed highway salvage program that provided too little time, too little money, and insufficient organization to accomplish what needed to be done.

All of this raises another problem soon encountered along the way. Throughout the field journals the reader encounters a fairly consistent confusion with regard to cardinal directions. This appears to be largely due to the fact that the orientation of the local section of the river valley is southwest-northeast. Add to this two other facts: (1) archaeologists tend to orient themselves to the cardinal directions (north, east, south, and west), and (2) in the case of the project sites, the horizontal axes of the square to rectangular structures were not oriented to the cardinal directions. That is, one axis extended northwest-southeast and the other southwest-northeast. This places the corners of the rooms at the cardinal directions (north, east, south, and west). The problem becomes acute when the archaeologist made a statement about a “north wall” when in fact, it had to be either a northwest wall or a northeast wall. Another example of this problem can be seen in the placement of the corner bin in the Feature 3 pit house at LA 5377. In the official version of the floor plan (see Figure 3, below), it is shown in the west corner of the structure, but Peckham’s sketch in his field notes (see Figure 4, below) places it in the north corner. In such cases I had to make a determination as to which wall is meant, with no guarantee that I got it right. It helped to have final field maps for each site.

If these problems were not enough, New Mexico is well known for its late summer monsoon weather. This phenomenon can result in nearly daily rain storms that are often violent and heavy, even if of short duration. The field notes of all individuals are rife with mentions that the work was repeatedly either curtailed or stopped due to that afternoon’s storm, causing the loss of valuable excavation time and serious flooding of cultural deposits and structures. Every field archaeologist who has experienced these rains can attest to the severity of the disruptions they cause.

Critically, no money was provided for post-field activities. I am pleased to say that in May 1975, the NMDOT funding situation changed dramatically. After that date, the planning phase provided more lead time for the field phase, and funding was provided for full analysis, special studies, and report preparation and publication.

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Chapter 5

LA 5377

Apparently, LA 5377 was first recorded in May of 1971 by Stewart Peckham for the highway project (ARMS files, Laboratory of Anthropology, Santa Fe). He estimated the site size to be 45 by 45 meters and that it contained two to five pit houses. For the surface pottery, he noted the presence of the following types: 32 plain brown, 12 El Paso Brown, two El Paso Black-on-brown, four plain red, three San Andres Red-on-terracotta, seven Chupadero Black-on-white, and four Chupadero white ware (total, 64 sherds).

The LOA excavations resulting from this survey took place in August 1971. Frank Broilo (1973) wrote the preliminary project report for the project.

In 2006, two private companies, SWCA and Parsons Brinkerhoff, were hired by the NMDOT to excavate at LA 5377, as well as other sites along US 70 between Ruidoso Downs and Riverside. SWCA/P-B's work (Campbell and Railey 2008) was restricted to the edge of the right-of-way, where crews exposed half-bell-shaped pits dating to the Late to Terminal Archaic period and two or three initial Glencoe sub-phase structures. Arms and Railey (2008) report the recovery of four sherds of El Paso Brown from their excavations at LA 5377.

The Peckham-Broilo-Wells excavations in 1971 uncovered one more or less square pit house, parts of two possible round to oval pit houses (Broilo called them borrow pits), and an extramural fire pit (Figure 2). I tend to believe Peckham's interpretation of the oval features as pit houses because of his 20-plus years of extensive excavation experience throughout New Mexico at that time. In addition, eight test pits and trenches of various sizes investigated other locations on the site that might have contained more pit houses or other cultural features. In most of these tests, a natural cobble layer was encountered 20 to 25 cm below the modern surface, and few or no sherds or stone artifacts were recovered. A point of confusion concerning Feature 1 is explained below.

Structures

Rectangular Pit House (Feature 3)

This structure, shown in Figure 3, was oriented with the corners towards the cardinal directions. The wall lengths were: northeast, 5.1 m; southwest, 4.1 m; southeast, 3.6 m; northwest, 4.0 m, giving a floor area of about 17.5 square meters. Remaining walls measured 0.35 to 0.8 m above the floor. Depths of that floor from the modern surface, as measured in the room corners, were: north, 0.7 m; south, 0.35 m; east, 0.5 m; west, 0.8 m; the northwest and southwest walls being on the upslope side of the structure, and the northeast and southeast walls were on the downslope side.

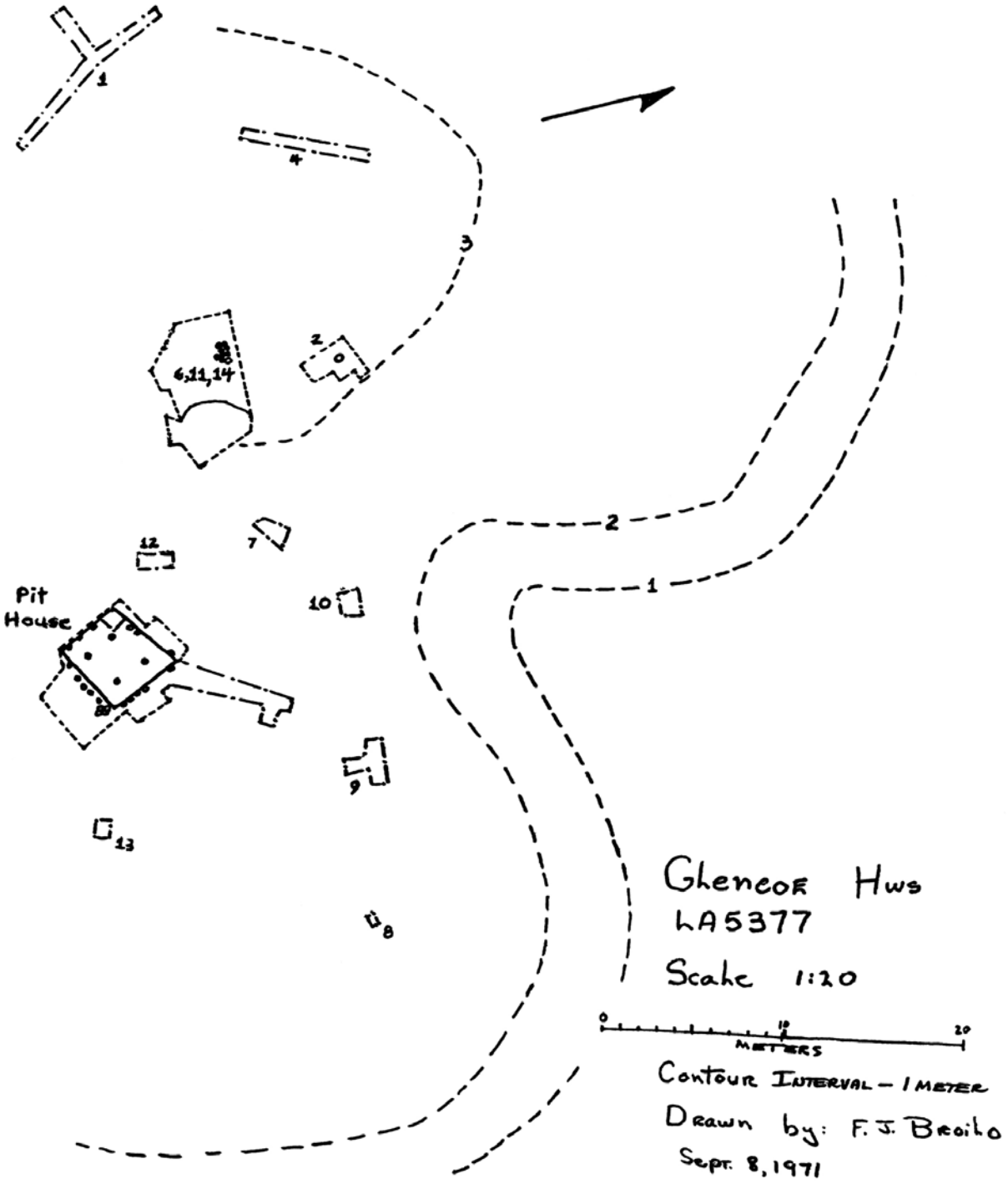

Figure 2. LA 5377, site plan by Frank Broilo.

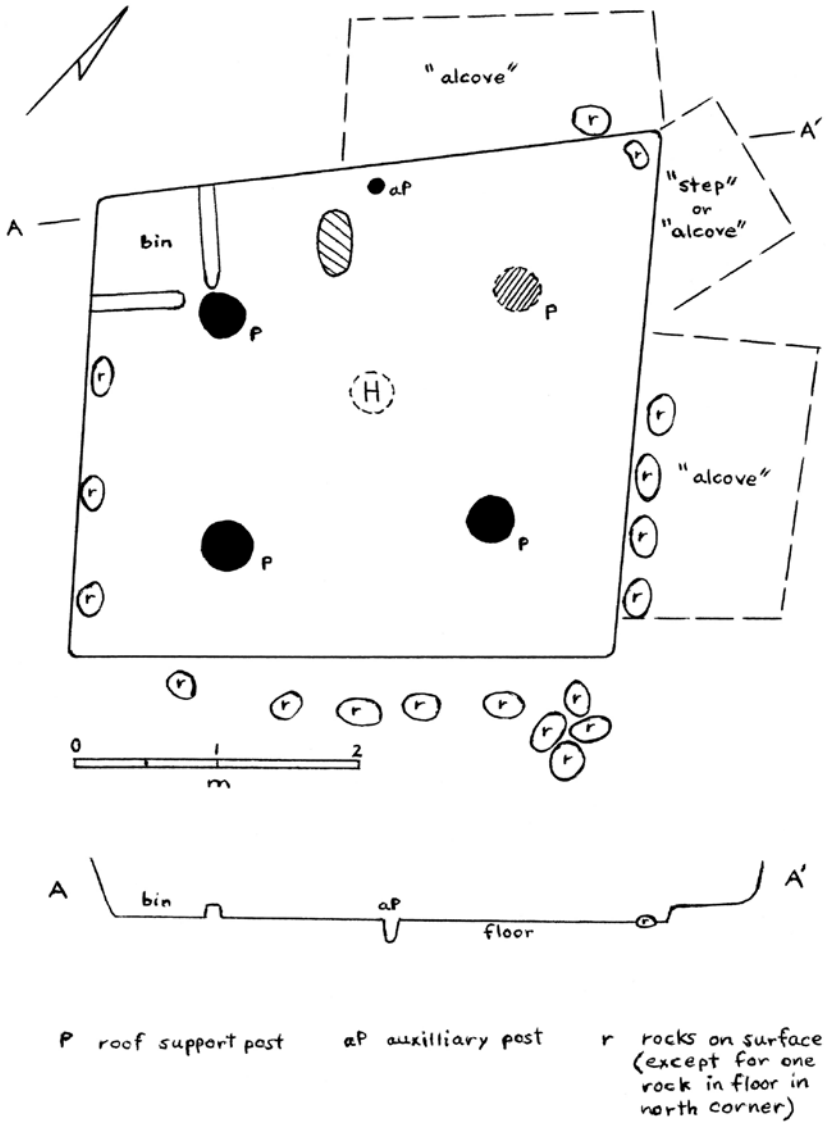

Figure 3. LA 5377, schematic map and profile of Feature 3. The pit house outline is correct, based on the site map. Other details are not necessarily to scale.

The walls were described as well-preserved except in the south corner, where they were "crumbly" and "partially aligned [lined with?] limestone cobbles, many of which were displaced or removed by erosion. The unplastered masonry alignment was directly above poorly constructed adobe walls rising from an uneven floor of thick adobe plaster" (Broilo 1973:2–3). Apparently the north corner of the structure included some adobe (set against the natural stratum into which the pit was excavated?). In the southwest corner, rock was used. Since at least some of the cobbles protruded above the modern surface, they are reminiscent of the walls of *cimiento* structures that have been documented for both the southern (Glencoe) and especially the northern (Corona/Lincoln) regions defined by Kelley (1984) (see Chapter 1 for brief descriptions of these manifestations).

On the feature form, the recorder stated that three "alcoves" are present along the northwest and northeast walls of the pit house (see Figure 3). Proceeding clockwise, these rectangular spaces reportedly measured 1.0 by 2.0 m (depth not stated), 1.0 by 0.7 m (0.3 m deep), and 1.3 by 0.5 m (0.1 m deep). Those measurement do not accord with the dimensions shown in Figure 3, but I have no way to reconcile the discrepancies. I must also admit that I do not accept the "alcoves" as valid features of the pit house. If they were real, they may have been remnants of structures that were earlier or later than the pit house. Given the superimposed structures at the nearby Bonnell site (Kelley 1984), this latter possibility must be considered. On the other hand, they could be products of a conspiracy combining periodic torrential downpours with the probability that these excavations, being shallower than the pit house itself, were used to access the pit house during the final clearing of the structure. I have seen "floors" created when people walked on clayey sediments deposited on the bottoms of excavation units, packing those sediments. And, of course, all archaeologists are instructed to dig squares and rectangles when conducting tests. Clearly, conditions during this project could have fostered the inadvertent creation of the "alcoves."

On the feature form for the pit house, the floor is described as "rough, hard, and slanted [downward?] toward the east," with a 0.2 m rise toward the west corner. Five floor features were found. According to Broilo no fire pit or ash concentration representing a hearth area was found in this structure—a curious claim, given the information in the next paragraph. Two and possibly three main roof support post holes were found near the north and south corners, and near the center of the northeast wall. The north post hole measured 0.4 m in diameter, the one next to the northeast wall 0.3 m in diameter, and the south one 0.2 by 0.4 m. Depths were not recorded. The dimensions of a hole near the third post hole were not recorded; judging by its depiction on the pit house plan, it was about 0.5 by 0.5 m.

The floor feature details just noted are the ones stated on the general feature form and continuation sheet filled out by Broilo. Peckham's field journal (Page 5) states unequivocally that Feature 3 structure had a floor of "caliche—apparently not plastered. Roof support system of four post[s] set in from wall. Hearth is very small, apparently plastered & contained ash. A slab-reinforced adobe-walled bin in the north corner." Peckham's sketch of the structure at the bottom of Page 5 of his field journal (Figure 4) shows the bin in the north corner, the fire pit in the center of the room, and four post holes (three near the north, west, and south corners; a fourth, not yet found, near the east corner). This set of floor features, and their arrangement, is certainly more like what is expected for a Glencoe habitation—but wherein lies the truth, and why is there such a difference in the perceptions of the two archaeologists?

Perhaps the most interesting aspect of this pit house is the presence of a corner bin on the floor. As was mentioned earlier, its location is in doubt (it was either in the north corner or the west corner of the structure). The bin was formed by construction of two low, short adobe walls extending out from two adjacent walls of the pit, and terminating at one of the main roof support posts. The enclosed area measured about 1 by 1 m. A similar feature was found in a pueblo room at the Abajo de la Cruz site (LA 10832) in the region (Wiseman 2016). Presumably such corner bins were used for storage.

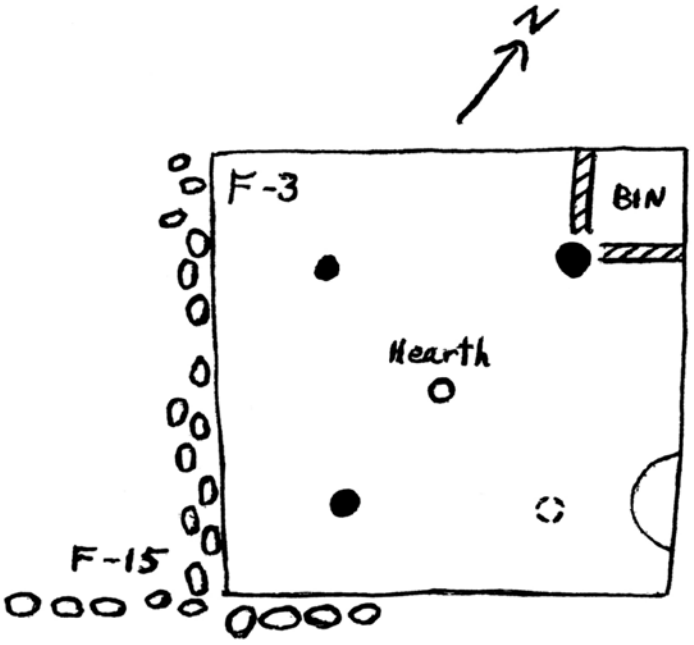

Figure 4. LA 5377, sketch of Feature 3 by Stewart Peckham. This sketch shows floor features inconsistent with those recorded by Broilo. Traced from a sketch on Page 5 of Peckham's field journal.

Peckham later excavated immediately outside the southwest wall of the pit house and partly uncovered a deposit of cultural refuse. He stated in his notes that another structure might be present at this location, and in the field specimen sheets a collection of "charred cane" is noted as having been recovered from a "floor outside south wall of F-3." However, Peckham did not fully expose the remains in this area, which was designated Feature 15.

Two Possible Pit Houses at Feature 6

Early work in this area led to confusion about feature numbers. I use the final designation for the area, Feature 6, to designate what may have been two adjacent pit houses in the west-central part of the site. I suggest use of the term "pit houses" instead of "borrow pits" (the latter suggested by Broilo [1973]), for reasons to be discussed shortly.

Larry Wells and his crew of two worked for five days on a large excavation that eventually expanded and subsumed three tests, Features 6, 11, and 14. Practically from the beginning of the Feature 6 test, they found a decided drop in the level of the sterile cobble layer, from the usual 23 or so cm below modern surface to at least 70 cm. The excavation soon expanded beyond the individual tests and eventually spread over an area measuring about 8 by 5 meters. Throughout Wells' notes he referred to attempts to find and follow walls and a floor, but it is clear that he was never convinced that he actually had found walls. Unfortunately, rain and the need to move the project along to another site resulted in work ending at LA 5377 before the expanded Feature

6 could be fully explored. Excavations in the southeast structure terminated at a depth of 83 cm, and in the northwest structure at 64 cm.

Peckham's notes (Pages 6 and 7) state that it seemed as if two intersecting structures were present in the Feature 6/11 area, and he sketched Features 6 and 11 as intersecting ovals in his notes (Figure 5). Furthermore, on Page 6 he stated that he encountered a wall on the northwest side of the combined features. He also indicated that the fills of Features 6 and 11 differed, with Feature 11 having a soft, loamy, trashy fill in a light to medium brown matrix and Feature 6 having a slightly lower floor or bottom and a hard, clayey, dark brown to gray fill (Figure 6).

Figure 5. LA 5377, plan of Features 6 and 11, possible intersecting oval pit houses. Traced from a sketch on Page 1 of Stewart Peckham's field journal. North is to the top of the sketch.

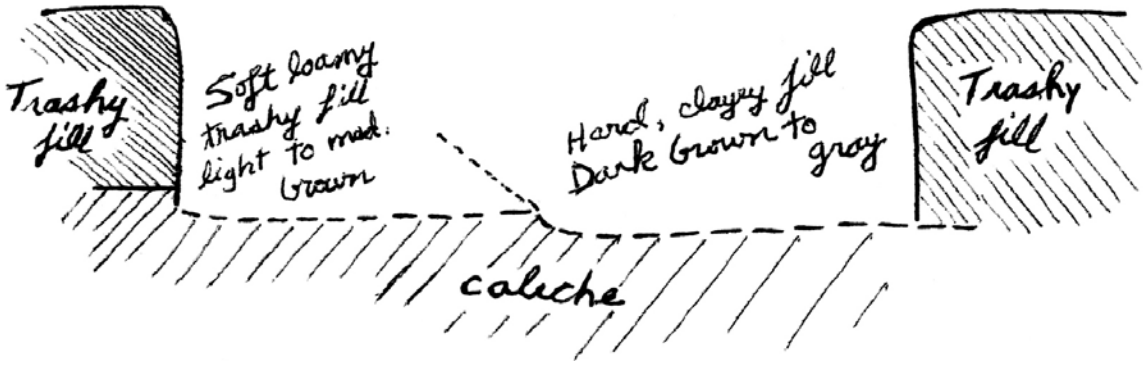

Figure 6. LA 5377, profile of Features 6 (right) and 11 (left), possible pit houses. Traced from a sketch on Page 6 of Stewart Peckham's field journal.

Peckham went on to suggest that the clay layer at the bottom of Feature 6 may have been "over-shoveled" in error, removing the surface of the floor. It seems clear that Peckham believed that Feature 6/11 constituted two oval, intersected pit houses, with Feature 6 being older than (and later cut by) Feature 11. If Peckham was right, and I strongly suspect that he was, the Feature 6

pit house was about the same size as the Feature 3 pit house, while the Feature 11 pit house was much larger (Figure 5).

My conclusions follow Peckham's: the Feature 6/11 work exposed remnants of two oval pit houses that partly intersected; one was built after the other had been abandoned and had filled in. Readers should keep in mind that in 1971, both Wells and Broilo were freshly minted graduates of their respective universities and relatively inexperienced at fieldwork of this sort. Peckham, by then, had 20+ years of experience in digging pit structures of all sorts and under all conditions throughout the state. It is unfortunate that time and circumstances did not permit full exploration and documentation of these structures.

Extramural Hearth

Feature 2, an outdoor hearth, was found in a test north of the two pit houses in the western half of the site. Larry Wells, on Page 2 of his field journal, described it as follows: "Feature #2—a small limestone hearth. The jagged limestone rocks are burned and seem to be associated w/ a very weak packed clay surface which at this point seems to be questionable." No dimensions are provided. According to a note on the site map (Figure 2), the hearth was first encountered 20 cm below the modern surface.

Other Test Units

The following test units were not previously described. In the descriptions that follow, I have sorted out the available information as best I could.

Feature 1

Feature 1 was T-shaped trench that totaled about 11 linear meters and averaged 22 cm in depth. It was placed in a flat place on the slope that appeared to be a good place for a pit house. Apparently only flaked stone artifacts were recovered from the trench fill, and no cultural features were found.

Wells and Peckham's field journals and the general feature form for Feature 1, when compared to the final site map (Figure 2), provide a confusing picture of Features 1, 2, and 6. Wells's first test area—two trenches arranged in a T at the west end of the site—was initially designated Features 1 and 2. On the final site map, the T-shaped pair of trenches is labeled Feature 1, while Feature 2 refers to the test containing the extramural hearth just described. I have followed the final site map in designating the entire T-shaped trench as Feature 1.

Feature 2

This feature number was first assigned to the area later designated Feature 6. As I just mentioned, it was also assigned to part of the T-shaped trench here designated Feature 1. On the final site map (Figure 2), Feature 2 is an area measuring about 2.5 by 3 m and containing the extramural hearth described above. No further description of the "new" Feature 2 is available, and there are no field specimen sheet entries for artifacts.

Feature 4

This was a test trench, about 7 long, excavated to culturally sterile soil at 34 cm. Evidently, no artifacts were recovered.

Feature 5

Feature 5 is not shown in Figure 2. It is mentioned on Page 2 in Peckham's notes as "trenching a slightly depressed area east of F-1. It was sterile [lacked artifacts] and bottomed out at about 30 cm like F-1."

Feature 6

Feature 6 appears to have been the final designation for the two possible pit houses in the area shown on the site map (Figure 2) as Features 6, 11, and 14. This feature was in the west-central part of the site. Features 11 and 14 become part of the mix because the excavations initially designated by feature numbers 6, 11, and 14 merged through expansion, resulting in the decision to use Feature 6 to designate them all. The bulk of the collections for all three numbers are subsumed under Feature 11 in the field specimen catalogue.

Previously, I discussed the two possible pit houses found at this location. The limited information for Feature 6 is taken from the existing feature form for Feature 1 and from the field notes by Wells, Peckham, and Broilo for Features 6 and 11.

Feature 7

This test was trapezoidal in plan and measured about 2.5 by 1.5 meters. "Although going to a depth of 53 cm, it located no subsurface structure. Fill was a clay loam to 23 cm, and below this it was more clayey and tended to have more gravelly caliche in it. From 30 cm (variously) and below the fill was either the loamy clay or limestone cobbles having a caliche coating. A few sherds and flakes were recovered" (Peckham's notes, Pages 2 and 3).

Feature 8

A small test (less than 1 by 1 m) encountered caliche-covered cobbles 15 cm below the modern surface (Peckham's notes, Page 3) and evidently failed to produce any artifacts.

Feature 9

This T-shaped trench totaled about 3.5 linear meters and encountered caliche-covered cobbles at 23 cm, at which point excavation was terminated. A few sherds and lithic artifacts were recovered from the fill.

Feature 10

This test is shown in Figure 2 as being east-northeast of Feature 7, but Peckham's notes (Page 3) indicate that it was south of Feature 7. Peckham stated that its matrix was very similar to that of Features 7 and 8. Apparently no artifacts were recovered.

Feature 12

Peckham's notes (Page 4) indicate when this test was abandoned (August 3) but otherwise do not describe it. Based on Figure 2, the test was about 2 m long. The test produced a few sherds.

Feature 13

This 1 by 1 test revealed that the cobble stratum was encountered 23 cm below the modern surface. Evidently, no artifacts were recovered from the test.

Feature 15

This number was assigned to a specimen bag, but no notes or map location inform us as to what and where this feature was.

Discussion

Although the work at LA 5377 cannot be characterized as thorough, in terms of site area tested or excavated, the excavators placed tests in every spot where structures and other cultural feature were likely—for example, flattish and depressed areas. However, the results of the SWCA/P-B investigations (Campbell and Railey 2008) suggest that many cultural features in areas lying between such flattish or depressed areas were missed in 1971. The numerous cultural features discovered by SWCA/P-B consisted mainly of storage pits, some of them closely clustered.

Almost all of these pits and other cultural features produced radiocarbon dates in the last few centuries B.C. and the first few centuries A.D. Almost no remains dating to the period of local pottery use were recovered (Campbell and Railey 2008), even though the SWCA/P-B area of investigation was a short distance north of Features 1 and 4 of the 1971 excavations. The differences in material remains recovered by the two projects are striking.

Artifacts

Only seven formal tools were recovered from LA 5377 in 1971 (Table 3). The project also recovered 191 potsherds and 35 pieces of flaked stone debris. Since 124 square meters of the site (area, *not* volume) were excavated, these figures work out to a total of 1.88 items recovered per square meter. One of the inescapable conclusions about this dearth of items is that the pottery period occupation was not very long, perhaps only a year or so. This, of course, is assuming that all of the items analyzed here belong to that occupation. However, as I mentioned earlier, subsequent archaeological excavation at this site demonstrated that a late Archaic occupation also took. Thus, some of the lithic debris might represent the earlier use of the site.

Table 3. Formal Tools Recovered from LA 5377.

Type	FS No.	Provenience
Projectile point	0-	Surface
Projectile point	3-3	Fill
Mano	0-	Surface
Mano	3-4	Feature 3, pit house floor
Stone cylinder	3-10	Feature 3, pit house floor
Drill	3-15	Feature 3, outside pit house
Hammerstone	3-14	Feature 3, pit house floor

The few formal tools indicate that hunting, plant processing, and tool manufacture and use took place at LA 5377. This range of activities is to be expected because the pit house or pit houses indicate a human presence for more than a few days or weeks.

Both projectile points recovered from LA 5377 are side-notched arrow points. The importance of this fact will become evident from the discussion of LA 5378.

Wood Specimens for Possible Dating

Two wood specimens from LA 5377 were submitted to the Laboratory of Tree-Ring Research in Tucson. In a letter dated December 17, 2015, Dr. Jeffrey Dean states that neither of the samples could be dated, nor were they worth retaining for potential tree-ring study at some later date. They were either returned to the Museum of New Mexico or discarded by Tree-Ring Laboratory

personnel. We have no record of which action was taken, nor is it clear that they are currently in the collections and therefore available for radiocarbon dating.

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Chapter 6

LA 5378

Apparently, LA 5378 was also first recorded in May 1971 by Stewart Peckham for the highway project (ARMS files, Laboratory of Anthropology, Santa Fe). He estimated the site measured 60 by 40 meters and that it contained two or three pit houses. For the surface pottery, he noted the presence of 13 sherds (nine of which were discarded) of both polished and unpolished plain brown ware. The LOA excavations resulting from this survey took place in August 1971. The preliminary report for the site was written by Broilo (1973).The Peckham-Broilo-Wells excavations uncovered four pit houses (Figure 7), two of them rectangular, one oval, and the fourth poorly defined (but possibly rectangular) because of severe rodent disturbance.

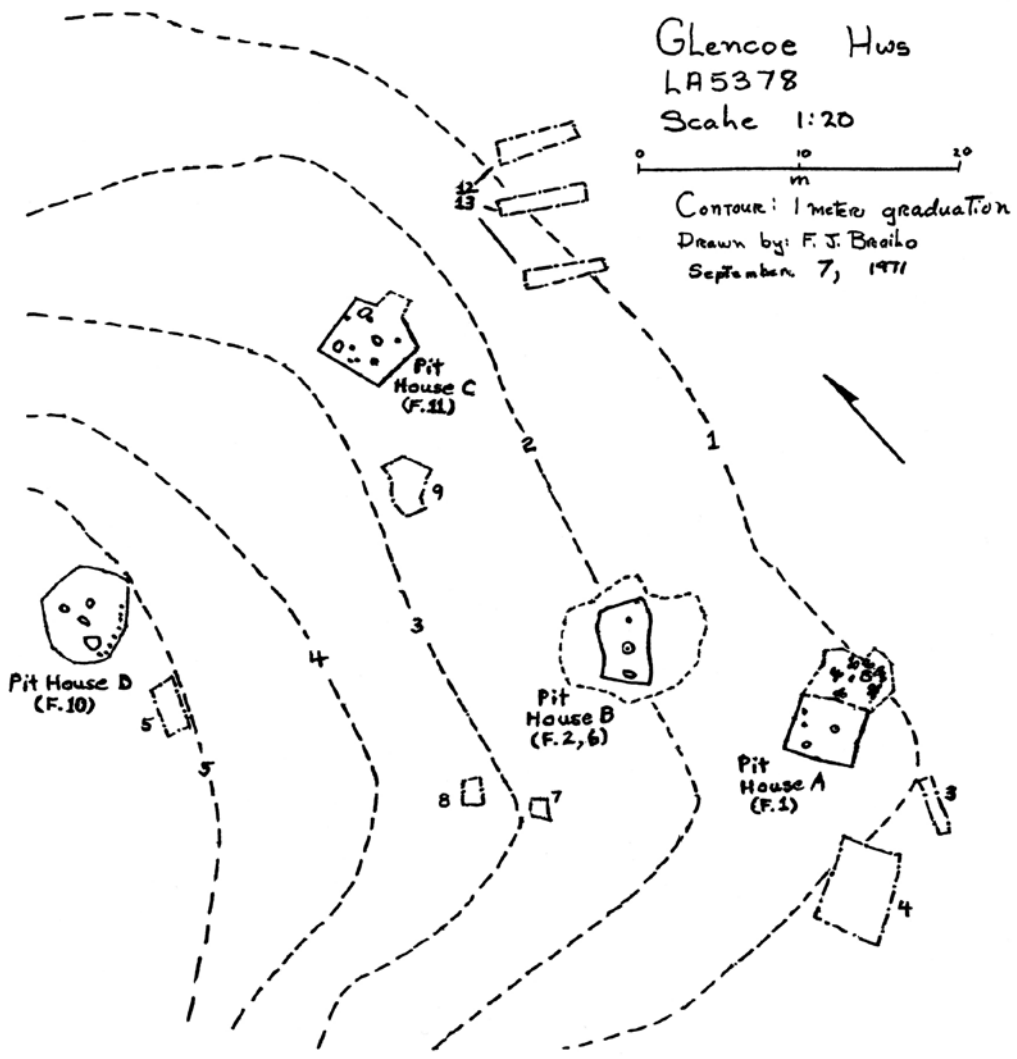

Figure 7. LA 5378, simplified version of site plan by Frank Broilo.

Four human interments were recovered. Seven test pits and trenches of various sizes investigated other flattish to slightly depressed locations on the site, which, like many in the region, was on a slope that caused breaks in the contours to stand out as possible cultural features.

Structures

No feature forms were filled out for any of the structures excavated at this site. However, continuation sheets containing plan maps and cross-sections were prepared and are the sources of dimensions and other observations regarding the structures.

Pit House A (Feature 1), Late Component

This rectangular structure (Figure 8) is oriented with the corners at the cardinal directions and the long axis of the room oriented northwest-southeast. The approximate lengths of the walls are: northeast, 5.25 m; southwest, 5.00 m; northwest, 4.75 m; southeast, 4.85 m. The floor area is about 24.6 square meters. As will be mentioned further below, the south half of the northwest wall was largely missing.

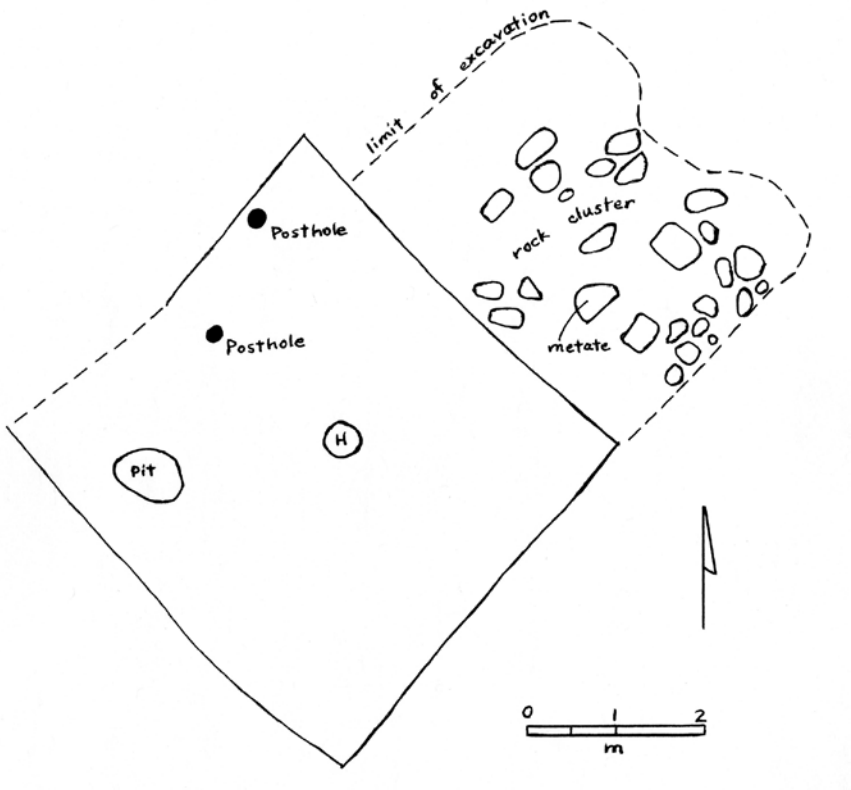

Figure 8. LA 5378, map of Pit House A (Feature 1).

Early in Wells' notes (Page 17, for August 11), he stated that the floor, where first encountered at the northeast (?) wall, was about 1.10 m below the modern ground surface. Rocks discovered in the fill next to the northeast (?) wall may represent wall construction that collapsed into the structure. The rocks were found resting 65 cm below the modern surface and 45 cm above the floor.

The floor is described as follows (Wells' notes, Pages 17 and 18): "...found a light grey surface and started to follow it out. Closer to the center of the room, found a lighter colored surface on a level about 10 cm higher than the grey level and after following it a few centimeters, came to a plastered adobe hearth rim." Aside from saying later on that the floor "seemed to follow quite well" (Wells' notes, Page 25), this is all Wells stated about the floor.

The fire pit was "adobe lined" (had a raised rim of adobe?) and measured 35 by 31 cm on the inside and 58 by 53 cm on the outside. A "cyst" or pit in the floor measured 76 by 56 cm and was 27 cm deep. The pit fill contained abundant charcoal, shell (including mother-of-pearl), and what appeared to Wells to be several pieces of human bone. Two post holes were also found in the floor. Their approximate diameters were: north post, 25 cm; south post (near the center of the northwest wall), 20 cm (Wells' notes, Pages 30 and 33).

A mano fragment and a metate were recovered from this structure, apparently from floor contact or floor fill.

A seemingly amorphous concentration of rocks was found outside the northeast wall of the pit house. Judging by the nature and distribution of the scatter, the 27 stones, including at least one metate fragment, probably were not part of the pit house construction.

The missing south half of the northwest wall may have been removed during construction of a different structure or some other cultural feature. A deep test found "sterile gravel" but no "floor surface" as such, 40 cm below the Pit house A floor and a fill "in good quantity and quality." Time did not permit full exploration of this locus (Wells' notes for August 2, Page 34).

Pit House B (Feature 2), Late Component

The only presumably reliable sketch of this structure is the one on the site map (Figure 7). It is clear from the excavation notes that this locus was especially hard hit by rodent burrowing; the walls (of "poorly made adobe"; Broilo's notes for August 11, Page 11) and periphery of the floor were heavily damaged and basically undefinable. On Page 22 of his notes, Broilo directly stated he located the "east" wall, which I deduce was the northeast wall. Broilo's statement is later contradicted by a second statement, that the "wall appears to be non-existent on the east side" (Broilo's notes, Page 25). I presume that the site map shows the definable limit of the floor, with no indication of where the occasional wall remnant was discerned. I use the word "presume" here because the sketches in Broilo's notes, being "of work in progress," only vaguely reflect the pit house plan shown on the final site map.

That map suggests that the structure was rectangular in plan, with a central fire pit, a main support post hole to the northeast, and a floor pit to the southwest. (In Figure 7, the large oval surrounding the floor patch represents the area excavated in search of the structure walls, including trying to figure out the meaning of various rock concentrations near the structure. Other than the patch of structure floor, no other cultural features were found within this larger area of excavation.) The maximum dimensions of the definable floor (or patch of floor) as depicted on the final site map are about 6 m northeast-southwest by about 4 m northwest-southeast. This gives us a floor area of about 24 square meters. The floor, described as "plastered adobe" that is "very irregular with areas containing sterile soil," was about 95 cm below the modern surface (Broilo's notes, Pages 20 to 22). Judging from the large number of excavated Glencoe phase structures, it is likely that most of the floor area of this structure was uncovered and that the walls had not been positioned far beyond the edges of the floor as exposed by the excavators. It is worth noting that Jane Kelley and the Texas Tech students had the same problem defining many structures at the Bonnell site, about 3 kilometers downstream.

Brief mentions are made of possible and definite floor features in this structure. On Page 19 of his notes, Broilo mentioned the presence of a possible bench at the "west perimeter of feature 2." An "adobe lined hearth" or fire pit near the center of the patch of floor was about 55 cm in diameter. From the sketch on Page 23 of Broilo's notes, it seems safe to conclude that the adobe lining was a raised adobe rim that surrounded the opening of the fire pit. A sketch on Page 25 of his notes shows a semicircular dashed line labeled "sealed pit" next to the edge (?) of the floor, near the presumed former position of the northwest wall, but the written notes do not include any mention of the pit.

Near the expected position of the northwest wall, Broilo (Page 20 of his notes) encountered a section of stratigraphy and drew the schematic diagram presented here as Figure 9. Other hints of fill composition and appearance that are to be found in the notes for this site suggest that a similar, simple stratigraphy was commonplace.

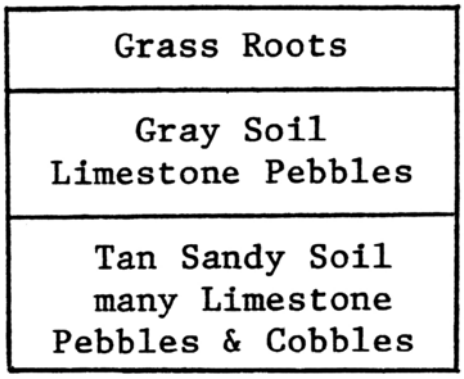

Figure 9. LA 5378, stratigraphic profile of fill near northwest wall of Pit House B (Feature 2). Adapted from a sketch on Page 20 of Broilo' notes. No scale or dimensions were provided with the original.

Pit house C (Feature 11), Early Component

A test was placed at this location to explore "a discontinuous alinement [sic] of large boulders that show on the surface" (Peckham's notes, Page 11). Deep cultural fill containing "a fair number of" artifacts and two posts was soon discovered, resulting in an expansion of the trench. Shortly thereafter, a horizontal juniper log was uncovered, 41 cm below the modern surface. The log measured 12 to 15 cm in diameter. Cultural fill containing rocks continued downward from there. No more statements were made about the line of rocks that drew attention to the locus in the first place.

Eleven days later, when Peckham returned to Santa Fe to take up his other duties, Pit house C had been excavated (Figures 10 and 11) and was ready to be photographed . A test pit through the floor (designated Floor I) showed the existence of a second floor (II) 30 cm below the first one. The fill between the two floors consisted of culturally sterile wind-blown sand (Wells' notes, Page 27). Floor II was duly exposed and recorded.

Pit House C (Feature 11) was a rectangular structure with generously rounded northeast and southeast corners, a sharper (but still rounded) northwest corner, and a southwest corner modified to accommodate a pit for multiple human interments (despite the drawings used here). The walls closely paralleled the cardinal directions. The dimensions, as scaled from the continuation sheets, were: north wall, 4.5 m; east wall, 4.25 m; south wall, 4.0 m (projected); west wall, 4.5 m. The (average?) depth of the upper floor (I) from the "original" (modern?) surface was 95 cm (Wells' notes, Page 27). The depth of the lower floor (II) was therefore about 1.25 m. The area of each floor was about 18.7 square meters.

A wall feature, a presumed entry in the east wall, was about 1.6 m wide. It was a step whose tread was 40 cm above Floor I and 60 cm above Floor II. The excavators referred to this feature as a "ramp" entry but the structure profiles show the tread to be horizontal (Figure 11). Judging by the stratigraphy shown in the profiles and the fact that the map plans do not indicate a terminus for this feature, it may not have been completely exposed by excavation. Because "wall features" or "alcoves" of similar size and shape were found in the pit house at LA 5377, Feature 3, I wonder whether this "ramp entry" is instead some sort of inset storage in the wall (as the word "alcove" suggests) or an extramural pit that predates or postdates the pit house, or a figment of the excavator's imagination.

The upper floor (Floor I) features were limited a fire pit, a pit through the floor (in the southwest corner), and, according to the plan for the upper floor, a (presumably pottery) "bowl" in the southeast corner (Figure 10). The fire pit apparently served the upper floor only, despite being shown on the plans for both floors (it did penetrate the lower floor). The fire pit was oval in plan and measured about 90 by 55 cm, and was about 10 cm deep. No adobe collar or coping appears to have been present.

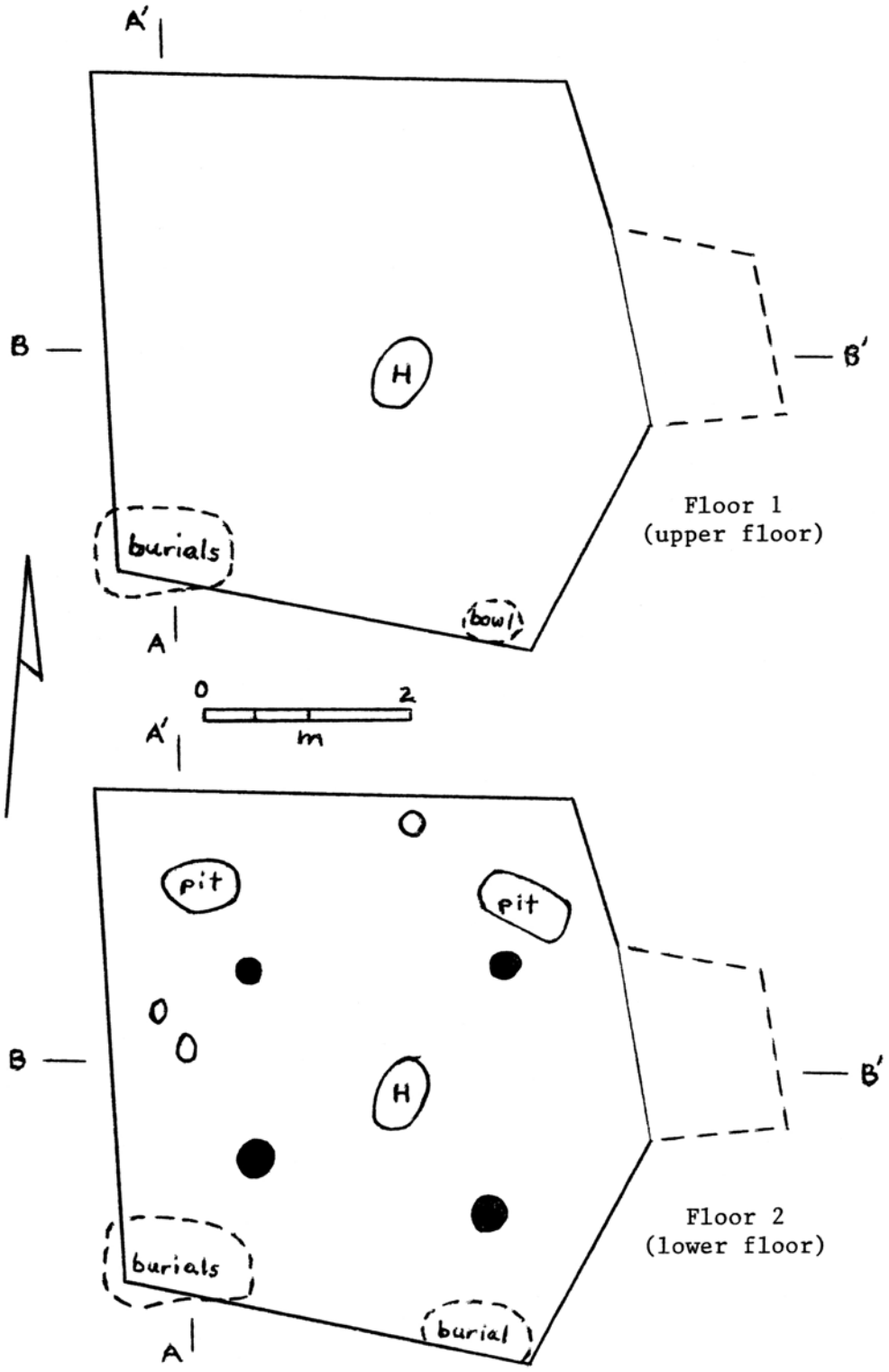

Figure 10. LA 5378, plans of Pit House C (Feature 11), Floors I and II. Structure outline enlarged from the final site map by Frank Broilo. Other details not necessarily to scale.

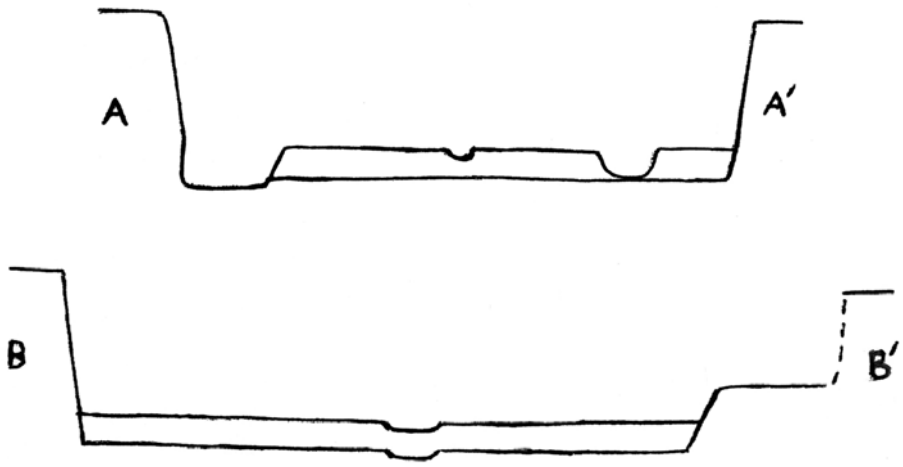

Figure 11. LA 5378, profiles of Pit House C (Feature 11). The scale is more or less consistent, with the upper floor about 95 cm below the modern surface.

The pit in the southwest corner of the upper floor was polygonal in plan, with maximum dimensions of 2 by 1.5 m. This pit also penetrated the lower floor, to a depth of 10 to 15 cm, for a total depth about 40 to 45 cm from the upper floor surface. The presence of what appeared to the excavators to be human bone in the fill suggested that this pit was for a human interment. Subsequent studies showed that the remains represented three individuals (see below).

A continuation sheet for the lower floor indicates a burial, apparently of a small child, directly beneath the bowl found on the upper floor, in the southeast corner of the pit house. Thus, the bowl may have capped the child burial, with the burial bit having penetrated the upper floor and perhaps stopping when the lower floor was reached. This could have taken place during the occupation of the upper floor or after final abandonment of the structure.

Lower floor (Floor II) features were more numerous and more in line with what would be expected if a sturdy roof support system was present. Thus, in addition to the pit in the southwest corner and the child burial covered with a bowl in the southeast corner (both just described for the upper floor), two floor pits, three large post holes, and three smaller post holes (?) were discovered. A fire pit is indicated on the plan for the lower floor but is absent in the profile for that floor, even though the profile line goes right through that location. The lower floor also yielded a “large utility ware vessel” with a rim diameter of 17 cm, set into the floor “75 cm east of the se corner” (Wells’ notes, Page 27). However, that vessel is not shown in either the floor plan or the structure profile.

The two floor pits, which the excavators called “cysts,” were located in the northwest and the northeast corners of the pit house. The one in the northwest corner was oval in plan, measured about 85 by 60 cm, was 40 cm deep according to the structure profile, and was full of trash (Wells’ notes, Page 32). The other, in the northeast corner, was a polygon that measured 135 by 65 cm. Its depths, contents, and function are unknown.

The three large post holes all contained rotted post fragments. From their size and placement, they almost certainly were main support posts for the roof. The one nearest the southwest corner measured about 30 cm in diameter, the one in the southeast corner about 30 by 25 cm, and the one next to the north wall about 25 cm in diameter. No information on depths was provided.

The three smaller holes roughly clustered in the west-central part of the structure. The holes could have held secondary posts (such as for propping up sagging beams) or could have served other purposes. Two measured about 10 to 12 cm in diameter and the smallest perhaps 8 cm in diameter. According to the structure profile, one of the larger holes was about 5 to 8 cm deep.

Pit House D (Feature 10), Early Component

The test that revealed the presence of this structure was started at the downhill edge of a depression. At first, only a few sherds were recovered but no charcoal. By a depth of 50 cm, however, trashy fill had appeared. Also, the upper end of a possible vertical roof support post was uncovered.

The completely excavated room turned out to be roughly oval in plan, with very shallow corners in the northwest, northeast, and east walls. Its shape seems best depicted on the site map (Figures 7 and 12), where the mapping points along the pit wall are obvious. On this map the southern section of the pit wall is slightly curved (giving the structure an oval shape), while on the continuation sheet that part of the wall is depicted as straight (resulting in a D-shape). The maximum (east-west) dimension of the pit house, as scaled from the site map, was about 6 m. The north-south dimension was about 5 m. The floor area was about 22.3 square meters.

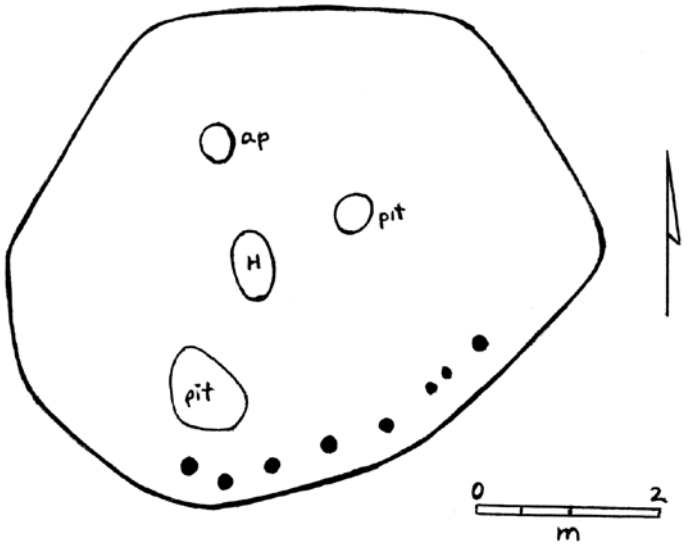

Figure 12. LA 5378, map of Pit House D (Feature 10). Structure outline enlarged from site map by Broilo. Other details not necessarily to scale..

According to the field notes, the excavations had to go fairly deep to find the walls, a claim supported by the profiles on the continuation sheets. Those appear to indicate that the remaining wall heights were perhaps 30 cm. Total depth from the modern surface to the floor was not stated but probably was on the order of 1 m.

The site map shows that Pit House D had thirteen floor features: a hearth, an "ash pit," a "cyst" (floor pit), a larger pit (which lacked a letter identifying its presumed function in the map key), and eight small-diameter posts along the inside of the south section of wall. Two or three of these peripheral posts evidently were the ones found early in the excavation of the initial test trench, leading to further investigation of this locus.

The oval fire pit was described as deep and adobe-lined. Its approximate dimensions (scaled from the continuation sheet) were about 50 by 30 cm. Judging by the shape of the fire pit and its depiction on the continuation sheet, the term "adobe-lined" in this instance evidently does not mean that the fire pit opening was surrounded by a raised rim. The depth of the fire pit was not recorded or shown in profile.

The "ash pit" northeast of the hearth was also said to have been adobe-lined. Why was this circular feature not designated a second fire pit? As scaled from the continuation sheet, the pit measured about 35 cm across, but the profile suggests a width of 50 cm. The depth indicated by the profile, 35 cm, is suspect. That profile indicates that the pit had nearly vertical sides and a fairly flat bottom.

No data were recorded on the floor pit just east of the center of the floor and labeled as a "cyst." Its dimensions, as scaled from the continuation sheet, were about 90 by 50 cm. The depth is unknown.

Contrary to the structure plan on the continuation sheet, the site map shows the presence of an oval pit in the southwest quadrant of the structure floor. According to the site map, this oval pit had a point at its north end and measured about 1 by 1 meter. The depth is unknown.

The peripheral wall posts (or post holes?) evidently were all small and varied from about 5 to about 20 cm in diameter. According to the continuation sheet, their spacing along the south arc of the pit house wall was not uniform, instead varying from about 5 cm to as much as about 60 cm. The post hole depths shown in the profile all appear to be about the same, 15 to 20 cm.

Human Interments

The excavators identified the remains of four interred individuals. The notes provide very little information to convey. All four sets of remains were recovered from Pit House C (Feature 11). Three came from the pit dug through both floors in the southwest corner. I presume that these are the remains recorded as 5378-11-27, 5378-11-28, and 5378-11-29 in the field specimen sheets and on Human Burial Inventory Forms (HBIFs) filled out by Larry Wells following the field work. We do not know how the three individuals were positioned relative to each other. Notes at the bottom of each HBIF indicate that the remains were to be taken to Dr. Christy Turner at

Arizona State University for analysis and storage. If they were ever sent to Arizona, they have since been returned to the Museum of Indian Arts and Culture, Santa Fe, where they are now stored. The information presented immediately below is taken from the HBIFs and the field specimen sheets.

> 5378-11-27: adult, possibly male; condition good.
>
> 5378-11-28: infant, sex indeterminate; condition fair to mostly poor.
>
> 5378-11-29: youth, sex not determined; condition fair.
>
> 5378-11-42, -46, -47: youth; sex not determined; condition fair to very poor. This burial was beneath the bowl in the southeast corner of Pit House C. The tightly flexed body had been placed parallel to the south wall, on its left side with the head to the west, and its posterior in the southeast corner. The body had been forced into the hole, leaving the skeleton in a contorted position (Wells' notes, Page 32). Total length was about 75 cm.

The NAGPRA inventory for LA 5378 (Appendix A) lists seven individuals, rather than the four recognized in the field. While this is not an unusual occurrence, it is also not possible to correlate the burial feature numbers and the NAGPRA identification numbers.

Other Test Units

The test units that were not expanded to investigate structures or other cultural features are summarized below. Most lack notes, hence only the approximate test sizes and whether they produced collections are noted.

Feature 3

This trench measured about 4 m long. It failed to produce artifacts.

Feature 4

This test measured about 6 by 4 m and produced a number of sherds and pieces of flaked stone.

Feature 5

Measuring about 3 by 1 m, this test produced only a few sherds within 20 cm of the modern surface. The test was placed in the most promising of three flat areas but no indications of a cultural feature were found subsurface.

Feature 6

This number was first assigned to excavations next to Pit House B (Feature 2). A few artifact lots were assigned to this feature number.

Feature 7

No artifacts were recovered from this test pit, which measured about 1.5 by 1.5 m.

Feature 8

This test pit, only slightly larger than Feature 7, also failed to yield artifacts.

Feature 9

This irregular test (Figure 13) yielded a few artifacts. “A concentration of large cobbles (1.0 x 0.7 m) was encountered at a depth of 10–25 cm and contained ash (charcoal), some sherds and flakes. A large obsidian flake came from the fill near the burned post shown. These rocks are in fill” (Peckham’s notes, Page 10). The presence of what appears to be a vertical post in the fill, plus a group of rocks also in fill, suggests to me that a structure may have been present. No explanation is given as to why excavation ceased when the final test dimensions, about 3.5 by 3.0 meters, were reached.

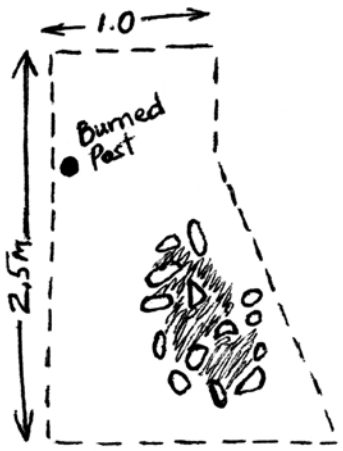

Figure 13. LA 5378, progress sketch of the Feature 9 test. Note the rock concentration (possible post-occupation hearth?) and the vertical post exposed in fill (of a possible structure?). Traced from Page 10 of Peckham’s field journal.

Feature 12

This feature number was assigned to a series of three parallel trenches spaced 2.5 to nearly 4 m apart. The trenches were about the same length, 5.0 to 5.5 m. Small amounts of charcoal were noted in the "easterly" and middle trenches, but no artifacts were mentioned (Wells' notes, Page 28). Wells suggested that a "whitish sterile layer" about 1 m below the surface "appears to possibly be a surface."

No field specimen sheet exists for this feature, suggesting that no artifacts were recovered from the trenches. This is in spite of the fact that this part of the site might be expected to contain cultural trash, especially from the occupation of Pit House C (Feature 11).

Feature 13

Wells' (notes, Page 25) described the start of "two parallel, staggered test trenches" in "a flat area on the S.E. corner of the site." No such feature number is shown on the site map (Figure 7). Is it possible that this statement refers to Feature 12? No field specimen sheet for a Feature 13 was found.

Discussion

Except for Pit House D, the structures at LA 5378 resemble houses excavated at other Glencoe phase sites. Pit House D is something else. Its oval shape, absence of large-diameter main roof support posts, and partial line of small-diameter peripheral posts is greatly reminiscent of a large structure with similar characteristics excavated by Terry Del Bene and others (1986) on the Mescalero reservation in the mid-1980s. The only other known structures of this kind were investigated by Tom Rocek (2007) at Double Crossing on the Rio Bonito above the modern town of Lincoln. Rocek's pit houses apparently lacked the peripheral posts but otherwise are the same large-diameter structures found at Mescalero. And it is precisely these structures that do not as yet fit comfortably within my conception of the prehistory of the Sierra Blanca (Wiseman n.d.).

Artifacts

LA 5378 produced a relatively large number of cultural items. Totals by category include 30 formal tools, 1,224 pottery sherds, and 361 pieces of flaked stone debris. Since 146.25 square meters of site (area, not volume) were excavated, these figures work out to 11.0 items recovered per square meter. While these figures considerably exceed those for LA 5377 and LA 5380, the total is not particularly large, especially since at least two occupations are represented at the site. Once again, those occupations appear to have been rather short, perhaps not more than a few years each.

Given the larger amounts of cultural items at LA 5378, it is not surprising that a wider range of activities is indicated. At the same time, the same basic activities are indicated as for the other

sites: hunting, plant food preparation, and the creation and maintenance of facilities and tools (Table 4). Leisure time activities are also represented at LA 5378, in this case by the presumed bone gaming pieces and bone rasp.

Table 4. Formal Tools Recovered from LA 5378.

Item	FS No.	Provenience	Presumed Primary Function
Early Component			
Projectile point	11-7	Fill	Hunting
Metate fragment	11-18	Lower fill	Plant food processing
Metate-like stone	11-11	Fill	Plant food processing
Mano fragment	11-10	Fill	Plant food processing
Mano	11-19	Lower fill	Plant food processing
Mano fragment	11-20	Lower fill	Plant food processing
Bone awl	11-4	Fill	Tool/facility manufacture
Bone awl	11-6	Fill	Tool/facility manufacture
Bone awl	11-16	Floor	Tool/facility manufacture
Spatulate awl	11-21	Lower fill	Tool/facility manufacture
Bone gaming piece	11-24	Floor	Gaming
Bone rasp?	11-8	Fill	Entertainment
Pottery polishing stone	10-11	Fill	Pottery manufacture
Late Component			
Projectile point	1-3	Rock concentration	Hunting
Projectile point	1-4	Rock concentration	Hunting
Projectile point	4-4	Bottom Feature 4, a test pit	Hunting
Knife?	2-9	Fill	Cutting
Knife?	2-10	Fill	Cutting
Projectile point preform	2-31	Floor	Projectile point manufacture
Projectile point preform	2-33	Fill	Projectile point manufacture
Projectile point preform	2-25	Floor	Projectile point manufacture
Projectile point preform	2-28	Floor	Projectile point manufacture
Metate	2-6	Fill	Plant food processing
Mano?	2-7	Fill	Plant food processing
Mano fragment	6-3	Fill	Plant food processing
Bone gaming piece	2-17	Fill	Gaming
Flake tool	1-17	Rock concentration	Scraping/cutting
Flake tool	2-34	Floor	Scraping/cutting
Selenite fragments	2-22	Floor	?
Not assigned to a component			
Mano fragment	0-?	Surface	Plant food processing
Mano fragment	0-?	Surface	Plant food processing
Mano fragment	6-3	Fill	Plant food processing
Chopper	9-1	Fill	Heavy cutting
Flake tool	6-?	Fill	Scraping/cutting
Flake tool	6-?	Fill	Scraping/cutting

These indicators, which expand our view of the lives of the site's occupants, may be due mainly to the larger number of items recovered and the apparently longer duration of the occupations (see Schlanger [1990, 1991] for a good discussion of the relationship between artifact numbers and assemblage diversity).

One of the bigger surprises in the artifact list is that all of the projectile points, with one exception (an arrow point from the Feature 4 test), are Late Archaic darts. Moreover, the dart points are present in both the early and the late components at LA 5378. However, all of them came from proveniences *outside* the pit houses or in the upper fills (that is, not from floor associations), so they could be seen as deriving from one or more Late Archaic occupations at LA 5378. However, this possibility can be questioned because several preforms for dart points were recovered from the floor or floor fill of Pit house B (Feature 2), of the early component, whose occupant clearly was engaged in biface manufacture. So which is it? Was there a Late Archaic period occupation of the site, or did occupants of both pottery period components make and use dart points for hunting? And this is exactly where the question becomes a conundrum—there were side-notched arrow points at LA 5377 and dart points at the late component at LA 5378, both of which appear to be roughly contemporary.

Wood Specimens for Possible Dating

Four wood specimens from LA 5378 were submitted to the Laboratory of Tree-Ring Research in Tucson for dating. In a letter dated December 17, 2015, Dr. Jeffrey Dean states that none of the samples could be dated, and only one was worth retaining as potentially datable at some later date. That specimen (Tree-Ring Lab No. HWS-36, provenienced as FS 5378-2-1), is of pinyon pine and has about 60 rings, including a possible outermost ring. If found to be datable in the future, this specimen might yield a cutting or near-cutting date. HWS-36 was borrowed back and used for radiocarbon dating for this report. As I discuss below, the date obtained from this piece is modern. HWS-36 was returned to the Tree-Ring Lab for storage.

The other specimens were either returned to the Museum of New Mexico or discarded by Tree-Ring Lab personnel. We have no record of which action was taken, nor is it clear whether they are in the ARC collections and therefore available for radiocarbon dating.

Chapter 7

LA 5380

Like LA 5377 and LA 5378, LA 5380 (Figure 14) was first recorded for the Hondo Glencoe project in early 1971. Peckham described LA 5380 as being a pit house site with three to six structures in an area of 30 by 30 m. Although he did not state as much on the site form, it is apparent that possible structure locations were signaled by the presence of flattish to slightly depressed locations, with the difference (flat or depressed) relating to the degree of slope of the modern surface.

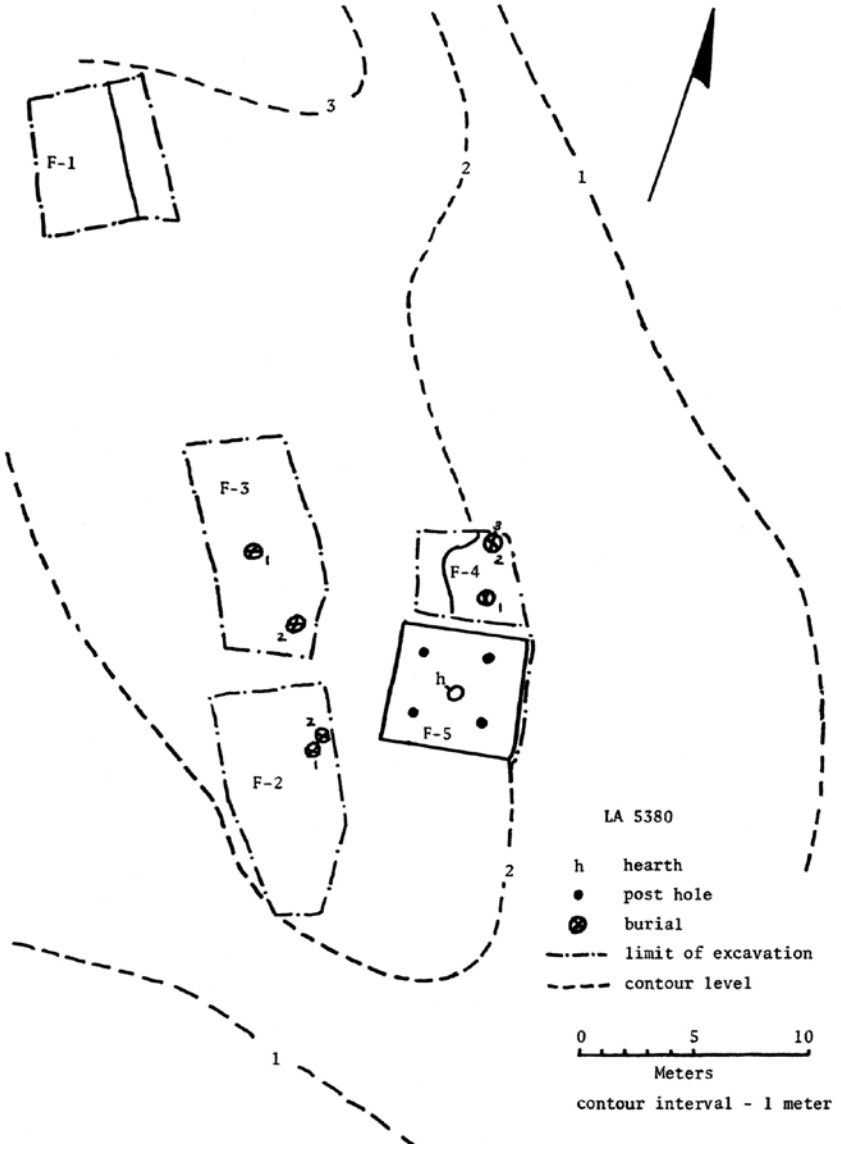

Figure 14. LA 5380, site plan by Frank Broilo. Adapted from Broilo (1973, facing Page 4).

The 50 sherds collected from the site surface include 28 plain brown (11 discarded), nine El Paso Polychrome (or variations; three discarded), five Chupadero Black-on-white, two Chupadero White Ware (discarded), Lincoln Black-on-red, two plain red, one San Andres Red-on-terracotta, and one smudged brown corrugated.

The subsequent LOA excavations took place in August and September 1971. The preliminary report for this project was written by Broilo (1973). The Broilo-Wells excavations (Peckham was back in Santa Fe) uncovered one pit house, evidence of possibly two more structures, and seven human interments before time and funds ran out (Figure 14). Only one stratigraphic section is described in the notes (see the description of Feature 2, below).

Structures

Pit House (Feature 5)

Feature 5 was completely excavated (Figure 15). By the end of the project, Wells was telling the LOA staff that this was the best preserved of the excavated structures at all three sites. The level of preservation (including the relative absence of rodent intrusion) was notable in spite of the continuing rains. For instance, the walls retained good, hard plaster in places and mostly were easily followed during excavation.

The pit house was nearly square and, like most structures excavated at the three sites, had the corners oriented to the cardinal directions and the walls oriented to the intercardinals. The approximate dimensions of the walls were: northwest, 5.5 m; northeast, 5.75 m; southwest, 5.75 m; southeast, 5.75 m. Approximate remaining wall heights, as scaled from the profiles on the continuation sheet, were: northwest, 1.4 m; northeast, 0.5 m; southwest, 1.1 m; southeast, 0.65 cm. Also based on the continuation sheet, the floor area was about 32.3 square meters. Apparently, the walls were made by plastering mud (described as “adobe”) on each face of the pit. A short section at the north end of the southeast wall may have incorporated a few rocks, presumably to shore up the pit wall (see Profile A–A' in Figure 15).

No wall features, such as an entry, are mentioned in the notes. The structure plan shows an unlabeled rectangular aperture in the north half of the southeast wall; we are left wondering whether the aperture was an excavation error or a small “alcove” similar to the larger ones described for Pit house A at LA 5378. Given the penchant of the excavators to suggest the presence of entry “ramps” in some structures, they might have been similarly eager about this feature. Whether created by the original inhabitants or the excavators, the aperture was 70 to 90 cm wide and 45 to 50 cm “deep” (into the wall). We do not know how high the bottom was relative to the floor or the top of the wall.

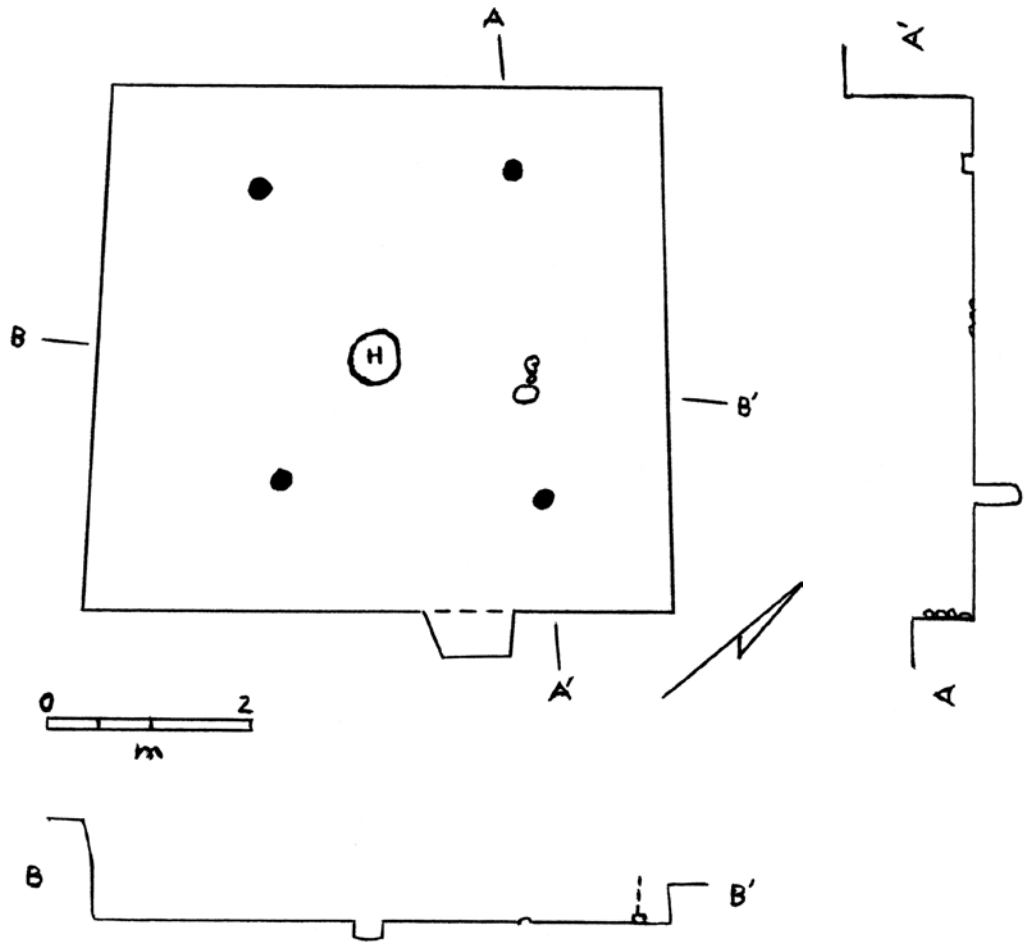

Figure 15. LA 5380, plan and profiles of Feature 5, the pit house. This rendering reflects the slight inconsistencies in the original.

Wells (notes, Page 36) described the floor as “excellent and has a layer of ash and charcoal on it.” He went on to state, “It appears as though this room had burned.” The floor features included a central fire pit, four vertical main roof supports (three with wood remnants), and three or more rocks (including a metate or metate fragment) that Wells thought might have served as deflector for the fire pit. However, no ventilator hole was found at the base of the wall opposite the rocks, casting doubt on this interpretation. Based on Figure 15, the possible deflector was about 45 cm long and 10 cm tall. Wells did not state whether the rocks were set into the floor.

The circular fire pit apparently lacked a raised adobe rim even though Wells (Notes, Page 38) stated that it was adobe-lined. According to the profile on the continuation sheet, the fire pit was cylindrical with a nearly flat bottom and measured about 50 cm in diameter and about 20 cm deep.

Data on the main roof support posts/holes is lacking. One profile on a continuation sheet (A–A' in Figure 15) indicates that the post near the north corner contained a remnant of the post that

was about 20 cm in diameter and protruded about 10 cm above the floor. In the same profile, the empty post hole near the east corner was about 20 cm in diameter and about 50 cm deep.

On the original site map in the site files at ARMS, a Note D states that a "second floor app. 20 cm below surface" was found. The "D" corresponding to that note is outside the structure, so it unclear whether the second floor was inside or outside the structure. The Note D is listed on the map as the fourth item under the heading for Feature 5 and the first three items (A–C) clearly refer to the floor features within the Feature 5 pit house. No other notes are available to clarify the situation.

Probable Structure (Feature 4)

Feature 4 was an expanded test that uncovered a break in the sterile substrate just north of what later was designated the Feature 5 pit house. The break in Feature 4 was arcuate in shape but recurved at each end, like a recurved archer's bow (Figure 14). This recurved arc was 3.7 m long. The fill inside (relative to the central portion of that arc) was described as "trashy" with "a lot of charcoal, pottery, and mano fragments—also a lot of bones." (Wells notes for 9/8/71, Page 38, first paragraph). Eventually, two human interments (one at a depth of 1.06 m!) were also recovered from the fill. Apparently no bottom (or floor) was reached. If Feature 4 was a circular or oval pit house, it had been abandoned prior to the Feature 5 pit house and was partly destroyed by construction of the later structure.

Given the proximity of these two features and the fact that they were both discovered in the same test, some of the artifact collections and field journal notes properly belonging to the Feature 5 pit house were labeled as being from the possible pit house in Feature 4. Thus, some of the artifact collections described later in this report cannot be confidently assigned to one or the other. However, these mixed collections presumably came from the upper fill of either and probably not from the more critical proveniences excavated after the discovery and designation of the Feature 5 pit house.

Human Interments

Seven human burials was recorded during the excavations at LA 5380. Two came from Feature 2, two from Feature 3, and three from the fill of the possible pit house in Feature 4. Unfortunately, the burials were assigned burial numbers starting with No. 1 for each feature. Thus, the burial records include Nos. 1 and 2 from Feature 2, Nos. 1 and 2 from Feature 3, and Nos. 1 and 2 (and a third burial with no number) from Feature 4. In the descriptions that follow, I have renumbered the burials as 1 through 7, respectively. As with the burials from LA 5378, very little information is available in the notes available to me.

As is the case for LA 5378, the NAGPRA inventory for LA 5380 (Appendix 1) is at variance with the field records. The inventory indicates that no fewer than 16 individuals are represented by remains from the seven graves identified in the field! While a difference in numbers of individuals identified in the laboratory versus the field is not unusual, this case seems extreme

and raises many questions that cannot be answered here. The descriptions that follow are based on the field records.

Burial 1

Formerly Burial 1 in Feature 2. Adult; head missing; tightly flexed, lying on right side with head to northwest. Pit dug into sterile. The excavators suggested that two pottery bowls recovered about 1.5 meters south of the burial may have been grave goods that had been moved away from the burial by erosion and gravity. This suggestion can be questioned; it is very unlikely that two pottery items could be unearthed, move 1.5 meters, and survive intact (or nearly so), only to be re-buried where they were found by archaeologists centuries later.

Burial 2

Formerly Burial 2 in Feature 2. Adult; tightly flexed on back with head to northwest. Burial pit 52 by 83 cm; bottom of pit 1 m below modern surface. Head covered by a Chupadero Black-on-white bowl.

Burial 3

Formerly Burial 1 in Feature 3. Infant; tightly flexed on back with head to southeast. Burial pit 60 cm diameter and dug 37 cm (from top of sterile) into sterile. San Andres Red-on-terracotta bowl over face.

Burial 4

Formerly Burial 2 in Feature 3. Adult? No data on burial pit. The individual was buried with a Three Rivers Red-on-terracotta bowl. The bowl was found on a Friday and removed by the archaeologists. Over the weekend a vandal removed the skeleton, before it could be excavated and recorded.

Burial 5

Formerly Burial 1 in Feature 4. Adult? Tightly flexed on back with head to northeast. No data on burial pit other than depth, which was 1.06 m below surface. Apparently no grave goods.

Burial 6

Formerly Burial 2 in Feature 4. Adult? Tightly flexed on back with head to northeast. Burial pit 79 cm by about 60 cm, with a depth of 86 cm below modern surface. Apparently no grave goods.

Burial 7

No field number; found in Feature 4. Infant; a few scattered bones. Severely disturbed by rodent action, so orientation unclear. Found 60 cm below modern surface. No grave goods.

Strip Areas

The four strip areas are shown in Figure 14.

Feature 1

This strip area was more or less square in plan, about 5 by 6.5 m across, and was dug in levels to three depths below modern surface: 27 cm, 79 cm, and 1.21 cm. The depths represented the top of culturally sterile soil at the edge of a possible borrow pit, the mid-fill level in the possible borrow pit, and sterile at bottom of possible borrow pit, respectively.

Feature 2

The Feature 2 strip area was irregular in plan; it measured about 5 by 10 m. The area was excavated to sterile at a depth of about 55 cm. However, this depth does not agree with a profile that Broilo drew as excavation was in progress (Figure 16). Feature 2 yielded two human interments (Burials 1 and 2, described above).

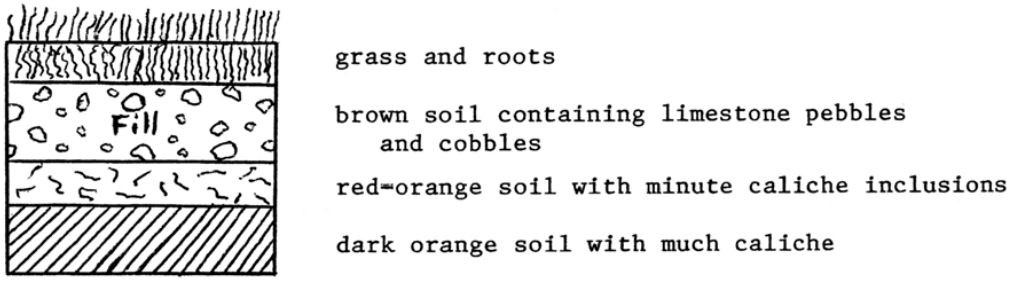

Figure 16. LA 5380, profile of stratigraphy in Feature 2 strip area. Adapted from Broilo (notes, Page 35).

Feature 3

Feature 3 was irregular in plan. It measured about 5 by 10 m, and was excavated to sterile at a depth of about 21 cm. The feature yielded two human interments (Burials 3 and 4, described above).

Feature 4

In plan, Feature 4 was somewhat kite-shaped. It measured about 3.5 by 3.5 m. Two units of sediment were encountered; one was caliche (sterile) encountered 25 cm below modern surface, and the other was the fill of a possible pit house. The bottom of the second sediment unit was not reached by the end of fieldwork; final excavation depth was a little over 1 m (see the description and discussion of a possible pit house in a previous section). The feature yielded three human interments (Burials 5, 6, and 7, described above).

Discussion

The excavations at LA 5380 produced a well-preserved pit house that fits comfortably within the Glencoe tradition. The crew also encountered what may have been a pit house with an oval plan. Unfortunately, the second location was not fully excavated, so we do not know whether the feature was a pit house or something else. Some of the earliest excavated Glencoe pit houses were circular to oval in plan, so the finding of one along the Rio Ruidoso would not necessarily constitute a problem in cultural taxonomy.

Two of the four human interments, from extramural contexts east of the well-preserved pit house, were accompanied by single pottery bowls placed over the head. The third burial included a pottery bowl but its position relative to the body is unknown, due to the actions of a vandal. The fourth burial may have been accompanied by two bowls but as I describe above, I question the association.

By way of contrast, the three human interments recovered from the fill of the possible oval structure all lacked grave goods.

All but one of the burials were tightly flexed and placed on their backs (the exception was placed on his or her right side). Two burials were oriented with the head to the northwest, two to the northeast, one (an infant) to the southeast, and in two cases the orientation could not be determined (one skeleton removed by vandal; one highly disturbed infant burial).

Artifacts

Few formal artifacts were recovered from LA 5380 (Table 5). Totals by category include 1,376 sherds, 79 pieces of chipped stone manufacture debris, and 12 formal artifacts. Apparently no formal artifacts were recovered from Feature 5, the pit house. Since 180.75 square meters of site area (*not* volume) were excavated, these figures work out to 8.12 items recovered per square meter. This last figure considerably exceeds that for LA 5377 but is less than that for LA 5378, and is not particularly large. Once again, the occupation appears to have been rather short, perhaps not more than a few years.

Table 5. Formal Tools Recovered from LA 5380.

Item	FS No.	Provenience	Presumed Primary Function
Projectile point preform	2-26	Post hole (?)	Projectile point manufacture
Projectile point preform	2-27	Pit, NW corner	Projectile point manufacture
Metate	4-9	Fill	Plant food processing
Mano fragment	0-3	Surface	Plant food processing
Mano fragment	4-13	Fill	Plant food processing
Mano fragment	4-13	Fill	Plant food processing
Mano fragment	4-13	Fill	Plant food processing
Mano fragment	4-13	Fill	Plant food processing
Mano fragment	4-13	Fill	Plant food processing
Drill fragment	3-12	Fill	Tool, facility manufacturing
Bone bead	4-22	Fill	Personal adornment
Stone ring fragment	4-5	Fill	Personal adornment
Burned maize cobs	4-23	Fill	Food

Many of the items commonly found in village sites across the Southwest were present at LA 5380. They indicate, at a minimum, that hunting, the making of chipped stone tools, plant food preparation and consumption, and various types of tool and facility manufacturing took place at the site. The bone bead and stone finger ring represent personal adornment. The burned corn cobs are the only macro-remains of plant food recovered from any of the Hondo-Glencoe sites, though there can be little doubt that the inhabitants of all three sites grew corn.

No projectile points and only two projectile point preforms were recovered from LA 5380. One preform appears to be for an arrow point, the other for a dart point. Since the occupation of this site clearly took place about A.D. 1300 or a little later, it is again surprising that both arrow points and dart points may have been made and used by the inhabitants.

Wood Specimens for Possible Dating

No wood specimens with dating potential were recovered from LA 5380.

Chapter 8

POTTERY

The pottery assemblages of all three of the Hondo-Glencoe sites are typical of the Glencoe phase as defined by Jane Kelley (1984), that is, the dominant pottery type or types are locally made plain-surfaced brown wares, usually Jornada Brown but also including South Pecos Brown. Breakdowns by pottery types for each site are available in Appendix 2. As expected for Glencoe phase sites, the dominant pottery in all three assemblages is plain brown ware, which is grouped in Table 6 but differentiated in Table 7. In later sites, El Paso Brown is present but apparently represents unpainted portions of El Paso Polychrome jars rather than unpainted El Paso Brown vessels.

The dominance of brown wares defines the Glencoe assemblage, and although they become relatively less common through time, they are always the most common type and constitute the primary utility pottery at Glencoe sites even after the introduction of types such as Corona Corrugated and El Paso Polychrome. These last two types were the mainstay utility wares of their original source regions (the Lincoln phase-Gran Quivira-Salinas areas and the El Paso area, respectively).

Through time, Glencoe people developed their own painted pottery using Jornada Brown paste and temper, by adding red slips on some and red designs on others. Over the same span of time, they imported painted and textured types made in other regions. For both reasons, the percentages of the plain brown pottery gradually diminished through time as more and more types were added to the inventory. The pottery assemblages from the three Hondo-Glencoe sites neatly demonstrate how the plain brown components permit initial chronological ordering of the sites, while the number and nature of the slipped or painted types permit a refinement of that ordering through seriation. Following this approach, LA 5378 was the earliest site; it yielded 93 percent plain brown sherds and the earliest painted type (Mimbres Black-on-white) but lacks the five latest types (Three Rivers Red-on-terracotta, El Paso Bichrome or Polychrome, Corona Corrugated, Lincoln Black-on-red, and Rio Grande Glaze A Red). LA 5377 was established next; the assemblage has 70 percent plain brown sherds and lacks Mimbres Black-on-white, has two later types (Three Rivers Red-on-terracotta and El Paso Bichrome or Polychrome), and lacks the three latest types (Corona Corrugated, Lincoln Black-on-red, and Rio Grande Glaze A Red). LA 5380 was the last to be occupied; the assemblage includes 54 percent plain brown sherds and no Mimbres Black-on-white but all of the other painted types listed for LA 5377.

A number of partial vessels were found (usually as sherds) throughout the excavations at LA 5380, especially during the surface stripping. I have not seen this pattern anywhere else during my decades of work throughout New Mexico. When LA 5380 was abandoned, it seems, the surface of the site included a number of loci with remnants of large sections of pots. At least some of the vessel sections would have been resting on the surface of the ground. Does this mean that vessels were dropped or thrown around the site as a parting gesture by the inhabitants? Or was the breakage due to later passers-by? Since the excavators found no other indications of a violent end, this pattern is curious.

Table 6. Percentage Comparison of Pottery Assemblages.
(Arranged from earliest to latest, based on percentage of undifferentiated brown ware.)

Plain Brown	Mimbres Black-on-white	Chupa-dero Black-on-white	El Paso Poly.	Red-slipped, Red-on-terracotta	Broadline or San Andres Red-on-terracotta	Three Rivers Red-on-terracotta	Corona Corru-gated	Lincoln Black-on-red	Rio Grande Glaze A Red	Other	Total
LA 5378, early component (553 sherds)											
95 %	-	-	-	3 %	1 %	-	-	-	-	1 %	100 %
LA 5378, late component (579 sherds)											
92 %	< 1 %	3 %	-	3 %	1 %	-	-	-	-	1 %	100 %
LA 5377 (191 sherds)											
70 %	-	22 %	2 %	2 %	3 %	< 1 %	-	-	-	< 1 %	100 %
LA 5380 (1,376 sherds)											
54 %	-	14 %	10 %	2 %	4 %	2 %	10 %	< 1 %	< 1 %	4 %	100 %

Table 7. Percentage Comparison of Plain Brown Sherds from Selected Proveniences, by Type.
(Sites are arranged from earliest to latest, based on Table 6).

Provenience	Jornada Brown	Jornada Scraped	Jornada/ South Pecos	South Pecos Brown	Corona Corru-gated	El Paso Brown	El Paso/ Jornada Brown	Unknown or Un-certain	Total	Count
LA 5378, early component, Pit House C (Feature 11)										
Floor	64 %	-	18 %	18 %	-	-	-	-	100 %	11
LA 5378, early component, Pit House D (Feature 10)										
Lower fill	40 %	-	13 %	47 %	-	-	-	-	100 %	15
Floor 1	50 %	-	27 %	23 %	-	-	-	-	100 %	22
Floor 2	33 %	7 %	40 %	20 %	-	-	-	-	100 %	15
LA 5378, late component, Pit House A (Feature 1)										
Fill	66 %	-	-	20 %	-	2 %	6 %	6%	100 %	51
Floor	23 %	3 %	19 %	29 %	13 %	-	-	13 %	100 %	31
LA 5378, late component, Pit House B (Feature 2)										
Floor	55 %	5 %	12 %	25 %	1 %	1 %	-	1 %	100%	89
LA 5377										
Whole site	64 %	2 %	1 %	10 %	-	20 %	-	3 %	100 %	91
LA 5380, Feature 4 (probable structure)										
Fill	58 %	4 %	12 %	15 %	7 %	5 %	-	-	100%	103
Pit House (Feature 5)										
Floor fill	70 %	2 %	4 %	2 %	7 %	12 %	-	4 %	100 %	57

Several other aspects of the Hondo-Glencoe assemblages are worthy of note. The first is that many sherd lots contain somewhat limited numbers of pottery types. This is interesting in that each bag from the same provenience represents excavation for one particular spot within that feature. At the end of each day, the bag in use was wrapped up and catalogued. The following day, a new bag was started as the excavations in the same feature continued.

Before moving on to the descriptions of the various types in the Hondo-Glencoe pottery assemblages, I will mention that all investigations of paste and temper were conducted using a Bausch and Lomb binocular microscope, normally set at 30 power. Illumination was supplied by a Fiber-Lite Model 190 set on high beam.

Apache (?) Sherd

A possible Apache sherd was recovered from the fill of possible Structures 6/11 at LA 5377. The characteristics that make this tentative identification possible are the very thin wall (2.5–3.0 mm) and its lightly scraped exterior surface. However, the temper is mainly off-white feldspar, which fits with the general practices for locally made prehistoric pottery. This last point might sway opinion towards it being prehistoric, except for one thing: Terry Del Bene's (1986) Mescalero project (see comments in Wiseman 2001) recovered a complete or nearly complete brownware jar with a distinct pointed bottom, a low-set greatest diameter, and a tall "neck" or upper body that terminated in a wide mouth. The shape fits right in with Navajo jars! Curiously, the fabric of the Del Bene's vessel was very El Paso in nature—thin-walled, with crushed rock temper and unpolished medium to medium-dark brown surfaces.

At first I was inclined to call Del Bene's vessel an El Paso Brown pot with an unusual shape—in fact, a shape totally uncharacteristic of El Paso series vessels. Dabney Ford then expressed her opinion that the vessel was Apache made, and soon thereafter I accepted that the possibility was a good one. Unfortunately, the Mescalero authorities required that all of the materials from the project, regardless of affiliation (and these were pre-NAGPRA times), had to be re-buried at the end of the project, precluding further consideration of the matter. Reconstruction of the vessel from the sherds was not permitted, or else time and funds expired, so we don't even have a picture of it.

Because of the vessel just described, I consider the one sherd from LA 5377 as potentially being from an Apache-made vessel. After all, one thing that has arisen from hunter-gatherer studies is that their pottery can encompass a wide variety of attributes depending on what materials are available in the areas where it was made. In other words pots made by the same individual can vary according to where that individual made it. Such pottery was generally made and used where it was needed, but because it was low-fired and not particularly durable, it was made anew at each seasonal settlement rather than transported long distances.

The ease and speed with which usable pottery can be made was demonstrated by Alvin Lynn at the Texas Archeological Society field school held at the Harrison-Greenbelt site east of Amarillo in 1996. There, he replicated a Borger Cordmarked vessel found at the site by using local clays and firing his replica in a small pit in the sand, using a minimum of kindling-sized wood for fuel.

Being well acquainted with all the work and time required to produce both modern-day Puebloan pottery and replicate prehistoric Southwestern pottery, I was astounded at the simplicity, ease, and speed with which Alvin produced his vessel! Apache potters could have followed a similarly expedient approach to creating vessels from local materials as needed, while retaining the vessel shape they preferred.

Chupadero Black-on-white

Chupadero Black-on-white was first named in print by H.P. Mera (1931; see also Brown et al. 2014:29–35). The "Chup" from the Hondo-Glencoe sites is singularly characterized by one aspect—its homogeneity—and a single production source appears to be indicated. At the present time, that source can only be roughly placed north of the Hondo-Glencoe sites, in the vicinity of the Capitan or southern Jicarilla Mountains. The sophistication of the Hondo-Glencoe examples is remarkable, considering that they apparently represent some of the earliest examples of the type. In many assemblages from other sites in the area, the range of variation in surface colors (in part because some vessels were slipped, others not) and draftsmanship is usually quite noticeable, and the finer examples, such as the Chupadero from the Hondo-Glencoe sites, are always in the minority of any particular assemblage.

Probably 90 to 95 percent of the vessels represented at LA 5377 and LA 5380 can be characterized as follows. LA 5378 predates the inception and dissemination of Chupadero and therefore did not produce sherds of the type.

Paste

The paste is so light-colored that when seen under a binocular microscope (at 30 diameters, with fiber optic illumination) it appears to be white. Several sherds have slightly shiny pastes, indicating incipient vitrification. These same sherds also tend to have darker gray surfaces and glazed paint.

Temper

The crushed potsherd temper is often dark to very dark, in some cases apparently because of the use of utility ware sherds. The contrast between the colors of the utility ware temper grains and the paste can be quite striking. Otherwise, the crushed sherds are mainly from recycled Chupadero vessels, many of which contain varying percentages of a crushed leucocratic igneous rock.

Often, but not invariably, secondary materials present within the sherds are grains of porcellaneous white to clear (and occasionally very light gray) crystals and crystal aggregates of feldspars, with or without clear quartz. This leucocratic igneous suite may well be the "granite" (monzonite or quartz monzonite, also known as Capitan alaskite) that is a major component rock of the Capitan and southern Jicarilla mountains.

Temper grain sizes are very fine (vfL) to fine (vfU), with occasional medium-size (fL) and even large (mU) grains according to the American/Canadian Stratigraphic (Wentworth) scale. Temper grain abundance is high, and can be characterized as abundant and well distributed throughout the vessel wall. Once in a while, the positions of individual clay coils used to build the vessel can be visually distinguished on the basis of concentrations of slightly different temper grain sizes in cross-sections of the sherds.

Surfaces

Because the paste is so light in color, white slips were not needed to provide a contrasting background for painted designs. The mineral paint used is well suited for the clays and firing conditions, for it almost invariably provides a strong contrast with the clay body and adheres well to the vessel surface. Although a range of draftsmanship of the designs is represented, most examples are well to very well executed, usually resulting in strikingly beautiful finished products.

The painted surfaces are generally well-smoothed and may or may not be polished. The non-painted surfaces bear the typical rough-scrape marks so characteristic of the Chupadero type.

Designs

The design elements, motifs, and patterns on the Chupadero Black-on-white in the Hondo-Glencoe assemblages are typical of Chupadero. Following the example of an earlier study, I kept track of whether the remnant designs on a given sherd were solid and hatched, solid only, hatched only, or absent altogether. I hoped to get a broad sense of whether more design space was devoted to solids or to hatched elements, or to a combination of the two. Admittedly, an individual sherd does not represent the entire design on a given vessel is not represented by each sherd, so those data indicate only general preferences, not specific approaches. Over the years I have seen complete and nearly complete vessels, from numerous sites, that show that some Chupadero designs involved only solid elements. A partial vessel from LA 5380 admirably demonstrates this fact.

As the name implies, my design category *solid & hatched* includes sherds with both solid and hatched elements. For the sherds in my *solid* category, design elements can include thick or thin lines. Sherds in my *hatched* category have hatched elements only. The results are rather striking (Table 8), especially when compared to those from Abajo de la Cruz (the other site for which I have used this approach). At the Hondo-Glencoe sites, sherds with *solid & hatched* designs and *solid* designs are equally or nearly equally represented, while those from Abajo de la Cruz heavily favor exclusively solid designs. At all four sites, sherds with hatched designs only are well in the minority. While these results currently are mostly of academic interest, further studies of this sort may hold the potential for conveying important social information.

Table 8. Percentage Comparison of Chupadero Design Categories for the Hondo-Glencoe and Abajo de la Cruz Sites.

	Hondo-Glencoe			Abajo de la Cruz	
	LA 5378 (n = 20)	LA 5377 (n = 25)	LA 5380 (n = 145)	Bowls (n = 306)	Jars (n = 882)
Solid & Hatched	30 %	32 %	30 %	23 %	12 %
Solid Only	20 %	32 %	38 %	48 %	44 %
Hatched Only	10 %	12 %	2 %	13 %	8 %
No Paint	40 %	24 %	30 %	16 %	36 %
Total	100 %	100 %	100 %	100 %	100 %

One of the more curious sherds recovered from LA 5380 might be referred to as "imitation Chupadero Black-on-white." This jar sherd has sparse, medium-size temper of Sierra Blanca gray feldspar in a reddish paste. The interior surface is scraped like Chupadero. The exterior surface has a thick white slip that adheres poorly to the clay body and flakes off like the slip used on some Mimbres Black-on-white, among other types. The interior surface, like the paste, is a reddish terracotta color more similar to some Lincoln Black-on-red than to Three Rivers Red-on-terracotta. The few paint remnants are mineral (iron) fired to a dark reddish-brown. The sherd is 5 mm thick. I suspect that the vessel was made by a Glencoe (or Lincoln?) potter who was attempting to produce Chupadero Black-on-white using clay and temper normally used for making Three Rivers Red-on-terracotta or Lincoln Black-on-red. This sherd was found during stripping over Feature 4 (FS 4-1).

Corona Corrugated

Corrugated pottery was recovered only from LA 5380, the latest site of the three sites described in this report. Based on all criteria, the sherds are best characterized as Corona Corrugated, the premier utility pottery of late prehistoric Gran Quivira (Pueblo de las Humanas) in the Saline-Médano district of central New Mexico (Hayes 1981; Vivian 1964). Gran Quivira is about 70 miles (110 km) northwest of the Hondo-Glencoe area. Corona Corrugated was also the primary utility pottery of the even closer Lincoln phase sites (Kelley 1984)—the closest examples being found along the middle reaches of the Rio Bonito a mere 6 miles (10 km) north of Glencoe. Kelley called her pottery "indented corrugated" rather than by a more specific name, but subsequent studies have shown it to be Corona Corrugated.

In all, 144 sherds readily identifiable as indented corrugated were recovered from various proveniences at LA 5380. A number of plain sherds representing smoothed lower parts of indented corrugated vessels are present among the undifferentiated brown ware sherds, and are therefore missing from the overall sherd tally for the indented corrugated category. These as yet uncounted plain examples might number as many as 30 to 50 sherds.

Examination of 29 of these sherds focused on tempering materials and exterior surface treatments. Several rim sherds are present in the assemblage. The results are briefly described below.

Paste

Corona Corrugated paste tends to be grainy and crumbly because it is low-fired or else was debilitated by repeated heating and cooling during use. Most sherds are dark gray to black on both surfaces, as well as in profile. Sherds that did not see use in cooking tend to be a medium brown.

Temper

The variation in tempering materials is fairly restricted and consists mostly, if not entirely, of materials obtained in the Sierra Blanca, Capitan, and southern Jicarilla mountains of south-central Lincoln county. A list of these materials can be found in Table 9.

Table 9. Variability in Temper in 27 Sherds of Corrugated Pottery from LA 5380.

Count	Temper
1	Fine off-white feldspar and large clear quartz
1	Fine and large off-white and light gray feldspar and hematite particles
1	Fine white and off-white crystalline rock with tiny black mafic particles
11	Fine crystalline rock
1	Fine crystalline rock with red and black bits of mafic minerals
1	Fine, medium, and some large grains of off-white crystalline rock
1	Fine and some large grains of off-white crystalline rock
2	Fine and medium off-white crystalline rock
1	Fine and some medium crystalline rock with aggregates of black mafic minerals and orange and red stains
1	Medium off-white crystalline rock
1	Clear quartz, clear feldspar, white feldspar, and tiny black mafic materials
1	Medium to large feldspar crystals and perhaps other minerals
1	Coarse (with some fine and large grains), clear, off-white, and light gray feldspar
2	Coarse feldspar (including gray Sierra Blanca feldspar?) and quartz
1	Altered white feldspar and tiny black mafic minerals

Four rim sherds were also recovered. They confirm that the vessels are generally wide-mouthed jars with expanding, probably globular bodies (Figures 17a and 18). Coil treatment of the necks was usually sloppy, only in part because of the curvature preceding the construction of the rims.

Figure 17. Examples of decorative treatment on Corona Corrugated pottery.

Figure 17. Examples of decorative treatment on Corona Corrugated pottery (continued).

Figure 17. Examples of decorative treatment on Corona Corrugated pottery (continued).

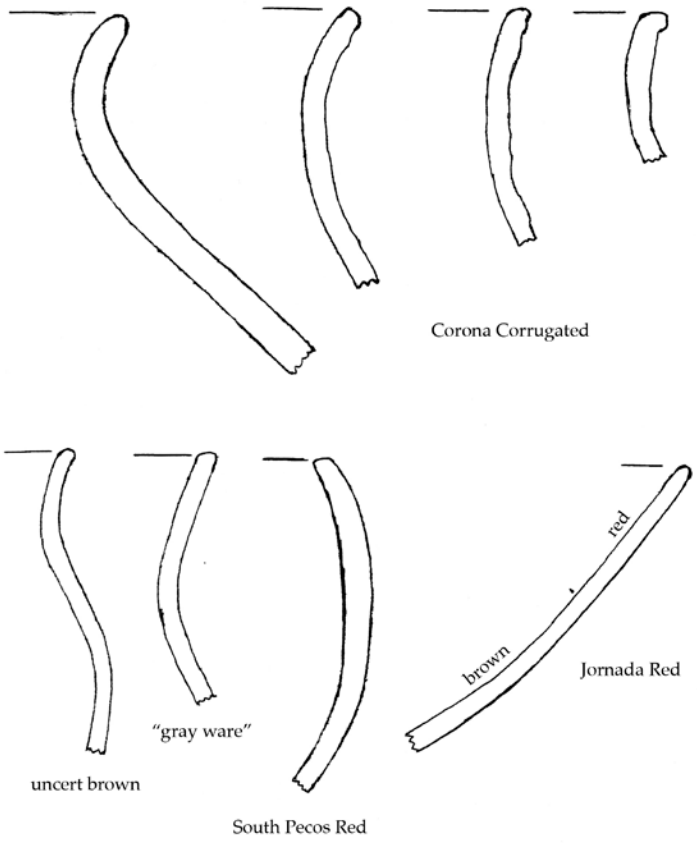

Figure 18. Rim sherd profiles.

Although several potential categories were recognized during the microscopic examination, it is clear that virtually all of these materials (n = 22) are from a related series of fine-grained leucocratic igneous rocks that might be characterized as monzonite and quartz monzonite (see below). David Hill's petrographic analysis of a sample of these sherds indicates that this material is from the Capitan mountains or nearby peaks in the southern Jicarilla mountains (or both). The material has been variously called Capitan granite or Capitan alaskite. I am preparing a formal type description for these sherds, as "Corona Corrugated, Capitan Variant." This variant is like Corona Corrugated as described by Hayes (1981) except for the Capitan aplite granite temper.

Two examples of indented corrugated pottery contain medium gray feldspar that may, in part, be from a gray syenite that outcrops on the eastern slope of Sierra Blanca Peak.

The texturing treatments of the LA 5380 sherds are typical of Corona Corrugated as defined by Alden Hayes (1981). The final appearance of these sherds is generally one of uneven addition and manipulation of the coils and production of textures (Figure 17). Simply put, they look sloppy. Only rare examples are fine enough to be reminiscent of the extraordinary products of the Reserve Mogollon peoples of west-central New Mexico. Instead, the Hondo-Glencoe sherds are more reminiscent of the utility tradition of contemporary Rio Grande Ancestral Puebloans.

Surface Treatment

The interior surfaces of roughly half of the sherds appear to have been intentionally smudged. The exterior "decorations," created by surface manipulation of the clay during and immediately following the application of coils, is highly varied. The variations in the LA 5380 sherds are listed in Table 10.

Table 10. Variations in Surface Treatment of Corona Corrugated Sherds from LA 5380.

Approach	Variations
Unsmeared Indenting	Bold indented corrugated (indentations left unaltered after coils added to vessel during construction; result is a bold, well-defined series of indentations separated by narrow clay ridges).
Smeared Indenting	Lightly smeared indented corrugated (high points of clay between the indentations show slight smoothing or rounding by hand) (Fig. 17d). Smeared indented corrugated (indentations clearly show as a pattern, but the high points of clay are smoothed by hand to form wide separations between the depressions) (Fig. 17c). Heavily smeared indented corrugated (all but the deepest parts of the indentations obliterated; many of the shallower indentations are obliterated by filling in with clay) (Fig. 17b).
Flattened Indenting	Slightly flattened indented corrugated (flattening accomplished by pressing a flat-surfaced object downward on the indented corrugations) (Fig. 17e, f).
Banding (coils not indented)	Narrow banded (bands about 3 mm wide and do not overlap one another) (Fig. 17g). Medium banded (bands about 5–6 mm wide and do not overlap one another). Wide banded (bands about 10 mm wide and do not overlap one another) (Fig. 17h).
Clapboarded	Regular clapboarded (bands 5-10 mm wide, with the lower edge of each band slightly overlapping the band below it) (Fig. 17j); Flattened clapboarded (lower edge of each coil flattened by pressing with a flat-surfaced object; may have been accomplished by polishing while still somewhat moist and just prior to the leather-hard stage of drying) (Fig. 17i).
Patterned Corrugated	Vertically alternating series of coils that display different texturing techniques. The single example has one section of coils of bold indented corrugated, overlain by another section that is ribbed (very thin coils, the lower edges of which are left rounded and slightly protuberant, the resultant appearance being that of a horizontal series of closely-spaced wires).
Plain Surfaced	An unknown percentage of some of these vessels have plain-surfaced bottoms. Distinguishing sherds from this portion of vessels from Jornada Brown is sometimes easy, sometimes not. Thus, no serious attempt was made at this stage in the analysis to make the separation, and a few plain sherds belonging to indented corrugated vessels are to be found among the category of Undifferentiated Brownware.

Comments

It is interesting to compare frequencies of temper types for the Corona Corrugated from various sites in the Roswell Oasis (Wiseman 2013) and elsewhere in southeastern New Mexico. For the Henderson assemblage at Roswell, I found that 88 percent of the analyzed sample of 1,699 Corona sherds are tempered with crystalline rock, 10 percent with quartz mica schist, 1 percent with sand or sandstone, less than 1 percent with gray feldspar and crystalline rock, and 1 percent with miscellaneous materials (Wiseman 2004a:73). The very small sample of Corona sherds analyzed for LA 5380 (n = 28) is similar, in that it shows 79 percent crystalline rock.

In contrast, for the Fox Place at Roswell, I found that 97.3 percent of the 365 analyzed sherds contain quartz mica schist; only the remaining 2.7 percent are tempered with crystalline rock (David Hill calls it Capitan monzonite and quartz monzonite) (Wiseman 2002:87). Similarly, Helene Warren failed to find fine crystalline material in sherds from Gran Quivira. Instead, 57 percent of her study sample was tempered with quartz mica schist, 25 percent with angular quartz grains, and 10 percent with biotite felsite (Hayes 1981:64).

Thus, two basic temper recipes can be defined. First, the Henderson Site and LA 5380 samples are similar in showing a predominance of crystalline rock temper. Second, the Fox Place and Gran Quivira are similar in showing a lack of such temper. It would be worth exploring why two temper recipes were used when those recipes do not cluster spatially (both were used in the Roswell Oasis, for example) and when the time differences were minimal (the Fox Place, Henderson site, and LA 5380 are roughly contemporaneous and either overlap with or are slightly earlier than Gran Quivira).

A shorter version of this definition of Corona Corrugated, Capitan Variant, has appeared in print (Wiseman 2016a).

El Paso Bichrome and Polychrome

Painted sherds of the El Paso series are present in the three latest components (LA 5378 (late), LA 5377, and LA 5380) of the Hondo-Glencoe sites. Given the time span represented by those sites—from the early Glencoe sub-phase through at least the early part of the late Glencoe sub-phase—and the generally small sizes of the sherds, I cannot say how many bichrome examples are present. At least one red-on-brown sherd was identified (from the fill of a possible structure, Feature 6/11) at LA 5377. Polychrome sherds are present in the assemblages from the late component at LA 5378, LA 5377, and LA 5380, as enumerated in Table 6.

Eight rim sherds of El Paso Bichrome/Polychrome and El Paso Polychrome jars were recovered from two of the Hondo-Glencoe sites. The late component at LA 5378 produced one, and seven came from LA 5380. All but one of the latter came from the fill of possible structure Feature 4. Interestingly, these eight rim sherds represent almost the entire developmental sequence of profile shapes for the El Paso painted series. The series starts with early rims that are simple, direct, and with parallel sides, to intermediate rims that are slightly thickened and slightly everted, to late rims that are very thick at the lips and moderately to strongly everted (Fig. 19).

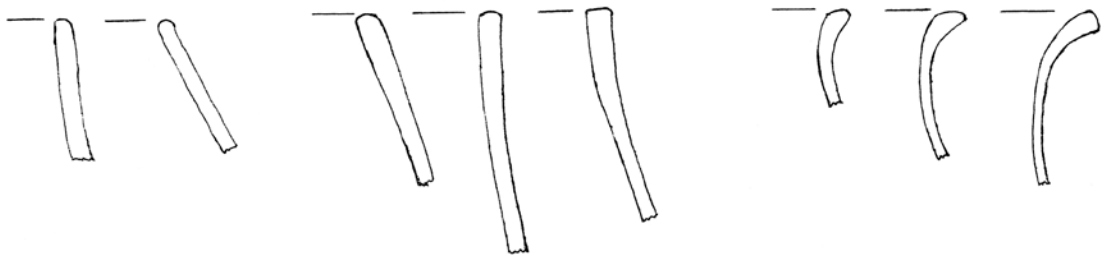

Figure 19. El Paso Bichrome/Polychrome rim profiles. Left: two early rims. Middle: three intermediate rims. Right: three late rims.

One question that remains unresolved but is important to answer is to what degree El Paso Polychrome was produced in the Sierra Blanca country. I have seen occasional sherds from other sites that appear to have the temper and fairly careful to careful surface polishing that make them candidates for Sierra Blanca-made El Paso Polychrome. However, the same cannot be said for any of the sherds from the Hondo-Glencoe sites. All have obvious quartz grains in the temper, and the surfaces are either smoothed, streakily polished, or (in one case) lightly polished. Until further work can be done, I can only conclude that the El Paso Bichrome/Polychrome in the Hondo-Glencoe assemblages was *probably* made in the lowlands of the southern Tularosa and Hueco basins, not the Sierra Blanca highlands.

El Paso Brown

When mentally preparing for the analysis of the plain brown pottery, I assumed that some of sherds would be El Paso Brown. I also assumed that El Paso Brown sherds would be found among all components and sites of the Hondo-Glencoe project. These assumptions were based on two facts. First, El Paso Brown was a major part of early assemblages in the region, especially along Tularosa Creek between Mescalero and the town of Tularosa (Wiseman 1979), thus potentially in the Glencoe region east of Sierra Blanca. Second, El Paso Brown sherds would be present in later assemblages, if only because of the unpainted bottoms of bichrome and polychrome vessels.

Analysis of selected samples of Undifferentiated Brownwares from the Hondo-Glencoe sites (Tables 6 and 7) did indeed identify sherds that could be categorized as El Paso Brown. But contrary to expectations, none of those sherds came from the earliest component at LA 5378 (early), where it should occur if only a plain brown variant of the ware was present prior to the appearance of painted variants. Instead, a few sherds of El Paso Brown were found in the late component at LA 5378, where no El Paso Bichrome/Polychrome sherds were identified. More important, the plain brown sherds become more and more common in the later-dating components at LA 5377 and LA 5380 (where bichrome and polychrome sherds are well represented). It seems safe to conclude that El Paso Brown either was not a feature of the earliest pottery assemblages in the Glencoe region or else was inconsequential.

Jornada Brown

Jornada Brown was the premier pottery type for the Glencoe phase and its various sub-phases. Jesse Jennings (1940:5–6; see also Brown et al. 2014:348–349) was the first to describe Jornada Brown in print, but he did not name it. That privilege went to H. P. Mera a few years later. Mera (1943:12) referred to Jornada Brown as a "coarsened" form of Alma Plain and abstracted Jennings' description as follows (see also Brown et al. 2014:397):

- Paste: consistency somewhat variable, depending on the amount of tempering material. Inclusions from large to medium size, very light colored, opaque and usually angular. The color ranges from deep chocolate brown to reddish browns and shades of tan. As a rule there is a pronounced blackish central core of variable width.

- Surface finish: unweathered sherds always show the effects of polishing, though varying in degree from fairly glossy to perfunctory.

- Shapes: jars of various sizes, usually rather large, up to 20 inches in height. In all cases, rims are unspecialized and direct, surmounting necks that all appear to be short in relation to body dimensions. A few sherds indicate that bowls were also made.

- Decoration: the percentage of undecorated vessels is obviously very high. Those on which decoration does occur demonstrate the use of exceedingly elementary motifs applied just below the rim. Colors used were black and red, separately and together.

Most archaeologists working with plain brown pottery from southern New Mexico will cite the following working definition of Jornada Brown: relatively thick sherds bearing very fine temper particles and a good to excellent polish on both surfaces.

My analysis of the brown ware pottery from the Hondo-Glencoe sites followed the protocol that I have used for a number of years, and included the attributes listed in Table 11. I developed the protocol with a thought to identifying Plains-made pottery on southeastern New Mexico sites. My limited experience with sherds from sites on the Llano Estacado and Rolling Redbed Plains of the Texas Panhandle exposed me to sherds that probably were Plains-made but also contained crushed rock tempering materials that made them difficult to distinguish from non-Plains types from New Mexico. I also had in mind the assertion of many Texas archaeologists that southeastern New Mexico brownware sherds on their sites indicate the early movement of pottery and even people from New Mexico to the Panhandle. Addressing that claim requires a thorough examination of all plain pottery from both regions. The presence of later, more distinctive Southwestern pottery such as Chupadero Black-on-white and Rio Grande Glaze Ware on Panhandle sites certainly attest to contacts and exchange, but does the presence of plain brown pottery, some of it demonstrably from southeastern New Mexico, mean that southeastern New Mexico peoples had a serious role in the early first millennium A.D. Palo Duro Complex (see Boyd 1996 for an excellent statement of this position)? While this is not the place to resolve the issue, the present study produced some information pertinent to it.

Table 11. Attributes Recorded for Undifferentiated Brown Pottery.

Basic Attribute	Details or Comments
Paste	Temper abundance, particle sizes, and composition (specifying minerals and rocks where possible) Colors and combinations of colors (when more than one color is present, whether color changes are abrupt or transitional)
Surfaces	(both exterior and interior) Colors and combinations of colors (when more than one color is present, such as for core versus margins, clear-cut zoning [abrupt changes in color], smooth transitions or trends between colors, etc.) Treatments (smoothing or lack of it, polishing, etc.) Other Characteristics (such as fire clouds, spalling, micro-bumpy texture, undulations caused by poor thinning, etc.)
Sherd thickness	To nearest half millimeter; recorded as ranges per sherd where appropriate
Vessel form	Rim profile and vessel shape

The analyses, descriptions, discussions, and interpretations that follow are derived from selected samples of sherds from the three sites excavated by the project (Table 7). Sites LA 5377 and LA 5380 are treated as single samples. Because initial analyses suggested that at least two temporal components are represented in the LA 5378 assemblage, separate samples were drawn from each component, bringing the total number of sample units to four.

Jornada Brown from the Hondo-Glencoe Sites

Tempering Materials

The tempering materials represented in the Hondo-Glencoe sherds have been noted during previous analyses for other sites in the region. All are known to derive (or are strongly suspected of deriving) from igneous rocks found in the Sierra Blanca, Capitan, and southern Jicarilla mountains of south-central Lincoln county. The precise source of each of these materials has yet to be defined, due to a lack of the necessary field studies. It should be possible to identify those outcrops or even quarries. After all, exact sources for various toolstones and turquoise have been identified through the years.

Two particular tempering materials found in the Hondo-Glencoe Jornada Brown samples are of particular interest. The first is the gray feldspar that typifies Sierra Blanca gray syenite. Although the full extent of the exposures of this rock unit are unknown, that rock can be seen in several road cuts along NM 532 between the village of Alto (north of Ruidoso) and Ski Apache. Sherds bearing this rock have been found throughout much of southeastern New Mexico.

The main characteristic of this Sierra Blanca gray syenite is its primary constituent, gray feldspar crystals that are often very well formed, usually individual (not twinned), and large relative to other feldspar crystals found in Hondo-Glencoe pottery assemblages. They may or may not bear

surficial patterns of a rose to maroon color. Accessory minerals such as hornblende crystals are known to occur naturally within some of this syenite; I have seen a mano made from just such a material. Other minerals often found in conjunction with the gray feldspar in potsherds include white and off-white feldspars, quartz, and tiny mafic particles that may include various iron compounds seen as metallic black, earthy orange-to-red, and matte black colors. Whether these feldspars and mafic minerals occur with the gray feldspar, or come from adjacent rock units, or become mixed with it during colluviation is unknown and needs to be ascertained. For years I subscribed to a comment by Helene Warren that the prehistoric people of New Mexico generally did not use streambed sand to temper their pottery—but after years of pottery studies, I wonder whether that is true.

In the absence of detailed data on the geologic distribution of Sierra Blanca gray syenite, I have monitored the presence of this material in pottery from various archaeological sites as opportunities for analyzing pottery collections have arisen. The idea is that as we find sites (or clusters of sites) where the material occurs, we will be defining the area where people used Sierra Blanca gray syenite as temper in their pottery. But, as I discussed in some detail elsewhere (Wiseman n.d.), it is not an easy or direct process to determine whether gray feldspar in a potsherd is Sierra Blanca gray syenite. In the absence of comprehensive knowledge of what colors (light, medium, and dark gray) and degrees of opacity (opaque versus translucent) characterize Sierra Blanca gray syenite, we have to make judgement calls during analysis. It seems fairly clear that very light gray and light gray feldspars occur naturally in other rocks. A solid or even medium gray color seems to be a fairly reliable indicator of Sierra Blanca gray syenite but what about a range from light to medium to dark gray within a single crystal? (This is a concern with some Hondo-Glencoe sherds, for example.) Then there is the question as to whether translucent gray feldspars are part of the Sierra Blanca gray syenite suite.

In the absence of answers to these questions, in this report I categorize the medium and dark gray feldspars in two ways. I placed sherds having evenly colored, opaque gray feldspar in the *probable* Sierra Blanca gray syenite group. If crystals vary in color (across a range of light to medium to dark gray) or are translucent (or do both), rather than being opaque, I placed those sherds in the *possible* Sierra Blanca gray syenite group. The results of this approach (Table 12) indicate that while Sierra Blanca gray syenite is definitely present in some of the pottery from the Hondo-Glencoe sites, it is not a major constituent in the assemblages, and the vessels containing it most likely were not made at the sites. The search for the production area continues.

The second tempering material of interest here is what I variously call “crystalline” (abbreviated as “xline”) temper or possible Capitan alaskite, or “granite” or aplite (this is the same material that Hill [2002:113] calls monzonite and quartz monzonite). Here I use the name Capitan alaskite, following A.H. Warren (personal communication, mid-1970s). Capitan alaskite occurs in the Capitan Mountains and on one or more peaks of the southern Jicarilla mountains. I used to think that this tempering material was easy to identify because it is very fine and equigranular and readily breaks into individual grains that look like table salt (white or very light-colored) in the paste of a sherd. It is not unusual to see small aggregates of equigranular crystals as well as the individual crystals in a sherd. However, with the Hondo-Glencoe assemblages I became aware that this rock is either more variable than I first believed or is more easily confused with other, similar rocks from the region, to wit, major components of white and off-white feldspars.

Table 12. Sierra Blanca Gray Syenite in Jornada Brown Sherds from Hondo-Glencoe Project Sites.
(Sites/components are organized from earliest to latest.)

Site/Component	Probable, number (percent)	Possible, number (percent)	Lacking SBGS, number (percent)	Total Jornada Brown in Study Sample, number (percent)
LA 5378 early	11 (13 %)	5 (6 %)	72 (82 %)	88 (100 %)
LA 5378 late	4 (14 %)	3 (10 %)	22 (76 %)	29 (100 %)
LA 5377	5 (11 %)	8 (18 %)	32 (71 %)	45 (100 %)
LA 5380	7 (7 %)	4 (4 %)	93 (89 %)	104 (100 %)

The possible variation of which I speak includes somewhat larger crystals of white and off-white (tan, light brown, or very light gray) feldspars. At least part of the problem lies in the fact that many sherds were not so thoroughly fired as to burn out the naturally occurring carbon. This carbon residuum often appears to discolor the temper grains, creating problems with identification. I suspect that Capitan alaskite occurs in a large percentage of the Jornada Brown sherds from all three sites and all four components. If that is true, the vessels represented by these sherds were probably made to the north, outside the Rio Hondo Valley, somewhere in the foothills of the Capitan mountains.

Paste

The wide range of paste colors and color patterns in the Jornada Brown from the Hondo-Glencoe sites is interesting and belies the usual descriptions of the type. As I stated earlier in this report, my foremost interest in paste colors of the southeastern New Mexico plain brown wares derives from my repeated attempts to discover and track meaningful characteristics in so-called Mogollon brown wares—so that they can be distinguished from brown wares made on the Southern Plains. It appears to me that some Southern Plains products also contained tempering materials derived from crushed igneous materials, making distinctions based on the presence or absence of that material a dubious proposition. For several years I believed that one major difference involved paste color, with Plains-made pottery having black pastes and southeastern New Mexico-made types tending to have medium to dark pastes with brown or reddish tints. I thought that black pastes were uncommon, even rare, in southeastern New Mexico products. My study of the Hondo-Glencoe pottery has changed that perception.

Tabulation of paste color in the Jornada Brown sherds from the Hondo-Glencoe sites is instructive (Table 13). If we speak of pastes that are black with no hint of brown, red-brown, or gray, we find that the range is 10 to 22 percent of the individual site assemblages. If we include those pastes that require more than a quick glance to see hints of underlying basic colors, those percentages rise to a range of 29 to 50 percent (Table 14).

Table 13. Jornada Brown Paste Colors in the Hondo-Glencoe Sites.
(Sites/components are organized from earliest to latest.)

	LA 5378 early	LA 5378 late	LA 5377	LA 5380
Light brownish red	1 (1 %)	-	-	-
Light yellowish red	1 (1 %)	-	-	-
Medium brownish orange-to-red	2 (2 %)	-	5 (10 %)	-
Light to medium brown or reddish-brown or brownish-red	13 (16 %)	5 (15 %)	18 (36 %)	14 (11 %)
Dark brown or grayish-brown or grayish-to-reddish brown	11 (14%)	5 (15%)	4 (8%)	29 (22 %)
Medium to dark gray or brownish-gray	20 (24%)	4 (12 %)	4 (8 %)	29 (22 %)
Dark brown to black	5 (6 %)	6 (18%)	6 (12 %)	12 (9 %)
Dark gray and gray-brown to black	2 (2 %)	6 (18 %)	5 (10 %)	10 (8 %)
Black	21 (26 %)	5 (15 %)	5 (10 %)	15 (12 %)
Zoned pastes (all varieties)	6 (7 %)	2 (6 %)	3 (6%)	20 (16%)
Totals	82 (100 %)	33 (100 %)	50 (100 %)	129 (100 %)

Table 14. Jornada Brown with Black and Very Dark (Black-Appearing) Pastes.
(Sites/components are organized from earliest to latest.)

	LA 5378 early	LA 5378 late	LA 5377	LA 5380
Black	21	5	5	15
Dark brownish black	5	6	6	12
Dark grayish black	2	6	5	10
Total	28	17	16	37
As percent of site/component assemblage	34 %	50 %	32 %	29 %
Size of site/component assemblage	82	33	50	129

Clearly, black paste is not sufficient to distinguish Plains-made from southeastern New Mexico-made plain brown pottery.

The occurrence of zoned pastes is also interesting (Table 13). Zonation as used here does not include sherds with carbon streaks or other core-versus-margins differences, but to asymmetric changes across the profile of the sherd. Such zoned pastes have two, rarely three, distinct colors with abrupt or sharp boundaries between them. At times the colors each constitute one half of the thickness of the sherd; in other instances the split is uneven. The three earlier sites/components have about the same percentages of zoned pastes, but the latest site, LA 5380, yielded the most examples by absolute count (16 percent of the study sample). The potential importance of this fact will be brought out at the end of this section.

Surface Polish

As I mentioned, the degree and nature of surface polishing are important criteria for recognizing Jornada Brown. The distinctions are especially important for separating Jornada Brown from El Paso Brown. Study of the Hondo-Glencoe materials presented an excellent opportunity to investigate this phenomenon using pottery made in the Sierra Blanca highlands, where the type is indigenous. El Paso Brown, which supposedly has little to no polish on its surfaces (see the original definition in Lehmer 1948), is an indigenous product of the Tularosa and Hueco Basins southwest of the Sierra Blanca.

As is discussed elsewhere in this report, El Paso area sherds often have such a range of surface polish that many archaeologists working no longer believe that Jornada Brown is a valid type. Instead they feel that only one type name, El Paso Brown, should be used. As far as I am aware, those archaeologists have not worked with plain brown sherds (traditionally, Jornada Brown) from the Sierra Blanca highlands. Another confounding factor is the presence in Sierra Blanca sites of El Paso Polychrome-like pottery that evidently was made in the Sierra Blanca (Mera 1943:12 and Plate 1; Brown et al. 2014:397, 406). Mera calls this pottery Jornada Polychrome but I prefer to use the term El Paso Polychrome and note where it appears to have been made (further work is needed to confirm the validity of this approach). Interesting that the Jornada Polychrome vessel illustrated by Mera (1943:Plate 1) has well-polished surfaces like those of Jornada Brown.

The recording of surface finish on the Hondo-Glencoe sherds was accomplished by using subjective estimations as follows, in descending order of luster. *Well-polished surfaces* are highly lustrous and were accomplished by thorough use of a polishing stone in a manner that resulted in a single, evenly curved surface with a continuous luster from edge to edge. A *polished surface* is the same as a well-polished one except for being only slightly lustrous. *Lightly polished surfaces* are the same as polished ones except that the polishing and evenness of the surface can only be seen under angled light and by a slightly slick feeling when touched. *Streakily polished surfaces* display individual polishing streaks created by single passes of the stone, often at odd angles to each another. The streaks do not cover the entire surface of the sherd; they are best observed when held up to a light source at an angle. With regard to the comments that follow, it is important to remember that *streakily polished* has a particular meaning, especially when used for many or most sherds from LA 5380. Specifically, when the sherds are held at an angle to the light, they have the streaky polishing marks caused by a polishing process that was not so thorough as to reduce the entire surface to a consistently curved surface. Instead, the surface of the sherd undulates slightly (due primarily to uneven vessel wall

thinning), creating shallow "valleys" that may be polished but which depart from an idealized curved surface for the vessel as a whole. Also, surface luster is not continuous from one edge of the sherd to the other.

The results of the surface finish analysis can be found in Table 15. As can be seen, most Hondo-Glencoe Jornada Brown sherds are lightly to well-polished. However, a few sherds display surfaces that are poorly smoothed to smoothed and streakily polished. As I noted previously, most of the streakily polished sherds come from LA 5380.

Table 15. Percentages of Surface Finish Categories at Hondo-Glencoe Sites.
(Sites/components are organized from earliest to latest.)

	LA 5378 early		**LA 5378 late**		**LA 5377**		**LA 5380**	
	Ext.	**Int.**	**Ext.**	**Int.**	**Ext.**	**Int.**	**Ext.**	**Int.**
Well-polished	12 %	9 %	39 %	28 %	42 %	31 %	5 %	6 %
Polished	58 %	45 %	40 %	35 %	35 %	35 %	38 %	41 %
Lightly polished	27 %	21 %	14 %	18 %	10 %	13 %	22 %	20 %
Streakily polished	3 %	12 %	6 %	7 %	8 %	4 %	36 %	16 %
Smoothed	-	-	-	-	4 %	-	-	1 %
Poorly smoothed	-	-	-	-	-	2 %	-	-
Use-worn or eroded	-	12 %	1 %	12 %	2 %	15 %	-	15 %
Total	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %

Another aspect of surface finish on Hondo-Glencoe Jornada Brown sherds deserves comment. In Figures 20 and 21, it is clear that the most consistent surface treatment was accorded vessel interiors; the curves for all three sites and all four components among those sites are virtual duplicates except for the percentages of well-polished treatments. Vessel exterior surfaces display much greater variability in treatment.

The two components yielding the best-polished surfaces, whether interior or exterior surfaces, are LA 5378 (late) and LA 5377, the two middle sites in terms of time. The two sites/ components with less well-polished sherds, LA 5378 (early) and LA 5380, represent the earliest and the latest components of the group. The readers will allow me, I hope, to indulge in a bit of speculation in response to this pattern. The LA 5378 (early) sherds, being the earliest ones examined by this study and therefore closest in time to the inception of Jornada Brown, may also represent some of the earliest products of the Glencoe culture, before polishing techniques were perfected (or before such careful polishing became the expectation) during the following or middle period. The sherds from LA 5380, on the other hand, were made toward the end of the production period for Jornada Brown, perhaps expressing greater haste, less attention to detail, or other signs of lowered artistic concern than in previous generations of potters.

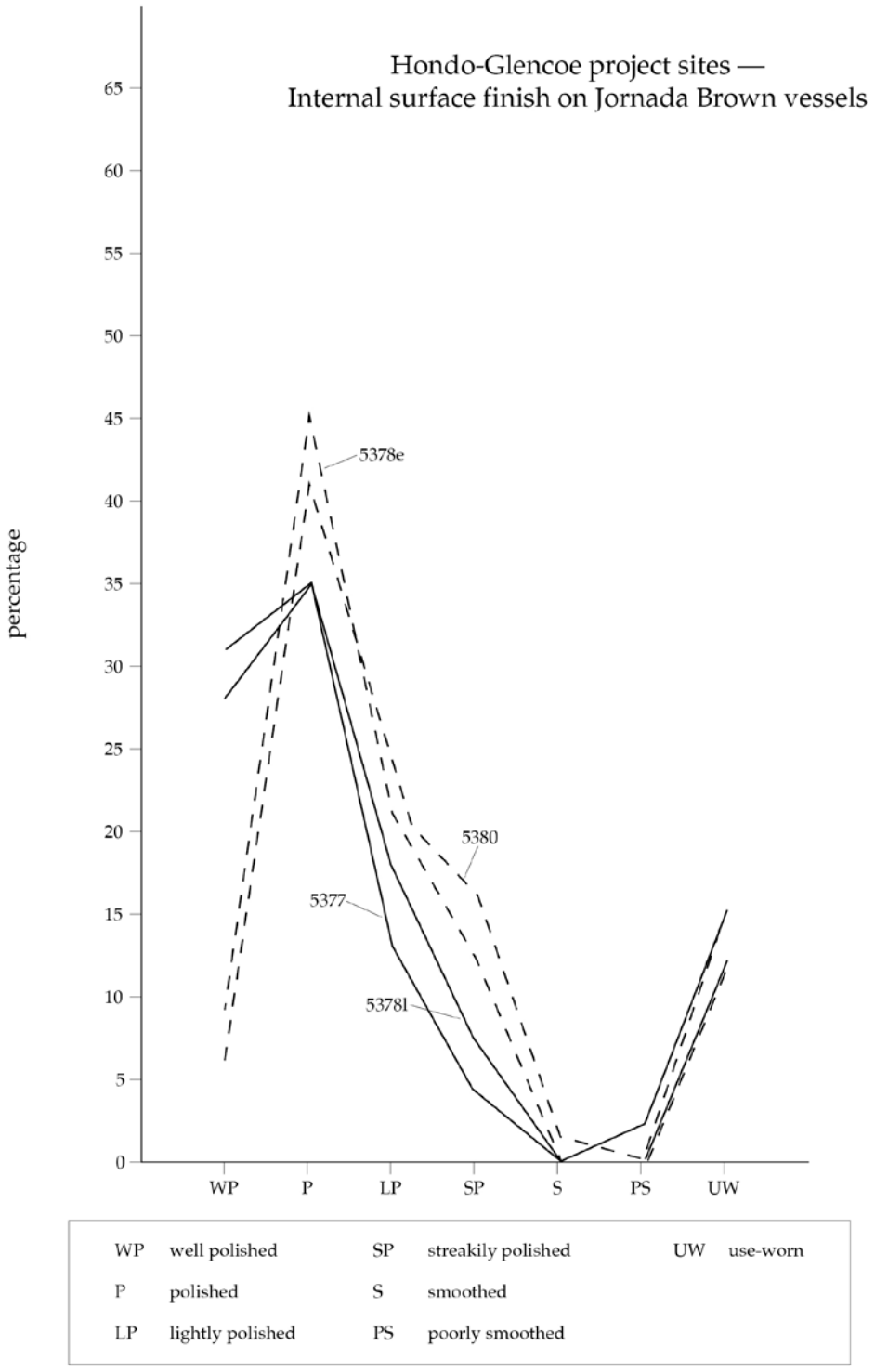

Figure 20. Jornada Brown, percentages of interior surface finish types.

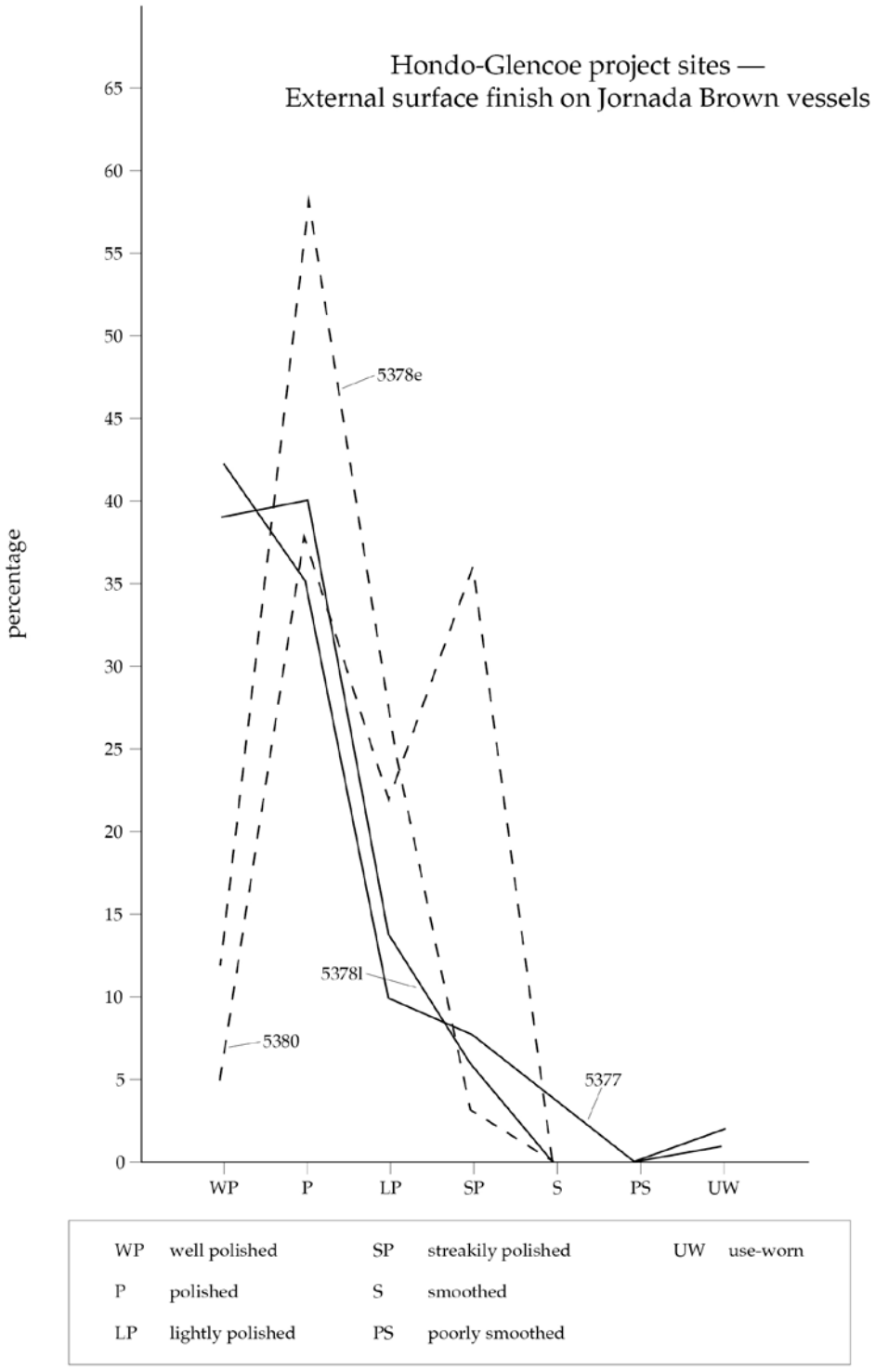

Figure 21. Jornada Brown, percentages of exterior surface finish types.

Vessel Wall Thickness

As mentioned earlier, sherd thickness is often cited as an important way to distinguish Jornada Brown from other plain types, El Paso Brown in particular. I have often thought that this criterion might border on the illusory, for if we combine it with the criterion of small temper grain sizes, our perception of greater sherd thickness almost automatically results. In response I monitored thickness on a select sample of sherds. This was done by taking at least two measurements on almost all sherds, even the smallest ones (those the size of a quarter), and as many as eight measurements on the largest sherds. The measurements were recorded to the nearest half millimeter. Rather than average the results, I recorded the thickness range for each sherd. In graphing the results I scored each value or range of values for each sherd. If a sherd had only one value (such as 5.5 mm), then 5.5 was scored once. If a sherd had a range of, say, 5.0 to 6.5 mm, its scores were graphed as 5.0, 5.5, 6.0, and 6.5. This procedure inflates the overall counts and results in a graph with exaggerated curve heights, but the results would be much the same if I had used averages of sherd thickness.

The numbers of sherds and values for each sample are: LA 5377, 49 and 102 values; LA 5378 (early), 31 sherds and 68 values; LA 5378 (late), 89 sherds and 197 values; LA 5380, 105 sherds and 241 values. For each site the number of observations divided by the number of sherds is: LA 5377, 2.08; LA 5378 (early), 2.19; LA 5378 (late), 2.21; LA 5380, 2.30. As Figure 22 shows, the full range of measurements for the Hondo-Glencoe assemblages is 3.5 mm to 9.5 mm.

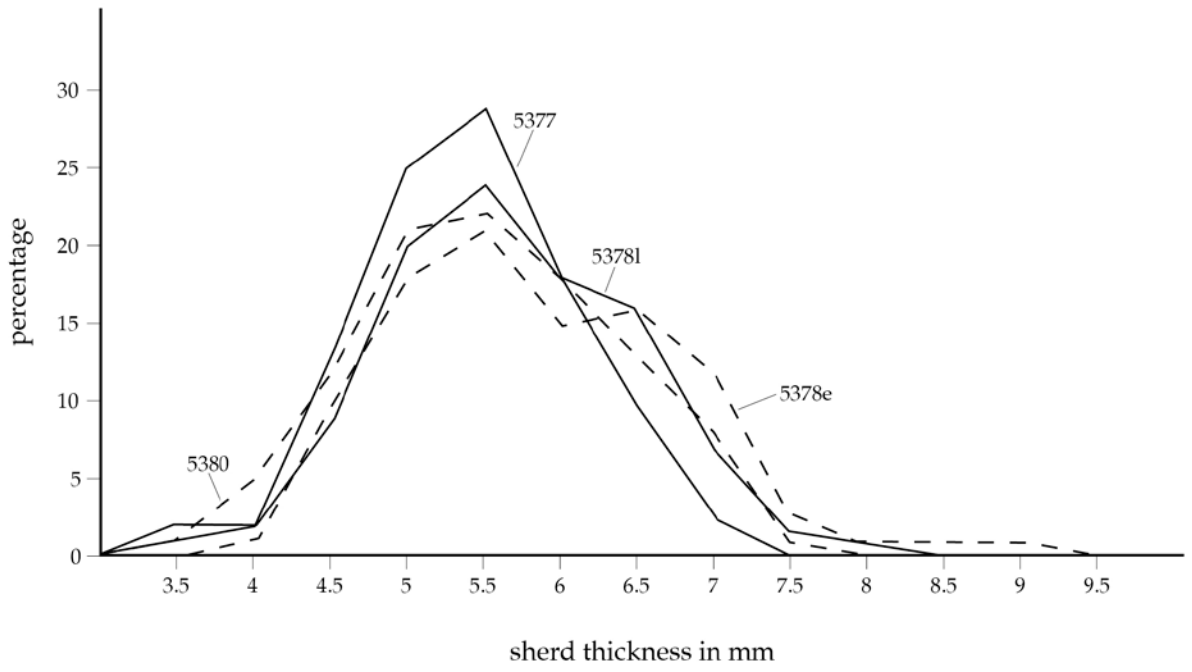

Figure 22. Jornada Brown, distribution of thickness values for vessel walls.

The curves for three of the components—LA 5378 (early), LA 5378 (late), and LA 5380—are very similar. They start at 3.5 to 4.0 mm, continue through a peak at 5.5 mm, and extend as a group to 6.0 mm. However, slight deviations at 6.5 mm result in less uniformity in the right side of the curves for these three samples. Above 6.5 mm, the three curves are again highly similar and continue to end points ranging from 8.0 to 9.5 mm.

The curve for LA 5377 stands out. It rises pretty much in tandem with the other curves and also peaks at 5.5 mm. However, the 5.5 mm peak is by far the highest. From that point on, the LA 5377 curve drops precipitously to its end point at 7.5 mm. What might account for this deviant behavior on the part of the LA 5377 assemblage? While I have no certain answers, several possibilities can be mentioned. Perhaps the sample sizes are too small. Or perhaps the sherds from LA 5377 are smaller, on average, than those from the other sites or components. Or perhaps the vessels at the other sites or components represent a larger range in vessel sizes. Or quite possibly, the potter(s) at LA 5377 exerted better control over vessel wall thickness. Of course, a combination of such factors may be to blame.

Vessel Shapes and Rim Profiles

Years ago my studies of Jornada Brown convinced me to not try to distinguish whether a given sherd was from a bowl or jar based on surface polish. That is, not all jar sherds are better finished (polished) on the exteriors than on the interiors. This lesson was driven home by finding jar rim and neck area sherds with just the opposite—better polish on the interior surfaces than on the exteriors. Instead, Jornada brown vessel form should be determined from rim sherds of bowls and rim and neck sherds of jars, or better yet, just rim sherds. Moreover, a rim sherd must be at least 4 to 5 cm long from lip to opposite end before one can be certain from the curvature which vessel form is represented. It is simply impossible to make accurate vessel form determinations on rim sherds that measure 3 cm or less along the same dimension.

Unfortunately, sufficiently large rim sherds are rare in the Jornada Brown assemblage from the Hondo-Glencoe sites: I found 17, of which only one is from a bowl. This is not a large sample for gauging vessel shapes and, potentially, changes in shapes through time (Figure 23). Four jar sherds are from the early component at LA 5378, nine jar sherds and one bowl sherd are from the late component at LA 5378, and three jar sherds are from LA 5380. None of the rim sherds from LA 5377 was usable for this particular study.

The four jar rim-neck area sherds from Pit House D fill, LA 5378 (part of the early component) are the earliest examples within the Hondo-Glencoe collection and embody an interesting set of jar rim and neck shapes. The one on the far right in the top row of Figure 23 indicates a large vessel with a short, straight, incurved neck and a widely expanding body. The sherd on the left of this row indicates a nearly vertical neck above a body of smaller diameter than the one just described. The two remaining rim sherds indicate short, constricted necks (but with slightly everted rims) on widely expanding bodies.

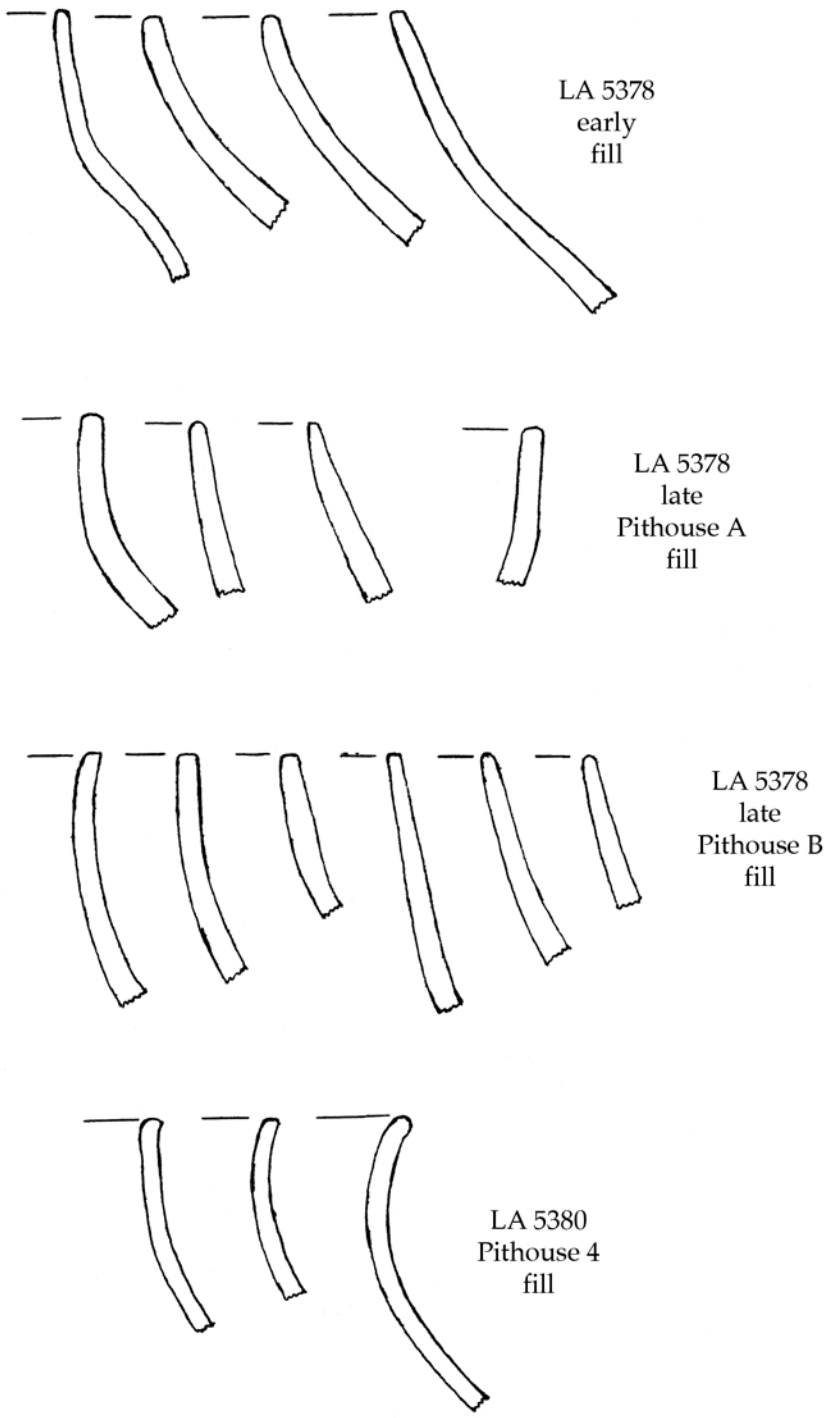

Figure 23. Jornada Brown jar and bowl rim profiles. Top row: early component. Second and third rows: middle component. Bottom row: late component.

The nine jar rim/neck sherds from the late component at LA 5378 come from the fills of both Pith House A and Pit House B. They appear to continue the three forms in the earliest component, but with modifications in each case. The first modification is seen in the left sherd of the second row of Figure 23. In this sherd the neck is shorter and the curvature more pronounced than earlier. The second modification, seen in the third sherd from the left in the second row, is the introduction of a tapered rim. The third modification, in the third sherd from the left in the third row, involves a slight thickening between the lip and the curve at the neck-body juncture.

The three jar rim/neck sherds shown from LA 5380 (fourth row of Figure 23), the latest component of the Hondo-Glencoe sites, all have slightly everted rims and lip orientations that suggest a greater flare to the mouths of the jars than for any of the previously discussed rim/neck sherds. All three come from the fill of Feature 4 (a probable structure).

No examples of Jornada Brown jars with very short necks, strongly everted rims, and squat, globular bodies were found. The only local example illustrated to date is from the Glencoe phase Crockett Canyon site (LA 2315) in the upper reaches of the Rio Bonito, about 20 km west of the Hondo-Glencoe sites. It seems almost axiomatic that the shift to the globular shape is due to imitation of Corona Corrugated jar shapes. Corona Corrugated, including a few sherds from the Hondo-Glencoe sites, was produced by Lincoln phase peoples and was increasingly common at the end of the prehistoric occupation of the greater Sierra Blanca region.

Jornada Ribbed

One body sherd, from the fill of probable Structures 6/11 at LA 5377, has unique, undoubtedly intentional ribbing on the exterior surface. I assume that the effect was intentional because, unlike the incompletely thinned and meshed coils on some Jornada Brown sherds recovered from LA 5380, the coils on this sherd are mostly flattened and meshed with the adjacent coils but a gable-like ridge was left down the middle of each coil (Figure 24).

Jornada Scraped

For the most part, sherds of Jornada Brown with scrape marks like those characteristic of Chupadero Black-on-white have that scraping on the interior surfaces of jars (see “Brushed Jornada Brown” in Wiseman 2002:105–106). As far as I know, the tool or plant material used to make this distinctive form of scrape mark has not been identified, despite many guesses over the decades. H. P. Mera, (1931:3), who published the original description of Chupadero Black-on-white, suggested that a brush was used, but he did not specify the material from which the brush was made. Alden Hayes (1981:68–69) suggested that the tool was a “small grass broom.” A very few Jornada Brown jar sherds with this attribute were recovered, from all three of the Hondo-Glencoe project sites, indicating that for reasons unknown, potters deliberately chose to create a few Jornada Brown jars with Chupadero-like interiors.

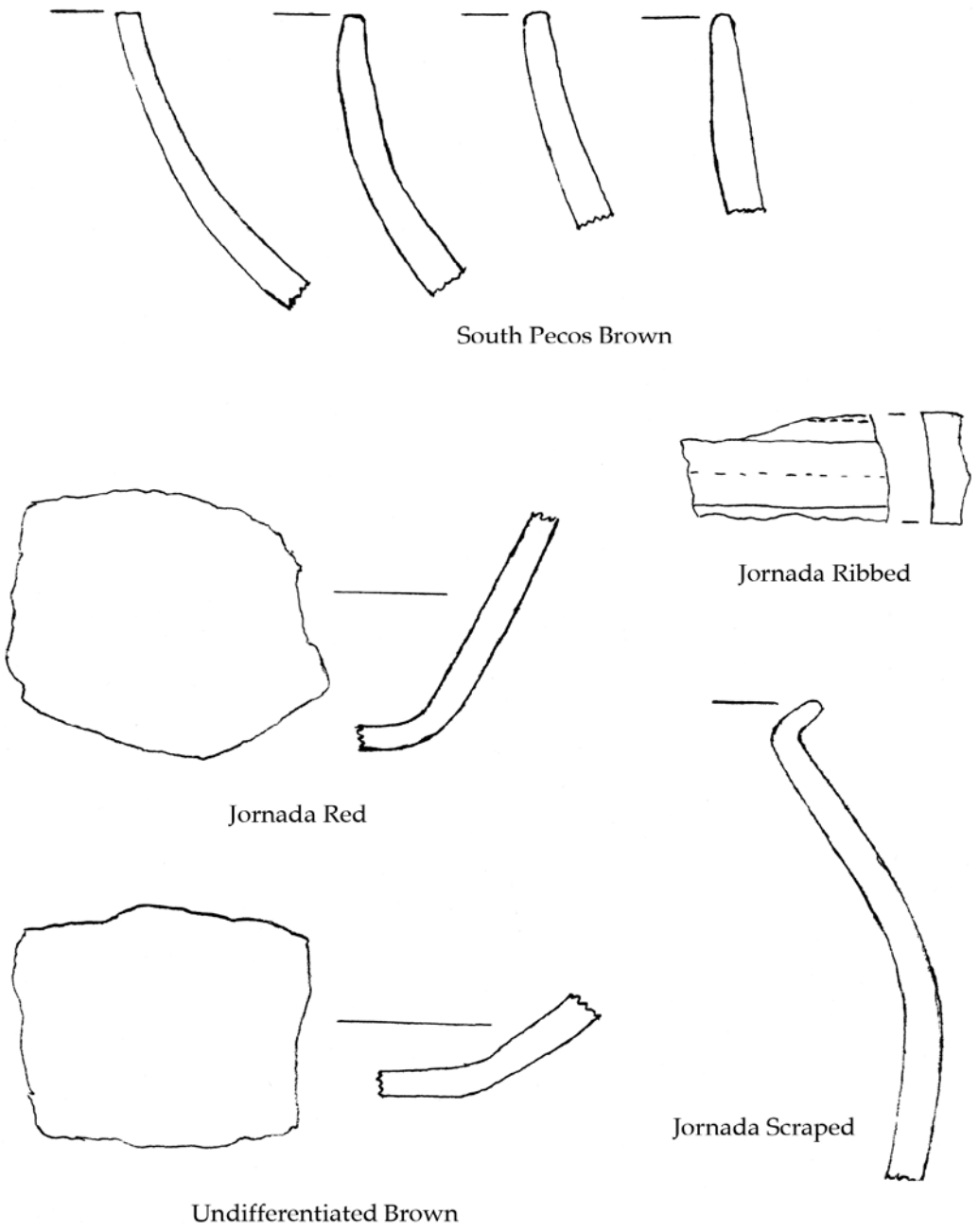

Figure 24. Miscellaneous rim and other profiles. Top row: South Pecos Brown jars. Middle row, left to right: Jornada Red bottom-wall juncture sherd showing flat bottom; Jornada Ribbed sherd. Bottom row, left to right: undifferentiated bottom-wall juncture sherd showing flat bottom; Jornada Scraped constricted-orifice bowl.

At LA 5380 a large sherd (actually two sherds that re-fit) from a virtually neckless jar (or enclosed bowl?) with a sharply out-curved rim displays a deeply scraped *exterior* surface that appears to have covered the entire outside of the vessel except for the rim (the rim profile in

Figure 24). The vessel interior surface is smoothed and fairly well polished. This vessel remnant was recovered from the fill of the Feature 3 Strip Area. Because LA 5380 represents a late Glencoe occupation, dating to A.D. 1300 to 1400 or so, the occurrence of this attribute on a vessel with Jornada paste does not provide any new insights into its origin (see Wiseman 2002:105–106).

Two sherds recovered from LA 5380 may or may not belong in the Jornada Scraped (or brushed) category. The scrape marks differ somewhat in appearance from the usual marks on Chupadero sherds. These "new" marks may have been created by the end of a bundle of straw-like stems from alkali sacaton (*Sporobolus airoides*). The effect is a series of very low ridges and shallow valleys in the clay, resulting in parallel lines 1–2 mm apart. The ridges and valleys are much crisper or precise in appearance than is usually the case with Chupadero examples. In Ruidoso County, Alkali sacaton is a disturbance indicator plant (including at prehistoric sites).

South Pecos Brown

South Pecos Brown was first described by Arthur Jelinek in his report on work along the Pecos Valley between Roswell and Fort Sumner. His type description (Jelinek 1967:53–54) follows, with minor editorial changes:

> Derivation: Jornada Brown (?)
>
> Paste: tan to blackish tan, orange, and rarely pink. A gray core frequent, but a black core rare. Quite hard, with fractures not very friable.
>
> Temper: predominantly crushed feldspar combined with some magnetite, apparently derived from a weathered granite. Mica and quartz rare to absent. The feldspar fragments are angular and quite coarse, ranging up to 2 mm or more in diameter, with most fragments about 1 mm in diameter. The fragments are relatively sparsely scattered through the paste, seldom more than 75 per cm^2.
>
> Walls: 4–7 mm, average about 5 mm.
>
> Finish: hand- and tool-smoothed. Occasionally polished (particularly bowl interiors). Temper frequently protrudes through surface and is surrounded by radial cracks.
>
> Form: ollas, bowls, and occasional seed jars. Rims generally direct and frequently gently tapering. Some beveled rims occur, with bevel on exterior surface on both bowls and ollas. Height of olla rims similar to that for Jornada Brown.
>
> Decoration: infrequent decoration in broad red lines or solid red interior on bowls. Paint a deep maroon color. Rare red decoration on olla exterior. It appears on the basis of the observed weathering that overall red interior decoration may be earlier than broadline on bowls, as suggested by Mera (1943) for the red-on-brown wares in the Mogollon-Three Rivers series.

My own working definition of South Pecos Brown includes: thin to moderately thick sherds; platy pastes (mainly because of temper crystal shapes); sparse large temper of usually well-formed feldspar crystals; frequent (but not invariable) use of Sierra Blanca gray syenite feldspar (based on A. H. Warren's work; see the following paragraph); clays that tend to shrink during drying and firing (such that temper particles protrude through the sherd surface and have cracks radiating away from them), and little or no evident polish (possibly due to clay shrinkage).

A number of years ago, A. H. Warren noted that one of the feldspars in South Pecos Brown has a distinctive medium gray to rosy-gray color variety and derives from a syenite found on Sierra Blanca (Wiseman 2014a:378–379). This variety, noted for its well-developed, comparatively large individual crystals, is a common but not invariable characteristic of South Pecos Brown. The crystals are generally so large that they impart a platy appearance to paste seen under a microscope. This is the case whether the grains are present or absent in the microscope view, because the grains tend to fall out of the exposed section when pliers are used to create an edge nip.

South Pecos Brown from the Hondo-Glencoe Sites

Four jar rim sherds of South Pecos Brown are illustrated in Figure 24. The identification of certain Hondo-Glencoe sherds as South Pecos Brown is based on the presence of a platy or semi-platy paste, generally sparse to moderately abundant temper, rather large individual grains of temper on average, and surfaces that display little or no self-slip and include temper grains that often have cracks radiating out from them. Deviations from the type description include: an absence of a sunken appearance to the sherd surfaces due to clay shrinkage, difficulty in seeing the radiating cracks except under magnification, and the frequent presence of a good surface polish more like that of Jornada Brown. At times, typing a sherd as either South Pecos Brown or Jornada Brown required a judgement call. Occasionally I invoked a third option, assigning a particularly troublesome sherd to a Jornada/South Pecos Brown category (see below).

As can be seen in Table 7, South Pecos Brown is well represented at the Hondo-Glencoe sites. This is particularly true for both components of LA 5378, the two earliest components among the project sites. My finding that the type is most common in these two components agrees well with Jelinek's (1967, Figure 9) suggestion that the type generally dates before A.D. 1100.

Jornada/South Pecos Brown

Jelinek (1967) suggested that South Pecos Brown derived from Jornada Brown. Since that time, more material has become available from a number of excavated sites throughout southeastern and south-central New Mexico. Studies of the material, including this one, confirm that relationship. In fact, the relationship is often seen in sherds that combine characteristics of the two types, leading to my use of the term Jornada/South Pecos Brown (sometimes South Pecos/Jornada Brown). While this combination of type names is not particularly desirable, it is useful for sherds that are especially difficult to classify as one type or the other. Such "troublesome" sherds underscore the fact that the types are related—and may have been made, at

times, by the same person or persons. If that happened, the potters may simply have taken different approaches as the circumstances warranted.

To illustrate the situation, I will note one sherd that included a point of overlap between two coils in the vessel. One coil has more Jornada characteristics (fine-grained paste with comparatively fine temper particles) and the other more South Pecos characteristics (semi-platy texture and larger, more rectilinear temper grain "hollows" where grains had dropped out).

Sherds assigned to the Jornada/South Pecos Brown category vary erratically from component to component and from site to site. Interestingly, the highest percentage of sherds recovered from any context, 40 percent, came from the lower floor (Floor 2) of early component Pit House D at LA 5378. The sample size is small (n = 15), so that statistic might be considered suspect—but the next highest relative value, 27 percent, comes from the upper floor of the same structure, lending credence to the value for the lower floor assemblage. I suspect, but without further concrete evidence, that Pit House D represents the earliest occupation among the three project sites.

Gallo Micaceous Brown

As far as I know, this term was first used by Jane Kelley (1966, 1984) in her dissertation on the archaeology of the Sierra Blanca region. She used the name in connection with materials from Lincoln phase sites, some of which are in the Corona area of north-central Lincoln county and immediately across the Gallinas mountains from the large, late pueblo of Gran Quivira in the Salinas district. Having seen a micaceous form of Jornada Brown at the Kite site, a pit house site next to and pre-dating Gran Quivira, I suspect that her Gallo Micaceous is part of that genre of pottery. Current indications are that Jelinek's (1967) Middle Pecos Micaceous Brown is also part of that genre, rather than being made in the Pecos valley as he suggests (Wiseman n.d.).

One sherd of micaceous Jornada Brown pottery was recovered from the fill of Feature 6/11, two partially superimposed pit houses at LA 5377.

Uncertain/Unknown Brown

Several sherds of plain brown pottery could not be readily assigned to one of the established types. All, as far as I can tell, are locally made. They probably merely represent extremes in surface finish or some other attribute. I will not discuss these sherds in detail, but aspects of two sherds merit comment.

One sherd is a jar rim and upper body fragment (Figure 18, bottom row, far left) recovered from early component Pit House D (Feature 10) fill at LA 5378. This structure appears to be one of the earliest (if not the earliest) structures excavated during the Hondo-Glencoe project, so the everted rim of this vessel is a bit perplexing. As far as we have been able to discern, all contemporary "typical" Jornada Brown and South Pecos Brown jar forms involve direct, slightly inward-sloping necks and rims such as those illustrated in Figure 23. Assuming that this sherd is

not a later intrusive sherd (which it could be), it is a few centuries ahead of its time. The presumed local introduction of everted rims happened with Corona Corrugated.

The other sherd is also unusual in that it represents a bottom-side juncture from a flat-bottomed jar (Figure 24, lower left). The sherd was found during stripping over Feature 4, at the time the structure was first discovered. See my discussion regarding a similar sherd under Jornada Red.

Mimbres Style III (?) Black-on-white

A large rim sherd from what is appears to be a Style III Mimbres bowl was recovered from the fill of probable Structures 6/11 at LA 5378. The line work is definitely very fine and precise as would be expected of a Style III vessel (Figure 25). The design remnant between the sets of lines is curious in its shape, but, unfortunately, is too fragmentary to reveal much about its original shape.

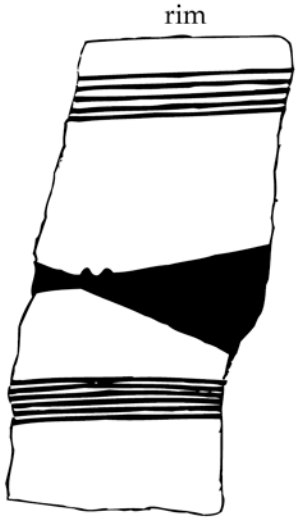

Figure 25. Mimbres Style III bowl rim sherd.

Plain Gray Ware

Twenty sherds from what appears to be the same jar were recovered from the fill of the Feature 3 strip area at LA 5380. The temper appears to be a rhyolite tuff, which may indicate that the vessel came from somewhere in the southwestern part of New Mexico, west of the Rio Grande. The surfaces of the jar are an even (i.e., not fire-clouded) medium gray color and are well polished. The one rim sherd (Figure 18, bottom row, second from left) indicates a neck diameter of 14 cm with an orifice diameter of about 16 cm.

Rio Grande Glaze A Red

Two small sherds of Rio Grande Glaze A Red (aka Agua Fria Glaze-on-red and Rio Grande Glaze I) represent different bowls. The first sherd is a bowl body sherd from the fill of Feature 2, a strip area. It has the orange-red paste and augite latite (?) temper that characterizes products made at or near San Marcos Pueblo in the western Galisteo Basin. The paint on this sherd is a sub-glaze: it has the characteristic "ghost" effect indicating a true glaze mixture that did not, for any of several reasons, fire to a glossy finish.

The second sherd, a bowl rim sherd from Feature 4 (probable pit house) fill, is problematical. It has what appears to be clear and porcellaneous white feldspars with mafic minerals in very small numbers. The mafic minerals are so small that they cannot be clearly identified under a 30 power binocular microscope. The paste is a medium gray color and has orange-red margins. The paint on this sherd is very glossy but well-controlled. I cannot suggest a source area for this sherd other than it may have come from the Galisteo Basin or adjacent Cochiti district along the Rio Grande (between Albuquerque and Santa Fe). Both sherds should be examined by an expert in petrographic identification of Rio Grande Glaze tempering materials.

The Three Rivers Series of Painted Types

Jornada Brown, the signature pottery of the Glencoe phase and the eastern highlands of the Sierra Blanca, is a product of that region and apparently was first made about A.D. 520 or 530 (Wiseman 2014a). With slight changes in temper size and firing regime, and with the application of red pigment as an overall slip or as painted designs, Jornada Brown was the foundation for the Three Rivers series of Jornada Red, South Pecos Red, Broadline Red-on-terracotta, San Andres Red-on-terracotta, Three Rivers Red-on-terracotta, and Lincoln Black-on-red. Two major aspects of these types remain to be elucidated: more precise dates and locations of manufacture. The current study has revealed some surprising implications about these types relative to each another and within Glencoe society as a whole.

Jornada Red and South Pecos Red

Jornada Red and South Pecos Red both involve the addition of a red slip to jar exteriors and bowl interiors, and in some cases to parts of bowl exteriors for short distances below the rims. On one sherd from a Hondo-Glencoe project site, the red slip on the bowl interior extends only about 5 cm below the lip (Figure 18, bottom row, far right). On the exterior surfaces of two bowl sherds, slip is present just below the rim, followed by a 1 cm wide break in which the clay body color shows, below which the red slip resumes and continues an unknown distance below the rim.

Most of the time, the pigments and firing regime result in red to maroon colors that are not particularly bright or strongly adhered to the vessel surface. The pigment applications usually range from streaky to completely covering the surfaces, but are rarely thick enough to produce a readily observable layer in sherd cross-sections. Once in a while, a superior slipping material worked well with the clay body and, being expertly applied and fired, resulted in a strikingly

bright red, solid color in a thick slip that readily shows in the sherd cross-section. But, as I previously mentioned, such showy pieces are rare among the Three Rivers series types.

The main if not the only difference between Jornada Red and South Pecos Red is the temper composition and the texture/fracture characteristics of the clay body. For both types the tempering materials can be the same, but the grain sizes of South Pecos Red (as well as South Pecos Brown) are typically much larger (in the large to very large ranges) and fewer in number. The distinctive gray feldspars of Sierra Blanca syenite are very common in South Pecos Red but appear only occasionally in Jornada Red (and in Jornada Brown and the other Jornada types). In part because of large temper grain sizes, the clays used in South Pecos Red are more platy in texture and generally more coarse, as opposed to the granular texture in Jornada Red. Differences in source clays may also contribute to these texture differences. In any case, distinguishing between Jornada Red sherds and South Pecos Red sherds is not always easy or straightforward.

One of the more surprising aspects of Jornada Red and South Pecos Red concerns their abundance through time. Perhaps drawing on the history of San Francisco Red, in the Mogollon areas west of the Rio Grande in New Mexico, many archaeologists assumed that red-slipped brown pottery made in south-central and southeastern New Mexico was most popular during early pottery-making in the Sierra Blanca region, that is, during the second half of the first millennium A.D. Thus, I assumed that red-slipped vessels would be common at LA 5378 and perhaps LA 5377, the two earlier of the three Hondo-Glencoe project sites. However, this was not the case. Instead, at all three sites, Jornada Red and South Pecos Red comprised a steady 2–3 percent of the total pottery assemblages (Table 6). These percentages are a little higher than is typical for later sites but not by much. Stated another way, locally made red-slipped pottery constitutes a tiny but persistent part of prehistoric pottery making in the Sierra Blanca. I once assumed that red-slipped sherds in late occupation assemblages represented heirloom pieces or intrusions from earlier components of sites, but now I am not so sure. Instead, we have to consider the possibility that these simple red vessels held a special place in Glencoe peoples' hearts, minds, or social rituals.

An unusual sherd recovered from the lower fill of Pit House 11 (early component) at LA 5378 comes from the juncture of the base and the lower wall of a Jornada Red jar (Figure 24, left center). The base is clearly flat, which is quite unusual in prehistoric Southwestern pottery except for Chupadero Black-on-white. For years, Southwestern archaeologists have been intrigued with the flat bases found on "Chup," but we still do not know where the idea came from. The current best guess is that one of several Southern Plains pottery types provided that inspiration (Snow 1986; Wiseman 2014b). However, the Southern Plains types in question are not well dated, and the estimated dates for those types are roughly the same as for the inception of Chupadero. The Hondo-Glencoe evidence for flat bottoms, in the form of the undifferentiated brown sherd from Feature 4 at LA 5380 (see above) and the Jornada Red sherd discussed here, adds a new dimension to the problem. The Jornada Red sherd is particularly important as the vessel could have been made as early as A.D. 800, at least 200 to 300 years before the first Chupadero. However, the dating for LA 5378 is only an estimate based on a pottery seriation not confirmed by absolute dates, leaving the question even more tantalizing than before.

Red-on-terracotta Types: Broadline, San Andres, and Three Rivers

H.P. Mera was one of the first to describe the relationships among the red-on-terracotta types, as he did for all of the major prehistoric pottery types made in southeastern New Mexico (Mera and Stallings 1931:2–5; see also Brown et al. 2014:41–45) Normally I would discuss Broadline, San Andres, and Three Rivers Red-on-terracotta types separately, but the Hondo-Glencoe Project examples demonstrate what many archaeologists have suspected for years: the definitions of the three types are based, at least in part, on the segmentation of a continuum in line widths. As usually defined, Broadline Red-on-terracotta lines are 9+ mm wide; those on San Andres Red-on-terracotta are 5 to 8 mm wide; and the lines of Three Rivers Red-on-terracotta are less than 5 mm wide. There may be more going on than this, however. The latest incarnations of Three Rivers Red-on-terracotta seem to have consistently very narrow lines (1–2 mm wide) probably starting in the late A.D. 1200s and lasting until the end of production of the type (in the mid or late 1300s or possibly later).

Returning to the Hondo-Glencoe assemblages, I measured the line widths on the local red-on-terracotta sherds. Because line widths on some Broadline and San Andres tend to vary along a given line, I recorded ranges rather than averages for sherds with inconsistent line widths. In many cases, the line widths on a given sherd crossed boundary definitions (from Broadline to San Andres or from San Andres to Three Rivers). The results, presented in Figure 26, show a steady progression of line widths, confirming that the distinctions signaled by the type definitions are arbitrary. Thus, it would probably be appropriate to dispense with the distinction between Broadline and San Andres. However, the distinction between Three Rivers and the other two types probably should be maintained, since the narrow-line variety became very common in the last part of the period of manufacture and was widely traded as well.

The usual sherd size for local assemblages, especially later ones, is in the quarter-dollar to half-dollar coin range (24–31 mm). The Hondo-Glencoe assemblages gave me my first opportunity to work with red-on-terracotta sherds that are much larger. We now have several examples of large fragments of vessels that provide useful information on painted designs as well as vessel shapes. In Figure 27 we can see the development of the design style that is so characteristic of Three Rivers Red-on-terracotta. Some of the partial vessels have line widths spanning the entire red-on-terracotta series.

In spite of the late date for LA 5380, only one item from the assemblage—a complete bowl—displays the fine line work of "typical" Three Rivers Red-on-terracotta, as found throughout southeastern New Mexico and adjacent regions (see below). None of the Hondo-Glencoe project sherds have such fine lines! It seems that the finer examples of the type were made in other villages. Where are those villages, if not in this section of the Glencoe phase "heartland"?

Two large sherds are especially noteworthy. One bowl sherd has a space filled with multiple examples of a rare element, a quarter-circle arc (Figure 27, first page, upper right). The only other examples of this element I have seen are on a bowl recovered from LA 2000 (Jennings 1940, Plate 3b). The other Hondo-Glencoe sherd is unique; it is a jar sherd with a very large, sturdy handle that dwarfs those typically found on Chupadero Black-on-white.

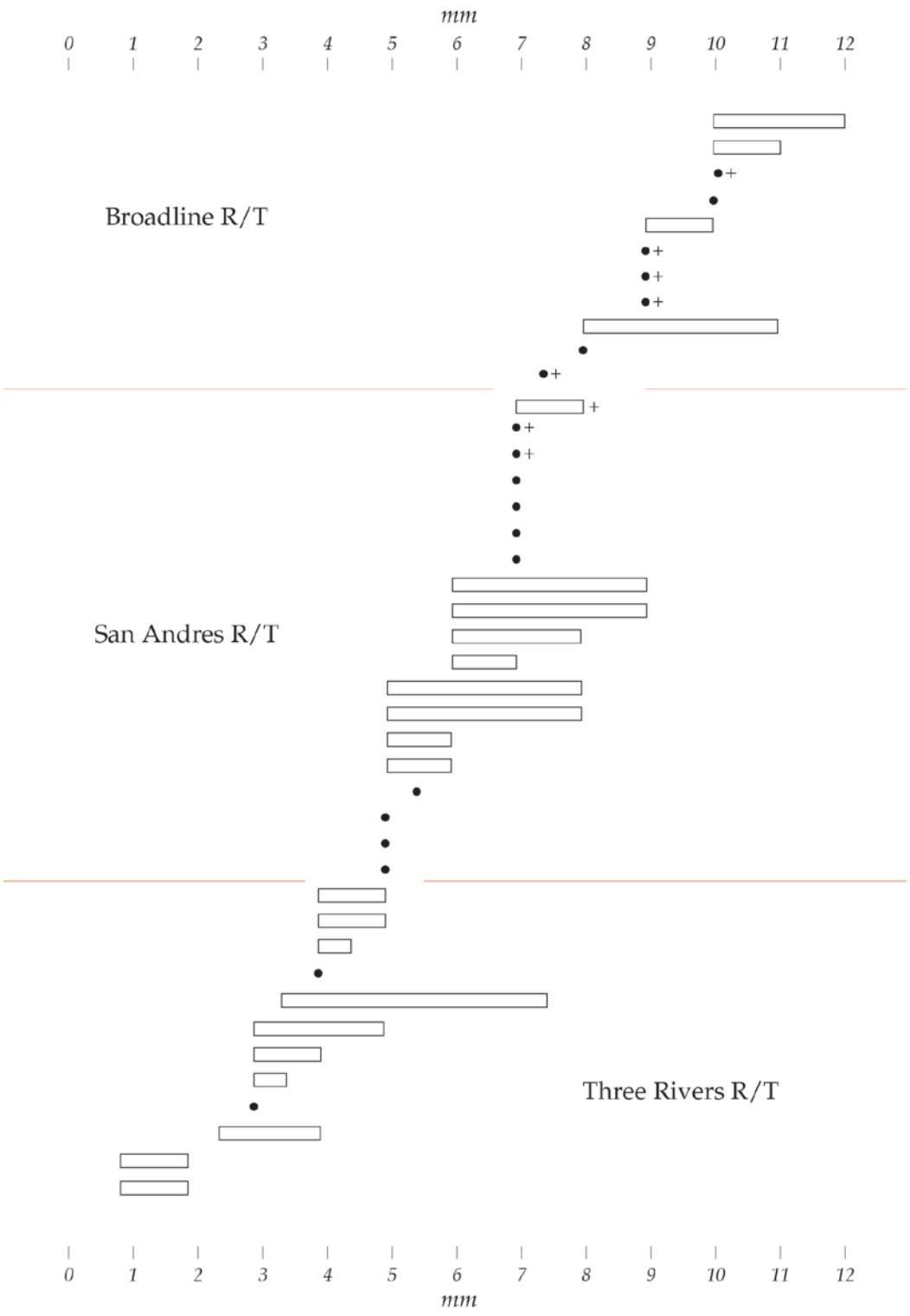

Figure 26. Comparison of painted line widths by red-on-terracotta pottery type.

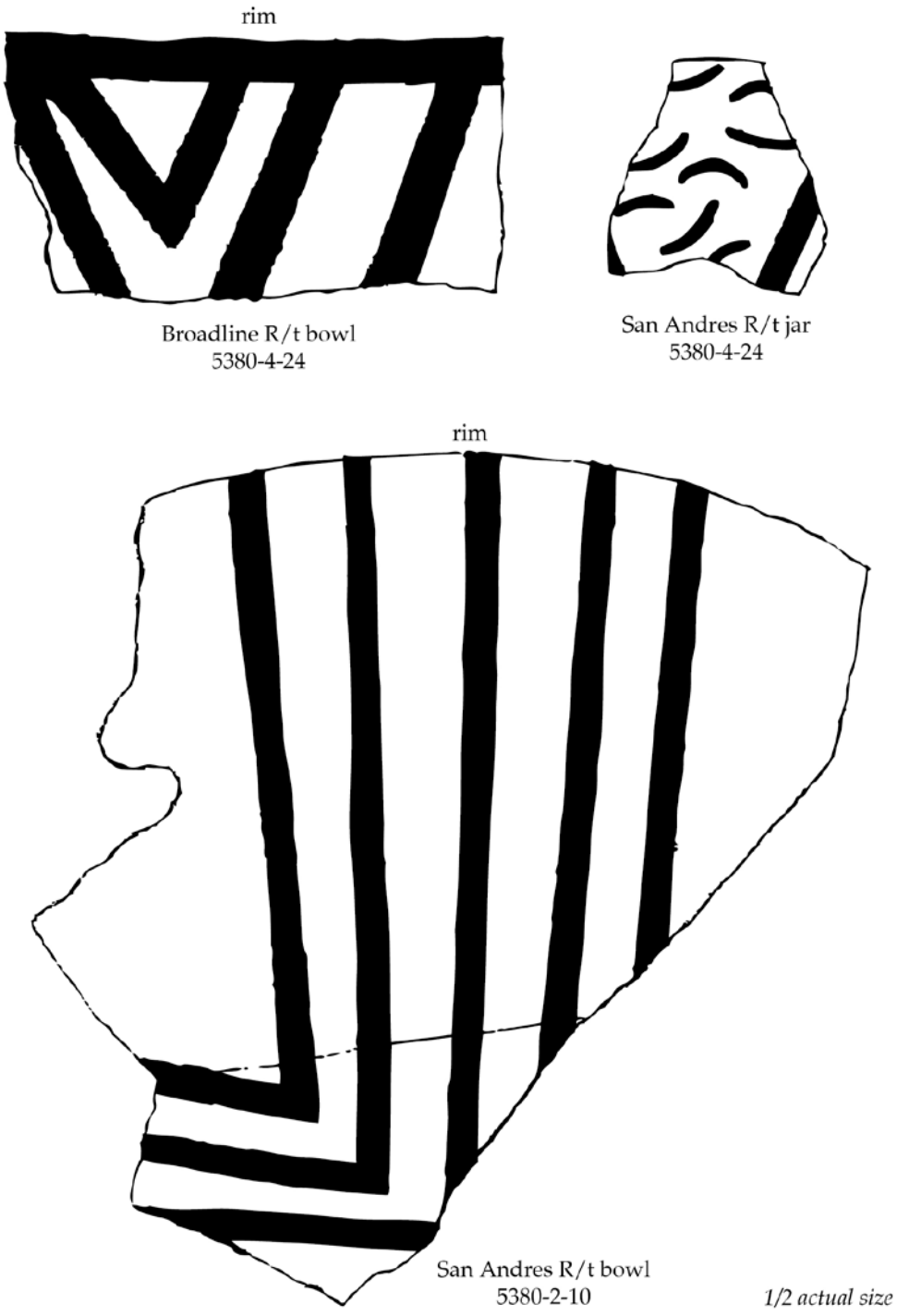

Figure 27. Three Rivers series sherds showing partial design patterns. Top left: Broadline Red-on-terracotta. Top right: San Andres Redon-terracotta. Bottom: San Andres Red-on-terracotta.

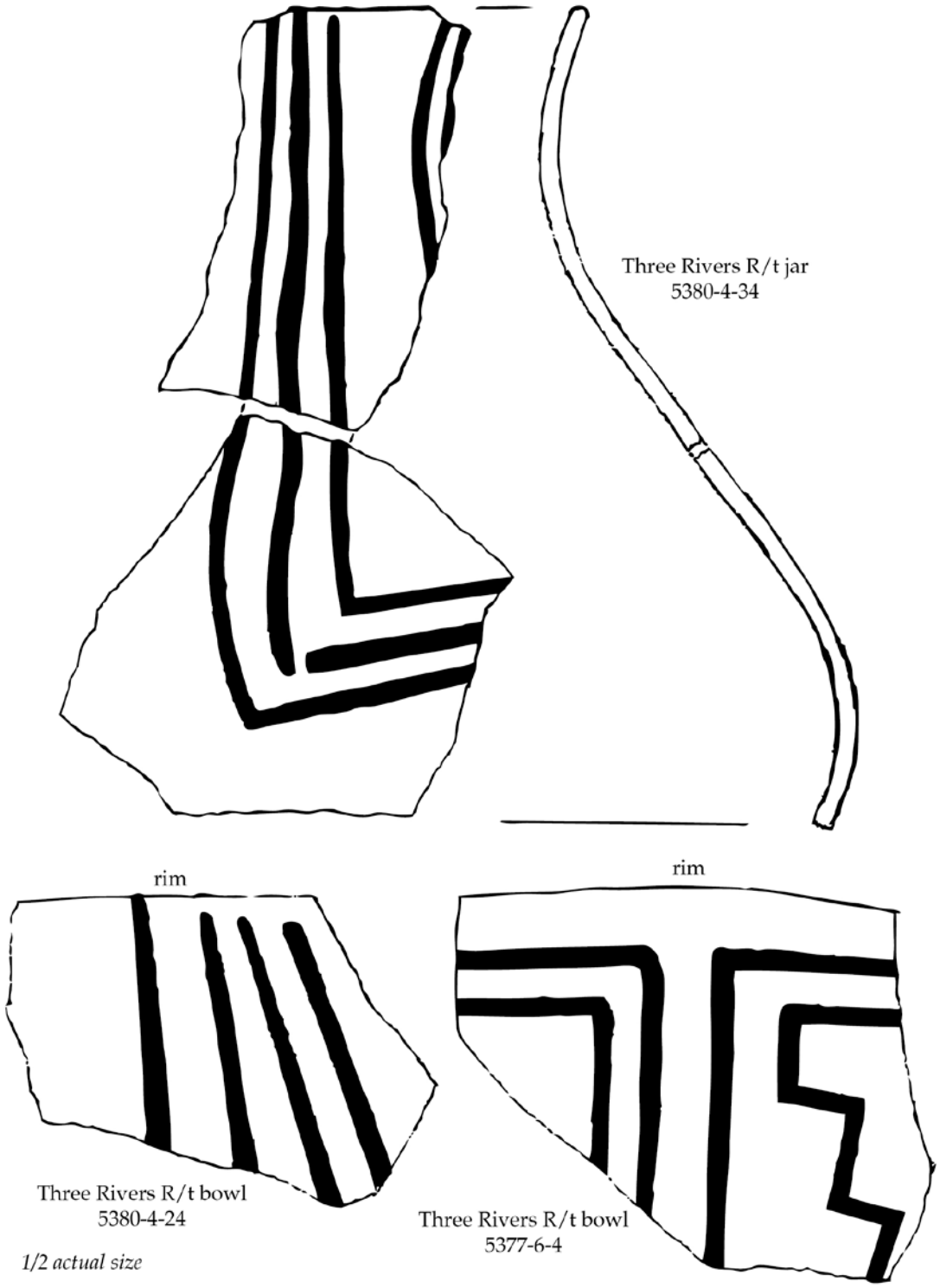

Figure 27. Three Rivers series sherds showing partial design patterns (continued). Top: jar rim sherd. Bottom: bowl rim sherd. Both are Three Rivers Red-on-terracotta.

A Three Rivers Red-on-terracotta bowl recovered with LA 5380, Feature 3, Burial 2 displays what I consider to be the classic variety of the type (Figure 28). That is, it has very thin lines (averaging about 3 mm wide), among the narrowest ones in the LA 5380 assemblage. More than the other Three Rivers pottery from the Hondo-Glencoe sites, it is like Three Rivers sherds commonly encountered at sites in southeastern New Mexico.

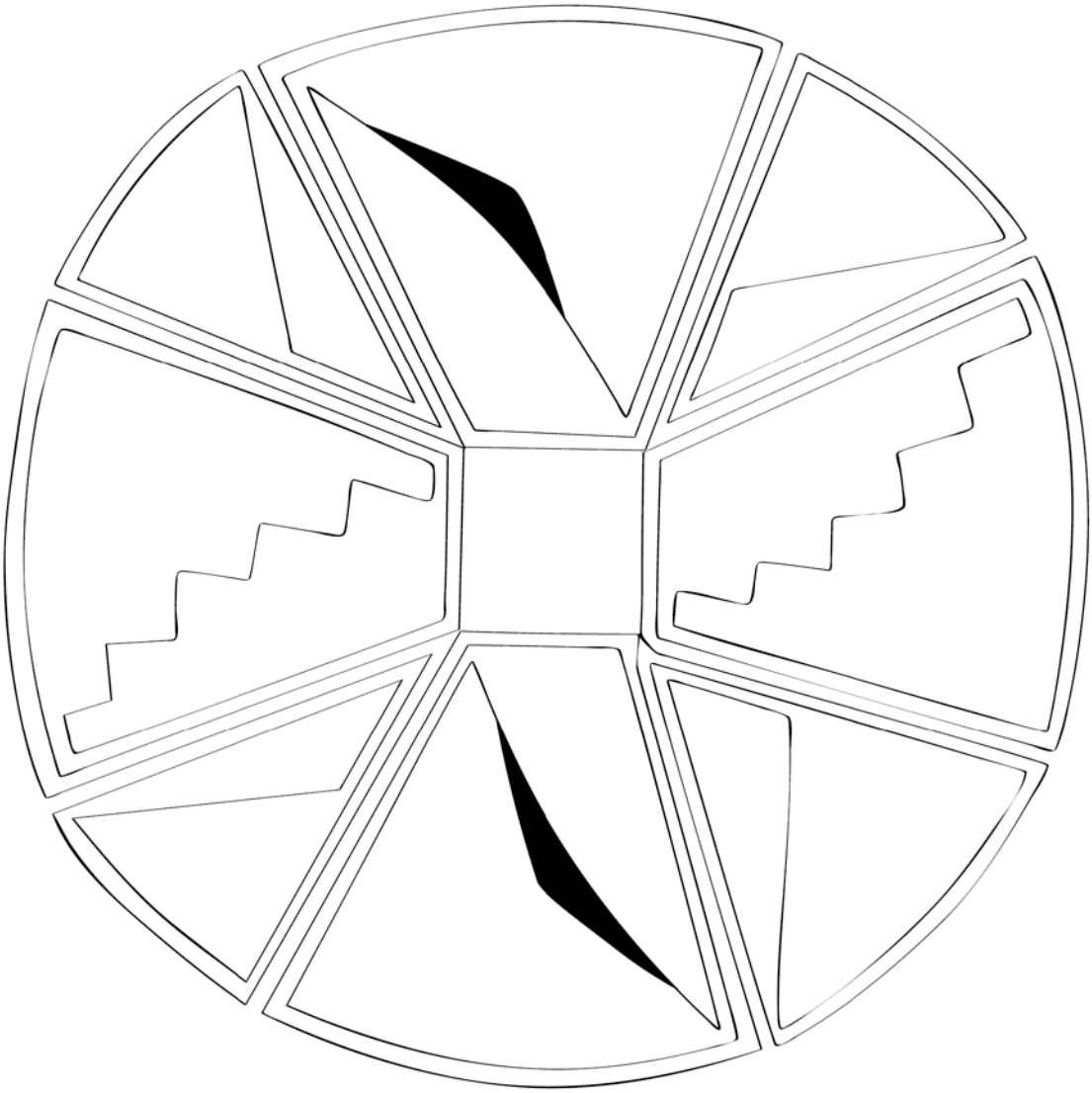

Figure 28. Painted design on Three Rivers Red-on-terracotta bowl from LA 5380, Feature 3, Burial 2.

When I recreated the design from the sherds (vessel reconstruction was not permitted because it is a burial bowl), I discovered that the painting was done by a highly skilled, well-organized artist. The entire design was laid out by drawing a single, continuous line. The only deviations from this technique are the outlining and filling in of the two triangles. It is not clear where the

artist started, but the reader can confirm my assertion by starting at any point and following the line through the design. Also, I detected no places where the artist overpainted lines when reloading the brush; the paint density is uniform where not affected by use wear. This not only attests to the skill of the painter but also marks a level of sophistication not found among many pottery painters around the world. So much for the so-called marginal cultures of prehistoric southeastern New Mexico!

Three Rivers Red-lipped

This variety of Three Rivers, now described in the Abajo de la Cruz site report (Wiseman 2016b), is represented by a single bowl rim sherd from the uppermost fill of a possible structure, Feature 4 at LA 5380. As far as can be determined from sherds, the painted decoration on these terracotta bowls is restricted to a red line on the lip of the rim, with no extension onto the interior or exterior surfaces.

Lincoln Black-on-red

The final type in the Three Rivers series is Lincoln Black-on-red (Mera and Stallings 1931; see also Brown et al. 2014:41–61). There can be no doubt that Lincoln developed from Three Rivers Red-on-terracotta because Lincoln includes two design styles: the Three Rivers style and the Lincoln style. As I see it, the Lincoln design style is a logical outgrowth of the Three Rivers style in that it relies heavily on line work and, in many or most cases, solid elements are secondary. The main difference between the styles is that Three Rivers style designs used essentially all of the surface to be painted (usually, possibly exclusively, bowl interiors). Lincoln style designs are restricted to a narrow band, located just below the rim on bowl interiors, leaving the bottoms empty or at most adding an isolated element (for example, a cross shaped like a plus sign).

The switch to black paint and the band layout are usually thought to be inspired by Rio Grande Glaze A Red pottery, which was widely popular once it appeared in the Albuquerque area shortly after A.D. 1300. I assume that the potters who made Three Rivers Red-on-terracotta also made Lincoln Black-on-red. The shift from red to black paint mainly involved the adoption of a new paint recipe and at the time, paint recipes were being shared widely. The new (Lincoln style) layout involving a band of painted elements below the rim could have been copied directly from Rio Grande Glaze A bowls obtained through trade.

But two nagging facts present themselves. Lincoln Black-on-red vessels became popular, and were fairly numerous in Lincoln phase sites in the Rio Bonito Valley and northward into the Capitan and Jicarilla Mountains—but usually, only small quantities of the type are recovered from Glencoe phase sites along the Rio Ruidoso, the upper Rio Bonito, and elsewhere. Also, Lincoln Black-on-red was not as widely distributed (or exchanged) outside the Sierra Blanca region as Three Rivers Red-on-terracotta. If Lincoln Black-on-red was made by Glencoe potters, why would these patterns have existed? Or perhaps they didn’t make that type?

At this point in time, we mostly don't know the identity of the potters who made Lincoln Black-on-red. However, according to Kelley (1984:221), a local digger found no fewer than "49 bowls [of Lincoln Black-on-red] in varying states of completion" at the Phillips site on the southeastern slopes of the Jicarilla mountains, north of Capitan and well north of Glencoe territory. This site is primarily Corona phase but also has one or more early Lincoln phase components. If the digger's assessment is accurate, the occupants of the Phillips site produced Lincoln Black-on-red.

Another candidate site for the manufacture of Lincoln Black-on-red is the Baca or Baca Sawmill Site (LA 12156) (Kelley 1984:304; Wiseman 1975). This Lincoln phase pueblo is on the southern bajada of the Capitan mountains, north of the village of Lincoln, in Lincoln phase territory several miles north of the Rio Bonito. The Lincoln Black-on-red from this site possesses some of the reddest surface colors to be found on vessels of the type, and readily contrasts with the Lincoln Black-on-red obtained from sites such as the Fox Place at Roswell (Wiseman 2002:96–104). (At the Fox Place, the surface colors are mostly the terracotta of Three Rivers.) The range in the surface color of Lincoln Black-on-red probably indicates a number of production locales, at least some of which lacked access to good red-firing clays. It is even possible that hematite was added to some clays to increase their redness during firing.

It is interesting that only four sherds of Lincoln Black-on-red were recovered from LA 5380. It was not until discovery of the second of these sherds that an initial impression of mine was confirmed. Specifically, I noticed a "ghost" line on what otherwise would be classified as an unpainted Lincoln Black-on-red body sherd. On examining the first sherd, I decided that I was dealing with a fortuitously straight border of a fire cloud. On the second sherd, the shadow was more clearly part of a painted line that looked more like a mud stain than black paint. Was this an attempt by a Glencoe potter to make Lincoln Black-on-red?

Chapter 9

PETROGRAPHIC ANALYSIS OF CERAMICS FROM LA 5380 AND LA 5378

David V. Hill[1]

A sample of thirty-one ceramic sherds was submitted for petrographic analysis by Regge N. Wiseman of the Office of Archaeological Studies, Museum of New Mexico. Thirty of the sherds were recovered from LA 5380. A single sherd from LA 5378 was also analyzed. The goals of the present study are to identify groups of ceramics that share a common suite of minerals and rock fragments in their ceramic pastes and to compare the results with previous petrographic studies of ceramics from the Lincoln County Porphyry Belt. The pottery type names were supplied by Wiseman.

Petrographic analysis is an analytical technique derived from geology and has been widely adopted for the analysis of archeological ceramics (Reedy 2008). In this method, samples for analysis of pottery sherds are impregnated with epoxy, mounted on glass slides, and ground to a standard thickness of thirty microns. The resulting samples, known as "thin-sections," are then analyzed using a petrographic microscope.

In a petrographic microscope, light is passed through a filter that polarizes the light so that it vibrates in a single plane. The polarized light passes through the thin section, through an objective lens like that of a standard light microscope and then through a second polarizing filter. The second polarizing filter is oriented 90 degrees relative to the lower polarizing filter. The light then passes on to the objective lens.

In general, petrographic microscopes are used to characterize anisotropic (optically transparent) minerals (Phillips 1971). Polarized light passing through crystals allows the analyst to identify minerals based on properties such as crystalline structure, color, and texture. The use of petrographic analysis to study archaeological ceramics has led to techniques to identify artificial materials (such as crushed potsherds) in ceramic pastes (Whitbread 1986).

Methods

The thirty-one ceramic samples were analyzed by the author using a Nikon Optiphot-2 petrographic microscope with magnifications between 20X and 200X. Each thin section was examined using both plain and cross-polarized light. Sizes of inclusions were measured using a graduated reticle built into one of the microscopes optics and compared with standardized charts. The sizes were reported using the Wentworth Scale, a standard method for characterizing particle sizes in sedimentology.

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The percentages of inclusions observed in the paste of the sherds were estimated using comparative charts (Matthew et al. 1991; Terry and Chilingar1955). Given the diversity of the inclusions that are often present in archaeological fired clay, the comparative method for assessing the amount and size of materials observed in fired materials has been found as useful for archaeological petrography as point counting (Mason 1995). Standard comparative charts were also used to classify the distribution of particle sizes and the shape of the mineral grains and rock fragments. Petrographic descriptions of the individual sherds can be found in Appendix 3.

Results

The analysis results are summarized in Tables 16 and 17. One group of ceramics was identified as sharing common sources of ceramic raw materials. Four other groups of samples were identified as containing sediments from granite or monzonite. However none of these unclassified and unassigned groups of sherds resembles any of the other ceramics that were examined during the petrographic study, and such sherds most likely were made from materials from different geological resources.

Composition Group 1 is made up of sherds that contain sediments derived from aplite or alaskite granite. Sherds in this group contain quartz, untwinned alkali feldspar, and plagioclase, either as isolated mineral grains or as aggregate masses. The mineral grains and fragments of aplite range from silt-sized or very fine sized to medium sized. In the case of Sample FS 5380-2-18a (18), coarse size individual mineral grains are also present, along with inclusions derived from aplite. The larger mineral grains likely represent variation in the sizes of the minerals naturally present in the clay.

Many of the inclusions of untwinned alkali feldspars in sherds assigned to Composition Group 1 are weathered. It is likely that the minerals and fragments of aplite granite observed in the sherds represent natural inclusions in the clay. Aplite granite makes up the central portion of the Capitan Mountains (Allen and MacLemore 1991). It is likely that the aplite weathered to isolated mineral grains and was redeposited in the surrounding piedmont (Sidwell 1946). The clay-rich soils containing the isolated mineral grains were then mined for the production of ceramics. It is likely that vessels containing aplite were brought to LA 5380 from the slopes of the central Capitan Mountains or possibly from the valley of the Rio Bonito.[2]

Sample 5380-3-35(111) contains a mix of granite aplite and sediments from a much coarser textured granite. The eastern Capitan Mountains are characterized by granite porphyry. It is likely that this sherd was produced using resources geologically related to those indicated for sherds with granite aplite, but it contains additional sediments from a source proximal to that for the granite aplite.[3]

[2] A likely manufacture site for these vessels is LA 12156, the Baca or Baca Sawmill site located on the south side of the Capitan Mountains (see Wiseman 1975:11). (RNW)

[3] Potential manufacture sites for this vessel are the Bluewater sites the east end of the Capitan Mountains (see Kelley 1984:306–306.) (RNW)

Table 16. Petrographic Composition Groups.

Composition Group	Mineral Composition	Sample Numbers
Group 1	Sediments derived from aplite granite	1, 2, 9, 10, 11, 13, 14, 15, 16, 18, 19, 20, 21, 24, 29, 106, 111*, 121
Unassigned 1	Sediments weathered from granite	3, 4, 6, 23,107, 125, 128, B
Unassigned 2	20% sediments derived from coarse textured granite in a black opaque paste	7, 22
Unassigned 3	Granite, trace monzonite, volcanic rock fragments	17
Unassigned 4	Monzonite	A
El Paso area?	Microcline granite	122

* Mix of granite aplite and coarser-textured granite.

Unassigned Group 1 consists of sherds with variable amounts and sizes of sediments derived from granite and having slightly different colors of ceramic paste. The variation in the appearance of the sherd pastes indicates that they were made using different ceramic resources. Granite is present in the Lincoln County Porphyry Belt at Pajarito Peak and in the eastern Capitan Mountains (Allen et al. 1991; Garrett 1991; Griswold 1959; Moore et al. 1991; Warren 1996).

Unassigned Group 2 consists of two indented corrugated sherds (Samples 5380-3-1 (7) and 5380-2-1 (22)) that have identical black opaque pastes containing 20 percent angular mineral grains of quartz, untwinned and microcline twinned alkali feldspar, and plagioclase.

Unassigned Group 3, Sample 530-2-25 (17), contains sediments derived from granite. This sample also contains a trace amount of monzonite and two fragments of igneous rock indicating a mixing of sediments of different origins. Igneous rocks are available in the Sierra Blanca and in the White Oaks area of the Jicarilla Mountains (Griswold 1959).

Unassigned Group 4, Sample 5380-3-7 (A), contains sediments derived from monzonite, which is present in the Capitan Mountains (Griswold 1959).

Sample 5380-4-34 (122) contains very coarse sized mineral grains derived from a microcline granite. The plagioclase occasionally displays myrmekitic intergrowth with quartz. The paste is slightly birefringent. Similar observations have been made regarding brownware and El Paso Polychrome ceramics produced in the vicinity of El Paso (Hill 1988). However, granite characterized by myrmekitic intergrowths is also present in the western end of the Capitan Mountains (Allen and MacLemore 1991; Bowsher 1991).

Table 17. Minerals in the Petrographic Samples from LA 5380 and LA 5378.

Sample Number	Ceramic Type	Primary Inclusions			Secondary Inclusions			Comments
		Sediment Source	Size*	Amount	Type	Size*	Amount	
5380-4-35 (6)	Jornada Brown	Granite	St-C	20%	Quartzite	VC	2 grains	
5380-4-34 (106)	Jornada Brown	Aplite granite	St-M	15%				
5380-4-34 (107)	Jornada Brown	Granite	St-M	15%				
5380-4-35 (111)	Jornada Brown	Plutonic rock	St-C	25%				Mixed aplite granite and equigranular granite
5380-4-34 (121)	Jornada Brown	Aplite granite	St-M	20%				
5380-4-34 (122)	Jornada Brown	Granite	VF-VC	15%				El Paso area origin?
5380-4-34 (125)	Jornada Brown	Plutonic rock	St-M	10%	Microcline granite	M-VC	3%	
5380-4-34 (128)	El Paso Brown?	Granite	VF-VC	10%				Granite is coarse textured.
5380-2-10 (A)	San Andres Red-on-terracotta	Granite	St-M	5%	Granite/mica Schist	M-VC	Single grains	
5380-3-7 (B)	Three Rivers series terracotta	Monzonite	St-C	15%				

Table 17. Minerals in the Petrographic Samples from LA 5380 and LA 5378.

Sample Number	Ceramic Type	Primary Inclusions			Secondary Inclusions			Comments
		Sediment Source	Size*	Amount	Type	Size*	Amount	
5380-4-1 (1)	Corona Corrugated	Aplite granite	St-M	5%				
5380-4-1 (2)	Corona Corrugated	Aplite granite	St-M	35%				
5380-4-1 (3)	Corona Corrugated	Granite	VF-C	10%				
5380-4-1 (4)	Corona Corrugated	Granite	St-M	20%	Granite	M-C	Trace	
5380-3-1 (7)	Corona Corrugated	Granite	St-VC	20%				Granite porphyry ?
5380-4-27 (9)	Corona Corrugated	Aplite granite	St-C	20%				
5380-4-27 (10)	Corona Corrugated	Aplite granite	St-VC	20%				
5378-2-26 (11)	Corona Corrugated	Aplite granite	St-M	20%				
5380-0-3 (13)	Corona Corrugated	Aplite granite	St-M	25%				
5380-0-3 (14)	Corona Corrugated	Aplite granite	St-M	20%				

Table 17. Minerals in the Petrographic Samples from LA 5380 and LA 5378.

Sample Number	Ceramic Type	Primary Inclusions			Secondary Inclusions			Comments
		Sediment Source	Size*	Amount	Type	Size*	Amount	
5380-2-25 (15)	Corona Corrugated	Aplite granite	St-M	20%				
5380-2-18b (16)	Corona Corrugated	Aplite granite	St-C	20%				
5380-2-25 (17)	Corona Corrugated, smudged interior bowl rim	Granite	St-M	15%	Monzonite	M-C	Trace	Two volcanic rock fragments
5380-2-18a (18)	Corona Corrugated	Aplite granite	VF-C	15%				Mixed equigranular and aplite granite
5380-5-5 (19)	Corona Corrugated	Aplite granite	St-C	10%				
5380-2-18c (20)	Corona Corrugated	Aplite granite	St-C	15%				
5380-2-1 (21)	Corona Corrugated	Aplite granite	St-M	15%				
5380-2-1 (22)	Corona Corrugated	Granite	St-VC	20%	Diabase	M	1 grain	Granite porphyry ?
5380-5-2 (23)	Corona Corrugated	Granite	St-C	20%				Granite porphyry ?
5380-3-2 (24)	Corona Corrugated	Aplite granite	St-M	15%	Granite aplite	M-VC	Trace	

Table 17. Minerals in the Petrographic Samples from LA 5380 and LA 5378.

Sample Number	Ceramic Type	Primary Inclusions			Secondary Inclusions			Comments
		Sediment Source	Size*	Amount	Type	Size*	Amount	
5380-4-24 (29)	Corona Corrugated	Aplite granite	St-M	20%				

*Size expressed in Wentworth Scale: VC: Very Coarse, 2.0–1.0 mm; C: Coarse, 1.0–0.50 mm; M: Medium, 0.50–0.25 mm; F: Fine, 0.25–0.125 mm; VF: Very Fine, 0.125–0.0625 mm; St: Silt, < 0.0625 mm.

With the possible exception of one sherd, the analyzed ceramics from LA 5380 and LA 5378 were made using resources available in the Capitan Mountains and possibly on Pajarito Mountain. The variation exhibited in the ceramic sample likely represents different sources of raw materials and hence different sources of the ceramics.

Chapter 10

OTHER MATERIAL CULTURE

Given the fact that so few artifacts other than pottery sherds and chipped stone manufacture debris were recovered from the three Hondo-Glencoe sites, the variety of artifact classes represented is rather remarkable. The artifacts include dart and arrow points, projectile point preforms, bifaces (large, thick, large thin, rough, and miscellaneous) drills, a chopper, flake tools, pointed and spatulate awls, gaming pieces, a rasp, a shell scraper, a stone finger ring, a discoidal bead (very large, of white stone), metates, manos, a pottery polishing stone, rocks showing polish (from floor wear?), selenite fragments, and a possible bow fragment.

Individual artifacts from each site are described and illustrated in Appendix 4. The salient features of the various artifact classes are discussed below.

Projectile Points

All six dart points are corner-notched, with some verging on basally notched. All can be classified as Late Archaic and generally conform to what MacNeish (1998:71) called Hueco points, based on examples a short distance south of the Glencoe phase region. MacNeish attributed this point style to the "late Preceramic to early Ceramic" period, or 1900 B.C. to A.D. 1000. As I discuss in a later section, all of these points came from the late component at LA 5378, which presents a conundrum because of the site's presumed date of about A.D. 1100.

The three arrow points constitute two basic styles. The earlier style is represented by a point from the late component of LA 5378; the point is a poorly formed example of a Neff point (Wiseman 1971), which is related in some fashion to the Livermore points of west Texas. The other two arrow points conform to what many archaeologists call Washita and Reed points (Perino 1968, 1971; Turner and Hester 1993). In Texas, these points date to the Late Prehistoric period, or about A.D. 1200 to about A.D. 1700.

A third type of arrow point may be represented by a preform from LA 5380. This very thin, edge-trimmed flake may have been intended to become an unnotched triangular point like those characteristic of the Abajo de la Cruz site (LA 10832) in the Rio Tularosa Valley below Mescalero (Wiseman 2016b). This shape is also characteristic of points from El Paso phase villages in the Tularosa and Hueco basins, between Alamogordo and the vicinity of El Paso (Lehmer 1948). These El Paso phase sites date from A.D. 1150–1200 (if not earlier) to A.D. 1400 or later.

Chipped Stone Manufacturing Debris

This section provides information on the tool stones used and summarizes the debris categories. Those wishing more information, especially on the debris categories, are welcome to analyze the items themselves.

Tool Stone

The expectable range of tool stones was used by the knappers of the Hondo-Glencoe sites, but not all materials were used equally. Also, no examples of materials from the Southern Plains or Central Texas, such as Alibates, Tecovas, and Edwards cherts, are present in the assemblages. Only one flake of obsidian was recovered. In order of abundance, the general material categories are: cherts, igneous rocks, limestones, siltites (silicious siltstones), and chalcedonies.

One problem I usually have with archaeological reports from this and other regions is that the reader rarely can get an idea of the ranges of colors, color variations, and color combinations for tool stones. Archaeologists will identify well-known material types (such as Alibates) when they find them, but otherwise often resort to broad material types (chert, chalcedony, etc.) with few or no clues as to what the materials look like. It seems quite likely that materials from currently unknown but no less important sources were being used and exchanged, but without monitoring of attributes such as color, how are we to know? So here as elsewhere, I present a list of the colors, color combinations, and color patterns found in the Hondo-Glencoe materials (Appendix 5). As the astute observer will discover, many of these varieties are represented by only one or two examples. Those who question the value of this exercise should be reminded that quite often in southeastern New Mexico sites, the readily identified imported materials (again, such as Alibates) often occur as single flakes, almost always weigh less than 1 gram, and often measure 1–2 cm across in greatest dimension.

Black Chert

A black chert caught my attention many years ago; it is common in the debris and the finished artifacts recovered from the Abajo de la Cruz site (Wiseman 2016b). “Conspicuous masses” of black chert have been reported in dark limestone belonging to the Gobbler Formation (Pennsylvanian) in the Sacramento mountains south of Sierra Blanca (Pray 1961:80). Presumably this statement refers to Unit 7 of that exposure, where the chert is described as a 1 to 3 inch seam near the top of the unit.

If in fact all of the pieces of black chert are from the same geologic unit(s), the material can be characterized as follows (see also Wiseman 2016b). It ranges in grain size (texture) from very fine crypto-crystalline to comparable to siltite or even very fine quartzite. The coarser varieties intergrade into one another, often in the same piece if that is large enough. The examples that are smoothest to the touch are always in the minority in archaeological contexts. The color is mostly black but can also be very dark gray; the color is usually uniform but occasionally black and gray streaks alternate (Wiseman 2016). This description applies to the Hondo-Glencoe examples as well.

However, the dark-gray-to-black cherts may not be from the same source as the black chert so evident in the LA 5380 assemblage (see Appendix 5, Tables A5.1–A5.4). Some of the dark-gray-to-black pieces contain what can only be described as light gray marbling—light-colored threads that lack patterning (almost like non-symmetrical spider webs) and that can occur sparingly or abundantly depending on the piece.

Fingerprint Chert

This term refers to chert distinguished by alternating light and dark bands of color. The contrasting colors are often cream and medium to dark gray, but can also be light gray and dark gray or grayish-brown. Band widths are usually consistent and narrow (1 to 2 mm) but often change from thinner to wider and back across the piece. Also, band widths of up to 5 mm can be seen. The color demarcation between adjacent bands is usually but not always sharp. Often, the examples with wider than average bands are also ones where the colors contrast less and where the demarcations between colors are somewhat fuzzy.

Anecdotal evidence suggests that fingerprint chert is fairly common throughout southeastern New Mexico; it has been reported by archaeologists and collectors alike in areas such as the hills east of Fort Stanton, the general vicinity of Mayhill, and outcrops of the San Andres Formation west of Roswell.

Gray Chert

As would be expected in southeastern New Mexico, most of the chert artifacts recovered from the Hondo-Glencoe sites are some shade (or combination of shades) of gray. While the San Andres Limestone is the apparent source of this gray chert, the range of variation in that chert source is not yet properly documented. Based on what I have seen over the past 50 years, I can say this much: over thousands of square kilometers of exposure, the chert in San Andres Limestone varies greatly. Varieties available north of the Capitan Mountains (as far as the village of Vaughn?) are not to be found in the central section of that exposure (west of Roswell) or in its southern section (west and northwest of Carlsbad).

It is interesting that the geological literature is not always a reliable guide to what archaeologists should expect in their sites. For instance, Kelley (1971) lists chert only twice in the index to his study of the geology of southeastern New Mexico. One of those references states unequivocally that “Chert is not generally a characteristic of the San Andres formation, except in the southern part of the Guadalupe Mountains where it is abundant in the lower part, especially below and in the vicinity of the Cherry Canyon Sandstone” (Kelley 1981:10). But archaeological projects from Roswell to Ruidoso have documented the use of local cherts from the Fourmile Draw and Bonney Canyon members of the San Andres Formation (Hannaford 1981, Phillips et al. 1981; Wiseman 2004b). Some of the sources are small outcrops and hillocks easily overlooked at typical geologic mapping scales, yet the Native Americans found and regularly exploited them. Many of these cherts are not necessarily of good knapping quality, but they were readily available and were used to the extent possible (sometimes leading to large numbers of unusable pieces or shatter).

Cores, Flakes, and Miscellaneous Debitage

In the following paragraphs, readers should remember that excavation of the Hondo-Glencoe sites was part of the salvage work done by Laboratory of Anthropology staff in the 1960s. The technique, or lack of it, that most affected the chipped stone collection was screening. In those days the use of screens was not routine, and the amount of screening varied by supervisor. As far as I can tell, screens were not employed at all on the Hondo-Glencoe project. Thus, the lithic assemblages lack an unknown percentage of small flakes, flake fragments, shatter, and (of course) tiny but diagnostic items such as notching flakes and final stage (very small) biface thinning flakes (especially those produced when completing arrow points). Instead, the chipped stone assemblages from sites LA 5378 and LA 5380 consist mainly of cores, core reduction flakes, larger biface thinning flakes, and larger pieces of debris (flake fragments, shatter, etc.). These items were roughly sorted by category and material type but not measured or otherwise analyzed in detail. A couple of observations were inescapable and are mentioned here.

Quality of the Knapping

The knappers responsible for the lithic debris at the Hondo-Glencoe sites were highly skilled. More often than not, the flakes they removed from finer-grained materials came off very straight longitudinally, and did not twist or bend to even a slight degree. Part of this has to do with the quality of the materials, of course, and in general those were good. But all archaeologists have seen Ceramic period assemblages where many if not all of the flakes betray a lack of skill. The evidence includes short, squat flakes regardless of material quality, flakes that are thick relative to their lengths and widths, frequent hinging of the distal ends of the flakes, and thick and even curved arrow points. Not the case with the Hondo-Glencoe knappers; many of the flakes found in those sites almost mimic byproducts of Paleoindian knapping.

Biface Thinning Flakes

Another surprise was the number of biface thinning flakes that were recovered. As it became apparent during the data collation phase, most of these came from the floor or floor fill of Pit House B (Feature 2) of the late component occupation at LA 5378. Twenty-nine of these items are various gray cherts, and four are fingerprint chert. Clearly, the occupant of this structure was making bifacial tools, presumably projectile points.

Discussion

Chert was the favored knapping material at both LA 5378 (early and late components) and LA 5380 and constituted about half of the chipped stone at LA 5377. The black chert and the cherts likely to have derived from the same geological source (dark gray and black; dark gray-black) are either the most common chert at each site, or are very well represented. The combined percentages (where 100 percent is all chipped stone) for these related cherts are: LA 5377, 20 percent; LA 5378–early, 47 percent; LA 5378–late, 20 percent; and LA 5380, 54 percent. The knappers at LA 5380 did not use any igneous rock, and use of chalcedony was negligible at all three sites.

Metates and Manos

Few complete pieces of ground stone were recovered from the Hondo-Glencoe sites. While this is not surprising given the other indicators of short occupations, the project lacked the large sample sizes that allow systematic study of ground stone.

The one complete metate (from the late component at LA 5378) and one partial metate (from the early component of LA 5378) appear to be of the large basin type. Large basin metates are more efficient for grinding maize than small basin metates but generally less efficient for that purpose than trough metates and especially slab metates.

The metates recovered from the Hondo-Glencoe sites generally conform to those from other sites in the region. Aside from the creation of grinding surfaces, the stones used as metates mostly retained their natural shapes; protrusions around their edges were removed, but little else was done to shape them.

Table 18 summarizes the manos from the Hondo-Glencoe sites. While all but one of these manos from LA 5377 and LA 5378 are of the one-hand type, a two-hand mano used on a slab metate was recovered from LA 5377. All of the specimens just mentioned have single grinding surfaces. Although the two examples from LA 5380 are too small to estimate original lengths, both are intact enough to show that one had a single grinding surface and the other had two. In the grinding surface area calculations listed in the table, the values are given as "less than" figures because the grinding surfaces, being rounded at each end, are smaller than the areas obtained by multiplying lengths and widths.

Table 18. Mano Data for the Hondo-Glencoe Sites.

Provenience/ Component	Type	Length (cm)		Grinding Surface Area, cm^2
		Current	Estimated Original	
LA 5377	One hand, for basin metate	15.8	15.8	< 155
LA 5378, surface	One hand, for basin metate	10.2+	12–13	< 148
LA 5378, Early	One hand, for basin metate	13.8	13.8	< 174
LA 5378, Early	One hand, loaf shape, for basin metate	14.2	14.2	< 175
LA 5378, Late	One hand, for basin metate	13.8+	15–16	< 158
LA 5380	Uncertain	?	?	?
LA 5380	Loaf type, metate type uncertain	?	?	?
LA 5377	Two hand, for slab metate	23.8	23.8	< 276

The Hondo-Glencoe manos are a bit surprising: they are generally heavy, thick, made from river cobbles, and little modified other than on the grinding surfaces. While the use of river cobbles for manos is fairly typical of Archaic period sites, most Ceramic period peoples used other stones that made for thinner, lighter tools. Perhaps the Hondo-Glencoe manos reflect the ready availability of river cobbles and a lack of suitable raw stone for creating more tabular manos. Or

perhaps the Hondo-Glencoe people wanted the heavier stones because corn kernels are larger and harder to crush many (most?) seeds from wild plants?

The presence of two loaf-shaped manos is noteworthy given their large size, heavy weight, and small grinding surfaces relative to the stones' size and weight.

Pottery Polishing Stone

The pottery polishing stone from the fill of Pit House D (Feature 10) of the early component at LA 5378 is a very pleasant surprise. Throughout my career I have seen the occasional pebble that various archaeologists presumed to be pottery polishing stones. However, the example from LA 5378 is the *first* convincing one that I have seen from an archaeological context. This particular example convinced me not only because of its extreme overall sheen but also because of the tribochemical change to its exterior (see Adams 2002:273). That is, the pebble was used so much that it developed a translucent surface that, under the microscope, seems to let one see a short distance into the stone. The stone includes tiny red particles, which appear to float within the translucent zone.

An OAS staff member who has made a lifetime study of Pueblo crafts says that in order to create a uniform surface sheen, the potter uses the natural skin oils rubbed from the side of the nose, and perhaps from behind the ears. Today, Pueblo potters at villages such as Santa Clara now use lard or butter for the same purpose. Polished pottery without this addition of oil usually displays individual polishing streaks, resulting in a less mirror-like finish. The polished pottery from the Hondo-Glencoe sites, especially the Jornada Brown sherds, display both effects. Sherds bearing abundant evidence of individual polishing strokes are especially common in the Jornada Brown assemblage from LA 5380.

Cylindrical Manuport

The fill of the rectangular pit house (Feature 3) at LA 5377 (dating ca. A.D. 1200, middle Glencoe) produced an object that has all of the appearances of being naturally formed. C. L. Kieffer, Collections Manager at the Archaeological Research Collections, Museum of New Mexico and a member of the New Mexico Speleological Society, has suggested that it may be part of a cave formation. It is clearly made of limestone or a related carbonate rock.

This artifact has the shape, including an indentation on the top surface, quite like that of artificially shaped stone objects that have been found in the positions of sipapus (portals to the underworld) in the floors of socio-religious rooms ("communal rooms" to some archaeologists, "kivas" to others) in Lincoln phase sites of the northern Sierra Blanca (Kelley 1984:261, 273–274; Wiseman 1976:8, 19–20 and 1996). The stone objects also occur in true kivas of central New Mexico (at Pueblo Pardo; Toulouse and Stephenson 1960). However, the LA 5377 example is somewhat smaller than the examples documented elsewhere.

Two such artifacts were recovered at LA 2112 (Smokey Bear Ruin or Block Lookout Site), from the floor of a Lincoln phase pueblo room where they had been stored. Both were found top surface down; one lay directly on the floor and the other was propped at an angle on the bottom of the first (Clark C. Pfingsten, personal communication to R. Wiseman, 1969).

Most of these artifacts are round when seen from above, but some are rectangular. The one from Feature 4 at LA 2112, is larger than the LA 5377 specimen, is made of massive crystalline aragonite, measures 14 cm in diameter and 6 cm thick, and is completely artificially shaped (the upper half is carefully smoothed, the lower less so; the top surface containing the depression is carefully formed and polished.) Aragonite is a form of calcium carbonate but is less stable than calcite (Northrop 1959:116).

Maize Remains

Pamela J. McBride

Two fragmentary maize cobs from LA 5380 (fill of Feature 4, a possible pit house) were measured using digital calipers, following parameters detailed in Bird (1994) and Toll and Huckell (1996). One cob is 12-rowed and is 26.1 mm long; it has a diameter of 15.2 mm, an average cupule width of 6.4 mm, and an average rachis segment length of 4.5 mm. The other cob is 10-rowed and is 45.3 mm long; it has a diameter of 16.2 mm, average cupule width of 8.6 mm, and an average rachis segment length of 3.2 mm. The 10-rowed cob is fatter and, based on the average width of the cupules, most likely had larger kernels.

Table 19 provides morphometric data from maize cob collections from southeastern New Mexico. Mean row numbers reflect the predominance of 10-rowed cobs. The exception is the assemblage from Beth's Cave; there, a mean row number closer to 11 indicates the presence of more cobs with 12 or more rows.

Table 19. Maize Cob Data from Southeastern New Mexico.

Site (Source)	Date (A.D.)	No. of Cobs	Mean Row No.	Mean Cupule Width (mm)
Beth's Cave (1)	624–813	146	10.9	7.0
LA 116531 (2)	700–990	26	10.3	5.9
Henderson Site, early phase (3)	1275–1310	98	9.8	6.6
Henderson Site, late phase (1980s excavations) (4)	1310–1350	151	10.0	5.8
Henderson Site, late phase (1990s excavations) (3)	1310–1350	65	9.8	6.3
Block Lookout (5)	1300s	242	9.3	-

Adapted from Powell 2001. Original sources: (1) Adams and Wiseman 1994; (2) Toll and McBride 2008; (3) Powell 2001; (4) Dunavan 1994; (5) Harvey and Galinat 1984.

The 10-rowed cob from LA 5380 has a cupule width far greater than the average width for any of the cob assemblages in Table 19, but the cupule width for the 12-rowed cob is similar to the average for cobs from the early phase and the 1990s late phase at the Henderson Site (both assemblages are dominated by 10-rowed cobs). Because the current sample is so small, there is no way to know if these observations are significant.

Faunal Remains

Nancy J. Akins kindly analyzed the 88 animal bones and bone fragments recovered from LA 5380. Although a bone fragment or two were recovered from LA 5378, these were not provided to her. Akins used the analysis protocol she developed over several decades of work in faunal studies, now used for all Office of Archaeological Studies projects.

At my request, Akins prepared Tables 20 and 21 to summarize her findings; her data sheets are in the archives of the Museum of Indian Arts and Culture in Santa Fe. Akins' analysis categories include taxon, common name, certainty of identification, articulation, element, side, completeness, portion, age, criteria, environmental alteration, animal alteration, burning, processing, modification, and comments.

The LA 5380 fauna include 15 taxa, half of them non-specific—small mammal, small-medium mammal, medium artiodactyl, and the like. This is quite normal in studies of archaeological faunal remains. The more specific identifications include several species and probable species, the latter indicated by "c.f." for "compares favorably." Of these, by far the most common remains are of cottontails, with those recovered from Feature 4 representing at least four different individuals. Jackrabbit bones are the next most common, followed by deer, prairie dog, and dog or coyote. Single elements probably represent mountain lion, pronghorn antelope, and red-tailed hawk.

With the possible exception of pronghorn, all of these species occur today within 1 km of LA 5380 and probably did so when the site was occupied. In the winter, pronghorn are known to move into valleys among the area's hills and mountains to shelter from the cold. Thus, pronghorn may have come within easy range of hunters from LA 5380.

Table 20. Faunal Remains from LA 5380.
(c.f.: compares favorably)

Common Name	Taxon	Count	Percent
Small mammal	Mammalia	2	2.3
Small to medium mammal	Mammalia	2	2.3
Medium to large mammal	Mammalia	2	2.3
Large mammal	Mammalia	2	2.3
Black-tailed prairie dog	*Cynomys ludovicianus*	2	2.3
Cottontail	*Sylvilagus* sp.	46	52.3
Black-tailed jackrabbit	*Lepus californicus*	12	13.6
Dog or coyote	*Canis* sp.	2	2.3
c.f. Mountain lion	*Felis concolor*	1	1.1
Medium artiodactyl	Artiodactyla	5	5.7
Large artiodactyl	Artiodactyla	1	1.1
Deer	*Odocoileus* sp.	8	9.1
c.f. Pronghorn	*Antilocapra americana*	1	1.1
c.f. Red-tailed hawk	*Buteo jamaicensis*	1	1.1
Unknown		1	1.1
Total		88	100.0

Table 21. Faunal Remains from LA 5380, by Provenience.
(c.f.: compares favorably)

Horizontal Provenience	Unknown	Strip Area 1	Strip Area 2	Feature 3	Feature 4		Feature 5		Total
Vertical Provenience	Unknown	Surface Strip	Surface Strip	Unknown	Fill	Unknown	Fill	Floor	
Common Name	Count, Percent	Count, Percent	Count, Percent	Count, Percent	Count, Percent	Count, Percent	Count, Percent	Count, Percent	Count, Percent
Small mammal					2, 3.5%				2, 2.3%
Small to medium mammal							2, 20.0%		2, 2.3%
Medium to large mammal					1, 1.8%		1, 10.0%		2, 2.3%
Large mammal			2, 22.2%						2, 2.3%
Black-tailed prairie dog					1, 1.8%		1, 10.0%		2, 2.3%
Cottontail		1, 14.3%	1, 11.1%	1, 50.0%	38, 66.7%		5, 50.0%		46, 52.3%
Black-tailed jackrabbit			1, 11.1%		9, 15.8%	1, 100.0%	1, 10.0%		12, 13.6%
Dog or coyote					2, 3.5%				2, 2.3%
c.f. Mountain lion			1, 11.1%						1, 1.1%
Medium artiodactyl		3, 42.9%		1, 50.0%	1, 1.8%				5, 5.7%
Large artiodactyl			1, 11.1%						1, 1.1%
Deer	1, 100.0%	3, 42.9%	2, 22.2%		1, 1.8%			1, 100.0%	8, 9.1%
c.f. Pronghorn			1, 11.1%						1, 1.1%
c.f. Red-tailed hawk					1, 1.8%				1, 1.1%
Unknown					1, 1.8%				1, 1.1%
Total	1, 100.0%	7, 100.0%	9, 100.0%	2, 100.0%	57, 100.0%	1, 100.0%	10, 100.0%	1, 100.0%	88, 100.0%

Chapter 11

DISCUSSION

Absolute Dating

Seven pieces of charred wood from LA 5377 and LA 5378 were sent to the Laboratory of Tree-Ring Research in Tucson. None of the samples could be dated because either they were from non-datable species or else because their ring series were too short.

Four potsherds and one maize cob from LA 5380 and one of the wood samples from LA 5378 (originally sent for tree-ring dating) have been submitted to the Low Energy Plasma Radiocarbon Sampling (LEPRS) Laboratory, Center for New Mexico Archaeology, Santa Fe to be sampled for datable carbon. LEPRS is a new procedure for collecting tiny quantities of carbon for AMS (accelerator mass spectrometry) dating.

For sherds, the potentially datable material is the carbonized encrustations on the sherds' interior or exterior surfaces. The Hondo-Glencoe sherd samples are the first test samples for this experimental protocol, and it will be a while before this particular approach is sufficiently refined to provide actual dates. The maize cob should be easier to date, but the results for that sample are not yet available.

The wood sample was dated and proved to be modern. This result is not unexpected, since we do not know how deep the sample was in the archaeological deposits. It seems likely that the specimen was buried through rodent action or came from the root of a naturally burned tree.

In the early 2000s, Parsons Brinckerhoff (PB) and SWCA Environmental Consultants conducted limited excavations at LA 5377 and several other sites along U.S. 70, for a highway improvement project (Campbell and Railey 2008). The series of pits and thermal features they excavated were most likely just outside the existing highway fence, but in the strip of land affected by the new project, along the west edge of the right-of-way studied by the 1973 project. That is, the PB-SWCA features were west of, and upslope from, Broilo's features, especially his Feature 1 trench. PB and SWCA obtained nine radiocarbon dates from their work at the site. Of these, eight date to the Late Archaic period. The ninth, from Feature 1 in Area 1 (a hearth or roasting pit containing burned rocks), yielded a two sigma calibrated date of A.D. 1180–1290 (Beta 177796) (Campbell and Railey 2008:134). This date generally agrees with the pottery seriation obtained from the Broilo and Wells excavations.

Dating Based on Seriation

The Glencoe phase evidently started in the early A.D. 500s and ended in the 1300s, lasting about 800 years. One salient characteristic of the phase is that plain brown pottery was the primary pottery made and used throughout that lengthy period. In the earliest years, brown pottery was

the only type made; the rare slipped or painted types that are present on these sites were imported.

At an unknown date, the Glencoe peoples started making their own decorated pottery, by adding red slip to their vessels. A little later, they began using that same red slip to make simple wide-line designs. After about A.D. 1100, they developed more detailed designs with narrower red lines. The final pottery type usually assigned to the Three Rivers series, Lincoln Black-on-red, may or may not have been made by Glencoe potters even though the type clearly developed out of Three Rivers Red-on-terracotta. Also, starting about A.D. 900 or 1000 the percentage of local painted types and imported types slowly increased until, as a group, painted types made up significant proportions of the pottery assemblages. Even in the latest times, however, brown wares were the predominant component of each assemblage.

It is possible to create a rough dating scheme for Glencoe sites by calculating the percentages of plain brown versus painted pottery and ordering the sites (or components of sites) from earliest to latest, by arranging them from highest to lowest percentages of the plain brown pottery. A check on the accuracy of this rough seriation can then be made by noting the individual painted types, whether locally made or imported, and their dates of manufacture.

Using this approach, I identified four components among the three Hondo-Glencoe sites, with LA 5378 having the two earliest assemblages (Table 6). Those assemblages have very high percentages of plain brown pottery (95 and 92 percent, respectively). The early assemblage at LA 5378 includes only two painted pottery groups, (1) Red-slipped and (2) Broadline or San Andres Red-on-terracotta. Although we do not know when these two groups of painted pottery were first made, I assume that the early component at LA 5378 dates before A.D. 1000.

The late assemblage of LA 5378 includes the same two locally made red-on-terracotta groups as the Early assemblage, but it also includes a sherd of Mimbres Style III Black-on-white and a few sherds of Chupadero Black-on-white. Since Mimbres Style III and Chupadero were first made about A.D. 1100, I estimate that the two structures associated with this assemblage date to then, give or take a few years.

The assemblage from LA 5377 is the third in this seriation. Plain brown pottery makes up 70 percent of the assemblage; the rest of the sherds include the same locally made painted types as before, plus a few sherds of early Three Rivers Red-on-terracotta, a lot of Chupadero Black-on-white, and a small amount of El Paso Polychrome. A good estimated date for this site is about A.D. 1200.

The fourth and most recent assemblage is from LA 5380. Plain brown pottery is 54 percent of the assemblage. The rest of the pottery includes all of previously mentioned local and imported types except Mimbres Black-on-white. It also includes Corona Corrugated, Lincoln Black-on-red, and a couple of sherds of Rio Grande Glaze A Red. A date of about A.D. 1300 or perhaps a little later is indicated.

In summary, the pottery seriation indicates the following dates: LA 5378, early component, before A.D. 1000; LA 5378, late component, about A.D. 1100; LA 5377, about A.D. 1200; and

LA 5380, about A.D. 1300. The seriation date for LA 5377 agrees well with the calibrated radiocarbon date (A.D. 1180–1290) mentioned earlier.

Architecture

The three Hondo-Glencoe sites fit the Glencoe phase as defined by Jane Kelley (1966; 1984) based on her excavations in the Sierra Blanca highlands. As she defined it, the Glencoe phase occurs in the high country on the east side of Sierra Blanca. It stretches from the Rio Bonito and Rio Hondo drainages on the north to the upper Rio Peñasco drainage on the south, about 80 km (50 mi). East-west, it stretches from the foot of the Sierra Blanca east to about the longitude of the village of Picacho in the Hondo valley and the big bend in the Peñasco valley, about 50 km (30 mi). At least one Glencoe phase colony site (Rocky Arroyo, LA 25277) is present in the Roswell Oasis, some 50 km (30 mi) east of Picacho (Wiseman 2013).

The three Hondo-Glencoe sites lie along the Rio Ruidoso near modern day Glencoe, in the northern part of the known range. In that part of the range, to date, only five other Glencoe phase sites with structures have been professionally excavated and reported. These include the Crockett Canyon and Filingin sites (Farwell et al. 1992), the Bonnell site (Kelley 1984), and the Angus site (Zamora and Oakes 2000). These sites date to the middle and late Glencoe sub-phases as defined earlier in the report. The Dunlap-Salazar site, an initial Glencoe sub-phase site, is partly excavated but not yet reported in detail (Rocek 1991, 1995).

In the southern part of the Glencoe territory, excavations of consequence have been conducted at only two sites with structures: the late Glencoe sub-phase site LA 2000, along the Rio Peñasco (Jennings 1940; Kelley 1984), and an early Glencoe sub-phase site on the Mescalero Reservation along the Rio Tularosa (Del Bene et al. 1986). In addition, several partial structures along the Rio Peñasco were excavated for highway salvage projects in the 1950s (Green 1956; Kelley and Peckham 1962).

During the Hondo-Glencoe work six pit houses were completely excavated and as many as three others were tested. Even though human interments were found at both LA 5378 and LA 5380, the occupations at all three sites appear to have been brief. As luck would have it, the three project sites represent a staccato of occupations starting before A.D. 1000 and ending shortly after A.D. 1300. Specifically, the three sites had at least four short-lived components not overlapping in time: one each at LA 5377 and LA 5380 and two at LA 5378. Based on the pottery, the first component at LA 5378 (initial Glencoe?) was followed by the second component at the same site (early to early-middle Glencoe?), then by the occupation of LA 5377 (later middle Glencoe), and ended with the occupation at LA 5380 (late Glencoe).

Collectively, and over time, the three Hondo-Glencoe sites present a variety of pit house shapes and interior appointments. The two earliest structures were Pit Houses C and D at LA 5378. The former structure was rectangular in plan, had a central fire pit, and had four major post supports set in from the room corners. Two pits and three secondary post holes were also present in the floor. The structure may have had a ramp entry extending eastward from the east wall, but probably not. The room shape, fire pit, and major posts are standard for Glencoe phase houses.

Pit House D, on the other hand, deviated from the supposed pattern for Glencoe phase homes. It was oval in plan, had an apparently random placement of the fire pit and other pits, and had a partial alignment of small secondary post holes in the floor along the south wall. The shape and peripheral post holes are highly reminiscent of a structure excavated by Del Bene (1986) at Mescalero. That structure dated about A.D. 900, based on tree-ring and radiocarbon samples. Rocek (1991, 1995) also found circular structures (but no square to rectangular ones) at Dunlap-Salazar, along the Rio Bonito just downstream from Fort Stanton. The Dunlap-Salazar structures were quite early and dated from the A.D. 500s to the 700s or 800s.

Kelley and Peckham (1962) described a fragment of a circular pit house with a lateral ramp entry projecting to the northeast, found along the Rio Peñasco (Kelley and Peckham 1962). Pottery associated with this structure included Chupadero Black-on-white, Three Rivers Red-on-terracotta, and Jornada Brown, suggesting a date of about A.D. 1100 or later.

Thus, the Glencoe region has two architectural traditions, one with circular to oval structures and the other with square to rectangular structures. The circular to oval examples appear to have been built from perhaps as early as the A.D. 500s to A.D. 1100 or later. If the example at LA 5378 is any indication, construction of rectangular structures started at least as early as the A.D. 800s or 900s. Once construction of oval to circular houses ended, sometime after A.D. 1100, the rectangular examples became the only ones built until the Glencoe phase ended, sometime in the A.D. 1300s. I suspect that the difference in house types signifies more than random variability within the Glencoe architectural tradition, but I do not know just what it signifies.

Projectile Points

Some aspects of the projectile points bear repeating here. The big surprise was finding that all but one of the projectile points, as well as the two projectile point preforms recovered from Pit House B of the late component at LA 5378, are dart points. Pit House B (Feature 2) dates to about A.D. 1100. This finding is supported by the chipped stone debris from the floor and lowest fill of the pit house. Based on a cursory assessment, the debris includes many large biface thinning flakes (BTFs), indicating that they were removed from even larger bifaces that could only have been intended for conversion into dart points.

This raises the question, of course, as to whether the occupants of Pit House B used the atlatl and dart in addition to *or in lieu of* the bow and arrow. Arrow points and dart points are often found in the same assemblages in the region, so neither would be surprise me. For that matter, the pattern could reflect the collection of dart points that may or not have been used as such by the later people who collected them. Sources of points are not lacking. Several Late Archaic period sites have been investigated along the Rio Ruidoso (including at LA 5377!), as well as along the Rio Hondo into which the Ruidoso empties (Wiseman 1996; Campbell and Railey 2008). This is in addition to any isolated Archaic period points encountered on the landscape.

A study of Archaic period points from pottery period contexts in the northern Sierra Blanca region indicates that most were reworked (Wiseman 1993). This could signify their use by later peoples as hafted knives or for other purposes, and possibly also as projectile points. In the case

of Pit House B, however, only one small arrow point was recovered in association with the many dart points, dart preforms, and biface thinning flakes from large bifaces. The preponderance of evidence in this case favors an interpretation that at least one individual living about A.D. 1100 still preferred the atlatl and dart as a hunting and defensive weapon.

Regional Exchange

Another surprise of this project is the fact that so few items can be confidently labeled as intrusive (in this case meaning as coming from outside the Sierra Blanca region). The five items in this category include one Mimbres Style III Black-on-white sherd, two Rio Grande Glaze A Red sherds (from two different bowls), an obsidian flake, and a large discoidal bead. Each of these is briefly discussed below.

The Mimbres sherd contains the rhyolitic tuff characteristic of vessels made west in southwestern New Mexico, west of the Rio Grande. Thus, this vessel was moved at least 260 km (160 mi). But whether this move was a single event (direct procurement or exchange) or the result of down-the-line movement from village to village (indirect exchange) is uncertain.

So far, most Rio Grande Glaze Ware sherds, or rather the vessels they represent, have not been sourced. Glaze A Red is known to have been made along the Rio Grande and probably in the north end of the Jornada del Muerto. Along the Rio Grande the production area extended from the vicinity of Socorro on the south to Cochiti on the north. The Galisteo Basin, east of Cochiti, was also a major production area for glazeware pots. Within this range, the many different rocks used as temper will ultimately help us pin down a discrete production source for the Hondo-Glencoe vessels.

The source of the obsidian flake can be identified, but that has not been done yet. Based on the size of the flake, about 2 by 2 cm, the original nodule was too large to have come from the Rio Grande gravels.

The source of the large stone disc bead of stone is unknown. Since disc beads of this size are uncommon, even rare, I assume that it was made outside the Sierra Blanca region. As a guess, the bead moved through an exchange network that involved the Bruton Bead site in the Jornada del Muerto (Kemrer 2015), at least 80 km (50 miles) southwest of the Hondo-Glencoe sites. During a survey I found two other examples of these beads on sites along the Rio Tularosa, between the Mescalero Reservation and the village of Tularosa. The Rio Tularosa forms a natural travel corridor between the Tularosa basin (and ultimately the Jornada del Muerto) and the east side of the Sierra Blanca where the Hondo-Glencoe sites are located.

Local Exchange

But what about the movement of goods within the Sierra Blanca region? At least two pottery types identified during this study were probably made elsewhere in the Sierra Blanca region and had to be acquired by the residents of the Hondo-Glencoe sites. One is Chupadero Black-on-

white, the other is Corona Corrugated. In addition, at least a few of the chipped stone materials present within the debitage assemblages may have been traded locally.

Pottery

Instrumental neutron activation analysis (INAA) has confirmed what we slowly learned over the years through petrographic analysis: Chupadero Black-on-white pottery was made in at least two places, the Salinas or Gran Quivira region of central New Mexico and the Capitan-Jicarilla Mountains region of south-central New Mexico (Creel et al. 2002). According to the INAA results, most of the Chupadero made in the former region was used there. In contrast, the Chupadero made in the latter region was used there but also traded widely in New Mexico and into Arizona, Texas, Mexico, and elsewhere.

Sixteen percent of the sherds studied by INAA could be not assigned to either the Salinas-Gran Quivira region or the Capitan-Jicarilla Mountains region. The source or sources of these sherds are currently unknown. Creel and his colleagues suggest that once additional samples are studied, the currently unassigned will prove to be from one or both of the known production areas. I have always been skeptical of this conclusion, and suspect that a third production region will be found for Chupadero. Not only is 16 percent a large faction, 18 out of the 39 "nonconformist" sherds come from west of the Rio Grande (from Sierra, Grant, and Luna Counties) and five come from the El Paso area (see Creel et al. 2002, Table 6.1). Only five are from Lincoln County. The rest occur as single or double examples from Doña Ana, Otero, Torrance, Chaves, and Lea Counties in New Mexico and from Hudspeth, Culberson, Andrews, and several other counties in west Texas and the Texas Panhandle. These single and double occurrences obviously represent trade pieces. Based on this distribution, a third production source for Chupadero may well lie somewhere in southwestern New Mexico, or possibly in the Rio Grande valley near Truth or Consequences.

Meanwhile, we have a problem: the published literature does not provide a direct, succinct, link between the sherds, pastes, and tempering materials of the groups identified by INAA with those identified through petrographic analysis. For instance, do the INAA group and sub-groups identified for the Capitan-Jicarilla region refer only to the monzonite/quartz monzonite of the Capitans and nearby peaks in the Jicarillas? Or do they include sherds tempered solely with potsherd temper? (By potsherd temper I am referring to what Kelley [1979:123] called Bower's Pastes A and C in her restudy of pottery from the Sierra Blanca sites). This is particularly important to the Hondo-Glencoe study because almost all of the Chupadero from those sites have potsherd temper. To reiterate, the tempering material in the Hondo-Glencoe Chupadero is so nearly homogeneous that a single production source appears likely. But, where is that production village? As I also mentioned, the Chupadero from the Hondo-Glencoe sites is so sophisticated overall that I seriously doubt that it was made at the Hondo-Glencoe sites. Thus, the Chupadero Black-on-white recovered from the sites almost certainly represents local trade, but we must await further studies before the production village or villages can be identified.

The Corona Corrugated from the Hondo-Glencoe sites is another matter. Most of it is finely tempered with small grains, of fairly equal size, that may represent one or more rocks from the Sierra Blanca region. One of the most likely candidates is the monzonite/quartz monzonite of the

Capitan-southern Jicarilla mountains. This supposition on my part is confirmed by David Hill's petrographic analysis of Corona Corrugated sherds from LA 5380 (see Chapter 9). His study places the village or villages of origin 20 to 30 km (12 to 18 mi) north of the Hondo-Glencoe sites.

Tool Stone

We do not know nearly enough about the distributions of the cherts, siltites, and quartzites found in the Sierra Blanca region. For instance, and as I discussed earlier, cherts ranging from white to dark gray and fingerprint cherts appear to be widely available in various members of the San Andres Formation, the primary surface rocks in the immediate vicinity of the Hondo-Glencoe sites. The local chert sources have yet to be documented, but there should be sources within easy walking distance of the sites.

Black chert has a more restricted distribution on the regional landscape; it comes from the Sacramento mountains south of Sierra Blanca (see Pray 1961). That author indicates where white to light–medium–dark gray cherts are far more abundant than black chert in various geologic strata). The nearest source of black chert is not known. Warren (Chapter 2) makes the broad statement that "light brown to gray, to black chert occurs as nodules in the San Andres Limestone and as rounded cobbles in the river and terrace gravels along the Rio Ruidoso," but I question her statement when it comes to black chert (see my discussion elsewhere in this report). As we have seen for some of the San Andres Formation cherts on sites of the Roswell area, archaeologists can and often do raise research questions for which the geological literature does not provide an answer.

Such will be the case here. Did the black chert from the Hondo-Glencoe sites come from the same geologic units as the various gray cherts? If the source of black chert is restricted to the Gobbler Formation, as is suggested by the existing geological literature (Pray 1961:80), the examples from Hondo-Glencoe would have come from sources at least 105 km (65 mi) to the south. (This assumes that the Alamogordo area has the closest surface exposures of the Gobbler Formation.) If so, we need to know whether the black chert was collected by inhabitants of the Hondo-Glencoe sites or was obtained in trade from intermediate people such as those of the Abajo de la Cruz Site (Wiseman 2016b) near Bent (itself located between Mescalero and Tularosa). Or do very small exposures of the Gobbler, too small for most geologic mapping, occur closer to Hondo-Glencoe? If so, where?

Subsistence

I can say little about subsistence at the Hondo-Glencoe sites, and all that information comes from the latest component, represented by LA 5380. The limited inventories of plant and animal foods from the site are unlikely to represent the full range of species that comprised the diet of the inhabitants.

The two maize cobs probably were cultivated by the site's inhabitants, but the dietary importance of this species cannot be gauged. Studies of manos and metates from sites of the greater Sierra

Blanca region, including the Pecos Valley to the east, suggest less reliance on maize than in other, contemporary parts of the Southwest (Wiseman 2012, and earlier in this report).

The one complete (from the LA 5378 Late component) and one partial (from the LA 5378 Early component) metates appear to be of the large basin type, which suggests that horticultural dependence of the Hondo-Glencoe peoples was less than that usually assumed for peoples who used trough and especially slab type metates (Wiseman 2012).

To summarize the information in Table 18, five of the complete and almost complete manos are "one-handers" that range, or appear to range, from 13.8 to about 16 cm in length; the sixth example is a "two-hander" that is 23.8 cm long. According to Hard (1990, Table 10.4; see also Hard et al. 1996), those values suggest a range of dependence on maize from none to moderate (0–45 percent). Hard considers his next size category, 15 to 20 cm, to indicate moderate to high dependence (35–75 percent) on maize. As a guess, the Hondo-Glencoe one-hand manos indicate perhaps 35 to 50 percent dependence on maize, probably closer to the lower number. The two-hand mano, which implies use of a slab metate, suggests that at least one household at LA 5377 may have had a higher dependence on corn, perhaps greater than 65 percent.

The faunal data from LA 5380, while more robust than the macrofloral data, cannot be considered definitive. However, the dominance of cottontail and jackrabbit remains in the assemblage (together, nearly two-thirds of the identified remains) may reflect their actual importance in the diet at LA 5380. Farming peoples in the Sierra Blanca region certainly made heavy use of cottontails and jackrabbits (Driver 1985:64). Deer were also important at LA 5380, again something they had in common with other sites of the same general period in the Sierra Blanca region.

Relation to Other Glencoe Phase Sites

The Hondo-Glencoe sites are among the first small, apparently single or double component Glencoe phase sites that have been excavated and now reported. Before this, only one relatively small Glencoe phase site (Filingin, LA 16297) had been completely excavated. We also had parts of one or two pit houses each (in sites of unknown size) along the Rio Peñasco at the south end of Glencoe territory. Very little was learned from the Peñasco sites simply because so little was recovered in the way of architectural details and artifacts. All of these sites were investigated prior to highway construction.

The Filingin site (Farwell et al. 1992:139–172) appears to have been a location next to a field, used only during the warm season. The three very shallow rooms formed a tight cluster possibly defining a single open interior space, perhaps even lacking interior walls. While the two main rooms each possessed a traditional roof support system using four large posts, there was no evidence whatsoever for a dividing wall between the rooms, not even low berms into which jacal poles could have been set. A fire pit and a possible second "hearth" (where the fire burned on the ground surface) were both outside and east of the structure. As with the so-called bank houses at the Crockett Canyon site (Farwell et al. 1992), the Filingin site structure was a house built within

a pit, the ground surface being excavated just enough to create a level surface on which to build a structure.

All other reported Glencoe sites consist of either large villages or multi-component sites or both, dating to the middle and late Glencoe sub-phases. These include LA 2000, Bonnell, Crockett Canyon, and Angus. LA 2000 is situated along the Rio Peñasco and the other three are at the north end of the Glencoe territory in the Ruidoso and Bonito Valleys. All four are generally assumed to represent large villages, as they contain many houses each. However, they may instead represent two or more sequential small occupations in what archaeologists have come to call central or important places on the landscape. The individual components at a given site appear to involve just a few pit houses each.

As an example, Kelley's (1984) analysis of houses at Bonnell led her to suggest the presence of at least three separate components. Nearly half of the pit houses could not be assigned to one of those three components. I took the liberty of creating maps of her three components (Wiseman n.d., Figure 10). These maps reveal that each component consists of from two to 10 structures, each with clusters of rooms. Those room clusters contain from two to five structures each, with the rooms typically so tightly placed as to look like multi-room houses reminiscent of Pueblo construction. However, not all room alignments are linear; some of them are mere clumps of rooms arranged in tight, non-symmetrical clusters.

Crockett Canyon, in the upper Rio Bonito valley, probably also comprises two or more components (Farwell et al. 1992). The percentages of brown wares, less the sherds that may be from El Paso Polychrome vessels (Jornada Brown and unpainted "El Paso Brown" sherds are lumped in the figures), probably indicate three components: (1) structures yielding about 80 percent brown wares (Houses A and M), (2) those yielding 57–58 percent brown wares (Houses S1, BB, and CC), and (3) those having 46 percent brown wares (Houses P and AA). The pottery figures are not provided for Houses S2, T1, and T2 but the tight clustering of all three with House S1 suggests that they were a single unit and therefore belong to the 57–58 percent brownware group. If these assignments are accurate, I view non-clustered Houses A and M as constituting the early component at the site. Houses S1, S2, T1, T2, and BB form a tight cluster of five rooms; along with isolated room CC, they represent the middle component. Houses P and AA, both isolated houses, represent the late component.

Thus, the three components at Crockett Canyon display two basic configurations. The early component had only scattered houses, the middle component had a cluster of rooms as well as an isolated house, and the late component returned to the original pattern of scattered houses. Here, early, middle, and late refer to components within the Crockett Canyon Site, not to the sub-phases of the Glencoe phase. All of the structures produced Three Rivers Red-on-terracotta, Chupadero Black-on-white, El Paso Polychrome, and Mimbres Black-on-white, suggesting that assignment of all structures at the site to the middle Glencoe sub-phase is appropriate.

The Angus site (LA 3334), also in the upper Rio Bonito valley, was partly excavated in 1956 by Stewart Peckham (1971) and again in 1999 by Dorothy Zamora and Yvonne Oakes (2000). Both projects were for highway improvements. Sadly, only one structure, called a kiva during both excavations, was recognized and excavated by both projects. This is in spite of the fact that both

projects excavated the same part of the site. The 1956 project recognized and excavated three additional, smaller rooms in a straight line, due south of the kiva. In 1999, Zamora and Oakes also excavated south of the kiva but failed to identify the three smaller structures. Instead, they uncovered five smaller structures, none of which can be readily equated with Peckham's three. Zamora and Oakes' structures were roughly aligned in two closely spaced rows that fail to align properly with Peckham's map.

Two of Zamora and Oakes' rooms clearly were not previously excavated; they had intact clay floors, pristine floor features, artifacts on the floors, burned main roof support posts projecting from post holes, burials, and large numbers of artifacts in the structure fills. The fills of two other rooms yielded few artifacts, suggesting that they were excavated by Peckham, but the room limits and floor features shown on the two maps do not agree. Finally, Peckham mentioned that the potsherd count from his work was low, perhaps 1,500 sherds, but he also mentioned the presence of trash that he may not have excavated. Also, judging from a partial manuscript that he had been preparing, plus comments in a letter to me, his pottery counts do not include the plain brown sherds!

Zamora and Oakes also excavated areas north, northwest, and west of the kiva, areas that Peckham explored sparingly. In those areas they found two small, oval pit houses, a larger pit house, extramural pits, postholes, hearths, and burials. During their work, Zamora and Oakes recovered nearly 30,000 artifacts of all kinds! The differences between the findings of the two projects could hardly be starker.

Because of this confusion surrounding the Angus site, little more can be surmised about the site and the number and character of the occupations. Which is sad, because the importance of the site cannot be overstated given its late date (late Glencoe sub-phase) and its roster of both local and imported pottery types. Of particular note among the latter is San Clemente Glaze Polychrome, a late 1300s Glaze A product of the Rio Grande province. This type is listed in Peckham's unfinished manuscript on file in the ARMS records at the Laboratory of Anthropology, Santa Fe. Rio Grande Glaze Ware sherds of this sort are rare in south-central and southeastern New Mexico sites, probably because they were first produced near the end of the prehistoric farming occupation of the Sierra Blanca country.

Thus far, the excavations at LA 2000 have been too few in number and too limited in extent to inform us about the number of occupations and their patterning at the site (Jennings 1940; Kelley 1984). Structures representing at least two different sub-phases of the Glencoe have been exposed thus far, but so much more will be learned about this important, very large site if a major project is mounted there.

Thus, the Hondo-Glencoe sites present us with three of the four somewhat comprehensively investigated small Glencoe occupations in the Sierra Blanca region. They are all located short distances from the Bonnell site, the only known major Glencoe site in the Ruidoso valley (Kelley 1984). LA 5377 and LA 5378 are about 5 km upstream from Bonnell, and LA 5380 is located about 3 km downstream from Bonnell. Thus, all three sites are within relatively short walks from Bonnell. Since the occupations of the three (perhaps excepting the early component of LA 5378) were roughly coeval with those at Bonnell, I have to wonder about interactions among the

occupants of these four sites. In the Four Corners region the small sites might be considered farm-side sites (or "field houses") used by the residents of Bonnell. Since the occupations of LA 5377, LA 5378, and LA 5380 seem to have been brief, this is certainly a possibility. Or perhaps Bonnell was so advantageously placed that someone always lived there, and that the people who occupied sites like the Hondo-Glencoe examples moved frequently but independently of Bonnell's inhabitants. Clearly, we need to excavate more small, single component Glencoe sites to better understand the Glencoe culture and its use of the landscape.

Conclusions

In 1971, the Museum of New Mexico excavated three prehistoric sites along the Rio Ruidoso before widening U.S. 70 between Ruidoso and Hondo, in Lincoln County, south-central New Mexico. All three sites—LA 5377, 5378, and 5380—were small pit house sites assignable to the northern part of the lengthy Glencoe phase defined by Jane Kelley (1984) for the Sierra Blanca region. The three sites embody four components that represent short, separate occupations dating between sometime prior to A.D. 1000 and a little after 1300.

Five findings of the project merit special mention.

- The three Hondo-Glencoe sites are smaller than the nearby Bonnell site. The relationship of the occupants of the three will need to be defined with regard to the occupants of Bonnell. For instance, are the three merely field-side locations belonging to Bonnell farmers, or are they separate but culturally related occupations? More recent assessment of the Bonnell site suggests that this site represents a series of small, sequent occupations in a particularly favorable locus or special place. Thus, the occupants of the Hondo-Glencoe sites may have been independent but culturally related people.

- The Hondo-Glencoe sites contain two basic architectural forms: round pit houses and rectangular ones. Based on data from other excavated sites in the region, the round structures may have appeared first, probably about the time that pottery-making began in the region in the early A.D. 500s. Based on our current knowledge, the building and use of this type of structure may have lasted until about A.D. 1100. We do not know when rectangular structures were first built, but an early form of such structures was found present in the earliest component at LA 5378, so dates before A.D. 1000. The rectangular pit house form became the signature structure of the middle and late Glencoe sub-phases.

- Seriation of the pottery assemblages from the Hondo-Glencoe sites suggests that this technique can be used for rough dating of local occupations. The key lies in the percentage of plain utility pottery (including, for example, Jornada Brown) versus the percentage of painted pottery types (both locally made and imported). The seriation suggests that the four components represented at Hondo-Glencoe are, from earliest to latest, LA 5378–Early component, LA 5378–Late component, LA 5377, and LA 5380.

- Petrographic analysis of indented corrugated pottery from LA 5380, the ca. A.D. 1300 component, confirmed what has been suspected for a number of years. In all but one

respect, these sherds conform well with the description of Corona Corrugated from central New Mexico (Hayes 1981). The one difference is that some of the sherds are tempered with Capitan aplite (or alaskite) granite derived from the Capitan mountains a few kilometers north of the Hondo-Glencoe sites and a considerable distance from central New Mexico. Thus, we can designate these sherds as a new pottery category, “Corona Corrugated, Capitan Variant."

- One unexpected result of the analysis of the chipped stone materials is good evidence for the late use of the atlatl and dart, as opposed to the then widespread bow and arrow. The person who made and used this weapon inhabited the Late component at LA 5378, which dates to about A.D. 1100.

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Appendix 1

NAGPRA REPORTS FOR LA 5378 AND LA 5380

The following information was obtained from the Archaeological Research Collections staff on May 29, 2015. The author was not indicated. Site location data were removed.

LA Number:	**5378**
Site Name:	None
County:	Lincoln
USGS Quad:	33105-D4, named Lincoln
Land Ownership:	State of NM
Traditional Use Area:	Mescalero Apache
TUA Information:	Although the TUA is Mescalero Apache, the site is ancestral Puebloan, and may be of interest to Zuni and Acoma.
Archaeological Culture:	Jornada Mogollon
Archaeological Period:	Late Pithouse (750–1100 AD, or 1200 to 850 years ago).
Cultural Affiliation:	Ancestral Puebloan (Acoma, Cochiti, Hopi, Isleta, Jemez, Laguna, Nambe, Picuris, Pojoaque, San Felipe, San Ildefonso, San Juan, Sandia, Santa Ana, Santa Clara, Santo Domingo, Taos, Tesuque, Ysleta del Sur, Zia, Zuni) and possibly Navajo Nation).
Basis of Determination:	The associated funerary objects and/or archaeological context are consistent with the assigned cultural affiliation.
Excavation History:	1971: Frank Broilo and Stewart Peckham, MNM excavation, Glencoe Highway Salvage project, NMSHTD Proj. #60.02
Human Remains Curated at MNM:	Seven individuals catalogued under six MMA catalogue numbers (ARC #7273, MMA #75.174.1-6, consisting of three adults [one fairly complete and two fragmentary] and four fragmentary infants. 75.174.1 consists of hand and foot bones and a tooth fragment of an adult. 75.174.2 is the fairly complete adult male. 75.174.3 is a fragmentary infant, consisting of two long bone shafts and incomplete crania. Also, in this catalogue number is an adult carpal bone. 75.174.4 is an infant consisting of fragmentary cranial and post cranial material, in poor to fair condition. 75.174.5 is an infant consisting of a fragmentary cranium

	and “some pc.” 75.174.6 is an infant of incomplete pc material.
Associated Funerary Objects:	none
Unassociated Funerary Objects:	none
Cultural Patrimony Objects:	none
Sacred Objects:	none
References:	1973. Broilo, F.J. Archaeological Salvage Investigations Along U.S. Highway 70, Near Ruidoso, Lincoln County, New Mexico. MNM-LOA for NMSHTD. Lab Note #68. NMCRIS #25986.
Notes:	Four individuals were recorded during excavation, along with some additional fragmentary remains, which at a later date were determined to be from two additional individuals. The other site with burials from this project is LA 5380.
LA Number:	**5380**
Site Name:	None given.
County:	Lincoln
USGS Quad:	33105-D4, named Lincoln
Land Ownership:	State of NM
Traditional Use Area:	Mescalero Apache
TUA Information:	Although the TUA is Mescalero Apache, the site is ancestral Puebloan, and may be of interest to Zuni and Acoma.
Archaeological Culture:	Jornada Mogollon
Archaeological Period:	Early Pueblo (1100–1175 AD, or 850 to 775 years ago).
Cultural Affiliation:	Ancestral Puebloan (Acoma, Cochiti, Hopi, Isleta, Jemez, Laguna, Nambe, Picuris, Pojoaque, San Felipe, San Ildefonso, San Juan, Sandia, Santa Ana, Santa Clara, Santo Domingo, Taos, Tesuque, Ysleta del Sur, Zia, Zuni) and possibly Navajo Nation.
Basis of Determination:	The associated funerary objects and/or archaeological context are consistent with the assigned cultural affiliation.
Excavation History:	1971: Frank Broilo and Stewart Peckham, MNM excavation, Glencoe Highway Salvage project, NMSHTD Proj. #60.02

Human Remains Curated at MNM:	Eight individuals are listed in the FS sheets, but both the ARC cat. records and MMA list 15 individuals (ARC #7275, MMA #75.175.1-15). The inventory, however, shows that there are 16 individuals represented in 15 MMA catalogue numbers. These consist of 12 fragmentary adults, 3 fragmentary infants, and 1 fragmentary juvenile, and break down as follows: Burial 1 from Feat. 2 contains MMA #s 75.175.2, an incomplete, fragmentary post cranial (PC) adult (FS #5380-2-7); MMA #75.175.3, vertebrae and ribs of another adult (FS #5380-2-12); MMA #75.175.4, cervical vertebrae and ribs of another adult (FS #5380-2-13); MMA #75.175.5, a fragmentary adult, incomplete PC (FS #5380-2-14); MMA #75.175.6, another fragmentary incomplete PC adult (FS #5380-2-15). Burial 1 from Feat. 3, MMA #75.175.8, (FS #5380-3-4) is a fragmentary infant, incomplete cranium and PC. Burial 1 from Feat. 4, MMA #75.175.10, (FS #5380-4-7) consists of a few hand and foot bones and a cervical vertebra of an adult. A fairly complete adult female (FS #5380-4-10, 11, 12) is also catalogued under this MMA #. Burial 2 from Feat. 2 , MMA #75.175.1, or 75.175.15, (FS #s 5380-2-20, -21, -23) is an adult, probably male, consisting of incomplete, fragmentary, PC material. Burial 2 from Feat. 3, MMA #75.175.14, (FS 5380-3-14a,b,c,d) is an adult consisting of fragmentary cranial and PC material. Burial 2 from Feat. 4, MMA #175.75.12, (FS #5380-4-20) is a juvenile consisting of a fragmentary cranium. Burial 3 from Feat. 4, MMA #75.175.9, (FS #5380-4-[28?] is a probable male adult, consisting of a complete cranium, no mandible, and incomplete PC. Burial 4 from Feat. 4, MMA #75.175.13, (FS #5380-4-32) consists of three individuals, an incomplete PC adult male with mandible, and two infants, PC only. Human remains that were not assigned burial numbers in the field are MMA #75.175.7, (FS #5380-2-22), a fragmentary adult, consisting of incomplete cranial and post-cranial material.
Associated Funerary Objects:	Associated with burial 2 in Feature 2 was a Chupadero B/W bowl (ICC #46345/11). Another Chupadero B/W bowl (ICC #46344/11) may possibly be the Adisplaced bowl@ found downslope of burial i from Feat. 2.
Unassociated Funerary Objects:	none
Cultural Patrimony Objects:	none
Sacred Objects:	none

Other Funerary Objects:	The following associated funerary objects have not been located in MNM collections. Burial 1 in Feature 2, sherds (FS 5380-2-11, FS 5380-2-19), and 1 bowl (FS and cat #s unknown); burial 1 in Feature 3, red ware bowl (FS 5380-3-9); burial 2 in Feature 3, Three Rivers red ware bowl (FS 5380-3-11); burial 1 in Feature 4, awl (FS 5380-4-6), sherds (FS 5380-4-8); burial 2 in Feature 4, sherds (FS 5380-4-18); burial 3 in Feature 4, sherds (FS 5380-4-29), shell fragment (FS 5380-4-36), bone (FS 5380-4-35).
References:	1973. Broilo, F.J. Archaeological Salvage Investigations Along U.S. Highway 70, Near Ruidoso, Lincoln County, New Mexico. MNM-LOA for NMSHTD. Lab Note #68. NMCRIS #25986.

Note: The other site with burials from this project is LA 5378.

Appendix 2

SUMMARIES OF POTTERY DISTRIBUTIONS BY TYPE AND SITE

Table A2.1. LA 5377, Sherds by Feature

(No sherds: Features 1,2, 4, 5, 8, 10, 13, 14. Red-on-terracotta is Broadline or San Andres.)

Feature No.	Brown Ware	Chupa-dero B/W	Red-slipped	Red-on-terracotta	Other	Total
0	27 (90%)	3 (10%)	-	-	-	30 (100%)
3	32 (97%)	1 (3%)	-	-	-	33 (100%)
6 and 11*	60 (56%)	33 (30%)	4 (4%)	5 (5%)	7 (6%)	109 (100%)
7	2 (100%)	-	-	-	-	2 (100%)
9	3 (50%)	2 (33%)	1 (17%)	-	-	6 (100%)
12	2 (100%)	-	-	-	-	2 (100%)
15	7 (70%)	3 (30%)	-	-	-	10 (100%)
Total	133 (69%)	42 (22%)	5 (3%)	5 (3%)	7 (4%)	192 (100%)

*The 7 Other sherds from Features 6 and 11 include 1 El Paso R/Br, 1 Three Rivers R/T, 1 Jornada Scraped, and 1 possible Apache.

Table A2.2. LA 5378, Sherds by Feature

(No sherds: Features 3, 7, 8, 12*. Brown Ware is broken down in next table. Red-on-terracotta is Broadline or San Andres.)

Feature No.	Brown Ware	Mimbres B/W	Chupa-dero B/W	Red-slipped	Red-on-Terracotta	Other	Total
1	187 (88%)	-	10 (5%)	9 (4%)	5 (2%)	2 (<1%)	213 (100%)
2	291 (92%)	-	9 (3%)	10 (3%)	2 (<1%)	4 (1%)	316 (100%)
4	68 (92%)	1 (1%)	-	3 (4%)	1 (1%)	1 (1%)	74 (100%)
5	6 (100%)	-	-	-	-	-	6 (100%)
6	48 (96%)	1 (2%)	-	1 (2%)	-	-	50 (100%)

Table A2.2. LA 5378, Sherds by Feature

(No sherds: Features 3, 7, 8, 12*. Brown Ware is broken down in next table.
Red-on-terracotta is Broadline or San Andres.)

Feature No.	Brown Ware	Mimbres B/W	Chupa-dero B/W	Red-slipped	Red-on-Terracotta	Other	Total
9	6 (86%)	-	1 (14%)	-	-	-	7 (100%)
10	276 (97%)	-	-	7 (2%)	1 (<1%)	2 (<1%)	286 (100%)
11	248 (93%)	-	-	12 (5%)	2 (<1%)	5 (2%)	267 (100%)
13*	5 (100%)	-	-	-	-	-	5 (100%)
Total	1135 (93%)	2 (<1%)	20 (2%)	42 (3%)	11 (<1%)	14 (2%)	1224 (100%)

*Confusion in field notes. Feature numbers 12 and 13 probably refer to the same three trenches shown as Feature 12 on the site map.

Table A2.3. LA 5378, Brown Ware Sherds.
(Breakdown of sherds listed as Brown in Table A2.2.)

Vertical Provenience	Jornada Brown	Jornada Scraped	Jornada/ S. Pecos Brown	South Pecos Brown	Corona Corrugated	El Paso Brown	El Paso/ Jornada Brown	Unknown/ Uncertain	Total
Early Component: Pit House C (Feature 10)									
Floor	7 (64%)	-	2 (18%)	2 (18%)	-	-	-	-	11 (100%)
Early Component: Pit House D (Feature 11)									
Lower fill	6 (40%)	-	2 (13%)	7 (47%)	-	-	-	-	15 (100%)
Floor 1	11 (50%)	-	6 (27%)	5 (23%)	-	-	-	-	22 (100%)
Floor 2	5 (33%)	1 (7%)	6 (40%)	3 (20%)	-	-	-	-	15 (100%)
Late Component: Pit House A (Feature 1)									
Fill	34 (66%)	-	-	10 (20%)	-	1 (2%)	3 (6%)	3 (6%)	51 (100%)
Floor	7 (23%)	1 (3%)	6 (19%)	9 (29%)	4 (13%)	-	-	4 (13%)	31 (100%)
Late Component: Pit House B (Feature 2)									
Floor	49 (55%)	4 (5%)	11 (12%)	22 (25%)	1 (1%)	1 (1%)	-	1 (1%)	89 (100%)
Total	119 (51%)	6 (3%)	33 (14%)	58 (25%)	5 (2%)	2 (<1%)	3 (1%)	8 (3%)	234 (100%)

Table A2.4. LA 5380, Sherds by Feature.
(Brown Ware sherds are broken down in Table A2.5.)

Feature No.	Brown Ware	Chupadero B/W	Red-slipped	Broad-Line or San Andres R/T	Three Rivers R/T	Lincoln B/R	Indented Corrugated	Rio Grande Glaze A Red	El Paso Polychrome	Other	Total	Note
1	30 (71%)	6 (14%)	-	2 (5%)	1 (2%)	-	3 (7%)	-	-	-	42 (100%)	
2	59 (52%)	29 (26%)	5 (4%)	6 (5%)	1 (1%)	1 (1%)	8 (7%)	-	3 (2%)	1 (1%)	113 (100%)	(a)
3	91 (38%)	56 (23%)	1 (<1%)	2 (<1%)	5 (2%)	-	44 (18%)	-	4 (2%)	38 (16%)	241 (100%)	(b)
4	484 (55%)	76 (9%)	14 (2%)	39 (4%)	19 (2%)	3 (<1%)	87 (10%)	1 (<1%)	140 (16%)	12 (1%)	875 (100%)	(c)
5	72 (69%)	19 (18%)	3 (3%)	4 (4%)	3 (3%)	-	2 (2%)	-	1 (1%)	1 (1%)	105 (100%)	(d)
Total	736 54%	186 (14%)	23 (2%)	53 (4%)	29 (2%)	4 (<1%)	144 (10%)	1 (<1%)	148 (10%)	52 (4%)	1376 (100%)	(e)

Notes:

(a, Feature 2) The "Other" sherd is Tularosa Indented Corrugated.

(b, Feature 3) "Other" includes 20 sherds of on plain gray vessel with possible rhyolite temper.

(c, Feature 4) The Broadline/San Andres Red-on-terracotta includes several sherds each from two vessels, one a jar and the other a bowl. Most of the Indented Corrugated Sherds came from one or two vessels, as did most of the El Paso Polychrome.

(d, Feature 5) The "Other" sherd is Gila Polychrome.

(e, Totals) Since most of the Broadline/San Andres Red-on-terracotta, Indented Corrugated, and El Paso Polychrome sherds derive from one or two vessels in single proveniences, the site totals for these types also mostly represent one or two vessels. See Notes (b) and (c).

Table A2.5. LA 5380, Brown Ware Sherds.
(Breakdown of sherds listed as Brown in Table A2.4.)

Provenience	Jornada Brown	Jornada Scraped	Jornada/ S. Pecos Brown	South Pecos Brown	Corona Corru-gated	El Paso Brown	Unknown/ Uncertain	Total
Feature 4 fill (possible structure)	60 (58%)	4 (4%)	12 (12%)	15 (15%)	7 (7%)	5 (5%)	-	103 (100%)
Feature 5, pit house floor fill	40 (70%)	1 (2%)	2 (4%)	1 (2%)	4 (7%)	7 (12%)	2 (4%)	57 (100%)
Total	100 (63%)	5 (3%)	14 (9%)	16 (10%)	11 (7%)	12 (8%)	2 (1%)	160 (100%)

Appendix 3

DESCRIPTIONS OF SHERDS IN THE PETROGRAPHIC SAMPLE

David V. Hill

LA 5378

FS 5378-2-26 (11), Corona Corrugated

The paste of this sherd is dark brown. It contains mineral grains from a granite aplite. The minerals present include roughly equal proportions of quartz, untwinned alkali feldspar, and plagioclase. A trace amount of brown biotite is also present. The mineral grains range from silt-sized to medium sized. The mineral grains and sparse fragments of granite aplite account for about twenty percent of the ceramic paste.

LA 5380

FS 5380-4-34 (6), Jornada Brown

The paste of this sherd is dark brown. The inclusions present are bimodally distributed in terms of their sizes. The smaller inclusions consist of highly weathered untwinned alkali feldspar with a trace amount of quartz and brown biotite, indicating a plutonic origin. The smaller inclusions range in size from silt-sized to fine and are angular. The smaller inclusions account for about 20 percent of the paste, presenting a sandy appearance to the sherd.

The larger fraction of inclusions in the paste consists of isolated angular grains of untwinned alkali feldspar, plutonic rock fragments composed of two or three alkali feldspar grains or, rarely, fragments of alkali feldspar with a single quartz grain. A trace amount of brown biotite is also present. These inclusions range from medium to coarse in size. In general, the alkali feldspar grains are weathered to the point of almost obscuring their optical properties. Also present in the paste are two very coarse-sized fragments of fine-grained quartzite.

FS 5380-4-34 (106), Jornada Brown

The paste of this sherd is medium brown. It contains silt-sized to fine sized angular grains composed of quartz, untwinned alkali feldspar with traces of plagioclase and brown biotite. Two coarse-sized grains of untwinned alkali feldspar are also present. The mineral grains and a single fragment of aplite granite range in size from silt-sized to medium sized and account for about 15 percent of the paste. The mineral grains resemble the sediments associated with the aplite granite observed in samples 5380-0-3 (13) and (14). The alkali feldspar grains range in appearance from fresh to weathered to the point of opacity.

FS 5380-4-34 (107), Jornada Brown

The paste of this sherd is dark brown. It contains about 15 percent angular sediments derived from granite. The isolated mineral grains range in size from silt-sized to fine. The fragments of granite range from fine to medium-sized. The abundance of isolated mineral grains and the continuous size distribution indicate that the ceramic vessel was made using clays containing sediments weathered from a source of granite. The predominant minerals in the paste include quartz, untwinned alkali feldspar and plagioclase. Trace amounts of brown biotite are present in the fragments of granite and as isolated mineral inclusions. Epidote is also present in a trace amount.

Another indicator of a weathered source of the granite is the alkali feldspar grains. Most of the untwinned alkali feldspar and plagioclase grains are weathered to the point of virtually obscuring their optical characteristics.

FS 5380-4-34 (121), Jornada Brown

The dark brown paste of this sherd is virtually identical to that of Sample FS 5380-4-35. It contains 20 percent angular silt-sized to medium-sized mineral grains and fragments of aplite granite. The rock fragments are equigranular in texture (the individual minerals in the granite are roughly the same size). The abundance of isolated mineral grains and the continuous size distribution indicate that the ceramic vessel was made using clays containing sediments weathered from a source of aplite granite.

Minerals present include quartz, untwinned alkali feldspar and, plagioclase. The isolated grains of alkali feldspar and plagioclase range from having a fresh unweathered appearance to being weathered almost to the point of being opaque.

5380-4-34 (122), Jornada Brown

The paste of this sherd is reddish brown. It contains fragments of granite and isolated mineral grains that likely came from the same source as the granite. Together the rock fragments and mineral grains account for about 15 percent of the ceramic paste. These angular inclusions range from very fine to very coarse in size. The granite fragments are composed of quartz, untwinned and microcline twinned alkali feldspar, and plagioclase. Three of the fragments of granite display myrmekitic intergrowth of plagioclase and quartz. A trace amount of muscovite is also present in the paste of this sherd.

FS 5380-4-34 (125), Jornada Brown

The paste of this sherd is medium brown. The inclusions present exhibit a bimodal distribution in terms of their sizes and amounts. The majority of the inclusions consist of isolated angular grains composed of quartz, untwinned alkali feldspar, microcline, and plagioclase. Brown biotite is also present in a trace amount. The small mineral grains range in size from silt-sized to medium-sized. The mineral grains account for about 10 percent of the ceramic paste. The alkali feldspars appear fresh and unweathered.

Also present in the paste are angular fragments of microcline granite. The fragments of granite range in size from medium to very coarse in size and account for an additional 3 percent of the ceramic paste. A distinct feature of the granite is the presence of myrmekitic texture, a distinct feature based on the appearance of the intergrowth of quartz and alkali feldspar.

Round fecal pellets or soil pizolites are present in the paste in a trace amount. These inclusions are characterized by a silty texture and contain a trace amount of silt-sized quartz. These round inclusions are all medium-sized.

FS 5380-4-35 (111), Jornada Brown

The paste of this sherd is dark brown. It contains 25 percent angular silt-sized to medium-sized mineral grains and fragments of plutonic rock. The rock fragments and mineral grains range in size from very fine to coarse. The abundance of isolated mineral grains and the continuous size distribution indicates that the ceramic vessel was made using clays containing sediments weathered from a source of aplite granite.

Minerals present include quartz, untwinned alkali feldspar, plagioclase, and a trace amount of brown biotite. The isolated grains of alkali feldspar and plagioclase range from having a fresh unweathered appearance to being weathered almost to the point of being opaque.

The observed trace amount of plutonic rock fragments includes aggregate masses of quartz and untwinned alkali feldspar. One fragment of granite aplite is also present.

FS 5380-4-34 (128), El Paso Brown?

The paste of this sherd is reddish brown and is also birefringent (optically active). The paste contains angular sediments derived from granite. The minerals present in the paste of the sherd include quartz, untwinned and microcline twinned alkali feldspar, and plagioclase. The alkali feldspar grains range in appearance from fresh to weathered to the point of opacity. The mineral grains account for about 10 percent of the ceramic paste and range in size from very fine to very coarse.

FS 5380-2-10 (A), San Andres Red-on-terracotta

The paste of this sherd is light brown. The paste contains about five percent isolated mineral grains and rock fragments derived from a plutonic source. The isolated mineral grains range in size from silt-sized to medium. The most common mineral in the paste is quartz. About one third of the quartz grains display undulose extinction, an indication of their metamorphic origin. Also present are untwinned alkali feldspar and rare plagioclase and microcline.

The plutonic rock fragments make up less than 1 percent of the ceramic paste. The rock fragments range in size from medium-sized to very coarse. The most common type of rock fragment is granite composed of quartz, untwinned alkali feldspar, and plagioclase. Individual fragments of quartzite, quartz, and muscovite schist are also present. The limited amount of

inclusions in the sherd and their small size indicate that the mineral grains and rock fragments are likely natural inclusions in the ceramic paste.

FS 5380-3-7 (B), Three Rivers series terracotta

The paste of this sherd is dark brown. The paste contains isolated mineral grains composed primarily of untwinned alkali feldspar, plagioclase, and fragments of monzonite. A trace amount of quartz was observed in five of the monzonite fragments. A trace amount of brown biotite is also present in the paste and in one fragment of monzonite. The fragments of monzonite and the mineral grains range from silt-sized to coarse in size and account for 15 percent of the ceramic paste. The alkali feldspar grains frequently are weathered almost to the point of opacity.

5380-0-3 (13), Corona Corrugated

The paste of this sherd is dark brown. The paste contains 25 percent angular silt-sized to medium-sized mineral grains and fragments of aplite granite. The rock fragments are equigranular in texture. The abundance of isolated mineral grains and the continuous size distribution indicate that the ceramic vessel was made using clays containing sediments weathered from a source of aplite granite.

Minerals present include quartz, untwinned alkali feldspar, and plagioclase. The isolated grains of alkali feldspar and plagioclase range from having a fresh unweathered appearance to being weathered almost to the point of being opaque.

5380-0-3 (14), Corona Corrugated

The paste of this sherd is dark brown. The paste contains 20 percent angular silt-sized to medium-sized mineral grains and fragments of granite aplite. The rock fragments are equigranular in texture. The abundance of isolated mineral grains and the continuous size distribution indicates that the ceramic vessel was made using clays containing sediments weathered from a source of granite aplite.

Mineral present include quartz, untwinned alkali feldspar, and plagioclase. The isolated grains of alkali feldspar and plagioclase range from having a fresh unweathered appearance to being weathered almost to the point of being opaque.

FS 5380-2-1 (21), Corona Corrugated

The paste of this sherd is black and opaque. The paste contains about 15 percent isolated mineral grains derived from a plutonic source, most like a granite aplite. Quartz, untwinned alkali feldspar and, rarely, microcline-twinned alkali feldspar and plagioclase. The mineral grains are predominately fine in size but range from silt-sized to medium-sized.

Three fragments of caliche are also present in the paste of this sherd.

FS 5380-2-1 (22), Corona Corrugated

The paste of this sherd is black and opaque. The paste contains fragments of granite and mineral grains derived from granite. The angular rock fragments and mineral grains account for about 20 percent of the ceramic paste and range in size from very fine to very coarse. The major minerals present in the paste are quartz, untwinned alkali feldspar, and microcline-twinned feldspar and plagioclase. The feldspars appear fresh and unweathered. A trace amount of brown biotite and hornblende are also present in the paste. These two minerals are likely components of the granite. A trace amount of the fragments of granite displays myrmekite texture (wormy intergrowth of quartz in plagioclase).

A single medium-sized rounded grain of diabase is present. The groundmass is aphanitic and contains abundant laths of andesine plagioclase and cubic magnetite. Three medium-sized sub-angular fragments of sandy siltstone are also present.

FS 5380-2-18c (20), Corona Corrugated

Except for containing more mineral grains, this sample closely resembles FS 5380-2-18c (19) in the types of minerals present, their size, and amount of quartz and untwinned alkali feldspar. The paste of this sherd is dark brown. The paste contains about 15 percent angular isolated mineral grains and a trace amount of fragments of aplite granite. In general, the mineral grains range from silt-sized to medium-sized. Four coarse fragments of untwinned alkali feldspar are also present in the paste. Quartz and untwinned alkali feldspar are present in roughly equal amounts.

5380-2-18b (16), Corona Corrugated

The paste of this sherd is dark brown. The paste contains 20 percent angular silt-sized to coarse mineral grains and fragments of aplite granite. The rock fragments are equigranular in texture. The abundance of isolated mineral grains and the continuous size distribution indicate that the ceramic vessel was made using clays containing sediments weathered from a source of aplite granite.

Minerals present include quartz, untwinned alkali feldspar, and plagioclase. The isolated grains of alkali feldspar and plagioclase range from having a fresh unweathered appearance to being weathered almost to the point of being opaque.

FS 5380-2-25 (15), Corona Corrugated

The paste of this sherd is dark brown. The paste contains 25 percent angular silt-sized to medium-sized mineral grains and fragments of aplite granite. The rock fragments are equigranular in texture. The abundance of isolated mineral grains and the continuous size distribution indicate that the ceramic vessel was made using clays containing sediments weathered from a source of aplite granite.

Minerals present include quartz, untwinned alkali feldspar, and plagioclase. The isolated grains of alkali feldspar and plagioclase range from having a fresh unweathered appearance to being weathered almost to the point of being opaque.

One medium-sized and two fine fragments of caliche are also present in the paste.

5380-3-1 (7), Corona Corrugated

The paste of this sherd is black and opaque. The paste contains mineral grains derived from a plutonic source, most likely granite. The minerals present consist of quartz, untwinned alkali feldspar and, rarely, microcline-twinned feldspar and plagioclase. Trace amounts of brown biotite are present. One grain of epidote was observed. The mineral grains accounts for about 20 percent of the ceramic paste. The mineral grains range in size from very fine to very coarse.

FS 5380-5-2 (23), Corona Corrugated

The paste of this sherd is very dark brown. The paste contains mostly isolated mineral grains composed primarily of untwinned alkali feldspar, with lesser amounts of quartz and plagioclase. Due to the small size of most of the mineral grains, it is not possible to use a visual examination to describe relative frequencies the various minerals. Also, many of the alkali feldspar grains are highly altered to a clay mineral, obscuring their optical characteristics. The mineral grains range in size from silt-sized to, rarely, coarse. The mineral grains account for about 20 percent of the ceramic paste. The sediments are derived from a source of granite, possibly granite porphyry.

A single coarse grain of biotite schist is also present in the paste of this sherd.

FS 5380-2-25 (17), Corona Corrugated, Smudged Interior

The paste of this sherd is black and opaque. The paste contains predominately isolated grains of weathered untwinned alkali feldspar. Quartz is also present, at a ratio of five such grains to one of untwinned alkali feldspar. Trace amounts of plagioclase, microcline, and brown biotite are also present in the ceramic paste. The isolated mineral grains range from silt-sized to medium-sized and account for 15 percent of the ceramic paste. The ubiquity of the grains decreases with increasing size, so there are more finer mineral grains than larger ones.

About 1 percent of the paste is made up of fragments of monzonite, likely the source of the untwinned alkali feldspar. The alkali feldspar in the monzonite is weathered, as are the isolated mineral grains. The monzonite grains range from medium-sized to coarse.

Two fragments of volcanic rock are also present in the paste. One fine-sized fragment of black basalt is present. One coarse fragment of brownish gray tuff is also present.

5380-2-18a (18), Corona Corrugated

The paste of this sherd is brown. The paste contains sediments derived from a plutonic source. The major rock type represented is granite. Two textures of granite are present in the paste, fine-

textured aplite granite and slightly coarser textured equigranular granite. The granite aplite fragments are composed of quartz, untwinned alkali feldspar, and plagioclase. These fragments, and the isolated grains of alkali feldspar and quartz derived from them, range in appearance for fresh to weathered to the point of opacity. The rock fragments and mineral grains range in size from very fine to coarse.

Individual grains from much coarser textured granite are also present. These coarser grains can also indicate variation in the sizes of minerals that are present in the source of the granite. In addition to quartz, untwinned alkali feldspar, and quartz, microcline and muscovite are present. The isolated mineral grains from the coarse-textured granite range from medium-sized to very coarse. Together the two texture types of granite and their associated mineral grains account for about 15 percent of the ceramic paste.

FS 5380-3-2 (24), Corona Corrugated

The paste of this sherd is dark brown. The paste contains 15 percent angular silt-sized to medium-sized mineral grains and fragments of aplite granite. The fragments of aplite granite range in size from medium to very coarse. The rock fragments are equigranular in texture. The ceramic vessel was made using clays containing sediments weathered from a source of aplite granite.

Minerals present include quartz, untwinned alkali feldspar, and plagioclase. The isolated grains of alkali feldspar and plagioclase range from having a fresh unweathered appearance to being weathered almost to the point of being opaque.

FS 5380-4-1 (1), Corona Corrugated

The paste of this sherd is black and opaque. The paste contains isolated mineral grains that range from silt-sized to medium-sized. Due to the small size of most of the mineral grains, it is not possible to use a visual examination to describe relative frequencies the various minerals. The minerals that can be identified are primarily untwinned alkali feldspar, with a lesser amount of quartz. The alkali feldspar grains are frequently altered to clay minerals, obscuring their optical characteristics. The mineral grains account for about 5 percent of the ceramic paste and range in size from silt-sized to medium-sized. The small size and angular shape of the identifiable mineral grains are similar in appearance to the minerals present in the sherds containing granite aplite. It is likely that this sherd was made from clay containing sediments derived from granite aplite.

FS 5380-4-1 (2), Corona Corrugated

The paste of this sherd is very dark brown and opaque. The paste contains about 35 percent mineral grains composed primarily of untwinned alkali feldspar and plagioclase. Quartz makes up about 5 percent of the mineral grains present in the ceramic paste. Brown biotite is present in a trace amount. The mineral grains range from silt-sized to medium-sized.

One medium-sized fragment of granite aplite is present in the paste of this sherd. A single coarse fragment and three fine fragments of caliche are also present in the paste. Also present is a very fine grain of epidote.

FS 5380-4-1 (3), Corona Corrugated

The paste of this sherd is medium yellow-brown. The paste contains primarily angular mineral grains weathered from microcline granite. The mineral grains are composed of roughly equal parts of quartz, untwinned and microcline twinned alkali feldspar, and plagioclase. A trace amount of brown biotite is also present in the paste. The mineral grains range is size from very fine to coarse and account for about 10 percent of the ceramic paste.

FS 5380-4-1 (4), Corona Corrugated

The paste of the sherd is dark brown. The paste contains 20 percent angular silt-sized to medium-sized angular grains, consisting of quartz, untwinned alkali feldspar, and plagioclase. A trace amount of medium-sized to coarse fragments of granite are also present the ceramic paste. The fragments of granite also contain quartz, untwinned alkali feldspar, and plagioclase. Also present in the rock fragments is a trace amount of microcline and brown biotite. In general, the untwinned alkali feldspars are weathered, some to the point of opacity. The abundance of the smaller-sized sediments indicate the use of clay that contained the sediments.

A long pore surrounded by a black halo formed from the combustion of a small fragment of wood. The wood fragment was likely an accidental inclusion in the ceramic paste.

FS 5380-4-24 (29), Corona Corrugated

The paste of this sherd is dark reddish brown. The paste contains angular mineral grains composed of roughly equal amounts of untwinned alkali feldspar, quartz, and plagioclase. Trace amounts of microcline and brown biotite are also present. Much of the biotite has weathered to black opaque inclusions stained by hematite. The mineral grains account for about 20 percent of the paste. The mineral grains range from silt-sized to medium-sized. The sediments are derived from a plutonic source, most likely aplite granite.

FS 5380-4-27 (9), Corona Corrugated

The dark brown paste contains isolated mineral grains and, rarely, fragments of aplite granite. The mineral grains consist primarily of untwinned alkali feldspar and quartz, in roughly equal proportions. The isolated mineral grains and rock fragments account for about 20 percent of the ceramic paste. The fragments of aplite granite and the isolated minerals range from silt-sized to coarse.

The rock fragments, which comprise less than 1 percent of the paste, are equigranular masses of untwinned alkali feldspar, with quartz as a rare accessory mineral. These rock fragments range from medium-sized to coarse. The alkali feldspar occurs as isolated grains and also in the rock fragments, where it appears fresh and unweathered.

The paste contains one very coarse fragment and three medium-sized fragments of caliche.

FS 5380-4-27 (10), Corona Corrugated

The dark brown paste of this sherd contains isolated mineral grains, primarily untwinned alkali feldspar and plagioclase in roughly equal amounts. About 10 percent of the mineral grains are quartz. The mineral grains range from silt-sized to coarse and account for about 15 percent of the ceramic paste.

An additional 1 percent of the paste consists of fragments of granite aplite. The minerals in the aplite granite are equigranular. The quartz monzonite fragments also equigranular and contain about 10 percent quartz. The rock fragments range from medium-sized to very coarse.

FS 5380-5-5 (19), Corona Corrugated

Except for containing more mineral grains, this sample closely resembles FS 5380-2-18c (20) in terms of types of minerals present, their size, and the amount of quartz and untwinned alkali feldspar. The paste of this sherd is dark brown and contains about 10 percent angular isolated mineral grains. In general, the mineral grains range from silt-sized to medium-sized. Four coarse fragments of untwinned alkali feldspar are also present in the paste. Quartz and untwinned alkali feldspar are present in roughly equal amounts. One medium-sized fragment of granite aplite is also present in the ceramic paste.

Appendix 4

ARTIFACT DESCRIPTIONS BY SITE

Table A4.1. LA 5377, Formal Artifacts.

FS Number, Provenience, Cat. No.	Brief Description	Size (mm)	Additional Description and Comments
5377-0-3 Surface, E end of site Cat. No. 2286	Arrow point, side notched, straight base	24 by 11 by 3.5	Red, gray, and yellow chert that *might* be (but probably is not) Tecovas. Tip either poorly finished or reworked. Fig. 29a.
5377-3-3 Fill 51 cm below surface Cat. No. 2286	Arrow point, side notched, straight base	30.5 by 12.5+ by 2.5	Very light gray chert with very faint gray streaks that run lengthwise (probably fingerprint chert). One side of base missing. Superlative example of knapping. Fig. 29b.
5377-3-15 Feature 3, outside E wall No catalogue number	Drill with expanded proximal end (but not T-shaped)	38 by 15 by 4	Light to medium gray chert. Could have been made from an Archaic point but probably not. Tip blunted from use. Fig. 29c.
5377-(6&11)-4 Fill Cat. No. 2286	Flake tool	24+ by 21+ by 8	Dark gray-brown chert flake with one edge modified, the other two edges broken away. When complete, could have been hafted like an end scraper. Cortex on dorsal surface intact.
5377-0-2 Surface Cat. No. 57433	Mano, one-hand (new)	158 by 98 by 45	817 grams. Unshaped river cobble with one face showing minimal grinding wear. Porphyritic monzonite/quartz monzonite? Fig. 29e shows plan and profile.
5377-3-4 Floor along SE wall Cat. No. 57433	Mano, two-hand	238 by 116 by 68	2359 grams. River cobble with one well-developed grinding surface but no other modification. Fine-grained mesocratic igneous rock with off-white spar(s) and black mafics. Grinding surface is flat, i.e., used on a slab metate. Fig. 29f.
5377-3-10 Fill Cat. No. 2286	Stone cylinder	58 by 85 by 78	Calcium carbonate; according to C. L. Kieffer of the ARC, Santa Fe, may be derived from a cave formation. Artifact has a natural depression in one end that measures 33 by 33 by 9 mm. The item is unmodified but definitely a manuport (see discussion in text). Fig. 29d.

Table A4.2. LA 5378, Formal Artifacts.

FS Number, Provenience, Cat. No.	Brief Description	Size (mm)	Additional Description and Comments
5378-4-3 Fill Cat. No. 2402	Arrow point	18+ by 12 by 3	Base missing. Light to medium gray chert with dark brown specks. Point style is Neff's Livermore/Diablo. Component uncertain. Fig. 30L.
5378-1-3 Rock concentration Cat. No. 2402	Late Archaic dart point	49 by 29 by 8	Corner-notched; reworked. Light gray-brown chert with dark brown specks and very faint microscopic fingerprint pattern. Late component. Fig. 30i.
5378-1-4 Rock concentration Cat. No. 2402	Small Late Archaic dart point base	21+ by 22+ by 4.5	Corner-notched. Dark gray-brown and dark gray chert. A classic "darrow" in the Katzes' sense. Late component. Fig. 30j.
5378-2-? NE quadrant Cat. No. 2402	Late Archaic dart point	44.5 by 25 by 6	Corner-notched. Coarse chert that is medium to dark gray. Late component. Fig. 30k.
5378-11-7 Fill Cat. No. 2402	Late Archaic dart point	38+ by 21+ by 7	Corner-notched. Medium brown-gray and dark gray fingerprint chert. Early component. Fig. 30q.
5378-2-25 Floor, SE quadrant Cat. No. 2402	Late Archaic preform	40 by 25.5 by 5.5	Coarse fossiliferous chert that is medium to dark gray. Late component. Fig. 30m.
5378-2-28 Floor Cat. No. 2402	Late Archaic preform	39 by 27 by 5	The attempt to create the first corner notch was botched. Medium brown-gray chert. Late component. Figure 30n.
5378-2-31 Floor Cat. No. 2402	"Biface fragment," actually a Late Archaic preform	29+ by 10+ by 4+	Basally notched; broken during notching. Medium gray chert. Late component. Fig. 30o.
5378-2-33 Fill Cat. No. 2402	"Biface fragment," actually a Late Archaic preform	32+ by 10+ by 4+	Broken while attempting a basal notch. Fingerprint chert. Late component. Fig. 30p.
5378-11-4 Fill Cat. No. 18324	Awl	126 by 13 by 8	Splinter of a split long bone with part of an epiphysis. The sharp point is the only modification. Early component. Fig. 30c.

Table A4.2. LA 5378, Formal Artifacts.

FS Number, Provenience, Cat. No.	Brief Description	Size (mm)	Additional Description and Comments
5378-11-6 Fill Cat. No. 18324	Awl	112 by 10 by 4	Split long bone with one end sharpened (for about 1/3 of the length), otherwise unmodified. Early component. Fig. 30d.
5378-11-16 Floor near wall Cat. No. 18324	Awl	113 by 11 by 10	Split long bone with part of an epiphysis. The distal 62 mm of bone fragment is modified. The point is rounded from use. Early component. Fig. 30e
5378-1-12 Cat. No. 18324	"Awl"		Listed as an awl tip in the FS sheets but actually an unmodified bone fragment.
5378-11-21 Lower fill Cat. No. 18324	Spatulate awl	86+ by 14.5 by 6	Long bone splinter with distal end ground into a flat (spatulate) shape. Rest of bone unmodified. Proximal end may be missing. Early component. Fig. 30f.
5378-2-7 Fill Cat. No. 18324	Gaming piece	25 by 12 by 3.5	Rectangular with rounded corners. Eroded surfaces. Late component. Fig. 30a.
5378-11-24 Floor Cat. No. 18324	Gaming piece	11.5 by 10.5 by 3.5	Rectangular with rounded corners. Eroded surfaces. Early component. Fig. 30b.
5378-11-15 Floor or lower fill Cat. No. 18324	Rasp	169+ by 25.5 by 7	Split long bone with wide end partly rounded, narrow end missing. Curved surface has 36 incised lines that extend from edge to edge, starting 26 mm from the wide end and spaced 3–4 mm apart. Early component. Fig. 30g. FS 5378-2-18 may be part of this rasp.
5378-2-18 Floor Cat. No. 18324	Rasp fragment?		Too fragmentary to measure or otherwise handle. May be part of FS 5378-11-15. Late component.
5378-11-25 Fill Cat. No. 18324	Shell scraper	56 by 37 by 1.5–2	Freshwater mollusk valve with all edges ground after most of the umbo was removed. The longest edge shows clear evidence of use to scrape soft materials (striae transverse to edge). Based on the umbo remnant, the shell may be *Cyrtonaias tampicoensis* (Texas Pearly Mussel). Early component. Fig. 30b.

Table A4.2. LA 5378, Formal Artifacts.

FS Number, Provenience, Cat. No.	Brief Description	Size (mm)	Additional Description and Comments
5378-11-44 Pit, NW corner Cat. No. 18324	"Polished bone"	18+ by 16 by 5	May be the proximal end of an awl. High polish on curved exterior surface of bone. Early component.
5378-2-8 Fill Cat. No. 18324	Possible antler fragments		Too small to measure. If fragments of an artifact, the artifact type cannot be determined. Late component.
5378-2-9 Fill, NE corner Cat. No. 2402	Large biface, possibly a knife	97 by 49 by 11	Coarse chert or silicified siltstone or very fine quartzite, medium gray. Some of the flaking looks like Paleoindian work and the piece is reminiscent of a Paleoindian biface core. Late component. Fig. 30r.
5378-1-2 Fill Cat. No. 2402	Thick biface fragment	33+ by 21+ by 8+	Dark brown-gray chert. Roughly flaked, probably a first state preform. Late component.
5378-11-37 Floor 2 Cat. No. 25097	Large, thin biface fragment	25+ by 31+ by 5+	Very light gray chert. Finely flaked. Early component
5378-2-10 Fill Cat. No. 2402	Large, irregular biface	50 by 49 by 7.5	Light gray chert with dark specks. Two flake scars reveal "fingerprinting" (fine banding) in the interior of the piece. Artifact consists of two refitting pieces; one small piece missing. Late component.
5378-9-1 Fill Cat. No. 25097	Chopper	75 by 59 by 20	Dark gray siltite. One lightly battered edge; rest of the piece consists of the unmodified exterior of a cobble. Component uncertain.
5378-2-34 Floor Cat. No. 25097	Hafted scraper	45 by 31 by 8.5	Medium gray-brown chert. Scraping edge is 13 mm long, convex, and use-worn. Called a "fiber stripper" in the original records. Late component.
5378-1-17 Rock concentration E of pit house Cat. No. 2402	Flake tool	35 by 18 by 7	Light gray and medium-dark gray chert. One lateral use edge, 22+ mm long, is unifacially worn. Late component.

Table A4.2. LA 5378, Formal Artifacts.

FS Number, Provenience, Cat. No.	Brief Description	Size (mm)	Additional Description and Comments
5378-6-? Fill No catalogue number	Flake tool	49 by 24 by 71	Tan to medium to dark brown-gray fingerprint chert. Flaking and use wear on both lateral edges. Late component.
5378-6-? Fill Cat. No. 2285	Flake tool	68 by 28 by 6.5–8	Fingerprint chert. Use wear along 26 mm of one lateral edge. Late component.
5378-2-6 Fill, 70 cm below surface Cat. No. 46377	Metate, large basin type	550 by 210 by 110	Sandstone (?) or lucocratic igneous rock. Except for grinding surface, minimal modification (flaking and grinding to reduce projections on rock). Concavity of grinding surface is pronounced along longitudinal axis, slight (1 cm deep) along transverse axis. Late component.
5378-11-18 Lower fill Cat. No. 56658	Metate fragment, large basin type	270+ by 134+ by 71+	One edge present; that edge was partly shaped by flaking. Otherwise no modification except for grinding surface. That surface is well-developed; it covered the entire top of the stone, up to the flake scars. Original stone was water-worn. Early component.
5378-0-? Surface Cat. No. 56647	One-hand mano	102+ by 114 by 65	794+ grams. One fairly well-developed grinding surface with a pronounced convexity along both axes. No other modification to the original river cobble. Porphyritic mesocratic igneous rock with off-white spar matrix; phenocrysts mostly medium to dark gray. Sierra Blanca spar with some black mafics and other accessory minerals. Component uncertain. Fig. 30v.
5378-6-3 Fill Cat. No. 56647	One-hand mano	138+ by 99 by 51	680+ grams. One grinding surface that is slightly convex in longitudinal cross-section and moderately convex in transverse cross-section. Except for grinding surface, mano is an unmodified river cobble. Battered area on one end postdates use as mano. Leucocratic igneous rock, probably a monzonite or quartz monzonite, with mainly off-white spar(s), some clear spar or quartz, and black mafics. Late component. Fig. 30s.

Table A4.2. LA 5378, Formal Artifacts.

FS Number, Provenience, Cat. No.	Brief Description	Size (mm)	Additional Description and Comments
5378-11-10 Fill near north corner Cat. No. 56647	One-hand mano	138 by 126 by 70	2155 grams. One well-developed grinding surface that is slightly convex in both cross-sections. River cobble of light gray sandstone. Both lateral edges, one end, and the top surface show evidence of shaping by pecking and grinding. The other end is broken but otherwise unmodified. Early component. Fig. 30t.
5378-11-19 Lower fill Cat. No. 56647	One-hand mano, loaf type	142 by 123 by 102	2268 grams. One fairly well-developed grinding surface that is almost double-faceted. Grinding surface is slightly convex in longitudinal cross-section but strongly convex in transverse cross-section. River cobble that has sheen on its other two faces but despite this, other than the grinding surface it may not have been shaped. Mesocratic igneous rock that is mainly an off-white to light gray spar; small black mafics are common. Early component. Fig. 30u.
5378-10-11 Fill Cat. No. 25097	Polishing stone for pottery production	40 by 32 by 23	River pebble that is highly shiny over its entire surface. See the text for a full description and discussion. Early component.
5378-2-22 Floor Cat. No. 25097	Selenite sheet fragments	28+ by 28+ by 1	Late component
5378-11-39 Floor 2 Cat. No. 2402	“Polishing stone”	60 by 47 by 25	River pebble with one heat spall but no other evidence of modification. Rounded rectangular shape. Probably a manuport. Early component.
5378-11-43 Pit in NW corner Cat. No. 2402	“Smoothed pebble”	34 by 12.5 by 14	Large piece of gravel with an odd shape and curious but natural faceting. Most of those facets have a slight sheen (also natural?). Early component.
5378-2-15 Floor fill Cat. No. 2402	“Flake of quartz crystal”	16 by 11.5 by 4	Clear, glass-like. Appears to me (RNW) to be a piece of modern glass that went through an NMDOT gravel crusher. Late component.
5378-1-12 Floor Cat. No. 18324	Small fragment of freshwater shell		Late component

Table A4.2. LA 5378, Formal Artifacts.

FS Number, Provenience, Cat. No.	Brief Description	Size (mm)	Additional Description and Comments
5378-1-18 Pit in NW corner Cat. No. 18324	Small fragment of freshwater shell		Late component
5378-2-7 Fill Cat. No. 18324	Small fragment of freshwater shell		Late component
5378-2-14 Fill Cat. No. 18324	Small fragment of freshwater shell		Late component
5378-2-17 Fill Cat. No. 18324	Small fragment of freshwater shell		Late component
5378-10-10 Fill Cat. No. 18324	Small fragment of freshwater shell		Early component
5378-11-9 Fill next to NW wall Cat. No. 18324	Small fragment of freshwater shell		Early component
5378-11-26 Fill Cat. No. 18324	Small fragment of freshwater shell		Early component
5378-2-32 SW quadrant, 35 cm below modern surface Cat. No. 18324	Fragments of terrestrial snail shell		Fragments may be from a single crushed shell. Late component.

Table A4.3. LA 5380, Formal Artifacts.

FS Number, Provenience, Cat. No.	Brief Description	Size (mm)	Additional Description and Comments
5380-2-26 Post hole? Cat. No. 2384	"Projectile point," actually a preform	25+ by 15.5 by 5	Dark gray rhyolitic chert with black specks and light gray crystalline phenocrysts. Fig. 31b.
5380-2-27 Post hole? Cat. No. 2384	"Chert biface," actually a preform	21+ by 19.5 by 4	Medium to dark brown-gray chert. Proximal 2/3 of an arrow point preform. Convex base. Fig. 31c.
5380-3-12 Fill Cat. No. 2384	Drill fragment, distal end	35+ by 7+ by 4+	No evidence on shape of proximal end. Fig. 31d.
5380-4-5 Fill in NE corner Cat. No. 2384	Fragment of a stone finger ring	See comments	Fine-grained dark brown stone. When ring was complete, the inside diameter was ca. 14 mm, while the band was 9 mm wide and 2 mm thick.
5380-4-22 Fill Cat. No. 2384	Large, thick stone bead	23.5 by 9.5; hole 7.5–10.5 in diam.	White aragonite (fizzes somewhat under 10% HCl). Reminiscent of beads found near Bent, N.M. and believed to have been traded from the Bruton Bead Site. Fig. 31a.
5380-4-1 Stripping Cat. No. unknown	Mano fragment		End fragment of a loaf style mano with battering on that end. Has three facets: one grinding surface, one shaped by pecking and grinding, one split away during use as a fire stone.
5380-4-1 Stripping Cat. No. unknown	Mano fragment		Lateral edge fragment; could be from either a one-hand or a two-hand example. Two grinding surfaces, both well worn. Mesocratic igneous rock with coarse crystalline structure.
5380-5-3 Floor Cat. No. 2384	"Rocks, polished from floor wear"	Largest one 35 by 24 by 16	These appear to be fire-broken fragments of bird gizzard stones (gastroliths).
5780-4-4 Fill Cat. No. 2384	"Possible bow fragments"	57+ by 11 by 4+	Small, narrow wood strip burned on one face. Unlikely to have been part of a bow. May be modern trash.

Appendix 5

TOOL STONE MATERIALS AND VARIATIONS

For combination colors such as grayish-brown, the second color is the dominant color. Off-white refers to a cream or ivory color rather than a grayish-white.

Table A5.1. Materials and Variations for Cores, Core Flakes, Biface Thinning Flakes, and "Shatter" Combined.

	LA 5377	LA 5378		LA 5380
		Early	Late	
Chert				
Miscellaneous/various gray	-	-	92	3
Very light gray, with black next to exterior surface	1	-	1	-
Light gray	-	2	14	2
Light gray with brown specks	-	1	-	-
Light gray and orange-brown	-	-	1	-
Light to medium brownish-gray	1	2	2	-
Light to medium grayish-brown with black specks	-	1	1	-
Light and medium gray	-	4	5	1
Light and medium gray with red specks	-	-	-	1
Light, medium, and dark gray	1	2	5	-
Medium gray	-	5	2	-
Medium gray, speckled	-	-	1	-
Medium and dark gray, mottled	-	1	1	1
Medium and dark gray, striped (but not fingerprint)	1	-	-	-
Medium to dark gray	-	1	7	-
Medium brownish-gray	1	1	-	-
Medium grayish-brown	-	-	2	1
Medium grayish-brown and dark gray	1	-	2	-
Dark gray	2	5	5	3
Coarse dark gray	-	-	4	-
Dark grayish-brown	-	-	4	-
Dark gray chalcedonic	-	-	1	-
Coarse black	-	-	1	-
Dark grayish-black	4	8	2	26
Black	3	37	30	17
White	-	-	-	1
White with tiny iron inclusions	1	-	-	-
Off-white	-	-	-	1
Off-white to light gray	-	-	2	1
Off-white to light and medium gray	1	-	8	-
Off-white, dark gray, and grayish-red	-	-	1	-
Tan with red and dark gray, plus white spots	-	-	1	-
Fingerprint: "normal" (all bands narrow)	-	5	15	1

Table A5.1. Materials and Variations for Cores, Core Flakes, Biface Thinning Flakes, and "Shatter" Combined.

	LA 5377	LA 5378		LA 5380
		Early	Late	
Fingerprint: thin light gray and wide dark gray bands	-	-	1	-
Orange to red (heat-treated gray?)	-	-	3	-
Siltite (Silicified Siltstone)				
Light gray	-	-	-	2
Light, medium, and dark gray	-	-	1	-
Medium grayish-brown	-	1	1	-
Dark gray	1	5	-	3
Black	2	5	1	1
Chalcedony				
Light gray	1	-	-	-
Medium gray	-	-	-	1
Medium to dark gray	-	-	-	1
Igneous Stone				
Obsidian (**Component uncertain; not included in column totals*)	-		1*	-
Rhyolite: dark gray	1	1	15	-
Rhyolite: dark grayish-black	2	-	1	-
Rhyolite: black	1	2	3	-
Rhyolite: dark brown	5	-	3	-
Miscellaneous igneous: black	-	1	14	-
Limestone				
Light to medium gray	3	5	9	9
Dark gray	1	-	1	-
Dark brown-gray	-	-	-	1
Dark gray-brown	-	-	1	1
Black	-	1	1	1
Miscellaneous Stone				
Tufa?	1	-	-	-
Totals	**35**	**96**	**265**	**79**

Table A5.2. Materials and Variations for Cores Only.

	LA 5377	LA 5378		LA 5380
		Early	Late	
Chert				
Light gray	-	1	-	-
Medium to dark gray, striped but not fingerprint	-	-	1	-
Dark gray	1	-	-	-
Black	1	-	3	1
Fingerprint: normal (all bands narrow)	-	-	1	-
Siltite (Silicified Siltstone)				
Black	1	-	-	-
Igneous Stone				
Rhyolite: black	-	1	-	-
Limestone				
Light to medium gray	-	1	3	1
Totals	**3**	**3**	**8**	**2**

Table A5.3. Materials and Variations for Core Flakes and "Shatter" Only.

	LA 5377	LA 5378		LA 5380
		Early	Late	
Chert				
Miscellaneous/various gray	-	-	44	3
Very light gray, with black next to exterior surface	1	-	1	-
Light gray	-	-	-	2
Light gray and orange-brown	-	-	2	-
Light to medium brownish-gray	1	1	4	-
Light to medium grayish-brown with black specks	-	-	1	-
Light and medium gray	-	2	4	-
Light and medium gray with red specks	-	-	-	1
Light, medium, and dark gray	1	2	4	-
Medium gray	-	4	1	-
Medium gray, speckled	-	-	1	-
Medium and dark gray, mottled	-	1	3	1
Medium and dark gray, striped (but not fingerprint)	1	-	-	-
Medium to dark gray	-	1	3	-
Medium brownish-gray	-	1	1	-
Medium grayish-brown	-	-	2	1
Medium grayish-brown and dark gray	1	-	1	-
Dark gray	1	4	5	3
Coarse dark gray	-	-	4	-
Dark gray chalcedonic	-	-	1	-
Coarse black	-	-	1	-
Dark grayish-black	4	8	2	26
Black	2	37	20	16
White	-	-	-	1

Table A5.3. Materials and Variations for Core Flakes and "Shatter" Only.

	LA 5377	LA 5378		LA 5380
		Early	Late	
White with tiny iron inclusions	1	-	-	-
Off-white	-	-	-	1
Off-white to light gray	-	-	2	1
Off-white to light and medium gray	1	-	8	-
Off-white, dark gray, and grayish-red	-	-	1	-
Tan with red and dark gray, plus white spots	-	-	1	-
Fingerprint: "normal" (all bands narrow)	-	4	1	1
Fingerprint: thin light gray and wide dark gray bands	-	-	1	-
Orange to red (heat-treated gray?)	-	-	2	-
Siltite (Silicified Siltstone)				
Light gray	-	-	-	2
Light, medium, and dark gray	-	-	1	-
Medium grayish-brown	-	1	1	-
Dark gray	1	5	-	3
Black	1	5	2	1
Chalcedony				
Light gray	1	-	-	-
Medium gray	-	-	-	1
Medium to dark gray	-	-	-	1
Igneous Stone				
Obsidian (**Component uncertain; not included in column totals*)	-		1*	-
Rhyolite: dark gray	1	1	14	-
Rhyolite: dark grayish-black	2	-	1	-
Rhyolite: black	1	2	3	-
Rhyolite: dark brown	5	-	2	-
Miscellaneous igneous: black	-	-	10	-
Limestone				
Light to medium gray	3	4	4	8
Dark gray	1	-	-	-
Dark brown-gray	-	-	-	1
Dark gray-brown	-	-	1	1
Black	-	1	1	1
Miscellaneous Stone				
Tufa?	1	-	-	-
Totals	**31**	**84**	**161**	**76**

Table A6.1. Materials and Variations for Biface Thinning Flakes Only.

	LA 5377	LA 5378		LA 5380
		Early	Late	
All Items Listed in this Table are Chert.				
Miscellaneous/various gray	-	-	23	-
Light gray	-	1	5	-
Light gray with brown specks	-	1	-	-
Light to medium brownish-gray	1	1	-	-
Light to medium grayish-brown with black specks	-	1	-	-
Light and medium gray	-	2	-	1
Medium gray	-	1	-	-
Medium brownish-gray	1	-	-	-
Dark gray	-	1	-	-
Dark grayish-brown	-	-	2	-
Fingerprint: “normal” (all bands narrow)	-	-	6	-
Orange to red (heat-treated gray?)	-	-	1	-
Totals	**2**	**8**	**37**	**1**

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