# LOS RANCHOS PLAZA (LA 46638)

## Test Excavations at a Spanish Colonial Settlement in Bernalillo County, New Mexico, 1996–1997

Edited by

Carol J. Condie



With contributions by

Kathryn E. Sargeant Carol J. Condie Mary P. Davis Hayward H. Franklin Dan Scurlock Dan W. Stiteler

Maxwell Museum Technical Series No. 4 University of New Mexico

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#### FOREWORD

#### Carol J. Condie

This is a portion of the report Kathryn Sargeant would have written had she lived. She had completed the Acknowledgments, the Preface, and part of the chapter entitled "Test Excavations at LA 46638." Before she was able to complete the report, she died tragically on Christmas Eve 2001, after being hit by a car as she and her husband, Arnold, were leaving a Christmas party.

Several of Kit's friends who had been involved, to greater or lesser extents, in the Los Ranchos Plaza project determined to extract and publish as much information from the project as might be possible. Kit had already hired Dan Scurlock to write a chapter on the environmental history of Albuquerque's North Valley and to analyze and prepare a report on the Euro-American artifacts recovered from the excavations. Historian Mary Davis donated her time to write a chapter that provides historical context for the Plaza. Hayward Franklin had told Kit he would analyze the Pueblo and Hispanic pottery, also on a volunteer basis. Even after he found that more than 8,000 sherds had been recovered, he insisted on keeping his word. Paul Knight, a long-time friend of the Sargeants, managed to convert the files from Kit's old word processor into a Microsoft Word document to rescue what Kit had written. As noted in the Acknowledgments, dozens of other volunteers helped in the excavations and in many other ways.

However, as we attempted to sort out the site documents we ran into difficulties. We found partial notes (some, in a spiral-bound notebook, were in Kit's handwriting). We found other notes, in other handwriting, on loose sheets or slips of paper, but often they were unsigned, undated, and contained no provenience labels. We were never able to find a list of features, a field specimen list, or a master map that showed test pits, rooms, or markers. The maps have their own problems (see below, under "Additional Notes on Stratigraphy"). All of the ceramics had reportedly been entered into a database, but we have never found it. Paula Slavin devoted many hours to organizing field maps, transcribing Kit's field notes, and attempting to place other field notes in some context. Dan Stiteler also spent numerous hours in going over his notes and maps to produce the descriptions of Rooms 1–7 and stratigraphic information included here in Chapters 6 and 7.

As we attempted to resolve the problems of the site documents, it slowly became clear that we would be unable to produce a standard site report. We decided, finally, that our only course was to report what was possible to report and hope that more site documents would come to light in the future. Thus, the history, environment, an unfinished chapter on the excavations, Euro-American artifacts, and Pueblo and Hispanic ceramics are covered in this report. Even though several hundred specimens of faunal bone were recovered, they have not been analyzed and are not reported here.

In spite of the incompleteness of the report, we believe that it will serve a useful function. Scurlock's environmental history and Davis' historic background add valuable context for the village. Scurlock's chapter on Euro-American artifacts provides insight into goods that came up the Camino Real, over the Santa Fe Trail, and, after 1880, over the railroad. Franklin's chapter on Pueblo and Hispanic ceramics is a major contribution to Southwestern ceramic studies since the 8,016 sherds reported here constitute by far the largest collection yet analyzed and reported for the period 1750–1850+.

Kit's energy and enthusiasm uncovered a vast amount of material from Los Ranchos Plaza. We hope that it will serve as a basis for many future studies. The Maxwell Museum of Anthropology, University of New Mexico, Albuquerque, is the repository for the artifacts and site documents, where they will be available to researchers.

March 2005

#### PREFACE

#### Kathryn E. Sargeant

In 1996 and 1997 archaeological test excavations in Bernalillo County, within the Village of Los Ranchos de Albuquerque, east of Rio Grande Boulevard and north of Chavez Road, revealed the presence of archaeological remains thought to be the probable site of La Plaza de Señor de San Jose de Los Ranchos (LA 46638), a Spanish Colonial and U.S. Territorial period site dating from ca. 1750 to 1904 when the village was destroyed by a flood of the Rio Grande. Archival research on the community indicates that it was one of six plazas located north of what is now called Old Town, the Villa de Alburquerque (established in 1706). LA 46638 was first recorded during a prehistoric and historic site survey of the Village of Los Ranchos conducted in 1982–1983 (Sargeant 1985).

Mr. Cecil Jenkins, owner of one of the properties in the site area, indicated that when he bought the 2.5 acres of land in 1929, a number of mounds of eroded adobe buildings existed on his property including a large mound that he estimated to be 200 ft long. He described a cobblestone floor a foot beneath the ground surface encountered when he tried to plow the land. It was his understanding from long-time residents that the property was the center or plaza of the historic village of Los Ranchos.

The Jenkins property was acquired by the Village of Los Ranchos in 1989. In 1996 the village trustees considered turning the acreage into a small wildlife refuge, complete with a pond, to be supervised by the U.S. Fish and Wildlife Service. However, when the property was examined by their archaeologist, David Siegel, he reported that just from the amount of surface pottery, ground stone, and faunal bone he observed on the site, a major mitigation effort would be required before construction of a refuge could take place; therefore, he could not recommend the project. A new village administration elected in March 1996 proposed building a community center on the land. Finally, in order to facilitate planning for use of the property, the village administration of Archaeological Excavation Permit SE-117, issued August 22, 1996, by the New Mexico Historic Preservation Division, Santa Fe. Work was completed May 31, 1997.

With the exception of three paid field assistants who worked at various times during the site excavation, all work, including laboratory work, was accomplished by volunteer labor.

Nine backhoe trenches were used to examine the site. Stratigraphic profiles in Trench 1 and Trench 2 on the north side of the site area indicated two separate levels of occupation. Remnants of walls and floor lines could be traced, indicating a double row of rooms on both the 1904 Level 1 and the stratigraphically lower Level 2, so far not precisely dated. At the east end of Trench 1 were found features and slag indicating a forge or smelter on Level 2. This early level was apparently first destroyed by fire followed by flooding. Borrow pits and adobe mixing pits were dug into the ruins of Level 2 from Level 1, presumably to obtain adobe from the old walls for construction of the buildings on the second habitation level. Room 1, Level 1 was completely excavated. Room 3, Level 2 was partially excavated. Both rooms contained fireplaces. Small

sections of several other rooms on both Levels 1 and 2 were investigated. Profiles in Trench 5 on the south side of the site revealed probable wall fragments and multiple floors.

Some 900 Euro-American ceramic, glass, metal, and other artifacts were collected. More than 8,000 historic Pueblo and Hispanic pottery sherds and 6,000 faunal bone specimens were also recovered. These materials have yet to be analyzed. A report on each of these will be included in the final report on this project.<sup>\*</sup>

The most immediate problem to be answered in the test excavation of LA 46638 was whether significant archaeological remains still existed under the present ground surface. Though parts of the site have been demolished, it appears that enough of the site is intact to warrant further investigation and also to put forward a nomination for Los Ranchos Plaza to the National Register of Historic Places. Other questions posed by the test excavations concerned diachronic and synchronic aspects of settlement, subsistence, and economic exchange. Since few Spanish Colonial and U.S. Territorial period sites such as Los Ranchos have thus far been archaeologically investigated in the Middle Rio Grande area, information regarding the results of the project should be of interest both to the general public and to the archaeological community.

Excavation of the Los Ranchos site provided many public education opportunities since the site lies adjacent to the much-traveled Rio Grande Boulevard and is clearly visible from the road. Curious residents and passersby stopped regularly to inquire about the work in progress. Schools in the Los Ranchos area were invited to bring students for tours of the site. Mrs. Penny Vincent's third grade class from West Albuquerque Elementary visited the site and made a donation. Two public tours were given of the site, one in connection with New Mexico Historic Preservation Week which included slide shows and lectures and an exhibit of site artifacts, together with interpretive texts and photographs, at the Village Hall. The second tour was held to familiarize the residents of Los Ranchos with archaeological testing procedures and to inform them about the early history of the village.

<sup>&</sup>lt;sup>\*</sup>Except for the faunal bone (for which the figure of 6,000 specimens may not be accurate), all analyses have been completed and reports are included in this volume. —Ed.

#### ACKNOWLEDGMENTS

#### Kathryn E. Sargeant

The LA 46638 excavation testing project was directed by Kathryn E. Sargeant, who volunteered her time. Dr. Carol Condie contributed labor costs for two field assistants for 10 weeks. Residents of Los Ranchos and members of the Los Ranchos business community contributed more than 5,000 to pay additional labor costs. Village trustee Leo Bartolucci, who served as liaison between the project and the village, volunteered to collect donations. Quivira Research Center, a nonprofit organization under Section 501(c)(3) of the Internal Revenue Code, managed all donated and grant funds for the Los Ranchos project.

Financial grants for artifact analysis were received from the T. J. Sivley and Mary Ray Sivley Perpetual Endowment Fund of the Albuquerque Community Foundation. Steve and JoAnne Sivley Ruppert also made two personal donations for a special research project on the Los Ranchos site Euro-American ceramic collection. Other generous donations were made by The Chama Foundation, Mr. and Mrs. William Anixter, trustees; and Far Horizons Archaeological and Cultural Trips, Inc., Mary Dell Lucas, director.

The assistant field director was Dan Stiteler. Field assistants were Erik Stout and Karl Schaffenburg. Special thanks are due to those who so generously provided the following services: Dr. Carol Condie and Kent Stout, Quivira Research Center, produced a scaled site map with transit and tape. Dr. Janet Spector, Associate Professor of Anthropology, University of Minnesota, contributed three months of expert field work. Members of the Albuquerque Archaeological Society donated several hundred hours of time at the site, and also prepared artifacts for analysis. Archaeologist Tiana Corbett donated excavation time. Students from the Anthropology Department, University of New Mexico, contributed to artifact collection. Archaeologists Jim Brandi and John Fortney, Rio Grande Associates, donated time during the preliminary excavation work. Archaeologists Chris Turnbow and John Acklen, as well as other employees of TRC Mariah Associates, Inc., assisted with profile and site mapping. Dr. Richard D. Holmes, also of TRC, provided consultation on grant proposals. Easterling and Associates loaned mapping equipment. Dr. David Hyndman, Sunbelt Geophysics, conducted magnetometer and ground conductivity surveys. Dr. David Love and Dr. Bruce Allen, New Mexico Bureau of Geology and Mineral Resources, interpreted soil profiles. Dr. Love also collected soil samples and made a video record of the deposits exposed in nine backhoe trenches. Archaeologist Tom Windes, National Park Service, Chaco Center, collected samples for archaeomagnetic dating.

#### Additional Acknowledgments

#### Carol J. Condie

Numerous other individuals and organizations donated time and money to the project. Many of them cannot be identified, but a partial list (from Quivira Research Center bank deposit records and Albuquerque Community Foundation records) follows. We are certain that Ms. Sargeant

would have wanted them to be acknowledged. They are: Accident Physicians P.A., Anderson Southwest, Laura Bartolucci, Leo Bartolucci, Arlyn N. and Darlene Blackwell, Bosque Verde, Robert and Jan Bowers, Bundy Holding Corporation, John R. Calvin, Chase Hardware and Supply Company, Ann S. Clark, Stephen K. and Lillian B. Derwelis, Charles and Candice Easterling, Lynn C. Eby, James W. Fanning, John G. Farah, Beverly A. Goss, Linsey J. Green, Michael J. and Sheila Hannah, Virginia M. Hanratty, Quanta Hinson, Tony C. and E. Ann Knudsen, Laser Publishing & Design, Christopher P. and Joyce C. Leavitt, Leo Bartolucci Construction, Los Pabalanos Orchards, Lutheys Trading Company, Michael and Barbara Koenig Maccini, Kathleen L. McCorkell, Abigail S. and Gordon J. McCulloch, Robert D. Montgomery, Barbara J. Moseley, Sieglinde Neuhauser, Tom and Margaret Obenauf, Janice Paster, Richard W. and Katherine W. Precek, Dr. and Mrs. Armin Rembe, Jr., John D. and Peggy Robb, William A. Robinson, Jim W. Shull, Gordon and Patience P. Skarsgard, Bradley Stebleton, Harry E. Stowers, Jr., Fred Sturm, Taggart Construction Co., Inc., Roy Tauche, James K. and Dorothy C. Walton, Neil E. and Helen W. Weaver, William H. and Janislee A. Wiese, and donors to the Kit Sargeant Memorial Fund of Albuquerque Community Foundation. Arnold M. and Kathryn E. Sargeant also helped fund the research.

In her preface (above), Ms. Sargeant notes that Mrs. Penny Vincent's third grade class from West Albuquerque Elementary visited the site and made a donation. We have been unable to find such a school in the greater Albuquerque area, but we do have a record of a \$25 cash donation and list the entry here in hopes that Penny Vincent's third graders (ca. 1996–1997) might recognize themselves.

Finally, as editor of this volume, I add my personal thanks to Nancy Johnson, Albuquerque Community Foundation, for her cheerful recognition that the analysis and write-up of the Pueblo and Hispanic ceramics and the copy editing and report preparation had to be accomplished in time we could snatch from our regular jobs.

#### **Chapter 1**

#### **PREVIOUS RESEARCH**

#### Kathryn E. Sargeant

In 1982 and 1983, a prehistoric and historic site survey of the Village of Los Ranchos de Albuquerque (Figure 1), New Mexico, was conducted under a grant from the New Mexico Historic Preservation Division (HPD), with matching funds from the Village of Los Ranchos de Albuquerque. The survey was directed by Kathryn Sargeant. Mary Davis was the historical consultant and John Baxter performed archival research. Thirty sites and 73 isolated occurrences were identified in the survey area. Eleven of the recorded sites contain evidence of both prehistoric (Pueblo II–IV periods) and historic (17th to 20th century) occupation. Two Spanish Colonial period plazas, Los Ranchos (LA 46638) and Los Poblanos (LA 46635), and one Territorial period plaza, Los Garcias (LA 46653), were recorded. Following completion of the survey, a report was submitted to the HPD (Sargeant 1985).

LA 46638 was discovered during this survey. Evidence of the site appears on at least 25 private properties, on public land owned by the Village of Los Ranchos, and in channels and ditch banks of one Middle Rio Grande Conservancy District (MRGCD) irrigation ditch and one abandoned MRGCD drain, which is now filled in. The site occupies 51.9 acres. It was divided into five areas during the survey. These areas were subdivided into proveniences (Figure 2). The Jenkins property, 2.5 acres, was designated Area 1, Provenience A-3. In addition to the Jenkins farm, Area 1 includes several contiguous properties: Provenience A-1, a 0.5-acre lot, Provenience A-2, a 1.0-acre lot with a modern house, adjacent to the Jenkins property on the south, and Provenience A-4, a 100 m (north-south) by 4 m (east-west) section of the abandoned drain, which continued south to the east side of Provenience A-2.

A 50% surface artifact collection from these five properties yielded 880 ceramics, including two prehistoric sherds; 21 lithic artifacts (ground stone fragments, chipped stone cores and flakes); faunal bone; and 57 European or American glazewares, in addition to glass and metal artifacts. All collections were analyzed by specialists who submitted reports included in the comprehensive report. All artifacts were then deposited for curation with the Maxwell Museum, University of New Mexico. A total of 1,744 potsherds was collected from the Los Ranchos site, 1.3% of which date to prehistoric Pueblo periods. Ceramic types suggest occupation dates of Late Pueblo III (AD 1250–1300), Pueblo IV (AD 1300–1650), and the 17th through the 20th centuries. Cultural affiliations include prehistoric Pueblo and Spanish-American.

In 1986, the part of the site located on private property, Area 2, Provenience C, on the west side of Rio Grande Boulevard directly across the road from the Jenkins farm property, was privately purchased for the purpose of building a residence. The new owners authorized a brief investigation of the site before construction began. The lot is 1.5 acres. At the time of the Los Ranchos survey in 1983 the burned remains of an early 20th century small adobe house topped a 10 m by 12 m mound on the property. The house had been deliberately burned by the Los Ranchos Fire Department in 1957. Two north-south backhoe trenches and one east-west trench



**Figure 1.** Portion of the 1990 USGS Los Griegos, NM 7.5' quadrangle map showing Los Ranchos de Albuquerque. Note the proximity to the Rio Grande. Scale 1:24,000. Contour interval 10 ft.



**Figure 2.** Map of LA 46638 based on the site map from the 1982–1983 Los Ranchos survey report (Sargeant 1985). The street names and Provenience B have been added. The original map was erroneously labeled "LA 46654."

were excavated on the lot to a depth of 1.5 m. Hand-dug 0.5-m-square test pits were troweled from the exposed face of each trench in natural stratigraphic levels. Not surprisingly, excavation revealed somewhat similar natural and cultural deposits as were found in the Jenkins farm excavation. Features included pits, a massive amount of charcoal with many wood fragments, which may have been burned roof material, on top of adobe floor remains in Trench 1. The profile of an acequia running north-south was observed in Trench 2. Pottery sherds, faunal bone, and Euro-American ceramics, glass, metal, and leather were collected. Kathryn Sargeant directed the five-day project, with Matthew Schmader as her assistant.

A second opportunity to look at the stratigraphy of another part of the Los Ranchos Site, Area 3, Proveniences A and B, occurred in 1993. The Village administration decided to install a sprinkler system for Hartnett Park north and east of the Jenkins farm area and also a sewer line from Rio Grande Boulevard running east to a public restroom located in the handball court building on Area A south of the Village Hall. Trenches for the installation were dug 2 ft deep by 1 ft wide by a small front loader. Artifacts were surprisingly sparse and the stratigraphic profiles revealed in the trench sides were shallow and without identifiable features. This area may have been used for farming. A thin (25-cm-thick) cultural layer in a matrix of fine clays and sand is overlain by flood deposits as elsewhere in the site. Trenches bottomed out in unconsolidated river sands.<sup>\*</sup>

<sup>&</sup>lt;sup>\*</sup>It appears that no reports on Sargeant's 1986 and 1993 investigations were filed with HPD. A records search of the Archeological Records Management Section files at the Museum of New Mexico conducted in February 2005 did, however, reveal a report on a soil core testing project conducted to investigate an area proposed for restroom and sewer line construction (Sargeant 1988). Two other cultural resource inventories occurred within or near LA 46638: Doleman 2002 and Marshall and Marshall 1990. —Ed.

#### Chapter 2

#### ENVIRONMENTAL HISTORY OF ALBUQUERQUE'S NORTH VALLEY

#### Dan Scurlock

Like other major riparian corridors inhabited for long periods, the North Valley has been the site of intense human use of water, soils, fauna, and flora. The resulting impacts, combined with natural forces (such as climate, droughts, and floods) have produced an ecosystem dramatically different than that of prehistoric times. The modification of valley resources has in turn effected changes in how human populations exploit (and ravage) the ecosystem. This chapter will briefly examine these uses, impacts, and changes during the historic period.

#### The Rio Grande

The river, the most important natural component of the valley, has created a floodplain characterized by specific soils, flora, and fauna. When members of the Coronado expedition reached the area in late 1540, they found a braided, meandering, and aggrading river with a shifting sand-and-gravel substrate. The flow was larger and the water colder and clearer than today, with greatest flow generally in the spring due to runoff of snowmelt in the headwaters. Intense summer rains in the Middle Rio Grande drainage also produced above-normal flow (Scurlock 1998:184–188). One Spaniard described the river as "large and mighty" in 1540 (Hodge 1946:352) and another, in 1590, as "a deep river with much water" (Schroeder and Matson 1965:129, 144).

The river flowed along the west side of the valley, as it does today, with a channel shift from east to west in the Alameda area between the early 1700s and 1768 and in the Los Ranchos area between 1860 and 1868. Floodwaters periodically inundated a prehistoric river channel, which extended along North Second Street (Scurlock 1998:266-267). Water quality has declined in recent centuries due to mining, farming, and sewage. After World War II, water contamination ended bathing and baptizing in the river.

The North Valley averages about 3 mi wide. It is almost flat, with local elevations varying only a foot or so, and with a slight downward gradient from north to south. No major tributaries are found in the valley but a number of arroyos, primarily originating on the west slope of the nearby Sandia Mountains, feed into the river (Sargeant 1987:48–49).

Surface and shallow subsurface soils are made up of sediments derived from basalt, granite, schist, limestone, sandstone, and shale detritus from the upland watershed, Sandia bajada, and West Mesa escarpment. These vary from sand transported by water or wind to small cobbles (Sargeant 1987:50). Sediment deposition has generally increased during the historic period, slowing river flow. The main causes are removal of protective plant cover by intensive livestock grazing and timber cutting and increased diversion of water. Organic materials deposited over the floodplain have fostered native and exotic plants, as well as cultigens (Scurlock 1998:186).

#### Floods

During the historic period, Rio Grande floods were both useful and destructive. The deposited nutrients supported a diverse flora and fauna as well as farming. In contrast, severe flooding, which increased in intensity from 1865 to 1941 due to upstream overgrazing and logging, damaged fields and crops, destroyed structures, and took human life. Table 1 lists historic floods that affected the North Valley

Date	Description			
1690 (August-	Deep snow pack and late spring and intense summer rains caused			
September)	flooding. Supply caravan at El Paso was held up.			
1700	Upper Bernalillo church destroyed, Rio Grande began to shift			
	westward.			
1735	Church destroyed, river began shifting channel westward.			
1741	Major property damage and livestock loss.			
mid-1700s	People and animals drowned, houses and fields damaged or destroyed.			
1760 (July)	River could not be crossed.			
1760	River "ran full" all year.			
1780 (Spring)	Runoff caused severe flooding of villages and fields.			
1783	Resident noted that flood left "a thick mud which serves as manure for			
	the land a glutinous scum resembling lard."			
1822	Major property damage			
1823	Widespread damage			
1828	Property destroyed, river shifted eastward at Ranchito de Santa Ana			
	and cut new channel east of Peralta. Flow estimated at 100,000 cfs.			
1849 (June 20)	Rio Grande ran "bank full in many places" with a "very swift" and			
	"muddy or turbid" current.			
1850s	River channel shifted and Corrales church destroyed.			
1865 (June)	Evacuation of communities; crops and structures severely damaged.			
1868 (July 5–11)	Corrales church destroyed; river could not be crossed.			
1871 (May–June)	Four persons drowned; little property damage.			
1872 (late May– early	Most of floodplain inundated by runoff from snowmelt in basin. Flow			
June)	peaked at an estimated 100,000 cfs. Los Ranchos residents took refuge			
	in the hills east of the valley.			
1878	"There were many destructive floods"			
1880	Various types of damage			
1884 (May–June)	Residents of Del Norte valley reported that river flow was the largest			
	they had experienced. Runoff from heavy winter snow pack. Damage			
	to almost every village from Albuquerque to El Paso. Several people			
	killed; extensive damage to buildings and crop fields. River cut through			
	an acequia and into old river bed near Peralta. Flow estimated at			
	100.000 cfs.			

# Table 1. Historic Floods in the North Valley(Source: Scurlock 1998:33–38)

Date	Description			
1884 (July 2)	Extensive damage, interruption of work and social activities.			
1885	Extensive damage, almost as severe as June 1884 flood.			
1886 (June)	Bridges destroyed, Santo Domingo church destroyed.			
1890	Pueblo buildings and fields damaged by flooding. Residents would not			
	plant in the floodplain due to a fear of more high water. Washouts of			
	rail line at two valley locations and bank cutting at Barelas.			
1891 (May)	Most of Los Ranchos destroyed.			
1897	Widespread damage. Flow at Buckman peaked at 15,300 cfs and at San			
	Marcial at 21,750 cfs.			
1902	Dike and levees breached at Alameda, agricultural fields damaged.			
1903 (June)	A flow of 19,300 cfs broke through Alameda dike, flooding valley and			
	destroying the settlement. Agricultural fields and buildings destroyed.			
1904 (September 29–	Runoff peaked at 17,700 cfs at Buckman and 33,000 cfs at San			
October 8)	Marcial. Almost all local agricultural fields, most of the houses at			
	Corrales and Ranchos de Albuquerque, and the Corrales bridge were			
	destroyed. To the south, fields and houses were destroyed or damaged.			
1905 (May)	Flow at Buckman was 19,500 cfs.			
1905 (Winter)	Rains averaged 20 in.			
1906 (early May and	Intense, widespread rains in northern and central new Mexico caused			
mid-June)	moderate flooding. Peak flow at Lobatos was 8,000 cfs and at San			
	Marcial, more than 10,000 cfs.			
1911 (May 8–June 2)	Much of valley inundated.			
1916 (May–June)	Parts of Albuquerque and San Marcial damaged.			
1921 (June)	Much of valley inundated.			
1924 (May)	Much of valley inundated.			
1929 (August-	Widespread property damage, Bernalillo town plaza was destroyed.			
September)				
1933 or 1934	North Valley flooded east to Rio Grande Boulevard.			
1937 (late August,	Levees washed out at number of locations, agricultural fields and crops			
early September)	damaged.			
1939	Flood washed pine trees down west side of Sandias onto Edith Blvd.			
	and North Second Street area; residents collected them for fuelwood.			
1940 (August)	Valley flooded. Worst flood since late 1800s struck Bernalillo. Sisters			
	of Loretto convent destroyed at Bernalillo.			
1941 (January–May)	Twenty-nine inches of precipitation fell during this period. Widespread			
	property damage. More than 50,000 acres inundated in middle Rio			
	Grande valley.			
1941 (September 20)	Some 250 acre-feet of sediments, up to 9 ft deep, deposited in river.			
1942 (April–June 6)	The flow at Albuquerque peaked at 19,000 cfs.			

#### Droughts

Unlike floods, droughts have no benefits. Adverse impacts include decrease in, or loss of, water sources, decimation of indigenous and cultivated food plants, and decrease in native fauna and loss of domesticated animals. Intensive grazing, logging, and irrigation farming exacerbate the impacts of droughts. At least 48 droughts, lasting one year or more and totaling about 238 years, have occurred in the general area (Table 2).

16th–17th Centuries	18th Century	19th Century	20th Century
1542	1700-1709	1801–1803	1900-middle of 1904
1570–1573	1707	1805–1813	1907–late 1910
1578–1580s	1714–1717	1817–1822	1917–1918
1598–1606	1719 (Summer)	1824–1825	1920-early 1925
1608–1609	1727	1829–1830	1927–1928
1620–1623	1729–1730	1841–1843	1932–late 1937
1625–1633	1734–1739	1845–1847	1939-early 1940
1635–1640	1748–1759	1849	1942–late 1948
1651–1672	1768	1851–1853	1950–1956
1675–1680	1772–1774	1859–1863	1959–late 1963
1681–1686	1775–early 1785	1873–1877 (Summer)	1971
1689–1699	1787–1790	1898–1900	1989

Table 2. Regional Droughts.

(Source: Scurlock 1998:40)

One of the most severe dry periods occurred from the early 1660s to 1678. Across New Mexico there were crop failures, livestock losses, and a decrease in wild food plants and animals. Some residents were forced to eat hides and leather soaked in water and boiled with roots and herbs (Scurlock 1998:47).

There were two major dry periods in the 18th century—one from 1734 to 1759 and the other from 1772 to 1780. In 1739 a number of Albuquerque area residents were forced to move down the Rio Grande, due in part to a shortage of water for their fields. Crop harvests were meager during some of these years and nomadic Indians, seeking food, raided the area. A severe outbreak of smallpox, perhaps due in part to the extreme dry conditions, struck in 1780–1781 (Scurlock 1998:40–41).

The severest drought of the 20th century occurred from 1950 to early 1957. Toward the end of this dry period, agricultural production was about 50–60% of normal, and livestock losses were heavy. Furthermore, dust storms not unlike those of the 1930s Dust Bowl struck the area (Scurlock 1998:79–80).

#### **Settlement and Resource Use**

At the beginning of the historic period the North Valley was occupied by Native Americans, whom the Spanish named the "Pueblo" Indians due to their residing in "towns." These villages were on elevated ground, however slight, on the floodplain, or more commonly on higher ground next to the edge of the floodplain. Agricultural fields, cleared by burning, were nearby; at least 1,000 cultivated acres belonging to several pueblos dotted the valley between Albuquerque and Alameda. The fields were watered by overbank flow during spring and summer floods, or in some instances by water diverted from tributary arroyos originating on the west slope of the Sandias. Los Ranchos and Los Poblanos were established on elevated ground previously occupied by Pueblos. A few *ranchos* (small livestock and farm operations) were established in the valley as well (Scurlock 1998:113–119). The Spanish impacted the valley by grazing livestock—cattle, oxen, horses, mules, and burros. Also, like the Pueblos, they collected cottonwood, willow, and other plants for various uses. Although they hunted animals for their meat and hides, their hunting was less intensive than that of the Pueblos (Scurlock 1998).

Following litigation of Spanish land grants in the valley in the late 1800s, "Anglos" began to acquire land in the valley for farms and small livestock operations. Using mechanized equipment and other means to produce market crops, the newcomers increased impacts on the valley. They also brought new crops and new breeds of cattle and horses (Scurlock 1998:123–127).

The Pueblos and Hispanics did limited mining in the watershed above the North Valley; the Anglos greatly intensified this activity. They also greatly expanded logging and livestock grazing across the region. The result was an increase the magnitude of flooding of the valley and silting of the river. Pollutants from mine tailings were carried in runoff to the river and from there into the irrigation ditches and onto the fields (Scurlock 1998:127–134).

Finally, in response to severe flooding and waterlogged soil, public agencies constructed water control structures—dams, drainage ditches, and levees—that altered the flow of the Rio Grande, lowered the valley water table, and ended the deposition of nutrient-rich silt on the valley floor. Much of this work was accomplished by the Middle Rio Grande Conservancy District, the Bureau of Reclamation, and the Corps of Engineers in the 1930s through the 1970s (Scurlock 1998:280–282).

#### Flora

When the first Hispanics reached the middle Rio Grande, the valley ecosystem was little impacted by human activity. The Pueblos had cleared perhaps 1,000 acres for cultivation, and irrigated primarily by bank overflow or runoff from tributary streams or arroyos. Wing diversion dams and irrigation ditches were probably few. This ecosystem was one of dynamic equilibrium, in response to varied flow (including floods), associated channel shifts, erosion, and deposition of sediment. The Rio Grande was a "braided, slightly sinuous aggrading river with a shifting sand substrate." Riparian vegetation changed as the river changed, including during periods of low flow caused by seasonal or extended drought (Crawford et al. 1993:16–19).

In 1540, during the Coronado expedition, Alvarado wrote: "This river of Nuestra Señora flows through a broad valley planted with fields of maize and dotted with cottonwood groves" (Bolton 1964:184). He also described it as "a large and mighty river" (Hodge 1946:352).

Mention was made in the 1600s of an extensive stand of cottonwoods, which stretched from Alameda Pueblo to Albuquerque along the east side of the river (Adams and Chavez 1956:36–37). Known as the Bosque Grande de San Francisco Xavier, it was a prominent feature in the valley until at least the early 1700s. South of this gallery forest were the open wetlands called the Esteros de Mehía. This mosaic of *cienegas* (marshes), *charcos* (ponds), and *esteros* (swamps) was located in the Albuquerque neighborhood of Barelas (Simmons 1982:40) and was sustained by a high water table and periodic flooding of the Rio Grande.

The first detailed botanical description of the North Valley and flanking uplands was published by Watson (1912). For the Rio Grande floodplain, he described two major floristic associations: (1) nearly pure stands of valley cottonwood with a scattering of willows, *Baccharis, Senna*, and sedge, and (2) a wet meadow-like community of sedge, *yerba mansa*, *Baccharis*, common sunflower, and canaigre (*Rumex* spp.). Watson did not mention salt cedar or Russian olive as components of the bosque but did state that salt cedar was being planted in Albuquerque as an ornamental (Watson 1912:199–200; Hink and Ohmart 1984:33–34).

The dominant cottonwood, willow, reed grass, and salt grass of the early historic valley *bosques* (woods) and the cattails, sedges, bullrush, and *yerba mansa* of the *charcos* were impacted by various human activities. These included diversion of river water for irrigation, construction of upstream dams, introduction of aggressive exotic plants, intensive livestock grazing, the drilling of wells, and the excavation of drainage canals. Tamarisk, Russian olive, and Siberian elm became increasingly common and widespread. With the lowering of the water table, loss of overbank flooding, and increased salinity, more drought-tolerant species such as four-wing saltbush, prickly pear cactus, Russian thistle, and alkali sacaton moved from adjacent uplands onto the valley floor. The range of aquatic species decreased as swamps and ponds were drained (Scurlock 1998: 282–287).

#### Fauna

Sixty-seven species of mammals have been identified as occurring historically in the study area, with mule deer, grizzly bear, wolf, coyote, jaguar, cottontail, beaver, raccoon, mink, and muskrat present early in the period. All of these species were hunted for their meat, hides, or bones, especially by Native Americans. As the human population in the North Valley grew, alteration of habitat and hunting eliminated or greatly reduced the local populations of most of these species. The Norway rat and house mouse, now common, were introduced by the Spanish (Scurlock 1998:207–209, 298).

Thirty-five species of birds are year-round residents of the area, including such common ones as Canada geese, Gambel's quail, killdeer, mourning dove, roadrunner, great-horned owl, redshafted flicker, Say's phoebe, common crow, American robin, Western meadowlark, red winged blackbird, and house finch. Prominent summer residents include American coot, blue-winged teal, turkey vulture, white-winged dove, black-chinned hummingbird, Western kingbird, barn swallow, brown creeper, mockingbird, yellow-rumped warbler, black-headed grosbeak, and rufous-sided towhee. Among winter avian residents are the pied-billed grebe, sandhill crane, snow goose, and bald eagle, the last of which used to nest in the area (Ligon 1961:338–339; Scurlock 1998: 212–213). Locally extinct species include the Rio Grande wild turkey, whooping crane, and western snowy plover, while introduced species—ring-necked pheasant, house sparrow, and European starling—are now common (Scurlock 1998:298–299).

Reptiles and amphibians were also adversely affected by human activities in the valley. Species that have suffered population declines include the Northern leopard frog and lesser earless lizard. The leopard frog population has declined in part due to the introduction of bullfrogs in the 1930s. Among the common reptiles are the New Mexico whiptail lizard, common garter snake, and bull snake. The Great Plains toad is a common amphibian, as are the snapping turtle, painted turtle, and ornate box turtle (Degenhardt et al. 1996:4–5, 51, 85, 87, 96, 107, 145).

Of all the faunal orders, fish have been the most severely impacted by human activities. Thirteen species have been exterminated due to a decline in river flow, drainage of swamps, introduction of competitive exotic fishes, pollution, and fishing. Extirpated large forms include the shovelnose sturgeon, long-nose gar, spotted gar, fresh water drum, blue catfish, and American eel. Other lost species include shiners, a chub, a red horse, and a sucker. A threatened species, the Rio Grande silvery minnow, has been a bone of environmental contention in recent years in the valley and elsewhere along the Rio Grande (Scurlock 1998:213–214, 297–299).

#### **Study and Management**

The first scientific studies of the Rio Grande began in the 1880s following creation of the U.S. Geological Survey. A few years later the U.S. Biological Survey was established and the collection of data on wildlife begun. The U.S. Reclamation Service (later renamed the Bureau of Reclamation) was established in 1902 and this agency, along with the Corps of Engineers, would later rebuild irrigation works and, with the Middle Rio Grande Conservancy District, reclaim degraded land in the valley (Scurlock 1998:343).

During the same period the New Mexico Territorial Legislature acted to control water pollution and regulate the harvesting of fish. In 1905, the legislature created the River Commission, with responsibility for flood control on the Rio Grande. As part of the commission's program, hydrographic surveys were conducted and new irrigation ditches built. Seven years later the State Game and Fish Department was formed, and studies of valley fauna followed (Scurlock 1998:344–345).

With the creation of the U.S. Weather Bureau in 1891, weather scientists began the collection of climatic data important to forecasting. A year later the first national forest reserves were created and regulation of logging and grazing followed.

Long-time irrigation had produced a buildup of salts and water-logged soils in the valley. The Middle Rio Grande Conservancy District (MRGCD) was created by the state legislature in 1923

to address these and other problems, such as flooding in the Rio Grande valley (Scurlock 1998:343, 347). In 1927, the Corps of Engineers began surveys for flood protection and hydropower along the Rio Grande. A year later the MRGCD started a program of drainage, flood control, and rehabilitation of irrigation systems and farmlands. Over the next 10 years the Conservancy built drainage canals, levees, new irrigation ditches, and El Vado Dam and Reservoir on the Chama River (a major tributary of the Rio Grande). Some valley residents, mostly Hispanic, lost title to their land because they were unable to pay taxes and assessments on the MRGCD project. At one point, about 300 farmers in the Albuquerque area erected a barricade in the North Valley in an effort to halt the MRGCD work (Harper et al. 1943:53; Scurlock 1998:348, 351, 375–376).

In 1941, the Albuquerque District of the Corps of Engineers was established, and this office, along with the Bureau of Reclamation, developed a joint-use plan for the Rio Grande above Albuquerque. Over the next 10 years the Corps built river levees and the Bureau deepened canals to drain water from agricultural lands (Scurlock 1998:377–378).

From 1950 to 1952, the Jemez Canyon dam was built above Bernalillo, just west of the Rio Grande. During this same period the Corps of Engineers began to install jetties in the North Valley. In 1953, the Bureau of Reclamation began to modify the river channel to handle high flows more efficiently and to move sediments through the valley. A year later, two diversion canals were built to carry summer runoff from the west slopes of the Sandia Mountains to the Rio Grande. The Corps built riverside drains in the valley, for operation and maintenance by the MRGCD (Scurlock 1998:378–380; Welsh 1987:115, 117–118, 167).

In the 1960s the Albuquerque Metropolitan Arroyo Flood Control Authority or AMAFCA was created to study and alleviate urban flooding caused by unregulated "ephemeral tributaries" of the Rio Grande. Also, the riverside diversion at Corrales was replaced by inverted siphons, which ran under the river from riverside drains, connecting them to seasonal water conveyance channels (Scurlock 1998:380, 382).

The north and south flood diversion channels in the Albuquerque District were completed by the Corps of Engineers in March 1972. A year and a half later, the Cochiti reservoir, a Corps flood-control project, began to fill. Later in the decade, the Bureau of Reclamation completed "a rectification project to clear and maintain a relatively linear floodway" which would convey water more efficiently down the Rio Grande to Elephant Butte reservoir (Scurlock 1998:383–384; Welsh 1987:158-159).

Ostensibly, floods in the North Valley, such as the 1904 event that destroyed Los Ranchos, are no longer a threat. But the farmlands and the bosque no longer benefit from seasonal flooding. At the same time, other human-generated problems continue to affect the North Valley—urban development, discharge of pollutants into the river and shallow aquifers, and increased recreational use—to name but three. If the quality of life in the North Valley is to be maintained, the natural environment must also be protected.

#### Chapter 3

#### HISTORIC BACKGROUND

#### Mary P. Davis

Very few records apply directly to the Los Ranchos Plaza site. What follows is a general history of the area, with specific references to Los Ranchos Plaza wherever they are available.

Dating of archaeological sites within the Village of Los Ranchos indicates that hunter-gatherers of the Archaic Period built a campsite on the valley floor about 750 BC. A large Pueblo village, the Chamisal Site, and smaller sites date to the Classic period (AD 1300–1600) (Sargeant 1985). These sites are within a half mile of Los Ranchos Plaza.

The site is north of the city of Albuquerque, on the floodplain of the Rio Grande, which has been farmed for centuries. The floodplain is approximately 3 mi wide in this area and in times past has received the annual beneficial flooding of the river which, like the Nile, dropped rich silts, creating fertile farmlands. Prehistoric Indians grew the traditional crops of corn, beans, and squash in the valley for centuries before the arrival of the Spanish explorers in 1540. Occasional destructive floods inundated the floodplain, melting the adobe villages and outlying houses. Rather than moving to higher land, these early farmers apparently chose to return to the fields that provided their subsistence, and to rebuild their homes where they could keep an eye on their crops.

Hernando Alvarado, a captain in the first Spanish *entrada* in 1540 and in the first European party to view the middle Rio Grande Valley, described it as a "broad valley planted with fields of maize and dotted with cottonwood groves. There are twelve pueblos, whose houses are built of mud and are two stories high" (Bolton 1949:184). This was the Province of Tiguex, named for the Tigua (also spelled Tiwa) Indians who lived there. The Coronado expedition remained in the area for two years, while their relationship with the Pueblos degenerated into extortion and violence. The Spanish returned to Mexico in 1542, leaving devastation behind them.

During the next 50 years the Tiwas established 16 pueblos in what today is known as the North and South Valleys (Espinosa 1940:10; Vivian 1932:29). After 1581 five Spanish expeditions explored New Mexico. In 1598 Juan de Oñate led an official colonizing expedition, establishing the seat of government at San Gabriel and then, in 1609, at Santa Fe. Spanish law prohibited taking land from the Indians, so the early colonial settlements were limited to unoccupied lands. By the 1640s the Tiwa Indian population in the valley, much reduced by Old World diseases, had been consolidated by Spanish officials into four major pueblos: Sandia, Puaray, and Alameda on the north and Isleta on the south. The 25 mi of rich river bottom south of Alameda were left free for settlement by the Spanish. By 1680 there were 17 *estancias* between Alameda and Atrisco (Hackett 1942, Vol. 2: 228). Land grants were issued by the Spanish government to individuals and groups of settlers as well as to Pueblo Indians (Simmons 1969:8).

The colonists were directed to form compact communities. In practice the 17th century Spanish settlements were scattered and disorganized, ranging from prosperous *haciendas* to simple farms. *Estancias* and *haciendas* comprised 34 sq mi while *labores*, square tracts measuring 1,000 *varas* (1 *vara* = 38 in.) on a side, were given to farmers (Scurlock 1998:107). Fertile land was at a premium but proximity to Indian labor was also desirable, as was being away from government surveillance (Garner 1970:5, 35; Simmons 1969:10–11). The locations of the 17th century Spanish settlements in the North Valley have not been determined.

The Pueblos' resentment of the Spanish intrusion on their territory, the practically unbridled use of Indian labor, and the imposition of the Christian religion by the Spanish priests led, in 1680, to the Pueblo Revolt. Governor Antonio de Otermín led survivors of the attack south from Santa Fe through a devastated land of burned and ransacked churches, *estancias*, and farms. He ordered the Tiwa pueblos of Alameda, Puaray, and Sandia to be burned; the refugees met another group of Spanish survivors (led by Lieutenant Governor García) south of Socorro, and all went on together to safety in El Paso (Simmons 1982:41–43).

In 1692 the newly appointed governor of New Mexico, Don Diego de Vargas, led an army campaign to Santa Fe, where Spanish dominion was again asserted. A year later de Vargas recruited 800 persons to resettle New Mexico, some of them survivors of the Pueblo Rebellion who returned to rebuild their homes. According to Scurlock,

Resettlement was accomplished primarily through government land grants. There were two basic types of land grants (*mercedes reales*) made to Spaniards in the 1700s–early 1800s: those to individual citizens and those to a group of settlers. The private individuals were usually prominent men who were former military personnel or their descendants to whom the government owed salary payments. These grants were given to foster and maintain a livestock industry, and owing to the relatively low carrying capacity of the land, they were large (Scurlock 1998:109–110).

Such was the case with a land grant given to Captain Diego Montoya in 1694 as a reward for his help in the Reconquest. Part of this grant lies within the boundaries of present-day Los Ranchos de Albuquerque. The grant lands were described as lying between the Rio Grande (as it ran in the late 17th century) on the west and the crest of the Sandia Mountains on the east. On the north it was bounded by a small pueblo ruin called "Maigua" and on the south by several swamps. When the grant was confirmed in 1892, the boundaries were set at the south edge of the Alameda Grant to the north (roughly speaking, just north of El Pueblo Road to the railroad tracks and then north to Sandia Pueblo's grant). The southern limit bounded the Villa of Albuquerque Grant (roughly along Griegos Road) (Court of Private Land Claims 1892).

In 1716 Antonio Montoya, Diego's brother, conveyed the grant, then known as the Jesús María, to Elena Gallegos, and it is her name that historically and currently attaches to the swath of land from the river to the mountains in the North Valley. In 1699 Elena, whose family had survived the Pueblo uprising and returned to New Mexico, married Santiago Gurulé, a Frenchman who as Jacques Grolet accompanied La Salle on his ill-fated 1682–1688 expedition to the Mississippi

and lands to the west. Elena and Santiago had one child, a son, Antonio Gurulé, born in 1703 (Chavez 1954:193). Eight years later Santiago Gurulé died, leaving Elena a widow.

Elena Gallegos died in 1731. Her will states that she had 32 head of cattle, 12 mares, six mules, two pairs of oxen, two silk petticoats, a silk dress pattern, three silk shawls, coral bracelets, a reliquary with a silver frame, and a chest of Michoacán wood. Her son, Antonio, inherited the grant, which in 1761 he divided among his nine children, giving each a piece of land 300 *varas* wide from north to south, between the river and the mountains. The children named in the will were Tomás, Luisas, Juan Antonio, Fabiana, Serafin, Elena, Francisco, Manuela, and Manuelita (Court of Private Land Claims, Reel 38, C51, Frame 32).

Inheritance law in Spain and England favored primogeniture—the practice of leaving all of the family land to the eldest son in order to keep the estate intact. To what extent, if any, this practice was followed in New Mexico is uncertain, but many families traditionally divided an estate equally among the children (see Gonzalez 1969:55, fn. 3 for a discussion). Consequently, with each passing generation, inherited lands became smaller and smaller (Simmons 1969). Since the land was used for agriculture dependent on irrigation, it was divided in long, narrow strips called *tripas*, providing access to the *acequias*. Lands above the valley on the East Mesa were held in common for pasturing livestock.

Settlers were expected to live within village boundaries for common defense against Indian attacks, but most moved out onto the arable land north of the Villa de Alburquerque, so that a scattering of small ranches and farms developed in the North Valley. This dispersed settlement pattern was typical of other communities in New Mexico (Swadesh 1974:133–136), and it was not until 1779 that Don Juan Bautista de Anza reduced it to the "regular form" (Thomas 1932:379). Evidently this meant a consolidation of the population into a series of *plazas* which could defend themselves against the Comanches, Apaches, and Navajos. Six *plazas* were listed on the 1790 Spanish census in the area north of the villa. The census merely numbered the communities, but an 1802 tally lists them by name. By comparing the family names on both lists, the plazas numbered in 1790 can be established as Los Duranes, Los Candelarias, Los Griegos, Los Gallegos, Los Poblanos, and finally the Plaza de Señor de San José de los Ranchos (Los Ranchos Plaza). The last three named plazas were located on the Elena Gallegos Grant and were often collectively called Los Ranchos.

The two grant settlements other than Los Ranchos proper—that is, Los Gallegos and Los Poblanos—were about 1 mi from that community. Los Gallegos was most likely near the north end of the southern section of Guadalupe Trail, in the vicinity of Grecian Road (Davis 1985), and was in all likelihood the settlement established by Elena's brother Felipe (SANM series 1, Roll 38, Frames 764–766). The archaeological remains of Los Poblanos were recorded during the Los Ranchos Archaeological and Historic Site Survey on the Anderson property east of Rio Grande Boulevard and south of the Gallegos Ditch. The archaeological remains of Los Ranchos Plaza have been identified on both sides of Rio Grande Boulevard north of Chavez Road and south of Green Valley Road, with the plaza proper on the Jenkins farm property east of Rio Grande Boulevard.

Los Ranchos Plaza appears by name throughout the 18th century. The first mention of the plaza occurs in the 1783 census for the North Valley taken by Fray Gabriel de Lago (Archives of the Archdiocese of Santa Fe). As head of the Albuquerque parish, Fray de Lago began a register of baptisms, marriages, and deaths by place name. All residents listed in these records as residents of Los Ranchos Plaza are also listed in the 1790 census (Olmstead 1973) as citizens of the plaza, which has been identified as the Plaza de Señor de San José de Los Ranchos. From the census records, it appears that Los Ranchos was a hard-working, self-sufficient village. Second only to Los Candelarias in size, in 1790 the plaza had 176 residents in 40 households. It might be assumed that Vicente Montoya, the only resident listed as a rancher, was the local patrón, but no servants are listed for his household. In fact, in 1790 none of the plaza families had servants. Nearly half of the heads of household had occupations related to the textile industry: six carders, five spinners, seven weavers, and one shepherd. Also listed for the plaza were eight farmers, four carpenters, a shoemaker, a sweeper, and a mason (Olmstead 1973:12–14). John Baxter (1982:2) comments, "The census indicated a mixture of ethnic groups within the community, confirming Dominguez' observation that all social classes were represented. . . . Among the adults listed, Spaniards were slightly outnumbered by a combination of mestizos, coyotes, and genízaros." Of Antonio Gurulé's known children, the 1790 census (Olmstead 1973) lists only Manuela and Juan Antonio. Fourteen residents had the Gurulé surname, but all but one of the heads of household was either a *mestizo* (Spanish-Indian) or a *coyote* (Indian-mestizo).

Although he had inherited his mother's land grant, in 1754 Antonio looked elsewhere for land. In that year he, his wife, and 18 other people settled in the valley of the Rio Puerco west of Albuquerque (Dreesen 1973). Even at this early date he and the other settlers claimed that their land was insufficient to support their families, and that pasturage on the higher lands was too thin to sustain their livestock (Simmons 1983:114). Making a living on the Rio Puerco wasn't any more successful due to Navajo raids, and many of the settlers returned to the Rio Grande Valley. Several of Antonio's sons left again in 1768 to try their luck at Las Huertas near modern Placitas, and many stayed to be included on the 1802 census there (Olmstead 1981:144–147). By 1860 only one Gurulé family is listed in the census of Los Ranchos (National Archives 1967).

During the winter of 1788–1789, Mescalero Apaches repeatedly attacked the North Valley between Albuquerque and Alameda. In one raid they killed three men and made off with five horses and 47 beef cattle. A party pursued the attackers toward their *rancherías* in the Sierra Blanca, killing six Indians and recovering some of the stock. Some years later, Albuquerque's *alcalde mayor* sought a less violent solution by collecting contributions to placate the Navajo who menaced the region's west flank. Los Griegos, Los Ranchos, and Los Poblanos responded by donating many handfuls of *punche* (the local tobacco) and a few head of sheep. The presents failed to secure lasting friendship with the Navajo, however, and in 1818 there was a general outbreak of hostilities. In November of that year Albuquerque's *alcalde* ordered all stockmen to move their animals east of the Rio Grande, to get them out of harm's way, threatening a 50 peso fine and a month in jail for noncompliance. After the ordinance had been sent to all the plazas within his jurisdiction, it was returned to the *alcalde* with appropriate endorsements by local officials (Twitchell 1914, Nos. 1054, 2545, and 2775, as summarized by Baxter 1982).

Periodically, New Mexico was swept by plagues such as the smallpox epidemic of 1780–1781, which claimed the lives of many Hispanos and Pueblo Indians (Simmons 1966:322; see also

Baxter 1982). In an attempt to control this disease, the Spanish government established a vaccination program for its colonies in 1803. The program reached faraway New Mexico two years later (Bloom 1924:4; summarized by Baxter 1982). One hundred and twenty-four children in the Albuquerque area were immunized, including 46 from Los Griegos, Los Gallegos, Los Poblanos, and Los Ranchos. Each child's name was listed with the father's name in the official record (Twitchell 1914, No. 2368, as summarized by Baxter 1982). The population of the Albuquerque area doubled in the first half of the 19th century. Part of this increase was due to immigration, but immunization against smallpox was an equally important factor.

An 1814 census records Los Ranchos as having 65 families and 331 inhabitants, making it the largest of the plazas (Twitchell 1914, No. 2569, as summarized by Baxter 1982). The importance of the community was recognized in 1821, after Mexico's independence from Spain, when the plaza became the seat for a justice of the peace (*juez de paz*) for an area that extended east to Tijeras Canyon (Mexican Archives of New Mexico 1844, as summarized by Baxter 1982).

In 1846 the United States seized Mexico's northern territories. A force under General Stephen Watts Kearney hoisted the American flag over Santa Fe, then proceeded south through Bernalillo to Albuquerque, where, to his surprise, the Army was warmly welcomed. Several of General Kearney's men kept journals and described the area north and south of Albuquerque as densely inhabited, with farms and homes creating a straggling village from Algodones to Tomé (Simmons 1982:139).

Following the Mexican War, soldiers, surveyors, and adventurers came to New Mexico and wrote descriptions of the new American territory, including the first narrative descriptions of Los Ranchos. Accompanying Captain Randolph B. Marcy on a road survey through the territory, Lieutenant James S. Simpson of the Topographical Engineers described the landscape around Los Ranchos: "The valley of the Rio Grande for a number of miles above Albuquerque presents the finest agricultural and pastoral country I have seen in New Mexico. The breadth of the valley under cultivation is, probably, not quite a mile" (McNitt 1964:154).

Lieutenant J. W. Abert, who was in New Mexico in 1846–1847, also described the North Valley as he traveled south from Bernalillo:

At length we reached a fine vineyard, within three miles of Albuquerque, where we purchased some onions. These vegetables grow to a remarkable size, and form one of the indispensable articles to a Mexican dinner. The adobe walls in the vicinity have the tops covered with cacti, to prevent persons from plundering the vines. We noticed, today, great quantities of the "myrtina," covered with large pods, now fully ripe. The ponds by the roadside were filled with ducks, geese, and cranes; it was curious to see the last mentioned birds striding along, with outstretched necks, as they prepared to take flight" (Abert 1962:72).

From 1851 to 1854, Los Ranchos was designated the Bernalillo County seat. Afterwards, W. H. H. Davis (1938:194) described the settlement: "We next made the Mexican village of Los Ranchos, formerly the county seat of Bernalillo, which extends along the road about half a mile,

and is composed principally of large farm-houses. It is in the midst of a tolerably good agricultural country, and considerable attention is paid to the cultivation of the vine."

There is no clear evidence that the plaza of Los Ranchos ever lay on the Camino Real, but maps indicate that it was on the main river road through the valley in the 19th century. A report written in 1846 notes only two major north-south roads through the Albuquerque area, the river road and another over the hills (Wislizenus 1969:34). A late 19th century map (U.S. Geological Survey 1893) shows these two roads, the latter east of the railroad tracks and the former winding north from Albuquerque. The river road turned east in the mid-valley to what is apparently Guadalupe Trail, between modern Griegos Road and Grecian Road, then swung back closer to the river. Continuing north along the river, the road passed through a cluster of houses—probably the location labeled "site of old settlement" during a 1916 survey (Bernalillo County Land Records 1916). That location is north of the northward bend of the Gallegos Ditch as it nears modern Rio Grande Boulevard from the east.

While the county seat, Los Ranchos was the scene of violence following an election-day incident in which one man was killed and several injured. Some newcomers to Albuquerque blamed the citizens of Los Ranchos, but Judge Spruce Baird came to the defense of Los Ranchos residents (Simmons 1982:146): "If anyone doubts the hospitality and kindness of the people of the Ranchos, he has but to go there as a gentleman, to change his opinions. I live neighbors to them, and have never had better neighbors in any country."

In a related incident, William C. Skinner of Santa Fe went to Los Ranchos and entered the store of Juan Cristobal Armijo, a nephew of former governor Manuel Armijo. Drunk and waving a pistol, Skinner was overcome by Armijo; the pistol discharged and Skinner was mortally wounded. This time Governor Calhoun came from Santa Fe to investigate and concluded, as had Baird, that the people of Los Ranchos were peaceable. A grand jury later decided that the death was caused in self defense (Simmons 1982:146). At the time, the entire area between Griegos and Alameda was probably termed Los Ranchos.

Thanks to the needs of the U.S. military based in Albuquerque in the 1850s, some Los Ranchos landowners had estates worth many thousands of dollars. Juan Cristobal Armijo was part of the Armijo clan that owned thousands of acres in the Albuquerque area, including many acres in the North Valley around Los Poblanos and Los Gallegos. Mariano Yrissari, listed on the 1860 Los Ranchos survey (National Archives 1967) as a merchant, owned estates worth more than \$200,000. Simmons (1982:147) notes that the rich stockmen at Ranchos de Albuquerque and those in Bernalillo gave house parties where there was much dancing, drinking, and gambling.

During the Civil War, many Albuquerque residents were sympathetic to the Confederate cause and some acted as informers to Confederate General Henry Sibley as to numbers and placements of Union troops. One of these was a Los Ranchos property owner, a poet of sorts, Julian Tenorio. In New Mexico the war ended in 1862 with the defeat of the Southerners. Under an act of Congress permitting confiscation of property belonging to disloyal citizens, in 1863 Tenorio's estate, including a large garden, vineyard, and orchard, was auctioned at the courthouse door in Albuquerque, as was the property of others deemed traitors (Simmons 1982:192). The Civil War brought prosperity to other Los Ranchos citizens. The increased demand for wool cloth for soldiers' uniforms and blankets boosted the New Mexican wool industry. Among the active sheep ranchers and wool freighters were Manuel Yrissari (Mariano's son) and Juan Estevan Barela of Los Ranchos de Albuquerque. Following the repulsion of the Confederates the Union soldiers in New Mexico were free to deal with the Navajos who had been raiding the valley. By 1868 most of the raiding had stopped. Ranchers of the Middle Valley expanded their flocks to graze on the common grasslands of the nearby mesas. One observer was amazed to see more than 10,000 sheep in flocks near Tijeras Canyon. The chief obstacle to the local wool trade was getting the wool to markets in the East. Freight wagons had to suffice until the arrival of the railroad in 1880 (Simmons 1982:211–212).

By 1860 Los Ranchos had become only one of several settlements between Los Gallegos and Alameda. Their combined population was close to 500 people, 191 of whom lived in Los Ranchos proper. The census listed only six heads of household as farmers (i.e., people who could make a living from farming). Ten were teamsters, two were jewelers, two were wealthy merchants. Five of the farmers and one of the jewelers (José del Pille from Mexico) were fairly well off, but their holdings in both land and personal property were overshadowed by the wealth of merchant Mariano Yrissari and his son, Manuel (National Archives 1967).

Mariano Yrissari, Lorenzo Montaño, Pedro Aranda, and Francisco Muñiz were named in 1866 records (Bernalillo County 1866) as the church commissioners involved in a statement of boundaries for the "Catholic Church of Ranchos de Albuquerque, Gallegos and Ranchitos." The last-named village appears on the map of the Elena Gallegos Land Grant, southeast of Los Gallegos (Court of Private Land Claims 1892, Frame 215). This church and the old plaza of Los Ranchos are probably the places referred to in this testimony given by Donciano Gurulé in the 1892 hearings (Court of Private Land Claims 1892, Frames 103–104):

- Q. Is Los Ranchos near the river or road?
- A. There are several roads.
- Q. The road leading to Albuquerque from Alameda. . . .
- A. There was one at the foot of the hills, the Plaza Ranchos.
- Q. Is this Los Ranchos which is on the road the old town or the new one?
- A. It is the old town, they called it Plaza de la Magdalena.
- Q. Where is that located?

A. It is almost in the center of the grant, and it is very near to the river, near to where the church stands.

Q. Is that occupied now?

A. The greater portion of it is in ruins, but there are some families still there.

Q. Ask him when he first knew of this old town?

A. I was born very near to the place, as far as I can remember, it was largely inhabited at the time, it was not in ruins as it is now.

Q. Was it an old town then?

A. Yes, sir. It had the appearance of a very old town: there my father showed me the ruins of the house of Antonio Gallegos (Gurulé), son of Elena Gallegos; afterwards that house lived to be the property of my grandfather Vicente Gurulé, he came to live in it and my father was born in it and when my father was a grown man, my grandfather built a house on the north of Mariano Yllisario's [*sic*] house; after my grandfather's death his land was partitioned as well as the town itself to all his sons, and my father moved out of town and built a house near to the river, and also when I was already quite grown the Church of Los Ranchos was built.

The church named in the 1866 records and remembered by Gurulé was in all likelihood the meeting place for the *encuentro* (encounter) of two statues of the Virgin, one brought south from the Alameda Church of La Natividad de María Santísima, the other coming north from San Felipe de Neri in Albuquerque. Usually held around the first of June, the *encuentro* was noted in the Jesuit diaries of 1868, the first year the Jesuits served in the Albuquerque area. The ceremony predated this year, however. The statues were carried by the women. Following the encounter at Los Ranchos, one of the Jesuit fathers from Albuquerque would say Mass and preach a sermon in the Los Ranchos chapel. The last *encuentro* was held at Los Ranchos on May 1, 1904 (Steele 1983:104). By October of that year, the church and apparently much of the village were destroyed by the flood of September 30 (see below).

The chapel of Los Ranchos celebrated its feast day of San José on New Year's Day rather than on the customary March 19, which would fall in the middle of Lent. A priest would come from Albuquerque to perform the ceremony, and sometimes there would be a folk play. Father Steele notes that on Sunday, January 1, 1871, Father (Alessandro) Persone (S.J.) and the (Jesuit) brothers and schoolboys went to Los Ranchos de Albuquerque to see "Los Comanches," a tragedy. An important event in the history of the chapel occurred in 1870, when some 500 people walked in procession to the chapel after a parish mission was preached, and placed a large cross in front of the chapel as a memorial to the mission. According to Steele (1983:29), "This was the first recorded setting up of such a cross in New Mexico."

A map made in 1901 for a new head line for the Gallegos Ditch (Bernalillo County Land Records 1901) shows a "Church of Los Ranchos de Albuquerque" 1,100 ft northeast of the juncture of the Acequia Madre de Los Gallegos and its new head line. The head line paralleled the Acequia Madre de Los Griegos, running north-south between the river and a road now called Rio Grande Boulevard.

Floods of the Rio Grande were an annual occurrence before the river was contained by Cochiti Dam upriver from Albuquerque, and by dams and reservoirs on the Chama, Galisteo, and Jemez tributary streams. Small floods benefited the Albuquerque area by dropping rich silts for fertile farmland. Prehistoric Indians as well as Spanish and Anglo settlers benefited from the enriched soil, which one 18th century traveler described as a "glutinous scum resembling lard" (Simmons 1983:93). The big floods, those that the U.S. Army Corps of Engineers calls 50-year and 100-year floods, spread across the floodplain, destroying houses, land, and crops.

During one of the worst floods on record, in 1874, the local newspaper reported that at "Los Ranchos the houses are submerged and the people are living on the foothills" (Carter 1953:74). Reportedly, the floodwaters surrounded Los Ranchos. In the *Daily New Mexican* of May 24, 1874, Don Ambrosio Armijo of Albuquerque stated:

I write a line to say that the county of Bernalillo is being annihilated by the rushing waters. A body of land 12 miles long and two miles wide, embracing the fields and houses of Alameda above to Los Barelas below, is a watery waste and the loss must be at least two millions of dollars, for all the towns and settlements within that area must be swept away.

We are now isolated here in the midst of the waters. Ruin seems inevitable, and God only knows where it will stop. All seems lost, . . . the people are leaving day and night for the adjacent hills, and still the river rises. Albuquerque proper the river has not reached, but the place must be abandoned. The merchants are packing their effects and leaving. The hammer is heard everywhere in the packing of goods, and terror reigns among the people. I shall not leave myself yet, but have erected a platform whereon to place my goods, and if I cannot get away in wagon will leave in boats.

Fortunately the water subsided and the plaza in Albuquerque survived. The church in Alameda and the village surrounding it were destroyed. Afterward, both were rebuilt farther east where they remain, at the intersection of Alameda Boulevard and Fourth Street. Old residents on Guadalupe Trail at Los Ranchos Road say that the oldest houses in the area were built about 1875, after the 1874 flood wiped out their homes closer to the river (Sargeant and Davis 1986:196).

Floods continued to threaten the valley throughout the next several decades. The flood of 1884 was held back by a newly constructed dike north of Alameda (Simmons 1982:298) and may have missed Los Ranchos. A report in the *Albuquerque Morning Democrat* of May 9, 1891 noted that "the water had broken over at one of the low places just below the Yrissari church," probably the church of Los Ranchos already mentioned. There is a bend in the Rio Grande opposite where the Griegos Ditch crosses Rio Grande Boulevard south of the great U-turn of the Gallegos Ditch, and this bend in the river is the probable location of where the water broke through onto the valley floor. Donciano Gurulé's testimony at the 1892 hearings (Court of Private Land Claims 1892) that "the greater portion of Los Ranchos is in ruins" undoubtedly refers to the effects of these devastating floods.

There seems little doubt that a flood in the autumn of 1904 was responsible for the demise of what remained of the Plaza de Los Ranchos. A year earlier, floodwaters had broken through the Alameda Dike and water several feet in depth, covering 6 mi of farmland in the North Valley, was held back by the berms of the irrigation ditches (*Albuquerque Morning Journal*, June 15–18, 1903). A similar occurrence in the fall of 1904, after the *encuentro* on May 1 noted by Steele, apparently removed the church completely (*Albuquerque Morning Journal*, September 30– October 1, 1904). Men who were small boys at the time of the flood recalled rushing into the church and "throwing the saints" (the statues) from the altar to others waiting outside the windows (Sargeant and Davis 1986:105). Aurelio Candelaria recalled that flood:

A man from Mexico—he was a lawyer—paid the Chavez family five pesos to take the statue of the Virgin out, and just after one of them entered and removed the Virgin, the entire church collapsed. I was just a little boy, but I went with my father all along the ditch to see if the church would fall, and when the man went in to get the Virgin, the water was up to his chest, and he carried the Virgin in his arms (Sargeant and Davis 1986:105).

Following the flood, the Village of Los Ranchos was deserted. Some inhabitants moved to the highlands on the east side of the valley along Edith Boulevard, while others took up residence along Guadalupe Trail, joining refugees of earlier floods already established there.

By the early 1900s much of the valley could no longer be farmed, due to waterlogged and alkaline soil (U.S. Reclamation Service 1922, Sheet 11). The problem had built up gradually. In 1891 John Wesley Powell, director of the U.S. Geological Survey, noted that "Around Bernalillo, Albuquerque, and Belen are areas of cultivated land of excellent quality and some large vineyards [but] below Bernalillo and also below Belen on the east side of the river are large alkali flats, once productive fields, but now worthless from lack of drainage" (Powell 1891:270).

With the work of the Middle Rio Grande Conservancy District in the 1930s, many of the alkaline areas again became good farmland, but Albuquerque was growing and automobiles had ushered in the era of the suburban commuter. Subdivisions, small landholdings, and rural estates were built on the reclaimed land. Large houses sprouted along Rio Grande Boulevard, in areas where once there had been only marshes. Thus the North Valley entered the 20th century.

The land now part of modern Los Ranchos was under the jurisdiction of the County of Bernalillo until 1958, when the Village of Los Ranchos was incorporated. In 1989 the village acquired two acres along the east side of Rio Grande Boulevard, including the Jenkins farm and the site of the archaeological studies—the probable site of the original Plaza de Los Ranchos.

#### The Jenkins Farm

This 2.5-acre parcel of land, which was recorded during an archaeological survey of Los Ranchos Village and partially excavated in 1996–1997, was purchased by Cecil Jenkins and his wife in 1928. Jenkins had come to Albuquerque from Kansas with his parents in 1917. He first

saw the property he later purchased while working for a nearby farmer, Fred Eakes, who owned land west of Rio Grande Boulevard.

Cecil Jenkins was interviewed as part of the North Valley Oral History Project in 1983. What follows is information he gave concerning Los Ranchos Village lands, which he first observed in 1928 (Sargeant and Davis 1986:24–25).

Across the road from my house there used to be a running slough full of ducks, geese, blackbirds—the slough had been a road.

This [area near his home] used to be where old Los Ranchos stood—got wiped out in a flood in 1904. Everywhere around here were adobe mounds where buildings once stood—it was about a mile long but not more than a quarter mile east-west and it sort of curved around. There were building mounds on either side of the slough—it was a prairie dog town. I cleaned them out with a twenty-two.

The old church of Los Ranchos was located up northwest of here. The farmer I worked for had me take a plow and a team of Percherons to knock down the ruins of the church walls and make a causeway across the slough so he could get into his property from the east side.

Aurelio Candelaria told me when the water came a Mexican went into the church and got the statue of a saint—and swam out with it. I found a silver holy water sprinkler in the ruin and a sheep bell and gave them to Mr. Eakes.

On the north of our property there were at least three adobe residences close together. I cut through one of the mounds when I made an irrigation ditch. There was a horse scraper in the dirt and old andirons.

On the south we found a buried cobblestone patio—forty or fifty feet square. I was going to plow the area to make a field and hit those cobblestones—the plow couldn't move. Had to take one line of rocks out at a time. The rocks were smooth and filled in with dirt and grown over with grass and weeds. At the corners were large lava rocks.

On the north side of the patio was a mound six feet high—it had been a building two hundred feet long and fifty feet wide with a double row of rooms—must have been a hotel or hostelry or a large house for some notorious person. When I dug my root cellar into the mound, I was four feet down and still in the adobe walls of the old building. I took out a lot of dirt and made adobes for my living room. While I was digging I found buttons from a soldier's uniform and a medal issued to a man named Graham during the Mexican War. I deciphered that he had fought with General Winfield Scott in 1846. There must have been a blacksmith shop on the west side of the patio next to the road—there's still compacted adobe there today and I found old wheel hubs and pieces of plow shares. It was a narrow rectangular room.

There was lots of pottery—Mexican pottery—some Indian pottery glazed or semiglazed, brown with black markings, and goat and sheep bones, pieces of harness and agricultural equipment.

All that adobe on my property got hauled out in the '30s and used by the highway department as ballast for Rio Grande Boulevard. It took a shovel crew and eight big dump trucks six weeks to clear it off.

The cobblestone plaza described by Jenkins is particularly interesting. If it was, indeed, the area of the central plaza of the town, as seems likely, then it would have been unique for towns in New Mexico at that period. Most village plazas, including that of Albuquerque, were simply bare dirt. The corner markers of lava rock would have added an aesthetic touch rarely found on the frontier. The glaze-decorated pottery mentioned by Jenkins may have come from a nearby Classic period Pueblo Indian site, but other than sherds, no evidence of a site of that period was encountered during archaeological studies of the plaza.

#### Chapter 4

#### **RESEARCH DESIGN**

#### Kathryn E. Sargeant

The primary goals of the project were to determine whether there were significant archaeological remains in the area and if so, where they were located and what type of artifacts were associated with them. This information could then be used by the State Historic Preservation Officer to advise the village on how best to treat the site and assist them in making informed decisions regarding preservation and use. The proposed investigation was not intended as a full-scale excavation; however, the information gained could be the basis for further investigation should that be deemed necessary.

The proposed method of investigation was by hand-dug test pits and a series of trenches dug with a backhoe. The length of the trenches would vary, but at least one 150 m trench across the property, from east to west, would provide a good window into the stratigraphy of the site and hopefully cross-cut buried foundations and walls. These profiles could be followed by removing overburden by hand and by means of horizontal scraping of exposed wall outlines to determine their direction and possible links to other wall segments. Horizontal scraping of the surface with flat shovels and trowels could reveal wall lines and feature outlines close to the surface.

It was beyond the scope of the proposed investigation to examine the local settlement pattern in depth. However, the excavation could be used to observe use and reuse of building sites and possibly to date (using diagnostic artifacts and radiocarbon or archaeomagnetic samples) the periods when this part of Los Ranchos was used.

Other questions for consideration during this project and future projects at Los Ranchos are as follows:

- 1. Evidence of changing economic and social patterns through time,
- 2. evidence and implications of trade with local Indian groups, as well as trade with Mexico and the eastern United States,
- 3. evidence of the arrival of the "Americans" in the second half of the 19th century, and specifically of the arrival of more sophisticated technology than was previously readily available, and how local life-style might have been altered by this technology, and
- 4. evidence of prehistoric occupation that might explain the presence of ceramics dating to the pre-Hispanic period.
#### **Chapter 5**

### **TEST EXCAVATIONS AT LA 46638**<sup>\*</sup>

Kathryn E. Sargeant

#### Background

The area included in the test excavation project covers 2.5 acres, formerly the farm and residence, with three outbuildings, of Mr. Cecil Jenkins. The southern two-thirds of the property was devoted to lines of orchard trees separated by 30-ft-wide spaces where Mr. Jenkins grew corn, squash, and other vegetables for his own use and for sale to neighbors. The small five-room house, located toward the east side of the property, was reached by an oval gravel drive from Rio Grande Boulevard on the west. Within the oval of the driveway was a raised mound 3 ft high. The mound was all that remained, according to Jenkins, of a 200-ft-long adobe ruin existing on the property when he first bought it in 1929. He had dug a root cellar into the mound from the north side. The entrance was closed by a wooden door. Several large cottonwood and elm trees shaded this area, and there were additional scattered evergreens. A pump housing was located south of the drive. In front of the house on the west was Mrs. Jenkins' vegetable and flower garden with lilac and rose bushes. To the north of this were several more fruit trees and a fence separating the Jenkins land from the Griegos Middle Rio Grande Conservancy drain (since filled in). The drain curved and edged the property on the east side and then continued south. A new pump housing was located at the northeast corner of the property. Hartnett Park, belonging to the Village of Los Ranchos, occupied land to the north and east. After the Village of Los Ranchos bought the farm property from Mr. and Mrs. Jenkins in 1989 it was agreed that the elderly couple should be allowed to continue to live there. Mr. Jenkins died in 1992 and Mrs. Jenkins in 1994. After that the property remained vacant. Without any warning the maintenance department of the Village demolished the house and outbuildings in January 1996, bulldozing the trash and construction material into the ground. The village administration was undecided about how to use the property so it seemed expedient to undertake an archaeological investigation of the site as soon as possible in order to determine what subsurface remains might still be found.

When we came to the site to begin the investigation all the buildings were gone. The bulldozer and scraper had leveled the ground including the mound that contained the root cellar. Most of the orchard trees were dying for lack of water, and even the big cottonwoods and elms were fading. The vegetable and flower gardens were obliterated and the driveway was no longer discernible. The bulldozer work impacted the buried archaeological remains in parts of the site where the ground had been churned and used for burying plaster, boards, bricks, metal, glass, and personal effects. Fortunately, enough of the buried archaeological features were left to make the investigation worthwhile.

<sup>&</sup>lt;sup>\*</sup>This chapter stands essentially as Ms. Sargeant wrote it. Although the meaning of some items, such as "BD" and "BS," can be guessed at (as "below datum" and "below surface"), others are unclear. Since second-guessing creates hazards, we have not "corrected" any of the terminology. —Ed.

### **Excavation Procedures**

Three testing procedures were used to determine where subsurface cultural features existed: test pits, backhoe trenches, and surface shovel scraping in selected areas. Auger cores taken during the 1982–83 survey indicated a widespread cultural level 20 cm to over a meter deep.

We first laid out a grid of 2 m squares on the northeast section of the property for initial testing.<sup>\*</sup> A datum point was established at the 14 meter stake. Six 1 m by 1 m test pits were excavated by hand at 10 cm arbitrary levels to depths varying from .50 m to .95 m, ending in sterile deposits. Fill from these test pits was screened through ¼-in. mesh, and all artifacts were collected for analysis. Because of the difficulty in digging the dry compacted soil, it soon became apparent that if we were to explore very much of the site it would be necessary to use backhoe trenches.

Subsequently, nine trenches, approximately 1 m deep by 1 m wide, at various lengths, were dug on the property, placed to give maximum access to the subsurface materials. In order to present a lateral perspective to the stratigraphy of the trench faces, the backhoe dug two bays on the south side of Trench 1, 2 m long and 1 m wide, and enlarged the east end of the trench by 6 m on the north and south sides. Trench 1 was extended west by hand excavation to the property fence line along Rio Grande Boulevard in order to follow wall lines and floors. With the exception of Trenches 1 and 2, long transect trenches were laid in at right angles to the main trenches. The backhoe was called back in November to enlarge bays in Trench 1 at the east and west ends, to remove overburden over selected features on the north and south sides, and to move some of the backdirt from trench excavation, which was piled alongside the trenches. Bays at the transect corners of Trenches 3, 5, and 6 were also enlarged.

We did not attempt to screen all of the dirt we removed by hand or the dirt excavated by the backhoe. Rather, we limited screening to areas where test pits were sunk and where maximum control could be exercised; nevertheless, all artifacts were collected and provenienced as discovered. Volunteers spent many hours raking through backhoe fill to retrieve artifacts. Provenience for these artifacts could not be precisely identified, of course, but rather generally associated with features in segments of the trenches excavated by the backhoe. Surface artifacts were collected as completely as possible.

The site was mapped with a transit. A new central datum was established at Station A, 14.2 m. southeast (152 degrees) of the northwest corner of the property line (Figure 3).<sup>†</sup> Detailed stratigraphic maps were drawn of balkheads exposed in the backhoe trenches.<sup>‡</sup>

<sup>&</sup>lt;sup>\*</sup>The exact location of this grid is not known, but it may have been where the row of numbered stakes is shown on Figure 3, the site map. —Ed.

<sup>&</sup>lt;sup>†</sup>This distance measurement is not correct, though the bearing is. Sargeant is apparently referring to the site map prepared by Condie and Stout, on which Station A is 38 m southeast of the property corner, on a bearing of 152 degrees. —Ed.

<sup>&</sup>lt;sup>‡</sup>The meaning of "balkhead" is unclear. Balk (or baulk) in archaeological usage usually refers to a unit left standing to serve as a reference for strata that have been stripped away through excavation or for some other reason, but this doesn't appear to be the meaning here. Dan Stiteler (personal communication, February 19, 2005) thinks Ms. Sargeant may have meant areas in the trench profiles where adobe footings appeared in section. —Ed.



**Figure 3.** Scaled map of LA 46638, Los Rancho Plaza, produced from a map prepared by Kent Stout and Carol Condie in 1996 at a scale of 1 cm:2 m.

A 10 m by 5 m area between Trench 1 and the north end of Trench 2 was shovel-stripped to search for wall outlines in the approximate area where Mr. Jenkins had described the long adobe mound. As the outlines of walls appeared in this area we extended the north end of Trench 2 by hand excavation to intersect with the south wall of Room 1. A series of small test pits was excavated along the north and south walls of Rooms 1 and 2, and west into parts of three adjacent rooms. Later, five 1 m by 1 m test pits were dug into the floor levels of Room 1 and along the dividing wall between Rooms 1 and 2. These last test pits in Room 1 were excavated in arbitrary 5 cm levels, and all dirt was screened and artifacts collected.

At the north end of Trench 2 the sides were hand-excavated 1 to 2 m east and west from the trench faces following wall lines and floors. Test pits were hand-dug farther east and west of these excavations, again to test for floors and walls.

In Trenches 3, 4, 5, and 6 on the second round of work with the backhoe we had the Layer 2 overburden of flood deposit/plow zone removed to the cultural zone, Layer 3, on selected corners of the transects, then attempted to follow historic surfaces and features. Features observed in the vertical stratigraphy of the trenches were investigated. Trench 9 was minimally explored since much of the stratigraphy was destroyed by bulldozing and intrusion of modern trash from the house destruction.

### Stratigraphy

Since the site area was at one time or another part of a paleochannel of the Rio Grande and also at times part of the yazoo area described by Kelley (1969:15–17), and again at times exposed surfaces that received windblown sand from the West Mesa and redeposited local sands, it is not surprising to find that the lower stratigraphy of the site deposits reflects these environments. More recently, during the first and second occupations, which occurred on top of the natural deposits of the site, damaging floods destroyed the adobe buildings of the residents. These buildings collapsed into mounds, and much of the fluid adobe mud was redeposited over the nearby landscape. Possessions left behind in the hurried departure of the residents as they sought safety from the flood were redistributed over the site. Breakable items such as dishware, clay pots, and glass were crushed as the roofs and walls collapsed. Charcoal from their fireplaces and trash from their dumps got carried along in the moving water and left wherever the floodwaters subsided.

The early occupation of the Los Ranchos site was destroyed by a major fire, and there is some evidence that the ruins were then flooded. Wind-deposited sands covered over the ruins in some places to a depth of 50 cm. It is evident that people returned to build again on top of the ruins of the first occupation. The second village was destroyed by the flood of September 29–October 8, 1904 (see Scurlock, this volume). Twenty-five years later, Mr. Jenkins moved onto the exposed surface of the flood deposits.

A stratified site is like a layer cake. The earliest cultural materials are on the bottom and the later materials are above, unless something happened that allowed a mixing of the two, and this is what happened at Los Ranchos. In some locations the distinction between lower Level 3 and upper Levels 2 and 1 are fairly clear. However, the people who returned to rebuild the village on

Level  $B^*$  dug what we interpret to be borrow pits and adobe mixing pits into the buried ruins of the first village, Level 3, probably to obtain soil for the adobe walls of the new village. These large pits later became trash dumps for the village residents. Mr. Jenkins plowed the land and dug holes on the surface of the site on which he lived to build his house, plant his orchard, and to lay in pipes.

During the archaeological excavation, after the nine trenches were dug by the backhoe, the exposed rough-cut faces were hand-scraped with trowels to provide a clearer view of the natural deposits and cultural features. These were measured and recorded as profile maps on graph paper. Not all of the exposed features were excavated since our goal was primarily to establish that subterranean site remains still existed, and not to explore the entire site. Selected features only were excavated.

In areas of the site undisturbed by cultural features or blading, the soil deposits are fairly uniform.

*Level 1.* Cultural materials and features in natural deposits of the mid-19th century. The surface of the site is a mix of aeolian sands and silt from irrigation water, 5 to 10 cm in depth, sloping slightly to the south at a 10-degree grade. At the time of the excavation, many artifacts, including clay potsherds, chinaware, fragments of ground stone, metal, glass, and debris from the Jenkins house destruction, were strewn about the site.

*Level 1A.* Recently deposited construction trash from the demolition of the Jenkins house has been bulldozed into the surface of the northeastern part of the site from 10 cm to 45 cm deep.

*Level 2.* Dark brown fractured sandy clay. This is the flood deposit from the 1904 flood modified by plowing and irrigation water in the upper levels. It varies from 10 to 25 cm in Trench 1 to 80 cm deep in Trench 6.

*Level 3.* Cultural materials and features in natural deposits dating to the 19th and early 20th centuries.

Level 3A. Exposed surface and cultural features present at the time of the 1904 flood.

Level 3B. Natural and cultural deposits of the early occupation of the site. The gray green soil found here is derived from high ash content. This color typically forms when red deposits are turned to green under high reducing conditions, such as a high water table. The mix of aeolian sands with fine clays and silts found here are not well stratified. According to Dr. David Love, this layer can be described as "anthropogenic"; that is, the micro-lenses of natural deposits are churned and fractured by human use, probably the result of compaction from people walking on the surfaces, as might be expected if this area was a public space. In Trench 1 Dr. Love noted that Level 3A is primarily formed by a reworking and redepositing of local sands from the collapsed and disintegrated ruins of the early occupation of the site.

Level 4. Natural deposits underlying Level 3.

*Level 4A.* A 10-cm-thick layer of dark brown clay, which appears to have been the exposed surface used as a base for building the structures related to Level 3.

*Level 4B.* Pinkish tan to red fluvial sediments of hard clayey sterile sands deposited under conditions of low energy. In some areas of the site the upper 15 to 30 cm of this layer appear as red sandy clays, and in other parts as tan sandy clays. At the east end of Trench 6 where the backhoe had excavated to a depth of 3.70 m, Level 4B is aeolian sand over a stratum of clay 55

<sup>\*</sup>Level 3B? —Ed.

cm thick, then coarser soft sand deposited in a river channel. An auger test at the southeast edge of Trench 4 found fluvial sand with small white pumice inclusions at a depth of 3.25 m (Love and Allen, personal communication, 1996). There was no evidence of human activity in deposits lying below Layer 3.

Level 5. Soft fluvial sterile sand deposited under conditions of high energy.\*

### **Feature Descriptions**

All buildings in the site investigated during this project were constructed of adobe. Walls vary from 50 cm to 1 m wide. Adobe bricks are usually about 50 by 30 by 10 cm. As far as we can discern, floors are paved with adobe bricks 8 to 10 cm thick. Mortar lines can be as wide as 12 cm. These bricks are often very difficult to discern. For instance, in one floor that had been exposed in the excavation for several weeks, the outlines of the bricks became visible one afternoon in the gray half-light of an approaching thunderstorm. Covings curve from the floor level to the base of walls. Covings are 9 cm high and 10 cm thick. Walls, floors, and covings are plastered with mud and then covered with a white plaster made of gypsum. Alternate thin lines of mud and white plaster seen in the profiles indicated that floor and wall replastering occurred many times.

Only one room, Room 1 on Level 3A, was completely excavated; several other rooms on both levels were partially investigated. The interior measurements of Room 1 are 4.15 m north-south by 3.9 m east-west. Bainbridge Bunting (1976:72) states that the customary width of a room was 15 ft during Spanish Colonial and American Territorial periods in New Mexico. The length varied. Width was limited by the length of peeled logs used as vigas (horizontal roof beams) in the ceilings of adobe structures. These would have been cottonwood from the valley or ponderosa pine cut in the Sandia Mountains east of Albuquerque and brought down by horse and wagon, a major undertaking. A layer of thin poles (latias) of willow, cottonwood, or aspen would have been laid at right angles or on the diagonal over the vigas. Sometimes, rough-cut boards called tablas were used. A layer of brush or bark covered the latias and then a layer of adobe was placed over the brush. Only charred fragments of roof materials were found on the floors and debris of Level 3B. Roof beams of the Level 3A occupation must have been swept away in the 1904 flood or perhaps scavenged by residents returning to find anything of value to recover. Jenkins didn't mention finding any usable wood in the eroded adobe building mounds.

Bunting (1976:67) explains that there were few windows in early structures, and these were small, because of the need for defense against Indian raids. Several small pieces of selenite were found in the excavation. Selenite is a crystallized gypsum that can be mined in sheets up to 10 by 18 in. Since it is translucent it was used for windows set into adobe walls. This material may have been used in the early occupation of the site. However, there was also a great deal of modern window glass, probably used in the later occupation, and, of course, in the Jenkins house.

Another important feature of early New Mexican rooms is the fireplace, used for cooking and heating. Two fireplaces were excavated, one in Room 3, Level 3B, and the second in Room 1, Level 3A. The fireplace in Room 3 was probably of the paredcito type described by Bunting

<sup>\*</sup>See Condie and Stiteler, this volume. —Ed.

(1976:75). "If a builder wished to locate a hearth against the middle of a wall rather than in a corner, he constructed a low spur parapet, a paredcito, at right angles to the wall and then constructed the usual kind of fireplace in the resulting corner." The fireplace in Room 1 also appears to have been built into the corner of a spur wall, but in this case the space between the fireplace wall and the north wall of the room must have been filled in, perhaps providing a storage shelf or a variation on the "shepherd's bed" also described by Bunting.

Adobe buildings were usually composed of a string of rooms in a single line with contiguous walls. Rooms might be added at the ends to form an L or a U shape or perhaps to enclose a patio on all four sides. At Los Ranchos the 200-ft-long mound of adobe described by Jenkins apparently resulted from the collapse of a building with a double row of rooms on Level 3A. Indications are that the Level 3B rooms exposed in the faces of Trench 1 on the west end were also contiguous and may have stretched to the east end of the trench. However, on Level 3B there is so much disturbance that it is impossible to tell without further excavation. The lowest floor levels found in the test pits dug beneath Room 1 of Level 3A appear to be on the same stratigraphic level as 3B. There is the possibility that the early building was similar to that of the second occupation, a long double row of rooms, in this case oriented slightly more toward the north.

Most of the disturbance of the early Level 3B structures is from large pits, which we interpret as borrow pits or adobe mixing pits dug by people of the second occupation level, 3A. These pits are found in all nine trenches excavated by the backhoe and seem to be ubiquitous over the site. Presumably, the adobe walls of the lower level were mined to build the walls of the upper level.

At the extreme east end of Trench 1 we found features and strata together with a concentration of slag, charcoal, ash, and burned adobe, which would indicate that a smelter or forge likely had been located in this area. Homer Milford (2000:5–6) describes a frontier smelter (horno) made of stacked stones and adobe mortar for a base, with the upper two-thirds of the walls constructed of thick adobe in an inverted cone shape. "The heat of the smelting process was very destructive to the furnace walls and most of these simple furnaces survived only a few operations without having to be totally rebuilt." No large stones for a base were found at this level. Milford (personal communication, 2000) indicated that some of the smelters were built entirely of adobe. A smelter existed in Cerrillos, New Mexico, in the 1700s, and Lieutenant Avery described a smelter in use in Placitas at the north end of the Sandias in the 1850s.<sup>\*</sup>

Yet another feature was revealed in the stratigraphy of the west balkhead, north side, of the east bay at the end of Trench 1. Levels 1 and 2 were removed by the backhoe in order to facilitate hand excavation of Levels 3 and 4 into Level 5. Horizontal deposits relating to the smelter activity were bisected by an acequia or irrigation ditch oriented northwest-southeast. The ditch may have been contemporary with Jenkins' early residence at the site, or it may date to an earlier period. It lies parallel to and south of the Griegos Drain, which was active until the mid 1980s, then filled in by the Middle Rio Grande Conservancy. A number of artifacts, including datable Pueblo pottery, were found at the bottom and in the fill of the ditch but probably are not helpful in dating the ditch since it cut through earlier stratigraphic layers. The narrow bottom of the ditch lies in the fluvial sands of Level 5.

<sup>&</sup>lt;sup>\*</sup>Reference unknown. —Ed.

Various small pits and possible postmolds were identified in the excavation. Some of these were examined, mapped, and described. Artifacts were retrieved from the fill.

### Trench 1

Trench 1, 40.50 m in length, was oriented northeast-southwest in the northern half of the site area, its west end 8 m east of Rio Grande Boulevard. At the eastern end, beginning at the 33 meter mark, the trench was enlarged into a semicircular bay 10 m north-south, 5 m east-west. Two smaller bays, 2.5 m north-south, 1 m east-west, were excavated by the backhoe on the south side of the trench toward the east end. The trench bisected a number of important features.

The north and south exposed faces of the trench revealed a series of adobe wall and floor segments on the early lower occupation level. Wall profiles are seen as humps of adobe connected by often-broken adobe floor lines 10 to 20 cm thick. Rooms on this level have contiguous walls. Beginning with discussion of this lower level first, probable wall profiles appear on the south face at meter markers .20 to .75, 3.70 to 4.20, 6.55 to 7.5, 9 to 10, 14.75 to 15.50, and 32.50 to 33. Historic borrow pits and modern disturbance seem to have destroyed wall and floor remnants on the north face at the extreme west end of Trench 1. A wall profile does appear at 6.60 to 7.25, possibly 8 to 8.30, 11.60 to 12.50, 15 to 15.20, and 30 to 31. Although somewhat offset, these are seen as continuations of the wall and floor structures observed in the south face, having been bisected by the excavation of Trench 1. In this case, walls would be oriented somewhat northeast-southwest. Adobe blocks, apparently disturbed by a borrow pit, appear in the east profile of Bay 1 at the 22 meter mark, and possible adobe floor lines appear in the east, south, and west faces of Bay 2 between meter marks 27.5 and 29 m.

A truncated floor line continues west from the wall profile at south face .20 to .75 cm, which probably indicates that another room or possibly more existed at Level 3B beyond the west end of Trench 1. Hand-excavated test trenches west and north of Trench 1 show a heavily disturbed area:

Surface to 10 cm: Jenkins driveway gravels.

- 10–20 cm: Broken charcoal lens (modern).
- 20–50 cm: Disturbed sandy clay rubble of flood deposit (Level 2), charcoal flecks.
- 50–60 cm: Sandy matrix with many cream-colored adobe fragments, increase in charcoal pieces, many small sherds, faunal bone, glass, some metal, some concrete fragments.
- 60–70 cm: Less cultural material than above, baked adobe fragments 4–6 cm across, adobe fragment 20 by 12 by 5 cm at 65-70 cm level, crushed red and black clay sherds, small stones 2–3 cm across.
- 70–80 cm: Fewer artifacts than above, matrix is reddish brown clayey sand with calcite flecks, adobe fragment 10 by 12 by 8 cm at 75 cm level, intrusive borrow pit with green ashy matrix on north side.
- 80–85 cm: Still a few baked adobe fragments. At 85 cm level a fully glazed orange and black clay sherd, faunal jawbone, borrow pit on north.
- 85–110 cm: Swirled dark brown clay and cream clay matrix. At 93 cm level a dark gray, 2–3 cm thick, sterile clay deposit slopes downward toward north, small roots.
- 110 cm: Dark clay with stones 2–3 cm across.

### **Rooms in Trench 1**

Wall profiles at meter marks 3.70 to 4.20 and from 6.55 to 7.5 defined the west and east wall locations of the second room from the west end of Trench 1. It was decided to test this area in order to determine if walls could be traced south from the trench face and if it was possible to follow the floor line into the interior of the room. This test excavation was designated Unit W-A-1. The test trench extended 1 m south into the room area.

There were two intrusive elements into the test area. One was a southern extension of a 30-cmwide band of a large borrow pit, pit feature #1, observed in profile in the opposite (north) face of the trench and later excavated; the other was a modern 2-in. pipeline probably laid in by Jenkins, 45 cm below the surface of the ground.

The east side adobe wall was built on top of Level 4A, the dark brown clay layer 10 cm thick, 70 cm below the surface. The floor, also of adobe, was in two layers; probably the upper one was a replacement for the lower. The amount of burned roof material, burned adobe, and ash inside the room left no doubt that there had been a real conflagration in this area. Apparently, following the fire, a thin flood deposit of silty mud covered the floor and washed artifacts, bone, and burned adobe against the coving of the west side wall.

The only recognizable adobe bricks of the east wall found in situ were those of the footing and two piled bricks with 10-cm-thick mortar lines close to the trench profile face. However, the uneven outline of the slumped wall could be traced southward lying in a northeast-southwest direction. It measured 70 cm wide, narrowing to 56 cm. This wall can be seen to continue across the trench into the north face. Close to the south wall the floor area was burned orange red. A charred viga fragment in three pieces with two large burned adobe blocks lay on top and just east of the wall remains. A layer of ash 4 to 5 cm thick covered the floor in this area. The uneven debris lies at 40 to 60 cm beneath the surface.

Just 2 m east of the room described above is a substantial footing 1 m wide with a single adobe block on top. It may be that two walls come together in a corner here or that this space is a very narrow room.

### Room 3

The burned fireplace bricks of Room 3 (Feature 1) were encountered in a test pit early in the excavation, the first indication of a really impressive fire in the history of the site. Later, when the backhoe returned to move backdirt and to expand several areas of the excavation, the surface and flood deposits (Levels 1 and 2) over Room 3 were removed so we could take a better look at the fireplace.

The west wall of Room 3 is located at meter mark 12 and the east wall at mark 15, again delineating a room approximately 3 m wide, as with several other rooms defined in the stratigraphy of the south face of Trench 1. The west wall in profile appears to have collapsed toward the middle of the room. At a point 15 cm south of the face we encountered a feature (Feature 2) consisting of two solitary adobe bricks, one on top of the other, seemingly in situ in the middle of the room. The bricks were undoubtedly part of a wall. However, they were located just 2 m north of the fireplace hearth, very likely too short a distance to be a room wall. A 3-cm-

thick deposit of green ash-stained sandy clay, which we associate with Level 3B borrow pits, covered the upper surface of the bricks, leading us to conclude that the remainder of the adobe feature had been destroyed in the digging of a pit. A comparison can be made to a rock and adobe house dating to the mid-19th century. Ferg (1984:26) describes a room divider wall and also a storage bin built of adobe in a rock and adobe house at the San Antonio de las Huertas site near Placitas, northeast of Albuquerque. These features were part of the kitchen of that house. The bricks found here may have been part of a similar feature.

Pits apparently were dug in at an angle from the north, sometimes leaving fragments of west and east walls intact and sometimes undercutting deposits such as Level 4 (brown clay). Sections of the floor north of the fireplace were gone, and the pit extended 20 cm or more under the floor level into the soft sand of Level 5. A narrow band of charcoal covered the bottom of the pit. A meter-wide deposit of tan sandy clay at 60 to 85 cm below the ground surface, defined by washouts on the east and west sides at meters 13 and 14 in the trench profile, is probably the adobe remains of Feature 2 collapsed into the intruding pit. Fill in the pit was typical green ashy clayey sand containing dark brown clay pockets, burned adobe pieces, charcoal flecks and pieces, clay pottery sherds, and animal bone. No glass was found. The north face profile shows an intact floor, 50 to 70 cm under the surface, and wall mounds with footings at 50 to 80 cm deep.

The burned adobe fireplace (Feature 1) remains lay in an arc with the hearth oriented toward the northwest. As far as can be determined, it was built out from the east wall. Bunting (1976:75) describes this kind of fireplace as a paredcito type (see discussion and illustrations on pp. 32–33 and 45–47).

Only the lower bricks of the wall and fireplace remained. The east side of the fireplace, together with the adjoining wall, lay in place at a depth of 40 to \_\_ below the ground surface. The hearth measured 47 cm wide at the firebox opening. The interior of the firebox contained gray sand fill with a few small charcoal and burned adobe pieces and a larger piece of fallen brick. The firebox was probably parabolic, although this was undetermined. On the firebox floor was a 2.6-cm-thick layer of white ash and charcoal. Blocks of adobe brick 16 cm and 14 cm high stood on either side of the hearth. On the left side next to the upright adobe brick was a rectangular block of white ash 12 cm wide and 35 cm long east-west. A tree root had grown through this soft fill. To the left of this ash feature was a second white ash rectangle 8 cm higher with a round 10-cm-wide impression in the upper left-hand corner. These ash shapes continued through the side wall of the fireplace into the east room wall. A similar ash-filled space, 18 cm wide (length unknown), was located adjacent to the adobe block on the right side of the fireplace. These would have been box-shaped structures, either lined with wood or constructed within the adobe wall, possibly for storing logs for the fireplace. Alternatively, the one on the east side may have anchored the fireplace wall to the room wall. The round shape visible in the upper left-hand corner of the ash feature may be the now-sand-filled space once occupied by a disintegrated burned log. Adobe bricks apparently sat on top of the openings, forming a banco or sitting and warming area.

The hearth in front of the firebox (56 cm below surface) was paved with small bricks oriented northeast-southwest. These bricks, 14 by 10 cm, possibly 2 to 3 cm thick, were extremely hard to see and were revealed only by industrious brushing. Nine were found in situ, but at one time, the

entire hearth space, 50 cm wide, would have been covered with them. They seem to have been laid directly on the floor of the room.

The adobe wall on the west side of the fireplace was badly damaged. In excavation, it extends 30 cm from the upright adobe block by the firebox and ends where a very large tree root interrupts the feature. At this point there is a squared-off pit (Feature 3), 25 cm north-south, full of absolutely clean sand, which continues as room fill toward the southwest. An anomaly. Perhaps the sand was dumped as fill for a modern excavation by Jenkins. An isolated block of several burned adobes, whether in situ or fallen from the fireplace, is located north of the pit. The southern extension of the west wall of Room 3 did not appear in this area and has probably been destroyed.

Bunting (1976:72) describes the chimney of a typical fireplace for the period as "small, about 10  $\times$  10 inches, had no damper, and its walls were constructed of unusually thin (2 to 2½ inches) adobe bricks set on edge with ends fitted into vertical channels cut into the walls of the room." Ironically for the Los Ranchos site, Bunting continues: "Burned brick, it will be remembered, was not then available for lining the firebox or flue, but fortunately, there was little danger from fire in an edifice where walls, roofs and floors were constructed of clay."

The chimney of the Room 3 fireplace, after burning, collapsed toward the south, leaving a pile of burned adobe fragments 50 cm thick. This fill also contained charcoal fragments, lots of ash, and, for some unexplained reason, a lot of burned animal bone. During construction of Room 5 on the second occupation level (Level 3A) the footing for a north-south wall was dug into the chimney debris and a floor with three laminated surfaces placed on top of the burned material. A test excavation 1.50 m south of the fireplace did not reveal a south wall for this room, so it was either destroyed or exists farther south.

# **Trench 1 East**

The upper deposits of the east bay of Trench 1 were cleared by the backhoe leaving a space 11.5 m north-south by 6.5 m east-west. The eastern extension of Trench 1, 1.5 m wide, divided the bay into two sections, north and south. On the south side, Levels 1, 2, 3A, and part of Level 3B had been bladed and replaced with 40 to 60 cm of Jenkins house trash. After the house fill had been removed, hand excavation began in Level 3B at 50 cm below the surface. We first troweled smooth the west face of the exposed strata north and south of meter mark 33. Level 3B, primarily reddish brown redeposited sandy clay and aeolian sand, was flecked with charcoal and burned adobe pieces on the south side and gray-green ashy pit fill on the north.

The strata exposed on the north side of the bay included four horizontal bands of charcoal, 8 to 10 cm thick, beginning at 55 cm below the surface  $(85 \text{ cm BD})^*$  and separated by 10 cm of gray sandy fill between the two lower bands and 8 to 10 cm of red sandy fill between the upper layers. The charcoal bands continued on the south side of the bay, growing thinner and petering out toward the south, finally truncated by a pit from Layer 3A. The charcoal bands continued, as well, in the strata of the north face of the bay, thinning out toward the east. The lowest band of charcoal, at approximately 120 cm BD (1 m below the surface), rests on Level 4, the red-brown

<sup>\*</sup>Probably "below datum." —Ed.

clay layer that underlies cultural material in other parts of the site. Here there is a 10-cm-thick red layer.

Most of the features and cultural deposits excavated in Levels 3B and 3C, both north and south sides, are interpreted as related to forging or blacksmithing activities during the early occupation of the site. The presence of many vitrified clinkers in this area supports this conclusion. The clinkers are small and rock-like—residue formed when minerals are heated in a furnace or forge. The clinkers found in the Los Ranchos site contain many small cavities resembling pieces of vesicular basalt. They range in size from  $3 \times 2$  cm to  $9 \times 7$  cm. Color varies from dark to light gray, and the glassy vitrified silica from gray to black. Some are rust-stained and have inclusions of charcoal, ash, and burned adobe.

Several knowledgeable authorities were kind enough to examine the Los Ranchos clinkers. These include Virgil W. Leuth, Ph.D., New Mexico State Mineralogist, Robert Eveleth, Ph.D., and Robert Weber, Ph.D., geologists, all of the New Mexico Bureau of Mines and Mineral Resources. Others were master smiths Robb Gunter, Forgeco Architectural Metals, Tijeras, and Frank Turley, Turley Forgery, Santa Fe; Alec Sanders and Homer Milford, both mining engineers; and Ann Ramenofsky, Ph.D., and David Vaughan, both of the Department of Anthropology, University of New Mexico.<sup>\*</sup>

All agreed that the material is too light-weight to be slag from a smelter. Also, there is no ore in the glass, which would preclude metal smelting. It is weakly magnetic, typical of clinkers or glass as a byproduct of smithing, although one of the test pieces did hold a magnet. The material is thought to be too vitreous to have been formed from a common pottery furnace. It was suggested by Robb Gunter that borax, available in deposits south of Santa Fe, or simply the high silica sand (Level 5) underlying the site may have been used as flux in the forging process, thus accounting for the vitreous material in the clinkers. Dr. Weber states: "From their physical characteristics, there is no definitive indication of their origin other than fusion at relatively high temperatures in a charcoal or wood fire." The general conclusion is that the clinkers are the result of smithing.

# Notes on Blacksmithing in New Mexico

Marc Simmons and Frank Turley describe colonial period and 19th century smithing in New Mexico in *Southwestern Colonial Ironwork* (1980). A condensation of information from that book concerning forging in New Mexico follows:

Ironworking, so well established in the Old World, was unknown in the New World before the coming of the Spaniards. Wherever the conquistador and his friar companion ventured in the Americas, they introduced tools, hardware, and weapons of iron and steel to the native inhabitants. In all large colonial cities and in many small towns and hamlets, Spanish smiths put up their forges and anvils and undertook the task of carrying on their trade as they had done in the Mother Country.

<sup>&</sup>lt;sup>\*</sup>In his Ph.D. dissertation, David Vaughn (2006) examines colonial mining and metal extraction in New Mexico, including its sociocultural aspects. —Ed.

In America as at home, soldiers needed weapons and armor, artisans in other crafts required tools, homeowners wanted hardware for house building and equipping fireplaces, shopkeepers demanded locks and door bolts, churchmen ordered grilles and wrought iron screens for their chapels, and horses needed shoes, and wagons iron fittings. . . . As early as 1598, fully equipped blacksmiths were setting up shop on the upper Rio Grande, and for the next two hundred years a tiny but determined number of these craftsmen kept the forges blazing and the anvils ringing in the wide and scantily populated country extending from the Gulf of Mexico to the Pacific coast.

In order to protect its own lucrative mining interests in north-central Spain, the Spanish government refused to allow the iron deposits of Mexico and other colonial lands to be developed, thus forcing the colonies to buy iron from the mother country. Iron bars were imported into Mexico, then transported by mule train to the northern Borderlands and reworked into usable items by the local smiths. There was a chronic shortage of iron, so worn and broken tools and other pieces were continually repaired or recycled into new.

The Franciscan friars who came to New Mexico in the 1600s taught blacksmithing to the Pueblo Indians, who became adept at the trade. Hispanic blacksmiths were accorded particular respect and protection by the Indians, who coveted the metal hoes, axes, wedges, picks, bridles, machetes, and knives that were produced with the forge. Blacksmiths were requested to come to the native villages to mend metal items as they became broken and worn out.

Santa Fe became the center of the blacksmithing trade in New Mexico with an armorerblacksmith attached to the military garrison there. Bernardino Sena, the first of a long family line of blacksmiths, came to Santa Fe in 1693. His descendants were notable blacksmiths into the late 1800s. According to Simmons and Turley, census reports indicate there were several dozen working smiths scattered around the province during the late colonial period.

The authors continue:

The forge of colonial blacksmiths was a simple platform of earth, adobe, or stone constructed to accommodate the height and particular needs of the worker. . . . Principal parts of the colonial forge were the foundation, hearth, fire pot, tuyere, and a fire wall. The foundation, either square or rectangular in form, was made by laying up a masonry wall to a height of two feet or more. The enclosure was then filled in solidly with adobe, rock, or tamped earth to a point approximately six inches below the top of the retaining wall. Finally, the remaining space received a fill of either floor cinders, ashes or carbonilla, a mixture composed of equal parts of ground charcoal and moistened earth. This gave a level surface, a hearth, providing a place for the fire, a rest for the irons being heated, and space to lay extra fuel and tools.

Near the center of the hearth, the smith scooped out a depression to form a fire pot or "duck's nest." Here the fuel was placed and fanned to a heat by the blast of air admitted through the tuyere. The tuyere was a tube or hollow cone passed through a raised edge on one side of the hearth, called the fire wall. It conducted air from the bellows pipes directly to the fire pot. An apprentice pumped the bellows, usually made of rawhide, forcing a constant flow of air through the tuyere to bring the forge fire to a high temperature.

Charcoal was the principal fuel used by blacksmiths, although when available, coal and coke were also used. Charcoal is described as "an excellent combustible material because of its small amount of impurities, being entirely free of sulphur, phosphorus, and most other objectionable matter." Indians often became carboneros who cut and seasoned wood and converted it into improvised heaps. This was sold for heating of homes and buildings as well as for forging. Juniper was the preferred wood for making charcoal in New Mexico, although any soft or hard wood could be used. "A large fire was built of logs and branches, and after the flames died out and nothing but a heap of glowing embers remained, they cover these up with earth to smother them, and let them cool off" (Simmons and Turley 1980:48). The resulting charcoal was sold to blacksmiths for forging, to miners for smelting, and to merchants who resold it to customers to burn in braziers for heat.

# **Features Excavated in the Los Ranchos Forge Area**

Several features were excavated on the south half of the East Bay at the end of Trench 1 which, in light of conversations with Frank Turley and Robb Gunther, modern blacksmiths, can possibly be interpreted with reference to smithing activities.

The earliest evidence of forge work is at the lowest cultural level of the site, 1.20 cm BD (1 m below the surface). Two adobe walls apparently formed a corner of a structure at meter 33 in the south bay. A northeast-southwest oriented wall was partially outlined and excavated in the balkhead at this point. A fragment of a wall footing (Feature 4) buried in the sand of Layer 5 extends southeast. An east-west wall fragment lies \_\_ m south. The floor at this level is covered with a 20- to 30-cm-thick layer of charcoal, ash, clinkers, and burned adobe with clay pottery sherds and bone (Feature 3). A sharp line of demarcation defines this charcoal layer on the east side, although no wall remains were found there. This layer rests on the clay deposit, Level 4. A pit (Feature 2) 80 cm in diameter, 20 cm deep, probably the hearth, lies at the corner of the two walls and rests on top of an adobe wall fragment visible in the Trench 1 south profile. Striated contents of the pit included charcoal, ash, clinkers, bone, sherds, and a small grooved stone. At the bottom of the pit was a very dark layer of charcoal. The walls could be interpreted as the foundation for the forge following the description given by Simmons and Turley (1980:47).

The bottom layer of charcoal and ash resting on Level 4 clay, described above, extends over the excavated area of the site to the north bay side, as well, thinning out toward the east. On the west side of the west wall, which forms one side of the "platform," the stratigraphy in Trench 1 shows two layers of charcoal 7 cm and 10 cm thick. Adobe fragments lie on top of these. The charcoal layers dip down on the west side, suggesting a coping or perhaps a small north-south trench 45 cm wide. The charcoal layers continue west 3 m, ending in a mound containing adobe fragments; the mound appears to be a collapsed wall. A corresponding wall feature with adobe and charcoal is visible in the strata on the north side of the trench. Assuming that these are segments of the

same north-south wall, this creates a space or room 3 m long west of the forge foundation, with the defined charcoal deposit extending another 3 m east from the forge. This area, or perhaps room, would probably have been the smithy. It could have been open-air with the hypothetical wall at meter mark 30 placed strategically to shield the forge from the prevailing west wind, or more likely, it could have been a room.

Simmons and Turley (1980:42) indicate that smithies found in communities and on ranches were a simple affair, little more than an open-air shed or rude jacal structure.

The hollow tunnels left by the decayed roots of what must have been a very large cottonwood tree, with only shreds of bark remaining, were found buried at meter 31.5 below the forge level. It was probably standing at the time the plaza was occupied and could have shaded the smithy. In this context it is tempting to think of this scene as the Southwestern version of Longfellow's poem "The Village Smithy": "Under a spreading chestnut-tree the village smithy stands."

On the other hand, Simmons and Turley report (1980): "The smithy, if part of a military or mission complex, was often a substantial building of stone or adobe masonry placed in a compound alongside shops of other craftsmen." Given the complex of rooms excavated at the Los Ranchos Plaza, the smithy may have been a fairly large room, perhaps 6 m or about 18 ft long, attached to the east end of the row of rooms. The authors cite recent excavations at San Xavier del Bac, Arizona, which revealed a workshop compound adjacent to the mission and the remains of a smithy in one corner with metal scraps, clinkers, and indications of a forge, which sounds very similar to what was found here.

East of the forge area were three ash rings in a matrix of clay and sand. Feature 5 measured 50 cm in diameter; Feature 6, 30 cm; and Feature 7, 20 cm. The larger one (Feature 5), 7 cm deep, contained unburned twigs and bark, bone, piñon shells, corncobs, and a cocklebur. The soil at the bottom was red and fire-hardened. A piece of worked chert was found adjacent to the ash ring. Features 6 and 7 contained ash and charcoal. How these ash rings relate to the forge is unknown.

There was considerable bark, thought to be juniper, in the fill surrounding the ash rings. Other items included several pieces of chinaware and clay pottery, and an iron rod. Live cottonwood roots from a nearby tree of the Jenkins era had invaded the area. Modern trash had been bulldozed into the extreme south and east edges of the bay.

The backhoe had excavated the north side bay to a depth of 1 m below the surface. Subsequently a test trench, 1 m wide, was hand-excavated with a trowel to the 1.10 m level. The test trench went north from the edge of Trench 1 and then east to the edge of the bay. The charcoal layer (3 B-4) encountered in the south bay continued in this area in a band 5 cm thick with 3 to 4 cm pieces of charcoal. The band ended at the 1.10 m level, interfacing with clay and sand. Clay sherds, corroded metal pieces, and a leather shoe were found in the charcoal layer.

The stratigraphy of the exposed west face of the north bay revealed four distinct bands of charcoal, 4 to 5 cm thick, separated by approximately 10 cm of windblown sand. The upper band lay at 90 cm below the surface (3 B-1), the second at 100 cm (3 B-2), next at 108 cm (3 B-3), and the lowest at 120 cm (3 B-4) below the surface. The sand layers were red with the exception

of the lowest, which was stained gray with ash. These bands were seen to extend into the south bay with the lowest band blending into the forge area. They extended west into the stratigraphy of Trench 1, north side, for a distance of 55 cm, then were truncated by an upper-level borrow pit.

The bands probably represent the discarded, burned charcoal from forge work, which must have been carried on intermittently at intervals long enough for a deposit of windblown sand to cover them over before the next forging event took place. The three upper charcoal bands are thicker on the north and tend to thin out in the stratigraphy of the south bay, which may indicate that the location of the forge was moved farther north sometime after the first event of smithing at level 3 B-4. Our excavation area did not extend beyond the north bay, so that question remains unanswered. The same pattern of bands of charcoal and sand are glimpsed in the stratigraphy of Bay 1 and Bay 2 at meters 22 and 28 on the south side of Trench 1, and at meter 28 on the north side, indicating that the discarded burned charcoal from forging operations covered a fairly large area of the site.

It could be surmised that, given the small number of blacksmiths who served the communities and ranches of the Middle Rio Grande area, the smiths likely moved about in an itinerant fashion, stopping wherever needed. In this case a smith might have stopped in Los Ranchos for a period of time and then moved on, returning at a later date as work demanded. This would account for the intervals of charcoal deposits and sand.

# Feature A-1, East Bay\*

As though the features and stratigraphic deposits of the East Bay were not complicated enough, a large acequia or irrigation ditch was dug though the site, running west-east and appearing in the stratigraphy of the west face on the north side of the bay, bifurcating the upper archaeological deposits of Level 3A as well as the charcoal bands of the 3B level. It is not clear whether the acequia is modern or relates to the late historic period of the 1900s since the soil covering the top is very disturbed.

The Griegos drain, a large drain which formerly ran south along the west side of Rio Grande Boulevard and turned east, running along the north side of the Jenkins' property, and then south, along the east side, was filled in during the 1980s. Feature 1-A runs 4 to 5 m south and parallel to the location of the defunct Griegos drain. An acequia of similar size oriented north-south was observed in the stratigraphy of an open trench during the 1985 archaeological investigation of Provenience C of the Los Ranchos site on the west side of Rio Grande Boulevard. Possibly Feature 1-A is an eastward extension of that ditch.

The top of the acequia is slightly over 2 m wide and narrows to 33 cm at the bottom. The bottom, filled with red clay and sand, was cut through the clay of Level 4 and, although somewhat uneven, rests at approximately 1.25 m BD (1.05 cm below the surface). The ditch angles slightly toward the southeast, crossing Trench 1 into the south bay where only the bottom 25 cm appears in the stratigraphy of the east face. The upper part was probably destroyed by bulldozer action.

<sup>&</sup>lt;sup>\*</sup>The designations "Feature A-1" and "Feature 1-A" are both used in this discussion of an acequia. There is no way to determine the correct label. —Ed.

### Level 3A, The Second Occupation Level, ca. 1850 to 1904

The arrangement of a double row of rooms with contiguous walls in a long east-west line (Jenkins said he found over a 100-ft-long eroded mound) repeats the plan of the first occupation at a lower level (3B) as revealed in the excavation in Trench 1. The rooms of the late occupation level, 3A, are partially built on the ruins of the earlier occupation, and borrow pits mined into 3B are thought to have been for the purpose of obtaining adobe for the later construction.

The stratigraphy of Trench 2 shows possible adobe floors extending farther south than what we took to be the main construction of 3A. A test pit into this area did reveal a wall and floor and may be related to a north-south line of one or two rooms or perhaps a portal on the south side of the principal building.

Seven rooms on the second occupation level were partially investigated. However, the only room to be completely excavated in the site was Room 1 of the most recent occupation, dating to between ca. 1850 and the flood of 1904. Floor surfaces were extremely uneven but could be identified in the profiles of test pits. Floor 3 of Room 1, which was found relatively intact at 40 cm BD (20 cm below the scraped and disturbed ground surface) was fully excavated. Two higher floors at 35 cm BD and 32 cm BD (15 cm and 12 cm below surface) were too fragmented to follow.

Room 1 was discovered when the surface of the ground was shovel-scraped between Trench 1 and the north end of Trench 2. The horizontal outline of the north wall became visible when two parallel rows of white plaster, 50 cm apart, appeared after considerable scraping and sweeping with a stiff broom. When the original north end of Trench 2 was extended another 1.5 m north, the south wall of Room 1 was encountered. This wall appeared to be constructed on top of an older wall, which was used as a footing. The width of the south wall was 88 cm at the top. The lower old wall on which it had been constructed narrowed toward the bottom to a depth of 53 cm BD (33 cm below the surface).

Walls of Room 1 had been replastered inside and out at least eight or nine times, forming distinct, 2-cm-wide accumulated plaster lines on either side of the adobe wall bricks. Individual adobe wall bricks were difficult to see, and we relied on the darker mortar lines between each brick to discern their location. Upper wall sections had undoubtedly collapsed in the 1904 flood, and the resulting adobe mounds were removed by Jenkins almost 30 years later. Remaining lower parts of the walls were only two bricks high. Inside measurements of the room were 3.9 m (14 ft) east-west, 4.15 m (15 ft) north-south.

Early on in the project four test pits were trenched along the inside of the south wall to determine if there were subfloor deposits. Artifacts were collected. The test pits were expanded and deepened as needed throughout the course of the excavation. Test Trench 1, 90 cm north-south by 45 cm east-west, was excavated to a depth of 45 cm. Later, six 1-m-square test pits were excavated by 5 cm increments into the east side deposits of Room 1 and west side of Room 2. Test Pit 5 was excavated to the lowest floor level, Floor 7, at a depth of 55 cm BS.<sup>\*</sup> Test Pit 6 also was excavated through multiple floor levels to Floor 7, then explored deeper into a subfloor

<sup>\*</sup>Below surface? —Ed.

deposit at 77 cm BS. Pits 7, 8, 9, and 10 were shallow and intended to examine floor levels associated with the fireplace of Room 1 and the east wall of the room. All dirt was screened and artifacts collected.

In addition to the ephemeral Floors 1 and 2, observed only in the stratigraphy of the balkheads, seven superimposed prepared floor levels were observed in the stratigraphy of the test pits. The lowest prepared floor was recorded at 75 cm BD (55 cm below the ground surface). Floors recorded below the 53 cm BD level—in other words, below the depth of the lower south wall of the room—must have been laid in connection with the early occupation of the Los Ranchos site. We did not encounter the walls associated with the early occupation.

Adobe bricks formed the floors. However, these were often badly disintegrated. Broken blocks and rubble were found together with sections of well-preserved bricks. Commonly, floors were about 10 cm thick The floor levels were 10–14 cm thick with each new floor apparently laid on top of the previous floor level and resurfaced a number of times. Laminations on one floor numbered fourteen. Covings filled the intersections of floors and walls and were also replastered, sometimes rather carelessly, leaving a wavy edge line as observed on Floor 3. Streaks of white wall plaster seem to have washed down across the floors, possibly as a result of flood damage. Charcoal stains were found on all floor levels.

Floors appeared somewhat uneven by several centimeters but could still be traced by relative depth from test pit to test pit with some confidence. A few clay potsherds, faunal bone, charcoal, and sometimes porcelain sherds were found at most levels. Excavation of Test Pit 1, on floor level number 4, between 26 and 37 cm BD, defined a pit or hole in the floor which had been repaired with burned adobe fragments. The floor at this level had been resurfaced four times.

In Test Pit 6, floor level 4, 25 to 40 cm BD (5 to 20 cm BS), excavation revealed another hole, 70 by 90 cm and continuing beyond the west balkhead of the pit. The hole narrowed to 50 by 25 cm at the bottom and was 15 cm deep. The hole had been repaired with forge clinkers similar to those found in the forge feature located in the east bay of Trench 1 at a depth of 1.20 m BD. Dark charcoal and sand were in the fill as well. Ceramics, bone, and adobe chunks were in the fill nearby. The clinkers used for this repair probably came from a forge area on Level 1, possibly the one inferred by Jenkins based on a concentration of horse shoes and metal tools he found on the west side of the plaza.

In Test Pit 5 at 59 cm BD and in Pit 6 at 55 cm BD, there appeared a floor level composed of small (10 cm across) hexagonal tiles or adobes. We could not determine whether the shape was determined by unusual fracturing or perhaps by erosion of larger adobe bricks, or whether the tiles were actually made in that shape. In any case, they were extremely hard and may have been baked. The shape closely resembled the Mexican hexagonal Talavera tiles in popular use today. In the north half of the test pit the excavation was carried down through the "tile" floor into what appeared to be yet another floor below. Here the adobe bricks appeared to be round, about 25 cm in diameter. This floor level rested on a deposit of red clay.<sup>\*</sup>

<sup>&</sup>lt;sup>\*</sup>The hexagonal and round shapes could be due to natural columnar jointing of clay-rich soil. —Series ed.

In Test Pit 1 at 57 cm BD there was a red sandy matrix, probably eroded adobes, containing a few pieces of clay pottery, bone, and a great deal of charcoal. The depth of this level corresponds to the level of floors found in rooms on Level 3B in Trench 1. The concentration of charcoal may be the result of the fire, which seems to have destroyed much of the early occupation. Lower in Test Pit 1 at 64 cm BD there was a thin red clay lens with a film of charcoal and a red clay pottery sherd. Test Pit 6 was excavated to a depth of 87 cm BD (67 BS), where the "tile" floor that was encountered in Test Pit 5 was found again. Here the floor was divided by what appeared to be a ditch or trench 40 cm wide, 13 cm deep, 95 cm BD (75 cm BS) at bottom, which curved toward the south and could be seen in the stratigraphy of the east and south balkheads. The trench had been cut into the floor level, which was somewhat uneven. We couldn't tell whether it was manmade or the result of flooding or some other event. A polychrome pottery sherd was found just above the ditch fill. A probable rodent hole in the east balk of the test pit was observed at this level, so whether the sherd was associated with the ditch or the rodent hole, and therefore possibly intrusive, is a moot point.

The multiple floor levels beneath Room 1 would indicate that the room was utilized over a fairly long period of time and each floor resurfaced many times before a new adobe block floor was built on top of the previous one. Older than the floors of Room 1 are the stratigraphically lower floors, which may be associated with the first occupation of the site. Our limited testing did not encounter room walls to go with these floors.

### **Room 1, Feature 1, The Fireplace**

Feature 1 of Room 1 is a fireplace built into the east wall of the room and supported on the north by a spur wall running perpendicular to the room wall and set about one-third of the way into the room. This is similar to the type of fireplace excavated in Room 3 on the first occupation level of the site. Described as a paredcito, Bunting's (1976:75) example is reproduced here as Figure 4. In addition, the Room 1 fireplace seems to have combined the characteristics of another type of fireplace described by Bunting as a "shepherd's bed" with a storage shelf connecting the spur wall to the north wall. The shelf, as described by Bunting, was composed of horizontal contiguous poles, or latias, resting on a beam run parallel to the rear wall and supported by the side walls. The poles were plastered over with adobe "to form a storage shelf which might sometimes have been used as a bed—hence the popular name 'shepherd's bed' fireplace."

In the case of the Room 1 fireplace, the area of the proposed shelf fitting into the corner behind the fireplace is 1.23 by 1.12 m. The west side of the "shelf" feature was additionally supported here by a row of contiguous vertical poles, which were plastered. This is indicated by a scalloped line of thick plaster on the floor extending from the spur wall north to the back wall. A splatter of small round circles of whitewash on the floor near the east room wall under the shelf area may indicate where plaster fell through the latias or whatever material formed the top of the shelf. Whitewash in a wavy line also extended along the floor on the north side of the spur wall. There may have been vertical poles here, perhaps for additional support for the shelf. A small test pit, 25 cm deep, trenched from the north room wall south into the area of the possible shelf, revealed adobe rubble on top of a layer of sand with charcoal resting on hard clay, probably a lower floor.



**Figure 4.** A "corner" fireplace with its paredcito set against a flat wall, Horace Long house, Ranchos de Taos. (See Bunting 1976:78, Figure 55. Scan of original photograph courtesy of Bunting Collection, Center for Southwest Research, University Libraries, University of New Mexico).

There were two curious circles, both 6 cm in diameter, outlined by rims of white plaster 5 cm wide, located 19 and 32 cm east of the room's west wall in line with the shelf. Upright poles must have been placed here. The poles were evidently whitewashed. Whether they were used as support for an extension of a shelf across the back of the room or were independent features is unknown.

No vertical parts of the fireplace remained. However, the shape and dimensions of the firebox, chimney, and hearth could be somewhat determined from the outline of burned bricks and replastering lines. The fireplace was parabolic in plan, with the firebox walls 45 cm (17.34 in.) on a side, 20 cm (7.9 in.) deep at the rounded back, and 32 cm (12.7 in.) wide at the opening. The chimney was set 35 cm (13.34 in.) into the east wall. Two adobe bricks, extending into the wall construction from the back of the chimney were used as anchors. Very likely, projecting bricks, set into channels, anchored the chimney to the top of the wall. The hearth curved along the east wall and the spur wall for 30 cm (11.9 in.) from either side of the firebox opening. The fireplace foundation, composed of adobe bricks, was placed 30 cm deep into the ground.

Archaeomagnetic samples were taken by Tom Windes from burned bricks in the foundation of this fireplace. A tentative date of 1851 is assigned to the samples.



**Figure 5.** Measured drawings of typical fireplaces. From a house dated to about 1870, in Peñasco. (See Bunting 1976:74, Figure 51. Digital photograph of drawing courtesy of Bunting Collection, Center for Southwest Research, University Libraries, University of New Mexico).

Bunting (1976: Figure 51) includes a plan drawing and an elevated drawing<sup>\*</sup> (reproduced here as Figure 5, *right*) of a somewhat similar fireplace from a house in Peñasco, New Mexico, dated to about 1870, and remarks (pp. 72-74):

Most often it was in a corner and had a low—6 to 8 inches—hearth. Usually it was roughly quarter round in plan, had a narrow (approximately 20 inches) parabola-shaped opening, a shallow firebox, a pronounced mantel, and a square projecting flue set into the corner. The firebox was so small that logs had to be placed in an upright position, but the thermal efficiency was surprisingly good. . . . The arch of the opening was formed by

<sup>&</sup>lt;sup>\*</sup>Elevation and plan section. —Ed.

using two large adobe bricks of half-parabola shape which had been especially cast and dried before being set in place. The chimney was small, about  $10 \times 10$  inches, had no damper, and its walls were constructed of unusually thin (2 to  $2\frac{1}{2}$  inches) adobe bricks set on edge with ends fitted into vertical channels cut in the walls of the room.

Two basalt groundstone fragments, 20 by 25 cm and 16 by 11 cm, were found at the floor level inside the room's east wall just north of the chimney. No purpose was evident. Similar metate and mano fragments, usually of basalt, were found in corners or along walls of rooms elsewhere in the site. When found along outside walls we assumed they were splash stones to protect the base of adobe walls from erosion under canales. Two intrusive 1-in. iron pipes, one lying across the northern third of the room, and the other an 8-in. broken segment, had been laid into the east side of the east wall.

A doorway from Room 1 led into Room 7, the next room adjacent on the south side of the double-file building. The doorway measured 74 cm wide with covings at the base that had been replastered multiple times. A sill or possible step, 72 cm long by 25 cm wide, was slightly offset to the left in front of the doorway in Room 7.

### Room 2

Room 2 of the late occupation level was located to the east of Room 1 and shared its east wall, with north and south walls continuing eastward in the same line. Test Pit 3, a long (2.1 m) trench through the east wall of Room 1 and continuing along the south wall of Room 2, revealed the same approximate upper floor levels as were found in Room 1. Lower levels were not explored here.

A north-south exploratory trench was dug 5.35 m east of the shared east wall of Room 1 in search of an east wall for Room 2. The trench was only 1.5 m west of a large cottonwood tree, and we were immediately dealing with good-sized roots and gravels in a drain field built by Jenkins. There was considerable adobe rubble, however, which may have been related to an eroded wall. No features were observed in the Room 2 area.

Test pit 4, which had been excavated through the south wall of Room 2, showed a floor level with 14 laminations of plaster.

### Chapter 6

### ADDITIONAL NOTES ON STRATIGRAPHY

### Carol J. Condie and Daniel W. Stiteler

In the previous chapter, Sargeant observes that in undisturbed areas, "the soil deposits were fairly uniform," and provides descriptions of the strata. Even though carefully drawn profiles of portions of Trenches 1 to 9 were found, they will not be included here (with one exception; see below). The problem is that stratum definitions often vary from one person or team to another and, as has been noted, many volunteers worked at the site. Not surprisingly, the results were inconsistent. It appears that individuals sometimes conferred because certain profile drawings show similarities in symbols used (for example, the cultural stratum, which everyone seems to have agreed was Level 3, is usually speckled), but other symbols vary.

Each person apparently composed his or her own key to the strata. Where definitions exist, they range from "clay" to "red clayey sand" to "red clayey sand, root stains, rodent burrows,  $CaCO_3$ , aeolian" for what seems to be the same stratum. Some excavators split strata into two or three components. Others combined strata. Some used symbols not included in the key. Most of the profiles do not contain keys, and strata may be given names such as "clayey sand" with no indication of color or texture to allow correlations with strata on sketches of adjacent profiles in the same trench. It became apparent that to produce a coherent set of profiles from the field sketches, it would be necessary to reopen the trenches and rewrite definitions for the strata.

The stratigraphy at Los Ranchos Plaza is complex—the result of fire, flood, and early and late human activity. Figure 6, a portion of the field sketch of the south wall profile of Trench 1, is included to show a little of that complexity.

Before we came, reluctantly, to the conclusion that the profiles were better left out, we attempted to devise a key for stratum symbols, based on Stiteler's own observations and what he remembered of David Love's remarks when he visited the site. Figure 7 shows examples of simplified profiles drawn by Condie from field sketches and is included here to provide a suggestion of the site's stratigraphy.



Figure 6. Portion of field sketch of south wall of LA 46638, Trench 1. Drawn by Karl Schaffenburg, Dan Stiteler, and Kit Sargeant on November 1 and 2, 1996.

![](_page_61_Figure_0.jpeg)

**Figure 7.** Simplified profiles of the south wall of LA 46638, Trench 1. *Top*, meters 0–7. *Bottom*, meters 11–18. Both drawings by Carol Condie, using Stiteler-Condie stratigraphic symbols shown here.

#### Chapter 7

# ADDITIONAL NOTES ON ROOMS, WALLS, FOOTINGS, AND FORGE AREA $^{\ast}$

#### Daniel W. Stiteler

#### Room 1

Room 1 measured 4 by 4.15 m (inside measurements), with a "corner" fireplace against the east wall. The fireplace was not in the corner of the room, but about 1.5 m south of the north wall.<sup>†</sup> It appears that that one could walk past the fireplace into the next room to the east. The fireplace was about 60 by 60 cm, with a curved front. Small adobes formed this curve. A thin gypsum plaster line on the floor outlined the fireplace. Burned adobes in the firebox wall measured 30 cm or greater, one adobe wide. The north wall measured about 50 cm thick, one adobe length wide. Several thin floor layers, each 0.5 to 1 cm thick, were present.

#### Room 2

This room, east of Room 1, shared a common north-south wall with Room 1, as well as having east-west walls that were continuations of those for Room 1. Room 2 measured 4 m wide north-south and 2.2 m wide east-west. The east wall was not as definable as the others. The walls were one adobe wide. Multiple thin floor layers were identified.

#### Room 3

Room 3 was west of Room 1, with which it shared a common north-south wall, while the eastwest walls were continuations of those for Room 1. The walls were one adobe wide. Three or four floor layers were identified, extending six or eight layers below Room 1's layers.

Several adobes were lying flat on the floor. They may have been wall fall or, according to Kit Sargeant, an adobe floor. Both the east-west walls were truncated by disturbance originating to the west. Rooms 1, 2, and 3 all showed evidence of gypsum plastering on the walls. The plaster was very thin, like whitewash or finish coat.

<sup>&</sup>lt;sup>\*</sup>Dan Stiteler was prescient enough to keep copies of his own notes and maps from the Los Ranchos work. As a result, we were able to map seven rooms (Figure 8). We also felt that Dan's remarks would be useful. —Ed.

<sup>&</sup>lt;sup>†</sup>See the comments on "paredcito" (little wall) fireplaces on pp. 32–33 and 45–47. —Ed.

![](_page_64_Figure_0.jpeg)

Figure 8. Map based on portion of Condie-Stout 1996 site map showing Rooms 1–7, drawn from Stiteler's notes and maps.

#### Room 4

There was some evidence of walls for a fourth room. They may have extended from Room 3 or may have been for an entirely separate room. This room was difficult to assess because of roots, mechanical disturbance, and fire. This location includes large amounts of burned adobe, ash, and charcoal, which may have been from a fireplace or burn pit.

Trench 1 intersected the wall area. There was evidence of the walls in both the north and south faces of Trench 1.

#### Room 5

Located at a fence next to Rio Grande Boulevard, Room 5 measured 3.9 m north-south (inside measurement). The east wall (oriented north-south) was one adobe wide. The east-west walls were two adobes wide, with one adobe being laid at a right angle to the other.

#### Room 6

A possible room was suggested by a wall 4 m south of Room 1. Some floor laminae were apparent at the south side of the north wall (i.e., the south wall of Room 1), but had been destroyed to the south. Kit Sargeant viewed the long sandy stratum on top of Layer 4 (clay) as a possible floor, as she did in "Room" 7.

#### Room 7

South of Room 3, an obvious wall lined up with the west wall of Room 1. No south wall was found. No floor laminations were present, but the same sandy layers were found as in Room 6, where they were considered a possible floor. Kit Sargeant and Janet Spector found possible evidence of walls extending south, but nothing mappable.

#### Walls

All walls were one adobe wide, 50 cm or greater, except at Room 5 where the east and west walls were two adobes wide, one adobe at a right angle to the other. The adobes measured 30 cm by 50 cm and were gray or red-tan. The mortar was lighter colored and sandier.

#### Footings

The footings at Trench 1 and the north end of Trench 2 were placed on top of Level 4, the fractured sterile clay layer. This was a non-cultural, level clay layer that made a perfect platform to begin building. Only at the forge area did any footings extend past this clay layer down into sterile river sand. There was a small footing at the forge area in sand, 0.5 to 1 m below the

footing level for other walls. Due to overburden removal by the backhoe, visual inspection of the upper stratigraphy was not possible; no alignments were visible.

The footings appeared as sterile-looking clay mounds. No stones were associated with the footings.

# Forge Area

In the forge area, the stratigraphic sequence consisted of multiple layers of ash, charcoal, then sand, ash, charcoal, then sand, repeating. Green slag was collected from this area. This area was lower than the room wall areas.

### **Chapter 8**

### PUEBLO AND HISPANIC CERAMICS AT LOS RANCHOS PLAZA

#### Hayward H. Franklin

This chapter discusses traditional hand-made Native American and Hispanic ceramics from Los Ranchos Plaza near Albuquerque (for the site's historical context see Davis, this volume, Marshall and Walt [1984], and Sargeant and Davis [1986]). Almost nothing remained of the old structures. Artifacts were scattered both vertically and horizontally, without clear use contexts. Factors contributing to the mixing included flooding, agriculture, and construction and razing of buildings. In addition, the excavators apparently did not maintain exact or consistent excavation controls; many artifact bags lack provenience information, and what is written is often of the "10 feet south of the fence" variety. As a result, the assemblage is best treated collectively.

Nevertheless, a valuable collection of artifacts was obtained. This includes items of Euro-American, mostly industrial origin (china, glass, etc.), reported separately in this volume. Mixed in with such items were many sherds (but no whole vessels) of Native American and Hispanic traditional pottery. This "local" pottery, made at Los Ranchos or obtained from nearby Pueblos, totaled 8,016 sherds. Clearly, this class of goods was a significant part of the material life of people residing at Los Ranchos from about 1750 to 1880. Such pottery continued to be important to the residents even when other types of vessels became available.

#### **Ceramic Background**

Residents of New Mexico's Spanish Colonial and later Hispanic villages utilized a variety of cooking and serving containers, some imported from Europe, others made in Mexico, still others made locally. Scurlock (this volume) notes that prior to 1680, only one supply caravan was sent to the northern provinces every three years, containing, among other things, a single box of majolica pottery. It is therefore not surprising that locally made pottery was in common use. Imported items were still rare and expensive, necessitating use of homemade pottery. Such pottery was made using traditional native methods, being coiled with clay from local deposits, tempered with non-plastics from local mineral sources, and low-fired. Some of the pottery was painted with mineral or plant materials also gleaned locally, producing, in the hands of Pueblo potters, a range of designs. This highly decorated pottery was appreciated by the colonists, as it is today, and they clearly sought it for decorative as well as utilitarian purposes.

For more mundane purposes, slipped but unpainted redwares and smudged blackwares were produced. Bowls, jars, and serving plates (soup plates) were employed for everyday use. It seems that vessels patterned after Spanish forms were produced by Hispanic villagers and also by the Pueblos. During the 1700s, Spanish influences on Pueblo ceramic production included new and flowery designs, indented bases on painted ollas, and new vessel shapes. Production of polished black- and redwares, as well as of a partly slipped, red-on-tan style, can also be traced to Spanish influences (polished black- and redwares were also produced prehistorically in the Casas

Grandes region of Chihuahua, so the exact origin of the polished wares is somewhat clouded). Apparently, blackwares, redwares, and red-on-tan styles were made in Hispanic communities and in some, but not all, of the Pueblos. The results are still to be seen today, in the polished blackwares of Santa Clara and San Ildefonso, and the polished redwares and red-on-tan styles of San Juan Pueblo. To the south, red-on-tan pottery was also made at Isleta Pueblo. Batkin (1987) shows photos of the pottery being made.

Polished red, polished black, and polished red-on-tan pottery appears on virtually every historic site of the 1750–1880 period in New Mexico—for example, Old Casitas (Carrillo 1997; Dick 1968; Franklin 2004) and at Las Huertas (Ferg 1984). Furthermore, the same types show up in the inventory of Spanish missions in California. On a recent trip, I found red-on-tan vessels from colonial times on display at Carmel, California (see photograph on compact disk).

Large amounts of plain utility ware, unpainted and unslipped, were used alongside the few metal containers that could be obtained, both for storage and cooking. Many large plainware vessels showed soot from repeated use on cooking fires. In contrast to the painted wares sought from the Pueblos, the plain utility wares, and probably most of the polished red- and blackwares, would have been made at or close to home. However, the locations of manufacture of the various decorated, slipped, and plainware vessels should be viewed as hypotheses to be tested rather than a foregone conclusion. This analysis will shed some light on the issue, as is discussed below.

# Analysis Methods

All 8,016 fragments were examined, using a binocular microscope at 10 or 30 power. The pottery type was recorded if known, along with vessel form, temper, and paste. Counts of these attributes were made on paper forms, then entered into a database with the assistance of Holly Franklin. Data were manipulated using Access and Excel software.

Photos were taken with a digital camera, including photos taken through the microscope. Some of the photographs are reproduced in this chapter; all are included on the enclosed compact disk. The Appendix is a guide to the photographs on the disk.

### **Ceramic Descriptions**

Los Ranchos Plaza yielded a variety of ceramic wares and types (Tables 3 and 4), including a small amount of Pueblo IV glazeware and a large amount of historic (post-1700) decorated pottery from nearby pueblos, mainly Santa Ana and Zia. Unpainted ceramics consist of historic slipped-polished wares, including polished red, polished black, and polished red-on-tan vessels. Sherds from plain gray cooking jars are also abundant. Minute quantities of micaceous plain and buff pottery also occur.

# Table 3. Pottery Type by Temper.

Ware or Type	Unknown	Potsherd	Stream sand	Igneous rock	Metamor. rock	Basalt or pumice	Tuff, coarse	Sandstone or fine sand	Mica muscovite	Count	Percent
PIV Glazeware											
Glaze A		1	1		1					3	0.0
Glaze F			1							1	0.0
Glaze A-B early		1								1	0.0
Glaze C-D Intermediate			1							1	0.0
Glaze E-F Late			1							1	0.0
Historic Pueblo Painted											
Ranchitos Poly red rim			36							36	0.4
Santa Ana Poly			51							51	0.6
Ranchitos-Santa Ana Poly	52	1	1,001			0				1,054	13.1
Puname-San Pablo-Trios Poly						135				135	1.7
San Pablo-Trios Poly red rim			3			9				12	0.1
Kiua Poly							65	5		70	0.9
Cochiti-S. Domingo Poly			1				1			2	0.0
Acoma-Laguna Poly		34								34	0.4
Jemez B/W		0			2	1		2		5	0.1
Zuni area poly					3					3	0.0
Hopi yellowware		1								1	0.0
Historic Red-on-tan											
Casitas R/T (Isleta)			27					1		28	0.3
Casitas Red/brick			136					1		137	1.7
Historic Blackware											
Manzano Black (sand)	6	10	87	2		2		973		1,080	13.5
Historic Redware											
Unslipped "brick" redware			76			1				77	1.0
slipped redware	2	1	256			4		1		264	3.3
Historic Buffware											
Plain buffware		4	50					2		56	0.7
Historic Plainware											
Rio Grande Plain Gray	3		4,929		5	9		1		4,947	61.7
Rio Grande Micaceous Plain									2	2	0.0
Unidentified											
Unknown black/red								3		3	0.0
Unknown black/red			2							2	0.0
Unknown micaceous									6	6	0.1
Unknown incised								1		1	0.0
Unknown whiteware		1								1	0.0
Unknown matte paint			1			1				2	0.0
Totals:	63	54	6,660	2	11	162	66	990	8	8,016	100.0
Percent:	0.8	0.7	83.1	0.0	0.1	2.0	0.8	12.4	0.1		100.0

Ware or Type	Bowl Rim	Bowl Body	Jar Rim	Jar Body	Soup Plate Rim	Soup Plate Body	Count	Percent
PIV Glazeware						ž		
Glaze A		3					3	0.0
Glaze F	1						1	0.0
Glaze A-B early		1					1	0.0
Glaze C-D Intermediate		1					1	0.0
Glaze E-F Late		1					1	0.0
Historic Pueblo Painted								
Ranchitos Poly red rim	8	1	23	4			36	0.4
Santa Ana Poly	4	1	20	17	6	3	51	0.6
Ranchitos-Santa Ana Poly	22	85	55	890	1	1	1,054	13.1
Puname-San Pablo-Trios Poly	3	14	17	101			135	1.7
San Pablo-Trios Poly red rim	3	1	6	2			12	0.1
Kiua Poly	12	25	4	29			70	0.9
Cochiti-S. Domingo Poly	2						2	0.0
Acoma-Laguna Poly	6	21		7			34	0.4
Jemez B/W	1	4					5	0.1
Zuni area poly			1	2			3	0.0
Hopi yellowware				1			1	0.0
Historic Red-on-tan								
Casitas R/T (Isleta)	15	10		1	1	1	28	0.3
Casitas Red/brick	48	54	4	17	6	8	137	1.7
Historic Blackware								
Manzano Black (sand)	210	684	21	154	8	3	1,080	13.5
Historic Redware								
Unslipped "brick" redware	1	35	7	30	2	3	77	1.0
slipped redware	69	112	16	67			264	3.3
Historic Buffware								
Plain buffware	6	34	3	12	1		56	0.7
Historic Plainware								
Rio Grande Plain Gray	27	429	153	4,335	2	1	4,947	61.7
Rio Grande Micaceous Plain				2				0.0
Unidentified								
Unknown black/red (Hopi?)	1	2					3	0.0
Unknown black/red	2						2	0.0
Unknown micaceous			2	4			6	0.1
Unknown incised				1			1	0.0
Unknown whiteware				1			1	0.0
Unknown matte paint		1		1			2	0.0
Totals:	441	1,519	332	5,678	27	19	8,016	100.0
Percent:	5.5	18.9	4.1	70.8	0.3	0.2		100.0

### Table 4. Pottery Type by Vessel Form.

### Prehistoric Glazeware

From about AD 1400 up to the time of the Pueblo Revolt of 1680, many of the Pueblos of the central Rio Grande Valley produced distinctive, colorful pottery with glaze-painted designs. Sherds of these vessels are common at prehistoric sites in the vicinity (such as LA 22765, the village of Chamisal, which is only about 1.5 km away). It is unlikely that the seven sherds of Rio Grande glazeware in this collection pertain to the occupation of the plaza. Instead, they represent earlier pottery that found its way into the collection. If a Pueblo IV component is present beneath the historic period site, no other evidence of that prehistoric site has been found.

The seven sherds span the entire glaze period (Table 4). Three Glaze A sherds and one Glaze F sherd were identified by rim forms. Three body sherds belong to the early (A–B), intermediate (C–D), and late (E–F) Rio Grande Glazeware periods defined by Mera (1933).

### Historic Pueblo Pottery

### Santa Ana Pueblo

About 1750, Santa Ana Pueblo began producing a distinctive matte-paint pottery; prior to that their pots were indistinguishable from those of neighboring Zia (Harlow n.d.). The old Santa Ana village west of Bernalillo is 25 miles from Los Ranchos; the newer village, Ranchitos, lies at the edge of modern Bernalillo, even closer to Los Ranchos. The colonists apparently valued this pottery highly, and much of it was obtained for use in the Los Ranchos households.

Santa Ana Pueblo pottery is described by Harlow (1973, n.d.), Frank and Harlow (1974:113–115), and Batkin (1987). In general, the decorated pottery has bold geometric and flower designs painted in matte brown-black and red paint over a white-cream, thick slip. Good illustrations of the evolution of the style are found in Harlow (1973:236–239) and Frank and Harlow (1974:113–115). Paste is typically red to orange, of medium texture, and has stream sand as temper. Frank and Harlow (1974) divide the historic production into Ranchitos Polychrome (1750[?] to 1810), followed by Santa Ana Polychrome (1800 to present) (Figures 9 and 10). Ranchitos Polychrome was named for the Rio Grande village of the Santa Ana people. It is the equivalent of Zia's San Pablo Polychrome, but with sand temper instead of basalt. There is no neck decoration on jars. The white-tan slip is not highly polished.

Diagnostic aspects of motif and layout are not visible on small sherds. On rim sherds, however, a recognizable change occurred, from a red-painted rim to a black-painted one. This occurred throughout the Pueblo area in the mid-1700s. At Santa Ana this happened in 1765. Thus, Ranchitos Polychrome made between 1750 and 1765 had a red rim; Ranchitos made afterwards, and Santa Ana Polychrome in general, had a black rim. This time marker could be recognized archaeologically.

Santa Ana series pottery is by far the most common Native American decorated pottery in the sample (Tables 3 and 4). Of 1,410 Pueblo sherds, Santa Ana and Ranchitos Polychrome together amount to 1,141 (81%). Santa Ana pottery was evidently quite popular with Los Ranchos residents. The pre-1765 red rim appears on 36 sherds, indicating at least some occupation prior to that date. Another 51 sherds had black rims and postdate 1765; they derive from late Ranchitos Polychrome or the later Santa Ana Polychrome. None of the sherds was large enough to reflect the design changes between the two types defined by Frank and Harlow (1974). Thus, most of the sherds from non-rim areas (1,054 sherds) were assigned to a generic Ranchitos–Santa Ana category (1,054 sherds; 13.1% of all pottery; about 75% of all the Pueblo painted sherds recovered).


Figure 9. Ranchitos Polychrome, red rim variant (pre-1765).



Figure 10. Santa Ana Polychrome, black rim variant (post-1765).

All of the Santa Ana sherds contain stream sand (Table 3), consisting mostly of moderately rounded quartz grains but including some feldspar and occasional mica flakes. This conforms to Harlow's (1973:56) description of the paste. Mineralogically, very little else is seen in this temper. Although derived from disintegrated igneous rocks, primarily granites, and possibly local sandstones, the well-weathered products in the stream sand lack hornblende, augite, biotite, and other mafic minerals that may have been in the parent rock. This, plus the rounded shape of the grains, indicates that the sand was taken from a stream such as the Jemez River (or, for the newer settlement of Ranchitos, the Rio Grande).

When the two Santa Ana types are combined, they account for 34 bowl rims, 87 bowl body sherds, 911 jar body sherds, seven soup plate rims, and four soup plate body sherds (Table 4). (Some of the soup plate sherds fit together and represent a single vessel.) The most popular vessel was the large olla, for food or water storage, or perhaps simply for decoration (see the examples in Frank and Harlow [1974:113–115]). However, bowls with sculpted and everted rims are also known (Frank and Harlow 1974:114). Most interesting is the appearance of a few pieces of soup plates (see Figure 24 in the Appendix). An obvious example of Spanish influence, they may have been made in small numbers specifically for the Spanish colonists.

It seems that Santa Ana was producing much pottery during this period, and that Los Ranchos residents valued it for either its practical or its decorative value (or both). Perhaps this is not surprising, as Santa Ana was the closest large pueblo producing abundant ceramics in the historic period. Sandia and San Felipe were also within close reach, but their painted pottery production was almost extinct by the Spanish Colonial period.

# Zia Pueblo

Historic period pottery from Zia has been divided into four types by Frank and Harlow (1974): Puname Polychrome (1700–1760), San Pablo Polychrome (1740–1800), Trios Polychrome (1800–1850), and modern Zia Polychrome (1850–present). Here again, changes at the level of design motifs are not recognizable on small fragments, but the change from red to black rim about 1765 can be detected. Another recognizable feature is the distinctive black basalt temper, derived from the lava outcrops near the village and used by Zia potters since 1700. Throughout its history, Zia decorated pottery has been painted with materials similar to those used at Santa Ana—a tan to cream thick slip, and red and brown-black mineral paint (Figure 11).

Briefly, Puname Polychrome was the first matte-painted type following the end of the glazes at about 1700. Prior to that, the area produced Glaze F (Kotyiti Glaze Polychrome). Puname has distinctive jar shapes and a black-tipped feather motif. Rims were always painted red, and the lower part of the jar body was left unslipped. The subsequent San Pablo Polychrome also contains basalt temper, but the vessels are larger and employ larger, floral motifs. Early examples have red rims; ones after 1765 have black rims. Neck areas are undecorated. The succeeding Trios Polychrome has black rims, which are also sculptured, and an elongated and decorated neck area. The unslipped basal area continues.



Figure 11. Basalt-tempered Zia area polychrome.

Modern Zia Polychrome (after 1850) has a larger, red-slipped base. The widest part of both bowls and jars is above the center. Bases are polished and tapered. Birds and flower motifs are common. Dough bowls with a red interior and a band of decoration on the exterior became popular from 1900 onward.

Of the Los Ranchos sherds, 147 are from the Zia area; 135 are late San Pablo–Trios or Zia Polychrome (undifferentiated). For these categories, where rims are present they are painted black. Twelve sherds were assigned to early San Pablo or Puname Polychrome based on the presence of a pre-1765 red rim.

Table 3 shows the near-ubiquity of dark basalt or dark pumice temper, as is so characteristic of Zia's production through time. Table 4 notes the presence of 21 bowl fragments and 126 jar sherds. No soup plates or other Spanish-inspired forms are seen in the Zia pottery.

Zia, while farther west along the Jemez River than Santa Ana, was also an accessible source of pottery for the colonists at Los Ranchos. Zia's 147 sherds make up 10% of the decorated count, second only to Santa Ana's.

# Cochiti Pueblo

About 50 km north of Los Ranchos, next to the Rio Grande, Cochiti Pueblo provided a small amount of decorated pottery to the colonists. In general, the ceramics of the Keres pueblos of

Santo Domingo and Cochiti are known by their tan to buff paste, of medium to coarse texture and often with a dark core. The paste has a hard or "burned" look. The temper is angular translucent crystalline fragments. Mixed in are inclusions of a soft white substance. There is no mica or vitric tuff present, in contrast to the Tewa pueblos farther north. The white inclusions are probably white pumice, as exposed in the area of Tent Rocks. The heavy cream slip is stone-polished. The surface is typically not crazed. The black paint is vegetal carbon, beginning in 1700. Jar bases are orange, or with an orange band above an unslipped basal area. Frank and Harlow (1974) divide the series into Kiua Polychrome (1780–1900?) and Cochiti and Santo Domingo Polychrome (1850 to present) (Figures 12 and 13).

Kiua Polychrome is the type ancestral to modern Cochiti and Santo Domingo black-on-cream types. It grew out of Glaze F production in the early 1700s. Kiua was made both at modern pueblos and at many now-abandoned villages in the area. The designs borrowed heavily from Powhoge Polychrome of the Tewa area. For jars, the change from red to black rims took place about 1800. Much design exchange occurred between the Tewa pueblos to the north and the Keres of Cochiti and Santo Domingo during this period. Evolution into the modern Keres black-on-cream wares occurred gradually in the mid-19th century. Santo Domingo kept and formalized the geometric solid black designs. Cochiti experimented with symbols of rain, fertility, and clouds. Cochiti painting has finer lines and is less formal. Modern Cochiti figurines are famous.

At Los Ranchos, 72 sherds are from the Cochiti area; most seem to be Kiua Polychrome. Where present, the rims are painted red, and rim decorations seem to match illustrations of Kiua rather than Cochiti Polychrome. Only two sherds with black rims were present and therefore assigned to the post-1800 period; these might be from either Cochiti or Santo Domingo Polychrome pots. The Cochiti area sherds were identified by means of their white inclusions (Table 3) and slip and paint attributes. Table 4 shows that about as many bowl sherds as jar sherds are present in the assemblage. Although these sherds represent only 5% of the decorated assemblage, exchange with pueblos as far north as Cochiti and Santo Domingo is apparent.

#### Acoma and Laguna Pueblos

To the west, the pueblos of Laguna and Acoma also produced beautiful pottery. Laguna is about 65 km from Los Rancho Plaza, while Acoma is about 100 km away. Acoma remains one of the most prolific pottery-making villages, and the quality and volume of its pottery remains undiminished.

Only 34 sherds of Acoma-Laguna pottery were present in the collection, and these could not be definitively typed. They seem to be mainly Acomita Polychrome, from the 1750–1800 period, rather than the modern Acoma or Laguna types (Frank and Harlow 1974:121–28) (Figure 14). No obvious examples of the earliest type, Ako Polychrome (1700–1750), are present.



Figure 12. Kiua Polychrome (red-rimmed) from the Cochiti area.



Figure 13. Cochiti Polychrome (black-rimmed) bowl interiors.



Figure 14. Acoma-Laguna bowl interior.

#### **Other Pueblos**

Only a handful of sherds came from other pueblos. Not surprisingly, all are farther away from Los Ranchos than the pueblos mentioned already. Five sherds identified as Jemez Black-onwhite may be some of the oldest found at the site; if correctly identified, they date to the pre-Revolt period. (Remember, however, that some "drift" sherds of the Glazeware period, prior to 1700, also appeared in this collection.) Three sherds from the Zuni area could not be identified to exact type. Likewise, a sherd from Hopi is the distinct yellowware of that group, but only rarely did pottery from west of Acoma reach residents on the Middle Rio Grande.

#### Red-on-tan Wares

As was noted, red-on-tan pottery has been found at Spanish Colonial and later Hispanic villages throughout New Mexico (Carrillo 1997; Dick 1968; Ferg 1984). Dick (1968:80) named this type Casitas Red-on-brown, but Carrillo (1997) calls it both Casitas Red-on-brown and Casitas Red-on-tan (e.g., 1997:91, 92, 95, and 96). Since much of the pottery up and down the Rio Grande is more tan than brown, the term Red-on-tan is used here. A similar type of red-on-tan was made in historic times at Isleta, but is no longer produced. San Juan Pueblo made a red-on-tan ware throughout the historic period. Polished black and red-on-tan wares were made at San Juan from 1700 to 1900. Pottery production almost died out at San Juan after 1900 but later revived and continues today.

The exact origin of the red-on-tan tradition, so common between 1750 and 1880 in northern New Mexico, is largely undetermined. The impetus behind the tradition was undoubtedly Spanish, but at least some Pueblos picked up the style and mimicked it closely. Distinguishing the products of the Hispanic villages from those of the Pueblos, and differentiating areas of production (whether Hispanic or Indian) are important issues when dealing with this tradition. The same may be said of polished blackwares and polished redwares, which likewise cross cultural boundaries and, apparently, were widely made in north-central New Mexico in the 1700s and well into the 1800s (Carrillo 1997; Dick 1968; Franklin 2004).

The red-on-tan tradition is dominated by open-mouth bowls, which are polished over a tan clay or tan slip over the interior of the bowl (and sometimes the exterior as well). A narrow band of red slip is applied to the lip area, covering the interior and exterior surfaces 1 to 2 cm down from the lip. This area may be stone-polished. Variations include completely slipped bowl interiors (but not exteriors) and occasional geometric designs painted in the same red slip on the tan areas of the bowl.

In all, 165 sherds of red-on-tan ware were positively identified—that is, they display red slip or paint against a buff background. There are probably more sherds from such vessels in the collection, but some were instead identified as buffware or redware, based on what is visible on the individual sherds. Of the 165 positively identified sherds, 28 were identified as somewhat distinct based on (1) a finer paste and temper with very fine sand grains; (2) a slightly darker, more green-tinged buff background; and (3) a red slip that may be darker (or in some cases, almost purple) (Figures 15 and 16). Although Table 3 lists both varieties as having stream sand temper, the grain size is much smaller in these 28 sherds. They are tentatively associated with similar red-on-tan pottery from Isleta Pueblo. Excavations at Valencia, near Isleta, revealed the existence of a red-on-tan pottery made either at Valencia or at the pueblo (Franklin 1997). The remaining 137 were informally termed "red-on-brick," as they have a bright red slip color against a reddish (not tan) background slip (Figures 17 and 18). Evidently this is one local variation on the red-on-tan theme, and it is probably the locally made variant, to judge by the temper—the same as is found in blackware, buffware, and much of the plainware (Table 3), suggesting a local product.

Vessel forms include bowls (rim and body sherds) and jars (rim and body sherds), as well as seven soup plate rims and seven soup plate body sherds (Table 4). In this type, the presence of a Spanish vessel form is not surprising.

#### Polished Blackwares

Polished blackwares often accompany the red-on-tan pottery from Spanish Colonial sites such as Casitas and Las Huertas. Polished black pottery was made in many parts of precolumbian Mexico (for example, Ramos Black in northwest Chihuahua) but was probably introduced to the Pueblos by Spanish colonists, who may have brought examples from Mexico and encouraged local potters to make similar wares. Here again, production occurred at Hispanic settlements as well as in the Pueblos.



Figure 15. Casitas Red-on-tan, probably from the Isleta area: bowl rim interiors.



Figure 16. Casitas Red-on-tan, probably from the Isleta area: bowl rim exteriors.



Figure 17. Casitas Red-on-tan, probably locally made: bowl rim interiors.



Figure 18. Casitas Red-on-tan, probably locally made: bowl rim exteriors.

Herb Dick (1968) assigned the name Manzano Black to such Hispanic pottery in the villages of the Manzano Mountains, and Carrillo (1997) later showed how widespread the ware was at Spanish Colonial settlements. Analogous blackware pottery in the Tewa pueblos was named Kapo Gray and Kapo Black by Harlow (1973:80), who assigned respective date ranges of 1650–1720 and 1720–1760(?).

The pottery is similar to the red-on-tan wares in terms of materials, manufacture, and vessel forms. The exposed surfaces were covered by thick slip, then polished. Initially, the slip was probably red (i.e., the same as was used on polished redwares). During firing, the pottery was exposed to thick smoke from the fire, which penetrated the pores in the clay and left the surface a shiny black. The same technique is used today at San Ildefonso and Santa Clara, after being revived and made famous by Maria Martinez.

A large quantity (1,080 sherds) of blackware pottery was found (Figures 19 and 20). Following Dick's nomenclature, this group of sherds might be called Manzano Black—but a more generic term, "polished blackware," seems more appropriate at this point. Table 3 shows that the temper is mostly sand, undoubtedly from the nearby Rio Grande. There is some variation in temper, however: 10 were potsherd-tempered, 2 had igneous rock temper, 2 had basalt temper, and 973 contained fine sand. The latter is puzzling. The source of the fine sand is unknown, and it is not clear whether this is a different source than the "stream sand."

The range of variation in the blackware pottery indicates that not all of it was made locally. Still, "Tewa paste" (fine dusty clay with very fine vitric tuff temper) does not occur in this sample, so none of the Los Ranchos pottery is "Kapo Black" as defined by Harlow (1973). Similarly, none of the blackware sherds contains basalt, so none was made at Zia.

The sherds indicate the same range of vessel shapes as the red-on-tan examples. Bowls are represented by both rim and body sherds. Some rims are straight but others are slightly recurved. Jars, while less common, are also represented by both rim and body sherds. Eleven soup plate sherds were identified (Table 4). Numerically, blackware is a major class of pottery at Los Ranchos. Much of it was made locally, although the variety of tempers indicates multiple points of manufacture.

# Polished Redwares

Historic redwares have received little attention. Indeed, there seem to be no well-defined named types for Spanish Colonial sites. The historic redwares in this assemblage (Figures 21 and 22) are the counterparts of the smudged blackwares, except for the smudging. The 341 redware sherds fall into two categories. One is an unslipped brick-colored ware (77 sherds), the other a slipped redware (264 sherds).

All of the unslipped brick-colored sherds are tempered with local stream sand. All three basic vessel forms—bowls, jars, and soup plates—are present. Four soup plate sherds were noted. The much more common slipped redware is mostly (181 of 264) bowl sherds (Table 4). Almost all (256) of the slipped redware sherds are tempered with stream sand, so this ware may also be seen



Figure 19. Blackware bowl and soup plate rim sherds, interior view. Soup plate is at upper right.



Figure 20. Blackware bowl and soup plate rim sherds, exterior view. Soup plate is at upper right.



Figure 21. Polished redware rims. Bowl sherd interior on left, jar sherd exterior on right.



Figure 22. Polished redware jar and bowl exteriors. Jar on left, bowl on right.

as a local product. There is no real difference in temper and other raw materials between the redon-tan and polished red types.

Even though the "redware" category is subject to misidentification (for small pieces of red-ontan or even polychrome vessels), the quantities found and diversity of vessel forms show that redware is an entity in its own right. Similar redware was found at Las Huertas (Ferg 1984).

### Buffware

Fifty-six sherds are a polished buffware that is neither smudged nor red-slipped but otherwise similar to the polished black- and redwares. These may be blackwares that never got smudged or were incompletely smudged. Although they are polished, they seem to lack slip. They seem to copy the slipped redware sherds in usually being tempered with local stream sand. Occasional examples with potsherd temper do occur (Table 3). Also, as with the slipped redwares, bowl sherds predominate. Thus, the buffware examples may not be distinct after all, but a variant on slipped redware. Some polished buffware could have arrived from Isleta, to the south.

# Plain Gray and Micaceous Utility Wares

Regional ceramic assemblages typically consist of unpainted and unslipped wares, designed for unceremonious daily use over a fire or for storage. Los Ranchos is no exception: 4,947 sherds (61.7% of all pottery) are plain grayware, almost always in the form of large jars (Table 4 and Figure 23). Indeed, the 4,335 jar body sherds constitute the largest type-form combination at the site. Only 27 bowl rims were identified, along with 429 probable bowl body sherds. Soup plates are barely present, with two rim sherds and one body sherd.

Almost all of the plain grayware (4,929 of 4,947 sherds) contains local stream sand temper. The pervasiveness of this temper strengthens the conclusion that it represents local manufacture from materials readily available along the Rio Grande. Some of the plainware is very thick, up to 2 cm at times, and may be intentionally smudged on the interior, presumably to reduce permeability and thus better hold liquids.

Only eight micaceous sherds were found. They do not seem to be from the Taos area. The paste is dark and laminar, typical of the Hispanic micaceous types found in the El Rito–El Vado area (Carrillo 1997; Franklin 2004). A closer possible source may be the Manzano villages, in which micaceous clay was also used in small Hispanic communities for cooking (Dick 1968). In any case the eight sherds are clearly non-local, and no sources of micaceous clay are known for the vicinity of Los Ranchos Plaza.

# Unidentified Wares

Fifteen specimens could not be identified, including five black-on-red sherds that may be from the Hopi area.



Figure 23. Plain gray jar rims, exterior view.

# **Refiring Analysis**

In order to supplement the data derived from temper analysis, 44 sherds were also refired. Small samples of major wares were selected for testing. By "refiring," or oxidizing, pottery in a kiln heated to 950 degrees, the purest and brightest colors of the clay are revealed, and impurities and carbonaceous material in the original clay are burned out. A consistent temperature and atmosphere is used to oxidize all the samples uniformly. Peter McKenna carried out this refiring using his electric kiln.

After refiring, colors are identified by comparison to the Munsell Soil Color Chart. In this chart, colors are arranged on pages by "hue." Going from red to yellow, the hues are 10R, 2.5YR, 5YR, 7.5YR, 10YR, 2.5Y, and 5Y. Most prehistoric Puebloan pottery tends to fall in the range of 5YR, 7.5YR, and 10YR. "Value" is a measure of light-dark, with higher numbers being lighter. "Chroma," the third dimension, is a measure of saturation or intensity. The higher the number, the more saturated (brighter) the color is. Numbers range up to 8 on both the value and the chroma scales. Thus, 10YR 8/8 is a bright, light, yellowish tan.

The results of the refiring analysis are shown in Tables 5 and 6. Table 5 lists the pottery type or ware and the hue, value, and chroma observed by comparing the specimens with the Munsell Color Chart. The descriptive name from the Munsell chart is also given.

Pottery Type	Hue	Value	Chroma	Munsell Color Group				
blackware	7.5 YR	7	6	reddish yellow				
blackware	5 YR	7	6	reddish yellow				
blackware	5 YR	7	6	reddish vellow				
blackware	5 YR	7	6	reddish yellow				
blackware	5 YR	7	6	reddish yellow				
blackware	2.5 YR	5	8	red				
blackware	5 YR	7	6	reddish yellow				
blackware	5 YR	6	8	light reddish yellow				
blackware	2.5 YR	6	8	light red				
blackware	7.5 YR	7	6	reddish yellow				
blackware	5 YR	6	8	light reddish yellow				
plain gray	2.5 YR	5	8	red				
plain gray	5 YR	6	8	light reddish yellow				
plain gray	5 YR	7	6	reddish yellow				
plain gray	2.5 YR	4	8	red				
plain gray	2.5 YR	6	8	light red				
plain gray	5 YR	7	8	light reddish yellow				
plain gray	2.5 YR	6	6	light red				
plain gray	2.5 YR	6	8	light red				
plain gray	2.5 YR	6	6	light red				
Ranchitos Poly	5 YR	7	6	reddish yellow				
Ranchitos Poly	2.5 YR	5	8	red				
Ranchitos Poly	2.5 YR	5	8	red				
Ranchitos Poly	5 YR	6	6	reddish yellow				
Ranchitos Poly	5 YR	7	6	reddish yellow				
Ranchitos Poly	5 YR	7	6	reddish yellow				
Ranchitos Poly	2.5 YR	6	8	light red				
Ranchitos Poly	2.5 YR	6	6	light red				
Ranchitos Poly	5 YR	7	6	reddish yellow				
Ranchitos Poly	2.5 YR	5	8	red				
Ranchitos Poly	2.5 YR	5	8	red				
red/brick	2.5 YR	5	8	red				
red/brick	2.5 YR	5	8	red				
red/tan	5 YR	7	6	reddish yellow				
red/tan	5 YR	8	4	pink				
red/tan	2.5 YR	6	8	light red				
red/tan	2.5 YR	6	6	light red				
red/tan	2.5 YR	5	8	red				
red/tan	2.5 YR	5	8	red				
red/tan	2.5 YR	5	8	red				
redware	2.5 YR	6	6	light red				
redware	5 YR	6	6	reddish yellow				
redware	5 YR	6	6	reddish yellow				
red/tan Isleta	7.5 YR	7	6	reddish yellow				

# Table 5. Refiring Analysis.

	Average	Average	Average	
Category/Ware	Hue	Value	Chroma	Sample
Blackware	5	6.5	6.7	11
Plain Gray	3.3	5.8	7.3	9
Red/tan, plain redware	3.3	5.8	6.8	12
Ranchitos Polychrome	3.6	6	6.9	11
Red/tan, Isleta	7.5	7	6	1

Table 6. Average Munsell Colors by Ware.

The most obvious quality of all the refired pottery is that it falls toward the red end of the color range. There are no sherds in the 10YR range and only three in the 7.5YR range. In essence, sherds of all types fall into the 2.5YR–5YR range. The pottery is quite red, with a bit of yellow mixed in; no light buff colors appear in this sample. In addition, the value and chroma readings are high (5 and 8, respectively), with many in the 6–7 range. This means bright, saturated colors, with fairly high intensity. Thus, in general, the sherds are a bright yellowish-red.

The reason for this coloration, and its consistency throughout the sample, is undoubtedly related to the local clay. Alluvial clays from the middle Rio Grande drainage are reddish to tan, only rarely yellow or buff. The alluvial deposits in this part of the Rio Grande (and its tributary, the Jemez River) tend to derive from pre-Cretaceous red sedimentary beds exposed in the vicinity of Jemez and Zia. Much of this red material is deposited near Santa Ana, and clays at Sandia Pueblo and downstream to the Los Ranchos area are also heavily affected by these red clays. Much more study will be required to differentiate specific deposits that might have been utilized by potters, but in the larger, general view the refiring colors observed in the Los Ranchos pottery can be related to the reddish clays of the local drainages.

Closer examination does reveal minor trends. The blackware group is more diverse, with refiring hues ranging from 2.5YR to 7.5YR. Collectively the average refiring hue is 5, which is more tan (buff), while the other major groups consistently fall in the range of 3.3 to 3.6 (Table 6). Thus, the blackware pottery stands out in terms of its greater variety of refiring colors, and by tending to being more buff than the rest of the sample. There are no obvious differences among the types in terms of value or chroma. The explanation of the blackware pottery's sometimes more tan hue and greater heterogeneity of color is not immediately apparent. Nonetheless, it seems that blackware pottery derives from a greater variety of clays and, thus, locations. Indeed, blackware pottery is known to have been made in both Pueblo and Spanish villages in the 1700s.

The abundance of blackware pottery at Los Ranchos, together with its frequent compositional similarity to wares more obviously made with local materials, suggests that some if not most of the blackware pottery was made locally. The variety of hues implies trade and exchange. Some pieces are probably true Kapo Black from north of Santa Fe, but if so, they are a minority. Production at San Felipe and Sandia pueblos is probable (though poorly documented) and these sources may have added to the variability in blackware paste and temper. More research on blackware should allow better definition of manufacturing areas, especially if clay sources can be studied in detail.

The only other standout is a red-on-tan sherd that refired to a much lighter and "tanner" color (7.5YR 7/6). This sherd probably derived from the Isleta Pueblo area. Even if directly inspired by the Spanish, red-on-tan pottery made at Isleta Pueblo has archaeological roots, such as the pottery made in nearby Valencia Pueblo (Franklin 1997). In general, the red-on-tan sherds from the Isleta area are a lighter tan, are dustier in texture, and contain a different tempering material than the ones made in the Los Ranchos area.

The remaining types and wares are very uniform, both within and between types. Table 5 shows that the plain gray (presumably of local, Los Ranchos manufacture), the red-on-tan and plain redwares, and Ranchitos Polychrome are all about the same color. Table 6 reinforces this conclusion: the averages for hue, value, and chroma are essentially the same. All could have been made from the same range of clays.

This does not mean that all were made at a single location, only that the raw materials available along the Rio Grande are uniform enough that significant color variation does not occur. For example, while the plain grayware was most likely made at Los Ranchos, its refired color is close to that of Ranchitos Polychrome, which we know was made at Santa Ana 40 km away. Indeed, modern Santa Ana potters use a reddish clay today. But similar colors are also found in most of the refired red-on-tan, plain red, and plain gray sherds, which are usually thought to have been made in Hispanic villages. The most likely explanation is that these types were made in both Spanish and Indian settlements, using very similar potters' materials found along the Rio Grande drainage for some distance. Because of the uniformity of materials, however, the data in this study do not allow us to distinguish Spanish from Indian manufacture. Incidentally, no pottery from Jemez was identified, but that pueblo was then at an ebb of pottery production.

In conclusion, the refiring sample shows a heavy reliance on reddish alluvial clays for almost all specimens tested. Undoubtedly such red alluvial clay was utilized by Los Ranchos potters for most plain, red, and blackware ceramics. However, the widespread availability of such clays and their color consistency from Zia to Santa Ana to Sandia and Los Ranchos does not permit specific assignment of a refired sherd to a specific village or pueblo, based on color alone. Demonstrated variability within the blackware class, and to a limited extent in the red-on-tan class, suggests multiple centers of production for such pottery along the Rio Grande, along with subsequent exchange. The exact points of production remain unknown. Future research should concentrate on collecting and characterizing clay and temper sources, as well as on comparing sherd collections to test pieces made from these raw materials. In addition, more exact methods, such as thin section studies of petrography, will be needed.

#### Discussion

# Chronology

Collectively, the types identified at Los Ranchos were made between 1750 and 1850. The two major painted series, from Santa Ana and Zia, are instrumental in dating the site. The presence of red-rimmed Ranchitos Polychrome indicates occupation prior to 1765, possibly between about 1750 and 1765. Almost all of the Santa Ana area pottery is later Ranchitos or Early Santa Ana

Polychrome, with black rims, and falls between 1765 and about 1850. The Zia series pottery seems to lack true Puname Polychrome (1700–1750) and includes but a few sherds of San Pablo Polychrome with red rims (1750–1765). It again appears that deposition of the excavated materials began between 1750 and 1765. The presence of Cochiti area Kiua Polychrome, which began around 1780, shows that occupation was underway by then.

The few pieces of Pueblo glazeware and Jemez Black-on-white predate the founding of the settlement. They are the result of erosion or some other form of disturbance that brought pottery from nearby, earlier sites into Los Ranchos Plaza.

Modern Santa Ana Polychrome (post-1800) and probable Zia Polychrome show that occupation persisted well into the 1800s. Small amounts of essentially modern Cochiti–Santo Domingo decorated pottery (post-1850) point to occupation of Los Ranchos at least as late as 1850. Too few sherds from Acoma, Zuni, and Hopi are available to assist in dating. The rest of the unpainted types found are either not well dated or have a long life span. However, the black, red, and red-on-tan wares are typically found on sites dating from 1750 to 1850, so they tend to confirm the date range assigned to the site. Based on the painted Pueblo ceramics alone, occupation between 1750 and about 1850 seems assured, but that does not preclude habitation both before and after that span. Hispanic use of locally made red- and blackwares probably continued until the start of the 20th century, but terminal dating of that tradition is not good.

A comparison with the Euro-American artifacts (Scurlock, this volume) shows essential agreement on the time span. The dates of the European, American, and Mexican ceramics are better documented and therefore more reliable, so they can be used to cross-check the dates assigned to the Pueblo pottery. Indeed, Scurlock's material reinforces a date range of roughly 1750 to 1850. Although Los Ranchos Plaza was not finally deserted until the flood of 1904, reliance on Pueblo and locally made pottery apparently declined after 1850.

# Exchange

The ceramics offer some interesting perspectives on exchange in Spanish Colonial times. The clear evidence of trade with the nearby Pueblos, combined with the temper identifications (carried out on all the pottery) and refiring (of selected samples), provides intriguing evidence of the directions and extent of ceramic exchange.

One unsurprising conclusion is that large amounts of plain, red, buff, and red-on-tan wares were made in or around the village of Los Ranchos. Local reddish alluvial clay was combined with decayed granite-quartz sand, also of alluvial and local origin, to make the clay body. There is little doubt that almost all of the plain gray utility was made at or near Los Ranchos. In contrast, the polished black- and redwares found at the site are more heterogeneous, with some buff pastes and non-sand temper, indicating that some were imported.

Regarding the blackware pottery specifically, the Los Ranchos data paint a picture of overall self-sufficiency based on local production. Nevertheless, some pieces may derive from the Kapo Black tradition of the Tewa district to the north. Other pieces may have been made in

contemporary Hispanic settlements in the Rio Grande drainage, or in the Manzano Mountains (Dick 1968). At this point, production of polished blackwares has been documented at Los Ranchos, Sandia, San Felipe, Las Huertas, and the Manzano villages. For this reason the geographically restrictive terms Kapo Black and Manzano Black (Dick 1968) have been avoided during the current study. Until production areas can be pinpointed, extending such type names geographically is meaningless.

Exchange of red-on-tan pottery is less certain; local production seems certain for most of it. Like blackwares, the red-on-tan pottery was produced in quantity in Hispanic and Pueblo settlements during the 1700s and most of the 1800s (Carrillo 1997; Franklin 2004). A few pieces from Los Ranchos appear to match the red-on-tan pottery produced in the area of Valencia Pueblo and modern Isleta Pueblo (Franklin 1997).

The few pieces of micaceous plainware were certainly imported, but we do not know from where. They may have come from the El Rito–Vadito–Petaca area, but they do not seem to be from Taos Pueblo.

While it would be advisable to search for precise locations of clay and temper sources in the Los Ranchos area, it can nevertheless be said that the decayed granite-quartz sand seen in the vast majority of the specimens is local. Thus, we can say that the types in Table 3 showing this temper (the red-, buff-, and plainwares, and some of the blackware) probably were made in or around Los Ranchos Plaza. In all, 83.1% of the sherds were tempered with stream sand. Their refired color is red to yellowish red (2.5 YR and 5YR) (Tables 5 and 6).

In contrast, the colonists did not make low-fired pottery with painted decorations; they obtained it from their Pueblo neighbors, particularly those in the closer villages. By far the greatest amount of exchange was with Santa Ana (81% of all decorated pottery). The popularity of Santa Ana decorated pottery is also seen at the Spanish Colonial site of Las Huertas, near Placitas (Ferg 1984).

Next in popularity was pottery from Zia (10% of the decorated pottery), then Cochiti (5%). Pueblos to the west did not contribute heavily to the mix; Acoma was the source of 2.5% of the decorated pottery, with smaller amounts from Zuni and Hopi. The amounts decline with distance; Santa Ana, 40 km from the site, was the closest large Pueblo producer of decorated pottery; Zia is 50 km away. Cochiti–Santo Domingo are about 50–65 km distant. The other sources are considerably farther away. Apparently the settlers found what they wanted in the way of Pueblo vessels as close to home as possible. Although this situation does not always occur, these trade items at Los Ranchos conform to a theoretical model of continuous decline in imports with increasing distance.

Los Ranchos is also noteworthy for what it does not yield. There is no pottery traceable to the two closest pueblos, Sandia and San Felipe, neither of which produced much pottery after 1700. According to Frank and Harlow (1974:117), "Sandia Pueblo has no known ceramic tradition during the historic period." However, in 1882 Bandelier found that the Sandias were making "Pottery black and very thick. . . . The clay previous to burning, is red" (cited in Batkin 1987:195). The clay was said to be red-firing and tempered with coarse sand. Sandia is also

rumored to have made, in historical times, a black-on-white pottery resembling that from Santa Ana, but with thicker walls. It is possible, therefore, that some of the blackware at Los Ranchos might have been made at Sandia—but there is no criterion for identifying it as such.

San Felipe Pueblo pottery is also poorly documented. Here as well, the village had no consistent tradition of ceramic production historically (Harlow 1973:45). Instead the villagers used vessels from Cochiti and Santo Domingo, their upstream neighbors. However, San Felipe seems to have produced redware that "closely resembles Isleta reds, and the Santa Ana group. . . . They have a paste that is completely in the lower-middle Rio Grande tradition of Isleta and Santa Ana, being hard, tan in color, and abundantly tempered with fine water-worn sand. The polished red surfaces are smooth and hard, and the vessels are completely serviceable" (Harlow 1973:45).

At Las Huertas Ferg (1984) noted much pottery from Santa Ana, even though San Felipe is closer geographically. Thus, San Felipe must not have produced decorated pottery during the 1700s. If San Felipe did produce polished red- and blackwares after 1700 (Frank and Harlow 1974:116), and if Sandia made a thick blackware, the possibility exists that some of the red and black sherds at Los Ranchos derived from these two pueblos. There seems no doubt, however, that neither San Felipe nor Sandia produced painted pottery after 1700.

Also notable is the complete absence of pottery from the Tewa district north of Santa Fe. No Powhoge or Ogapoge Polychrome appears, even though these types were made in abundance during the 1700s. Nor is there evidence of any other painted pottery from pueblos north of Santa Fe. In an era of pack mules and wagons, why was Los Ranchos not receiving these imports? One might also expect Taos micaceous bean pots to reach the settlement, for example. No explanation can be offered beyond the idea that the colonists were able to obtain everything they wanted at a closer pueblo. Ironically, during the Pueblo IV period, ceramic exchange was far more widespread despite the lack of animal transport. Villages such as the Chamisal site, near Los Ranchos Plaza, and Valencia Pueblo, near Isleta, have yielded tradewares from all over the Pueblo realm (Franklin 1997). During the Spanish Colonial period, ceramic exchange actually declined relative to late prehistoric patterns. Perhaps this was due to inhibited trade caused by Spanish control, administrative districts, land grant boundaries, and other restrictions.

#### Social and Functional Aspects

The exchange of pottery raises questions about functional and social frameworks, including the relations between the colonists and Native Americans. The non-painted wares seem to have been produced "at home," although there is the tantalizing possibility that minor amounts of blackand redwares were made at San Felipe or Sandia Pueblos. Even for pottery made "at home," however, Native American labor may have been involved. Did the settlers make the non-painted wares, or did Indian servants do that work for them? The local pottery was made using Native American techniques, with locally available materials. The question of ethnicity cannot be answered from the current evidence; we simply know that most or all non-painted pottery was made at or close to Los Ranchos. Clear lines of function separate the pottery classes. The plain gray pottery shows signs of use over cooking fires. Red-on-tan, polished black, and polished red pottery most often took the form of bowls utilized in the serving and consumption of food (note the soup plates in these wares). With no painted pottery being produced within the settlement, however, a demand for more aesthetically pleasing pottery clearly developed. Exchange with the Pueblos filled this need, and occurred on a massive scale. Such decorated pieces must have been given special status by the settlers, and while they may have been used for light storage, they probably functioned primarily as decorative pieces. There is no evidence of practical usage of the decorated Pueblo wares.

While the exchange relationship with the Pueblos and the desire to obtain painted vessels from them is undeniable, the exchange mechanisms can only be guessed at. Purchase with money (or more likely, through barter) would have allowed Pueblo pottery to flow into Spanish households. Feast days are occasions when, even today, large amounts of Pueblo pottery are bought by non-Pueblos. Other means may also have existed—colonists may have commissioned pottery directly from the pueblos, for example. And, of course, intermarriage or the employment of Pueblo servants would have brought women into the community who had the necessary pottery-making skills. More than one of these social processes were quite likely in effect throughout the 1700s, ensuring that residents of Los Ranchos would not lack pottery for any purpose or need.

# Summary

Analysis of native, low-fired New Mexico ceramics from the Spanish Colonial (and later) village of Los Ranchos has answered some questions and raised others:

- 1. Large amounts of regional pottery were utilized by the village residents. More than 8,000 sherds of such pottery, from a limited excavation area, attest to the extent of regional manufacture and trade. Of these, the painted wares are most securely assigned a time span, of about 1750 to 1850, with the possibility of less intensive occupation of the plaza prior to 1750 (but not earlier than about 1730, based on the ceramic evidence). Some regionally made pottery was still in use after 1850, principally the red-on-tan and blackwares, but in declining amounts.
- 2. The demand for the regionally made pottery continued even though mass-produced products such as majolica (and, later, china and glass) were available. Such imports were rare and expensive, leading residents to make their own pottery and to trade for pieces with nearby Pueblos.
- 3. The various wares had different functions. Grayware pottery was used for cooking, while other food preparation and table service made use of polished black, polished red, and red-on-tan vessels, many of which were bowls or plates. Decorated Pueblo pottery saw occasional use but served primarily as decoration, as it does today.
- 4. Decorated pottery was obtained from the Pueblos, but distance was an important factor in exchange. Decorated wares from Santa Ana and Zia were numerous, but almost no painted pottery was obtained from pueblos more than 50 km away.

- 5. Undecorated wares probably traveled even less. The Los Ranchos red, black, red-on-tan, and plain gray sherds were mostly made of red-firing paste and tempered with stream sand that could have been obtained locally. The easiest explanation is that these wares were produced in the village. There is a possibility, however, that a few pieces of the black and red pottery were made at the nearby pueblos of Sandia and San Felipe; historical documents attest to the production of those types at the two pueblos after 1700.
- 6. While clear evidence was found of interaction between Spanish settlers and the nearby pueblos, it is unclear exactly what exchange mechanisms were in effect. It is also unclear what role ethnicity had in the manufacture of the non-painted wares. At any time, there probably were multiple processes at work—barter or purchase, commission work, intermarriage, and servitude—which ensured a continuous flow of pottery of different types and uses into the colonists' households.

Future research on this and other collections of Spanish Colonial period pottery and its derivatives should focus on the range, distribution, and manufacturing loci of the polished red, black, and red-on-tan wares. Their wide occurrence, both in Spanish settlements and in at least some native villages, makes such pottery potentially very informative. Pinpointing specific areas of manufacture (both Hispanic and Native American), by means of comparisons with raw materials available from known locations, would provide much-needed data in assessing patterns of trade and historical influence that tied the Hispanic and Puebloan potters into a common economic relationship.

#### Chapter 9

#### **EURO-AMERICAN ARTIFACTS FROM LOS RANCHOS PLAZA**

#### Dan Scurlock

Excavations at LA 46638, the Los Ranchos Plaza site, produced a total of 2,306 Euro-American (Spanish- and Anglo-American) artifacts. These were broken down into five material classes: ceramics (408), glass (1,112), metal (687), leather (86), and miscellaneous (13). Further subdivision of each of these artifact classes was based on attributes such as decoration technique and paste for ceramics, function and color for glass, and function for metal and the miscellaneous items. Where possible, each artifact was assigned dates of manufacture or use and of greatest popularity.

Manufacturing details and history for the five classes of artifacts are discussed below, followed by descriptions of function, type, and dates of manufacture or use for individual diagnostic artifacts. The occupation span and use of the site are then addressed.

#### Ceramics

In all, 408 ceramic artifacts were recovered from the site. In an attempt to determine date range, place of manufacture, and function of the assemblage, paste type (earthenware, stoneware, and porcelain), glaze type, design application method, form, and function were analyzed. Except for a few sherds that may have been from a vase or other decorative item, the sherds were probably tableware or kitchenware (the latter for food preparation or storage). Of all the attributes analyzed, design application/style is the best time marker. Several common 18th and 19th century design types or styles were identified.

Most of the Anglo earthenware styles were made in England, but stick-spatterware was made in the U.S. after ca. 1880 (Robacker 1971:248). Annular ware, another style originally from England, was made in Canada after 1870 and imported to the U.S. In general, transfer-printed and flow blue ceramics that predate 1880 came from England; after this time, most of these and other decorated wares, such as decalcomania, were produced either there or in the U.S. (U.S. Department of Commerce 1915:67–68).

#### Mexican Earthenware: Majolica

About the 5th century BC, Mesopotamian potters attempted to copy Chinese porcelain by using a lead glaze. By the AD 800s, Persian potters began to add tin oxide to the lead glaze, producing the first majolica ware. The white, opaque slip provided a good surface for the paint. Subsequently, majolica spread to northern Africa and was brought to Spain by Moslem invaders before the 11th century (Barnes and May 1979; Goggin 1968:5).

Traditional majolicas were made in Seville and Talavera, and the latter styles inspired potters in Mexico City and Puebla. The background slip for painted decorations was obtained by mixing tin oxide and lead oxide in a 1:6 ratio. Firing was done in round adobe brick or fired brick kilns fueled with wood. The resulting soft pastes are generally pink-buff to red-tan (Draper 1984:25; Goggin 1968:1–6; Lister and Lister 1974:17, 25, 35; Villegas 1964, Part 1: Plate 7, Part 2: Plates 64–67).

Majolica potteries were established in Mexico City and Puebla soon after the Spanish conquest. The majolica factories in central Mexico were controlled by guilds, the first trade to be so organized in New Spain (Clark and Juarez 1989:19). By the end of the 1600s, 17 potteries in Puebla produced this ware. An underglaze cobalt blue–painted decoration was commonly used in imitation of Chinese and English porcelain (*porcelanas*) during the early Spanish Colonial period; yellow, green, brown, and black were also used (Draper 1984:48). The main styles produced from 1550 to 1700 included Fig Springs Polychrome, San Luis Polychrome, Puebla Polychrome, and Abó Polychrome (Lister and Lister 1974:25–28).

Majolica tableware was called *loza fina* (fine ware). Common forms included *platos* (plates), *platillos* (saucers), *tazas* (cups), *cuencas* (ring-footed bowls), and *jarras* (jars) (Whittaker and Whittaker 1978:125–129). Majolica is sometimes referred to as *Talavera de la Reina*, after the major production center in Spain (Clark and Juarez 1989:19).

In the Spanish Colonial period, majolica from Mexico City and Puebla was shipped by mule or cart trains and sold by *comerciantes* (merchants) to *pulperos* (shop owners) in the Valley of Mexico and more distant areas, including New Mexico. Barter was a common means of exchange, being practiced by itinerant peddlers working on consignment for urban wholesalers. Some majolica was also sold at *ferias* (regional fairs) (Hoberman and Socolow 1996:21, 68, 62).

Barnes and May (1979:20) describe the 1780s–early 1800s majolica trade between production centers and settlements in the Santa Cruz Valley in southern Arizona. Under a private contract system, which replaced the government-regulated supply caravans, a merchant collected a list of goods needed by families at the first of the year. He sent the list to his agents in Mexico City, Puebla, and Veracruz; they, in turn, shipped goods up the *caminos reales* to residents of southern Arizona. Majolica from sites in the Santa Cruz Valley indicates that this import system remained in place until about 1850 (Barnes and May 1979:20; Moorhead 1961:34–35, 40–41).

The first majolica came to New Mexico with the Oñate colonizing expedition of 1598. Afterwards, the mission supply caravan that was sent from Mexico every three years included one box of majolica for each mission in the province. Through the caravans, which continued until the Pueblo Revolt of 1680, a trickle of Abó, Puebla, and Castillo Polychrome reached northern New Mexico. Following the revolt and reconquest, somewhat larger amounts were exported from Puebla to various locations in New Mexico, especially to mission and presidio sites (Snow 1993). Popular styles at this time included Huejotzingo, San Agustín, and Puebla Blue-on-white. In 1776, Fray Dominguez recorded "Puebla" plates at the churches of San Juan Pueblo, Pecos Pueblo, and Tomé (Adams and Chavez 1956:90, 154, 211). New types—Aranama, San Elizario, and Tumacacori Polychrome—were brought to New Mexico from 1750 to 1800 (Lister and Lister 1976:120–124).

Northern Mexican trade centers were established primarily by entrepreneurs in Mexico City. Merchants in the Santa Barbara region, especially at Real de Parral, Chihuahua, supplied the regional mining centers as well as the northern province of New Mexico in the 17th and 18th centuries. In 1637, Parral, on the Camino Real de Tierra Adentro, had 37 shops. Five years later, it had 47 shops. These establishments were supplied primarily by merchants in Mexico City. A variety of Puebla pottery (including majolica), other lead-glazed earthenwares, and Chinese porcelains stocked at the Parral stores were exchanged for New Mexico wool blankets and stockings, baskets, hides (some painted), salt, and piñon nuts. By the mid-1700s, a number of Chihuahua City merchants were participating in this trade (Fournier 1997:211–212).

During the mid-1700s, large amounts of European contraband, including *porcelanas*, reached the Mexican ports of Veracruz and Campeche. These wares were popular with Spanish residents, and they competed directly with Puebla majolica. As a result, majolica potteries in Mexico declined from 46 in 1793 to 16 in 1802. The entire industry was almost put out of business after 1824, when English-made wares were legalized after Mexican independence (Barnes and May 1979:5; Caywood 1950:87–88).

As the imported ceramics, primarily transfer-print and edge-decorated wares, increased in popularity, majolica potters in Puebla began to produce variants of the traditional blue-on-white wares, such as Wavy Rim, Huejotzingo, and San Elizario Polychrome. The predominantly blue patterns were generally replaced with green beginning in the early 1800s (Barnes and May 1979:33–34). At this time a Mexican polychrome tradition also developed, and the more colorful types (such as Aranama, Tumacacori, and Guanajuato Polychrome) were created at Puebla and at the new majolica centers of Guanajuato and Dolores Hidalgo. Besides the use of green, yellow generally replaced the previously popular blue (Barnes and May 1979:34, 37–45).

Polychrome decorated wares of the Guanajuato area included plates, ring-footed bowls, cups, and straight-sided jars and crocks. Five basic colors were used in the hand-executed decorations: (1) black from manganese ground and mixed with glass and quartz sand; (2) green from melted copper mixed with lemon and salt; (3) blue from ground cobalt mixed with *tequexquite*, glass, and sand; (4) yellow from stilbite and antimony sulfide mixed with glass and sand; and (5) red from pure melted tin mixed with ground glass and quartz sand (Villegas 1964, Part 2:47–48).

Seifert (1973:12–15) has described 13 types of 19th century majolica polychromes from sites in the Teotihuacan Valley in central Mexico. The sherds were primarily from cups or bowls. Narrow bands at the rim and base frequently framed a wide band of decoration, rows of dots, and narrow, wavy lines in various combinations. Green and yellow, green and rust, and rust and black-brown (often with black-brown accents, sometimes with yellow) are the three main color combinations. Some patterns may have been derived from Aranama Polychrome.

Puebla Blue-on-white and Tumacacori, San Elizario, Guanajuato, and Orange Band polychromes have been found in the borderlands in association with late 18th or early 19th century English-made pearlwares, such as blue-on-white willow and "shell" edge (Barnes and May 1979:7–13; Di Peso 1953:221–222; Goggin 1968: Plate 16c).

Cohen-Williams (1992) has described four new majolica types made in Puebla, Guanajuato, and Dolores Hidalgo during the period 1800–1850 and lists 20 types recovered from 1850–1900 Mexican and Southwestern sites; 14 are previously undescribed types. One of the latter is Guanajuato Flow Blue, an imitation of the popular English-made earthenware.

Goggin (1968:223) has pointed out that majolica shipments from central Mexico to the northern provinces of New Mexico and Arizona were limited in the Spanish Colonial period. He suggests that majolica was acquired and used only by individuals with a certain degree of wealth. However, analysis of 42 New Mexico will and estate inventories from the 18th and early 19th centuries indicate that majolica may not have been a true "luxury." Pieces were valued at an average of 3 *reales*, much less than Chinese porcelain listed in the inventories. The average cost of majolica at two Puebla factories in 1772 and 1793 was less than 1 *real*. These figures indicate that the ware was marked up by only 14% above manufacturing costs (Snow 1993:143).

A study of 75 probate inventories and five store inventories from Sonora and Chihuahua, dating between 1705 and 1820, yielded similar economic data on majolica. Puebla-made majolica pieces were less valuable than comparable Chinese porcelain vessels. Spanish majolica was two to three times more expensive than majolica made in Mexico. European porcelain cost three and one-half to nine times more than Mexican majolica (Fournier 1997:204–205).

In one Santa Fe store inventory of 1807, 53 majolica cups and dishes made in Puebla were each valued at 2 and 3.5 *reales*, respectively. These items were priced about 1 to 2 *reales* above factory wholesale (Snow 1993:142). For the average resident of northern New Mexico, however, even the prices for Mexican majolica must have seemed high. At first they depended on Pueblo-made pottery; in the 1770s they began to make various types of utility ware (Carrillo 1997:1, 6–7, 187).

At Los Ranchos in the late 1700s, only Vicente Montoya, a rancher, may have been sufficiently wealthy to trade for majolica coming up the Chihuahua Trail. He supported six carders, five spinners, and seven weavers, and their products could have been used to barter for imported products (Davis 1985:6, 19). In contrast, by 1860 Los Ranchos had become fairly prosperous. Two wealthy merchants, 10 teamsters, and two jewelers were in residence. One of the merchants was Don Pablo Yrisarri, one of the richest Hispanics in the North Valley (Davis 1985:6, 20). Perhaps he or other local residents acquired a few pieces of majolica during their careers.

#### Archaeological Occurrences

Many sites in the Middle and Upper Rio Grande drainage have yielded majolica dating from the late Spanish Colonial and Mexican periods. Puebla Blue-on-white and Aranama Polychrome were recovered from the church and village of Santa Rosa de Lima on the Chama River near Abiquiu. Excavations at Cieneguilla on the Santa Fe River yielded Puebla Blue-on-white, Aranama Polychrome, and Tumacacori Polychrome. Just north of this site, Puebla Blue-on-white, San Agustín Blue-on-white, and Tumacacori Polychrome were found on the surface of a Spanish house site (Goggin 1968:87–88).

At a late 1700s–1820s rancho site (LA 16769), also on the Santa Fe River, 116 majolica sherds were collected, all but one from the surface. Late Spanish Colonial types found include Puebla Blue-on-white, Tumacacori Polychrome, San Elizario Polychrome, and Huejotzingo Blue-on-white. Two shell edgeware rims, decorated with cobalt blue, and a flow blue cup rim were also retrieved from the site (Levine et al.1985:17, 85, 87–89).

At another Spanish house site, 10 km above Jemez Pueblo, Puebla Blue-on-white, Aranama Polychrome, and Tumacacori Polychrome sherds were collected. Puebla Blue-on-white and an unclassified green-on-white were found at a site on Zia Pueblo land to the south (Goggin 1968:89).

In the middle Las Huertas Valley in Sandoval County, majolica sherds have been found at the San José village site, which dates to 1765–1821. Types include Puebla Blue-on-white, San Elizario Polychrome, Huejotzingo Banded, Tumacacori Polychrome, Orangeline Polychrome, and an unknown type with a central, aqua-green floral design outlined by a thin brown-black line (Ferg 1984:55–58, 71–72).

An Aranama Polychrome sherd was found on the surface of LA 288, Corrales Mound, the site of a Santa Ana Pueblo village and later Hispanic house (Goggin 1968:84). Carrillo (1985:19, 24–25, 32) reported other Euro-American ceramics from this site, including 10 majolica sherds. These specimens included seven 17th to 18th century polychromes, a Puebla Blue-on-white, and an unclassified green type. Among the 19th century British or U.S. sherds recovered from the site were a brown transfer print ironstone saucer fragment, a flow blue plate rim, and a cup ring with light blue bands (Carrillo 1985:33, 36).

One small polychrome sherd, probably Aranama Polychrome, was found at Valencia Pueblo (LA 953), across the Rio Grande from Los Lunas. At a late Spanish Colonial camp or activity area (LA 67321) nearby, Puebla Blue-on-white, Huejotzingo Blue-on-white, Aranama Polychrome, Tumacacori Polychrome, San Elizario Polychrome, an unidentified green-on-white variety, and 12 other unidentified majolica wares, for a total of 35 sherds, were found (Gerow 1997:258, 266, 273–274).

At Los Ojuelos, east of Tomé Plaza and Tomé Hill, a number of unclassified green-on-white majolica sherds were found (Goggin 1968:86).

Of the 25 majolica sherds recovered at Los Ranchos Plaza (Table 7), only two could be identified by type. San Agustín Blue-on-white and Aranama Polychrome date to 1700–1800 and 1750–1850, respectively. The first came from backdirt and the second from the surface. A possible Aranama Polychrome sherd was found in Trench 4.

Most of the remaining 22 sherds are probably from 19th century majolica types made in Guanajuato and Dolores Hidalgo, Mexico (Cohen-Williams 1992:125–130). The dominant colors are black, blue, green, brown, orange, and brick-red on white. Decorative elements include narrow lines, bands, dots, and floral motifs. Paste color varies from terracotta to pink-tan to brick-red; the paste is generally harder than that of the 18th century types.

Provenience	San Agustín Blue-on- white	Aranama Polychrome	Guanajuato/ Dolores Hidalgo	Totals
Surface		1		1
Trench 1			2	2
Trench 1, backdirt			3	3
Trench 1, 28 cm BSD			1	1
Trench 1, east end			1	1
Trench 3, L2			1	1
Trench 4, backdirt			3	3
Trench 5, surface			1	1
Trench 5, 15-20 cm			1	1
Trench 6, backdirt			1	1
Trench 9, backdirt			1	1
Trench 9, surface			1	1
Room 4, 0-30 cm			1	1
TP 5, 15-20 cm			1	1
Trench 9, backdirt			1	1
Backdirt			1	1
Trench A-2, L2			1	1
FS 173, backdirt	1			1
Unknown provenience			2	2
Totals	1	1	23	25

Table 7. Majolica Sherds.

# **English and U.S. Earthenwares**

Euro-American ceramics (Table 8), if carried over the Santa Fe Trail, were commonly listed as "flintwares" or *loza de pedernal*. Early in the trade (in the 1820s), these hard-paste earthenwares cost somewhat more than a comparable piece of majolica. However, the price declined in subsequent decades, and they became considerably cheaper (Snow 1993:143).

In a shipment of goods by Langham and Boggs that reached the customhouse at Santa Fe in 1835, "30 doz. dishes of white flint (ironstone) ware" were packed in barrels and valued at "36" (pesos?) (Boyd 1974:315). About the same time a shipment from Noonan Tooly & Company arrived; it included 33 dozen cups (in three styles?), 41 dozen plates (in 6 styles?), 6 dozen "mugs," and 8 dozen "goblets," all packed in boxes (Boyd 1974:323). During the same decade, O.S. Filley & Company sent 20 platters, presumably ceramic, varying from \$1.00 per dozen to \$3.00 per dozen. These were also packed in wooden boxes (Boyd 1974:324).

European and Eastern U.S. goods brought over the trail were sometimes exchanged for New Mexican items such as woolen blankets (Gregg 1966:307).

#### Decalcomania Transferware Undecorated Ironstone **Ginger Beer** Sewer Pipe Stoneware Flow Blue Edgeware Porcelain Stamped Banded (mocha) Banded (plain) **Provenience** Sponge Totals Crock Sprig Tr 1, Fea. 1 Tr 1, Fea. 1A Tr 1, middle section Tr 1, E end Tr 1, W side, E end Tr 1, Level 2 or 3 Tr 1, 25-35 cm above footing Tr 1, 48 cm, D-W\* Tr 1, 84-86 cm Tr 1, TP 2 FS 173 TP 2 Tr 1, backdirt Tr 1, 1.11 [111?] cm BD Tr 1, ?? Tr 1, above floor Tr 2, TPA-1 Surface Tr 2, surface Tr 2, Unit C Tr 2, Level 1 Tr 2, Level 2 Tr 2, Level 3 Tr 2, 0-20 cm bs

#### Table 8. English and U.S. Earthenwares.

Provenience	Transferware	Banded (mocha)	Banded (plain)	Sprig	Edgeware	Stamped	Sponge	Porcelain	Flow Blue	Decalcomania	Undecorated Ironstone	Stoneware	Ginger Beer	Sewer Pipe	Crock	Totals
Tr 2, 30-40 cm				1		1								1		3
Tr 2, S half											1					1
Tr 2, backdirt			4	1	1	2		1								9
Tr 2, N end			1													1
Tr 2, L2	11					1	2					1				15
Tr 2, RE ?			1													1
Tr 3, surface	3		2	1	1		3									10
Tr 3, backdirt	2	1	8	2	1	2	4	2							1	23
Tr 3, L3	2		2	1												5
Tr 3, ??			3													3
WTT, Level 3				1							1					2
Tr 4, backdirt	12	2	16	2	4	3		2	2		4		1		2	50
Tr 4, E end	1					1										2
Tr 4, N side								1								1
Tr 4, W end	1															1
Tr 4, inside	1					1			1							3
Tr 5	1															1
Tr 5, surface	8			1				1	1							11
Tr 5, E end	1		1													2
Tr 5, 50 cm BD	1															1
Tr 5, backdirt	1		1	1	1											4
Tr 6, backdirt	1		3	1					1							6
Tr RE 3, surface	1								1	1						3
TP ?, ??	1															1
?, backdirt	2					3										5
Re 1, surface	1		1				1					1				4
Re 2, ??			2	2			2									6
TP 6, .05 BSD	1															1
Tr 6-7, surface	1		1	1	1				1							5
Tr 7, backfill			5	1		2							1	1		10

Provenience	Transferware	Banded (mocha)	Banded (plain)	Sprig	Edgeware	Stamped	Sponge	Porcelain	Flow Blue	Decalcomania	Undecorated Ironstone	Stoneware	Ginger Beer	Sewer Pipe	Crock	Totals
Re 7, surface	1					1										2
Tr 7, backdirt	1				1											2
Tr 8, backdirt	1	2														3
Re 9, surface	2			1												3
Tr 9, backdirt	3		3	1	1	1		1								10
Room 1, ??							1									1
Room 2, fill	1		7	2		1										11
Re 3, fill	1															1
Room 4, 0-30 BSD	1															1
Re 2, surface			2	1				1	1							5
Room 4, L3	1															1
Unknown provenience	2		1	1												4
Totals	111	12	90	35	20	28	18	15	15	1	13	2	2	2	3	367

\*Meaning of "D-W" unclear. —Ed.

Hispanic New Mexicans also took an active part in the trade. One enterprising Santa Fean, Manuel Alvarez, who later served as lieutenant governor, made three buying trips to St. Louis, Pittsburgh, Philadelphia, and New York between 1838 and 1844. Alvarez operated a store in Santa Fe from 1834 to 1846 (Bloom 1946:37).

The English–U.S. earthenwares are generally divided into three main classes: creamware, pearlware, and whiteware (Haecker 1991; Price 1981).

Creamware is a refined earthenware, made in England, which has a yellowish or cream-colored paste and a transparent lead glaze with a yellowish or greenish cast. Where the glaze pools in vessel crevices, it is deep green or yellow-green (Haecker 1991:4; Price 1981:25). In New Mexico, creamware has been found only in the Santa Fe area. Popular about 1760 to 1820, creamware was legally imported by Mexico via Spain, as well as illegally to Mexico directly from England, beginning in the late 18th century. This class of earthenware was eclipsed in popularity by pearlware, beginning about 1800 (Haecker 1991:5-6).

Pearlware has a white paste and a transparent but blue-tinged glaze, which resulted from a small amount of cobalt. Over time this type of ware became whiter and heavier, and the glaze became more brilliant (most notably after 1810). Various methods, motifs, and colors were used in decorations (Haecker 1991:6–7; Price 1981:25).

A popular decorative technique on pearlwares involved molding and painting the edge of dinnerware to produce a "shell" or "feather" pattern. In the region, the earliest date for this type of earthenware comes from a 1770s context at a Spanish mission site in west Texas. Execution of the blue evolved from careful brush strokes toward the edge of the dish to a simple, painted lateral stripe (Haecker 1991:6–7).

A second decorative technique, underglaze transfer printing, provided pieces with detailed landscapes or intricate floral or geometric designs. Popular colors were blue, black, brick-red, brown, and green. The popularity of transfer-decorated pearlwares peaked in 1800–1830 (Haecker 1991:8–9).

English manufacturers of blue-on-white transfer-printed earthenwares produced designs specifically for the U.S. trade, including natural vistas and landscape vignettes with flower or leaf motifs, shells, or scrolls. After 1830 borders of hawthorn or oak leaves, acorns, vines, berries, or flower arrangements were used (Fisher 1942:118–119).

Yet another popular pearlware decoration of this period was the combination banded, fingerpainted, and swirled decoration. Known as "mochaware," this type led to later, simpler, banded or annular whitewares, popular from the 1830s to the 1880s. Hand-painted pearlwares, primarily displaying flowers, leaves, and stems of the "gaudy Dutch" decorative tradition, were also popular during this period. These latter wares are sometimes called "sprig" (Haecker 1991:8; Price 1981:33, 35–37). The impact of pearlwares on the U.S. and Mexican markets was dramatic. Reasonably priced, durable, and pleasing, these wares virtually replaced other earthenwares, such as majolica, as well as table service items of silver and pewter and, to some extent, Pueblo pottery.

Whiteware is another refined earthenware, with a white paste and clear glaze, the latter without the hues of creamware and pearlware. A wide variety of forms, decorated with a range of methods and motifs, was produced both in England and later in the U.S., from the late 1820s onward. Decorations were predominantly in blue, red, purple, lavender, green, and brown. Over time, transfer-print designs on whitewares became less complex, with larger portions of the vessel left undecorated. From the mid-19th century on, undecorated whiteware was common (Haecker 1991:11–12; Price 1981:26).

An open transfer-printed or hand-painted type, "flow blue," was popular from the 1830s until the early 1900s. Usually executed in a cobalt blue, the design "flowed" or "bled" into the surrounding, undecorated portions of the vessels. A mulberry color was infrequently used instead (Haecker 1991:16; Price 1981:38, 41).

"Sprig" is a decorated whiteware common in sites occupied from 1830 until 1860 or perhaps later. This type is characterized by small, underglaze, hand-painted flowers (rose, red), leaves (green), and stems (black) (Price 1979:20).

Whitewares were also decorated using an inked sponge. The decoration often consisted of a wide band of color or colors around the rim of the vessel. Colors included light blue, pink, pink-red, brown, yellow, lavender, and green. Alternating stripes of different colors were frequently used. This style of decoration, sometimes called "spatterware," was popular from about 1830 to 1860 (Greaser and Greaser 1973). Spongeware was produced in England and by the American Pottery Company in New Jersey, but ceramics from the U.S. manufacturer probably never reached New Mexico (Haecker 1991:15; Price 1979:9, 1981:37–38).

Another method of decorating whitewares was stamping, which involved application of color with an inked stamp, possibly a piece of cut sponge. Geometric and floral designs were common and were frequently combined with sponged or hand-painted designs. Stamped wares, also known as stenciled wares, were most popular from about 1840 to 1870 (Price 1981:38).

Yet another method of decoration, decalcomania, was introduced about 1860. Decals were placed over fired glazes. These decorations are much sharper in detail than those found on transfer-printed ceramics (Haecker 1991:14).

Molded rim designs, introduced in the 1850s, were less popular. Typically, such designs consisted of a raised geometric or floral molding along vessel rims. Items with molded rims were produced by English and U.S. manufacturers until the end of the 19th century (Haecker 1991:16; Price 1981:41).

Ironstone is a subclass of whiteware that is generally harder than most whitewares (but softer than stoneware). Ironstone is not always easy to distinguish from other whitewares, especially

before 1870. Invented in the early 1800s in England, it did not become popular in the U.S. until after the Civil War (Price 1981:26–27).

#### **Archaeological Occurrences**

Pearlwares (including shell edge, flow blue, spattered or sponged, and stamped or stenciled) have been found at several sites along the Santa Fe and Chihuahua trails. These sites include Bent's Old Fort (Moore 1973:66, 70–74); LA 16769, a rancho along the Santa Fe River (Levine et al. 1985:89), San José de las Huertas (LA 25674) and the Ideal site (LA 8671) in the Las Huertas Valley (Brody and Colberg 1966:16–18; Ferg 1984:78); Our Lady of Sorrows pueblo and church in Bernalillo (LA 677) (Scurlock 1982:109); Los Poblanos (LA 46635) (Scurlock 1990); Valencia Pueblo (LA 953) (Brown and Vierra 1997); a "Spanish camp" near the Valencia site (LA 67321) (Gerow 1997:255, 266); Parida (LA 31718) (Marshall and Walt 1984:271, 339); and the Chamisal site (LA 22765) in Albuquerque's North Valley (Scurlock 1993).

Of the diagnostic earthenware types recovered at Los Ranchos (Table 8), 108 were transferprinted; 102 banded (mocha and annular subtypes); 38 hand-painted "sprig"; 20 edgeware; 21 stamped; 18 sponged, hand-painted, or transfer-printed; 15 flow blue; and 24 hand-painted majolica. Most of these sherds were found in excavation backdirt or on the surface. The specimens from unit excavations show no significant differences in horizontal or vertical distribution.

#### Porcelain

Only 13 sherds of porcelain were recovered. This low number may be due to the higher cost of porcelain relative to earthenware.

#### Stoneware

Like the porcelain sample, the stoneware sherd sample is small—nine specimens. Two appear to be from ale or "ginger beer" bottles, which date from 1860 to 1890 (Wilson 1981:7–10). Five other sherds are from crocks or whisky jugs; the remaining two are fragments of stoneware sewer pipe.

#### Glass

The 1,112 fragments of glass from the site are from various types of bottles, tumblers, jars, mirrors, flat (window pane), and miscellaneous glass. About 20% (222 specimens) were diagnostic and are summarized in Table 9 (on page 98).

Glass artifacts are the most reliable class of Euroamerican industrial product for yielding reliable dates of occupation for a site. This is due to (1) the late arrival of most glass items in the U.S. Southwest; (2) the well-documented ages of common types of glass artifacts, notably beverage bottles and other food and drink containers; and (3) the common practice of discarding food and beverage containers soon after use (Fontana 1967; Levine and Winter 1987, Vol. 1:139).

A few glass artifacts, predominantly bottles, came up the Camino Real (including the segment known as the Chihuahua Trail) from Old to New Mexico during the Spanish Colonial period (1540–1821). They are usually easily recognized because they were handmade and limited to a few colors (mainly dark olive green, or "black" as it is commonly called).

U.S. mouth-blown-in-mold containers were made as early as 1800 but probably did not reach New Mexico until after the opening of the Santa Fe Trail in 1821. Only small amounts of inexpensive bottles and jars were made in the U.S. before the 1840s, and glass containers were not brought into New Mexico in quantity until the railroad reached the territory in 1879–1880.

Glass manufacturing techniques changed frequently throughout the 1800s and into the early 1900s, which allows for fairly precise dating. Other attributes, such as color, also facilitate glass dating (Levine and Winter 1987, Vol. 1:139–149).

No dark olive green ("black") glass is present in the assemblage, nor are there any other bottle attributes that date before 1850. That is true of all the other glass in the collection. Some fragments of glass containers probably date as recently as the 1970s. Most of the glass artifacts date from the 1880s to the 1930s.

## Bottles

At first, wine and other alcoholic beverages were shipped in barrels or casks, including from Mexico City north to El Paso (Moorhead 1958:49). Later, as wines with a longer "shelf life," such as Rioja, were developed, they were bottled, wrapped in straw, and packed in cases. In this packaging, wine could be transported long distances by ship, cart, or mule train (Johnson 1989:105, 168–169, 426). Even so, in New Mexico, bottled alcohol was fairly rare during the Spanish Colonial period. In the 1770s, St. Francis Church in Santa Fe received 12 bottles of wine annually. The price per bottle ranged from 6 to 8 pesos, depending on the quality of the wine (Adams and Chavez 1956:20; Ivey 1993:61, 63).

Most of the early bottles were blown in a single piece or dip mold, which formed a round "kickup" base. The necks and collared lips were formed by hand. The walls were thicker than those made in previous centuries. French bottles of this period were blue-green while English and Spanish bottles were olive green. Spanish, French, and English wine bottles were all similar in shape—a cylindrical body and short neck. Eighteenth-century wine bottles from Spain, Portugal, England, and France held a fifth of a gallon, or about 25 fluid ounces (Johnson 1989:194, 303).

Prior to the mid-1500s, twists of cloth or leather, sometimes closed with wax, had been used to seal the bottle. Until the late 1600s, stoppers of ground glass were also used as plugs. Corks (from cork oaks in southern Spain and Portugal) were utilized as early as the mid-1500s but did not completely replace the other closures until the early 1800s (Johnson 1989:195).

By the beginning of the 1700s, wine and *aguardiente* (brandy) made in El Paso was well-known for its quality and was traded across the region. Merchants sold these two beverages for 1 peso per bottle; a bolt of cloth was worth 32 pesos or 32 bottles (Moorhead 1958:49, 51; Timmons
# Table 9. Glass.

Provenience	Container	Light green	Olive green	Amber	Aquamarine	Clear medicine	Clear jar	Base	Drinking glass	Brown	Bitters	Blue	Spectacle lens	Flat	Clear	Dark yellow	Light blue- green	Mirror	Miscellaneous	Totals
Tr 1, E end					3		1			4				4	7					19
Tr 1, W end						1		3												4
Tr 1, L 2-3		5		1						1				2						9
Tr 1, Fea 1-A					1									1						2
Tr 2, N end, 0-20		1																		1
Tr 2, 20-40 (L2)			3					2		4				37	14		1		3	64
Tr 2, 40-60			2											5						7
Tr 2, 85-120		1																		1
Tr 2, N end unit										1										1
Tr 2, S half			1									1								2
Unit B, L2										1				2	3					6
Unit C						1				1					4					6
Unit D			2																	2
L3						1														1
TPA-1						1				1				3						5
Tr 3, NE corner, w.				1										2	3					6
trans. In L2 L2A-3																				
SE Bay, L3			3		1					7										11
Tr 4, N side				1	1					4				2						8
Tr 4, S side								1	1	1				7						10
Tr 4, W end										1	6			1						8
Tr 4, E end														1						1
??			1																	1
Tr 5, W end, 0-18													1							1
Tr 6, SE corner,														1						1
mid-transect, 18-45																				
Tr 7,E end, 18-25							1							1						2

Provenience	Container	Light green	Olive green	Amber	Aquamarine	Clear medicine	Clear jar	Base	Drinking glass	Brown	Bitters	Blue	Spectacle lens	Flat	Clear	Dark yellow	Light blue- green	Mirror	Miscellaneous	Totals
Tr 7, E end, 37-44														1						1
Tr 7, E end 44-52							1			1				3						5
Tr 7,E end, 52-58							2													2
Tr 7, NW corner				1	1					7				1				1	3	14
Tr 8, Room 1, 0-															2					2
0.5, SW corner																				
Tr 9, E end										1										1
Tr, Re 1, TPA-2										1				1						2
Room 4, 1-5						1														1
Room 4, 20-25		1	1																	2
Tr Re 1&2, Rm 1,				1														1		2
TP5, 0-0.5																				
Tr Re 1&2, Rm 1,														1						1
TP5, 15-20																				
Tr Re 2, TP near Tr			1											2						3
2																				
Tr 18 [8?], N end			2								1			2						5
Rm 1, TP 6, L 1																1				1
TP 8, 0-0.5														1						1
Totals		8	16	5	7	5	5	6	1	36	7	1	1	81	33	1	1	2	6	222

1990:27–28). Some wine was made in the Middle Rio Grande Valley in the late Spanish Colonial and Mexican periods and was probably bottled in whatever containers were available.

Most of the 24 light green and olive green bottle fragments found at Los Ranchos probably originated from the Santa Fe Trail trade of the 1820s to the 1870s. Alcoholic beverages were especially profitable for the traders. In New Mexico, these beverages—sherry and claret, hard liquor, and beer—were sold at local stores and saloons (Moorhead 1958:81). Among the goods purchased by merchant Felipe Chavez in 1856, from the Glasgow Brothers in St. Louis, were "two boxes of cognac (listed apart from the brandy) and 10 boxes of champagne" (Boyle 1994:80).

The wines typically available via the Santa Fe Trail often came in a heavy, blown-molded green bottle with a kick-up base and hand-finished lip—a container type that persisted through the 1800s. The bottles for less common wines came in a variety of shapes, designs, and colors, the last including green and amber (Wilson 1981:19–21).

Anglo whiskey was usually shipped over the trail in barrels or casks, which later were drained into a variety of bottles or other glass or ceramic containers. By the 1870s, bourbon and rye bottles with brand names appeared. The bottles of the time were clear, amber, green, or blue and came in flask, plate-mold, or schnapps (paneled) styles (Wilson 1981:13–18). Bottles emptied during the journey from Independence to New Mexico were exchanged or sold to residents, especially to the Pueblos. Bottles generally sold for 50 cents apiece (Adams and Chavez 1956:151, 207; Moorhead 1958:51, 81).

Bottled beer was not available in northern New Mexico until after 1873, when the pasteurization process was first used. Brewers and bottlers in the U.S. preferred to put their beer in amber glass containers, an additional protection from light and heat. Beer was cheap and extremely popular among Anglo soldiers and settlers during the last quarter of the 1800s. Beer bottles were "longnecks" with cylindrical collar lips, with or without a ring below. Their capacity averaged 24 ounces (of lager, a low-alcohol beer) (Wilson 1981:1–6).

In 1871 the first commercial soft drink, a ginger ale, was patented. Hires Root Beer was first produced in 1876 and first appeared in bottles in 1892. Coca Cola was introduced in 1886 and was first bottled in 1894. Soft drinks with fruit flavors, such as orange and grape, spread across the country in 1913–1924. Seven-Up was first produced in 1928, and bottled chocolate drinks appeared in 1930. Royal Crown Cola was first produced by the Nehi Corporation in 1935 (Paul and Parmalee 1973:119–20).

Bottled medicines were also transported over the Santa Fe Trail and, later, via railroad. Patent medicines, usually containing alcohol, came in a variety of bottle shapes and colors. Paneled or round-bodied bottles with names in raised letters (to label the content, manufacturer, or both), and hand-finished necks and lips were common until about 1900. Some of the patent medicines were advertised as cure-alls, while others were symptom-specific (Wilson 1981:39–61).

Toiletry bottles were similar to medicine containers; perfume and cologne were the most common contents. Bottles or jars with food contents—such as jellies, sauces, mustard, pickles, molasses, honey, and oil—also varied in shape and color (Wilson 1981:63–64, 81–91).

# Tumblers

Glass tumblers, or drinking glasses, became somewhat popular in the Rio Abajo by the 1830s. Forty-eight dozen tumblers were shipped over the Santa Fe Trail by Noonan Tooly & Company in the mid-1830s. No description of these glasses was given, but they were packed 6 dozen to the wooden box (Boyd 1974:325).

# Flat Glass

Window glass also reached New Mexico via the Santa Fe Trail. Glasgow & Brother shipped "3 half boxes window glass,  $8 \times 10$  @ 3.50 a box, 3 half boxes window glass,  $10 \times 12$  @ 3.75 a box" during the 1830s (Boyd 1974:325).

# Summary of Los Ranchos Glass Artifacts

Five amber and 36 brown sherds are probably from beer bottles, and seven aquamarine fragments may be from soda water bottles. The first group dates from 1870 to the early 1900s, while the second dates from the late 1800s to the early 1900s.

Five fragments of clear medicine bottles, seven fragments of bitters bottles, and one fragment of a clear jar were also recovered. Two clusters of glass artifacts were found, one at the east end of Trench 1 and the other at the north end of Trench 2, 20–40 cm below the surface. No other significant provenience was noted for the glass artifacts.

# Metal

Of the 687 metal artifacts recovered from the site, about 75% were highly oxidized iron, which precluded identification of form and function. The remainder are described below.

Early iron or steel tool (or possible tool) parts include a fragment of blacksmith tongs (?); an axe head; part of a hoe blade (?); another hoe or mattock blade; a D-shaped object, possibly the handle of a shovel or a stirrup; a trigger guard; and a "pulley bone"–shaped object.

Early iron or steel fasteners include a tapered strap hinge, 14 cm long; two right-angle braces or bracket, one oxidized; 16 oxidized small, hand-forged spikes or nails, 2 to 7 cm long; four cut {"square") nails; and two railroad spikes.

Handmade spikes were probably made at Los Ranchos by blacksmiths, in spite of the availability of mass-produced nails. Machine-cut ("square") nails were first made in the U.S. between 1785

and 1790 but probably did not reach New Mexico until after the opening of the Santa Fe Trail. In the 1830s a barrel of assorted nails, valued at \$5.25, was shipped over the trail to New Mexico by Glasgow & Brother (Boyd 1974:325). Use of cut nails at Los Ranchos was probably limited, as residents would barter for nails or small spikes made by local smiths (Fontana 1965:88). Wire nails were made in the U.S. as early as the 1850s but didn't begin to replace cut nails in New Mexico until after the arrival of the railroad (Fontana 1965:89). Most of the wire nails found must have been from the late Anglo-American occupation of the site.

Miscellaneous early iron or steel items include a barbell-shaped object; a wire bail for a lard (?) or peanut butter bucket; an iron bar, forge-cut on one end, 6.2 cm wide and 1.5 cm thick; a second flat iron bar, 17.3 cm long and 5.7 cm wide; and a grooved iron piece 10.8 cm long and 3.3 cm wide.

Early copper or brass items include a circular clothes fastener marked "overall," 2 cm in diameter; a section of tube, 2 cm in diameter; a crescent-shaped, flat object, 5.1 cm by 1.7 cm, with a row of six holes; a 6 by 5 cm, convex copper or brass oval; a slightly curved piece, 13.5 cm long; a 6.7 by 3.9 cm, slightly curved tapered piece, possibly a gun part; a U-shaped handle; three pan (?) or kettle (?) fragments; four flat cut pieces; four flat, irregular pieces; and a large, relatively thick vessel (?) fragment.

Some of the copper or brass items were clearly for cooking. *Comales* (griddles) were common in the 1700s and early 1800s. These griddles consisted of a rectangular piece of medium-gauge sheet iron or copper plate, with U-shaped to semicircular handles. Larger *cazos* (cauldrons) were less common (Simmons and Turley 1980:117–118). Copper pots, kettles, plates, bowls, cups, and platters also reached New Mexico during the Spanish Colonial period, via the Camino Real–Chihuahua Trail. Fragments from no longer usable vessels were used to patch other items. Examples of these artifacts were recovered at Quiburi in southern Arizona (Woodward 1953:183–185).

Other early items include an angled piece of a metal alloy; a small fragment of lead, irregularly cut; and slag, which was found at three proveniences.

Late 1800s and 1900s artifacts, of the sort found after the arrival of the railroad, include two jar lids; a spoon fragment; a cast iron handle (from a stove?); an iron drawer pull (?); a square iron nut; an iron bolt (7 cm long); a 21.3 cm long threaded bolt with washer and nut; eight wire nails (up to 10 cm long); three large fence staples; a roofing tack with a round grommet; a small bolt extending through a porcelain insulator; a T-shaped machine (?) part; a second machine part; six iron pipe fragments; two chain links; one large, slightly curved wrench or wagon part fragment; a piece of wire (for baling?); four iron hame (or other harness piece) fragments; car engine parts; a wagon or automobile leaf spring fragment; and an 18.3 cm long iron shaft with a flat, crooked end (a wagon part?).

# Leather

All 86 leather fragments from the site were from footwear. They included fragments of soles, heels with metal nails, and uppers (some with eyelets or eye holes for laces) from shoes or boots. The iron, copper, and brass nails used indicate that the footwear from which these fragments came was made after 1860 (Anderson 1968:59–64). The leather artifacts were recovered primarily from trenches in the northwest, northeast, and southwest areas of the site. Five fragments of leather were found on the surface in the northwest area.

Provenience	Shoe uppers	Heels	Soles	Miscel- laneous	Totals
Tr 1, E end, Fea 1-A		8			8
Tr 1, E end	5	7	16		28
Tr 1, 8-25		1			1
Tr 1, 30		1	1		2
Tr 1, backdirt	11		1		12
Tr 2, backdirt		1			1
Tr 2, N end			1		1
Room 4, L 3		5			5
Tr 4, backdirt		1	1		2
TP 6, 0-10	5				5
Tr 7, backdirt		3			3
Tr 10* E end		4	2	4	10
Tr Re 1, TP 10-20	4				4
Unknown provenience		4			4
Totals	25	35	22	4	86

**Table 10. Leather Footwear Fragments.** 

\* As far as we know, there was no Trench 10. Also, some provenience abbreviations are unclear. -Ed.

The Spanish colonists made footwear, including boots, shoes, and *teguas* (moccasins). U.S. manufactured footwear became available via shipments over the Santa Fe Trail. One shipment, by E.C. Yoste & Co. in the 1830s, included 9 dozen women's shoes, 50 pairs of boys' shoes, 48 pairs of women's "buttoned shoes," 36 pairs of "little shoes" for girls, and 24 "little shoes" in boxes. These varied in price from 35 cents to \$1.35 a pair (Boyd 1974:319).

# **Miscellaneous Artifacts**

Thirteen artifacts of shell, plastic, clay, paper, or composite material (roofing) were found at the site. Those identifiable by function are: a four-hole shell button; an almost complete postcard, of young women in bathing suits; six fragments of weathered composition roofing; three fragments of plastic (clear, red, and green); and a lump of unfired clay.

The shell button (from Test Pit 6, 0–10 cm) probably dates between 1860 and the early 1900s (Epstein 1968:60). The postcard probably dates to the early 1900s. The remainder of the artifacts are post-1945.

#### Summary

The 2,306 Euro-American artifacts from Los Ranchos Plaza are typical of a late 1800s to early 1900s Hispanic village of the region. Glass fragments, primarily from bottles and window panes, constitute almost half (48%) of the assemblage. Metal fragments from household items, construction fasteners, tools, and weapons makes up 30% of the total. Eighteen percent of the assemblage is ceramics (primarily from food service or storage), and the remaining 4% consists primarily of fragments of leather footwear. A few artifacts of shell, plastic, paper, and composite material complete the assemblage. Almost all of these artifacts were manufactured in Mexico, Europe, or the United States and were transported to Los Ranchos over the Camino Real–Chihuahua Trail, over the Santa Fe Trail, or by railroad.

# Chapter 10

# SUMMARY

# Carol J. Condie

Founded about 1750 as one of six plazas along the Rio Grande north of Albuquerque, Los Ranchos de Albuquerque lay partially within the Elena Gallegos Land Grant. The grant was initially issued to Captain Diego Montoya in 1694 in recognition of his services during the 1692 reconquest of New Mexico after the Pueblo Rebellion of 1680.

As elsewhere along the course of the Rio Grande, the Albuquerque area, including the village of Los Ranchos, had a history of devastating floods. The floods of May 1874 and May 1891 hit Los Ranchos with particular severity, but a flood in the fall of 1904 took out the remaining few inhabited houses and the Los Ranchos church.

The most precise information on structures associated with LA 46638, Los Ranchos Plaza, comes from an interview Sargeant and Davis (1986:24–25) conducted in 1983 with Cecil Jenkins, who had purchased the property in 1928. He reported the following (see Davis, herein):

- A running slough full of ducks, etc., which had been a road.
- Adobe mounds everywhere, on both sides of the slough. The mounds spanned a distance of about a mile (north-south), but only about a quarter of a mile east-west.
- The old Los Ranchos church northwest of Jenkins' property.
- At least three adobe residences, close together, on the north side of Jenkins' property. He cut through one of the house mounds to dig an irrigation ditch.
- A buried cobblestone patio, 40 or 50 ft square, on the south side of the property. At the corners were large lava rocks.
- A 6-ft-high mound on the north side of the patio. It had been a building 200 ft long and 50 ft wide with a double row of rooms. Jenkins thought it must have been a hotel or a large house. He dug a root cellar into the mound, noting that at 4 ft deep (presumably from the surface of the mound, rather than from modern grade) he was still in the adobe walls of the old building.

Jenkins remarked that all the adobe on his property was hauled away in the 1930s by the Highway Department to use as ballast for Rio Grande Boulevard, noting "It took a shovel crew and eight big dump trucks six weeks to clear it off."

Jenkins believed there had been a blacksmith shop—a narrow rectangular room—on the west side of the cobblestone patio next to the road, noting (in 1983), "There's still compacted adobe there today."

It may pay to indulge in a little speculation as to how much dirt might have been removed. It is not possible to know what Jenkins saw as a "big" dump truck in the 1930s, but to be conservative, we can assume a capacity of 6 cubic yards (cy). According to the Means cost-

estimating handbook (Robert S. Means Co. 1980:22), at 1-mi round trips and 3.3 loads per hour, one 6 cy dump truck could move 160 cy per 8-hr day. If we assume a 6-day week for 6 weeks, 36 days were expended. One dump truck could move 5,760 cy in 36 days. Eight dump trucks could move 46,080 cy in 36 days. Jim Kelsey, of the soil-testing firm of Daniel B. Stephens and Associates, told us (personal communication, March 2, 2005) he uses the maximum dry bulk density figures of 1.6 to 1.8 g/cc for compact soil, and 1.35 to 1.6 g/cc for "fluffy" soil. A value of 1.6 g/cc (the low end of compact soil and the high end of fluffy soil) yields a figure of 62,000 tons of dirt removed from the site of the old village. Although several assumptions were involved in this calculation, it is almost without doubt a conservative one. It is clear that an enormous percentage of the structures on Jenkins' property was removed.

The image of Los Ranchos Plaza that emerges from Jenkins' description and from the 1996– 1997 excavations is of a village 1 mi long by ¼ mi wide, complete with cobblestone patio (or plaza), 40 or 50 ft square, with a hotel or very large house measuring 200 ft long by 50 ft wide on the north side of the plaza. On the west side of the plaza was a narrow rectangular blacksmith shop. To the north of the hotel or large house were the three adobe residences recalled by Jenkins. One or more of these may be represented by Rooms 1–7, revealed by the excavations. More adobe mounds lay west across Rio Grande Boulevard (which, in Jenkins' early career, was a slough that had once been a road, and again became a road—Rio Grande Boulevard). To the northwest of Jenkins' property was the Los Ranchos church. Jenkins was probably not aware of the forge area exposed at the east end of Trench 1, which was apparently associated with the early, pre-1874 village.

We should reiterate here Mary Davis' remark in this volume on the uniqueness of the cobblestone plaza. Knowing of a few cobblestone-floored corrals in conventos attached to pueblos (e.g., Pecos [Hayes 1974:48–50]), but no village plazas, we conferred with Cordelia Snow, student of Spanish Colonial archaeology. She told us (personal communication, July 2, 2003) that she knew of no cobblestone plazas, but that cobble aprons appear in corral-like features, the earliest being at LA 20000, the Sanchez Site near Santa Fe, and that they occur more frequently in 17th century than in 18th century sites. She said that cobblestone corral floors also occur in Mexico and Spain. She wondered if the cobblestone floor at LA 46638 might represent an earlier occupation—but the artifacts do not suggest a component prior to 1730, at the earliest. The apparent context of the cobble floor—flanked on the north by a large house or hotel and on the west by a blacksmith shop—suggests that it may indeed have been the plaza. We do not know what structures may have occupied the east and south sides of the cobble floor. Careful and thorough excavation, prior to the 1930s, would have been required to demonstrate that it was the village plaza.

In her chapter on the historic context of LA 46638, Davis reports census data to sketch the mixed ethnic makeup of Los Ranchos residents in 1790, noting, "All but one head of household is either a *mestizo* (Spanish/Indian) or a *coyote* (Indian/*mestizo*)."

To understand what may seem a surprising ethnic composition among Los Ranchos residents, a digression to examine the Black Legend is called for. Weber (1979) offers an even-handed look at the beginnings of the Black Legend and its continued influence today, noting (p. 200), "The origins of the Black Legend are complex. Some of its roots lie in the New World where Spanish

conquistadors have been viewed as the apotheosis of evil." According to the legend, the secular Spanish were cruel and rapacious, exploiting the Indians mercilessly through demands for labor (*repartimiento*) and taxes (via the *encomienda*), wresting arable Pueblo land from its rightful owners who had farmed it for centuries, and perpetrating untold misery on the helpless Indians. The priests were no better, destroying the kivas and ceremonial paraphernalia of ages-old Pueblo religion, forcing the Indians to construct mission churches, and imposing on them a religion they neither wanted nor understood. Finally, unremitting Spanish ruthlessness and violence led to the Pueblo Rebellion of 1680.

Some of this was true, but as reflecting actual conditions and as constituting the ultimate cause of the Pueblo Rebellion, it is both incomplete and simplistic. Haring (1985:94–109) discusses the Council of the Indies, established in the 1520s to oversee all aspects of the Spanish presence in the Indies. The first set of ordinances was issued in 1542. As laws mushroomed with every decade, it became clear that a compilation was needed. Begun in 1570, the final compilation was not completed until 1681. Haring's assessment of the document is pertinent (1985:102):

... The *Recopilación*, in spite of defects visible to the wider experience of a later day, and in spite of the restrictive, paternalistic spirit which dictated it, is altogether one of the most humane, and one of the most comprehensive, codes published for any colonial empire.

Among a multitude of restrictions, the Laws of the Indies contained rigid laws to prevent Spanish citizens from encroaching on native lands and water rights and from exploiting native labor anywhere in the New World. In 1659 the Spanish Crown also instituted a special office, *Protector de Indios*, whose responsibility was to champion the legal rights of Indians (Cutter 1986). The institutions of *encomienda* and *repartimiento* were probably a direct extension of European feudalism, which the Spanish would have seen as a normal patron/client relationship. *Encomienda* allowed the *encomendero*, a respected citizen to whom a land grant had been issued, to impose taxes on nearby residents in exchange for educating them, aiding them in times of difficulty, and protecting them from attack. *Repartimiento* allowed the *encomendero* to **hire** local residents for short periods of time. Unfortunately, abuses of the system did occur. As for Catholicism, the Pueblos at first apparently welcomed the addition of another deity to the Pueblo pantheon, but never intended to become the monotheists the priests insisted on.

In addition to the problems inherent in conflicting sociopolitical and religious systems were two natural factors that held devastating consequences. The first was the Spaniards' unwitting introduction of European diseases (smallpox, measles, etc.) to which New World inhabitants had no immunity. Populations were decimated in both the northern and southern hemispheres. (Many Spaniards died, too, from the chronic epidemics, but in far lower numbers than Indians.) The second was the recurring droughts that have afflicted the Southwest for untold millennia. Scurlock notes (herein), "One of the most severe of these droughts occurred in the early 1660s to 1678." It takes little imagination to conceive of the panic and terror that both the sedentary Pueblos and the mounted tribes, the Navajo, Apache, etc., must have felt as they watched relatives and friends dying in droves from both unknown diseases and from starvation. Even the incarnation of a Black Legend would pale before phantoms such as these.

(It may also be pertinent to remind ourselves that during this time period Spain was the most powerful nation in the world, a role that, as the U.S. knows to its sorrow today, may foster enmity on the part of others. In this light, it is not unduly surprising that England, a bitter competitor, served as the wellspring of the Black Legend.)

Nevertheless, the rebellion served an important purpose. It was a chastened group of Spaniards who returned 12 years later, in 1692. The Spanish Crown appointed governors skilled in governing, rather than in warfare. The system of *encomienda* was abolished. Elements of Pueblo and Catholic ceremonialism were blended to become the religion practised in New Mexico pueblos today. Populations in many villages throughout New Mexico mimicked the ethnic composition reported by the 1790 census for Los Ranchos. The character of the Los Ranchos population clearly denies the notions behind the Black Legend. Had the Black Legend been true, it should have resulted in such intense resentment toward the Spanish that for a Pueblo, Navajo, or Apache person to marry a Spaniard would have been unthinkable. Finally, we can turn to Joe S. Sando, scholar and historian—and a member of Jemez Pueblo—for a Pueblo insider's view. In reviewing the results of the Pueblo Rebellion, he remarks (1992:166):

When the Spaniards returned, their attitude had changed; the Pueblos were able to retain a major part of their religion and language due to increased tolerance. The other tribes of New Mexico, the Apaches and the Navajos, also benefited. . . . Another phenomenon that developed with the return of the Spaniards was the unity between the Pueblo Indians and the Spaniards; they formed an alliance to fight against other raiding Indian tribes. . . . [T]he Spanish military, meager as it was, assisted the Pueblos in withstanding the unrelenting raids by other Indian tribes. . . . Thus the Spanish eventually became compassionate *compadres*; and the shared culture of the Pueblos and Spanish ultimately became the basis for New Mexican culture as we know it today.

What can be said of Los Ranchos in the regional context? For the period from the 1750s to the 1850s–1880s we look to the Pueblo and Hispanic ceramics and the Euro-American artifacts. Franklin found a division in production of the Los Ranchos Plaza ceramics. A refiring analysis suggested that the preponderance of undecorated wares were made at or near Los Ranchos. The painted wares came from Santa Ana (81%), Zia (10%), Cochiti (5%), and tiny amounts from Isleta, Acoma, Zuni, and Hopi. Two nearby pueblos that should be represented, Sandia and San Felipe, are not—apparently because of little or no production of decorated wares after 1700 at these pueblos. Franklin remarks the restricted relationship to the extra–Los Ranchos world compared with such Pueblo IV glazeware villages as Chamisal (about a mile distant) and Valencia Pueblo to the south, near Isleta, where trade with the entire Puebloan world is evident.

Davis notes that the village served as the Bernalillo County seat from 1851 to 1854. She reviews maps and journals that suggest that Los Ranchos lay on the main river road in the 19th century.

The Euro-American artifacts reported by Scurlock (herein) represent impersonal relationships to world markets. Majolica vessels at Los Ranchos would have been transported up the Camino Real in the 18th and early 19th centuries. After the Mexican Revolution of 1821, goods began pouring into New Mexico over the Santa Fe Trail, and, after 1880, over the railroad, from the

eastern U.S. Ceramics of English and U.S. manufacture, especially pearlwares and whitewares, replaced the majolica from Mexico. Small amounts of glass were recovered, most of it flat window glass that probably postdates the 1904 flood, but some bottle fragments date from the 1870s to the early 1900s. Of the few metal artifacts that were not so oxidized as to be unrecognizable, some may have come up the Camino Real, others over the Santa Fe Trail and railroad, and yet others—such as handmade spikes and cut nails—were probably made by blacksmiths at Los Ranchos. Iron, copper, and brass nails remaining in the fragments of leather boots and shoes date them as post-1860; they may have been purchased or may have been handmade at Los Ranchos.

The picture of Los Ranchos we are left with through historical documents and archaeology is that of a small community of mixed Hispanic-Indian ancestry participating in a very local economy of only a 25- to 40-mi reach, but also with access to goods from Mexico and the eastern U.S. and Europe. Like many other small New Mexican villages, the people of Los Ranchos shared in good times but also in the bad times of smallpox and other epidemics, droughts, fires, and floods, until the final devastating flood of 1904 ended life in the old village forever.

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## Appendix

# LIST OF DIGITAL PHOTOGRAPHS

The photographs listed below may be found on the compact disk in the pocket in the back of the report. "FS" refers to the field specimen numbering system. Where two views share the same basic number (e.g., 50a and 50b), vessel interior and exterior views are provided, in that order. All photographs are by Hayward F. Franklin.

#### **Disk Folder 001: Macrophotographs**

- 1. Ranchitos Polychrome (red rim). FS 1249
- 2. Santa Ana Polychrome body sherds. FS 1561, FS 1326, FS 1218
- 3. Ranchitos Polychrome (red rim). FS 1419
- 4. Santa Ana area polychrome. FS 1419, FS 1515
- 5. Ranchitos Polychrome (two sherds). FS 1213

6. Ranchitos Polychrome (red rim). FS 1263, FS 1431

- 7. Santa Ana area polychrome. FS 1372, FS 1211
- 8. Ranchitos Polychrome (red rim). Two sherds from same jar. FS 1351
- 9. Ranchitos Polychrome (red rim). Bowl exterior. FS 1436
- 10a, 10b. Ranchitos Polychrome jar sherds. FS 1248, FS 1460
- 11. Ranchitos Polychrome jar sherds. FS 1248, FS 1507
- 12. Santa Ana Polychrome (black rim). Two sherds from one vessel. FS 1416
- 13. Santa Ana Polychrome (black rim). Two large sherds. FS 1509, FS 1504
- 14. Santa Ana Polychrome (black rim). Two sherds from same large jar. FS 1363
- 15a, 15b. Santa Ana Polychrome. Bowl and jar sherds with black rims. FS 1123, FS 1505

16. Ranchitos Polychrome. Five fragments from shallow bowls. FS 1531, FS 1534.

- 17a, 17b. Ranchitos Polychrome bowl sherds. FS 1356
- 18. Zia-Santa Ana area sherds. Left two sherds are from Santa Ana, right sherd from Zia. FS 1423
- 19. Zia area polychrome jar with basalt temper. FS 1423
- 20a, 20b. Ranchitos Polychrome jar sherd. FS 1497

21a, 21b. Concave olla base. FS 1497

- 22. Santa Ana Polychrome (black rim). Two sherds from same pot. FS 1510
- 23. Santa Ana area polychrome jar sherds. FS 1274 (two on left), FS 1121 (right)
- 24. Ranchitos Polychrome soup bowl sherd. FS 1414
- 25a, 25b. Isleta Red-on-tan. FS 1504, FS 1413

- 26a, 26b. Isleta Red-on-tan bowl sherds. FS 1385
- 27a, 27b. Isleta Red-on-tan fowl sherds. FS 1444, FS 1414
- 28a, 28b. Red-on-tan sherds. Isleta Red-on-tan to left, local red-on-tan to right. FS 1265
- 29a, 29b. Isleta Red-on-tan bowl sherds. FS 1181
- 30a, 30b. Local Red-on-tan bowl sherds. FS 1163
- 31a, 31b. Local red-on-tan bowl sherds. FS 1322
- 32a, 32b. Local red-on-tan bowl sherds. FS 1126, FS 1361
- 33a, 33b. Three local red-on-tan bowl sherds. FS 1427
- 34. Local red-on-tan bowl sherds. Interior view. FS 1125, FS 1496
- 35. Local red-on-tan sherds interiors. Soup plate to left, shallow bowl to right. FS 1139
- 36. Isleta Red-on-tan. Interior view. FS 1342
- 37. Plainware bowl lug and possible comal fragment. Lug, FS 1384; comal fragment, FS 1384.
- 38. Sherd disk, ball of clay, and vitrified sherd. Disk, FS 1118; ball, FS 1407; vitrified sherd, FS unknown.
- 39. Acoma-Laguna polychromes with potsherd temper. FS 1186, FS 1397, FS 1342
- 40a, 40b. Acoma-Laguna sherd. FS 1539
- 41. Acoma and Zuni sherds. Two Acoma-Laguna bowl sherds (FS 1249, FS 1460), probable Zuni jar sherd (FS unknown)
- 42. Rio Grande glazeware sherds. Two left, late Glaze E or Glaze F (FS 1125, FS 1415); right, Glaze A red (FS 1272)
- 43. Micaceous and black-on-white sherds. Jar rim with gold mica (FS unknown), smudged micaceous sherd with silver mica (FS 1159), and Jemez Black-on-white (FS 1560)
- 44. Two sherds of micaceous pottery. Tan paste, silver mica throughout clay body (FS 1176, FS 1401)
- 45. Two Cochiti Polychrome (black rim) bowl sherds. FS 1213, FS 1322
- 46. Cochiti area, Kiua Polychrome (red rim). FS 1445, FS 1422, FS 1217
- 47. Plain red bowl and jar sherds. Left, FS 1427; right, FS 1413
- 48. Three redware sherds. Left to right: jar (FS 1181), jar (FS 1181), bowl (FS 1493)
- 49. Redware sherds. Two matching jar rim sherds and bowl sherd. Interior view. FS 1423
- 50a, 50b. Blackware bowl sherds. Left sherd, FS unknown; two right sherds (interiors views), FS 1249
- 51a, 51b. Blackware sherds. All are from bowls, except upper right, which is soup plate or shallow bowl. FS 1218
- 52a, 52b. Blackware bowl sherds. FS 1426, FS 1248
- 53a, 53b. Blackware bowl sherds. FS 1135, FS 1494
- 54a, 54b. Blackware sherds. Open bowl (FS 1416), shallow serving bowl (FS 1416)
- 55a, 55b. Blackware bowl sherds. Two left, FS 1219; right, FS 1266
- 56a, 56b. Plainware jar sherds. Left, FS 1221; right, FS 1398.
- 57a, 57b. Blackware jar sherds. FS 1417
- 58a, 58b. Plainware jar sherds. FS 1504

59a, 59b. Plainware jar sherds. left, FS 1371; right, FS 1518 60. Two plainware jar sherds. From same vessel. Exterior view; FS **missing** 

61. Two sherds, from two plainware bowls. Interior view. FS 1399
62a, 62b. Sherds from large, reddish plainware bowl. FS 1508
63a, 63b. Sherds from plainware soup plate. FS 1484
64. Display of red-on-tan pottery at Carmel Mission, California
65. Modern red-on-tan from Mexico

# **Disk Folder 101: Microphotographs**

- 101. Eroded surface of Manzano Black sherd
- 102. Zia area polychrome with basalt temper
- 103. Zia area polychrome with basalt temper
- 104. Zia area polychrome with red paste and basalt temper
- 105. Zia area polychrome with red paste and basalt temper
- 106. Zia area sherd with basalt temper
- 107. Redware sherd with local sand temper
- 108. Redware sherd with local granitic sand
- 109. Manzano Black with sherd temper and fine paste
- 110. Manzano Black with sherd temper and fine paste

111. Manzano Black sherd, surface and temper

- 112. Santa Ana Polychrome with white slip and red paste
- 113. Santa Ana Polychrome with quartz sand temper
- 114. Santa Ana Polychrome eroded sherd with paste and temper showing
- 115. Manzano Black surface and paste section with mica
- 116. Manzano Black surface and paste section with mica
- 117. Santa Ana area polychrome with eroded surface and mica sand
- 118. Santa Ana area sherd with eroded paint, temper showing
- 119. Santa Ana area polychrome with granitic and mafic temper
- 120. Zia area polychrome with basalt temper
- 121. Isleta Red-on-tan with sherd temper and fine paste
- 122. Isleta Red-on-tan with sherd temper and fine paste

