Executive Office Building: Further Explorations in the Capitol Complex Historic Neighborhood

Santa Fe, New Mexico

Matthew J. Barbour, Susan M. Moga, Donald E. Tatum, and Karen Wening

Office of Archaeological Studies
Museum of New Mexico

AN 444
2014

NMCRIS Activity No. 122815

MUSEUM OF NEW MEXICO
~
OFFICE OF ARCHAEOLOGICAL STUDIES

EXECUTIVE OFFICE BUILDING: FURTHER EXPLORATIONS IN THE CAPITOL COMPLEX HISTORIC NEIGHBORHOOD, SANTA FE, NEW MEXICO

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REPORT SUBMITTED TO:
NEW MEXICO GENERAL SERVICES DEPARTMENT
PROPERTY CONTROL DIVISION

ROBERT DELLO-RUSSO, PH.D.
PRINCIPAL INVESTIGATOR

ARCHAEOLOGY NOTES 444

SANTA FE 2014 NEW MEXICO

NMCRIS No.: 122815

NMCRIS INVESTIGATION ABSTRACT FORM (NIAF)

1. NMCRIS Activity No.:	**2a. Lead Agency:**	**2b. Other Agency(ies):**	**3. Lead Agency Report No.:**
122815	NM Office of Cultural Affairs Historic Preservation Division		

4. Title of Report:

Executive Office Building: Further Explorations in the Capitol Complex Historic Neighborhood, Santa Fe, New Mexico

Author(s)

Matthew J. Barbour, Susan M. Moga, Donald E. Tatum, and Karen Wening

5. Type of Report

- [ ] Negative
- [x] Positive

6. Investigation Type

- [ ] Research Design
- [ ] Archaeological Survey/Inventory
- [ ] Architectural Survey/Inventory
- [ ] Test Excavation
- [x] Excavation
- [ ] Collections/Non-Field Study
- [ ] Compliance Decision Based on Previous Inventory
- [ ] Overview/Lit Review
- [ ] Monitoring
- [ ] Ethnographic Study
- [ ] Site/Property Specific Visit
- [ ] Historic Structures Report
- [ ] Other

7. Description of Undertaking (what does the project entail?):

Between October 31 and December 9, 2011, the Museum of New Mexico's Office of Archaeological Studies (OAS) conducted archaeological data recovery on state land under the control of the General Services Department Property Control Division (GSD). GSD is planning to construct the Executive Office Building which will encompass roughly 5,000 square meters of area, roughly a quarter of the total area designated as LA 158037 (approx. 18,334 square meters). Roughly 3,300 square meters were to be examined using archaeological methods. The remaining 1,700 contain standing architecture to be treated by an architectural historian.

LA 158037 is an archaeological site with deposits dating primarily to the late nineteenth and early twentieth centuries. During the late Territorial and New Mexico Statehood periods, it served as part of multi-ethnic residential area in the Capitol Complex Historic Neighborhood of Santa Fe, New Mexico. This report presents initial findings associated with archaeological excavations. Roughly 1,472 square meters of area (45 percent of the area under archaeological investigation) was examined during the excavation of eight scraping units and 17 backhoe trenches. These investigations resulted in documentation of three structures and 157 features and the recovery of 2,278 artifacts and samples..

[ ] Continuation

8. Dates of Investigation: from: 31-Oct-2011 to: 09-Dec-2011

9. Report Date: 01-May-2014

10. Performing Agency/Consultant: Office of Archaeological Studies MNM/DCA

Principal Investigator: Robert Dello-Russo

Field Supervisor: Matthew Barbour

Field Personnel Names: Isaiah Coan, Vernon Foster, Susan Moga, Virginia Prihoda, Donald Tatum, Mary Weahkee, and Karen Wening.

Historian / Other: David Snow and Matthew Barbour

11. Performing Agency/Consultant Report No.:

Archaeology Notes No. 444

12. Applicable Cultural Resource Permit No(s):

Archaeological Excavation Permit SE-309

NMCRIS No.: 122815

13. Client/Customer (project proponent):

NM General Services Division

Contact: Peter Allen

Address: 1100 St. Francis Dr., Montoya Building, RM 2022, Santa Fe, NM, 87505 **Phone:** 505.670.7421

14. Client/Customer Project No.: A093720

15. Land Ownership Status (must be indicated on project map):

Land Owner (By Agency)	Acres Surveyed	Acres in APE
NM General Services Department	0	1.24
TOTALS		

16. Records Search(es):

Date(s) of HPD/ARMS File Review: 1/9/2012	Name of Reviewer(s): Donald Tatum	
Date(s) of Other Agency File Review: 1/26-30/2012	Name of Reviewer(s): Matthew Barbour, Isaiah Coan, Mary Weahkee	Agency: History Library, New Mexico State Archives

17. Survey Data:

a. Source Graphics [ ] NAD 27 [x] NAD 83 Note: NAD 83 is the NMCRIS standard.

☐ **USGS 7.5' (1:24,000) topo map** ☐ **Other topo map, Scale:**

☐ **GPS Unit Accuracy** ☑ **<1.0m** ☐ **1-10m** ☐ **10-100m** ☐ **>100m** ☐ **Aerial Photo(s)**

Other Source Graphic(s):

b. USGS 7.5' Topographic Map Name	USGS Quad Code
Santa Fe 2002	35105-F8

c. County(ies): Santa Fe County

d. Nearest City or Town: Santa Fe

e. Legal Description:

Township (N/S)	Range (E/W)	Section

Projected legal description? [ ] Yes [ ] No [X] Unplatted

f. Other Description (e.g. well pad footages, mile markers, plats, land grant name, etc.):

Unplatted land on Santa Fe Quadrangle. Project area located on the northeast corner of Manhattan Avenue and Galisteo Street.

[ ] Continuation

18. Survey Field Methods:

Intensity: ☐ 100% coverage ☑ <100% coverage

Configuration: ☐ block survey units ☐ linear survey units (l x w):

NMCRIS No.: 122815

☐ other survey units (specify):

Scope: ☑ non-selective (all sites/properties recorded) ☐ selective/thematic (selected sites/properties recorded)

Coverage Method: ☐ systematic pedestrian coverage

☐ other method (describe):

Survey Interval (m): **Crew Size:** 8 **Fieldwork Dates:** from: 31-Oct-2011 to: 09-Dec-2011

Survey Person Hours: **Recording Person Hours:** **Total Hours:** 0.00

Additional Narrative:

No survey was conducted.

[ ] Continuation

19. Environmental Setting (NRCS soil designation; vegetative community; elevation; etc.):

Santa Fe is in a fault zone within a subdivision of the Southern Rocky Mountain physiographic zone known as the Espanola Basin, one in a chain of basins comprising the Rio Grande rift, which extends from southern Colorado to southern New Mexico (Kelly 1979:281). Local topography at LA 158037 is a nearly level southern terrace of the Santa Fe River at an elevation of 2,126 m. Soils are formed in reworked, mixed alluvial material of the Tertiary/Quaternary-period Santa Fe formation (Folks 1975). The major soil association is Bluewing gravelly sandy loam (Folks 1975:15-16). This soil occurs on 0- to 5-percent slopes and may coexist with Pojoaque and Fivemile soils. LA 158037 has a semiarid climate in which precipitation can fluctuate widely. Historical local flora and fauna are typical of Upper Sonoran grasslands. The characteristic vegetation includes piñon, juniper, prickly pear, cholla, yucca, and several species of muhly and grama grass (Pilz 1984). Fauna included coyote, badger, porcupine, black-tailed jackrabbit, desert cottontail, spotted ground squirrel and many species of birds. Mule deer and black bear are known to occur, but in low numbers (Pilz 1984).

[ ] Continuation

20.a. Percent Ground Visibility: **b. Condition of Survey Area (grazed, bladed, undistributed, etc.):**

Prior to archaeological investigations the project area was an asphalt covered parking lot.

[ ] Continuation

21. CULTURAL RESOURCE FINDINGS ☑ **Yes, see next report section** ☐ **No, discuss why:**

[ ] Continuation

22. Attachments (check all appropriate boxes):

[X] USGS 7.5 Topographic Map with sites, isolates, and survey area clearly drawn (required)

[X] Copy of NMCRIS Map Check (required)

[ ] LA Site Forms - new sites (with sketch map & topographic map) if applicable

[X] LA Site Forms (update) - previously recorded & un-relocated sites (first 2 pages minimum)

[ ] Historic Cultural Property Inventory Forms, if applicable

[ ] List and Description of Isolates, if applicable

[ ] List and Description of Collections, if applicable

23. Other Attachments:

[ ] Photographs and Log **[ ] Other Attachments (Describe):**

NMCRIS No.: 122815

24. I certify the information provided above is correct and accurate and meets all applicable agency standards.

Principal Investigator/Qualified Supervisor: **Printed Name:** Robert Dello-Russo

Signature:  **Date:** 6/4/13 **Title:** Principal Investigator

25. Reviewing Agency	**26. SHPO**
Reviewer's Name/Date:	**Reviewer's Name/Date:**
Accepted [ ] **Rejected [ ]**	**HPD Log #:**
	Date sent to ARMS:

CULTURAL RESOURCE FINDINGS

[fill in appropriate section(s)]

SURVEY RESULTS:

No survey was conducted.

Archaeological Sites discovered and registered:

Archaeological Sites discovered and NOT registered:

Previously recorded archaeological sites revisited (site update form required): 1

Previously recorded archaeological sites not relocated (site update form required):

TOTAL ARCHAEOLOGICAL SITES (visited & recorded): 1

Total isolates recorded: ☐ **Non-selective isolate recording?**

HCPI properties discovered and registered:

HCPI properties discovered and NOT registered:

Previously recorded HCPI properties revisited:

Previously recorded HCPI properties not relocated:

TOTAL HCPI PROPERTIES (visited & recorded, including acequias): 0

MANAGEMENT SUMMARY:

Between the Capitol Parking Facility and Executive Office Building Projects, archaeological investigations at LA 158037 have examined 14,244 square meters of area or roughly 78 percent of the total site (18, 334 square meters). This has resulted in the documentation of 13 structures, 376 features, and 25,476 artifacts. The analyses of these structures, features and artifacts represent a sizeable collection of archaeological data informing upon life in Santa Fe during the late nineteenth and twentieth centuries. No prehistoric or Spanish Colonial deposits were encountered and no human remains were uncovered as a result of these investigations. If the New Mexico General Services Department (GSD) continues to develop the area, further archaeological investigation (testing, data recovery, or monitoring) would likely result in a similar array of archaeological findings. Therefore, OAS recommends that no further archaeological investigations are warranted at LA 158037 and that archaeological clearance be granted for GSD to continue to develop its property bounded by Galisteo Street to the west, South Capitol Street to the north, Don Gaspar Avenue to the east, and West Manhattan Avenue to the south into the future as it wishes.

[ ] Continuation

IF REPORT IS NEGATIVE, YOU ARE DONE AT THIS POINT.

SURVEY LA/HCPI NUMBER LOG

Sites/Properties Discovered:

LA/HCPI No. **Field/Agency No.** **Eligible? (Y/N/U, applicable criteria)**

NMCRIS No.: 122815

Previously recorded revisited sites/HCPI properties:

LA/HCPI No.	Field/Agency No.	Eligible? (Y/N/U, applicable criteria)
LA 158037		Y

MONITORING LA NUMBER LOG (site form required)

Sites Discovered (site form required):

LA No.	Field/Agency No.

Previously recorded sites (site update form required):

LA No.	Field/Agency No.

Areas outside known nearby site boundaries monitored? **[X] Yes** **[ ] No, Explain why:**

TESTING & EXCAVATION LA NUMBER LOG (site form required)

Tested LA number(s)

Excavated LA number(s)

LA 158037

Administrative Summary

Between October 31 and December 9, 2011, the Museum of New Mexico's Office of Archaeological Studies (OAS) conducted archaeological data recovery on state land under the control of the General Services Department Property Control Division (GSD). GSD is planning to construct the Executive Office Building, which will encompass roughly 5,000 sq m of area—roughly a quarter of the total area designated as LA 158037 (approximately 18,334 sq m). Of this 5,000 sq m area impacted by construction of the new Executive Office Building, 3,300 sq m were examined using archaeological methods. The remaining 1,700 sq m contain standing architecture and were treated by an architectural historian.

Roughly 1,472 sq m (45 percent of the area under archaeological investigation) were examined during the excavation of eight scraping units and 17 backhoe trenches. These investigations resulted in the documentation of three structures, 157 features, and 1,568 artifacts and samples. Archaeological investigations at the proposed Executive Office Building site, together with artifact analysis and final report preparation, comply with the provisions set forth under State Archaeological Excavation permit SE-309 and as stipulated in the data recovery plan and Section 18-6-5 (NMSA 1978) of the Cultural Properties Act (4.10.16.14 NMAC-N, January 1, 2006).

This document presents the results of data recovery at LA 158037 for the Executive Office Building project. It includes a history of the project area, descriptions of archaeological deposits and recovered materials, interpretation of these deposits as they relate to the research design, and a review of previous archaeological research conducted at the site. Cultural materials were primarily associated with a residential neighborhood dating to the latter half of the nineteenth and early twentieth centuries. Data derived from the analysis of these items was used to examine (1) ethnic, socioeconomic, contextual, and temporal differences in consumption and discard patterns of material culture among residents of the individual structures, and (2) how these differences or, in some cases, similarities, characterized the neighborhood as a whole.

Between the State Capitol Parking Facility (Barbour 2012a) and Executive Office Building projects, archaeological investigations at LA 158037 have examined 14,244 sq m of area or roughly 78 percent of the total site (18,334 sq m). Collectively, these projects have resulted in the documentation of 13 structures, 376 features, and 24,766 artifacts. The analyses of these structures, features, and artifacts represent a sizeable collection of archaeological data that informs on life in Santa Fe during the late nineteenth and twentieth centuries. No prehistoric or Spanish Colonial deposits were encountered, and no human remains were uncovered as a result of these investigations. If GSD continues to develop the area, further archaeological investigation (testing, data recovery, or monitoring) would likely result in a similar array of archaeological findings. Therefore, OAS recommends that no further archaeological investigations of LA 158037 are warranted.

MNM Project No. 41.930 (Executive Office Building)
NMCRIS Activity No. 122815
Archaeological Excavation Permit SE-309

Acknowledgments

The Office of Archaeological Studies would like to thank Peter Allen and the New Mexico General Services Department for their support during this undertaking. Furthermore, this project was improved by the help of the Museum of New Mexico Friends of Archaeology volunteers. Thank you, Mimi Burling, Barbara Chatterjee, Linda McGee, Kathy McRee, Robert Mizerak, Colette Pogue, and Mary Anne Sanborn. Your donation of time is much appreciated. Lastly, this report is dedicated to the Beacham and Butler Families. Their willingness to speak about their ancestors does not only a service to their departed family members, but to the Capitol Complex Historic Neighborhood and Santa Fe's past as a whole. Thank you for sharing your stories and photos with all of us.

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Chapter 1

Introduction

Matthew J. Barbour

Between October 31 and December 9, 2011, the Museum of New Mexico's Office of Archaeological Studies (OAS) conducted archaeological data recovery on state land under the control of the General Services Department Property Control Division (GSD). GSD is planning to construct the Executive Office Building, which will encompass roughly 5,000 sq m of area—roughly a quarter of the total area designated as LA 158037 (approx. 18,334 sq m). LA 158037 is bound by Galisteo Street to the west, South Capitol Street to the north, Don Gaspar Avenue to the east, and West Manhattan Avenue to the south (Fig. 1.1). It is located within the Capitol Complex Historic Neighborhood (Sze and Spears 1988:74) and the City of Santa Fe Historic Downtown Archaeological District. Of the 5,000 sq m area impacted by construction for the new Executive Office Building, 3,300 sq m were examined using archaeological methods (Fig. 1.2). The remaining 1,700 sq m contain standing architecture were documented by an architectural historian (Bechtol 2012).

Previous archaeological excavations at LA 158037 were conducted in the fall of 2007 and between the spring of 2008 and the fall of 2009. The investigations in the fall of 2007 focused on testing LA 158037as part of a larger development plan examining the feasibility of constructing new state facilities in the Capitol Complex Historic Neighborhood (Barbour 2008a). In 2008 and 2009, archaeologists worked on the first proposed project within the development plan, the State Capitol Parking Facility (Barbour 2012a). Both of these investigations discovered late nineteenth and early twentieth century cultural deposits left by residents of the Capitol Complex Historic Neighborhood. The diverse array of archaeological features could be linked to specific structures. Based upon archival research, residents of these structures showed notable variability in ethnicity and socioeconomic status. The potential range of variability in these characteristics of the local population provided opportunities to integrate archival and archaeological resources to examine differences in occupation patterns and material culture.

The Executive Office Building represents the second proposed development project. Archaeological investigations in the area impacted by construction of the Executive Office Building intensively examined roughly 1,472 sq m (45 percent of the area under archaeological investigation). This was accomplished through the excavation of 8 scraping units and 17 backhoe trenches and resulted in the documentation of three structures, 157 features, and 1,568 artifacts and samples (Fig. 1.3). When combined with previous efforts, archaeological investigations at LA 158037 have examined 14,244 sq m of area or roughly 78 percent of the total site (18,334 sq m). Collectively, these projects have resulted in the documentation of 13 structures, 376 features, and 24,766 artifacts.

This report presents the results of data recovery at the location of the proposed Executive Office Building and then attempts to integrate this new dataset into previously published investigations and build on conclusions related to the Capitol Parking Facility (Barbour 2012a). In doing so, the report provides a more comprehensive discussion of ethnic, socioeconomic, and temporal variability in consumption and discard patterns of material culture among the inhabitants of the Capitol Complex Historic Neighborhood during the late Territorial and Early Statehood periods.

For the Executive Office Building project, Peter Allen served as the GSD Project Manager. Robert Dello-Russo and Stephen Post functioned as OAS co-principal investigators. Matthew Barbour directed field investigations and report production activities, assisted by Isaiah Coan, Vernon Foster, Susan Moga, Donald Tatum, Virginia Prihoda, Mary Weahkee, and Karen Wening (Fig. 1.4). Elias "Doggie" Benzor of Ruiz Excavating operated the backhoe. Laboratory analyses were directed by Nancy Akins (fauna), Matthew Barbour (Euroamerican artifacts), Linda Scott Cummings (coprolites), Ronald Goble (OSL), Pamela McBride (flotation and macrobotanical samples), James Moore (flaked stone), and C. Dean Wilson (Native American ceramics). Archival research into the project area was previously conducted by David Snow and was supplemented for this report with material compiled by Matthew Barbour. Donald Tatum worked as the project's geomorphologist; illustrations were produced by Scott Jaquith.

Data recovery and this report comply with provisions set forth in Section 106 of the National Historic Preservation Act (36 CFR 800), Executive Order 11593 (1972), the National Environmental Policy Act of 1969 (91 Stat 852), and are in conformance with Section 18-6-5 (NMSA 1978) of the Cultural Properties Act (4.10.16 NMAC-N, Jan. 1, 2006). As the project area is within the City of Santa Fe Historic Downtown Archaeological District, all fieldwork and report production activities also followed guidelines included in the Archaeological Review District Ordinance (adopted October 12, 1987).

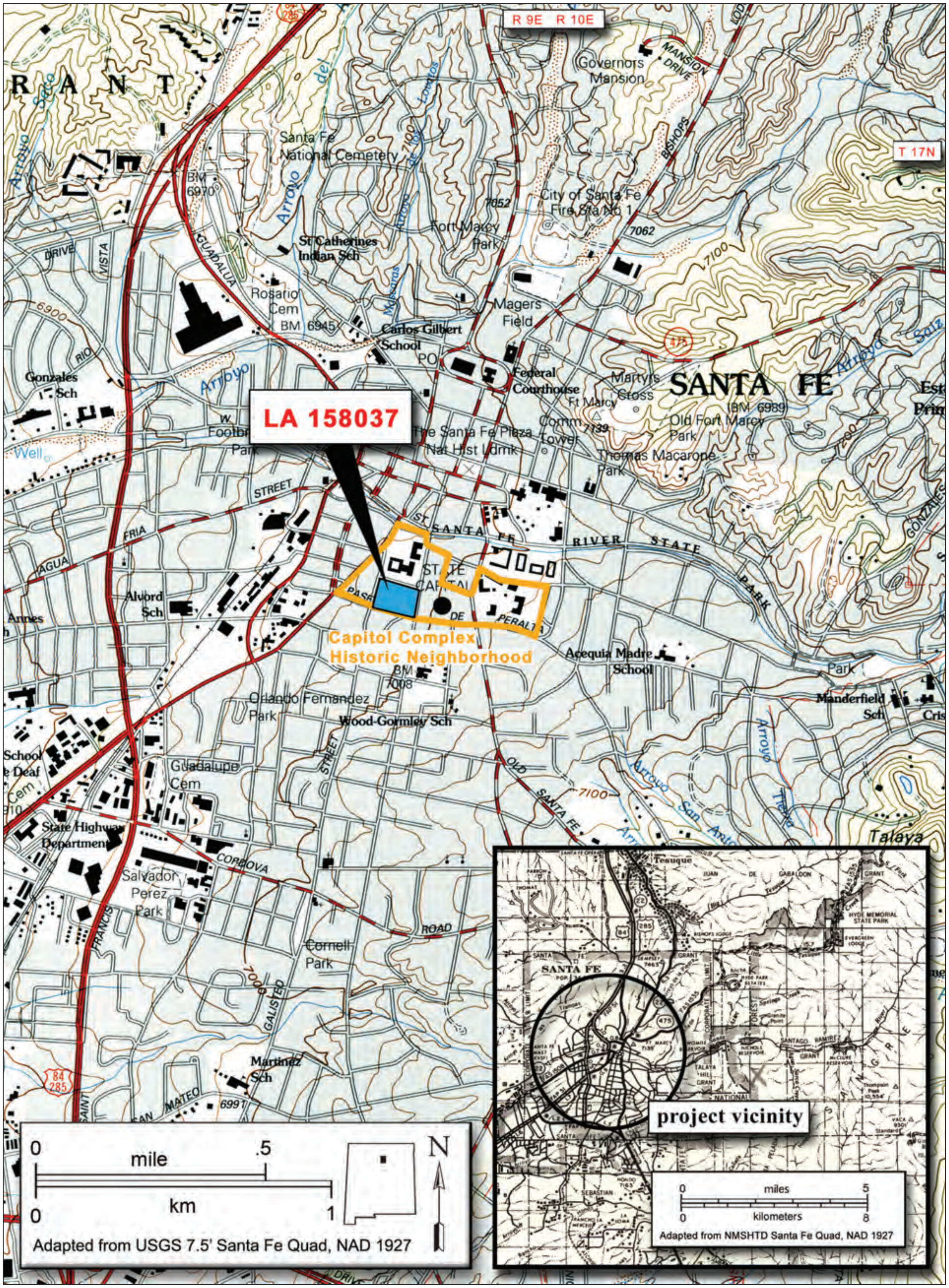

Figure 1.1. Site location.

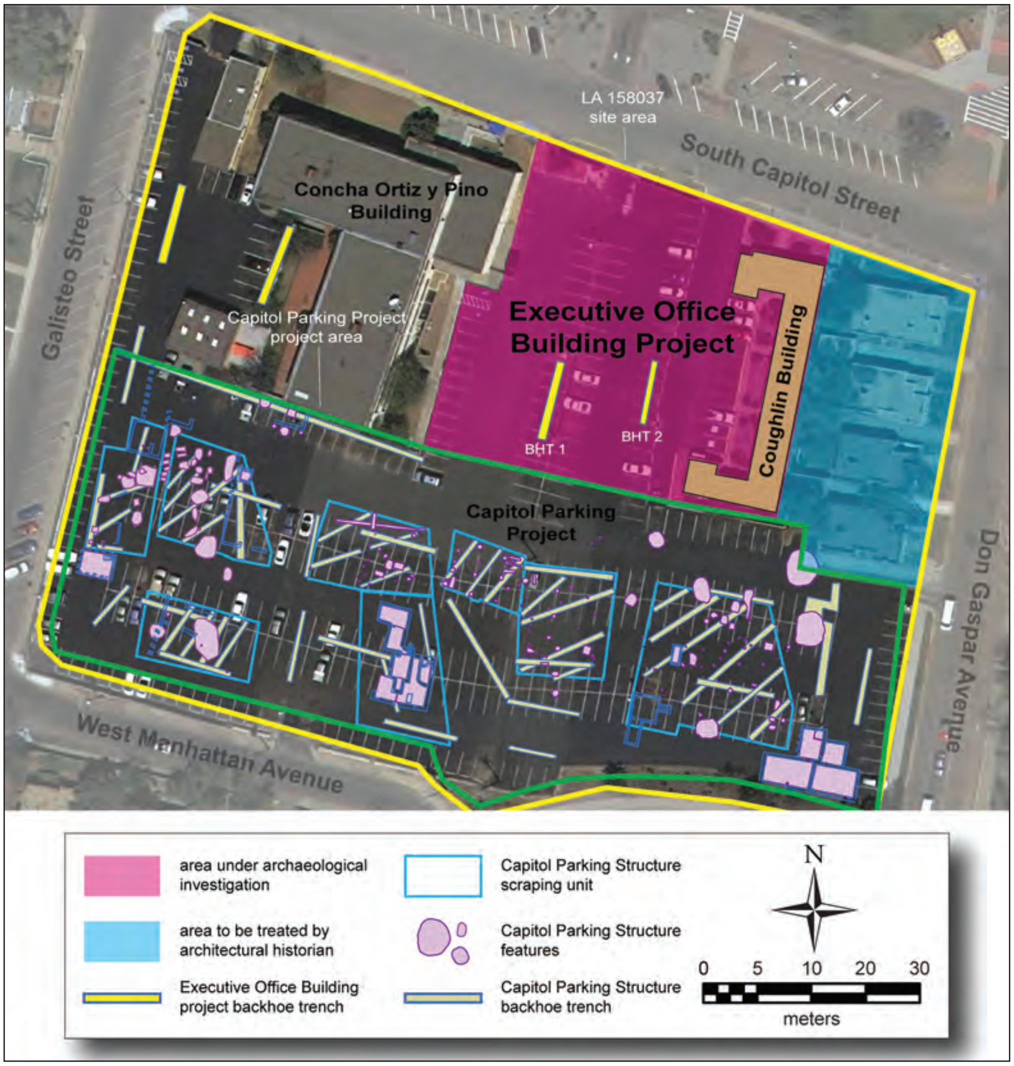

Figure 1.2. Plan view of project area.

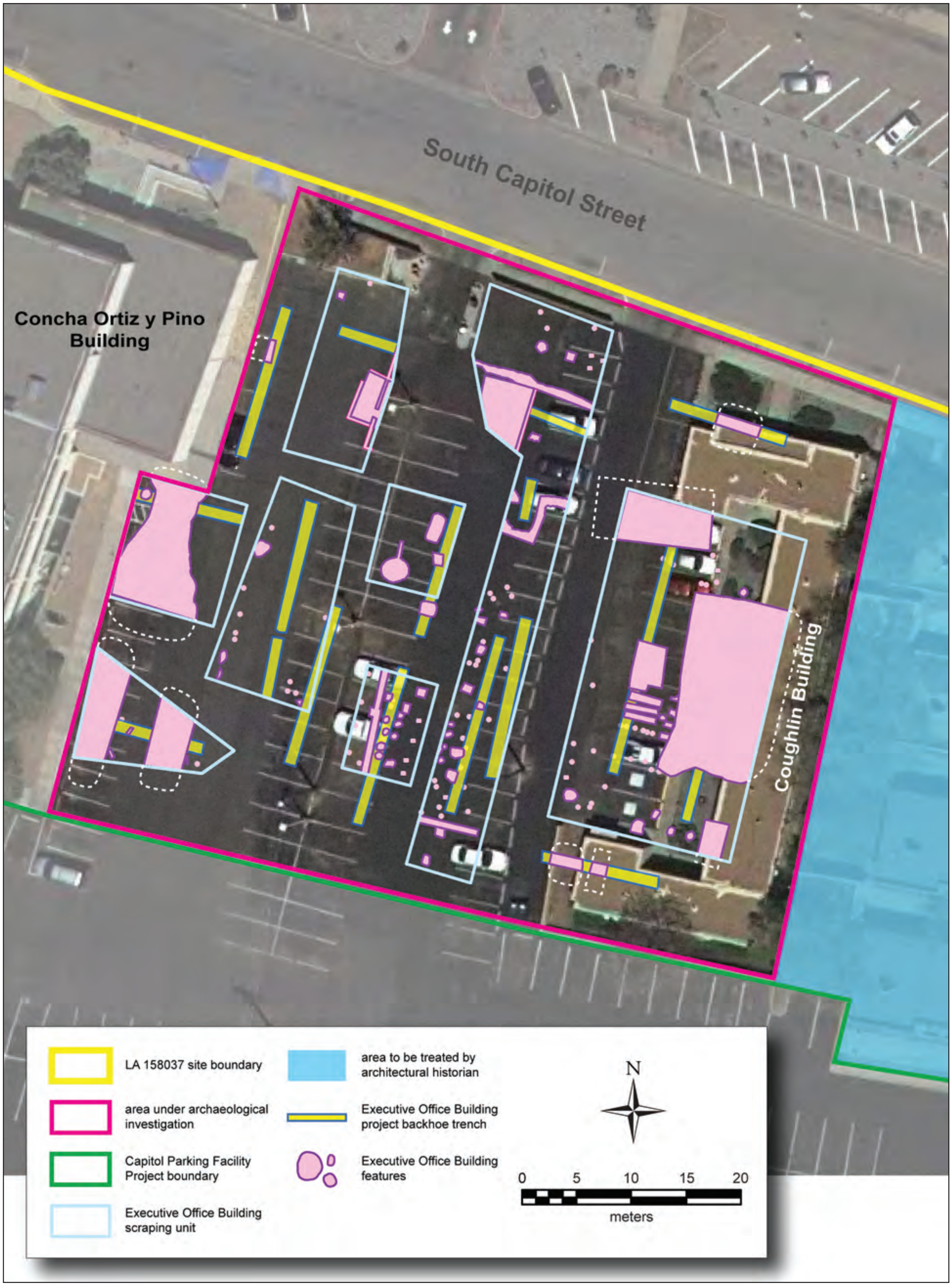

Figure 1.3. Archaeological findings associated with the Executive Office Building Project.

Figure 1.4. Executive Office Building Project field crew. Sitting: Vernon Foster, Matthew Barbour, Mary Weahkee, and Donald Tatum. Standing: Peter Allen, Karen Wening, Elias Benzor, and Susan Moga.

Chapter 2

Environmental Setting

Donald E. Tatum & Matthew J. Barbour

The Executive Office Building project area is located in downtown Santa Fe. Archaeological investigations were conducted within a parking lot utilized by New Mexico state employees working within the adjacent Concha Ortiz y Pino and Bataan Memorial Buildings (Fig. 2.1). While the area has been urbanized since the late nineteenth century, this chapter provides a geologic and climatologic background for the Santa Fe area prior to this time. It begins with a discussion of the physiographic area. This is followed by a description of precipitation and temperature. The chapter then turns to dendroclimatology and a reconstruction of the paleoenvironment. Lastly, it summarizes the various animals, vegetation and biotic zones which occur in the Santa Fe area.

Physiography and Geologic Environment

The City of Santa Fe is situated along the boundary between two distinct physiographic provinces (Fig. 2.2). To the north, south, and west are the volcanic fields, fertile floodplains, and scrublands of the Española Basin/Rio Grande Rift physiographic province. To the east and northeast the city is bounded by the southwestern foothills of the Santa Fe Range which, in turn, comprises a portion of the Southern Rocky Mountain physiographic province and defines the southern tip of the Sangre de Cristo Mountains. The Sangre de Cristo Mountains in New Mexico are a southward extension of the Rocky Mountain cordillera, trending south 363 km from near Salida, Colorado, to a few km southeast of Santa Fe. Some peaks of the Colorado Sangre de Cristos have summit elevations greater than 4,200 m. In New Mexico, the highest point in the state, Wheeler Peak, is in the Sangre de Cristos north of Taos. The elevation is 4,012.5 m.

At least four episodes of orogeny are recorded in the Sangre de Cristos; the earliest are represented by a complex of Proterozoic meta-sedimentary and meta-volcanic rocks originally deposited in a basin between 1.72 and 1.65 billion years ago (bya). The parent sedimentary and volcanic rocks became deeply buried and were heated and deformed during a tectonic event beginning about 1.65 bya. Subsequently, slightly younger granitic rocks intruded the parent rocks. By 34 million years ago (mya) the old Proterozoic basement rocks were back at the earth's surface, where they were covered by a Mississippian-period sea and again deeply buried in sediment that would later become dolomite, sandstone, limestone, and shale. Between 315 and 28 mya the feature now known as the Santa Fe Range occupied the southeastern boundary of an ancestral Rocky Mountain Range, the San Luis Uplift. Between about 70and 28 mya the area was tectonically stable and possibly inundated by the Cretaceous-period Interior Western Seaway (Kelley 2008).

Beginning with the advent of the Laramide Orogeny about 70 mya, the Sangre de Cristo Mountains underwent geological transformation into the mountain chain of today. The most recent cycle of this tectonic odyssey began about 26 mya with the beginning of the Rio Grande Rift expansion, a cycle of tectonically induced crustal down-warping and extensional faulting succeeded by a period of regional uplift during the late Oligocene (23 to 28 mya, Kelley 2008). Up-tilting and down-faulting of the Sangre de Cristo, Sandia, and other fault-block mountain chains along the Rio Grande Rift accompanied the rift expansion and determined the course of the modern Rio Grande River (Kelley 1979).

The Española Basin is one of a succession of generally south-trending, down-faulted, half-grabens that define the Rio Grande Rift as it extends from south-central Colorado into Chihuahua, Mexico. The rift and its associated basins developed in response to tectonic stress along the spreading continental rift zone, beginning in the late Tertiary and continuing today. Tectonic down-warping, uplift, and volcanism are locally expressed geologic forces that are strongly associated with the rifting process. Evidence of volcanism is especially prominent throughout the tablelands bordering the Rio Grande River in the Española Basin. Volcanism originated from the Miocene (12 to 6.5 mya) Jemez volcanic field flanking the edge of the Pajarito Plateau, which overlaps the northwest margin of the Rio Grande Rift in the Española Basin. The Jemez Mountains, with their bulky volcanic cones reaching altitudes up to 3525 m, and the massive, 22 km-wide Valles Caldera comprise the vast majority of the Española Basin west of the Rio Grande River (Grant 1999; Pantea et al. 2011; Smithsonian National Museum of Natural History 2011).

A late Pliocene–early Pleistocene (2.7–1.1 mya) episode of volcanism occurred in the Cerros del Rio volcanic field on the Caja del Rio Plateau, which, together with the Cerrillos Hills and the La Bajada fault, forms the southern boundary of the Española Basin (Grant 1999). Along the northern edge of the basin are the Brazos and Tusas Mountains, the San Luís Basin (part of the Rio Grande Rift zone), and the Peñasco Embayment, which geologic mapping defines as a structural low in the bedrock (Pantea et al. 2011; Johnson et al. 2008). The east edge of the Española Basin is bounded by the Sangre de Cristo Mountains (Sanford et al 1972; Gao et al. 1997; Sawyer and Minor 2006; Kelley 2008; Espanola Basin Technical Advisory Group 2011).

The most recent volcanic deposits were derived from massive eruptions in the Jemez volcanic field at 1.6 and 1.2 mya, accompanied by the subsequent collapse of the Valles Caldera. An estimated 300 km^3 of volcanic ash flow tuff, the Bandelier Tuff, was deposited as a result of these eruptions (Pantea et al. 2011; Treiman 2003) and comprises much of the Pajarito Plateau.

The basins of the Rio Grande Rift are the recipients of immense volumes of eolian, fluvial, alluvial and volcanically derived sediments transported through wind and water erosion and runoff from the interior slopes of the mountain ranges flanking the rift zone. In the Española Basin, and throughout much of the Rio Grande Rift in New Mexico, the basin fill is called the Santa Fe Group, the most prominent geologic unit of the Espanola, Santo Domingo, and Albuquerque Basins. It is a complex sequence of Miocene, Pliocene, and early Pleistocene volcanic and sedimentary basin fill deposits that uncomformably blanketed a heavily eroded, faulted, and deformed paleosurface of Oligocene (34 – 23 mya) volcanic and volcaniclastic strata (Grant 1999; Pantea et al. 2011). Johnson et al. (2008) have recorded Santa Fe Group fill deposits in a paleovalley on the Oligocene surface that is 200 m deep (Baldwin n.d.). Kelley (1978) has determined the main body of the Santa Fe Group, the Tesuque Formation, to be more than 2700 meters thick in the deepest parts of the Española Basin near the Rio Grande.

Palaeoeconomic Geology of the Santa Fe Group

The terraced basin fill deposits of the Santa Fe Group provided a source of abundant raw material suitable for use as lithic tool stone. Gravel-capped terraces and lag deposits are widespread throughout the Española basin (Kelley 1979). The contributing sources of basin fill occupy a geographically broad area of great lithologic diversity, yielding deposits with a vast range of material types. Quartzite, sandstone, chert, fine-grained basalt, silicified wood, siltstone, andesite, granitic rocks, and obsidian are just a few of the materials with tool stone potential that are available in these deposits (Koning and Maldonado 2003). At Arroyo Hondo Pueblo, located a few miles southeast of the Santa Fe city center, Bonney (1972) concluded, based on lithic tool stone typing and sourcing studies, that the Arroyo Hondoans, not surprisingly, strongly preferred local tool stone materials (Phagan 1993). Similarly, at Pecos Pueblo, also relatively close to Santa Fe, of a sample of 21,088 lithic artifacts, 80 to 85 percent of the raw materials were locally obtained (Kilby and Cunningham 2011). It follows that the most well-represented chert types in the archaeological record of the Santa Fe area were obtained from locally outcropping Pennsylvanian Madera Formation limestone deposits that yield various colors of chert and chalcedony. The Madera Formation outcrops in the west foothills of the southern Sangre de Cristo Mountains; their cherts occur in local gravel deposits (Kues 2001).

Hydrology

To the denizens of the Española Basin and surrounding environs, one of the most important aspects of the Santa Fe Group is that two of its members, the Ancha and Tesuque Formations, constitute the primary aquifer for the region. All of the rocks in the Santa Fe area have water, including the crystalline rocks of the Sangre de Cristo; however, most lack the permeability and porosity necessary for an economically reliable and suitable aquifer; they may also be geochemically toxic (Johnson et al. 2008). In some areas in which the aquifer comes into contact with tectonically shallow crystalline structures, groundwater has been shown to contain elevated levels of chemical compounds and elements that are toxic to humans. The exceptions are the near-surface rocks in the valley between the Sangre de Cristo foothills and the volcanic fields to the west: the Tertiary and Quaternary deposits of the Ancha and Tesuque Formations of the upper Santa Fe Group (Grant 1999; Johnson et al. 2008).

The topographic prominences that define the basin margins contribute significant amounts of water to the aquifer. Precipitation that falls on the slopes of the Sangre de Cristos drains toward the center of the Española Basin through runoff channels, then coalesces into primary drainage channels that lead to the Rio Grande, or percolates through the highly fractured granitic rock of the western slopes and enters as recharge into the aquifer (Grant 1999; Stone 2001). Because snowmelt achieves greater subsurface saturation than fast-flowing monsoonal precipitation, the water table receives more water from winter storms in the higher mountain ranges than from the summer monsoons (Menking and Anderson 2003; INTERA, Inc. 2009).

The basaltic tablelands and volcanic ash flow tuff deposits of the volcanic fields on the west side of the basin may not contribute as much recharge to the aquifer itself (Grant 1999). Rather, because of the dense, non-permeable rock surfaces, a greater percentage of precipitation remains perched in volcanic tuff or canyon alluvium at shallow depth, in basalt at intermediate depth, or is captured by geologic units at depths greater than the regional aquifer. A perched water table develops as surface runoff moves downward through alluvial deposits on slopes and in canyons, or seams and fissures in the volcanic rock. Downward percolation is deterred as the water comes into contact with less permeable surfaces, resulting in hydro-accumulation in the more porous material above the impermeable surface (Johnson et al. 2001). A substantial percentage of precipitation probably flows across the impermeable surface directly into the Rio Grande without reaching any part of the aquifer. However, as Grant (1999) has suggested, the basalt may serve as a protective seal against evapotranspiration of the aquifer beneath.

The Rio Grande is hydraulically syzygetic with the Santa Fe Group aquifer along its entire course through the Española and Albuquerque basins. In the southern part of the Española basin the water table rises about 550 m in elevation from the riverbed east to the foothills of the Sangre de Cristo Mountains. In this area, the water table ranges from less than 33 m deep to as much as 152 m deep below modern surface. In other areas it may be more than 366 m below the surface, depending on location (Grant 1999; Johnson et al. 2001). In places near the Rio Grande, the aquifer is confined and under pressure, which causes surface seeps and springs. However, continued population and economic growth and increasing demand on the regional water resources are evidently taxing an aquifer that is supplying a high-desert community.

The City of Santa Fe's Sangre de Cristo Water Division monitors drinking water levels at the Buckman Wellfield, a primary source for the city's drinking water 24 km northwest of Santa Fe on the Rio Grande. According to data from 1982 to 2011, water levels in four of five wells at Buckman that went on line in 1982 have dropped between 44 and 100 m (City of Santa Fe 2012). In 2001, a water-resource planning coordinator at the Sangre de Cristo Water Division wrote that since 1972 water levels in production wells had dropped as much as 213 m and that water levels in the aquifer at Buckman had dropped 27.4 m (Johnson et al. 2001).

Precipitation, Temperature, and Growing Season

"Everyone talks about the weather, but nobody does anything about it."
—Charles Dudley Warner, 1897

The climate of the Northern Rio Grande Basin is as variable and diverse as the landscape with which it articulates. Climate variability in the region reflects both seasonal and daily weather and terrain dynamics. The moisture regime ranges from arid to sub-humid, allowing for rapid heat accumulation in the atmosphere during the day and rapid heat radiation at night, and resulting in pronounced diurnal temperature fluctuations: hot or warm summer days, cool summer nights; warm or cool winter days, freezing winter nights. Daytime/nighttime temperature fluctuations of 22.2 degrees C (ca. 40 degrees F) are not uncommon during both winter and summer. This climate variability is robust for several reasons: New Mexico spans six degrees of latitude; for every degree of latitude the mean temperature change is between 0.8 and 1.4 degrees C (1.5 to 2.5 degrees F). The territory is far from coastal areas, where oceanic currents tend to drive atmospheric currents, thus moderating humidity and temperature. It is geographically close to regions with cooler, moister climates that can influence the climate of neighboring regions.

Many parts of New Mexico are of moderate to high elevation. For every 328 m (1,000 ft) of elevation gain, temperature decreases by 1.9 to 2.8 degrees C (3.5 to 5 degrees F). An elevation range between 1705 m at the Rio Grande to 4,000 m at the Sangre de Cristo summits can account for a mean variation of 2.5 to 3.7 degrees C (4.5 to 6.7 degrees F). Additionally, dramatic variation in the regional landscape sometimes result in interesting, small-scale climate variations. Two similar landforms that are a few dozen kilometers apart on the same geographic parallel, separated by a geomorphically divergent landform, may have seasonally disparate temperatures and rainfall, as when a mountain range obstructs prevailing weather patterns. The result is localized variation in storm track patterns, such as the "rain shadow effect" that occurs when the lea, or downwind, side of a mountain range receives less precipitation due to blockage of the prevailing weather pattern by a topographic prominence (Tuan et al. 1973; Haugland 2010).

Elevation and topographic variables have other influences on temperature and amount of precipitation that can fall on a given area, such as the orographic effect. If a moisture-laden air mass is forced up and over the Sangre de Cristo Mountains by prevailing winds, the moisture will condense at altitude, as precipitation, consistently resulting in more rainfall or snowfall with higher elevation on the windward side of the mountains. In the Española Basin, mean annual precipitation ranges between 25.2 cm (9.91 in) in the central part of the basin and 101.6 cm (40 in) on higher-elevation mountain slopes (Western Regional Climate Center 2012; Tuan et al. 1973). Because higher-elevation landforms have lower temperatures and more precipitation, they also have a lower rate of evaporation; thus, they are extremely important contributors to aquifer recharge (Newton et al. 2009).

The precipitation regime in the Española Basin is bimodal. About one-third of annual precipitation in the region occurs as higher elevation snowfall between December and March (Newton et al. 2009). The remainder occurs as lower-elevation rainfall between December and March, and during the months July through September as seasonal North American Monsoon (NAM) thunderstorms, the primary source of warm season rainfall. The NAM is initiated when moist air from the Gulf of California and the eastern Pacific Ocean is advected into the southwestern United States/northwestern Mexico by low atmospheric pressure resulting from solar heating of the Earth's surface. An additional source of moisture-laden air is easterly winds blowing across the Gulf of Mexico. Tropical disturbances such as tropical depressions, tropical storms, or hurricanes originating in the eastern Pacific or Gulf of Mexico can also contribute very significant amounts of rainfall to the continental interior Southwest. Mid-latitude frontal storms also contribute rainfall or snow to the region throughout the year, but especially in winter, as the storms track southeast across a cooling land surface from the northwest Pacific coast. (Newton et al. 2009).

Heating and cooling effects on land surfaces are not the only drivers of seasonal precipitation events. Large-scale temperature variations in the Pacific Ocean also have major effects on the strength of wet-season storms on the continental United States. "El Niño" occurs when water off the coast of South America becomes unusually warm. The result is winter storms that track across southern North America, increasing the precipitation budget of the winter storm season in the Southwest. In "La Niña" years, cooler water develops off the South American coast, pushing the winter storm track farther north and decreasing winter storm moisture contribution in the southwestern United States.

The mountain ranges and high mesas that define the boundaries of the Española Basin are regionally proximal and are not, in terms of elevation, disparate. Yet, they display considerable variation in rainfall amount and frost-free days, not only by region, but from year to year as well. The number of frost-free days available for cultivating food crops, as with precipitation and temperature, is closely tied to elevation, slope, and cyclical weather patterns. In the Sangre de Cristo and Jemez Mountains, which border the Española Basin to the east and west respectively, the average growing season is 140 to 160 days. The first killing frost occurs, on average, September 20. The mean occurrence of the last killing frost is May 20. The higher elevations in both ranges receive a total of about 101.6 cm (40 in) of precipitation per year. At Lee Ranch in the south-central Jemez Mountains, a weather station at an elevation of 2,649 m (8,690 ft) logged an average annual precipitation of 58.98 cm (23.22 in) for a period of record between 1923 and 1941. Across the Rio Grande Valley in the highlands of the Sangre de Cristo Mountains, a weather station at Irvins Ranch (9,710 ft) recorded a mean annual precipitation of 75.77 cm (29.83 in) in between 1935 and 1945. The approximate center of the Española Basin, at an elevation of 1705 m (5595 ft), receives an average 25.17 cm (9.91 in) of annual precipitation. There, the frost-free growing season begins about May 10; the growing season may end about 140 days later with a killing frost on or about September 30 (Tuan et al. 1973).

Near the southern end of the Española Basin, the Santa Fe weather station (elevation 2,198 m; 7211 ft) recorded precipitation and temperature records between 1867 and 1972. For the 105-year span, the weather station logged an average annual precipitation of 35.15 cm (13.84 in). The average high temperature for the period was 16.28 degrees C (61.3 degrees F); the average low was 2.83 degrees C (37.1 degrees F). Located several kilometers southwest of the Santa Fe weather station, the Santa Fe CAA Airport weather station (elevation 1935.5 m; 6350 ft) logged precipitation and temperature between the years 1924 and 2011. The average total annual precipitation for the years of record was 24.54 cm (9.66 in); the average high temperature for the period was 18.17 degrees C (64.7 degrees F). The average low was 2.67 degrees C (36.8 degrees F) (Western Regional Climate Center 2010). Both locations experience a frost-free season that is roughly 160 days long; first frost occurs about September 30, while last frost forms about April 20 (Tuan et al. 1973).

Without the use of controlled irrigation, the ability to successfully sustain subsistence agriculture is largely dependent on spatial and seasonal weather dynamics. Variability in topography, seasonal and daily temperature fluctuations, precipitation amounts, and long-term climate cycles are contributing factors to a semi-arid agricultural environment in which growing conditions could be considered marginal, even during a favorable season. The vegetation communities of the region signify that these conditions have probably been normal since the mid-Holocene advancement of xeric-adapted plant and animal species.

In a multi-discipline study of environmental response to climate variability in the southeastern Colorado plateau, Dean and others (1985) examined high- and low-frequency, systematic, spatial, and temporal shifts in weather patterns and their effects on tree-ring growth, hydrologic regimes, cycles of alluvial deposition and erosion, and human population trends, community settlement patterns, and adaptive social responses. The study focused on ancestral Pueblo population centers beginning about 1,000 years ago, and used archaeological data to track mobility patterns, population densities, and response to climate variability, particularly low-frequency variables. The study indicated that different climatic regimes have distinct annual weather patterns related to geographic location and, therefore, to the establishment of differing biological communities. Oscillations between temporally different climatic regimes occurring at different geographic locations promote development of different mobility and settlement patterns, "but not necessarily their local extinction or abandonment" (Dean et al. 1985). Instead, biotic communities are able to withstand adverse low-frequency, extreme climate events that seemingly would have disastrous consequences. But if such events are combined with other variables that affect environment—such as human population, geography, other low-frequency events of short duration and great magnitude (e.g., floods, fires, etc.), or a shift in high frequency, seasonal, or annual weather patterns—cumulative effects may create environmental "tipping points." The result is that a combination of climatological triggers, any one of which could be effectively responded to by a given population, may be the cause of regional abandonment, extinction, or social assimilation. The study identified an ecotonal dynamic between geographic variables on the Colorado Plateau with respect to micro-scale variables within regional climate and biotic communities that may have been related to large-scale air mass dynamics contingent upon seasonal jet stream oscillations. Furthermore, weather patterns determining ecotone position are directly related to seasonal topographic influences on general atmospheric circulation (Dean et al. 1985; Nielson 1987; Nials 2012).

Paleoenvironment and Dendroclimatology

Numerous paleoclimate studies have been undertaken in the Rio Grande Basin, southern Rocky Mountains, the Colorado Plateau, the Chihuahuan Desert, and surrounding environs; from these investigations the paleoclimate history of the area can be inferred. Often, environments in which the climate is most extreme are the first to manifest evidence of changing climate. It is in environments such as these that plant and animal species first evolve with new adaptations, migrate to areas more favorable to survival, or disappear altogether, hence becoming indicator species for environmental change (Thomas 2005). Regionally and temporally specific paleoclimate data relative to the onset of the modern climate regime have been derived from packrat midden palynology and plant macrofossil studies conducted in the Chihuahuan Desert mountains and basins of New Mexico and Texas, including the Sacramento, San Andres, and Hueco Mountain ranges, the Jornada Basin, and on Otero Mesa, New Mexico (Betancourt, VanDevender, and Martin 1990; Van Devender and Spaulding 1979; Holmgren et al. 2003). Speciation studies of fossil insects extracted from packrat middens in the northern Chihuahua desert have provided additional insight into climate during the transition from early to-late Holocene (MacKay and Elias 1992).

Other geochronologic evidence for climate change through time has been revealed through sedimentation studies of glacial landforms in the Sangre de Cristo Mountains, glacial lake basins and bogs in the southern Rocky Mountains, and similar studies undertaken at various other locales in New Mexico and northern Mexico (Allen et al. 2009; Armour et al. 2002; Allen, B.D. 1994; Castiglia and Fawcett 2006; Gile 2002; Hall 2001; Hawley 1993). Studies of pluvial lake highstands and associated sedimentation characteristics at Lake Estancia (south of the Española Basin) and other pluvial lakes in the region have also contributed relevant data to the body of paleoclimate knowledge of the region (Allen and Anderson 1993).

The most time-specific, geochronologically detailed proxy studies with implications for the recent Holocene in the Española Basin and Southern Rocky Mountains include dendroclimatology data obtained from living old-growth wood samples in the eastern Colorado Plateau, the southern Sangre de Cristo mountains of Colorado and New Mexico, the Sandia Mountains, Glorieta Mesa, and the Colorado Front Range (Grissino-Mayer et al. 1990, Grissino-Mayer 1996a, 1996b; Dean et al. 1985; Poore et al. 2005; Grissino-Mayer 1992; Graybill 1984, 1983; Schweingruber 1983). Speleochronology studies also contribute high-resolution climate data from the late Pleistocene through the late Holocene (Brook 1999; Polyak et al. 2004). Finally, Poore et al. (2005) have used comparisons of sedimentation rates and relative abundance of the planktic foraminifer *Globigerinoides sacculifer* in cores from the Gulf of Mexico with dendroclimatology records as corroborative proxy indicators for the Southwest monsoon (Mann et al. 1999).

An Overview of the Regional Paleoclimate

Some of the more extensively documented climate events with implications for the Española basin and southern Rocky Mountains are the major climate shifts of the Late Pleistocene and early- to mid-Holocene that had geographically wide-ranging effects across much of North America. Many climate processes that contributed to more recent environmental conditions of these regions are rooted in the Wisconsinan Glacial Episode, the most recent glacial maximum in North America. In the Rocky Mountains the correlative period (the most recent alpine glacial maximum) was the Pinedale glaciation. Based on studies of Pleistocene lake expansion as indicated by relict shorelines and sedimentary facies changes at Lake Estancia, the Wisconsinan Glacial ended between about 18,000 and 16,300 calendar years ago (18–16.3 kya) (Allen 2005; Allen et al. 2009).

Studies of packrat midden pollen and fossil insect assemblages (coleoptera and hymenoptera) from the northern Chihuahuan Desert indicate that from about 42 to 12.9 kya, the climate was more mesic than it is today. Pollen identified in sediment cores taken from glacial lakes and bogs in the southern Rocky and Jemez Mountains indicate the existence of alpine tundra and steppe vegetation prior to about 14 kya (Anderson et al. 2008).

During the late Pleistocene, average summer temperatures for the region have been estimated to be about 1 to 4 degrees C (1.8 to 7.2 degrees F) lower than present-day temperatures (Brackenridge 1978; Hawley 1993; Mackay and Elias 1992; Mehringer and Haynes 1965; Phillips et al. 1986; Sebastian and Larralde 1989; Wendorf and Hester 1975). Fossil pollen studies conducted in the Southwest indicate that piñon-juniper-oak woodlands were the dominant vegetation on upland slopes, while shrubs (including sagebrush), steppe grass, and sparsely scattered non-coniferous trees grew on the lowland landscapes (Betancourt et al. 1990; Mackay and Elias 1992; Hall 2001; Holliday 1987: Van Devender et al. 1984).

The presence of cienega and spring deposits dating to the late Pleistocene indicates that there was more surface water during this time than at present (Hall 2001). Perennial and pluvial lakes occupied closed playa basins in the southern High Plains and the ancestral Rio Grande Valley of central and southern New Mexico. Wetlands and shallow lakes developed in the valley floor of the Tularosa Basin beginning about 49 kya. By about 35.4 kya, the wetland and lake systems hosted dense stands of emergent aquatic vegetation, attracting Pleistocene mammals, as indicated by fossiliferous plant fragments and mammalian skeletal remains and footprints preserved in extensive fine-grained gypsum deposits (Allen et al. 2005, 2009; Allen, B. D. 1994; Gile 2002; Holliday et al. 2008; Hawley 1976, Lucas et al. 2002, 2007; Morgan and Lucas 2002, 2005).

Geochronology studies of depositional facies in two lakes in the region indicate lake freshening occurring repeatedly, beginning about 29.3 kya for Lake Otero (Tularosa Basin), and about 28.7 kya for Lake Estancia (Allen and Anderson 2000; Allen et al. 2005, 2009; Allen, B. D. 1994, Gile 2002; Hawley et al. 1976). This time frame is consistent with playa high stands recorded across the western United States during the late Wisconsinan Glacial (Polyak and Asmerom 2005; Smith and Street-Perrott 1983).

The first manifestation of a recurrent lake—attributable to downcutting and erosion leading to slope failure and consequent river damming along the Rio Grande traverse of White Rock Canyon—occurred between 20.7 kya and 18.3 kya. This period of increased hydraulic dynamism in the Rio Grande Valley has been attributed to alpine glacial melt and enhanced pluviality during the terminal stages of the Pinedale glaciation, the alpine equivalent to the Wisconsinan Glacial (Dethier and Reneau 1996). Similarly, about 19.7 kya, Lake Estancia experienced dramatic expansion, as indicated by a relict shoreline at 1890 m (6200 ft) elevation (Allen and Anderson 1993).

Sedimentation records indicate periods of drought and minimization of playa lake pooling during the late Wisconsinan Glacial. For Lake Estancia, severe desiccative periods occurred at about 18.1 and 16.3 kya, when the lake shrank substantially. Consequently, wind deflation and erosion obliterated or obscured the sediment record, and any subsequent mesic-period deposition would probably have been inset into the eroded areas. On the Llano Estacado, too, sedimentation rates based on radiocarbon date extrapolation at White Lakes indicate lake desiccation by 16.4 kya (Hall 2001). The lake sediment record of drought between 18.1 and 16.3 kya is loosely corroborated by groundwater isotope studies in northwestern New Mexico, which imply a short period (between 20 and 17 kya) of higher temperatures (3 degrees C [5.4 degrees F] higher than the rest of the late Wisconsinan) and decreased precipitation (Phillips et al. 1986).

Two more periods of pluvial expansion between about 16.3 and 14.5 kya are indicated by Lake Estancia's sediment record (Allen, B.D. 1991; Allen and Anderson 1993). Enhanced pluviality during this time period is also reflected in the repeated landslide damming and subsequent lake formation in White Rock Canyon in the Española Basin (Dethier and Reneau 1996). Magnetic susceptibility measurements recorded in sediments from Hall's Cave on the Edwards Plateau in Texas also indicate a brief period of milder climate and increasing rainfall for the same time. This mesic interval was preceded by a major influx of fresh water into the ocean originating from melting northern hemisphere ice shelves (Heinrich event H1). The reduced salinity of seawater resulted in changes to oceanic current circulation and atmospheric temperature and weather patterns (Maslin et al. 2001). Event H1 has been geochronologically dated to between 17.5 and 16.5 kya, indicating a climatic event of global proportion (Ellwood and Gose 2006).

The end of the ca. 17 kya cooling period signaled the transition from the mesic Wisconsinan period into a more xeric, post-glacial late Pleistocene–early Holocene. Fossil insect, plant, and pollen evidence from packrat middens indicates that the full-glacial Wisconsinan interval was followed by successively warmer and drier intervals alternating with multi-decadal periods of greater effective moisture, cooler temperatures, and diminished evaporation (Van Devender and Spaulding 1979; Betancourt et al. 1990; Hawley 1993, Holmgren et al. 2003). Such short-term, cool, wet weather cycles have been linked to Pacific Decadal Oscillation and El Nino-Southern Oscillation (ENSO) climate cycles and related southward shifts of winter storm tracks—processes still recurrent in modern times (Asmerom et al. 2007; Castiglia and Fawcett 2006; Menking and Anderson 2003; Collier and Webb 2002; Rasmussen et al. 2006).

As noted earlier, pollen identified in sediment cores taken from glacial lakes and bogs in the southern Rocky and Jemez Mountains indicate the existence of alpine tundra and steppe vegetation prior to about 14 kya (Anderson et al. 2008). About 14.5 kya, the first xeric-adapted ant species began appearing in the Chihuahuan Desert mountains (MacKay and Elias 1992). Sedimentation occurring in the drainages leading into playas began increasing shortly thereafter, indicating more sediment from drying playa basins being re-deposited into drainage channels and eolian sediments deposited in the playa basins (Hall 2001; Waters and Haynes 2001; Holliday et al. 2008). Piñon pine began disappearing from lower elevation woodlands, retreating to highlands and leaving oak, juniper, and desert-adapted grasslands as the dominant species in areas that formerly also supported piñon (Van Devender and Spaulding 1978; Van Devender 1990).

The pollen record from glacial lakes and bogs in the southern Rocky and northern Jemez Mountains also indicates the demise of the alpine tundra or steppe vegetation that had been characteristic prior to the advent of deglaciation beginning around 14 kya. The vegetation shift was signaled by the appearance of spruce pollen (*Picea*) in increasing abundance, indicating the advent of open spruce parkland with shrubby *Artemisia* understory (Anderson et al. 2008).

Younger Dryas

In the final millennia of the late Pleistocene, the warming, drying climate abruptly returned to near-glacial conditions in the northern hemisphere (Haynes 2008). This dramatic climate shift, known as the Younger Dryas, lasted from about 12.9 kya to 11.2 kya (Reasoner and Jodry 2000). Sediment cores obtained from a glacial cirque in the Winsor Creek drainage of the Santa Fe Range dated to 11.9 and 11.2 kya, indicating a local resurgence of glacial activity during this time (Armour et al. 2002). From the Lake Estancia basin, the sediment record indicates renewed lake freshening between about 12.9 kya and 11.5 kya (Anderson et al. 2002). The cooling episode has been theorized to have occurred as a result of a glacial meltwater pulse originating from a thawing Antarctic Ice Sheet that caused sea level to rise about 20 m. The influx of fresh water altered the flow of salinity currents in the North Atlantic Deep Water (NADW) formation, warming the North Atlantic region and triggering the Bolling-Allerod interstadial (ca. 13.6–12.9 kya; Reasoner and Jodry 2000), which initiated the end of the Wisconsinan Glacial and contributed to the melting of the northern hemisphere Fennoscandian and Laurentide ice sheets. As a consequence of freshwater forcing in the North Atlantic, the response by the NADW initiated the Younger Dryas cooling event in the northern hemisphere (Weaver et al. 2003).

Northern hemisphere warming was also manifest in some alpine regions in the Rocky Mountains. Pollen, macrofossil, and radiocarbon studies of lake sediment cores at Black Mountain Lake in Colorado's San Juan Range and at Sky Pond in the Rocky Mountain Front Range indicate shifts in inhabitance patterns of subalpine vegetation dating to the Bolling-Allerod and Younger Dryas periods. Warming trends during the Bolling-Allerod are indicated by increasing arboreal pollen in lake sediments. Subsequent Younger Dryas cooling was indicated by downslope subalpine vegetation movement estimated at 60 to 120 m, indicated by decreasing pollen concentration and intake into lake sediments between about 12.9 and 11.7 kya (Reasoner and Jodry 2000).

Glacial landforms in the southern Sangre de Cristo Mountains also record Younger Dryas climate phenomena. At Lake Katherine, an alpine cirque on the east side of the Santa Fe Range, a large terminal moraine has been geochronologically dated to about 11.2 kya, indicating a brief glacial advance and subsequent retreat in the late Younger Dryas (Armour et al. 2002).

The Younger Dryas represented a 900-year period of climatological vacillation immediately following the Clovis/Folsom transition. The early Folsom Period saw fluctuating water levels in playas and marshes and the beginning of sand sheet deposition in upland areas (Holliday 2000). A resurgence of higher precipitation levels and the recharging of aquifers accompanied the cooling episodes. Favorable rainfall conditions led to re-emergence of wetlands and cienegas, environments that were conducive to riparian plant growth.

Wetland and cienega deposits are dark, organically enhanced, sometimes peaty deposits that have been recorded across North America. They can be associated with the Younger Dryas period, and are occasionally Holocene-related. Younger Dryas-aged deposits of this type are referred to as black mats (Haynes 2008). They are sometimes immediately underlain and overlain by eolian silt or fine sand facies that are indicative of warmer, drier depositional environments. The stratigraphic sequence demonstrates the more xeric climate conditions that prevailed after the Wisconsinan Glacial terminus, the sudden onset of Younger Dryas cooling, and a subsequent abrupt shift back to more xeric climate conditions. The black mat deposit, when present in Clovis-period deposits, may signify the termination of Clovis culture and the sudden demise of many Rancholabrean faunal species (Firestone et al. 2007; Haynes 2008; Polyak et al. 2004; Stuiver et al. 1995; Taylor et al. 1997). Some extinct Rancholabrean paleofauna are represented by the faunal assemblage preserved at Pendejo Cave, in the Sacramento Mountain western foothills, and examined by Harris (2003). The assemblage includes *Equus* spp. (horse), *Capromeryx* (midget goat), *Stockoceros* (Stock's pronghorn), *Coragyps occidentalis* (Western vulture), *Hemauchenia* (lamine camelid), *Camelops* (camel), and *Aztlanolagus agilis* (hare) (Harris 2003).

Post-Younger Dryas

Subsequent to the Younger Dryas, the climate in the southern Rocky Mountain region continued a general trend of warming and drying between 11.2 and 10.2 kya (Wendorf and Krieger 1959; Sebastian and Larralde 1989). Early Holocene fire histories reconstructed from charcoal intake at high-elevation lakes and bogs in the southern Rocky and Jemez Mountains show nearly synchronous episodes of frequently occurring fire at four sites beginning about 12 kya and continuing until about 9 kya (Anderson et al. 2008). At two lake sites in the San Juan and Rocky Mountain Front Ranges, Reasoner and Jodry (2000) have detected, through pollen analysis of sediment cores, that subalpine vegetation re-advanced upslope to near-modern elevation between 11.7 and 11.4 kya. Piñon and juniper woodlands disappeared from lowland areas (Holmgren et al. 2003) and moved upslope into the highlands (Sebastian and Larralde 1989). As a result of increased eolian movement of sediment, soil deflation occurred, creating localized accretions of coarse-grained particles known as lag deposits, which have been dated to this drying period (Monger 1993).

However, beginning around 10.9 kya—within the broader trend toward warming and drying—the region experienced a brief return to slightly more pluvial conditions and slightly cooler temperatures. Pollen preserved in packrat middens indicates a brief re-advance of piñon-juniper forest into lowland areas (Betancourt et al. 1990; Sebastian and Larralde 1989). Also providing evidence for a ca.10.9 kya pluvial event, climate researchers working in caves in the Guadalupe Mountains conducted geochemical and geochronological studies gauging oxygen-stable isotope concentrations and speleothem growth over time, which recorded a resurgence of speleothem growth between about 11.1 and 10.8 kya (Polyak and Asmeron 2001, 2005).

Altithermal Period

During the middle Holocene, the southern Rocky Mountains apparently experienced an extended period of overall drying and warming conditions known as the Altithermal (Antevs 1948, 1952; Holliday 1989; Meltzer 1991). Multiple levels of sampling and analysis of sediment cores extracted from six high-altitude lake and wetland sites in the southern Rocky and northern Jemez Mountains examined pollen and charcoal concentrations. Chihuahuenos Bog in the Jemez Mountains was also examined for elemental (C, N, and Pb) and isotopic (C and N) signatures (Cisneros-Dozal et al. 2010; Anderson et al. 2008). The sediment records in these locations indicate an extended period of warming and drying beginning about 8 kha. Lead isotope analysis may indicate an increase in lead concentrations in bog sediments due to enhanced eolian reworking of volcanic deposits and consequent deposition of lead. This development was concurrent with a decrease in terrestrial plant productivity as indicated by low C/N values (Cisneros-Dozal et al. 2010).

A correlative increase in accumulated charcoal in four bog and lake basins in the Rocky and Jemez Mountains occurred during the same interval, indicating increasing forest fire frequency. The sediment record shows Chihuahuenos Bog drying out for almost 2,000 years beginning just before 8 kya. Likewise, Little Molas Lake dried out, turning into a peat bog about 1,000 years beginning about 6.5 kya. Brazos Ridge Marsh subsequently dried out for almost a millennium (Anderson et al. 2008).

Eolian reworking of playa basin sediments continued as lake replenishment rates slowed (Allen, B.D. et al. 2005, 2009; Holliday et al. 2008; Langford 2002). Lake Estancia experienced desiccation during the Altithermal, as indicated by the appearance of eolian landforms such as lunette dunes and blowouts between 7829 and 6194 years ago (Menking and Anderson 2003).

The southern High Plains/Llano Estacado also experienced long-term, overall drying and warming conditions during the Altithermal (Antevs 1948, 1952; Holliday 1989; Meltzer 1991). More xeric-adapted plant and animal species began arriving on the southern High Plains and northern Chihuahuan desert in the time period leading to the establishment of the modern climate regime about 5,000 years ago (Elias 1987; Holmgren et al. 2003). Pollen records infer the final demise of the late Wisconsinan winter rainfall regime during this time period (Betancourt et al. 1990). Desert grass species continued to gain inroads into territory previously dominated by piñon-juniper-oak communities, followed by the arrival of Chihuahuan desert scrub vegetation into the American Southwest (Buck and Monger 1999). Xeric-adapted ant species began replacing mesic adapted species (Mackay and Elias 1992). Perhaps for the first time on the southern High Plains, people began excavating water wells to replace former surface water sources. Altithermal-period wells have been recorded near former playas, springs, and valley floor streambeds at Blackwater Draw, New Mexico and at Mustang Springs, Texas (Meltzer et al. 1987; Meltzer 1991).

The Altithermal warming and drying was co-cyclical with intervals of more mesic climate. For example, Castiglia and Fawcett (2006) have recorded the early mid-Holocene (ca. 7.6–7 kya) development of constructional beach for Laguna El Fresnal and Laguna Santa Maria, two closed playa basins of the northern Mexico/southern New Mexico borderlands. Speleoclimatology data from caves in the Guadalupe Mountains also provide correlative proxies of increased effective rainfall during the mid-Holocene. Asmerom et al (2007) recorded a resurgence of speleothem growth occurring about 7.27 kya.

Poore et al. (2005) have used relative abundance of the planktic foraminifer *Globigerinoides sacculifer* in sediment cores from the Gulf of Mexico and comparisons to relative abundance of packrat middens as indicators for the summer monsoon in the southwestern United States. *G. sacculifer* increased in abundance in Gulf sediments during an enhanced monsoon seasons, while packrat middens decreased in abundance because they are unstable and susceptible to damage by insects (Spaulding et al. 1990). The marine sediment cores provide data from the early Holocene to the present. Their research indicates enhanced monsoonal activity concomitant with pluvial lake enhancement at Laguna El Fresnal and Laguna Santa Maria occurring 7.6-7 kya.

After about 7 kya, the marine sediment cores show an overall drying trend with lower effective precipitation, alternating with multi-decadal and multi-century periods of increased precipitation. Similarly, charcoal input analysis of sediment cores from three lakes in the southern San Juan Mountains and a bog in northern New Mexico indicate a marked increase in fire frequencies occurring after about 7 kya (Anderson et al. 2008).

Neoglacial and Post-Neoglacial Periods

For the mid- to late Holocene, stalagmite growth and stable oxygen isotope signatures from speleothems in Guadalupe Mountain caves can provide chronologically specific, sub-decadal climate records that can be correlated to dendrochronologies and to marine biosediment records from Gulf of Mexico core samples. Some climate researchers have placed the final establishment of the modern climate regime in the Española Basin and southern Rocky Mountains as occurring about 4 to 5 kya. A "Neoglacial" period took hold about 5 kya as a phase of astronomically determined cooling became manifest in the northern hemisphere, resulting in a slightly moister, cooler climate. During this Neoglacial, a resurgence of alpine glacial activity occurred in the North American Cordillera shortly before about 5 kya (Pielou 1991; Wood and Smith 2004).

Glacial landforms in the southern Sangre de Cristo Mountains record Neoglacially initiated terrestrial phenomena. At Lake Katherine, on the east side of the Santa Fe Range, a large lateral moraine has been geochronologically dated to ca. 3.9 kya, indicating glacial advance initiated by cooler neoglacial temperatures (Armour et al. 2002). Likewise, charcoal input analysis of sediment cores from three lakes in the southern San Juan Mountains indicate an abrupt decrease in fire frequency occurring after about 5 kya (Anderson et al. 2008). At Chihuahuenos Bog in the Jemez Mountains, elemental lead and isotopic carbon signatures from sediment cores indicate enhanced carbon content corresponding to increasing vegetation growth beginning about 6 kya, steadily increasing until about 3 kya and reflecting cooler temperatures and increases in effective moisture. Also, lead concentrations in the sediment column, because of enhanced eolian reworking of volcanic deposits and subsequent deposition of lead, showed a steady decrease over the same interval (Cisneros-Dozal et al. 2010).

Castiglia and Fawcett (2006) recorded Neoglacial period development of beach ridges dating to about 4.8 kya at playa basins Laguna El Fresnal and Laguna Santa Maria near the northern Mexico/southern New Mexico borderlands. Speleoclimatology data from caves in the Guadalupe Mountains also provide correlative proxies of increased effective rainfall during the mid-Holocene. Again, the contemporaneous formation of constructional playa beach ridges ca. 4.8-4.2 kya coincident with playa lake level highstands in the northern Chihuahuan Desert provides corroborative evidence for a mesic interval during the Neoglacial (Castiglia and Fawcett, 2006).

Researchers have recorded magnetic susceptibility variations occurring about 4.4 kya in Hall's Cave sediments (Edwards Plateau), linking them to a North American Neoglacial period (Ellwood and Gose 2006). Goodfriend and Ellis (2000) in a study of stable carbon isotopes from gastropod shells recovered from Hinds Cave, on the southern High Plains, have recorded a period of progressively moister conditions dating to the onset of the Neoglacial.

Asmerom et al. (2007) have recorded low, stable, oxygen isotope signatures, which are indicative of Neoglacial pluvial conditions and correspond to increased speleothem development during moist climate conditions. These pluvial conditions, based on more recent speleothem growth data, were generally similar to the climate during the recent Holocene; that is, lengthy intervals of somewhat more mesic, then less mesic conditions, with intervals of true drought. The middle Holocene pluvial, beginning about 7 kya, continued until about 4.6kya. This period was followed by a 1300-year period of decreased effective annual precipitation. By about 3.3 kya, somewhat more pluvial conditions returned to the Guadalupe Mountains vicinity, lasting for another 200 years. Decreased moisture and more arid conditions prevailed again for about 300 years. Pluviality returned about 2.8 kya and lasted for half a millennium, followed by the onset of aridity beginning about 340 BC. This drier interval, according to speleothem data, lasted until about 10 BC (Asmerom et al. 2007).

At this point, there are several dendrochronologies applicable to the project area. The El Malpais Douglas fir chronology begins at 136 BC. The Echo Amphitheater Douglas fir chronology begins at AD 1362. Two chronologies from the Sangre de Cristo Mountains are the Hermit Lake, Colorado Rocky Mountain bristlecone pine (AD 1048) and the El Valle, New Mexico ponderosa pine (AD 1708) chronologies. The Glorieta Mesa chronology is from a Colorado piñon pine on the south side of the Pecos

River from the southern tip of the Sangre de Cristo Mountains. It begins in AD 1556. The Sandia Crest big cone Douglas fir chronology from the Sandia Mountains begins in AD 1735. Two chronologies from old bristlecone pine trees in the Colorado Front Range include the Mt. Goliath chronology, which begins at AD 525, and the Almagre Mountain chronology, which begins at AD 560. One chronology from the San Juan Mountains at the edge of the Four Corners region is referenced and an Engelmann spruce record from Red Mountain Pass begins in AD 1626. Many other dendrochronology and dendroclimatology records are available (Polyak and Asmerom 2001; Betancourt et al. 1990; Grissino-Mayer et al. 1990, 1996; Dean et al. 1985; Poore et al. 2005; Grissino-Mayer 1992; Graybill 1984, 1983; Schweingruber 1983).

The final decades of the 340–310 BC xeric interval are revealed in the dendrochronology record from the El Malpais Long Chronology, where its effects seem to persist for several decades beyond 10 BC (Grissino-Mayer 1996a). Another pluvial record appears in the speleothem growth data during the first decade AD and persisting until about AD 265. This period is also reflected in the El Malpais chronology, as is the xeric period that follows; the stalactite record shows it continuing until about AD 470. The tree ring chronology indicates the period of drought between about AD 250 and 500 having been punctuated by brief pluvial intervals several years in duration, with most decades being severe. This dry period is also apparent in the sediment core record from the Gulf of Mexico (Poore et al. 2005).

One notable period of reduced tree-ring growth is apparent in the El Malpais record which is not reflected in the stalactite record, either because of small-scale regional climate variations or because the events affecting tree-ring growth did not affect speleothems. The years between AD 536 and 543, 560 and 570, and 577 and 585 show tree growth as being markedly reduced at El Malpais. Tree-ring chronologies from three old tree sites in Colorado (Almagre Mountain 1 and 2; Mt. Goliath) also indicate a period of greatly reduced growth spanning three to four decades during the same period (Lamarche and Harlan 1968; Graybill 1983). Historic accounts and dendroclimatic evidence from Europe also indicate a major climate event at about AD 536 that inhibited vegetative growth. Baillie (1994) has referred to the event as a “dust veil” thought to have been the result of a major volcanic eruption or the collision of a cosmic object with Earth (Larson et al. 2008) at that time.

The so-called “Ancestral Puebloan Drought” may be evident in the stalagmite record as a period of reduced speleothem development occurring between AD 1047 and 1180. This somewhat xeric interval also shows up in the Long Chronology from El Malpais, the Mt. Goliath and Almagre Mountain records, and in a bristlecone pine record from the southern Colorado Sangre de Cristo Mountains. The tree-ring records indicate that this drought period intermittently was punctuated by several multiyear pluvial periods. Another lengthy xeric period with pluvial intermissions occurred ca. early- to mid-fifteenth century, according to El Malpais, Echo Amphitheater, Almagre Mountain, Mt. Goliath, and the Sangre de Cristo bristlecone dendrochronology records; Gulf of Mexico sediment cores; and stalagmite annular growth data (Poore et al. 2005; Grissino-Mayer 1996a).

Also evident in the Gulf of Mexico sediment cores and in many dendroclimatology records is a drought between about AD 1660 and 1670 that contributed to the abandonment of the Salinas pueblos and the Pueblo Revolt of 1680. The Douglas fir record from Echo Amphitheater indicates late-sixteenth-seventeenth century droughts between 1558 and 1594 and 1657 and 1688. An Engelmann spruce record from near Durango, Colorado, indicates a severe drought between 1626 and 1689. The tree-ring record from Almagre Mountain shows even more serious episodes of drought between 1437 and 1509, 1599 and 1620, and 1640 and 1681 (DeMenocal 2001; Dean et al. 1985; Poore et al. 2005; Grissino-Mayer 1992; Graybill 1984, 1983).

Major historic-period xeric climate episodes that are visible in many dendroclimatology records and in the Gulf of Mexico sediment core records include mid-eighteenth century episodic droughts and a mid-twentieth century interval of significant drought that have also been documented in dendroclimate studies conducted in northern Mexico by Cleaveland et al. (2006) and Villanueva et al. (2006). The eighteenth-century drought episodes were implicated in mass livestock die-offs, river desiccation, and cultural abandonment events that were recorded in northern Mexico, and what is now Texas, by Spanish colonial settlers and religious officials.

The AD 1950–1960 drought, as indicated by tree-ring growth patterns, had disastrous effects in the trans-Pecos and borderlands regions (Cleaveland et al. 2006; Holden 1928; Villanueva et al. 2006) and probably across much of New Mexico. The Douglas fir record from Echo Amphitheater indicates a two-decade drought lasting from 1948 until 1968. Similarly, the El Valle Ponderosa pine dendro record indicates a 22-year dry spell from 1947 to 1969, while the Colorado piñon record from Glorieta Mesa shows a 20-year xeric period between 1950 and 1971. At Sandia Crest, a 16-year dry period began in 1954.

Major pluvial periods with implications for human occupation and adaptation in the Rio Grande Valley and southern Rocky Mountains are also documented through dendroclimatology research and may be correlated with the Gulf of Mexico sediment cores and, to a lesser extent, with the speleothem-stable isotope research. However, a lag time between the appearance of a pluvial period in annular tree rings and its appearance in the annular rings of stalactites is apparent, possibly because of the time differential between the onset of a pluvial event, rainfall absorption in the ground, its dissolution of calcium carbonate, and the process of mineral deposition and resolution on the speleothems.

Based on Gulf of Mexico sediment cores and abundance of *G. sacculifer* forams, relative absence of packrat middens, and annular tree-ring growth, major pluvial events of multi-decadal duration occurred during the late second to mid-third century AD, late sixth to mid-seventh century AD, early to mid-eleventh century AD, and from AD 1825 to 1900. This last event may have reached its maximum peak around the turn of the nineteenth to twentieth centuries; monsoonal indicators from the Gulf-sediment core records suggest that it was the strongest pluvial period since the late fifteenth century (Poore et al. 2005). Scurlock (1998b) has compiled documentation of 13 moderate to major floods (flow rates of 10,000 cubic feet per second or more) between 1890 and 1911. Tree-ring records from El Malpais, Echo Amphitheater, El Valle, Sandia Crest, Glorieta Mesa, Almagre Mountain, and Mt. Goliath all indicate a pluvial period that began about 1890–1900 and continued at least through the first decade of the twentieth century (DeMenocal 2001; Dean et al. 1985; Poore et al. 2005; Grissino-Mayer 1992; Graybill 1984, 1983; Schweingruber 1983).

Modern Biotic Zones and Vegetation

The USDA Forest Service Ecological Classification and Mapping Task Team (ECOMAP) was formed to provide forest managers with basic classification tools to assist in defining, mapping, and describing parcels of environment with increasingly uniform ecological potentials:

> Ecological types are classified and ecological units are mapped based on associations of those biotic and environmental factors that directly affect or indirectly express energy, moisture, and nutrient gradients, which regulate the structure and function of ecosystems. These factors include climate, physiography, water, soils, air, hydrology, and potential natural communities. (McNab and Avers 1994)

Under this classification system, the Española and adjacent basins of the Rio Grande Rift Zone are classified as the Northern Rio Grande Basin. The Sangre de Cristo Mountains, Jemez Mountains, and adjacent highland areas of the Española Basin that form the eastern region of this zone fall under the Southern Parks and Rocky Mountain Ranges section (McNab and Avers 1994).

According to the Biotic Information System of New Mexico, there are 302 species of insect, 37 species of arachnid, 37 species of mollusk, 95 species of mammal, 285 bird species, 13 amphibian species, 38 reptile species, and 33 species of fish residing in the Northern Española Basin and associated highland areas (Biota Information System of New Mexico 2012). Too numerous to elucidate individually, a few of these *animalia* are briefly discussed in the following sections.

The North American biome classification (Brown et al. 1994) is hierarchically ecosystem-based, after Merriam's life-zone concept (1898), though also in accord with the geography-based system of North American biotic provinces used by the ECOMAP system. Biomes, or biotic communities, are described by distinctive vegetation patterns occurring within a larger area. The boundaries of biomes are defined by elements of the environment that are closely linked to climate, that in part are determined by climate and also influence the climate, e.g., slope exposure, elevation, soil porosity, longitude, solar exposure, and much more. Combinations of these factors contribute to biodiversity, occasionally resulting in multiple biomes (Brown et al. 1994).

The Northern Rio Grande ecological section is an arid to semi-arid biotic province that encompasses the floodplain and lowland areas flanking the Rio Grande, Rio Chama, and Rio Ojo Caliente floodplains and surrounding bajadas. The most prominent and prolific biotic communities immediately adjacent to and upland of the river basins include the riverine riparian zone, Plains and Great Basin Grassland, and Great Basin Desert Scrub, which, in the vicinity of the Española Basin, occupy elevations from about 1,700 to 2,100 m (5577 to 6890 ft) above mean sea level. This biotic community is situated primarily on high, level plains, in valleys, and on hillsides, ridges, and mesas that are predominately flat or low-angle and open (The Nature Conservancy 2010; Brown et al. 1994).

Riparian species that are wholly integrated to the riverine and wetland areas include willow (*Salix* sp.), cattail (*Tyfa* sp.), cottonwood (*Populus* sp.), Littleleaf sumac (*Rhus microphylla*), Apache plume (*Fallugia paradoxa*), Skunkbrush (*Rhus trilobata*), Rabbitbrush (*Chrysothamnus sp*.), and Hackberry (*Celtis* sp.). Russian olive (*Elaeagnus angustifolia*) and Salt cedar (*Tamarix* sp.) are common invasive species (Dick-Peddie 1993). Faunal species dependent on the Rio Grande Basin riparian areas include the American beaver (*Castor canandensis*). The American mink (*Neovison vison*) has been exterminated from the region. The River otter (*Lontra canadensis*) was recently re-introduced to the northern Española Basin, when, in the spring of 2010, 23 specimens were released in the Rio Grande (http://amigosbravos.org/river_otter.php 2012). The Common muskrat (*Ondatra zibethicus*) is reported to live in the Rio Grande Basin. Among raptors, the Osprey (*Pandion haliaetus*) and the Bald eagle (*Haliaeetus leucocephalus*) are dependent upon, and most frequently encountered in the vicinity of permanent water sources. Fish, on which the raptors may be dependent, include various species of carp, catfish, bluegill, chub, crappie, dace, killifish, perch, pike, kokanee, sucker, trout, and walleye (Biota Information System of New Mexico 2011).

The dominant vegetation species characteristic of the Plains and Great Basin Grassland are mixed or short grass communities, although the vegetative makeup has, in certain areas, been drastically altered because of overgrazing and fire suppression. Principal components of the biotic community are various types of Grama grasses (*Bouteloua* sp.) and Buffalograss (*Buchloe dachtyloides*), with Galleta grass (*Hilaria jamesii*), Indian ricegrass (Oryopsis hymenoides), Prairie junegrass (*Koileria cristata*), Plains lovegrass (*Eragrostis intermedia*), Wolftail (*Lycurus plleoides*), and Alkali sacaton (*Sporabolus airoides*).

Shrub species of potential economic importance may include Littleleaf sumac (*Rhus microphylla*), Honey mesquite (*Prosopis glandulosa*), four-winged saltbush (*Atriplex canescens)*, Banana yucca (*Yucca baccata*), and various types of cacti including Club cholla (*Opuntia clavata*), prickly pear (*Opuntia* sp.), and hedgehog (*Echinocereus* sp.). Other common shrub species include chamisa (*Chrysothamnus* sp.) and sagebrush (*Artemisia* sp.). Grassland species occasionally intermingle with desert scrub species, especially in areas where overgrazing and consequent deflation and erosion have taken a toll on the vitality of grassland species and allowed disclimax shrub species such as one-seed juniper (*Juniperus monosperma*) and mesquite (*Prosopis* sp.) to attain codominance. In turn, this trend has impacted the viability of grassland-adapted animal species (Briggs et al. 2006; Fredrickson et al. 2005; Allen et al. 2003; Havstad and Beck 1995; Brown et al. 1994; Bowers and Wignall 1993; USDA Natural Resource Conservation Service 2010; Carter 1997; Native American Ethnobotany 1993).

Great Basin Desert Scrub occupies upland areas, canyons, and valleys adjacent to the waterways at the northern end of the Española Basin. Dominant plants include sagebrush (*Artemisia* sp.), four-winged saltbush (*Atriplex canescens),* shadscale (*Atriplex* sp.), winterfat (*Ceratoides lanata*), greasewood (*Sarcobatus vermiculatus*), and rabbitbrush. Cacti include species of cholla, prickly pear, and hedgehog. Grama and Galleta are two types of grasses that inhabit the southern portion of this biome (Brown et al. 1994).

The upper reaches of the Great Basin Desert Scrub and Plains and Great Basin Grassland biomes are more topographically variable than most of the valley floor and receive more rainfall. They may have a greater variety in vegetation, enabling some plant species to become established in microhabitat ecotones (Brown et al. 1994; Neilson 1987). These upslope areas can host an increasing abundance and variety of scrub community plants, including leaf and stem succulents, cacti, and large woody shrubs.

The upper range of elevation of the Plains and Great Basin Grassland and Desert Scrub biome usually interfaces with the lower range of the Great Basin Conifer Woodland biome, forming savanna- and park-like landscapes with shrub and grass understories. Great Basin Conifer Woodlands are the dominant woodland biome between about 2,100 m and 2,500 m (6890 and 8200 feet), characterized by *Pinus edulis-Juniperus monosperma* (piñon-juniper) forests. Subdominant shrub species include Cliffrose (*Cowania mexicana*), Apache plume (*Fallugia paradoxa*), Barberry or algerita (*Berberis fremonti* and *B. haematocarpa*), and Fourwing saltbush (*Atriplex canescens*). Species of potential economic importance are piñon, Red raspberry (*Rubus idaeus*), Western chokecherry (*Prunus virginiana*), Skunkbrush (*Rhus aromatica*), Oregon grape (*Mahonia repens*), White snowberry (*Symphoricarpos albus*), and New Mexico locust (*Robinia neomexicana*) (USDA-NRCS plants database 2010; Native American Ethnobotany 2003). The higher elevation range for this biome receives more precipitation, particularly as snowfall; hence, these woodland species are more mesically adapted.

At the upper reaches of the Great Basin Conifer Woodland biome, the piñon-juniper forests interface with Ponderosa pine (*Pinus ponderosa*), Gambel oak (*Quercus gambelii*), and New Mexico locust (*Robinia neomexicana*) that inhabit the lower tier of the Rocky Mountain Montane Forest. This evergreen-dominated biome extends to elevations of almost 3,050 m (9,532 feet) on slopes with a southerly aspect; Douglas fir (*Pseudotsuga menziesii*), White fir (*Abies concolor*), Limber pine (*Pinus flexilis*), and Aspen (*Populus tremuloides*) inhabit the upper reaches, where Ponderosa pine does not thrive. In the Ponderosa-dominated lower tier of the Rocky Mountain Montane Forest, understory plants of potential economic importance include Gambel oak, various types of currant and gooseberry (*Ribes* sp.), blue and velvet Elderberry (*Sambucus* sp.), Smooth sumac (*Rhus glabra*), Dandelion (*Taraxacum officinalis*) and wild Strawberry (*Fragaria ovalis*) (USDA-NRCS plants database 2011; Native American Ethnobotany 2003).

Rocky Mountain or Petran Subalpine Conifer Forests inhabit elevations as low as 2,450 m (8,036 ft) in colder, moister sites such as steep canyons with northerly aspects; the upper reaches extend to timberline at about 3,500 to 3,800 m (11,480 to 12,464 ft), depending on latitude. The dominant tree species are the Engelmann spruce (*Picea engelmanni*) and Subalpine fir (*Abies lasiocarpa*) in northern ranges or, in the most southerly ranges, Corkbark fir (*Abies lasiocarpa* var. *arizonica*). The subalpine forests can receive more than 1 m (3.3 feet) of precipitation annually. The growing season is typically less than 75 days; late season and early season frosts are not uncommon. At lower elevations, aspen sometimes colonize disturbed areas, especially fire burn areas, where Colorado blue spruce (*Picea pungens*) sometimes co-inhabits with Aspen and Engelmann spruce. Other deciduous trees may be present in more sheltered, wetter areas, including Rocky Mountain maple (*Acer glabrum*), Bebb and Scouler willow (*Salix* sp.), and Bitter cherry (*Prunus emarginata*). Lower elevations within the subalpine conifer biome may support Douglas-fir (*Pseudotsuga menziesii*), White fir (*Abies concolor*), and even upslope pioneering individuals of Ponderosa pine, making delineation of the lower range of subalpine growth indistinct. Economically useful species of understory shrubs sometimes live in natural openings and marginal areas of the subalpine forest where more sunlight filters through. These species may include Oregon grape, Red elderberry, currants, raspberries, snowberries, blueberry, snowberry, and Kinnikinnick (*Arctostaphylos uvaursi*). Flowering herbaceous species are more abundant in aspen stands, while mosses, lichens, fungi, liverworts, and sedges inhabit the evergreen understory (Brown et al. 1994; USDA-NRCS plants database 2010; Native American Ethnobotany 2003).

Mammals of the Plains and Great Basin Grassland and Rocky Mountain or Petran Montane Conifer forest include three species of Myotis bat (*Myotis* sp.) and big brown bat (*Eptesicus fuscus*). Several species of shrew (*Sorex sp.*) reside there, including the vagrant, dwarf, and Merriam shrews. Squirrel denizens include the Chickaree (*Tamiasciurus hudsonicus*) and tassel-eared or Abert's squirrel (*Sciurus aberti*). Porcupine (*Erithizum dorsatum*) makes its home in the Ponderosa pine forest; its life cycle is closely tied to the life cycle of the Ponderosa. At least four species of chipmunk (*Eutamius* sp.), three species of vole (*Microtus* sp.), and two species of cottontail rabbit (*Sylvilagus* sp.) live in the Rocky Mountain or Petran conifer forests. Also present in some regions are the golden-mantled ground squirrel (*Citellus lateralis*), Deer mouse (*Peromyscus maniculatus*), and *Neotoma mexicana*, the Mexican woodrat. The long-tailed weasel (*Mustela frenata*), ermine (*Mustela erminea muricus*), and American marten (*Martes americana origenes*) are three species of the family *Mustelidae* (weasel) living in the forest. Ermine is listed as a species of concern, while the Marten is a threatened species in New Mexico (Biota Information System of New Mexico 2012; Brown et al. 1994). Mule deer (*Odocoileus hemionus*), white-tailed deer (*Odocoileus* sp.), and Rocky Mountain elk (*Cervus canadensis*) are three of four ungulates living in the region. Extinct is the Merriam elk, as is the gray wolf (*Canis lupus*). Its distant cousin, coyote (*Canis latrans*) continues to thrive in the area (Fig. 2.3), as does the American badger (*Taxidea taxus berlandieri*) and Common gray fox (*Urocyon cinereoargenteus*).

Raptor species include the Goshawk (*Accipiter gentilis*), flammulated (*Otus flammeolus*), pygmy (*Glaucidium gnoma*), spotted (*Strix occidentais*), and saw-whet owls (*Aegolius acadicus*). The broad-winged (*Bueto sp.*), Cooper's (*Accipiter cooperi*), ferruginous (*Buteo regalis*), sharp-shinned (*Accipiter striatus*), and numerous other species of hawk sometimes frequent the Rocky Mountain or Petran Montane Conifer forest areas of northern New Mexico. *Corvidae (*jays and allies*)* include blue (*Cyanocitta cristata*), gray (*Cerisoreus canadensis*), stellar (*Cynanocita stelleri*), piñon (*Gymnorhinus cyanocephala*), and western scrub jays (*Aphelocoma coerulescens*), the common raven (*Corvus corax*) and American crow (*Corvus brachyrhynchos*). *Galliformes* include blue grouse (*Dendragapus obscurus*) and wild turkey (*Meleagris gallopavo*).

Amphibians in the regional Evergreen Montane Forest are limited to the Jemez (Plethodon newmexicanus) and tiger (*Ambystoma tigrihum*) salamanders, and various frogs and toads. Lower elevations of this biome have numerous subspecies of Western rattlesnake and other snakes and lizards (Biota Information System of New Mexico 2012).

Above 3,500 m (11,500 feet) in the Jemez and Sangre de Cristo Mountains thrives the Alpine Tundra biome. Low-growing lichens, mosses, and vascular plants inhabit this biome. Woody species include alpine wetland willows (*Salix* sp.) and the grass-like *Carex* (sp.). Other grassy plants include alpine fescue (*Festuca ovina*), and various species of bluegrass (*Poa* sp.). Mat and cushion forbs are common, such as golden avens, yarrow, starworts (*Stellaria* sp.), saxifrages (*Saxifraga* sp.), clovers (*Trifolium* sp.), rock jasmine (*Androsace* sp.), and bluebell (*Campanula rotundifolia*). At the lowest reaches of the Alpine Tundra biome, a gnarled, prostrate coniferous shrub known as krummholtz or elfinwood can be encountered. All of these species are specially adapted to very short growing seasons, with a minimal number of frost-free days, which most trees and shrubs cannot survive (Arno 1984; Brown 1994).

Fauna frequenting the alpine zone include Rocky Mountain bighorn (*Ovies canandensis*), a species once exterminated here by infectious disease transmitted from domestic sheep and by overhunting. It has been successfully reintroduced and is now thriving. Rocky Mountain elk (*Cervus canadensis*) sometimes frequent the alpine in the summer and are frequently observed on persistent snowfields during the summer months. The Rock pika (*Ochotona princeps*) is a small rodent resembling a Guinea pig that is one of the few mammals residing year-round in the alpine zone. In many areas, increasingly warm temperatures in the alpine biome now threaten this cold-adapted mammal. Yellow-bellied marmot (*Marmota flaviventris*), shrews (*Sorex* sp.), and the northern pocket gopher (*Thomomys talpoides*) are also year-round denizens of the alpine biome.

White-tailed ptarmigan (*Lagopus leucurus*) is a grouse adapted to alpine tundra conditions. Its feet are feathered for warmth and snow buoyancy. The plumage turns white in winter and mottled grayish-brown in summer, providing seasonal camouflage. This bird is extremely difficult to spot in its habitat. It is one of the few birds breeding and wintering above timberline. Birds that nest in the alpine zone include water pipit (*Anthus spinoletta*), white-crowned sparrow (*Zonotrichia leucophrys*), broad-tailed hummingbird (*Selasphorus platycercus*), brown-capped rosy finch (*Leucosticte australis*), and horned lark (*Eremophila alpestris*).

Figure 2.1. The project area.

Figure 2.2. Overview of the Santa Fe area.

Figure 2.3. Coyote spotted in a nearby Santa Fe residential area.

Chapter 3

Cultural Overview

Matthew J. Barbour

This cultural overview is adapted from several reports on several nearby archaeological projects conducted by the OAS in recent years. The prehistoric context is derived from the results of archaeological data recovery efforts at the Santa Fe Judicial Complex (Lakatos 2011). Much of the historic section incorporated data first synthesized by Maxwell and Post (1992:12–20) during a study of the Old Pecos Trail and is complemented with a more in-depth look at early twentieth-century Santa Fe by Barbour (2012a:9–30) during a previous study of the Capitol Complex Historic Neighborhood.

Prehistoric Period Overview (9500 BC–AD 1600)

Two general developmental/chronological frameworks are commonly used to order and classify archaeological sites and materials in the Northern Rio Grande region. One is the Pecos Classification (Kidder 1924; see Cordell 1984:55–59); the other is what Peckham (1984) referred to as the Rio Grande Classification, which was developed by Wendorf (1954) and Wendorf and Reed (1955). Although several other frameworks have been presented for specific sub-regions and to refine various temporal phases (e.g., Dickson 1979; McNutt 1969; Wetherington 1968), this study follows the Rio Grande Classification.

The Rio Grande chronological framework, as defined by Wendorf and Reed (1955), begins with a pre-ceramic period, which includes occupations dating from the Paleoindian period (ca. 9500 BC) through the end of the Archaic period (ca. AD 400–600). The beginning of the Pueblo period is identified by the appearance of corn, pottery, and regularly patterned pit structures. The Pueblo sequence chronology spans the years from AD 600 to 1600 and is sub-divided into the Developmental (AD 600–1200), Coalition (AD 1200–1325), and Classic (AD 1325–1600) periods.

The Developmental period in the Northern Rio Grande spans between AD 600 and 1200. This period is further subdivided into the early Developmental (AD 600 to 900) and late Developmental (AD 900 to 1200) phases. The early Developmental corresponds temporally with the Basketmaker III and Pueblo I periods of the Pecos Classification, and the late Developmental with the Pueblo II and early Pueblo III periods of the Pecos Classification. The Coalition (AD 1200– 1325) period follows the Developmental period and corresponds with the late Pueblo III period. The subsequent Classic period (AD 1325–1600) and historic (post-contact) period AD (1600–1912) are associated with the Pueblo IV and Pueblo V Pecos periods, respectively.

Paleoindian Period (9500–6000 BC)

The earliest well-defined occupation of the American Southwest was by mobile big-game hunters referred to collectively as Paleoindians. Evidence of Paleoindian occupation in the Northern Rio Grande region is rare and typically consists of diagnostic projectile points and butchering tools found on the modern ground surface or in deflated settings (Acklen et al. 1990). More recently, two Clovis period components have been reported in the Jemez Mountains (Evaskovich et al. 1997; Turnbow 1997), and late Paleoindian material has been reported along the eastern flank of the Rio Grande west of Santa Fe (Dello-Russo 2010). Data recovery at one Clovis period component identified two medial Clovis point fragments associated with a single thermal feature and tool manufacture debitage (Evaskovich et al. 1997). Identification of Paleoindian occupations within a montane setting may suggest a seasonal subsistence adaptation from a focus on lowland resources in the winter and to a highland adaptation in the summer or, perhaps, a response at the time to drier environmental conditions in lowland settings. An increased focus on hunting smaller game and gathering wild plants compared to previous periods may also reflect changes in climate toward the end of the Paleoindian period (Haynes 1980; Wilmsen 1974).

The paucity of reported Paleoindian remains around Santa Fe may be attributed to low visibility of these remains rather than a lack of occupation. Paleoindian remains may be masked by later Archaic and Puebloan occupations. Poor visibility of these remains may also be attributed to geomorphological factors. Surfaces or strata containing Paleoindian remains may be deeply buried and only visible in settings where these geological deposits are exposed (Cordell 1979), or those strata may have eroded away. Finally, given the land-use patterns in the area over the last 400 years, it is no surprise that Paleoindian sites have not been reported in the Santa Fe area.

Archaic Period (6000 BC–AD 600)

The term Archaic applies to the broad-spectrum hunting and foraging populations exploiting the local topography and wild food sources. Most Archaic sites in the region date from the Bajada phase (4800 to 3200 BC) to the En Medio phase (800 BC to AD 400), identified by distinctive projectile point types, scrapers, knives, and grinding stones. However, relatively few Early and Middle Archaic period sites have been identified. Most have been reported from along the Santa Fe River and its primary tributaries south of town (Post 2001, 2010) and from the piedmont northwest of town (Lakatos et al. 2001). These occupations were represented by a variety of thermal features, shallow house depressions, and scattered lithic, ground stone, and fire-cracked rock artifacts. The variety of feature types combined with evidence for dwellings and patterned artifact distributions indicates the annual reoccupation of favorable camp locations adjacent to a range of subsistence resources during this time (Post 2008).

Consistent with the broader regional data, evidence implies an increase in occupation of the Santa Fe area during the Late Archaic period (Acklen et al. 1990; Lang 1997a; Post 1996, 2001, 2010). This increase in occurrences may be attributed to changes in settlement and subsistence patterns identified during the Armijo phase (1800 to 800 BC; Irwin-Williams 1973). Settlement changes include evidence of seasonal aggregation, longer periods of occupation, and the exploitation of a broader range of environmental settings, while changes in subsistence practices include the adoption of horticulture, identified at a limited number of sites south of La Bajada Mesa around the Albuquerque area. In the Santa Fe area, Armijo-phase sites have been identified in the piedmont and along the Santa Fe River (Post 1996; Schmader 1994). These sites range from small foraging camps to larger base camps with shallow structures. Radiocarbon dates, obtained from thermal features, suggest these sites were occupied between 1750 and 900 cal BC (Post 1996; Lakatos et al. 2001; Schmader 1994).

En Medio phase (800 BC to AD 400) sites are the most numerous Archaic-period sites reported in the Santa Fe area. These sites are found in riverine, piedmont, foothill, and montane settings (Acklen et al. 1990; Kennedy 1998; Post 1996, 1999, 2010; Schmader 1994). En Medio phase sites range from isolated occurrences to limited-activity sites to base camps with well-defined structures, intramural and extramural features, and patterned artifact distributions. Increased diversity in settlement patterns and site types suggest population increase, longer or reduced time between occupations, and truncated foraging range.

Although many of these sites contained structures, formal features, and grinding implements, evidence of horticulture was absent. Excavation of En Medio sites from the Las Campanas project (Post 1996) recovered diagnostic projectile point types with dates that range between AD 500 and 850 (Irwin-Williams 1973; Thoms 1977). This temporal observation and the paucity of sites with evidence of horticulture indicate that Archaic subsistence strategies (generalized foraging) may have extended into the early or middle AD 900s north of La Bajada (Dickson 1979; McNutt 1969; Post 1996). No Archaic period sites are found in the immediate vicinity of the project area.

Early Developmental Period (AD 600–900)

Most reported early Developmental sites are south of La Bajada Mesa, primarily in the Albuquerque area, with a few reported at higher elevations along the Tesuque, Nambe, and Santa Fe River drainages (Peckham 1984; Skinner et al. 1980; Wendorf and Reed 1955). Pueblo sites dating prior to AD 900 are relatively rare in the Santa Fe area; after that date, Pueblo occupations became increasingly more numerous. These occupations are typically represented by limited-activity areas and small residential settlements situated along low terraces overlooking primary and secondary tributaries of the Rio Grande. These locations may have been chosen for their access to water and arable farming land (Cordell 1979). Terrace locations may also have provided access to environmental zones with a wide range of foraging resources (Anschuetz et al. 1997).

Early Developmental residential sites typically consisted of one to three shallow, circular pit structures with little or no evidence of associated surface structures (Allen and McNutt 1955; Peckham 1954, 1957; Stuart and Gauthier 1981). Excavation data indicate a suite of construction characteristics for these early structures. Typically, structures were excavated up to 1 m below ground surface and were commonly 3 to 5 m in diameter. Walls were sometimes reinforced with vertical poles and adobe (Lakatos 2006). Walls, floors, and internal features commonly lacked plaster. Ventilators were commonly located along the east to southeast wall of the structures. Common floor features included central hearths, ash-filled pits, deflectors, ladder sockets, and four postholes. Less common floor features included sipapus, warming pits, and pot rests, as well as subfloor pits of various sizes and depths (Allen and McNutt 1955; Hammack et al. 1983; Peckham 1957).

Ceramics associated with early Developmental sites include plain gray and brown wares, red-slipped brown wares, and San Marcial Black-on-white (Allen and McNutt 1955). These types persist through the early Developmental phase, with the addition of neck-banded types similar to Alma Neckbanded, Kana'a Gray, Kiatuthlanna Black-on-white, La Plata Black-on-red, and Abajo Red-on-orange through time (Wendorf and Reed 1955). The accumulation of pottery types and surface textures over time, as opposed to sequential replacement of types and textures over time, appears to be characteristic in the Rio Grande region during the Developmental period (Wilson 2003). Decorated pottery at early Developmental period sites may suggest cultural affiliation with people to the west and northwest. However, early Developmental assemblages also contain red and brown pottery, suggesting interaction with Mogollon populations to the south and southwest (Cordell 1979). Although cultural affiliations may seem more secure in assemblages clearly dominated by specific ware groups, cultural affiliations are difficult to determine at early Developmental sites that are only dominated by various frequencies of gray, brown, and white wares.

Late Developmental Period (AD 900–1200)

Late Developmental sites have been identified from the Albuquerque area to the Taos Valley. This period is marked by an increase in the number and size of residential sites, habitation of a broader range of environmental settings, and the appearance of Kwahe'e Black-on-white ceramics (Cordell 1979; Mera 1935; Peckham 1984; Wendorf and Reed 1955; Wetherington 1968). Late Developmental populations expanded into higher elevations, settling along the northern Rio Grande, Tesuque, Nambe, and Santa Fe River drainages (C. D. Allen 2004; Ellis 1975; McNutt 1969; Peckham 1984; Skinner et al. 1980; Wendorf and Reed 1955). Commonly located along low terraces overlooking primary and secondary tributaries of these rivers, these locations provided access to water, arable farming land (Cordell 1979), and a variety of foraging resources (Anschuetz et al. 1997). Although late Developmental sites are more common at higher elevations than early Developmental sites, there is little evidence for late Developmental occupation of the Pajarito Plateau (Kohler 1990; Orcutt 1991).

Reported late Developmental period sites typically consist of a residential unit comprising one to two pit structures, sometimes associated with a surface structure having 5 to 20 rooms, and a shallow midden (Ellis 1975; Peckham 1984; Stubbs 1954; Stuart and Gauthier 1981; Wendorf and Reed 1955).

These residential sites occur as single units or in clusters of units referred to as communities (Anschuetz et al. 1997; Wendorf and Reed 1955).

Surface structures were commonly constructed of adobe, with some rock incorporated into the adobe walls or upright slabs used as wall foundations or footers (McNutt 1969; Stubbs 1954). Walls were constructed with multiple courses of adobe, with or without rock, wattle and daub (jacal), or combinations of these techniques. Contiguous rectangular rooms often lacked floor or wall features, and floors were unplastered, with a few reported examples of adobe, cobble, or slab floors. Sub-rectangular and D-shaped rooms have also been reported but were apparently less common (Ahlstrom 1985; Boyer and Lakatos 1997; Ellis 1975; McNutt 1969; Stubbs 1954; Skinner et al. 1980).

Variety in size, shape, depth, and construction techniques is typical of late Developmental pit structure construction. Circular pit structures were the most common, followed by sub-rectangular structures. Pit structures ranged from 30 cm to 2 m below ground surface and between 3 and 5 m in diameter. Walls of subsurface structures varied from the unplastered surface of the original pit excavation to construction techniques using multiple courses of adobe, with or without rock, wattle and daub, upright slabs used as foundations, adobe reinforced with vertical poles, or combinations of these techniques (Ahlstrom 1985; Boyer and Lakatos 1997; Allen and McNutt 1955; Lange 1968; Stubbs 1954; Stubbs and Stallings 1953).

Floors ranged from compact use-surfaces to well-prepared adobe surfaces. Common floor features include central hearths, upright "deflector" stones, ash-filled pits, ventilator complexes, ladder sockets, and four postholes located toward the interior of the structure -perhaps functioning as supports for looms. Other, less common floor features include sipapus, subfloor channels, pot rests, and subfloor pits of various sizes and depths. Ventilators were constructed by connecting the exterior vent shaft to the interior of the structure with a tunnel or a narrow trench. This trench was subsequently roofed using latillas, effectively creating a tunnel. Exteriors of shallow structures were connected to the interior through an opening in the wall. Ventilators were commonly oriented to the east and southeast (Boyer and Lakatos 1997; Allen and McNutt 1955; Lange 1968; Stubbs 1954).

Utility ware ceramics associated with late Developmental sites include types with corrugated and incised exteriors in addition to the plain gray, brown, neck-banded and polished/smudged types associated with the early Developmental period. Decorated white wares were both imported and manufactured locally. Common types included Red Mesa Black-on-white, Gallup Black-on-white, Escavada Black-on-white, and Kwahe'e Black-on-white. Less common types included Socorro Black-on-white, Chupadero Black-on-white, Chaco Black-on-white, and Chuska Black-on-white (Allen 1972). Although decorated red wares have been found at late Developmental sites, they are reported in very low frequencies, and appear to have originated from the Upper San Juan, Tusayan, and Cibola regions. Imported ceramic types suggest late Developmental inhabitants obtained limited amounts of pottery from the Mogollon, San Juan Basin, and Upper San Juan regions (Cordell 1979).

An example of a late Developmental site near downtown Santa Fe is the KP site (LA 46300). At this site, Wiseman (1989) identified a single trash-filled and burned structure with a variety of imported and locally produced decorated and utility ware pottery types. Obsidian predominated in the flaked stone assemblage, although local chert types, particularly red jasper, were also reported. The subsistence economy was reflected by a wide variety of plant and animal remains, including corn, squash, bee weed, deer, antelope, and cottontail (Wiseman 1989:139). Tree-ring and two radiocarbon dates indicate that the structure was occupied in the mid to late AD 1000s and that the fill had accumulated in the early AD 1100s.

Coalition Period (AD 1200–1325)

Several researchers assert that the Coalition period was marked by three major changes reflected in the archaeological record: an increase in number and size of residential sites; contiguous surface rooms used more often as domiciles than during previous periods; and a shift from mineral paint to vegetal based paint for decorating pottery (Cordell 1979; Peckham 1984; Stuart and Gauthier 1981; Wendorf and Reed 1955). An increase in the number and size of residential sites during this period suggests population increase and the extension of the village-level community organization typical of the late Developmental period. Although there is an apparent increase in the number of Coalition period sites in upland areas that had limited occupation during the Developmental period, like the Pajarito Plateau, the southern Tewa Basin could be the source of this population. Coalition period sites, whether at higher elevations or in the Tewa Basin, are situated along terraces or mesas overlooking the Rio Grande, Tesuque, Nambe, Santa Fe, and Chama River drainages (Cordell 1979; Dickson 1979). These locations provided access to water, arable farming land, and a variety of foraging resources (Cordell 1979).

Coalition-period residential units typically consisted of one to two pit structures associated with 10 to 20 surface rooms, and a shallow midden (Peckham 1984; Stuart and Gauthier 1981; Wendorf and Reed 1955). Surface structures often consisted of small linear or L-shaped roomblocks oriented north–south. These roomblocks were one or two rooms deep, with a pit structure or kiva incorporated into or east of the roomblock (Kohler 1990; Steen 1978, 1982). Sites that exhibited this layout were generally considered to have dated to an earlier part of the Coalition period. Although most Coalition period sites were relatively small, some are reported to have contained up to 200 ground-floor rooms (Stuart and Gauthier 1981). These larger sites were commonly U-shaped, enclosing a plaza(s) to the east. Generally, large Coalition-period sites with an enclosed plaza(s) are considered to have been a later development (Steen 1977; Stuart and Gauthier 1981).

Various construction techniques have been identified in excavated Coalition-period surface and subsurface structures. The walls of surface and subsurface structures were constructed with adobe, with or without rock, masonry, or combinations of these techniques. On the Pajarito Plateau, adobe construction incorporated unshaped tuff into the adobe walls. Masonry consisted of unshaped or cut tuff block fastened with adobe mortar and sometimes chinked with small tuff fragments (Kohler 1990). Contiguous, rectangular rooms were the most common, with a few reported examples of sub-rectangular and D-shaped rooms (Kohler 1990; Steen 1977, 1982; Steen and Worman 1978).

Variety in size, shape, and depth of pit structure construction was common during the Coalition period. Circular pit structures were most common, followed by sub-rectangular structures. Pit structure depths ranged from 30 cm to 2 m below ground surface and were commonly 3 to 5 m in diameters in size. Walls of pit structures were constructed using the techniques described for surface-room construction. Common floor features include central hearths, "deflector" stones, ash-filled pits, ventilator complexes, and four postholes located toward the interior of the structure. Other, less common floor features include sipapus, entryways, pot rests, and subfloor pits of various sizes and depths. Ventilators were constructed by connecting the exterior vent shaft to the interior of the structure with a tunnel. Exteriors of shallow structures were connected to the interior through an opening in the wall. Ventilators were commonly oriented to the east or southeast (Kohler 1990; Steen 1977, 1982; Steen and Worman 1978; Stuart and Gauthier 1981; Stubbs and Stallings 1953; Wendorf and Reed 1955).

Utility ware ceramics include types with corrugated, smeared corrugated, and plain exteriors. Less common utility ware types include striated, incised, or tooled exteriors. Decorated white wares include Santa Fe Black-on-white, Galisteo Black-on-white, and Wiyo Black-on-white, and very low percentages of Kwahe'e Black-on-white. Few trade wares have been reported from Coalition-period sites compared to sites of previous periods; one that has been found is White Mountain Redware (Kohler 1990; Steen 1977, 1982; Steen and Worman 1978).

The ability to inhabit higher elevations during the Coalition period may have been afforded by changes in precipitation patterns and access to unclaimed farming land. However, innovative methods were needed for producing sufficient crops in these cooler settings (Anschuetz et al. 1997). Intensification of water management and agricultural practices through the use of check dams, reservoirs, and grid gardens, especially during the latter part of this period and during the succeeding Classic period, are examples of this intensification (Anschuetz et al. 1997; Maxwell and Anschuetz 1992).

In the Santa Fe area, large villages, such as the Agua Fria School House ruin (LA 2), LA 109, LA 117, LA 118, and LA 119, were established during the early Coalition period. Other large Coalition sites, such as Pindi (LA 1), Tsogue (LA 742), and Tesuque Valley Ruin (LA 746), appear to have been established during the late Developmental period and to have grown rapidly during the Coalition period (Ahlstrom 1985; Stubbs and Stallings

1953). Near downtown Santa Fe, numerous Coalition-period sites have been recorded. Excavations at the old San Miguel Church site identified deposits dating to the fourteenth and seventeenth centuries (Stubbs and Ellis 1955). Excavations at LA 132712, near the intersection of Guadalupe Street and Johnson Street, had a Coalition component represented by a trash concentration, pits and burials (Scheick 2003). A Coalition-phase pit structure and associated artifacts were found in the west courtyard of the Federal Courthouse (Scheick 2005). Other sites with Coalition or Coalition-Classic period materials in the downtown area include LA 1051 (Lentz and Barbour 2008; Lentz 2011), LA 114261 (Hannaford 1997), LA 930 (Peckham 1977; Post and Snow 1982), LA 120430 (Post et al. 1998), LA 125720 (C. T. Snow 1999), LA 126709 (Viklund 2001), and LA 111 (C. T. Snow and Kammer 1995).

Classic Period (AD 1325–1600)

Wendorf and Reed (1955:53) characterize the Classic period as "a time of general cultural fluorescence." Occupation shifted away from the uplands and began to concentrate along the Rio Grande, Chama, and Santa Cruz Rivers, as well as in Galisteo Basin. Large villages containing multiple plazas and roomblocks were built, and regional populations peaked. The construction of large, multi-plaza communities superseded the village level community organization typical of the late Developmental and early Coalition periods. In the Santa Fe area, large villages, such as the Agua Fria School House ruin (LA 2), Arroyo Hondo (LA 12), Cieneguilla (LA 16), LA 118, LA 119, and Building Period 3 at Pindi (LA 1), flourished during the early part of this period. Although these large villages grew rapidly during the early Classic, only Cieneguilla remained occupied after AD 1425.

Regional ceramic trends included the continued use of carbon-painted pottery, commonly referred to as biscuit wares, in the north, such as the Tewa Basin and Rio Chama Valley; the adoption of glaze wares in southern areas, including the Galisteo Basin; and the production of Jemez Black-on-white in the Jemez Mountains. Along with the development of large aggregated sites, Glaze A, a red-slipped locally manufactured pottery type, was introduced. Although the reasons for the appearance and proliferation of glaze-painted pottery in the area from the Santa Fe River south are ambiguous, many researchers believe it developed from White Mountain Redware. Similarities between types in the two regions are viewed as evidence for large-scale immigration into the Northern Rio Grande from the Zuni region and the San Juan Basin (Mera 1935, 1940; Reed 1949; Stubbs and Stallings 1953; Wendorf and Reed 1955). Other researchers attribute the changes during this period to expanding indigenous populations (Steen 1977) or the arrival of populations from the Jornada branch of the Mogollon in the south (Schaafsma and Schaafsma 1974). For whatever reason, this was a time of village reorganization.

Sites, such as Pindi (LA 1) and Arroyo Hondo (LA 12), experienced reoccupation of older portions of the pueblo during this time (Creamer 1993; Stubbs and Stallings 1953). Intra-community changes are also suggested by decreasing kiva-to-room ratios (Lipe 1989; Stuart and Gauthier 1981) and the revival of circular subterranean pit structures with an assemblage of floor features reminiscent of the late Developmental period (Peckham 1984). More clearly delineated plaza space and "big kivas" (Peckham 1984:280) suggest social organization that required the emphasis of centrally located communal space.

Emphasizing communal space may have been a means to integrate aggregated populations through ceremonial functions. The need to enhance communal space using architectural units may also be related to the introduction of the Katsina Cult into the northern Rio Grande during this time (Schaafsma and Schaafsma 1974). A shift from geometric designs to masked figures and horned serpents in kiva murals (Hayes et al. 1981; Hibben 1975) and the occurrence of shield-bearing anthropomorphic rock art figures (Schaafsma 1992) suggest the acceptance of new ideological concepts. Changes in community structure and settlement patterns during the Classic period may reflect the adaptation to or the adoption of new populations, ideological elements, and organizational systems by indigenous inhabitants.

Few Classic-period sites have been excavated in the immediate vicinity of the project area. One such site is LA 1051, the site of the Santa Fe Community Convention Center (Lentz and Barbour 2008, Lentz 2011). Although excavation data are few, Classic-period structural remains and abundant artifacts have consistently been encountered in the Santa Fe area, suggesting that this temporal component is masked by subsequent land use and development (Deyloff 1998; Drake 1992a, 1992b; Lakatos 2001; Mera 1934; Peckham 1977; Tigges 1990).

Historic Period Overview (AD 1540–Present)

Spanish Contact, Pueblo Revolt, and Reconquest (AD 1540–1692)

The first European contact with the northern Rio Grande Valley occurred in the late winter or early spring of 1541, when a foraging party of Coronado's men set up camp near San Juan Pueblo (Hammond and Rey 1953:244, 259). Having heard of Coronado's earlier plundering farther south, these pueblos were hastily abandoned by their occupants. The Spaniards looted the deserted villages (Ortiz 1979:280; Winship 1896:476).

After the Spanish entradas of the mid- and late-sixteenth century, Native American groups underwent numerous changes in lifestyle, social organization, and religion. The introduction of new crops and livestock contributed to major changes in subsistence, as did mission programs, which taught new industries such as metal smithing and animal husbandry. These were meant to wean the Pueblo people away from traditional ways (Simmons 1979b:181). Incursions by Plains groups also caused the abandonment of many pueblos and a contraction of the region occupied by the Pueblos (Chávez 1979; Schroeder 1979). A combination of new diseases to which the Pueblo people had no natural defenses, intermarriage, conflict attendant with the Pueblo Revolt of AD 1680–1692, and the abandonment of traditional lifestyles all contributed to a significant decrease in Pueblo populations over the next few centuries (Dozier 1970; Eggan 1979).

In 1591 San Juan Pueblo was visited by the Gaspar Castaño de Sosa expedition. Castaño de Sosa erected a cross, received obedience to the King of Spain, and appointed a governor, a mayor, and various other administrators (Schroeder and Matson 1965:121, 129; Lentz 1991:7). With the goals of missionization, territorial expansion, and the acquisition of mineral wealth, the colonizing expedition of Don Juan de Oñate arrived at Ohkay Owingeh (San Juan Pueblo) on July 11, 1598, and proclaimed it the capital of the province. During the winter of 1600–1601 the Spaniards moved across the river to a partially abandoned 400-room pueblo village, which they renamed San Gabriel de los Caballeros. The first Catholic mission church, called San Miguel, was built at the southern end of the village. Soon, New Mexico was divided into seven missionary districts. A Spanish alcalde (magistrate) was appointed for each pueblo, and all were under Oñate's leadership (Spicer 1962:156). In January 1599, in retaliation for the death of Juan de Zaldivar (one of Oñate's two nephews), 70 of Oñate's men attacked Acoma Pueblo. After a three day battle, the Spanish troops prevailed. In retribution, 500 Acoma prisoners over the age of 25 had one foot severed and were sentenced to 20 years of hard labor in the mines of Zacatecas.

The Spanish colony at San Gabriel did not survive the first decade of the seventeenth century. Oñate returned to Mexico in disgrace, and in 1610 the capital was moved from San Gabriel to the current site of Santa Fe (Ortiz 1979:281; Pearce 1965:146; Spicer 1962:157). There is some scholarly debate regarding exactly when Santa Fe was initially founded (see Ivey 2010). Bandelier (1893) and Twitchell (1963) have argued that Santa Fe was founded by Oñate in 1605. However, the most recent interpretations of the archival documents suggest the settlement was initially established by Oñate's Captain Juan Martinez de Montoya sometime between 1605 and 1608. Early in 1610 under the orders of the Viceroy, Peralta organized the Villa of Santa Fe as a royally chartered town (Hammond 1927).

During the next twenty years, churches were built in all the pueblos. Native American secular and church officers were also established in each village. These included governors, alcaldes, and fiscales (tax collectors). During the 1620s, the villages were peaceful, population grew, and conversions to the Catholic Church increased. By 1630, 50 Franciscan missionaries were working in 25 missions, and a school was operating in each (Spicer 1962:158).

In 1676, a series of events led to the Pueblo Revolt of 1680. Forty-seven Pueblo religious leaders were jailed and flogged in Santa Fe for their adherence to traditional Pueblo beliefs. Among them was the San Juan moiety chief, Popé, under whose leadership the Pueblo Revolt was subsequently planned and carried out (Spicer 1962:162–163). Twenty-one of the Franciscan friars in the territory were killed, along with 400 Spaniards. Santa Fe was besieged by an alliance of Pueblo forces, and on August 21, 1680, Governor Otermín was forced to surrender and evacuate the city (Hackett and Shelby 1942:11, 56–57; Lentz 2004). Coincidentally, a similar insurrection successfully ousted the Spanish from the Isthmus of Tehuantepec, Mexico, that year.

The Pueblos held firm to their independence for 12 years. During the winter of 1681–1682, an attempted reconquest by Governor Otermín was turned back. Otermín managed to sack and burn most of the pueblos south of Cochiti before returning to Mexico. Taking advantage of inter-Pueblo factionalism, the definitive reconquest was initiated in 1692 by Don Diego de Vargas (Dozier 1970:61; Simmons 1979b:186).

Later Spanish Colonial Period (AD 1692–1821)

During this period, Spain, under Hapsburg (until 1700) and Bourbon (1700–1821) rulers, was changed from a world empire to a second-tier political and economic power as its European land holdings dissolved, its New World riches were spent, and the social hold of its missionization effort was diminished (Kamen 2003). At the height of its empire early in the eighteenth century, Spain had economic ties covering three-quarters of the known world. The empire was based on economic superiority gained through alliances with the rich bankers and royalty of the Italian city states, with the Flemish, and with its neighbor and sea power, Portugal. New Spain and New Mexico were affected by imperial trends as the structure of the government, the focus of the economy, and pressures on the imperial borderlands changed. New Mexico and Santa Fe were on the frontier of the Spanish Empire and at the end of the *Camino Real,* the main communication and transport route for public, governmental, and ecclesiastic institutions and individuals. Pressured until 1789 by the French and English advances into the North American interior, Santa Fe soon felt the social and economic pressures brought on by the growing pains of the United States and its rapid institution of Manifest Destiny. These pressures exerted tremendous influence on New Mexico as Mexico gained its independence from Spain in 1821.

Government and Military

During the eighteenth century and into the early nineteenth century, Santa Fe functioned as the provincial capital of Nuevo Mexico in New Spain. The greater territory and military were administered by the governor and his appointed officials (Jenkins and Schroeder 1974; Kessell 1989; Weber 1992). After 1735, the governor ruled under the *Audencia* of Mexico and the Viceroy of New Spain (Westphall 1983:16–17). Locally, Santa Fe was governed by an *alcalde mayor* and *cabildo* or town council (Hordes 1990; D. H. Snow 1992; Twitchell 1925). The alcalde and cabildo were responsible for carrying out the daily operation of the local government, fulfilling the legal requirements of land petitions as assigned by the governor, and collecting taxes and tithes for the church. These individuals, who were citizens and soldiers, controlled the social and economic well-being and development of the community and surrounding area (Bustamante 1989; Westphall 1983). After 1722, the alcalde mayor in Santa Fe appointed two *juezes repartidores*, one for each side of the river, to inspect farmlands and acequias and to allot water based on need (Baxter 1997:19). Beginning in 1776 and continuing into the 1800s, the *presidio* system was revamped along with the military importance of Santa Fe and New Mexico. Until the late 1780s, the Santa Fe presidio and the improved and expanded presidio system provided protection against continued Indian raiding of Spanish and Pueblo villages. With a major decrease in the raiding following Governor Juan Bautista de Anza's treaty with the Comanches, the military served as a buffer against French, English, and later American incursions from the north and east (Moorhead 1974; Simmons 1990; Weber 1992). During this time the Spanish governmental organization in Mexico changed three times, but New Mexico remained primarily under its governor who also remained the military commanding officer.

Settlement and Economy

Following Don Diego de Vargas's Reconquest (1692-1696), both pre-Pueblo Revolt and new settlers returned to Santa Fe and the Rio Grande Valley. They allegedly returned to a villa that had been partially destroyed after the escape of Governor Otermín and the surviving colonists, soldiers, and missionaries. The fact that settlers temporarily moved into the Tano pueblo that occupied the former *casas reales* suggests that most of the residences had been destroyed or rendered uninhabitable. Early priorities for the returning colonists and administration were the rebuilding of the casa reales and the *acequia* system, the re-allotting of grants to former *encomenderos* and landholders or their surviving family members, and the expansion of the pre-Revolt settlement (Kessell 1989; Simmons 1979a). With the termination of *encomienda,* settlers were expected to be more independent and self-sufficient and to properly compensate the Indians for their labor and goods (Westphall 1983:7). For defensive purposes, settlers were encouraged to settle lands near Santa Fe. However, the quality and quantity of suitable farm land, combined with the practice of living close to their fields, resulted in an elongated and dispersed settlement pattern along the Santa Fe River and adjacent to acequia-irrigated fields as depicted in the 1766–1768 Urrutia map (Simmons 1979a:105–106; Adams and Chavez 1956:40; Moorhead 1975:148–149).

Presumably, all families were eligible for the typical town lot, which in the seventeenth century was defined as two lots for house and garden, two contiguous fields for vegetable gardens, two others for vineyards and olive groves; four *caballerias* of land; and the water necessary for irrigation, if available, thus obligating the settlers to establish residence for ten consecutive years without absenting themselves (Hammond and Rey 1953:1088). Land documents from the eighteenth century clearly show that house and garden lots were common and that they were bought and sold regularly, once the 10-year residency requirement had been fulfilled (Tigges 1990). The extent to which vineyards and olive groves were actually introduced is unclear and has not been addressed archaeologically or well-documented historically.

Arable land within the *villa* was scarce by the middle 1700s. Individual or family grants within the city league that included the full four caballerias of land or explicit access to the *ejido* or common land parcels for livestock grazing were relatively few. Only twenty-four are shown on William White's undated *Sketch Map of Grants within the Santa Fe Grant* reflecting land ownership in the early 1890s and coinciding with land claims filed with the Court of Private Land Claims (Westphall 1983:237). Based on William White's 1895 map *Showing Owners of Land within the Santa Fe Grant Outside of City Limits*, the long-lot land subdivision pattern is clearly evident. These long-lots were the basis of the small-scale agro-pastoral economic tradition that typified eighteenth- and early nineteenth-century land use within village or urban settings such as Santa Fe. The residences, which may be termed *ranchos* or *rancherias*, were much smaller in scale than *haciendas* (Simmons 1979a; Payne 1999:100–109). They were sufficient for subsistence but did not lead to economic advantage or prosperity. Long-lots allowed access into the ejido or common lands for other natural resources, such as wood, game, and stone for construction (Wozniak 1987:23–25). Acequia irrigation that supported intensive wheat and corn cultivation was the backbone of successful settlement in New Mexico (Ackerly 1996; Baxter 1997; D. H. Snow 1988; Wozniak 1987).

Class and Community

During the eighteenth-century, Santa Fe and New Mexico were inhabited by a diverse population. It was a socially stratified society with the governor, high-ranking officials, and officers of the presidio in the upper echelon. The middle class contained the farmers and artisans, who were slightly more prosperous than the common people and the soldiers of the presidio (Bustamante 1989:70). Other divisions within *Hispano* society reflected a diverse, mixed, and perhaps somewhat discriminatory and arbitrarily defined caste system (Brooks 2002; Bustamante 1989; Frank 2000). Economically based social stratification was present, but the majority of the population consisted of small-landholders of Hispano, *mestizo*, *genizaro,* or *indio* castes. The Urrutia map shows the area south of the Santa Fe River and between San Miguel church and the Guadalupe Church area as the Barrio de Analco, in which the population was partly composed of Tlaxacalan Indians from Mexico. Men were soldiers, farmers, shepherds, and laborers with a few skilled blacksmiths, educators, and medical professionals. During this time, churches and secular *cofradias* remained the main avenues by which social and economically defined groups would cooperate and act as a community (Frank 2000). Until the building of the Sanctuario de Guadalupe in the early 1800s, worship and service would have been connected with the Parroquia or would have occurred at San Miguel chapel.

With addition of the Sanctuario, the area assumed a more communal organization mediated through church membership and lay organizations (Sze and Spears 1988:37).

Mexican Period (AD 1821–1846)

By the beginning of the nineteenth century, Spain's hold on Mexico and the northern territories had diminished significantly. Recognizing that the citizens of New Mexico could not partake in the normal political, economic, and social activities of the declining empire, Spain allowed New Mexico to operate in virtual independence, except for the most important activities (LeCompte 1989; Westphall 1983). The positive effect was that New Mexico could determine much of its social and economic future. The negative effect was that the economic problems, compounded by limited sources of money, limited access to durable goods, and slow responses to military and administrative issues, created a stagnant economic environment. In addition, pressure from the United States to open economic ties, applied through small-scale economic reconnaissance, increased in frequency between 1803 and 1821.

With Mexico's independence from Spain in 1821, New Mexico became a frontier province and economic avenue to the commercial markets and production centers of the United States. Two major changes instituted by the new government had important consequences in northern New Mexico. These were the establishment of normal economic relations with the United States through overland trade on the Santa Fe Trail and the abolition of the caste system, which meant that everyone was a Mexican citizen.

Government

The political structure of Santa Fe experienced only minor change with the switch to a Mexican administration (LeCompte 1989; Pratt and Snow 1988). The abolition of the caste system meant that any citizen had an equal opportunity to hold a public office. Governors were still appointed by Mexico and the governor continued to be the military commander. He was also responsible for collecting tariffs and regulating the Santa Fe Trail commerce. The town council and alcalde still oversaw the town business. Santa Fe was divided into six parishes that formed the nucleus through which issues could be advanced to the council and discussed throughout the community.

Economy

In 1821, with Mexico's independence, the New Mexican frontier was opened to trade with the United States. The Santa Fe Trail, extending from Santa Fe, New Mexico, to Independence, Missouri, became a major trade route for European goods from the east (Jenkins and Schroeder 1974; Simmons 1989). England also opened formal trade relations with Mexico. Due to these improved trade relations, large volumes of Euroamerican manufactured goods were available and filtered north on the Camino Real. By the 1830s, the dominant source of manufactured goods was the Santa Fe Trail, eclipsing the Camino Real in importance. Trade between the United States traders and Mexico did continue with a special focus on the northern Mexican silver mining region (Scheick and Viklund 2003:14). Americans not only traded in New Mexico, but also became involved in the transfer and allotment of large illegal land grants from Mexican officials (Westphall 1983).

The opening of the Santa Fe Trail and the effect that it had on northern New Mexico's economy has been explored by many researchers (LeCompte 1989; Pratt and Snow 1988; Boyle 1997). With the opening of the Santa Fe Trail, New Mexico still remained predominantly an agro-pastoral economy. Most villages and towns barely felt the effects of the increase in commercial and consumer opportunity, except that basic household and work items were more readily available. While not widespread immediately, but with greater effect through time, the Santa Fe Trail trade provided access to durable and manufactured goods in quantities and at lower costs than had been available from Camino Real commerce. Seemingly basic household goods, such as window glass, dishware, and hand tools, were available to anyone that could afford to buy them or who could open a line of credit based on projected farm and ranch production. The beginnings of a more viable cash economy meant that wage labor added to the available options for supporting a family. It also meant that with cash available, land that could not sustain a family's needs could be sold.

Society in Transition

Mexican independence from Spain resulted in limited changes to the family-and-church-based social structure of Santa Fe and New Mexico. The abolition of the caste system and the granting of equal citizenship to all Mexicans and New Mexicans potentially allowed for changes in the social status of local and provincial office-holders or officials, but there is not strong evidence for such changes in Santa Fe. General historical descriptions indicate that under Mexican rule, Santa Fe and New Mexico continued to have considerable autonomy resulting in strong organizations that governed religion and other aspects of Hispanic organization (LeCompte 1989:83; Abbink and Stein 1977:160; Frank 2000). Abolition of the caste system and full citizenship had little effect on Hispanic populations, but had serious consequences for the Pueblo Indians who had enjoyed special status relative to land holdings under Spanish rule. Their lands could now be sold and were subject to the vagaries of land transactions (Hall 1987).

Perhaps, the strongest force for social change in Santa Fe resulted from the opening of the Santa Fe Trail. This officially opened New Mexico to influences and settlement by populations from the United States and added a new layer of cultural diversity to the social setting which would eventually shift the balance of the social and economic relations in Santa Fe and along the Rio Grande.

American Territorial Period (AD 1846–1912)

New Mexico's Territorial period quest for statehood was one of the longest endured by any state of the Union. Following the U.S. acquisition of new southwestern and western territories, there was a disorderly and turbulent rush to own or control land, mineral and natural resources. The struggle for control created a political, economic, and social order that still affects how New Mexico functions as a state today. Two authoritative accounts of this period are Larson's *New Mexico's Quest for Statehood: 1846–1912* (1968) and Lamar's *The Far Southwest* (1966). Much of the following summary is derived from those sources.

Santa Fe Trail and Pre-Railroad Times (AD 1846–1879)

On July 30, 1846, rumors that the United States would invade Mexican territory became a reality as Kearny proclaimed his intention to occupy New Mexico. After possible secret negotiations with General Manuel Armijo, the Army of the West arrived in Santa Fe on August 18, and New Mexico was surrendered to the United States (Jenkins and Schroeder 1974:44). Between 1846 and the ratification of the Treaty of Guadalupe Hidalgo on March 10, 1848, the United States army continued to occupy New Mexico, and a civilian government was installed, including a governor (initially appointed by General Kearny) and a territorial assembly.

New Mexico changed politically when it was designated a territory of the United States under the Organic Act of 1851 (Lamar 1966:13). The act set up the territorial governorship, from which important appointments were made in the territorial administration. The territorial legislative assembly dealt with issues on a local level, while the territorial governor's job was to ensure that federal interests were served (Lamar 1966:14). The center of government remained in Santa Fe, as it had been during the Spanish and Mexican administrations.

Between 1848 and 1865, the economy continued to focus on Santa Fe Trail trade, with the inclusion of routes from Texas (Scurlock 1988:95–97). Santa Fe continued to be the economic and political center of the territory. In addition to the mercantile trade, the establishment of military forts such as Fort Union and Fort Stanton expanded the economic markets (Jenkins and Schroeder 1974:50; Scurlock 1988:76–88). Local economies continued to be agrarian and pastoral. The large ranches supplied cattle and wool to the eastern markets and, until the end of the Civil War, to Mexico. A full-scale cash and wage economy was not yet in place as New Mexico was still isolated from the rest of the United States by long distances and hostile Indian tribes (Abbink and Stein 1977:167; Fierman 1964:10).

Changes in the social structure were gradual before the Civil War. Early migration by Anglo-American and European entrepreneurs was slow because industries such as mining had only been established on a small scale. As the terminus of the Santa Fe Trail, Santa Fe attracted immigrant Jewish and German merchants, who brought eastern European business experience into the new territory. These merchants replaced the early traders and established formal businesses (Jenkins and Schroeder 1974:63). Early merchants were not satisfied with dealing only in goods and participated in growing land speculation in Spanish and Mexican land grants.

Between 1865 and 1880, the trends that began with establishment of the territory were amplified. Before 1860, U.S. attention was focused on the sectional conflict and the resulting Civil War. New Mexico was a Union territory, and for a brief period in 1862 the Confederates occupied Santa Fe without a shot being fired from the cannons of Fort Marcy, which overlooked Santa Fe. However, when the Confederate contingent attempted to move north to the Colorado gold mines they were engaged, defeated, and exiled from the territory (Jenkins and Schroeder 1974:50–51).

With the end of the Civil War, attention was turned to the settlement of the new territories and their potential for economic opportunity. Military attention turned to pacification of the Native American tribes that roamed New Mexico outside the Rio Grande and its tributaries (Jenkins and Schroeder 1974:51–56). The new western territories were perceived as a place where lives ruined by the Civil War could be renewed. Eastern professionals with all kinds of expertise were encouraged by associates to come to New Mexico, where the political and economic fields were wide open (Lamar 1966). Much of this migration centered on Santa Fe which continued to be the economic and political center of the territory.

The newcomers joined forces with and embraced the *patron* system, thereby gaining acceptance into the existing cultural setting. These alliances were referred to as "rings." The rings were informal organizations of lawyers, cattlemen, mining operators, land owners, merchants, and government officials (Larson 1968:137). Their common goal was to provide a favorable environment for achieving economic and political aims. The most well-known was the Santa Fe Ring, which included territorial governors, land registrars, newspaper owners, lawyers, and elected and appointed officials. Important persons in New Mexico history belonged to the Santa Fe Ring, including Stephen Elkins (secretary of war and U.S. senator), Thomas Catron (territorial delegate and U.S. senator), L. Bradford Prince (U.S. senator and territorial governor), Francisco Chavez (president of the Territorial Assembly), and M. W. Mills (territorial governor), to name a few (Larson 1968:142–144). The Santa Fe Ring crossed party lines and was extremely fluid in its membership; disloyalty resulted in ostracization and often in political or economic ruin. Opposition to the ring was suppressed by law and violence, as demonstrated by the Lincoln and Colfax County wars in the 1870s (Larson 1968:137–140).

The alliances between the new political and economic entrepreneurs and the old power structure came to dominate the territorial legislature, which through time passed an increasing number of laws benefiting the new structure to the detriment of the Spanish and Native American populations (TANM Roll 102, Frames 78–95). The new westerners often had contacts in Washington through which they influenced territorial political appointments and disbursement of economic aid (Lamar 1966:169–170).

Perhaps the greatest lure in the New Mexico territory was land. Ownership of large tracts of land was intensely sought by Santa Fe Ring members, a pattern typified by Thomas Catron, who was one of largest landholders in the United States by 1883, only 16 years after arriving in the territory (Larson 1968:143). To land speculators, most of New Mexico was unsettled and unused. This was an illusion promoted by the frontier subsistence economy of low-density, land-extensive farming and ranching, which had prevailed before the Territorial period. Lack of transportation to markets, conflicts with Indians, and a general lack of funds had retarded New Mexico's cattle, lumber, and mining industries. Under the Spanish land grants, non-arable land was a community resource and was therefore not over-exploited. It was the community land that land speculators obtained, to the detriment of New Mexico's rural economy and social structure (Van Ness 1987).

New Mexico's economy changed after the Civil War because of increases in the number of military forts and the growing Anglo-controlled mining and ranching industries. A mercantile system that had focused on Mexican and California trade now supplied the military and transported precious ores from the gold and silver mines of the Santa Rita and Ortiz mountains to national markets. A marginal cash economy grew as the federal government spent money on military forts and the Indian campaigns. The Santa Fe, California, and Texas trails were the main routes for goods. The Chihuahua trade died after the Civil War (Jenkins and Schroeder 1974:61–62).

Early Railroad Era (AD 1879–1912)

Between 1879 and 1912, political power was concentrated in the Santa Fe Ring, which consisted of several Santa Fe politicians (see Dean 2010). The group controlled territorial and local political appointments through a system of patronage and effectively blocked legislation proposed by its opponents. In 1885, Edmund G. Ross was appointed territorial governor and was asked to end the political and economic control of the Santa Fe Ring, a task he was unable to complete.

National attention on New Mexico focused on the continued abuses of the land grant situation. Between 1870 and 1892, the Santa Fe Ring was able to manipulate land grant speculation to their advantage. Surveyors general were usually appointed with the blessing of the ring and were often involved in land deals with ring members (Westphall 1965). William Julian was appointed surveyor general and given the job of halting the land grant abuses, which he carried out in spectacular if not a little overzealous fashion. His inclination was to deny all claims as fraudulent and recommended very few to Congress for confirmation. The grants within and on the periphery of Santa Fe were at both ends of the spectrum. Julian recommended the Sebastián de Vargas Grant, located on the southeast boundary of Santa Fe, for confirmation, even though it lacked the proper documents (Court of Private Land Claims [CPLC]). On the other hand, the Salvador Gonzáles Grant, within the northeast corner of the Santa Fe Grant, became the focal point for a national lambasting by Julian (1887) of the abuses of the land grant situation. To the Santa Fe Ring, Julian was an obstructionist, who used his position to advance personal vendettas (Bowden 1969).

At stake in the land grab were millions of acres that would leave private control and enter the public domain if they could not be confirmed as part of a land grant. Julian and Ross believed the public domain should be available to small landholders (Lamar 1966). The Santa Fe Ring supported large-scale ranching and mining interests. Because Santa Fe was the political and economic center of the territory the land around it was valuable, and large tracts not legitimately included in the Spanish land grants were falsely claimed.

From 1880 to 1912, economic growth in the Santa Fe area began to lag as other areas of the state—Las Vegas, the Mesilla Valley, and Albuquerque—grew in importance. Much of the economic slowdown can be ascribed to the lack of a through railroad (Elliott 1988:40). Santa Fe was no longer an important economic center, but became only a stop at the end of a spur on the Atchison, Topeka and Santa Fe Railway. Although it was also the terminus of the Denver and Rio Grande Railway, which had local and regional significance, that route had little national importance because it did not tie in directly to the east–west transportation corridor (Pratt and Snow 1988:419).

In a move to spur economic growth a concerted effort was made to advertise Santa Fe and New Mexico as a tourist and health destination (Spude 2010). Sanatoriums sprang up all across New Mexico, even in remote locations such as Folsom, in the northeast corner of the state. The trip on the Denver and Rio Grande Railway was described as an excellent remedy for lung problems (Nims 1881; Williams 1986:129–131). Two notable sanatoriums in Santa Fe were the St. Vincent Sanatorium, established in 1883, and Sunmount Santatorium, started in 1906 (Lewis 2010). John Gaw Meem was treated at Sundermount between 1920–1921 and was lead architect on remodeling and additional construction at St. Vincent's in 1954.

New Mexico's unique cultural heritage was recognized as an important tourist draw. Preservation and revival of traditional examples of architecture and native crafts and ceremony were encouraged. Large-scale tourist corporations such as the Harvey Corporation invested heavily in Native American crafts. Tourism and economic development became a dichotomy of economic goals. The tourist industry emphasized the old and romantic, while the economic development interests portrayed New Mexico as booming and vital, embodying the modern values embraced by the eastern establishment (Wilson 1981:105–159).

Spude (2010:339) notes that during this time Santa Fe went through a period of "Americanization," where progressive-minded citizens strove to reform government, social, and cultural values, and the very appearance of their city. These reforms included the incorporation of the city in 1891, the installation of a sewage system, the paving of roads, new laws governing trash disposal, closing saloons on Sundays, and prohibitions against many forms of gambling. While Santa Fe may not have exhibited growth, it maintained economic stability. The city acquired many federal and territorial expenditures and jobs. Attempts to move the capital to Albuquerque in the early 1880s were defeated, which proved critical to the long-term economic stability of Santa Fe (Lamar 1966). Another choice made by legislators interested in Santa Fe's economic growth was to locate the penitentiary in Santa Fe. As a tradeoff, Albuquerque, Las Cruces, Las Vegas, and Socorro received colleges. The penitentiary was viewed as economically more valuable than schools.

Statehood to Modern Times (AD 1912–Present)

New Mexico was delayed in its quest for statehood by eastern politicians who viewed the small population, the arid climate, and a Spanish-speaking majority as liabilities. Most New Mexicans favored statehood but had different conditions under which they would accept it. Some citizens feared statehood because of the potential for increased taxation, domination by one ethnic group over another and the loss of federal jobs under a state-run system. These factors, combined with political factionalism in New Mexico, resulted in the struggle (Larson 1968:302–304).

On January 6, 1912, New Mexico was admitted into the Union as a state. After statehood the patterns that were established in the Territorial period continued. New Mexico experienced only slow population growth, with most settlement concentrated along the Rio Grande corridor and in the southeast around Roswell. More than half the state land had a population density of fewer than five people per square mile (Williams 1986:135), partly because of the large area that was part of the National Trust and could not be settled. The major industries continued to be mining, ranching, lumber, farming within the Pecos and Rio Grande irrigation districts, and tourism (Jenkins and Schroeder 1974:77).

Prohibition Era (1920–1933)

In the United States, the term Prohibition refers to the period 1920 to 1933, during which time the sale, manufacture, and transportation of alcohol for drinking was banned nationally by the Eighteenth Amendment to the U.S. Constitution (Hakim 1995:16–20). After much pressure by the temperance movement, the U.S. Senate passed the Eighteenth Amendment on December 18, 1917. The "Volstead Act," the popular name for the National Prohibition Act, passed Congress over President Woodrow Wilson's veto on October 28, 1919. The Eighteenth Amendment was certified as ratified on January 16, 1919, having been approved by 36 states, including New Mexico, and went into effect on a federal level on January 16, 1920 (Skilnik 2006).

The Prohibition, or dry movement, began in the 1840s, primarily through various religious denominations, but didn't become a strong force in state and local politics until the 1880s, after the Civil War had ended, and after the Women's Christian Temperance Union (WCTU) was founded in 1873, and the Carrie Nation Prohibition Group around 1881 (Kyvig 2004:3–4). They identified saloons as politically corrupt and drinking as a personal sin and were opposed by other groups who denounced the idea that the government should define morality. The Progressives won, however, when the Eighteenth Amendment went into effect.

In New Mexico, heavy drinking was a staggeringly pervasive fact of life, with some men drinking throughout the day. New Mexico voters and Legislators were therefore attempting to pass their own prohibition against alcohol during the time of the general movement nationwide. The WCTU and other Prohibition supporters quickly gained ground after the start of World War I. An editorial in *The Santa Fe New Mexican* argued, "If we are to win this war we cannot do it if we stay 'pickled.' We should vote 'dry' for our country's sake" (Silverman 2006: 34–38).

New Mexico voters passed Article XXIII on November 6, 1917, by a margin of three to one, with every county but Rio Arriba and Taos voting for Prohibition, and on October 1, 1918, New Mexico became the 26th dry state (Silverman 2006). This milestone was overshadowed by news of the war and arrival of a flu pandemic that closed all public gathering places.

Although it was highly controversial, Prohibition was supported by diverse groups, including progressives, the Ku Klux Klan, women, southerners, people in rural areas, and African-Americans (Blue 2004). The law, however, proved difficult to enforce because, while alcohol was illegal in the United States, it was not illegal in surrounding countries such as Canada, Mexico, and the Caribbean where alcohol was either consumed by visiting Americans or illegally imported to the United States. Chicago became notorious as a haven for disobeying Prohibition during the time known as the Roaring Twenties, with Bugs Moran and Al Capone making millions of dollars from illegal alcohol sales through the Chicago speakeasies and the bootlegging business from Canada to Florida (Kyvig 2004:163–186).

As with other areas of the nation, New Mexicans never really stopped drinking. Cheap booze, created in homemade and commercial stills and smuggled up from Mexico by rumrunners, remained readily available. New Mexico also had its illegal drinking establishments, although not on as large a scale as Chicago. Historian David J. McCullough described one Santa Fe speakeasy, circa 1927:

> One of the more notable establishments was housed in a three-story building. . . . The quality of the drinks and the décor of the rooms changed on each floor. The first floor was for "poorer people"who wished to quench their thirst with "white mule." . . . The second floor was for those slightly more affluent who wished to ascend to "Second Heaven." . . . Only those with a "fat wad" could make it to the third floor where good quality booze was sold.

To add to the problem of enforcing the state's Prohibition, New Mexico Legislators at the time were hard drinkers and refused to pass legislation that would give the anti-alcohol laws any teeth. When the Eighteenth Amendment went into effect, 1,520 federal Prohibition agents (police) were given the task of enforcing the law. Some of those officers later rated New Mexico as worse than average in fighting illicit liquor sales (Silverman 2006).

As Prohibition became increasingly unpopular, especially in the big cities, repeal of Prohibition was eagerly anticipated. On March 23, 1933, President Franklin Roosevelt signed into law an amendment to the Volstead Act, known as the Cullen-Harrison Act, which allowed certain kinds of alcoholic beverages to be manufactured and sold (Skilnik 2006). The Eighteenth Amendment was then repealed with ratification of the Twenty-first Amendment on December 5, 1933. This Amendment gives states the right to restrict or ban the purchase or sale of alcohol, which has led to the confusion of laws that allow some counties and towns within a state, but not others, being able to sell alcohol.

Overturning the New Mexico legislation was a challenge. Attempts at reform were made in 1927 and 1929 to no avail. The temperance movement remained strong, but the anti-temperance movement began to gain prominent citizens as supporters, rather than only saloon owners. It took a few years, but they were finally able to bring a repeal measure to the State Legislature. New Mexico voters finally ratified the state repeal measure in September 1933 to overthrow Prohibition. New Mexico then ratified the Twenty-first Amendment on November 2, 1933 (Silverman 2006).

Many social problems have been attributed to the Prohibition era, in New Mexico as well as across the United States including a profitable, often violent, black market for alcohol and racketeering. Stronger liquor surged in popularity because it was more profitable to smuggle. The high cost of enforcing Prohibition and the lack of tax revenues on alcohol negatively affected the local, state and federal treasuries of government. Additionally, only half the breweries that had existed before Prohibition were able to reopen, and several historians credit Prohibition for destroying the fledgling wine industry in the United States (MacNeil 2000:630–631).

Great Depression Era and the New Deal (1929–1941

A great depression is defined as a period of diminished economic output with at least one year where output is 20 percent below the trend (Kehoe and Prescott (2007). The beginning of the Great Depression in the United States is associated with the stock market crash on October 29, 1929, known as Black Tuesday, and it lasted until the onset of the war economy of World War II, beginning around 1939. It caused a widespread economic downturn, affecting countries worldwide, some as early as 1928 (Engerman and Gallman 2000). Cities and countries around the world were hit hard, especially those that were dependent upon heavy industry. International trade sharply declined, construction virtually halted in many countries, and crop prices in farming and rural areas fell by 40 to 60 percent. Demand plummeted, and there were few alternate sources of jobs (Cochrane 1958).

In the United States, however, optimism persisted even following the 1929 Wall Street Crash. John D. Rockefeller insisted that "depressions had come and gone" in his 93 years, and that "prosperity has always returned" (Schultz and Tishler 1999). In fact, the stock market turned upward in early 1930, and government and business actually spent more in the first half of 1930 than in early 1929 (Vronsky and Westerman 1998). Consumers who had lost heavily in the Crash, however, were wary and cut back their spending by ten percent. Even though credit was ample and available at low rates, people were reluctant to add new debt by borrowing. By May 1930, prices in general began to decline. Wages, however, held steady in 1930 then began to drop in 1931. Furthermore, a severe drought hit the agricultural heartland beginning in the summer of 1930. Industries hardest hit by economic conditions were agriculture, due to low commodity prices, and mining and logging where unemployment was high with few other jobs available. As the American economy declined, other countries were affected either positively or negatively, depending upon their internal strengths or weaknesses. By late 1930, a steady decline set in which reached bottom by March 1933 (Vronsky and Westerman 1998).

There are several theories as to what can catapult a usually mild and short recession into a depression, a full discussion of which is beyond the scope of this chapter. As for the Great Depression, however, debt is seen as one of the causes. People and businesses that were deeply in debt when price deflation occurred or when demand for their product decreased often defaulted. Massive layoffs occurred, leading to over 25 percent unemployment. As debtors defaulted on debt and worried depositors began massive withdrawals, banks began to fail. Capital investment and construction then slowed or completely ceased, resulting in banks becoming even more conservative in their lending. A vicious cycle developed and the downward spiral accelerated.

A sharp decline in international trade after 1930 is also thought to have helped worsen the depression, particularly for countries significantly dependent upon foreign trade (Kindleberger 1973:291–308). Others argued that the Great Depression was caused by monetary contraction, the consequence of poor policy making and inaction by the American Federal Reserve System and the continuous crisis in the banking system (Bernanke 2000; Krugman 2007; Griffin 2002). Some argue that part of the reason the Federal Reserve did not act to limit the decline of the money supply was due to the laws at the time regulating gold (Wueschner 1999). At the beginning of the Great Depression, Herbert Hoover was President (Hakim 1995). His Secretary of the Treasury, Andrew Mellon, advised Hoover that shock treatment would be the best response to deal with the economic problems: "Liquidate labor, liquidate stocks, liquidate the farmers, and liquidate real estate . . . . That will purge the rottenness out of the system. High costs of living and high living will come down. People will work harder, live a more moral life. Values will be adjusted, and enterprising people will pick up the wrecks from less competent people." Hoover rejected that advice because he believed that government should not directly aid the people. He insisted instead on "voluntary cooperation" between business and government (Hoover 1979:3–9) and stricter government regulation of existing laws.

Enter Franklin D. Roosevelt: Inaugurated in 1933, he primarily blamed the excesses of big business for causing an unstable bubble-like economy. He wanted to restructure the economy, and so the New Deal was designed as a remedy by empowering labor unions and farmers and by raising taxes on corporate profits, among other things (Vietor 1994). Part of the initial reforms (called the "First New Deal" by historians), the National Recovery Administration (NRA) and the Agricultural Adjustment Act (AAA), were to highly regulate and stimulate the economy (Kyvig 2004:236–238). The two concepts were apparently incompatible, however, as the economy continued to stagnate. By 1935, the "Second New Deal" added Social Security, a national relief agency (the Works Progress Administration, WPA) and, through the National Labor Relations Board, a strong stimulus to the growth of labor unions (Kyvig 2004:269–270). Unemployment fell from 25 percent to 14.3 percent in the period from 1933 to 1937. But then a short-lived recession in 1937–1938 caused unemployment to jump to 19 percent. Roosevelt also responded to the 1937–1938 deepening of the Great Depression by abandoning his efforts to balance the budget, and by launching a $5 billion government-spending program (an effort to increase mass purchasing power) in the spring of 1938. It was not until the military draft of World War II, the decontrol of the wartime command economy and a sharp reduction of taxes and regulations in 1946, that consumer goods were finally allowed to be created and unemployment fell to levels under ten percent.

Eventually, some of the New Deal Regulation (the NRA in 1935 and AAA in 1936) was declared unconstitutional by the U.S. Supreme Court. In a bipartisan wave of deregulation, most New Deal regulations were later abolished or scaled back in the 1970s and 1980s (Vietor 1994). The citizens of New Mexico benefited greatly from many of the New Deal programs. New Mexico was one of the most destitute states in the Union even prior to the onset of the Depression (Arrington 1969:311–316). In the early 1930s, many New Mexicans were struggling financially, which in turn caused a shortfall in the state's tax base leading to its inability to serve the state's most vulnerable citizens (Coan 1925; Forrest 1989). By the height of the Depression approximately 50 percent of New Mexicans were unemployed and only one percent of the irrigable land was actually under cultivation (Welsh 1985:20). The need for jobs was so great that the New Mexico Federation of Labor proposed limiting employment on government construction projects to one wage earner per family. Governor Arthur Seligman applied for a small amount of federal aid, initially from the Reconstruction Finance Corporation and later from other programs, seeing it not only as a way to employ out-of-work New Mexicans, but also as a way to improve New Mexico's infrastructure. He believed that plenty of men would be willing "to work for a dollar a day and their board and keep" to provide something beneficial to the state (Seligman 1933).

New Mexico's state-government-sponsored capital improvements were insignificant compared to the projects completed through New Deal programs. New Mexico is ranked fifth among all states in per capita expenditure of New Deal money from 1933–1939 (Kammer 1994:2). Conchas Dam (located 35 miles north of Tucumcari) is a consummate example of the New Deal in New Mexico and involved essentially every New Deal program created by the Roosevelt Administration, from the 1935 Federal Emergency Relief Act (ERA) to the Civilian Conservation Corps (CCC), including the Works Progress Administration (WPA), the Public Works Administration (PWA) as well as the Works Projects Administration (WPA) programs for writers, artists and teachers. The Conchas Dam construction project was specifically justified as a means to bring wage paying jobs to an area of great unemployment. Labor-intensive methods, such as hand-made adobes and hand-quarried local sandstone blocks, were employed during the construction of an entire town that had to be built prior to the start of construction on the Dam itself (Schelberg and Everhart 2008:134). The town was created by constructing virtually every facility and amenity imagined as being associated with life in the 1930s (Kramer 1941).

The project, as first proposed in 1931 and at a cost over $11,600,000, was rejected by Congress and the U.S. Army Corps of Engineers as not economically justified. It was not considered economically viable until 1935 and only then with the possibility of using ERA relief workers. Ultimately 2,500 people worked on the Conchas Dam, many for as little as $0.25 per hour and within limits of 20 hours per week so that more people could be hired. Even with the low wage, there was a continuous waiting list of applicants. In accordance with ERA provisions, 90 percent of the employees were listed on relief rolls and 10 percent on the Civil Service Commission registry. Of the former, 80 percent were from New Mexico and 20 percent from the Texas panhandle. Most skilled workers were from California and the mid-west as there were no skilled workers in New Mexico (Welsh 1985:22–32; Kammer 1994:64).

In addition to Conchas Dam, one of the lasting New Deal legacies for New Mexico was establishing Spanish-Pueblo Revival Style and Territorial Revival Style as the two regional architectural construction styles for the government buildings which remain in use to this day (Kammer 1994:32). Clyde Tingley, as Albuquerque mayor from 1932–1934, became familiar with the New Deal programs by bringing Civil Works Administration (CWA) projects into Albuquerque, including 17-acre Roosevelt Park near UNM and Tingley Beach adjacent to a flood control channel, and others (Kammer 1994:27–28). After Tingley became governor, from 1934 to 1938, he maintained a special relationship with President Roosevelt and whole-heartedly embraced the New Deal with the goal of improving New Mexico by expanding governmental services—a fundamental tenet of the New Deal. Under

Tingley's guidance the WPA put thousands of New Mexicans back to work on projects that resulted in unprecedented public capital improvements (Kammer 1994:26–41). During his years as governor, the projects included 2,916 miles of road improvements, 277 new schools, many highway district buildings, institutional buildings and hospitals, public parks, water and sewer systems, and several dams (Kammer 1994:76).

Conchas Dam remains today, but provisions of the lease required that the construction town was to be demolished once the dam was completed and any salvaged materials were to be sold to other Corps Districts or Government agencies. Neither adobe nor sandstone could be profitably sold or transported great distances. Therefore, much of the demolition was done carefully by hand by the CCC, and the materials were then reused by the CCC to construct the Corps' administration building and five houses for the personnel operating the dam. The administration building and the houses are still in use (in 2007), and the land that the town sat on has reverted to private ownership, as of 2007 (Schelberg and Everhart 2008:144).

Other buildings and structures around New Mexico that were built by CCC crews and other New Deal programs include 30 structures at Bandelier National Monument, the National Park Service building on Old Santa Fe Trail, the 1934 Don Gaspar Bridge, the Supreme Court Building in Santa Fe and six structures for the New Mexico School for the Deaf (Weideman 2008).

While the New Deal is well known for the construction projects undertaken throughout the country, it is less well known that there were also artist and writer projects established by the Works Progress Administration (WPA) to provide support for the humanities. Many of New Mexico's best-known artists were involved in WPA art projects, to their benefit and for the benefit of many locations throughout New Mexico. More than 65 murals with varied subject material were created in New Mexico during the Depression. In addition to these murals, more than 650 paintings, 10 sculptural pieces and numerous indigenous Hispanic and Native American crafts were sponsored by the WPA (Collector's Guide 2008).

In terms of benefit from New Deal programs, New Mexico was one of the highest ranked states, especially with regard to building and conservation funding. The programs of the New Deal essentially created the existing New Mexico state government structures, confirmed the architectural style of the government buildings, and did much to introduce New Mexico to the modern era (Schelberg and Everhart 2008:145).

The Proud Decades (1941–1960)

President Roosevelt's New Deal Programs were credited with pushing New Mexico to modernize. State agencies had to be created for New Mexico to take advantage of the U.S. government's offers of financial aid. By 1939, New Mexico's economy was already deeply in trouble with farm, livestock, and taxable property values tumbling for almost a decade. As with much of the country, New Mexico's economic rebound was intimately associated with World War II and the militarization of the state. Agriculture also received a strongly needed boost as the demand for food surged.

During World War II, New Mexico was home to eight major air bases, 13 bombing and gunnery ranges, four army hospitals, three prisoner of war camps, 11 National Guard armories, and seven specialized military locations (Hoffman n.d.). Its citizens had compiled an impressive and unique record of military service, although contributions by Hispanic and Native Americans received little public recognition. A partial explanation in the case of the Navajo Code Talkers was the secrecy that cloaked this program until the 1980s. In 1942, 29 Navajo volunteers from boarding schools in Shiprock, Fort Defiance, and Fort Wingate were organized into the first unit of Code Talkers. Structuring the code was not a simple task. Military terms had to be translated into images and the images into Navajo spoken language, which allowed messages to be radioed among combat command posts. First employed in 1942 on Guadalcanal, the code was used throughout the war years and was never broken by the enemy (Paul 1998).

In 1940, the 111th Cavalry Unit of the New Mexico National Guard was re-designated the 200th Coast Artillery Regiment and the 158th was reorganized as the 104th Anti-tank Battalion (Reed 2010). These units, as well as the 21st Engineer Regiment, were called to active duty for one year of training. In August 1941, the 200th shipped out to Fort Stotsenberg in the Philippines and was responsible for downing seven aircraft during the Japanese attack of December 8th despite having to use outdated and faulty ammunition (Reed 2010:389–391). A segment of the 200th was subsequently assigned to the 515th Coast Artillery Regiment which was charged with providing aircraft protection for Manila, the Philippine capital. These units all participated in the four-month Battle of Bataan and are credited with delaying the Japanese advance and thereby preventing the invasion of Australia (Reed 2010).

On April 9, 1942, 47,000 surviving American and Filipino soldiers surrendered to the Japanese. The American "Battling Bastards of Bataan" were subsequently to receive numerous medals and commendations from the United States and Philippine governments for their heroic performance under terribly adverse conditions. During the 65 mile "Bataan Death March," 16,950 American and Filipino service men died with many more succumbing during their years of imprisonment at Camp O'Donnell. Of the 1,800 New Mexicans who took part in the Bataan campaign, only one-half returned home at the end of the war (Reed 2010:383). Many of these were to die during the following year of war-related injury and illness.

On the European front, The New Mexico National Guard's 104th Anti-Tank Battalion, was sent to Oran in North Africa in February 1943 for advanced training. In January 1944, the battalion landed in Italy and participated in the fighting that led to breaking the Gustav Line and the Allied forces entry to Rome in June of that year. One month later, the 104th was assisting with clearing enemy forces from the Arno River, which allowed penetration into northern Italy. The spring of 1945 saw the 104th cross the Po River and enter Treviso in what was the final phase of the war in Italy. In total, the men of the battalion received eight Silver Stars, three Legions of Merit, and 60 Bronze Stars. One hundred thirty-five Purple Hearts were awarded, 30 posthumously.

The Albuquerque Army Base, subsequently designated as an Air Force Advanced Flying School, was the site for the training of bombardiers and the filming of the 1943 movie "Bombardier," which starred several of Hollywood's biggest names. During 1942–1943, the actor Jimmy Stewart was in Albuquerque to instruct trainees to pilot AT-7, AT-9, and B-17 aircraft. He went on to command the 703rd Bomb Squadron and flew several combat missions in the war against Germany (http://en.wikipedia.org/wiki/James_Stewart).

The Twentieth Combat Engineering Battalion compiled for itself a commendable record, participating in the invasion of Sicily on July 10, 1943, and, later in the year, the invasion of Paestum, Italy. Journalist Ernie Pyle, who called New Mexico his adopted state, documented the Twentieth's activities throughout the Italian campaign, writing "it was good to get back to those slow-talking, wide and easy people of the desert, and good to speak of places like Las Cruces, Socorro, and Santa Rosa." Pyle also praised the cartoonist Bill Mauldin, who hailed from Mountain Park, New Mexico, for his sensitive portrayal of the men fighting and dying on the battlefield. After the war, Mauldin went on to a distinguished career as a newspaper cartoonist. In 1962, he moved to Santa Fe and sculpted a bronze statue of his "Cavalry Sergeant" cartoon, which is still on display at the New Mexico Veterans Memorial Visitor Center and Museum. In 2010, he was honored with a commemorative stamp by the U.S. Postal Service. Ernie Pyle did not survive the war he covered so brilliantly.

New Mexico history is inseparably linked to the Manhattan Project, conducted, in part, between 1942 and 1946 at Los Alamos, and which culminated in the development and assembly of the world's first atomic bomb (Diggins 1988:48–53). The project was named after the borough of New York City, where the early operations were conducted, and was a massive undertaking involving more than 30 sites in the United States and Canada and thousands of scientists and engineers from around the world. The project director, J. Robert Oppenheimer, summarized the motivation of the participants: "Almost everyone knew that this job, if it were achieved, would be a part of history. This sense of excitement, of devotion, and other patriotism in the end prevailed." Oppenheimer recalled the difficulty of recruiting personnel who could not be told anything about the where, what, and why of the job (Sullivan 2004). "The notion of disappearing into the desert for an indefinite period, and under quasi-military auspices, disturbed a good many scientists and the families of many more." After the U.S. Army purchased the site at Los Alamos, there followed a rush to construct laboratories, barracks, apartments, and all the supporting structures required for the new town (Merlan 1997). The only mailing address for all residents was P.O. Box 1663, Santa Fe, and this same address appeared on the birth certificates of all children born at Los Alamos. Soft coal fueled the town, soot and dust covered everything. When it rained, the streets and yards were mired in mud. Water control was strictly enforced, and new arrivals were advised to soap their bodies before entering the shower and hope that the water turned on. Some residents kept horses and rode the countryside; others took advantage of the outdoors by hiking.

The first and only nuclear test, code-named "Trinity," took place on July 16, 1945, near Alamogordo (Merlan 1997). The two other weapons, code-named "Little Boy" and "Fat Man," were released over Hiroshima and Nagasaki, respectively. While causing massive destruction and loss of life, the bombs forced the surrender of Japan and averted the need for an invasion of the Japanese mainland which, it is claimed, would have resulted in an even greater number of Japanese casualties as well as the deaths of many thousands of American servicemen.

Despite the tight security at Los Alamos, three spies were identified. Klaus Fuchs arrived with a delegation of British scientists and was subsequently convicted of spying for the Soviet Union. Theodore Hall was never tried for spying and subsequently immigrated to Great Britain. Also convicted was David Greenglass, the brother of Ethel Rosenberg. His testimony was instrumental in the conviction of Julius and Ethel Rosenberg, who were executed for spying for the Soviet Union. Finally, KGB files, opened many years after the war, raised the possibility of a fourth spy, code name Perseus.

After the war ended, Los Alamos National Laboratory continued with the development of nuclear weapons. Operation Crossroads tested the effect of the atomic bomb on naval vessels, and Operation Sandstone in 1948 evaluated newly designed nuclear weapons. The laboratory continues to be actively engaged in weapons and other research projects (Eidenbach et al. 1996).

The White Sands Missile Range, located just west of Alamogordo and the site of the "Trinity" test, comprises 60 percent of the area covered by the White Sands dunes, the remaining 40 percent being the White Sands National Monument (Welsh 1995). During World War II, a portion of the land was designated the Alamogordo Bombing Range; it was in this area that the July 16, 1945, atomic bomb test was conducted, though the official press release issued by the U.S. Army claimed that an ammunition magazine had exploded. Late July saw the arrival of 300 freight-car loads of V-2 rocket components taken from the German Pennemuende Rocket Center on the Baltic Sea. Toward the end of 1945, German scientists headed by Wernher Von Braun arrived to conduct the rocket research project at White Sands Proving Ground, code name Paperclip. On April 16, 1946, the first missile was launched. In 1958, the White Sands Proving Ground was officially designated the White Sands Missile Range. Then in 1985, the original "Trinity" launch site and blockhouse were designated a National Historic Landmark by the National Park Service.

One regrettable consequence of the attack on Pearl Harbor was Executive Order 9066, signed on February 19, 1942, which authorized the round-up of 120,000 Americans of Japanese origin who lived along the West Coast of the United States and their internment in relocation centers (Reed 2010). Two-thirds were American citizens. Twenty-three thousand Canadians of Japanese origin were also relocated by the Canadian government. The justification offered for this disenfranchisement of American citizens was the threat to national security. General John Dewitt, in command of West Coast defenses, stated: "The Japanese race is an enemy race and while many second and third generation Japanese born on U.S. soil, possessed of U.S. citizenship, have become "Americanized" the racial strains are undiluted." As it turned out, not only were there no instances of proven collusion between Japanese-Americans and the government of Japan throughout the war, many Japanese-Americans volunteered to fight. The 442nd Infantry Regiment of the 34th Army Division, which was composed entirely of Japanese men born in the United States, became the most highly decorated unit of the war.

Santa Fe and Fort Stanton were both sites for detention camps administered by the U.S. Department of Justice. (Reed 2010) Other facilities were administered by the U.S. Army, the Wartime Civilian Central Agency, and the War Rehabilitation Authority. In March 1942, the first of the detainees arrived at the Santa Fe facility. During the war years, 4,555 detainees were housed in a 28-acre site located in Santa Fe's current Casa Solana neighborhood (Reed 2010:400). High-risk prisoners, mainly Issei, men born in Japan who had immigrated to the

United States, were often transferred to U.S. Army camps, such as the facilities in Santa Fe and Lordsburg. Lower-risk persons were permitted to join their families in relocation camps or to reside outside the West Coast Military Zone. In general, while the detainees in Santa Fe resented their internment, they were treated with respect, and no serious problems emerged. Prisoners at Lordsburg complained of persecution and mistreatment by the Army. The Santa Fe interment camp closed in April of 1946 (Reed 2010:400–401).

During this time, Santa Fe was also home to the Army's Bruns Hospital (Reed 2010:397–398). In March 1943, a tract of land southeast of the city was set aside for the facility which opened it doors April 19, 1943. Named after Colonel Earl Harvey Bruns, a leading authority on pulmonary disease and thoracic surgery, the hospital treated 1,352 patients in the first year of operation and employed 1,000 civilians and 600 military personnel. By 1934, the Bruns Hospital complex had grown to 196 buildings. Outdoor facilities included a handball court, volley ball court, badminton court, shuffleboard, clock golf, tennis court, horse shoes, football field, and softball field.

Bruns was one of 51 general hospitals built during WWII for the Army, but it was never intended to be a permanent facility (Reed 2010:398). The buildings were constructed of either wood or plasterboard like so many in Los Alamos during the Manhattan Project. However, the facility has continued to be used up until the present day. Today, the facility functions as the College of Santa Fe.

Well into the 1940s, New Mexico, Arizona, Maine, Mississippi, and Washington excluded Native Americans from voting. Article VII, Section 1, of the New Mexico Constitution enacted in 1912 stated that "Indians not taxed may not vote." It was not until 1948 that this exclusion was challenged by Miguel Trujillo, Sr. On August 3, 1948, a federal court in Santa Fe struck down this constitutional provision, ruling New Mexico had discriminated against Native Americans who did pay state and federal taxes except for private property on reservations (Bronitsky 2004).

The era from 1940 to 1960 saw a major shift in the basic economic sectors for Santa Fe County. Expressed as a percentage of the total work force, there was a decline in agricultural workers from 12 to 2 percent and mining/manufacturing workers from 12 to 5 percent; government employees increased from 14 to 21 percent while tourism/arts staff rose from 10 to 12 percent (Wilson 1997:331). Over the same period, the number of hotels and lodging rooms increased from 21 and 740 to 31 and 1,150, reflecting the growing importance of tourism to the city's economy. A principal attraction of Santa Fe was its distinctive architectural styles. In 1958, the city, determined to avoid the glass and steel high-rise structures springing up in cities around the country, passed an ordinance stating that all new and rebuilt buildings, especially those in designated historic districts, must demonstrate Spanish Territorial or Pueblo style architecture with flat roofs and other features indicative of the area's traditional adobe construction (Wilson 1997). It should not be assumed that this decision was made without prolonged and, at times, harsh disagreements among the residents of the city. Later houses—built of lumber, concrete, and other common materials but with stucco exteriors—have sometimes been referred to as "faux adobe." Rancorous debate over the architectural style of planned state government structures continued into the 1960s.

Santa Fe Today

In Santa Fe, the absence of a major spur to the national railroad lines proved to be a detriment to industrial growth. Instead, development in Santa Fe focused on its state and federal administrative centers and the tourism and art trade (Pratt and Snow 1988; Wilson 1981). Today, Santa Fe is the centerpiece of a tourism industry that brings more than $1 billion into the state every year. Municipal ordinances and the 1920s and 1930s efforts by the art and anthropological community to preserve Santa Fe's cultural heritage have made it a desirable location for second residences and professional people who supply services to the national markets. The lack of industry that had retarded Santa Fe's growth was turned into a positive situation. Without heavy industry and the accompanying population density, a tranquil quality of life became a draw for people seeking to escape the increasingly crowded and polluted cities. As part of the quality of life and the uniqueness of Santa Fe, its multicultural heritage continues to be emphasized.

Chapter 4

Historic Land Use and Occupation

Matthew J. Barbour

Archival research into LA 158037 and the surrounding area has previously been conducted by numerous historians (Snow and Barbour 2011; D. H. Snow 2012), architects (Sze and Spears 1988; Bechtol 2012), and archaeologists (Barbour 2012a; Barbour et al. 2012). This chapter begins with a brief history of the neighborhood as a whole. It then transitions into a survey of historic maps and photographic imagery to place the project area within the historic context. Last, the chapter ends with the examination of written archival documents, the writer attempt garner information about who occupied the project area, when it was occupied, and what sorts of activities were conducted on the site.

History of the Capitol Complex Historic Neighborhood

(adapted from Sze and Spears 1988:75–84; Barbour 2012a:31–42)

LA 158037 lies within the Capitol Complex Historic Neighborhood (Fig. 4.1). The Capitol Complex Historic Neighborhood is an area bounded on the north by East De Vargas Street, on the east and south by Paseo de Peralta, and on the west by Cerrillos Road and Galisteo Street. Portions of West Manhattan Avenue, South Capitol Street, Galisteo Street, Don Gaspar Avenue, Old Santa Fe Trail, and Orchard Drive are included in the neighborhood. Today, the area is dominated by large buildings, the majority of which are owned by the State of New Mexico, that are used for the administration of state government (Sze and Spears 1988:74–85).

After the U.S. conquest of New Mexico in 1846, the Palace of the Governors was used for U.S. government offices. By 1852, it was decided that a Territorial Capitol should be built on the north side of Santa Fe (Fig. 4.2). Due to lack of funds, it took 30 years to complete, by which time the building was considered more appropriate to use as the federal courthouse than as the Capitol (*Daily New Mexican*, January 27, 1887). So in 1884, the Legislative Assembly voted to acquire property and build a Capitol (Wilson 1981:86).

The area chosen by the assembly was south of the Santa Fe River between De Vargas Street and West Manhattan Avenue. The area around the proposed Capitol building had largely served as farmland since the founding of Santa Fe. However, it had become more attractive real estate in recent years after the arrival of the railroad several blocks to the west in 1880.

One set of buildings that existed in the area prior to both the Capitol and the railroad was St. Michael's College (Fig. 4.3). Established in 1859 by the Christian Brothers, it was located south and east of San Miguel Church. Even though it was called a "college," it was actually a prep school for boys and was among the first schools in the Territory from which a higher than elementary-level education could be obtained. The school did not become a college program until the early 1950s. The school was first established by brothers from France, at the invitation of Bishop Lamy, in what is described as "the old adobe hut" next to San Miguel Church (*Santa Fe Reporter,* July 31, 1990).

The school struggled for the first 10 years before Brother Botulph arrived in November of 1870. In the 36 years following his arrival, the school was under continuous construction. A dormitory was built in 1878 (now the Lamy Building, Fig. 4.4). A building to house an infirmary, cafeterias, and rooms for visitors was built in 1887 (now known as the Lew Wallace Building, Fig. 4.5). In 1926, the dormitory suffered a near-disastrous fire, but was saved by "some brave students" (*Santa Fe Reporter,* July 31, 1990). The fire left the college struggling to find classroom space. In response, a former student by the name of Miguel Chavez took on the task of constructing a new building. Named the Chavez Memorial Building, it stood until 1967, when the state acquired all the properties from the Christian Brothers for development of the Public Education Retirement Association (PERA) Building. The school moved outside the Capitol Complex Historic Neighborhood and became St. Michael's High School. The college program developed in the 1950s became the forerunner for the College of Santa Fe which now occupies the former Bruns Hospital (St. Michael's College 1964:15; *Santa Fe Reporter,* July 31, 1990).

By the time of completion of the Capitol in 1886 (Fig. 4.6), a residential community had developed in the area surrounding both the Capitol and St. Michael's College. This community initially comprised Hispanic families, including the Alarid, Delgado, Garcia, Romero, and Sena families. As the neighborhood grew, Anglo occupants from the eastern United States began to settle the area in ever increasing numbers.

The first Capitol building burned down in 1892 (Fig. 4.7), probably due to arson, although responsibility was never determined (Sze and Spears 1988:75). Shortly afterward, efforts were made to move the state capital to Albuquerque. Finally, in 1900, after delays due to the deliberations about moving the capital and difficulties in raising funds, a second Capitol building was built on the same site (Fig. 4.8, Jenkins and Schroeder 1974). The second building is now subsumed within the present day Bataan Memorial Building.

In 1887, a plan was made to extend Don Gaspar Avenue southward along the east side of the capitol grounds, but that extension was delayed for several years due to land acquisition problems (Wilson 1981:104). In 1900, eight years after it was first proposed, a street (named North Capitol) was constructed north of the capitol grounds between Don Gaspar Avenue and Galisteo Street. By 1912, the street name had been changed to Manderfield Street, to honor William Manderfield, a long-time editor of the *New Mexican* (Sze and Spears 1988:76).

Construction of a new Governor's Mansion began in 1907 on the south side of the river, just north of the Capitol, near the site of the present Education Building. It was completed in1909 (Sze and Spears 1988:76). By 1912, Santa Fe had acquired and subdivided several large tracts of land south of the Capitol into residential building lots, although these areas were still mostly vacant. They included Allan's Highland Addition, the Collingwood, Buena Vista, Salmon and Capitol Additions, and the Mahaffey Tract. South Capitol Street had also been established, and six new brick houses stood facing the south end of the Capitol. Manhattan Avenue also had several new one- and two-story houses, but was still not very developed. The Collingwood Addition at Manhattan Avenue and Don Gaspar Avenue, where the State Capitol now stands, had no buildings in 1912, but several small frame structures were added later (Sze and Spears 1988:76).

Throughout the 1900s (Fig. 4.9), the number of state government buildings gradually increased in the Capitol Complex area replacing older residential structures. The existing Capitol building was enlarged with a major new wing facing Don Gaspar Avenue (Jenkins and Schroeder 1974). In 1934, replacing several pre-1886 structures, the New Mexico Public Welfare building (now the Villagra Building) was completed by the Works Progress Administration (WPA) on the west side of Galisteo Street opposite the domed Capitol. In 1937 using federal Public Works Administration (PWA) funds, the Supreme Court, which had been housed in the Capitol, constructed a building facing the river just east of Don Gaspar Avenue (Short and Brown 1939:64).

The 1950s brought more changes to the area. The Capitol dome and portico were removed and the building was "Territorialized" from 1951–1953. The Governor's Mansion was dynamited in 1955, after a new one had been built on Mansion Drive north of town. The State Department of Education Building, originally named the Mabry Building, was built north of the Capitol in 1950. It had a series of terra cotta bas-relief representational panels of images based on New Mexico themes. However, there was a great public outcry over one of the images, that of Miss Fertility, and it had to be removed before the building opened (Sze and Spears 1988:79).

Extensive remodeling and expansion of the Capitol Complex occurred during the 1960s, mostly to the east of the existing Capitol building. The New Mexico State Land Office was built in 1960, at the southwest corner of the river and Old Santa Fe Trail, replacing pre-1886 structures (Sze and Spears 1988:79). The New Mexico State Library, constructed in 1964 at the southeast corner of De Vargas and Don Gaspar, replaced some pre-1912 structures, several old adobes along Amado Street, and Judge Laughlin's house (*New Mexican,* July 12, 1964).

The present State Capitol (the "Roundhouse") was built in 1964–1966 between Don Gaspar and Old Santa Fe Trail, north of Paseo de Peralta, displacing the Collingwood Subdivision on Paseo de Peralta and the William Manderfield house on Old Santa Fe Trail (Fig. 4.10, Sze and Spears 1988:79; Wilson 1997:287–291).The PERA (Public Employees Retirement Association) Building was constructed in 1966–1967 north of Paseo de Peralta and east of Old Santa Fe Trail (Fig. 4.11). This was on vacant land, part of which had been a baseball field belonging to St. Michael's College and part of which was a cemetery. The Lew Wallace Building and the Lamy Building, east of Old Santa Fe Trail and south of De Vargas, were originally built in 1887 and 1878 as part of St. Michael's College. They were acquired by the State in 1965 and remodeled in 1969. The Chavez Memorial Building, also part of St. Michael's College was demolished by 1967. The Villagra Building, west of Galisteo Street and east of Cerrillos Road, was remodeled in 1969, and the New Mexico Employment Security Building, between Guadalupe and Sandoval and south of De Vargas, was planned in the late 1960s and completed in 1971 (Sze and Spears 1988:79–83; Wilson 1997:282).

Today, the Capitol Complex area is dominated by large buildings primarily owned by the State (Fig. 4.12). A few older residential pockets remain, including remnants of the Barrio de Analco along De Vargas Street, a residential compound on the grounds south of the Crespin House off west De Vargas, and a few other houses on Galisteo Street, Don Gaspar Avenue, Old Santa Fe Trail, and between the PERA Building and Paseo de Peralta with the majority having been constructed prior to 1920 (Sze and Spears 1988:83-84).

Historic Maps and Photographs

Historic maps and photographs create a visual narrative of the area encompassed by LA 158037. This narrative begins with the 1766 Urrutia Map of Santa Fe which depicts fields in the vicinity. There are no seventeenth-century maps of Santa Fe. However, given its proximity to the Santa Fe River, it seems likely that the area had been utilized for agricultural purposes since the founding of Santa Fe. By the late nineteenth century, the area was urbanized into a mixture of New Mexico State administrative buildings and residential neighborhood. This section describes details relevant to the project area as recorded on each individual map, followed by a discussion of aerial photographs documenting the project area into the mid-twentieth century and the end of the historic period (ca. 1960).

Urrutia Map of Santa Fe, ca. 1766

The Joseph Urrutia Map of 1766 shows the project area south of a line of buildings which formed the Barrio de Analco (Fig. 4.13). Immediately to the north of the acequia para regadio (irrigation ditch) and east of the road to Galisteo, the project area is occupied by open fields. No buildings can be seen and ownership of the fields is unclear.

Gilmer Map of Santa Fe, 1846–1847

The Gilmer Map of 1846–1847 shows the city of Santa Fe as it appeared when brought under the jurisdiction of the U.S. government. As seen in Figure 4.14, the project area appears unchanged from the early eighteenth-century representation. The area under investigation continues to be occupied by open fields. No buildings are to be seen and ownership of the fields is still unclear.

Stoner's Bird's Eye View of Santa Fe, 1882

Stoner's illustration of Santa Fe is the first to show buildings extant within the project limits (Fig. 4.15). Five of the six buildings appear to be one-story high; there is one two-story building on the corner of Galisteo Street and West Manhattan Avenue. In 1882, the Capitol Building was not yet built. Settlement patterns reflect this fact—occupancy only occurs along Galisteo Street and West Manhattan Avenue.

Hartmann's Map of Santa Fe, 1885–1886

Hartmann's map adds to the narrative by providing a more accurate plan of the area including details of property ownership (Fig. 4.16). Ten individual properties are shown; many surnames are associated with ownership of more than one property, suggesting that the land had only recently been subdivided at the time of the map's creation. The names include the Alarids, Romeros, Garcias, and Delgados.

King's Map of Santa Fe, 1912

King's Official 1912 Map (Fig. 4.17) of the city identified 11 individual lots with water rights to properties encompassed by Galisteo and South Capitol Streets and Don Gaspar and West Manhattan Avenues. The individuals, their water rights, and the amount of land irrigated (Tracts under Ditch 11, Acequia Madre) are provided by the 1978 State Engineer's Santa Fe River Hydrographic Survey, Vol. II; see D. H. Snow 1988). Clearly, the acreage recorded indicates use for gardens, either for vegetables, flowers, and possibly fruit trees; but whether the rights included wells for household use is not known.

Tract 11.241, 3.07 acres, State Capitol grounds
Tract 11.256, .01 acres, William H. Manderfield (see D. H. Snow 2006).
Tract 11.257, .22 acres, Speaman [sic?]
Tract 11.259, .20 acres Fred Muller
Tract 11.260, .10 acres, Fred Muller
Tract 11.261, .02 acres, Napoleon B. Laughlin
Tract 11.262, .22 acres, T. Z. Winter
Tract 11.263, .12 acres, Miguel Chaves
Tract 11.264, .54 acres, Frank W. Parker
Tract 11.265, .09 acres, Ricardo Alarid
Tract 11.266, .01 acres, [Adolfo?] Romero

Sanborn Maps of Santa Fe, 1886, 1890, 1898, 1913, 1921, 1930, and 1942

The Sanborn Fire Insurance maps of the nineteenth century show only the periphery of the project area, omitting the area south of the first two buildings owned by Esselbach and the Alarids. However, in 1913, the nexus of the maps shifts and the area under investigation becomes documented in its entirety. The visual narrative which develops when the 1913 (Fig. 4.18), 1921 (Fig. 4.19), 1930 (Fig. 4.20), and 1948 (Fig. 4.21) maps are examined is one of a gradual intensification of land use within a residential setting. During this time, the street which borders the north end of the project area undergoes several name changes, beginning as Garfield, then Chavez, and finally receiving its current name of South Capitol. The largest of the historic structures depicted on the Sanborn Fire Insurance maps, the First Baptist Church (Fig. 4.22), first appears in 1921.

Palace of the Governors/New Mexico History Museum (NMHM/DCA) Photo Archives

In addition to a search for archival maps, the Palace of the Governors Photo Archives were examined to identify photos of the project area during the 1950s. Three photos (negative nos. 074144, 074169, and 145337) depict the Capitol Complex Historic Neighborhood during this period. Negative no. 145337 (Fig. 4.23) was taken in 1955. The remaining negatives date to 1956 (neg. no. 074144, Fig. 4.24; neg. no. 074169, Fig. 4.25). Collectively these photos display the neighborhood at roughly the same time from different angles. More importantly, they represent the neighborhood as it existed just before state acquisition of most of the private land, the construction of three state office buildings (Roundhouse, PERA, and Concha Ortiz y Pino), and the installation of Paseo de Peralta in the 1960s.

By the 1950s, the project area could be considered a fully developed neighborhood, with a grocery store (Pete's Supermarket) and a church (First Baptist Church) located at the corners of busy intersections. However, state interest in the land had already begun. The backyard of 122 South Capitol Street had been converted to a parking lot for the New Mexico Licensing Board, which now operates out of the residence. Other structures, such as 118 and 120 South Capitol, were less than a year away from being vacated for government offices, at the time the 1956 photos were taken.

Archival Documents

Several sources of archival documents were examined to provide more detailed information about former landowners and residents, what sorts of activities were conducted on site, and when. Sources of documentation included U.S. Census Records, the *Hudspeth Santa Fe City Directories*, the *Santa Fe*

Business Directories, and the direct and indirect deed books at the *Santa Fe County Courthouse*.

U.S. Census Records, 1880–1940

The U.S. Cenus Records are a glimpse into Santa Fe's residents on a decadal scale. These records list not only who was living at a specific address at a given time, but also their marital status, place of birth, who their parents were, where their parents were born, their profession, the names and ages of their children, and their level of education. The results of the Census Records survey are presented in Table 4.1.

Given discrepancies in the number of families listed, census information found for the project area is likely not complete. Either the census takers routinely skipped residences or the current examination of the documents failed to find all relevant listings. Similar discrepancies were identified during a similar study of an area two blocks to the west (Barbour et al. 2012:62). Also it is important to note the absence of the 1890 census, which was destroyed when the Federal Commerce Department Building caught fire in 1921.

Many of the families listed on the documents found match those listed on archival maps and in the Hudspeth Santa Fe City Directories. Prominent surnames which appear to have occupied the neighborhood for many decades include: the Alarid, Beacham, Muller, Parker, and Romero families. Many of these people had ties to state government including Ricardo Alarid (sheriff), Frederick Muller (State Land Office Chief Clerk), and Frank Parker (New Mexico Supreme Court Justice).

By the time of the 1930 Census, the neighborhood appears to have been fully developed with no fewer than 17 individual residences having been recorded by census takers. 1930 also represents the start of the Great Depression and this event can be seen in both the 1930 and 1940 records. Several of the households documented, including the Sargent, Gilbert, and Ball families, list lodgers in addition to blood relatives living in their homes possibly as a way to offset financial hardships.

Hudspeth Santa Fe City Directories, 1928–2010

The Hudspeth Santa Fe City Directories provided details about who resided on the properties between 1928 and 1960. Table 4.2 shows a complete listing of those individuals by street address, whether they owned their house, and what professional occupations they performed. This listing identifies the neighborhood as being multi-ethnic (Anglo and Hispanic) and housing people from all socioeconomic backgrounds (lawyers, janitors, and soldiers in the U.S. Army). Several family names are identical to those shown on both the Hartmann Map of 1885–1886 and the United States Census Records, including the Alarid and Romero surnames.

The listing also shows several businesses occupying the project area: The First Baptist Church, Dick's Barber Shop, Pete's Supermarket, Butler & Foley Plumbers, and Ray's Floor Covering Service. By the end of the 1950s, the character of the neighborhood began to change as the State of New Mexico began buying out property owners. By 1960 the residential neighborhood was being reborn as a center for state agencies, including the State Directory of Surplus Property, State Highway Department, and the New Mexico Education Association.

Santa Fe Business Directories, 1928–1960

Once a business was determined to exist within the project area, a quick inquiry was made of the Santa Fe Business Directories to gauge who owned the business and if it was advertised. The majority of businesses found within the area were "mom and pop" operations or cottage enterprises that did little in the way of advertising, often existing for little more than a year or two, making the business difficult, if not impossible, to track.

Two of the more noteworthy businesses were Dick's Barber Shop, owned by Richard Alarid, Jr., and Ray's Floor Covering Service, owned by Ramon Romero Jr. Both were grandsons of earlier nineteenth century Alarids and Romeros and were the last of their lineage to occupy the project area before it transitioned into the property of the State of New Mexico. However, both businesses were relatively short-lived. Dick's Barber Shop lasted two years between 1957 and 1958. Ray's Floor Covering Service lasted significantly longer, beginning in 1949 and surviving into the early 1960s.

The only business that advertised regularly was Butler & Foley Plumbers. At 120 South Capitol, the Butler's lived at their shop and produced ads regularly. Figure 4.26 shows the first business ad from 1930 when Butler & Foley Plumbers was founded.

The business appears to have moved elsewhere in 1943.

The Direct and Indirect Deed Books at the Santa Fe County Courthouse

The following deed references to lot transfers within the project area must be considered merely a sample of those recorded. Some have not been recorded at the County; for example, it was not possible to locate the deed by which the New Mexico Baptist Convention acquired the lot on the northwest corner of Don Gaspar and West Manhattan Avenues prior to 1921. No attempt has been made to trace the ownership of each individual lot on the project site; this effort would entail far more time (and money) than is available for this report. In addition, no attempt has been made to identify ownership histories beyond about 1920, as this information can be obtained, in most instances, from the *Hudspeth's City of Santa Fe Directories*. Conversely, deeds recorded prior to about 1850–1860 seldom reference identifiable boundaries (such as street or acequia names); thus, efforts to identify lot locations are difficult, and few earlier deeds are included here.

With selection of the site for the new State Capitol building and grounds, and the extension of Don Gaspar Street south across the river, real estate activity in the vicinity increased dramatically, resembling a game of Monopoly, as lots were bought and sold many times over. Much of this activity was little more than speculation, prompted by the city's anticipation of a "splendid business thoroughfare" as Don Gaspar was extended. Interestingly, however, with the exception of the First Baptist Church property, there could be found no deeds referring to residences (or businesses) north of the church along the west side of Don Gaspar Avenue. The first group of deed references are to purchases by the State of New Mexico for the new capitol grounds and buildings; and following is a sampling of transfers of individual lots within and adjacent to LA 158037.

New Capitol Complex Purchases

1875 (Bk H:350), Cruz Peralta buys from Francisquita and Samuel Ellison, a house of 12 rooms, a yard, and corral south of the river, bd'd east by the street toward Galisteo, north the Rio Chiquito, south by Cruz Peralta and Adellaida Cienfuegos, west by Felipe Delgado.

1885 (Bk N:262), Thomas B. Catron to State, bd'd west, heirs of Tomas Gurule; south, heirs of Jose de la Cruz Ramirez and Jose Gonzales; east, Manuel Salazar and [?] Pino; north, [?] Pino de Sandoval and the river.

1885 (Bk N:108), Nemesion [sic] Roibal et al. to the State of New Mexico, bd'd north Nemesia G. Roibal et al, south, Jacob Esselbach, Levi Garnier, and Hilario Romero, east, T. B. Catron, west, Galisteo Road.

1885 (Bk N:124), Manuel Salazar to State of New Mexico, bd'd east, N. B. Laughlin, west, T. B. Catron, south, *acequia analco*.

1888 (Bk T:222), Juan B. Sandoval to State of New Mexico, bd'd east, Katie K. Laughlin, south and west, Capitol building grounds, north, Analco Street.

1908 (Bk L-1:509), Edward Miller to State of New Mexico, bd'd south, Florentina Manderfield et al; north, river; east, Zepora G. Renehan; west, Galisteo Street.

1908 (Bk L-1:510), A. R. Renehan to State of New Mexico, as above, p. 509.

1934 (Bk Y-ms:288), Henry Alarid et ux to State of New Mexico, bd'd, beginning at the south gate to the entrance of capitol grounds on Galisteo Street.

1934 (Bk Y-ms:287), Eliza Roberts to State of New Mexico, as above, p. 288.

Deeds to Lots Within LA 158037 and Adjacent Areas

1844 (SANM I:715), Maria Antonia Pacheco to Rafael Padilla, house and land bd'd east, lands of Tomas de Sena; west, road to Galisteo, north, lands of Pablo Sandobal; south, *acequia del Pino*.

1858 (Bk G:114), Maria Isabel Rodriguez to Jose de la Cruz Ramirez [1850 census, p. 136], bd'd east, Maria Tomasa Alire; west, Maria Gonzales [possibly, the mother of Felipe Alarid]; north, *acequia analco*; south, Jose de la Cruz Ramirez.

1859 (Bk J-1:169), house and lot from Margarito Sandoval to Tomas Gurule, bd'd east, a road; west Marta Tafoya; north an alley and the river; south, a road.

1859 (Bk J:99), Josefa Alarid [y Quintana] et al. to Tomas Gurule, bd'd east, Jose Pino and Ramon Sandoval; west, Ramon Sandoval [1850 census, p. 139] and Josefa Alarid; north, a road; south, Ramon Sandoval [Maria Josefa Alarid was, apparently, a daughter of Jose Ramon and Antonia Troncoso (Alarid 1997:103).

1859 (Bk J:98), Maria Antonia Trujillo [et vir, Ramon Sandobal] to Tomas Gurule, bd'd east, Ramon Sandoval; west, Luis Constante; north, a road; south, *acequia analco*.

1859 (Bk C:413), recorded 1863. interest in property transferred by Maria Filomena Pino de Alarid to Maria Rita Tafoya (see Bk C:139, following) [Maria Rita was married a second time to Jesus Maria Hilario Alarid, literary composer, poet, and Postmaster at Galisteo, New Mexico, in 1888, and son of Jose Ramon and Antonia Troncoso (Alarid 1997:103–104), brother of Josefa, above. Antonia Troncoso was most likely a sister of Anastacio Romero's wife].

1859 (Bk C:139), Maria Rita Tafoya to Felipe Alarid; bd'd east by Tomas Rivera, west, by Maria Rita Tafoya, north the *acequia analco*, south, the *camino real*.

1859 (Bk J:99), Josefa Alarid et al. to Tomas Gurule, bd'd east, Joe Pino and Ramon Sandoval, west, Ramon Sandoval and Josefa Alarid, north, road, south, Ramon Sandoval.

1860 (Bk C:228), Maria Rita Tafoya et al. to Felipe Alarid, bd'd east, Felipe Alarid, west, Felipe Pino, north, *acequia analco*, south, a road.

1863 (Bk C:139), Maria Filomena Pino de Alarid to Jose de la Cruz Pino (no boundaries provided).

1863 (Bk J:101), Ramon Sandoval to Tomas Gurule, bd'd south an *acequia*, East Jose Pino, west Ramon Sandoval and Josefa Alarid, north, a road.

1865 (Bk D:18), Antonio Brito to Felipe Alarid, bd'd east, Manuel Rivera, west, Felipe Alarid, north Tomasa Miranda and a road, south, Manuel Rivera.

1865 (Bk D:19), Miquela Lujan to Felipe Alarid, bd'd east, Tomas Brito, west, entrances and exits to Jose Antono Rodriguez, north, Dolores Rodrigues and an acequia, south, [?] Rivera.

1866 (Bk D:240), Adellaida Cienfuegos to Francisca Morales, bd'd north, the river, east and south, Albino Roibal, west, Galisteo Road.

1866 (Bk D:264), Francisca Morales to Eduardo Miller, bd'd east and south, Albino Roibal, north river, west, Galisteo Road.

1868 (Bk D:491), Albino Roybal et al. to Eduardo Miller, bd'd north, Miller and a road to hill [Pleasant Hill, on Cerrillos Road], south, Albino Roybal, east, Roybal's wall, west, Galisteo road.

1868 (Bk D:427), Maria Gonzales to Fernando Delgado, bd'd north, Jose Gonzales; south, the road from Pecos road to Galisteo road [that is, Manahattan Street]; east, Jose Gonzales; west, Jose Gonzales.

1873 (Bk G:116), Guadalupe Quintana de Ramirez to Ambrose P. Adams et ux, bd'd east, Jose Gonzales, north, *acequia analco*, west, Fernando Delgado and Anastacio Romero, south, a road.

1875 (Bk H:319), Leonarda Ramirez Olson et vir to Edubina Ramirez de Adams et vir, bd'd east, Jose Gonzales; north, acequia analco; west, Fernando Delgado and Anastacio Romero; south a road.

1875 (Bk H:391), Leonarda Ramirez Olsen et vir to Ambrose P. Adams, bd'd, east, Jose Gonzales, north, *acequia analco*, west, Fernando Delgado and Anastacio Romero, south, a road.

1878 (Bk S:31), Nicolas Rodriguez to Jesus Tafoya et ux, bd'd, north an arroyo, south, a road, east, Felipe Quintana, west, Jesus Tafoya.

1879 (Bk Y:280), M.A. Breeman to Adella Krummeck, bd'd, north river, south *acequia analco*, east, Cayetano Varela and J. Ritter, west, Antonio Abeyta.

1881 (Bk R-2:123), Sophia Herlow to Julia Esselbach, bd'd, west by Galisteo Road at the south boundary of lands of Nemesia Gurule de Roibal.

1881 (Bk R-2:80), Anastacio Romero to Pleasant Hill, bd'd east, Anastacio Romero, west, Galisteo road, south, *acequia común*, north, Anastacio Romero.

1882 (Bk M:20), Ambrose P. Adams et ux to Levi Garnier, bd'd west, F. Delgado et al, east, J. Gonzales, south, road, north, *acequia analco*.

1883 (Bk S:275), Adellaida Cienfuegos to Adellaida Krummeck, on the east side of Galisteo Road (ref to Bk L:111).

1883 (Bk M:118), Adellaida Krummeck to Etienne Lacassagne, two tracts on the south side of the river, the second bd'd north, the river, south, a street.

1883 (Bk M:289), Adellaida Krummeck to N.B. Laughlin, bd'd, begin on north bank of *acequia analco*; also an adobe house and orchard.

1885 (BkB-1:592), Anastacio Romero to Ramon Romero, a house and lot, bd'd on all sides by Anastacio Romero.

1887 (Bk V:17), Anastacio Romero to Maria Guadalupe Romero, bd'd north, Benito Alarid, east and south, Anastacio Romero, west, Galisteo Road.

1888 (Bk T:220), Estate of Manuelita Pino de Sandoval to Juan B. Sandoval, bd'd north Analco

Street, east, Manuel Salazar, south and west, the Capitol.

1888 (Bk T:56), Margarita Romero to Henry Oppenheimer, bd'd north, heirs of Pablo Delgado, east, Trinidad Lucero de Delgado, south, road, west, Anastacio Romero.

1888 (Bk S:554), Manuel Salazar et ux to Katie K. Laughlin, bd'd, north the river, west, Frank Chavez, Juan Sandoval, and Capitol grounds, south, Capitol grounds, east, Stephen Laccasagne.

1890 (Bk V:306), Henry Oppenheimer to Rafael Ortiz y Lucero, bd'd north, heirs of Pablo Delgado, east, Trinidad Lucero de Delgado, south, a road, west, Anastacio Romero.

1890 (Bk V:366), Sophia Herlow to Julia Esselbach, land on the east side of Galisteo Road, at the south boundary of Nemesia Gurule de Roibal.

1890 (Bk V:369), Julia Esselbach to Wm Quayle (?), land on the east side of Galisteo Road.

1890 (Bk V:371), Edwin T. Weber and Julia Esselbach interest in contract above, p. 369.

1891 (Bk W:222), Heirs of Anastacio Romero to John W. Akers, bd'd south, Manhattan Street, west, Santa Fe Improvement Company, north, Benito Alarid, east, Rafael Ortiz.

1894 (Bk C-1:16), N. B. Laughlin to Katie K. Laughlin, bd'd north, the river, east, P. H. Kuhn, south analco ditch, west, Don Gaspar Ave., east, E. Laccasagne.

1894 (Bk D-1:421), Heirs of Jose Gregorio Roybal to Albina Lugarda Roybal (no boundaries given).

1896 (Bk D-1:283), William Quagle to Julia and C.D. Esselbach, land on the east side of Galisteo road at the southwest corner of a wall at the south boundary of the capitol grounds.

1897 (Bk E-1:412), Julia Esselbach to D. P. Simmons, beginning at a point on the east side of Galisteo Street near the south boundary of the Territorial Capitol grounds.

1898 (Bk C-1:217), Levi Garnier to Fred Muller, bd'd west, Fernando Delgado and Anastacio Romero; east, Jose Gonzales; south, Manhattan Street; north, *acequia analco*.

1899 (Bk P-2:417), Ramon Garcia to Frederick Muller, bd'd north, Capitol lands; south, Rafael Ortizand Manhattan Street; east, Levi Garnier; west, Wm Quyle [sic ?, Quayle ~ Quagle ?] and Benito Alarid.

1899 (Bk C-1:290), Ricardo Alarid to Libbie R. Schofield, bd'd south, Manhattan Street, east, Rafael Ortiz, west, Santa Fe Improvement Company, north Pelegrina Delgado.

1900 (Bk C-1:374), Beatriz Enos de Ortiz to Nathan Salmon, bd'd north and east by Fritz Muller, south, Manhattan Street, west, Ricardo Alarid.

1901 (Bk C-1:436), Robert N. Bell to Ishmael Sparks, begin at a stake on Galisteo Road.

1901 (Bk C-1:592), D. P. Simmons to Ishmael Sparks, begin at a stake on Galisteo Road.

1902 (Bk I-1:145), City to Frederick Muller, bd'd north, the river; east, west, and south by N. B. Laughlin.

1902 (Bk J-1:456), Etienne Laccasagne, bd'd north, the river; south, east, and west, by N. B. Laughlin.

1906 (Bk L-1:250), W. H. Pope to Louise Schnepple, land on northwest corner of Don Gaspar @ Manhattan, west to Fritz Muller.

1907 (Bk L-1:443), W. H. Pope to Mrs. Arthur A. Spearin [sic?], land on northwest corner of Don Gaspar @ Manhattan, thence west to Fritz Muller.

1908 (Bk L-1:517), property as described above.

1911 (Bk P-1:113), property as described above

1912 (Bk L-2:543), Arthur A. Spearin [sic?] et ux to E. R. Wright, as described above.

1917 (Bk R-ms:14), land as described above.

1918 (Bk R-ms:25), land as described above.

1920 (Bk P-2:142), Edward Knott to Adolfo Romero, bd'd north, heirs of Pablo Delgado, east, Trinidad Lucero de Delgado, south, a road, west, Anastacio Romero.

1921 (Bk M-3:580), A. N. Starkey et ux to First Baptist Church, bd'd north, Manhattan Street, south, Arroyo Pino, east, Santa Fe Improvement Company.

1921 (Bk ?), Baptist Convention of New Mexico to First Baptist Church, land at northwest corner of Don Gaspar at Manhattan.

1923 (Bk 10:90), Ishmael Sparks to Thomas Z. Winter, bd'd north, Capitol Street, east, Fritz Muller, south, Lot 24 Blk 43, west, Miguel Chavez [Block 43 does not concur with either of King's Official Map of Santa Fe].

Family Histories

A brief survey of the *Origins of New Mexico Families a Genealogy of the Spanish Colonial Period* by Angelico Chavez (1992) and internet genealogical services provided the following information about Alarid, Beacham, Butler, Muller, Ortiz, and Romero families who occupied LA 158037 throughout much of the nineteenth and early twentieth centuries. A brief history of each surname is provided below.

Surname: Alarid.
Origin: French.
Members on Location: Amadeo (ca. 1928–1943), Amando (ca. 1930), Arturo (ca. 1930), Carmen (ca. 1940–1959), Dolores (1929–1940), Estela (ca. 1910), Fred (ca. 1930), Jacob (ca. 1910–1920), Jim (ca. 1920–1920), Juan Pedro (1927–1957), Leopoldo (ca. 1930), Reyes (ca. 1928–1954), Ricardo (ca. 1910–1930), Ricardo Jr. (ca. 1910–1959), and Socorro (ca. 1910–1930).

History: It is not known for certain when Juan Bautista Alarí arrived in New Mexico as there are three conflicting possibilities. The first possibility occurred in the year 1740 when nine Frenchmen arrived in Taos and two moved to Santa Fe and proceeded to live there. One of these men was a Jean d'Alay who became a barber (medic) and whose name was written as Alarí by the governor at the time. However, it is also possible that Juan Alarí arrived in New Mexico with a group of thirty-three Frenchmen around the year 1740. The third possibility is that Alarí arrived with the Mallet Expedition in 1839. Among the eight party members there is a man called by both "Petit Jean" and "Jean David" and he was the only Frenchmen among the group. To make this option all the more appealing Alarí's supposed companion, Louis Moreau, is listed among the party (Chávez 1992:122).

While living in Santa Fe, Juan Alarí married María Francisca Fernández de la Pedrera, and they lived in a house where La Fonda is now located. They had four children. María died at the age of forty and Juan married again and had one more son. Almost all the male children of Juan Alarí became soldiers during some part of their lives, as did their father. The name Alarí was written in a variety of different forms: Alarij, Alaríe, and Alejaríe besides the most common and most often used Alarí. In the nineteenth century the name was changed to Alarid to Hispanicize the name. This was possibly in response to growing Anglo intrusion (Chávez 1992:122–123).

The first historical documentation of the Alarid family in the project area is on the *Hartmann Map of Santa Fe* dated 1885–1886 where two plots, one owned by a S. Alarid and another by a B. Alarid, are shown. Both are located in the western boundary of the project area. This occupation continued into the twentieth century. The *Hudspeth Santa Fe City Directories* show multiple Alarids residing in the area. Richard Alarid lived at one time at 135-1/2 West Manhattan Avenue, in the year 1959; Richard, Jr., also lived in this building, between 1938 and 1939. Richard, Jr., also lived at 141 West Manhattan Avenue, between the years 1940 and 1947. Richard, Jr., lived even earlier at 443 Galisteo Street, from the years 1928 to 1932. Richard, Jr., also lived at 451 Galisteo Street between the years 1938 and 1943. Pete Alarid lived at 443 Galisteo Street in apartment number two between 1951 and 1952.

According to *the Direct and Indirect Deed Books at the Santa Fe County Courthouse,* between 1848 and 1934, the Alarid family had some of the largest land holdings south of the Santa Fe River. It showed hundreds of transactions using the Alarid surname and showed that Richard Alarid, Jr., owned at least four residences. The deeds have been made out to Ricardo Alarid, Jr., meaning that the *Santa Fe City Directories* chose to anglicize his name; no reason for this is known.

Surname: Beacham.
Origin: English.
Members on Location: Arthur (ca. 1910–1920), Lenore (ca. 1920–1957), Grace (ca. 1910), Mary (ca. 1910–1920), and William (ca. 1910–1941).

History: The Beacham surname derives from old French for lovely plain or field. It was transported to England with the Norman Conquest in 1066. This branch of the Beacham name emigrated from England to upstate New York in the late nineteenth century.

William Beacham moved to New Mexico in 1907 and established Beacham and Minardot Hardware. He was also one of New Mexico's first advocates for fly-fishing (Beacham 1932). His store was one of the few in New Mexico to offer recreational fishing supplies in the early twentieth century. William Beach passed away in 1941, but was survived by his wife, Lenore, who continued to live at 116 South Capitol Street until 1958.

Surname: Butler.
Origin: English.
Members on Location: Clara (1930–1943), Helen

(1930–1943), Jean (1930–1943), Roy (1930–1943), and Roy, Jr. (1936–1943).

History: Butler family moved to Santa Fe from Colorado in the late nineteenth century and started Butler and Foley Plumbers. During the 1930s and early 1940s, the Butler Family rented 120 South Capitol Street, located within the current project area. Like William Beacham, Roy Butler was an avid sportsman. However, his focus was primarily on hunting large game, which he gutted and skinned in the backyard. He was also one of the founders of Rodeo de Santa Fe and an excellent equestrian. In 1954, Roy received the American Architects Institute Craftsmanship Award for his continued excellence for his work as a plumber.

Surname: Muller.

Origin: German.

Members on Location: Adella (ca. 1900–1954), Adella (ca. 1900–1920), Alfred (ca. 1900–1910), Elsie (1905–1930), Frederick (ca. 1900–1934), Frederick Jr. (ca. 1900–1910), Theodore (ca. 1900–1940), and William (1902–1920).

History: Frederick Muller arrived in the United States in 1878. He had been born in Wurtemberg, Germany. Four years after his arrival, he joined the military and fought in campaigns in both Arizona and New Mexico. In 1887, he was discharged from the army and moved to New Mexico. He initially opened a grocery store but soon got involved in politics. He was the Santa Fe City treasurer in 1896, 1898, and 1900. Muller also joined the New Mexico National Guard and was a rough rider. Subsequently, he went to work at the U.S. Land Office at Santa Fe in 1899. He continued to work there until 1911. In 1912, when the State Land Office was created he served under director Robert P. Ervien. After Ervien's death in 1918, he assumed the directorial duties. Then in the 1920s, Fred Muller left the state department to pursue real estate and insurance ventures (http://elibrary.unm.edu/oanm/NmAr/nmar%231978-030/).

Frederick Muller married Adella Miller and had six children: Frederick Jr., Alfred, Theodore, William (Mulkin), Elsie May, and Adella. The Muller family lived at 111 West Manhattan Avenue from ca. 1900 to 1954. After Fred's death in 1934, the property was held by Adella until 1954. Both, Frederick and Adella, are buried in the Santa Fe National Cemetery (http://www.interment.net/data/us/nm/santafe/santanat/santa_fe_muhnew.htm).

Surname: Ortiz.

Origin: Spanish (Hispanic)

Members on Location: Juan D. (1949–1960+) and Zoilo (1949–1950).

History: The first Ortiz in Santa Fe was Nicolás Ortiz who joined the colonists in the town in 1693. There is no consensus about his occupation or the size of his family. At Zacatecas he is referred to as a *Sargento*, or sergeant, and as having a family of seven. Another list shows him as a civilian not associated with the military with only six children. The early life of the Ortiz family in Santa Fe was full of hardship. In 1714, Luis Ortiz, a son of Nicolás, was sent to Mexico City to conduct a convicted murderer back for disposition, but the prisoner escaped en route. When Luis returned to Mexico City with the news, he was jailed. Francisco Ortiz, another son of Nicolás, was banished to Bernalillo, along with his family, by Governor Cuervo (Chávez 1992:247–251).

Nicolás Ortiz II, "Niño Ladrón de Guevara," was a military man who arrived in Santa Fe in 1693 from Mexico City; he was twelve years old. Four years later Nicolás received a citation for military valor in the battles of the Black Mesa, of the Mountains of the Taos, and Picurís, all of which took place during 1696; this was the beginning of his military career. In 1713 he was the captain of the Santa Fe militia. However, he apparently caused some offence because in the Moqui Campaign of 1716 he functioned as a regular soldier, not a commanding officer. Despite this demotion, Nicolás was able to acquire much property in Santa Fe including a house in front of the Church of St. Francis (Chávez 1992:247–251).

Francisco Ortiz, another relative, was at one time the *alcalde* of Santa Fe in 1744 and owned a mine in the Picurís country. Nicolás Ortiz III was the *teniente* of the Santa Fe Presidio in 1750 and he had a connection to the Alarid family. Nicolás' son Gaspar Ortiz married Dolores Alarid in 1810 (Chávez 1992:247–251).

The Ortiz family does not seem to have played a large role in the project area. They held no plots of land recorded on the *Hartmann Map of Santa Fe* dated 1885–1886. It may be assumed, then, that the Ortiz family was not living in the area until later. There are references to a Zoilo Ortiz living at 135

West Manhattan Avenue between 1944 and 1948. There are also references to a Juan, or John, Ortiz living at 135 West Manhattan Avenue between 1949 and 1950 and in 1960 living at 135-1/2 West Manhattan Avenue.

Surname: Romero.

Origin: Spanish.

Members on Location: Adolf (1928–1929), Anastacio (ca. 1882–1911), Andres (ca. 1880), Desidero (ca. 1900), Dolores (1958–1966), Erma (1928–1964), J. Delfin (1964–1966), Manuel (1959), Ramon (1928–1964), Ramon Jr. (1936–1959), Romancita (1930–1931), and Raymond E. (1965–1966).

History: The Romero family is a long-standing family in Santa Fe history. Bartolomé Romero came to Santa Fe in 1598 when he thirty-five; he was an *Alférez*. Bartolomé was promoted to captain shortly after arriving in New Mexico. Bartolomé Romero II was also a military man, as were many of the Romeros over the subsequent years. He had been regent of New Mexico and *Alcalde* of Santa Fe. Matías Romero, the second son of Bartolomé Romero, was *Alférez Real* and High Sheriff of Santa Fe in 1631. He was accused of trading illicitly with the Plains Indians. The third son of Bartolomé may have even outshined his two older brothers; Agustín Romero was the Secretary of War of New Spain in 1642. Bartolomé Romero III, the son of Bartolomé II, was also a military man, rising to *Alcalde* of Santa Fe in 1661. Following this period of military prosperity in the Romero family came a period where there were no known Romeros in New Mexico. In the pueblo revolt of 1680 three known Romeros fled New Mexico for New Spain: Felipe Romero, Bartolomé Romero de Pedraza, and Francisco Romero de Pedraza. It is not known for sure if these Romeros returned with the Reconquest of New Mexico but it is pointed out that it is possible they returned under "apostolic" names which many Spaniards took on return to New Mexico. There were other Romeros in New Mexico at the time who were not related to this specific Romero family, as Romero is a very common name (Chávez 1992:95–98).

In the project area the earliest recorded evidence of Romero influence is on the *Hartmann Map of Santa Fe* dated 1885–1886 where there are two plots owned by an A. Romero in the eastern bottom of the project area. Not only are the Romeros present on the Hartmann Map but they also show up in the *Hudspeth Santa Fe Directories* from 1928 to 1960. In the twentieth century the Romero family had a large contingent of family in the project area, the earliest recorded being Adolf and Ramon in 1928. Both Adolf and Ramon lived on 449 Galisteo Street, albeit at different time period. Ramon also lived at 449 Galisteo Street at two different parts of his life. Although there is a large contingent of Romeros they do not stay in the same place for many years. Many times, as in the case of Mrs. Romancito Romero, a family member would live in one place for a year and move on.

Figure 4.1. Buildings within the Capitol Complex Historic Neighborhood.

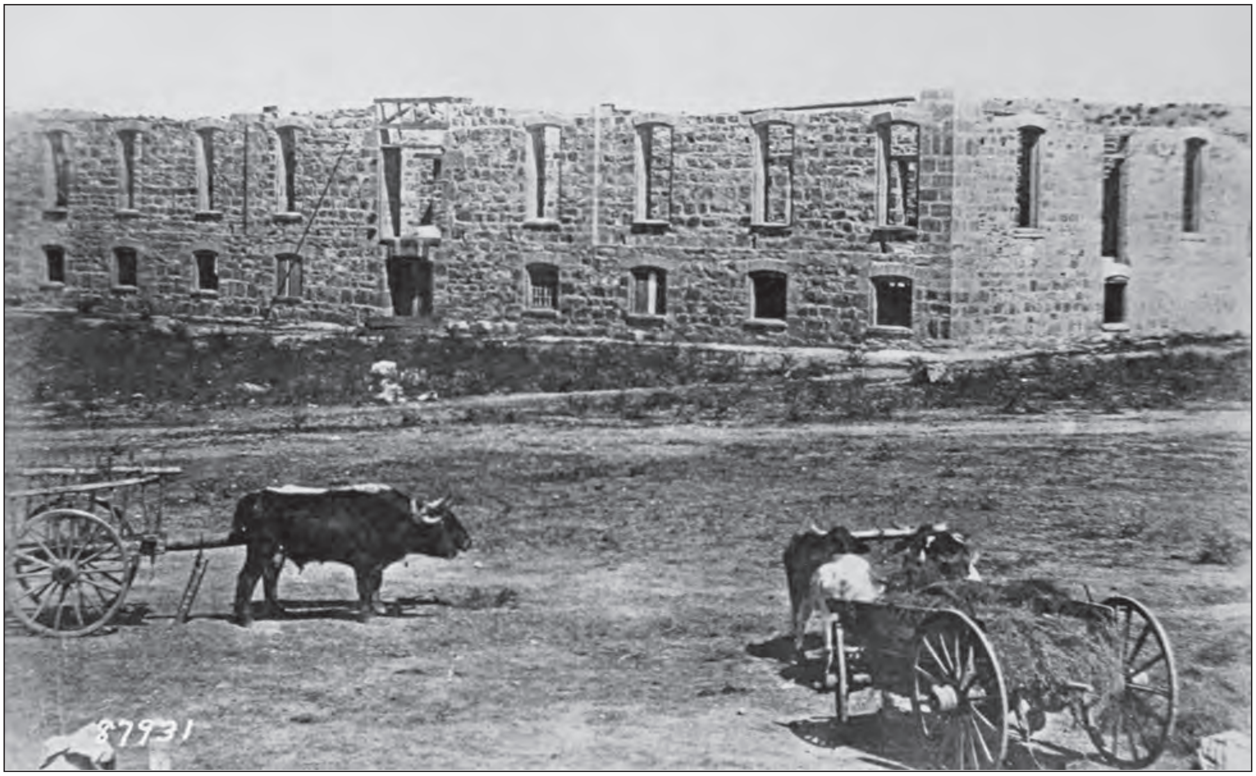

Figure 4.2. Initial construction of the proposed Capitol Building was halted in 1853 and then later completed in 1889. No longer needed as a state house, it became the Federal Courthouse (courtesy Palace of the Governors Photo Archives, NMHM/DCA, neg. no. 010242).

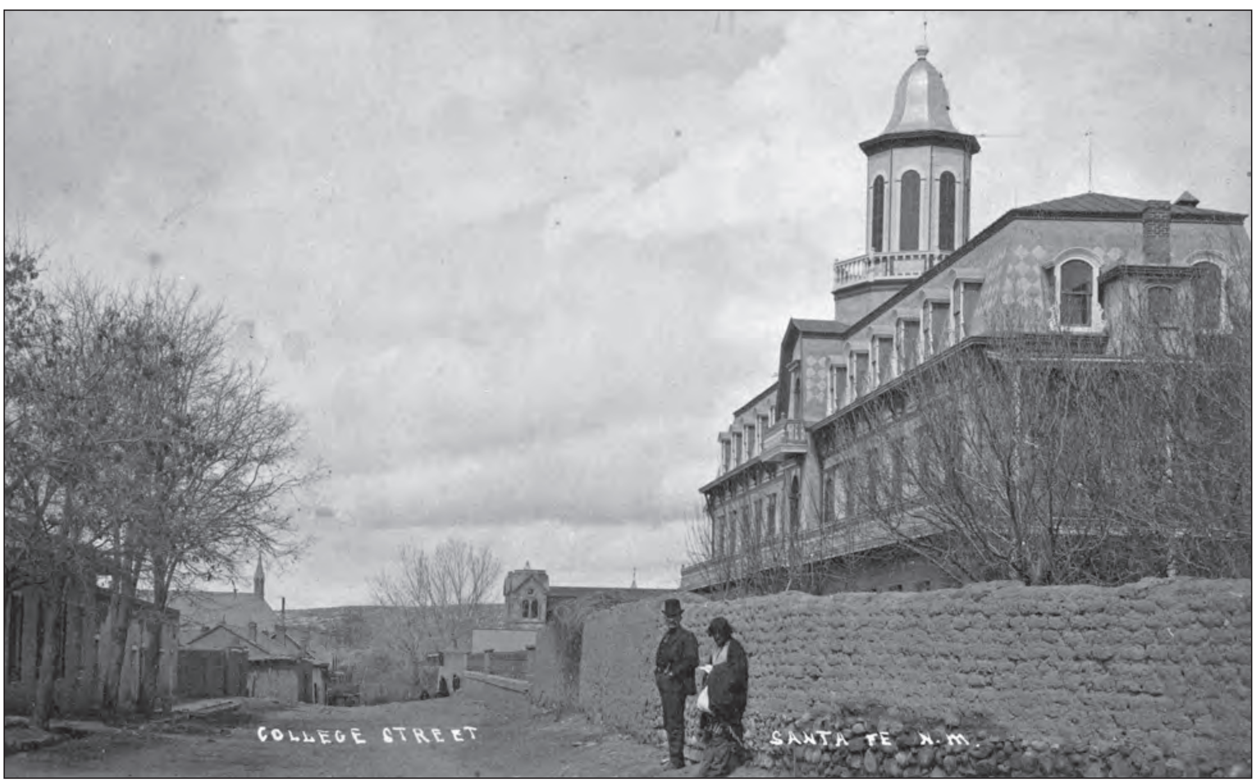

Figure 4.3. St. Michael's College, undated (courtesy Palace of the Governors Photo Archives, neg. no. 011116).

Figure 4.4. St. Michael's Playground with dormitory, now the Lamy Building, in the background, ca. 1924 (courtesy Palace of the Governors Photo Archives, NMHM/DCA, neg. no. 051336).

Figure 4.5. St. Michael's College infirmary, cafeteria, and visitor's center, now known as the Lew Wallace Building, ca. 1924 (courtesy Palace of the Governors Photo Archives, NMHM/DCA, neg. no. 051335).

Figure 4.6. Capitol Building, built 1886 (courtesy Palace of the Governors Photo Archives, NMHM/DCA, neg. no. 76041).

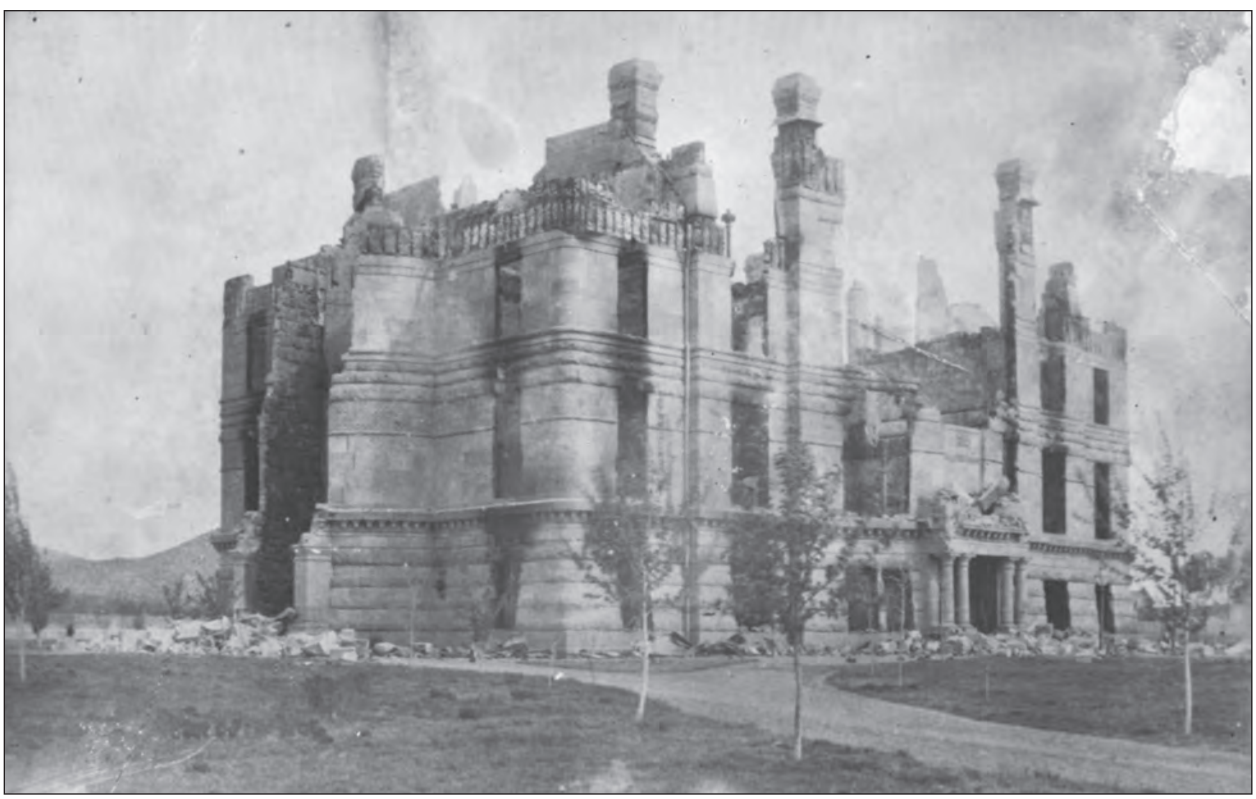

Figure 4.7. Capitol Building, burned 1892 (courtesy Palace of the Governors Photo Archives, neg. no. 16710).

Figure 4.8. Territorial Capitol Building, ca. 1910 (courtesy Palace of the Governors Photo Archives, NMHM/DCA, neg. no. 010376).

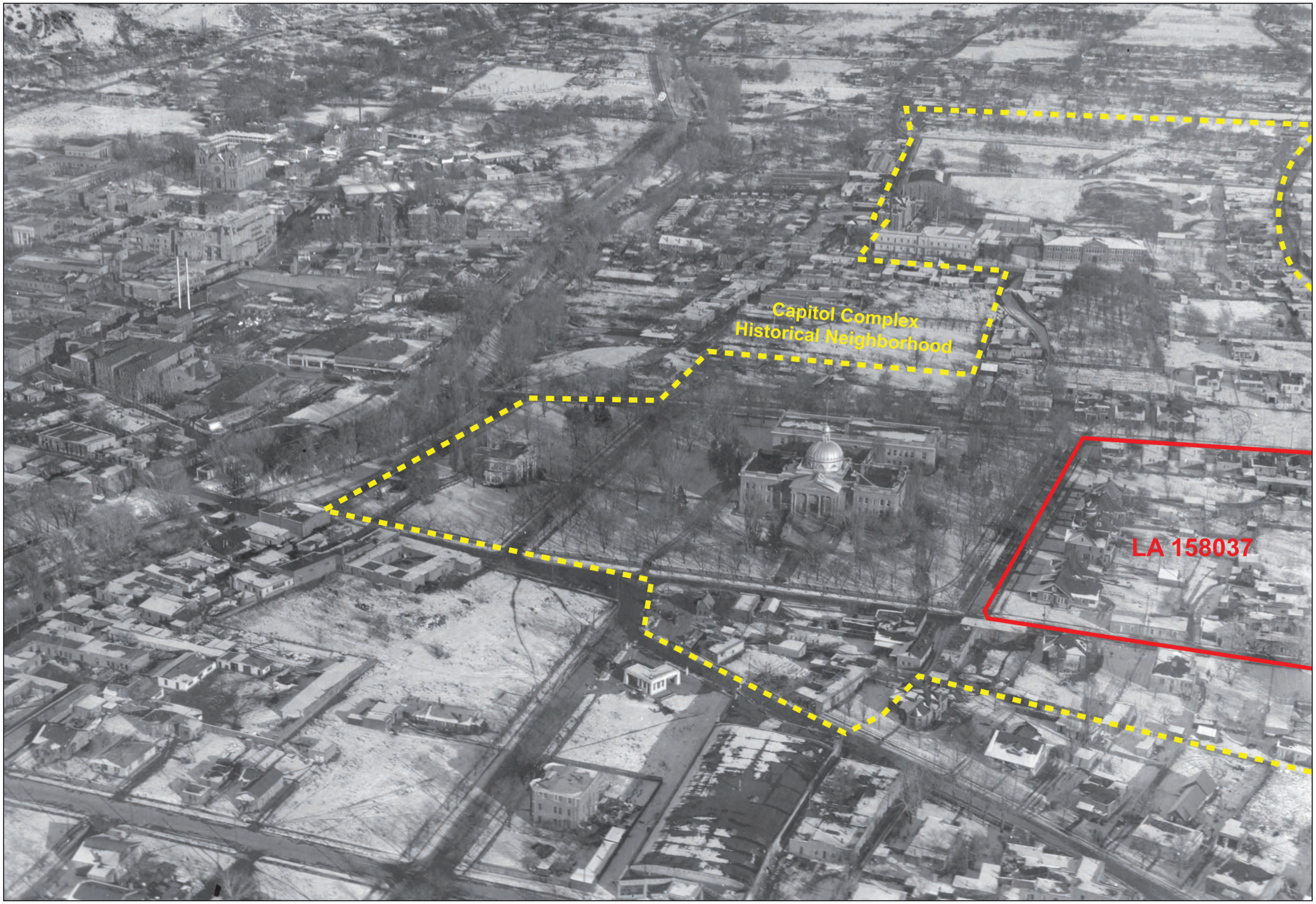

Figure 4.9. Aerial view of the Old State Capitol Building and its surroundings looking east, ca. 1930 (courtesy Palace of the Governors Photo Archives, NMHM/DCA, neg. no. 40671).

Figure 4.10. Current New Mexico State Capitol Building, known as the "Roundhouse."

Figure 4.11. The former New Mexico Public Employees Retirement Building (PERA) Building.

Figure 4.12. Several remaining historic casitas along Don Gaspar Avenue associated with the early twentieth-century residential neighborhood.

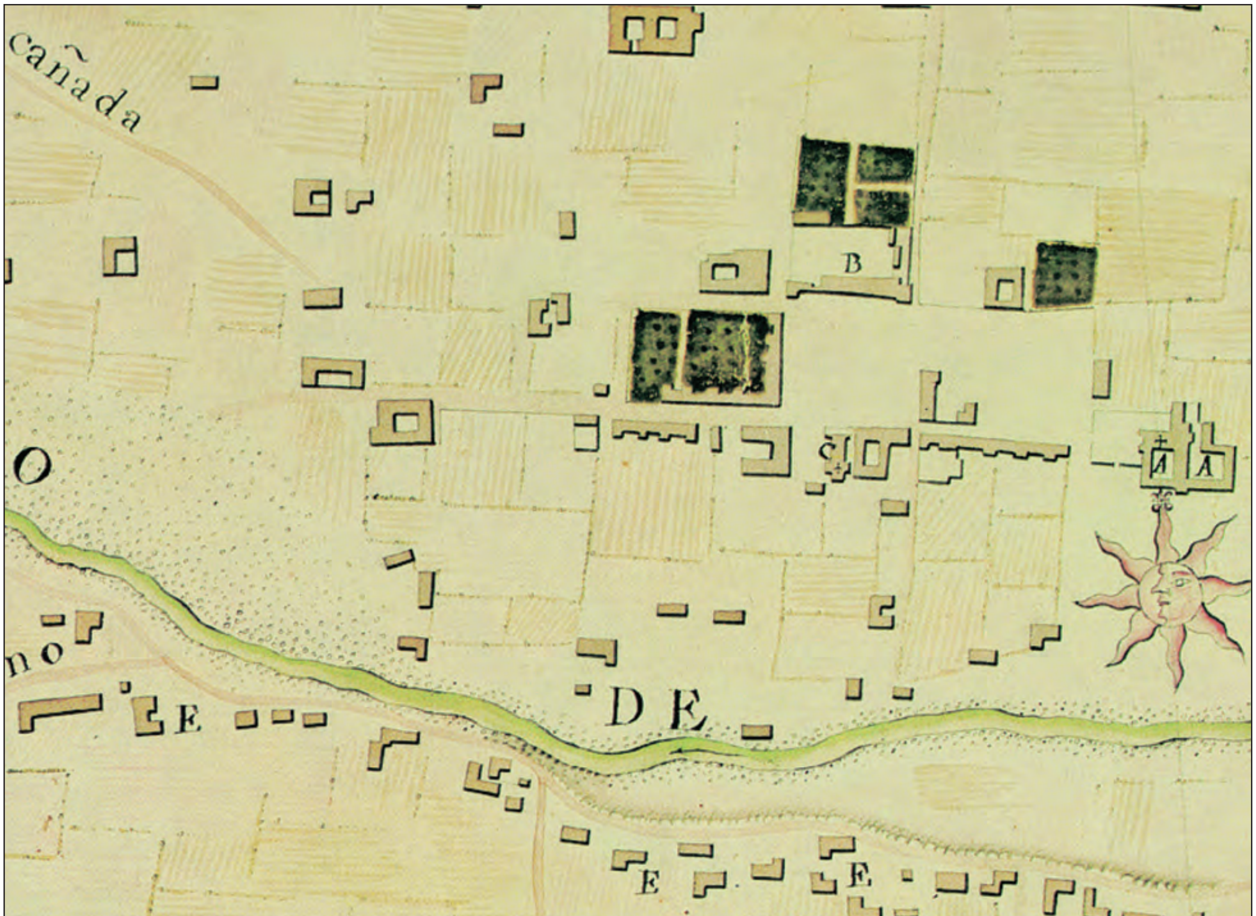

Figure 4.13. Detail of Urrutia's map of Santa Fe, 1766.

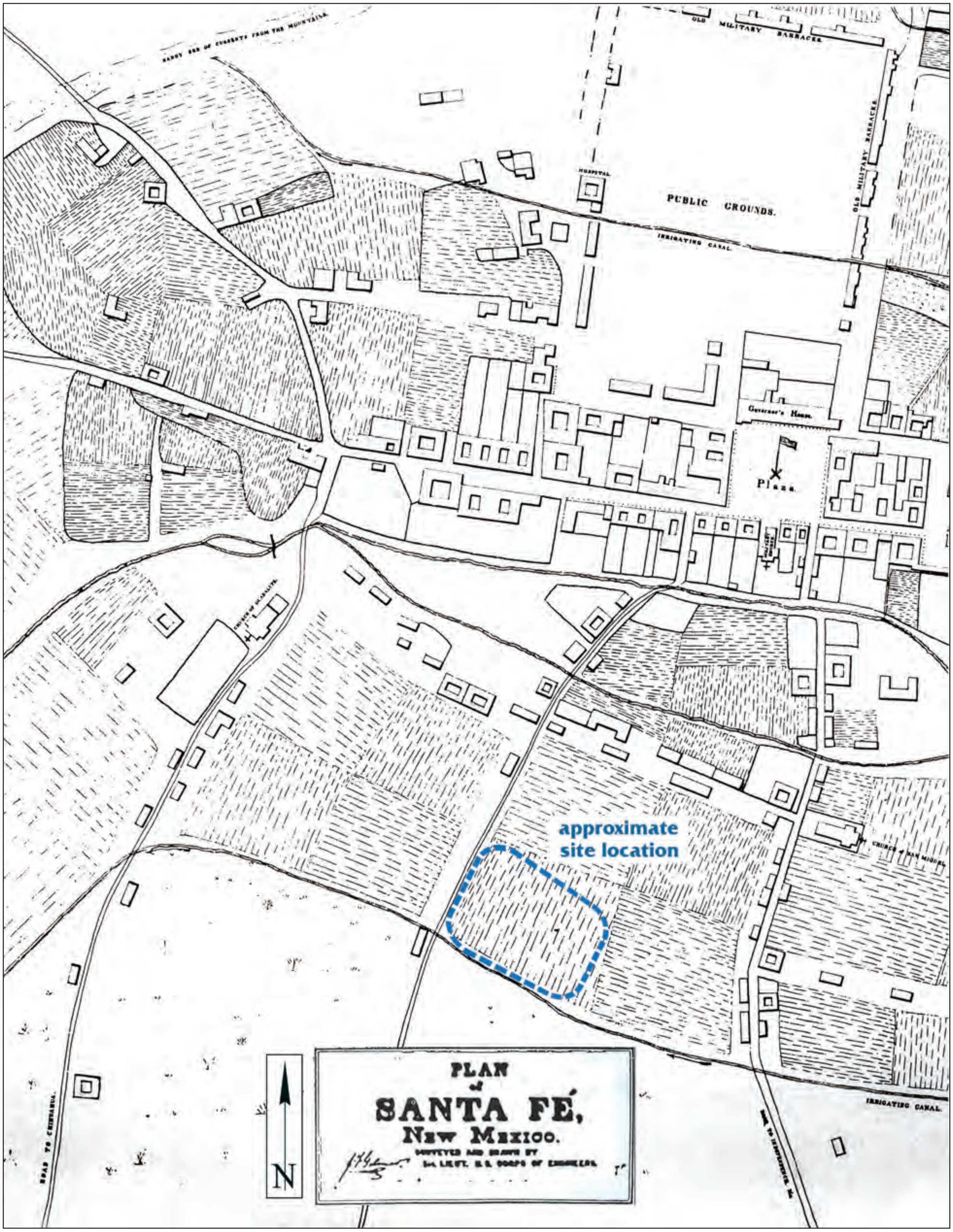

Figure 4.14. Detail of Gilmer's map of Santa Fe, 1846–1847.

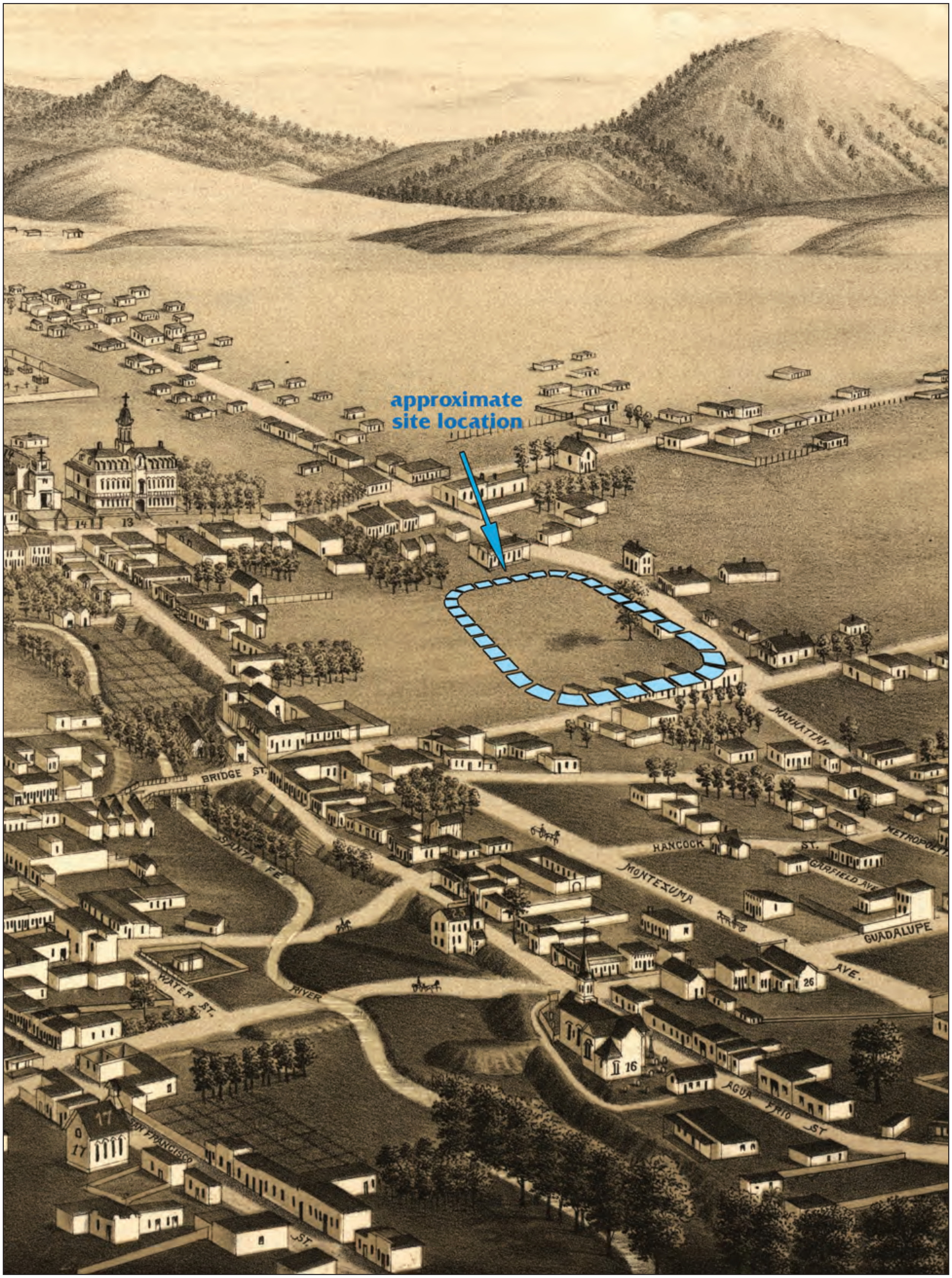

Figure 4.15. Detail of Stoner's Bird's-Eye View of Santa Fe, 1882.

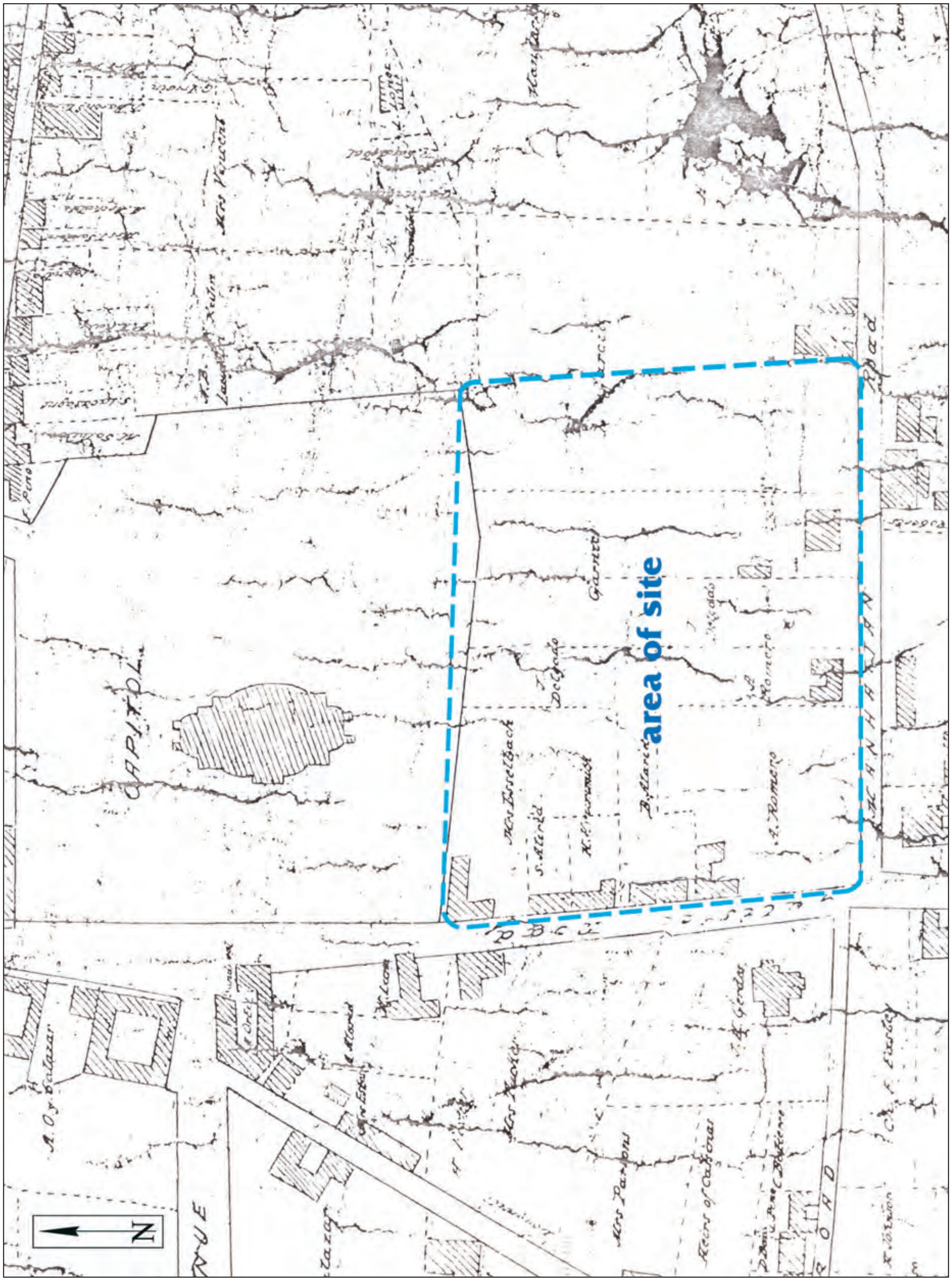

Figure 4.16: Detail of Hartmann's Map, 1885–1886.

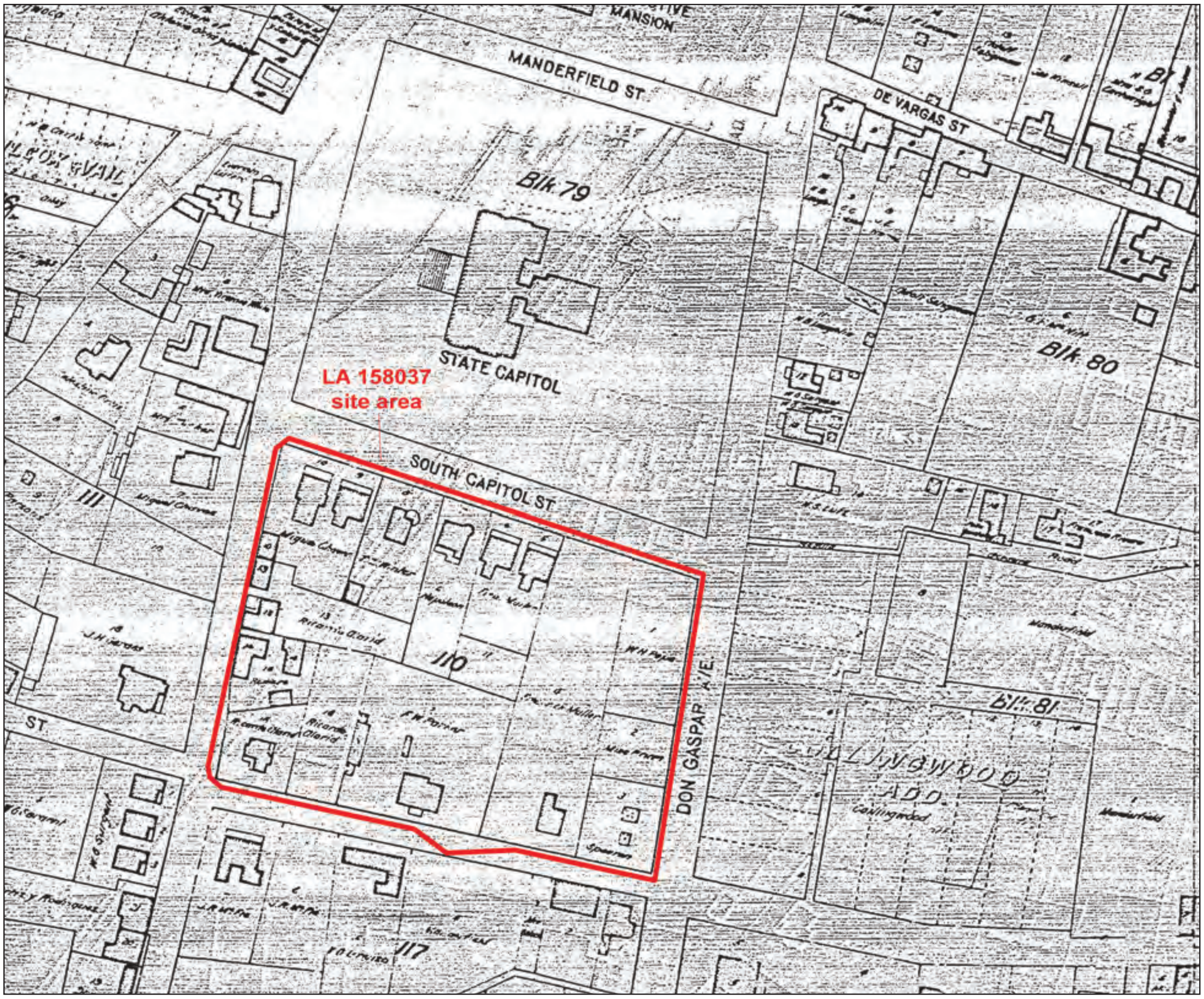

Figure 4.17. Detail of the King's Map of Santa Fe, 1912.

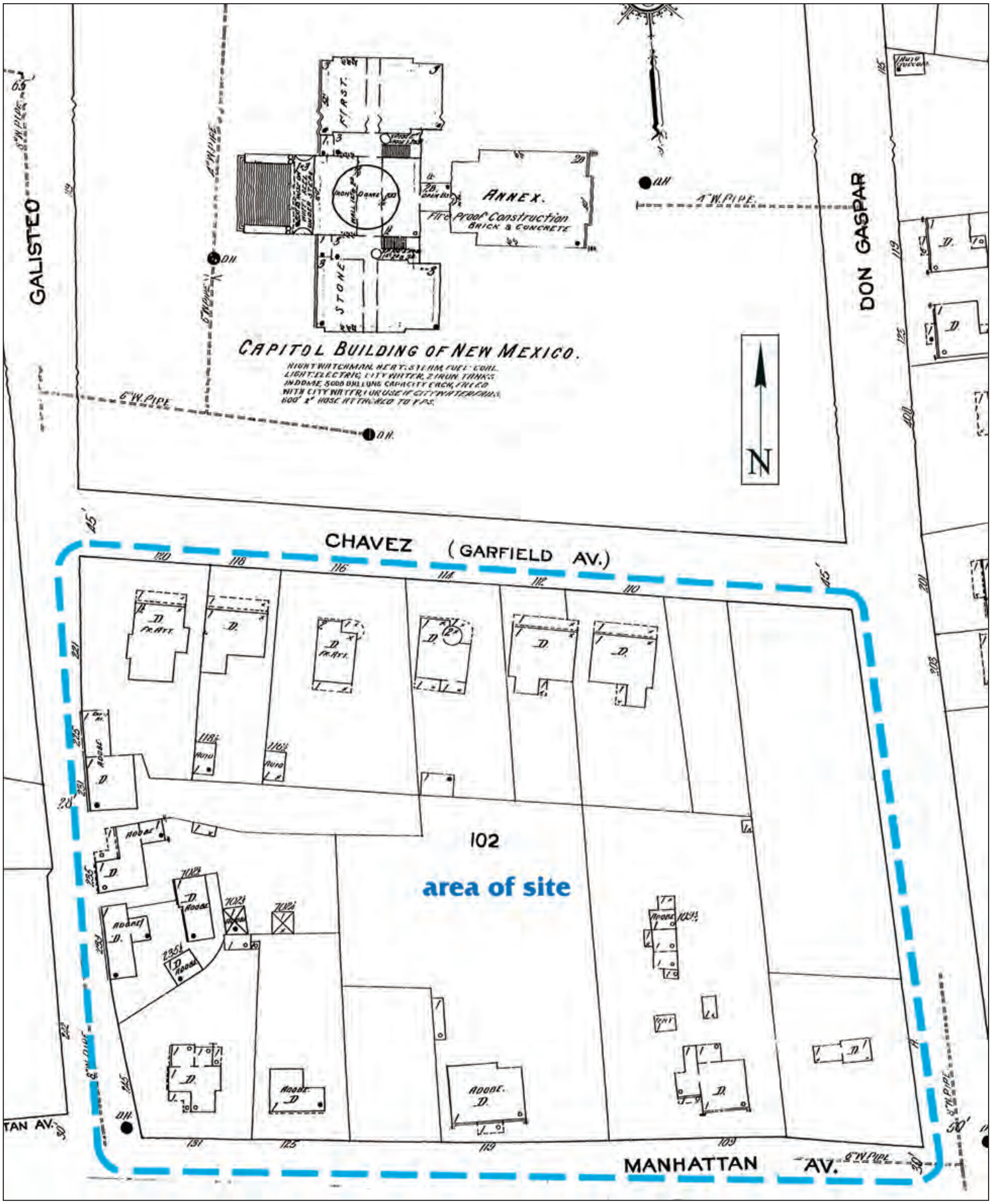

Figure 4.18. Detail of Sanborn Fire Insurance map, 1913.

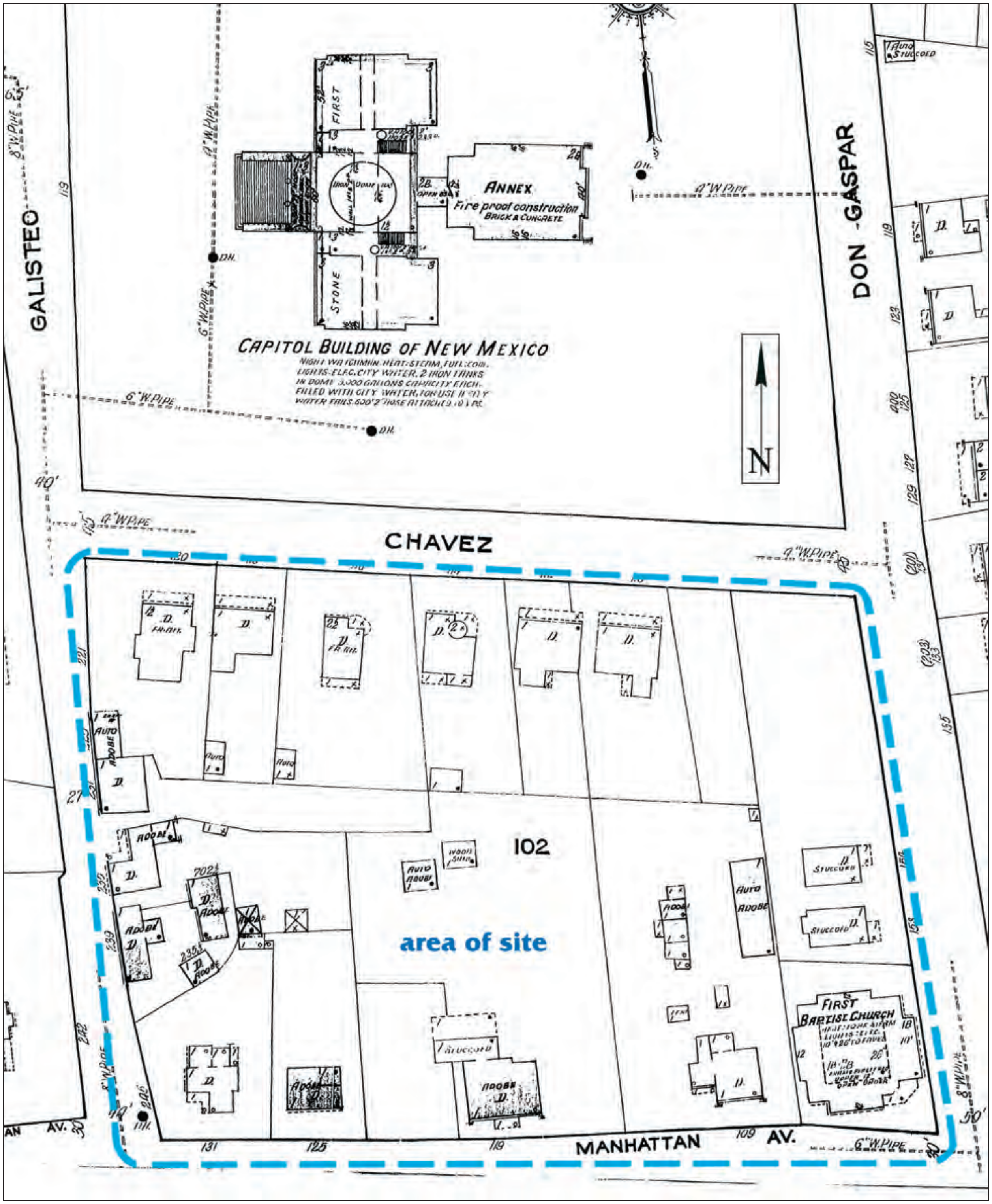

Figure 4.19. Detail of Sanborn Fire Insurance map, 1921.

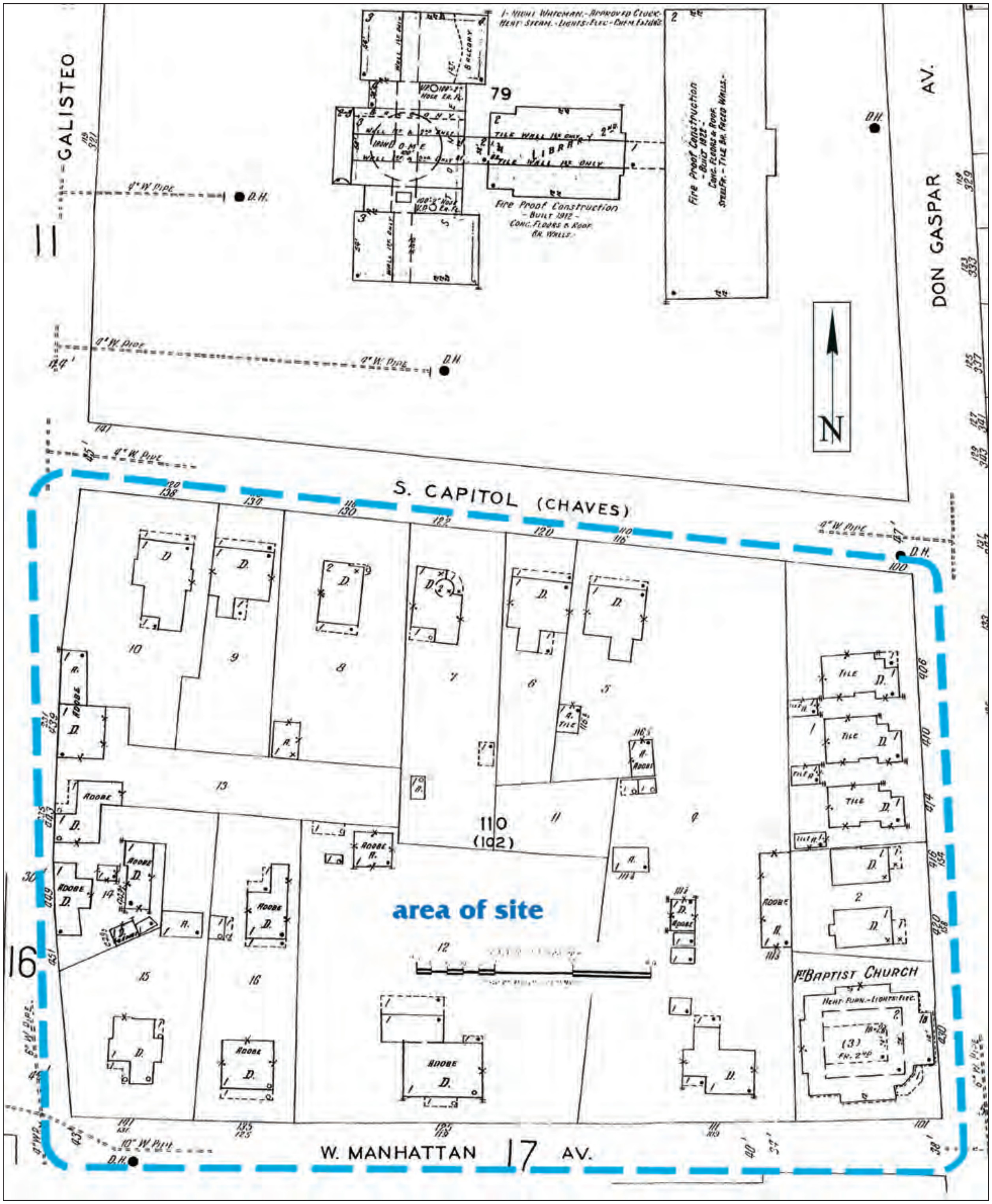

Figure 4.20. Detail of Sanborn Fire Insurance map, 1930.

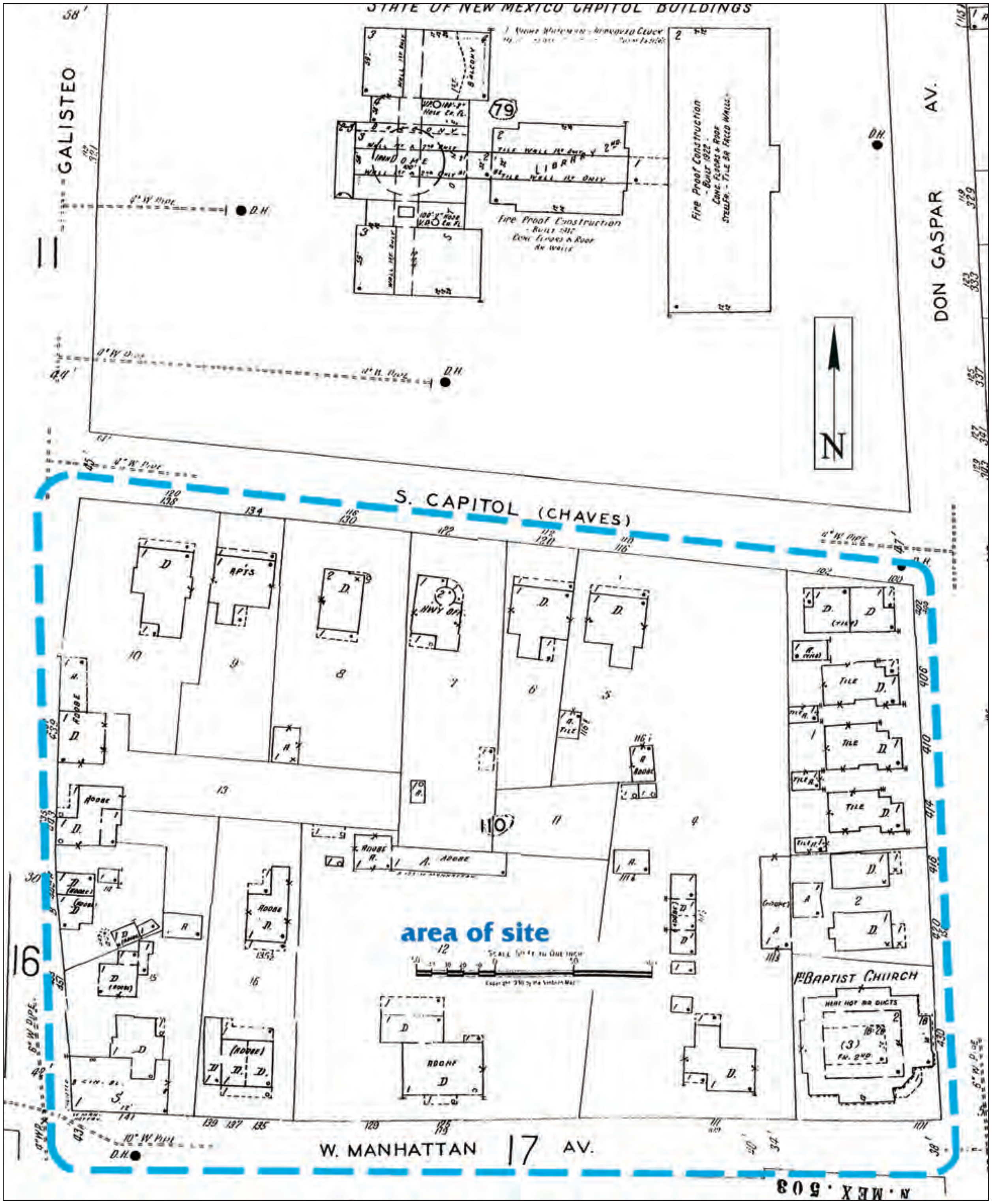

Figure 4.21. Detail of Sanborn Fire Insurance map, 1948.

Figure 4.22. The First Baptist Church, ca. 1949 (courtesy Palace of the Governors Photo Archives, NMHM/DCA, neg. no. 73834).

Figure 4.23. Aerial photograph of the Capitol Complex Historic Neighborhood, 1955 (courtesy Palace of the Governors Photo Archives, NMHM/DCA, neg. no. 145337).

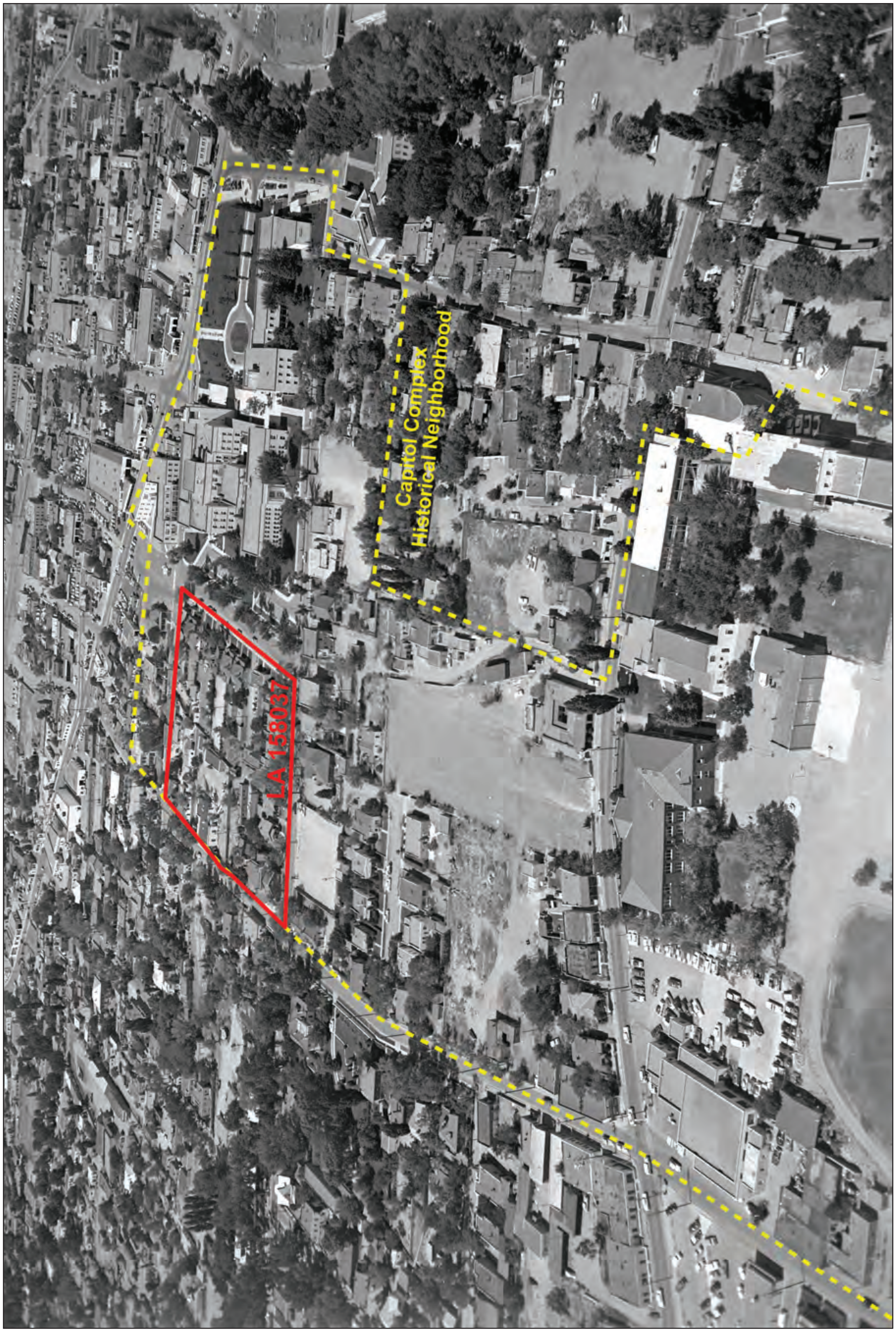

Figure 4.24. Aerial photograph of the Capitol Complex Historic Neighborhood, 1956 (courtesy Palace of the Governors Photo Archives, NMHM/DCA, neg. no. 074144).

Figure 4.25. Aerial photograph of the Capitol Complex Historic Neighborhood, 1956 (courtesy Palace of the Governors Photo Archives, NMHM/ DCA, neg. no. 074169).

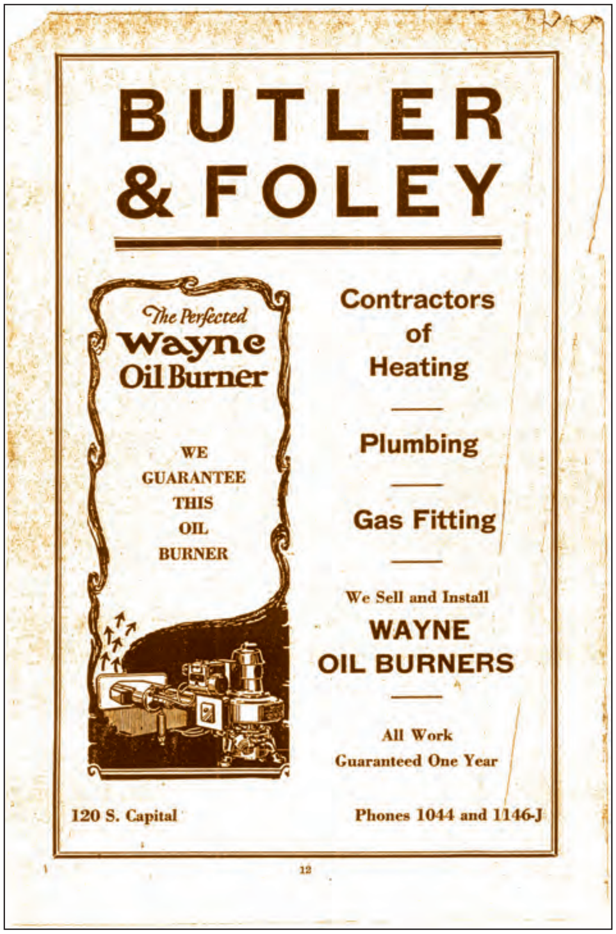

Figure 4.26. Butler & Foley Plumbers advertisement, 1930.

Chapter 5

Previous Archaeological Investigations

Matthew J. Barbour & Susan M. Moga

Archival research with the New Mexico Cultural Resource Information System (NMCRIS) database searched for previous sites located within a 500 m radius of the project area. This search turned up 61 individual sites represented by 93 temporal components (Table 5.1). The vast majority of the components (n = 66) are historic Hispanic and Anglo/Euroamerican, representing 400 years of European occupation of the area in and around Santa Fe. These Hispanic and Anglo/Euroamerican components represent a mixture of residential and industrial/transportation settings.

The residential settings date back as early as the founding of Santa Fe, when the current project area was located just south of the Barrio de Analco Historic Neighborhood. One of the oldest residential areas in Santa Fe, the Barrio de Analco is believed to have been settled by *mestizo* and *genízaro* servants in the seventeenth century. However, this has recently become the subject of some academic debate (Wroth 2010). To the west, the Railroad Historic District was the transportation and industrial hub of the city from AD 1880 onwards. The railroad provided the incentive for large-scale settlement south of the Santa Fe River during the late nineteenth and early twentieth centuries. Lastly, the Capitol Complex Historic Neighborhood encompasses the project area and its immediate environs. The neighborhood has housed state government for the territory and the State of New Mexico since the 1880s as well as provided a residential setting for occupants of the city.

The remaining cultural components are unknown (n = 9) and Pueblo (n = 18); the vast majority of Puebloan sites date between AD 1100 and 1600. These dates can be linked to a large-scale pueblo, LA 1051, which dominated the downtown Santa Fe area during the Coalition and Classic periods (Lentz 2005, 2011).

The following section details previous work conducted at LA 158037 and the surrounding area. To accomplish this, the chapter is separated into two parts. It begins with an inventory of comparable archaeological sites dating to the nineteenth and twentieth centuries in the surrounding area, and then shifts to a discussion of archaeological investigations that have taken place at LA 158037 prior to current excavations associated with the Executive Office Building.

Nineteenth- and Twentieth-Century Archaeological Investigations in the Surrounding Area

During the search of the NMCRIS system, 36 sites were identified to have archaeological components dating to the nineteenth and twentieth centuries (Table 5.2). These sites are briefly described below. Data provided (if known) include site name, date of occupation (1800s and 1900s only), archaeological work conducted, feature types found and artifacts recovered.

LA 1742

Archaeological investigations at LA 1742 included surface collection and excavation of human remains at the Hispanic San Miguel Cemetery, which was east of "the oldest church." Archival research suggests this cemetery was in use during the American Territorial period (1846–1912). Investigations at the cemetery were undertaken by the Museum of New Mexico in January 1966 during construction of the PERA Building.

LA 4450

LA 4450 covers the Santa Fe Historic District. As a historic district, Santa Fe is listed in the *National Register* (July 23, 1973) and *State Register* (No. 260, September 20, 1972). Landowners of LA 4450 include the State of New Mexico, city and county government, and private landowners. Archaeological investigations within the Historic District suggest continual occupation of the Santa Fe area from the Late Developmental period (ca. AD 1100) to the present. Cultural features dating to the nineteenth or early twentieth centuries include buried and standing structures, a church with associated structures, a depression, residences, and roomblocks (Dart 1977).

LA 20195

The Second Ward School site is owned by Union Protectiva. It is a one-story brick structure built in 1886 with two classrooms for primary school grades. In 1910, the building exterior was covered with light brown stucco. By 1966 the school was occupied by two small businesses, Buffalo Hunter and Santa Fe Auto Parts. During this period the building façade was embellished with brown sandstone, and three corbelled brick chimneys were added.

In 1977 the State of New Mexico recorded several features associated with the school structure, including three fire-brick structures, a fence, and an outhouse/privy dating to an Anglo/Euroamerican occupation within the American Territorial (1846–1912) and New Mexico Statehood (1912–present) periods (Dart 1977). LA 20195 is listed on the *National Register* (March 30, 1978) and *State Register* (No. 516, July 20, 1977).

LA 54000

The La Fonda project area was the future site of a three-story parking garage. The site is owned by the La Fonda Corporation of Santa Fe. In January 1985, salvage archaeology by the Laboratory of Anthropology revealed several historic features, including dugouts, house foundations, a midden, and a well. Two Hispanic components dating to the Spanish Colonial (1539–1680 AD) and U.S. Territorial (1846–1912) periods were identified (Wiseman 1988, 1992).

LA 54312

LA 54312 was an asphalt-covered parking lot owned by the City of Santa Fe. During the nineteenth century, an industrial power plant and a domestic residence occupied the premises. Features associated with these structures became visible during the January 1986 excavation conducted by the Laboratory of Anthropology in preparation for the Water Street Parking Lot (Rudecoff 1987). These features included a refuse pit, the basement foundation of the Windsor house, a power plant spray reservoir and cooling tower, the power plant foundation with a brick floor, the power plant substation concrete foundation, a motor footing foundation for the power plant, the power plant main office foundation, concrete walls for the power plant underground fuel tank, and a well with concrete walls. Thousands of fragments of Euroamerican artifacts were retrieved from these features, along with lesser amounts of faunal remains, flaked stone, and some prehistoric diagnostic ceramics.

Archival research and chronometric dating place this Anglo/Euroamerican site within the U.S. Territorial (1883–1912) period for the Windsor residence and U.S. Territorial (1891) to recent historic (1960) periods for the industrial power plant. The few diagnostic prehistoric ceramic fragments suggest earlier use of the area by indigenous populations but could not be assigned a specific date.

LA 69193

LA 69193 is privately owned and functioned in the late twentieth century as a gravel parking lot. Backhoe trenches and test excavation of the site by Rio Abajo Archaeological Services in January 1989 exposed several Hispanic features. These included four concrete poured foundations and two refuse pits. Artifacts recovered include porcelain, metal, and glass fragments and suggest a U.S. Territorial (1846–1912) and New Mexico Statehood (1912–present) occupation. Excavation of the site was conducted in anticipation of future construction (Gossett 1989).

LA 70092

The Spiegelberg/Spitz and Spiegelberg No. 1 site is owned by Robert Spitz and Spitz Brothers. Evidence of a warehouse with a small basement with coarse stone masonry walls dated from 1858 to 1869. Then in 1881, wholesale and retail stores were constructed and an underground tunnel was dug to connect the store and warehouse. Between 1946 and 1950, the north face of the building was restored by architect John Gaw Meem to Pueblo Revival from the original Italianate cast iron.

The features at LA 70092 were recorded by Cordelia Snow in January 1989, and only a surface collection was initiated (C. T. Snow 1989). Visible features included a milled lumber structure, an ash stain, several trails, a mercantile, and a cobble wall. Historic ceramics and Euroamerican artifacts were also identified with the features. Based on this survey, the site appears to have several components, dating as early as the Spanish Colonial period and continuing until World War II (1692–1945).

LA 80000

LA 80000, the Santa Fe Plaza National Historic Landmark, is owned by the City of Santa Fe. It is listed in both the *State Register* (No. 27, no date) and the *National Register* (Oct. 15, 1966). The majority of the site is still buried and not defined. Partial excavation was performed by Cross Cultural Research Systems in the fall of 1990 and by the Office of Archaeological Studies in 2004, 2008, 2009, and 2011 (Cross Cultural Research Systems 1992, Lentz 2004; Barbour 2010, 2011b). These activities revealed evidence of an irrigation ditch, a Colonial-period refuse pit, and stratified activity surfaces. Hundreds of lithic, ceramic, and historic artifacts, many of which were diagnostic, were associated with a Hispanic and Anglo/Euroamerican residential community. The components at the site dated to the Spanish Colonial (1605–1821), Mexican (1821–1846), U.S. Territorial, and New Mexico Statehood (1912–present) periods. Several episodes of reconstruction and ground disturbance activities have occurred over its 400+ year history. However, the site is still largely intact, and subsurface deposits are largely undisturbed by the modern world.

LA 101303

LA 101303 is a historic site test excavated by Cross Cultural Research Systems in January 1992 as a result of impending construction. Several late nineteenth-century foundations and lithic debitage and historic trash were identified. These features suggest post–Pueblo Revolt (1692–1821) and U.S. Territorial (1846–1912) period occupation (D. H. Snow 1993).

LA 103293

The Manuela Baca Property site is owned by Robert Spitz. In 1875, John Schuman purchased the property from the Baca family for a shoe store, and in 1916 he sold the property to Solomon Spitz; Solomon's grandson, Robert Spitz, is the current owner. The Spitz family owned a jewelry business, but it was never in the Schuman Building. In the early 1900s, a grocer, H. S. Kaune & Company, leased the Schuman Building until 1950, when they moved into their present location on Old Santa Fe Trail.

In anticipation of construction, LA 103293 was test excavated by consulting archaeologist Cordelia T. Snow in February 1993 (C. T. Snow 1993). The test pits were over 1 m in depth. The stratigraphy defined two distinct horizons, with possible evidence of the 1767 flood. It is impossible to know how much of the site is still in existence because it is in an area of intense urban development, and portions of the site are still under adjacent buildings. An apparent wall of the 1880s Schumann Building and a cobble-lined ramada with a posthole were found intact during text excavations, as were small amounts of flaked stone artifacts, seven types of diagnostic ceramics, and thousands of Euroamerican artifact fragments. Based on ceramic types and architectural history, the site was dated to the post–Pueblo Revolt (1767–1810) and Santa Fe Trail to U.S. Territorial (1821–1886) periods. Severe water erosion and construction have impacted the site in recent years.

LA 112663

The 418 Sandoval Street site is owned by a private corporation. Numerous historic features became visible during test excavations in advance of planned construction in 1996. These included three ash or coal pits, an L-shaped house foundation with a concrete floor, an outhouse/privy, a brick and mortar cistern, and a kitchen refuse area. Faunal remains, Euroamerican artifacts, and a few historic ceramics were recorded, but not collected. The single residence is presumed to be of Hispanic origin and dates from the U.S. Territorial period until present (1880+). Remaining portions of the site may still be buried. Excavation was performed by Southwest Archaeological Consultants (Drake 1992b; Viklund 1996).

LA 114215

The City of Santa Fe East De Vargas Street Paving site (Overview Project No. 86) is owned by City government. It is unknown when and what organization recorded the site. Euroamerican artifacts and prehistoric ceramics were identified, but the ceramic types were not specified. Based on the limited information available, the site was dated between AD 900 and 1880 (Dart 1977).

LA 114216

The Improvement Row College Street site (Overview Project No. 88) is owned by city government. A surface collection by an unspecified organization (no date recorded) was performed prior to paving the street. It is not known if features were present. Only an artifact scatter with historic and prehistoric ceramics was recorded. Based on the limited information available, the site was dated between AD 900 and 1880 (Dart 1977).

LA 114218

The College Street Bridge Replacement/Old Santa Fe Trail site (Overview Project No. 144) is owned by city government. An artifact collection was performed when artifacts became visible during bridge replacement. The site is thought to be Hispanic in origin, dating between the Spanish Colonial and U.S. Territorial periods (1600–1912) (Dart 1977).

LA 114219

The Old F. Valdez House/De Vargas Street (Overview Project No. 164) is privately owned and was recorded on April 1957 by an unknown organization. The area was mapped and the surface collected before it was impacted by construction. The recorder assumed that a historic adobe structure was on site due to the presence of adobe brick fragments, but this was not proven. The ceramics within the adobe brick fragments were identified as historic Tewa and European wares dating to the post–Pueblo Revolt period (ca. 1720–1821) (Dart 1977). No further work was undertaken.

LA 114221

The Chapel of Our Lady of Light/La Castrense (Overview Project No. 62) is owned by Mrs. E. John Greer and Mrs. May Meyers. The site has an extensive history, and it is possible that burials and foundations are still present beneath present day structures on West San Francisco Street. During the Spanish Colonial (1605) to Santa Fe Trail (1846) periods, the church was falling into disuse. The roof caved in, and floor burials were robbed and strewn about. By the U.S. Territorial phase (1846–1851), the church was taken over by the military and used as a U.S. government court. Bishop Lamy managed to regain use of the church from 1853 to 1858. In 1859 the church property was sold to Simon Delgado, who demolished the church and replaced it with shops and warehouses.

Complete excavation of the site was undertaken by the Laboratory of Anthropology in April 1955 (Stubbs and Ellis 1955). Features encountered included European adult and child burials recovered from below the adobe floor of the church, a cemetery in front of the church facing San Francisco Street, stone footings, two bell towers and two floors (prepared adobe and adobe brick) from the church, and a structure foundation built over the church foundation. Architectural stone, hundreds of Euroamerican artifacts, and diagnostic prehistoric and historic ceramics were recovered from the site. LA 114221 has been disturbed by urban development and is currently completely built over.

LA 114230

The Alfredo Herrera House site at 461 East Manhattan Avenue (Overview Project No. 146) is owned by Mrs. Alice Herrera. A twentieth century building occupies much of the site. As a result, only the surrounding area was excavated by the Laboratory of Anthropology in June 1970 in preparation for future construction. Diagnostic ceramics from an prehistoric artifact scatter dated between Coalition and Classic periods (1200–1600), and an assumed Hispanic component was identified based on Euroamerican artifacts and local land-settlement patterns from the Spanish Colonial to World War II periods (1600–1945) (Dart 1977).

LA 114231

The Santa Fe River Bank (Alameda and Cerrillos) site (Overview Project No. 165) is owned by city government. Excavation was carried out by the Laboratory of Anthropology in March 1971 during a river channel widening by the City of Santa Fe. A stone block wall was discovered beneath Alameda Street and dates to the twentieth century (Dart 1977).

LA 114239

The 507 Agua Fria Well site (Overview No. 205), owned by Richard Maloney, was recorded and photographed by the City of Santa Fe in May 1989 during a house remodeling project. The well was constructed of 4-inch cedar posts with notched joints (cabin style). It was 22 in wide by 30 in long by 21 feet deep. This style of well was based on similar methods of well construction in the Santa Fe area. According to Linda Tigges of the Santa Fe Land Use Department (NMCRIS Activity No. 53686), wood-cribbed-style wells disappeared by 1940, when city water became available. Diagnostic historic artifacts consisted of a ginger beer crockery bottle and a Lea & Perrins Worcestershire Sauce glass bottle. The site was classified as Hispanic and tentatively dated to the U.S. Territorial period (1870–1889).

LA 114251

The 632 Paseo de Peralta site was recorded by the City of Santa Fe in August 1990 after features became visible during construction by a private contractor. Features identified included an acequia/irrigation ditch, a "U-shaped" cobble alignment, and a 4 ft deep trash dump with artifacts. The acequia is of Hispanic origin dating from the Spanish Colonial to U.S. Territorial periods (1610–1912). The trash dump provided evidence of historic bricks, metal fragments, and linoleum, suggesting an Anglo/Euroamerican component dating to the recent historic period (1945–1960).

LA 114265

The José Alarid House site (Overview Project No. 148) is at 1000 Paseo de Peralta or 338 East De Vargas Street. The site is privately owned and was excavated by Cross Cultural Research Systems in January 1991 and September 1992. David Snow served as principal investigator. Diagnostic ceramics and other artifacts suggest at least two site components: an Ancestral Puebloan artifact scatter and features dating between the Developmental and Classic periods (AD 600–1400), and a Hispanic artifact scatter and features from Santa Fe Trail to Statehood periods (1835–1945). Several of the diagnostic ceramics also suggest a third, Spanish Colonial component, but this could not be confirmed during archaeological investigations. Features include an adobe or plaster mixing pit and a few human burials. The site was excavated in anticipation of new housing construction.

LA 120279

The Boyle Floral Company site is privately owned. Portions of the site were impacted by adjacent land developing activities in 1997, when several features became visible. These included a concrete floor with limestone footings and a circular brick cistern. In May of that year, Cross Cultural Research Systems excavated the area. They concluded the cistern was probably associated with a previous residence, and the concrete flooring may have been the Boyle Floral Company hothouse, since large quantities of broken window glass were in the vicinity. With the aid of historic documents, these Anglo/Euroamerican features were dated between 1850 and 1930. Hundreds of pieces of Euroamerican artifacts were recorded, as well as some earlier diagnostic indigenous ceramics, which dated from the Coalition to Classic periods (1200–1600) (D. H. Snow 1997).

LA 122227

The Denver & Rio Grande Railroad Turntable site was owned by the Zydeco Division of Yates Drilling Company at the time of recording (Moore 1999). The site consists of a 66 ft diameter narrow gauge turntable with 5 1/2 ft high walls built in 1923. The interior works and platform were removed when the turntable was abandoned. Turntables were found only in towns with sizable railroad companies, large engines, and railcar repair shops. The masonry work of the turntable was unique and may have been constructed by the same Italian stone masons who came to Santa Fe to build the St. Francis Cathedral in the 1880s.

The only narrow-gauge turntable still in operation is in Durango, Colorado. The site was excavated by Southwest Archaeological Services in March 1998 and February 1999 before it was impacted by construction (Moore 1999). Small amounts of diagnostic historic artifacts were retrieved. From archival research, this Anglo/Euroamerican site dates between 1900 and 1930.

LA 127276

The 60 East San Francisco Street site is owned by a private individual and currently used as an asphalt-covered parking lot. In the early eighteenth century, a building on the site belonged to the Santa Fe Cabildo. It was later owned by Bartólome Baca and willed to Manuel Baca in 1834. This Hispanic component was dated from after the Pueblo Revolt to the U.S. Territorial period (1750–1856). During the nineteenth century, the property was leased to two Santa Fe traders, Henry Connelly and Jacob Amberg (Connell & Amberg), and sold to Henry O'Neill in 1856. The time period for this Euroamerican component was recorded as U.S. Territorial to recent historic (1856+).

Test excavation of the site was initiated by Southwest Archaeological Consultants in April 1999. Features included a depression, a posthole, cobble foundations associated with the Baca house, and a modern concrete structural foundation. Architectural stone, burned adobe, diagnostic ceramics, and more than 10,000 Euroamerican artifacts were recovered from this project (Deyloff 2002).

LA 146402

LA 146402, part of the Santa Fe Railyard Historic District, was owned by the City of Santa Fe at the time of site documentation. Before planned development, backhoe trenches were dug to identify cultural deposits, and excavation was performed by the Office of Archaeological Studies in December 2004 (Wenker 2005a). Based on the cultural materials identified, the site consists of two components: Hispanic (1821–1880) and Euroamerican (1880–1955). Features identified from both components included an agricultural field, dumps, a hearth, middens, unidentified pits, cinder pits, postholes, several structural foundations, and two water-control devices. Artifacts recovered from these features were Euroamerican items, faunal remains, and architectural stone.

LA 146403

LA 146403 is part of the Historic Santa Fe Railyard and is owned by the city of Santa Fe. Archaeological testing of LA 146403 was performed in December 2004 by the Office of Archaeological Studies in advance of planned development (Wenker 2005a; Wenker and Hannaford 2005a, 2005b). Excavation revealed two railroad-era foundations and two small pits. The foundations represent portions of a windmill/well and water tank complex. All features appear to be associated with Anglo/Euroamerican occupation during the U.S. Territorial period (ca. 1846–1900). However, fewer than ten diagnostic Euroamerican artifacts were collected.

LA 146404

LA 146404 is an extramural use-area associated with the Gross Kelley Warehouse (built in 1913) and other railyard activities during the late nineteenth and early twentieth century (1870–1945). Anglo/Euroamerican in origin, the site was excavated in December 2004 by the Office of Archaeological Studies in advance of development by the Santa Fe Railroad Community Corporation (Wenker 2005a). A hearth and several unidentified pits were identified. Diagnostic historic ceramics, faunal remains, and Euroamerican artifacts were collected.

LA 146405

LA 146405 is part of the Santa Fe Rail Yard Historic District and is owned by the City of Santa Fe. In advance of on-site development, excavation was initiated by the Office of Archaeological Studies in December 2004 (Wenker 2005a; Wenker and Hannaford 2005a, 2005b). A large historic refuse pit and two superimposed historic building foundations were identified. One was a portion of the basement or root cellar of the pre-1904 depot built by the Santa Fe Railroad, and the other represented part a 1930s beer-distributing building. The refuse pit was probably associated with the latter structure. Artifacts associated with these features included burned adobe, faunal remains, and diagnostic Euroamerican artifacts. Based on these materials the site was identified as Anglo/Euroamerican in origin, dating from 1903 to 1955.

LA 146406

LA 146406 is part of the Santa Fe Rail Yard Historic District and is owned by the City of Santa Fe. In advance of development by the Santa Fe Railroad Community Corporation, excavation was conducted by the Office of Archaeological Studies in December 2004 (Wenker 2005a). Two features were identified: a large pit that cut through the railroad bed, and a section of the Santa Fe Central railroad track along the eastern margin of the rail yard. Only a few Euroamerican artifacts were found in association with these features. This Anglo/Euroamerican site is thought to date between 1903 and 1955.

LA 146407

LA 146407, the Acequia de Analco, was excavated in December 2004 by the Office of Archaeological Studies in advance of planned development by the Santa Fe Railroad Community Corporation (Wenker 2005a; Wenker and Hannaford 2005a, 2005b). The Acequia de Analco was in use between 1846 and 1912 and is Hispanic in origin. Hundreds of Euroamerican artifacts and faunal remains, and a few flaked stone items were retrieved from the feature.

LA 146409

LA 146409, part of the Santa Fe Rail Yard, was excavated in December 2004 by the Office of Archaeological Studies in advance of planned development by the Santa Fe Railroad Community Corporation (Wenker 2005a). The demolished remains of the Wholesale Building Supply warehouse, a small structure which may have been a loading dock or freight scale, a cluster of thermal features, refuse pits, and a few utility trenches were identified. Anglo/Euroamerican in origin, these features dated from the U.S. Territorial period to recent historic times (1879–1955). Hundreds of Euroamerican artifacts along with some diagnostic historic ceramics and faunal remains were retrieved.

LA 149909

LA 149909 represents a portion of the Acequia de los Pinos in the Santa Fe Rail Yard. In advance of area redevelopment, the Office of Archaeological Studies excavated the acequia in September 2005 (Wenker 2005b, 2006a, 2006b). The channel was basin-shaped and measured 19 ft wide by 3 ½ ft deep with several layers of post-abandonment fill. Artifacts associated with the feature included faunal remains and a few fragments of Euroamerican artifacts. According to historic records, this Hispanic features dates from the post–Pueblo Revolt (1692) to U.S. Territorial (1912) periods.

LA 149910

LA 149910 is owned by the City of Santa Fe and was excavated by the Office of Archaeological Studies in September 2005 in advance of construction activities (Wenker 2005b). A deeply buried, form-poured concrete foundation for an unknown structure was identified. No artifacts were recovered, but it is believed to be of Anglo/ Euroamerican origin dating to the New Mexico Statehood period (1912–1960).

LA 149913

LA 149913 is part of the Santa Fe Rail Yard Historic District and is owned by the City of Santa Fe. In response to planned development by the Santa Fe Railyard Community, the Office of Archaeological Studies tested LA 149913 in September 2005 (Wenker 2005b). A buried acequia was discovered. Within the acequia, layers of alluvial sediments were observed, and at the base, extreme gravels with coarse sands and abundant artifacts were present. Based on historic artifacts, the acequia was occupied during the Mexican and U.S. Territorial periods (1821–1912) and was Anglo/Euroamerican in origin.

LA 149914

LA 149914 is part of the Santa Fe Rail Yard Historic District and is owned by the City of Santa Fe. In advance of planned development by the Santa Fe Railyard Community, the Office of Archaeological Studies tested the southeastern corner of the site in September 2005 (Wenker 2005b). Portions of a deeply buried concrete foundation and a rock wall were identified. The foundation may have been associated with the Santa Fe Creamery and Ice Company, dated from 1912 to 1999. The rock wall appears to be a modern feature made of small riverworn cobbles mortared with concrete. It was built in a footer trench and installed as part of the landscape. No artifacts were recovered.

LA 156207

LA 156207, owned by Santa Fe County, dates to the Coalition, Spanish Colonial, Mexican, American Territorial and New Mexico Statehood periods. In April 2007, the Office of Archaeological Studies excavated nine backhoe trenches across the 2.4-acre site to expose subsurface features (Hannaford 2007), including an ash and charcoal stain, a cobble hearth, an outhouse/privy, several refuse pits, and a poured-concrete basement foundation. Further work in the spring 2008 identified several irrigation features and a Native American pithouse (Lakatos 2011). Artifacts collected include a wide array of Euroamerican artifacts and indigenous objects. The site is currently under construction to house the new Santa Fe County First Judicial District Courthouse Complex.

Previous Archaeological Investigations at LA 158037

Two previous archaeological investigations were conducted at LA 158037 prior to data recovery for the Executive Office Building. Initially, the site was tested in November of 2007 to determine if the area contained significant buried cultural deposits prior to construction of the State Capitol Parking Facility (Barbour 2008a). Data recovery and monitoring were later conducted for the parking structure in 2008 and 2009 to mitigate the effects of construction on the archaeological resources (Barbour 2012a).

Archaeological Testing

At the request of Robert Robie of Architectural Research Consultants, the OAS performed archaeological testing west of the State Capitol Building in Santa Fe, New Mexico. The purpose of this initial study was to determine if significant buried cultural deposits existed on an area slated for development by GSD.

Seventeen backhoe trenches, representing a 2 percent sample of the area, were used to test archaeological deposits to be impacted by construction of the State Capitol Parking Facility in late November 2007 (Fig. 5.1; Barbour 2008a). Based on archival records search and in areas free of utility line disturbance, backhoe trenches were placed where intact subsurface deposits were most likely to occur. Each trench was 15.3 m (50 ft) long, 1 m (3.3 ft) wide, and 1.4 m (4 ft 6 in) deep.

Backhoe excavations resulted in the documentation of 11 site strata, 29 archaeological features, 91 artifacts, and 12 historic utilities. The majority of features (n = 23), utilities (n = 12), and cultural strata represent demolition and use activities associated with a late nineteenth- and early twentieth-century residential neighborhood. Archival research supported these findings. Historic maps from 1885 and later showed residences appearing on the landscape, although foundations from these houses were not found during archaeological testing. It was thought that rapid mechanical leveling of the project area had occurred in the mid- to late twentieth century, and that the demolition debris derived from the structural foundations had been removed from the site and deposited elsewhere.

Data recovery undertaken in conjunction with the State Capitol Parking Facility later proved this assumption to be false. It was discovered that the areas identified by the utility spotter as having active utilities had been avoided by the archaeologists during trenching, but these areas actually contained foundations of the residential structures.

During testing, domestic-refuse pits were the most common feature type associated with the residential neighborhood. Artifacts recovered from these pits (n = 10) and three self-contained vault privies suggested significant variability in the economic status of the residents, based on the distribution of inexpensive, undecorated ironstone and luxury hand-painted porcelain dishes. *Hudspeth's Santa Fe City Directories* helped to identify the families who discarded the domestic refuse, including the Alarid and Romero families, who owned several buildings in the project area.

Archival research into the twentieth century neighborhood also revealed several businesses that had been established in the area. Business-related undertakings conducted at Butler & Foley Plumbers (120 South Capitol), which advertised heating and plumbing services, were probably partially responsible for the profound environmental imprint mistaken for utility corridors. The Alarid and Romero families also had thriving businesses: Dick's Barber Shop and Ray's Floor Covering Service, respectively.

However, the majority of businesses on the site were small "mom-and-pop" endeavors that lasted no longer than one or two years, leaving little imprint of their operations. The remaining archaeological features (a plow zone and five small-scale irrigation ditches) discovered during testing were thought to represent agricultural use of the area during the Spanish Colonial, Mexican, and early Territorial periods. However, during the data recovery for the State Capitol Parking Facility, it was revealed that these features were associated with late nineteenth- or early twentieth-century gardens.

Considered as a whole, the test excavations indicated to OAS that LA 158037 was a multicomponent archaeological site. The earliest components were features and deposits representative of agricultural and irrigation practices of the eighteenth and nineteenth centuries. The late nineteenth to early twentieth century saw a transformation into a residential and small-scale commercial neighborhood. Because many of the features documented during test excavation were older than 50 years and were expected to yield information important to understanding past agricultural and land use practices, and early urbanization of the Capitol Complex Historic Neighborhood, it was recommended that LA 158037 was potentially eligible for nomination to the *National Register of Historic Places* (NRHP) and the *State Register of Cultural Properties (SRCP)* under Criterion D. The OAS also recommended investigation of the cultural features and deposits to be impacted by construction of the State Capitol Parking Facility through implementation of a research design and data recovery plan (Barbour 2008a).

Data Recovery and Monitoring Associated with the State Capitol Parking Facility

In collaboration with Martha Perrins-Dallman of the General Services Department Property Control Division, the OAS performed archaeological data recovery and monitoring for construction of the new State Capitol Parking Facility west of the State Capitol Building in Santa Fe, New Mexico. These archaeological investigations were conducted under State Archaeological Excavation Permit SE-264 (expiration date February 20, 2010) in conjunction with a data recovery plan (Barbour 2008a) and an expanded monitoring plan (Post and Barbour 2008) approved by the New Mexico Cultural Properties Review Committee (CPRC), the New Mexico Historic Preservation Division (HPD), and the City of Santa Fe Archaeological Review Committee (ARC).

The project area for the State Capitol Parking Facility was in the southern half of LA 158037, encompassing about 9,244 sq m (Fig. 5.2; Barbour 2012). Data recovery was conducted between March 1 and May 9, 2008. This was followed by an intensive construction monitoring program from August 2008 until the structure's completion in October 2009. By means of archaeological excavation of eight surface scraping units and 38 backhoe trenches, OAS examined 3,257 sq m of LA 158037, or 35 percent of the entire 9,244 sq m to be occupied by the parking structure and associated utilities. This was followed by comprehensive archaeological monitoring, which oversaw mechanical removal of all cultural sediments within the 9,244 sq m area that comprised the State Capitol Parking Facility. The archaeological investigation documented nine structures on eight city lots, 219 cultural features, and 23,188 artifacts and samples associated with agricultural fields and residential structures from the second half of the nineteenth century and the early twentieth century.

Excavation and analysis of agricultural fields and associated features dating to the Spanish Colonial, Mexican, and Early Territorial periods focused on identifying changes in field use and irrigation practices over time. Unfortunately, this study could not address questions proposed in the data recovery plan because of the limited amount of archaeological evidence obtained that dated prior to construction of the residential neighborhood in the 1880s. However, backyard gardens and butchered-bone pits, mistakenly identified as Colonial features during testing, did provide information on cottage industry and/or feasting activities within the project area during the late nineteenth and early twentieth centuries.

Excavation and analysis of residential structures and associated domestic-refuse pits and privies focused on examining ethnic, socioeconomic, contextual, and temporal similarities and differences in patterns of consumption and disposal of material culture, and how these patterns characterized the community as a whole. The excavation of LA 158037 was among the first archaeological studies in the downtown Santa Fe area to focus on the late nineteenth and early twentieth centuries, with particular attention to the New Mexico Statehood period (1912+).

Archaeological features were found on all eight of the lots which fell within the architectural footprint of the State Capitol Parking Facility. In most instances these features could be linked to the inhabitants of the nine structures. The ethnic and socioeconomic diversity of the neighborhood residents, when taken into consideration with the feature assemblages, proved ideal for examining contextual variability in settlement patterns and residential material culture.

Structure 1, at 125 West Manhattan Avenue, was Pete's Super Market in the 1950s and had been owned by the Alarid family for over half a century. Throughout its existence the structure had served many functions, including family residence, rental property, and bootlegging operation during Prohibition. The archaeological feature types included privies, domestic-refuse pits, construction debris, and miscellaneous structural elements. Artifacts from these features were indicative of a relatively wealthy family whose fortunes began to decline in the 1920s.

Structure 2, at 451 Galisteo Street, was on the same lot as Structure 1. Built during the Great Depression, the structure functioned as a rental property and primary residence for the Alarid family. A disproportionate number of toiletry bottles found within six domestic-refuse pits associated with the structure provided evidence of Ricardo Alarid Jr.'s occupation as a barber.

Structure 3, at 135 1/2 West Manhattan Avenue, also appears to have served primarily as a rental property owned by the Alarid family throughout the early to mid-twentieth century. Based upon archival records, most of the renters were Hispanic. Like many Hispanic citizens of the neighborhood during the early twentieth century, fauna analysis revealed that the inhabitants of this structure preferred mutton to beef.

The Parker house, Structure 4, was at 125 West Manhattan Avenue. First owned by the Romero family, the property was distinguished by the presence of 14 pits filled with the crania of butchered cattle. It was deduced through a faunal study that a member of the family appeared to have favored cow brains for consumption. A New Mexico Supreme Court justice, Frank W. Parker, purchased the property in the 1910s and expanded the structure into one of the largest residences in the area. It also appears to have been among the first houses in the neighborhood to make use of indoor plumbing, as indicated by the construction of a large straight-line cesspit leading out of the structure.

Structure 5, at 135, 137, and 139 West Manhattan, served as a rental property. Hudspeth's Santa Fe City Directories indicated that the vast majority of the occupants had Hispanic surnames. Like Structures 2 and 3, Structure 5 was owned by the Alarid family. However, it was one of the few buildings on LA 158037 built of adobe bricks, a time-honored technique, when the structure was built in ca. 1911. Artifacts found in the various construction-debris pits, domestic-refuse pits, and privy suggest that individuals of varying social status resided on the property, an interpretation supported by a historic record that identifies the primary function of the building as rental apartments.

Structure 6 was the Muller house, owned by German immigrant, Fritz Muller, throughout much of the twentieth century. During the Great Depression, World War II, and post-war eras, smaller backyard buildings were built and used as rental properties to supplement Muller's retirement income from the U.S. Army. Many of the early renters are not listed in *Hudspeth's Santa Fe City Directories*. However, residential refuse collected from domestic-refuse pits and privies represents a palimpsest of materials associated with both the Muller family and the renters.

The First Baptist Church, designated Structure 7, was located at 424, 428, and 430 Don Gaspar Avenue. No evidence of funerary, ceremonial, or religious activities of any kind was encountered on the property. However, the relatively high number of porcelain bowls recovered from a self-contained vault privy suggests a relatively wealthy congregation.

Throughout much of the twentieth century, Structure 8, at 420 Don Gaspar Avenue, and Structure 9, at 416 Don Gaspar Avenue, were owned by William E. Rutherford, a station agent for the Atchison, Topeka & Santa Fe Railway. Only five features were identified in association with the two structures: three construction debris pits, a domestic-refuse pit, and a posthole. The quantity of artifacts associated with these structures was minimal but could be linked to the Anglo inhabitants.

A comparison of archaeological materials associated with these eight lots (nine structures) across temporal, ethnic, and socioeconomic lines yielded mixed results. There were clear indications of differences across ethnic groups, in this case Anglo and Hispanic. While both groups lived side by side within the neighborhood in the early twentieth century, the archaeological record revealed that the Hispanic and Anglo cultures were materially distinct. When specific groups settled the neighborhood, the distinctions were revealed by the materials they used to build their homes, the liquor they drank, and the animals they ate.

Socioeconomic diversity was more difficult to infer. Archival records prior to 1928 were sporadic, and ethnographic interviews are unreliable when attempting to use them to characterize the socioeconomic status of individual families residing on the eight lots. Archaeological efforts also proved to be largely unsuccessful. Variation across structures using the mean ceramic price index values were statistically irrelevant, suggesting all families had similar purchasing power regarding specific items such as ceramic dinnerware. Prescription bottle index values were also an ineffective means of comparing relative wealth among the inhabitants of the Capitol Complex Historic Neighborhood. However, according to this study, prescription medicine consumption and bottle discard patterns suggested that utilization of professional health care was more characteristic of Anglo inhabitants. Hispanic families of the early twentieth century were more likely to treat illness with traditional herbal and patent medicine remedies.

Several shifts in consumption and discard patterns of disposable material culture were visible through time. These included the ever increasing consumption of beef and store-bought products. However, individual family responses to specific historic events, such as the prohibition of alcohol (1919–1933) and the economic depression of the 1930s, varied. These included bootlegging whiskey, fruit and vegetable canning, and the addition of rental units to properties. These activities exhibit a high degree of personal agency in which each family dealt with a specific event according to its own economic situation or individual tastes and preferences.

Upon completion of fieldwork, it was determined that the study had exhausted the information potential of the 9,244 sq m of LA 158037 within the area to be impacted by construction of the State Capitol Parking Facility. No further archaeological work was recommended for this portion of the site (Barbour 2009). However, portions of LA 158037 outside the State Capitol Parking Facility continue to remain eligible for inclusion in the *National Register* and the *State Register* under Criterion D (36 CFR Part 60.4).

Figure 5.1. Plan of testing at LA 158037 in November 2007.

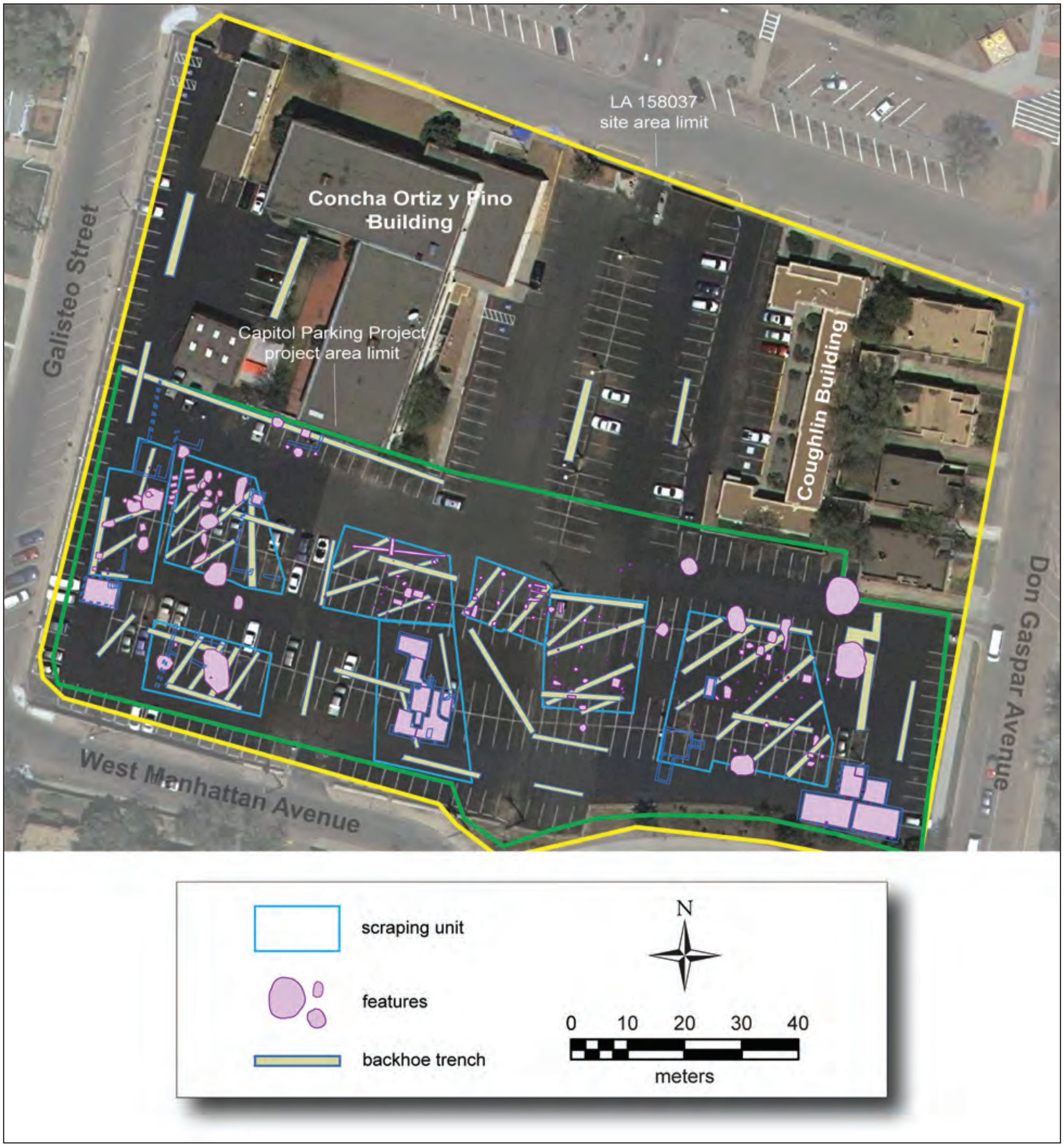

Figure 5.2. Plan of archaeological investigations at LA 158037 in advance of the State Capitol Parking Facility.

Chapter 6

Research Design

Matthew J. Barbour

An initial research design for LA 158037 was developed for construction of the Capitol Parking Facility in January 2008 (Barbour 2008a:85–92). Based upon the findings of the State Capitol Parking Facility project (Barbour 2012a), the research design was slightly modified for data recovery associated with the Executive Office Building. This modified research design explores differences in the consumption and discard patterns of material culture across ethnic, socioeconomic, and temporal boundaries within the Capitol Complex Historic Neighborhood.

The current chapter presents the modified research design as presented in *Archaeological Data Recovery Plan for the Executive Office Building, Santa Fe, New Mexico* (Barbour 2011a:65–74). It begins with a discussion of the project's research focus followed by three specific research questions. Each question is addressed in relation to findings associated with the State Capitol Parking Facility project and how archaeological investigations of the Executive Office Building can be used to augment and strengthen (or challenge) these earlier findings.

Research Focus

In a handful of modern cities, archaeologists have begun inquiries into the all-but-forgotten landscapes of inner-city neighborhoods. In almost every instance, the importance of these places has been obscured by distorting "slumland" stereotypes and the acceptance of these communities by the archaeological mainstream as areas of little or no research merit (Mayne and Murray 2001:1). This is certainly not the case with the Capitol Complex Historic Neighborhood of Santa Fe.

In addition to housing many county, state, and federal office buildings, the current Capitol Complex Historic Neighborhood was at one time a fairly affluent multiethnic community according to archival records. Between the 1880s and the post– World War II era, the neighborhood flourished. Just south of the Capitol Building at LA 158037, judges, lawyers, soldiers, business owners, clerks, housemaids, and even bootleggers lived side by side. Accessibility to mass-produced goods and countrywide advertising strategies tied the community into national and international markets.

The development of suburbs on the edge of town after 1945 appears to have led to a general downturn in the local neighborhood economy. As *Hudspeth's City of Santa Fe Directories* listings indicate, by the late 1940s the "upper classes," such as lawyers and judges had moved away from the neighborhood. Most of those listed as still living in the area during the 1950s and early 1960s were waiters, waitresses, laborers, housemaids, and custodial staff. This perception of the neighborhood led to its "slumland" reputation.

This stereotype made it easy for the public to forget what had existed before. On the heels of nationwide calls for urban redevelopment in the late 1960s, the State of New Mexico purchased much of the land in and around LA 158037 for use as state offices and parking lots for state employees. Longtime residents who did not acquiesce to the State had their properties condemned and then seized for a fraction of its market value. The land was leveled. Houses that had existed for decades were razed to their foundations and then sealed off from the modern world.

The archaeological examination of LA 158037 is a pioneering study for urban archaeology in Santa Fe. Preserved beneath the asphalt is a microcosm of the City of Santa Fe and New Mexico as whole. The artifacts buried below the modern ground surface will expose the story of Hispanics and Anglos, the rich and the poor, and the struggles and successes of all during an era that is frequently neglected in downtown Santa Fe. Previous archaeological work within the city focused on the Spanish Colonial, Mexican, and American Territorial periods. While this project will include archaeological materials associated with the American Territorial period, much of the archaeological investigation will be centered on deposits dating well after New Mexico Statehood (1912). In this instance, archival records will reveal who lived at the property, when they lived there, and what they did for a living. Using this information, the archaeological record can be accessed to provide information regarding consumption and discard patterns of those who lived in the neighborhood. Subsequently, the archaeological data can be studied to examine differences and similarities along ethnic, socioeconomic, and temporal lines.

Previous OAS investigations at the Capitol Parking Facility have amassed a substantive body of archaeological materials and inferences regarding the community's inhabitants. When viewed collectively, patterns began to emerge, including the observation that consumption and discard patterns of disposable materials vary significantly between ethnic groups and across time in many different ways. Additional archaeological investigations into LA 158037 associated with construction of the Executive Office Building have the potential not only to enhance and augment these findings, but also to provide a more complete story of urban life in Santa Fe during the late nineteenth and early twentieth centuries.

Research Question 1

Are there specific artifact classes indicative of differing consumption patterns that can, in turn, be related to cultural identity? Does recognizable variability occur within the discarded material culture that may represent differing consumption patterns of Hispanic and Anglo-American households within the late nineteenth and early twentieth centuries?

Past studies have focused on questions concerning New Mexico as a frontier of the Spanish Empire, Mexico, and the Territory of the United States through shifts in material culture (e.g., Boyer 1992; Moore 2001). However, shifts in the consumption and discard of material culture are not simply a function of the political or economic system in which the materials are found. Cultural identity plays a large role in the types of products consumed by the individual.

The arrival of the railroad in Santa Fe during the late nineteenth century increased the availability and reduced the costs of mass-produced products from the eastern United States. This availability and affordability could have encouraged different ethnic groups to consume and discard similar products and goods in the same relative frequencies. As a consequence, the identity of different ethnic groups would not be recognizable from the material culture record.

Previous studies elsewhere have suggested that this is not the case. Differences in the types of materials consumed and discarded still continue to be visible across ethnic lines during the late nineteenth and early twentieth centuries. For example, a study of households in the Abiquiu area showed marked increases within artifact classes related to domestic and routine activities associated with Spanish residential settings, as noted by increased quantities of dishware and native food products (Moore et al. 2003). In another study of residences in downtown Phoenix, animal products showed the most variability, with Hispanic households consuming primarily sheep and goat meat, and beef being used in smaller quantities, whereas more pork, beef, poultry, and fish occurred in assemblages associated with Anglo preferences (Henry 1996).

The parameters needed to explore differences in consumption discard patterns across ethnic boundaries at LA 158037 are well established. Based upon archival research, inhabitants of LA 158037 represent a mixture of Hispanic and Anglo surnames living in discrete household units. Hence, Hispanic and Anglo residents and their consumption and discard patterns become the units of comparison.

All households within the study area were roughly contemporaneous and located on the same block. An important assumption is that inhabitants of LA 158037 had access to the same local shops and national catalogues from which to purchase their household goods, foods, and personal items. If this is so, any differences in the consumption and discard of material culture should reflect choices made by each individual household. If the patterns of consumption among the Hispanic households are distinguishable from their Anglo counterparts, then the contents of archaeological features and deposits may reflect differences in the two cultural identities. Also important to note is that if differences are visible, they are expected to dissipate over time as Hispanics are assimilated into the greater U.S. macro-culture.

Results of the Capitol Parking Facility Project

Ethnic variability occurred on many different levels. Many of the structures (Structures 1–5) built within the project area were initially owned by Hispanic families, many of whom predated the coming of the railroad in 1880. These families, such as the Alarids and Romeros, built their initial structures in the last 20 years of the nineteenth century. Hispanic habitation was focused along Galisteo Street and along the western extent of West Manhattan Avenue.

Anglo populations appear to have occupied the area in significant numbers after the turn of the twentieth century. Some families, such as the Parkers and Mullers, bought existing homes from Hispanic families. Others built new structures. The Anglo- occupied homes were clustered around Don Gaspar and the eastern extent of West Manhattan.

In general terms, the architecture of the structures occupied by each ethnic group was also quite different. Many of the Hispanic residences (Structures 2, 3, and 5) were built of adobe. Anglos appear to have preferred wood-framed buildings (Structures 6, 8, and 9). Brick structures (Structures 1, 4, and 7) were distributed somewhat evenly across ethnic lines. However, the Romero family built Structure 4 out of adobe blocks. The building was later given a brick façade by the Parker family. Brick structures were quite common elsewhere in the neighborhood; there are several preserved examples along the south side of West Manhattan Avenue and the west side of Galisteo Street.

The distribution of feature types across specific household lots illustrated activities or preferences by individual households, which appeared to play out on an ethnic level. Bone pits, for example, only occurred at the Romero house. These pits are most likely associated with feasting activities in which the brains and tongues of cattle were consumed. While these pits were unique to the Romero family, a cow skull was also found in an Alarid privy, suggesting consumption of cow tongue and brains may have been popular among Hispanic populations residing in the neighborhood during the late nineteenth and early twentieth centuries. Privies were also a good example of ethnic trends persisting across space and time. Self-contained privies indicate the use of outhouses, whereas straight-line cesspits suggest a household had an indoor water closet.

Both ethnic groups used all three systems. However, as seen in the archaeological record associated with Structure 1, Hispanics may have been slower to adopt new systems. Based upon temporally diagnostic cultural materials from Features 231–235, the Alarid family was using an outhouse until the beginning of the 1940s, when they apparently switched to the use of an indoor water closet connected to a straight-line cesspit (Feature 44). Sewage services were available to residents as early as 1920 (Snow and Barbour 2011), which would have made the outhouses and straight-line cesspits that were used at Structure 1 obsolete by the beginning of the Depression. Conversely, Anglo inhabitants of Structures 8 and 9 may have linked their buildings to the sewage system at the time of construction, and other Anglo-owned structures were at least using straight-line cesspits by the 1920s, suggesting they had indoor plumbing 15 to 20 years before some of their Hispanic neighbors.

Personal items, household goods, and smaller construction materials collected for laboratory analysis provided a more nuanced interpretation of differences between the two ethnic groups. In the case of Euroamerican artifacts, consumption patterns across function-based analytical categories between the two groups were largely similar except in the distribution of domestic items (more Hispanic) and construction and maintenance materials (more Anglo). The behavioral implications of these differences are not entirely clear. A similar set of activities (cooking, cleaning, sleeping, child care, etc.) could be expected to have been performed by each ethnic group within a residential setting, and hence a similar array of artifacts across each of the function-based categories would be expected.

Domestic items were further scrutinized. Glassware cups and goblets were more prevalent in Anglo assemblages, but perhaps more interestingly, soup plates, often viewed as markers of Spanish ethnicity, were used in only small, insignificant quantities by both groups. However, ceramic dinnerware products made up the bulk of the domestic item artifact assemblages. These artifacts were aggregated by ceramic body (ware type) and by aesthetic designs. Hispanic populations at LA 158037 were found to have a preference for eastern U.S. porcelain, Asian, and Art Deco design patterns. Anglos preferred Gothic Revival and Art Nouveau styling. Most of their porcelain was derived from continental European sources.

Conversely, unlike the domestic item assemblages, the relative frequency of indulgence-related items was similar across both ethnic groups. However, both ethnic groups preferred very different types of indulgence-related products. For example, with respect to alcoholic beverage consumption, Anglos were partial to beer and wine. Hispanics preferred whiskey and soda. These differences in indulgence consumption are similar to those observed via artifact assemblages on the Fort Marcy Military Reservation (Lentz and Barbour 2011). A comparison between noncommissioned officers (largely Anglo) and enlisted men (largely Hispanic) during the late nineteenth century showed that whiskey was primarily consumed by the enlisted men; the NCOs preferred beer. This suggests indulgence preferences may be very strong indicators of ethnicity during the nineteenth and twentieth centuries (Lentz and Barbour 2011:218).

Analysis of the fauna also showed recognizable differences between the two groups. While both groups consumed greater quantities of sheep/goat relative to cow, Anglos consumed more cow than their Hispanic counterparts. Anglos also consumed more chicken and rabbit. Hispanics seemed to enjoy chicken but tended to eat eggs more frequently. Surprisingly, although some of the Anglo families were of German descent, pork products appear to have been consumed equally by both groups.

There were also cultural differences in faunal consumption regarding percentages of store-bought (i.e., saw-cut bone) vs. home-processed products (i.e., axe-cut bone). Anglo residents appear to have purchased more of their meats at a store, whereas Hispanic residents chose to eat products they or their neighbors processed themselves in greater frequency. Additionally, the Alarid family in particular supplemented domestic meat resources with wild game, leading to a more diversified faunal assemblage in association with Hispanic households.

The flaked stone assemblage was small, and most of the artifacts were likely not associated with activities occurring in or around LA 158037 during the late nineteenth and early twentieth centuries. Many may have simply been collected from other archaeological sites as curios by the residents of the Capitol Complex Historic Neighborhood. The most obvious example of this collection practice is the Archaic-period En Medio projectile point found in the Parker privy, which predates construction of the feature by several thousand years.

However, not all flaked stone artifacts can be easily explained away. A strike-a-light flint was recovered in a bone pit associated with the Romero family in the late nineteenth century. This type of informal tool appears in contemporaneous Hispanic sites near Abiquiu and Pecos (Moore et al. 2003). While the stone tool seems out of place in a 1890s urban environment, it may have been used by the Romero family. If so, the use of flaked stone by Hispanic residents would be considered an ethnic difference in material consumption and discard patterns between Hispanic and Anglo residents.

There was less ambiguity in the Pueblo-style pottery assemblage. Locally produced Native ceramic products, as discussed by Wilson, clearly show a more diversified assemblage among Hispanic populations. Unlike their Anglo counterparts, Native pottery appears to have had a functional role in Hispanic households into the early twentieth century. Hispanics purchased substantial quantities of micaceous and plain utility wares, including bowl forms, whereas Anglos were more concerned with the aesthetic value of Native ceramics, buying decorated ollas or jars.

While both Anglo and Hispanic populations in New Mexico consume copious quantities of chile and piñon nuts today, the consumption of these items was a hallmark of ethnic Hispanics in early twentieth century macrobotanical assemblages. Prickly-pear cactus was also consumed by the Hispanic population and not their Anglo counterparts, as is apparent from the study of coprolitic matter from several of the self-contained vault privies.

Many of these differences were quite surprising. Anglos had lived side by side with Hispanic populations in Santa Fe for several decades. Presumably the two populations shopped at the same shops, ate at the same restaurants, and worked together at the same workplaces. Yet throughout it all, it is easier to see differences than similarities. Populations that are archaeologically distinct from one another lived side by side.

This conclusion runs counter to Rathje and Murphy (2001:147–150), who suggest that discrepancies in consumption and discard patterns are largely driven by variations in availability and regional economy, not ethnic differences. However, the garbology project from which that conclusion was deduced was generated by examining modern refuse in the 1970s and 1980s. It is likely that most of the twentieth-century Euroamerican artifact assemblages used in the study predate the late 1940s and early 1950s. Historian David Kyvig (2004:xiii) suggests that the standardization of American life began in the 1920s with access to radio advertisements and the birth of American consumerism on a national scale. However, it is not until the rise of suburbia and the expansion of television into nearly every household in the Postwar era that American culture took on a truly national form (Diggins 1988).

Executive Office Building Project Data Needs

To augment the findings of the Capitol Parking Facility project, artifact assemblages discarded by different households are needed, and clear association of the material culture to known household units must be demonstrated. This association may be established through archival research. Potential archival sources include *Hudspeth's City of Santa Fe Directories* and the direct and indirect indices to deeds on file at the Santa Fe County Clerk's office. Furthermore, assemblages must be contemporaneous and result from a similar range of activities.

Mechanical removal of upper layers of modern strata should reveal a comprehensive spatial distribution of these features. This distribution can then be compared with archival maps and directories to establish association with specific families or residents. Domestic-refuse pits and self-contained vault privies provide ideal circumstances from which to collect materials associated with family units. However, other feature types, such as bone pits, construction-debris pits, and straight-line cesspits, may also provide materials useful for comparing differences in consumption and discard across ethnic boundaries.

Based upon previous excavations, the screening of fill should recover roughly 100 artifacts per feature. This should be sufficient to address Research Question 1. Materials will be analyzed using the methods described in this report. Diagnostic attributes will be used to date the activities associated with deposition of the material culture. Based on the Capitol Parking Facility project, expected artifact classes include large quantities of bottle glass, metal can fragments, animal bone fragments, and Euroamerican pottery vessels. Archaeobotanical samples will also be collected from reliable contexts to provide information on dietary choices of the individuals residing within the project area.

Analysis of bottle glass and animal remains in particular were useful in exploring differences across ethnic lines. Comparing the relative frequencies of each bottle and fauna type demonstrated a preference for wine and beef among Anglos, and whiskey and mutton among Hispanics. These artifact types from the Executive Office Building will be compared with the Capitol Parking Facility project assemblages to confirm or refute the interpretations discussed above and to provide more nuanced interpretations, if possible. Perhaps differences in consumption patterns are not simply across the artifact type (e.g., wine or whiskey) but relate to certain specific brands (e.g., Gallo Wine or Paul Jones Whiskey) or certain cuts of meat. These nuances will be explored using the brand and manufacturer variables relative to artifact type recorded in the proposed function-based Euroamerican artifact analysis and the skeletal element and evidence of butchering variables relative to taxonomic identification described in faunal remains analysis.

Research Question 2

Do consumption patterns vary between low- and middle-class households in the late nineteenth and early twentieth centuries? If so, are these patterns emphasized or de-emphasized by the Great Depression (AD 1929 to 1941)?

Hudspeth's City of Santa Fe Directories indicates that the majority of occupants at LA 158037 held jobs such as laborer, lawyer, driver, housekeeper, judge, clerk, and minister. Such occupations represent a broad spectrum of the socioeconomic realm and allow for limited comparison of consumption patterns within a socioeconomic group.

Models in the past have relied on using material culture to determine the socioeconomic status of individuals. These studies often use a scale based on distance from the manufacturer, availability, and implied intrinsic value of some goods over others (Miller 1991). This study proposes to do exactly the opposite. Using archival research to establish socioeconomic status, cultural material will then be examined to see if variability within artifact assemblages occurs.

Several potential indicators of differences in social status are food, indulgences, and dishware. Food is ideal. The type and cut of meat consumed is often directly related to cost. Oysters cost more to procure than sheep, and T-bone steak is more desirable than a spinal cut. Indulgences follow a similar pattern in that specialty liquors and illicit drugs, such as opium or cocaine, cost more than more readily available items such as beer and whisky. However, such distinctions lessened during the prohibition era of the 1920s, making such assertions somewhat problematic. Dishware is an indicator in many ways. Social status can be inferred by manufacturer and shipping costs associated with a specific good, but perhaps most important in determining the social status of the individual using the merchandise are manufacturing costs associated with the individual piece—specifically, decorative technique. The labor associated with hand-painted objects increases the cost of goods exponentially over undecorated, mass-produced utility wares.

It is expected there will be only minor differences within material culture reflecting individual preference. Differences within low- and middle-income households may not even exist, or all households may appear low-income if examined using a nationally applied standard taken from similar studies along the East and West Coasts and American Midwest (Miller 1974, 1991; Otto 1977; Rathje and McCarthy 1977; Shephard 1980; Henry 1996). The Great Depression of the 1930s affected a broad spectrum of socioeconomic strata. In rural areas, the hardest hit were small-time subsistence farmers, who were unable to claim federal aid until after their land was lost to tax collection (Post 1999). This led to alienation and disenfranchisement of rural populations and ultimately to relocation to more urban environments.

In urban environments, both the rich and poor were hit by job loss. Federal government assistance programs of the New Deal implemented in New Mexico included the Work Progress Administration and the Civilian Conservation Corps. The Civilian Conservation Corps in particular had a headquarters and "fly-camps" in Santa Fe and numerous outlying communities (Calkins 1937; Martinez 1996). These measures returned some cash to families and for the poor may have been enough to maintain the status quo. However, it is unlikely that the middle class, if it had appreciable differences in material culture from the poor before 1929, would be able to maintain these distinctions on a fixed income, leading to a homogenized urban material culture set. Economic goods associated with the Depression era, such as Depression glass, likely occur in all assemblages, showing a generally similar adaptation in lifestyle to the economic downturn.

Results of the Capitol Parking Facility Project

This research question proved complicated. It assumed that lower- and middle-income household artifact assemblages would be recovered from the project area and that these assemblages could be distinguished from one another by archaeological, ethnographic, and archival evidence. It then further implied that these assemblages would have diagnostic elements to tie them to historic periods on a roughly decadal scale (1920s, 1930s, or 1940s). This was more difficult than initially believed.

Hudspeth's City of Santa Fe Directories between 1928 and the 1960s characterize the occupants at LA 158037 as holding a diverse array of jobs such as lawyer, laborer, judge, housekeeper, and clerk. These jobs represent a wide range of lower-, middle-, and upper-income households. The directories were produced on an annual or biannual basis, which generated a very accurate list by which to economically categorize occupants of the neighborhoods during and after the Great Depression. However, the majority of artifact assemblages recovered from the project area dated between 1890 and 1940.

These two time scales are not contemporaneous. For comparative purposes, archaeologists lacked job listings for residents over a pivotal 40-year interval (1890–1928). Census records could tell archaeologists something of the people who lived at the residences between 1890 and 1928. However, a national census is only conducted every 10 years. At best the census is a snapshot in time and cannot relate the fluid dynamics of the living situations. For example, Structures 1, 2, 3, and 5 were owned by the Alarid family, but they moved between one of the four structures based on which one they were able to rent out to a tenant at any given time. So while the census lists the professions of Ricardo Alarid, Ricardo Alarid Jr., and Juan Pedro Alarid, it missed an unknown number of the families who rented houses from them.

Some but not all of this data can be supplemented with ethnographic interviews. In the case of the Alarids, Juan Pedro (personal communication, 2009) stated that his father occupied 141 West Manhattan Avenue during most of the 1920s, when he was distributing alcohol from the premises as part of a bootlegging operation. This excluded renters from the premises between ca. 1920 to 1930. To some extent this can be validated through the archaeological record, which included numerous shouldered jugs and Mexican- and Canadian-manufactured alcohol products in privies believed to date to the Prohibition era. However, oral history was at best a questionable means for determining who was rich and who was poor.

Archaeological methods were also employed to determine the socioeconomic status of individuals residing in the neighborhood. One approach employed was the use of ceramic price indices, using Euroamerican dinnerware from the individual households. This data suggested that Structures 1–7 could be arranged from wealthiest to poorest in the following order: Structure 7, Structure 3, Structure 2, Structure 5, Structure 1, Structure 4, and Structure 6. However, mean ceramic index values generated across the individual structures were statistically irrelevant, with standard deviations that clearly overlapped and could suggest that all inhabitants of the neighborhood had similar purchasing power.

Prescription bottle index values were also employed to serve as a proxy for determining socioeconomic status. However, higher values were found consistently among only Anglo populations. The utilization of professional health care may have been an ethnic preference. Hispanic populations appear to have relied more heavily on homeopathic cures than Anglos, who often sought professional treatment for their medical ailments.

Assigning features to specific periods of time also proved to be incredibly difficult. Mean bottle glass and ceramic manufacturing dates offer an approximate date for individual features across LA 158037. However, many of these mean manufacture dates also had large standard deviations, which diminished the potential to link the features to a specific decade. In many instances, assemblages could only be designated late nineteenth century, early twentieth century, post-1910, post-1930, etc.

With these complications in mind, it was still possible to generate some general conclusions about consumption and discard change over time. Euroamerican artifacts offered several observations on changes in consumption and discard across the World War I, Prohibition, and Depression eras. It appeared that while the Eighteenth Amendment prohibited the sale and distribution of alcohol, alcohol products were still visible within the archaeological record throughout the Prohibition era, albeit on a reduced scale. Conversely, personal effects, such as clothing and medicinal products, were found in reduced frequencies during the Great Depression, suggesting that access to health care declined, and clothing was likely repaired or modified to last longer. In addition, there was a clear trend toward the increased consumption of store-bought food items across all three periods.

This trend toward purchasing more and more food items from commercial establishments correlated well with a trend over time away from the consumption of mutton or lamb (typically home-butchered) toward greater quantities of beef (typically store-bought). However, economic indices and yield values did not show a decline in the quality of meats eaten during the Great Depression. Hence, the economic downturn of the 1930s appears to have little effect on the cut of meat purchased by the community.

Native American pottery trended toward more decorative and less functional vessels over time. This pattern may been influenced by the efforts of Edgar L. Hewett and others associated with the Pueblo Art Fund, which encouraged Pueblo potters to abandon their many traditional forms in favor of creating large highly decorative jars and ollas. Flaked stone artifacts were probably not used by residents of the neighborhood in the twentieth century. Flaked stone found in these contexts was probably collected as curios. The single piece of ground stone on the site was likely collected for similar reasons.

Based on these observations, it would appear that the effect of Prohibition and the Great Depression on the discard behaviors was in many ways minimal or subtle. Many patterns discussed, such as a greater reliance on store-bought products, the consumption of beef, and the collecting of aboriginal pottery as works of art, appear to have been trending upward before, during, and after these two eras. The Eighteenth Amendment and the national economy had little or no impact on these general trends. Prohibition did impact the overall frequency of alcohol products within the archaeological record but did not succeed in stopping alcohol consumption. During the recession, access to health care appears to have declined, and people may have held on to some items, such as clothing, for longer periods of time.

This is not to say Prohibition and the Great Depression did not have a visible impact on the consumption and discard patterns. However, many of these responses may have been family or structure specific. The bootlegging and alcohol distributorship operation run by the Alarid family and documented in Features 232 and 234 was in direct response to the public's thirst for illicit spirits during the 1920s. The Alarids met these needs, but the products that the Alarid family sold were recognizably different from those sold in the 1910s and 1930s. Because alcoholic beverage distribution was illegal in the United States, most of the manufacturers and brands within the Prohibition assemblages could be traced to either Mexico or Canada. There were also a number of nondescript shouldered jugs, which were presumably containers for homemade products.

It is also true that while people purchased increasingly more commercial food items over time, some people did turn to home canning as a cost-saving measure during the Great Depression. The Muller family root cellar, where a jar of pectin was found, is an example. This sort of cottage industry likely typified the Great Depression era. However, many of these industries may not be visible in the archaeological record.

Also as discussed in Post (1999), the Great Depression of the 1930s affected a broad spectrum of socioeconomic groups. In rural areas, the hardest hit were small-time subsistence farmers, who were unable to claim federal aid until after their land was lost to tax collection. This led to alienation and disenfranchisement of rural populations and ultimately to relocation to urban environments. This relocation can be seen in the building construction patterns within the Capitol Complex Historic Neighborhood. During the 1930s and early 1940s, Structure 5 and 6 underwent substantial renovations to accommodate rental units. Similarly, Structure 2 was built by the Alarids to purposely function as a rental unit in 1938. Presumably these rental properties provided supplemental income, which, along with their salaries, allowed residents to mitigate the more drastic impacts of the recession on their quality of life.

While there is little evidence of collective disruption to consumption and discard patterns during the Prohibition and the Great Depression eras, individual families did respond to the new challenges brought on during these periods in a variety of ways. The level of personal agency witnessed in the archaeological record suggests there was no one particular response to the proscription of alcohol or the economic recession that followed. Instead, there were numerous responses by individual family units to address highly complex situations.

Executive Office Building Project Data Needs

Analysis of material culture will address questions associated with socioeconomic variability. Artifacts must be clearly associated with known household units, which can be established through archival research in *Hudspeth's City of Santa Fe Directories* and indices to deeds on file at the Santa Fe County Clerk's office. Furthermore, assemblages must be contemporaneous and result from a similar range of activities.

Domestic-refuse pits and self-contained vault privies often yield a large numbers of artifacts and could prove ideal for addressing Research Question 2. Only one domestic-refuse pit was encountered in the current project area when tested in 2007. However, it is likely that between 10 and 15 domestic-refuse pits and one to four privies will be encountered in the proposed archaeological investigations. Hand-excavation and screening of feature fill should recover significant numbers of artifacts.

Based on results from the Capitol Parking Facility project, expected artifact classes include large quantities of animal bone fragments, bottle glass, can fragments, and Euroamerican pottery vessels. Economic scaling using mean ceramic index values and fauna cuts were useful for ranking households in the Capitol Complex Historic Neighborhood and for examining the neighborhood in relation to regions elsewhere. Dates (Prohibition, Depression, and Post–World War II) can be assigned to artifact assemblages using mean ceramic and mean bottle glass dating methods in conjunction with other diagnostic attributes and dating schemes. These individual analysis methods, described later in this report, should provide information on changes in socioeconomic status before, during, and after the Great Depression.

Research Question 3

Do discard patterns differ in domestic-refuse pits and self-contained vault privies? If so, what characteristics of the consumption patterns are similar?

Excavations of privies and refuse pits in a military setting appear to show substantial variability in discard patterns between the two contexts (Post et al. 2006). Self-contained vault privies show increasing quantities of goods associated with domestic and routine activities, such as dishes, and personal effects, such as medicinal bottles, whereas a domestic-refuse pit contains marked increases in the quantity of butchered animal bone and canned goods. Both contain high quantities of indulgences such as liquor and tobacco products. Studies modeling such behaviors within the context of a residential neighborhood in downtown Santa Fe have rarely been conducted. Through the OAS analysis of Euroamerican artifacts, we will look in detail at the treatment of domestic waste, medicinal, alcohol, and illicit-drug consumption patterns and, overall, examine what each feature type reveals about the individual domestic household under investigation.

The OAS analysis format and procedures developed over the last ten years to examine Euroamerican artifacts can be used to address these differences (Boyer et al. 1994). Described in detail in a later chapter of this report, the analysis will be designed to accommodate a wide range of variability. The function of each artifact is identified by a hierarchical series of attributes that classifies it by functional category, type, and specific function. These attributes are closely related and provide a chain of variables that will specify the exact function of the artifact. This system also allows for general assemblage classifications. When identified, these attributes can be used to describe differences or similarities in discard patterns between features at LA 158037.

Results of the Capitol Parking Facility Project

During the Capitol Parking Facility project, features were identified by one of 10 types based on in-field observations of shape, design, content, and location. Three of the most common feature types were domestic-refuse pits, construction-debris pits, and self-contained vault privies. Each of these pits was perceived to be associated with a different set of household activities. The domestic refuse-pit feature type is presumed to be linked primarily to kitchen- and child-related chores based upon high quantities of coal clinkers and charcoal. The construction-debris pit feature type is thought to be associated with maintenance and renovation based on the abundance of concrete and adobe, and the self-contained vault privy feature type is most likely connected with bathroom-related functions based upon the presence of human waste.

The Euroamerican artifact analysis used for the Capitol Parking Facility project was a function-based analytical framework. Central to any function-based analytical framework is the identification of specific activities within the discarded material culture. Some generalized patterns in the discard of Euroamerican artifacts occurred across the domestic refuse (domestic artifacts typically dominant), construction debris (construction/maintenance items typically dominant), and human waste disposal system (personal effects typically dominant) categories. However, there was too much variability across individual features to make these generalizations particularly useful in determining activities performed in and around these features by the analysis of Euroamerican artifacts without taking into account other variables such as feature design, shape, content, and location. Furthermore, Euroamerican artifacts recovered from irrigation ditches, bone pits, and postholes had very little to do with feature function.

While artifacts collected from all of these features were likely associated with general residential activities at each of the individual properties, Euroamerican artifact assemblages from specific feature types were not necessarily distinct from one another. Feature function could not be identified based on artifact distributions alone. So while the artifacts could be used collectively to determine the range of activities that occurred at the residence, their spatial distribution usually did not relate to areas associated with their use.

Executive Office Building Project Data Needs

To enable this study, self-contained vault privies and domestic-refuse pits must be identified and excavated within the project area. Numerous domestic-refuse pits and self-contained vault privies are expected. These features tend to yield high quantities of artifacts and should allow researchers to compare material culture across function-based analytic categories using the Euroamerican artifact analysis procedures outlined later in this report. Using the data from the Executive Office Building in conjunction with the data set already generated from the Capitol Parking Facility project should provide a greater sample from which to confirm or refute the earlier findings.

Chapter 7

Field and Analytic Methods

Matthew J. Barbour

Field and analytic methods employed on LA 158037 did not deviate from strategies discussed in *Archaeological Data Recovery Plan for the Executive Office Building, Santa Fe, New Mexico* (Barbour 2011a). These strategies involved systematic in-field sampling of features, the creation and maintenance of digital maps, and analysis of all cultural materials recovered as a result of archaeological investigations. This chapter discusses the technique utilized during data recovery and the report production activities.

Field Methods

The initial steps of fieldwork involved the establishment of an arbitrary Cartesian grid system centered on a site datum of 500N/500E just north of the Capitol Parking Facility; the identification and marking of all known utility lines (Fig. 7.1); and the removal of asphalt and gravel within the project area. Mapping was performed using Nikon DTM-330 Total Station and was tied into the NAD 83 UTM projection using a hand-held Trimble GeoExplorer 3000 Series GeoXH.

Mechanical stripping was then used to expose eight large scraping units. These scraping units varied in size, but combined to encompass 1,413 sq m of area (Figs. 7.2, 7.3; Table 7.1). Using backhoe trench stratigraphic profiles from archaeological testing as a guide (Barbour 2008a), the mechanically scraping of each area focused on the removal of Strata 1, 2, and 3, a sediment block extending up to 55 cm below the present ground surface. These strata have been previously characterized as sediments accumulated through late twentieth-century demolition and construction activities and were not further investigated (Barbour 2008a:43–51; Barbour 2012a:97).

After removal of the modern overburden, the plan-view outlines of historic archaeological features (n = 157) were visible at the top of Stratum 4/5 (Table 7.2). Features were photographed and mapped prior to further ground disturbance. Additional documentation, excavation, and collection activities followed using strategies detailed within the data recovery plan (Barbour 2011a:75–79). Feature types included animal burial pits (n = 2), bone pits (n = 2), construction-debris pits (n = 18), domestic-refuse pits (n = 33), irrigation ditches (n = 2), postholes (n = 82), cesspits (n = 1), storage tanks (n = 1), and structural elements (n = 16). All appear to date to the late nineteenth or twentieth centuries. A discussion of each feature type is provided below. No human remains, prehistoric features, or Spanish Colonial/Mexican-period deposits were encountered.

Bone Pits

During the Capitol Parking Facility project, bone pits were found exclusively in association with 125 West Manhattan Avenue, which was occupied by the Romero family (Barbour 2011:141–166). Pit content consisted primarily of butchered low-yield cranial and lower shank-hoof portions of domestic cow and sheep/goat. It was suspected that the viscera were also discarded in the pit because of discoloration of the feature fill. These characteristics indicate that butchering or feasting activities by the Romero family may have taken place on the property, and might be regarded as evidence of a cottage industry. The charcoal, coal, and/or cinders typically found in domestic refuse pits were not encountered.

Two bone pits (Features 320 and 351) were found in the Executive Building project area (Table 7.2). Because these features represented a unique activity that could be linked to only one specific household during past archaeological investigations (Barbour 2011), they were excavated in their entirety, using 1/4-inch screen to collect artifacts.

Burial Pits (Animal)

Deceased pets are often interred in family backyards. The pets most commonly buried in this way are cats and dogs. However, any type of animal may have been buried. At LA 158037, pits containing unbutchered or unmutilated animal skeletal remains were identified as burial pits. Two burial pits were encountered on the property of 104 South Capitol, Structure 10 (Table 7.2). One was a mature turkey (Feature 267) and the other, a mature young cow (Feature 300). Both remains were excavated in their entirety using 1/4-inch screen to collect any associated artifacts. These features have the potential to inform on pet preference amongst the inhabitants of the Capitol Complex Historic Neighborhood.

Construction-Debris Pits

Construction-debris pits can be any shape or size but are always characterized by fill material consisting primarily of building debris such as milled lumber, concrete, pentile, and fire-hardened and adobe brick fragments. The contents of these pits indicate construction, maintenance, or demolition activities within the project area. As discussed in Research Question 1 of the data recovery plan (Barbour 2011a:66), variability in construction materials and practices can sometimes be tied to ethnic differences among residents of a neighborhood. During excavation for the Capitol Parking Facility it was found that Hispanic families chose to build with adobe and Anglos appeared to prefer wood-frame or pentile construction. However, beyond field documentation as to the type of building debris contained (e.g., brick, lumber, and concrete), these pits were of limited value.

Eighteen construction-debris pits were encountered during data recovery for the Executive Office Building. These features were digitally photographed and mapped using the total station. The majority (n = 12) were not excavated; the exceptions being Features 253, 259, 284, 309, 310, and 311 (see Table 7.2). In these instances, excavation was undertaken in one-by-one meter excavation units using ¼ in mesh screen for artifact recovery.

Domestic-Refuse Pits

A domestic-refuse pit can be any shape or size. The fill typically contains large quantities of coal, charcoal, and cinder presumably related to heating and cooking activities. Associated artifacts often vary widely in their specific functions but, as a whole, represent products discarded within a residential setting. Examples include toiletry bottles, culinary cuts of animal bone, dinnerware, pottery, and canning jars. When cross-referenced with archival sources, these materials provide ideal data with which to examine variables in consumer choice across ethnicity, socioeconomic status, and period of time (Research Questions 1, 2, and 3; Barbour 2011a:65–74).

A total of 33 domestic-refuse pits were encountered during the Executive Office Building project (Table 7.2). These pits were excavated in their entirety because of their research potential using 1/4-inch screen to collect artifacts. Many of the features were identified as domestic-refuse pits based upon the presence of charcoal, coal and cinder. However, this may not have been their primary purpose. Often the pits found during the Executive Office Building project had regular dimensions and equal spacing from one another. This suggests a specific purpose other than simply the deposition of kitchen waste. In the case of Structure 11, these pits appear to reflect plantings within a flower garden in the southwest corner of the Beacham backyard.

Irrigation Ditches

Irrigation ditches are linear hydraulic systems used to convey water to and across agricultural fields or gardens. Two small-scale irrigation ditches were identified (Features 350 and 389). Feature 389 is located behind Structure 11, 116 South Capitol, and Feature 350 crossed through the properties of Structure 4, 125 West Manhattan Avenue, and Structure 6, 111 West Manhattan (Table 7.2). These ditch segments were sampled using 1 by 1 m excavation units and artifacts were collected using 1/4-inch screen. Diagnostic artifacts and Optically Stimulated Luminescence (OSL) samples were used to date the ditches and offer some information regarding Research Question 2 (Barbour 2011a:70).

Postholes

Pits smaller than 40 cm in diameter were identified as postholes. In all, 82 postholes were encountered in the Executive Office Building project area. In most instances, these features were mapped, but not excavated. The arrangement of postholes can inform upon the division of space. The most obvious example of this is the linear arrangement of postholes representing fence lines dividing the city lots.

Privies

Self-Contained Vault Privies. Self-contained vault privies are best understood as being part of the traditional outhouse system (Barbour 2008b). These sanitation systems work by excavating a pit and erecting a standalone structure above it. Users of the outhouse simply squat or sit upon the toilet and their excrement falls into the vault below. Such systems often fill up quickly. The pits have the potential to collect other cultural materials intentionally or unintentionally dropped into them.

Because the vaults can fill up rapidly if not maintained, a single outhouse will often be moved to a new vault every few years. As a result, each privy can provide a discrete, short-duration glimpse into the past, easily correlated with a specific city parcel and family. Unfortunately, no self-contained vault privies were encountered within the Executive Office Building project area. The absence of self-contained vault privies made it impossible to compare artifact assemblages across the self-contained vault privies and domestic refuse pit feature types and renders Research Question 3 (Barbour 2011a:73) unanswerable.

Straight-Line Cesspit Privies. Straight-line cesspit privies are early forms of septic tanks (Barbour 2008b). These systems work with flush toilets inside or outside the house. Water with the help of gravity flushes human excrement from the toilet through a series of pipes into the cesspit. Often these pipes do not have turns or bends in them (hence the name), facilitating easy delivery of the effluent, thereby preventing clogs. Cesspit systems, if properly maintained, can last 50 years or more. Flotation and coprolite samples collected from these features may provide some information on the diets of, and diseases afflicting, past residents. Diet and disease can often fluctuate across ethnic groups, income groups, and time (Research Questions 1 and 2, Barbour 2011a:66, 70).

One straight-line cesspit privy, Feature 382, was encountered within the Executive Office Building project area. This feature was excavated in its entirety with the vast majority of the fill being collected for flotation and coprolite analysis.

Storage Tank

Below ground storage tanks for propane or kerosene were not common components of early twentieth century residences in downtown Santa Fe. None of the nine structures investigated during the Capitol Parking Facility project utilized one for heating. Such technology was more typical of household heating in the mid-western or eastern United States. A large 565-gallon metal storage tank was found on the property of 116 South Capitol Street, Structure 11. Chemical testing by the State of New Mexico Petroleum Storage Tank Bureau suggested the tank contained heating oil, presumably kerosene (Bart Butler, personal communication December 12, 2011). The tank was pumped and removed from the project area.

Structural Elements

Foundations, basements, floors, and other structural elements were encountered during the Executive Office Building project. Building materials and methods are often temporally sensitive and ethnocentric, making them useful for addressing Research Question 1 (Barbour 2011a:66). Archaeological investigations focused on documenting construction details and the arrangement of space. However, active utility lines within the project area obscured visibility of Structures 11 and 12, thereby limiting their complete excavation. Artifacts found in the basement of these structures were not related to their use, but to their demolition. Only a judgmental sample of artifacts was retained to help characterize the fill.

Mechanical Trenching

Following excavation of the eight scraping units and sampling of all visible features, mechanical trenching was used to determine if subsurface cultural deposits or features were present at lower elevations (Fig. 7.4). Fifteen backhoe trenches were excavated impacting an additional 59 sq m of area outside of the scraping units. Trench length and orientation varied, but each was roughly 1 m wide and 1.4 m deep (Table 7.3). While additional features were encountered outside of the scraping units in Stratum 4/5, no deeply buried features were found and each trench extended into Stratum 7. Stratum 7 has been characterized as an alluvial deposit dating to the Pleistocene (Boyer 2012:321–324). Its presence within each backhoe trench indicates the absence of lower colonial or prehistoric deposits.

Mapping and Rectification

Creation and management of all digital maps for the Executive Office Building were performed by Jessica Badner and Isaiah Coan. This section describes strategies used to overlay the field map on to current aerial images of the City of Santa Fe and Sanborn Fire Insurance Maps.

Rectifying the Excavation Map to Aerial Imagery

In accordance with OAS standard field procedure, a scaled excavation map was produced during fieldwork using a Nikon DTM-330 Total Station. In addition to features and excavation units, surrounding buildings, utilities, and sidewalks were mapped. A series of three map points on the field map were then used to rectify the excavation map to 6-inch RGB aerial imagery projected in UTM NAD 83, Zone 13, using a first-order polynomial rectification. Points were: OASDAT1 and OASDAT 2 located north of the Capitol Parking Facility, the eastern corner of the Concha Ortiz y Pino Building and the sidewalk along South Capitol Street. Features were then digitized using the rectified field map. All rectification points were visible from the air. Datum points previously collected with a Trimble GeoExplorer 3000 Series GeoXH and then post processed were accurate to between 20 and 40 cm. Rectification using ground-based points visible from the air was likely within the range of those control points collected with the Trimble.

Sanborn Insurance Map Overlays

Sanborn Insurance Map overlays presented in this report were generated using previous work conducted for the Capitol Parking Facility project. In order to clarify relationship between foundations exposed during excavation and potential relationship to previously documented historic structures during the Capitol Parking Facility project, a Sanborn insurance map (Santa Fe, Sheet 14; January 1930-modified for August 1948) was rectified to the aerial base map using a first order polynomial rectification. A detailed discussion of map rectification is beyond the scope of this report but generally, this transformation adjusts the map by stretching, scaling and rotating X and Y data without bending or curving it (ESRI 2006, Bolstad 2002:117). Finding reliable modern points necessary for rectification i.e., points evenly distributed across the map area, was a challenge. The current landscape in the map's northwest quadrant has been altered resulting in a lack of original structures and unaltered curbs, good points with which to rectify the Sanborn map to a modern aerial. This was compounded by the Sanborn map's dubious building placement, and error in the aerial caused by parallax, introduced by flight angle and building height.

With these limitations in mind, a series of points derived from a combination of historic buildings and excavated foundations were used to rectify the map (see Figure 7.5). Historic points included northeast and southwest corners of the former "State of New Mexico Capitol Building," and a parapet at 404 Don Gaspar Avenue. Points derived from excavation included foundation stubs in Structures 4, 8, and 7. Residual error, a measure of the distance between the rectification point target and the actual point placement ranged from .98 to 2.7 m with an average RMS (root mean square) of 2.05. This error, calculated by ArcGIS using all rectification points reflects how close a series of points are plotted to desired placement but does not directly take into account the accuracy of maps involved in the rectification.

The resulting overlay is an approximation heavily influenced by our choice of rectification points. Though the decision to rectify the map to excavated foundations is not the most robust means for generating the overlay from a methodological perspective, in this case it was the most practical choice given the information available. The resulting overlay is clearly imprecise and the southwest section of the map is probably the least accurate. Even with these limitations, the resulting product is useful for tracing building histories for the Executive Office Building project (Fig. 7.6).

Euroamerican Artifact Analysis Methods

Euroamerican artifacts (n = 998, Table 7.4) were analyzed at the Office of Archaeological Studies laboratory by Virginia Prihoda under the supervision of Matthew Barbour. The OAS Euroamerican analysis format and procedures were developed over the last ten years and incorporate the range of variability found in sites dating from the sixteenth to twentieth centuries throughout New Mexico (Boyer et. al. 1994). These methods are loosely based on South's (1977) Carolina and Frontier artifact patterns and the function-based analytical framework described by Hull-Walski and Ayres (1989) for dam construction camps in central Arizona. This detailed recording format allows for the examination of particular temporal and spatial contexts and for direct comparisons with contemporaneous assemblages from other parts of New Mexico and the greater Southwest. Recorded attributes were entered into an electronic database (in this case, the Statistical Package for the Social Sciences or SPSS) for analysis and comparison with similar databases on file at the OAS.

Functional in nature, the Euroamerican artifact analysis focused on quantifying the utility of various objects. One benefit to this type of analysis is that "various functional categories reflect a wide range of human activities, allowing insight into the behavioral context in which the artifacts were used, maintained, and discarded" (Hannaford and Oakes 1983:70). It also avoids some of the analytic pitfalls associated with frameworks focused on categorizing artifacts strictly by material type (e.g., glass, metal, ceramic, mineral, etc.).

One weakness to material type based analyses is that only a limited number of functional categories are represented in a single material class. For instance, metal while beneficial for examining construction and maintenance materials such as nails and wire would not incorporate patent medicines or other bottled goods into the same analysis. In addition, variables, such as finish, often chosen to analyze glass artifacts are appropriate for glass containers, but not for flat glass, decorative glass, or other glass items like light bulbs that can serve different roles within a single spatial and temporal context. As such, the OAS analytic framework was designed to be flexible, documenting not only the qualities of each material type but the functional role of particular items. Like all analysis, there are inherent assumptions, which require explicit explanation.

In functional analyses, each artifact is assigned a stratified series of attributes that classify an object by assumed functional category, artifact type, and its specific role within that matrix. These attributes are closely related and provide the foundation for additional variables that, with increasingly more detail, strive to specify an artifact's particular function. In this analysis, 12 functional categories were used, including: economy/production, food, indulgences, domestic, furnishings, construction/maintenance, personal effects, entertainment/leisure, transportation, communication, military/arms, and unassignable.

Each category encompasses a series of artifacts types whose specific functions may be different, but related. For example, a whiskey bottle and soda bottle are both categorized as indulgences. However the type of indulgence, in this case liquor and carbonated beverage, represent very different activities or behaviors. Hence, the whiskey bottle would be functional category: indulgence, artifact type: liquor and artifact function: whiskey bottle.

In essence, this functional-based analysis represents an inventory of different artifact attributes where variables are recorded sequential order to amplify the functional categories and to provide a detailed description of each artifact, when possible. Attributes that commonly provide detailed information about individual artifacts and, in turn, functional categories include: material type, date and location of manufacture, and artifact form and portion.

Chronometric data are derived from a variety of descriptive and manufacturing attributes, especially the latter. If an artifact retains enough information to derive a begin or an end date, those variables are recorded under the *Date* attribute. *Manufacturer* records the name of the company that produced a particular object. Together these data can be used to assign specific date ranges to an artifact based on known manufacture periods or the dates of operation for manufacturing companies. A related attribute is *brand name.* Many brand names also have known production periods that can provide temporal information. The manufacturer or brand name is generally listed as *labeling/lettering* on an artifact and is used to advertise the product, describe its contents, or inform on its suggested use.

When evident, manufacture *technique*, such as wheel-thrown or forged, was also recorded. Since some manufacturing techniques have changed over time, this attribute can often provide a general period of manufacture. A related attribute is *seams*, which records how sections of an artifact, particularly cans and bottles, were joined together during the manufacturing process. Through time these processes were altered and are reflected in the types of seams used to construct various containers. The type of *finish/seal* was recorded to describe the opening of a container prior to adding the contents and the means of sealing it closed. Like *seams,* many *finish/seal* types have known manufacturing periods offering general temporal information. In addition, *opening/closure* records the mechanism used for extracting the contents of a container.

For some artifacts, attributes such as *color*, *ware*, and *dimensions* can also provide information on the period of manufacture. Thus, the current color of an artifact was recorded if determined to have diagnostic value. A good example is glass where the relative frequency of various colors in an assemblage can provide some temporal information since the manufacture and preservative processes have changed over time. *Ware* refers to china artifacts, and categorizes the specific type of ceramic represented, when known. Because temporal information exists for most major ware types, this attribute provides relatively more refined dating information compared to seams and color. Dimensions of complete artifacts can also provide chronometric data, especially artifacts like nails or windowpane glass, where thickness or length of the object can be temporally sensitive.

In addition to temporal information, the manufacturing process of a particular object can be used to support functional inferences. *Material* records the type of material(s) from which an object was manufactured (e.g., glass, metal, paper, clay, etc.). *Paste* describes the texture of the clay used to manufacture ceramic objects, and is further defined by porosity, hardness, vitrification, and opacity. *Decoration* and *design* describes the type of technique used to apply distinctive decorative motifs to an object, such as china or glassware.

Several other attributes were used to quantify an object's condition and use-life. For each item the *Fragment/part* variable described what portion of a particular form was represented. However, fragments of objects that refit to complete or partial objects recovered from a single excavation context were recorded together as a *minimum number of vessels* (MNV) of one, and the number of specimens present represented by *count*.

Cultural alteration of an item to extend its use-life was recorded as *reuse*. This variable describes any evidence of a secondary function, and the *condition/modification* variable monitors any physical modifications associated with that secondary use. If environmental conditions have altered the surface of an artifact through either glass patination or metal corrosion, it was recorded as *aging*.

The appearance of an artifact was monitored using the *Shape* variable. This variable was generally used to describe the physical contours of complete objects. Finally, quantitative data including *volume*, *length/height*, *width/diameter*, *thickness*, and *weight* were recorded for most Euroamerican artifacts. Where appropriate, some measurements were recorded using industry standards (i.e., pennyweight, caliber, gauge, etc).

Artifact and Assemblage Dating Methods

Begin and end artifact dates were based on a number of attributes such as sealing and closure methods for bottles and cans, invention dates, stylistic changes in design, and advances in manufacturing techniques that have known dates (Tables 7.5, 7.6). The begin date for an attribute is the earliest possible date that can be documented for its existence. These dates can be from patents, factory inventories, newspapers, and company records. An end date is the last documented date of attribute or artifact production. These dates can be determined through newspapers or magazines and industry newsletters or announcements of the introduction of new manufacturing techniques or inventions. Sometimes a change in production materials or the end of a certain pattern (as in a company's glassware or ceramic-ware) will establish an end date for the production of an item or manufacturing technique. This is particularly true for mass-produced items whose attribute changes form a chronological sequence. Examples of dateable attributes include the location of seams on bottles, the kinds of seams on cans, identifiable maker's marks on glass and ceramic vessels, the color of glass, or the form of nails. Using a combination of the earliest and the last known date, a "bracketed" time range can be obtained.

Bracketed time ranges based on manufacture dates are often used to develop mean ceramic manufacture and mean bottle glass manufacture dates using a method called "mean ceramic dating." Mean ceramic dating is a method of calculating the date of a deposit based on the frequency of recovered ceramic types. Since a wide variety of ceramic types have been assigned mean manufacture dates, these data can be used to approximate the periods of manufacture for those types and, in turn, archaeological deposits. Mean ceramic dates can be calculated using the following formula: mean ceramic date = $\sum(d_i f_i) / \sum f_i$ where d_i equals the mean manufacture date of a type and f_i equals the frequency of the type (Fig. 7.7).

Simply put, the mean ceramic date is generated by multiplying the frequency of each type by the specific mean manufacture date for that type, adding those products together, and then dividing that sum by the total number of individual types. Unlike more impressionistic dating methods that call on an analyst to offer a date based on the overall assemblage, this method generates a date that can be independently verified by using the same reported mean manufacture dates for each individual artifact across analytic units.

While mean ceramic dating has proved fruitful on Colonial-period assemblages throughout the New World (Noel Hume 1970; South 1977), there are some drawbacks. For example, ceramic dishes can be curated by individuals for significant periods of time. This curation behavior can lead to mean ceramic dates far earlier than the period of occupation. To mitigate this effect a more acceptable use of mean ceramic dating for nineteenth- and twentieth-century assemblages is to focus on other container material types, such as bottle glass or can fragments, which were most often used and discarded during a site's occupation history. Comparable mean bottle glass or mean can manufacture dates can be generated using the same the formula. The use of bottle glass or cans from late nineteenth or twentieth century contexts allows for the greater sample size and truncates curation periods in order to derive a more precise occupation date. These data can then be compared to the mean ceramic date to scale the effects of curation, if any, on the overall assemblage. When possible mean ceramic, mean bottle glass, and mean can manufacture dates were calculated for each Euroamerican artifact assemblage.

However, in most cases, precise manufacture dates could not be ascertained for many of the artifacts due to the highly fragmented nature of the Euroamerican assemblage or manufacture dates were too few in number to be statistically meaningful. In these instances, more impressionistic means were employed to date the Euroamerican artifact assemblage. These involved using presence or absence of machine made bottle glass to determine if an assemblage dated to the nineteenth or twentieth century or the examination of the ratio of machine-cut square nails to wire-drawn nails to discuss the likelihood of an assemblage dating to ca. 1880s or ca. 1920s.

One of the most useful impressionistic dating methods is to examine the material from which containers are manufactured. The relative frequencies of glass, metal, and plastic containers over time can be seriated to form a chronology by which assemblages from various contexts can be ordered temporally. Glass materials were most heavily used as containers relative to the other material types in the nineteenth century, but declined in popularity with the rise of the canning industry in the early twentieth century. Similarly, by the late twentieth century, plastics surpassed metal as the dominant material type used as a packaging container (Rathje and Murphy 2001). This method does not provide decade-specific resolution for discussions of chronology within the late nineteenth and early twentieth centuries, but can provide base information for gauging the relative age of any assemblage.

Another commonly used method is the use of bottle glass color to ascribe date of manufacture. However, for this project, color dating was avoided wherever possible. Most dates ascribed to specific colors are at best generalizations put forth by the uninformed collector. Furthermore the assignment of these dates can drastically skew any statistical attempt to date an assemblage. If for example amber glass was given a date of 1860 to present (Fike 1987:13) and there was an assemblage of 100 amber glass bottles with one manufacturer mark dating 1880–1892, the date derived using the mean ceramic date formula would be 1930 (std. deviation four years). This date is misleading. While amber bottle glass manufacture may have been popular from the mid-nineteenth century up until the present day, the single manufacture mark is a potentially more precise means of dating the assemblage. In this case, it may be better to say the assemblage dates to the late nineteenth century (ca 1886) than use color to date the assemblage.

Amethyst-colored bottles do provide a relatively accurate manufacture date range of 1880 to 1925 (Kendrick 1964:39–41), but for a clear colored bottle to turn amethyst it must be exposed to sunlight for a considerable period of time. On a pedestrian survey, when you are dealing with a surficial Euroamerican artifact assemblage, this knowledge is incredibly useful for assigning dates. The contents of the bottle simply had to be consumed and then the bottle discarded. After exposure to sunlight, it will become amethyst in color. However, in buried contexts, this is unlikely to occur. If an artifact was not exposed to sunlight for long periods of time prior to burial, it might not have turned amethyst. Conversely, if a clear glass bottle was manufactured between 1880 and 1925, then sat on the surface for some unknown period of time while it changed color and then came to lie in its current buried context, the amethyst date associated with manufacture would not be useful in determining the date of the assemblage currently under excavation.

For this analysis, multiple methods were used to date the variable assemblages. Exact methods used for each Euroamerican artifact assemblage are explicitly stated in the assemblage description. Dates for individual assemblages are presented in the following sections.

Economic Scaling

The socioeconomic status of the residents of the Capitol Complex Historic Neighborhood can be explored through the examination of specific objects within the Euroamerican artifact assemblages. One of the most commonly used forms of economic scaling within historical archaeology is the generation of mean ceramic values for domestic dishware to provide a relative scale by which the purchasing power of different consumers can be compared. Although using Euroamerican ceramics to scale socioeconomic status is a relatively new approach in the American Southwest, its validity to infer relative wealth among different historic households has been repeatedly demonstrated elsewhere (Miller 1974, 1991; Otto 1977; Rathje and McCarthy 1977; Shephard 1980; Henry 1996).

For the late nineteenth and early twentieth centuries, the consumer value of domestic dinnerware items can be determined using the ceramic price indices developed by Henry (1996). Her study used mail order catalogues produced between 1895 and 1927 (Montgomery Ward and Company 1895, 1922; Sears, Roebuck and Company 1897, 1900, 1902, 1909, 1927) to produce relative indices on open-stock items sold in the 1890s, 1900s, and 1920s. These indices are applicable across a wide regional network for comparison of economic status because of their utilization of nationally available products to develop average open-stock price indices. In her specific study, these indices were used successfully to gauge socioeconomic status within downtown Phoenix over several decades during the late nineteenth and twentieth centuries (Henry 1996).

Ceramic price indices assume that open stock or individual set item prices of any given ceramic dinnerware are relative to production costs of a particular vessel form and decorative technique. Open-stock prices for dinnerware listed in the catalogues were aggregated by vessel form and decorative technique, averaged and then ranked hierarchically. The least expensive undecorated wares were assigned a rank of one while the more expensive wares, such as porcelain and white-bodied earthenwares with decal designs, were assigned a rank relative to their retail cost in relation to undecorated wares (mean ceramic value = p/c, where p = price of the tableware and c = price of the cheapest undecorated tableware).

Henry's (1996) indices are reproduced as Table 7.7. Mean ceramic values generated for specific assemblages from Executive Office Building project were created by averaging all dishware values within a given context. These mean ceramic values were then compared to other assemblages within the Santa Fe area, such as at the Santa Fe Railyard (Badner et al. 2013) and Santa Fe Judicial Complex (Lakatos 2011). The assumption is that the higher the value, the higher one's purchasing value and ultimately social status. A score at or near a 1.00 indicates the context consisted primarily of undecorated white-bodied earthenware and would suggest poverty level consumption and discard patterns whereas a score of 2.00 or above would indicate a wealthy person or persons eating off porcelain dishes almost exclusively.

Because open-stock prices vary through time as technology and aesthetic taste change, mean ceramic values cannot be utilized unless an assemblage can be accurately dated within one or two decades. Furthermore, comparisons between assemblages can only occur if those materials are roughly contemporaneous. One cannot compare a mean value developed from a 1890s domestic refuse pit with a 1930s privy. However because the indices are developed using national market prices, the mean ceramic value produced for assemblage dating to 1910 in Santa Fe can be compared to those developed in 1910 Atlanta.

Another method developed as a proxy for examining socioeconomic status in nineteenth century assemblages is the utilization of prescription medicine bottles to determine access to health care. The nineteenth century and early twentieth century are often viewed as a golden age of patent medicine (Fike 1987:3–5). Patent medicines were often unproven cures for some specific, or in some cases, not so specific ailment. These cures were often homeopathic and ranged in scale from the use of ginger to relieve common cold symptoms to patented remedies manufactured for wide-scale distribution. In many instances the medicinal agents within patent remedies were benign yet consumers did find symptomatic relief since their primary ingredient was typically alcohol or the opiate laudanum. Patent medicines were often purchased and consumed by individuals who had limited or no access to medical professionals due to monetary or social constraints.

Prescription bottles can be distinguished from patent medicine bottles by the presence of measured increments along the side of the bottle to allow accurate doses of its contents (Fig. 7.8). The materials within these products varied, but included pharmaceutical drugs we would recognize today, such as acetaminophen, and were often "prescribed" by doctor, chemist, and/or pharmacist after medical consultation. As a result, the presence or absence of these materials may reflect access to healthcare. Professional healthcare, like today, was expensive and access to qualified personnel was often limited based on ethnicity, perceived race, age, and/or gender. The consumption and discard of prescription products not only indicates wealth, but status within society. By comparing the number of prescription to patent medicine bottles within domestic refuse, one can determine the frequency with which any specific household treated illness with costly medical consultation and prescribed products versus folk remedies. The assumption is that the wealthiest members of society will choose to treat illness through professional aide more frequently than lower income families. Hence a 2:1 ratio of prescription to patent medicine bottles may represent the upper class whereas a 1:8 may indicate the poor.

Euroamerican artifacts varied across site-specific assemblages. While economic scaling was performed primarily using mean ceramic values and prescription to patent medicine bottle ratios, other methods were employed as necessary. These methods were typically feature specific and are discussed as they are utilized throughout the text. Wherever possible multiple methods are used.

Fauna Analysis Methods

Faunal remains (n = 473; Table 7.4) were analyzed at the Office of Archaeological Studies laboratory by Nancy J. Akins. Specimens were identified using the OAS comparative collection, supplemented by that at the Museum of Southwest Biology when necessary. Recording followed an established OAS computer-coded format that identified the animal and body part represented, how and if the animal part was processed for consumption or other use, and how taphonomic and environmental conditions have affected the specimen. Each data line was assigned a *lot number* that identified a specimen or group of specimens that fit the description recorded in that line. Lot numbers also allowed for retrieving an individual specimen if questions arose concerning coding or for additional study. A *count* was also included to identify how many specimens are described in a data line.

Taxonomic identifications were made as specific as possible. When identification was less than certain, this was indicated in the *certainty* variable. Specimens that could not be identified to species, family, or order were assigned to a range of indeterminate categories based on the size of the animal and whether it was a mammal, bird, other animal, or could not be determined. Unidentifiable fragments often constituted the bulk of any given faunal assemblage. By identifying these as precisely as possible, information from the identified taxa was supplemented.

Each bone (specimen) was counted only once, even when broken into a number of pieces during excavation. If the break occurred prior to excavation, the pieces were counted separately and their articulation noted in a variable that identifies conjoinable pieces, parts that were articulated when found, and pieces that appear to be from the same individual. Animal skeletons were considered single specimens so as not to inflate the counts for accidentally and intentionally buried taxa.

The *skeletal element* was identified then described by *side*, *age*, and *portion* recovered. Side was recorded for the element itself or for the portion recovered when it is axial, such as the left transverse process of a lumbar vertebra. Age was recorded at a general level: fetal or neonate, immature, young adult, and mature. Further refinements based on dental eruption or wear were noted as *comments*. The criteria used for assigning an age were also recorded. This was generally based on size, epiphysis closure, or texture of the bone. The portion of the skeletal element represented in a particular specimen was recorded in detail to allow determination of how many individuals are present in an assemblage and to investigate aspects of consumer selection and preservation.

Completeness refers to how much of each skeletal element is represented by a specimen. It was used in conjunction with portion to determine the number of individuals present. It also provided information on whether a species is intrusive, and was able to inform on processing, environmental deterioration, animal activity, and thermal fragmentation.

Taphonomy is the study of preservation processes and how they affect the information obtained by identifying some of the nonhuman processes that affect the condition or frequencies found in an assemblage (Lyman 1994:1). *Environmental alteration* includes degree of pitting or corrosion from soil conditions, sun bleaching from extended exposure, checking or exfoliation from exposure, root etching from the acids excreted by roots, and polish or rounding from sediment movement, when applicable. *Animal alteration* was recorded by source or probable source and where it occurs.

Burning, when it occurs after burial, is also a taphonomic process. Burning can occur as part of the cooking process, part of the disposal process, when bone is used as fuel, or after it is buried. Here, the color, location, and presence of crackling or exfoliation was recorded. Burn color is a gauge of burn intensity. A light tan color or scorch reflects superficial burning, while bone becomes charred or blackened as the collagen is carbonized. When the carbon is completely oxidized, it becomes white or calcined (Lyman 1994:385, 388). Burns can be gradated over a specimen, reflecting the thickness of the flesh covering portions of the bone when burned. Dry burned bone is light on the exterior and black at the core or has been burned from the interior. Graded burns can indicate roasting. Completely charred or calcined bone and dry burns do not occur as part of the cooking process. Uniform degrees of burning are possible only after the flesh has been removed and generally indicate a disposal practice (Buikstra and Swegle 1989:256).

Evidence of butchering was recorded as various orientations of cuts, grooves, chops, abrasions, saw cuts, scrapes, peels, and intentional breaks. This type of evidence is much less ambiguous in historic assemblages where metal knives, axes, and cleavers leave more distinct marks than stone tools. The location of butchering will also be recorded. Additional detail will be obtained by indicating the exact location on diagrams of the body parts.

Fauna recovered from historic sites is typically so fragmented that few attempts have been made to collect measurement data. Yet this information has the potential to differentiate varieties of sheep and goat, perhaps distinguish beef from draft cattle, and differentiate species of equids, along with the social and economic consequences thereof. Because this data has such potential, all possible *measurements* were taken on domestic fauna. Measurements were taken following Von den Driesch (1976), who provides a comprehensive list of measurements for virtually every element. While this project alone may not provide enough data to confidently answer questions concerning the varieties represented, it may contribute to a useful database for comparisons with earlier and later sites.

Flaked Stone Analysis Methods

Flaked stone artifacts (n = 3; Table 7.4) were analyzed using a standardized format developed by the Office of Archaeological Studies (OAS 1994). The OAS flaked stone analysis includes a series of mandatory attributes that describe material type, artifact type and condition, cortex, striking platforms, and dimensions. Several optional attributes have also been developed that can be used to examine specific questions. Both mandatory and optional attributes were used in this analysis. Each flaked stone artifact was examined using a binocular microscope to aid in defining morphology and material type, examine platforms, and determine whether it was used as a tool. The level of magnification used to examine artifacts varied between 10x and 80x, with higher magnification used to identify wear patterns and platform modifications. Utilized and modified edge angles were measured with a goniometer; other dimensions were measured with a sliding caliper. Flaked stone artifacts were weighed on a digital or balance beam scale.

Four general classes of flaked stone artifacts were recognized in this analysis: flakes, angular debris, cores, and tools. Flakes were debitage that exhibited one or more of the following characteristics: definable dorsal and ventral surfaces, bulb of percussion, and striking platform. Angular debris were debitage that lacked these characteristics. Cores were nodules from which debitage were struck and on which three or more negative flake scars originating from one or more platforms were visible. Tools were debitage or cores whose edges were damaged during use or were modified to create specific shapes or edge angles for use in certain tasks.

Analytic Attributes

Attributes recorded for all artifacts included material type and quality, artifact morphology and function, amount of surface covered by cortex, portion, evidence of thermal alteration, edge damage, and dimensions. Platform information was recorded for flakes only, and included platform type, width, and any evidence of lipping.

Two attributes were used to record information on the various materials used in flaked stone reduction. *Material type* was coded by gross category unless specific sources or distinct varieties were recognized. Codes were arranged so that major material groups fell into specific sequences of numbers, progressing from general material groups to specific varieties. *Material texture and quality* provided information on the basic flake-ability of materials. Texture subjectively measured grain size *within* rather than *across* material types and was scaled from fine to coarse for most materials, with fine textures exhibiting the smallest grains and coarse the largest. Obsidian was classified as glassy by default, and this category was applied to no other material. Quality recorded the presence of flaws that could affect flake-ability and included crystalline inclusions, fossils, visible cracks, and voids. Inclusions that did not affect flake-ability, such as specks of different colored material or dendrites, were not considered flaws. Material texture and quality were recorded together as a single attribute.

Two attributes were used to provide information about artifact form and use. The first was *artifact morphology*, which categorized artifacts by general form such as flake or early stage biface. The second was *artifact function*, which categorized artifacts by inferred use such as utilized debitage or scraper. These attributes were coded separately.

Cortex is the chemically or mechanically weathered outer rind on nodules; it is often brittle and chalky and does not flake with the ease or predictability of unweathered material. The amount of cortical coverage was estimated and recorded in 10 percent increments for each artifact. For flakes, the percentage of dorsal surface covered by cortex was estimated, while for all other artifact classes the percentage of the total surface area covered by cortex was estimated since other artifact classes lacked definable dorsal surfaces. *Cortex type* can be a clue to the origin of an artifact. Waterworn cortex indicates that a nodule was transported by water and that its source was probably a gravel deposit. Nonwater-worn cortex suggests that a material was obtained where it outcrops naturally. Cortex type was identified for artifacts on which it occurred; when identification was not possible cortex type was coded as indeterminate. Dorsal cortex coverage and cortex type were recorded separately.

All artifacts were coded as whole or fragmentary; when broken, the *portion* was recorded if it could be identified (Fig. 7.9). Artifact portions can provide important functional information for sites. The presence of mostly complete tools on a site can suggest an entirely different function than predominantly broken tools. Proportions of flake sections can also provide data on post-reduction impacts to an assemblage. If most flakes in an assemblage are broken and proximal and distal fragments are represented by similar percentages, the assemblage may have been exposed on the surface for a significant period of time and damaged by traffic across the site. In this case, any wear patterns observed on debitage edges could have been caused by noncultural impacts rather than cultural use. Thus, an examination of the condition and distribution of artifact portions can provide critical interpretive information.

Three attributes were examined for flake platforms, when present. *Flake platform type* recorded the shape of and modifications to the striking platform on whole flakes and proximal fragments. *Platform lipping* recorded the presence or absence of a lip at the ventral edge of a platform. This attribute provides information on reduction technology, and can often be used to help determine whether a flake was removed from a biface or core. Platform lipping was coded as either present or absent. *Platform width* was the maximum distance between the ventral and dorsal edges of platforms.

Thermal alteration was recorded for all artifacts on which it occurred. Nearly all evidence for thermal alteration is found on artifacts made from cherts, which can be modified by heating at high temperatures, improving their flaking characteristics. This process can realign the crystalline structure and sometimes heals minor flaws like microcracks. Heat treatment can be difficult to detect unless mistakes were made during processing. When present, the type and location of evidence for thermal alteration was recorded to determine whether an artifact was purposely altered.

Two attributes were used to record edge damage caused by cultural use. The first described the types of *wear patterns* observed. Use of a piece of debitage or core as an informal tool can result in edge damage, producing patterns of scars that may be indicative of the way in which it was used. Cultural edge damage denoting use as an informal tool was recorded and described when present on debitage. A separate series of codes was used to describe formal tool edges, and was much more general in nature. The utilized *edge angles* of all formal and informal tools were also measured and recorded separately; edges lacking cultural damage were not measured.

Maximum length, width, and *thickness* were measured for all flaked stone artifacts. On angular debris and cores, length was the largest measurement, width was the longest dimension perpendicular to the length, and thickness was perpendicular to the width and was the smallest measurement. On flakes and formal tools, length was the distance between the platform (proximal end) and termination (distal end), width was the distance between edges paralleling the length, and thickness was the distance between dorsal and ventral surfaces. *Weights* were obtained for all flaked stone artifacts recovered from LA 158037.

Archaeobotanical Analytical Methods

Flotation

Flotation processing was conducted by Lynette Etsitty. The 20 soil samples collected during excavation were processed at the Museum of New Mexico's Office of Archeological Studies by the simplified "bucket" version of flotation (see Bohrer and Adams 1977). Volumes of flotation soil samples ranged from .50 to 5.0 liters. Each sample was immersed in a bucket of water, and a 30-40 second interval allowed for settling out of heavy particles. The solution was then poured through a fine screen (about 0.35 mm mesh) lined with a square of "chiffon" fabric, catching organic materials floating or in suspension. The squares of fabric were lifted out and laid flat on coarse mesh screen trays until the recovered material had dried.

A *full-sort analysis* was then conducted. Each of the 20 flotation samples was sorted using a series of nested geological screens (4.0, 2.0, 1.0, 0.5 mm mesh), and then reviewed, by Pamela McBride, under a binocular microscope set at 7-45x. Charred and uncharred reproductive plant parts (seeds and fruits) were identified and counted. Flotation data are reported as a standardized count of seeds per liter of soil, rather than an actual number of seeds recovered. Relative abundance of non-reproductive plant parts such as monocot stems and juniper twigs was estimated per sample.

To aid in distinguishing between botanical occurrences of cultural significance and those resulting from considerable post-depositional intrusion, it was assumed that all carbonized material was the result of cultural processes and unburned material, especially taxa not economically useful, found in disturbed contexts together with modern roots, insect parts, scats, or other signs of recent biological activity was the result of noncultural processes unrelated to feature use. However, in some instances this dichotomy is not clearly expressed and therefore items such as unidentifiable seeds and plant parts or unburned remains that have known economic use that were recovered in privy samples were considered possibly cultural. Data tables divide the results of the analysis into the categories of Cultural, Possibly Cultural, and Non-Cultural.

Charcoal Identification

From each flotation sample that contained a minimum of 20 pieces of wood charcoal, a sample of 10 pieces was identified from the 4 mm screen and 10 pieces from the 2 mm screen. In smaller samples, all charcoal from the 4 mm and 2 mm screens was analyzed. Each piece was snapped to expose a fresh transverse section, and then examined at 45x. Each identified taxon was weighed on a top-loading digital balance to the nearest tenth of a gram and placed in plastic bags labeled with the corresponding taxon. Low-power, incident light identification of wood specimens does not often allow species- or even genus-level precision, but can provide reliable information useful for distinguishing broader patterns in the utilization of resources derived from different environmental settings (i.e., subalpine, riparian, woodland).

Macrobotanical Specimens

Macrobotanical samples consist of specimens fortuitously collected in the field during excavation. For this project peach pits were submitted for analysis and were measured as to length, width, and thickness with dial calipers, to the nearest 0.1 mm. Specimens were weighed on a digital, top-loading balance with .01 g accuracy. When necessary, fragile specimens were wrapped in acid-free tissue or polyester fiber and placed in rigid containers to protect them from any further breakage.

Native American Ceramic Analysis Methods

Pueblo-made ceramics (n = 22) recovered by the excavations were analyzed at the Office of Archaeological Studies laboratory under the direction of C. Dean Wilson. Both historic and lesser amounts of prehistoric Native American-made pottery were recovered, in addition to a range of Euroamerican ceramics. Euroamerican ceramics were analyzed as part of the Euroamerican artifact analysis.

Detailed and systematic examination of various attributes was needed to fully determine the timing and nature of the deposits and features that were exposed by the excavations. Ceramic studies can contribute to these studies by using distributions of ceramic types and attribute classes from dated contexts to examine patterns related to ethnic affiliation, place of origin, form, and use of ceramic vessels. In order to examine these issues, it was necessary to record a variety of data in the form of both attribute classes and ceramic type categories. These technological and stylistic attributes apply to pottery from all periods.

Attribute categories used in this study are similar to those employed in recent OAS projects in the northern Rio Grande (Wilson 2004). All sherds were examined and recorded for temper type, paint type, surface manipulation, modification, and vessel form (Fig. 7.10), and the results will be entered into a computerized database for analysis and interpretation.

Traditional typologies were used to classify sherds where possible. Examples of known typologies for ancestral Pueblo pottery that were employed include the Rio Grande, Jemez, Pajarito, Galisteo, and Pecos series (as defined by Habicht-Mauche 1993) for matte-paint pottery. For ancestral Pueblo and early historic Pueblo glaze-paint pottery the Rio Grande Glaze ware series as defined by Mera (1940) and refined by Warren (1979b) were employed. For the late ancestral Pueblo and historic Pueblo matte paint pottery traditions, the Tewa series as defined by Harlow and revisited by McKenna and Miles (1990) were used. In addition recent efforts by Office of Archaeological Studies analysts were incorporated into both prehistoric and historic pottery-based dating (Wilson 2000).

Trends that reflect chronology and economic patterns were also examined using ceramic type categories. Ceramic types, as used here, refer to groupings identified by various combinations of paste and surface characteristics with known temporal, spatial, and functional significance. Sherds are initially assigned to specific traditions based on probable region of origin as indicated by paste and temper. They are then placed in a ware group on the basis of general surface manipulation and form. Finally they are assigned to temporally distinctive types previously defined within various tradition and ware groups.

While a number of historic Tewa ceramic types have been formally defined and described (Batkin 1987; Frank and Harlow 1990; Harlow 1973; Mera 1939), most of these type definitions are based on whole vessels and tend to emphasize decorated types. Historic Tewa decorated types are often distinguished from each other by characteristics such as overall design field or shape that are only observable in complete vessels. Such distinctions are of limited use in studies of pottery from archaeological assemblages, which tend to be dominated by plain-ware sherds. Thus, this analysis focused on the definition and use of sherd-based categories more suitable for sherd collections.

Sherd-based definitions of historic Tewa types have been used to examine historic archaeological assemblages (Dick 1968; Lang 1997a; D. H. Snow 1982). In addition, a number of descriptive categories have been proposed for sherds that exhibit ranges of characteristics that differ from those used to define types from whole vessels. These categories are defined by a range of characteristics that may be ultimately connected to but are not necessarily equivalent to types previously defined for whole vessels. The degree of correlation between vessel and sherd defined categories varies for sherds from vessels of the same type, and depends on how much stylistic or decorative information is present. For example, unpainted sherds from a Powhoge Polychrome vessel would be placed into an Unpainted Historic Slipped category, while sherds exhibiting some paint but without distinct decorations would be classified as "Tewa" Black-on-cream undifferentiated. In such cases, the assignment of sherds to Powhoge Polychrome would be limited to examples with distinct design styles indicative of that type. Still, a broken vessel of a specific pottery type should produce a recognizable pattern of sherds assigned to various formal and informal types. Information on this type of patterning may be derived from looking at how types are assigned to sherds that are eventually reconstructed into whole or partial vessels.

Most informal types reflect a range of characteristics indicative of sherds derived from vessels of previously defined types or groups of types. These characteristics are often self-evident in the type name. They are not described in detail here because of the preliminary nature of this study and the relatively small number of sherds examined. The ceramic report produced from this study will include detailed descriptions of all sherd-based historic types recognized during the project, as well as illustrations and discussions of combinations of characteristics observed for each type. These descriptions will be presented in a manner that should serve as an important source of information for future analysis of historic northern Rio Grande pottery.

Examination of very basic ceramic patterns was most efficiently served by creating a small number of ceramic ware groups by lumping types that share characteristics. Such groups include Decorated "Tewa" Polychrome, red-slipped utility, plain utility, black utility, micaceous utility, as well as a nonlocal group. The use of these basic broad categories permitted the determination of coarse-grained patterning in ceramic assemblages, as opposed to the more basic patterning available from type distributions.

Analysis of Coprolite Samples Methods

Analysis of coprolite samples (n = 2, Table 7.4) was performed by Linda Scott Cummings of the Paleo-Research Institute of Golden, Colorado. A chemical extraction technique based on flotation is the standard preparation technique used in this laboratory for removing pollen grains from the large volume of sand, silt, and clay with which they are mixed. This particular process was developed for extracting pollen from soils where the preservation has been less than ideal and the pollen density is lower than in peat. Even though coprolitic material is usually very pollen rich, this method was used in processing these samples. It is important to recognize that it is not the repetition of specific and individual steps in the laboratory but rather mastery of the concepts of extraction and how the desired result is best achieved, given different sediment matrices, that results in successful recovery of pollen for analysis. This method also extracts parasite eggs when they are present.

Hydrochloric acid (10 percent) was used to remove any calcium carbonates present in the soil, after which the samples were screened through 250-micron mesh. The samples were rinsed until neutral by adding water, letting the samples stand for 2 hours, then pouring off the supernatant. A small quantity of sodium hexametaphosphate was added to each sample once it reached neutrality, then the samples were allowed to settle according to Stoke's Law in settling columns. This process was repeated with ethylenediaminetetraacetic acid (EDTA). These steps removed the clay prior to heavy liquid separation. The samples then were freeze-dried. Sodium polytungstate (SPT), with a density of 1.8 g/ml, was used for the flotation process. The samples were mixed with SPT and centrifuged at 1500 rpm for 10 minutes to separate organic from inorganic remains. The supernatant containing pollen and organic remains was decanted. Sodium polytungstate again was added to the inorganic fraction to repeat the separation process. The supernatant was decanted into the same tube as the supernatant from the first separation. This supernatant then was centrifuged at 1500 rpm for 10 minutes to allow any remaining silica to be separated from the organics. Following this, the supernatant was decanted into a 50 ml conical tube and diluted with distilled water. These samples were centrifuged at 3000 rpm to concentrate the organic fraction in the bottom of the tube. This pollen-rich organic fraction was rinsed, then all the samples received a short (20–30 minute) treatment in hot hydrofluoric acid to remove any remaining inorganic particles. The samples then were acetylated for 3–5 minutes to remove any extraneous organic matter.

A light microscope was used to count the pollen at a magnification of 500x. Pollen preservation in these samples varied from good to fair, with most of the pollen being in good to very good shape. Comparative reference material collected at the Intermountain Herbarium atUtah State University and the University of Colorado Herbarium was used to identify the pollen to the family, genus, and species level, where possible.

Pollen aggregates were recorded during identification of the pollen. Aggregates are clumps of a single type of pollen and may be interpreted to represent either pollen dispersal over short distances or the introduction of portions of the plant represented into an archaeological setting. Aggregates were included in the pollen counts as single grains, as is customary. No aggregates were noted in either sample. Pollen diagrams were produced using Tilia 2.0 and TGView 2.0.2. Total pollen concentrations were calculated in Tilia using the quantity of sample processed in cubic centimeters (cc), the quantity of exotics (spores) added to the sample, the quantity of exotics counted, and the total pollen counted and expressed as pollen per cc of sediment.

"Indeterminate" pollen includes pollen grains that are folded, mutilated, or otherwise distorted beyond recognition. These grains were included in the total pollen count since they are part of the pollen record. The microscopic charcoal frequency registers the relationship between pollen and charcoal. The total number of microscopic charcoal fragments was divided by the pollen sum, resulting in a charcoal frequency that reflects the quantity of microscopic charcoal fragments observed, normalized per 100 pollen grains.

Pollen analysis also included examination for starch granules and, if they were present, their assignment to general categories. Starch granules are a plant's mechanism for storing carbohydrates. Starches are found in numerous seeds, as well as in starchy roots and tubers. The primary categories of starches include the following: with or without visible hila, hilum centric or eccentric, hila patterns (dot, cracked, elongated), and shape of starch (angular, ellipse, circular, eccentric). Some of these starch categories are typical of specific plants, while others are more common and tend to occur in many different types of plants.

Approximately 10 ml of the hard, dried excrement was subsampled from each sample and broken into small pieces. Next, the samples were placed in 500 ml beakers and boiled in nitric acid for 2 hours. Once cooled, the samples were rinsed to neutral pH using water. Next, 10 ml of KOH was added to each sample to remove organic material not oxidized by the nitric acid. The samples were then rinsed to neutral pH, and a small quantity of sodium hexametaphosphate was added to each sample and they were allowed to settle according to Stoke's Law in 500 ml beakers. This process was repeated with EDTA. These steps remove clay-sized particles prior to heavy liquid separation. Next, the samples were freeze-dried under vacuum. The dried silts and sands were then mixed with sodium polytungstate (density 2.3) and centrifuged to separate the phytoliths, which will float, from the other silica, which will not. The samples were then rinsed with distilled water, then alcohol to remove the water. After several alcohol rinses, the samples were mounted in immersion oil for counting with a light microscope at a magnification of 500x. A phytolith count of 200 taxonomically significant phytoliths were first counted, then the remainder of the slide was scanned for rare phytolith types of economic significance. A phytolith diagram was produced using Tilia and TGView 2.0.2.

Each of the samples was submitted as a one liter "brick" of hard, dried excrement. After the pollen and phytolith samples were collected, the remaining sample was soaked in hot reverse osmosis deionized (RODI) water for three days. After three days, the sample was broken in half. The RODI water had only soaked in about 1 cm and the remaining inside of the sample was dry. A hammer was used to break the sample into chunks about 2 cm in size. These sample chunks were placed in a beaker with hot RODI water on a rotating mixer for one day. Because there was no change in the size or hardness of the sample chunks, 100 ml of sodium hexametaphosphate was added to each sample, and they were placed on a hot plate and boiled for 8 hours. The following day, 100 ml of ethylenediaminetetraacetic acid (EDTA) was added to each sample and the samples were boiled on the hot plate for 8 hours. At the end of the day, the sample chunks were broken by hand into smaller fragments. This process continued for five days, with 100 ml of EDTA added each morning and the samples boiled on the hot plate. After five days of boiling, the samples were floated using a modification of the procedures outlined by Matthews (1979). Each sample was added to approximately three gallons of water, then stirred until a strong vortex formed. The floating material (light fraction) was poured through a 150-micron-mesh sieve. Additional water was added and the process repeated until all floating material was removed from the sample (a minimum of five times). The material that remained in the bottom (heavy fraction) was poured through a 0.5-mm-mesh screen. The floated portions were allowed to dry.

The heavy fraction was passed through a series of graduated screens (U.S. Standard Sieves with 4-mm, 2-mm, 1-mm, 0.5 mm, and 0.25 mm openings) to initially sort the remains. Seeds that had been liberated from the sample matrix were removed from the 4 mm, 2 mm, and 1 mm sieves. Because seeds could still be seen imbedded in the sample matrix from these size fractions, the chunks of sample material in these screens again were placed in a beaker with hot RODI water and 50 ml of EDTA, then placed on a hot plate to boil. Additional EDTA was added each morning and the samples boiled on the hot plate for two more days. This helped liberate additional seeds from the sample matrix. The samples were floated as before. The light fractions from the second flotation were added to the light fractions from the first flotation. The second flotation did not yield a heavy fraction.

The combined light fractions were weighed, then passed through the series of graduated screens (U.S. Standard Sieves with 4 mm, 2 mm, 1 mm, 0.5 mm, and 0.25 mm openings) to initially sort the remains. The contents of each screen then were examined. Charcoal and wood fragments larger than 2 mm in diameter were separated from the rest of the light fraction and the total charcoal/wood was weighed. Charcoal and wood fragments were broken to expose fresh cross, radial, and tangential sections, then examined under a binocular microscope at a magnification of 70x and under a Nikon Optiphot 66 microscope at magnifications of 320–800x. The weights of each charcoal and wood type were recorded. The material that remained in the 4 mm, 2 mm, 1 mm, 0.5 mm, and 0.25 mm sieves was scanned under a binocular stereo microscope at a magnification of 10x, with some identifications requiring magnifications of up to 70x. The material that passed through the 0.25 mm screen was not examined. The heavy fraction was scanned at a magnification of 2x for the presence of botanic remains. Estimates of frequencies were calculated from a portion of the total volume floated and are noted in the macrofloral table with an asterisk (*). The term "seed" is used to represent seeds, achenes, caryopses, and other disseminules. Remains from the light and heavy fractions were recorded as charred and/or uncharred, whole and/or fragments. Macrofloral remains, including charcoal, were identified using manuals (Carlquist 2001; Hoadley 1990; Martin and Barkley 1961; Musil 1963; Schopmeyer 1974) and by comparison with modern and archaeological references.

A chemical extraction technique based on flotation is the standard preparation technique used in this laboratory for the removal of the pollen from the large volume of sand, silt, and clay with which they are mixed. This particular process was developed for extraction of pollen from soils where preservation has been less than ideal and pollen density is lower than in peat. It is important to recognize that it is not the repetition of specific and individual steps in the laboratory, but rather mastery of the concepts of extraction and how the desired result is best achieved, given different sediment matrices that result in successful recovery of pollen for analysis.

Hydrochloric acid (10 percent) is used to remove calcium carbonates present in the soil, after which the samples are screened through 250 micron mesh. The samples are rinsed until neutral by adding water, letting the samples stand for 2 hours, then pouring off the supernatant. A small quantity of sodium hexametaphosphate is added to each sample once it reaches neutrality, then the samples are allowed to settle according to Stoke's Law in settling columns. This process is repeated with ethylenediaminetetraacetic acid (EDTA). These steps remove clay prior to heavy liquid separation. The samples are then freeze-dried. Sodium polytungstate (SPT), with a density 1.8, is used for the flotation process. The samples are mixed with SPT and centrifuged at 1500 rpm for 10 minutes to separate organic from inorganic remains. The supernatant containing pollen and organic remains is decanted. Sodium polytungstate is again added to the inorganic fraction to repeat the separation process. The supernatant is decanted into the same tube as the supernatant from the first separation. This supernatant is then centrifuged at 1500 rpm for 10 minutes to allow any silica remaining to be separated from the organics. Following this, the supernatant is decanted into a 50 ml conical tube and diluted with distilled water. These samples are centrifuged at 3000 rpm to concentrate the organic fraction in the bottom of the tube. After rinsing the pollen-rich organic fraction obtained by this separation, all samples receive a short (20–30 minute) treatment in hot hydrofluoric acid to remove any remaining inorganic particles. The samples are then acetolated for 3-5 minutes to remove any extraneous organic matter.

A light microscope is used to count pollen at a magnification of 500x. Pollen preservation in these samples varied from good to poor. Comparative reference material collected at the Intermountain Herbarium at Utah State University and the University of Colorado Herbarium was used to identify the pollen to the family, genus, and species level, where possible.

Pollen aggregates were recorded during identification of the pollen. Aggregates are clumps of a single type of pollen and may be interpreted to represent pollen dispersal over short distances or the introduction of portions of the plant represented into an archaeological setting. Aggregates were included in the pollen counts as single grains, as is customary. The presence of aggregates is noted by an "A" next to the pollen frequency on the pollen diagram. A plus (+) on the pollen diagram indicates that the pollen type was observed outside the regular count while scanning the remainder of the microscope slide. Pollen diagrams are produced using Tilia 2.0 and TGView 2.0.2. Total pollen concentrations are calculated in Tilia using the quantity of sample processed in cubic centimeters (cc), the quantity of exotics (spores) added to the sample, the quantity of exotics counted, and the total pollen counted and expressed as pollen per cc of sediment.

Indeterminate pollen includes pollen grains that are folded, mutilated, and otherwise distorted beyond recognition. These grains are included in the total pollen count since they are part of the pollen record. The microscopic charcoal frequency registers the relationship between pollen and charcoal. The total number of microscopic charcoal fragments was divided by the pollen sum, resulting in a charcoal frequency that reflects the quantity of microscopic charcoal fragments observed, normalized per 100 pollen grains.

Pollen analysis also includes examination for and identification of starch granules to general categories, if they are present. Starch granules are a plant's mechanism for storing carbohydrates. Starches are found in numerous seeds, as well as in starchy roots and tubers. The primary categories of starches include the following: with or without visible hila, hilum centric or eccentric, hila patterns (dot, cracked, elongated), and shape of starch (angular, ellipse, circular, eccentric). Some of these starch categories are typical of specific plants, while others are more common and tend to occur in many different types of plants.

Parasite eggs are extracted using the pollen extraction technique. Parasite eggs are counted while examining the sample for pollen and any starches that might be present. Results of the parasite counts are presented on the pollen diagrams, when they occur.

Figure 7.1. Plan view depicting the type and location of all known utilities within the project area.

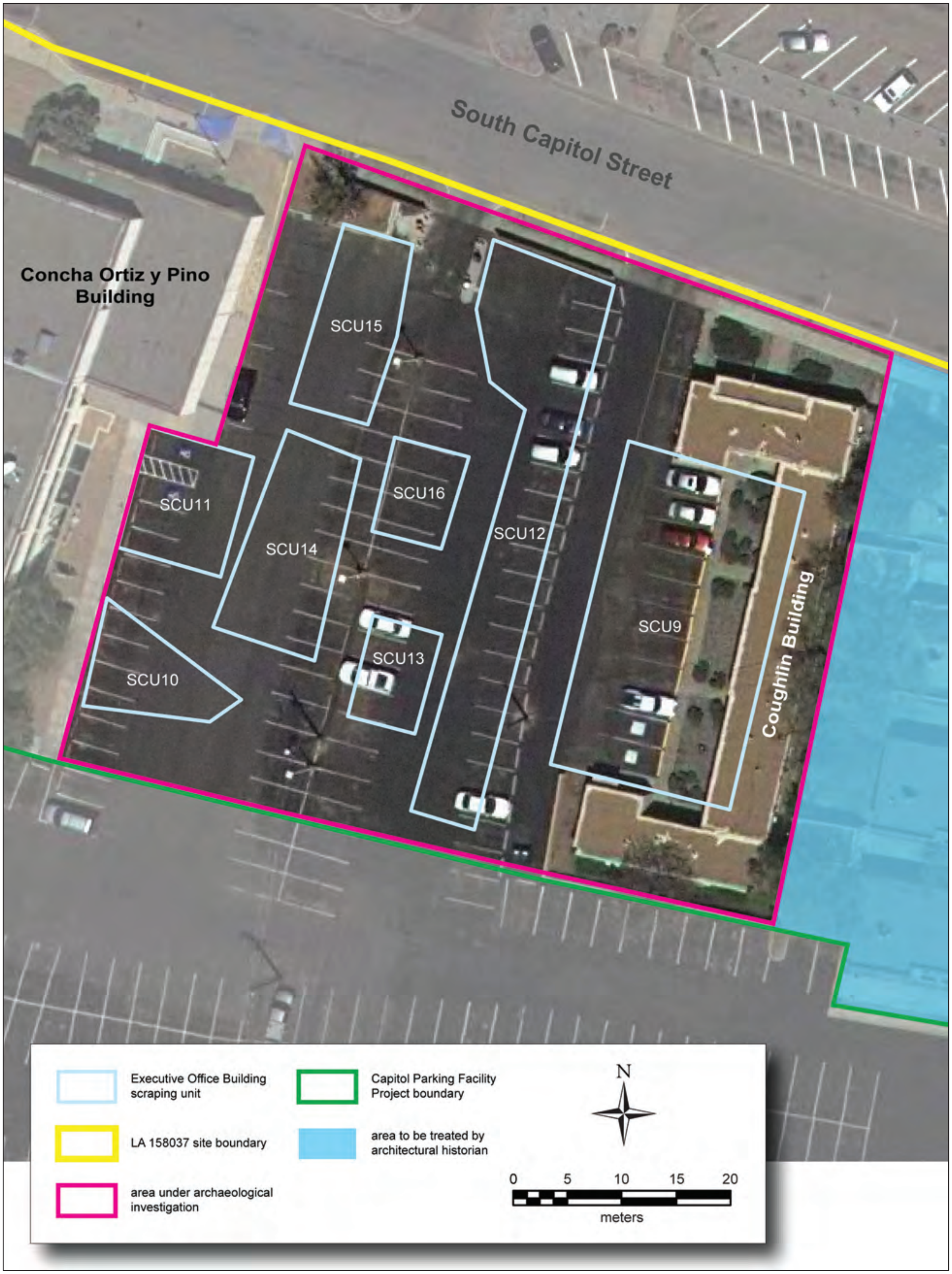

Figure 7.2. Plan view depicting the location of the scraping units.

Figure 7.3. The excavation of Scraping Units 10 and 11.

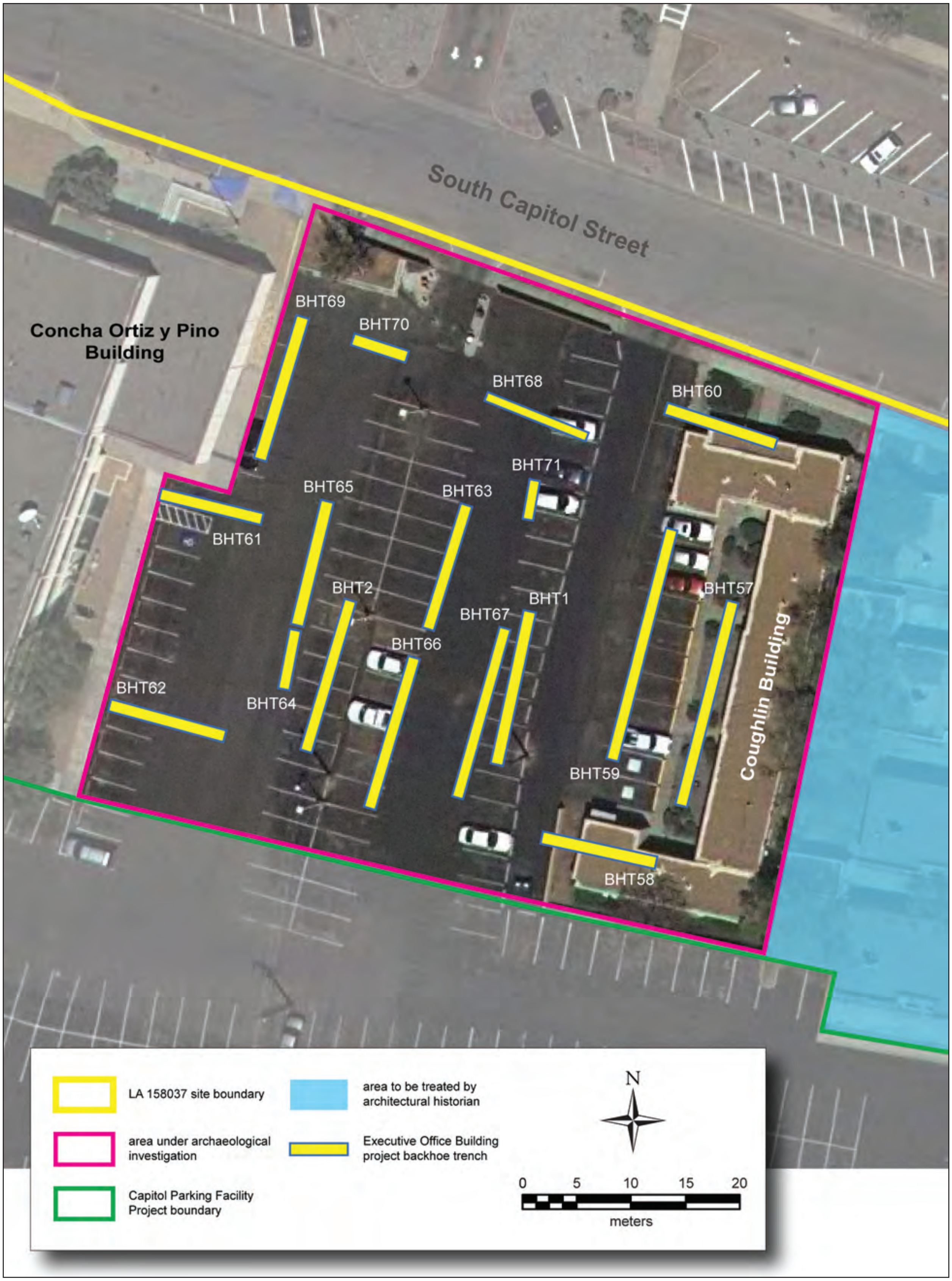

Figure 7.4. Plan view depicting the location of the backhoe trenches.

Figure 7.5. Sanborn Fire Insurance map (Jan. 1930, mod. Aug. 1948) overlay for the State Capitol Parking Facility project with rectification marks.

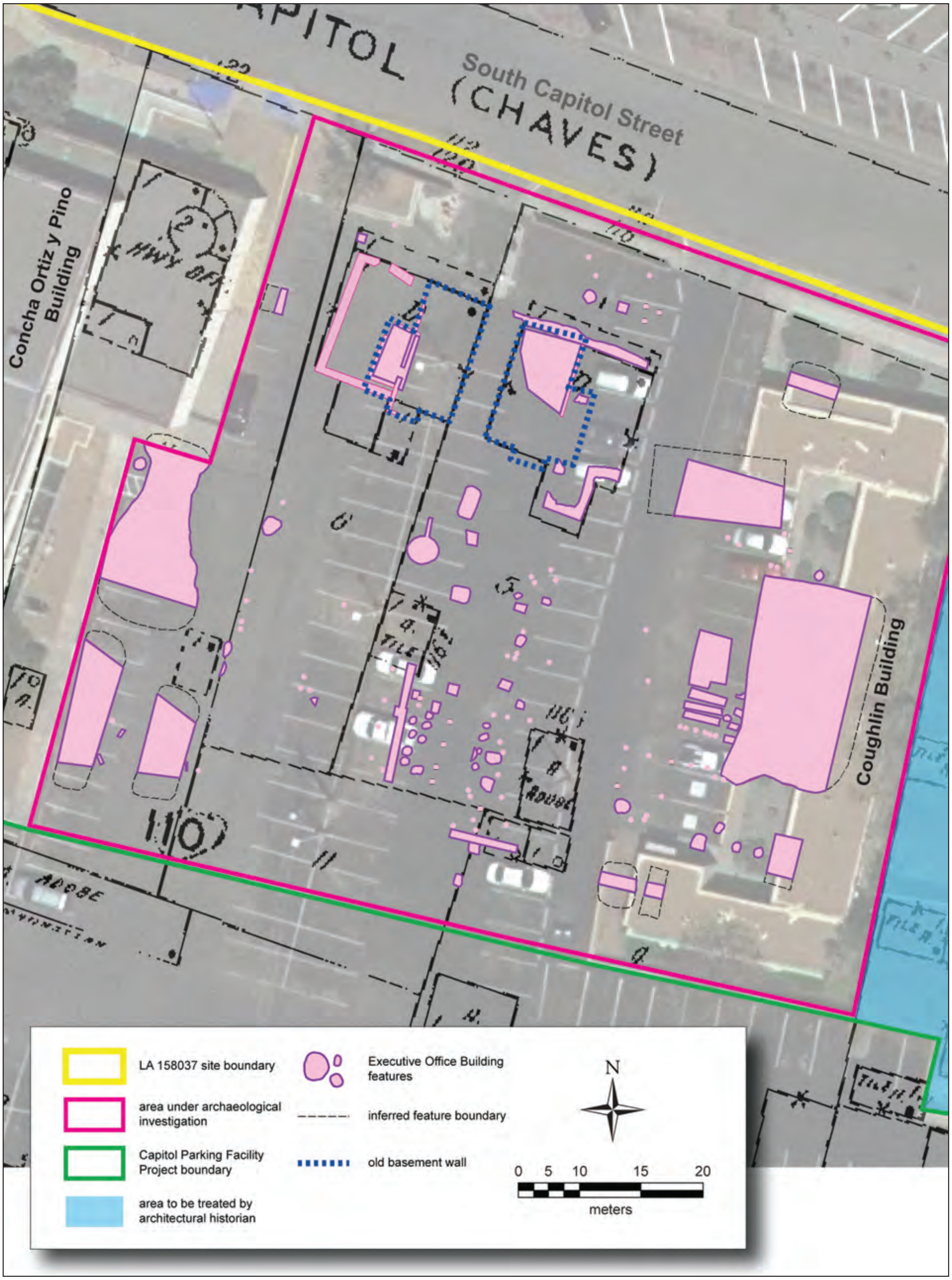

Figure 7.6. Overlay of features encountered during the Executive Office Building project excavations onto the Sanborn Fire Insurance map (Jan. 1930, mod. Aug. 1948).

$$\textbf{mean ceramic date} = \frac{\Sigma(d_1 f_1)}{\Sigma f_1}$$

Figure 7.7. Mean ceramic date formula.

Figure 7.8. A prescription medicine bottle.

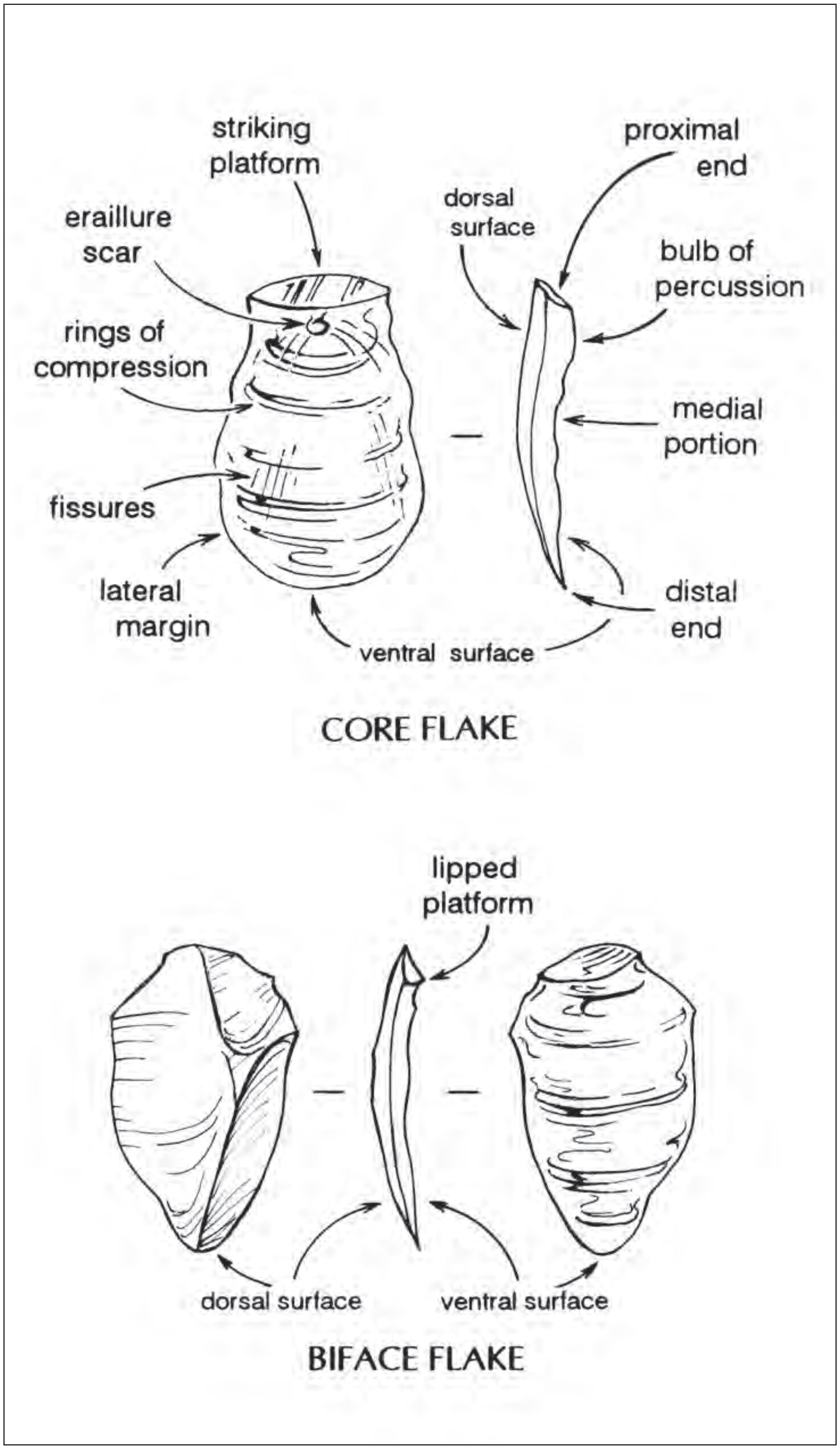

Figure 7.9. Morphology of a flake.

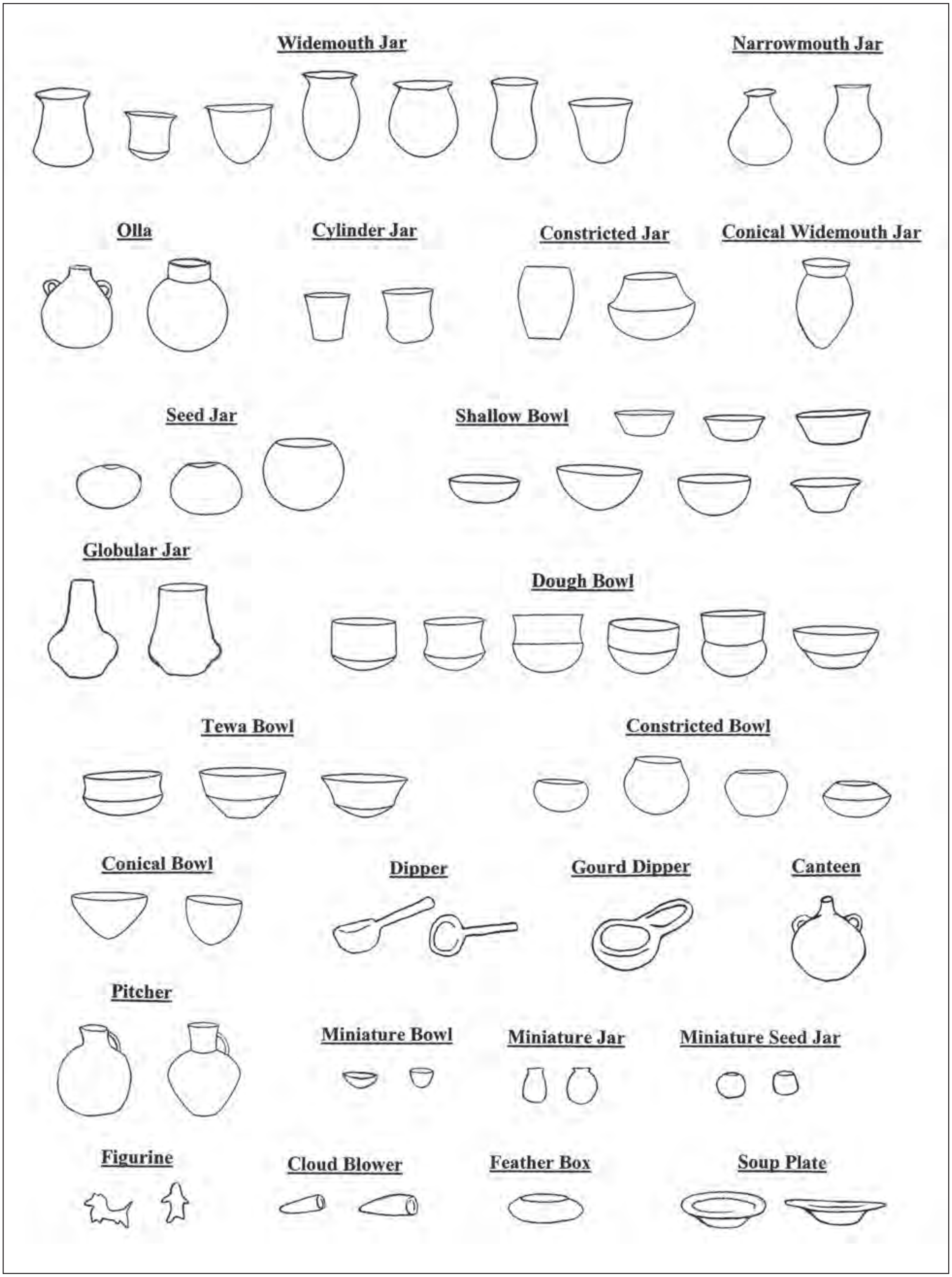

Figure 7.10. Historic Native American ceramic vessel forms.

Chapter 8

Soils and Stratigraphy

Donald E. Tatum, Matthew J. Barbour & Jeffrey L. Boyer

Stratigraphic descriptions and geomorphological studies at LA 158037 were conducted prior to the data recovery effort reported here (Barbour 2008a:43–51, 2012:93–96; Boyer 2012:321–324). This chapter expands on earlier findings by not only characterizing the deposits, but by placing the soils and sediments within the broader context of the Santa Fe region and the processes of deposition and pedogenesis that ultimately led to their current state.

Pedogenic Context

LA 158037 is situated near the south bank of the Santa Fe River as it traverses a series of gently sloping, northwest-trending terraces at the east edge of the lowlands that border the western edge of the Santa Fe Range foothills. The site is about 2.2 km (1.4 miles) west of the area where the river exits the foothills on the west side of Talaya Hill and enters the gradually sloping plain of the Santa Fe River valley.

Prior to construction of McClure and Nichols reservoirs and other water-flow control devices, the river gradient decreased from about 6 to 2 percent as its course veered to the northwest upon entering the gently terraced, sloping plain. The decrease in gradient and the shift in course induced a combination of river dynamics that reduced the sediment-carrying capacity and transport competence of the river's current, contributing factors to characteristics of alluvial deposition and geomorphic processes of the landform at the Santa Fe city center. The nature of sedimentary deposits exposed in deep backhoe trenches at LA 158037 can be inferred from the geomorphic characteristics of landforms associated with the site.

In undertaking field descriptions of soils and strata encountered during the data recovery, the Thein method of determining soil texture by feel was utilized (Thein 1979). This method uses damp soil cohesiveness and grittiness or smoothness characteristics of the soil matrix to characterize texture.

According to the U.S. Department of Agriculture-Natural Resources Conservation Service (2012), soils in the immediate vicinity of the project area are classed as Urban Lands soils, implying permanent anthropogenic alteration. Although formal soil-mapping data is unavailable for the Santa Fe city center (U.S. Dep't of Agriculture–Natural Resources Cons. Svc. 2013; Folks 1975), soils in the project area are, by inference, associated with the Panky-Pojoaque Series (Folks 1975; Boyer 2012:321–324).

The Panky-Pojoaque Series are well-drained soils forming on old mixed alluvium on level ground and slopes of up to 25 percent gradient. This loamy soil series exists in semi-arid conditions at elevations between 1890 and 2195 m (6,200 to 7,200 feet). These two soil series occupy the lower elevational reaches of the Haplargids-Torriorthents-Calciorthid association, forming on undulating alluvial fans and valley plains. The parent materials are derived from old alluvial deposits of variable origin. The soils have characteristics of Ustollic Haplargids, which usually occupy gently sloping upland areas between principal drainages. Typically noncalcareous near the surface, carbonate development increases variably at depths below 50 cm (1.75 ft; Maker et al. 1978).

Examining Site Stratigraphy at LA 158037

In order to examine comprehensive stratigraphic profiles, 15 backhoe trenches were excavated throughout the data recovery area, revealing a total of 178 linear meters of profile exposure. Stratum numbers were assigned according to designations previously determined during the Capitol Parking Facility data recovery (Barbour 2012a:93–96). Stratum designations do not necessarily imply temporal or depositional changes in sediment (facies changes). Assignations of individual stratum numbers delineate differences in soil and sediment matrix characteristics reflecting differing formation processes. They may relate to the likelihood of encountering intact archaeological deposits (Reed et al. 2000), or to the existence of anthropogenic alterations such as surface preparation for construction or disposal of construction and demolition debris (Barbour 2012a:93–96).

Upper Deposits: Strata 1, 2, and 3

The upper soil profile consisted entirely of anthropogenically altered deposits typically extending to about 50 cm (1.5 ft) below the modern ground surface. Asphalt received the **Stratum 1** designation. Asphalt averaged 8 cm (ca. 3 in) in thickness. However, because all asphalt was removed prior to the commencement of the data recovery, Stratum 1 was not encountered during documentation of backhoe trenching.

Base course for asphalt and building foundations was designated **Stratum 2**. The only backhoe trenches in which Stratum 2 was encountered were in the east and southeast part of the project area in the vicinity of the recently razed Coughlin Building. It was characterized as dark yellowish brown (10YR4/4, dry) sand and gravel. The stratum was, on average, 12 cm (ca. 4.75 in) thick and extended to a depth of 20 to 25 cm (ca. 8 to 10 in) below the modern ground surface.

Stratum 3 consisted of nineteenth- and twentieth-century construction/demolition debris with a reddish gray (5YR5/2, dry) silty loam parent material. It was characterized as having a strong, coarse to very coarse, subangular blocky structure; hard when dry, firm when moist, slightly sticky and plastic when wet; weakly cemented; poorly sorted; massive; ca. 70 percent very fine to very coarse, angular to well-rounded sand; < 10 percent bladed granule- to cobble-size gravels; few, very fine to fine, interstitial and tubular pores—interstitial pores from sand grains, tubular pores from roots; few, thin, clay films in gravel pores; strongly effervescent; abrupt, smooth boundary (Boyer 2012:321–322).

The stratum had high numbers of modern and historic inclusive debris such as brick, mortar, and concrete, metal wire, nails, and sheeting, tile, asphalt paper fragments, glass fragments, and rotten wood. Stratum 3 was often confined to broad, shallow pit depressions or as a discontinuous sheet-like horizon between 15 and 40 cm (6 to 16 in) thick.

Subsoil: Strata 4, 5, and 6

Collectively, Strata 4, 5 and 6 represent a naturally occurring B horizon, or subsoil. This sediment block is on average 75 cm (~2 ft 10 in) thick and extends from 50 to 125 cm (~2 ft 8 in to 4 ft 2 in) below the modern ground surface. The A horizon, which had once occurred above it, was erased by demolition activities occurring on the site in the mid- to late-twentieth century (Barbour 2012:93–96).

Stratum 4 is the upper portion of the B horizon. It is characterized as a brown (10YR5/3, dry) sandy clay; common, medium, distinct, dark grayish brown (10YR4/2, moist) mottles; moderate, coarse, subangular blocky structure; slightly hard when dry, very friable when moist; slightly sticky and plastic when wet; weakly cemented; moderately sorted; massive; ca. 70 percent very fine to coarse, rounded to well-rounded sand; no gravels; common, very fine to coarse, tubular pores—very fine to medium pores from roots, coarse pores from insect burrows; no clay films; strongly effervescent; very abrupt, wavy boundary; ca. 20 to 25 cm (ca. 8 to 10 in) thick. Mottles in Stratum 4 are the result of insect burrows. Although very distinct when moist, they are minimally distinct when dry (Boyer 2012:322).

Artifacts are present in upper Stratum 4, decreasing with depth, and absent in Stratum 5. Description of Stratum 4 could not confirm how much was removed along with the soil's A horizon, but artifacts in Stratum 4 indicate either that they were deposited during pedogenesis or that post-pedogenic activities such as plowing which disturbed the A horizon and deposited artifacts in it and the absent upper A horizon.

Stratum 5 is a light yellowish brown (10YR6/4, dry) weakly developed portion of the B horizon (Bw) generally without anthropogenic alteration. The Bw horizon ranged in thickness from less than 10 cm (ca. 4 in) to about 50 cm (ca. 20 in). Horizontally and vertically variable in texture, it consisted of sandy or silty clay loam, loamy sand, or silt clay. Pebbly inclusions were common, though usually sparsely distributed throughout the upper profile. The soil structure of Stratum 5 was commonly subangular-blocky or platy and somewhat weakly cohesive, except where subjected to compaction by the Coughlin Building. The lower boundary was generally clear or abrupt and wavy or irregular. In some backhoe trenches it displayed a fining upwards sequence, representing both depositional continuum and abrupt facies change from the underlying very coarse-grained Stratum 7. The presence of many fine to medium-sized root pores in Stratum 5 indicated formerly robust vegetation growth occurring prior to urbanization.

Strata 4 and 5 are the primary soil horizons of archaeological significance at LA 158037. All of the archaeological encountered during these investigations either originated in, or were intrusive into, Stratum 4 and, in many cases, were also intrusive into Stratum 5. Lower parts of Stratum 5 have some horizontally discontinuous, weakly expressed Stage I/II carbonate development typified by the occurrence of coatings on sand grains, root pores, and ped faces, indicating development of a Bk horizon (Pazzaglia and Hawley 2012; Weider and Yaalon 1982). These characteristics become more strongly expressed with depth and proximity to the underlying Stratum 7. Soil investigations during Capitol Parking Structure data recovery investigations at LA 158037 designated the Bk horizon as **Stratum 6** (Boyer 2012:321–324; Figs. 8.1, 8.2).

Cultural features originating in Stratum 5 and intruding into Stratum 6 were relatively common. Not present were intrusive cultural features in which matrix characteristics were shared with Stratum 6. The matrices of most features intruding into Stratum 6 shared traits more closely resembling the Stratum 5.

Stratum 6, which was not present across the entire project area, displayed cohesiveness and grain-size characteristics of a sandy loam. It is characterized as a 5YR5/2 (reddish gray, dry) infused with large quantities of caliche particles. It is found, on average, between 95 and 120 cm (ca 3.1 to 4 ft) below the modern ground surface and is roughly 25 cm thick. The boundary between Stratum 6 and the underlying alluvium (Stratum 7) was broadly irregular or wavy, and clear or abrupt.

Parent Sediment: Stratum 7

Stratum 7 represents the parent sediment from which the Panky and Pojoaque series soils were developed. It was defined (Boyer 2012:323) as a light brown (7.5YR6/4, dry), massive alluvial terrace deposit comprised of completely unsorted, non-stratified, very fine to very coarse sand, pebbles, cobbles, and boulders as broad as 60 cm (ca. 2 ft) in diameter (Fig. 8.3). It is, on average, encountered beginning at 1.25 m (ca. 4.1 ft) below modern ground surface. However, this varies substantially across the project area.

In backhoe trench profiles, the larger boulders manifested as sparsely distributed, isolated particles randomly suspended in the unsorted sediment column. The unconformable contact with the overlying strata displayed broadly undulating or irregular topography, with variations to 1 m of relief. The granite, schist, gneiss, and quartzite clasts exhibited sub-rounded to sub-angular weathering.

Discussion

The Ancha Formation

Strata 4 through 6 at LA 158037 represent the *in situ* formation of a single soil that formed in the thick deposit of mixed alluvial sands and gravels of Stratum 7. The presence of a single soil is consistent with Folks' (1975) description of the Santa Fe vicinity in which single soils are formed in thick alluvial deposits, with little or no evidence for buried soils. Folks (1975:3–6) groups the "soils of dissected piedmont plains" into six associations. The association that characterizes the area south of the Santa Fe River is the Panky-Pojoaque-Harvey association, comprised of "well-drained soils that formed in old mixed alluvium" (Folks 1975:4). The thickness of the B horizon remnant shows that the soil was well formed, and the presence of a single soil shows that the site area remained a stable landform for a considerable period of time. This is also generally consistent with Folk's (1975:105) description of Panky Series soils.

Stratum 7 represents the Ancha Formation of the Santa Fe Group:

> The Ancha Formation is the uppermost basin fill unit in the Santa Fe embayment. It consists of gravel, sand, and silt derived from the southwestern flank of the Sangre de Cristo Mountains. Although there are some compositional differences in the Ancha Formation that reflect compositional heterogeneity of the crystalline basement, the gravel is generally dominated by granite or gneissic granite, with minor amounts of amphibolite, quartzite, and schist. This Plio-Pleistocene deposit is mostly non-cemented and weakly consolidated. It unconformably overlies the Tesuque Formation (Miocene) in the Santa Fe embayment. The Santa Fe embayment is bounded by the Sangre de Cristo Mountains to the east, Galisteo Creek to the south, the Cerrillos Hills to the southwest, basalt-capped mesas of the Cerros del Rio volcanic field to the northwest, and the Santa Fe uplands underlain by the Tesuque Formation north of the Santa Fe River. (Koning and Johnson 2005:2)

The Santa Fe embayment is the southern portion of the Española Basin, extending south of the Santa Fe River (Koning et al. 2002:75). For purposes of this report, a detailed description of the Ancha Formation is not necessary. Koning et al. (2002) provide an updated re-definition of the formation, which was first identified by Speigel and Baldwin (1963). Koning et al. (2002) and Koning and Johnson (2005) address the considerable variation inherent in the formation related to differing geological sources of the materials that compose it, providing several profiles to illustrate the variation. We will provide here a brief summary of the formation relevant to its presence in the project area.

The Ancha Formation ranges from 10 to 90 m thick, being thicker in the center of the Santa Fe Embayment and thinner to the west near the Rio Grande (Koning and Johnson 2005:5). Deposition of coarse alluvium such as that which characterizes the Ancha Formation requires an shift from dynamic transport energy, such as found in an alluvial channel through which sediments are carried by water flowing rapidly downhill, to static transport energy, such as found in the inside bend of a river or alluvial channel, or a fluvial terrace across which the transport medium disperses laterally. In this case, coarse alluvium originating from the upper reaches of the alluvial slope upon which LA 158037 is positioned was transported down one of the narrow alluvial channels providing drainage from the flanks of the Santa Fe Range. Upon exiting the Santa Fe River canyon, current velocity and carrying capacity of the drainage channel abruptly diminished, resulting in rapid dumping of the sediment load (Koning and Johnson 2005:6). Plewa (2009:176) states:

> A few hundred feet downstream, the river exited the canyon foothills and no longer was confined within the upper terrace alluvium. The channel now was free to migrate and widen. The river's planform changed from a meandering stream within a narrow floodplain to a widening compound stream, expressing characteristics of both meandering and braided systems . . . The reduction in slope and channel confinement that occurred once the river left the canyon area . . . caused reductions in the velocity and transport capacity (stream power) of the river, and sediment fell out of suspension. This process has driven the creation of the Tesuque and Ancha alluvial fans for millennia.

Koning et al. (2002) also ascribe deposition of the coarse alluvium south of the modern course of the Santa Fe River to an ancestral Santa Fe River, and Koning and Johnson (2005:5) state:

> The Ancha Formation was deposited on a streamflow-dominated piedmont (i.e., alluvial slope) in the Santa Fe embayment; most of these streams were probably ephemeral. In and southwest of Santa Fe, much of the Ancha Formation corresponds to a fluvial facies of a Plio-Pleistocene Santa Fe River. Although this ancestral Santa Fe River was also deposited on an alluvial slope, it drained an appreciably larger area than streams associated with the alluvial slope to the south or north. Consequently, it was likely perennial and had relatively high flow energy.

The low degree of particulate sphericity of Stratum 7 indicates a relatively short time spent in the transport regime, suggesting close proximity to origin and rapid deposition of the sediment. A complete lack of grain size sorting, imbrication, bedding, stratification, or any other indication of ordered depositional processes is an indication of very high-energy, chaotic transport environments in which sediments of all sizes are transported simultaneously and abruptly dropped from entrainment before definitive grain size sorting characteristics could develop. Uneven, highly variable surface topography indicates an erosive depositional environment in which transport processes are energetic enough to scour massive amounts of large, heavy sediments and quickly remove them.

These sediment transport and deposition properties are characteristic of powerful, fast-moving fluvial environments such as flooded, braided upland river channels (Plewa 2009:176), or the result of fluvioglacial processes such as rapid glacial melting and the concurrent development of outwash channels. Such environments, what Koning and Johnson (2005:6) call "hyperconcentrated flows," generate and accommodate large amounts of sediment and water in a relatively short time. A fluvioglacial depositional environment with the glaciated mountains of the Santa Fe Range above the Santa Fe River headwaters as a source of sediment for Stratum 7 seems especially likely given the small degree of weathering exhibited by the sediment particles in combination with the other characteristics discussed above.

Identifying and Dating Stratum 7

When found in the context of river or stream valleys, coarse-grained alluvial lag deposits are called fluvial terraces. Thick terrace deposits, often more than 3 m (10 ft) thick, typically develop in middle to lower reaches of mountain stream valleys, especially in regions of transitional topography where the drainage passes a steep, narrow mountain front into a broad valley environment (Pazzaglia and Hawley 2012). Analogous would be the area in which the Santa Fe River passes from the Sangre de Cristo foothills onto the broader valley of Santa Fe, in the immediate vicinity of LA 158037.

Fluvial terrace deposits typically consist of coarse-grained, sub-angular to rounded large clasts with finer-grained matrices. In such turbulent depositional environments, the coarse-grained sediments rarely preserve stratigraphic bedding. There are many other mountainous environments in the region in which relatively low-relief depositional surfaces preserve upland gravel lags. There may be several explanations for such deposits; one of the most likely is that they are attributable to fluvioglacial outwash (Pazzaglia and Hawley 2012).

Detailed analysis of $^{40}Ar/^{39}Ar$ dates are discussed by Koning et al. (2002), who summarize their results as follows:

> Aggradation of the Ancha Formation probably began around 2.7–3.5 Ma [million years ago] and continued into the early Pleistocene, when regional incision occurred over much of the Santa Fe embayment. We interpret that large-scale aggradation likely began as a response to a relative rise in base level because the western, distal part of the basin appears to have aggraded significantly before the eastern margin. Later aggradation near the Pliocene–Pleistocene boundary appears to have been concentrated in the eastern Santa Fe embayment and may have been more influenced by sediment supply and discharge factors in the Sangre de Cristo Mountains than local base level control.

The relative rise in base level at the beginning of Ancha Formation aggradation was probably driven by a combination of Cerros del Rio volcanism and to a lesser degree by Pliocene tectonism. (Koning et al. 2002:83). Based on $^{40}Ar/^{39}Ar$ dating of tephras, the Ancha Formation aggraded until regional incision occurred between 1.25 and 1.48 Ma. (Koning et al. 2002:85)

Three years later, Koning and Johnson (2005:5; parentheses in original, brackets added) state, succinctly,

> The base of the Ancha Formation is diachronous, and ranges from 2.7-3.5 Ma [million years ago] in the western Santa Fe embayment to ~1.6 Ma in the eastern embayment near the Sangre de Cristo Mountains . . . Sedimentation near the Pliocene-Pleistocene boundary appears to have been concentrated in the eastern embayment, and

may reflect changes in discharge and sediment supply at that time.

The last observation is important because:

> The coarse-grained character of . . . upper Santa Fe Group units, which are exposed over a wide area and in different structural basins, suggests that significant regional erosion and accompanying deposition may have been triggered by paleoclimatic factors that increased stream discharge and competence (Koning et al. 2002:85).

We can anticipate, then, that paleoclimatic factors encouraging greater-than-normal erosion in and from the Santa Fe Range were not necessarily restricted to the Plio-Pleistocene transition. Indeed, Koning et al. (2002:75) point out, "there is evidence suggesting that aggradation continued into the middle or late Pleistocene in mountain-front canyons east of the Santa Fe embayment," and Koning and Johnson (2005:Figure 4) show a layer of Holocene alluvium overlying the Ancha Formation.

Immediately following the end of the Wisconsinan (Pinedale) Glaciation in the southern Rocky Mountains, down-valley sedimentation and alluviation rates were extremely high, partially because of the rapid influx of glacial melt-water and partially because of a lack of stabilizing vegetation on newly exposed, unstable slopes (Johnson et al. 2011). A glacial chronology study was conducted using sediment cores extracted from glacial landforms and lake sediments in the vicinity of the Lake Katherine–Winsor Creek–Stewart Lake drainages on the east side of the Santa Fe Range. Researchers used accelerator mass spectrometry and organic carbon geochronologic dating techniques to provide insight into the timing of onset and decline of glaciation in the far southern Rocky Mountains. A geochronologic date was obtained from sediment at the base of a bog depression behind a Pinedale-aged terminal moraine, which was also dated. The sediment represented the early onset of glacial depression infilling, beginning about 13.9 kya. Therefore, enhanced fluvioglacial and alluvial deposition began occurring shortly after this time, processes that are also implicated in hydrologic changes in the Rio Grande Basin to the west (Armour et al. 2002; Dethier and Reneau 1996).

Enhanced paraglacial alluviation may have continued into the Younger Dryas, ca. 11.2 kya, as evidenced by a period of alpine glaciation and an associated geochronologically dated terminal moraine in the Lake Katherine basin (Armour et al. 2002). Johnson et al. (2011) have concluded that, in the southern San Juan Mountains, Younger Dryas cool, wet climate conditions were conducive to active sediment transport on hill slopes not yet stabilized by soil and vegetation development. These conditions resulted in the creation of alluvial fans on hill slopes and flushing of sediments from valley bottoms. They speculate that these conditions may have continued until about 9.5 kya, when soil development stabilized the landscape during the late early Holocene. Similarly, glacial till and overlying alluvial deposits consisting of sub-angular and sub-rounded gravels, cobbles, and boulders in the Rio Conejos valley in south-central Colorado's San Juan Mountains have been dated to the end of Pinedale Glaciation at 14 to 12 kya (Guido et al. 2007; Johnson et al. 2011). Coincidentally, late Pleistocene-aged terrace fill along the inner Rio Grande Valley in the Albuquerque Basin is believed to be associated with high sediment loads concurrent with the demise of the late Wisconsinan (Pinedale) Glacial (Pazzaglia and Hawley 2012). So, during the late Pleistocene-Holocene transition, a period of fluvoglacial sedimentary deposition appears to have occurred between about 14 and 9.5 kya.

Researchers in the southern San Juan and Sangre de Cristo ranges have identified a second major period of accelerated subalpine and valley alluvial sedimentation. Coarse alluvial deposits dating to 5,625 and 3,867 years ago in the Lake Katherine vicinity include increased clastic sedimentation during the Altithermal glacial lake-to-bog transition, with an accompanying increase in talus deposition (Armour et al. 2002). Likewise, Johnson et al. (2011) recorded a period of accelerated alluvial sedimentation occurring about 5.5 kya in the Rio Conejos valley, also concurrent with middle Altithermal period drying.

Stratum 7 coarse alluvial deposits at LA 158037 might, then, be related to glacial outwash deposition occurring between 14 and 9.5 kya, or to Altithermal period deposition during a period of warming and drying beginning about 5.6–5.5 kya. The abrupt, unconformable boundary with overlying B-horizon soils of Strata 6 and 5 may indicate a period of erosion and hill slope instability, during which soil development either occurred and was subsequently eroded, or did not occur until after slope stability was achieved. That might have occurred less than 6,000 years ago. This possibility may seem to contradict the $^{40}Ar/^{39}Ar$ dates reported by Koning et al. (2002), which date at least most deposition of the Ancha Formation to the Plio-Pleistocene transition between about 3.5 and 1.6 Ma. The processes that formed the Ancha Formation, however, were not unique to the Plio-Pleistocene transition. Indeed, the description of Santa Fe River alluvium deposits provided by Plewa (2009) focuses on relatively late processes that prepared the central reach of the river for occupation, and alteration, by Euroamerican colonists, and, as we noted earlier, Koning and Johnson (2005:Figure 4) illustrate a profile in which a layer of Holocene alluvium overlies the Ancha Formation. Although Folks (1975:39, 45, 105) is not specific, the Ancha Formation apparently serves as the foundation of the Panky and Pojoaque series soils in the immediate Santa Fe vicinity. Koning et al. (n.d:I–57; brackets added) observe that,

> The top [of the Ancha Formation] is defined by a physiographic surface that is preserved on relatively broad interfluves . . . These broad relict surfaces are part of the Plains surface, which represents a former piedmont slope that has been subsequently incised by numerous streams draining the Sangre de Cristo Mountains. Soils of the Plains surface are typically modified by erosion and consist of clayey Bt or Btk horizons over calcic and siliceous Bk or Bkq horizons with Stage II to III+ carbonate morphology. We interpret the Plains surface to be a complex and diachronous surface that generally approximates the top of the Ancha Formation, even though it has probably experienced minor erosion.

More specifically, the Plains surface, first identified by Spiegel and Baldwin (1963:56), "contains compound soils that locally exhibit <25 cm-thick, clay-rich Bt or Btk horizons underlain by 50 to >100 cm-thick calcic and siliceous Bk or Bkq horizons with stage II to III+ pedogenic carbonate morphology" (Koning and Johnson 2005:8), although variation in texture and thickness is expected because of the variation inherent in the formation (e.g., Koning and Johnson 2002). Spiegel and Baldwin (1963:56) observe that the Plains surface, which occurs south of the Santa Fe River, is cut by large and small drainages, "leaving digitate remnants of the surface."

Thin soils are found but uncommon within the Ancha Formation deposits below the Plains surface (Koning and Johnson 2005:8). Younger alluvial deposits with weakly developed soils overlying the Ancha Formation are present upstream of the mouths of major arroyos draining the Santa Fe Range; Koning et al. (n.d.:I–59) do not distinguish them from the Ancha Formation.

Given descriptions of Panky-Pojoaque series soils and of the sediments and soils recorded at LA 158037, it is most likely that Stratum 7 is the local expression of the Ancha Formation, and that Strata 4, 5, and 6 are local expressions of the Plains-surface soil formed from Ancha Formation sediments. While it is possible that Stratum 7 represents a late Pleistocene or Holocene deposit, the presence of well-developed, thick B horizons point toward considerable pedogenic time depth. Although the absence of an A horizon was thought to represent disturbance and removal during late historic land use and development activities (Boyer 2012:321–324), it may actually match the description of the Plains surface provided by Koning et al. (2002:I–57) that notes that upper portions of the soil are "typically modified by erosion" and the soil is represented only by B horizons.

In summary, Strata 4 through 7 probably represent formation and alteration of the Plains-surface soil, within the Panky-Pojoaque series, on the uppermost Ancha Formation of the Santa Fe Group. We cannot be certain, given apparent disturbance to the ground surface in the project area, that the soil's A horizon and perhaps the upper B horizon were removed by late historic land use and development activities, and it is possible that much of the A horizon was removed by much older, natural, erosion processes and events. Since it appears that the uppermost B horizon recorded in LA 158037 was not altered by historic farming recorded in maps of the area, however, it is still possible that land-preparation prior to or part of late nineteenth- and early twentieth-century building construction removed unknown amounts of the soil. In any case, and even if Stratum 7 represents a late Pleistocene or Holocene alluvial deposit, it is older than the features investigated at LA 158037 by many, even hundreds of millennia, and the soil horizons also predate the site's agricultural and residential uses.

Figure 8.1. East wall of BHT 67 depicting Stratum 5 (a Bw horizon), Stratum 6 (a Bk horizon), and Stratum 7 (a fluvioglacial outwash deposit).

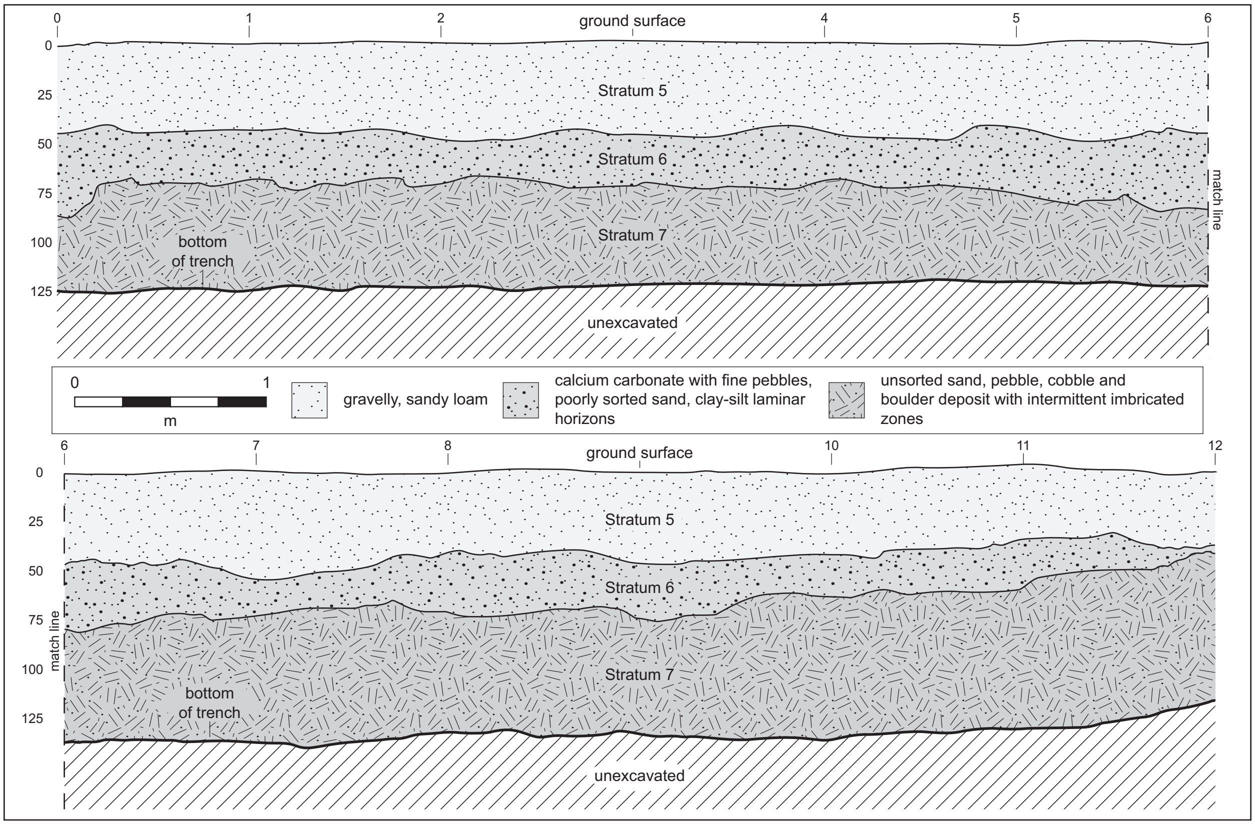

Figure 8.2. Profile of BHT 67.

Figure 8.3. West wall of BHT 64 with Stratum 5 (a Bw horizon), and Stratum 7 (a fluvioglacial outwash deposit).

Chapter 9

Agricultural Fields

Matthew J. Barbour

Systematic excavation was conducted on all irrigation and pit features to determine if these were associated with large-scale agriculture and dated before the establishment of the Capitol Complex Historic Neighborhood in the 1880s. While in-field excavations left some of these issues open to question, Euroamerican artifact analysis revealed that no feature could be confidently linked to agricultural use of the area prior to the establishment of the neighborhood (see Chapter 16, this report).

The irrigation ditches that were found (Features 350 and 389) appear to be associated with gardens located behind Structures 4, 6 and 11. These features are not indicators of land use prior to the establishment of the residential neighborhood based on Euroamerican material culture content. Moreover, optically stimulated luminescence (OSL) samples failed to yield dates indicative of their abandonment and instead appear to have furnished deposition dates for the underlying sediments, specifically Strata 5 and 6 (see Chapter 22, this report). Regardless of age, both ditches yielded evidence of corn and other flora (see Chapter 20, this report) allowing the features to be useful in discussing gardening practices of the individual families occupying the structures during the late nineteenth and early twentieth centuries.

In addition to the ditches, an area measuring approximately 10-by-10 m in diameter was encountered in front of the Beacham House (Structure 11) where Stratum 4 was infused with approximately 2 to 5 percent charcoal within the sediment matrix. It was believed that this deposit could be indicative of a plow zone. Excavation of a 2 by 2 m excavation unit was undertaken to ascertain the nature of the deposit. This unit resulted in the collection of a substantial number of Euroamerican artifacts, including 22 wire-drawn nails. No colonial artifacts were recovered and the presence of the wire-drawn nails suggests deposition after 1890. While the deposit could still represent some sort of tilling or gardening activities, it is believed that the deposit is associated with flowerbeds or other planting endeavors in front of the Beacham house during the early twentieth century.

The absence of deposits associated with intensive agriculture in the project area during the Spanish Colonial, Mexican, and early American Territorial Periods was not unexpected. Excavations for the adjacent Capitol Parking Facility also failed to locate evidence of agricultural use of the area prior to 1880. This is still somewhat puzzling, since historic documents suggest the area was exploited for agricultural purposes well before the beginning of the nineteenth century.

Past geomorphological studies (see Boyer 2012:321–324) suggest the upper portions of the fields were removed mechanically, on top of which was deposited Stratum 3. No A-horizon has ever been found. Stratum 4 may indicate the area just below the A-horizon. A buildup of calcium carbonate (Stratum 6), associated with agricultural intensification at the base of Stratum 5 lends some support to this hypothesis. Thus, despite archival data to the contrary, the OAS excavations failed to yield any direct archaeological evidence of colonial fields at LA 158037.

Chapter 10

Structure 4 (125 West Manhattan Avenue)

Matthew J. Barbour, Susan M. Moga & Karen L. Wening

Structure 4, 125 West Manhattan Avenue, is first depicted on the 1882 Stoner's Bird's-Eye view of Santa Fe and was likely constructed just after the coming of the railroad (ca. 1880–1882). The property was originally owned by the Romero family, who later sold the property to Frank W. Parker presumably at or near the time he was elected a justice of the New Mexico Supreme Court in 1911 (Fig. 10.1; Twitchell 1963:525). The Parker family is depicted as occupying the residence on the 1912 King's Map of Santa Fe. After Parker's death in 1932, the property was used as a rental and then converted in 1946 for use as an apartment complex.

Table 10.1 lists residents, identified in the *Hudspeth's* and *Polk* city directories, who occupied the structure beginning in 1928, until its transfer to the State of New Mexico in 1970. The initial owners of the house, the Romeros and Parkers, were relatively wealthy. The Romeros were early settlers of the Barrio de Analco and Barrio de Guadalupe and they owned multiple parcels of land including 125 West Manhattan during the 1880s, 1890s, and 1900s. Frank W. Parker, who was Chief Justice from 1919 to 1920 and 1922 to 1928, was both a Freemason and a member of the Elk's lodge. The Parker family lived at the structure during the 1910s, 1920s and early 1930s. Later occupants list middle class white and blue-collar jobs. A Reverend W. P. Bell is listed at the residence in 1938. However, the reverend is not listed as a pastor at the First Baptist Church located less than a block to the east. It is possible that he served another church or served as a guest orator.

Structure

From information gathered from archival maps of Santa Fe dating to the late nineteenth and early twentieth century, the structure at 125 West Manhattan experienced accretional growth, both in size and shape. It appears that the structure reached its maximum size in the early 1930s. As depicted on the 1948 Sanborn Fire Insurance map, the building was one story high and contained both adobe and stucco wood-framed elements in its construction. The structure's maximum dimensions were 19.81 m (65 ft) east–west and 18.29 m (60 ft) north–south, and the building encompassed 260.13 sq m (2,800 sq ft). The building also had a front porch and two backyard patios. The front porch measured 6.1 m (20 ft) east–west and 2.44 m (8 ft) north–south. The larger of the two back porches measured 12.19 m (40 ft) east–west and 4.57 m (15 ft) north–south; the smaller was 4.57 m (15 ft) east–west by 1.52 m (5 ft) north–south.

The residence at 125 West Manhattan was excavated as part of the Capitol Parking Facility project (Barbour 2012a:141–166). From the foundation remnants existing at the time of archaeological investigation, at least eight rooms are identifiable (Figs. 10.2, 10.3). These rooms vary in construction methods that can be tied to at least three different construction episodes occurring in the 1880s, 1910s, and 1920s. The structure appears to have been demolished in 1971.

Features

Extramural features were tied to the structure by overlaying the 1948 Sanborn Fire Insurance map onto the archaeological record and examining the spatial distribution of the features. Current investigations associated with the Executive Office Building only touched upon a small portion in the back of the property (Fig. 7.6). This resulted in the documentation of a bone pit (Feature 320), irrigation ditch (Feature 350), and four postholes (Features 308, 313, 314, and 405). These features are presented in Table 10.2 and are described below.

Feature 308

Feature 308 was a circular posthole (centerpoint: 510.75N/471.99E) located in the southeast corner of SCU 10 and southeast of BHT 62. The posthole measured 25 cm (10 in) diameter and contained pea-sized gravels and coal clinker fragments on the exposed surface. No excavation of the posthole was undertaken and no artifacts were visible in the fill.

Feature 313

Feature 313 was a circular posthole (centerpoint: 511.76N/494.82E) situated in the southern portion of SCU 12. The posthole measured 26 cm (10 in) in diameter. It was situated in a southeast–northwest alignment with posthole Features 314, 316, and 317. This posthole alignment crosses the east–west boundary between the Romero/Parker and Beacham lots. Cobbles (25–30 cm/10–12 in diameter) placed within in the hole to support the wooden posts were in situ. The fill contained wood post fragments, burned and calcified bone, red brick fragments, glass, ash, and fire-cracked rock. A total of 10 artifacts were collected, consisting of metal nails (n = 4) and animal bone fragments (n = 6).

Feature 314

Feature 314 was an unexcavated circular posthole (centerpoint: 512.56N/494.43E) situated in the southern portion of SCU 12 aligned with posthole Features 313, 316, and 317. This posthole alignment crosses the east–west boundary between the Romero/Parker and Beacham lots. The posthole measured 18 cm (7 in) in diameter. The surface fill was very dark with coarse-grained sand and pea-sized gravels. Artifacts were not present.

Feature 320

Feature 320 was an animal refuse pit (centerpoint: 507N/494E) located in the southernmost portion of SCU 12 (Fig. 10.4). This small pit measured 90 cm (36 in) north–south, 50 cm (19 in) east–west, and 20 cm (8 in) deep, and was dug to house the disarticulated remains of a cow (n = 109), and small amounts of cottontail, chicken, and ungulate (n = 10) bones. The southern portion of the pit was lined with cobbles. The pit fill consisted of a compact, brown (Munsell 7.5YR 4/3) clay with pea to medium sized gravels and wood fragments. The bones were in poor condition, decomposed from the high moisture content of the clay fill. Other domestic refuse included Euroamerican ceramics (n = 2), flowerpot fragment (n = 1), ceramic tile (n = 1), soda bottle and bowl glass fragments (n = 2), wire nails (n = 12), and lock fragment (n = 2). Since Feature 320 was located on the south end of the project area, it may have been associated with Structure 4, which was excavated as part of the Capitol Complex Historic Neighborhood project (Barbour 2012a:141–166). A number of pits containing butchered cow skull and disarticulated skeletons were associated with Structure 4, which was occupied by the Romero family between 1880 and 1920.

Feature 350

Feature 350 was a linear irrigation ditch (centerpoint: 510.05N/493-500.50E) located in the southern portion of SCU 12 and BHT 67 (Fig. 10.5). The east–west ditch measured 10 m (33 ft) long, 50 cm (20 in) wide, and 43 cm (17 in) deep. Feature 350 may have intersected with connected with Feature 389, a north–south ditch associated with the Beacham family home on the adjacent north lot.

Sixty perent of Feature 350 was excavated. Animal bones (n = 10) and a nail (n = 1) were collected from the fill. Feature fill consisted of a brown (Munsell 10YR 5/3) sandy loam flecked with charcoal. The fill was heavily bioturbated by roots. The base of the irrigation ditch displayed a very thin, hard layer of fine, carbonated sediment. The irrigation system may have originally transected the entire east–west length of the site, later destroyed by the construction of the Concha Ortiz y Pino Building.

The ditch may have provided water for raspberry plants and maize crops, remains of which were recovered from the four flotation samples taken from the fill. Two OSL samples were collected from the ditch as well, which yielded Archaic period dates associated with the underlying stratum excavated to dig the ditch (see Chapter 22, this report), predating the historic occupation of the site. Portions of the system that were not visible were probably destroyed when the early casitas were razed and replaced with modern state buildings and parking lots.

Feature 405

Feature 405 was an unexcavated circular posthole (centerpoint: 511.67N/493.02E) located on the southwest edge of SCU 12, adjacent to irrigation ditch Feature 350. The posthole measured 30 cm (11 in) in diameter. A Kerr canning jar previously placed in the open posthole was crushed by the backhoe. The wide-mouthed, clear jar was suntinted to an amethyst color and displayed an external metal screw lid. The glass jar (n = 39) and other glass fragments (n = 4) were collected for analysis.

Artifacts

A total of 210 artifacts and samples were collected in association with Structure 4 at125 West Manhattan Avenue. These artifacts included 135 bone, 45 glass, 19 metal, 4 Euroamerican ceramics, 1 lithic, 4 flotation and 2 OSL samples. No Native American ceramics were recovered from Structure 4 or associated features. A total of six features were recorded, consisting of postholes (n = 4), animal refuse pit (n = 1) and irrigation ditch (n = 1). The animal refuse pit (Feature 320) and one posthole (Feature 313) were excavated. The irrigation ditch (Feature 350) was sampled.

While artifacts from the 2008 excavation of Structure 4 could be securely assigned to either the Romero or Parker family (Barbour 2012a:165), artifacts from the current project cannot be designated with the same confidence.The bone artifacts found in Feature 320 are probably associated with the Romero family, as bone pits with similar contents were linked to the Romero family during the Capitol Complex Historic Neighborhood project (Barbour 2012a:166, 347). Also, the pit contents reflect the increasing consumption of beef and use of cranial butchering to make *queso de la cabeza* among early twentieth century Hispanic families (Akins, Faunal Analysis, this volume). The specific family association of the Euroamerican ceramics, glass and metal artifacts was more problematic, as the artifacts dated from the late nineteenth to early twentieth centuries, a span which encompassed both the Romero and Parker occupation of the home. Three postholes could represent a fence dividing 125 West Manhattan Avenue from 116 South Capitol Street in the early twentieth century.

Summary and Interpretation

The residence at 125 West Manhattan Avenue was excavated as part of the Capitol Parking Facility project (see Barbour 2012a:141–166). Current investigations associated with the Executive Office Building only touched upon a small portion in the back of the property. This resulted in the documentation of a bone pit (Feature 320), irrigation ditch (Feature 350), and four postholes (Features 308, 313, 314, 405).

Barbour (2012a:166), in describing the occupation history of Structure 4, noted that it was one of the oldest in the LA 158037 project area, built shortly after the coming of the railroad in 1880. The Romero family occupied the home from the late nineteenth to the very early twentieth century. During the 2008 project, 16 bone pits and 7 irrigation ditches were found to be associated with the Romero occupation of Structure 4. Many of these pits held contents identical to Feature 320, containing cow skulls with the top of the cranium removed to access the brain. Barbour (2012a:166) suggests that the ubiquity of the bone pits may be related either to production of the *queso de cabeza* produced from the brains, or a family butchering business. Whatever the source, the pits distinguish the Romero family activities from others in the neighborhood. The Parkers, in contrast, reflected the neighborhood as a whole (Barbor 2012:166).

While the number of bone artifacts appears high for the few excavated features in this area, the vast majority originated from a single cow, with only a handful of ungulate bones augmenting the assemblage. Glass, ceramic, and metal artifacts were few, and could not be dated specifically enough to assign to a particular household, as the late nineteenth -to early twentieth-century date range could be applied to either family. Items such as canning jars, nails, and locks likely reflect equally possible family associations. Also, given the possible similar socioeconomic status of both families based on archival research, indulgence items found in Feature 320 such as soda bottles and flowerpots, had equal chance of being owned by either family.

Several factors suggest that the irrigation ditch was associated with the Romero family. Archival research assigned a late nineteenth-century acequia running north along West Manhattan Avenue to the Romero family (D. H. Snow 2012:49). The ditch likely represented one line of a more complex watering system, as remants of small-scale irrigation ditches were found throughout the Romero backyard, presumably representing gardening activities (Barbour 2012a:166, 343). This turn-of-the-twentieth-century garden behind Structure 4 predates the sale of the home to the Parkers by a narrow margin. The Feature 350 ditch was a fairly robust remnant of this system, yielding maize, raspberry, and burned amaranth botanical remains, which are typical cultigens of Hispanic families of the time. Gardens such as these dated back to the 1880s, and possibly represented the "last gasp of semi-intensive agriculture" at LA 158037 (Barbour 2012a:344).

Figure 10.1. New Mexico Supreme Court Justice Frank W. Parker.

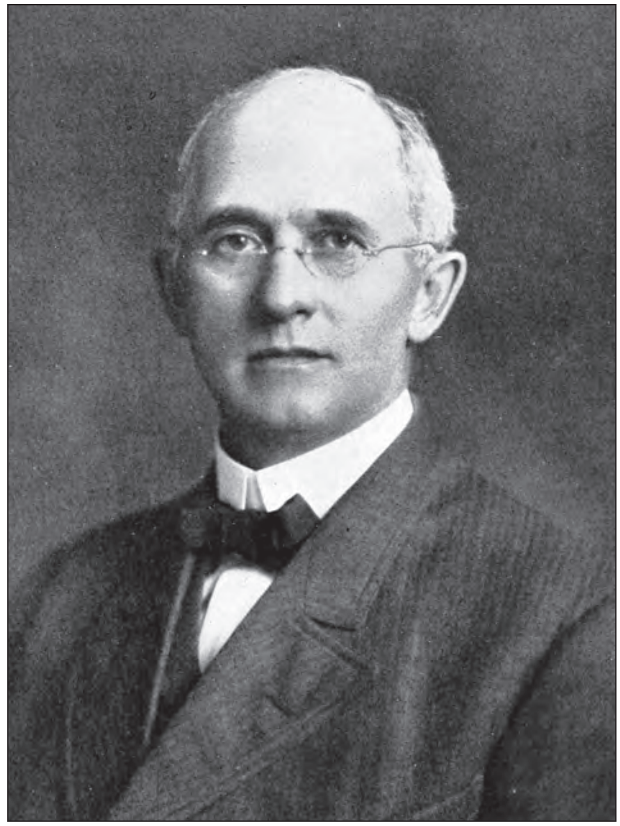

Figure 10.2. Structure 4, 125 West Manhattan Avenue.

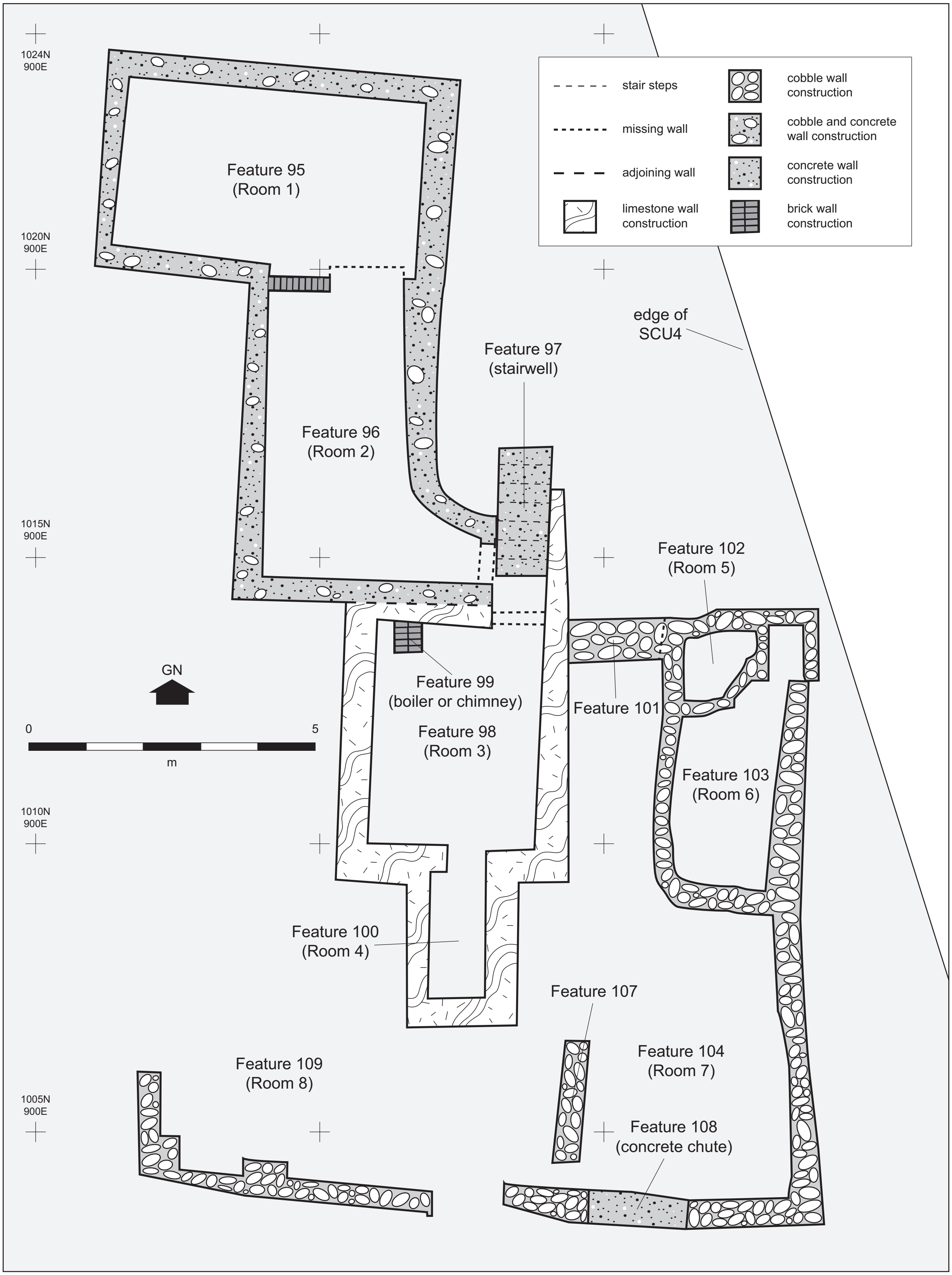

Figure 10.3. Structure 4, plan.

Figure 10.4. Structure 4, Feature 320, bone pit.

Figure 10.5. Structure 4, Feature 350, irrigation ditch.

Chapter 11

Structure 6 (111 West Manhattan Avenue)

Matthew J. Barbour, Susan M. Moga & Karen L. Wening

Based on the Stoner's Bird's-Eye view of Santa Fe (1882) and the Hartmann's Map of Santa Fe (1885–1886), Structure 6, 111 West Manhattan Avenue, was constructed sometime between 1882 and 1885. This building was owned by the Garcia family. However, it is unclear how long they occupied the structure. Table 11.1 shows the list of residents who occupied the structure after 1928 until abandonment in the 1960s. Beginning in the 1940s, outbuildings behind the structure, 111-1/2 West Manhattan Avenue and 111 Rear West Manhattan Avenue, were also rented out, presumably to supplement household income. Renters for these buildings are listed in Table 11.2 and Table 11.3 respectively.

Ownership of 111 West Manhattan Avenue, during much of the twentieth century, was by the Muller family (ca. 1928–1954), with Fredrick "Fritz" Muller listed as an insurance and real estate agent (Fig. 11.1). Born in Wurtemberg, Germany, Fredrick Muller immigrated to the United States in 1879 (D. H. Snow 2012). Enlisting in the military in 1882, Fredrick Muller served with Generals Crook and Miles against Geronimo and then later volunteered for additional service in the 1st U.S. Cavalry, also known as the "Rough Riders" (Fig. 11.2). Fritz continued to converse with Roosevelt throughout the early twentieth century (Dargan 2012), was an ally of Thomas B. Catron (Jaehn 2005:68), and a political rival of Governor Miguel Antonio Otero (Otero 2007). However, it is unclear as to any role Muller played in Roosevelt's removal of Otero as governor of New Mexico in 1906.

Fredrick died in 1934. Adella Muller (Fig. 11.3), his wife, continued to live in 111 West Manhattan Avenue until 1954. Later in 1961, Marion "Chick" Evans, an innovator in the use of polyester-film drumheads and owner of Evans Drumheads (Evans Drumheads 2013), rented the property for a single year. Today Evans Drumheads is among the top drumhead suppliers around the world.

Structure

A survey of the Sanborn Fire Insurance maps between 1913 and 1948 suggests 111 West Manhattan Avenue was modified often during the early twentieth century. Based on the 1948 Sanborn Fire Insurance map, the residence was 13.4 m (44 ft) north–south by 13.4 m (44 ft) east–west and encompassed 129 sq m (1,386 sq ft) of area. The building was wood-framed and a single story high, with a porch in the front and patio in the back. The front porch was 4.2 m (14 ft) east–west and 2.1 m (7 ft) north–south. The backyard-covered patio was 4.5 m (15 ft) east–west and 2.4 m (8 ft) north–south.

Ancillary rental buildings, 111-1/2 West Manhattan and 111 Rear West Manhattan, were constructed of adobe. The building at 111-1/2 West Manhattan measured 15.9 m (52 ft) north–south by 4.9 m (16 ft) east–west and encompassed 77 sq m (832 sq ft) of space. The building at 111 Rear West Manhattan measured 24.4 m (80 ft) north–south by 5.5 m (18 ft) east–west and encompassed 134 sq m (1,440 sq ft) of space. Neither of the structures had a porch or patio. A two-car, wood-framed garage northwest of 111-1/2 West Manhattan measured 6.6 m (22 ft) east–west by 4.8 m (16 ft) north–south.

As with Structure 4, the residence at 111 West Manhattan was excavated as part of the Capitol Parking Facility project (see Barbour 2012a:173–190). Archaeological evidence of building was limited to two subterranean rooms and a stairwell (Fig. 11.4). The larger of the two rooms (Room 1) measured 4.8 m (15 ft 8 in) north–south and 4.8 m (15 ft 8 in) east–west. The smaller (Room 2) measured 5 m (16 ft 4 in) north–south and 1.5 m (5 ft) east–west. Combined, the two rooms provided 30.5 sq m (328 sq ft) of living/storage space with a ceiling at least 1.5 m (5 ft) high. The walls to both rooms were 60 cm (2 ft) wide. These walls were constructed using quarried sandstone for the façade and river cobbles as filler. No archaeological evidence of the superstructure, car garage or ancillary rental buildings was uncovered during archaeological investigations.

Features

Extramural features were tied to the structure by overlaying the 1948 Sanborn Fire Insurance map onto the archaeological record and examining the spatial distribution of the features. Current investigations associated with the Executive Office Building only touched upon the back of the property (Fig. 7.6). This led to the documentation of two construction-debris pits (Features 301 and 302), a domestic-refuse pit (Feature 392) and a posthole (Feature 318). These four features are presented in Table 11.4 and discussed briefly below.

Feature 301

Feature 301 was a large, oval construction debris pit (centerpoint: 509.95N/506.98E) bisected by the backhoe in the western section of BHT 58. Both the north and south halves of the feature were excavated. The pit measured 3.15 m (10.3 ft) east–west by 1 m (3.3 ft) north–south by 1 m (3.3 ft) in depth. The fill consisted of stratified layers of dark brown (Munsell 10YR 3/3) clay and dark yellowish brown (Munsell 10YR 3/6) clayey sand. Both strata contained chunks of asphalt, pentile and red brick fragments, coal cinders, and a cast iron pipe, none of which were collected. Feature 301 likely represents refuse from construction activity associated with the Coughlin Building.

Feature 302

Feature 302 was a rectangular construction debris pit (centerpoint: 510.08N/510.12E) located in BHT 58 and directly east of Feature 301. The pit was mechanically bisected by the backhoe, extending north and south of the trench. Both sides were excavated. Feature 302 measured 7 m (22.9 ft) north–south by 1.8 m east–west by 95 cm (3.1 ft) in depth. The feature fill was dark yellowish brown (Munsell 10 YR 3/6) stratified clayey sand with red brick fragments, chunks of concrete, cinders, and pentile bricks representing refuse from the Coughlin Building construction. The only artifact present was a blue-painted glass light bulb, which was not collected.

Feature 318

Feature 318 was an unexcavated circular posthole (centerpoint: 512.77N/497.08E) located in the southeast portion of SCU 12. Posthole Feature 319 lay northwest of Feature 318, and may have been part of an alignment extending north into the Beacham property which included Features 324, 325, 333, and 340. The surface diameter of Feature 318 measured 23 cm (9 in). Charcoal flecks, ash, and wood post fragments were visible on the surface.

Feature 392

Feature 392 was a rectangular domestic refuse pit (centerpoint: 509.50N/494.00E) situated in SCU 12 perpendicular to irrigation ditch Feature 350. The relationship between the refuse pit and the irrigation ditch was unclear. The pit may have been dug as an extension of the ditch, suggesting the two features are irrigation-related; or the pit may represent an independent dumping episode that was later truncated by the excavation of the ditch.

The refuse pit measured 1 m (3.3 ft) north–south by 70 cm (28 in) east–west by 40 cm (16 in) in depth (Fig. 11.5). It had sloping walls and a flat base. A bench of indeterminate function on the south side of the pit measured 47 cm (19 in) north–south, 18 cm (7 in) east–west, and 13 cm (5 in) deep. The feature fill was dark yellowish brown (Munsell 10YR 3/4) silty clay loam. The few artifacts recovered from the pit derive exclusively from the lower 10 cm (4 in) of fill; none were encountered in the upper 30 cm (12 in). The pit was probably truncated by modern construction, which may account for the absence of artifacts in the upper fill. Glass (n = 1), Native American ceramics (n = 2), and ungulate animal bones (n = 4) comprise the assemblage. Indigenous ceramics are represented by Tewa polychrome (n = 1) and Tewa utility ware (n = 1).

Artifacts

Very few artifacts were recovered from Structure 6 and associated features. The home at 111 West Manhattan Avenue, first occupied by the Garcia family and later by the Muller family, yielded only seven artifacts, comprised of ungulate bones (n = 4), native ceramics (n = 2), and glass (n = 1). Four features were recorded in association with Structure 6, consisting of construction debris pits (n = 2), domestic refuse pits (n = 1), and postholes (n = 1). All artifacts were recovered from a single feature, domestic refuse pit Feature 352. Of the four features recorded at this location, only this pit and posthole Feature 318 are linked to the historic occupation of the home. The two remaining features, 301 and 302, contain modern construction debris associated with the Coughlin Building.

Summary and Interpretation

As with Structure 4, the residence at 111 West Manhattan Avenue was excavated as part of the Capitol Parking Facility project (see Barbour 2011b:173–190). Current investigations associated with the Executive Office Building only touched upon the back of the property. This led to the documentation of two construction-debris pits (Features 301, 302), a domestic-refuse pit (Feature 392) and a posthole (Feature 318).

Little interpretive potential exists among the seven artifacts recovered in association from Structure 6. The historic domestic refuse pit and posthole may have been associated with the earliest occupation of the home by the Garcia family given the presence of historic native ceramics and ungulate bones, though ties with the Muller family cannot be ruled out. The single flotation sample yielded unburned sedge, groundcherry, amaranth, and purslane botanical remains, all of which were considered non-cultural. The only possibly cultivated plant represented in the flotation sample was a single burned amaranth seed, which may have grown in a garden tended by the Hispanic Garcia family.

The construction debris pits contained large quantities of concrete and are presumed to be associated with the twenty-first century Coughlin Building demolition at 104 South Capitol Street. While the domestic refuse pit is connected to the historic residences, it yielded cinder, ash, and very few artifacts, and has little potential to contribute significantly to addressing the research design (Barbour 2011a). However, the features associated with neighboring Structure 10 potentially inform on Structure 6 activities and lifestyle, as the two structures were on the same lot in the early twentieth century (see Chapter 12, Structure 10, this report).

Figure 11.1. Capt. Frederick Muller, Rough Riders, New Mexico, U.S. Volunteer Calvary, 1898 (courtesy Palace of the Governors Photo Archives, NMHM/DCA, neg. no. 144553).

Figure 11.2. Theodore Roosevelt (center) and Frederick Muller (sitting left) at the 1899 Rough Riders Reunion in Las Vegas, New Mexico (courtesy Palace of the Governors Photo Archives, NMHM/DCA, neg. no. 005991).

Figure 11.3. Ms. Adella Muller, ca. 1900 (courtesy Palace of the Governors Photo Archives, NMHM/DCA, neg. no. 144565).

Figure 11.4. Structure 6, Room 1.

Figure 11.5. Structure 6, Feature 392, a domestic refuse pit.

Chapter 12

Structure 10 (104 South Capitol Street)

Matthew J. Barbour, Susan M. Moga & Karen L. Wening

During the late nineteenth and early twentieth century, the 104 South Capitol Street lot was part of the 111 West Manhattan Avenue (Structure 6) parcel. During this time, it is depicted as an empty space on all archival maps. The 1885–1886 Hartmann Map of Santa Fe shows the owner of the lot as the Garcia family. However, by 1912, the King's Map of Santa credits ownership to Frederick Muller. The Muller family owned the lot as part of 111 West Manhattan Avenue during the first half of the twentieth century. In 1951, the lot was developed into an apartment complex that was used by small businesses and state offices. This structure became known as the Coughlin Building. Table 12.1 provides a list of residents and businesses that occupied the structure. It was demolished in 2009.

Structure

While no architecture is depicted on the archival maps dating prior to 1951, a small structure (Structure 10) was encountered on the lot; it appears to date prior to the establishment of the Coughlin Building (Figs. 12.1, 12.2). The structure seems to have been constructed entirely of wood, possibly using a combination of railroad ties and posts. It lacked a basement. All that remained of the structure in the archaeological record were impressions left by these wooden elements. The supposed ties (Features 285–287; 295–298) measured approximately 3 m (9 ft 11 in) long by 60 cm (2 ft) wide and the posts (Features 278–283) were 20 cm (8 in) in diameter. Combined, the structure measured 8 m (26 ft 3 in) north–south by 3+ m (10+ ft) east–west, with the eastern edge of the structure having been removed by the more recent installation or demolition of the Coughlin Building.

It is unclear if the structure functioned as a domestic residence. That it was a shed or other outbuilding is more likely, given its size. However, outbuildings were regularly depicted on Sanborn Fire Insurance maps, making the structure's presence all the more perplexing. One possible explanation is that the building had a small lifespan that fell between mapping intervals. The longest mapping hiatus occurred between 1930 and 1948. The Coughlin Building, constructed in 1951, was a one-story wood-framed stucco building measuring 46 m north–south (150 ft) and 17.4 m (57 ft) east–west. It encompassed roughly 399 sq m (4,295 sq ft) of area. Foundations of the structure were poured concrete measuring 30 cm (1 ft) wide and 30 cm (1 ft) deep. Demolished in 2009, most of the Coughlin Building's concrete and wood elements were hauled away for recycling. No intensive archaeological investigation of its structural remnants was undertaken.

Features

Extramural features were tied to the structure by overlaying the 1948 Sanborn Fire Insurance map onto the archaeological record and examining the spatial distribution of the features. Features found on the lot included animal burial pits (n = 2), construction debris pits (n = 9), a domestic refuse pit, and postholes (n = 22). These features are presented in Table 12.2 and discussed briefly below.

Feature 252

Feature 252 was an irregularly shaped domestic refuse pit (centerpoint: 516.80N/505.80E) situated in the southwest corner of SCU 9 near the Capitol Parking Garage. The pit yielded artifacts from the late nineteenth to early twentieth century and was probably associated with the Garcia or Muller family residence during that time (see Barbour, Euroamerican analysis, this volume). It measured 105 cm (41 in) east–west by 80 cm (31 in) north–south by 7 cm (3 in) deep. The pit fill was unconsolidated brown (Munsell 7.5 YR 4/2) sandy clay with rotted wood, slag particles, coal chunks and artifacts. The artifact types were varied, with animal bone (n = 1), metal (n = 28), glass (n = 12), Euroamerican ceramics (n = 5), and leather (n = 22). The metal category consisted almost exclusively of nails. Unique items included leather boot or shoe fragments and several pieces of ornate white porcelain with gold leaf designs. A flotation sample was collected which yielded non-cultural and unidentified plant fibers (FS 1001).

Feature 253

Feature 253 was an oval-shaped construction debris pit (centerpoint: 5l5.85N517.39E) located in the southeast corner of SCU 9, west of construction debris pit Feature 265. The refuse pit contained debris from the razing of the Coughlin Building, though some historic domestic items linked to the Garcia or Muller families were recovered as well (see Barbour, Euroamerican analysis this volume). The pit measured 97cm (38 in) north–south by 70cm (28 in) east–west by 32 cm (13 in) in depth. The feature fill consisted of a black (Munsell 10YR 2/1) sandy clay loam flecked with charcoal. Building demolition materials such as pentile fragments (n = 11), metal (n = 15) and various other construction materials (n = 17) were not collected. Window glass (n = 1) and animal bone (n = 1), possibly from a small dog (n = 1) were collected. The single flotation sample from this feature contained unidentied, carbonized seeds and plant parts, along with unburned weed, unidentified seeds, burned and unburned juniper and unburned conifer wood (FS 1004).

Feature 254

Feature 254 was a small rectangular posthole (centerpoint: 515.81N/506.79E) located in the southwest corner of SCU 9. It was situated within a cluster of 3 unexcavated postholes (Features 255, 256). Feature 254 measured 20cm (8 in) north–south by 15cm (6 in) east–west on the surface. No artifacts were visible.

Feature 255

Feature 255 was a small, rectangular posthole (centerpoint: 516.10N/507.79E) located in the southwest corner of SCU 9. It was situated within a cluster of 3 unexcavated postholes (Features 254, 256). The surface of Feature 255 measured 20 cm (8 in) north–south by 15 cm (6 in) east–west.

Feature 256

Feature 256 was a small, rectangular posthole (centerpoint: 516.36N/507.92E) located in the southwest corner of SCU 9. It was situated within a cluster of 3 unexcavated postholes (Features 254,255). Feature 256 measured 15cm (6 in) north–south by 20cm (8 in) east–west.

Feature 257

Feature 257 was an unexcavated rectangular posthole (centerpoint: 518.20N/505.14) located in the southwest corner of SCU 9 which have been a corner post for two alignments extending north and east. Wood fragments were visible on the surface. The posthole measured 23cm (9 in) north–south by 15cm (6 in) east–west.

Feature 258

Feature 258 was an unexcavated circular posthole (centerpoint: 518.10N/508.69E) located in the southwest corner of SCU 9. It was aligned east–west with posthole Feature 257. Feature 258 measured 35cm (14 in) north–south by 35cm (14 in) east–west.

Feature 259

Feature 259 was an oval construction refuse pit (centerpoint: 5l6.85N/513.75E) located southwest of BHT 57; it was probably associated with the Garcia and Muller family residences. It measured 76 cm (30 in) north–south by 45cm (18 in) east–west by 16 cm (6 in) in depth. The feature fill consists of brown (Munsell 7.5 YR 4/4) clayey sand with small to medium sized gravels and large charcoal fragments. Metal (n = 22), glass (n = 5), and a plumbing pipe fragment (n = 1) were collected. Rodent bioturbation was evident in the pit fill and base.

Feature 260

Feature 260 was an unexcavated circular posthole (centerpoint: 521.43N/505.01) located in the southwest corner of SCU 9. It was aligned east–west with posthole Features 261, 262, 263, and 268. Surface diameter was 30 cm (12 in) in diameter. Fragments of wood and charcoal flecks were visible on the surface.

Feature 261

Feature 261 was a large circular posthole (centerpoint: 521.13N/506.87E) located in the southwest corner of SCU 9. It was aligned east–west with posthole Features 260, 262, 263, and 268. Surface diameter measured 40 cm (16 in). Eight red bricks, 20 cm by 10 cm by 7 cm (8 in by 4 in by 3 in) in size, were set in and around the posthole, presumably to secure the post. Four were wedged around the perimeter at the surface, and four were placed at the base of the hole. No artifacts were collected.

Feature 262

Feature 262 was an unexcavated circular posthole (centerpoint: 521.29N/508.89E) located in the southwest corner of SCU 9 and discovered in the south end of BHT 59. It was aligned east–west with posthole Features 260, 261, 263, and 268. It measured 30 cm (12 in) north–south by 12 cm (5 in) east–west. Gravels were visible on the surface. No artifacts were collected.

Feature 263

Feature 263 was an unexcavated circular posthole (centerpoint: 521.33N/510.36E) located in the southwest corner of SCU 9 and directly east of BHT 59. It was aligned east–west with posthole Features 260, 261, 262, and 268. Diameter at the surface measured 25cm (10 in). Red brick and wood fragments were visible on the feature surface.

Feature 264

Feature 264 was an unexcavated oval construction debris pit (centerpoint: 521.44N/511.81E) located in the south-central area of SCU 9 (515.35N/512.64E). Surface measurements were 1.68 m (5.5 ft) north–south and 1.37 m (4.5 ft) east–west. The fill consisted of brown (Munsell 7.5YR 4/4) silty sand with fragments of asphalt, concrete, and red brick. Base course gravels and small cobbles were intermixed with the fill, along with wood, coal, burned dirt, black plastic, and glazed bricks, which likely originate from the Coughlin Building demolition. No artifacts were collected.

Feature 265

Feature 265 was an unexcavated rectangular construction debris pit (centerpoint: 516.00N/519.28E) located in the southeastern corner of SCU 9 and east of the south end of BHT 57. The pit measured 2.53 m (8.3 ft) north–south by 1.73m (5.7 ft) east–west. The feature fill was brown (Munsell 7.5YR 4/3) clayey sand and gravels. Asbestos fibers, brick fragments, charcoal, concrete, and plaster were visible in the surface fill. These were not collected, as they probably result from the razing of the Coughlin Building.

Feature 266

Feature 266 was an unexcavated construction debris pit (centerpoint: 515.75N/515.74E) located southwest of BHT 57 in SCU 9. Surface measurements were 82 cm (32 in) north–south by 70 cm (28 in) east–west. Asphalt and crushed red brick fragments were visible in the fill. Artifacts were not present. As with Features 264 and 265, the materials found in this pit are probably associated with the destruction of the Coughlin Building.

Feature 267

Feature 267 was a turkey burial (centerpoint: 525.69N/512.32E) located in a small pit situated east of a cluster of railroad ties (Features 285, 286, and 287) that intersect with the south end of BHT 59 (Fig. 12.3). The fauna pit was probably associated with the Garcia or Muller family residence of Structure 6 in the late nineteenth to early twentieth century. The circular pit measured 32 cm (13 in) in diameter. The bird remains consisted of a fragmented sternum, portions of the upper wings, vertebrae, and one caudal bone. The articulated skeleton was interred within yellowish brown (Munsell 10YR 5/6) clayey sand and may represent spoiled meat.

Feature 268

Feature 268 was an unexcavated oblong posthole (centerpoint: 521.44N/511.81E) located in the southwest corner of SCU 9 and east of BHT 59. It was aligned east–west with posthole Features 260, 261, 262, and 263 and measured 30cm (12 in) in diameter. Surface fill contained charcoal flecks, coal slag, and pea-sized gravels.

Feature 269

Feature 269 was an unexcavated circular posthole (centerpoint: 520.85N/512.26E) situated between BHT 57 and 59 in the southern portion of SCU 9. It was aligned east–west with posthole Feature 270. Posthole Features 269 and 270 may be associated with the five-posthole alignment less than one meter to the west. Feature 269 measured 25 cm (10 in) north–south by 26 cm (10 in) east–west. Charcoal flecks, coal slag, and pea-sized gravels were visible on the feature surface.

Feature 270

Feature 270 was an unexcavated circular posthole (centerpoint: 520.88N/512.66E) situated between BHT 57 and 59 in the southern portion of SCU 9 and west posthole Feature 269. Feature 270 measured 20 cm (8 in) north–south by 25 cm (10 in) east–west. Charcoal flecks, coal slag, and pea-sized gravels were visible on the posthole surface.

Feature 272

Feature 272 was an unexcavated oval posthole (centerpoint: 519.72N/505.24E) located in the southwest corner of SCU 9. It measured 32 cm (13 in) north–south by 40 cm (16 in) east–west. Mechanical scraping of SCU 9 exposed the base of Feature 272, which displayed large cobbles and wood post fragments. Artifacts were not present.

Feature 273

Feature 273 was an unexcavated circular posthole (centerpoint: 527.10N/505.37E) located between the western edge of SCU 9 and BHT 59. It measured 33 cm (13 in) north–south by 34 cm (13 in) east–west. The surface fill displayed charcoal flecks and pea-sized gravels. Artifacts were not present.

Feature 274

Feature 274 was an unexcavated circular posthole (centerpoint: 530.88N/505.22E) located between the western edge of SCU 9 and BHT 59. It measured 25 cm (10 in) in diameter. The surface fill displayed charcoal flecks and pea-sized gravels. Artifacts were not present.

Feature 276

Feature 276 was a rounded, subrectangular construction debris pit (centerpoint: 527.62N/516.75E) located in the central portion of BHT 57. It measured 108 cm (43 in) north–south by 70 cm (28 in) east–west. Depth is indeterminate, as the northern portion of the feature was shovel sampled. Pentile fragments and modern nails from the demolition of the Coughlin Building were found in the fill. No artifacts were found.

Feature 284

Feature 284 was a construction debris pit (centerpoint: 538.69N/516.80E) situated directly north of BHT 57. An irregular oval in shape, the pit measured 70 cm (28 in) north–south by 65 cm (27 in) east–west by 11 cm (4 in) in depth. Only half of the feature was excavated. The fill was black (Munsell l0YR 2/1) loam. Artifacts dated from the late nineteenth to early twentieth century and include melted glass, anthracite coal, and tabular pieces of door and window hardware likely associated with the Garcia and Muller family homes. None of these materials were collected.

Feature 288

Feature 288 was a circular posthole (centerpoint: 539.78N/508.94E) discovered on the west face of BHT 59. It was aligned northwest-southeast with posthole Features 289, 290, and 291. Feature 288 had a 20 cm (8 in) diameter. The posthole was not excavated, but charcoal, ash, and pea-sized gravels were present on the surface fill. Artifacts were not present.

Feature 289

Feature 289 was an unexcavated circular posthole (centerpoint: 539.36N/570.18E) discovered on the east face of BHT 59. It was aligned northwest–southeast with posthole Features 288, 290, and 291. Feature 289 measured 18 cm (7 in) in diameter. Charcoal, ash, and pea-sized gravels were present on the surface fill. Artifacts were not present.

Feature 290

Feature 290 was an unexcavated oblong posthole (centerpoint: 538.52N/512.88E) located east of BHT 59 in SCU 9. It was aligned northwest–southeast with posthole Features 288, 289, and 291. Feature 290 measured 30 cm (12 in) north–south by 20 cm (8 in) east–west. Coarse sand and pea-sized gravels were visible on the feature surface. Artifacts were not present.

Feature 291

Feature 291 was an unexcavated oblong posthole (centerpoint: 538.53N/513.26E) located east of BHT 59 in SCU 9. It was aligned northwest–southeast with posthole Features 288, 289, and 290. Feature 291 measured 15 cm (6 in) north–south by 14 cm (6 in) east–west. Coarse sand and pea-sized gravels were visible on the feature surface. Artifacts were not present.

Feature 292

Feature 292 was an unexcavated circular posthole (centerpoint: 538.90N/514.14E) located east of BHT 59 in SCU 9 proximate to postholes Features 293 and 294. Feature 292 had a diameter of 14 cm (6 in). Coarse sand and pea-sized gravels were visible on the feature surface. Artifacts were not present.

Feature 293

Feature 293 was an unexcavated square posthole (centerpoint: 538.99N/514.11E) located east of BHT 59 in SCU 9 proximate to posthole Features 292 and 294. Feature 293 measured 33 cm (13 in) north–south by 30 cm (12 in) east–west. Coarse sand, pea-sized gravels, and concrete fragments were visible on the feature surface. Artifacts were not present.

Feature 294

Feature 294 was an unexcavated oblong posthole (centerpoint: 541.25N/513.25E) located east of BHT 59 in SCU 9 proximate to posthole Features 292 and 293. Feature 294 measured 16 cm (6 in) north–south by 14 cm (6 in) east–west. Coarse sand and charcoal flecks were visible on the feature surface. Artifacts were not present.

Feature 299

Feature 299 was a large, square construction debris pit (centerpoint: 543.41N/509.29E) located at the north intersection of BHT 59. Most of the artifacts from this pit result from the Coughlin Building demolition, though domestic items linked to the Garcia or Muller family residence of Structure 6 were recovered as well (see Chapter 16, Euroamerican Analysis, this report). The pit measured 7.8 m (26 ft) east–west by 4.2 m (14 ft) north–south by .90 m (2.9 ft) in depth. The fill consisted of yellowish-brown (Munsell 10YR 3/6) clayey sand with gravels, and fragments of window glass, red brick, concrete, and few artifacts. The artifacts included animal bone (n = 5), vehicle suspension spring (n = 1), prescription- and soda-bottle glass (n = 2) and rubber machine belt (n = 1).

Feature 300

Feature 300 contained several articulated and disarticulated sections of a young bovid (centerpoint: 531.22N/515.65E) on the northwestern face of BHT 57. The oval-shaped pit measured 95 cm (37 in) east–west, 80 cm (31 in), north–south, and was 36 cm (14 in) deep. The carcass was in poor condition due to mechanical blading of the project area and construction of the Coughlin Building (Fig. 12.4 and 12.5). The feature fill consisted of yellowish brown (Munsell 10YR 5/6) clayey sand. The only artifacts recovered were the crushed animal bones (n = 2), and a Native American plain gray ware sherd (n = 1).

Feature 303

Feature 303 was a square construction debris pit (centerpoint: 552.96N514.65E) that was mechanically bisected in BHT 60. Both the north and south halves of the pit were excavated. It measured 7 m (23 ft) north–south by 7 m (23 ft) east–west by 1 m (3 ft) in depth. The yellowish-brown (Munsell 10YR 3/6) clayey sand fill contained both historic and modern construction debris, including concrete chunks, black plastic, glass fragments, synthetic fabric, and wooden stake fragments. None of these items were collected.

Artifacts

A total of 126 artifacts and two flotation samples were collected from Structure 10 and associated features. Collected artifacts consisted of bone (n = 10), metal (n = 66), glass (n = 20), Euroamerican ceramics (n = 5), Native American ceramic (n = 1), leather (n = 22), rubber (n = 1), and plastic plumbing tubing (n = 1). The pentile (n = 11) and construction debris (n = 17) were not collected. The 2 flotation samples were collected from Features 252 and 253. A total of 34 features were associated with Structure 10, comprised of 22 postholes, 9 construction debris pits, 2 animal burial pits (cow and turkey), and 1 domestic refuse pit.

Both animal burials and the domestic refuse pit were excavated. Only one of the 22 postholes was excavated, Feature 261. Of the nine construction debris pits, four were fully excavated (Features 253, 259, 299, 303), one was half-excavated (Feature 284), and one was sampled (Feature 276). The animal burial pits, domestic refuse pit, and four of the construction debris pits (Features 253, 259, 284, 299) are probably associated with the Garcia and Muller family occupations of Structure 6 based on the artifacts recovered from those features. In particular, Euroamerican artifacts from Features 252, 253, 259, 277 (Structure 10), and 299 date from the late nineteenth to the early twentieth century (Barbour, Euroamerican analysis, this volume) when these families lived at 104 South Capitol Street. However, all of these features had late twentieth century debris from the Coughlin Building destruction as well. The remaining five construction debris pits contained only late twentieth century building materials from the razing of the Coughlin Building such as bricks, window glass, concrete, door and window hardware, asphalt, asbestos fibers, plastic, and plaster (Features 264, 265, 266, 276, 303).

Both animal burial pits contained a single animal, a mature young cow in Feature 300 and a turkey in Feature 267. Both pits are located within a few meters west of Structure 10, and may have been interred at a distance from Structure 6 near this possible shed or outbuilding. As mentioned above, Structure 6 and 10 were part of the same lot in the late nineteenth to early twentieth century, though Structure 10 is not depicted on maps of that time span. If one assumes that Structure 10 did exist and was not mapped during that time, the animal burial pits, the domestic refuse pit and 4 construction debris pits would have been associated with either the Garcia or Muller families. While the Sanborn mapping hiatus of 1930–1948 could mean that Structure 10 was built and razed within that period, the earlier dates of the artifact assemblage suggest otherwise; that the building was linked to the early residential occupation of the site, and that Structure 10 was never mapped.

Three posthole alignments or clusters were evident. The most defined was an east–west alignment of 6 postholes on the south side of Structure 10, which may have formed a portal (Features 278–283). The second group consists of nine postholes south of Structure 10 wich may represent an enclosed corral (Features 254–258, 260–262, 272). The domestic refuse pit (Feature 252) was near this possible corral and two additional construction debris pits with turn-of-the twentieth century artifacts are located a few meters to the east (Features 259 and 265). Both the alignment and the enclosure appeared to be associated with Structure 10 and the late nineteenth to early twentieth century Garcia and Muller family residences at the site. A much more amorphous cluster of postholes about 9 m (30 ft) (Features 288–294) north of Structure 10 may represent an enclosure, but the modern excavation of Feature 299 may have removed the northernmost portion, precluding identification of this posthole group. Both Feature 299 and nearby Feature 284 contained turn-of-the-twentieth-century artifacts.

Summary and Interpretation

During the late nineteenth and early twentieth century, the 104 South Capitol Street lot was part of the 111 West Manhattan Avenue (Structure 6) parcel. During this time, it is depicted as an empty space on all archival maps. In the 1951, the lot was developed into an apartment complex utilized by small businesses and state offices. This structure became known as the Coughlin Building.

While no architecture is depicted on the archival maps drawn between 1880 and 1948, a small structure, constructed entirely of wood, was encountered. It is unclear if the structure functioned as a domestic residence. That it was a shed or other outbuilding is more likely, given its size. However, outbuildings were regularly depicted on Sanborn Fire Insurance maps, making the structure's presence all the more perplexing. One possible explanation is that the building had a small lifespan that fell between mapping intervals. The longest mapping hiatus occurred between 1930 and 1948.

Other features found on the lot included animal burial pits (n = 2), construction-debris pits (n = 9), a domestic-refuse pit, and postholes (n = 22, an additional 6 are inside the structure). Many of the construction debris pits are associated with the modern Coughlin Building and are of limited value in addressing questions posed in the Research Design. Four pits yielded a mixed modern and historic assemblage, with artifacts dating to the late nineteenth and early twentieth centuries, as well as refuse from the destruction of the Coughlin Building. A few of these mixed-refuse features have the potential to inform on the residential lifestyles of the Garcia and Muller families, however. In particular, Features 252, 253 and 259, with the highest number of domestic-related artifacts, are located south of Structure 10, which appears to have suffered comparatively less disturbance from the Coughlin Building destruction. These features yielded items associated with domestic activities, including a child's toy, prescription medicine bottle, and dinnerware. These items could be linked to either family, assuming Structure 10 was initially owned by the Garcias, and later by the Mullers. North and east of the structure, the opposite is true; the Coughlin Building demolition has disturbed and possibly removed features related to Structures 6 and 10, evidenced by an abundance of modern construction materials and paucity of features, as compared to areas south of Structure 10. In contrast, the animal burials and domestic refuse pits that date to the late nineteenth or early twentieth century could provide information on the Garcia or Muller families and may help address questions linked to differences in consumption and discard patterns across ethnicity, socioeconomic status, and time.

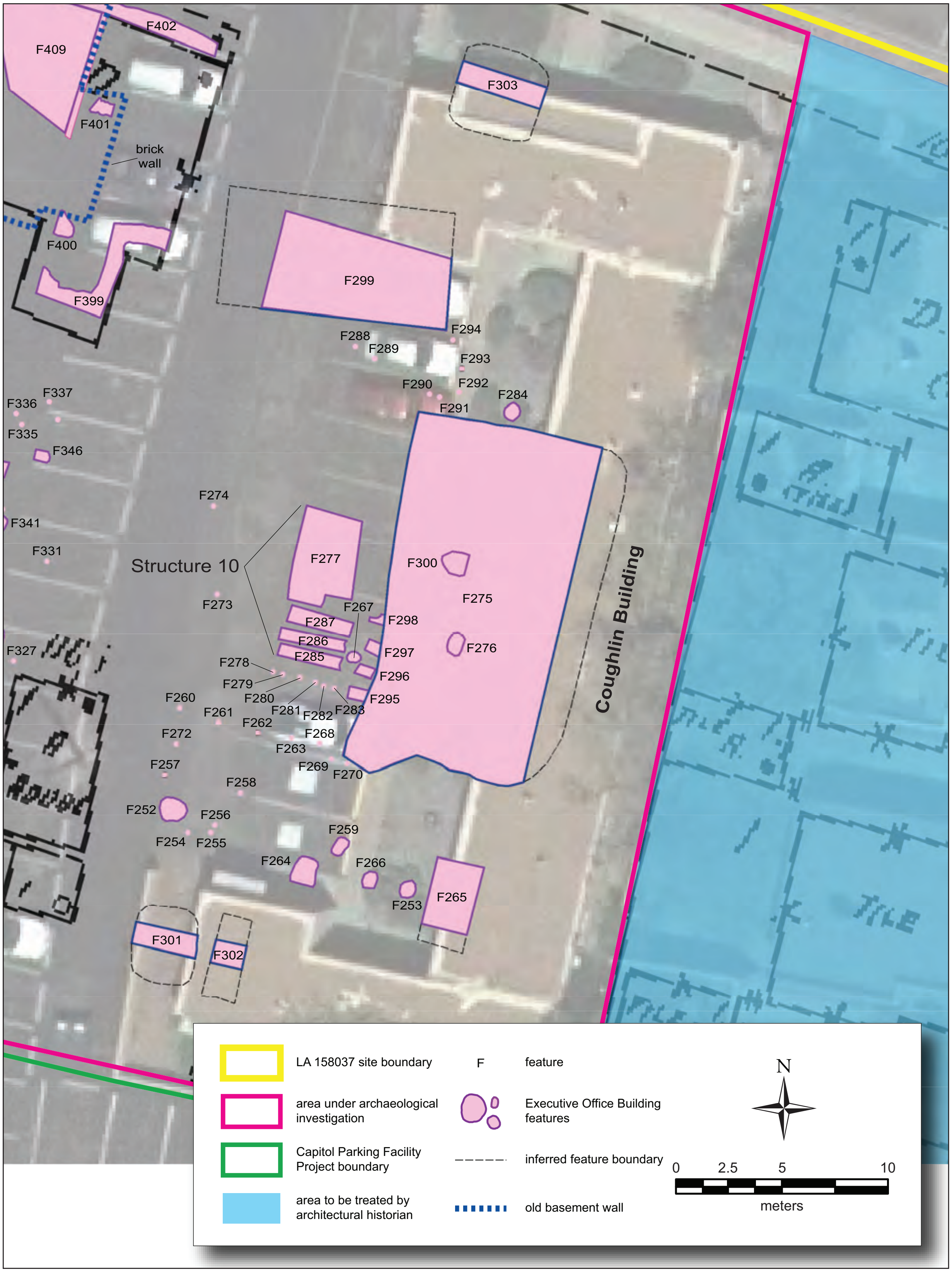

Figure 12.1. Location of Structure 10, 104 South Capitol Street, features on the Sanborn Fire Insurance map (Jan. 1930, mod. Aug. 1948).

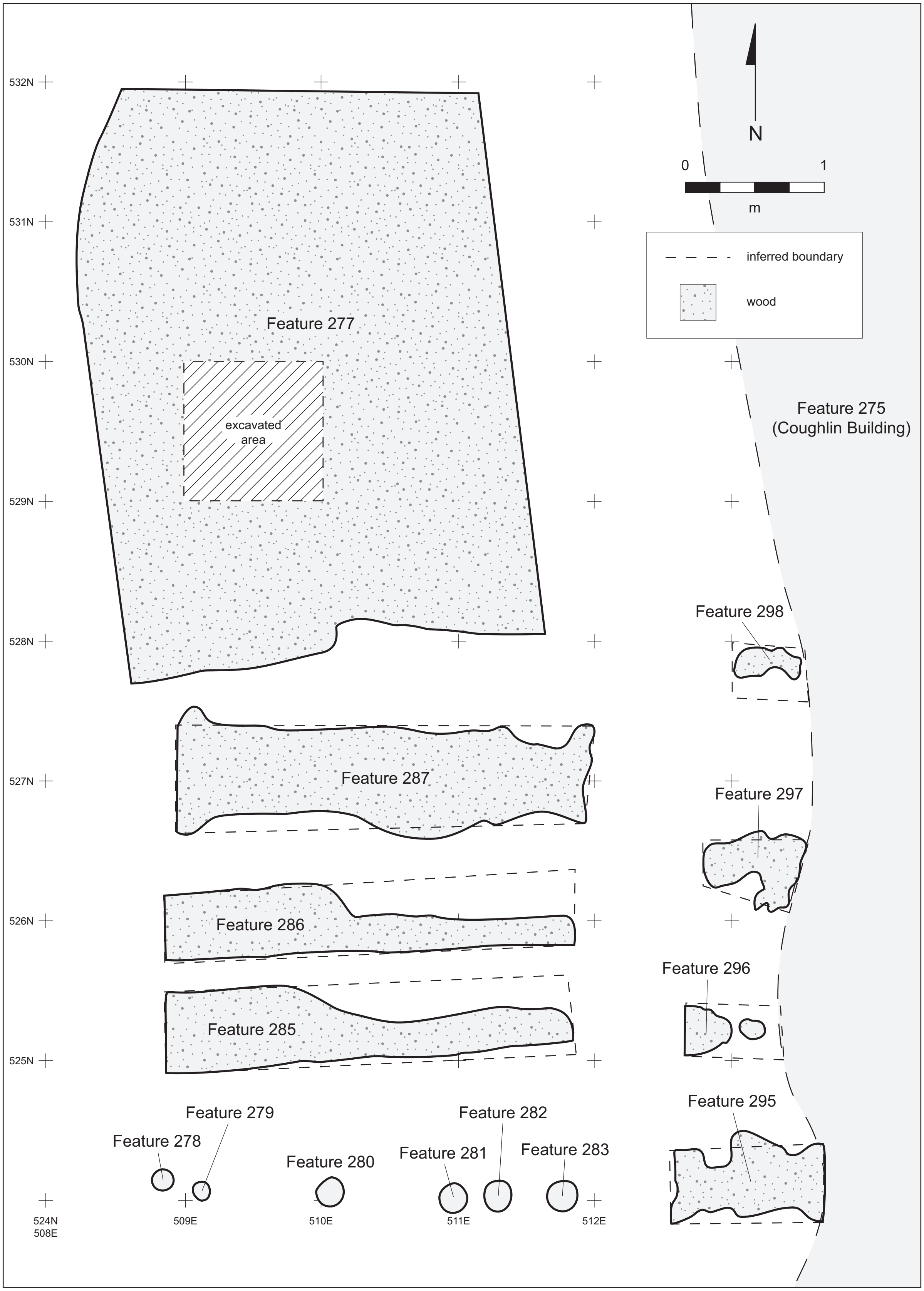

Figure 12.2. Structure 10, Features 277–283, 285–287, and 295–298, plan view.

Figure 12.3. Structure 10, Feature 267, a turkey burial pit.

Figure 12.4. Structure 10, Feature 300, hindquarters of a cow, burial.

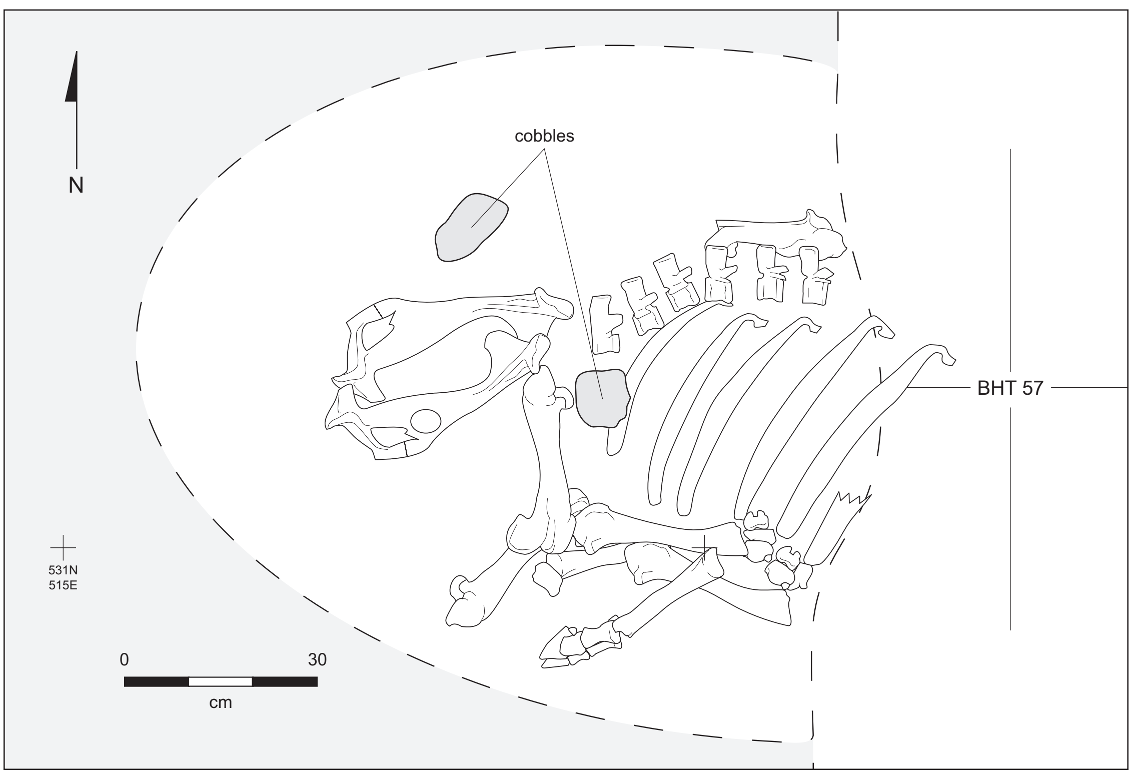

Figure 12.5. Structure 10, Feature 300, cow burial, plan view.

Chapter 13

Structure 11 (116 South Capitol Street)

Matthew J. Barbour, Susan M. Moga & Karen L. Wening

Structure 11, 116 South Capitol Street, is first depicted on the 1912 King's Map of Santa Fe and was likely constructed between 1908 and 1912. This map credits ownership of the structure to Frederick Muller. Before this time, the property was a vacant lot that was presumably used for agricultural activities. The 1885–1886 Hartmann Map of Santa Fe lists the owner as "Garritt" during this time. Using *Hudspeth's Santa Fe City Directories*, Table 13.1 provides a list of residents and businesses that occupied the structure between 1928 and 1969.

The Beacham family resided on and owned the property during most of its existence as a residence in the twentieth century. William Beacham was president and owner of Beacham-Minardot Hardware (Fig. 13.1). He was also one of New Mexico's first advocates for fly-fishing (Fig. 13.2; Beacham 1932). Beacham's store was one of the few in New Mexico to offer recreational fishing supplies in the early twentieth century. He passed away in 1940, but was survived by his wife, Lenore, who continued to live on the property until 1958. New Mexico state government acquired the property in 1959. Throughout the next decade, the building housed numerous state agencies including the State Health Department Physical Education & Recreation Division. The structure at 116 South Capitol Street was demolished by the State of New Mexico in 1969.

Structure

The 1948 Sanborn Fire Insurance map depicts the dwelling at 116 South Capitol Street as a single-story red brick structure with a front porch (Fig. 13.3). The building's maximum dimensions are 13.25 m (43.5 ft) north–south and 11 m (36 ft) east–west. The floor plan encompasses approximately 131.5 sq m (1,415 sq ft) of area. The porch along the front of the house measures 11 m (36 ft) in length and 1.25 m (4 ft) in width.

Ancillary structures consisted of two automobile garages. One was constructed of pentile bricks and the other was adobe. The pentile garage measured 6 m (20 ft) north–south by 5 m (16 ft) east–west and was located along west fence line. The adobe garage measured 7.5 m (25 ft) north–south by 4 m (13 ft) east–west and was located in the southeast corner of the property. Both garages appear to have been built sometime between 1921 and 1930.

Archaeological investigations into the residence at 116 South Capitol (Figs. 13.4, 13.5) revealed foundations associated with the superstructure (Features 399, 402), two pilasters (Features 400, 401), and a partial basement (Feature 409). Complete excavation of the structure could not be accomplished due to the presence of numerous utility trenches. The foundation of the building was in poor shape, as demolition had disturbed much of subsurface remains. However, the spatial distribution of the archaeological remnants matches well with depictions of the building on Sanborn Fire Insurance Maps.

Based on Features 399 and 402, foundations of the building were constructed of concrete and river cobble aggregate, including small quantities of limestone aggregate (Fig. 13.5). No rebar was used for reinforcement. Foundation widths varied between 60 and 80 cm (2 ft and 2 ft 6 in) and were about 21 cm (8 in) high. The pilasters, Features 400 and 401, were presumably used as footings for roof-beam support posts. These pilasters were 60 cm (2 ft) square and constructed using limestone cobbles with concrete mortar.

The partial basement consisted of at least one room (Fig. 13.6). It measured 6.5m+ north–south by 4.57m+ (15+ ft) east–west and was 94 cm (3 ft 1 in) deep. It encompassed at least 29.71 sq m (320 sq ft) of area. The north and west walls of the basement abutting the superstructure's foundation were constructed of unreinforced concrete and measured 30 cm (1 ft) wide. The east wall was made of brick laid in a header bond with concrete mortar. Each brick measured 20 by 10 by 5 cm (8 by 4 by 2 1/2 in). The floor was built of unreinforced concrete scored in a square geometric pattern. Each square measured 1.22 m (4 ft) by 1.22 m (4 ft). The floor was 15 cm (6 in) thick. No stairs leading into or out of the basement were found and no archaeological evidence of the ancillary automobile garages was encountered.

Features

Extramural features were tied to the structure by overlaying the 1948 Sanborn Fire Insurance map onto the archaeological record and examining the spatial distribution of the features. Features associated with Structure 11 are presented in Table 13.2. Feature types included: one bone pit, domestic-refuse pits (n = 27), an irrigation ditch, postholes (n = 36), a straight-line cesspit privy, and a storage tank. These features are described individually below. Due to the mechanical stripping that removed Strata 1, 2, and 3, a sediment block extending up to 55 cm below the present ground surface (see Field Methods, this report), the depth of many features is modified. However, features differ in depth, and will be discussed relative to one another.

Feature 315

Feature 315 was an unexcavated rectangular posthole (centerpoint: 513.57N/494.74E) located in the southern portion of SCU 12, and may have been part of a fenceline defining the southern boundary of the Beacham property. The posthole measured 18 cm (7 in) north–south and 20 cm (8 in) east–west. Surface fill contained gravels, coal slag, and cement mortar fragments. Artifacts were not present.

Feature 316

Feature 316 was an unexcavated circular posthole (centerpoint: 514.26N/493.48E) situated in the southern portion of SCU 12. As with Feature 315, this posthole may have been part of a fenceline on the south side of the Beacham property. The posthole measured 6 cm (2 in) in diameter. Surface fill consisted of tan to dark, coarse-grained sand. Artifacts were not present.

Feature 317

Feature 317 was an unexcavated circular posthole (centerpoint: 514.82N/493.68E) that may have been situated on the southern edge of the Beacham lot. It measured 23 cm (9 in) north–south by 25 cm (10 in) east–west. The surface of the unexcavated posthole displayed coarse grain sand with some wood fragments. No other artifacts were visible.

Feature 319

Feature 319 was a circular posthole (centerpoint: 514.91N/496.18E) found on the eastern face of BHT 67 in SCU 12. It was 28 cm (11 in) in diameter. The unexcavated posthole surface fill consisted of coarse-grained sand with charcoal, gravels, and red brick fragments. Artifacts were not present.

Feature 321

Feature 321 was a domestic refuse pit (centerpoint: 515.52N/494.78E) discovered on the southwest face of BHT 67 in SCU 12. The oval shaped pit measured 115 cm (42 in) east–west by 77 cm (30 in) north–south, and was 35 cm (14 in) in depth. The fill is dark brown (Munsell 10YR 3/3) clayey sand with pea-sized gravels, red brick fragments, rotted wood, charcoal, coal slag and artifacts. The artifacts included animal bone (n = 9), Euroamerican ceramics (n = 1), metal (n = 5), glass (n = 3), native ceramics (n = 2) and brass/leather (n = 1). This amount of refuse was very small for the size of the pit, and may only reflect a single deposition event.

Feature 322

Feature 322 was a shallow domestic refuse pit (centerpoint: 518.07N/494.83E) located in the central portion of BHT 67. The pit measured 160 cm (63 in) north–south, 170 cm (67 in) east–west, and

2 cm (1 in) deep. The area (SCU 12) was initially bladed when the pit was discovered and BHT 67 was trenched after the excavation of Feature 322. Adjacent to Feature 322, four postholes are roughly aligned north–south (Features 325, 333, 340,347). Feature fill in the refuse pit was dark brown (Munsell 10YR 3/3) sandy clay with pea-sized gravels, decayed plant and tree roots and artifacts. The artifacts were minimal in type and count. They included animal bone (n = 7) and three metal artifacts, one of which was a .22 caliber rimfire cartridge.

Feature 324

Feature 324 was a circular posthole (centerpoint: 516.57N/495.51E) that was not excavated. It was located in the southern portion of BHT 67 in SCU 12. The surface of the posthole had a diameter of 20cm (8 in). The fill was coarse-grained sand with charcoal flecks. There were no visible artifacts.

Feature 325

Feature 325 was an unexcavated circular posthole (centerpoint: 521.15N/494.00E) located in SCU 12. This feature is one of three in an east–west alignment, along with posthole Features 326 and 327. Surface diameter measured 18 cm (7 in). The fill was coarse-grained sand with ash and charcoal flecks. Artifacts were not found.

Feature 326

Feature 326 (centerpoint: 521.23N/495.14E) was one of three unexcavated postholes forming an east–west alignment (Features 325, 326, 327). The circular posthole is located on the central west face of BHT 67. Surface dimensions were 28cm (11 in) north–south and 22 cm (9 in) east–west. The fill displayed charcoal flecks, ash, wood fragments, and red brick fragments.

Feature 327

Feature 327 was an unexcavated circular posthole (centerpoint: 521.39N/496.87E) situated on the east side of BHT 67, aligned east–west with posthole Features 325 and 326. Surface diameter measured 16 cm (6 in). Fill consisted of coarse-grained sand with charcoal flecks, ash, and wood fragments. Artifacts were not encountered.

Feature 328

Feature 328 is an oblong posthole (centerpoint: 526.13N/493.97E) located on the northwestern side of BHT 67, aligned with posthole Feature 329. The unexcavated posthole measured 25 cm (10 in) east–west by 19 cm (7 in) north–south. The surface fill was coarse-grained sand with pea-sized gravels, charcoal flecks, and ash.

Feature 329

Feature 329 was an oblong posthole (centerpoint: 525.94N/494.45E) located on the northwestern side of BHT 67 aligned with posthole Feature 328. The unexcavated posthole measured 25 cm (10 in) east- west by 18 cm (7 in) north–south. The surface fill was coarse-grained sand with pea-sized gravels, charcoal flecks, wood fragments, and pieces of red brick.

Feature 330

Feature 330 was an unexcavated circular posthole (centerpoint: 526.41N/494.59E) situated northwest of BHT 67. It measured 15 cm (6 in) in diameter. Fill consisted of coarse-grained sand and pea-sized gravels.

Feature 331

Feature 331 was an unexcavated circular posthole (centerpoint: 526.38N/497.34E) located on the western portion of BHT 1. It measured 34 cm (13 in) north–south by 32 cm (13 in) east–west. The surface fill consisted of coarse-grained sand and gravel, flecked with charcoal and contained fragments of red brick and wood.

Feature 332

Feature 332 was a shallow, subrectangular domestic refuse pit (centerpoint: 522.41N/495.85E) located in the center of BHT 67. It measured 60 cm (24 in) in diameter and 6 cm (2 in) deep. The fill was dark brown silty clay (Munsell 10YR3/3) with copious amounts of pea-sized gravels, coal cinders and charcoal. Two artifacts were collected, a sheep or goat tooth fragment and a bivalve shell fragment. The fill of this feature appears to represent stove-cleaning debris.

Feature 333

Feature 333 was a circular posthole (centerpoint: 518.43N/495.34E) discovered on the western face of BHT 67. The unexcavated posthole surface had a 26 cm (10 in) diameter. The fill was coarse-grained sand with charcoal flecks, ash, and pea-sized gravels.

Feature 334

Feature 334 was an unexcavated oblong posthole (centerpoint: 528.32N/494.79E) situated northwest of BHT 67 adjacent to domestic refuse pit Feature 341. The posthole surface measured 19 cm (7 in) east–west by 13 cm (5 in) north–south. Fill consisted of coarse-grained sand with pea-sized gravels, charcoal flecks, and red brick fragments.

Feature 335

Feature 335 was an unexcavated circular posthole (centerpoint: 532.29N/494.70E) located northwest of BHT 67. It is one of four postholes enclosing a rectangular space (Features 336, 337, 338). The surface measured 23 cm (9 in) in diameter. Fill consisted of coarse-grained sand and pea-sized gravels, flecked with ash and charcoal.

Feature 336

Feature 336 was an unexcavated circular posthole (centerpoint: 532.70N/494.37E) located northwest of BHT 67. Feature 336 is one of four postholes enclosing a rectangular space (Features 335, 337, 338). Surface diameter of the posthole was 18 cm (7 in) in diameter. The fill was coarse-grained sand with pea-sized gravels and charcoal flecks.

Feature 337

Feature 337 was an unexcavated circular posthole (centerpoint: 533.59N/495.62E) located northwest of BHT 67. This posthole is one of four that enclose a rectangular space (Features 335, 336, 338). Diameter at the surface was 23 cm (9 in). The fill was coarse-grained sand with pea-sized gravels, pieces of red brick, charcoal, and ash flecks.

Feature 338

Feature 338 was an unexcavated circular posthole (centerpoint: 532.97N/496.22E) located northwest of BHT 67, and is one of four postholes in a rectangular arrangement (Features 335, 336, 337). Surface diameter of the posthole was 38 cm (15 in). The fill was coarse-grained sand and pea-sized gravel, with red brick fragments, and charcoal flecks.

Feature 339

Feature 339 was a straight-sided, subrectangular domestic refuse pit (centerpoint: 523.70N/494.31E) situated west of BHT 67. It measured 70 cm (28 in) north–south, 75 cm (30 in) east–west, and 56 cm (22 in) deep. The feature was bisected along the north–south axis, with east and west halves excavated separately in two levels each. Feature fill consisted of a black (Munsell 10YR 2/1), silty clay with pea-sized gravels mixed with coal chunks and cinders. A decayed tree stump in the center resulted in significant bioturbation, mottling the black silty clay feature fill with brown clay. This pit is one of three that yielded high artifact counts. Artifacts were distributed throughout the fill, and consisted of native ceramics (n = 4), animal bone (n = 19), glass (n = 9), metal (n = 89), Euroamerican ceramics (n = 5), lithic (n = 1), and an adobe fragment (n = 1). One flotation sample was collected. Small fragments of sheet metal, possibly tin, were not collected. The regular rectangular form of the pit suggests that it was dug for a specific, but unknown purpose, and later used for domestic refuse. It was apparently abandoned when it reached full capacity.

Feature 340

Feature 340 was a shallow posthole located in the Beachams' backyard (centerpoint: 519.29N/495.11E) on the west side of BHT 67. It was aligned on a northwest-southeast axis with posthole Feature 333. The posthole was irregularly shaped and measured 70 cm (28 in) by 40 cm (16 in) by 16 cm (6 in) in depth. The fill consisted of a dark brown (Munsell 10YR 2/2), clayey sand with flecks of charcoal and artifacts. Wire-drawn nails (n = 3), animal bone (n = 3), and a broken bone ash cupel (n = 6, mnv = 1) were collected.

Feature 341

Feature 341 was a shallow domestic refuse pit (527.58N/494.63E) located northwest of BHT 67.

Posthole Feature 334 is adjacent to the north. The oblong feature measured 95 cm (37 in) north–south, 70 cm (28 in) east–west, and 20 cm (8 in) deep. The fill was a very dark brown (Munsell 10YR 2/2), consolidated clay, with coal slag, charcoal, and rotted wood dispersed throughout. Artifacts included animal bone (n = 3), glass (n = 8), metal (n = 32), and Euroamerican ceramics (n = 1).

Feature 342

Feature 342 was a shallow, oval domestic refuse pit (centerpoint: 530.93N/493.67E) located on the west central zone of SCU 12, proximate to domestic refuse pit Features 346 and 349. The pit measures 60 cm (24 in) in diameter and 6 cm (2 in) in depth. The pit is quite shallow around most of the perimeter, with greatest depth in the center. The feature fill was dark brown (Munsell 10YR 2/2), clayey sand and gravel with charcoal flecks. Artifacts consist of metal (n = 3) and animal bone (n = 2). The majority of the pit depth was removed during modern construction activity.

Feature 343

Feature 343 was a domestic refuse pit (519.11N/493.59E) situated west of BHT 67. The oval shaped pit measured 63 cm (25 in) east–west, 39 cm (15 in) north–south, and 10 cm (4 in) deep. Feature fill consisted of dark brown (Munsell 7.5YR 3/2), clayey sand with coal clinkers and charcoal flecks. Chicken bones (n = 2) and wire-drawn nails (n = 3) were collected from the fill.

Feature 344

Feature 344 was a shallow, oval domestic refuse and/or planting pit (centerpoint: 515.67N/487.94E) proximate to eight other pits in BHT 67 (Features 344, 351,354, 355, 356, 365, 369, and 380). While these eight pits contain small amounts of domestic refuse, the color and consistency of the fill suggests that they were garden pits, possibly dug to plant chrysanthemums at the south end of the Beacham property (see Chapter 16, Euroamerican Analysis, this report). Feature 344 measured 62 cm (24 in) north–south, 55 cm 22 in) east–west, and 4 cm (2 in) deep. The pit fill was a dark brown (10YR 3/3), silty clay with some coal clinkers and cinders.

Feature 345

Feature 345 was a small domestic refuse pit (centerpoint: 520.16N/493.65E) located west of BHT 67 on the west edge of SCU 12. Irregular in shape, the feature appears to have been washed out and eroded. It measured 33 cm (13 in) north–south, 30 cm (12 in) east–west, and 4 cm (2 in) deep. The fill was dark brown (Munsell 7.5YR 3/2) clay, with large charcoal chunks, plaster, and red brick flecks. The feature fill is mottled with reddish (Munsell 7.5YR 4/6) sterile clay. One metal artifact was retrieved from the fill. The pit appears to represent a single dumping episode.

Feature 346

Feature 346 was a domestic refuse pit (centerpoint: 531.00N/495.92E) located directly north of BHT 67 and northwest of BHT 1. It is proximate to 2 other domestic refuse pits, Features 342 and 349. The pit measured 77 cm (30 in) east–west, 56 cm (22 in) north–south, and 20 cm (8 in) deep. The fill was a very dark brown (Munsell 10YR 2/2) clay with charcoal chunks and red brick fragments. Artifacts consist of lithic (n = 1), animal bone (n = 9), bone ash cupel fragment (n = 1), glass (n = 2), metal (n = 17), and Euroamerican ceramics (n = 1).

Feature 347

Feature 347 was a shallow domestic refuse pit (centerpoint: 516.72N/493.66) situated west of BHT 347. The circular pit measures 38 cm (15 in) east–west, 34 cm (13 in) north–south, and 5 cm (2 in) deep. The fill was a dark brown (Munsell 10YR 2/2) clay and gravel with flecks of charcoal. Metal nails (n = 2), lithics (n = 1), and animal bone (n = 2) were collected. Posthole Features 324 and 333 are adjacent to the pit on the east side. The fill was heavily bioturbated by insect activity.

Feature 348

Feature 348 was a small, shallow domestic refuse pit (centerpoint: 517.82N493.66E) located along the southwestern edge of SCU 12. The circular pit measures 48 cm (19 in) north–south, 46 cm (18 in) east–west, and 8cm (3 in) deep. Feature fill is dark brown (Munsell 10YR 2/2) clay with charcoal flecking. Animal bones (n = 2) and metal (n = 2) were collected from the fill. Heavy insect bioturbation was observed throughout. Modern construction activity partially razed the pit.

Feature 349

Feature 349 was a straight-sided, domestic refuse pit (centerpoint: 529.95N/493.97E) situated west of BHT 1 and BHT 67 and on the eastern edge of SCU 12. The rectangular pit measures l00 cm (39 in) east–west, 98 cm (38 in) north–south, and 23 cm (11 in) deep. The feature fill is very dark brown (Munsell 10YR 2/2) solid clay with charcoal flecks, coal slag, rotted wood, and red brick fragments. The artifacts consisted of native ceramics (n = 3), animal bone (n = 43), glass (n = 6), and metal (n = 6). One flotation sample was collected. Most bone artifacts were ungulate, and both round and square nails were recovered.

Feature 351

Feature 351 was a large domestic refuse pit and/or planting pit (centerpoint: 515.26N/489.07E) proximate to 8 other such pits in SCU 13 (Features 344, 351,354, 355, 356, 365, 369, 380). The oblong pit measured 128 cm (50 in) east–west, 75 cm (30 in) north–south, and 30 cm (12 in) deep. While the 8 pits contain low frequencies of domestic refuse, the color and consistency of the fill suggests that they were garden pits, possibly dug to plant chrysanthemums at the south end of the Beacham property (see Barbour, Euroamerican Analysis, this volume). Upper fill consisted of compact brown (Munsell 7.5YR 4/3) clay and gravel. Lower fill was brown (Munsell 7.5YR 4/4), lightly compacted sand with a pocket of strong brown (Munsell 7.5YR 4/6) clay. Rotted wood, plaster, charcoal flecks, and coal clinkers were visible in both stratigraphic layers. Artifacts were recovered in the upper portion of the feature, comprised of Euroamerican ceramics (n = 1), native ceramics (n = 2), animal bone (n = 24), glass (n = 7), and metal (n = 5). The large number of animal bones was attributed to a cow skull found in the western portion of the feature.

Feature 352

Feature 352 was a domestic refuse pit (centerpoint: 517.56N/493.18E) situated on the western edge of SCU 12 adjacent to refuse pit Feature 348. Feature 352 is oval in shape and measured 60 cm (24 in) north–south, 28 cm (11 in) east–west, and 13 cm (5 in) deep. However, it was only partially exposed within the boundaries of SCU 12. The fill consisted of dark brown (Munsell 10YR 2/2) clay and gravels flecked with charcoal and charcoal chunks. The artifact categories were metal (n = 8), glass (n = 1), and animal bone (n = 1).

Feature 353

Feature 353 was a domestic refuse pit (centerpoint: 522.19N/490.39E) located in the northeastern corner of SCU 13 (Fig. 13.7). It measured 77 cm (30 in) north–south by 71 cm (28 in) east–west by 30 cm (12 in) in depth. The fill is dark brown (Munsell 10YR 4/3) clayey sand with pea-sized gravels (60-70 percent), charcoal flecks, pieces of red brick, and wood fragments. The artifacts included native ceramics (n = 2), animal bone (n = 20), glass (n = 2) and metal (n = 8). One flotation sample was collected.

Feature 354

Feature 354 was a domestic refuse pit and/or planting pit (centerpoint: 518.61N/487.84N) proximate to eight similar pits in BHT 66 (Features 344, 351,354, 355, 356, 365, 369, 380). While the eight pits contain low frequencies of domestic refuse, the color and consistency of the fill suggests that they were garden pits, possibly dug to plant chrysanthemums at the south end of the Beacham property (see Chapter 16, Euroamerican Analysis, this report). Feature 354 was oblong in shape and measured 70 cm (28 in) north–south by 60 cm (24 in) east–west by 21 cm (8 in) in depth. The fill consisted of a brown (Munsell 10YR 4/3) compacted clay with coal slag and red brick fragments. Animal bone (n = 18), glass (n = 2), metal (n = 4), and Euroceramics (n = 1) were collected from this feature. One flotation sample was collected.

Feature 355

Feature 355 was a circular domestic refuse pit and/or planting pit (centerpoint: 517.80N/488.81E) located on the central eastern edge of BHT 66 in SCU 13, proximate to eight similar pits (Features 344, 351,354, 355, 356, 365, 369, 380). While the eight pits contain small amounts of domestic refuse, the color and consistency of the fill suggests that they were garden pits, possibly dug to plant chrysanthemums at the south end of the Beacham property (see Chapter 16, Euroamerican Analysis, this report). The pit measured 80 cm (31 in) in diameter and 18 cm (7 in) deep. The fill is brown (Munsell 10YR 4/3) sandy clay flecked with charcoal and mica. Heavy rodent and insect bioturbation were observed throughout the fill. Wire-drawn nails (n = 4) were the only artifacts encountered, suggesting deposition sometime after 1890.

Feature 356

Feature 356 was a domestic refuse pit and/or planting pit (centerpoint: 517.96N/487.96E) proximate to eight similar pits in BHT 66 (Features 344, 351,354, 355, 356, 365, 369, 380). While these eight pits contain low frequencies of domestic refuse, the color and consistency of the fill suggests that they were garden pits, possibly dug to plant chrysanthemums at the south end of the Beacham property (see Chapter 16, Euroamerican Analysis, this report). Feature 356 is rectangular in shape and measured 60 cm (24 in) north–south by 54 cm (21 in) east–west by 4 cm (2 in) in depth. Modern construction removed most of the pit, leaving only the base intact. The feature fill consisted of a brown (Munsell 10YR 4/2) clay with charcoal flecks. A wire-drawn nail shank (n = 1) and 10 chicken or small bird bones comprise the assemblage. One flotation sample was collected.

Feature 357

Feature 357 was an unexcavated square posthole (centerpoint: 519.68N/490.60E) measuring 20 cm (8 in) east–west by 16 cm (6 in) north–south. It was located east of BHT 66 in a north–south alignment with identically sized square posthole Features 358, 359 and 360. The surface fill was a dark brown (Munsell 10YR 4/3), clayey sand with charcoal flecks. Artifacts were not visible on the surface.

Feature 358

Feature 358 was an unexcavated square posthole (centerpoint: 517.85N/490.66E) measuring 20 cm (8 in) east–west by 16 cm (6 in) north–south. It is aligned north–south with identically sized square posthole Features 357, 359, and 360 on the eastern side of SCU 13. The surface soil was dark brown (Munsell 10YR 4/3) clayey sand with pea-sized gravels and charcoal flecks. Artifacts were not encountered.

Feature 359

Feature 359 is an unexcavated square posthole (centerpoint: 515.92N/490.22E) measuring 20 cm (8 in) east–west by 16 cm (6 in) north–south. It was located along the eastern edge of SCU 13 in a north–south alignment with identically sized square posthole Features 357, 358, and 360. The surface soil was dark brown (Munsell 10YR 4/3), clayey sand with pea-sized gravels and charcoal flecks. No artifacts were observed.

Feature 360

Feature 360 was an unexcavated square posthole (centerpoint: 514.75N/490.51E) measuring 20 cm (8 in) north–south by 16 (6 in) cm east–west. It was located along the eastern edge of SCU 13 in a north–south alignment with identically sized square posthole Features 357, 358, and 359. The surface soil was dark brown (Munsell 10YR 4/3), clayey sand with pea-sized gravels and charcoal flecks. No artifacts were observed.

Feature 361

Feature 361 was an unexcavated circular posthole (centerpoint: 522.73N/485.18E) measuring 18 cm (7 in) in diameter. It was located along the western side of SCU 13 in a north–south alignment with posthole Features 362, 363, and 364. The alignment may have formed a west garden fence on the Beacham property. The surface soil was dark brown (Munsell 10YR 4/3), clayey sand with pea-sized gravels, burnt wood, red brick fragments, and ash. Artifacts were not present on the surface of the feature.

Feature 362

Feature 362 was an unexcavated circular posthole (centerpoint: 519.95N/485.15E) measuring 19 cm (7 in) in diameter. It was located along the western side of SCU 13 in a north–south alignment with posthole Features 361, 363, and 364, possibly forming a west garden fence of the Beacham property. The surface soil was dark brown (Munsell 10YR 4/3), clayey sand with pea-sized gravels, burnt wood, red brick fragments, and ash. Artifacts were not present.

Feature 363

Feature 363 was an unexcavated square posthole (centerpoint: 517.81N/485.22E) measuring 30 cm (12 in) in diameter. It was located along the western side of SCU 13 in a north–south alignment with posthole Features 361, 362, and 364. The alignment may have formed the west garden fence of the Beacham property. The surface soil was dark brown (Munsell 10YR 4/3) clayey sand with pea-sized gravels and ash. Artifacts were not present on the surface of the feature.

Feature 364

Feature 364 was an unexcavated circular posthole (centerpoint: 515.19N/485.25E) measuring 12 cm (4 in) in diameter. It is located along the western side of SCU 13 in a north–south alignment with posthole Features 361, 362, and 363. The alignment may have formed a west garden fence on the Beacham property. The completely decomposed wooden post was still within the posthole, supported by dark brown (Munsell 10YR 4/3), clayey sand and pea-sized gravels.

Feature 365

Feature 365 was a subrectangular domestic refuse and/or planting pit pit (centerpoint: 516.64N/487.98E) proximate to eight similar pits in BHT 66 (Features 344, 351,354, 355, 356, 365, 369, 380). While these 8 pits contain low frequencies of domestic refuse, the color and consistency of the fill suggests that they were garden pits, possibly dug to plant chrysanthemums at the south end of the Beacham property (see Chapter 16, Euroamerican Analysis, this report). The pit measured 70 cm (28 in) north–south by 65 cm (25 in) east–west by 13 cm (5 in) in depth. The fill was dark brown (Munsell 10YR 3/3) silty clay with charcoal flecks and coal cinders. One piece of glass (n = 1) was collected.

Feature 366

Feature 366 was an unexcavated circular posthole (centerpoint: 514.50N/486.37E) located in the southwest section of SCU 13 and west of BHT 66. It had a surface diameter of 16 cm (6 in). Surface fill was dark brown (Munsell 10YR 3/3) clayey sand with pea-sized gravels. A portion of a rotted wooden post was still present in the hole. Artifacts were not present.

Feature 367

Feature 367 is an unexcavated circular posthole (centerpoint: 520.17N/487.94E) located in the northern portion of BHT 66 within a cluster of domestic refuse pits and postholes. The posthole surface measured 18 cm (7 in) in diameter. The fill was clayey sand dark brown (Munsell 10YR 3/3) with coarse grain sand and charcoal flecks. Artifacts were not present.

Feature 368

Feature 368 was an unexcavated square posthole (centerpoint: 520.86N/488.01N) located in BHT 66, directly north of posthole Feature 367. It was dug into the corner of domestic refuse pit Feature 370. The surface of Feature 368 measured 22 cm (8 in) in diameter. The fill is dark brown (Munsell 10YR 3/3) with sandy loam with charcoal flecks, pieces of red brick, and pea sized gravels.

Feature 369

Feature 369 was a domestic refuse and/or planting pit (centerpoint: 518.95N/488.98E) situated on the east central side of BHT 66 proximate to 8 similar pits (Features 344, 351,354, 355, 356, 365, 369, and 380). While these eight pits contain low frequencies of domestic refuse, the color and consistency of the fill suggests that they were garden pits, possibly dug to plant chrysanthemums at the south end of the Beacham property (see Chapter 16, Euroamerican Analysis, this report). The circular pit measured 65 cm (25 in) north–south by 56 cm (22 in) east–west by 17 cm (6 in) in depth. The fill was brown (Munsell 10YR 4/2) clayey sand and gravel flecked with charcoal. Artifacts collected included animal bone (n = 10), metal (n = 4), and purple glass (n = 1). The metal category consisted of wire nails. The pit was partially leveled by modern construction activity.

Feature 370

Feature 370 was a domestic refuse pit (centerpoint: 520.95N/487.81E) located on the northwest edge of BHT 66 adjacent to posthole Feature 368.

Irregular in shape, the pit measures 93 cm (36 in) north–south by 70 cm (28 in) east–west by 13 cm (5 in) in depth. Feature fill is dark brown (Munsell 7.5YR 3/3), dense clay with plaster fragments, charcoal, coal clinkers, and gravels. Native ceramics (n = 1), animal bone (n = 10), metal (n = 28), glass (n = 6), and Euroamerican ceramics (n = 1) were collected. The adjacent posthole may have been repositioned, since the fill is mottled and displays a contrasting strong brown (Munsell 7.5YR 4/6) clay/adobe layer on the eastern surface; this layer may have been added to stabilize the post.

Feature 380

Feature 380 was an oval domestic refuse pit (centerpoint: 519.65N488.85E) proximate to 8 similar pits on the east side of BHT 66 in SCU 13 (Features 344, 351,354, 355, 356, 365, 369, 380). While these 8 pits contain low frequencies of domestic refuse, the color and consistency of the fill suggests that they were garden pits, possibly dug to plant chrysanthemums at the south end of the Beacham property (see Chapter 16, Euroamerican Analysis, this report). The oval shaped pit measured 74 cm (30 in) north–south, 68 cm (26 in) east–west, and 11 cm (4 in) deep (Fig. 13.8). The northeast wall sloped inward and the northwest wall appeared to be superimposed upon another pit. The fill was a dark brown (Munsell 10YR 2/2) clay with some gravels, coal slag, rotted wood fragments. Metal (n = 2) and animal bone (n = 5) were collected, one of which was a sawn sheep or goat bone. The pit was partially leveled by modern construction activity.

Feature 381

Feature 381 was a large 565 gallon ferrous metal storage tank (centerpoint: 537.25N/488.51E) found on the property of 116 South Capitol, Structure 11 containing heating oil, presumably kerosene (Figs. 13.9, 13.10). It was situated in SCU 16 northeast of the cesspit Feature 382.The tank consisted of two barrels welded together horizontally and vertically. Both barrels were l.07 m in diameter (3 ft 6 in), and 1.19 m long, creating a total length of 2.38 m (7 ft 10 in). The entire tank was painted black. Two output and one intake metal pipes (6 cm/2 in diameter) extended from the top of the tank. Two triangular perforated metal hoists (16 cm/6 in tall) were situated at either end, presumably to position the tank. The hoists were crushed and in poor condition. On the opposite end with the outtake/intake pipes, a small copper band read "UNDERWRITERS' LABORATORIES INSPECTED UNDERGROUND STORAGE TANK FOR HAZARDOUS FLUIDS METAL NO 14 U.S. GAGE NO 903023 COVER UP THIS TANK UNTIL INSTALLATION IS APPROVED BY LOCAL AUTHORITIES" in relief. In the l960s, the Beacham house was demolished and replaced with state buildings. The heating tank was left underground, remaining in place until it was rediscovered during the 2011 excavation by OAS for the Executive Office Building. At that time, approximately 20 cm (8 in) of kerosene was still present in the bottom of the tank. The fuel was professionally drained before the tank was permanently removed from the ground. Metal (n = 1) and Euroamerican ceramics (n = 1) were collected.

Feature 382

Feature 382 was a straight-line cesspit privy (centerpoint: 532.61N/485.35) located in the southern portion of SCU 16, southwest of the kerosene heating tank Feature 381. The cesspit measured 2.3 m (7 ft 7 in) in diameter and 4 m (13 ft 2 in) deep. It was constructed of fire-hardened bricks arranged in a header bond. The lower 3 m (9 ft 10 in) of the cesspit were un-mortared and slightly spaced to allow seepage between the bricks. The upper bricks were placed tightly together, with some bricks split lengthwise to form a keystone pattern. The cesspit rested on a foundation of river cobbles stacked three courses high (Figs. 13.11, 13.12). The domed top of the cesspit was held together with a modern concrete mixture. Effluent traveled to the cesspit through a glazed ceramic pipe measuring 10 cm (3 in) in diameter which was manufactured by the Standard Firebrick Company of Pueblo, Colorado (1896–1956; Brunzell 2010:6; Montana Historical Society 2010). It appears to have served both the Beacham and Butler residences, as the ceramic pipe led to both homes.

The cesspit may have been siphoned prior to abandonment, as only a thin, disk-shaped remnant of dark brown (Munsell 10YR 3/2) human sewage remained at the bottom, visible when the top was removed (Fig. 13.13). One flotation and two coprolite samples were collected, which yielded an impressive array of plant, seed, and animal remains detailed elsewhere in this report (McBride, Macrobotanical Analysis; Cummings, Coprolite Analysis). Macrobotanical remains include cantaloupe, cherry, chile, coriander, fig, raspberry/blackberry, squash, strawberry, tomato, and watermelon. Coprolite samples yielded peppers, probable apples, eggplant, blueberries/cranberries, and grapes. These results suggest that debris from both kitchen and bathroom facilities contributed to the sewage. Bone (n = 48), metal (n = 2), Euroamerican ceramics (n = 2) and glass (n = 2) artifacts were collected. The cesspit was likely constructed by Roy Butler, a plumber who lived in Structure 12 during the 1930s. Mr. Butler was awarded the American Institute of Architects Craftsmanship Award in 1954.

Feature 383

Feature 383 was a domestic refuse pit (centerpoint: 520.30N/489.21E) located in the northeast portion of SCU 13 adjacent to domestic refuse pit Feature 380. Feature 383 measured 96 cm (38 in) north–south by 84 cm (34 in) east–west by 40 cm (15 in) in depth. The pit fill consisted of a very dark brown (Munsell 10YR 2/2) clay with very few gravels, charcoal, and coal slag. Artifacts include metal (n = 2), glass (n = 2), Euroamerican ceramics (n = 1), and animal bone (n = 48). The bones were mostly remnants of sheep or goat, several of which were cut or sawn. This household trash dump could have been associated with either the Beacham or Butler residences.

Feature 384

Feature 384 was an unexcavated rectangular posthole (centerpoint: 556.18N/498.09E) located in the eastern portion of SCU 12. It is proximate to identically sized rectangular posthole Features 385 and 386, all of which are north of Structure 11. Feature 384 measured 28 cm (11 in) north–south by 14 cm (5 in) east–west. The surface fill of Feature 384 displayed dark brown (Munsell 10 YR 3/3) sandy loam with small pieces of concrete. Artifacts were not visible.

Feature 385

Feature 385 was an unexcavated rectangular posthole (centerpoint: 555.12N/498.17E) located in the eastern portion of SCU 12. It is proximate to identically sized rectangular posthole Features 384 and 386, north of Structure 11. Feature 385 measured 28 cm (11 in) north–south by 14 cm (5 in) east–west. The surface fill of Feature 385 displayed dark brown (Munsell 10 YR 3/3) sandy loam with small pieces of concrete. Artifacts were not visible.

Feature 386

Feature 386 was a posthole (centerpoint: 556.10N/498.28E) located in the eastern portion of SCU 12. It is proximate to identically sized rectangular posthole Features 384 and 386, all of which are north of Structure 11. Feature 386 measured 23 cm (9 in) north–south by 14 cm (5 in) east–west. The postholes were not excavated. The surface fill of Feature 386 displayed dark brown (Munsell 10YR 3/3) sandy loam with coarse-grained sand. Artifacts were not visible.

Feature 387

Feature 387 was an unexcavated circular posthole (centerpoint: 557.64N/493.46E) situated along the north-central section of SCU 12, aligned with posthole Feature 388 north of Structure 11. Surface diameter was 26 cm (10 in). The surface fill consisted of dark brown (Munsell 10YR 3/3) coarse-grained sand with charcoal flecks and wood fragments. Artifacts were not present.

Feature 388

Feature 388 was an unexcavated circular posthole (centerpoint: 558.88 N/492.59E) situated along the north-central section of SCU 12 and in alignment with posthole Feature 387. Surface diameter was 28 cm (11 in). The surface fill consisted of dark brown (Munsell 10YR 3/3) coarse-grained sand and gravel and wood fragments. Artifacts were not present.

Feature 389

Feature 389 was one of two small-scale linear irrigation ditches behind the Beacham home (centerpoint: 518-523N/486-488E) (Fig. 13.14). Feature 389 measured 9 m north–south, 75 cm (29 in) wide, and 12 cm (4 in) deep (Fig. 13.15). This shallow depth does not reflect the original dimension of the ditch, however, as the area has been partially leveled by modern construction. The ditch may have originally been dug to a depth of at least 50 cm (19 in) in the early twentieth century. Feature fill consisted of dark grayish-brown (Munsell 10YR 3/2), silty clay loam with pea-sized gravel and coal cinders.

Artifacts included Euroamerican ceramics (n = 1), native ceramics (n = 1), metal (n = 17), glass (n = 9), and animal bone (n = 44). Euroamerican artifacts included a machine-manufactured 1/2-pint whiskey bottle, machine-cut and wire-drawn nails, a perfume bottle, and .22 rimfire cases produced by the Winchester (n = 3) and Remington (n = 1) cartridge companies. The machine-manufactured bottle suggested that the ditch was not abandoned until sometime in the twentieth century and was presumed to be contemporaneous with Structure 11 (see Chapter 16, Euroamerican Analysis, this report). Two flotation samples were collected, which produced burned amaranth, grass family, and goosefoot seeds, raspberry/blackberry seeds, grass stems, and a maize cupule (see Chapter 20, Macrobotanical Analysis, this report). OSL samples from Feature 389 dated the Archiac-period stratum into which the ditch was excavated however, rather than soils associated with the historic use of this irrigation feature (see Chapter 22, OSL Analysis, this report).

This north–south ditch may have served as the primary water source for the chrysanthemum garden behind the house. Eight pits of similar shape and size were dispersed along the east side of the ditch (Fig. 13.14); they are thought to represent planting pits. At the extreme south end, Feature 389 curved east, possibly intersecting with irrigation ditch Feature 350 (see Structure 4). The intersection of the two pits was not found, however.

Feature 394

Feature 394 was an irregularly shaped domestic refuse pit (centerpoint: 555.82N/493.52E) situated in the center of SCU 12 north of Structure 11. It measured 70 cm (28 in) north–south by 56 cm (22 in) east–west by 11 cm (4 in) in depth. The feature fill was dark brown (Munsell 7.5YR 3/3) sandy loam flecked with charcoal. Beneath the feature, within otherwise sterile Stratum 7 was a cache of nails. The cache may represent a discard episode independent of Feature 394. Artifacts consist of metal (n = 70), Euroamerican ceramics (n = 2), native ceramics (n = 1), glass (n = 6), and bone (n = 3). This pit is unusual in its front yard location, as most are in the backyard.

Feature 395

Feature 395 was a shallow, square, domestic refuse pit (centerpoint: 555.56N/496.32E) located in SCU 12. It measured 57 cm (23 in) in diameter and 7 cm (2 in) in depth. The unconsolidated fill consisted of dark brown (Munsell 7.5YR 3/3), clayey sand mottled with reddish clayey sand near the pit base. Charcoal flecks, red brick, plaster, and coal clinkers were present in the fill. Artifacts consisted of metal (n = 8), animal bone (n = 2), native ceramics (n = 1), glass (n = 1), and Euroamerican ceramics (n = 1). Two flotation samples were collected.

Feature 396

Feature 396 was a domestic refuse pit (centerpoint: 529.55N/488.46E) discovered in the southern portion of BHT 63. The trench removed the center one-third, with approximately 20 cm (8 in) remaining on the west side and 30 cm (11 cm) left on the east side. Feature fill was very dark brown (Munsell 10YR 2/2) solid clay with coal slag, and a few gravels. Artifacts consisted of metal (n = 1) and animal bone (n = 3). The trash pit was situated near the property boundaries of both the Butler and Beacham residences.

Feature 397

Feature 397 was a domestic refuse pit (centerpoint: 534N/488E) partially destroyed by BHT 63. The remaining portion of the pit measured 70 cm (28 in) north–south by 50 cm (19 in) east–west by 40 cm (15 in) in depth. The fill was very dark brown (Munsell 10YR 2/2) solid clay with coal slag and some gravels. One animal bone (n = 1) was collected.

Feature 398

Feature 398 is an unexcavated circular posthole (centerpoint: 555.87N/467.69E) located in the northeast vicinity of SCU 12. It measured 31 cm (12 in) east–west by 26 cm (10 in) north–south by 11 cm (4 in) in depth. The fill was dark brown (Munsell 7.5YR 3/3), clayey sand with charcoal, and coal clinkers. The fill was heavily bioturbated by rodents. Three metal (n = 3) artifacts were collected. Since the posthole was directly off the north sidewalk, it may have been the base of a lamp post or telephone post.

Artifacts

A total of 772 artifacts and samples originate from Structure 11 and surrounding features associated with the Beacham family home at 116 South Capitol Street. The artifact assemblage consists of metal (n = 334), bone (n = 301), glass (n = 69), Euroamerican ceramics (n = 31), native ceramics (n = 17), bone ash (n = 6), shell (n = 1), lithic (n = 1), plastic (n = 4), adobe (n = 1), and composite materials (n = 4). Flotation samples (n = 11) and coprolite samples (n = 2) were also collected. Most of the composite materials were found in Structure 11. A total of 67 features were associated with Structure 11, consisting of domestic refuse pits (n = 28), postholes (n = 35), irrigation ditch (n = 1), cesspit (n = 1), kerosene tank (n = 1), and structure (n = 1). Of these 67 features, 34 were excavated, most of which were domestic refuse pits (n = 28). Only two of the 35 postholes were excavated. The remaining excavated features are the cesspit (n = 1), kerosene tank (n = 1), irrigation ditch (n = 1), and structure (n = 1).

The artifact assemblage from Structure 11 yielded a mean ceramic index value of 1.2286 (SD 0.29), well below that of the neighborhood as a whole (mcv = 1.69, SD 0.68; Barbour 2012a:252) suggesting a family much poorer than those living in the surrounding building. However, archival records suggest the Beacham family were small business owners representing a middle-income household. A family preference for undecorated white-bodied earthenware vessels could account for the discrepancy. However, the family is typical of other early twentieth century Anglo-American families residing in the Capitol Complex Historic Neighborhood (see Barbour 2012a:246-248) in the dominance of construction and maintenance materials in the domestic refuse, the consumption of more wine than beer, and the use of glassware place settings.

Summary and Interpretation

The land that eventually became the Beacham lot was recorded as an agricultural field in the late nineteenth century. Between 1908 and 1912, Structure 11, 116 South Capitol Street was constructed, first owned by Frederick Muller. The Beachams occupied the home for most of its twentieth-century residential history until 1958, during which many features were added to the property.

Archival evidence indicates that the Beacham residence was a single-story red brick structure. Foundations associated with the superstructure (Features 399 and 402), two pilasters (Features 400 and 401), and a partial basement (Feature 409) were recorded during archaeological investigtions. The morphology and placement of these featues conforms well to the historic record. However, no evidence of the automobile garages, depicted on the 1948 Sanborn Fire Insurance Map, was found.

Aside from the structure itself, the primary feature of the Beacham property were the numerous features associated with the possible chrysanthemum garden at the south end of the lot. The existence of the garden in the backyard during the 1940s was mentioned by Beacham's granddaughter and great grandson (personal communication, Van Beacham, Jan. 9, 2012).

A number of features were associated with this garden, consisting of domestic refuse and/or planting pits, irrigation ditches, and posthole alignments. Pits, which may have been dug for planting, were loosely arranged along a north–south axis parallel to the irrigation ditch. The pits varied in size and shape, occurring in round, oval and square forms, and ranged considerably in diameter from 40 to 188 cm. Many of these pits may have been larger, as modern construction and project blading truncated these features vertically. Interestingly, similarly sized pits tended to cluster near the center of the garden, while larger oval and square pits tended to be located at the perimeter, possibly indicating that the mums were planted together in this central area, with larger trees and shrubs bordering the mums to the north and south.

While the pits range in size and shape, they contain fill of nearly identical character, dark brown sandy loam with a handful of domestic refuse items such as charcoal, coal clinkers, glass, ceramics and metal. The low artifact frequencies in most pits suggest that debris became mixed unintentionally in the fill, representing a by-product of the primary function of planting. Domestic refuse may have washed into the pits after planting, or become mixed with the fill while the pits were being dug.

The vast majority of the pits yielded less than 50 artifacts. Only three pits exceeded this count, all of which are larger features situated outside of the garden proper. Features 339 and 349 are large rectangular pits located northeast of the garden, and Feature 394 is in the front yard of the property. All pits within the comparatively dense cluster at the south end contain very little refuse, marking them as likely candidates as planting features.

The irrigation ditch, Feature 389, was one of the most prominent features of the garden, running parallel along the full length of the west fence and possibly intersecting with Feature 350, and east–west irrigation ditch south of the Beacham lot. As mentioned above, this may have been a fairly formidable ditch up to 50 cm deep, designed to water a prolific number of plants, shrubs and trees that extended across nearly the entire width of the property at the south end.

Several posthole alignments or enclosures were encountered, most of which were located at the south end of the Beacham property in the garden. Three fairly equally spaced, parallel alignments may have served as garden fences. The west fence was formed by five round postholes (Features 361, 362, 363, 364, 366), and four square postholes, Features 357, 358, 359, and 360, served as the east fence. The interval between the two westernmost alignments is about 6 m (20 ft). A third, less defined alignment is located about 5 m (16 ft) east, formed by posthole Features 319, 324, 333, 340, and 325, which may have supported a portal for the automobile garage in the southeast corner of the lot. Another intriguing option is the possibility of a garden pathway between the two easternmost alignments, which seems particularly plausible given the absence of pit features in this stretch of land. Seven domestic refuse pits are located in this easternmost interval (Features 321, 322, 345, 347, 348, 352). These are far more variable in size and shape than the westernmost cluster of pits, and contained even less domestic refuse than the pits presumed to be within the garden. Two additional posthole clusters may have supported small structures. A rectangular enclosure midway between Structure 11 and the garden was formed by posthole features 335, 336, 337 and 338, and four postholes in the front yard may have formed a fence, enclosure, or small structure (Features 384, 385, 386, 398).

The Beacham home both compares and contrasts to other lots in the neighborhood. Some features of the Beacham home mirror those of nearby neighbors, such as the size and construction of the home, which was identical to the Butlers. However, the diverse and proliferate array of features at116 South Capitol Street were part of a unique home, and contrasted markedly with other family lots in the area. While family gardens were a common feature of most homes beginning with the Colonial period, gardens such as the one at the Beacham home may have diverted from the more common fruit and vegetable plants to decorative flowers. The garden was only one of several unique features of this home, which also included a finely crafted brick cesspit and a large kerosene tank for home heating purposes, neither of which occur in other neighborhood lots.

Figure 13.1. Beacham-Minardot Hardware, ca. 1925–45 (courtesy Palace of the Governors Photo Archives, NMHM/DCA, neg. no. 011124).

*Figure 13.2. William Beacham fly fishing (***New Mexico*** magazine, May 1932).*

Figure 13.3. Location of Structure 11, 116 South Capitol Street, features on the Sanborn Fire Insurance map (Jan. 1930, mod. Aug. 1948).

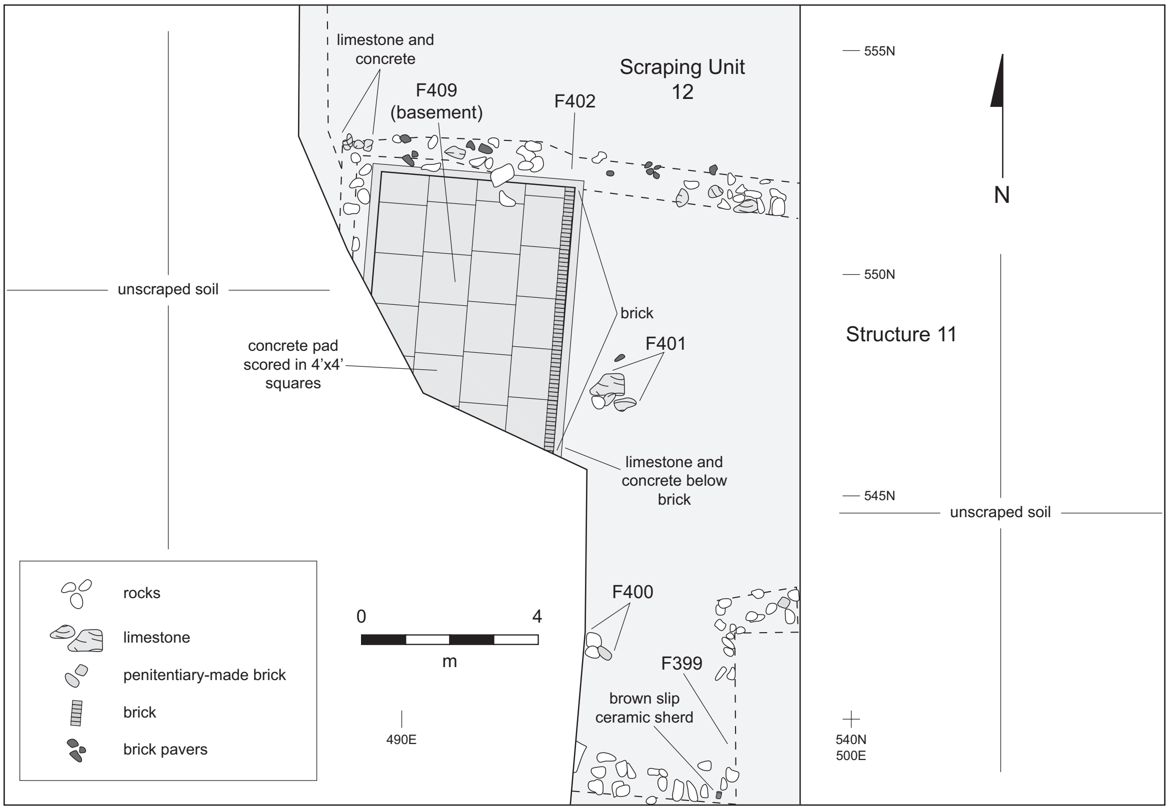

Figure 13.4. Structure 11, Features 399–402 and 409, plan view.

Figure 13.5. Structure 11, foundations.

Figure 13.6. Structure 11, basement.

Figure 13.7. Structure 11, Feature 353, domestic refuse pit.

Figure 13.8. Structure 11, Feature 380, domestic refuse pit.

Figure 13.9. Structure 11, Feature 381, kerosene storage tank.

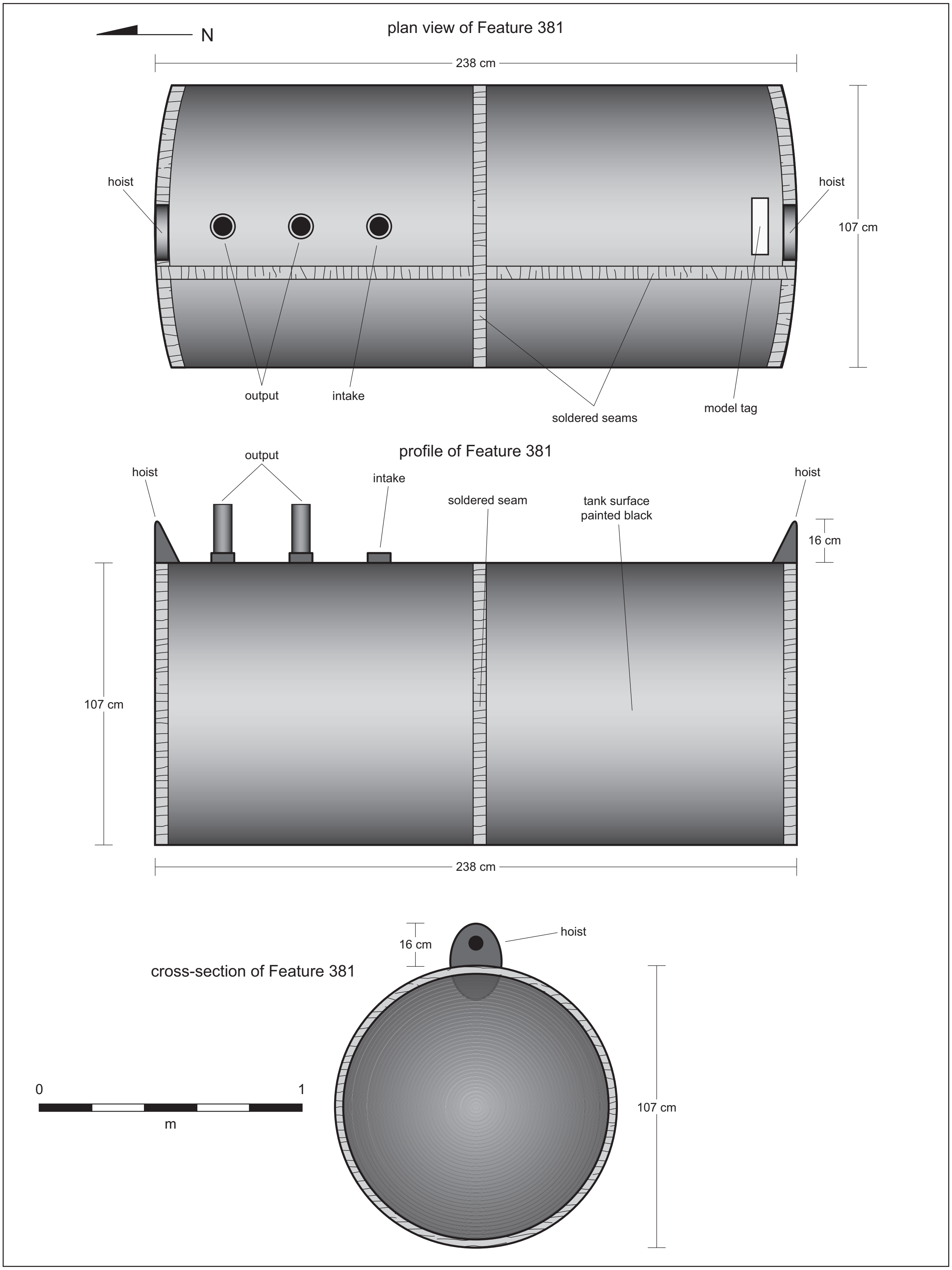

Figure 13.10. Structure 11, Feature 381, plan view and profile of kerosene storage tank.

Figure 13.11. Structure 11, Feature 382, a straight-line cesspit privy.

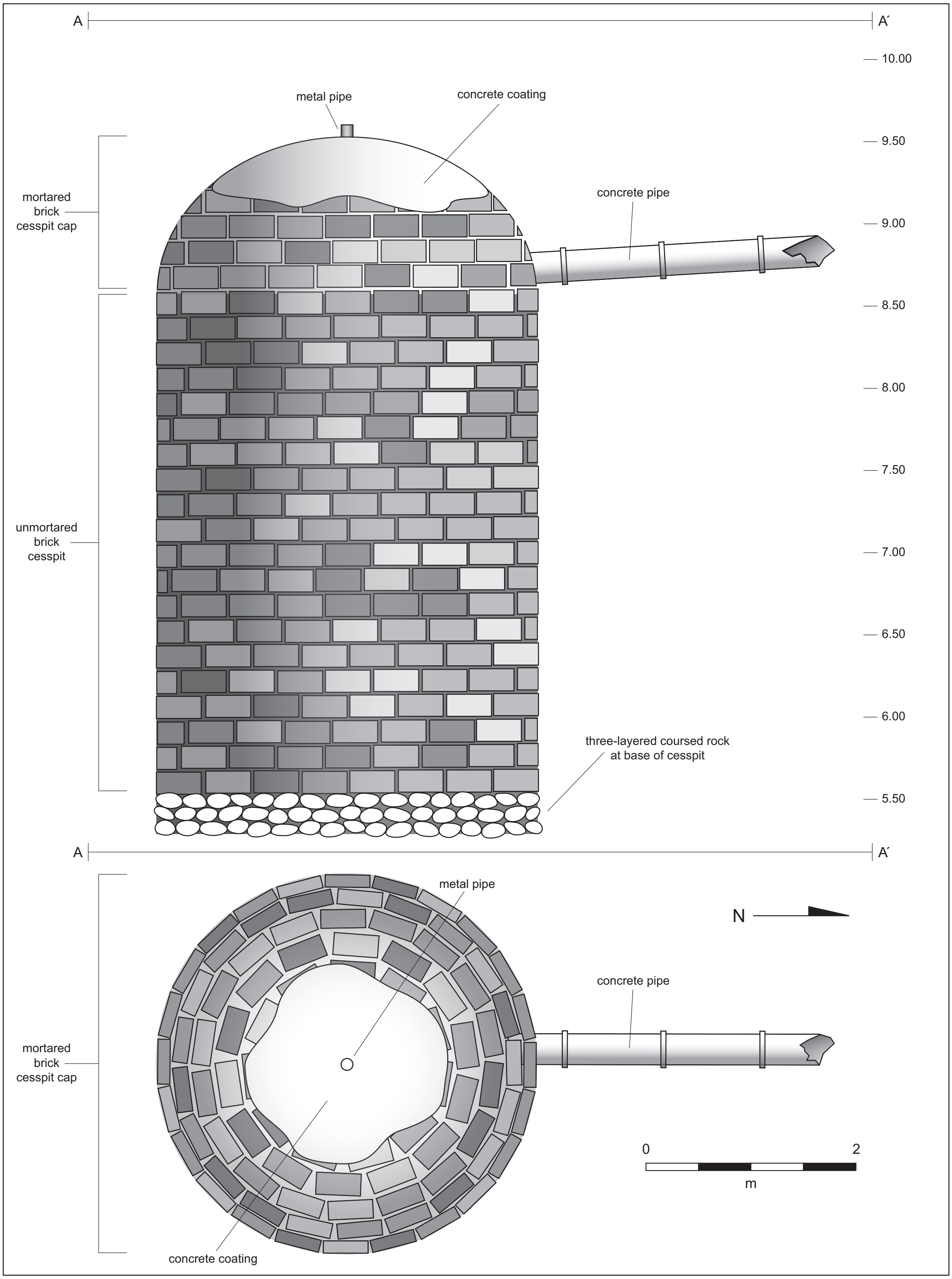

Figure 13.12. Structure 11, Feature 382, a straight-line cesspit privy plan view and profile.

Figure 13.13. Structure 11, Feature 382, a straight-line cesspit privy interior.

Figure 13.14. Structure 11, Feature 389, irrigation ditch with nearby planting pits.

Figure 13.15. Structure 11, Feature 389, irrigation ditch profile.

Chapter 14

Structure 12 (120 South Capitol Street)

Matthew J. Barbour, Susan M. Moga & Karen L. Wening

Structure 11, 116 South Capitol Street, and Structure 12, 120 South Capitol Street, had identical floor plans that were oppositely arranged. They were presumably constructed by the same developer in the early twentieth century. As with Structure 11, Structure 12 was first depicted on the 1912 King's Map of Santa Fe and was probably constructed between 1908 and 1912. This map credits ownership of the structure to Frederick Muller. Prior to this time, the property had been a vacant lot that was presumably used for agricultural activities. The 1885–1886 Hartmann Map of Santa Fe lists the owner as "Garritt." Table 14.1 provides a list of residents and businesses that occupied the structure between 1928 until 1969.

During much of the twentieth century, 120 South Capitol appears to have been used as a rental property. The only owner listed as residing at the location in the post-World War II years was a Jas. Compton (1949–1957). In the 1930s and early 1940s, the building was rented by the Butler family (Fig. 14.1), who lived there and operated Butler and Foley Plumbers. Like William Beacham, Roy Butler was an avid sportsman. However, his focus was primarily on hunting large game, which he gutted and skinned in the backyard (Fig. 14.2). He was also one of the founders of Rodeo de Santa Fe and a fine equestrian. In 1954, Roy received the American Architects Institute Craftsmanship Award for his continued excellence for his work as a plumber (Fig. 14.3).

The state acquired 120 South Capitol Street in 1958. It used the former Butler residence first as the State Educators Retirement Building (1958–1962) and later as the State Planning Office (1963–1967). The state demolished it in 1969.

Structure

The 1948 Sanborn Fire Insurance map depicts the dwelling at 116 South Capitol Street as a single story red brick structure with a front and back porch (Fig. 14.4). The buildings maximum dimensions are 13.25 m (43.5 ft) north–south and 11 m (36 ft) east–west. The floor plan encompasses approximately 131.5 sq m (1,415 sq ft) of area. The porch along the front of the house measures 11 m (36 ft) in length and 1.25 m (4 ft) in width and the porch, or possibly mud room (see Figure 14.2), along the back measures 5 m in length and 2.5 m in width. No ancillary garages or sheds are depicted on the map

Physical evidence for the structure at 120 South Capitol included its foundation (Feature 410) and a partial basement (Feature 411; Figures 14.5 and 14.6). The foundation to Structure 12 was 60 cm (2 ft) wide and 16 cm (6 in) high. It was fabricated using concrete with river cobble aggregate. It lacked rebar reinforcement. The basement, Feature 411, included at least two rooms and extended roughly 80 cm (2 ft 8 in) below the top of the foundations. The depth suggests that the ground floor of the structure was slightly raised and that the basement was only partially subterranean. Room 1 measured 4.57 m (15 ft) north–south and 1.8 m (5 ft 11 in) east–west, encompassing 8.23 sq m (89 sq ft) of area. The west and south walls of the room were constructed, like the foundations, using concrete with river cobble aggregate. The interior wall to the east, which divided the two rooms, was brick laid with a header bond. The wall was 20 cm (8 in) wide. Room 2 was only partially excavated, but is believed to be 10 m (32 ft 10 in) north–south and 4.57 m (15 ft) east west.

If so, Room 2 would have encompassed roughly 46 sq m of space. The floors of both rooms were concrete pads lacking rebar reinforcement. They were roughly 15 cm (6 in) thick.

Complete excavation of the structure could not be accomplished due to the presence of subterranean utility lines. The building was in poor shape because demolition activities had disturbed much of the subsurface remains. However, the distribution of the archaeological remnants matches well with depictions of the building on Sanborn Fire Insurance Maps.

Features

Extramural features were tied to the structure by overlaying the 1948 Sanborn Fire Insurance map onto the archaeological record and examining the spatial distribution of the features. Features included a construction debris pit, domestic-refuse pits (n = 3), postholes (n = 10), and a straight-line cesspit. These features are presented in Table 14.2 and are described below.

Feature 24

Feature 24 is a circular domestic refuse pit (centerpoint: 519.13N/479.99E) discovered on the west face of BHT 2. The feature was bisected by the trench, leaving the west half intact. It measured 77 cm (31 in) north–south by 31 cm (12 in) east–west by 28 cm (11 in) in depth. The fill was dark brown (Munsell 10YR 6/4) silty loam, with mottled lenses of light yellow sand, caliche, charcoal, and red clay. Two medium to large ungulate bones were recovered from the pit, one of which was sawn. This feature may be associated with three proximate postholes (Features 371–373).

Feature 371

Feature 371 is an unexcavated circular posthole (centerpoint: 519.30N/479.27E) located in the southeast corner of SCU 14 proximate to posthole Features 372 and 373 and domestic refuse pit Feature 24. Feature 371 had a surface diameter of 18 cm (7 in). The surface fill was dark brown (10YR 3/3) clayey sand with charcoal, wood fragments, and pea-sized gravels. Artifacts were not visible.

Feature 372

Feature 372 is an unexcavated circular posthole (centerpoint: 519.34N/478.40E) located in the southeast corner of SCU 14 proximate to posthole Features 371 and 373, and domestic refuse pit Feature 24. Feature 372 had a surface diameter of 16 cm (6 in). The surface fill was dark brown (10YR 3/3) clayey sand with wood and red brick fragments. Artifacts were not visible.

Feature 373

Feature 373 is an unexcavated circular posthole (centerpoint: 520.23N/478.45E) located in the southeast corner of SCU 14 proximate to posthole Features 371 and 372 and domestic refuse pit Feature 24. Feature 373 had a surface diameter of 20 cm (8 in). The surface fill was dark brown (10YR 3/3) clayey sand with charcoal flecks and wood fragments. Artifacts were not visible.

Feature 374

Feature 374 is an isolated circular posthole (centerpoint: 526.72N/480.38E) on the northwest side of BHT 2 in SCU 14. The unexcavated posthole measured 20 cm (8 in) in diameter. Fill consisted of coarse-grained sand with wood post remanants.

Feature 375

Feature 375 is an unexcavated circular posthole (centerpoint: 522.51N/472.65) located in the southwest section of SCU 14 aligned north–south with posthole Features 376, 377, and 378. Feature 375 measured 16 cm (6 in) in diameter. The fill was clayey sand with pea-sized gravels.

Feature 376

Feature 376 is an unexcavated circular posthole (centerpoint: 523.21N/472.45E) located in the southwest section of SCU 14 aligned north–south with posthole Features 375, 377, and 378. Feature 376 measured 25 cm (9 in) in diameter. The fill consisted of coarse-grained sand with wood and red brick fragments. Artifacts were not visible..

Feature 377

Feature 377 is an unexcavated circular posthole (centerpoint: 524.92N/472.44E) located in the southwest section of SCU 14, aligned north–south with posthole Features 375, 376, and 378. Feature 377 had a surface diameter of 27 cm (11 in). A portion of the wooden post, which appeared to have been treated with creosote, was found in the fill.

Feature 378

Feature 378 is an unexcavated circular posthole (centerpoint: 527.45N/472.44E) located in the southwest section of SCU 14, aligned north–south with posthole Features 375, 376, and 377. Feature 378 had a surface diameter of 16 cm (6 in). The fill consisted of brown clayey sand.

Feature 379

Feature 379 is an unexcavated circular posthole (centerpoint: 533.66N/473.58E) located in the northwest section of SCU 14, west of BHT 65. The posthole measured 33cm (13 in) in diameter. The fill was brown, clayey sand and pea-sized gravels.

Feature 390

Feature 390 is a domestic refuse pit (centerpoint: 519.29N/472.08E) in the southwest corner of SCU 14, south of refuse pit Feature 391. The irregularly shaped feature was truncated due to the prior installation of a north–south gas line, which left only the bottom 5 cm (1 in) of the feature intact. The pit remant measured 184 cm (73 in) north–south, 54 cm (21 in) east–west, and 5 cm (1 in) deep. The fill was a brown (Munsell 10YR 4/2) sandy loam with small- to large-sized gravels, cement mortar fragments, and coal slag. Artifacts consisted of glass (n = 5), animal bone (n = 1), and plastic (n = 1). Window glass, bottle glass, and a fragmented amber glass bottle were represented.

Feature 391

Feature 391 is a domestic refuse pit (centerpoint: 520.90N/471.97E) located in the southwest corner of SCU 14 north of refuse pit Feature 390. The west side of Feature 391 was disturbed by the installation of the north–south gas line, similar to Feature 390, creating an irregularly shaped pit. The fill from Feature 391 was a yellowish-brown (Munsell 10YR 3/4) sandy loam and gravel with charcoal flecks, coal clinkers, and red brick fragments. The low artifact count may owe to the mechanical disturbance, consisting of animal bone (n = 1), glass (n = 11), and metal (n = 5). The glass assemblage was variable, consisting of window (n = 4), soda or beer bottle (n = 3), vessel handle (n = 1) and indeterminate (n = 3).

Feature 393

Feature 393 is a shallow domestic refuse pit (centerpoint: 531.39N/472.79E) located in the west central section of SCU 14 west of BHT 65. Irregular in shape, the pit measured 1.31m (4.2 ft) east–west by 97 cm (38 in) north–south by 10 cm (3 in) in depth. The eastern edge of the pit was removed by the construction of a gas line, and mechanical blading left only the bottom 10 cm (3 in) intact. The feature displayed three concentric rings of contrasting fill. The center fill was dark brown, around which was a thick layer of orange-gold coarse-grained sand that was ringed with dark fill similar to the center. The darker fill was a mottled dark-yellowish (Munsell 10YR 3/4) mixture of silty, clayey sand, with rotted wood, ash, coal clinkers, charcoal, and artifacts. The artifacts included metal (n = 196), glass (n = 9), and roofing paper fragments (n = 12). The metal ws concentrated in the northeast section of the feature. It is difficult to estimate the length of usage for Feature 393, as it was compromised by the blading, sediment redeposition, and the gas line installment.

Feature 407

Feature 407 is an unexcavated circular posthole (centerpoint: 557.48N/476.75E) located along the northern edge of SCU 15. The surface diameter measured 18 cm (7 in). Surface fill was dark brown soil with coarse-grained sand and pea-sized gravels flecked with charcoal. Artifacts were not present.

Feature 408

Feature 408 is an unexcavated rectangular construction debris pit (centerpoint: 555.80N/474.62E) situated in the northwest corner of SCU 15. It measured 90 cm (36 in) north–south by 70 cm (28 in) east–west. The surface fill consisted of clayey sand with 60 percent pea-sized gravels. Red brick fragments, charcoal flecks, glass and pieces of asbestos fiber were intermixed in the fill. The pit was probably associated with the previous construction of the Concha Ortiz Building directly west.

Artifacts

Structure 12 at 116 South Capitol Street, and associated features yielded a total of 260 artifacts, consisting of metal (n = 206), glass (n = 26), bone (n = 4), composite materials (n = 10), plastic (n = 2) and roofing paper (n = 12). The vast majority of artifacts recovered here are likely associated with the Butler family, who occupied the home for the longest period of time and operated the family business of Butler and Foley Plumbers from this location. Few artifacts were found in the structure itself. The overwhelming majority of the assemblage (83 percent) originated from a single domestic refuse pit (Feature 393) containing quantities of machine-cut and wire-drawn nails, suggesting deposition in the late nineteenth or early twentieth century, and minute metal filings, which may have been generated during cutting, filing, or other modification to cast iron pipes used by the plumbers. This debris could indicate that the pit was used exclusively by the Butler family. Most glass artifacts were found in the basement and around the foundation exterior, reflecting indulgence items such as liquor and soda, which may have been tossed into the area during modern demolition and construction activity. Similar origins were attributed to most of the composite materials, which represented modern construction and maintenance activities (see Chapter 16, this report).

Summary and Interpretation

Structure 11, 116 South Capitol Street (Beacham residence), and Structure 12, 120 South Capitol Street (Butler residence), had identical floor plans that were oppositely arranged. They were presumably constructed by the same developer in the early twentieth century. Physical evidence of the structure at 120 South Capitol included its foundation and a partial basement. During the 1930s and 1940s, the residence was rented by the Butler family, who lived in the structure and operated Butler and Foley Plumbers. Most—if not all—of the archaeological features encountered are believed to be associated with this family.

A total of 15 extramural features are connected with Structure 12 at 116 South Capitol Street, consisting postholes (n = 10), domestic refuse pits (n = 4) and modern construction debris pits (n = 1). A north–south alignment of five postholes may have delineated the west property boundary (Features 375–379). Near the south boundary of the lot, 3 postholes are positioned in a triangular arrangement proximate to a small refuse pit containing sawn ungulate bones (Features 371–373 and 24). The postholes may have been used to hang slaughtered animals for skinning and butchering purposes, and the pit for discarded bone. As large-game hunting was a favorite pastime of Roy Butler, this feature may have seen frequent use; the near absence of animal bone from this structure thus seems surprising. Bone may have been discarded elsewhere, fed to the family cocker spaniel (Mary "Boots" Butler, personal communication, 2012), or tossed in refuse pits that were not exposed during data recovery. Butchered cuts including the bone may have been given to friends and family residing elsewhere.

The most striking contrast between the Butler and Beacham families is that while each participated in outdoor sports and activities, the physical manifestations of their leisurely diversions differed considerably. The gardening passions of the Beacham family were clearly reflected in the landscape of the family lot, while the hunting and equestrian hobbies of the Butlers was evidenced in only two discrete features. This contrast could owe to many factors. First, a higher percentage of unexcavated land existed on the Butler lot, which may be the location of additional features. Second, different activities require different land uses. Gardening and landscaping, even on a limited scale, requires land and the excavation of pits or beds. In contrast, the processing and butchering of game animals could involve repeated use of a single pair of posts. Another possible influence on the physical alteration of the land by each family may be that the Butlers, as tenants, may have had less freedom to make changes to the property than the Beachams, who owned their home.

While archival research indicated that both families retained similar socioeconomic status, the paucity of artifacts from the Butler home precludes comparison based on the mean ceramic index value (see Chapter 16, this report). While artifact frequencies were considerably lower for the Butler family compared to the Beacham family, the artifact distribution among feature types was similar. Both house structures were virtually devoid of artifacts, with the few found consisting of electric wire and related equipment. Basement and foundation features for Structure 12 yielded home construction items such as insulated electric wire and a paint roller. Most cultural material from both family lots was recovered from domestic refuse pits, though the frequency and function of the pits contrasted greatly between the two family homes.

Figure 14.1. Roy Butler and family outside 120 South Capitol Street, ca. 1940, State Capitol Building in the background (courtesy Butler Family).

Figure 14.2. Photo of the backyard at 120 South Capitol Street, ca. 1930 (courtesy Butler Family).

The American Institute of Architects
CRAFTSMANSHIP AWARD

The Architects of New Mexico and the Western Mountain District of the American Institute of Architects in full realization and appreciation of the importance of the allied arts and of the importance of excellence of fine craftsmanship to the success of any building do hereby commend ROY E. BUTLER for his ability and continued excellence in the field of STEAM FITTING & PLUMBING

This commendation is the unanimous action of the 3rd Annual Conference of the Western Mountain District of the American Institute of Architects in assembly at Santa Fé, New Mexico in the year 1954

President

Vice President

Figure 14.3. The American Architects Institute Craftsmanship Award presented to Roy E. Butler for his continued excellence in the field of steam fitting and plumbing, 1954 (courtesy Butler Family).

Figure 14.4. Location of Structure 12, 120 South Capitol Street, features on the Sanborn Fire Insurance map (Jan. 1930, mod. Aug. 1948).

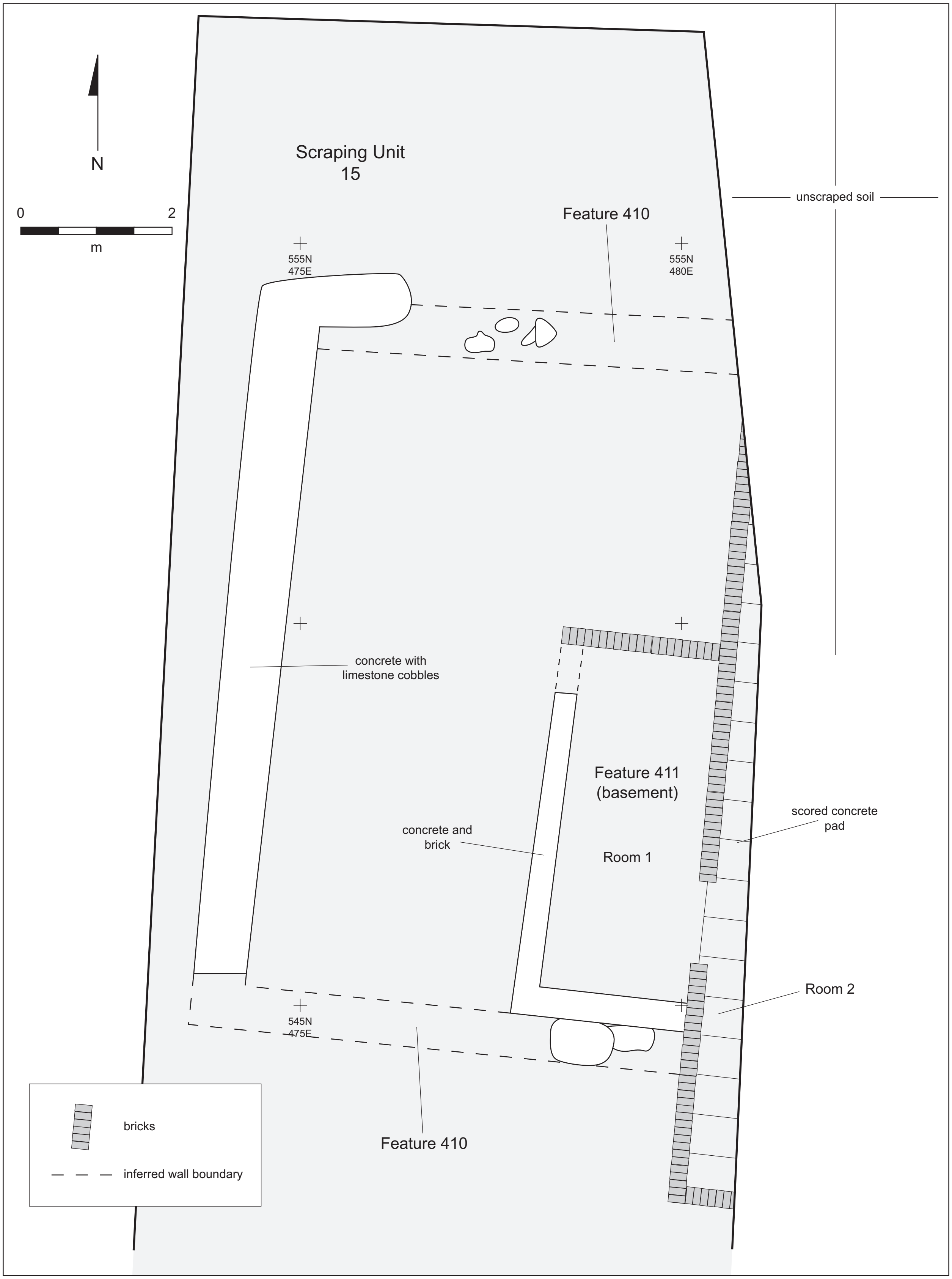

Figure 14.5. Structure 12, Features 410 and 411, plan view.

Figure 14.6. Structure 12, foundations and basement.

Chapter 15

Structure 13 (122 South Capitol Street)

Matthew J. Barbour, Susan M. Moga & Karen L. Wening

It is unclear when the structure at 122 South Capitol Street was built. However, it seems likely that the building was constructed sometime around the turn of the twentieth century. The structure is not evident on the Hartmann's Map of Santa Fe (1885–1886). At this time, the lot appears vacant and was possibly used for agriculture. The map credits ownership of the lot to an L. Delgado. In the 1912 King's Map of Santa Fe, a structure appears under the ownership of Luis Napoleon, an Italian stone mason. The east wall of the structure is depicted in Figure 14.2.

Table 15.1 provides a list of residents and businesses that occupied the structure between 1928 and 1963. During this 35-year span, the structure had numerous occupants, most of whom lived there for only three or four years. One of the more recognizable occupants was a Joseph N. Fidel. Fidel emigrated from Lebanon in the early twentieth century and founded El Fidel Hotel along Galisteo Street in 1923 (Fig. 15.1; Hammett 2004:46).

From 1940 to 1948 the building was listed as "vacant" in *Hudspeth's City of Santa Fe Directories*. This is probably wrong, as the 1948 Sanborn Fire Insurance map lists the "HWY DPT" or New Mexico Highway Department as occupying the structure. The structure was very large (two stories) and stood across the street from the Capitol Building. It is unlikely that this piece of real estate would stay vacant for very long. Throughout 1940s and 1950s, the structure presumably housed a number or state offices and private businesses before its destruction in 1963.

Structure

The Sanborn Fire Insurance Map of 1948 depicts the residence at Structure 13 as a two story red brick structure (Fig. 15.2). The ground floor is roughly rectangular in shape with the maximum dimensions of 14.5 m (48 ft) north–south and 8.7 m (29 ft) east–west. The second floor is a small circular tower measuring 4.2 m (14 ft) in diameter. Combined, these two floors provided inhabitants with approximately 127 sq m (1,367 sq ft) of living space.

Two ancillary structures are located within the backyard: an automobile garage and a veranda. Both appear to have measured roughly 4.3 m (14 ft) north–south and 2.9 m (10 ft) east–west. Examination of Sanborn Fire Insurance maps from 1913 to 1948 suggests the garage, initially a shed or stable, had undergone numerous renovations and was at one time at least double the size of the garage reported in 1948. Also, the exact location of the garage varies slight depending on which map is referenced. However, all suggest it was a wood-framed structure. The veranda is more straightforward. As the name would imply, it was an open-air free-standing structure constructed sometime between 1921 and 1930.

The subsurface structural remnants of the residence 122 South Capitol Street were presumably destroyed by the construction of what is now known as the Concha Ortiz y Pino Building in the mid-twentieth century. Because the Concha Ortiz y Pino Building exists outside the area to be impacted by construction of the proposed Executive Office Building, the exact location of the building at 122

South Capitol Street was not investigated. The veranda as depicted on the 1948 appears to have once resided within the project area near active utility lines. The installation of these utility lines presumably destroyed all evidence of the smaller structure. No evidence of the veranda was encountered during archaeological investigations.

Features

Extramural features were tied to the structure by overlaying the 1948 Sanborn Fire Insurance map onto the archaeological record and examining the spatial distribution of the features. While the building at 122 South Capitol Street was outside of the project area, a substantial portion of its backyard was examined. This resulted in the documentation of nine features (Table 15.2), including six construction-debris pits and three postholes. These features were of limited archaeological value. Many, if not all, of the construction debris pits were associated with later construction of the Concha Ortiz y Pino Building, with the possible exception of Feature 311, which contained large quantities of jaspe. Because jaspe, which is crushed gypsum or plaster of paris, does not appear to have been utilized in the construction of the Concha Ortiz y Pino Building, this pit may have been linked to the earlier structure. Each of the nine features is discussed briefly below.

Feature 304

Feature 304 is an unexcavated circular posthole (centerpoint: 512.89N/464.31E). The hole measured 30 cm (1 ft) north–south by 26 cm (11 in) east–west. This features was one of two associated with the historic residential occupation of the lot. Surface fill displayed coarse sand with gravels. The posthole was located in the backyard of the home. No other postholes associated with the structure were found.

Feature 305

Feature 305 is a rectangular posthole, or possibly an I-beam impression (centerpoint: 509.45N/464.19E). It measured 50 cm (19 in) north–south, 25 cm (11 in) east–west, and 5 cm (2.5 in) deep and was excavated in its entirety. Fill consisted of coarse sand with gravels. One piece of aqua window glass was recovered. This unusual posthole is one of two situated between two large rectangular construction debris pits, suggesting that these four features may be functionally related, possibly linked with the construction of the Concha Ortiz y Pino Building.

Feature 306

Feature 306 is a rectangular posthole, or possibly an I-beam impression (centerpoint: 512.11N/465.30E) located in the center of BHT 62. It measured 62 cm (24 in) north–south, 21 cm (8 in) east–west, and 11 cm (4 in) deep. The feature fill was coarse sand, with pea-sized gravels, and void of artifacts. Similar to posthole Feature 305, this rectangular is situated between two large construction debris pits. Both rectangular postholes and the two large debris pits may be related to the late twentieth century construction of the Concha Ortiz y Pino Building.

Feature 307

Feature 307 is a very large rectangular construction debris pit (centerpoint: 513.36N461.89E) situated in the southwest corner of SCU 10 and bisected by BHT 62. It measured 9.5 m (31 ft) north–south by 3.3 m (11 ft) east–west. The feature was not excavated, but mechanical exposure revealed coarse sand, large cobbles, base course fill, red brick fragments, and asphalt. Artifacts were not collected. This large pit was probably a dump site used during the construction of the Concha Ortiz y Pino Building west of Feature 307.

Feature 309

Feature 309 is a construction debris pit (centerpoing: 510.88N/471.16E) located in the south central section of SCU 10. It was rectangular in shape and measured 55 cm (22 in) north–south by 10 cm (4 in) east–west by 6 cm (2 in) in depth. The fill contained pea-sized gravels and asphalt. Artifacts were not present.

Feature 310

Feature 310 is a very large, rectangular construction debris pit (centerpoint: 512.49N/468.81E) located in the eastern portion of SCU 10 and bisected by BHT 62. The pit measured 14 m (46 ft) north–south, 5 m (16 ft) east–west, and 32 cm (13 in) deep. A 1 by 1 m test pit was staked in the center of the feature to determine the nature of the fill and the depth of the pit. Feature fill consisted of a brown (Munsell 7.5YR 4/3), clayey sand with pea-sized to medium sized gravels and occasional large cobbles with coal slag and red brick fragments interspersed. Artifacts consisted of metal (n = 47), window glass (n = 10), terra cotta ceramics (n = 1), and Euroamerican ceramics (n = 4). The pit appears to have been mechanically dug to dispose of construction debris from razing the Concha Ortiz y Pino Building.

Feature 311

Feature 311 is a small construction debris pit (centerpoint: 533.46N/461.56E) located in the northwestern face of BHT 61 in SCU 11 (Fig. 15.3). This is one of two features on the lot that are associated with the historic occupation of Structure 13. The surface of the feature suggested that one pit was present, but excavation revealed two adjacent pits. These were recorded as a single pit, which measured 1 m (39 in) east–west, 90 cm (35 in) north–south, and 12 cm (5 in) deep. The fill consisted of sandy loam and large gravels flecked with charcoal, plaster, and coal slag fragments. Both pits were bioturbated by rodents. A foil bottle label (n = 1) and flotation sample (n = 1) were collected. The pit was truncated by the construction of the Concha Ortiz y Pino Building.

Feature 323

Feature 323 is a large, irregular construction debris pit (centerpoint: 532.34N/464.16E) located in SCU 11. The northern portion was transected by BHT 61. The feature is adjacent to the east side of the Concha Ortiz Building and may have been used for refuse related to the demolition of the building. The base of the feature was defined by a thin layer of concrete (1–3 cm/.25–1.0 in) which could represent refuse or intentional deposition. Feature 323 measured 5.5 m (18 ft) north–south, 3.9 m (13 ft) east–west, and 40 cm (16 in) deep. The feature fill contained lenses of mixed sand, silt, pea-sized gravels, cobbles, charcoal flecks, and rusted metal and glass shards. None of these items were collected.

Feature 412

Feature 412 was an unexcavated, rectangular construction debris pit (centerpoint: 550.08N/469.02E) located on the northwest edge of BHT 69, directly east of the Concha Ortiz Building. The eastern portion of the pit was destroyed by BHT 69; the western half was left intact. Pit dimensions were obtained from the profile in BHT 69, measuring 1.85 m north–south (6 ft) and 50 cm (20 in) deep. Fill in the west half consisted of concrete rubble, red brick fragments, and a steel strap binder, none of which were collected.

Artifacts

A total of 65 artifacts and samples were collected from Structure 13, 122 South Capitol Street, and associated features. These consist of metal (n = 47), Euroamerican ceramics (n = 4), terra cotta ceramics (n = 1), glass (n = 11), and composite materials (n = 1). One flotation sample was collected from construction debris pit Feature 311; it yielded unburned groundcherry seeds. A total of nine features were recorded on the Structure 13 lot, most of which were construction debris pits (n = 6) and a few postholes (n = 3). Three of the construction debris pits were excavated (Features 309, 311, and 323), one was sampled (Feature 310), and two were not excavated (Features 307 and 412). Of the three postholes, two were excavated (Features 305 and 306). Posthole Feature 304 was not excavated.

The vast majority of artifacts originated from Feature 310, a construction debris pit associated with the Concha Ortiz y Pino Building. While most of the material from this pit was related to late twentieth century construction, a handful of domestic items dating from the early to mid-twentieth century were found in the fill. These include fragments of a kitchen crock, flowerpot, dinnerware, and foil, suggesting that the structure continued to be used as a residence in the first half of the twentieth century.

Summary and Interpretation

Structure 13 first appears on archival maps in 1912 and was presumably built sometime during the first decade of the 1900s. Throughout the early and middle twentieth century, the two-story building was used as a rental by many well-to-do families, including the Fidels, who occupied the structure between 1934 and 1937. In 1963 the property was acquired by the State of New Mexico, the structure was razed, and what would become the Concha Ortiz y Pino Building was built in its place.

Only two extramural features were associated with the historic residence located at 122 South Capitol Street, a domestic refuse pit, designated Feature 311, and a posthole, designated Feature 304. Most of the features on the lot are very large, rectangular construction debris pits excavated during the construction of the Concha Ortiz y Pino Building in 1963. These large pits occupy the majority of the lot surface, disturbing much of the property associated with Structure 13. The intervening area between the two southern most debris pits has also been disturbed by the placement of two I-beam postholes, though one historic posthole was also located here.

Unfortunately, the late twentieth-century construction debris pits cannot contribute greatly to the questions posed in the research design. While one pit yielded a small number of artifacts associated with the historic residences, it provided little information on socioeconomic status or lifestyle of the structure occupants. Other mitigating factors include the rental status of Structure 13 at 122 South Capitol Street. Between 1928 and 1939, four tenants occupied the house, any one of which could have deposited the few domestically related artifacts. Much of the refuse associated with the tenants of Structure 13 was probably removed during modern construction activity. While the several tenants of this home were well-to-do, particularly the Fidels, who occupied the two-story building between 1934 and 1937, only the tin-foil bottle wrapper and a soda-bottle fragment represent indulgence items reflective of a more comfortable lifestyle. Most of the remaining artifacts from the historic features derive from the structure itself, and includes such items as window glass, nails, and door hardware.

Figure 15.1. El Fidel Hotel, Santa Fe, New Mexico, 1932 (Museum of New Mexico, Neg. No. 050971).

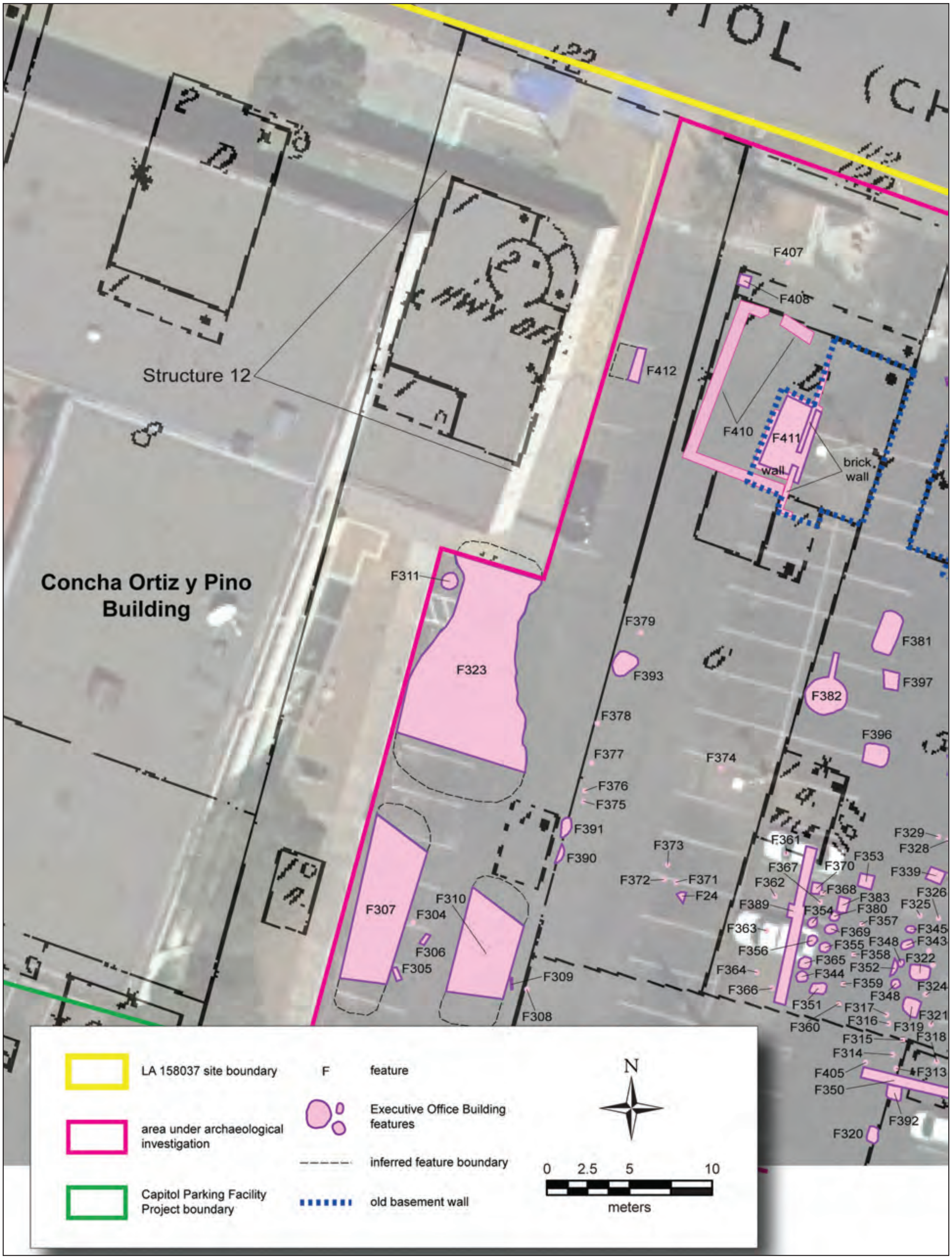

Figure 15.2. Location of Structure 13, 122 South Capitol Street, features on the Sanborn Fire Insurance map (Jan. 1930, mod. Aug. 1948).

Figure 15.3. Structure 13, Feature 311, domestic refuse pit.

Chapter 16

Euroamerican Artifact Analysis

Matthew J. Barbour, Susan M. Moga & Karen L. Wening

Introduction

Euroamerican artifacts represent objects that were not available in the American Southwest prior to the establishment of European settlements in sixteenth century. Assemblages typically include a variety of artifact types such as bottle glass, can or metal fragments, and wheel thrown ceramics, reflecting domestic, commercial, agrarian, and industrial activities and behaviors. Collected and analyzed Euroamerican artifacts from LA 158037 (n = 998), represent just under 64 percent of the total artifact assemblage (n = 1,568) recovered during data recovery investigations.

Euroamerican artifact analysis was conducted by Virginia Prihoda of the Museum of New Mexico's Office of Archaeological Studies (OAS). Collected materials were analyzed following the standards and methodology outlined in Boyer et al. (1994), specifically created to quantify Euroamerican assemblages. General descriptive attributes such as material type, manufacturing technique, and color were recorded for each artifact. In order to address the questions presented in the data recovery plan, analysis focused on a function-based analytical framework for determining site activities, the socioeconomic status of site occupants, and site chronology through the quantification of manufacture dates associated with artifact deposition. These methods are described in detail in Chapter 17, Field and Analytic Methods, of this report.

This chapter is organized into three sections. First, the Euroamerican artifact assemblage is categorized, detailing items recovered, their diagnostic attributes, and their inferred function. Based on the data, the assemblage is then sequenced chronologically and divided into specific temporal and spatial units. Lastly, temporal and spatial controls are used to inform on site use, specifically in regards to residential consumption and discard behaviors in the late nineteenth and early twentieth centuries, dealing particularly with the ethnic complexion and socioeconomic status of the household units (Barbour 2011a).

Analysis Results

The Euroamerican artifacts (n = 998) recovered from LA 158037 included a diverse array of products from eleven of the twelve functional categories used in the OAS Euroamerican artifact analysis (Table 16.1). Items from the communication category were not available at the site. However, insulators and wire—possibly utilized for communication—were recorded under the construction and maintenance category.

Overall, the Euroamerican artifacts analyzed relate to the residents who occupied the site during the early twentieth century and are indicative of the increased commercialization and standardization of the American economy during this period. In this section, the analyzed Euroamerican artifacts are discussed collectively by their designated function-based category to examine broad patterns in artifact distribution and the range of variability inherent in these distribution patterns.

Unassignable/Unidentifiable

Within the Euroamerican assemblage, 24 artifacts (2.4 percent) could not be assigned to a particular activity or behavior. These artifacts consisted primarily of unidentifiable fragments of glass (n = 9) and ferrous metal (n = 13).

Among the more interesting artifacts was a plastic cap from an aerosol can embossed with words "closure removal." Aerosol cans were introduced to the military during WWII to kill malaria and became available to the public by 1948 (Wikipedia.org 2013a). However, the plastic protective cap was not patented until 1959 by Robert H. Abplanalp. This suggests the artifact was deposited sometime after demolition of the residential community in the early 1960s and is of little use for inferring the day-to-day activities of the neighborhood's inhabitants.

Economy and Production

Economy and production items include objects associated with subsistence, industrial, and commercial endeavors. A total of 18 artifacts or 1.8 percent of the total Euroamerican artifact assemblage was linked with this function-based category. These included chicken wire (n = 9), a machine belt, cupel fragments (n = 7), and a plastic shopping bag. The plastic shopping fragment likely post-dates the residential neighborhood, but the remainder of the items appears contemporaneous.

The chicken wire may be indicative of backyard animal husbandry or a fenced off garden, while, the motor belt is presumably associated with unidentified mechanical device such as a generator. Assay products such as the cupel had not been found in the neighborhood previously (Barbour 2012a). However, metallurgical enterprises did operate in the downtown area during the late nineteenth and early twentieth centuries. The presence of the sherds within the project area may reflect a private interest or investment in some mining venture.

Food

Euroamerican artifacts typically classified as food products are represented by their inorganic containers, which are distinguished by qualitative characteristics, such as shape and size. At LA 158037, several food-related artifacts (n = 18) were present. These consisted of canned goods (n = 5, mnv = 5), indeterminate glass bottle items (n = 1, mnv = 1), and glass condiment bottle fragments (n = 11, mnv = 3); one piece of foil, possibly used in preserving or storing food, was also collected.

In addition, a plastic lid to a "Maxwell House Coffee" can was identified. The lid had a picture of a cup with the famous slogan "Good to the last drop" (Fig. 16.1). The slogan is reported to have been quoted by Theodore Roosevelt while drinking Maxwell House coffee, during his October 21, 1907, visit to Andrew Jackson's estate, the Hermitage (www.wikipedia.com 2013b). At the turn-of-the-twentieth century, coffee cans were opened with a key strip/ or wind. The plastic lid covering came into existence in the late 1920s, possibly suggesting that the artifact dates to the Prohibition or Great Depression eras.

Indulgence

The indulgence category (n = 71) represents items that are not a necessity for human subsistence, but consumed for pleasure or recreation. The majority of products identified within this category were related to the consumption of alcoholic beverages and represents 7.1 percent of the total Euroamerican artifact assemblage from LA 158037. Items identified within this category included soda (n = 27, mnv = 19), beer (n = 11, mnv = 8), wine (n = 5, mnv = 1), whiskey (n = 1, mnv = 1), and unknown liquor (n = 4, mnv = 1) bottle fragments. Other unidentified indulgence bottles (n = 19, mnv = 6).

Two artifacts associated with specific bottled brands of soda were identified. One was an intact clear glass Pepsi bottle manufactured by the Brockway Glass Co. in 1947 (Fig. 16.2). The other was a fragment to an aqua-colored Coca-Cola bottle manufactured by Graham Glass Company in 1928 (Toulouse1971:211–213).

The beer bottle fragments (n = 11, mnv = 8) were recorded in clear, amber, and brown glass colors with crown-cap finishes (1892+), whereas all wine fragments were olive green. Whiskey bottles and liquor flasks (n = 5, mnv = 3) were clear bottles with aluminum screw cap closures (Fig. 16.3). Other objects recorded in this category included a single serving clear-colored candy wrapper and a half-ounce plastic bag of "Big Chief Roasted Piñon Nuts" packaged by Valley Distributing Company of Albuquerque, New Mexico, for the low price of only 10 cents (Fig. 16.1).

Domestic

Domestic items include products used in the home such as dishes, pots and pans, glassware, sewing items, childcare accessories, cleaning products, and associated implements. Items within this category (n = 101) represented 10 percent of the total Euroamerican assemblage.

Many of the items (n = 49) identified under this function-based analytic category were canning-jar fragments manufactured by the Kerr Glass Manufacturing Company of Portland, Oregon. The company began marketing its "economy" line of canning jars in 1911, offering a silver teaspoon with each jar purchased (*Pacific Monthly* 1911). The presence of canning-jar fragments are clear evidence of canning occurring on the site, possibly pointing to a cottage industry during the early twentieth century.

The analysis of dinnerware was accomplished by distinguishing paste, ware, and aesthetic design characteristics defined by Majewski (2008) and Majewski and O'Brien (1987, 1989). Frequencies of sherds collected, ware types, vessel forms, and aesthetic design are available in Table 16.2. The vast majority of the 31 dinnerware sherds recovered were white-bodied earthenwares (n = 26). Identifiable vessel types included cups (n = 3, mnv = 3), bowls (n = 4, mnv = 4), and mixing or serving bowls (n = 1). However, most of the sherds (n = 23) were small and could not be linked to a specific vessel form. Similarly, 19 of the 31 sherds boasted no decoration. Those that did comprised primarily of traditional enamelware and spongeware designs with the exception of a gilded lid or handle to an Art Nouveau continental porcelain piece (Fig. 16.4).

Glassware was common and included Depression glass in clear, purple and white colors. The purple glass fragments represent at least one bowl (Fig. 16.5). Other products included the base of brown glass Clorox bottle (Fig. 16.6) manufactured by Rockware Glass Ltd. of England. Based upon the logo design, this particular product dates to either 1929 or 1930 (Clorox Consumer Services Department).

Furnishings

Furnishing items (n = 8) are typically represented by consumer products that occur within a domestic structure or dwelling such as furniture, lighting, or appliances. Typically these artifacts are under-represented in the archaeological record due to either the burning of domestic refuse or municipal trash pick-up (Barbour 2011a). With their long-lasting cultural value to humans, these types of items are often handed down to other individuals or recycled back into the community through garage sales, collection drives, or as gifts (Rathje and Murphy, 2001).

When these artifact types are present, this category is usually represented with only fasteners, hardware, or decorative items that were once attached to the larger objects. These types of artifacts, however, are problematic in a function-based analysis since most hardware and fasteners are recorded as construction and maintenance items, not as furnishing items, and can further diminish the frequency of furnishing items within the greater Euroamerican assemblage.

Furnishing artifacts at LA 158037 accounted for 0.8 percent of the entire Euroamerican artifact assemblage. These items included pieces of a terra cotta flowerpot (n = 3), flat glass to a cabinet door (n = 3), a fragment of a cast iron stove (n = 1), and a copper tag (n = 1) from the oil tank buried between the Beachman and Butler properties (Fig. 16.7).

The tag reads:

UNDERWRITERS' LABORATORIES
INSPECTED
UNDERGROUND STORAGE TANK FOR HAZARDOUS FLUIDS
METAL NO 14 U.S. GAGE NO 903023
COVER UP THIS TANK UNTIL INSTALLATION IS APPROVED
BY LOCAL AUTHORITIES

It is believed to date to the 1920s or 1930s. Dimensions and construction details associated with the tank are discussed in Chapter 13 of this report.

Construction/Maintenance

A substantial portion of all Euroamerican artifacts fall within the construction and maintenance category (n = 715 or 71.64 percent). Construction and maintenance items included tools, hardware, building materials, electrical, storage, fencing, tenting, lubricants, solvents, and plumbing and water supplies. At LA 158037 these items were represented primarily by hardware items (n = 438), possibly utilized in the construction and maintenance of the various residential dwellings. Hardware items identified included a bolt, a latch, lock key fragments, and a various types of nails and screws. Common (n = 109) and indeterminate (n = 263) wire-drawn nails were most common and typify construction-related assemblages dating to the twentieth century. However, machine-cut square nails were found. Their absence is unsurprising as archival research suggests that most of the structures that once resided in the project area were built after the nineteenth century.

Building materials (n = 63) are comprised primarily of window-glass fragments (n = 45). These fragments may represent cylinder glass or sheet-machined plate glass. Differences between the two manufacturing methods are largely discerned by the morphological presence of bubbles within the glass fragments (Roenke 1978:24). No examination of the bubbles was performed. Furthermore while the thickness of windowpane glass has been used to date archaeological assemblages (Roenke 1978), its reliability has been questioned in recent years (Deiss 1981). No attempt has been made to derive temporal data from flat glass from any archaeological site within the current study area.

Other building materials collected included linoleum (n = 1), tiles (n = 5), and roofing paper (n = 12). Like the window glass, many of these items likely entered the archaeological record when the buildings were destroyed in the 1960s.

Two of the more interesting artifacts found within the construction and maintenance category were meter seals (Fig. 16.8). One a lead seal perhaps utilized in the 1930s or 1940s. The other a plastic seal, or Scotchlok Connector, invented by 3M in 1952. The latter seal type is still in production today.

Personal Effects

Personal effects are portable items belonging to individuals who presumably lived, worked, or visited a site. These items usually include clothing, footwear, jewelry, medicine, objects of personal hygiene, money, devotional paraphernalia, and miscellaneous possessions. At LA158037, 32 personal effect items were collected. These accounted for 3.21 percent of the total Euroamerican artifact assemblage.

Over 70 percent of the personal-effects assemblage was footwear fragments (n = 23), including the pieces of sole, heel, tongues, and eyelets from at least three different boots. While clothing consisted of a metal adjustment slide (n = 1) and a metal clip (n = 1), presumed to be from a pair of suspenders.

Grooming and personal hygiene items (n = 3) were found in low frequencies and included a perfume/cologne bottle, a pomade jar, and a toiletry bottle. All were machine-manufactured and only the perfume bottle was intact (Fig. 16.9). The base of the toiletry bottle was embossed with the letters "A. S. Hin" and presumably represents a Hinds Honey and Almond Cream bottle, which was produced by the A. S. Hinds Company of Portland, Maine. Hinds Honey Almond Cream was first advertised as a skincare product in 1875. The company was later bought out by Lehn & Fink (producers of Lysol) in 1907, but continued to operate independently until 1948 (Friends of Hinds 2013).

Medicine and health objects (n = 4) were similarly under-represented within the Euroamerican artifact assemblages. Items included a glass eye dropper, clear- and purple-glass fragments (n = 2) from two separate patent medicine bottles, and an intact prescription bottle. The prescription bottle was by J. T. & A. Hamilton, which operated between1884 and 1943 (Toulouse 1971:290). However, the bottle was manufactured in a two-piece hinge mold, suggesting manufacture before 1920 (Lorrain 1968:39–40, 43).

Entertainment/Leisure

Artifacts in the entertainment and leisure category (n = 2) represent activities intended to entertain, amuse, provide relaxation or recreation, or to educate. These items are not essential to human existence, but provide a glimpse into pastime and recreational activities performed by the residents of the Capitol Complex Historic Neighborhood. The only analyzed items associated with this category were children's toys (n = 2). These toys included a porcelain fragment from a doll's body and a miniature ceramic saucer fragment from a child's tea set.

Transportation

Transportation items (n = 3) are used in travel or conveyance of people or freight from one destination to another. Objects linked within this function-based category included a metal suspension spring from an automobile, a machine-cut horseshoe nail, and a "Pennzoil" label from a plastic motor oil container. In 1908, Pennzoil was originally marketed as

"Penn's oil," since it came from Pennsylvania. However, the use of plastic dates the product after 1987.

While artifact counts associated within category are quite limited, the diversity illustrates the dynamic shift in transportation, from animal power to motorization during the early twentieth century. In 1920, one out of three households owned an automobile. By 1930, 80 percent of American families owned a vehicle (Kyvig 2002:27). The Ford Motor Company was responsible for this dramatic shift that occurred in one decade, because the cost of the Ford Model T declined when the Ford Model A was introduced. Both models were the most popular vehicles on the American market.

Military/Arms

Military and arms items represent objects associated with or used in warfare, self-protection, or hunting activities. Since LA 158037 was not within a military setting, the cartridge cases (n = 6) recovered were most likely small arms associated with hunting or recreational activities (Fig. 16.10). All of the cartridges were .22 caliber brass rim-fire cases. One cartridge was manufactured by Remington-UMC (1912+). The others were identified as Winchester (1890+) rounds.

Contextual Assemblage Summaries

Euroamerican artifacts were collected and analyzed in association with six historic structures and a possible agricultural field remnant. Euroamerican artifacts were collect due to their perceived ability to inform upon ethnic and social characteristics, consumption and discard patterns, and land use associated with each residence. While the date of deposition for each feature and general socioeconomic standing of the individual who discarded the artifacts in each feature has been discussed previously in this report, this section seeks to describe and discuss the Euroamerican artifacts retrieved from these structures collectively and examine the potential of a artifacts from a specific context to provide base-line data for use in the analytical sections which follow.

Agricultural Field Deposit

A possible agricultural field deposit remnant approximately 10 m in diameter was found just north of Structure 11. Artifact content was tested through the excavation of a two by two meter test pit. Within the test unit 32 Euroamerican artifacts were recovered (Table 16.3) including 22 wire-drawn nails, soda bottle glass (n = 3), and dinnerware (n = 5). None of these artifacts are particularly diagnostic to a specific period in time. However, wire-drawn nails were typically not used until the turn-of-the-twentieth century and suggest that the deposit may actually represent a diffuse domestic refuse or construction debris pit associated with residents of Structure 11 in the twentieth century.

Structure 4, 125 West Manhattan Avenue

Structure 4, 125 West Manhattan Avenue, was probably constructed just after the coming of the railroad to Santa Fe in 1880. Originally owned by the Romero family, the residence was later sold in 1911 to Frank W. Parker. Previous archaeological research in 2007 and 2008 had investigated much property including the structure and over 100 extramural features (Barbour 2008a, 2012a).

Current archaeological investigations were relegated to the far northeast corner of the lot. During this phase of archaeological investigations Euroamerican artifacts (n = 68) were recovered from a bone pit (Feature 320), an irrigation ditch (Feature 350), and two postholes (Features 313 and 405). These artifacts are presented by feature and function-based analytic category in Table 16.4.

Like all bone pits previously recorded (see Barbour 2012a), most of the artifacts found in Feature 320 were butchered animal bone discussed separately in Chapter 17. Euroamerican artifacts consisted a soda bottle (n = 1), indeterminate dinnerware sherds (n = 2), a bowl fragment (n = 1), a piece from a terra cotta flowerpot (n = 1), a tile fragment (n = 1), and several hardware objects (n = 12). None of these materials dated the feature to a specific time period. However, all are reminiscent of materials found in late nineteenth and early twentieth century contexts.

Similarly, the single wire-drawn nail recovered from the irrigation feature is of limited use when dating the feature. At most it suggests abandonment of the ditch sometime after 1890 and possibly after the turn-of-the-twentieth-century.

From the two postholes, 47 Euroamerican artifacts were recovered. Unfortunately 39 of these 47 artifacts appear to represent a single shattered Kerr canning jar produced sometime between 1911 and 1925 based upon its brand name and amethyst color. How the jar came to reside in the posthole remains a mystery, but it provides at least anecdotal evidence of canning at 125 West Manhattan Avenue during the early twentieth century. Other artifacts found within the postholes included four wire-drawn nails and four dinnerware sherds. Overall, the materials recovered during this phase of archaeological investigations contribute little to our overall understanding of life at the Romero/Parker household.

Structure 6, 111 West Manhattan Avenue

Structure 6, 111 West Manhattan Avenue was built sometime between 1882 and 1885. It was owned by the Muller Family throughout much of the twentieth century. The irrigation ditch documented running through the property also ran through the lot designated 125 West Manhattan. One artifact was recovered from this ditch and is discussed above. The only other artifact found in association with Structure 6 was a clear glass shard from a domestic refuse pit (Feature 392). Its function and date of manufacture could not be determined.

Structure 10, 104 South Capitol Street

104 South Capitol Street appears as a vacant lot on archival maps dating to the late nineteenth and early twentieth centuries. The Coughlin Building was not constructed until 1951 and before that time the lot was owned by Frederick Muller. However, a small wooden building, dating prior to construction of the Coughlin Building was found on the lot.

A total of 142 Euroamerican artifacts were found in association with the lot (Table 16.5). These artifacts were distributed across five features including a domestic refuse pit (Feature 252), three construction debris pits (Features 253, 259, and 299), and footprint of previously unknown wooden structure (Feature 277).

The domestic refuse pit was situated in southeast corner of the project area and possessed 68 Euroamerican artifacts. These artifacts included several pieces from a condiment bottle (n = 11), a beer bottle fragment (n = 1), ceramic dinnerware (n = 4), glassware (n = 5), nails (n = 28), boot fragments (22), and a child's toy dish or saucer. Most of the artifacts are not temporally diagnostic. However, machine manufactured bottle glass fragments place deposition of the domestic refuse sometime during the twentieth century and the child's toy indicates a family with small children. Presumably these artifacts were deposited into the vacant lot by the Mullers or another nearby family.

Collectively, the three construction debris pits yielded 49 Euroamerican artifacts. While determined in the field to be construction debris pits based on the high numbers of concrete, brick, and milled wood fragments (not collected), some of the materials retrieved for analysis may have originally been utilized in a residential setting. These include a prescription bottle found in Feature 299 and a fragments of a soda bottle recovered in Feature 259, but most were construction and maintenance materials (n = 39) associated with the pits primary function: to house construction waste. The overwhelming majority of these items were nails (n = 36) of various functions and manufacturing methods. Features 253 and 299 clearly date to the early to mid-twentieth century based on the presence of large quantities of wire-drawn nails and machine manufactured bottles. However, Feature 299 may date slightly earlier because of the presence of machine-cut square nails, which were not commonly utilized after the turn-of-the-twentieth-century.

Artifacts (n = 25) found within the wooden footprint of the structure designated Feature 277 were widely distributed across five function-based analytic categories: unassignable (n = 1), indulgences (n = 10), domestic (n = 4), construction and maintenance (n = 9), and personal effects (n = 1). The presence of the water hose fragments within the construction and maintenance category would seem to support the infield interpretation that the structure functioned as an outbuilding for the residence at 111 West Manhattan Avenue. However, many of the materials are domestic in nature, such as the glassware (n = 3) and toiletry bottle, and could also suggest residential function. The toiletry bottle was machine-manufactured and dates demolition of the structure after 1904.

Given that the lot was owned by the Garcia family in the late nineteenth century and the Muller family in the early twentieth century, it seems reasonable to assume that all of the cultural materials recovered in association with Structure 10 are linked to these two families, but this is far from certain. Unfortunately, the bulk of the Euroamerican artifact assemblage associated with Structure 10 are construction and maintenance items, primarily wire-drawn nails. These objects are of limited interpretation value and do not aid in determining socioeconomic status or characterizing ethnic variability in consumption and discard patterns. Instead these materials simply reflect use of standard hardware in the fabrication of their buildings and outbuildings.

Structure 11, 116 South Capitol Street

Structure 11 was built by Frederick Muller sometime between 1908 and 1912. However, he sold the property in the 1920s and throughout much of the twentieth century it was owned and occupied by William Beacham, proprietor of Beacham-Minardot Hardware. The State of New Mexico acquired the property in 1959 for state offices. It demolished the structure in 1969.

Euroamerican artifacts (n = 436) were collected both from the basement of the Beacham House and from numerous extramural features (n = 28). Extramural features consisted primarily of domestic refuse pits (n = 24), but also included postholes (n = 2), a storage tank (n = 1), and an irrigation ditch (n = 1). Euroamerican artifacts recovered from these features are summarized in Table 16.6.

Artifacts found within the basement of Structure 11 (Feature 409) consisted of materials which collapsed into the depression during building demolition are diagnostic to the 1960s. These included a plastic cap to an aerosol can, a Maxwell House coffee can lid, (n = 1), a fruit or vegetable can, liquor bottle shards (n = 2), a candy wrapper, a dinnerware sherd, and a Scotchlok meter seal among other items. Given that the building was purchased by the state 10 years before it was demolished, these materials are of limited interpretational value, as they do not reflect materials consumed and discarded by the Beacham family. However, this is not the case in regard to extramural features.

Domestic refuse pits were designated as such because of the residential waste found therein and many if not all of these features are associated with Beacham family occupation of Structure 11 in the early to mid-twentieth century. Domestic refuse pits which yielded Euroamerican artifacts included Features 321, 322, 339, 341, 342, 343, 345, 346, 347, 349, 351, 352, 353, 354, 355, 356, 365, 369, 370, 380, 383, 394, 395, and 396. Collectively 382 Euroamerican artifacts were recovered from these 24 features, which equates to an average of 16 artifacts per feature. These counts are miniscule when compared to the hundreds of artifacts found per refuse pit previously encountered during the Capitol Parking Facility project (see Barbour 2012a). It suggests that while these features housed domestic refuse, it was not their primary function.

Communication with Beacham's granddaughter and great grandson (Van Beacham, personal communication, Jan. 9, 2012) mentioned a large chrysanthemum garden in the backyard during the late 1940s. It is possible that many of these pits represent holes dug for planting "mums." If so, the addition of domestic refuse may have been accidental spillage from the surrounding surface.

Regardless, Euroamerican artifacts found within this pits are indicative of household life and can be used to characterize life at 116 South Capitol Street. Artifacts included sections of chicken wire (n = 8), wine bottle fragments (n = 5), ceramic dinnerware (n = 14), glassware (n = 6), a glass pane to a cabinet, a flowerpot sherd, and a pomade jar among other items.

A variety of Euroamerican artifacts (n = 27) were also collected from the irrigation ditch (Feature 389) located within the southwest corner of the backyard. These included a machine manufactured 1/2-pint whiskey bottle, machine-cut (n = 1) and wire-drawn (n = 11) nails, a perfume bottle, and .22 rimfire cases produced by the Winchester (n = 3) and Remington (n = 1) cartridge companies. The presence of the machine-manufactured bottle suggests the irrigation ditch was not abandoned until sometime in the twentieth century and is presumed to be contemporaneous with Structure 11. Lastly the copper label on the oil tank was recovered from Feature 381 and is describe within the Analysis Results section of this chapter.

Barring the materials found in the basement, the assemblage can be used to examine the consumption and discard behaviors of the occupants of 116 South Capitol in relation to others residing in the Capitol Complex Historic Neighborhood. Dinnerware sherds, albeit limited in number, provide a mean ceramic index value of 1.2286 (SD 0.29). This is well below the mean ceramic index value for the neighborhood as a whole (mcv = 1.69, SD 0.68; Barbour 2012a:252) and suggests a family much poorer than those living in the surrounding buildings. This is a bit surprising given that archival records suggest the Beacham family represented a middle-income household that owned a small business. If the family had a preference for undecorated white-bodied earthenware vessels, this could account for the discrepancy in their mean ceramic index value and for the rest of the neighborhood, given non-porcelain undecorated vessels are only given a score of one.

In all other ways, the Beachams are nearly identical to all other early twentieth-century Anglo-American families residing in the Capitol Complex Historic Neighborhood (see Barbour 2012a:246–248). The Beacham family prefered Art Nouveau to Art Deco styling (Table 16.2); their domestic waste consisted of a larger percentage of construction and maintenance materials (73 percent, n = 319) when compared to contemporaneous Hispanic households (<20 percent); they consumed more wine than beer, and they utilized glassware as part of their household place settings—not common among Latinos—with glass dinnerware vessels accounting for 17 percent of the total domestic artifact category.

Structure 12, 120 South Capitol Street

Structure 12 was built in the early 1900s. It was originally built and owned by Frederick Muller who utilized the property as a rental. Throughout the twentieth century numerous families and businesses occupied the structure, the most notable of whom was the Butler Family and their business Butler and Foley Plumbers, which operated at 120 South Capitol Street during the 1930s and 1940s.

During archaeological investigations, Euroamerican artifacts (n = 256) were found in association with Structure 10's foundation (Feature 410) and partial basement (Feature 411), as well as, three extramural domestic refuse pits (Features 390, 391, 393). These artifacts are summarized by feature and function-based analytic category in Table 16.7.

Euroamerican artifacts recovered near the foundation (n = 1) and in the basement (n = 16) likely represent materials which spilled or were tossed into structure during its demolition. These materials included a clear glass Pepsi bottle, indeterminate canned food items (n = 2), beer (n = 3) and liquor (n = 3) bottle fragments, a cast iron heater or stove, numerous construction and maintenance items (n = 6), and a plastic Pennzoil container. Some of these artifacts may represent materials utilized by the residents of the structure, but many such as the Pennzoil container and Pepsi bottle were utilized by the construction crew or came to reside in the structure during the late twentieth century as a result of some unrecognized cultural disturbance.

Three domestic refuse pits were excavated in the backyard of Structure 12 and contained 241 Euroamerican artifacts. The majority of these materials were minuscule metal filings less than 5 mm in diameter. All were recovered from Feature 393 and while very few temporally diagnostic artifacts were recovered from this pit, the combination of machine-cut and wire-drawn nails suggests deposition in the late nineteenth or early twentieth century. It is speculated that these filings may have been generated during cutting, filing, or other modification to cast iron pipes utilized by Butler and Foley Plumbers. If this assertion was correct all materials within the pit could be linked to the Butler family.

Other materials recovered from the domestic refuse pits included soda (n = 2) and beer (n = 3) bottle fragments, a shard from a glassware vessel, cast iron fragments to some indeterminate piece of furniture (n = 2), window glass (n = 5), and roofing paper (n = 12). A plastic bag found within Feature 390 suggests the pit is modern while Feature 391 presumably dates to the early twentieth century.

Overall these artifacts are difficult to interpret and do not provide much in the way of base-line comparative data. The bulk of the artifacts are small metal filings, which, while likely linked to a specific occupant, cannot be used to determine socioeconomic status or characterize ethnic variability in consumption and discard patterns. What remains is of limited use given the small assemblage size.

Structure 13, 122 South Capitol Street

Structure 13 first appears on archival maps in 1912. Throughout the early and middle twentieth century, the two-story building was utilized as a rental by many well-to-do families, including the Fidels, who occupied the structure between 1934 and 1937. In 1963 the property was acquired by the state of New Mexico, the structure was razed, and what would become the Concha Ortiz y Pino Building was built in its place.

Most of the archaeological features found on the lot appeared to be construction debris pits associated with the later Concha Ortiz y Pino Building and were not excavated. However, field observations suggested that three features may have dated earlier. These features, which included two construction debris pits and a posthole, were hand-excavated to explore their artifact content.

The posthole (Feature 305) and one of the construction debris pits (Feature 311) yielded a single nondiagnostic artifact (Table 16.8). It remains unclear if these features are associated with the earlier residential structure or if they were built after 1963. The final pit yield 62 Euroamerican artifacts and while consisting primarily of construction and maintenance items (n = 54), also yielded fragments of a flowerpot, a kitchen crock, indeterminate dinnerware (n = 2), soda bottle (n = 2), and tin foil suggesting that refuse was deposited at a time when residential activities were occurring at the property. Unfortunately, these materials are too few in number to link to a specific tenant or inform upon activities occurring at the residence during the first half of the twentieth century.

Interpretations and Conclusions

Function-based analytical methods for Euroamerican artifacts were developed by South (1977) and others for their potential to distinguish activity patterns in the archaeological record. Determining social status, date of occupation, and activities performed nearby at the time of deposition are fundamental to our understanding of the past. However with the exception of the assemblage from Structure 11 (116 South Capitol Street), artifact counts were not large enough to perform any detailed analysis of the data. Assemblages associated with Structures 4, 6, 10, 12, and 13 could not be used to examince variability in ethnic consumption and discard patterns or infer the socioeconomic status of those residing within the residence.

From the Structure 11 data, it appears that the Beacham family typified Anglo residences within the Capitol Complex Historic Neighborhood. They preferred Art Nouveau to Art Deco stylings. Their domestic waste consisted of a large percentage of construction and maintenance materials. They consumed more wine than beer, and glassware was part of their household place settings. All of these observations matched well with previous data derived from the Muller and Parker residences during earlier archaeological studies of the neighborhood.

The Beachams' one difference lay in their mean ceramic index value. If the value of ceramic dinnerware is used a proxy for socioeconomic status, the Beacham family appears extremely poor. However, this is obviously not the case, given archival evidence of their ownership of a hardware store and archaeological evidence of the size of their house. The family could be classified middle class or upper middle class when viewed against the surround citizenry of Santa Fe. Hence, it is possible to speculate that the family held more conservative, or traditional, aesthetics. These would also lead to a lower mean ceramic index value if the Beacham Family chose not to purchase the most recent or expensive dinnerware styles afforded to them.

This conservative trait has been previously noticed among Anglo-American residents of the neighborhood (see Barbour 2012a:248–249), but ad not been as glaringly apparent to cause an upper income Anglo family to score so low that it was still not possible to differentiate between upper and lower income levels. If such bias among Anglo purchases was found to be common place throughout the City of Santa Fe, it would render socioeconomic scaling through mean ceramic index values meaningless. Instead, the index value would be indicative of ethnicity with Hispanics scoring higher than Anglos regardless of social status or family income. However, this is not the case as it was still possible within the Capitol Parking Facility project to distinguish between an Anglo New Mexico Supreme Justice and Hispanic Laborer.

Ultimately, this Euroamerican artifact analysis builds upon previous studies of the neighborhood by confirming the consumption and discard patterns of Anglo residents within the Capitol Complex Historic Neighborhood. It substantiates the observations noted in Barbour (2012), while at the same time cautioning against the use of only one method when determining the socioeconomic status of the household. Viewed collectively with the data previously compiled, it provides a detailed database from which other neighborhoods within the City of Santa Fe can be compared.

Figure 16.1. Plastic food containers encountered at LA 1580937.

Figure 16.2. Pepsi Cola bottle.

Figure 16.3. Whiskey bottle with a screw-top finish.

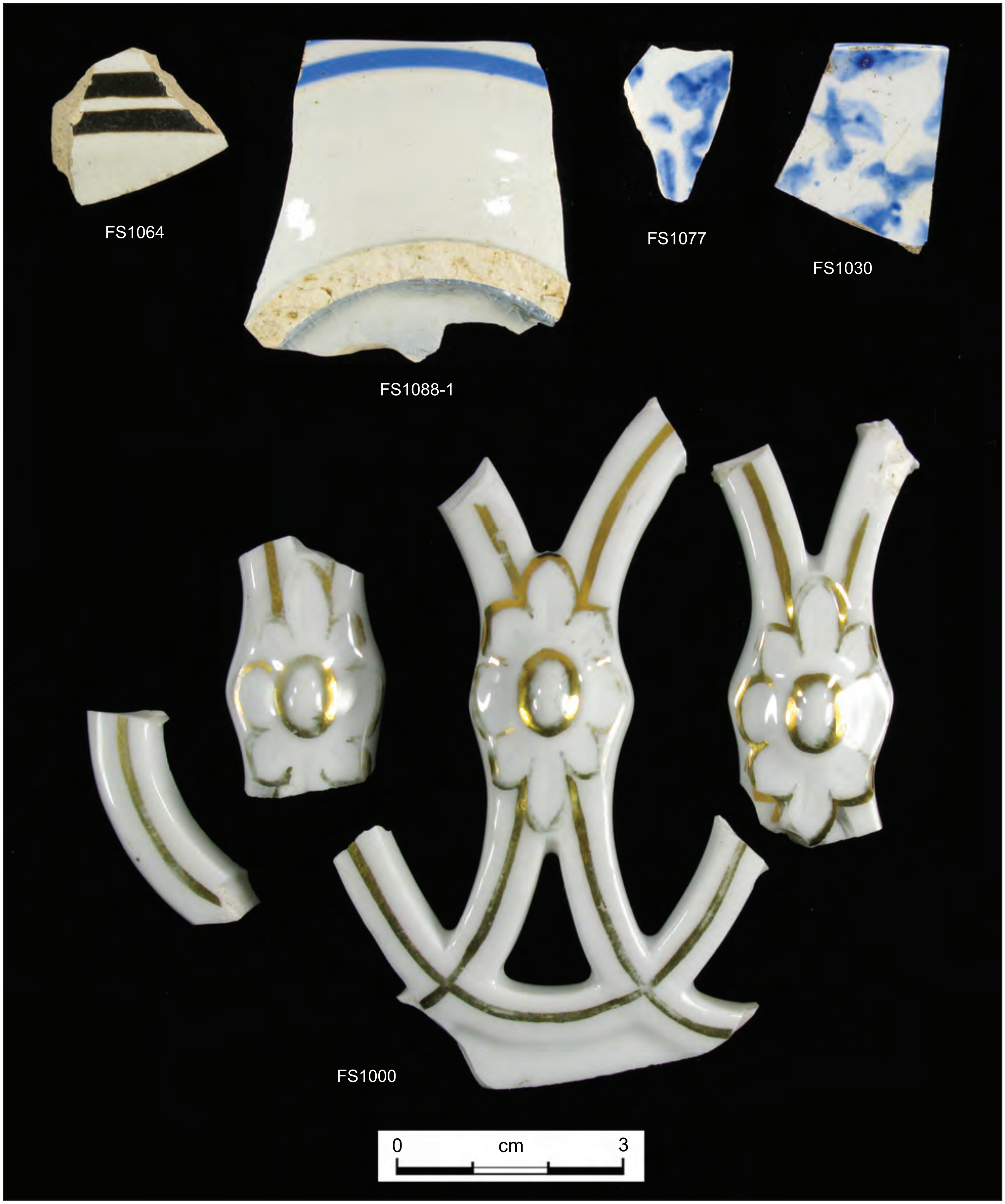

Figure 16.4. Decorated dinnerware collected at LA 158037.

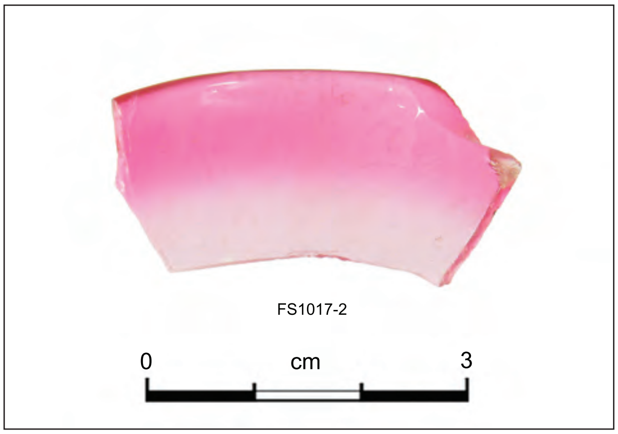

Figure 16.5. Decorative glassware bowl.

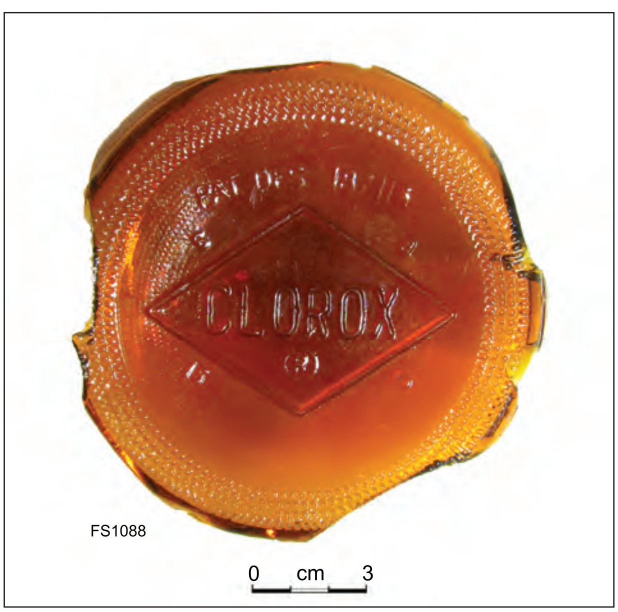

Figure 16.6. Clorox bottle base.

Figure 16.7. Metal tag found on a buried oil tank, designated Feature 381.

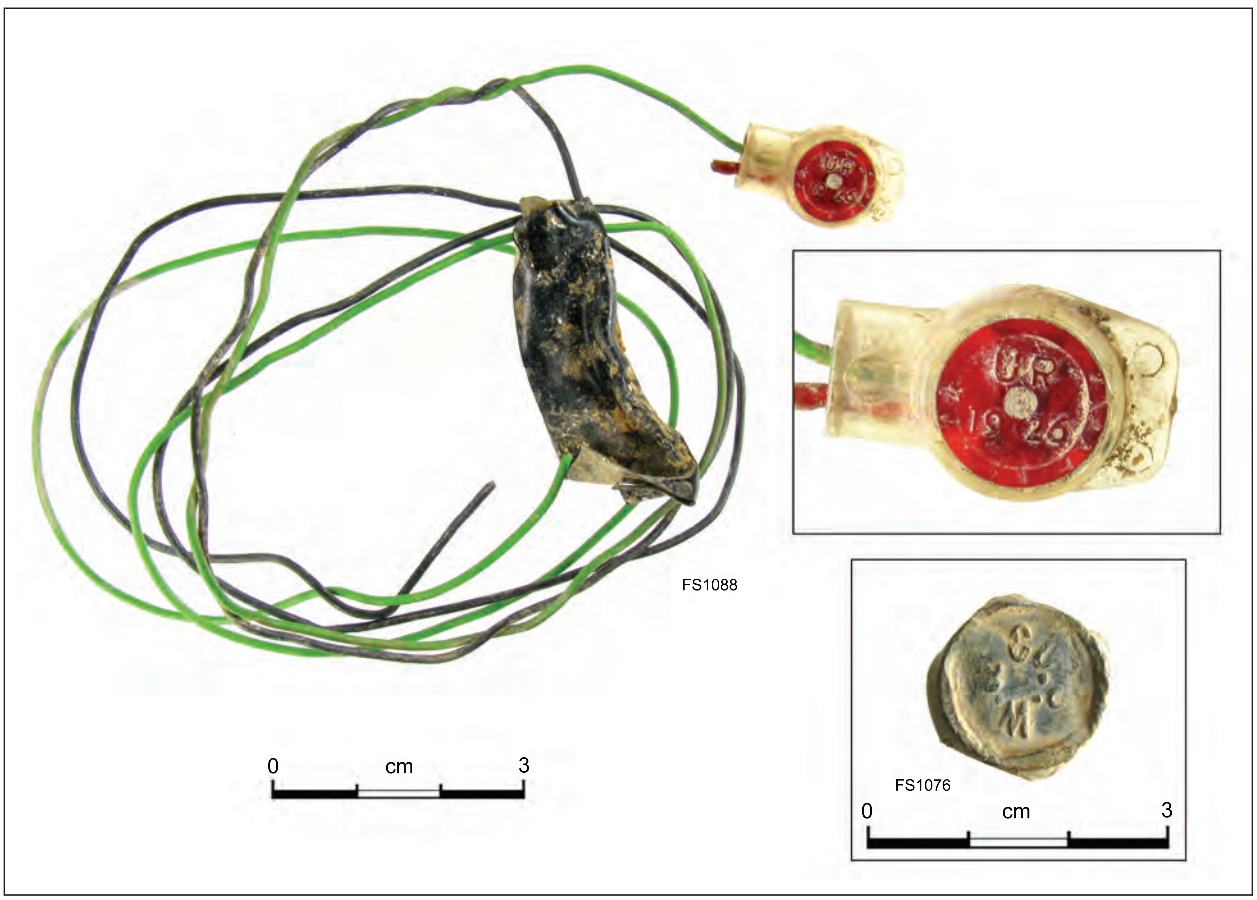

Figure 16.8. Meter seals encountered at LA 158037.

Figure 16.9. Personal effects: (a) perfume bottle, (b) patent medicine bottle, (b) eyedropper.

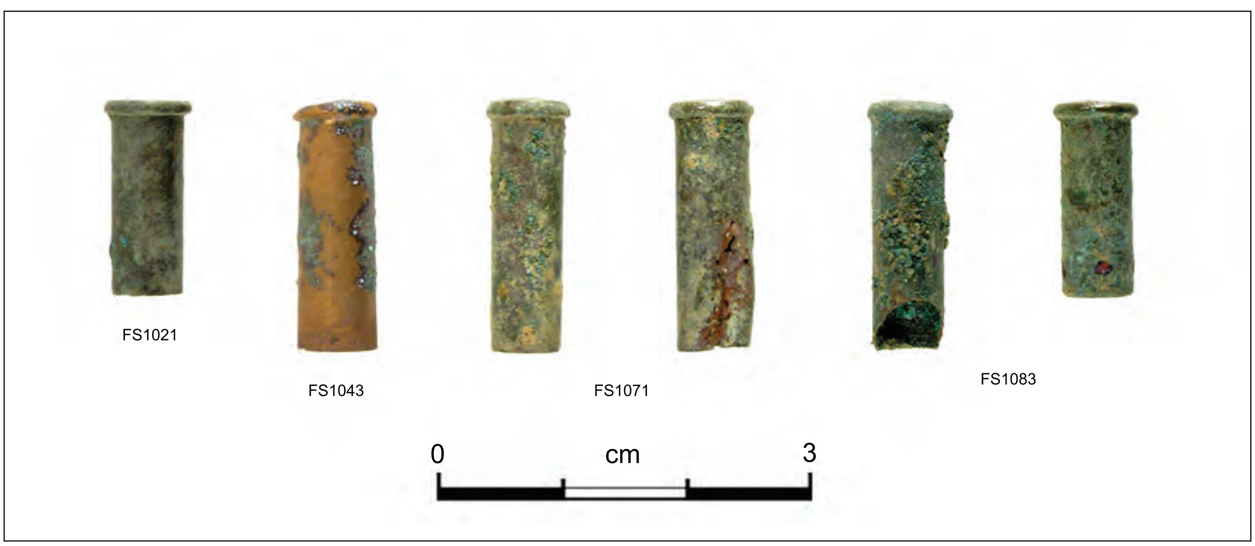

Figure 16.10. .22 rimfire cartridge cases found at LA 158037.

Chapter 17

Faunal Analysis

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Data recovery excavations at the site of the future Executive Office building recovered a fair sample of animal bone. All of the bone was analyzed, resulting in a sample of 472 specimens, far less that the counts indicated by the preliminary bag estimates (n = 1,224). Although the sample size is relatively small, it can be evaluated with respect to the much larger sample recovered from excavations in the large area to the south, now the State Capitol Parking Facility (Barbour 2012a) where just over 5,000 pieces of bone from 86 features were recovered and analyzed. The Capitol Parking Facility [Capitol Parking] sample has deposits left by both Hispanic and Anglo residents who resided on the property in the nineteenth and twentieth centuries (Craw 2012). The smaller sample from the Executive Office building is associated with deposits left by twentieth century Anglo residences.

The primary research questions that can be addressed by the fauna concern consumption and discard patterns between the various ethnic groups, between low- and middle-class households, and in the time periods represented. Methods and definitions used in this analysis are found in the Analytic Methods section of this volume with an abbreviated version included below. In this section, the assemblage is described in general terms then by property within the context of what is known about the residents. The results are then combined with the Capitol Parking Facility data to discern patterns of Hispanic and Anglo consumption in the nineteenth and twentieth century.

Methods

As noted above, a more detailed account of the methods can be found in Chapter 7. This section reviews a few of those that are most pertinent to this report. The basic units of analysis for this assemblage are the structure and the feature and type. All tables are derived from these two variables.

The counts vary considerably from the initial field estimate, due in part to the use of mechanical equipment and picks to excavate the hard clayey soil, and to the often friable condition of the bone. Both factors resulted in a great many shattered specimens. Considerable effort was taken to reassemble these specimens in order to provide a greater level of identification and to keep from inflating the counts of unidentifiable specimens when these pieces are part of a shattered element. This process accounts for much of the discrepancy between field and analysis counts. The other is treating two “animal burials” as single specimens rather than counting each bone.

Rabbit specimens were tentatively called cottontail if they agreed well with comparative specimens. Those that were larger than cottontails but not large enough to be jackrabbit or were shorter and stouter than cottontail specimens are called domestic rabbit. Fortunately most of these elements are complete or near complete so that, while tentative, they most likely do represent domestic rabbits of varying sizes.

The processing variables are designed to address whether butchering was done by hand or in a commercial setting by identifying the tools used. Butchering tools leave different kinds of impressions. Axes or cleavers result in a V-shaped mark at the point of impact and break through the bone. Cleavers were used to split carcasses and to cut relatively soft bones such as those from pork and mutton. Hand-saws leave a flat face with irregular heavy striations plus finer striations between. Marks from band saws are similar but are more regular in depth and spacing of striations. Band saws or butcher's saws were invented around 1808 but were not widely used until around 1850 when durable steel bands became available. Beef bones were usually sawn, except carcasses were usually divided into sides with carcass splitting cleavers (Gust 1983:343). In addition to changes in tool use, what was purchased commercially changed. Initially, larger portions were purchased and further reduced in home kitchens. As markets became more commercial, smaller cuts were purchased and these needed little cutting or chopping (Bowen and Manning 1994:93).

In addition to basic counts, butchering cuts are a primary unit of analysis. Cuts for domestic ungulate specimens are based on the butchering chart found in Schulz and Gust (1983:48) (Fig. 17.1). Each of the cuts is assigned a value and a yield.

The Executive Office Assemblage

Fauna was recovered from 40 proveniences, 39 of which were given feature designations and one that was a test of what was believed to represent agricultural field deposits. Most of the features are domestic refuse pits (n = 28, 72 percent) with the remainder classified as irrigation ditches (n = 2), postholes (n = 2), construction debris (n = 3), bone pits (n = 2), or animal burial pits (n = 2). Sample sizes for the individual features are generally small ranging from single specimens (n = 7) to a high of 119 specimens. The majority (30 or 77 percent) have sample sizes of 10 or less. Only two of the six structure designations have sample sizes greater than 10, Structure 4 with two features (n = 125) and Structure 11 with 26 features (n = 302). Given that many of these properties were occupied for decades, this is not a lot of fauna. Much of the faunal refuse must have been removed from the residences and deposited elsewhere. As a result, the sample here might not be representative of household diet but should provide an indication of some of the food items used.

The much larger assemblage from Capitol Parking has more taxa and all but two of those found in the Executive Office assemblage, mallard duck and scaled quail. The smaller assemblage from the Executive Office excavations (Table 17.1) lacks several of the domestics (cat, pig, and horse), rodents and squirrels, jackrabbit, deer, teal, and identifiable specimens of fish. Overall proportions of cattle and sheep/goat are also quite different. Because of the longer time span represented and the ethnic diversity, sheep/goat are much more common than cattle in the Capitol Parking assemblage, a caprine (sheep/goat) to cattle ratio of 1.2 compared to 0.3 for the Executive Office assemblage.

Agricultural Field and Feature 350, Irrigation Ditch

A 2 by 2 m test excavated 20 cm deep produced a small sample of bone (Table 17.2) along with an array of construction debris. Most of the bone was small weathered pieces. Cattle and sheep or goat specimens are equally represented. One unusual specimen, a metatarsal shaft, may be from an exotic variety of sheep or goat. It is long and thin compared to modern comparative specimens of sheep and goat, long for mountain sheep, the shape is wrong for deer, and it is short and robust compared to pronghorn. It is possible that two of the sheep or goat specimens (a phalanx 1 and a phalanx 3) are from the same animal, but these are consistent in size and morphology with the modern sheep and goat specimens. The cattle parts are a partial caudal vertebra, a piece of ossified cartilage, and a metacarpal fragment. The caudal vertebra has been split with a saw. A partial rib with marks indicating defleshing on the interior is the other sheep or goat specimen. The rest of the assemblage is unidentified.

Feature 350, an irrigation ditch that ran through the Structure 4 and 6 properties produced an even smaller sample of bone. Most are small eroded specimens and only two could be identified, an essentially complete cattle cuneiform and much of a tibiotarsus from a pigeon or dove. Neither has evidence of processing.

Structure 4, 125 West Manhattan Avenue

In the 1880s, this property was owned by the Romero family then starting in the 1910s by New Mexico Supreme Court justice Frank W. Parker. In 1932 it became rental property and in 1946 an apartment complex (Barbour and Moga 2012c:141). Most of this property was excavated during the Capitol Parking Facility project resulting in a sample of 1,420 specimens from 27 features. Among these were eight "bone" or "agricultural" pits that contained butchered cattle crania (Sherman 2012:476) and were attributed to the Romero family occupation. During the Executive Office Building project, two features excavated on this property contained fauna: a posthole and a bone pit. The latter is believed to date to the period when the Romero's owned the property.

Feature 313, a posthole that was part of a fenceline, contained a small number of bones (Table 17.3). Half are from cattle, burned pieces of a humerus and an unburned nearly complete astragalus. The other pieces are small long bone shaft fragments from a large ungulate. All are burned and one is sawn. None of the other four postholes in the alignment were excavated.

Feature 320 was a large, fairly shallow pit containing several clusters of bone (point plots). Most of the bone is from cattle but cottontail, sheep or goat, and chicken were also found (Table 17.3). All of the bones collected in clusters are from cattle and comprise 52 percent of the cattle specimens from the pit (Table 17.4). At least two mature individuals are represented based on duplicate parts of the cranium. One has horns (sawn off) and the other is hornless. Point plots 1, 2, and 8 are probably from the same individual, as are the vertebrae in point plot 3, the rear leg in point plot 6, and most of the ribs in point plot 4. Unlike most of the cattle crania in the Capitol Parking pits, none from Feature 320 have saw cuts. These are more fragmented and the processing suggests one of the heads was removed with an ax or similar implement and chopped at the base along the sagittal plane. The mandible was also removed with chops. Few other cranial parts exhibit definite processing but the fragmentation is at least partially due to the processing with the pieces lacking distinct impact marks. Ribs were often cut into segments with a sharp implement, only one was sawn. The sheep or goat part is a commercial steak/chop cut from a rear leg. The cottontail element is a partial innominate, and the chicken elements are both from a wing.

Structure 6, 111 West Manhattan Avenue

Also constructed in the 1880s, Structure 6 was owned by the Garcia family then by the Muller family. The remains of the structure and 46 features were excavated during the Capitol Parking Facility project resulting in a sample of 703 faunal specimens. Executive Office excavations investigated a single domestic refuse pit from this property (Table 17.5). Artifacts were sparse and only four pieces of bone were recovered. Most are small long bone fragments from at least two sizes of ungulate. The only identifiable fragment is a piece of a sheep or goat pelvis that has defleshing marks. None of the bone is burned and all are weathered.

Structure 10, 104 South Capitol Street

Once part of Structure 6 property, Structure 10 was also owned first by the Garcia family then the Muller family and eventually developed into an apartment and office complex. Excavations found a small wooden structure, a number of postholes, domestic refuse pits, construction debris pits, and two animal burial pits. The animal burial pits and domestic refuse pits are believed to date to the late nineteenth or early twentieth centuries (Barbour 2012a:28).

The domestic refuse pit (Table 17.6), **Feature 252** contained a single piece of a cattle rib with defleshing marks. **Feature 253**, one of the construction debris pits held a caudal vertebra that is consistent with a small dog. The other construction debris pit, **Feature 299**, produced an array of commercial meat cuts, all but one are either steak or roast cuts or are sawn. Cattle parts include a scapula, a femur, and a tibia fragment, the latter two are sawn, and the scapula is a steak or roast cut.

Feature 267, an animal burial pit, contained much of a mature turkey skeleton. It is a large domestic bird with no obvious carnivore damage and is unburned. Missing parts include the cranium and first two cervical vertebra suggesting it was beheaded before burial, and the legs from the tibiotarsi down, except for one of the fibulas. Missing the legs and head suggests it was a grocery store purchase, rather than a buried pet. It was in poor condition and at least partially articulated when found. No evidence of processing was observed but the condition could have obscured any subtle marks.

The second animal burial pit, **Feature 300** was impacted by a backhoe trench and the scraping. It contained several articulated sections of a young but nearly full-grown bovid. Articulated parts include: 1) a piece consisting of at least six ribs, three thoracic and five lumbar vertebrae, the sacrum, and the tail vertebra, 2) the left scapula, humerus, radius, ulna, metacarpal, and foot, and 3) the left femur, patella, and tibia. Other parts present but not recognizable in the photos or field map are much of the right tibia and both metatarsals. Epiphyseal fusion indicates it was between 24 and 36 months of age (Rietz and Wing 1999:76). The only processing was a series of small parallel cuts on the left ischium and indications that the vertebra and sacrum were split sagittally and the transverse processes cut off of the lumbar vertebra. Splitting the carcass is one of the first steps in processing, after which it should be hung for at least 12 to 24 hours to cool before being cut up (Ashbrook 1955:99, 103). This suggests that this beef had been hung and undergone initial butchered before it was discarded.

Structure 11, 116 South Capitol Street

The property at this location was an agricultural field before Fredrick Muller built a structure in the early twentieth century. It was occupied by the Beacham family until the state acquired the property in 1969. A partial basement and 57 features were associated with this structure (Barbour 2012a:28, 34). Fauna was recovered from 26 of the features (Table 17.7). Most of the features are domestic refuse pits (n = 23) with sample sizes ranging from 1 to 48 specimens. The other features include one each posthole, bone pit, and irrigation ditch. Since there are so many features associated with this property, descriptions are brief unless the feature merits more attention. Unless noted, the feature is considered a domestic refuse pit.

Feature 321 contained a small number of fragmentary bones that include a fragment of sheep or goat ulna and fragments of a juvenile turkey humerus and tibiotarsus. The only processing was cuts on the sheep or goat ulna.

Feature 322 held only small mostly eroded fragments of bone that could not be identified beyond the size of the animal. None are burned or have evidence of processing.

Feature 332 had only a fragment of a sheep or goat tooth and a small piece of bivalve shell. Neither is burned.

Feature 339 has a relatively large assemblage (n = 19) that are mainly small fragments. Cattle and large ungulate counts are the same as for sheep or goat (3 each). Commercial processing is indicated by a sawn cattle rib and sheep or goat "chop" cut. The burned specimens are large mammal and medium to large ungulate long bone shaft fragments and an ungulate rib fragment appears to have been digested. Probably the most unusual find is a bone tool, incomplete but resembling a prehistoric punch or shouldered awl.

Feature 340, a posthole, produced an ungulate long bone shaft fragment and two bird muscle splints. Neither have burning or processing.

Feature 341 held a portion of a sheep or goat femur that was sawn, an ungulate bone that is cut through, and a piece of bird bone. None are burned.

Feature 342 had two small unidentifiable pieces of bone. Neither is burned nor have evidence of processing.

Feature 343 held two chicken bones that could have been part of the same chicken breast, a piece of a scapula and wishbone. No burning or processing was noted.

Feature 346 contained only small fragments of bone that could not be identified beyond the size of the animal. Most are heavily weathered and unburned.

Feature 347 produced only two specimens but one is part of a duck femur, probably a mallard. The other specimen is a small burned fragment of small ungulate long bone.

Feature 348 had only two small fragments of ungulate long bone. One has fine cuts indicating it was defleshed.

Feature 349 has one of the larger sample sizes for this structure and has more bone than any other material type. Unfortunately, most are small pieces of long or flat bones identifiable only as ungulate. Identifiable parts include a sawn cattle lumbar vertebra and an array of sheep or goat parts (cranial, thoracic vertebra, rib, ulna, and femur). The rib fragment was defleshed and the femur has chop marks. The only other processing is a sawn ungulate long bone fragment. None are burned but the sheep or goat ulna was gnawed by a carnivore and a small ungulate long bone fragment appears to have been digested.

Feature 351, a bone pit, again had mostly bone and few other artifacts. Much of the assemblage is cattle lumbar vertebrae, caudal vertebra, sacrum, and a complete innominate, probably from the same individual. Many are from the right side and suggest a large wholesale section of beef. The sacrum and lumbar vertebra were cut in half along the sagittal plane. The pit also contained a defleshed sheep or goat rib fragment, and pieces of an ulna and tibia. A single bird long bone fragment was also present. None of the bone in this pit was sawn and none are burned.

Feature 352 held only a small long bone shaft fragment from an ungulate. It is unburned and eroded.

Feature 353 had a considerable amount of bird bone (35 percent), sheep or goat, and probable domestic rabbit. The rabbit specimen is a juvenile lumbar vertebra that is slightly larger than a cottontail. Cuts on flat bones of medium to large mammal and ungulate are the only processing noted. The burned bone is pieces of ungulate long bones.

Feature 354 is similar in that it has mainly chicken (78 percent) and has domestic rabbit. Except for complete femur and humerus, the chicken parts would be considered waste (dentary fragment, lower legs, and feet). One of the phalanges has been cut through. One of the chicken elements (a tibiotarsus in two pieces) has medullary bone indicating that it was a laying hen. The rabbit bones are from two juvenile individuals, one close to jackrabbit in size but stouter. The other is smaller but larger than a cottontail. Also found in this pit is the only fish bone in the assemblage. It is from a very large fish and is a centrum from a vertebra that is unburned and has no evidence of processing. The only other specimen is a sawn long bone fragment from an ungulate.

Feature 356 again has mostly chicken bones (50 percent) along with small pieces that could be bird or small mammal. Chicken parts include cervical vertebra, bones from a wing tip, and a wishbone fragment. No burning or processing was observed.

Feature 369, which is close to Feature 354, held rabbit and lumbar vertebra from cattle and sheep or goat. The rabbit parts (rib and radius) are slightly larger than a cottontail. The cattle vertebrae are sawn, probably to make steak or roast cuts, and the sheep goat is split sagittally. An ungulate flat bone fragment is also sawn. At least the beef cuts and possibly the sheep or goat, suggest commercial cuts.

Feature 370 contained mostly small identifiable ungulate fragments. Identifiable parts are a sheep or goat calcaneus and much of a chicken humerus. An ungulate flat bone is sawn and none are burned. The calcaneus and humerus were both gnawed on by a carnivore.

Feature 380 has a small sample of fragmented bone. A piece of sternum and a tibia shaft fragment are from sheep or goat and a rib fragment could be identified only as ungulate. Over half of the assemblage has saw cuts, including the goat tibia, a large ungulate long bone, and a burned ungulate flat bone.

Feature 383 has the largest sample of bone for Structure 11 and the recovered artifacts are mostly bone. Except for a small piece of bird bone, all are from ungulates with more sheep or goat than cattle parts. The cattle parts are thoracic and lumbar vertebrae that have been sawn, probably into steak or roast cuts, pieces of scapula blade, one cut through, and a tibia fragment. The sheep or goat parts are more variable but are mostly limb bones along with fragments of a thoracic vertebra, ribs, and an innominate. The only processing evident on the sheep or goat specimens are chops on a tibia. None of the bone in this feature is burned and a piece of long bone from a small ungulate appears to have been digested.

Feature 389, a trash-filled segment of an irrigation ditch, has the second largest sample for this property. The assemblage is far more diverse than Feature 383 and includes not only a good amount of chicken (25 percent) but turkey, mallard, quail, dove or pigeon, and cottontail and domestic rabbit along with cattle and sheep or goat. Chicken parts are a combination of waste (a partial mandible, wing, and tibia) and other parts including cervical vertebra, a wishbone or furculum, and fragments of sternum and pelvis. The other bird parts are all long bones. None of the bird specimens exhibit processing. The domestic rabbit specimens are lumbar vertebrae that are about jackrabbit size but are morphological different and the cottontail specimen is a partial femur. None of the bird or rabbit bones have evidence of processing. Cattle parts are a piece of a thoracic vertebra and a tibia fragment that is a steak or roast cut. Sheep or goat parts are a tooth, small pieces of thoracic and lumbar vertebrae, and an innominate. The innominate is sawn. None of the bones are burned but an ungulate long bone shaft fragment is waxy and rounded suggesting it was boiled. The quail wing bone and two cattle thoracic vertebrae fragments exhibit carnivore gnawing. Fauna in this feature represent a combination of hunting, possibly home raising, or purchasing whole domestic rabbits and chickens, and market purchases of beef and sheep or goat retail cuts.

Feature 394 produced little fauna. It includes a sagittally sawn thoracic vertebra epiphysis and ungulate long bone fragments, one of which is burned.

Feature 395 contained only a small mammal long bone and a medium to large mammal flat bone fragments. Neither is burned nor have evidence of processing.

Feature 396 has a piece of a sheep or goat calcaneus and a long and a flat bone fragment from medium to large mammal. All are badly eroded and unburned.

Feature 397 has only a small piece of unidentifiable bone. It was not burned or processed.

Structure 12, 120 South Capitol Street

The history of this property is similar to that of Structure 11. One of the later renters was known to be a hunter who processed game in his back yard (Barbour 2012a:38). Three of the 15 features (a construction debris pit, 3 domestic refuse pits, 10 postholes, and a cesspit), all domestic refuse pits, produced fauna (Table 17.8). The sample of four specimens from these pits is all small fragments that are generally eroded or root etched. None were identified beyond the size of the animal and none are burned. The single processed specimen is a sawn ungulate long bone. Occupants of this property either placed it in pits next door on the Structure 11 property or hauled it away.

Structure 13, 122 South Capitol Street

Built relatively late and occupied between 1928 and 1963, this structure had a number of short-term occupants and relatively few features (six construction-debris pits and three postholes (Barbour 2012a:42-43). One of the pits, **Feature 310**, contained two bones, a fragment of a cattle scapula and a fragment of a sheep or goat cervical vertebra. Neither is burned or has evidence of processing.

Domestic Animal Consumption and Discard Practices

To put the Executive Office feature assemblages into perspective, a database of features from this project and from Capitol Parking with sample sizes over five was created. Such small sample sizes were included because many features have small sample sizes so that the presence of any of the domestic animal taxa is considered important. Information was coded on the ethnicity, century, feature type, feature sample size, the count, cattle, sheep/goat, and pig percent that are from crania, percent that are from feet, percent that is hand processed (chops and cuts except for those on crania and feet), percent retail cuts (sawn or steaks/chops/roast except on crania and feet) and the count, percent from crania, percent from feet, and percent that is processed for chicken. This resulted in a database of 61 features from 8 "structures" or properties (Table 17.9) with the results documented in Tables 17.10–17.12. Structures 1 (141 West Manhattan Avenue) and 4 (125 West Manhattan Avenue) have the most features. Features attributed to Hispanic households (n = 41) outnumber Anglo households (n = 20) and those dating to the twentieth century (n = 46) are far more common than those from the nineteenth century (n = 15) with a more even breakdown when the two are combined: Hispanic nineteenth century (n = 15), Hispanic twentieth century (n = 26), and Anglo twentieth (n = 20). More of the features are refuse pits (n = 28, 45.9 percent) than any other type. Privies (n = 12, 19.7 percent) and bone pits (n = 10, 16.4 percent) are well represented with fewer from pits filled with construction debris (n = 6, 9.8 percent), and other feature types (post holes, foundations, irrigation features, wells) (n = 5, 8.2 percent).

Feature, ethnicity, and dating information is from the provenience files with three exceptions, Matthew Barbour indicated that Feature 136, previously coded as Hispanic twentieth century, should be nineteenth century. Feature 44 was originally coded as a nineteenth century privy based on a mean glass date of 1898 with a standard deviation of 18.6 years (Barbour and Moga 2012a:105) but was built in the twentieth century and several aspects of the faunal assemblage suggests a later date so it is considered early twentieth century Hispanic. Feature 207 was originally coded as nineteenth century Anglo but no Anglos owned the property at the time indicated by the datable artifacts (Barbour and Kirschbaum 2012:173) so it is considered nineteenth century Hispanic. Otherwise, the dates and ethnicity in the Capitol Parking faunal file are presumed to be correct. To examine the data and determine if there are patterns related to feature type (Table 17.13), time (Table 17.14), ethnicity (Table 17.15), ethnicity, and century (Table 17.16), and feature type, means were calculated and compared through SPSS ANOVA tests (Table 17.17).

Feature Type

Feature type does not necessarily reflect the kinds of deposits contained within; especially those designated other, which can contain domestic refuse. In these 61 assemblages there are a few noteworthy patterns (Table 17.13). Mean cattle counts are higher in privies than any other feature type and sheep or goat counts are highest in refuse pits, but not significantly so. Pig specimens are rare in all and found in all but the bone pits. Chicken counts are highest in privies. Pieces of cattle crania are found in all feature types but in much greater percentages in the bone pits. The same is true of sheep or goat foot parts. Pieces of pig cranium are all from refuse pits while privies have the largest means for chicken crania and feet. Almost all of the privy cattle bones are retail cuts compared with fewer in refuse pits, perhaps reflecting better preservation in the privies. More of the retail cut pig bones are in privies while the sheep or goat have a more even feature distribution.

In summary, refuse pits have more sheep or goat than cattle, have relatively few cattle "waste"(crania and feet) parts, higher amounts of sheep or goat waste parts (but moderate amounts for that taxa), the highest amount of pig waste parts, and low amounts of chicken waste parts. Retail cuts of cattle are common while more of the sheep or goat is hand processed. Thus, refuse pits appear to contain a mix of butchering debris, especially sheep and goat, as well as kitchen refuse. Privies have the largest counts for cattle and a mean that is nearly twice that of sheep or goat. Relatively little of the bone from any group but chicken is waste. Nearly all of the cattle and much of the pig are retail cuts while more of the sheep or goat is hand processed. It seems that privies were used mainly for disposing of kitchen refuse with the exception of chicken overall and chicken waste in particular. The bone pits are particularly interesting. These are characterized by either large parts of cattle crania (Capitol Parking pits) or large articulated portions of cattle (Executive Office pits). These will be discussed in more detail later. They tend to have large amounts of waste (cranial for cattle and feet for sheep or goat), no pig, and very little chicken. Assemblages from features filled with construction debris resemble refuse pits in almost all respects, suggesting disposal of both waste and kitchen debris.

Time Period

When viewed by time period (Table 17.14), the amount of cattle increases overall while varying considerably in the different feature types. Refuse pits had only slightly more sheep or goat, while the privies, bone pits, and other pits had considerably more cattle. The single nineteenth century construction debris pit is the exception, possibly suggesting it dates later. For the nineteenth century features, the refuse and construction debris pit have the larger means with lower means for bone pits and other features. This contrasts with those dating to the twentieth century where the largest mean is for the bone pits followed by privies and other features. The amount of hand processed cattle bone is less in the twentieth century sample overall and in the refuse pits but considerably greater in the bone pits and slightly greater in the other feature types.

Sheep or goat counts decrease for all but the other feature group and then not by an appreciable amount (3.8 percent). Cranial parts generally decrease from slightly to considerably with a slight decrease overall. Feet decrease by two thirds overall and almost equivalent in the refuse pits. The amount of hand-processed bone stays the same overall. It decreases in the refuse, bone, and other pits and increases slightly in construction debris pits. Retail cuts increase in all.

Pig is relatively infrequent so that the changes can seem dramatic. Overall, the mean counts are similar, and cranial parts decrease while feet increase. Retail cuts are more frequent than hand processed and change little.

Chicken counts increase in all but the refuse pits. Like pig, means for cranial parts decrease while those for feet increases. Almost all of the chicken is found in refuse in the nineteenth century features while it is wide spread in the twentieth century deposits.

Most of the features appear to date within a time spread of 30 to 50 years or two or three generations (mainly 1890 to 1930) (Barbour 2012a and this volume) of consumers. The exception is Feature 356 which dates around 1950 and has only chicken. During this time span, these assemblages suggest that beef, pork, and chicken comprised more of the diet while mutton use declined. As more meat was acquired as retail cuts, waste parts decreased with the possible exceptions of chicken feet, which mainly ended up in privies, and pig's feet, which may have become a delicacy.

Ethnicity

Ethnicity (Table 17.15), or deposits believed be associated with Hispanic or Anglo households, has fewer significant differences than time, feature type, or ethnicity and century (Table 17.17). The assemblages indicate that Anglos may have eaten slightly more beef. Hispanics deposited more cattle remains in privies and pits filled with construction debris while Anglos seemed to favor bone pits and other features. Cattle crania are more typical of Hispanic refuse and are found in all feature types except for the construction debris pits. Feet are only slightly more common in Hispanic features. Considerably more of the Hispanic cattle specimens are retail cuts, which is true for all but the construction debris pits. Hand processed cattle is relatively rare in both but more common in the Anglo features.

Mean counts for sheep or goats are higher for Hispanic features, except for the other features. Means are quite similar for refuse and privies with refuse and construction debris producing the highest means for Hispanic features and refuse for the Anglo features. Sheep or goat waste parts are generally more common in Hispanic features but vary considerably. Because these are smaller animals, more were hand processed with the Anglo features having considerably more retail cuts and less hand processing.

Anglo deposits have slightly more pig overall, and it is most common in privies. All of the hand processing is from Hispanic features and the Anglo features have slightly less retail processing.

Anglo features of all types have more chicken than their Hispanic equivalents. Slightly more chicken crania are found Hispanic than Anglo refuse and privies. Chicken feet in are more common in Anglo features except for privies where most are found and the Hispanic privies have slightly more. Both groups tended to favor privies for chicken parts.

Differences in Hispanic and Anglo deposits are relatively small. Both groups probably purchased most of their beef and pork as retail cuts. Sheep or goats were raised or obtained live and hand butchered by Hispanics but tended to be retail purchases for the Anglos. Both may have raised or acquired at least some whole, possibly live chickens.

Century and Ethnicity

When the century and ethnicity (15 nineteenth-century Hispanic, 26 twentieth-century Hispanic, 20 twentieth-century Anglo) are both considered (Table 17.16) the number of features in each group becomes smaller and the results complex. Cattle counts are highest in the twentieth-century Anglo bone pits and other pits followed by the nineteenth-century Hispanic construction debris pits. Mean counts increase in the twentieth century. Cattle crania were concentrated in the nineteenth-century Hispanic bone pits, but were also present in feature types. Cattle feet were found in refuse pits from all periods, with larger means for the nineteenth-century Hispanic features. Hand-processed cattle means are highest for the twentieth-century Anglo bone pits and nineteenth-century Hispanic refuse pits. With the exception of the twentieth-century Anglo bone pits, most features have considerable amounts of retail or sawn bone.

Sheep or goat means area highest in the Hispanic nineteenth-century construction debris pit and privies followed the twentieth-century Hispanic refuse pits. The only group that has a higher mean for cattle than sheep or goat count, is the twentieth-century Anglo deposits, and while the overall mean is greater, it only true for some feature types (Table 17.16). Means for sheep or goat crania are highest for nineteenth-century Hispanic construction debris and other pits. In the twentieth-century Hispanic deposits, refuse pits become the places most utilized suggesting a change in disposal location. Twentieth-century Anglo features had the least cranial waste with the largest amount in privies. Like with cattle, sheep or goat feet seem to have been treated differently—perhaps because crania were not waste but parts were commonly eaten or used for other purposes. Considerably more sheep or goat feet were placed in nineteenth-century bone pits than any other location and the association of cattle crania and sheep or goat feet in this feature type may suggest that rather than consuming the brains, these were used to tan sheep or goat hides (see Sherman 2012:290 for a description of the process). In Ashbrooks' (1955:111) description of skinning and butchering sheep the feet are removed during the skinning process so that the cattle crania and sheep or goat feet might have been deposited in the same pit. Means for hand processed bone increase for Hispanic features and are lowest for the twentieth-century Anglo features. Retail or sawn sheep or goat means increase considerably in the twentieth century features.

Pig counts are always low with Hispanic samples tending to have more. Cranial waste is mostly found in the nineteenth-century Hispanic features while feet are most common in the twentieth-century Hispanic deposits. The small amount of hand-processing is all in Hispanic features, while larger amounts of retail-processed pork is found for all three groups. The results suggest that pork was nearly always purchased rather than raised on these properties.

Chicken consumption apparently increased in the twentieth century and it is most common in the Anglo privies. Cranial waste was mainly found in refuse with some in privies, while foot waste was more common in privies than refuse pits.

Consumption and Discard Conclusions

Assuming that the features used in this analysis are correctly assigned to time and ethnic groups, and that they are representative of disposal practices of these two groups during time span represented, the means analysis has several implications. Retail cattle purchases increased during the period represented by these features and Anglos appear to have had a slightly greater preference for beef over mutton. This remains true when actual counts for the 61 features are compared (Table 17.18) showing that Anglo cattle counts are 3.0 percent more than for sheep. Hispanics had a greater preference for mutton, indicated by an 11.6 percent advantage in sheep or goat counts (Table 17.18). Properties where beef was favored by a considerable amount were Structure 3 (135 1/2 West Manhattan Avenue) and Structure 6 (111 West Manhattan Avenue). Mutton was better represented at Structure 2 (451 Galisteo Street) and Structure 4 (125 West Manhattan Avenue). Regardless, while the amount of mutton may have decreased in the early twentieth century, it remained more of a staple in both Hispanics and Anglo diets than today.

Hispanics did more of their own processing of sheep or goat during the nineteenth century and either included market purchases or changed their practices to include saws in the twentieth century. Sawn and steak or chop frequencies for cattle are similar across the time and ethnic groups varying less than 9.0 percent between the high value (94.5 percent of the processed twentieth-century Hispanic cattle specimens) and the low value (85.7 percent of the twentieth-century Anglo sample) suggesting there were only minor differences in how beef was procured. Sheep or goat always tended to be hand processed with the amount of processed bone decreasing for Hispanics (82.6 to 72.6 percent) and the twentieth century Anglo features having the most (84.3 percent).

Pig remains are always rare and other than the association of cranial parts within nineteenth-century refuse pits, no trends were noted. Given that many pork products (bacon, sausage, lard, *chicharones*) have no associated bone, market purchases of pork may have been more common than indicated by the faunal assemblage.

The presence of chicken crania and feet in refuse, privies, and the twentieth-century Anglo other features suggest some were purchased whole or even raised on the properties. Eggshell is extremely rare in assemblages from both projects, only 16 grams from the Capitol Parking Facility project (Craw 2011:270) and less than a gram from the Executive Office project. Structure 1 had eggshell in two nineteenth-century Hispanic features (Features 46 and 49 refuse pits), and nine twentieth-century Hispanic features (refuse pits: Features 39, 77; privies: Features 44,74, 78, 232, 235) and Feature 44 had chicken specimens with medullary bone, indicating egg-laying hens. Structure 2 had eggshell in Feature 88, a twentieth-century refuse pit; Structure 5 had eggshell in Feature 82, another twentieth-century refuse pit; Structure 6 had both medullary bone and eggshell in the nineteenth-century Hispanic refuse pit (Feature 207); and Structure 11's twentieth-century Anglo refuse pits had medullary bone (Feature 354) and eggshell (Feature 346). The dearth of eggshell in features that commonly contain kitchen refuse suggests that eggs were not commonly eaten by these households. More are found in features attributed to Hispanics (11 of 12) than Anglos. Medullary bone could suggest that hens were raised, presumably for their eggs, or that purchased laying hens were eaten. It was found in more Hispanic than Anglo features (2 of 3).

Economic Considerations

Archival records indicate that the Capitol Complex Historic Neighborhood [Capitol Complex] was fairly affluent in the period represented by the Capitol Parking Facility and Executive Office projects (Barbour 2012a:11). However, we know few of the details concerning foodways and diets in late nineteenth and early twentieth century Santa Fe or how these changed as regional economics evolved into more of a market economy. Most of the changes in breeds of sheep, goats, and cattle took place before the Capitol Complex fauna was deposited so that the assemblage is comprised of common modern breeds. Few faunal assemblages from the relevant time period have been reported in the detail needed to determine if Santa Fe neighborhoods differed. Examining an assemblage from the Santa Fe Railyard, Starkovich (n.d.) reports few generalities in assemblages dating from the Late Spanish Colonial period through the early twentieth century. These include a shift from predominately sheep or goat to more variability, including some where cattle were dominant, an increase in domestic chicken, and little reliance on wild game.

Lacking detailed descriptions of household economics, dietary traditions, local markets, and relative prices, other means must be used to evaluate socioeconomic status for the Capitol Complex residents. It has long been held that those with more resources tend to eat better than those with few resources. Researchers have used this observation to examine socioeconomic status through the cuts of meat found in faunal assemblages by developing ranking systems that evaluate the socioeconomic status of past groups. Working in Old Sacramento, Schultz and Gust used the relative value based on retail beef prices in various locations between 1850 and 1910. Comparing deposits from a jail, two saloons, and a hotel, they found clear differences in the beef cuts used in the assembly-line meals served to prisoners by "economy-minded city fathers" and those resulting from sumptuous dining at the hotel. Hotel guests dined on fine steak cuts while the jail population ate soup made with shoulder and neck bones. The saloon refuse contained roast cuts that were economical for serving the free lunches used to attract customers. They conclude that the differences in cuts were primarily due to socioeconomic factors (Schultz and Gust 1983b:47, 49, 51).

Other researchers have questioned whether purchase price unequivocally reflects income level and thus the economic rank and whether economic rank measures status (Lyman 1987:58). Noting that the proportion and absolute amount of edible meat for a cut does not correlate with economic rank, Lyman proposed an alternative ranking system based on cost efficiency or yield. Assuming that a thrifty or cost conscious buyer would purchase cuts that minimize waste and maximize returns, he proposed that the upper economic class would be the least cost efficient and would purchase both high and medium yield cuts, ignoring cost but avoiding the lowest yield and less preferred cuts. The middle economic class would purchase cuts in direct proportion to cost and yield. They would occasionally choose the most and least expensive cuts but would mainly buy high-yield, medium-cost beef cuts. He applied this ranking system and the Schultz and Gust system to fauna recovered from the Fort Walla Walla Dump site in southeastern Washington. Cuts found at this site were purchased and date to about 1903. Statistical tests suggest that neither the Schultz and Gust system nor his yield calculations could explain those deposits in terms of an economic rank model (Lyman 1987:61–65).

A more recent study of fauna from Phoenix dating between about 1880 and 1940 also used market prices to rank wholesale cuts for beef, mutton, and pork. These were compared with ceramic values from the same features and used to examine the occupational rank of those who deposited the bone and ceramics. Statistical tests indicate the link between status and the ceramic and meat values was not strong (Henry 1996:247–249).

As a result, it is not yet clear whether these or the other proposed ranking systems are measuring socioeconomic status or what exactly is being measured by any of the proposed systems. The kinds of food available, household composition, refuse disposal practices, and random preservation also influence faunal assemblages so that it is not surprising that these indices do not always meet our expectations.

Several approaches were used to examine the potential social and economic implications of the fauna from the Capitol Complex. These approaches focus on cattle because beef was most likely acquired through a commercial market system while mutton was home butchered and more likely to be raised by the household or bartered. Pig counts are too low for a meaningful analysis. Building on the analysis of the Capitol Parking fauna (Craw 2012), cattle cuts from the Table 17.11 features were indexed for value and ranked for yield (Table 17.19). In addition, each cut has the original value and yield, which are condensed versions of Schultz and Gust's (1983) economic value and Lyman's (1987) yield but adding low values for foot and cranial parts.

The economic value is from Schultz and Gust (1983:48) who assigned economic values based on from contemporary beef prices. This analysis added values for the head, tongue, and tail resulting in ten initial values, which were condensed to five values (lowest, low, moderate, high, and highest). Yield is based on cost efficiency and was divided into five units based on Lyman (1987:62) with the cuts rated very low, low, moderate, high, and highest in yield. The economic index and yield rank assignments are those found in Craw (2012:471), except that the cross rib, short rib, and brisket cuts were assigned index numbers that correspond with the economic value in Table 17.19. The economic index values are based on cost, in that case 1980s retail prices in the Phoenix area. The least expensive cuts are assigned a value of 1.00 and a cut with a value of 2.00 would be twice as expensive (Craw 2012:278). Index values range from 1.00 for feet and hindshanks to 6.25 for short loin and sirloin cuts (Table 17.19). Yield or cost efficiency is based on the meat yield or pounds of meat per beef cut that 10 cents would buy. Cost efficiency numbers were ranked with highest rank of 1.0 assigned to chuck cuts and the lowest (13.0) assigned to neck cuts. Thus, the higher the economic index number the higher the value of the cut while with yield rank, the highest numbers represent the lowest yield. The mean or assemblage index and rank are calculated by multiplying the number of cuts by the economic index or rank, summing the resulting values and dividing by the number of cuts with an index or rank value. Economic indices and yield ranks were calculated for century, ethnicity, time and ethnicity, structure, and structure, time and ethnicity. Except for Structure 11, which was included because it represents a relatively discrete twentieth century Anglo residence, structures with very small sample sizes are not included in the structure analysis but contribute to those based on century and/or ethnicity.

Economic Index for Beef Cuts

In theory, higher income households would have greater purchasing power which would allow them to purchase more high quality beef cuts. Given that the index for individual beef cuts ranges from 1.00 to 6.25, it seems reasonable to consider a mean index of under 2.5 as poor, 2.5 to under 3.5 as fair, 3.5 to under 4.5 as good, and 4.5 or greater as excellent (e.g., Craw 2012:471). In the Capitol Complex assemblage the mean economic index for the twentieth century deposits is only slightly greater than that for the nineteenth century (3.68 and 3.71) and both are lower than the Capitol Parking assemblage where the nineteenth century group has a higher index (3.89 and 3.88) (Craw 2012:473). Higher indices in the earlier analysis are due in part to Craw not including the cross rib, short rib, and brisket cuts, which comprised 12.4 percent of the beef cuts and have values that are fair. Regardless, the mean values vary little from the late nineteenth century to the early twentieth century deposits (Table 17.20).

While the earlier analysis found the same value (3.88) for Hispanic and Anglo deposits (Craw 2012:473), the Hispanic deposits in this analysis have a slightly higher index (3.71 and 3.67). Combining time and ethnicity finds a very slight rise for the twentieth century Hispanic deposits (from 3.68 to 3.73) with the twentieth century Anglos having the lowest index. Again, the differences are slight and would suggest little difference based on time or ethnicity (Table 17.20).

Indices vary considerably for the structures (Table 17.20), and if the households were ranked, the indices suggest that Structure 11 had the greatest purchasing power followed by Structure 1, Structure 6, and Structure 4 with Structure 2 on the bottom with and over two points below Structure 11.When time and ethnicity are also considered, all but Structures 2 and the Structure 4 twentieth century Anglo (fair), and the Structure 11 (excellent) have mean indices that would be considered good. The index for Structures 1 and 6 improve with time, while that for Structure 4 declines very slightly. All differences are relatively minor.

Yield Rank of Beef Cuts

Cost conscious buyers with low incomes would be expected to purchase beef cuts that minimize cost and maximize return (Lyman 1987:61). Higher income households should be less concerned with yield. Yields for the cuts range from 1 to 13 and can be considered poor if less than 5, fair from 5 up to 7, good from 7 up to 10, and excellent from 10 on (e.g., Craw 2012:474). Means for the Capitol Complex data (Table 17.20) suggests that the twentieth century households were slightly less cost conscious, while the Capitol Parking data suggests a greater difference (6.14 for the nineteenth-century and 5.76 for the twentieth-century deposits) (Craw 2012:473). Hispanic deposits suggest they were slightly more cost-conscious than the Anglos, a result that is similar to the Capitol Parking analysis (5.98 for Hispanics and 5.60 for Anglos) (Craw 2012:473).

Households at Structure 2 appear to have been the most cost conscious and those at Structure 11 the least (Table 17.20). All but Structure 11 (poor) fall in the fair range for cost efficiency. Adding the century and ethnicity to the structure, finds that none fall in the good range and those that would be rated poor (3) are also those with the smallest sample sizes. The rest fall in the fair range. The later Hispanic households at Structure 1 were slightly less cost efficient. Households at Structures 4 and 6 appear to have become more cost efficient going from poor to good.

Economic Value and Yield Value of Beef Cuts

Values are used to provide a more complete picture of the beef cut data that can be obtained by data summaries such as mean values. Rather than an average, the percent of cuts with that value are displayed in bar graphs that represent the distribution of cut economic value and cut yield value. All are presented in pairs with the first graph employing all of the data while the second does not include the waste cuts (crania, tail, feet). Sample sizes for century and ethnicity differ from those in Table 17.20 because data from all of the structure is included in the graphs.

Nineteenth-century deposits have significantly more very low value waste parts than twentieth-century deposits (28.8 percent versus 8.9 percent for the twentieth century sample) (Fig. 17.2A), which contributes to the lower economic index value for that century (Table 17.21). When the low value cuts are removed from the sample (Fig. 17.2B), the nineteenth-century sample has more cuts of the highest value (39.4 versus 29.6 percent). The yield graphs (Figs. 17.2C, 17.2D) show similar results. Nineteenth-century deposits have considerably more cuts of the lowest yield but also have slightly more that are of the highest yield when the waste is removed (Fig. 17.2D). Twentieth-century households may have had access to a greater range of cuts, especially those with moderate yields (short rib, cross rib, and arm cuts).

Differences between the Hispanic and Anglo households are relatively minor. Very low value (waste) parts are only slightly more prevalent in those attributed to Hispanics (14.1 versus 8.8 percent) (Fig. 17.3A). When the waste is removed from the sample (Fig. 17.3B), the distribution of cut values is similar. Both groups have a fairly balanced distribution. Hispanic deposits have slightly more cuts of the highest value (32.1 versus 28.8 percent) while the Anglo deposits have slightly more high (24.0 versus 23.3 percent) and moderate cuts (25.3 versus 23.3 percent). Hispanic deposits have more low- and high-yield value cuts (Fig. 17.3C) and both groups favored high-yielding cuts (49.2 percent for the Hispanic and 46.4 percent for the Anglo deposits when waste parts are excluded). The graphs suggest that both groups favored cost efficient beef cuts but used a wide variety of parts.

When century and ethnicity are combined, it is clear that the presence of waste parts (crania, feet, tail) is far more common in the nineteenth-century Hispanic deposits (28.8 percent) with only minor differences in the two twentieth-century samples (9.0 percent for the Hispanic and 8.8 percent for the Anglo deposits) (Fig. 17.4A). All have similar amounts of the highest value cuts (28.1, 27.5, and 26.2 percent), even when the waste cuts (Fig. 17.4B) are removed from the sample (39.4, 30.2, and 28.8 percent). The proportion of low value cuts remains similar suggesting there was little change in choice and few differences based on time or ethnicity. As for yield or cost efficiency, all three groups appear to have favored the highest yielding cuts with relatively few in the high and moderate yield groups (Figs. 17.4C, 17.4D).

Very low value or waste parts are present in all of the structures except Structure 11, which has a very small sample size. Structure 4 has considerably more waste (20 percent versus 10.4, 8.0, and 9.7 percent in the other structures) (Fig. 17.5A) and the fewest highest value cuts even when the waste is removed from the sample (Fig. 17.5B). Except for Structure 2 at 47.2 percent, over half of the structure assemblages are comprised of high and highest value cuts. The yield results are similar. Structure 4 has the greatest amount of low yield cuts and the least with the highest yield. Structure 11 has few that are low yield while Structure 2 has the least highest and high yield (Figs. 17.5C, 17.5D).

When the structure samples are broken down by century and ethnicity and arranged by time (Fig. 17.6), it is clear that nearly all of the properties had lowest or waste cuts but the Structure 4 nineteenth-century deposits have an overwhelming amount (Fig. 17.6A). The Structure 1 nineteenth-century Hispanic and Structure 6 nineteenth-century Hispanic samples also have relatively large proportions of waste. Removing the waste parts (Fig. 17.6B) finds that properties with the most expensive (high and highest value) cuts are the nineteenth-century Hispanic deposits at Structure 6 and twentieth-century Anglo deposits at Structure 11. High and highest yield cuts are typical of all except the early Structure 4 deposits (Fig. 17.6C) and most when the waste is removed from the sample. Nineteenth-century Hispanic deposits have the most highest and high yield cuts when the waste if removed from the sample. The two groups with the least high-yielding cuts are the twentieth-century Hispanic Structure 2 and the twentieth-century Anglo Structure 4 deposits. When the structure assemblages are ranked with respect to the amount of high valued cuts, the twentieth-century deposits at Structure 11 and nineteenth-century Hispanic Structure 6 would represent the most gastronomically affluent and the twentieth-century Hispanic deposits at Structure 2 and the twentieth-century Anglo deposits at Structure 4 the least. Cost efficiency measures (yields) indicate that Hispanic households tended to be more cost conscious as those with the most highest and high yield cuts include all three of the nineteenth-century Hispanic deposits.

Socioeconomic Status of the Properties

In this section, the information from the beef cut indices, rank, and values is used to discuss each property.

Structure 1

The property at 141 West Manhattan Avenue was owned and mainly occupied by several generations of the Alarid family. Archival evidence suggests the area was relatively affluent until the 1920s and 1930s when it was used as a rental (Barbour and Moga 2012a:99, 121). The Structure 1 features represent both nineteenth and twentieth-century Hispanic households and the early twentieth-century deposits should represent the most affluent residents of this property. Suggested dates for the individual features with sample sizes over 10 specimens, indicate that the only features that appear to post-date the depression are Features 233 and 74. As a result, the majority of the twentieth-century features should reflect the earlier more affluent households. The economic index does suggest a slight increase in the economic value of beef cuts and an increase in cost-efficiency or yield from the nineteenth to the twentieth century. When the economic value and yield value for beef cuts are graphed and the features (except Feature 44 which has no mean date) arranged earliest to latest (Fig. 17.7), Feature 44 and two earlier (Features 27 and 79) features have more low valued or waste cuts. Feature 78, a self-contained vault privy with a mean bottle glass date of 1919 (SD 23) (Barbour and Moga 2012:109) has the largest proportion of higher valued beef cuts. Oddly enough, Feature 231, which has an identical mean date, has the least amount of high valued beef cuts. Estimates of relative wealth based on ceramic indices suggest that the Feature 231 deposits represent a wealthy household while those from Feature 78 were a middle- or upper-class family (Barbour and Moga 2012:109, 114). As for yield or cost-efficiency, Feature 78 appears to represent the most cost conscious household, and perhaps one that was less inclined to invest in the kinds of goods that increase the ceramic index. Again, it contrasts most with Feature 231 and may suggest a household that was more likely to spend on objects of conspicuous consumption than higher quality foodstuffs. Overall, the small proportions of low valued cuts throughout could support archival data indicating a fairly affluent household through most of the time period represented.

Structure 2

The Alarid family owned the Structure 2 property at 451 Galisteo Street. Those who lived on the property around 1900 were day labors, in 1910 the occupant was a bricklayer, and no occupation is listed for the 1930s occupant (D. H. Snow 2012:51–52). Artifacts from this property suggest a middle-class household and the two features (Features 80 and 88) with datable artifacts indicate they date to around 1929 to 1930 (Barbour and Moga 2012b:128, 132). If the deposits are from during and after the depression, it is not surprising that Structure 2 has the lowest economic index of the structures. It also has the second highest yield rank suggesting little concern for cost efficiency. This property also has one of the lowest percentages of cattle verses sheep or goat specimens (28.2 percent are from cattle) for these structures and contrasts with Structure 1 where the twentieth-century Hispanic cattle percentage is 61.4 percent. Such a low percent of cattle could be another indication that the households lacked the resources to purchase much beef.

Values for the features with sample sizes over 10 (Fig. 17.8) indicate the distribution of cuts is not uniform. Feature 43 has far more of cuts with higher values and yields and Feature 91 has little that suggests concern with value or yield. Except for Feature 43, deposits in these features may be consistent with depression era diets that focused on lower cost animals (sheep or goat) and when beef was purchased, it was as the lower value and yield cuts commonly used in soups.

Structure 4

The property at 125 West Manhattan Avenue was owned by the Romero family in the 1890s and 1900s and sold to Justice Frank W. Parker around 1912. After 1932 it was used as a rental and later as apartments (Barbour and Moga 2012c:141). The sample from this property is comprised of nineteenth-century Hispanic and twentieth-century Anglo features, although the only twentieth-century feature with a date is close enough to the nineteenth century that it and other "Anglo" features could all be from the Romero family. All of the Hispanic features are bone pits while the Anglo features include refuse, bone, and construction pits, and a privy. The Romeros and Parkers are believed to have been relatively wealthy but the mean ceramic values that suggest the Romeros were relatively poor and the Parkers middle income (Barbour and Moga 2012c:166). The Hispanic (Romero) sample of beef cuts with values (n = 81 from 9 features) is much smaller than the Anglo (n = 356 from 5 features) (Parker) and when viewed by component, the Hispanic economic index is slightly higher (3.50 or good) than the Anglo (3.49 or fair). Because of the cattle crania that dominate these features, the yield rank or cost-efficiency for the Hispanic deposits would be considered poor (4.94) and the Anglo as fair (5.78).

When values are considered by feature (Fig. 17.9), and all features are included since so many have sample sizes less than 10 (7 of the Hispanic and 2 of the Anglo), all of the Hispanic features except Feature 14 with a sample size of 7, have high proportions of beef cuts with low economic values. The Anglo features generally have smaller proportions of low value beef cuts. Feature 119 with the largest amount low valued cuts has a sample size of only five. The yield or cost-efficiency results are even more dramatic. All of the Hispanic features except Feature 14, and to a lesser extent Feature 128 (sample size 16) have most to all of the beef cuts valued low or lowest. The only Anglo feature with predominantly low yield beef cut values is Feature 320 (sample size 109), which is also the only bone pit attributed to Anglos and one that fits better with the Hispanic sample. Thus, while the economic index value suggests a higher socioeconomic status for the nineteenth-century Hispanic deposits, the distribution of beef cut values indicate that the Anglo sample has more high and higher valued cuts. The yield rank data are more consistent with the yield values in suggesting that the Hispanic beef cuts tend to be low yield cuts and the Anglo features, except Feature 320, suggest a more cost-efficient household.

Structure 6

The 111 West Manhattan Avenue property was originally owned by the Garcia family and purchased by German immigrant Frederick Muller in the 1920s. Artifacts date mainly to the twentieth century and suggest a relatively poor economic status. Archival information indicates the Mullers were a middle-income household (Barbour and Kirschbaum 2012:173, 188). Fauna from this property is mainly twentieth-century Anglo, presumably from the Mullers (n = 246 beef cuts) with a small sample (n = 25) that predates the Mullers and is considered a nineteenth-century Hispanic assemblage. Relative proportions of cattle and sheep or goat appear to reflect a difference in ethnic dietary preference. The Hispanic feature contained 77.7 percent sheep goat compared to only 24.5 percent for the Anglo features. Feature 206 is the only Anglo feature that comes close to the Hispanic distribution (63.2 percent sheep goat in a sample of 19 specimens).

In terms of beef cuts, the economic indices for both components are considered good with the twentieth-century sample slightly higher (Table 17.20). Neither appear to have been particularly cost-efficiency conscious as that for the Hispanics is rated poor and the Anglo only fair (Table 17.20). The beef cut value data (Fig. 17.10) for features with sample sizes greater than 10 indicates that more waste cuts are associated with the earlier features. Feature 161, a construction debris pit, has such a small sample size (n = 12) that it might not be that representative, yet the date range overlaps the depression years and the large amount of low and lowest value cuts (75.0 percent) could reflect the economic conditions at that time. Otherwise, the amount of high value beef cuts in the Anglo features varies from less to greater than for the Hispanic feature. High value beef cuts are common (greater than 50 percent of the cuts) for all but Features 195 and 161 and agree with the index rating of good. The yield values, except for Feature 161, are more uniform and suggest fairly cost conscious households, which contradicts the yield rank data that suggests poor and fair ranks.

Structure 11

From about 1928 to 1940, 116 South Capitol Street was owned and occupied by William Beacham, the owner of a hardware store (Barbour 2012b:28, 34). Bone was relatively sparse in all of the features associated with this property. The small number of beef cuts (n = 23) are generally high value resulting in the only excellent economic index for the Capitol Complex. At the same time, the cost-efficiency or yield rank is poor (Table 17.21), suggesting that quality rather than cost-efficiency influenced purchasing choices for this household. The cut value data (Fig. 17.6) duplicates the cut index with high and highest value cuts dominating the assemblage (78.3 percent of the cuts). However, the yield value data contradicts the yield rank in that over half (56.2 percent) of the cuts are of the highest yield and only 17. 4 percent are low or lowest in yield. Given the small sample size, none of these results could adequately represent the socioeconomic status of this household.

Bone Pits

One of the more unusual and unanticipated feature types encountered during the Capitol Parking Facility project is the "bone pits." Pits given this designation were all at Structure 4, 125 West Manhattan Avenue, and believed to be associated with the Romero family. All measured about a meter in diameter and were between 30 and 50 cm deep. Most of the fill was cattle crania and sheep or goat feet with little of the other material types generally found in domestic-refuse pits (Barbour and Badner 2012:75). Two pits with large portions of cattle, also called bone pits, were excavated during the Executive Office project, one immediately adjacent to the Romero Structure 4 property and one at Structure 11, which could have been filled when the area was a vacant lot (Barbour 2012b:43). Two other features labeled animal burial pits should also fall in this category. Structure 10 Feature 300 contains several large, probably wholesale, portions of cattle not unlike Feature 320, which was considered a bone pit. The other, Structure 10 Feature 267, was a turkey without the head and feet, indicating a market purchase rather than burial of a family pet.

Sherman provides an analysis of the cattle crania from the Capitol Parking Facility project, examining the options that the brains were removed for consumption or for processing hides. A wide variety of ethnic groups cooked and ate brains from several species, including cattle. The high fat content also makes brains useful for the fat itself and brains were cooked, mashed, and rubbed into hides to keep them from becoming brittle (Sherman 2012:288–290).

The cattle specimens provide no clue as to how the brains were used. At least 24 cattle crania received similar treatment (Table 17.21). Many are partial crania (Figs. 17.11, 17.12) that had the top of the brain case either sawn or chopped away. Those in Table 17.21 that have none under processing are similar but have no obvious indication (saw cuts, chops, or impact marks) of how the cranial case was removed. Some are also split in half along the sagittal plane by either chopping or sawing. Fragments that appear to have undergone similar processing were found in privies, refuse pits, and the Structure 4 twentieth-century bone pit. Capitol Complex sheep or goat cranial case parts (n = 148) are largely small pieces (and 78.4 percent comprise less than 10 percent of the cranium) with the rest representing less than half of the cranium. None are sawn and only a small number have chops (2.7 percent) or cuts (4.0 percent). For cattle (n = 102), 17.7 percent of the specimens represent at least half the cranium and sawn (15.7 percent), chopped (3.9 percent), or cut (2.0 percent) processing is more common. Fragmentation of sheep or goat crania suggests that sheep brains were also used but processed differently as if the entire cranium was used rather only removing the brain.

Processing of cattle crania is probably not that unusual given the wide distribution in structures and feature types, but the burial of the largely intact crania is. All of the more complete cattle crania are from nineteenth-century Hispanic Structure 4 bone pits. The 19 crania from these features (Table 17.22) comprise a large portion of the cattle specimens from features that contain far more sheep or goat specimens than cattle (74 and 273). Also of interest is the large proportion of sheep or goat specimens from these features that are feet (72.5 percent). None of the other features with processed crania have this exact pattern. The only other partial cranium is from a Structure 1 privy that has only a few cattle (n = 7) and no sheep or goat bones.

While far from conclusive, the Structure 4 bone-pit association of cattle crania and sheep or goat feet could support a hide processing explanation for the seemingly careful extraction of the brains. As noted earlier, feet are removed during the skinning and butchering process for sheep (Ashbrook 1955:111). The brains could have been removed in anticipation of tanning the hides and the remaining cranium discarded along with the sheep or goat feet. Pits where large articulated portions of animals were discarded (Features 300 and 320) could represent spoiled wholesale portions of beef and a turkey (Feature 267) that were buried at a distance, perhaps by the same households.

Wild Animal and Domestic Rabbit Distribution

If hunting was a regular pursuit of past residents of the area, it does not show up in the faunal record. The sample of the two combined projects (n = 5530) resulted in the recovery of only 63 specimens (Tab. 17.23) that could be the result of hunts or fishing expeditions. All are from twentieth-century contexts and more derived from Anglo rather than Hispanic deposits. Among the species identified are rock squirrels (n = 5), cottontail rabbits (n = 6), jackrabbit (n = 1), deer (n = 4), ducks (n = 18), quail (n = 2), pigeons or doves (n = 7), and fish (n = 14), suckers (n = 2), catfish (n = 1), and drum (n = 3). Except where the structure sample size is very small, the percent of the assemblage that is comprised of wild animals is very small. Figure 17.13 gives the distribution for groups of taxa and domestic rabbits. Counts for all but the domestic rabbits and squirrels and rabbits are highly correlated with the sample size (Table 17.24).

Individuals in the households on these properties appear to have had a variety of interests. If the results here are representative, at least three may have raised (or purchased and eaten) domestic rabbits, one may have hunted small mammals, two could have hunted deer, at least five have birds, two in greater numbers, and five may have fished (or bought fish). Structure 1 has the largest number and most diversity but a low proportion overall (1.87

percent). It is the only structure where all of the taxa groups are found with more deer, wild bird, and fish than any other group. Structure 2 has a single bird bone as does the twentieth-century deposits between Structures 4 and 6. Most of the Structure 4 sample, which is the second largest and should have more variety, is domestic rabbit, rabbits and squirrel with fish the only other group found. Structure 6 has little beyond the domestic rabbit while Structures 7 and 8 have only fish. The fairly large sample from Structure 11 is over half domestic rabbit with more bird than any other wild group. If more effort was directed toward hunting and fishing, then the remains of these endeavors rarely made it into the household trash.

Research Questions

Research Question One

The first research question for the Executive Office project asks whether there are different consumption patterns that relate to cultural identity during the late nineteenth and early twentieth centuries. The arrival of the railroad and increased availability and affordability of mass produced products and goods should have resulted in a more homogenous population and reduced our ability to differentiate ethnic groups from material discards (Barbour 2012a:66). However, this has not always been demonstrated, especially for food items. For example, a turn of the century study in downtown Phoenix found that Hispanic and Anglo households used different kinds of meat. Anglos ate more beef and mutton while Hispanics consumed more pork, slightly less chicken, and slightly more wild animals (Henry 1996:252).

Results of the Capitol Parking Facility project indicate that there are demonstrable differences in the diets of Hispanics and Anglos who lived in the area. Both Anglos and Hispanics consumed more mutton than beef and Anglos more beef than Hispanics. Anglos also consumed more chicken and rabbit while Hispanics ate more eggs. Pork consumption was about equal. Anglos tended to purchase more of their meat than their Hispanic neighbors who often butchered their own meat. Hispanics used wild game to supplement their diet more than the Anglos (Barbour 2012a:68).

To the extent that the ethnic identities and chronological placement of the Capitol Complex faunal assemblages are correct, the expanded database can be used to further explore any patterns found in the earlier study. Depending on how the data is viewed, several of the findings do not hold up under more detailed analysis. Overall counts (Table 17.25) for the combined data files and the feature data (Table 17.14) both find that nineteenth-century deposits have far more remains from mutton than beef (54.3 and 33.6 percent of the count data and 41.9 to 19.7 mean counts for feature data). In the twentieth-century deposits, cattle counts and percentages (44.8 percent) are slightly less than for sheep or goat (46.9 percent) in the count data, but cattle remains are slightly more prevalent in the feature sample data (mean counts 32.2 for cattle and 30.5 for sheep or goat). Pig remains are always rare, decreasing in the count data (2.1 to 1.9 percent) but increasing slightly in the twentieth-century feature data (mean counts 0.9 to 1.6). Chicken decreases slightly in the count data (10.0 to 7.4 percent) but increases by a good amount in the feature data (mean counts 1.6 and 7.0).

Comparing Hispanic to Anglo data (Table 17.15 and 17.25) without regards to time finds a preference for mutton over beef in both the count (51.5 to 39.6 percent) and feature data (mean counts 36.6 and 28.0) while Anglos have a slight preference for beef over mutton in both counts (45.0 to 42.4 percent) and feature mean counts (31.6 and 26.5). Hispanic features have slightly more pork (2.1 and 1.7 percent, mean counts 1.6 and 1.1) and Anglo deposits have slightly more chicken (10.8 and 6.7 percent, mean counts 6.9 and 5.1)). When both time and ethnicity are considered (Tabs. 17.16 and 17.25) the Hispanic preference for mutton declines significantly from the nineteenth- to the twentieth-century (sheep or goat 64.0 to 46.7 percent, mean counts 41.3 to 33.5). While mutton remains were about twice as prevalent as beef in the nineteenth century (64.0 and 31.7 percent, mean counts 41.3 and 19.7) and the two are substantially equal in the twentieth-century Hispanic features (46.7 cattle and 41.9 sheep or goat percent, mean counts cattle 32.7 and sheep or goat 33.5). Anglo beef counts are greater but the preference is not of the same magnitude as the Hispanic preference for mutton (47.6 percent beef and 40.2 percent mutton, mean counts 31.5 for beef and 26.5 for mutton). Pig counts and mean counts are greatest for the twentieth-century Hispanic features (1.5, 2.5, 1.5 percent, mean counts 0.9, 2.0, 1.1, respectively). Chicken increases significantly in the later Hispanic features (2.8 to 8.9 percent, mean counts 1.6 to 7.1) and is only slightly greater than for Anglos 10.7 percent, mean count 6.9). Thus, the combined Capitol Complex feature data generally agrees and suggests that ethnic identity had less of an effect on diet during the twentieth century.

The retail as opposed to home-butchering difference is strongly tied to the species involved with Hispanics more likely to hand butcher sheep or goat. Hand-processed beef is relatively rare in both centuries (11.4 and 5.6 mean percent), while sheep or goat tends to be hand-processed (19.3 hand and 2.2 retail mean percents) in the nineteenth century, but in the twentieth-century deposits an equal amount is sawn (19.2 mean percent), suggesting market purchases of mutton were common (Table 17.14). Hispanic and Anglo features have similar proportions of hand-butchered beef (6.3 and 8.7 mean percentages) and both have large amounts of sawn beef (77.5 and 56.8 percents). Over three times as much of the Hispanic sheep or goat is hand-processed than for the Anglos (25.0 and 7.1 mean percents), who have nearly twice as much sawn or retail purchased mutton (21.7 and 11.7 mean percents). Beef was always more likely to be sawn, implying market purchases (64.3 to 11.4, 85.1 to 3.3, and 56.8 to 8.7 mean percents). Mutton in the nineteenth-century deposits was generally home-butchered (19.3 to 2.2 percent). Twentieth-century Hispanic features have more processed bone overall, with more that is home-processed (28.3 and 17.2 mean percents). Anglos seemed to prefer market-purchased mutton (21.7 mean percent sawn and 7.2 mean percent home cuts).

Eggshell was extremely rare in the Capitol Complex sample (n = 16) and all are associated with Hispanic deposits. More (n = 11) are from twentieth-century contexts than nineteenth-century contexts (n = 5), but they comprise the same proportion (0.4 percent) of both assemblages.

By combining the results of the two projects, several of the earlier conclusions are challenged. Anglos appear to have used more beef than Hispanics of both periods and, pork consumption increased slightly in the twentieth century. Neither group deposited much eggshell. Structure 1 is the only Hispanic property with much wild game, and here it may be a simple matter of sample size. Otherwise, it is the Anglo properties that have more variety of hunted game and fish remains.

Research Question Two

The second question asks if there are differences in consumption between the low- and middle-class households in the nineteenth and early twentieth centuries and how these may have been affected by the Great Depression. It is proposed that different cuts of meat may provide information on social status. Findings from the Capitol Parking Facility project suggest that the quality of meat did not decline during the Great Depression (Barbour 2012a:70, 72).

Answering this question requires the assumption that the faunal assemblage is a true representation of what was consumed then deposited at each property and none of the trash ventured beyond the defined boundaries. Several factors make it difficult to accept this assumption. Urban residents tend to manage their trash, especially those types that would smell and attract dogs and other carnivores. If trash was burned, there is little of evidence for it. Only 5.9 percent of the Capitol Complex bone is heavily burned. Most is from twentieth-century contexts (93.9 percent) and associated with Hispanic deposits (75.7 percent), mainly twentieth-century Hispanic deposits (73.0 percent). Of that which could be identified to species almost half (49.4 percent) of the heavily burned bone is sheep or goat and 15.6 percent are from cattle. Bones from turkey (n = 1), dove or pigeon (n = 2), chicken (n = 1), and fish are also burned (n = 7). Over half of the burned bone (53.7 percent) came from Structure 2 where it comprised 22.7 percent of the bone (n = 772). Other properties with significant proportions of burned bone also have small sample sizes (Structure 7, n = 19 has 26.3 percent burned; Structure 8, n = 11 has 72.3 percent burned). This suggests that with the possible exception of the Structure 2 households, burning was not a primary means of trash disposal. While a lot of bone was recovered, it represents only a fraction of what would have been generated by over 50 years of occupation (110 bones a year for at least 13 properties). Few of the Depression Era features have much bone, making any comparisons based on the pre- and Depression era diets questionable and suggesting that by that time most food refuse was removed from the neighborhood.

Assuming that the sample we have is a good representation of the diets of these households, the economic index, yield rank, and economic value data for beef indicate some differences between the households. However, these differences do not always agree with the economic information from other cultural material types (see the structure description section). In general, the data in Table 17.20 tend to support a mainly middle-class neighborhood that dined on fair to good valued beef cuts. Cut values improved slightly between the nineteenth and twentieth centuries and Hispanics had slightly better-valued cuts than Anglos. Over all, the highest-value cuts are represented by the twentieth-century Hispanic deposits and the lowest by the twentieth-century Anglo deposits. The individual properties vary relatively little with the lowest values at Structure 2 (twentieth century, probably Depression-era Hispanic) and Structure 4 (attributed to twentieth-century Anglo but one is probably Hispanic and associated with the Romero family). Residents of Structure 4 may have supplemented their diet with domestic rabbit, rabbit hunting, and fishing. Those at Structure 2 may have burned their trash avoiding the expense of hauling it.

The yield rank data (Table 17.20) is even less conclusive and probably dependent on factors such as individual tastes and economic priorities in addition to cost-efficiency. That data suggest slightly reduced cost-efficiency for the twentieth century and that Anglos were the least concerned with cost-efficiency and the nineteenth-century Hispanics the most. Cost-efficiency was only fair to poor for all of the properties with no consistent relationship to value. Those with poor cost-efficiency had good (n = 2) to excellent (n = 1) value indices and may not have been concerned with yield. Fair cost-efficiency ranks were paired with fair (n = 2) and good (n = 3) value indices.

There seems to be a correlation between the few Depression Eras deposits (Structure 2 and Structure 6 Feature 161) and less emphasis on higher valued cuts but these are too few to confidently measure the impact in socioeconomic terms. Nor can we positively associate certain properties and features with the more high status individuals. Those at Structure 4 that could represent the Judge Parker household have more better valued cuts than the earlier deposits for that structure but features at Structure 1, Structure 6, and Structure 11 have similar to greater amounts.

Summary and Conclusions

In the faunal assemblage from LA 158037, we see a transition from a late nineteenth-century diet based primarily on home butchered sheep or goat and lesser amounts of market purchased beef to a more diverse diet with less mutton and increasing amounts of beef, pork, and chicken as well as rare inclusions of domestic and wild rabbits, deer, wild birds, and fish in the early twentieth century. Hispanic households continued their tradition of hand butchering of mutton into the twentieth century while Anglos purchased much of theirs as retail cuts. Both groups probably raised some chickens, more for their meat than for eggs, and the practice was more common for Hispanic households.

Assemblages from the individual properties are as diverse as the households who lived there. Employing a range of quantitative and qualitative measures to the faunal data and comparing these with economic measures from other artifact types and archival data finds that no one measurement describes the economic situation for that property. Rather, a multifaceted approach provides insight into household economics as well as the more general trends described above.

It is unfortunate that past research in the Santa Fe area has placed so little emphasis on detailed analyses of artifact assemblages that could document the transition from a more agrarian to a wage economy and the influence of an increasing Anglo population during the late nineteenth and early twentieth centuries. This and the other reports on the Capitol Parking Facility provide a comprehensive view of one neighborhood; hopefully knowledge of this base will encourage future researchers to contrast and challenge these findings.

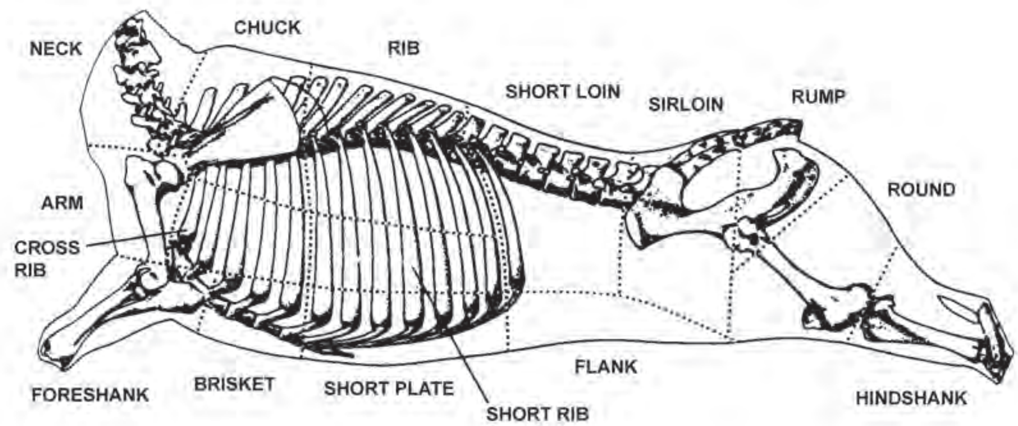


Figure 17.1. Diagram of meat cuts.

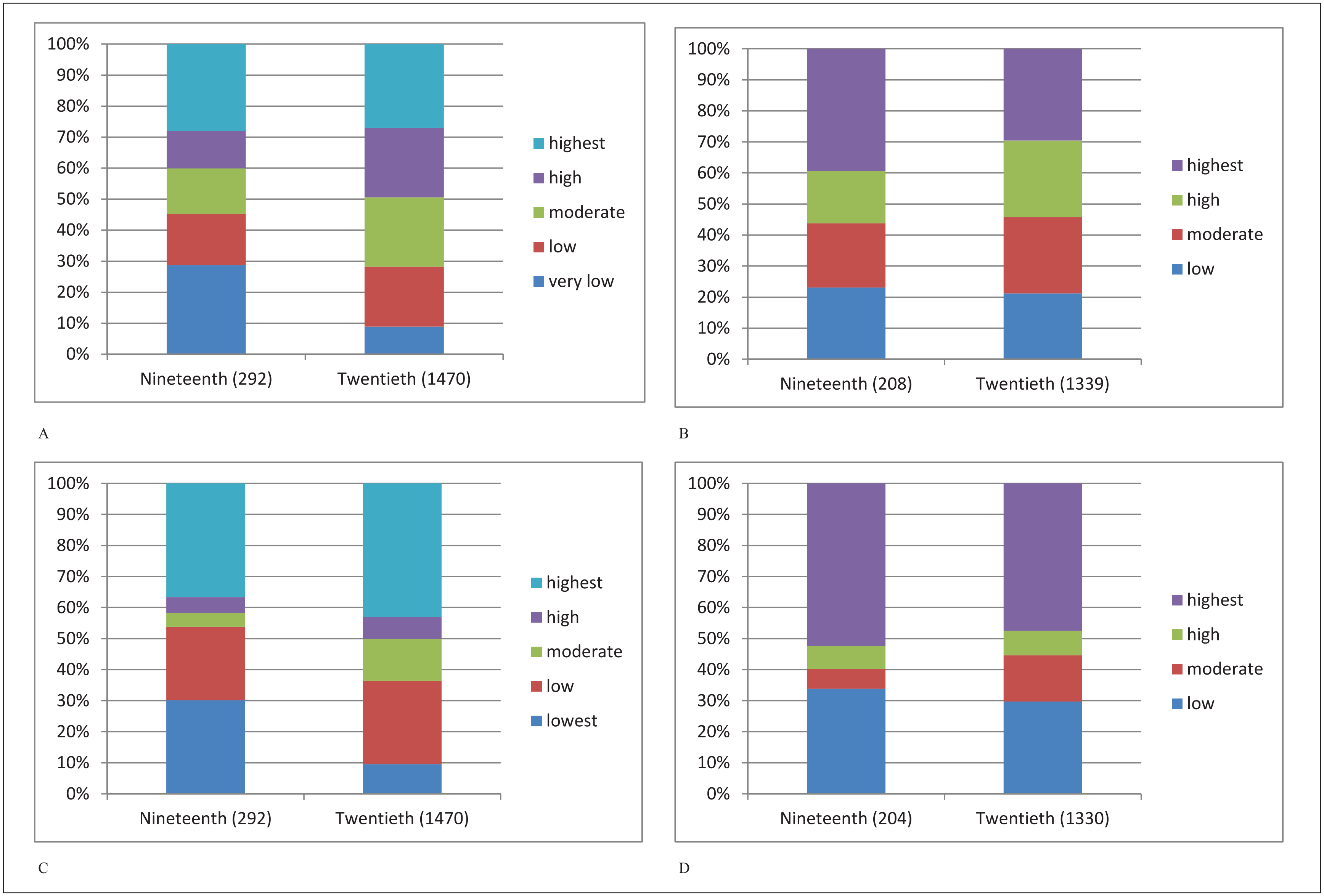


Figure 17.2. Economic and yield value for the Capitol Complex beef cuts by century [A = Economic Valued; B = Economic Value Without Waste Parts; C = Yield Value; D = Yield Value Without Waste Parts].

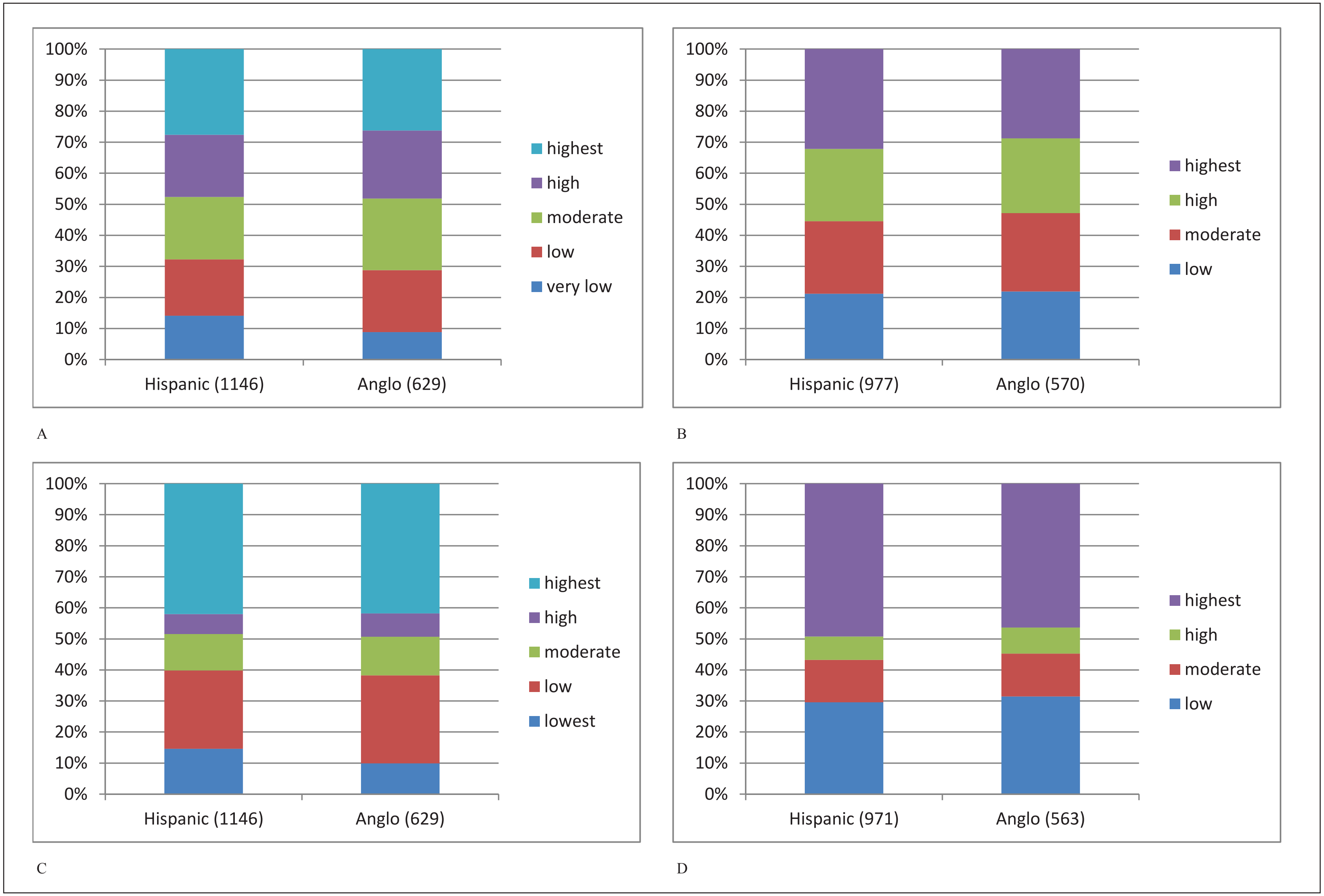


Figure 17.3. Economic and yield value for the Capitol Complex beef cuts by ethnicity [A = Economic Valued; B = Economic Value Without Waste Parts; C = Yield Value; D = Yield Value Without Waste Parts].

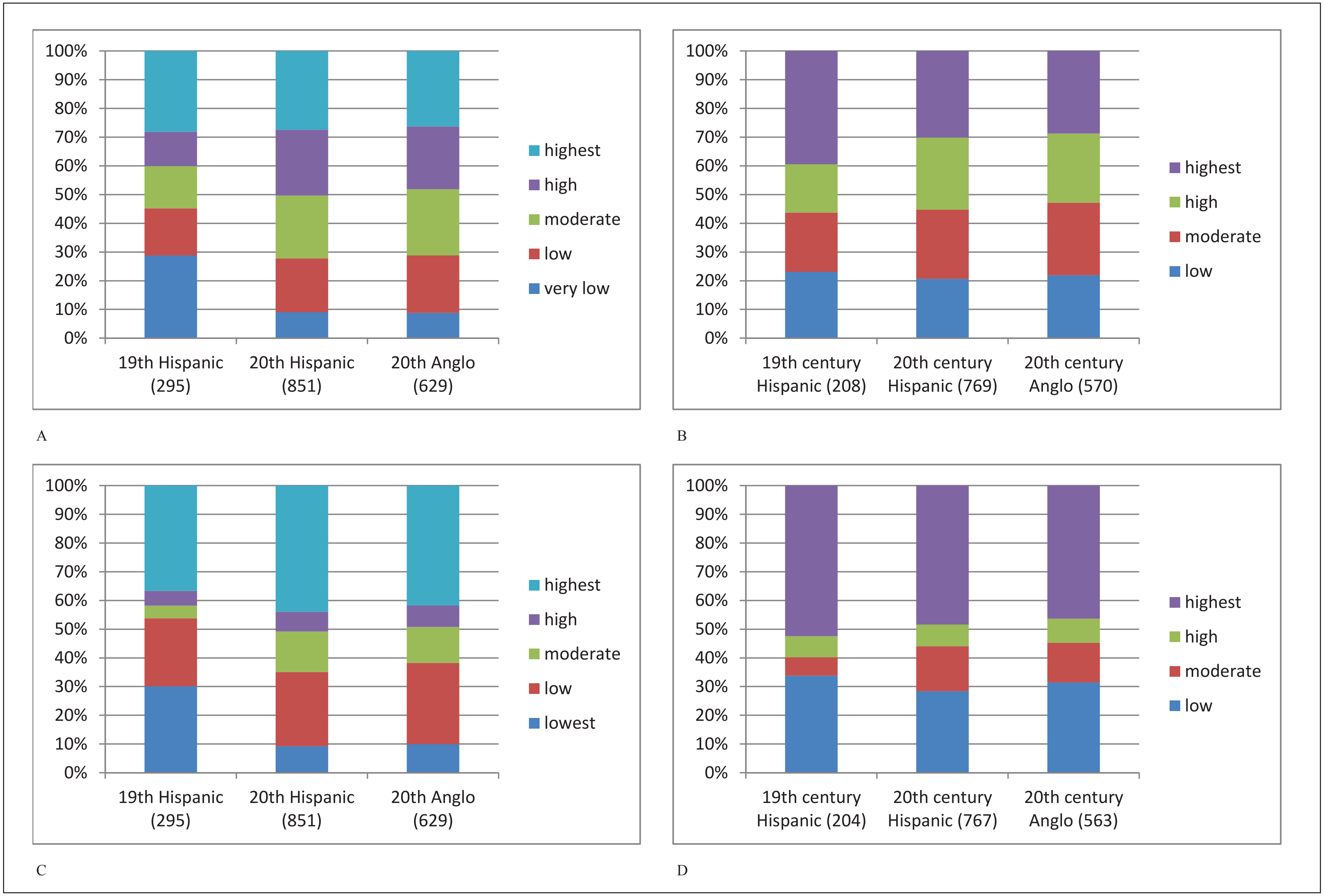


Figure 17.4. Economic and yield value for the Capitol Complex beef cuts by century and ethnicity [A = Economic Valued; B = Economic Value Without Waste Parts; C = Yield Value; D = Yield Value Without Waste Parts].

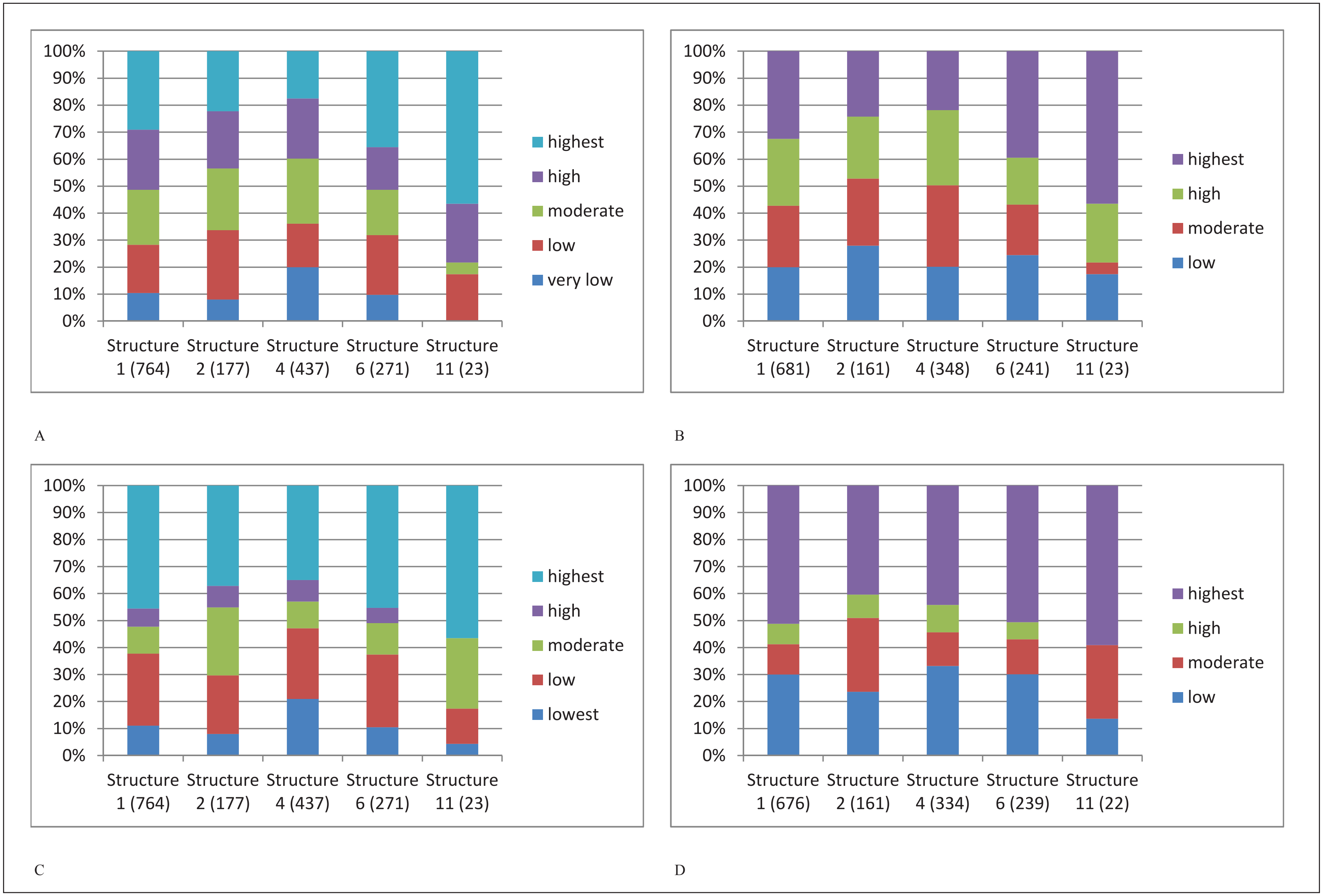


Figure 17.5. Economic and yield value for the Capitol Complex beef cuts by structure [A = Economic Valued; B = Economic Value Without Waste Parts; C = Yield Value; D = Yield Value Without Waste Parts].

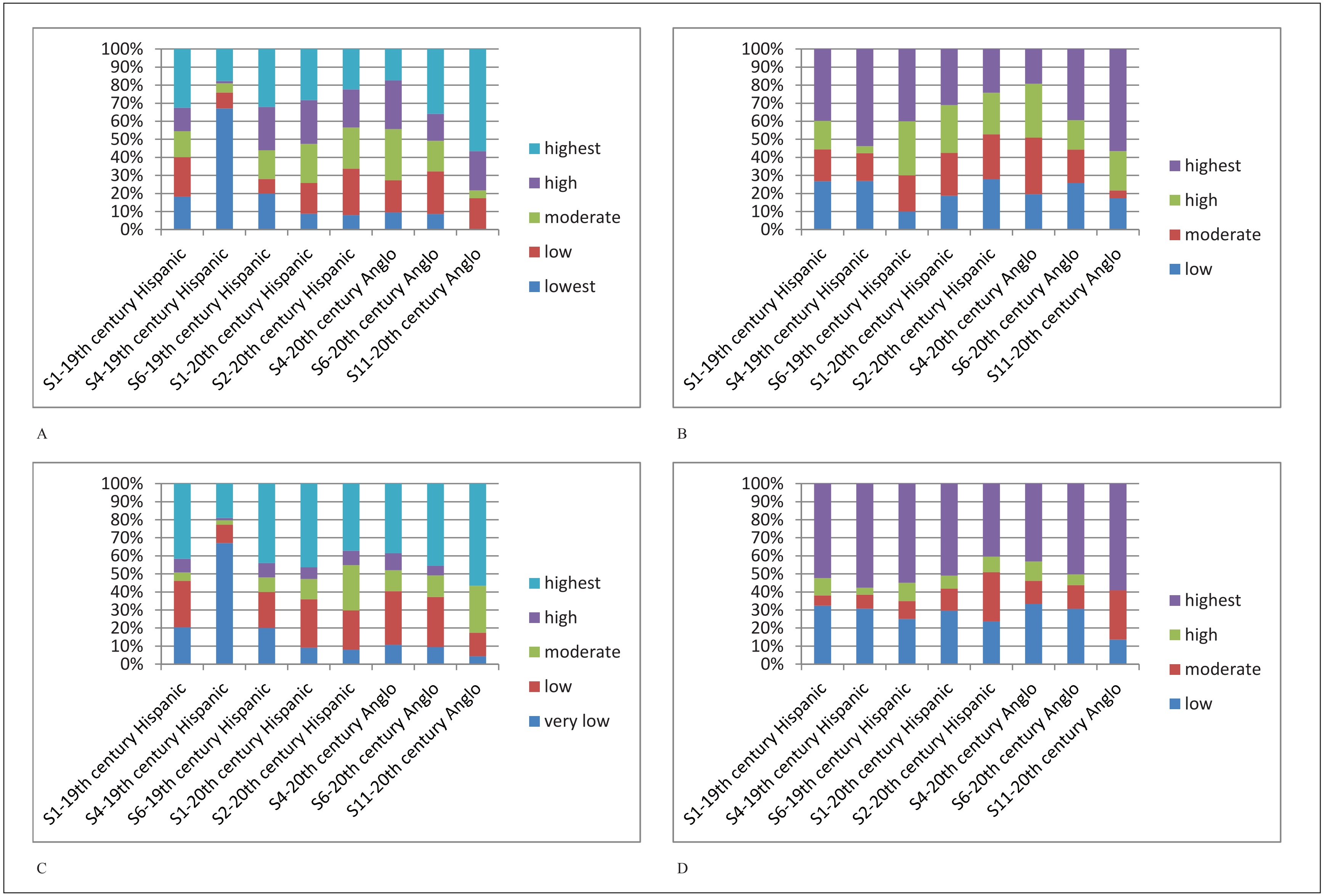


Figure 17.6. Economic and yield value for the Capitol Complex beef cuts by structure, century, and ethnicity [A = Economic Valued; B = Economic Value Without Waste Parts; C = Yield Value; D = Yield Value Without Waste Parts]. See sample sizes in Table 17.21.

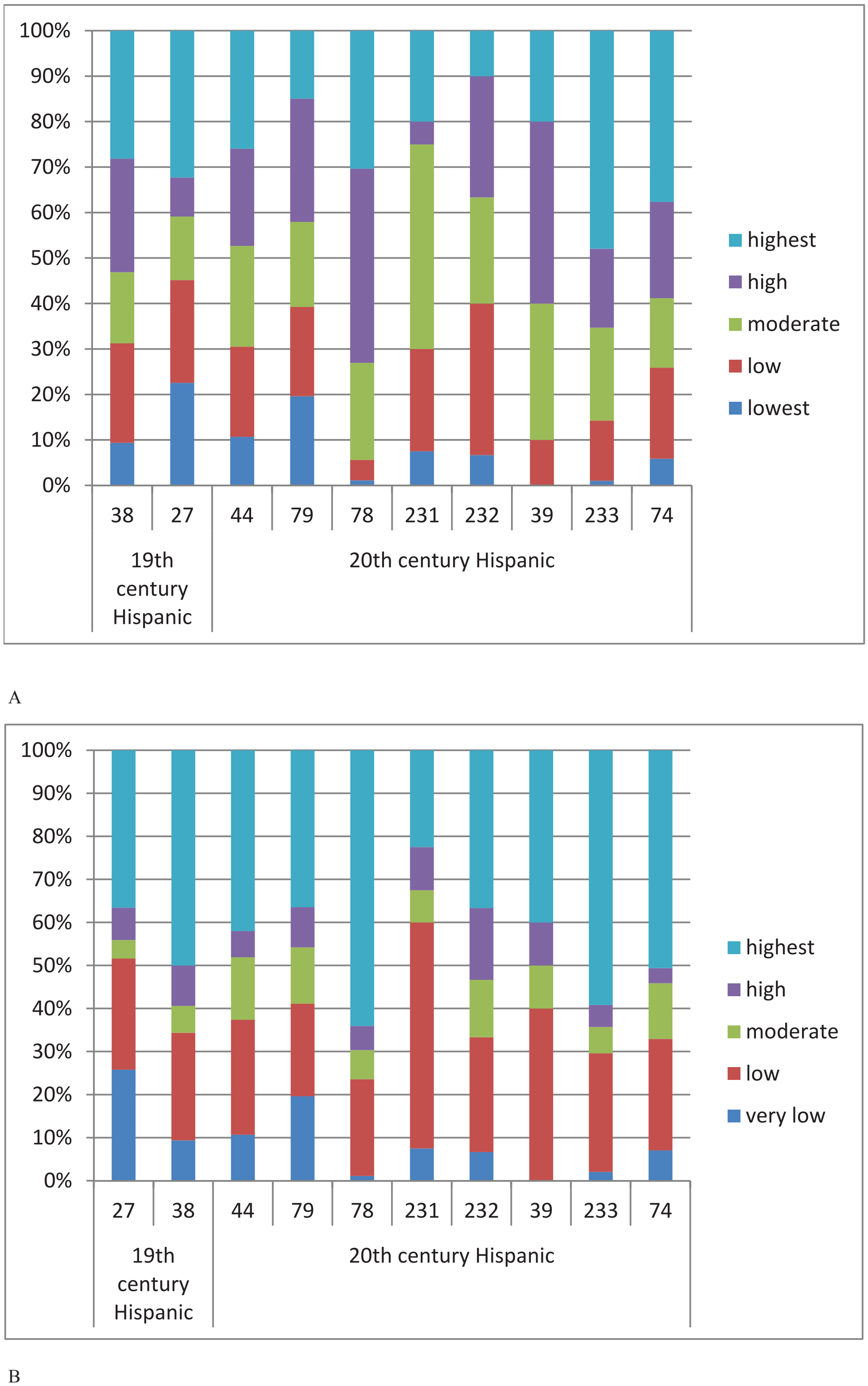
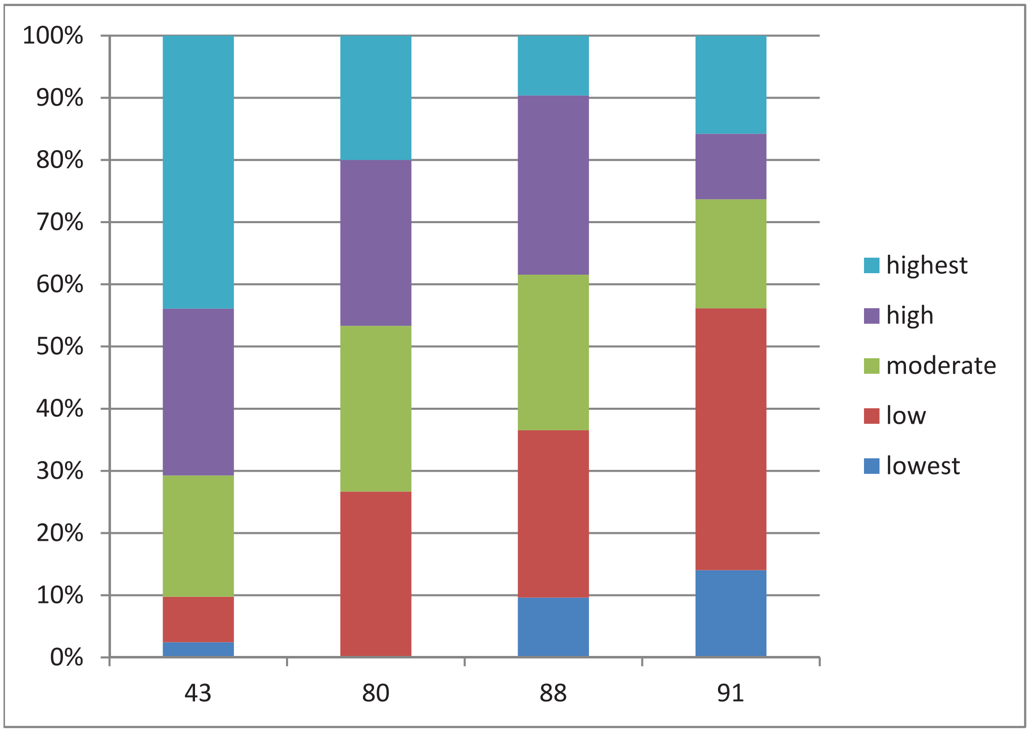
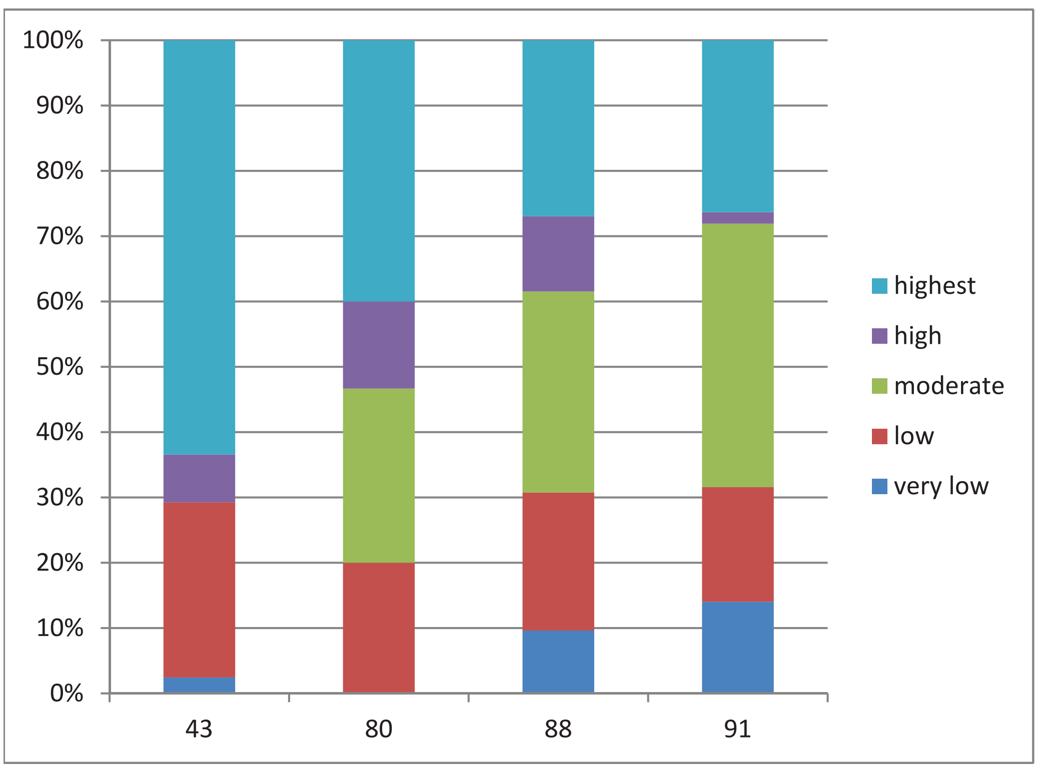


Figure 17.7. Structure 1 economic (A) and yield (B) values for beef cuts from features with sample sizes greater than 10.

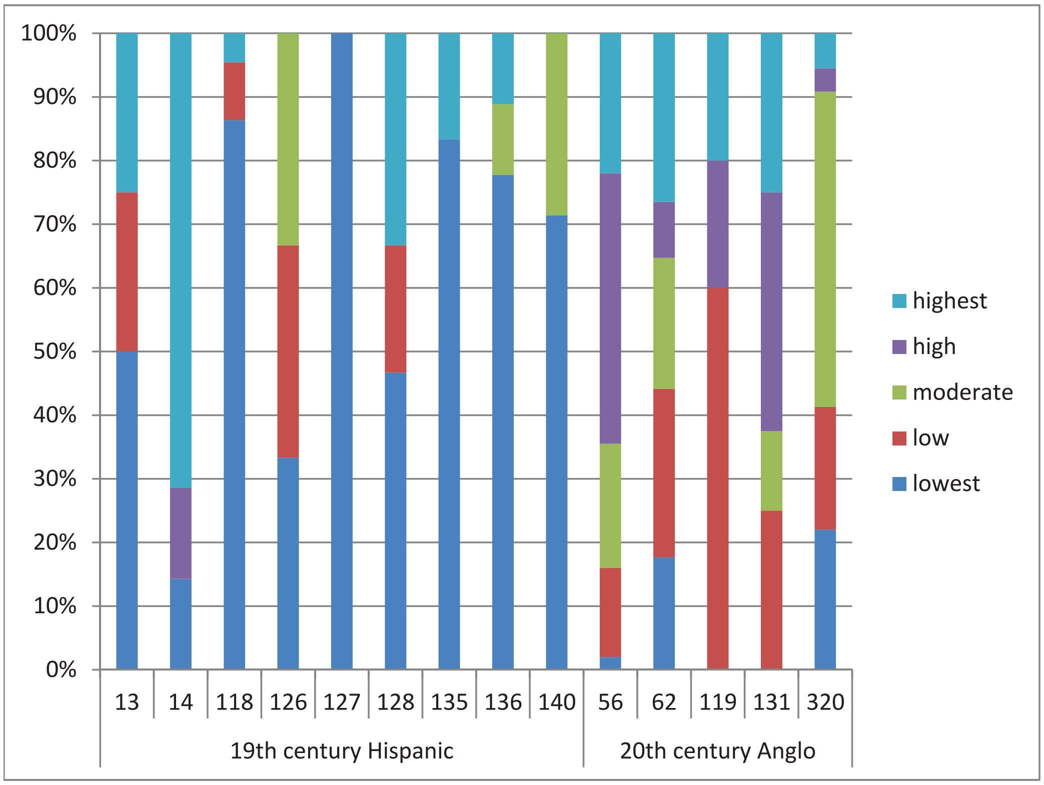


A

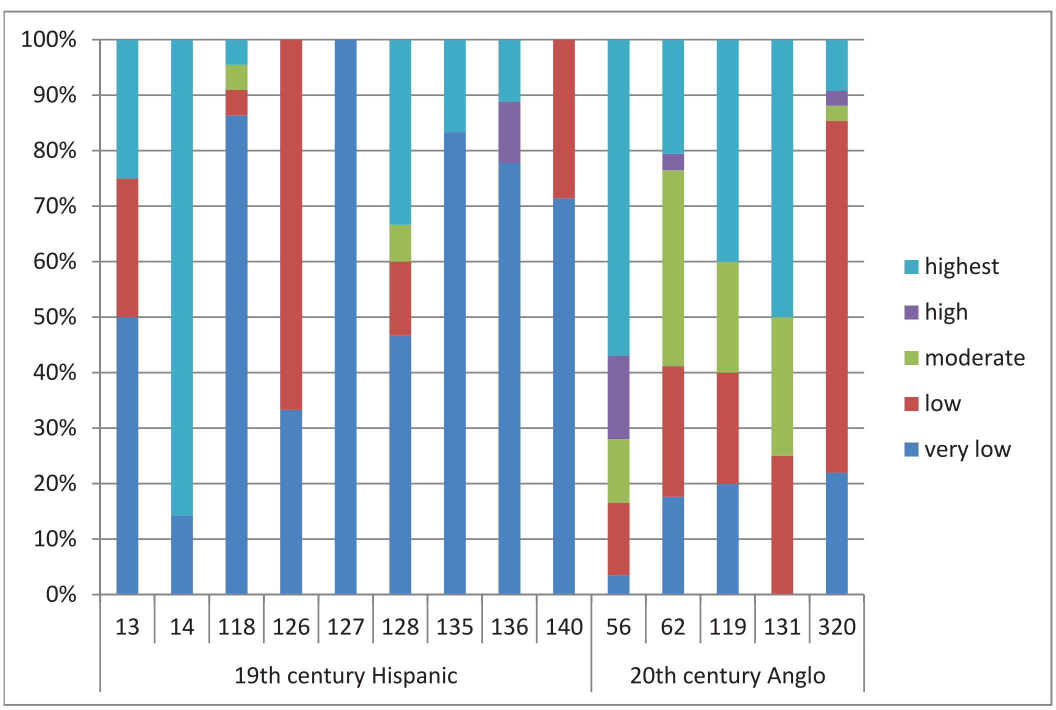


B

Figure 17.8. Structure 2 economic (A) and yield (B) values for beef cuts from features with sample sizes greater than 10.

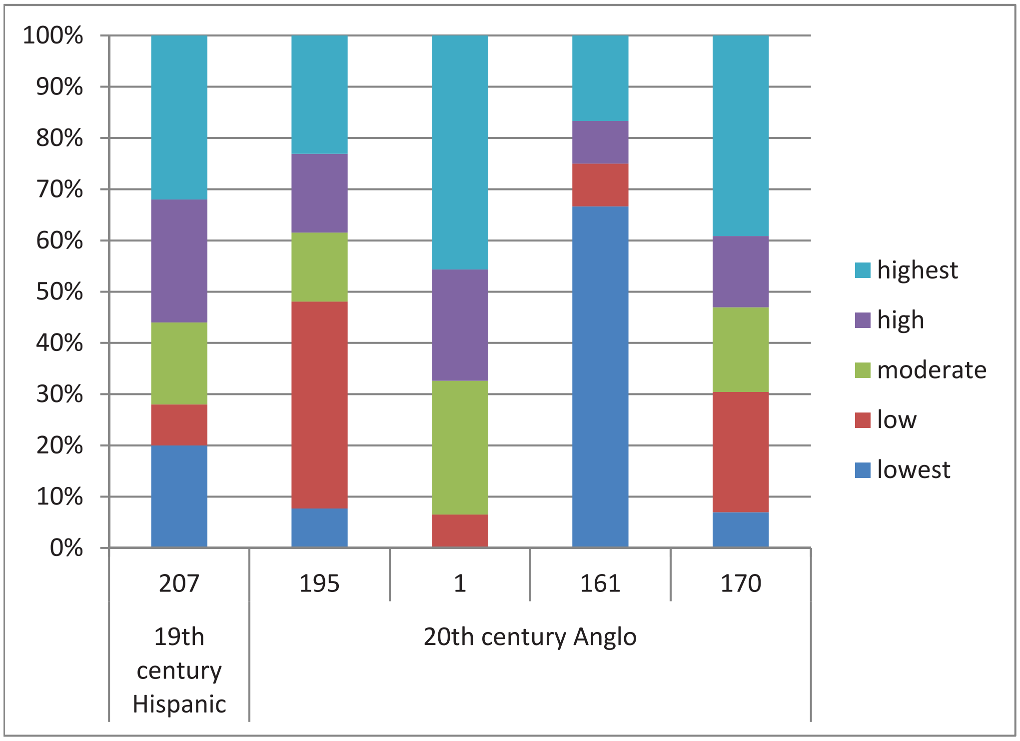


A

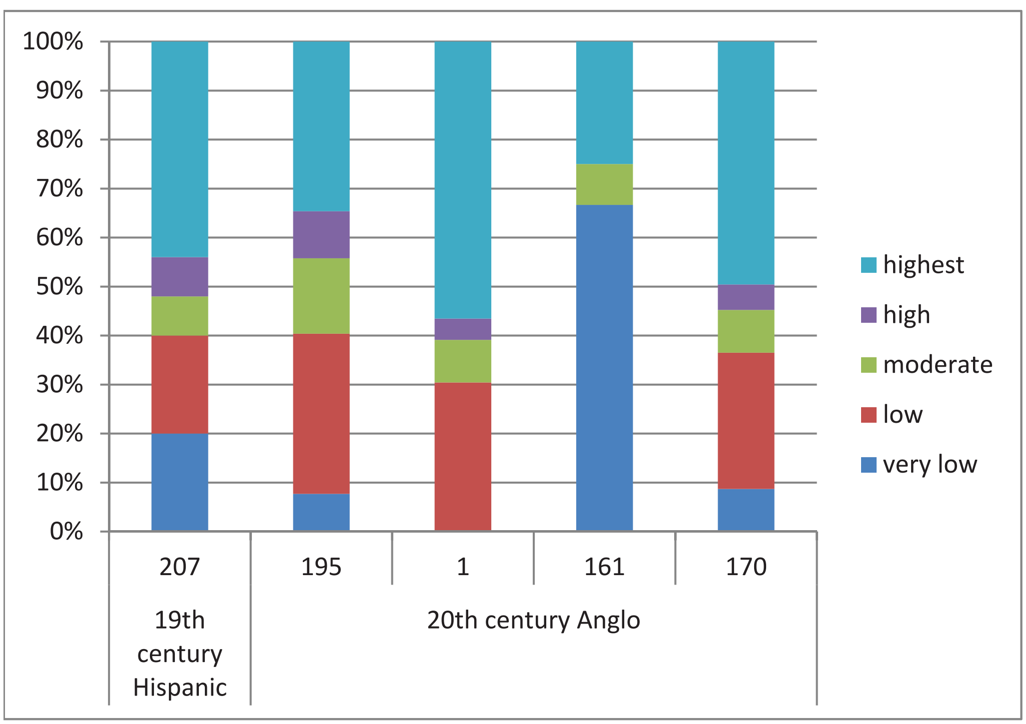


B

Figure 17.9. Structure 4 economic (A) and yield (B) values for beef cuts by feature.



A



B

Figure 17.10. Structure 6 economic (A) and yield (B) values for beef cuts from features with sample sizes greater than 10.

Figure 17.11. Saw-cut cattle cranium from Feature 118, profile view.

Figure 17.12. Saw-cut cattle cranium from Feature 118, posterior view.

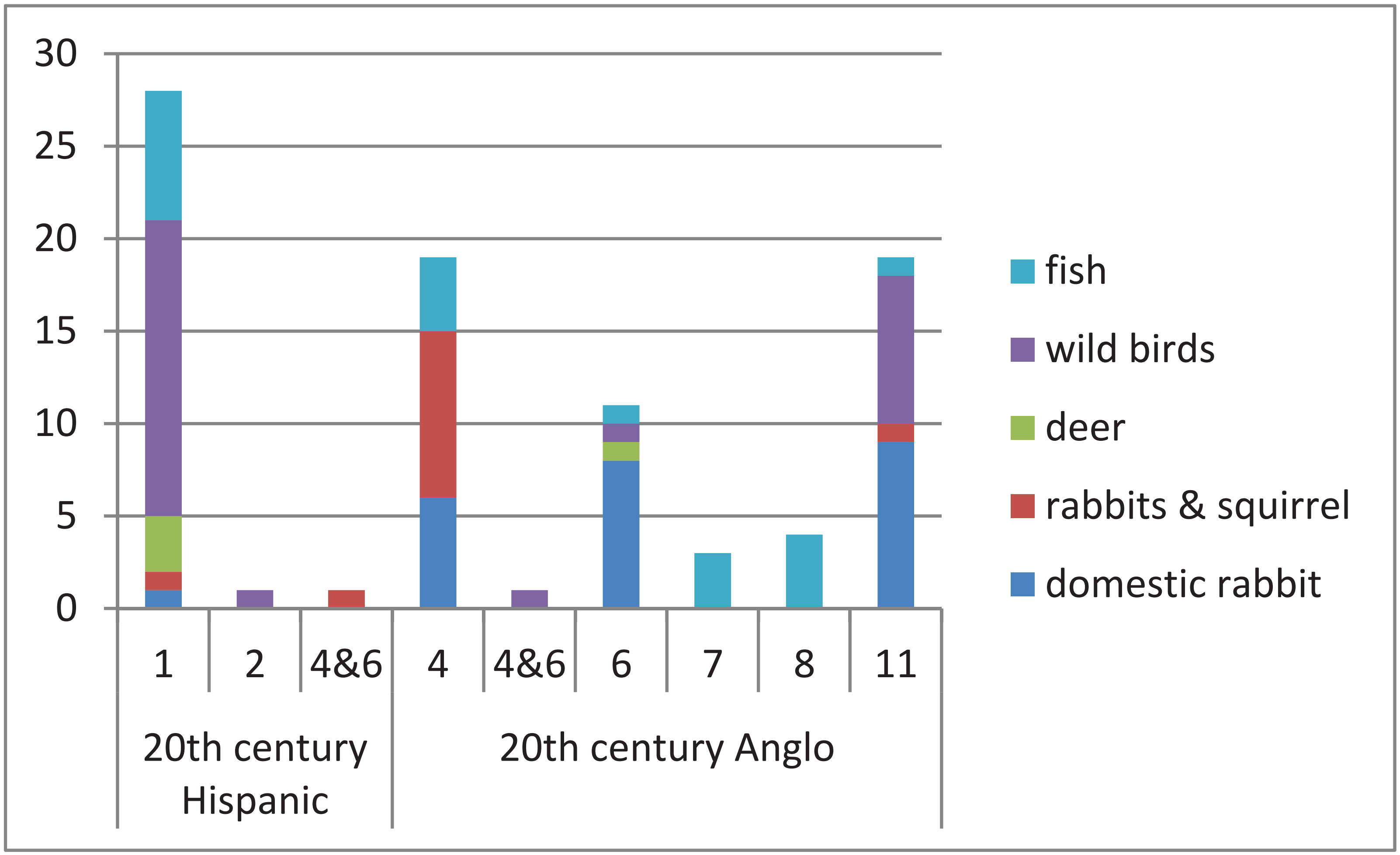


Figure 17.13. Distribution of wild animals, fish, and domestic rabbit counts by time, ethnicity, and structure.

Chapter 18

Flaked Stone Analysis

James L. Moore

Excavations associated with the Executive Office Building at LA 158037 resulted in the collection of three flaked stone artifacts. These artifacts were analyzed following standard OAS procedures for the treatment of flaked stone artifacts (OAS 1994). Each of the three artifacts is described and discussed below.

Structure 4, Feature 351, FS 1042

A single aphanitic rhyolite core flake was recovered from a nineteenth-century bone pit (Feature 351) associated with Structure 4, the Romero residence. This artifact is a distal fragment of a core flake, and displays a snap fracture at its proximal edge. Because snap fractures could occur at any time, there was no way to determine whether the flake broke during removal or at some time after it was struck. While this material is flawed, the fracture did not occur at a visible flaw, so material quality was not a factor in breakage. The termination at the distal end of the flake is a feather, indicating that is represents a successful removal from a core. About 10-15 percent of the dorsal surface is covered by waterworn cortex, indicating that the nodule from which it was struck was obtained from a gravel bed, probably far distant from its original source. This flake measures 12 mm long by 12 mm wide, and is 3 mm thick.

No scarring from use was evident on any of the edges of this specimen. While this artifact could represent part of a larger informal tool that fractured during use (a possibility that a snap fracture would be consistent with), there is no direct evidence for this type of breakage. The lack of associated flaked stone artifacts in Feature 351 suggests that the discard of this specimen was probably unrelated to the meat processing represented by the other contents of the feature in which it was found. Thus, this artifact by itself cannot be taken as evidence for either flaked stone reduction or tool use by the Romero family.

Structure 11, Feature 346, Feature FS 1029

This artifact is a core flake made from clear to tan fine-grained silicified wood with some flaws. It was recovered from Feature 346, a domestic refuse pit associated with Structure 11, occupied by the Beacham Family during the early twentieth century. This flake is whole, with a multifaceted platform and feature termination indicating that it represents a successful removal from a core. No cortex is present, so the locus of procurement cannot be determined. Similarly, no scarring from use was noted along any edges. Since this is a small piece of debitage that would be difficult to hold during use (14 mm long by 14 mm wide, 3 mm thick), it probably represents a waste flake generated during core reduction. Since this artifact was recovered from a domestic refuse pit, it was probably discarded by site residents, but it could as easily have been something that was picked up elsewhere and discarded at this site rather than an indication of flaked stone tool use. Since other evidence for flaked stone reduction, manufacture, and use was lacking in these deposits, this core flake cannot be considered good evidence for the use of flaked stone tools by site residents.

Structure 13, Stratum 3, FS 1089

This artifact is a projectile point fragment that was recovered from Stratum 3 in a mechanically excavated trench into twentieth-century deposits located on the property of 122 South Capitol Street (Structure 13). The projectile point type represented appears to be an En Medio Point dating to the Late Archaic period, but the specimen is fragmentary, making it difficult to positively categorize it (Fig. 18.1). This projectile point was made from a gray-white chert that does not appear to have been thermally altered to facilitate flaking. The chert from which this point was made is fine-grained and exhibits no visible flaws. Only a medial fragment was recovered, though it includes part of the base (proximal end). There is an apparent haft snap at the proximal end, suggesting that part of the base was removed by damage sustained during use, but this remains uncertain for reasons discussed below. The distal end of this specimen was removed by a non-diagnostic snap fracture, but this occurred at a different time than when the haft was snapped. Both tangs and barbs are missing, but enough of the base remains to allow us to determine that this specimen was corner-notched, placing it in the En Medio category. The point fragment measures 18 mm long by 25 mm wide, and is 6 mm thick.

The main reason that several attributes were difficult to accurately define is the presence of extensive wear on this specimen. The remaining sections of both blade edges are worn and rounded, as is part of the base where one of the tangs was removed. Extensive wear is also evident on both surfaces, where the ridges between flake scars are also worn and rounded. Interestingly, no evidence of wear or rounding was present on the edges of the snap fracture that removed the distal end of the tool. The patterning of wear on this specimen is indicative of damage sustained while carrying it in a pouch or pocket. Considering the context in which this specimen was found, the latter seems more likely. Because no wear is present on the snap-fractured distal end of the piece, that break most likely occurred after the point had been carried for a lengthy period of time and may have been responsible for its eventual discard. A likely scenario is one in which a Historic period resident of this property found and picked up this projectile point, carrying it in a pouch or pocket for a number of years. When the point finally broke it was discarded, ending up in the deposits in which it was found.

Interpretation and Conclusions

The three flaked stone artifacts recovered from LA 158037 are of limited interpretational value. It seems unlikely that residents within the Capitol Complex Historic Neighborhood were producing flaked stone artifacts. If they had, larger quantities of flaked stone artifacts would have been identified. Most likely these artifacts represent curated curios within the late nineteenth- and early twentieth-century deposits.

Gray-white chert, clear to tan fine-grained silicified wood, and aphanitic rhyolite are common material types utilized for flaked stone production throughout the Santa Fe River Basin area. All of these material types were identified at LA 156207 (Lakatos 2011) located only two blocks to the west and at LA 1051 (Lentz 2011) roughly six blocks to the north of the current project area. Ultimately, the artifacts found at LA 158037 during the Executive Office Building project needn't have come from far away. Many, if not all, may have been collected within walking distances of the residences.

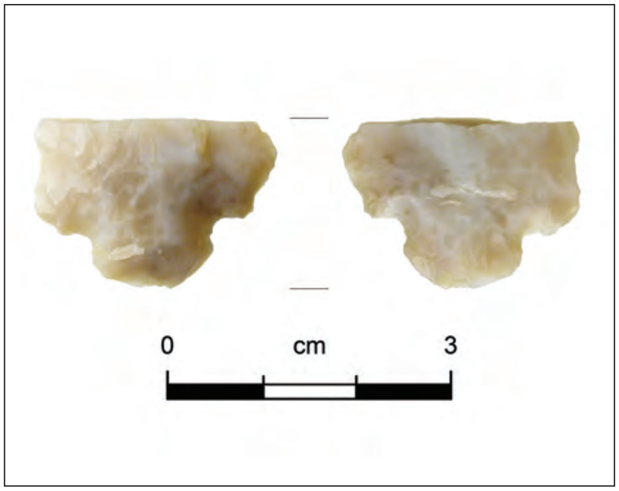


Figure 18.1. Possible En Medio projectile point recovered from Structure 13.

Chapter 19

Native American Ceramic Analysis

C. Dean Wilson & Donald E. Tatum

Although only 22 Native American ceramic sherds were recovered during the fieldwork phase of the Executive Office Building project (LA 158037), the artifacts provided one of several recent opportunities to examine native ceramics from late nineteenth and early twentieth-century contexts in Santa Fe. Information revealed by analysis of specimens recovered from the late Territorial period context in Santa Fe is gradually fostering new and distinctive perspectives regarding the changes in Pueblo—particularly the northern Tewa—vessel morphologies produced for Native American, Hispanic, and Anglo consumption during a period characterized by dramatic political and economic change in Northern New Mexico.

Data acquired from observations of archaeological ceramics can provide insight into the evolutionary and material variables of many types of native ceramics recovered from chronologically dated contexts linked to diverse ethnic groups and their activities. This chapter is a brief discussion of trends associated with the development of the distinctive Puebloan pottery forms of the late nineteenth and early twentieth centuries. It is intended that the interpretations presented will provide a framework for analysis of native ceramics obtained during the Executive Office Building data recovery, and that these results will be useful for analyses of ceramics recovered from other late Territorial-period archaeological contexts.

Characterizations of Late Historic Period Ceramics

Museum and Collectors' Pieces

Changes in Puebloan pottery, beginning in the period of gradual decline of Spanish control during the late eighteenth century, and subsequent social and economic shifts associated with establishment of the Mexican republic and the rise of U.S. territorial domination, have long been documented and studied, but primarily from the perspective of art history (Batkin 1986; Chapman 1933; 1936; 1970; Frank and Harlow 1990; Guthe 1925; Harlow 1970; 1973). Most of these studies were based on the examination, description, and characterization of collections of complete vessels dominated by similarly decorated and shaped jars curated during the late nineteenth and early twentieth centuries (Chapman 1933; Kidder 1925; Toulouse 1977). These collections included vessels obtained during nineteenth-century expeditions (Stevenson 1883) and collections resulting from an almost 50 year effort by members of the Indian Arts Fund to acquire examples of Pueblo pottery, including older heirloom vessels still in the Santa Fe area (Kidder 1925: Toulouse 1977).

The recovery context of most of these vessels is unknown or limited to a postulated village of production. For the most part they were collected as examples of changing Pueblo art forms and as models for a preconceived revival of Pueblo pottery making designed to ameliorate a perceived decline in quality and authenticity resulting from influences of the tourist trade (Kidder 1925). Thus large, painted polychrome jars were hailed as the ideal example of Pueblo pottery and were the focus of early collectors. A persistent emphasis on the collection of these forms ultimately reinforced the image of the well-decorated polychrome jar as typifying the typical form of traditional Pueblo pottery (Batkin 1986; Chapin 1933 1936; 1970; Frank and Harlow 1990; Harlow 1970; 1973; Mera 1937; 1939; Toulouse 1977). These descriptions still provide the basis for the definition of types and of popular stereotypes of pottery produced during this time. While a very small number of plain ware vessels and decorated forms other than jars were sometimes discussed, in most cases they do not appear to have received much consideration.

The great majority of decorated jars from contexts in the Santa Fe area dating from the late eighteenth to the early twentieth centuries have been classified as Powhoge Polychrome based on similarities in shape and decoration noted for polychrome jars known to have been produced by Northern Tewa potters (Batkin 1987; Frank and Harlow 1990; Harlow 1977; Mera 1937; 1939; Toulouse 1977). Decorations on Powhoge Polychrome were applied with organic paint over broad areas covered with a cream-colored slip. A subtle polychrome effect was achieved by the use of a red slip, which covers the very upper part of the rim on both interior and exterior surfaces. These design motifs are usually organized into two basic patterns. The first involves the organization of triangles and other geometric motifs into simple arrangements involving the repetition of linearly connected patterns, opposing arrangements, or checkerboard sequences. In other cases, design motifs were combined into bold medallion, floral, or shield patterns. Most vessels that have been described for this type consist of similarly shaped jars that are roughly spherical in shape, or are compressed or elongated ellipsoids with a short neck and a flare near the rim (Harlow 1973).

The examination of morphological trends associated with Powhoge Polychrome, as well as contemporaneous decorated types produced in other Pueblo provinces, focused on the documentation of changes to decorative styles, craftsmanship, and vessel form. The timing of changes in pottery style and form thought to have been produced during this period were explained in terms of political and economic changes, including the collapse of Spanish Colonial control of the New Mexico province, the subsequent shift to Mexican governance, followed by the advent of American sovereignty. Other important influences occurring during this time included the establishment of the Santa Fe Trail at the beginning of the Mexican period and construction of an extensive railroad system during the American Territorial period of the late nineteenth century (Batkin 1987; Toulouse 1977).

Archaeological Assemblages

A non-idealized, more utilitarian source of information about types and causes of change in the vessel form and decorative style of late eighteenth to early twentieth-century Pueblo vessels arose from a small number of archaeological investigations that facilitated recovery and classification of pottery (Adler and Dick 1999; Brody and Colberg 1966; Carillo 1997; Dick 1968; Ferg 1984; Hurt and Dick 1946; Lang 1997; Levine 2001; 2004; Warren 1979; Wilson 2007). Ceramic data from archaeological sites provide additional insight into the evolution of ceramic trends during this span, including some that both vary from, and compliment, observations of changing ceramic trends arising from studies of non-archaeological collections of complete vessels.

The kind of ceramic data recorded in these two types of studies differentiates the typologies of complete vessel-based studies from typologies developed from the characterization of the broken sherds that are most commonly recovered from archaeological sites. Differences stem from several issues. One problem is that descriptions based on whole vessels arose from combinations of traits and criteria that are difficult, if not impossible, to document in sherd- dominated archaeological assemblages. A second issue is that the decorated jars forming the basis of descriptions of most historic Pueblo pottery types are quite rare in archaeological assemblages. The majority of pottery recovered from most archaeological contexts in the Santa Fe area consists of micaceous and plain utility wares. The majority of decorated forms from late eighteenth and early nineteenth-century assemblages, including Powhoge Polychrome, are usually represented by bowls and not jars. Another issue is that the typological criteria used to categorize complete vessels are not useful for evaluation of sherd assemblages. An additional challenge has been that a persistent lack of contextual control applied during the recovery of complete vessels made it impossible to evaluate trends regarding changes in vessel style and form. Therefore, characterization of pottery from archeological contexts reliably associated with known time-periods and specific groups of manufacturers and consumers is crucial to developing a sufficient understanding of the dynamics of Pueblo ceramics production and consumption through time.

Recent analyses of native pottery from archaeological sites investigated by the OAS in the Santa Fe area resulted in the characterization of assemblages containing Powhoge Polychrome and associated pottery types. These investigations provide opportunities to develop strategies and accumulate databases useful for progressive development of insight into the cause and disposition of changes in Pueblo pottery forms produced from about AD 1760 to1920. The current study presents a summary of the data and their interpretations relevant to the understanding of ceramic trends associated with this temporal sequence.

Most of the focus on ceramics recovered during recent projects by the OAS has been on analysis and interpretation of large assemblages from Hispanic contexts dating between AD 1760 and AD 1880 (Wilson 2007; 2011a). The great majority of ceramic artifacts recovered from these types of sites are represented by a wide range of pottery forms produced by Tewa Pueblo potters. Analysis of pottery from these sites provides important insight into interactions between Northern Tewa Pueblo potters and Hispanic settlers leading to the appearance of temporally persistent and distinctive Tewa pottery forms.

Ceramic forms from sites of this period can be compared to those from later Hispanic and Anglo sites dating from AD 1880 into the early twentieth century. These comparisons can inform on the impacts of the developing railroad systems that linked New Mexico to other parts of the continent, enabling the rapid, efficient transport of mass quantities of goods and people. The changes to the transportation infrastructure quickly resulted in a change in settlement patterns and a consumer shift away from the use of locally produced utilitarian wares as mass quantities of industrially produced household goods became available, ultimately shifting production of ceramic vessels toward forms desired by tourists and collectors.

While the detailed nature of discussions presented here may seem excessive given the very small sample of native ceramics recovered during the Executive Office Building project, it is hoped that the following discussion will provide a framework that will be useful in informing studies focusing on the relatively small number of ceramics recovered from sites dating to the late nineteenth century. The goal is the development of a long-term approach that will provide for the gradual integration of ceramic data from past and future archaeological excavations and allow for a broader understanding of the nature and cause of changes to production patterns of Puebloan pottery for non-Indian consumers in the Santa Fe area.

Overview of Ceramic Classification and Typology

It is necessary to analyze pottery from late historical contexts in the Santa Fe area in a manner that will allow for the comparison of the results of the present study to those from previously discussed and future vessel- based studies, as well as to examine various trends in the production, decoration, and trade of Pueblo vessels largely based on sherd assemblages. Pottery from these late historic contexts was assigned to various types and groupings based on combinations of paste, surface, and stylistic traits with known temporal, spatial, and functional significance.

Historic utility ware types defined during the present study can be subsumed under several basic groupings that reflect the range of native pottery forms made between the late Spanish Colonial and early Territorial periods mostly by Northern Tewa potters. These include such types as Historic Unpolished Micaceous, Historic Polished Micaceous, Tan Micaceous, Tewa Buff, Tewa Red, Tewa Black/Gray, Tewa Polychrome, and Polychrome forms.

Ceramics from different assemblages were assigned a combination of formal and descriptive type categories. Formal types were mainly recognized for distinctive forms of decorated pottery exhibiting a definitive range of styles attributed to a particular group; sometimes to a particular Pueblo village. Informal types were assigned descriptive names based on a combination of characteristics used to describe a ceramic form. Informal categories were used to document ranges of characteristics noted in historic forms while avoiding conjecture about the specific ethnic group responsible for production, or the specific overall form or style of the original vessel. For example, a large number of descriptive forms assigned to micaceous wares may be used to indicate temporally, spatially, or culturally significant variability, as opposed to simply using a type with specific temporal and cultural connotation that may or may not be accurate. In addition, the use of informal typologies allows for characterization of individual sherds with particular traits that could be characteristic of a variety of forms.

The majority of native pottery associated with contexts in the Santa Fe area dating to the period discussed here exhibits characteristics of pottery produced by Tewa Pueblo potters during the American Territorial period (Batkin 1987; Frank and Harlow 1990; Harlow 1973; McKenna and Miles 1990; Mera 1939; D. H. Snow 1982). It is also possible that some of the micaceous and plain utility pottery forms could represent forms produced by Northern Tiwa potters, as well as Hispanic or Jicarilla Apache potters who adopted Pueblo ceramic technologies during the late eighteenth and early nineteenth centuries (Adler and Dick 1999; Carrillo 1997; Hurt and Dick 1946; Levine 1990; Woosley and Olinger 1990).

The term "Northern Rio Grande micaceous pottery" refers to forms made with self-tempered residual clay-paste, and also to forms made with pastes having added crushed micaceous rock, as well as referring to those forms exhibiting a distinct micaceous slip that was applied over at least one surface. Some of the more distinctive forms of micaceous pottery include those with self-tempered residual clays that were classified as Highly Micaceous Paste utility. Surfaces were usually unpolished and unslipped, although some are well- smoothed or waxy in appearance.

Another distinctive ceramic group includes pottery with thin layers of mica slip applied to unpolished exterior surfaces and to smudged and slipped interior surfaces. The majority of the pottery associated with this group was assigned to one of two distinctive types based on the presence of a sooted or smudged interior. These types include Smudged Interior Mica Slip Exterior and Polished Interior Mica Slip Exterior. Except for evidence of interior sooting, pottery assigned to these categories exhibits a similar range of characteristics. The temper is usually derived from crystalline granite, sand, or tuff. Some later polished micaceous forms with a tan to pink surface resulting from oxidation were assigned to a different category.

Tewa plain ware types represent the other class of non-painted or utility ware pottery commonly produced during the historic period. The majority of pottery assigned to Tewa plain ware types exhibits at least one polished surface; textured treatments are almost always absent. For pottery belonging to this group, the assignment of a particular type is based on the presence of and type of slipped surfaces (Dick 1968; D. H. Snow 1982). The placement of Tewa plain ware sherds into different groups and types was based on the use of slip and the characteristics of slip applied to various surfaces. Ceramics assigned to buff, red, and black/grayware types differ from each other only by the techniques used in the final stages of finishing or firing. Red ware types are characterized by the presence of a distinct red slip on all or part of the vessel. Black wares obtain their distinctive characteristics as the result of a highly reducing atmosphere induced in the kiln subsequent to firing the wares in an oxidizing atmosphere. This final step produces a thick black carbon, or sooty, deposit over the red slip characteristic of Tewa black ware types, or over an unslipped surface characteristic of Tewa gray ware types.

Unslipped buff ware sherds are often very difficult to assign to a particular type. Subtypes within the historic buff utility ware group were defined to allow for the classification of sherds displaying no evidence of painted decoration or application of distinct clay, sooted, or micaceous slip. This category is represented by sherds with buff, tan, or brown surfaces. Plain wares tend to have fine volcanic tuff temper and are represented by a wide range of forms.

Decorated vessels produced by Northern Tewa Pueblo potters during the late Colonial and Early Territorial periods evolved through a lengthy series of technological and stylistic developments occurring in the Northern Rio Grande region. The surfaces of many Tewa polychrome wares associated with these periods may not bear distinctive design fields or manipulations providing for assignation to a particular formal type; these were assigned to a series of descriptive types. Many of the conventions of texture and design are similar to those noted for specimens of Powhoge Polychrome, which exhibit combinations of characteristics previously discussed for this type.

While the manufacture of pottery with paste and other characteristics typical of Powhoge Polychrome persisted into the twentieth century, other types of pottery represent distinct forms that were produced in various villages during the nineteenth century in response to the demand of the tourist market. For example, the production of Tesuque polychrome began sometime during the late nineteenth century. Tesuque Polychrome is distinguishable from Powhoge Polychrome through its softer paste and absence of a gray core. Other defining characteristics of this type include a well-polished slip and rim decorations commonly produced with black *paint* instead of red *slip*. Design styles characteristic of Tesuque Polychrome include flowered meanders, stalked flowers, trident figures, pods, and a variety of wavy lines and arcs. Tesuque Polychrome was manufactured until the early twentieth century. It was replaced by vessels decorated with glossy white slips and poster paints in blue, red, and yellow colors applied after firing, and by curio wares in non-traditional effigy forms commonly referred to as "rain gods" (Toulouse 1977).

After a near-hiatus in pottery-making at the Pueblo of San Ildefonso, a revival—attributable to a burgeoning tourist market in the 1880s—resulted in the production of new and distinctive forms (Harlow 1973). San Ildefonso Polychrome is characterized by the use of designs in black organic and red mineral pigment over a well-polished white to cream-colored slip. Pastes in vessels of this type tend to be soft and porous. About 1900, a white-colored slip from Cochiti polished by rag rather than stone began to be used. This form is almost completely limited to jars with thick walls, although some represent vase-like forms. The well-polished underbody was still topped by the band typical of Powhoge Polychrome. Designs did not significantly change from those used in earlier forms, but some designs originally painted in black began to appear in red with back outlines (Toulouse 1977). These designs were placed in two or sometimes three horizontal bands. Design elements included symbolic motifs with outlines and bold solid elements. By the early 1900s, the representation of animals, particularly birds, in polychrome decorations had become common (Batkin 1987). Contemporaneous with black-on-cream and polychrome forms produced in Northern Tewa Pueblos during the late nineteenth and early twentieth centuries were forms in which black paint was applied over a red slip. These forms are categorized as San Ildefonso Black-on-Red.

A distinct polychrome type of pottery known to have been produced by potters in other Pueblo provinces, mostly by Keres-speaking groups, appears in historic archaeological contexts in the Santa Fe area with very low frequency. Puname or Zia Polychrome refers to forms produced at Zia Pueblo (Harlow 1973; Harlow and Lammon 2003; Mera 1939). The paste of decorated pottery produced at Zia Pueblo is often deep, dark red. Decorated surfaces are covered with a dull-polished, white to tan-colored slip. Gray to black basalt was used as the tempering agent (Harlow 1973). Painted designs were applied in combinations of black and red mineral paint. Designs occur in paneled bands, or in all-over patterns on the upper part of the vessel, and are framed above and below with parallel lines with line breaks. Paneled designs on the upper body are separated by double vertical lines. Design elements include opposing geometric elements, arcs, feathers, and keys.

Pottery with style and paint combinations similar to those noted on Zia Polychrome types, but having abundant sand temper, was classified as Santa Ana Polychrome. Cochiti Polychrome refers to recent forms first produced at Cochiti Pueblo about 1880 (Harlow 1973). This type is similar to Tewa Polychrome types in that it exhibits tuff temper and organic paint decoration. Painted areas are covered with a fine white slip. While upper parts of vessels were often well polished, the lower portions were often unpolished or rag-polished. Designs often consisted of naturalistic forms including birds and other animals, flowers, vines, rain, and clouds characterized by their boldness and diversity (Harlow 1973).

The presence of tan-colored rag-polished surfaces may, in some cases, be used to identify Santo Domingo Polychrome, although this type is sometimes difficult to differentiate from Tewa types in sherd-based archaeological assemblages. The production of matte-painted polychrome vessels began in the Acoma, Laguna and Zuni areas sometime after the Pueblo Revolt of 1680. Pottery produced at these Pueblos is characterized by its sherd tempering, low-iron pastes, and designs executed in black and red paint in styles characteristic of the Western Pueblos (Lammon and Harlow 2008).

Ceramic Trends Associated with the Vecino Period

Many of the changes resulting in the distinct characteristics of modern Pueblo decorated pottery that have so impressed collectors, historians, and archeologists alike were largely influenced by a series of dramatic demographic and economic changes occurring from the late eighteenth to the early nineteenth century. Based on historic documents and material evidence, Ross Frank (1991; 2000) characterized the first part of the span during which Powhoge Polychrome was produced in the Tewa province as a time of dramatic change in the relationship between the Hispanic villagers whom he refers to as "Vecinos" and various Pueblo groups. Distinct developments documented for this period are assumed to have been influenced by events that included the cessation of hostilities with surrounding nomadic Indian groups and population reduction related to a smallpox epidemic that changed the Pueblo/Hispanic settler demographic balance (Frank 2000).

By the late 1790s the Hispanic population in Northern New Mexico was increasing dramatically relative to the surrounding Pueblo population, a process that generated increasing demand by Hispanic settlers for vessels produced by Pueblo potters. Shifts toward this new market appear to have influenced major alterations in the design, shape, and techniques with which Pueblo pottery vessels were produced. Some of the demand for utility ware pottery appears to have been met by the adoption of Pueblo pottery technologies by Jicarilla Apache and Hispanic potters (Brugge 1983; Carrillo1997; Eiselt 2005; Hurt and Dick 1946; Levine 1990; Woosley and Bart Olinger 1990). Most of the burgeoning demand for pottery vessels was met by a shift to mass-production techniques and the distribution of distinctive utility and decorated wares by the Pueblo groups who had traditionally produced the vast majority of ceramic vessels for Spanish missions and settlements in Northern New Mexico (Frank 2000; D. H. Snow 1973). The combination of changes led to a new and distinct economic system oriented around the culturally innovative and economically dominant Vecinos. The expansion of local populations and regional markets created an economic boom, giving them the means to take control of aspects of the overall economy, including local production and trade of textiles and Pueblo pottery (Frank 2000).

The increasing production and expanding trade of Pueblo Indian pottery under the influence of the Hispanic population seems to have affected the style and quality of decorated pottery forms. By the late eighteenth century, the production of pottery with traits typical of Powhoge Polychrome had become firmly established. Most characterizations of Powhoge Polychrome, and of contemporaneous types produced in other Pueblo provinces, as described by Frank (1991; 2000), are based on previously discussed trends noted for the complete storage jars housed in museums and private collections. Stylistic trends included the replacement of cloud feathers and other formalized designs occurring on earlier types with less organized decorative motifs. Changes in decorative styles during this period corresponded to elements of contemporary religious items produced by Hispanic artisans at the end of the late eighteenth century. These new design styles appear to reflect the transformation of earlier styles into new modes of representation that were acceptable to both Pueblo potters and Hispanic consumers. The increased sloppy execution of pottery decoration and imperfect shaping and firing of vessels notable in decorated pottery of this time has been interpreted as an indication of time-saving compromises made to meet the expanding Vecino market (Frank 1991; 2000).

Recent descriptions of pottery from archaeological sites in Santa Fe and the Tewa Basin dating from late Colonial to Territorial periods provide new perspectives concerning contemporaneous trends in pottery production (Wilson 2007; 2011a). While the small quantity of decorated pottery from these sites consists of Powhoge Polychrome exhibiting styles and craftsmanship similar to that noted in specimens from museum and private collections, overall trends in pottery from the archaeological record vary considerably from observations noted in complete vessel- based studies.

For example, only about 20 percent of the pottery from archaeological assemblages dating to this period is of polychrome or other decorated form. The majority of archaeological specimens represent micaceous and plain utility wares. In addition, jar forms represent a minority of decorated pottery from archaeological sites; the majority of archaeological specimens came from small, shallow bowls and soup plates. Their decorations tend to be very simple combinations of geometric forms. The small Powhoge bowls and plates were of high enough quality for basic household use but seem to have been fired at slightly lower temperatures and are more irregularly shaped than earlier forms. The simplicity of style and the similarity of design and manipulation between vessels are probably indications of the somewhat diminished quality of mass- produced household serving vessels made for local consumption and for a growing Hispanic market demand. The Hispanic influences are evident through the use of decorative styles and shapes similar to those seen on Majolica and other pottery forms produced in Mexico.

There are indications evident in non-decorated Tewa pottery, such as Tewa micaceous and plain wares, that dominate late eighteenth and most of the nineteenth-century native ceramic assemblages. These also provide clues about the mass production of vessels by Tewa Pueblo potters for the Hispanic markets. One group of pottery that is common in these assemblages is represented by sherds from unpainted plain ware vessels, including those with unpolished buff or brown, slipped red, or smudged dark gray and black surfaces (D. H. Snow 1982). Paste and temper are identical to that used in associated decorated wares. Many of the plain ware types appear to have been derived from vessels assigned to San Juan Red-on-Tan that exhibit a red slip near the rim, which is often similar in thickness and color to that of Powhoge Polychrome vessels. The remainder of the vessel is unpolished and brown to tan colored. Vessel forms are similar to forms noted in decorated pottery from the same assemblages, and include shallow bowls, soup plates, deep bowls, and jars. A similar red slip was applied on smudged black and gray ware, producing a black-over-gray effect. The overall decorative effect noted in plain ware vessels is similar to that noted in Powhoge Polychrome, and many of the plain ware vessels essentially represent an expedient version of the same vessel design, indicating adjustments allowing for mass-production of vessels for everyday use in Hispanic households.

Another common form at sites dating to this period is represented by jars that exhibit mica slips on the exterior and polished and smudged interiors (Eiselt 2005; Warren 1981). The simplicity and standardization reflected in such forms also seems to have supported expedient mass-production of vessels for everyday use. Thus, a significant frequency of Tewa pottery at Hispanic households is represented by micaceous utility cooking pots and simply decorated serving bowls and soup plates. Apparently production was oriented toward a combination of simple forms suitable for everyday activities in Hispanic households. This factor appears to reflect a pattern of use and consumption of a range of distinctive wares and vessel forms that persisted from the beginning of the production of pottery during the prehistoric period until the coming of the railroad.

Ceramic Trends During the Late Territorial (Railroad or Tourist) Period

The establishment of a railroad system across New Mexico during the late nineteenth century resulted in profound changes in the production and distribution Pueblo pottery (Toulouse 1977). The broad-scale manufacture and transport of American industrial goods by railroad systems resulted in affordable ceramic china and crockery that was widely available to settlers in New Mexico in a newly enlarged and cash-based market, so that settlers in New Mexico no longer required locally made Pueblo pottery (D. H. Snow 1973). Pottery making among Pueblo groups persisted primarily as a result of new markets for Pueblo Indian pottery created by American tourists and collectors arriving enmasse in New Mexico by the railroad (Toulouse 1997). Such shifts were encouraged by American businessmen and politicians as New Mexico's unique cultural heritage was recognized as an important tourist draw that was, in turn, viewed as both a source of income and a contributor to national prestige (Lentz and Barbour 2011). These factors resulted in major investments by tourist-based businesses such as the Harvey Corporation. Thus, the perseverance and revival of traditional native crafts and customs was believed to be crucial to the success of these burgeoning business ventures. The goals presented by tourism and other aspects of economic development were sometimes conflicting (Lentz and Barbour 2011). The tourist industry emphasized the ancient and romantic, while economic development interests envisioned New Mexico as embodying American destiny, including the expansion of industrial markets, modern values, and the comforts embraced by the eastern establishment (Lentz and Barbour 2011). These mixed messages were received and interpreted differently by various Pueblo potters. Thus, pottery production served as a way to reinforce, preserve, and revive long-threatened cultural traditions, as well as a source of income and validation in the face of uncertainties experienced by the people of ancient cultures living in a rapidly changing economy and society.

An immediate impact of the railroad was the rapid decline in the production of decorated serving bowls and soup plates and plain and micaceous utility wares used for everyday activities. Also, decorative motifs on traditional Pueblo designs and technologies were also encouraged by collectors and curators. Such a shift in consumer tastes, coupled with subsequent requirements for Pueblo pottery design, seem to have been foreshadowed by the forms of Powhoge Polychrome jars taken from Tewa villages by collectors, a factor that may have partly served as a model for the later production of jars. This resulted in the production of pottery forms made explicitly to cater to the tastes of tourists and collectors, and also may have encouraged the revival of earlier pottery forms and styles, such as were manifested in the production of elaborately decorated polychrome jarsThese were deemed to represent excellent examples of the Pueblo artistic tradition that were worthy of collection and display.

Other forms, representing simply made and non-traditional curios and sometimes referred to as "knick-knacks," also began to be mass-produced for the more "undiscerning" tourists or buyers. These were often represented by miniatures and other non-traditional forms. Little time was invested in the production of such forms; much of this pottery was low-fired or even un-fired. Such forms reflecte the low-end of the Pueblo pottery produced during this time and contrastd dramatically with many of the decorated jars collected during the late nineteenth and early twentieth centuries.

An important set of issues, as yet insufficiently evaluated, concerns the degree, rate, and extent of changes in late Territorial-period Pueblo pottery. The examination of the very small samples of pottery recovered from various archaeological sites might also eble a comparison with complete vessel collections in order to gain insight into consumer trends, preferences, and biases, as indicated by various collections. The analysis of native pottery from Santa Fe area households composed of diverse ethnic and socioeconomic groups may also provide important clues about the changes brought about by the advent of the railroad. For example, one intriguing possibility is that adjustments made by various groups to changes resulting from the establishment of the railroad and the tourist markets may be more complex and variable than generally is reflected by the range of whole, decorated jars curated in various collections. Thus, it is likely that many of these descriptions reflect a sub-set of material collected by more "serious," and possibly wealthier, collectors. Native pottery associated with less wealthy or prestigious households might indicate the collection of less well-made, less expensive, and more easily obtained curious, knick-knacks, or otherwise less traditional forms. Another possibility is that less financially endowed Hispanic households may not have been immediately integrated into the new American market, and may have continued utilizing cheaper native utility wares that continued to be manufactured, or were passed down between generations or between households. A comparison of ceramic assemblages from such households to assemblages from earlier Hispanic households may provide the basis for an enhanced evaluation of ceramic distribution models across a broader socioeconomic range. Thus, future attempts will use archaeological data to evaluate and refine current perspectives of change in comparisons of data from studies of collections and historic sources from the late Territorial period.

Recent Examinations of Pottery from Late Territorial and Early Statehood Period Contexts

Ceramic data from recent investigations by the OAS at sites in the downtown Santa Fe area may provide insight regarding the production and consumption of native ceramics during the last part of the Territorial period. The small native ceramic assemblages associated with this period and this area are often mixed with pottery from earlier components and may be difficult to define archaeologically.

While the majority of analyzed ceramics recovered in the archaeological excavations behind the Palace of the Governors (LA 111322; Post 2002) came from deeper, more intact contexts dating to the seventeenth and early eighteenth centuries, the near-surface deposits had combinations of pottery that were typical of occupations dating to all of the later periods. Because the entire post-nineteenth-century site matrix at LA 111322 had been highly mixed and redeposited, most of the ceramic assemblage from contexts dating to this period was not analyzed. However, some partial vessels and some of the more distinctive sherds from the post- eighteenth-century context were examined and photographed. Most of the later decorated types identified from these contexts were Powhoge Polychrome, of which many probably dated to the late eighteenth or early nineteenth centuries. An extremely small number of sherds documented from the mixed context represented highly polished Tewa black wares and more recent, decorated (San Ildefonso Polychrome) types that resemble pottery associated with a late Territorial component of uncertain provenance.

At excavations conducted at the Santa Fe Railyard project, very small amounts of native pottery were recovered, except at one site that was occupied only during the second half of the eighteenth century. Pottery types presumed to date to the late Territorial period were represented by a total of 11 Tesuque Polychrome and Cochiti Polychrome sherds recovered from two sites, at which ceramic assemblages were dominated by historic plain utility wares but which also had relatively high occurrences of polychrome types. Micaceous types were infrequently encountered. Most of the polychrome sherds were from jars.

One of the more interesting contexts from which late nineteenth-century native pottery was recovered was Fort Marcy, which was excavated during the Santa Fe Civic Center data recovery project. The site, LA 1051, has prehistoric Coalition and Classic period components and historic Spanish Colonial, Mexican, and American Territorial components. The establishment and occupation of the U.S. Army military complex at Fort Marcy spanned a 50-year period between 1846 and 1896 following the American seizure of the territory during the war with Mexico. Fort Marcy served as the administrative center for a half-dozen frontier forts (Lentz and Barbour 2011). Archaeological deposits included privies and trash pits that yielded data about consumption patterns at a well-supplied garrison, the population of which was stratified by military rank and ethnicity (Lentz and Barbour 2011). Some trash deposits in the pit features indicate that they were still used for trash disposal during the period immediately following military abandonment of Fort Marcy, a practice that continued into the early twentieth century. The 50-year period of military occupation at Fort Marcy spanned the evolution of two distinctive economic systems that were closely integrated with the movement of consumer goods during the American Territorial period. Beginning with the Mexican period, materials and merchandise flowed along the supply lines of the Santa Fe Trail; after 1880, along the Santa Fe, Atchison and Topeka Railway. Analysis of the material culture revealed at the LA 1051 excavations clearly reflects the shifts in both the type of manufactured consumer goods shipped through the supply lines and shifts in consumer choices and demands of the two economic systems (Lentz and Barbour 2011).

It is interesting to note that the patterns of native pottery types from the Territorial-period context at Fort Marcy (1,931 sherds of historic native types analyzed) were only slightly different from the distribution patterns of native pottery types from Late Colonial-period context, of which 3,198 historic native types were analyzed (Wilson 2011a). Some of the similarities may be due to the persistence of behavioral patterns noted for the earlier period, as well as to some mixing of ceramics from earlier components. Such mixing is further indicated by the consistent presence of varying amounts of prehistoric pottery types in Territorial-period features. It is also helpful to consider the longevity of ceramic vessels, some of which may last for decades and be curated through family generations before being discarded; thus, pottery shards from an earlier period get disposed of in a trash pit from a later period.

General distribution trends were examined by comparing the proportion of historic-period ceramics with the proportion of prehistoric-period ceramics in both the Colonial and the Territorial periods. This analysis indicated a similar frequency of plain ware types occurring in each period. Plain wares represented about 50 percent of the pottery from each period. The frequency of polished red ware was lower in the Territorial-period assemblage, while the frequency of polished black ware was higher in the Territorial-period assemblage. The frequency of Tewa polychrome types was about twice as high in the Territorial-period assemblage as it was in the Colonial period assemblage. While the majority of Tewa polychrome sherds from both periods were Powhoge Polychrome, the total frequency of Powhoge Polychrome was higher in the Territorial-period context. Formal Tewa polychrome types that were much more common in the Colonial assemblage included Sankawi Black-on-Cream, Tewa Polychrome, and Ogapoge Polychrome. Later types such as Tesuque Polychrome, Cochiti Polychrome, San Ildefonso Polychrome, and San Ildefonso Black-on-red were rare only in the Territorial context. Glaze wares were rare in all of the historic contexts, although four times more common in features from the Colonial period; their presence in the Territorial-period context was certainly the result of mixing. Middle Rio Grande Polychrome types were rare, although present, in features from both historic periods, although twice as common in the Colonial period. The frequency of historic micaceous utility wares was 50 percent lower in the Territorial-period context.

As might be expected, differences in ware frequencies in Colonial- and Territorial-period assemblages indicate a slight decrease in the number of micaceous vessels that may have served for cooking, and an increase in decorated polychrome vessel forms. Overall, the dominant vessel *form* of each different type of *ware* appeared to persist through time, and did not conform with our expectation that polychrome jars would be much more common in Territorial period contexts; although, as expected, soup plates were significantly more common in the Colonial- period context. Whole and partial vessels recovered from the Fort Marcy privy indicated distinct forms associated with the tourist trade during the late nineteenth and early twentieth centuries. These trade vessels included a Tesuque polychrome flowerpot, a Tesuque Polychrome chicken effigy, an elaborately shaped Tewa Black pitcher, and three flat micaceous trays.

Judicial Complex Ceramic Assemblage

Native pottery from the late nineteenth through the mid-twentieth century was recovered during excavations at the Judicial Complex (Wilson 2011 b). Ninety-six sherds were recovered from the recent testing phase. The assemblage was dominated by plain utility wares, but also contained Tewa Polychrome and extremely small amounts of micaceous utility ware. Evidence of a late Territorial-period occupation at this site was indicated by the presence of San Ildefonso Polychrome and Tesuque Polychrome; the presence of extremely thick-walled vessels most common among jar sherds of the period; and an assemblage dominated by Tewa Black, which exhibits extremely well-polished and lustrous surfaces. Lastly, the occurrence of a buff-colored sherd—part of the base of a flowerpot—resembles a form produced by Tewa potters at Tesuque during the late nineteenth century. The appearance of Powhoge Polychrome and Tewa Black sherds in other areas of the site may indicate other site components from the same period.

The occurrence of native pottery types associated with 41 sherds from Feature 2, a privy, indicates an even later occupation. Historic native pottery from this feature included late historic Pueblo pottery types such San Ildefonso Polychrome, Tesuque Polychrome, and smudged black wares. The characteristics of pottery recovered from this feature are consistent with a date range of 1930 to1948 previously postulated for this component (Lakatos 2011). The native pottery recovered from this privy was represented by several partial vessels, all of which represent simply made and decorated forms that are often referred to as "knick-knacks." These forms are poorly fired and have thick, uneven vessel walls. Such forms reflect the low end of the Pueblo pottery produced during this time. Other items from the privy included two small pitchers with floral decorations executed in red and black paint; a miniature bowl with a simple banded and bird design; and very small Tewa Black jars, one of which has a handle.

Capitol Parking Facility Ceramic Assemblage

A total of 536 sherds was recovered from LA 158037, which was, in turn, partially excavated during the Capital Parking Facility data recovery. LA 158037 is a site consisting of both Anglo and Hispanic residences occupied during the late nineteenth and early twentieth centuries (Barbour 2008). Historic ceramic distributions indicated a wide range of wares and types. The great majority of specimens were utility wares. Micaceous types comprised about one-third of this pottery, and represented an unusually variable group, roughly consisting of equal amounts of unpolished, polished and smudged, and oxidized or tan-colored forms. Plain wares comprised just under half of this pottery and were dominated by forms (Tewa Gray/Black) that are intentionally smudged. Pottery assigned to historic decorated types comprise just over one-fifth of the total pottery assemblage. Most of the decorated pottery is Tewa Polychrome, including Powhoge Polychrome, Tesuque Polychrome, and San Ildefonso Polychrome. Other decorated forms were types produced at Keres villages including Cochiti Polychrome, Santa Ana Polychrome, Puname Polychrome sherds.

The combination of a broad range of native pottery forms is similar to that noted at earlier Hispanic sites. While assemblages from LA 158307 are in many ways similar to those noted for earlier Hispanic sites, there are also important differences. The presence of a wide range of forms and wares in these assemblages was somewhat unexpected since it has often been assumed that by the last quarter of the nineteenth century, Pueblo potters had largely shifted away from the production of utility wares and other forms used in everyday household activities (D. H. Snow 1973). It is interesting to note that the majority of the pottery analyzed from LA 158037 is neither dominated by curios nor decorated jars, and may indicate a persistence of earlier patterns of acquisition and consumption of native pottery among poorer households.

Of particular interest is the high frequency of occurrence of sherds from micaceous vessels having a wide variety of pastes and manipulations. Most of these sherds appear to have been derived from cooking jars, and one is a rim sherd with a handle, suggesting a pitcher form. Two examples from the same polished vessels represent rim sherds from a bowl. Many of these sherds exhibit some degree of sooting, possibly indicating the use of the associated vessels for cooking. The continued use of micaceous pots may be an indication of economic hardship factors resulting in persistent demand for, and production of, cheap vessels. Pottery assigned to plain utility and polychrome types indicates the presence of a wide range of forms, including a fairly equal distribution of bowls, jars, and ollas. The distribution indicates the use of forms suitable for a range of storage and serving activities; it certainly indicates utilitarian function and not simply the collection of decorated jars or other exotic forms.

An interesting question is whether or not native ceramic wares and forms used in Hispanic households and neighborhoods were different than those used in Anglo households and neighborhoods. Thus, ceramic assemblages from Hispanic household contexts were compared to assemblages from Anglo household contexts. These comparisons revealed that ethnically divergent households sometimes used similar types of ceramics, though often with different frequency. For example, Anglo residences had almost twice the frequency of Tewa polychrome types as the Hispanic households did. Hispanic households, on the other hand, had almost twice the frequency of occurrence of micaceous pottery as Anglo households did. No discernible differences were noted between assemblages from late nineteenth-century and early twentieth-century Hispanic contexts.

An interesting trend was revealed by comparing the rim sherds of different form and ware groups from Hispanic contexts with those from Anglo contexts. Although the very small sample size might have influenced the distribution, it is interesting to note that more than half of the rim sherds from Hispanic contexts were derived from micaceous jars or polychrome bowls, while over half of the rim sherds from Anglo contexts were from polychrome jars or ollas. Thus, the assemblages from Hispanic contexts seem to indicate association with domestic activities such as cooking and serving, similar to patterns noted at earlier Hispanic sites, while rim sherd assemblages for Anglo households seem to diverge from this pattern. In contrast, most of the specimens from the Anglo household context were representative of decorated jars, reflective of types and forms acquired for aesthetic value.

Executive Office Building Ceramic Assemblage

The assemblage of 22 native pottery sherds recovered at LA 58037 (the Executive Office Building project) provide patterns that would be expected for a late nineteenth to early twentieth-century residential neighborhood (Fig. 19.1; Table 19.1). The sole prehistoric sherd recovered during the excavation was a Plain Gray Body sherd. The frequency of historic micaceous ware was low (13.6 percent of the assemblage) and included two Smudged Interior Mica Slipped Exterior sherds and one Polished Interior with Mica Slip sherd. Most (54.6 percent) of the sherds from this site were plain polished types. Two sherds were Tewa Polished Red and ten were Tewa Polished Black. While variability in the degree of polish and sooting was evident in the Tewa Polished Black sherd samples, several exhibited the high polish indicative of forms produced during the late historic period. A total of 6 (27.3 percent of the assemblage) sherds were Tewa Polychrome. Of these, one sherd was Powhoge Polychrome, one was Tesuque Polychrome, and four were descriptive types.

Despite the very small size of this assemblage, a number of different vessels were represented, as indicated by variability in sherd characteristics and by the relatively large number of features (12) from which they were recovered (Table 19.1). Many of the sherds have soft pastes and thick walls, characteristics of pottery produced for the tourist trade during the late Territorial period. The majority appear to have been derived from jars, with the exception of a Tewa Red Olla, a Tewa Black bowl, and a Tewa polychrome bowl (Table 19.2).

Obviously, any interpretation based on such a small number of Territorial period native pottery sherds from LA 58037, or other assemblages, is quite limited. The small amount of data, in conjunction with the data from other local projects, and in the context of the previously discussed strategies and frameworks for analysis, provide for a better understanding of sociological, historical, anthropological, and archaeological data trends. Past and future studies focusing on vessels from museum and private collections and pottery from archaeological contexts will undoubtedly enhance our comprehension of the singular, interrelated web of events and relationships that initiated, nurtured, and guided the unique procession of modern Pueblo pottery development and evolution of form that has long captured the interest of Southwest scholars and the public-at-large. An increasing availability of data brought about through ethnographic studies, historic documents, historic art evaluations, and historic archaeology—in combination with archaeological studies—will provide unique opportunities to better understand the complex dynamics that have influenced form and style in the ancient industrial art of southwestern pottery production.

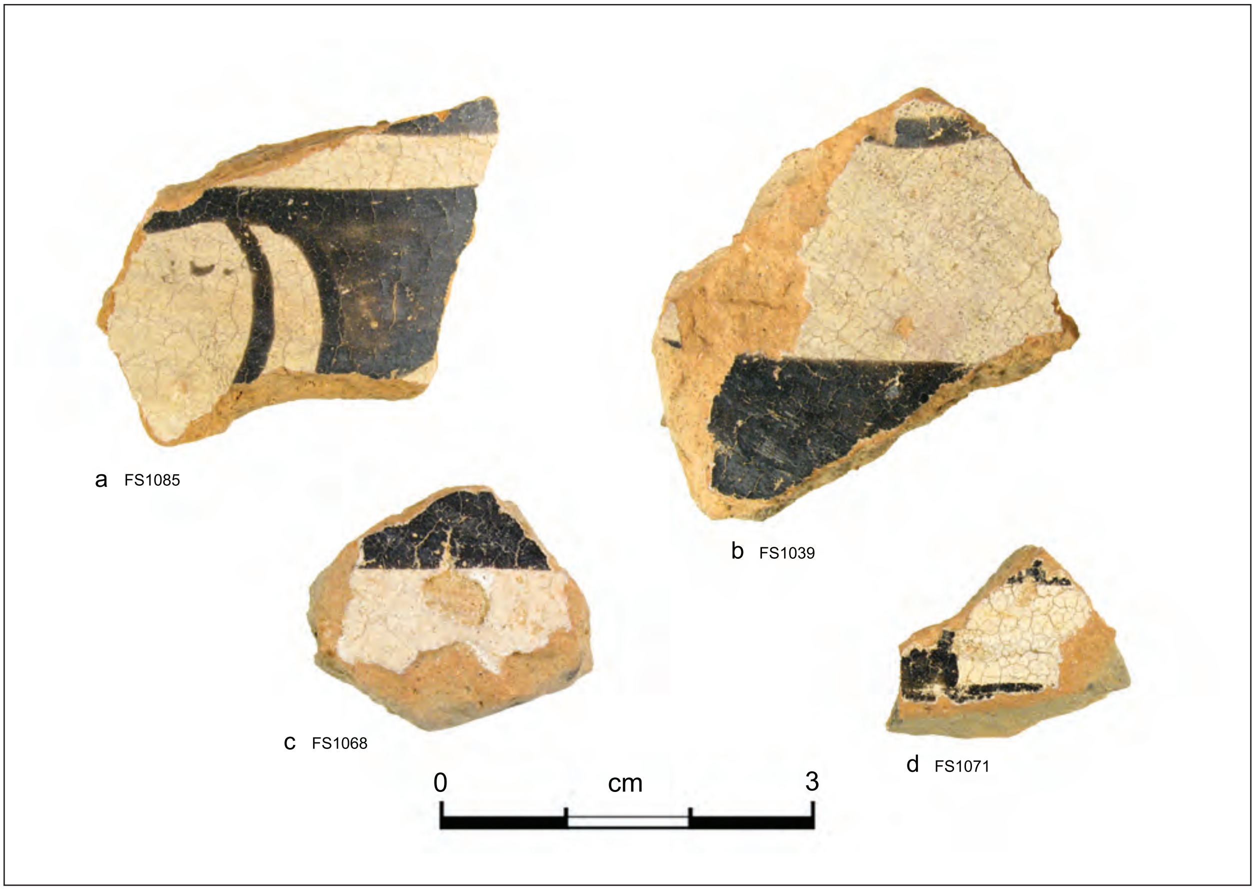


Figure 19.1. Late nineteenth- and early twentieth-century pottery sherds analyzed during the Executive Office Building project: (a–d) Powhoge Polychrome.

Chapter 20

Macrobotanical Analysis

Pamela J. McBride

This chapter reports on analysis results of 20 flotation samples from further excavations conducted at LA 158037 in the Capitol Complex Historic Neighborhood. Features examined for archaeobotanical remains include 10 domestic refuse pits, one straight-line cesspit, two small irrigation ditches, two construction debris pits, and one agricultural field deposit. The features are associated with two previously investigated households (the Parker and Mullen households at two locations along West Manhattan Avenue) and three new households along South Capitol Street (the Beacham and Butler households and one occupied by a series of residents and businesses).

Analysis Results

Structure 4, Parker Family Home, and Structure 6, Muller Family Home

The majority of plant remains from the irrigation ditch that ran through both the Parker and Muller properties consisted of annual seeds and other weedy species, although raspberry seeds were recovered in three of the four samples, possibly indicating that raspberries were one of the plants cultivated by inhabitants (Table 20.1). Maize cupules were also present in one of the samples from the irrigation ditch. Cupules were also recovered in irrigation ditch 389, associated with Structure 11, and in an agricultural field deposit. Maize glumes were recovered in another irrigation ditch associated with Structure 4 during previous investigations. These could be debris from burning maize cobs and weeds in fields to fertilize them. This method was documented at Zuni Pueblo and it has been postulated that farmers may not have applied livestock manure to fields until they were encouraged to do so by agricultural extension workers in the 1920s (MacDowell 1919, cited in Brandt 1995:296). The irrigation ditch from the previous investigations was associated with the Romero family occupation of Structure 4 in the latter part of the nineteenth century. The Parker, Muller, and Beacham families lived in Structures 4, 6, and 11 throughout much of the twentieth century.

If the maize remains represent residue from burning fields, the practice of fertilizing fields in this manner may have persisted at least into the first half of the twentieth century during the Parker, Muller, and Beacham occupation of the houses. This was most likely true in large part due to the lack of evidence that any livestock was actually owned by these families. Lacking a source of manure, extension agents certainly couldn't have urged anyone in the neighborhood to use it.

Wood identified during analysis was primarily described as unknown conifer and piñon with small amounts of juniper, ponderosa, and unknown nonconifer (Table 20.2). The presence of burned wood in the irrigation ditch could indicate that rather than representing field burning episodes, the burned maize parts might simply be part of burned trash disposed in the ditches.

A burned amaranth seed was the only carbonized, and thus potentially cultural, plant remain recovered from the domestic refuse pits (Table 20.3).

Unburned amaranth, purslane, groundcherry, and sedge were also present, and are, thus, most likely non-cultural in origin. Wood from the pit consisted of juniper and piñon (Table 20.4).

Structure 10, Muller Property

Carbonized material from the domestic refuse pits associated with the late nineteenth and early twentieth-century occupation of Structure 10 was restricted to unknown fiber and plant parts, offering little insight into trash disposal and economic plant utilization (Table 20.3). The construction debris from pit Feature 253 was linked to the late nineteenth century by the presence of construction materials dating to this time period. The flotation sample produced nothing more revealing than carbonized unidentifiable seeds and plant parts and unburned weed and unidentifiable seeds. Wood consisted of burned and unburned juniper and unburned unknown conifer from the domestic refuse pits and six fragments of burned unknown conifer from the construction debris pit (Table 20.4).

Structure 11, Beacham Property

Six domestic refuse pits, used during the course of the Beacham family residence, produced burned amaranth, dropseed grass, grass family, groundcherry, goosefoot, mint family, and purslane seeds (Tables 20.3, 20.5, 20.6). Seeds of cultivars included grape, raspberry/blackberry, strawberry, and wheat. Burned and partially burned grass stems, unknown plant parts, and unidentifiable seeds round out the assemblage from the domestic refuse pits. A number of unburned weedy annuals (purslane is especially abundant), dropseed grass, groundcherry, mint family, and bulrush/sedge comprise the non-cultural taxa in the assemblage. Wood charcoal from the pits was primarily juniper with piñon, ponderosa, oak, and willow family wood present in domestic refuse pit Feature 395 (Tables 20.4, 20.7).

The Feature 389 irrigation ditch produced burned amaranth, grass family, and goosefoot seeds, raspberry/blackberry seeds, grass stems, and the maize cupule mentioned in the discussion above of Structures 4 and 6. Non-cultural plant material was similar to that encountered in the domestic refuse pits. Wood consisted of burned juniper, ponderosa pine, and unknown conifer (Table 20.7).

Feature 382, Staight-line Cesspit

The cesspit that served both the Beachams and the Butlers produced the most interesting plant remains including cantaloupe, cherry, chile, coriander, fig, raspberry/blackberry, squash, strawberry, tomato, and watermelon (Table 20.6). Several taxa are listed as possibly cultural that were listed elsewhere as non-cultural. Since purslane, beeweed or clammyweed, grass, and poppy seeds all have documented economic uses, it is not possible to rule them out as non-cultural in deposits of human sewage simply because they were uncharred. The unburned croton seed was classified as non-cultural because, although the whole plant was used medicinally, it is problematic to interpret the seeds of this weedy plant as cultural in origin. Nine fragments of unburned unknown conifer may be components of the beehive superstructure (Table 20.7).

Structure 12, Butler Household

The domestic refuse pit that was probably used by the Butlers was the only context where mulberry seeds were identified. This was the only potentially cultural taxon recovered from the domestic refuse pit, the remainder of the plant material consisting of unburned annuals, dropseed grass, groundcherry nightshade, vervain, and elm seeds (Table 20.8). Wood from the domestic refuse pit consisted of juniper, ponderosa pine, and two fragments that resembled oak, while five fragments of juniper were present in the construction debris pit (Table 20.9).

Structure 13, Rental

Floral remains from the construction debris pit associated with Structure 13 were limited to unburned groundcherry seeds.

Discussion of Macrobotanical Remains from LA 158037

Ethnic differences in consumption and discard of plant foods were investigated during the Capitol Parking Facility data recovery project (McBride 2012). The comparison was muddled by a considerable difference in the number of samples analyzed from Anglo versus Hispanic contexts. The number of samples examined from contexts associated with Anglo occupants was less than half (n = 9) of those examined from contexts associated with occupants of Hispanic descent (n = 23). With the addition of data from the current study, the sample size of Anglo-associated contexts has increased to 27, comparable to the number from Hispanic-associated contexts. However, the other issue that made ethnic comparisons difficult has not been mitigated to a large degree. That is that although one cesspit was examined in the current study, the majority of Anglo-associated samples were still from domestic refuse pits, while 57 percent of the Hispanic-related samples were from privies which, by their very nature, hold much more direct evidence of diet than refuse pits, irrigation ditches, or well/cisterns.

With the addition of the new data, a few patterns that were suggested previously may be incorrect while some still hold. Cantaloupe and watermelon were recovered from the cesspit associated with the Beacham and Butler households; in the previous study, melon seeds were restricted to Hispanic contexts (Table 20.10). The data indicated a larger array of domesticated taxa from Hispanic contexts, leading to suggestions that Hispanic residents were practicing irrigation farming, while the Anglo families may not have been engaged in such endeavors or at least not as intensively. With the inclusion of the current data, not only are chile, fig, grape, mulberry, peach, raspberry/blackberry, strawberry, tomato, and wheat found in contexts affiliated with each ethnic group, but melons and maize were found in samples from both Hispanic and Anglo-associated contexts. In addition, cherry, squash, and coriander were identified solely in Anglo contexts, suggesting that cultivation of small garden plots was not simply the continuation of Hispanic tradition, but practiced by both ethnic groups. Apple, cherry, and apricot or plum trees could have been growing on the edges of old irrigation ditches or in the Alarid, Beacham, or Butler family backyards.

Chile seeds still occur in more Hispanic-affiliated samples, occurring in 61 percent of Hispanic-associated samples versus 11 percent of all Anglo-related samples. The difficulty noted in the previous study of determining if these data are a reflection of sample context biases or a true indication of dietary preferences persists. With this in mind, the high percentage of chile from Hispanic samples may indicate that Hispanic households were eating more of this traditional food than Anglo households or more chile was recovered from Hispanic-associated contexts because there were more samples from privies.

Wild taxa that were confined to Anglo contexts were thornapple or jimsonweed and poppy. These are both used as ornamentals and, of course, poppy seeds are used in pastries or as toppings. Hedgehog cactus, pricklypear, and mustard seeds as well as charred yucca leaf fragments were found only in Hispanic contexts, possibly indicating the persistence of the traditional practices of gathering cactus tuñas or fruits and mustard seeds (Curtin 1965; Whiting 1966; Castetter 1935). The leaves of yucca could have been processed to separate fibers for use as cordage or in manufacturing brushes (Curtin 1965). Other wild taxa could either represent food residue (such as unburned groundcherry, sunflower, purslane, or beeweed/clammyweed seeds recovered in privies) or weeds that were burned while clearing fields (burned amaranth, goosefoot, or spurge).

The previous study found that the wood assemblages all seemed to suggest a preference for conifers, especially juniper, and piñon to a lesser degree. This pattern can still be seen, but because of the large fragments of unburned unknown conifer wood from the cesspit, this is the dominant wood type by weight in the current assemblage (Table 20.9). Along with juniper, piñon, and ponderosa pine, small amounts of oak and cottonwood/willow are present, but locust wood, found in the Structure 1 vault privy during the Capitol Parking Facility study, was not recovered in this assemblage.

Differences as reflected in the discard of plant foods found in domestic refuse pits versus vault or cesspit privies were investigated in the previous study. The list of taxa and their frequencies that were found in privies versus domestic refuse pits illustrates that at least for plant material, privies were not used for trash disposal to a great extent (Table 20.11). On the other hand, plant remains from refuse pits are a combination of weed seeds commonly found in yards or fields that may have been burned in pits during clearing activities and household waste including burned beans, maize cupules and kernels, and wheat grains. Yet peach pitswith sharp protrusions would clearly not have been ingested voluntarily and, as a consequence, would nothave shown up in both privies and trash pits. This demonstrates that at least some plant materials were disposed of in privies. Strawberry, fig, chile, raspberry/blackberry, tomato, and grape seeds were the most frequently encountered taxa in privy samples, whereas unknown plant parts, unidentifiable seeds, goosefoot, and chile were the most common in trash pit samples. The high frequency of unknown and unidentifiable plant parts and seeds in trash pits illustrates the difficulty of identifying material that has been burned at high temperatures due to distortion. Chile seeds are one of the most common plant remains that are found in both contexts, possibly indicating that the seeds were often ingested along with the flesh and at other times the seeds were removed prior to food preparation and were burned along with other trash in outside pits.

Comparison of Macrobotanical Remains from Santa Fe Area Historic Sites

Two other sites that were investigated in the urban Santa Fe area that had components that are contemporaneous with Capitol Parking were compared in the previous study (McBride 2012:Table 28.19). Of the 14 cultivars recovered from the three projects, eight were found in all deposits, four were found at two of the sites, and coriander and squash were restricted to the privy at LA 156207. However, with the addition of data from the Executive Office project, coriander and squash are now found at two of the three project sites, LA 156207 and LA 158037 (Table 20.11). Piñon is still the only wild plant taxon present at all three sites (nucelluses were recovered from Capitol and Judicial Complex deposits and nutshell was also found at the Capitol and the Railyard). The similarity in plant assemblages continues to suggest that Santa Feans in the early part of the twentieth century were eating a diet that was a combination of traditional foods and commercial commodities available nationwide.

Summary

Plant material from late nineteenth and early twentieth-century contexts at LA 158037 indicate the diet was a combination of cultivars and wild plants, either brought by the original Spanish settlers from the home country and Mexico or long-established adopted foods used by the existing indigenous people of the area. The significance of chile as a traditional New Mexican food is illustrated in the results of this analysis together with the use of wild plants like piñon nuts, both of which continue to this day. The occupants could have bought crops from local farmers as well as having purchased brand-name cookies and jams. They owned land and farmed, or had extended families who farmed and had orchards outside of the urban area, or they tended their own backyard orchards and gardens and made jams from raspberries gathered in the mountains, purchasing only cookies or figs and possibly strawberry jam.

Chapter 21

Coprolite Analysis

Linda Scott Cummings, Kathryn Puseman, Chad Yost, and R. A. Varney

Two samples of coprolitic deposits or sediment containing human excrement from LA 158037 were examined for pollen, parasite eggs, phytoliths, and macrofloral remains. This site is located in downtown Santa Fe, New Mexico, and was excavated as part of the Executive Office Building Data Recovery project. Samples were recovered from a cesspit or early septic tank used by the Beacham and Butler families during the early to middle 1900s. Analysis was undertaken to provide information concerning diet of these two families, as well as to evaluate the possibility for parasite load.

Pollen, phytolith, and macrofloral analyses of the cesspit/early septic tank deposits identified remains of several types of plants. Many of these plants represent potential and/or probable food resources, while others represent weeds and/or ornamental plants that probably grew nearby. These plants are discussed below to provide basic information concerning their origin and uses. Pollen, phytoliths, and macrofloral remains are then discussed collectively by provenience.

Edible and Economically Important Plants

Apiaceae (Parsley Family)

Members of the Apiaceae (parsley family) are biennial or perennial, mostly herbs with stout stems, and often aromatic. Many of the species in this family are of economic importance, including *Anethum graveolens* (dill), *Anthriscus cerefolium* (chervil), *Carum carvi* (caraway), *Coriandrum sativum* (coriander), *Cuminum cyminum* (cumin), *Daucus carota* (carrot), *Foeniculum vulgare* (fennel), *Pastinaca sativa* (parsnip), *Petroselinum crispum* (parsley), and *Pimpinella anisum* (anise). Several members are poisonous, such as *Conium maculatum* (poison-hemlock) and species of *Cicuta* (water-hemlock). Members of the Apiaceae are found primarily in the temperate northern hemisphere (Hickey and King 1981:298–299; Muenscher 1987:321–331; Smith 1977:177).

Anethum graveolens (dill) is an annual, aromatic herb most popularly used for culinary purposes and often is found in pickles, sauces, breads, and cheeses. Dill was being cultivated in American gardens before 1806 for its leaves and seeds. Medicinally, the seeds are good for relieving flatulence, easing digestive upset, and to induce sleep, both for adults and infants. A tea made from the leaves can be used to increase breast milk flow in lactating mothers. Gripe water, made from dill seeds, was given to babies to relieve hiccups, ease colic, and as a sleep aid. *Anethum graveolens* grows wild in most temperate regions (Bunney 1984; Hedrick 1972:415; Heinerman 1983:33-34; Kiple and Ornelas 2000b:1768–1769; Potterton 1983:58).

Apium graveolens (celery) is a stout, aromatic perennial of the Apiaceae (carrot or parsley) family. Fresh stalks are a popular vegetable, eaten both raw and cooked. The wild plant is generally stronger in smell and taste. *Apium graveolens* became a cultivar in North America in the seventeenth century after being introduced from coastal Europe, then became widely naturalized. Seeds are used as a spice, often ground and mixed with salt. Celery also is an important medicinal plant. Eating fresh celery stalks can help stimulate milk flow after childbirth. Seeds are used as a diuretic and to treat rheumatoid arthritis and gout. The root also is an effective diuretic and has been taken for urinary stones and gravel. Wild celery is found in moist soils throughout the West (Couplan 1998:324–325; Grieve 1982:182; Kirk 1975:119–120; Ody 1993:37).

Brassicaceae (Mustard Family)

The Brassicaceae (mustard family) consists of 375 genera and 3200 species of annual, biennial, or perennial herbs or rarely small shrubs with watery, acrid sap. Flowers are noted to be uniform and consist of four separate sepals arranged like a cross. The young leaves are rich in vitamins A, B1, B2, and C and can be boiled as greens. Members of this family cultivated for food include *Brassica oleracea* (broccoli, cabbage, kale, cauliflower, kohl-rabi, and brussel sprouts), *Brassica rapa* (turnip), *Sinapis alba* (yellow mustard), *Nasturtium officinale* syn. *Rorippa nasturtium-aquaticum* (watercress), *Lepidium sativum* (garden cress), and *Armoracia rusticana* (horseradish). Many members of this family are cultivated as ornamentals and include plants such as *Iberis* (candytuft), *Alyssum* (alyssum), *Arabis* (rockcress), *Hesperis matronalis* (dame's rocket), *Lunaria* (honesty, money plant), *Lobularia maritima* (sweet alison), *Matthiola* and *Malcolmia* (stocks), *Erysimum* (wallflower), and *Aubrieta*. These plants seed freely, thus establishing themselves in gardens over a period of many years. Weedy species include *Capsella* (shepherd's-purse), *Descurainia* (tansy-mustard), and *Lepidium* (peppergrass). The leaves and stems have a very pungent or peppery flavor. Members of the Brassicaceae are cosmopolitan in distribution, chiefly in northern temperate regions. Wild members of this family can be found in waste places, grain fields, pastures, neglected fields, cultivated areas, in ditches, and along banks of streams (Britton and Brown 1970:146; Hedrick 1972:100; Hickey and King 1981:150; Martin 1972:64–65; McGee 1984:196; Muenscher 1987:229, 232–236; Zomlefer 1994:125–129).

Poaceae (Grass Family)

The **Cerealia** group consists of the economic members of the grass family including *Triticum* (wheat), *Avena sativa* (oat), *Hordeum vulgare* (barley), and *Secale cereale* (rye). These plants are part of the cereal grains that were named for *Ceres*, the Roman goddess of agriculture. These seeds are noted to "have played a crucial role in human nutrition and cultural evolution" (McGee 1984:226). These grains are used to make beer and bread, which have been staples in the human diet since at least 3000 B.C. The cereal grains are concentrated sources of protein and carbohydrates and continue to provide the majority of the caloric intake for much of the world's population. Wheat, barley, and oats have been the most important grains in the Middle East and Europe (Hickey and King 1981:436; McGee 1984:227–229).

Rice (*Oryza sativa*) is noted to be the principal food crop for about half of the world's population. "Rice is often thought to be a native of India, but probably originated in the warm, wet parts of southwestern China, Thailand or Malaya in about 7000 BC" (Phillips and Rix 1993:10). Today, there are about 2500 varieties of rice. Brown rice consists of the intact grain with the bran layers intact. White rice has been further milled and polished. About 15 percent of the protein in rice is lost in milling and polishing, as well as much of the amino acid lycine and the vitamin thiamine. Rice most often is cooked in water and consumed as individual grains. *Sake* is a fermented drink made from rice that was invented in the Far East. A mold (*Aspergillus oryzae*) that secretes a starch-digesting enzyme is used to prepare rice for fermentation (McGee 1984:237–239, 429).

Citrullus lanatus (Watermelon)

Watermelon (*Citrullus lanatus* syn. *Citrullus vulgaris*) is a spreading annual vine that produces round, oval, or oblong fruits that can weigh from 5 to 100 pounds. They are natives of southern Africa that came to the Americas with the slave trade. Watermelons are now cultivated all over the world, and the number of varieties has increased. There are differences in size, shape, color of rind, color of flesh, and color of seeds between the different varieties. Watermelons are usually eaten raw. Juice can be made into wine. The rinds can be eaten as a vegetable, either stir-fried or pickled. Watermelon fruits are a good source of vitamin C, vitamin A, and lycopene, a carotenoid antioxidant, and they contain vitamin B6, vitamin B1, potassium, and magnesium (Ambler et al. 1994:557; Hedrick 1972:169–172; McGee 1984:184).

Cucumis melo (Cantaloupe, Melon, Muskmelon)

Cucumis melo (cantaloupe, melon, muskmelon) are natives of the Old World Tropics, with their origins placed tentatively in Africa or India. Several varieties of melons now exist, ranging from melons the size of small plums to others that weigh as much as 66 pounds. Muskmelons are usually called cantaloupes; however, true cantaloupes were developed from a former papal garden near Rome called Cantalupo. True cantaloupes have a hard, rough, warty or scaly rind and are not commercially available. Honeydew melons have a smoother surface than muskmelons and require a longer growing season. Melons contain few calories, as they are mostly water (92 percent). They are rich in potassium, vitamin C, and vitamin A. Melons are noted to have diuretic and laxative properties when over-ripe or under-ripe. Melons most commonly are eaten raw, although some melons are cooked as vegetables in China. In parts of Africa and China, an oil is expressed from melon seeds that is used for food and other purposes and is exported (Ambler, et al. 1994:547; Hedrick 1972:202–207; McGee 1984:184–185; Toussaint-Samat 1992:659).

Cucurbita (Squash, Pumpkin)

The *Cucurbita* (squash, pumpkin) genus contains 27 species of trailing and climbing annuals and perennials. They are natives of the Americas, and some species have been cultivated for 9,000 years. Numerous varieties are now grown. Cultivated species include *C. pepo* (New England pumpkin, zucchini, crookneck squash, acorn squash, cultivated gourd), *C. mixta* (green-striped cushaw, Taos pumpkin, silverseed gourd), *C. moschata* (butternut squash, Kentucky field pumpkin), *C. maxima* (banana squash, turban squash, hubbard squash), and *C. ficifolia* (spaghetti squash). Summer squashes, such as zucchini and yellow squash, are eaten when soft and immature. Winter squashes (acorn squash, turban squash, etc.) and pumpkins are allowed to mature into hard, starchy fruits that will keep for months. Some pumpkins can weigh as much as 100 pounds. Winter squashes are most often eaten baked or grilled, are used as pie filling, or are made into marmalade. The seeds can be roasted and eaten. Species of *Cucurbita* have been used as anthelmintics or vermifuges (worm-expellants) (Ambler et al. 1994:551, 554–555; Cordell 1984:178; Hedrick 1972; McGee 1984:200; Phillips and Rix 1993:174).

Ficus carica (Common Fig)

Ficus carica (common fig) is a spreading deciduous tree or large shrub with large leaves and milky sap. This fig is a native of Asia minor that was imported into the Mediterranean area and used by the Egyptians 6,000 years ago. The fig was an important part of the common man's diet in Greece and Rome. Figs were introduced to North America around AD 1600, although they were not commercially cultivated until the 1900s. Many cultivars exist. Like the date, the fig is valued for its sugar content. Figs contain about 50 percent invert sugar, as well as pectin, organic acids, fat, albumin, and vitamins A and B. The fig "fruit" is actually the soft, fleshy, pear-shaped, swollen flower base that encloses the true fruits (achenes). Before ripening, some cultivars are pollinated by a gall wasp that crawls in an opening at the apex of the "fruit." Figs can be eaten raw, preserved, dried and canned. Figs are mildly purgative and slightly expectorant and have been used to treat constipation and coughs (Bailey and Bailey 1976:477–479; Hedrick 1972:268; McGee 1984:186–187; Thomson 1978:23, 64, 155).

Fragaria (Strawberry)

Fragaria (strawberry) is found naturally in both Eurasia and the Americas, with the American varieties producing larger berries. In the eighteenth century, a French engineer named Frezier brought some of the large American species back to Europe and began breeding today's modern varieties (McGee 1984:183–184). Wild strawberries are smaller and more flavorful than the domesticated ones. The leaves and berries are rich in vitamin C, and a leaf tea was used to prevent scurvy and to treat diarrhea. Crushed wild strawberries also once were used to whiten the complexion, remove freckles, and as a treatment for mild sunburn (Ody 1993:60). Wild strawberries are perennial herbs found in meadows, fields, woods, on hillsides, and at forest edges (Angell 1981:20; Kirk 1975:90). Strawberries commonly are eaten fresh or are cooked in pies, jams, jellies, and preserves.

Lamiaceae (Mint Family)

The Lamiaceae (mint family) is characterized by square stems and hair-like oil glands on the surfaces of leaves and stems that often are used as flavorings. This is a large family of about 180 genera. Several members of the mint family are important culinary herbs including *Ocymum basilicum* (basil), *Marjorana hortensis* (marjoram), *Origanum vulgare* (oregano), *Mentha piperita* (peppermint), *Mentha spicata* (spearmint), *Rosmarinus officinalis* (rosemary), *Salvia officinalis* (sage), *Satureja* (savory), and *Thymus vulgaris* (thyme). Mints also are useful medicinal herbs. *Mentha* (wild mint) is noted to be good for the stomach and has antispasmodic properties. *Hedeoma* (American pennyroyal, false pennyroyal) is a pungent, common annual indigenous to the United States. American pennyroyal has been used to treat colic in children, to offset the symptoms of a cold or flu, and can be applied topically with linseed oil as a dressing for burns. *Scutellaria* (skullcap) is a calming nervine that can be used to treat nervous conditions, menstrual problems, and epilepsy. *Stachys officinalis* (wood betony) is a relaxing herb that can be used for headaches, nervous disorders, digestive problems, and as a diuretic. A *Leonuris* (motherwort) tonic can be used for anxiety and heart weaknesses, nervous tension, or menstrual pain. *Melissa officinalis* (lemon balm) has been used to treat depression, tension, indigestion and other stomach problems, nervous exhaustion, and colds. *Ocymum basilicum* (basil) leaves are useful for treating insect bites. *Prunella* (self-heal) is widely used to stop bleeding, as well as to treat throat and mouth inflammations and diarrhea. *Rosmarinus officinalis* (rosemary) can be taken for colds, influenza, rheumatic pains, indigestion, and headaches. *Thymus vulgaris* (thyme) is an antiseptic expectorant that is good for treating chest infections. It also can be used for stomach disorders and diarrhea. Other species of mint also are used medicinally, for oils or perfumes, as ornamentals, or they can exist as weedy herbs or undershrubs (Brill and Dean 1994:52; Hickey and King 1981:350; McGee 1984:204–206; Millspaugh 1974:462; Ody 1993; Toussaint-Samat 1992:533).

Malus (Apple)

Malus (apple) species are natives of North America, Europe, and Asia. Most species under cultivation were natives of Europe and Asia that have been naturalized in North America. Cultivated varieties were introduced to the Americas in the seventeenth century, and new varieties were developed in the eighteenth and nineteenth centuries. There are currently about 7,000 varieties of apples, with different sizes, colors, and flavors (McGee 1984:182; Schopmeyer 1974:531–534). Apple seeds contain a small amount of cyanide. Apples are eaten raw, made into cider and sauces, and used in pies, jams, jellies, and preserves.

Prunus (Cherry, Plum, Peach/Nectarine, Almond, Apricot)

The *Prunus* group includes cherries, plums, peaches, nectarines, almonds, and apricots. These fruits are called stone fruits or drupes, and most contain large seeds surrounded by a hard coat composed mostly of lignin. Cherry, plum, peach, nectarine, and apricot pits all contain glycosides, which break down into cyanide or prussic acid. A method of capital punishment in ancient Egypt involved eating the ground pits of peaches containing the acid (Lehane 1977:129). The acids are destroyed by cooking. While many species of native plums and cherries are found in the United States, most cultivated varieties are natives of Europe, west Asia, and Caucasus. Many of these fruits have been cultivated for thousands of years. Cherries, plums, and apricots are eaten fresh, canned, dried, or made into pies, cakes, jams, jellies and preserves. Wild cherry and plum species in the United States can be found growing in woods, prairies, fields, pastures, and along roadsides, fences and streams (Angell 1981:44–46; McGee 1984:183; Schopmeyer 1974:658–670).

Prunus americana (American plum) is a small tree or shrub, somewhat thorny, with thick, rough bark. White flowers bloom in April or early May, followed by a red or yellow fruit that is very pleasant to eat when ripe. The American plum is well known and widely used wherever they grow. In New Mexico, the following observation was made in 1934: “I found the trees growing about the Indian villages in the northern part of the state. The size and abundance of the fruit would indicate that the trees had been selected and planted” (Medsger 1966:41). The fruits can be eaten fresh, dried for future use, or made into sauces, preserves, or jelly. Many cultivated varieties come from *Prunus americana*. American plums can be found growing from

Canada to the Gulf of Mexico, along streams and in valleys, usually at lower elevations (Harrington 1967:254–256; Hedrick 1972:456; Medsger 1966:40–42).

Rubus (Raspberry Group)

The *Rubus* (raspberry) group includes blackberry, cloudberry, dewberry, salmonberry, thimbleberry, wineberry, and yellowberry. All species of *Rubus* produce edible berries that can be eaten raw or made into cobblers, jams, jellies, and pies. The fruit also can be used in cold drinks, teas, and salads and is easily dried and preserved. The fruit of some species is even used to make a liquor. The dried leaves can be used to make tea, and tender blackberry shoots can be added fresh to salads. *Rubus idaeus* (raspberry) was noted to be a favorite household remedy. A leaf infusion was used to treat mild diarrhea, as a gargle for mouth ulcers and sore throats, as a wash for bathing varicose ulcers and sores, and as an eyewash. The berries are rich in vitamins and minerals and traditionally have been taken for indigestion and rheumatism. *Rubus* plants are commonly found in sunny thickets and mountainous areas, especially at higher altitudes (Angell 1981; Hedrick 1972; Medsger 1966; Peterson 1977).

Sambucus (Elderberry)

Sambucus (elderberry) berries are usually purplish-black but can be red, blue, or purple. The red berries are reported to be poisonous. Fresh berries of most species are rank smelling and mildly unpleasant tasting; however, the berries can be prepared in pastries, preserves, and wines. The berries also can be dried to remove the unpleasant odor and taste. They are then added to muffins, fruit stews, and pie fillings. Elderberries are high in vitamins A and C, thiamine, calcium, and niacin, and contain iron and potassium. The flowers of *Sambucus canadensis* sometimes are mixed with batter and baked into cakes. The bark of *Sambucus* shrubs was simmered in lard to make an ointment for chafed skin, rashes, abrasions, ulcers, and burns. The fruits and flowers were poulticed for treating rheumatism, sores, and burns. Flowers were steeped in hot water to make a tea for treating fevers, while a flower tea made with peppermint was used to treat stomachaches. Flower water also was used for sunburns and as an eyewash. Berries were fermented to make a tonic wine and a cooling lotion for feverish patients (Angier 1978:113–117; Krochmal and Krochmal 1973:198–199; Peterson 1977:172). *Sambucus* plants are found in rich, damp soils along stream banks, in roadside ditches, in thickets and open woods, and on mountain slopes where there is adequate moisture (Angell 1981; Kirk 1975; Medsger 1966; Peterson 1977).

Solanaceae (Potato Family)

The Solanaceae (potato) family contains both edible foods and weedy plants. *Capsicum* (red pepper) were introduced from tropical America. This group has many different varieties including chilies, cayenne pepper, and pimentos. Fruits ripen to a yellow, red, or black color. Peppers are used to add a hot, spicy flavor to many dishes. Cayenne pepper can be used to stop bleeding or to treat sore throats, colds, chicken pox, backaches, and a number of other ailments (Hedrick 1972:135; Heinerman 1983:23–26; Kearney and Peebles 1960:755–756). *Solanum lycopersicum* syn. *Lycopersicon esculentum* (tomato) was widely cultivated in Mexico and South America at the time of Spanish contact. The early introductions to Europe are believed to have been the large-fruited variety from Mexico. In Europe, the fruits acquired a reputation as an aphrodisiac and were called "love apples." It was not until approximately the mid-1800s that tomatoes began to gain popularity, and today there are several varieties with red, yellow, or green fruits. Tomatoes are high in vitamin C. In the United States, the tomato is second only to the potato in popularity. Tomatoes are consumed raw and used in sauces, stews, and soups. Tomatoes also can be included in preserves and jams, either alone or in combination with other fruits. The plant is very adaptable, sometimes re-seeding the following year in the garden or compost areas. Tomatoes are reported as "half-hardy annuals or short-lived perennials" (Phillips and Rix 1993:150). These plants grow best in a hot climate on fertile, well-drained, and moisture retentive soil (Hedrick 1972:343–345; McGee 1984:202). *Solanum melongena* (eggplant, aubergine) is a perennial plant that is grown as an annual. It has large, hairy, grayish-green leaves and long, slender or round, egg-shaped fruits that can be creamy white, yellow, brown, purple, black, or variegated, depending on the variety. The eggplant is a native of India, and the earliest records of eggplant cultivation are from China during the fifth century

BC. Many varieties now exist. Typical home garden varieties produce rounded fruits with shiny, dark purple skins, while Oriental varieties have slender, elongated fruits and dull purple skins. Eggplants often are eaten fried or cooked (Ambler et al. 1994:544; Hedrick 1972:541–543; McGee 1984:201; Phillips and Rix 1993:161–163).

Syzygium aromaticum (Clove)

Syzygium aromaticum syn. *Eugenia* (clove) is a tropical evergreen tree native to the Molucca Islands in the East Indies. The cloves commonly used as a spice in cooking are the dried, unopened flower buds of this tree. Cloves originally were known throughout the Mediterranean countries and were imported into Europe during the Middle Ages. Cloves can be used in a variety of ways including for baking (especially apple pies), in pickles, curries, for seasoning ham and beef, in mulled wine, and in the preparation of foods such as spaghetti and lasagna. Cloves aid in the digestion of food and prevent flatulence. They also help relieve nausea and vomiting. Eugenol is the main constituent of clove oil and is found in some brands of mouthwash. Eugenol is noted to have anesthetic properties and has been used to relieve toothaches. Clove oil also has been used in perfumes and bath salts (Hedrick 1972:259; Kruger 1993:62; McGee 1984:210).

Vaccinium (Blueberry, Cranberry, Bilberry)

Vaccinium (blueberry, cranberry, bilberry) are natives of North America and other temperate and arctic regions of the world. They are deciduous or evergreen shrubs that are found in the wild in North America and Europe (Schopmeyer 1974:840). Commercial blueberries and cranberries were cultivated from American varieties. Half of the annual cranberry crop in the United States comes from Massachusetts where cultivation began in 1840. In 1910, a USDA scientist and a New Jersey cranberry grower developed fifteen improved varieties of blueberry (McGee 1984:185). Blueberries and huckleberries (*Gaylussacia*) are very similar and can hybridize. Blueberries can be red, black, or purple but are usually blue, often with a white powder on their skins. Berries are eaten raw, cooked, dried, and in pies, jellies, jams, muffins, and pancakes. Cranberries are red, juicy fruits commonly found at Thanksgiving and Christmas in the form of cranberry sauce but also are used in relishes, salads, jellies, pies, juices, and as an addition to hot breads (Angell 1981:70). *Vaccinium* plants like wet or dry acidic soils and grow on peaty or fire-blackened land, and in bogs, tundras and barrens (Angell 1981:72, 108; Peterson 1977:102, 220).

Vitis (Grape)

Vitis (grape) is a native of Asia Minor and North America that has been cultivated for wine and table grapes. The Egyptians are believed to have first cultivated grapes 6,000 years ago. The majority of wines and table grapes are made from varieties of the European *Vitis vinifera*. *Vitis vinifera* was introduced to the New World by Columbus, and cultivation of this species dates back as far as AD 1494 in Haiti and the early seventeenth century in the colonies. Cultivation of *Vitis vinifera* in the United States ultimately failed due to the harsher climate and new diseases and pests to which the European grape had no resistance. Subsequently, it has been hybridized with native species of *Vitis* to increase its hardiness. American jelly, grape juice, and northeastern wines are made from Concord grapes, a variety of the American *Vitis labrusca* (fox grape). Many other species of *Vitis* are native to the United States and produce edible fruit that can be purple, blue, black, or amber. Wild grapes often are too tart to be eaten raw but are used in jams, jellies, and juices. Generally, wild grapes need more sweetening than cultivated grapes and contain plenty of pectin before fully ripe. Young grape leaves can be cooked as greens or used to wrap meat for baking. Internally and externally, leaves were used to cure snake bites and disorders of the internal organs. Grape leaves soaked in water were used as a poultice for wounds. Wild grapes are found throughout the southwest and northeast United States growing in thickets and edges of woods (Angell 1981:156; Hedrick 1972:603–604; Kiple and Ornelas 2000a:734–737; Kirk 1975:263; McGee 1984:187; Medsger 1966:53–59; Peterson 1977:198).

Zea mays (Corn)

Zea mays (corn, maize) is a New World cultigen that has become a very important resource. Native people in Central America first domesticated maize over a thousand years ago. Native Americans grew maize as a staple and introduced it to visiting Europeans. Today, corn is used for food, starch, alcohol, and animal feed. It is still a staple for millions of people in developing nations in Latin America, Africa, and Asia. Maize continues to be grown by native peoples in the Southwest, and it is big business for American farmers in the corn belt of the Midwest United States. Corn often is grown in gardens. Fresh, boiled ears of corn are a common food when in season, and fresh corn kernels are canned and/or frozen. Kernels also are dried and made into cornmeal. Popcorn is a genetic variant whose kernels are heated and popped. Corn also is fermented into bourbon whiskey (Rhoades 1993:92–117).

Weeds

Muenscher (1987:3) describes weeds as "those plants that grow where they are not wanted." Whether a plant of a given species is considered a weed depends not only on its characteristics and habitats, but also on its relative position with reference to other plants and man. Weeds often are able to thrive in diverse and adverse circumstances. They commonly are found in disturbed areas or in places undesirable to other plants. Many weed species produce enormous quantities of seeds, and these seeds often are widely dispersed. Other weed species are capable of reproducing vegetatively. These factors combine to produce a plant that is very successful in competition with other plant species. The word "weed" is assigned here to those plants that were most likely not eaten by the historic occupants of LA 158037.

Asteraceae (Sunflower Family)

The Asteraceae (sunflower, aster, or composite) family is a very large family of over 20,000 species worldwide. This family consists mostly of herbaceous plants, usually with a taproot. A few species become shrubs or trees. Food plants in this family include *Lactuca* (lettuce), *Helianthus* (sunflower), *Cichorium intybus sativum* (chicory), and *Cichorium endivia* (endive), all members of the tribe Liguliflorae. The High-spine group includes many genera that are highly decorative and are grown as popular ornamentals. Some of these include *Aster* (aster), *Solidago* (golden rod), *Erigeron* (daisy), *Bellis perenis* (English daisy), *Wyethia*, *Coreopsis*, *Tagetes* (marigold), *Helianthus* (sunflower), *Chrysanthemum*, *Cosmos*, *Dahlia*, *Zinnia*, *Centaurea* (cornflower), *Anthemis tinctoria* (yellow chamomile), *Calendula*, *Rudbeckia* (Mexican hat), *Senecio* (groundsel), and *Arnica*. Many species, such as *Ambrosia* (ragweed), are weedy, herbaceous plants found in a variety of habitats, some of which include cultivated fields, meadows, waste places, old fields, pastures, gardens, and lawns (Clements 1927:611–615; Hickey and King 1981:418; Muenscher 1987:422; Niering and Olmstead 1979:354; Tomanova 1986:217; Zomlefer 1994:203).

Taraxacum (dandelion) is a very common perennial weed with a single golden-yellow flower that adorns a hollow stalk. After the plant goes to seed, the seed heads give the appearance of a "puff ball." Leaves grow immediately from the root, and all parts of the plant contain a milky sap that can irritate the skin. Young greens are potassium-rich and can be eaten fresh in salads. The leaves also can be used as a diuretic, and a decoction of the roots may be used as a stimulant. Dandelions often grow in lawns, fields, and disturbed areas throughout North America (Bailey and Bailey 1976; Foster and Duke 1990:130; Hickey and King 1981:424; Ody 1993:103; Weiner 1990:75–76).

Cheno-ams

Cheno-ams refer to a group representing the Chenopodiaceae (goosefoot) family and the genus *Amaranthus* (amaranth, pigweed). The Chenopodiaceae family consists of annual or perennial herbs or sometimes shrubs. These plants are especially abundant in weedy, xeric, or saline areas. Food plants in this family include *Beta vulgaris* (beet, swiss chard), *Spinacia oleracea* (spinach), and several species of *Chenopodium* that provide edible greens and pseudo-grains. Other species of *Chenopodium* and *Salsola* (Russian thistle) are common weedy plants. Genera grown as ornamentals include species of *Amaranthus*, *Atriplex* (saltbush), some species of *Chenopodium*, *Kochia* (summer-cypress), and *Salicornia* (glasswort) (Hickey and King 1981:82; Zomlefer 1994:65).

Cleome (Spiderflower, Beeweed)

Cleome (spiderflower, beeweed) is a shrubby, branching, annual plant that grows in disturbed areas. In the fall, the plants are topped with open, fluffy clusters of pink, white, or lavender flowers with very long, protruding stamens. Plants can grow up to 4-6 feet tall and 4-5 feet wide. Native groups in the American Southwest utilized *Cleome* as food, pottery paint, and to yield a yellow-green dye. *Cleome* is found in prairies and waste places, often on sandy ground, from Kansas west to the Pacific. It is widespread in the Rocky Mountain region, although seldom above 8000 feet in elevation (Ambler et al. 1994:150; Bryan and Young 1978:23; Editors of *Sunset Magazine* and Sunset Books 1967:234; Harrington 1967:72; Stevenson 1915:69, 82).

Ephedra (Joint-fir, Mormon Tea)

Ephedra (joint-fir, Mormon tea) is a perennial shrub with jointed stems or needles measuring 2 to 12 inches long. *Ephedra* has long been used as a medicinal resource for its astringent, diuretic, and anti-inflammatory properties. It is also a tissue healer and can be used to stop bleeding. The leaves are brewed into a tea used for treating headaches, colds, fevers, kidney and urinary tract disorders, cramps, arthritis, and rheumatism. A decoction can be used to treat heavy menstruation, stomach ulcers, prostate and lung disorders, and as a wash for skin conditions such as eczema and acne. The dried and pulverized twigs can be made into poultices and ointments for burns, sores, swellings, rashes, and animal bites. *Ephedra* is found in arid parts of the western United States, including desert scrub, grassland, chaparral or brush, creosote bush scrub, and piñon/juniper woodland. Some species have been used as an ornamental in parks or along highways, as re-vegetation plants for depleted game ranges, and for soil stabilization (Anderson 2006; Elmore 1976:92; Kirk 1975:21; Moore 1990:26–27; Ody 1993:55; Shields 1984:64; Sweet 1976:22; Westrich 1989:88–89).

Eriogonum (False Buckwheat)

Eriogonum (false buckwheat, wild buckwheat, umbrella plant) is a large genus of annual or perennial herbs and shrubs. The stems are noted to be edible raw or cooked if picked before they have flowered. The many species of *Eriogonum* may be found on dry, rocky plains, hillsides, meadows, and mesas (Harrington 1964:185–195; Kirk 1975:231; Weber 1976:261–263).

Fabaceae (Pea or Bean Family)

The Fabaceae (pea or bean) is a large family of about 600 genera and 12,000 species, including trees, shrubs, herbs, water plants, xerophytes, and climbers. A general characteristic of this family is the presence of bacterial nodules in the roots of many plants which enable the plant to take up more atmospheric nitrogen. This practice helps enrich the soil, and many species are valuable as crops on poor soils (Hickey and King 1981:196; Zomlefer 1994:160).

Many species of *Trifolium* (clover) have been introduced from Europe, although others are native to North America. *T. repens* (white clover, four-leaf clover) is a familiar weed found in lawns. It is a native of Eurasia that has escaped from cultivation and is widely distributed in North America. *T. pratense* (red clover) is one of the most common perennial, native clovers and is planted as a hay and pasture crop. Clovers are high in protein and can be eaten raw, but they are best when boiled or soaked in salt water for several hours. A tea can be made by steeping dried flowers in hot water. Clovers are found in a variety of habitats including old fields, roadsides, prairies, dry woods, gardens, and lawns (Kirk 1975:100–101; Martin 1972:67; Niering and Olmstead 1979:540–542; Peterson 1977:56).

Onagraceae (Evening Primrose Family)

The Onagraceae (evening primrose or willow herb family) are annual, biennial, or perennial herbs, with only a few shrubs or trees. This family consists of 21 genera and 640 species in temperate and tropical regions. *Fuchsia* (lady's eardrops) is a shrubby plant with scarlet and purple flowers that is popular as a hedge or pot plant. *Oenothera* (evening primrose), *Gaura*, and *Clarkia* (clarkia, farewell-to-spring, godetia) are herbaceous plants often grown in gardens. Common weedy members of this family include *Epilobium* (fireweed, willow herb), *Gaura* (gaura), and *Oenothera biennis* (common evening primrose) (Britton and Brown 1970:584; Hickey and King 1981:222; Muenscher 1987:319–321).

Poaceae (Grass Family)

The Poaceae (grass) family is one of the most widely distributed families in the world. Grasses are annual or perennial herbs with fibrous roots, sometimes woody stems, forming loose to dense tufts or mats. The grass family is probably of greater economic importance than any other family. The grass family provides food for man, fodder for domestic animals, and thatching. Grasses also are used in lawns and other turfed areas, grown for ornament in gardens, and dried for floral decorations. Grasses are found in a variety of habitats, sometimes becoming troublesome weeds (Hickey and King 1981:136-437; Zomlefer 1994:350).

Setaria (bristlegrass, foxtail) are native and introduced annual or perennial grasses. European species are especially troublesome weeds, although their seeds are important resources for wild birds. *S. italica* (Italian or foxtail millet) was cultivated in prehistoric times and still is grown in the United States as a hay crop. *S. palmifolia* (palmgrass) is a native of India that often is grown in greenhouses as an ornamental plant. *Setaria* can be found in moist meadows, rich soils, dry ground, fields, gardens, pastures, lawns, and waste places (Hitchcock 1971:718–726; Martin 1972:26).

Portulaca (Purslane)

Portulaca (purslane) is a weedy annual with fleshy leaves and small, black seeds. This plant is one of the better-known wild edibles and is considered very nutritious. The leaves and stems are rich in iron and contain vitamins A and C, calcium, phosphorous, and small amounts of omega-3 fatty acids. The whole plant can be cooked and seasoned like spinach or added raw to salads. The leaves also have a high water content and can be eaten raw to quench thirst. If the plant is not entirely removed from the ground, its fleshy stems will take root and mature to seeds. Even when hoed, the stems can stay alive for a long period of time. *Portulaca* can represent either weedy *Portulaca* (purslane) or the cultivated ornamental *P. grandiflora* (rose moss). *Portulaca* is found in gardens, cultivated fields, lawns, and waste places, mostly on rich soils (Kirk 1975:46; Martin 1972:52; Muenscher 1987; Peterson 1977:72).

Discussion

Feature 382 is a brick-lined cesspit or early septic tank for the Beacham and Butler families living in downtown Santa Fe, New Mexico, and was the subject of archaeological investigation. Both families were middle-income Anglo families. This cesspit or septic tank, which probably was used during the 1930s and early 1940s, contained a few deposits in the bottom that appeared to be "feces-rich." Pollen, parasite egg, phytolith, and macrofloral analyses were conducted on two samples removed from the bottom of this pit, about 20 cm apart (Table 21.1). Sample 1 was located closest to the inlet pipe.

Pollen

The pollen records for both samples contained many of the same taxa. Moderate quantities of *Pinus*, Low-spine Asteraceae, High-spine Asteraceae, Cheno-am, and Poaceae pollen probably constitute a primarily environmental signal indicating that pines, a variety of plants in the sunflower family, Cheno-ams that include saltbush and other plants, and grasses grew in and around Santa Fe at the time represented (Fig. 21.1, Table 21.2). Recovery of smaller quantities of *Juniperus*, *Quercus*, *Artemisia*, *Sarcobatus*, *Ephedra*, *Rhus*, and Rosaceae pollen reflect other trees and shrubs including juniper, oak, sagebrush, greasewood, ephedra, sumac, and a member of the rose family that also appear to represent part of the natural local vegetation. It is possible that *Alnus* and *Ulmus* pollen, representing alder and elm trees, represent trees growing in or near drainages. It is equally possible that these pollen types, as well as the *Juglans* pollen, representing walnut trees, are present because trees were planted in the local neighborhood. Pollen that probably reflects weedy plants growing in these yards includes Fabaceae, *Trifolium pratense*, and Onagraceae, which represent weedy legumes, clover, and a member of the evening primrose family that grew on one of these properties. It is also possible that evening primrose was planted intentionally. The Poaceae and *Trifolium* pollen also might be part of a lawn.

Pollen representing, or probably representing, foods consumed by one or both of these families includes Apiaceae, Brassicaceae, Cerealia, *Fragaria*, Lamiaceae, *Syzygium aromaticum*, *Prunus*, and *Zea mays*, indicating a member of the carrot or parsley family; a member or members of the mustard family that includes broccoli, cauliflower, and others; cereal grains and/or baked goods; strawberries; a member of the mint family; cloves; fruit that might include cherries, apples, etc.; and maize or corn. It is interesting that sample 1 contained a wider variety of pollen representing foods than did sample 2. Sample 2 was composed largely of organic debris that did not break down well during pollen extraction. Both samples contained a significant amount of microscopic charcoal suggesting the probability that one or both households heated with wood fires. Total pollen concentration was very high in these samples (more than 13,000 to approximately 19,000 pollen per cubic centimeter [cc] of deposit), as it often is in proveniences that are well preserved, preferably by reducing conditions. No parasite eggs were noted in either of the samples.

Phytolith

The phytolith record from both of these samples reflects mostly an environmental signal derived from plants growing at or very near to this structure. However, some phytoliths derived from food items were observed (Fig. 21.2). Starting with the environmental portion of the record, phytoliths derived from both cool season Pooideae grasses and warm season Chloridoideae grasses were most common. Cool season Pooideae grasses are not common naturally in this area, and are typically found in forest understories and in moist soils near water. However, pasture grasses such as *Bromus* and lawn grasses such as *Poa* are pooid grasses, and the pooid grass phytoliths observed here are likely derived from these sources. Phytoliths from warm season Chloridoideae grasses are most likely derived from native grasses growing in the area. However, some members of the Chloridoideae such as bristle grass (*Setaria viridis*) are also weedy species that thrive in areas of human disturbance, and are likely contributing phytoliths to the record as well. A few phytoliths from the grass subfamily Panicoideae were observed. Panicoid grasses are relatively uncommon in this region; however, crab grass (*Digitaria* spp.) is a very common weed of areas subjected to human disturbance. Also observed in these samples were phytoliths derived from the seeds (achenes) and rhizomes of sedges (Cyperaceae).

Although only a few of the phytoliths observed in these samples are derived from food items, they do provide valuable and perhaps unique subsistence information. This is because no macro or microbotanical technique alone will provide a comprehensive accounting of subsistence. The myriad of food types and food preparation, as well as the acidity of the digestive system, will result in mixed and sometimes unpredictable states of preservation for prepared and consumed food remains.

Perhaps the most interesting phytolith observed here was a charred bilobate phytolith from white rice (*Oryza sativa*) recovered from Sample 1 (Fig. 21.3a). *Oryza sativa* is a member of the Erhartoideae subfamily, and several bilobates diagnostic of this subfamily were observed in each of the samples. However, only the bilobate in Figure 21.3a is considered diagnostic of white rice. Also this phytolith was darkened from exposure to heat, from either the processing or cooking of the grain. These bilobates are primarily found in leaf material, but small fragments of plant debris can accompany the grains during the harvesting and processing steps. Charred fragments of white rice leaf material with these bilobates *in situ* have been observed in other historic era studies conducted by PaleoResearch.

Numerous dendriform phytoliths derived from cereal grains such as wheat and/or barley were observed in both of these samples (Fig. 21.3b); however, Sample 1 contained a higher relative abundance of these phytoliths. Dendriforms originate in the bract material (lemmas, paleas and glumes) that surrounds the seed (caryopsis) of some wild and domesticated grasses. They are very common in the bract material of Pooideae grasses, especially domesticated cereals. The presence of these dendriforms suggests that grass seeds (grains) were also utilized for subsistence. This is because the dendriform-bearing plant material that encapsulates the grass seed is never entirely removed from all of the grains during harvesting and processing steps. These dendriforms can then be cooked, digested, and incorporated into the archaeological and geological records. Disarticulated dendriforms, such as the ones observed here, cannot be reliably ascribed to a particular grass (i.e., wheat, rye, barley), so no such interpretation was made.

Lastly, a few globular echinate phytoliths were observed in both samples (Fig. 21.3c). Globular echinates are diagnostic of the palm family (Arecaceae). They are produced in leaves, bark, fruit husk, and sometimes within the fruits produced by species of palms. When globular echinate phytoliths are found in historic features such as this one, they are an indication that date fruits, produced by the date palm (*Phoenix dactylifera*) were consumed.

Macrofloral

The macrofloral record from samples 1 and 2 yielded a variety of seeds (Table 21.3). Uncharred *Cucumis* *melo* and *Fragaria* seeds and seed fragments were the most abundant, indicating consumption of melons and strawberries. Other uncharred seeds noted in both samples include *Capsicum*, *Citrullus lanatus*, *Ficus carica*, probable *Malus*, *Rubus*, *Solanum lycopersicum*, *Solanum melongena*, *Vaccinium*, and *Vitis*, reflecting peppers, watermelons, figs, probable apples, blackberries/raspberries, tomatoes, eggplant, blueberries/cranberries, and grapes (Table 21.4). Recovery of several *Apium graveolens* seeds in the samples most likely reflects use of celery seed as a seasoning and lends strength to the interpretation of Apiaceae pollen as representing a food item such as celery seeds. Both samples also contained fragments of probable *Pinus strobus* wood, as evidenced by the presence of window-like or fenestriform cross-field pits and the absence of dentate ray tracheids. These wood fragments measured about 2.5 mm in diameter and were squarish in shape, suggesting that they might reflect matches that were discarded. Eastern white pine is not native to New Mexico, and white pine is noted to be one of the common woods used for making matchsticks (Bean 1992; Cavette 2012). In addition, the samples yielded numerous fragments of human hair, both dark and lightcolored, as well as rabbit hair and small feather fragments. Sample 1 contained feather fragments in greater abundance than did sample 2. Insect chitin fragments were very numerous, and a moderate amount of insect larva fragments were noted.

Differences in the macrofloral record include recovery of two uncharred *Cucurbita* seed fragments in sample 1, reflecting squash/pumkin, as well as an uncharred Poaceae A caryopsis and a few *Setaria* floret fragments. The Poaceae A caryopsis represents the presence of grasses with larger-sized seeds, such as *Agropyron* (wheatgrass), *Elymus* (ryegrass), or *Bromus* (brome grass), while *Setaria* florets reflect bristlegrass. One small piece of *Juniperus* charcoal recovered from sample 1 suggests that juniper wood was burned, possibly in a stove or fireplace. Sample 1 also yielded fine fibers in a "Z"-twist, possibly linen (*Linum*), and a small chunk of possible silver.

Sample 2 contained two uncharred *Anethum graveolens* seeds, two uncharred *Sambucus* seeds, and several uncharred *Prunus* cf. *americana* seed fragments not noted in sample 1, reflecting the use of dill, elderberries, and probable American plum. A few charred *Cucumis melo* seed fragments also were noted. A few uncharred Asteraceae, *Taraxacum*, *Cleome*, *Portulaca*, and *Stellaria* seeds in sample 2 most likely reflect plants growing in the area such as dandelion, another member of the sunflower family, beeweed, purslane, and starwort.

Summary and Conclusions

Two human excrement samples from site LA 158037 in downtown Santa Fe, New Mexico, were examined for pollen, parasite eggs, phytoliths, and macrofloral remains as part of the Executive Office Building data recovery project. These samples were recovered from a cesspit or early septic tank believed to have been used by the Beacham and Butler families during the early to middle 1900s. The various analyses yielded a wealth of information concerning the diet of these two families. Pollen, phytoliths, and macrofloral remains note consumption of cereal grains or baked goods made with cereal grains, white rice, watermelon, cantaloupe/melon, squash/pumpkin, figs, dates, strawberries, probable apples, plums, possibly another member of the rose family, elderberries, raspberries/blackberries, peppers, tomatoes, eggplant, blueberries/cranberries, grapes, and corn. *Syzygium aromaticum* pollen, *Anethum graveolens* seeds, *Apium graveolens* seeds, Apiaceae pollen, and Lamiaceae pollen suggest use of herbs and spices such as cloves, dill, celery seed, possibly another member of the carrot/parsley family, and a member or members of the mint family. Numerous feather fragments suggest eating poultry, while rabbit hairs suggest consumption of rabbits. No parasite eggs were noted in either of the two pollen samples. Components of the local vegetation community appear to have included dandelion, various other members of the sunflower family, beeweed, clover, another member or members of the legume/bean family, bristlegrass and other grasses such as lawn and pasture grasses, sedges, purslane, starwort, maple, alder, walnut trees, juniper, pine trees, oak, elm trees, sagebrush, saltbush and related plants, greasewood, ephedra, wild buckwheat, a member of the evening primrose family, and sumac. A small piece of *Juniperus* charcoal suggests that juniper wood was burned, while several small pieces of *Pinus* cf. *strobus* wood most likely reflect matchsticks.

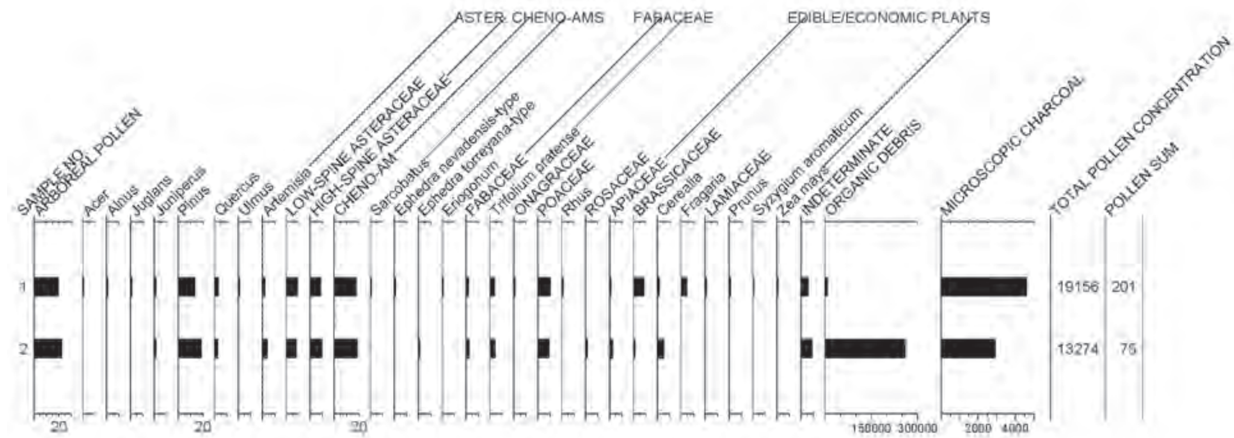


Figure 21.1. Pollen diagram for LA 158037.

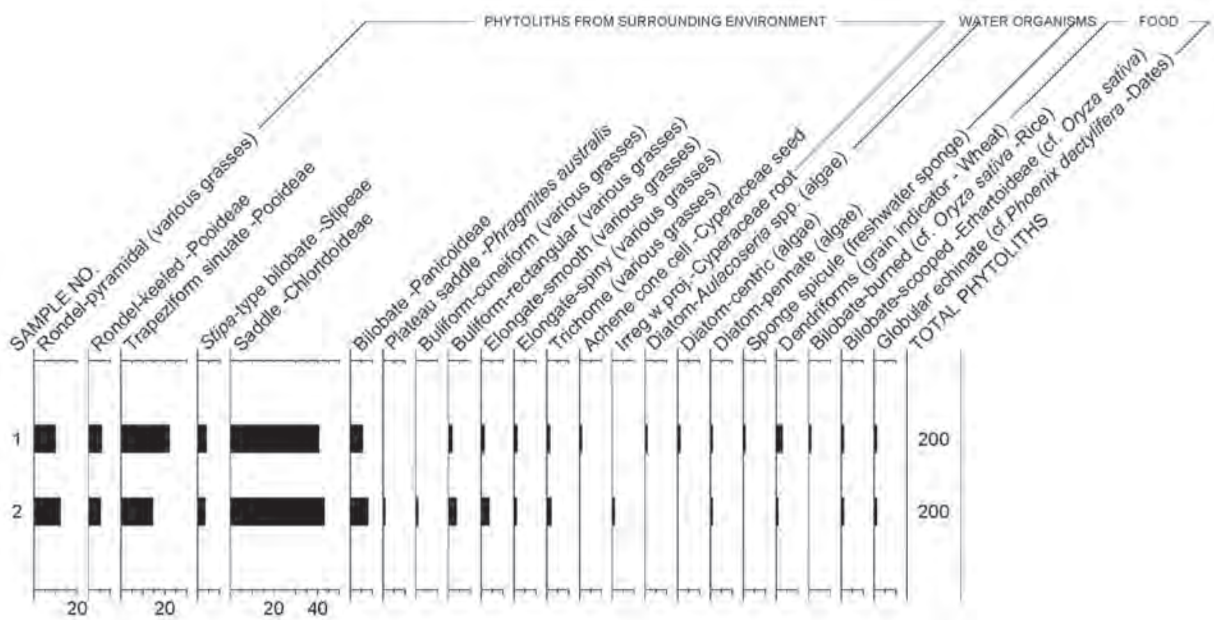


Figure 21.2. Phytolith diagram for LA 158037.

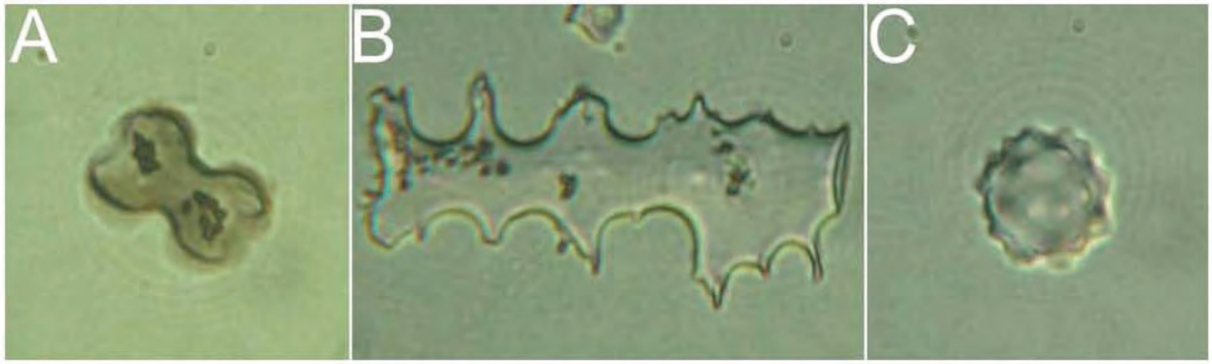


Figure 21.3. Phytoliths recovered from LA 158037. All micrographs taken at approximately 500x magnification: (a) Charred bilobate phytolith from white rice (Oryza sativa); (b) Dendriform phytolith from the hull of a cereal grain; (b) Globular echinate phytolith diagnostic of the palm family (Arecaceae), most likely derived from date palm fruit.

Chapter 22

Optically Stimulated Luminescence Analysis

Ronald J. Goble & Matthew J. Barbour

Two samples were submitted to the University of Nebraska-Lincoln Luminescence Geochronology Laboratory for optically stimulated luminescence (OSL) dating. These samples were collected from irrigation ditches encountered at LA 158037 with the goal of determining when sedimentation began to occur. Acquiring the samples from the basal sediments in the channel, it was believed that dating these deposits would allow archaeologists to determine if the irrigation ditches pre-dated, or were contemporaneous with, the residential neighborhood that flourished at LA 158037 during the early twentieth century.

OSL analysis and sample preparation was conducted under the supervision of Ronald Goble, Professor and Director of the Luminescence Geochronology Laboratory. This chapter discusses the methods and results of OSL dating and the relationship of these dates to the archaeological record.

Sample Preparation/Dose-Rate Determination

Sample preparation was carried out under amber-light conditions. Samples were wet sieved to extract the 90–150 μm fraction, and then treated with HCl to remove carbonates. Quartz and feldspar grains were extracted by flotation using a 2.7 gm cm-3 sodium polytungstate solution, then treated for 75 minutes in 48 percent HF, followed by 30 minutes in 47 percent HCl. The sample was then resieved and the <90 μm fraction discarded to remove residual feldspar grains. The etched quartz grains were mounted on the innermost 2 mm or 5 mm of 1 cm aluminum disks using Silkospray.

Chemical analyses were carried out using a high-resolution gamma spectrometer. Doserates were calculated using the method of Aitken (1998) and Adamiec and Aitken (1998). The cosmic contribution to the dose-rate was determined using the techniques of Prescott and Hutton (1994).

Optical Measurements

Optically stimulated luminescence analyses were carried out on Riso Automated OSL Dating System Models TL/OSL-DA-15B/C and TL-OSL-DA-20, equipped with blue and infrared diodes, using the Single Aliquot Regenerative Dose (SAR) technique (Murray and Wintle 2000). Early background subtraction (Ballarini et al. 2007) was used. All De values were determined using the Central Age Model (Galbraith et al. 1999), because partial bleaching was not detected during data analysis. Preheat and cutheat temperatures were based upon preheat plateau tests between 180º and 280ºC. Dose-recovery and thermal transfer tests were conducted (Murray and Wintle 2003). Growth curves were examined to determine whether the samples were below saturation (D/Do < 2; Wintle and Murray 2006). Optical ages are based upon a minimum of 50 aliquots (Rodnight 2008). Individual aliquots were monitored for insufficient count-rate, poor quality fits (i.e., large error in the equivalent dose, De), poor recycling ratio, strong medium vs fast component (Durcan and Duller 2011), and detectable feldspar.

Aliquots deemed unacceptable based upon these criteria were discarded from the data set prior to averaging. Averaging was carried out using the Central Age Model (Galbraith et al. 1999) because the De distribution (asymmetric distribution; decision table of Bailey and Arnold 2006), indicated that the Minimum Age Model (Galbraith et al. 1999) was not appropriate.

Results

The two samples range in age from 4.73±0.34 ka (UNL3483) to 8.98±0.64 ka (UNL3484) (Table 22.1). Sample UNL3484 has relatively large values of the Skewness/2σc and Overdispersion, but the decision table of Bailey and Arnold indicates that use of the Central Age Model (Galbraith et al. 1999) is appropriate for the calculation of the equivalent dose (Table 22.2).

Given that the OSL samples date to the Archaic Period, well before the time in which the site was occupied. It is clear that samples taken from irrigation ditches are not dating the features' use and abandonment, but the rather the underlying sediments (Strata 5 & 6) into which the ditches were excavated. While these dates were unexpected, they coincide well with our knowledge of the geomorphology of the project area.

Chapter 23

Addressing the Research Design

Matthew J. Barbour & Karen L. Wening

This chapter addresses the three questions proposed in the research design by integrating the previous findings of the Capitol Parking Facility project (Barbour 2012a) with the data derived from excavations associated with the Executive Office Building. Three types of data—archival research, feature excavation, and artifact analyses—were utilized to address issues associated with ethnicity, socioeconomic status, and change through time. Archival research enhanced our knowledge of neighborhood residents concerning their occupation, leisure activities, and socioeconomic status. Excavation and analysis further embellished these personal portraits to include information about leisure activities and personal tastes in food, dinnerware, home construction, and indulgences. Combined, the marriage of history and archaeology paints a vivid picture of nineteenth and twentieth-century life within the Capitol Complex Historic Neighborhood.

Research Question 1

Are there specific artifact classes indicative of differing consumption patterns that can, in turn, be related to cultural identity? Does recognizable variability occur within the discarded material culture that may represent differing consumption patterns of Hispanic and Anglo-American households within the late nineteenth and early twentieth centuries?

A rich array of domestic refuse reflecting differences between Hispanic and Anglo lifestyles was recovered from previous archaeological work in the neighborhood (Barbour 2012a). This earlier project explored the structures, domestic features, artifact assemblages, and related archival documents of nine households, resulting in a formidable database pertaining to the denizens of West Manhattan Avenue. Because the data derived from this earlier project dwarfs that of the current endeavor, many of the differences in ethnic lifestyles gleaned from that research form the basis of similar trends noted here for South Capitol Street. This is particularly true of Structures 4 and 6, which straddle the boundary between the two projects, with the earlier project yielding the vast majority of associated cultural material.

The lifestyles of Anglo and Hispanic ethnic groups were both comparable and contrasting in terms of diet, home construction, dinnerware, uses of Native American pottery, discard patterns, use of home meat processing versus retail cuts, hunting of wild game, and privy system use. Both ethnic groups were well represented in combined excavations along South Capitol Street and West Manhattan Avenue, and data from these excavations provided the basis for these comparisons. Families of both groups constructed homes of red brick, though adobe homes were more typically restricted to Hispanics, and wood-framed buildings associated with Anglos. Three types of privy systems were recorded during the Capitol Parking Facility project, with the use of each varying somewhat with ethnicity. While self-contained vault privies, straight-lined cesspits, and indoor water closets connected to city sewer systems were used by both groups, Hispanics may have adopted new systems such as indoor water closets at a later date than their Anglo neighbors. These contrasting architectural trends are repeated for the Executive Office Building project as well. Structures 4 and 6, initially owned by the Romero and Garcia families, were constructed of adobe and stuccoed wood elements. The ancillary rental buildings of these same properties were also made of adobe. In contrast, the Beacham and Butler families lived in red brick homes. Structure 13, an impressive two-story red brick house and tower, was not easily placed with either group, as it housed families of various ethnicities during its 12-year period as a rental home and yielded a very small artifact assemblage. While the Parkers and Mullers lived in homes of adobe and stuccoed wood, the homes were purchased from Hispanic families who first owned the buildings.

Differences in diet were also evident between the two ethnic groups based on the data from both the South Capitol and Executive Office Building projects (see Chapter 17, this report). In the nineteenth century, Hispanics and Anglos consumed more mutton than beef, though Anglos ate more beef than Hispanics. The twentieth century witnessed even greater beef consumption by both groups, though mutton continued to be a staple for both. Anglos consumed more chicken and rabbit while Hispanics ate more eggs. Pork consumption was about equal. Anglos tended to purchase more meat than their Hispanic neighbors who often practiced home butchering, though the latter was most often associated with sheep and goat consumption.

Hispanics hunted wild game to supplement their diet more than Anglos (Barbour 2012a:68). However, the inclusion of wild game in the family diet may be underrepresented for some households. Roy Butler was known to have a penchant for hunting, yet there is very little evidence on the family lot of this activity. Most wild faunal remains were linked with Anglo households when viewing the combined results from the South Capitol and Executive Office Building projects. A single home owned by the Alarid family yielded most of the wild fauna from West Manhattan Avenue, however (Craw 2012:248). Wild fauna from every type represented from the two projects was found here, consisting of domestic rabbits, small mammals, deer, birds, and fish.

Home processing of animals was more common in Hispanic families, while Anglos tended to purchase store-bought products. This was particularly true for mutton, which was usually processed at home. Beef, however, was increasingly procured from stores by both Anglos and Hispanics as the twentieth century progressed, given the higher number of retail cuts from later features. Other foods were more specific to Hispanic families such as chile, piñon nuts and prickly pear cactus. Indulgences such as alcoholic beverages differed more substantially between the two groups, with Hispanics preferring whiskey and soda and Anglos drinking beer and wine. Undecorated Native American pottery was more likely to be associated with functional tasks in Hispanic families, and Anglos tended to purchase decorated vessels for artistic display. Some aspects of these pottery trends continued into the twentieth century in the Capitol Complex Historic Neighborhood, though the arrival of the railroad signaled dramatic overall change in the purchasing habits of Native American pottery, which is discussed in Research Question 2.

Temporal trends in meat consumption are similar for both groups, with more beef consumed compared to mutton, and more meat increasingly purchased from stores in the twentieth century. Where mutton continued to be eaten, it was usually butchered at home. Chicken consumption also increased in the twentieth century, most of which was found in Anglo privies. Little evidence of egg or pork food was found for either group, with the small amount of pig butchering occurring in Hispanic households. Pork products such as bacon and sausage would likely be purchased in stores, leaving little archaeological evidence behind.

Domestic discard patterns vary between the two ethnic groups. Hispanics deposited more cattle remains in privies and pits filled with construction debris while Anglos seemed to favor bone pits and other features. However, the Romeros were frequent users of bone pits, though the purpose of these pits was unique to the family, dug to discard the butchered cow skulls which were the by-product of homemade *queso de cabeza*, or head cheese. This food represents an individual preference or holiday-related delicacy, and may have been produced or consumed by the Alarid family as well.

Anglos and Hispanics each chose different dinnerware, preferring certain types and decorative styles. This was reflected in homes along both South Capitol Street and West Manhattan Avenue (see Chapter 16, this report; Barbour 2012a), where Anglos purchased more glassware and goblets than Hispanics. Hispanic families also preferred eastern U.S. porcelain, Asian and Art Deco design patterns, while Anglos purchased Gothic Revival and Art Nouveau styling from continental European sources.

Some of the lifestyle preferences of Anglo families are perhaps most effusively demonstrated by the Beacham family home. This lot yielded backyard features and a substantial artifact assemblage, which together painted a vivid portrait of the Beacham family that, in many respects, mirrors that of other Anglo families in the neighborhood. The red brick structure reflects the home building style typically preferred by Anglo-Americans. The ornamental chrysanthemum garden featured numerous backyard pits which likely served as planting holes, with a variety of associated features such as irrigation ditches, fences and, possibly, garden paths. Similar to Anglo families along West Manhattan Avenue, the Beachams preferred Art Nouveau to Art Deco dinnerware stylings, and their domestic waste consisted mostly of construction and maintenance materials. They consumed more wine than beer, and used glassware as part of their household place settings. These trends matched well with previous data derived from the Muller and Parker residences from earlier archaeological studies of the neighborhood (Barbour 2012a). The Beachams differ from other Anglo households in their choice of inexpensive ceramic dinnerware, however, which is at odds with their middle class socioeconomic status (see Chapter 16).

Other artifact assemblages are small, and provided little information concerning ethnic trends. Flaked stone did not constitute a significant portion of the assemblage and likely represents curios collected from prehistoric sites within walking distance of the neighborhood. Similarly, Native American ceramics were not found in substantial quantities, though the assemblage mirrors the more common use of undecorated vessels for cooking and serving by Hispanic families, and the purchase of decorated wares for artistic display or investment by Anglos.

Macrobotanical and pollen samples were collected only from the Executive Office Building project. However, the types of botanical materials match well with those previously found associated with Anglo and Hispanic households. A wide array of plant resources were consumed by both groups, though a greater variety was observed for Hispanic households, suggesting that irrigation farming was in use (see Chapter 20). This practice was probably not limited to Hispanic homes, however. Figs, grapes, mulberries, peaches, raspberries/blackberries, strawberries, tomatoes, and wheat were consumed by both groups. Melons and maize were found in samples from both Hispanic and Anglo contexts, which only became apparent with the analysis of material from the Beacham/Butler cesspit, which contained both of these. Cherry, squash and coriander was consumed only in Anglo households, however. Chile, often considered a virtual staple in Hispanic housholds, was consumed by Anglos as well, though in lower quantity.

Pollen, phytolith, and macrofloral remains from the Beacham home expand this impressive variety even more, adding cereal grains, white rice, watermelon, squash/pumpkin, dates, strawberries, apples, plums, elderberries, eggplant, and blueberries/cranberries to the list (Chapter 21, this report). Herbs and spices include cloves, dill, celery seed, and mint. Other plant products are ethnic-specific. Ornamental flowering plants such as thornapple and poppy were restricted to Anglo homes. Plants which served as traditional food, medicine, or functional uses such as cordage occurred only in Hispanic contexts, and include hedgehog cactus, pricklypear, mustard seeds, and charred yucca leaf fragments.

Research Question 2

Do consumption patterns vary between low- and middle-class households in the late nineteenth and early twentieth centuries? If so, are these patterns emphasized or de-emphasized by the Great Depression (AD 1929 to 1941)?

Addressing this research question for the Capitol Parking Facility project was problematic due to several factors (Barbour 2012a). Though archival research indicated that the neighborhood housed residents of widely varying socioeconomic status, the financial status of each home could not be easily determined. Also, the span of years during which the neighborhood was occupied was not contemporaneous with the recovered artifact assemblage (see Chapter 6). Mean artifact manufacturing dates had large standard deviations, making it difficult to pinpoint the dates of individual features at the site. The majority of the artifacts from the Executive Office Building were recovered from residences dating to the early twentieth century, with very few artifacts pre- and post-dating this period. This diminished the ability to identify the responses of neighborhood residents to the Great Depression and Prohibition. Furthermore, most of the assemblages associated with the Executive Office Building project are small and lack temporally diagnostic materials neeeded to link specific features to the Great Depression.

However, some general conclusions could be reached from these earlier investigations. Alcoholic beverages continued to be consumed throughout the Prohibition era, though in lesser quantity. Personal effects such as clothing and medicine were less visible in the archaeological record during the Great Depression, suggesting a decline in health care access and the repair or modification of clothing to extend its use-life. In general, food was increasingly purchased at stores throughout the twentieth century which correlated with higher consumption of retail cut beef over home processed mutton and lamb. Native American pottery shifted from a functional to decorative role, and flaked stone appears on sites primarily due to collection as curios. All of these trends have their roots in the late nineteenth century, and do not appear to have altered substantially as a result of Prohibition and the Great Depression. This is particularly true of increased beef consumption, the shifting role of aboriginal pottery to art, and the increase in store-bought food products.

Some effects of Prohibition and the declining national economy were observed, however. The bootlegging and distribution of alcohol at one neighborhood home was an obvious response to Prohibition, and home canning activity increased as a cost-saving measure in troubled economic times in others. An increase in urban rental units also resulted from the collapse of many small rural farms, which drove families into town seeking better conditions while providing additional income to landlords. At the Butler family residence, the operation of the family business from the home on South Capitol Street in the 1930s to early 1940s may have served as a cost-saving measure. These various responses reflect individual choice in response to Prohibition and the Great Depression rather than a uniform, community-wide reaction; though some were practiced by more than one neighborhood family.

The families with the longest and most visible residential histories in the neighborhood were the Beachams, Butlers, and Fidels. All of these families owned small private businesses and could be assigned middle or upper middle class status (see Chapters 10–15, this report). However, the artifact assemblages from some of these households do not reflect the economic stature indicated by archival records. The Beachams are the most notable example, as their mean ceramic price index suggests that the family was relatively poor, conflicting with their business ownership, large brick home, and possibly, their ornamental garden. This implies that the mean ceramic price index method of determining economic status may have some limitations based on personal agency. The Beachams' choice of inexpensive dinnerware may reflect personal choices such as economizing in one area to enable spending in another, or simply a matter of individual taste. It could also represent a response to the Great Depression, as the Beachams purchased the home in 1928 just prior to the stock market crash of 1929. Other economizing measures may have been necessary with the death of William Beacham in 1940, soon after which Lenore Beacham was sole owner of the house until 1957.

It was also difficult to assess changing dietary habits based on the yield rank and economic indices of the faunal assemblage, with the likelihood that most trash was removed from the neighborhood during the Depresssion Era (see Chapter 17). The Capitol Parking Facility project analyses indicated that the quality of meat did not decline during the Great Depression (Barbour 2012a), and that in general, the neighborhood residents dined on fair to good valued beef cuts. These trends are less evident for the Executive Office Building project, though yield rank data do suggest the use of slightly reduced cost-efficiency measures for the twentieth century, with Anglos the least concerned about value, and Hispanics the most. Overall, there was very little difference in the quality of meat consumption from the nineteenth century to twentieth centuries.

However, neighborhood households could be ranked from poor to excellent in terms of the meat quality they were consuming (see Chapter 17). Interestingly, this meat quality ranking supports and conflicts with the results of other artifact analyses, with some families displaying a mixture of economic indicators. For example, the Beachams were the only household with an excellent meat quality ranking, which is reflected in their home structure and business ownership, but not in the low mean ceramic price index for the family.

Mixed economic values are also apparent for the Romero-Parker home, which was ranked as fair, yet archival research suggests that both families were relatively wealthy. Homes, which were both occupied and rented by the Alarid family, ranged from poor to good, which may be partly due to the mobility of the family among their owned homes. As the Alarids moved among the homes they owned depending on what could be rented, they may have deposited higher quality meat cuts in various locations, while their less well-off tenants would be associated with lower quality cuts. Contrasting with the Alarid rentals, the Garcia-Muller home, also rented for most of its existence, ranked higher in terms of meat cut quality.

These mixed economic indicators suggest that, similar to the mean ceramic index, the faunal rankings may conflict with the economic status indicated by archival research for some families. While variation exists among specific families, some general trends are evident for Anglo and Hispanic groups, both of which were seeking higher value cuts in response to the Great Depression, with Hispanic families purchasing the cuts with the highest economic value, and Anglos, the lowest.

Other variations in consumption patterns were reflected in Native American ceramics, which decreased in the archaeological record in the nineteeth and twentieth centuries (see Chapter 19). Prior to this, in the eighteenth and nineteenth centuries, Tewa potters mass-produced utilitarian plain wares and mica-slipped wares to meet the demand of Hispanic consumers, who were using the vessels for cooking and serving. The late nineteenth century arrival of the railroad brought a rapid decline in the demand for these functional pots, which were supplanted by inexpensive ceramic china and crockery brought from the east. In response to the decreased demand for functional vessels, native potters shifted to the almost exclusive production of decorated wares, which were sold to tourists and collectors arriving on the railroad.

The ceramic assemblage of the Capitol Parking Facility project varies slightly from this trend, however, as the use of utilitarian pottery persisted into the late nineteenth century. Decorated wares are far fewer in number, suggesting that the neighborhood did not shift away from the dominant use of utilitarian wares when others were. This may owe to different consumer habits between ethnic groups, as Hispanics purchased mostly utilitarian ware, and Anglos, more decorated vessels. Hispanics continued to use native pottery as functional ware into the twentieth century, possibly in response to declining economic conditions. The extremely small size of the native ceramic assemblage from the Executive Office Building project did not allow similar trends to be identified, though both utilitarian wares and those produced for the tourist market were represented.

Other Depression-era economizing strategies may be represented by the use of home food canning, which may have been practiced by the Parkers, who lived in Structure 4 from 1911 to 1932. The canning jar manufacturing date range of 1911 to 1925 predates the Depression, but such items were likely kept in households and used repeatedly for long periods of time, and could easily have been in service in the late 1920s and early 1930s. The root cellar of the Muller home contained a jar of pectin suggesting canning activities were occurring there as well (Barbour 2012a:351). Rental properties may also have supplemented the income of some families, particularly the Alarids and Mullers, both of whom owned multiple houses along West Manhattan Avenue and South Capitol Street.

Other materials proved less fruitful for examining change through time. The flaked stone assemblage was quite small and likely indicated curio collection from prehistoric sites in the area. The single exception was a strike-a-light flint associated with the Romero family, which may be most demonstrative of ethnic tool use rather than increasing use of homemade tools in the Depression era. Macrobotanical and coprolite samples, while yielding an abundant array of fruits, vegetables, grains, herbs, and spices which ortrayed differences and similarities in diet between Hispanic and Anglo groups, provided little in terms of dietary changes through time.

Research Question 3

Do discard patterns differ in domestic-refuse pits and self-contained vault privies? If so, what characteristics of the consumption patterns are similar?

During the Capitol Parking Facility project, the identification of ten feature types was based on shape, design, content, and location. Three of the most common feature types were domestic refuse pits, construction debris pits, and self-contained vault privies. Domestic refuse pits were thought to be linked to kitchen and child-related tasks; construction debris pits were associated with maintenance and renovation; and the vault privies were associated with bathroom-related functions. Pit contents generally supported these functional associations, with domestic artifacts, such as coal and clinkers, occurring in domestic refuse pits, concrete and adobe in construction refuse pits, and personal effects in vault privies. However, feature contents could not be exclusively relied upon to identify feature function, as artifact assemblages were quite variable and did not reflect functional specificity. Also, Euroamerican artifacts, recovered from features such as irrigation ditches, bone pits, and postholes, were functionally unrelated to those features. As a result, while artifacts were often found in contexts unrelated to their use, they were useful in identifying the range of activities that occurred at a specific residence.

This research question was based on the occurrence of self-contained vault privies and domestic refuse pits, but only the latter were found during the Executive Office Building excavations. While the absence of self-contained vault privies may owe to the sampling strategy, it was more likely due to the dominant use of indoor water closets attached to either a sewer system or cesspit. As the vast majority of the project surface area was mechanically scraped to expose features (see Chapter 7), it is unlikely that deep features such as vault privies would be missed. Also, the presence of a large, straight-lined cesspit which likely served both the Butler and Beacham homes at 116 and 120 South Capitol Street indicates that these systems were in use in the neighborhood.

Cesspits are closed systems, and unlike self-contained vaults, do not accumulate the range cultural materials commonly found in an outhouse such as bottles and dinnerware. However, they reveal a great deal about the vegetable diet of those utilizing the facilities. The large, straight-lined cesspit serving the Butler and Beacham families yielded an impressive array of fruits, vegetables, herbs, spices, and grains. There was considerable overlap in the plant materials found in both the macrobotanical and coprolite samples, while other materials were recovered from one analysis group only. Also, the combined data from both the Capitol Parking and Executive Office Building projects changed the status of some foods from ethnic-specific to all-inclusive, such as maize and melons. Both Anglos and Hispanics were consuming the vast majority of foodstuffs found in the samples, including chile, figs, grapes, mulberries, peaches, raspberries/blackberries, strawberries, tomatoes, and wheat. Other foods retained their ethnic-specific role, such as cherry, squash, and coriander, which were identified solely in Anglo contexts. Pollen remains added dates, chokecherries, apples, celery, and cloves to this list, and possibly broccoli, cauliflower, or mustard, white rice, and cereal grains such as wheat, rye or barley.

Ethnic differences in discard patterns were perhaps one of the most striking finds of the Capitol Parking Facility project. Numerous bone pits, most of which were associated with the Romero family, contained largely intact cattle crania with the top of the skull removed to access the brains, which could have been used to make *queso de cabeza* or to cure hides. While these practices are not restricted to a particular ethnic group generally, among the homes along South Capitol Street, only the Romero family appears to have been butchering animals in this way. The butchering itself did not indicate how the brains were used, nor specify this family as the sole producers of head cheese or hides, but it was certainly clear that the bone waste products were buried in pits on a lot owned by the Romero family. Other pits contained bone waste from retail purchases of cattle and turkey, both of which were associated with Structure 10, owned first by the Garcia family and later, by the Mullers. As Structure 10 probably represents an outbuilding or shed, and was owned by Hispanics and Anglos consecutively, it is difficult to place these particular bone pits with a specific ethnic group. However, the fact that both animals were store-purchased may indicate they are more likely associated with the Mullers, as retail cuts were more common in the twentieth century.

In general, most of the material in domestic refuse pits consisted of domestic or construction related debris, even where modern disturbance from the Coughlin Building was not present. This seems to be particularly true of those linked to Anglo homes such as those owned by the Beachams and Butlers. These and many other pits, however, typically yielded a wide variety of artifacts, which precluded linking them with a specific function other than general domestic discard activity.

Pollen analysis also revealed a variety of other behaviors related to specific residences as well as the neighborhood as whole. Microscopic charcoal suggests that the Butler and Beacham homes were heated with wood fires possibly started using matches made from squared white pine fragments. Many of the above listed foods may have been grown in small, irrigated family gardens tended by both Hispanics and Anglos, and walnut and fruit trees may have graced the neighborhood or surrounding city environs.

Summary

The results of excavations from the Capitol Parking Facility and Executive Office Building projects have combined to reveal a surprisingly vivid portrayal of the Capitol Complex Historic Neighborhood during the late nineteenth and early twentieth centuries. While the bulk of the data derives from the earlier Capitol Parking Facility project, many of the lifestyle trends observed for this earlier project are also reflected in the current endeavor. Several factors limited the ability to conclusively address the research questions, including low artifact counts from some of the households, broad manufacturing date ranges which are not contemporaneous with residential occupation of the neighborhood, and the presence of artifacts in functionally unrelated features.

However, many residential patterns are echoed between the two projects. Distinct differences between Hispanic and Anglo households were observed in home construction, dietary preferences, choice of dinnerware and decorative styles, use of Native American pottery, wild game hunting, discard patterns, use of home meat processing, and the type of privy systems used. Some of these differences not only reflected contrasting ethnic backgrounds, but variation in socioeconomic status. In some households, these choices did not seem to be driven by economic need or ethnic tradition, but instead owed to personal agency. In other homes, family preferences either deviated slightly from the ethnic norm or overlapped with those of their neighbors. These shared items were perhaps most noteable in the choice of food, with a huge variety of fruits, vegetables, grains, herbs, and spices consumed by both Anglos and Hispanics. Other foods were found exclusively in Hispanic households, while some typically linked with a specific ethnicity such as chile, were consumed by both groups. Dietary differences through time were also observed, particularly for meat consumption, which involved an increased rate of beef consumption, purchase of retail cuts, and lower quality meat cuts. The single privy system from the project yielded an impressive range of vegetal food types, many of which may have been grown in small family gardens.

Evidence of neighborhood responses to major national influences such as the Great Depression and Prohibition were varied, and not always well defined. The Alarid bootlegging enterprise was perhaps the most obvious reaction to Prohibition among area residents. Cost-saving measures resulting from worsening economic conditions were mostly reflected in the absence of some items, such as personal effects, medicinal bottles, and clothing. Other income generating measures such as the operation of rental units were utilized by at two families in the neighborhood, and the types of beef cuts purchased from stores reflected greater focus on economy and value.

Chapter 24

Conclusions

Matthew J. Barbour

The Capitol Complex Historic Neighborhood currently serves as the center for New Mexico state government. Its development in the late nineteenth century is largely the result of the coming of the Atchison, Topeka and Santa Fe Railway in 1880 and the construction of the New Mexico Capitol Building (currently named the Bataan Building) in 1886. Today the neighborhood houses many state facilities including the Villagra Building, the Lamy Building, the Lew Wallace Building, and the former PERA building, among others.

However, while the neighborhood has from its inception in the late nineteenth century accommodated numerous state government facilities, much of the area was devoted to middle and upper income housing in the early twentieth century. Many of these private residences have been explored through archaeological and archival research in recent years (Barbour 2012a; Barbour et al. 2012; Barbour et al. this report). Notable families studied in this report included the Beachams, Butlers, Fidels, Mullers, Parkers, and Romeros.

The data provided here and elsewhere (Barbour 2012a, Barbour et al. 2012) suggests a once flourishing neighborhood filled with small business owners, judges, soldiers, police officers, retirees and others. Economic decline of this community has been linked to the Great Depression and subsequent suburban development following World War II (Barbour 2012a:355). As lower-income residents moved into the neighborhood in the 1940s and 1950s, a "slumland" stereotype developed. In the eyes of many, the neighborhood became a prime candidate for urban renewal, or "urban removal," as the policy would be known to many city politicians (Miguel Chavez, personal communication, May 30, 2012). The State seized the land in the 1960s leveling the residences to make way for new government structures, including the current capitol building (the Roundhouse), and parking lots.

The past remained buried beneath the new development, and awaiting archaeological rediscovery. This rediscovery began with archaeological test excavations in November of 2007 (Barbour 2008a) and continues to the present day. While demolition during the late 1960s had disrupted and churned much of the old twentieth century ground surface, many of the subsurface refuse pits, privy vaults, and house foundations remained relatively unscathed. In most instances, only the upper 20 to 50 cm of fill were impacted, while lower deposits within these features were preserved in situ. Earlier agricultural fields and features predating development of the neighborhood were less fortunate. However, from the cultural materials that remained, a vivid picture of the community during the late nineteenth and early twentieth century emerged.

In the case of the Executive Office Building project, archaeologists explored the lots of six different residences: 125 West Manhattan Avenue (Structure 4), 111 West Manhattan Avenue (Structure 6), 104 South Capitol Street (Structure 10), 116 South Capitol Street (Structure 11), 120 South Capitol Street (Structure 12), 122 South Capitol Street (Structure 13). Both 125 and 111 West Manhattan Avenue had been explored previously during data recovery for the Capitol Parking Facility project (see Barbour 2012a). However, additional extramural features associated with the Romeros, Parkers, and Mullers were identified including an additional bone pit thought indicative of feasting activities by the Romero Family (see Chapter 10) and irrigation features which spanned across both the Parker and Muller lots (see Chapters 10 and 11, this report).

Frederick "Fritz" Muller, Spanish-American War hero and real estate agent, played a substantial role in the construction of many of the residences within the current project area. In addition to residing at 111 West Manhattan, he owned the properties at 104, 116, and 122 South in the early twentieth century. He appears to have subdivided his land in the 1910s and constructed residences at 116 and 122 between the years 1908 and 1912. However, throughout his lifetime, 104 South Capitol remained a vacant lot, or so the archival records would have one believe.

Archaeological investigations into 104 South Capitol revealed a small wooden structure constructed at least partially of railroad ties and posts on the property (see Chapter 12). This structure measured approximately 15.9 m (52 ft) north–south by 4.9 m (16 ft) east–west in size and was possibly built and demolished between the years of 1930 and 1948 during which time no maps of the neighborhood were drawn. While the size of the structure and its placement in the vacant lot behind the 111 West Manhattan suggests the structure was used as a shed or outbuilding, many of the cultural materials found in association with the structure were domestic in nature and could suggest a residential function (see Chapter 16, this report). If this latter interpretation was the case, no data could be found regarding the occupants of the structure during the 1930–1948 timeframe of expected habitation.

The Beacham family purchased the residence at 116 South Capitol from the Muller Family sometime in the late 1910s or early 1920s (see Chapter 13, this report). They would occupy the property over the next 30+ years until the death of the widow Lenore Beacham in 1959. Her husband, William Beacham, proprietor of Beacham and Minardot Hardware, was an avid fisherman and gardener. Evidence of the latter of these two hobbies was found within the backyard of residence where a large chrysanthemum garden once stood.

The vast majority of archaeological features found during the Executive Office Building project were found on the Beacham residence and many of these were designated domestic refuse pits. Most of the domestic refuse pits contained only a small amount of kitchen waste (charcoal, fauna, etc.) and were clustered in the southern one-third of the lot. It is inferred that these pits reflect individual planting holes dug within the garden.

Also of note within the Beacham backyard were an enormous cesspit (Feature 382) and an underground oil tank (Feature 381), which dispensed kerosene to the Beacham residence for heating purposes. Oil heating of a home is atypical when viewed in relation to other residences within the Capitol Complex Historic Neighborhood. However, such methods were commonly employed on America's east coast during the early twentieth century. Not surprisingly, it was found that William Beacham hailed from upstate New York. The use of oil may not have been something many New Mexicans were familiar with, but the Beachams were accustomed to this method and presumably preferred oil to coal or wood-burning stoves for heating purposes.

The cesspit, lined with red brick and measuring 2.3 m (7 ft 7 in) in diameter, appears to have serviced both the Beacham residence at 116 South Capitol and the Butler residence at 120 South Capitol. Roy Butler, an award winning plumber and proprietor of Butler and Foley Plumbers, is believed to have designed and built the cesspit (see Chapter 14, this report). Macrobotanical and coprolite analyses of the cesspits contents found that these families consumed a wide variety of vegetable and fruit products including: apples, blueberries, cantaloupe, cherry, chile, coriander, eggplant, fig, grapes, peppers, raspberry/blackberry, squash, strawberry, tomato, and watermelon (see Chapters 20 and 21, this report). These results suggest that debris from both kitchen and bathroom facilities contributed to the sewage, as many of the seeds found are not typically consumed but are rather washed away during processing.

The residences of the Beacham and Butler families were mirror images of one another. Archaeological investigations of both structures revealed partial basements and concrete foundations (see Chapters 13 and 14, this report). Sanborn Fire insurance maps indicate that both residences were constructed of brick and both were a single story in height.

Unlike the Beacham property, very few extramural features were encountered in the backyard of the Butler home (120 South Capitol). These features were limited to postholes (n = 10), domestic refuse pits (n = 4), and a construction debris pit (see Chapter 14, this report). The Butlers were tenants rather property owners and this may have consciously or unconsciously affected how they did or did not modify their living space. In one of the pits (Feature 393), a large number of metal filings were found and it was suggested that these filings were generated during cutting, grinding, or other modification to cast iron pipes utilized by Butler and Foley Plumbers (see Chapter 16, this report). If so, it would be one of the few features that could be directly linked to occupation of 120 South Capitol by the Butler family.

122 South Capitol was also a rental property and was one of the most uniquely designed residential properties in the Capitol Complex Historic Neighborhood. It was a red brick structure that incorporated a two-story tower into its 127 sq m (1,367 sq ft) of living space. However, archaeological investigations proved that the building had been completely demolished and hauled away during construction of the Concha Ortiz y Pino Building in 1963. Even fewer features than those found associated with 120 South Capitol were recorded within the lot and consisted almost entirely of construction debris pits (n = 6) associated with the later Concha Ortiz y Pino Building (see Chapter 15, this report). No features or artifacts could be specifically tied to the enigmatic Lebanese immigrant and Santa Fe entrepreneur, Joseph Fidel, who rented the property for several years during the 1930s.

Only one of the six structures, 116 South Capitol, yielded enough significant data to examine variation across ethnic, socioeconomic, and temporal lines. Previous studies (Barbour 2012a:356) suggested that while Anglo and Hispanic residents lived side by side, they differed in regards to when they settled the neighborhood, the materials they used to build their homes, and the food they ate. The Butlers of 116 South Capitol were the typical Anglo-American family. They settled the area after the turn-of-the-twentieth century; they resided in a house made of fire-hardened bricks; and they preferred beef to mutton (see Chapters 12 and 17, this report).

Socioeconomic diversity was more difficult to infer. Mean ceramic index values suggested the Beacham Family was relatively poor, while archival records suggest a middle-income household. As previously observed (Barbour 2012a:357), economic scaling using mean ceramic index values remains problematic when attempting to characterize the socioeconomic status of the individual families residing in the Capitol Complex Historic Neighborhood. The degree of variation across structures using the mean ceramic price index values was statistically irrelevant, suggesting all families had similar purchasing power when dealing with specific items such as ceramic dinnerware.

In the case of the Beacham household, the assemblage shows signs of a conservative aesthetic value when choosing their dinnerware. Undecorated vessels have a lower index value than decorated dinnerware. Hence a family that chooses to purchase undecorated vessels while being able to afford more expensive wares will bias the sample. If such bias among Anglo purchases was found to be commonplace throughout the City of Santa Fe, it would render socioeconomic scaling through mean ceramic index values meaningless. Instead, the index value would be indicative of ethnicity with Hispanics scoring higher than Anglos regardless of social status or family income (see Chapter 16, this report).

During the Capitol Parking Facility project, several shifts in consumption and discard patterns of disposable material culture were visible through time. These included the ever increasing consumption of beef and store-bought products (Barbour 2012a:357). These observations were supported within the current data set and presumably hold true for Santa Fe as a whole, particularly in regards to fauna consumption. Within the Executive Office Building and Capitol Parking Facility projects, there is a clear transition from a late nineteenth-century diet based primarily on home-butchered sheep or goat and lesser amounts of market purchased beef to a more diverse diet with less mutton and increasing amounts of beef, pork, and chicken as well as rare inclusions of domestic and wild rabbits, deer, wild birds, and fish in the early twentieth century (see Chapter 17, this report). However, the various household assemblages show signs of individual tastes and preferences.

Personal agency was an unexpected theme visible throughout both projects. At the Beacham Residence of 116 South Capitol, the presence of the underground oil tank and the flower garden were both unexpected, yet clearly identified within the archaeological record. Heating one's home with kerosene and maintenance of a large flower garden were activities that were atypical of the neighborhood as a whole. Instead these features and their actions represent individual choices by the family (see Chapter 13, this report).

Ultimately, the goal of this report was to wed archival and archaeological research into a comprehensive study of the Capitol Complex Historic Neighborhood. In many ways this was a success. Archival records could explain who lived at the property, when they lived there, and what they did for a living. While archaeology informed on the activities conducted at the property and the types of materials consumed by the individual households. However, the limitations of each dataset were evident throughout the study. Examination of archival maps failed to identify the wooden structure on the 104 South Capitol lot and archaeological evidence was in many instances not temporally diagnostic enough to link an artifact assemblage or feature to a specific decade in time (see Chapters 12 and 16, this report).

The combined research of the Capitol Parking Facility and Executive Building projects has amassed a substantive body of archaeological materials and inferences regarding the community's inhabitants. When viewed collectively, patterns began to emerge, including the observation that consumption and discard patterns of disposable material culture vary significantly between ethnic groups and across time in many different ways. The fact that the results of both of projects complement each other suggests that the patterns could be applied to other archaeological investigations in the Santa Fe area. As work is conducted in other neighborhoods, the data may be used in conjuction with these future efforts to stimulate increasingly dynamic models of urban life in Santa Fe during the late nineteenth and early twentieth centuries.

Chapter 25

Cultural Resource Management Summary

Matthew J. Barbour

With the completion of the Executive Office Building project, it is felt that this study has adequately sampled the 5,000 sq m of LA 158037 within the area of potential effect to provide archaeological information on the history of the region. OAS recommends that archaeological clearance be granted to GSD for construction of the Executive Office Building.

Between the Capitol Parking Facility and Executive Office Building projects, archaeological investigations at LA 158037 have examined 14,244 sq m of area, or roughly 78 percent of the total site (18,334 sq m). This has resulted in the documentation of 13 structures, 376 features, and 24,766 artifacts. The analyses of these structures, features, and artifacts represent a sizeable collection of archaeological data informing upon life in Santa Fe during the late nineteenth and twentieth centuries. No prehistoric or Spanish Colonial deposits were encountered, and no human remains were uncovered as a result of these investigations.

As LA 158037 was not excavated in its entirety, the remaining 4,090 sq m of the site has not been subjected to intense archaeological scrutiny. Therefore, portions of LA 158037 could be construed as remaining “eligible” for inclusion in the *National Register of Historic Places* (NRHP) and the *State Register of Cultural Properties (SRCP)* under Criterion ‘d’ (36 CFR Part 60.4). However, archaeological testing of the area in 2007 (Barbour 2008a) revealed cultural features similar to those already recorded. If GSD continues to develop the area, further archaeological investigation (testing, data recovery, or monitoring) would likely result in a similar array of archaeological findings to those presented in Barbour 2012a and in this report. Therefore, OAS recommends that no further archaeological investigations are warranted at LA 158037 and that archaeological clearance be granted for GSD to continue to develop its property (bounded by Galisteo Street to the west, South Capitol Street to the north, Don Gaspar Avenue to the east, and West Manhattan Avenue to the south) into the future as it wishes.

References Cited

Contributors, International Tree-Ring Data Bank, IGBP PAGES/World Data Center for Paleoclimatology, Boulder, Colorado:

Graybill, Donald A.
1983 Mount Goliath, Colorado, 39ºN, 105ºW
1984 Almagre Mountain, Colorado, 39ºN, 105ºW

Lamarche, V. C., and Harlan, T. P.
1969 Almagre Mountain (1 + 2), Colorado, 39ºN, 105ºW

Grissino-Mayer, H.D.
1992 El Malpais National Monument, 34.97º N, 108.1º W.

Grissino-Mayer, H.D., T. W. Swetnam, and Caprio
1990 Salinas Peak, San Andres Mountains, New Mexico, 33ºN, 106ºW

Schweingruber, F.H.
1982 Niwot Ridge, Colorado, 40.05ºN, 105.55ºW-PCEN-ITRDB CO574.

Stokes, M. A., Naylor, T. H., and Harlan, T. P.
1971 Organ Mountains, New Mexico, 32ºN, 106ºW

Abbink, Emily K. and John R. Stein
1977 An Historical Perspective on Adaptive Systems in the Middle Rio Grande. In *Archaeological Investigations in Cochiti Reservoir, New Mexico*. Vol. 1, *A Survey of Regional Variability*, edited by J. V. Biella and R. C. Chapman. University of New Mexico, Office of Contract Archaeology, Albuquerque.

Ackerly, Neal W.
1996 *A Review of the Historic Significance of and Management Recommendations for Preserving New Mexico's Acequia Systems*. Dos Rios Consultants, Silver City, New Mexico.

Acklen, John C., G. M. Brown, D. G. Campbell, A. C. Earls, M. E. Harlan, S. C. Lent, G. McPherson, and W. N. Trierweiler
1990 *Archaeological Survey Results for the Ojo Line Extension Project,*Vol. 1. Archaeological Report No. 7. Public Service Company of New Mexico, Albuquerque.

Adamiec, G. and M. Aitken
1998 Dose-rate Conversion Factors: Update. *Ancient TL* 16:37–50.

Adams, Eleanor B. and Fray Angélico Chávez
1956 *The Missions of New Mexico 1776: A Description by Fray Francisco Atanasio Dominguez and Other Contemporary Documents*. University of New Mexico Press, Albuquerque.

Adler, Michael A. and Herbert W. Dick
1999 *Picuris Pueblo through Time: Eight Centuries of Change at a Northern Rio Grande Pueblo*. William P. Clements Center for Southwest Studies Southern Methodist University

Ahlstrom, Richard V.
1985 *The Interpretations of Archaeological Tree-Ring Dates*. Unpublished Ph.D. dissertation, Department of Anthropology, University of Arizona, Tucson.

Aitken, M. J.
1998 *Introduction to Optical Dating*. Oxford University Press, Oxford.

Allen, B. D.
1991 Effect of Climatic Change on the Estancia Valley, New Mexico: Sedimentation and Landscape Evolution in a Closed-Drainage Basin. In *Field Guide to Geologic Excursions in New Mexico and Adjacent Areas of Texas and Colorado,* edited by B. Julian and J. Zidek, pp. 166–171. New Mexico Bureau of Mines and Mineral Resources Bulletin No. 137. New Mexico Bureau of Mines and Mineral Resources, Socorro.
1994 *Ancient Lakes: A Tool for Understanding Climatic Change*. New Mexico Bureau of Mines and Mineral Resources, Socorro.
2005 *Ice Age Lakes in New Mexico*. New Mexico Bureau of Geology and Mineral Resources, New Mexico Tech, Socorro.

Allen, B. D., D. W. Love, and R. G. Myers
2005 *Hydrologic and Wetland-Habitat Response to Late Quaternary Climatic Change, Northern Tularosa Basin, New Mexico, Determined by Sedimentology and Geomorphology.* Paper presented at the New Mexico Water Research Symposium, Socorro, August 16, 2005.
2009 Evidence for Late Pleistocene Hydrologic and Climatic Change from Lake Otero, Tularosa Basin, South-Central New Mexico. *New Mexico Geology* 31(1):9–14.

Allen, B. D., and R. Y. Anderson
1993 Evidence from Western North America for Rapid Shifts in Climate during the Last Glacial Maximum. *Science* 260:1920–1923.
2000 A Continuous, High-Resolution Record of Late Pleistocene Climate Variability from the Estancia Basin, New Mexico. *Geological Society of America Bulletin* 112:1444–1458.

Allen, Craig. D
2002 An Ecological History of Fire in the American Southwest. In *Western Wilderness – Fire, Native Peoples, and the Natural Landscape* edited by T. R. Vale. Island Press, Covelo, California.
2004 Ecological patterns and environmental change in the Bandelier Landscape. In *Village Formation on the Pajarito Plateau, New Mexico*. edited by T. A. Kohler pp. 19–68. University of New Mexico Press, Albuquerque.

Allen, Craig D., Julio L. Betancourt, and Thomas W. Swetnam
2003 Landscape Changes in the Southwestern United States: Techniques, Long-Term Data Sets, and Trends. In *Land-Use History of North America*, http://biology.usgs.gov/luhna/chap9.html (accessed May 10, 2011).

Allen, Joseph W.
1972 *The Tsogue Highway Salvage Excavations near Tesuque, New Mexico*. Laboratory of Anthropology Notes 73. Museum of New Mexico, Santa Fe.

Allen, Joseph W. and Charles H. McNutt
1955 A Pit House Site near Santa Ana Pueblo, New Mexico. *American Antiquity* 20(3): 241–255.

Ahlstrom, R. V. N.
1985 *The interpretation of archaeological tree-ring dates*. Doctoral dissertation, Department of Anthropology, University of Arizona, Tucson.

Alth, Max
1972 *All about Locks and Locksmithing*. Hawthorn books, New York.

Ambler, W., C. L. Christensen, L. Hodgson, P. Loewer and T. Marston
1994 *Treasury of Gardening*. Publications International Ltd., Lincolnwood, Illinois.

Amigos Bravos: Friends of the Wild Rivers
2012 http://amigosbravos.org/river_otter.php. Accessed January 20, 2012.

Anschuetz, Kurt F., John C. Acklen, and David V. Hill
1997 Prehistoric Overview. In *Ole Volume I: Context*, edited by John C. Acklen. TRC Mariah Associates, Public Service Company of New Mexico, Albuquerque.

Anderson, M. K.
2006 USDA-NRCS, Green Ephedra. Electronic document, http://www.plantmaterials nrcs.usda.gov or http://plants.usda.gov/java/profile?symbol=EPVI (accessed Mar. 18, 2008).

Anderson, R. S., C. D. Allen, J. L. Toney, R. B. Jass, and A. N. Bair
2008 Holocene Vegetation and Fire Regimes in Subalpine and Mixed Conifer Forests, Southern Rocky Mountains, USA. *International Journal of Wildland Fire* 17:96–114.

Anderson, R. Y., B. D. Allen, and K. M. Menking
2002 Geomorphic Expression of Abrupt Climate Change in Southwestern North America at the Glacial Termination. *Quaternary Research* 57:371–381.

Angell, M.
1981 *A Field Guide to Berries and Berrylike Fruits*. Bobbs-Merrill Company, Inc., New York, New York.

Angier, B.
1978 *Field Guide to Medicinal Wild Plants*. Stackpole Books, Harrisburg, Pennsylvania.

Antevs, Ernst
1948 *The Great Basin with Emphasis on Glacial and Postglacial Times*. University of Utah Bulletin 38. University of Utah, Salt Lake City.
1952 Arroyo-Cutting and Filling. *The Journal of Geology* 60(4):375–385.

Armour, Jake, Peter J. Fawcett, and John W. Geissman
2002 15 k.y. Paleoclimatic and Glacial Record from Northern New Mexico. *Geology* 30(8):723–726.

Arno, Stephen F., and R. P. Hammerly
1984 *Timberline. Mountain and Arctic Forest Frontiers*. The Mountaineers, Seattle.

Arrington, Leonard
1969 The New Deal in the West: A Preliminary Statistical Inquiry. In *Pacific Historical Review*, XXXVIII:311–316.

Ashbrook, Frank G.
1955 *Butchering, Processing and Preservation of Meat*. Van Nostrand Reinhold Company, New York.

Asmerom, Yemane, Victor Polyak, Stephen Burns, and Jessica Rassmussen
2007 Solar Forcing of Holocene Climate: New Insights from a Speleothem Record, Southwestern United States. *Geology* 35(1):1–4.

Badner, Jessica, Matthew J. Barbour, and Chris T. Wenker
2013 *From Acequias to Industry, The Archaeology of Neighborhood and Infrastructure at the Santa Fe Railyard*. Archaeology Notes 422. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

Bailey, L. H. and E. Z. Bailey
1976 *Hortus Third, A Concise Dictionary of Plants Cultivated in the United States and Canada*. Barnes and Noble Books, New York, New York.

Bailey, R. M. and L. J. Arnold
2006 Statistical modeling of single grain quartz De distributions and an assessment of procedures for estimating burial dose. *Quaternary Science Reviews* 25:2475–2502.

Baillie, M. G. L.
1994 Dendrochronology Raises Questions about the Nature of the AD 536 Dust-Veil Event. *The Holocene* 4(2):212–217.

Ballarini, M., J. Wallinga, A. G. Wintle, and A. J. Bos
2007 A Modified SAR Protocol for Optical Dating of Individual Grains from Young Quartz Samples. *Radiation Measurements* 42:360–369.

Bandelier, Adolph
1893 *The Gilded Man (El Dorado) and Other Pictures of the Spanish Occupancy of America*. D. Appleton and Co. New York.

Barbour, Matthew J.
2008a *Archaeological Testing of and Data Recovery Plan for the Proposed Capitol Parking Structure, Santa Fe County, Santa Fe, New Mexico*. Archaeology Notes 396. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.
2008b Sanitation in the City Different: A Study of Santa Fe's Nineteenth- and Twentieth-Century Privies. Presented at the 2008 Society for Historical Archaeology Annual Conference. Albuquerque, New Mexico.
2009 *Preliminary Report on Archaeological Monitoring at the Capitol Parking Structure, LA 158037, Santa Fe, New Mexico*. Preliminary Report 30. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.
2010 *Archaeological Monitoring of the Installation of Seven Light Posts on Santa Fe Plaza in Downtown Santa Fe, New Mexico*. Archaeology Notes 412. Museum of New Mexico Office of Archaeological Studies, Santa Fe.
2011a *Archaeological Data Recovery Plan for the Executive Office Building, Santa Fe, New Mexico*. Archaeology Notes 441. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.
2011b *Archaeological Monitoring and Test Excavations Associated with the Installation of Four Light Poles on Santa Fe Plaza in Downtown Santa Fe, New Mexico*. Archaeology Notes 439. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.
2012a *Urban Archaeology in the Capitol Complex Historic Neighborhood, Santa Fe, New Mexico*. Archaeology Notes 403. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

2012b *A Preliminary Report on Archaeological Data Recovery for the Executive Office Building, Santa Fe, New Mexico*. Preliminary Report 50. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

Barbour, Matthew J., and Jessica Badner
2012 Field and Analytic Methods. In *Urban Archaeology in the Capitol Complex Historic Neighborhood, Santa Fe, New Mexico* by Matthew J. Barbour, pp. 75–92. Archaeology Notes 403. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

Barbour, Matthew J., and Barry Kirschbaum
2012 Structure 6 (111 West Manhattan Avenue). In *Urban Archaeology in the Capitol Complex Historic Neighborhood, Santa Fe, New Mexico* by Matthew J. Barbour, pp. 174–192. Archaeology Notes 403. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

Barbour, Matthew and Susan Moga
2012a Structure 1 (141 West Manhattan Avenue). In *Urban Archaeology in the Capitol Complex Historic Neighborhood, Santa Fe, New Mexico* by Matthew J. Barbour, pp. 100–123. Archaeology Notes 403. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.
2012b Structure 2 (451 Galisteo Street). In *Urban Archaeology in the Capitol Complex Historic Neighborhood, Santa Fe, New Mexico* by Matthew J. Barbour, pp. 124–133. Archaeology Notes 403. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.
2012c Structure 4 (125 West Manhattan Avenue). In *Urban Archaeology in the Capitol Complex Historic Neighborhood, Santa Fe, New Mexico* by Matthew J. Barbour, pp. 142–167. Archaeology Notes 403. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

Barbour, Matthew J., Richard H. Montoya, and Mary Y. Weahkee
2012 *An Archaeological Assessment and Monitoring Plan for the PERA Building Parking Lot Park & Ride Shelter and ADA Ramp Project, Santa Fe, New Mexico*. Archaeology Notes 447. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

Bart Butler
2011 Personal communication with Matthew Barbour, December 12, 2011.

Batkin, Jonathan
1987 *Pottery of the Pueblos of New Mexico, 1700–1940*. The Taylor Museum of the Colorado Springs Fine Arts Center, Colorado Springs, Colorado.

Baxter, John O.
1997 *Dividing New Mexico's Waters, 1700–1912.* University of New Mexico Press. Albuquerque.

Beacham, Van
2012 E-mail communication with Matthew Barbour, January 9, 2012.

Beacham, William
1932 Goin' Fishin' in New Mexico. *New Mexico Highway Journal* May 1932.

Bean, M. C.
1992 History of the Match. *Antiques and Collecting Hobbies* September:42–44.

Bechol, Gayla
2012 *Historic American Building Survey: 402, 406, 410, and 414 Don Gaspar Avenue, Santa Fe, New Mexico*. State of New Mexico, General Services Department, Property Control Division, Santa Fe.

Bernanke, Ben S.
2000 *Essays on the Great Depression*. Princeton University Press, Princeton.

Betancourt, J. L., T. R. Van Devender, and P. S. Martin
1990 *Packrat Middens: The Last 40,000 Years of Biotic Change*. University of Arizona Press. Tucson.

Biota Information System of New Mexico
2011 http://www.bison-m.org/reports.aspx?rtype=13&county='029' (accessed May 13, 2011).

Blue, Ethan Van
2004 *Hard Time in the New Deal: Racial Formation and the Cultures of Punishment in Texas and California in the 1930s*. Ph.d. Dissertation, University of Texas at Austin.

Bohrer, Vorsila L., and Karen R. Adams.
1977 Ethnobotanic Techniques and Approaches at the Salmon Ruin, New Mexico. *San Juan Valley Archeological Project, Technical Series 2; Eastern New Mexico University Contributions in Anthropology* 8(1). Portales.

Bolstad, Paul
2002 *GIS Fundamentals; A First Text on Geographic Information Systems.* College of Natural Resources, University of Minnesota, St. Paul.

Bonney, Rachel A.
1972 *Arroyo Hondo Lithic Analysis 1972: Typology, Distribution, and Function*. Manuscript on file with the School of American Research, Santa Fe.

Bonney, Rachel, and Laurance Linford
1993 *The Stone Artifacts from Arroyo Hondo Pueblo*. Carl J. Phagan, editor. Arroyo Hondo Archaeological Series, Volume 8. School of American Research Press. Santa Fe.

Bowen, Joanne and Elsie Manning
1994 Acquiring Meat in a Changing World. In *Archaeological Views in the Upper Wagner Block, a Domestic and Commercial Neighborhood in Harper's Ferry* 9:1–54.

Bowers, J. E., and Brian Wignall
1993 *Shrubs and Trees of the Southwest Deserts*. Southwest Parks and Monuments Association, Tucson.

Bowden, J. J.
1969 Private Land Claims in the Southwest. Vol. 1. Unpublished Master's thesis, Southern Methodist University.

Boyer, Jeffrey L.
1992 La Puente: Eighteenth Century Hispanic Village Life on the Rio Chama Frontier. In *Current Research on the Late Prehistory and Early History of New Mexico*, edited by B. Vierra, pp. 227–237. Special Publication 1. New Mexico Archaeological Council, Albuquerque.
2012 Geomorphological Description of Cultural and Natural Strata. In *Urban Archaeology in the Capitol Complex Historic Neighborhood, Santa Fe, New Mexico* by Matthew J. Barbour, pp. 321–324. Archaeology Notes 403. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

Boyer, Jeffrey L and Steven A. Lakatos
1997 Archaeological Clearance Letter for the Pojoaque South Project U.S. 84/285, Santa Fe County, New Mexico. Ms. on file at the Museum of New Mexico, Office of Archaeological Studies, Santa Fe.

2000 *The Santa Fe to Pojoaque Corridor Testing Project: Archaeological Testing Results from Five Sites and a Data Recovery Plan for the Prehistoric Sites Along U.S. 84/285 North of Santa Fe, New Mexico*. Archaeology Notes 265. Museum of New Mexico, Office of Archaeological Studies, Santa Fe.

Boyer, Jeffrey, Charles Hannaford, Guadalupe Martinez and Adisa Willmer
1994 *Historic Artifact Analysis Standardized Variable and Attribute Codes.* Archaeology Notes 24d. Office of Archaeological Studies, Santa Fe, New Mexico.

Boyle, Susan C.
1994 *Comerciantes, Arrieros, y Peones: The Hispanos and the Santa Fe Trade*. Southwest Cultural Resources Center, Professional Papers No. 54. Southwest Region, National Park Service. Department of the Interior. Washington, D.C.
1997 *Los Capitalistas: Hispano Merchants and the Santa Fe Trade.* University of New Mexico Press, Albuquerque.

Brackenridge, G. R.
1978 Evidence for a Cold, Dry, Full Glacial Climate in the American Southwest. *Quaternary Research* 9:22–40.

Brandt, Carol B.
1995 Traditional Agriculture on the Zuni Indian Reservation in the Recent Historic Period. In *Soil, Water, Biology, and Belief in Prehistoric and Traditional Southwestern Agriculture,* edited by H. Wolcott Toll, pp. 291–301. New Mexico Archaeological Council Special Publication 2.

Briggs, J. M., H. Schaafsma, and D. Trenkov
2006 Woody Vegetation Expansion in a Desert Grassland: Prehistoric Human Impact? *Journal of Arid Environments* 69:458–472.

Brill, S. and E. Dean
1994 *Identifying and Harvesting Edible and Medicinal Plants in Wild (and Not So Wild) Places*. Hearst Books, New York, New York.

Britton, N. L. and H. A. Brown
1970 *An Illustrated Flora of the Northern United States and Canada, Vol. 2*. 3 vols. Dover Publications, Inc., New York, New York.

Brody, J. J., and Anne Colberg
1966 A Spanish-American Homestead near Placitas, New Mexico. *El Palacio* 73:11–20.

Bronitsky, Gordon
2004 Miguel H. Trujillo, New Mexican Indian Civil Rights Pioneer. Manuscript on file at with New Mexico Office of the State Historian, New Mexico State Record Center and Archives, Santa Fe.

Brook, George A.
1999 Arid Zone Palaeoenvironmental Records from Cave Speleothems. In *Paleoenvironmental Reconstruction in Arid Lands,* edited by A. K. Singhvi and E. Derbyshire. A. A. Balkema Rotterdam/Brookfield.

Brooks, James F.
2002 *Captives and Cousins: Slavery, Kinship, and Community in the Southwest Borderlands.* Published for the Omohundro Institute of Early American History and Culture, Williamsburg, Virginia. University of North Carolina Press, Chapel Hill and London.

Brown, David E. (editor)
1994 *Biotic Communities Southwestern United States and Northwestern Mexico*. University of Utah Press, Salt Lake City.

Brugge David
1983 Apache and Navajo Ceramics. In *Southwestern Ceramics; A Comparative Review*, edited by Albert H. Shroeder, pp. 279–288. *The Arizona Archaeologist* 15, Phoenix.

Brunzell, David
2010 *Cultural Resource Assessment: Colton Soil Safe Project, City of Colton, San Bernardino County, California*. Project No. RBF1001. Brunzell Cultural Resource Consulting, Claremont, California.

Buck, B. J., and Curtis H. Monger
1999 Stable Isotopes and Soil Geomorphology as Indicators of Holocene Climate Change, Northern Chihuahuan Desert. *Journal of Arid Environments*, 43, 357–373.

Buikstra, Jane E., and Mark Swegle
1989 Bone Modification Due to Burning: Experimental Evidence. In *Bone Modification*, edited by R. Bonnichsen and M. Sorg, pp. 247–258. University of Maine, Orona.

Bullard, William Rotch, Jr.
1962 *The Cerro Colorado Site and Pithouse Architecture in the Southwestern United States Prior to AD 900*. Papers of the Peabody Museum of Archaeology and Ethnology 44(2). Harvard University, Cambridge.

Bunney, S.
1984 *The Illustrated Encyclopedia of Herbs*. Barnes and Noble Books, New York, New York.

Bustamante, Adrian H.
1989 Espanoles, Castas, y Labradores. In *Santa Fe, History of an Ancient City,* edited by David Noble, pp. 65–77. School of American Research Press, Santa Fe, New Mexico.

Butler, Bart
2011 Inspector for the Petroleum Storage Tank Bureau. Personal communication December 1, 2011.

Bryan, N. G. and S. Young
1978 *Navajo Native Dyes: Their Preparation and Use*. Chilocco Agricultural School, Chilocco, Oklahoma.

Calkins, Hugh G.
1937 *Inventory of Material on the Rio Grande Watershed: Tewa Basin Study*. Regional Bulletin No. 34, Conservation Economic Series No. 7. USDA Soil Conservation Service, Albuquerque.

Calvin, Ross
1934 *Sky Determines*. The Macmillan Company. New York

Carlquist, S.
2001 *Comparative Wood Anatomy: Systematic, Ecological, and Evolutionary Aspects of Dicotyle-*

don Wood. Springer Series in Wood Science. Springer, Berlin.

Carrillo, Charles M.
1997 *Hispanic New Mexican Pottery: Evidence of Craft Specialization 1790–1890*, LPBD Press, Albuquerque.

Carter, Jack L.
1997 *Trees and Shrubs of New Mexico*. Mimbres Publishing, Silver City, New Mexico.

Castetter, Edward F.
1935 Uncultivated Native Plants Used as Sources of Food. *Ethnobiological Studies of the American Southwest I, University of New Mexico Bulletin, Biological Series* 4(1).

Cassidy, Regis C.
2001 Fire and Vegetation Relationships on the Santa Fe National Forest—Potential for Impact to the Santa Fe Municipal Watershed. In *New Mexico Decision Makers Field Guide No. 1.Water, Watersheds, and Land Use in New Mexico: Impacts of Population Growth on Natural Resources, Santa Fe Region* 2001. New Mexico Bureau of Mines and Mineral Resources. Socorro.

Castiglia, Peter J., and Fawcett, Peter J.
2006 Large Holocene Lakes and Climate Change in the Chihuahuan Desert. *Geology* 34(2):113–116.

Cavette, C.
2012 Match. In *How Products are Made,* Volume 3. Electronic document, http://www.madehow.com/Volume-3/Match.html (accessed March 21, 2012).

Chapman, Kenneth
1933 *Pueblo Indian Pottery*, Vols. 1 and 2, C. Szwedzicki, Nice, France.
1936 *The Pottery of Santo Domingo Pueblo*. A Detailed study of Its Decoration. Memoir of Laboratory of Anthropology 1, Santa Fe.
1970 *The Pottery of San Ildefonso Pueblo*. University of New Mexico Press, Albuquerque.

Chávez, Fray Angélico
1979 Genízaros. In Handbook of North American Indians, Vol. 9, edited by A. Ortiz, pp. 198–200. Smithsonian Institution, Washington, D.C.
1992 *Origins of New Mexico Families: A Genealogy of the Spanish Colonial Period*. Museum of New Mexico Press, Albuquerque.

Chavez, Miguel
2012 Personal communication with Matthew J. Barbour and Susan M. Moga, May 30, 2012.

Clark, Hyla M.
1977 *The Tin Can Book*. New American Library, New York.

Cleaveland, Malcolm K.
2006 Extended Chronology of Drought in the San Antonio Area, Revised Report March 30, 2006. University of Arkansas Tree-ring Laboratory, Fayetteville.

Cisneros-Dozal, Luz M., Jefferey M. Heikoop, Julianna Fessenden, R. Scott Anderson, Philip A. Meyers, Craig D. Allen, Marcey Hess, Toti Larson, George Perkins, and Michael Rearick
2010 A 15,000-Year Record of Climate Change in Northern New Mexico, USA, Inferred from Isotopic and Elemental Contents of Bog Sediments. *Journal of Quaternary Science* 25(6) 1001–1007.

City of Santa Fe, New Mexico
2012 Water Levels. http://www.santafenm.gov/DocumentView.aspx?DID=9367. Accessed February 1, 2012.

Clements, E. S.
1927 Wild Flowers of the West. *The National Geographic Magazine* L1(5):566–622.

Coan, Charles F.
1925 *A History of New Mexico, Vol. III*, Chicago and New York: The American Historical Society.

Cochrane, Willard W.
1958 *Farm Prices: Myth and Reality*, Minneapolis, University of Minnesota Press.

Connell, Sean D., Bruce D. Allen, and John W. Hawley
1998 Subsurface Stratigraphy of the Santa Fe Group from Borehole Geophysical Logs, Albuquerque Area, New Mexico. *New Mexico Geology* 20(1).

Collector's Guide, The
2008 Cruz Bay Publishing, Inc. El Segundo, California.

Collier, Michael, and Robert H. Webb
2002 *Floods, Drought, and Climate Change.* University of Arizona, Tucson.

Couzens, E. G., and V. E. Yarsley
1968 *Plastics in the Modern World*. Penguin Books, Middlesex, England.

Cordell, Linda S.
1979 A Cultural Resources Overview of the Middle Rio Grande Valley, New Mexico. USDA Forest Service, Albuquerque.
1984 *Prehistory of the Southwest*. Academic Press, New York.

Couplan, F.
1998 *The Encyclopedia of Edible Plants of North America: Nature's Green Feast*. Keats Publishing, New Canaan, Connecticut.

Craw, M. Maggie
2012 Faunal Remains. In *Urban Archaeology in the Capitol Complex Historic Neighborhood, Santa Fe, New Mexico* by Matthew J. Barbour, pp. 265–292. Archaeology Notes 403. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

Creamer, Winefred
1993 *The Architecture of Arroyo Hondo Pueblo*. Arroyo Hondo Archaeological Series, Vol. 7. School of American Research Press. Santa Fe.

Cross Cultural Research Systems
1992 *Santa Fe Historic Plaza Study II: Plaza Excavation Final Report, Fall 1990*. City of Santa Fe Historic Preservation Office, Santa Fe.

Curtin, Leonora S. M.
1965 *Healing Herbs of the Uppper Rio Grande*. Southwest Museum, Los Angeles, California.*Daily New Mexican*
1887 January 27, 1887.

Dargan, Marion
2012 The Fight for Statehood, Chapter 1: The Political Leaders and the Latter Half of the 1890s and Statehood. http://www.newmexicohistory.org/centennial/Statehood/Statehood-1.html (accessed Aug. 15, 2012).

Dart, Al
1977 *The Santa Fe Community Development Historic Preservation Project: Survey and Monitoring for Cultural Resources*. Laboratory of Anthropology Notes 251. Museum of New Mexico, Santa Fe.

Dean, Jeffrey S., Robert C. Euler, George J. Gumerman, Fred Plog, Richard H. Hevly, and Thor N. V. Karlstrom
1985 Human Behavior, Demography, and Paleoenvironment on the Colorado Plateau. *American Antiquity* 50(3):537–554.

Dean, Robert K.
2010 King Maker in the Back Room: Editor Max Frost and Hardball Politics in the Late Territorial Period, 1876–1909. In *All Trails Lead to Santa Fe: An Anthology Commemorating the 400th Anniversary of the Founding of Santa Fe, New Mexico in 1610*, edited by the 400th Anniversary of Santa Fe Book Committee, pp. 317–338. Sunstone Press, Santa Fe.

Deiss, Ronald William
1981 *The Development and Application of a Chronology for American Glass.* Midwestern Archeological Research Center, Illinois State University.

Dello-Russo, Robert
2010 *Archaeological Testing at the Caja Del Rio Paleoindian Site (LA112527), Santa Fe County, New Mexico*. Archaeology Notes 401. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

DeMenocal, Peter B.
2001 Cultural Responses to Climate Change during the Late Holocene. *Science* 292.5517:667.

Dethier, David P., and Steven L. Reneau
1996 Lacustrine Chronology Links Late Pleistocene Climate Change and Mass Movements in Northern New Mexico. *Geology* 24(6):539–542.

Deyloff, Glenda
1998 *Results of Archaeological Sewer Line Excavations Monitoring in the Santa Fe City Hall*

Parking Lot. SW 421B. Southwest Archaeological Consultants, Santa Fe, New Mexico.
2002 *Final Results of Archaeological Investigations and Archival Study at the 60 East San Francisco Street Property Parking Lot, Santa Fe, New Mexico.* Southwest Research Series 442c. Santa Fe.

Dick, Herbert W.
1968 Six Historic Pottery Types from Spanish Sites in New Mexico. In *Collected Papers in Honor of Lyndon Lane Hargrave,* edited by Albert H. Schroeder, pp. 77–94. Papers of the Archaeological Society of New Mexico. Museum of New Mexico Press, Santa Fe.

Dick-Peddie, W. A.
1993 *New Mexico Vegetation Past, Present, and Future.* University of New Mexico Press, Albuquerque.

Dickson, Bruce D.
1979 *Prehistoric Pueblo Settlement Patterns: The Arroyo Hondo Site Settlement Survey*. Arroyo Hondo Archaeological Series, Volume 2. School of American Research Press, Santa Fe.

Diggins, John Patrick
1988 *The Proud Decades: America in War and Peace 1941–1960*. W. W. Norton & Co. New York.

Dozier, Edward P.
1970 *The Pueblo Indians of North America*. Holt, Rinehart and Winston, New York.

Drake, Lynn M.
1992a Archaeological Investigations of a Backhoe Trench on the West Side of City Hall, Downtown Santa Fe, New Mexico. Ms on file with the City of Santa Fe Planning Division. Drakos Archaeological Consulting, Santa Fe, New Mexico.
1992b *Archaeological and Historical Investigations at 418 Sandoval Street, Santa Fe, New Mexico*. DAC Report No. 92-009. Drakos Archaeological Consulting, Santa Fe.

Durcan, J. A., and G. A. T. Duller
2011 The Fast Ratio: A Rapid Measure for Testing the Dominance of the Fast Component in the Initial OSL Signal from Quartz. *Radiation Measurements* 46:1065–1072.

Editors of Sunset Magazine and Sunset Books
1967 *Western Garden Book*. Lane Publishing Company, Menlo Park, California.

Eggan, Fred
1979 Pueblos: Introduction. In *Handbook of North American Indians*, Vol. 9, edited by A. Ortiz, pp. 224–235. Smithsonian Institution, Washington, D.C.

Eidenbach, Peter L. Richard L. Wessel, Lisa M. Meyer, and Gail C. Wimberly
1996 Star Throwers of the Tularosa: The Early Cold War Legacy of White Sands Missile Range. Human Systems Research, Inc. Tularosa.

Eiselt, B. Sunday
2005 A Brief Guide to the Identification of Historic Micaceous Ceramics of the Northern Rio Grande Including Types Attributed to Hispanic, Northern Tewa, Northern Tiwa, and Jicarilla Apache Potters. http://www.seiselt.googlepages.com/guide.pdf; accessed 2010.

Elias, Scott A.
1987 Paleoenvironmental Significance of Late Quaternary Insect Fossils from Packrat Middens in South-Central New Mexico. *The Southwestern Naturalist* 32(3):383–390.

Elliott, Michael L.
1988 *The Archaeology of Santa Fe: A Background Report*. Jemez Mountain Research Center 87–113. Albuquerque, New Mexico.

Ellis, Florence Hawley
1975 Life in the Tesuque Valley and Elsewhere in the Santa Fe Area During the Pueblo II Stage of Development. In *Awanyu*. Archaeological Society of New Mexico 3(2):27–49.

Ellwood, Brooks B., and Wulf A. Gose
2006 Heinrich H1 and 8200 yr. B.P. climate Events Recorded in Hall's Cave, Texas. *Geology* 34(9):753–756.
2009 Holocene Fire-Related Alluvial Fan Deposition and Climate in Ponderosa Pine and Mixed Conifer Forests, Sacramento Mountains, New Mexico, USA. *The Holocene* 19(4):639–651.

Elmore, F. H.
1976 *Shrubs and Trees of the Southwest Uplands*. Southwest Parks and Monuments Association, Globe.

Engerman, Stanley L. and Gallman, Robert E. Editors
2000 *The Cambridge Economic History of the United States, Volume III: The Twentieth Century*. University of Cambridge, Cambridge, United Kingdom.

EBTAG (Española Basin Technical Advisory Group)
2011 About the Española Basin Technical Advisory Group: http://esp.cr.usgs.gov/ebtag/AboutEB.html. Accessed February 1, 2012.

ESRI (Environmental Systems Research Institute)
2006 ArcGIS Desktop Help, *Georeferencing a Raster Set.* ESRI, Redlands, California. www.esri.com

Evans Drumheads
2013 http://evansdrumheads.com). Accessed February 15, 2013.

Evaskovich, John A. Richard W. Coleman, Richard A. Anduze, E. Tianna Crollett, Robert Dello-Russo, John C. Acklen, Katherine J. Roxlau, Richard W. Lang, Meade F. Kemrer, Dorothy L. Larson, Rachel Loehman, and Douglas G. Campbell
1997 Cañones Mesa Geoarchaeological Unit. In *OLE, Vol. 1.* Context. John C. Acklen, ed. pp. 199–462. Albuquerque: Public Service Company of New Mexico.

Ferg, Alan
1984 *Historic Archaeology on the San Antonio De Las Huertas Grand. Sandoval County, New Mexico*. Complete Archaeological Service Associates Papers No.3, Cortez.

Fierman, Floyd S.
1964 The Spiegelbergs of New Mexico: Merchants and Bankers, 1844–1893. *Southwestern Studies* 1:371–451. Texas Western College Press, El Paso.

Fike, Richard E.
1987 *The Bottle Book: A Comprehensive Guide to Historic Embossed Medicine Bottles*. Gibbs M. Smith Inc., Peregrine Smith Press, Salt Lake City, Utah.

Firestone, R.B., A. West, J. P. Kennett, L. Becker, T. E. Bunch, Z. S. Revay, P. H. Schultz, T. Belgya, D. J. Kennett, J. M. Erlandson, O. J. Dickenson, A. C. Goodyear, R. S. Harris, G. A. Howard, J. B. Kloosterman, P. Lechler, P. A. Mayewski, J. Montogmery, R. Poreda, T. Darrah, S. S. Que Hee, A. R. Smith, A. Stich, and W. Topping
2007 Evidence for an Extraterrestrial Impact 12,900 Years Ago that Contributed to the Megafaunal Extinctions and the Younger Dryas Cooling. *Proceedings of the National Academy of Sciences* 104(41).

Folks, James J.
1975 *Soil Survey of Santa Fe Area, New Mexico; Santa Fe County and Part of Rio Arriba County, U.S. Department of Agriculture Soil Survey*. United States Department of Agriculture Soil Conservation Service and Forest Service and United States Department of the Interior, Bureau of Indian Affairs in cooperation with New Mexico Agricultural Experiment Station.

Fontana, Bernard L. and Cameron Greenleaf
1962 Johnny Ward's Ranch: A Study in Historic Archaeology. *Kiva* 28(1–2): 1–115.

Forrest, Suzanne
1989 *The Preservation of the Village: New Mexico's Hispanics and the New Deal*, Albuquerque: University of New Mexico Press.

Foster, S. and J. A. Duke
1990 *A Field Guide to Medicinal Plants: Eastern and Central North America*. Houghton Mifflin Company, Boston.

Frank, Larry, and Francis H. Harlow
1990 *Historic Pottery of the Pueblo Indians 1600–1800* (2nd Ed.). Schiffer Publishing, Ltd. West Chester, Pennsylvania.

Frank, Ross H.
1991 Changing Pueblo Indian Pottery Tradition: the Underside of Economic Development in Late Colonial New Mexico, 1750–1820. *Journal of the Southwest* 33:282–321.

2000 *From Settler to Citizen: New Mexican Economic Development and the Creation of Vecino Society, 1750–1820*. University of California Press, Berkley.

Frank, Larry and Francis H. Harlow
1990 *Historic Pottery of the Pueblo Indians 1600–1880*. Schiffer Publishing, Ltd., West Chester Pennsylvania.

Fredrickson, E. L., R. E. Estell, A. Laliberte, and D. M. Anderson
2005 Mesquite Recruitment in the Chihuahuan Desert: Historic and Prehistoric Patterns with Long-Term Impacts. *Journal of Arid Environments* 65:285–295.

Friends of Hinds
2013 http://friendsofhinds.org/index.stm. Accessed February 15, 2013.

Gabin, Vickie L., and Lee E. Lesperance
1977 *New Mexico Climatological Data: Precipitation, Temperature, Evaporation, and Wind, Monthly and Annual Means 1850 – 1975*. W. K. Summers and Associates, Socorro, New Mexico.

Galbraith, R. F., R. G. Roberts, G. M. Laslett, H. Yoshida and J. M. Olley
1999 Optical Dating of Single and Multiple Grains of Quartz from Jinmium Rock Shelter, Northern Australia: Part 1, Eperimental Design and Statistical Models. *Archaeometry* 41:339–364.

Gao, S., P. M. Davis, H. Liu, P. D. Slack, and A. W. Rigor
1997 SKS Splitting Beneath Continental Rift Zones. *Journal of Geophysical Research* 102:781–797.

Gile, L. H.
1987 *Late Holocene Displacement Along the Organ Mountains Fault in Southern New Mexico*. New Mexico Bureau of Geology and Mineral Resources Circular 196. New Mexico Bureau of Geology and Mineral Resources, Socorro.
2002 Lake Jornada, an Early-Middle Pleistocene Lake in the Jornada del Muerto Basin, Southern New Mexico. *New Mexico Geology* 24(1).

Gillio, David, Frances Levine and Douglas Scott
1980 *Some Common Artifacts Found at Historical Sites*. Cultural Resources Report No. 31. USDA Forest Service, Southwestern Region, Albuquerque.

Goodfriend, Glenn A., and G. Lain Ellis
2000 Stable Carbon Isotope Record of Middle to Late Holocene Climate Changes from Land Snail Shells at Hinds Cave, Texas. *Quaternary International* 67(1): 47–60.

Gossett, Cye W.
1989 *Cultural Resource Survey and Testing Phase at 222 Old Santa Fe Trail, Urban Santa Fe, New Mexico*. Rio Abajo Archaeological Consultants, Albuquerque.

Grant, JR., P.R.
1999 *Subsurface Geology and Related Hydrologic Conditions, Santa Fe Embayment and Contiguous Areas, New Mexico*. New Mexico Geological Society Guidebook, 50th Field Conference, Albuquerque.

Greenwood, Phaedra
2006 Van Beacham. http://www.enchantment.coop/features/0505Fish.php. Accessed January 9, 2012.

Grieve, M.
1982 *A Modern Herbal, Vol. 1*. 2 vols. Dover Publications, New York, New York.

Griffin, G. Edward
2002 *The Creature from Jekyll Island: A Second Look at the Federal Reserve*. American Media Inc. Boca Raton, Florida.

Grissino-Mayer, H. D.
1996a *El Malpais Precipitation Reconstruction*. International Tree-Ring Data Bank. IGBP PAGES/World Data Center-A for Paleoclimatology Data Contribution Series # 96-002. NOAA/NGDC Paleoclimatology Program, Boulder CO, USA.
1996b A 2129 Year Annual Reconstruction of Precipitation for Northwestern New Mexico, USA. In *Tree Rings, Environment, and Humanity* edited by J. S. Dean, D. M. Meko, and T.W. Swetnam, pp. 191–204. Department of Geosciences, University of Arizona, Tucson.

Guido, Zackry S., Dylan J. Ward, and Robert S. Anderson
2007 Pacing the Post-Last Glacial Maximum Demise of the Animas Valley Glacier and San Juan Mountain Ice Cap, Colorado. *Geology* 35(8):739–742.

Gust, Sherri M.
1983 Problems and Prospects in Nineteenth Century California Zooarchaeology. In *Forgotten Places and Things: Archaeological Perspectives on American History*, edited by Albert E. Ward, pp. 341–348. Center for Anthropological Studies, Contributions to Anthropological Studies No. 3. Albuquerque.

Guthe, Carl E
1925 *Pueblo Pottery Making*, Yale University Press, New Haven.

Habicht-Mauche, Judith A.
1993 *The Pottery from Arroyo Hondo Pueblo: Tribalization and Trade in the Northern Rio Grande*. Arroyo Hondo Archaeological Series, Volume 8. School of American Research Press, Santa Fe.

Hackett, Charles
1937 *Historical Documents Relating to New Mexico, Nueva Vizcaya, and Approaches Thereto, to 1773*. The Lord Baltimore Press, Baltimore, MD.

Hackett, Charles W. and C. C. Shelby
1942 *Revolt of the Pueblo Indians of New Mexico and Otermin's Attempted Reconquest, 1680–1682*. Vols. 8 and 9, Coronado Cuarto Centennial Publications: 1540–1940. University of New Mexico Press, Albuquerque.

Hakim, Joy
1995 *A History of Us: War, Peace, and all that Jazz 1918–1945*. Oxford University Press, New York.

Hall, G. Emlen
1987 The Pueblo Grant Labyrinth. In *Land, Water, and Culture: New Perspectives on Hispanic Land Grants*, edited by C. L. Briggs and J. R. Van Ness, pp. 67–138. University of New Mexico Press, Albuquerque.

Hall, Stephen A.
2001 Geochronology and Paleoenvironments of the Glacial-Age Tahoka Formation, Texas and New Mexico High Plains. *New Mexico Geology* 23:71–77.

Hammond, George P.
1927 Oñate. *New Mexico Historical Review* April 1927:143.

Hammack, Nancy S. Alan Ferg, and Bruce Bradley
1983 *Excavations at Three Developmental Period Sites Near Zia and Santa Ana Pueblos, New Mexico*. CASA Papers No. 2. Complete Archaeological Service Associates, Cortez, Colorado.

Hammett, Kingsley
2004 *Santa Fe: A Walk through Time*. Gibbs Smith, Layton, Utah.

Hammond, George P. and Agapito Rey
1953 *Don Juan de Oñate: Colonizer of New Mexico, 1595–1628*. University of New Mexico Press, Albuquerque.

Hannaford, Charles A.
1997 Archaeological Monitoring of Building and Site Improvements at the United States Courthouse and the Federal Oval, Santa Fe, New Mexico. Archaeology Notes 218. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.
2007 *The First Judicial District Courthouse Complex: Archaeological Investigations at LA 156207 in Santa Fe, Santa Fe County, New Mexico*. Archaeology Notes 390. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.
2012 Personal communication between Donald Tatum and Charles Hannaford, January 2012.

Hannaford, Charles A., and Yvonne R. Oakes
1983 Historic Artifacts. In *The Ontiberos Site: A Hispanic Homestead Near Roswell, New Mexico*. Laboratory of Anthropology Notes No. 311. Museum of New Mexico, Santa Fe.

Harlow, Francis H.
1970 History of Painted Tewa Pottery. In *The Pottery of San Ildefonso Pueblo* by K Chapman, pp. 37–51. University of New Mexico Press, Albuquerque.
1973 *Matte-Paint Pottery of the Tewa, Keres, and Zuni Pueblos*. Museum of New Mexico Press, Santa Fe.

Harlow, Francis H., and Dwight P. Lammon
2003 *The Pottery of Zia Pueblo*. School of American Research Press, Santa Fe.

Harrington, H. D.
1964 *Manual of the Plants of Colorado*. Sage Books, Chicago.
1967 *Edible Native Plants of the Rocky Mountains*. University of New Mexico Press, Albuquerque, New Mexico.

Harris, Arthur H.
2003 The Pleistocene Vertebrate Fauna from Pendejo Cave. In *Pendejo Cave* edited by Richard S. MacNeish and Jane G. Libby. University of New Mexico Press, Albuquerque.

Haugland, Matt
2010 The Rain Shadow Effect. http://www.weatherpages.com/rainshadow (accessed February 1, 2012).

Havstad, Kris, and Reldon Beck
1996 *Research in the Jornada Basin of Southern New Mexico: A Field Tour*. In *Proceedings: Shrubland Ecosystem Dynamics of a Changing Environment* compiled by Jerry R. Barrow, E. Durant McArthur, Ronald E. Sosebee, and Robin J. Tausch. Gen. Tech. Rep. INT-GTR-338. U.S. Department of Agriculture, Forest Service, Intermountain Research Station, Ogden, Utah.

Hawley, Florence
1936 *Field Manual of Prehistoric Southwestern Pottery Types*. University of New Mexico Bulletin 291, Anthropological Series, Vol. 1, No.4.

Hawley, John W.
1976 *Guidebook to Rio Grande Rift in New Mexico*. Circular 163. New Mexico Bureau of Mines and Mineral Resources, Socorro.
1993 *Geomorphic Setting and Late Quaternary History of Pluvial-Lake Basins in the Southern New Mexico Region*. New Mexico Bureau of Mines and Mineral Resources, Socorro.

Hayes, Alden C. Jon N. Young, and A. Helene Warren
1981 *Excavation of Mound 7, Gran Quivira National Monument, New Mexico*. U.S. Department of the Interior, National Park Service Publications in Archaeology 16. U.S. Government Printing Office, Washington, D.C.

Haynes, C. Vance
1980 The Clovis Culture. Canadian Journal of Anthropology 1(1): 115–21.
2008 Younger Dryas "Black Mats" and the Rancholabrean Termination in North America. *Proceedings of the National Academy of Sciences* 60(18).

Hedrick, U. P. (editor)
1972 *Sturtevant's Edible Plants of the World*. Dover Publications, Inc., New York, New York.

Heinerman, J.
1983 *The Complete Book of Spices*. Keats Publishing, Inc., New Canaan, Connecticut.

Henry, Susan L.
1987 Factors Influencing Consumer Behavior in Turn of the Century Phoenix, Arizona. In *Consumer Choice in Historical Archaeology* edited by Suzanne M. Spencer-Wood, pp 359–395. Plenum Press, New York and London.
1996 Factors Influencing Consumer Behavior in Turn-of-the-Century Phoenix, Arizona. In *Images of the Recent Past: Readings in Historical Archaeology*, edited by Charles E. Orser, Jr., pp. 235259. Altamira Press, Walnut Creek.

Hewett, Edgar Lee
1912 *First Annual Report of the Museum of New Mexico*. Santa Fe.

Hibben, Franklin C.
1937 *Excavation of the Riana Ruin and Chama Valley Survey*. Anthropological Series 2 (1). University of New Mexico Press, Albuquerque.
1975 *Kiva Art of the Anasazi at Pottery Mound*. KC Publications, Las Vegas, New Mexico.

Hickey, M. and C. J. King
1981 *100 Families of Flowering Plants*. Cambridge University Press, Cambridge.

Hitchcock, A. S.
1971 *Manual of the Grasses of the United States, Vol. 2*. 2nd ed. 2 vols. Dover Publications, Inc., New York, New York.

Hoadley, R. B.
1990 *Identifying Wood: Accurate Results with Simple Tools*. The Taunton Press, Inc., Newtown, Connecticut.

Hoffman, Lou
n.d. World War II from a New Mexico Perspective. New Mexico Veteran's Memorial, Museum and Conference Center, Albuquerque.

Holden, W. C.
1928 West Texas Droughts. *Southwestern Historical Quarterly* 32(2):103–123.

Holliday, Vance T.
1987 Re-examination of Late-Pleistocene Boreal Forest Reconstructions for the Southern High Plains. *Quaternary Research* 28: 238–244.
1989 Middle Holocene Drought on the Southern High Plains. *Quaternary Research* 31:74–82.
2000 Folsom Drought and Episodic Drying on the Southern High Plains from 10,900 to 10,200 ^{14}C yr. B.P. *Quaternary Research* 53:1–12.

Holliday, Vance T., James H. Meyer and Glen G. Fredlund
2008 Late Quaternary Sedimentology and Geochronology of Small Playas on the Southern High Plains, Texas and New Mexico, USA. *Quaternary Research* 70(1):11–25.

Holmgren, Camille A., Penalba, M. Cristina, Rylander, Kate Aasen, and Betancourt, Julio
2003 A 16,000 ^{14}C yr B.P. Packrat Midden Series from the USA-Mexico Borderlands. *Quaternary Research* 53:1–12.

Hoover, Herbert
1979 *The Memoirs of Herbert Hoover*. Garland Publishing, Columbia University, New York.

Hordes, Stanley M.
1990 The History of the Santa Fe Plaza, 1610–1720. In *Santa Fe Historic Plaza Study I, with Translations from Spanish Colonial Documents,* edited by Linda Tigges, pp. 3–36. Santa Fe City Planning Department, Santa Fe, New Mexico.
2010 The History of Santa Fe Plaza, 1610–1720. In *All Trails Lead to Santa Fe, An Anthology Commemorating the 400th Anniversary of the Founding of Santa Fe, New Mexico in 1610* edited by the *400th* Anniversary of Santa Fe Book Committee, pp. 129–146. Sunstone Press, Santa Fe.

Hudspeth's City Directories
1928–1972 Santa Fe City Directory. Hudspeth Directory Company, El Paso.

Hull-Walski, Deborah A. and James E. Ayres
1989 *The Historical Archaeology of Dam Construction Camps in Central Arizona, Volume 3: Laboratory Methods and Data Computerization*. Dames & Moore, Phoenix.

Hurt, Wesley R., and Herbert Dick
1946 Spanish-American Pottery from New Mexico. *El Palacio* 53(1). Museum of new Mexico, Santa Fe.

INTERA, Inc.
2009 *Technical Memorandum, Gila Planning Project*. New Mexico Interstate Stream Commission. Albuquerque.

Irwin-Williams, Cynthia
1973 *The Oshara Tradition: Origins of Anasazi Culture.* Contributions in Anthropology 5(1). Eastern New Mexico University, Portales.

Ivey, James
2010 The Viceroy's Order Founding the Villa of Santa Fe, A Reconsideration, 1650–1610. In *All Trails Lead to Santa Fe, An Anthology Commemorating the 400th Anniversary of the Founding of Santa Fe, New Mexico in 1610* edited by the 400th Anniversary of Santa Fe Book Committee, pp. 97–108. Sunstone Press, Santa Fe.

Jaehn, Tomas
2005 *Germans in the Southwest, 1850–1920*. University of New Mexico Press, Albuquerque.

Jenkins, Myra E. and Albert H. Schroeder
1974 *A Brief History of New Mexico*. University of New Mexico Press, Albuquerque.

Johnson, Bradley G., Martha Cary Eppes, John A. Diemer, Gonzalo Jiménez-Moreno, and Anthony L. Laysell
2011 Post-Glacial Landscape Response to Climate Variability in the Southeastern San Juan Mountains of Colorado, USA. *Quaternary Research* 76:352–362.

Johnson, P. S., and V. J. S. Grauch, P. W. Bauer, D. J. Koning, and S. W. Timmons
2008 Influence of Basement Structure on Shallow Aquifer Geochemistry in the Rio Grande

Rift, Northern New Mexico—Examples from the Santa Fe and Peñasco Embayments of the Espanola Basin. *Geology*. 30(2):54–55.

Julian, George, N.
1887 Land Stealing in New Mexico. *North American Review* 65:17–31.

Kamen, Henry
2003 *Empire: How Spain Became a World Power, 1492–1763.* Harper Collins Press, New York.

Kammer, David
1994 The Historic and Architectural Resources of the New Deal in New Mexico. On file, New Mexico Historic Preservation Division, Santa Fe.

Kearney, T. H. and R. H. Peebles
1960 *Arizona Flora*. University of California Press, Berkeley.

Kehoe, Timothy J. and Edward C Prescott.
2007 *Great Depressions of the Twentieth Century*. Federal Reserve Bank of Minneapolis, Minneapolis, Minnesota.

Kelley, Shari A.
2008 *Hyde Memorial State Park*. New Mexico Bureau of Geology and Mineral Resources, Socorro.

Kelley, V. C.
1978 *Geology of the Espanola Basin, New Mexico*. Geologic Map GM-48. New Mexico Bureau of Mines and Mineral Resources, Socorro.
1979 Geomorphology of the Espanola Basin. In *New Mexico Geological Society Guidebook, 30th Field Conference, Santa Fe County*.

Kendrick, Grace
1964 *The Antique Bottle Collector*. Western Printing and Publishing Co., Sparks, Nevada.

Kennedy, Michael
1998 *Archaeological Investigations of Five Sites in the Santa Fe National Cemetery, Santa Fe, New Mexico*. Rio Grande Consultants, Albuquerque.

Kessell, John L.
1989 *Kiva, Cross, and Crown: The Pecos Indians and New Mexico, 1540–1840*. National Park Service, U.S. Department of Interior, Washington, D.C.

Kidder, Alfred V.
1915 *Pottery of the Pajarito Plateau and Some Adjacent Regions in New Mexico*. Memoirs of the American Anthropological Association, Vol. 2, part 6.
1924 *An Introduction to the Study of Southwestern Archaeology, with a Preliminary Account of the Excavations at Pecos*, reprint [1962]. Yale University Press, New Haven.
1925 Introduction. In *Pueblo Pottery Making*, by C. E. Guthe, pp. 1–15, Yale University Press, New Haven.

Kilby, David J., and Joseph Vasquez Cunningham
2002 Pecos from Folsom to Fogelson: The Cultural Resources Inventory Survey of Pecos National Historic Park. Chapter 9: *Lithics*. Edited by Genevieve N. Head and Janet D. Orcutt. Intermountain Cultural Resources Management Professional Paper No. 66, Anthropology Projects, Cultural Resources Management Intermountain Region. National Park Service Department of the Interior.

Kindleberger, Charles
1973 *The World in Depression, 1929–39*. University of California Press, Berkeley, CA.

Kiple, K. F. and K. C. Ornelas (editors)
2000a *The Cambridge World History of Food*, Vol. 1. 2 vols. Cambridge University Press, Cambridge, U.K.
2000b *The Cambridge World History of Food*, Vol. 2. 2 vols. Cambridge University Press, Cambridge, U.K.

Kirk, D. R.
1975 *Wild Edible Plants of Western North America*. Naturegraph Publishers, Happy Camp, California.

Kohler, Timothy A.
1990 *Bandelier Archaeological Excavation Project: Summer 1989 Excavations at Burnt Mesa Pueblo*. Reports of Investigations 62. Department of Anthropology, Washington State University, Pullman.
1992 Field Houses, Villages, and the Tragedy of the Commons in the Early Northern Southwest. *American Antiquity* 57(4):617:635.

2004 *Archaeology of Bandelier National Monument; Village Formation on the Pajarito Plateau, New Mexico*. University of New Mexico Press, Albuquerque.

Koning, Daniel J., and Florian Maldonado
2003 *Preliminary Geologic Map of the Horcado Ranch Quadrangle, Santa Fe, New Mexico*. Digital Geologic Map OF-GM 44. New Mexico Bureau of Geology and Mineral Resources, Socorro.

Koning, Daniel, and Peggy Johnson
2005 *The Ancha Formation: Textural Subdivisions, Lower Contact, and Hydrogeologic Implications*. Open-File Report 481. New Mexico Bureau of Geology and Mineral Resources, Socorro.

Koning, Daniel J., Sean D. Connell, Frank J. Pazzaglia, and William C. McIntosh
2002 Redefinition of the Ancha Formation and Pliocene–Pleistocene Deposition in the Santa Fe Embayment, North-Central New Mexico. *New Mexico Geology* 24(3):75–87.
n.d. *Stratigraphy of the Tuerto and Ancha Formations (Upper Santa Fe Group), Hagan and Santa Fe Embayments, North-Central New Mexico*. Open-File Report 454B. New Mexico Bureau of Mines and Mineral Resources, Socorro.

Kovel, Ralph and Terry Kovel
1986 *Kovel's New Dictionary of Marks: Pottery and Porcelain 1850 to the Present*. Crown, New York.

Kramer, Hans
1941 Design and Construction of Conchas Dam, New Mexico. Two volumes. On file, IM-S Historical File, Albuquerque District, Corps of Engineers.

Krochmal, A. and C. Krochmal
1973 *A Guide to the Medicinal Plants of the United States*. Quadrangle, the New York Times Book Co., New York, New York.

Kruger, A.
1993 *An Illustrated Guide to Herbs, Their Medicine and Magic*. Dragon's World, Ltd., Limpsfield, Great Britian.

Krugman, Paul
2007 Who Was Milton Friedman? *The New York Review of Books*. February 15, 2007.

Kues, Barry S.
2001 *The Pennsylvanian System in New Mexico—Overview with Suggestions for Revision of Stratigraphic Nomenclature*. Department of Earth and Planetary Sciences, University of New Mexico, Albuquerque.

Kyvig, David E.
2004 *Daily Life in the United States, 1920–1940: How Americans Lived Through the "Roaring Twenties" and the Great Depression*. Ivan R. Dee, Chicago.

Lakatos, Steven A.
2004 Study Unit 2: The Central Portion of LA 156207. In *Preliminary Results of Data Recovery Investigations at LA 6568, LA 89021, and LA 138960, U.S. 84/285 Santa Fe to Pojoaque Corridor, Pueblo of Tesuque Grant, Santa Fe County, New Mexico*. Archaeology Notes 340. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.
2006 *Cultural Continuity in the Northern Rio Grande Valley of New Mexico, A.D. 600–1200*. Unpublished Master's thesis, Department of Anthropology, New Mexico Highlands University, Las Vegas.
2011 *Data Recovery Results from the First Judicial District Courthouse Complex, LA 156207, Santa Fe County, New Mexico*. Archaeology Notes 424. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

Lakatos, Steven A. Stephen Post, and Jessie Murrell
2001 *Data Recovery Results from Two Archaeological Sites along North Ridgetop Road, Santa Fe, New Mexico*. Archaeology Notes 290. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

Lamar, Howard R.
1966 *The Far Southwest, 1846–1912: A Territorial History*. Yale University Press, New Haven.

Lammon, Dwight P. and Francis Harlow
2008 *The Pottery of Zuni Pueblo*. Museum of New Mexico Press, Santa Fe.

Lang, Richard W.
1995 *Flint Procurement and Other Limited Activity*

Sites of the Upper Tesuque Valley, New Mexico: A Sampling from the Bishop's Lodge Locality. Southwest Archaeological Consultants, Inc. Report SW284B, Santa Fe.
1997a *The Archaeological Landscape of Las Campanas: Archaic and Pueblo Use of the Piedmont Slopes Northwest of Santa Fe, Santa Fe County, New Mexico*. SW 317. Southwest Archaeological Consultants, Inc. Santa Fe, New Mexico.
1997b Ceramics from Archaeological Sites in the Vicinity of the Jemez Mountains: The Ole Corridor. In *OLE Volume II: Artifacts*, edited by John C. Acklen, pp 231–276. TRC Mariah Associates Inc. Albuquerque.

Lang, Richard W. and Cherie L. Scheick
1989 *Limited Excavations at LA 2, the Agua Fria Schoolhouse Site, Agua Fria Village, Santa Fe County, New Mexico.* Research Series 216. Southwest Archaeological Consultants, Santa Fe, New Mexico.

Lange, Charles H.
1968 *Cochiti Dam Archaeological Salvage Project, Part 1: Report on the 1963 Season*. Museum of New Mexico Research Records No. 6. Santa Fe.

Lange, Charles H., Carroll L. Riley, and Elizabeth M. Lange
1975 *The Southwestern Journals of Adolph F. Bandelier, 1885–1888*. The University of New Mexico Press, Albuquerque.

Langford, Richard P.
2002 Eolian Deflation of Holocene Playas and Formation of the White Sands Dune Field. In *Proceedings of ICAR5/GCTE-SEN Joint Conference* edited by Jeffrey A. Lee and Ted M. Zobeck, pp. 400. USDA Publication 02-2, p. 400. International Center for Arid and Semiarid Lands Studies, Texas Tech University, Lubbock, Texas.

Larsen, L.B., B. M. Vinther, K. R. Briffa, T. M. Melvin, H. B. Clausen, P. D. Jones, M. L. Siggaard-Anderson, C. U. Hammer, M. Eronen, H. Grudd, B. E. Gunnarson, T. M. Hantemirov, M. M. Naurzbaev, and K. Nicolussi
2008 New Ice Core Evidence for a Volcanic Cause of the A.D. 536 Dust Veil. *Geophysical Research Letters* 35.

Larson, Robert W.
1968 *New Mexico's Quest for Statehood: 1846–1912*. University of New Mexico, Albuquerque.

LeCompte, Janet
1989 When Santa Fe was a Mexican Town. In *Santa Fe, History of An Ancient City*, edited by David Noble, pp.79–95. School of American Research Press, Santa Fe, New Mexico.

League of Nations
1933 *World Economic Survey 1932–33*. Geneva, Switzerland.

Lehane, B.
1977 *The Power of Plants*. McGraw-Hill Book Co., Ltd., Maidenhead, England.

Lekson, Stephen H. and Catherine M. Cameron
1995 The Abandonment of Chaco Canyon, the Mesa Verde Migrations, and the Reorganization of the Pueblo World. *Journal of Anthropological Archaeology* 14:184–202.

Lentz, Stephen C.
1991 *Survey, Test Excavation Results, and Data Recovery Plan for Cultural Resources near San Juan Pueblo, Rio Arriba County, New Mexico*. Archaeology Notes 17. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.
2004 *Excavations at LA 80000, the Santa Fe Plaza Community Stage Location, Santa Fe, New Mexico*. Archaeology Notes 343. Museum of New Mexico, Office of Archaeological Studies, Santa Fe.
2005 *El Pueblo de Santa Fe (LA 1051): Archaeological Testing of the Proposed Santa Fe Civic Center.* Archaeology Notes 355. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.
2011 *Ogapogeh, the White Shell Water Place: The Prehistoric Component at El Pueblo de Santa Fe (LA 1051).* Archaeology Notes 438. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

Lentz, Stephen C. and Mathew J Barbour
2008 *Preliminary Report on Selected Pit Structure Proveniences at LA 1051, El Pueblo de Santa Fe*. Preliminary Report No. 12. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.
2011 *Archaeological Excavations at El Pueblo de*

Santa Fe (LA 1051) Volume 2: Settlers and Soldiers. Archaeology Notes 410. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

Levine, Daisy
1990 Tewa or Hispanic Manufacture? Pottery from 1th and 19th Century Spanish Sites Near Abiquiu. In *Clues to the Past: Papers in Honor of William M. Sundt*, edited by M.S. Durah and D.T. Kirkpatrick. Papers of the Archaeological Society of New Mexico No. 16. Albuquerque.
2001 Analysis and Interpretation of Ceramics from the Pedro Sanchez Site, In *Prehistoric and HistoricOccupation at Los Alamos and Guaje Canyons: Data Recovery at Three Sites near the Pueblo of San Ildenfonsio*, by James L. Moore, pp. 129–138. Office of Archaeological Studies Archaeology Notes 244, Museum of New Mexico, Santa Fe.
2004 Native Ceramic Analysis and Interpretations. In *Adaptations on the Anasazi and Spanish Frontiers; Excavation at Five sites near Abiquiu, Rio Arriba County, New Mexico*, by James L. Moore, Jeffrey Boyer, and Daisy Levine. pp 147–168. Office of Archaeological Studies Arcaheology Notes 187, Museum of New Mexico, Santa Fe.

Lewis, Nancy Owen
2010 The Cure at the End of the Trail, Seeking Health While Transforming a Town, 1880–1940. In *All Trails Lead to Santa Fe, An Anthology Commemorating the 400th Anniversary of the Founding of Santa Fe, New Mexico in 1610* edited by the 400th Anniversary of Santa Fe Book Committee, pp. 361–382. Sunstone Press, Santa Fe.

Lindsey, Bill
2011 Bottle Glass Colors. http://www.sha.org/bottle/colors.htm (accessed November 10, 2011).

Lipe, William D.
1989 Social Scale of Mesa Verde Anasazi Kivas. In *The Architecture of Social Integration in Prehistoric Pueblos*, edited by W. D. Lipe and M. Hegmon, pp. 53–71. Occasional Papers, no. 1. Crow Canyon Archaeological Center, Cortez, Colorado.

Lorrain, Dessamae
1968 An archaeologist's guide to nineteenth-century American glass. *Historical Archaeology* 2: 35–44.

Lucas, S. G., B. D. Allen, G. S. Morgan, R. G. Myers, D. W. Love, and D. Bustos,
2007 *Mammoth Footprints from the Upper Pleistocene of the Tularosa Basin, Doña Ana County, New Mexico*. In *Cenozoic Vertebrate Tracks and Traces* edited by S. G. Lucas, J. A. Spielmann, and M. G. Lockley, pp. 149–154. New Mexico Museum of Natural History and Science Bulletin 42. Natural History Museum, Albuquerque.

Lucas, S. G., G. S. Morgan, J. W. Hawley, D. W. Love, and R. G. Myers,
2002 Mammal footprints from the Upper Pleistocene of the Tularosa Basin, Doña Ana County, New Mexico. In *Geology of White Sands* edited by by V. Lueth, K. A. Giles, S. G. Lucas, B. S. Kues, R. G. Myers, and D. Ulmer-Scholle, pp. 285–288. New Mexico Geological Society Guidebook 53. New Mexico Geological Society, Albuquerque.

Lyman, R. Lee
1987 On Zooarchaeological Measures of Socioeconomic Position and Cost-Efficient Meat Purchases. *Historical Archaeology* 21(1):58–66.
1994 *Vertebrate Taphonomy*. Cambridge University Press, Cambridge.

MacDowell, Malcolm
1919 Report on the Zuni Indian Reservation, New Mexico. Ms. on file, Zuni Archaeology Program, Zuni, New Mexico.

MacKay, William P., and Scott A. Elias
1992 Late Quaternary Ant Fossils from Packrat Middens (Hymenoptera: Formicidae): Implications for Climatic Change in the Chihuahuan Desert. *Psyche* 99:169–184.

MacNeil, Karen
2000 *The Wine Bible*. Workman Publishing Inc. New York.

Maker, H. J., H. E. Dregne, V. G. Link, and J. U. Anderson
1978 *Soils of New Mexico*. New Mexico State University Agricultural Experiment Station Re-

search Report No. 285. New Mexico State University, Las Cruces.

Majewski, Teresita
2008 Notes on Historic Ceramics. Presented at the 2008 New Mexico Archaeological Council Historic Artifact Workshop: Euroamerican, Hispanic, and Asian Ceramics and other Artifacts. Albuquerque, New Mexico.

Majewski, Teresita and Michael J. O'Brien
1987 The Use and Misuse of Nineteenth-Century English and American Ceramics in Archaeological Analysis. In *Advances in Archaeological Method and Theory, Vol. 11*, edited by Michael B. Schiffer, pp. 97–209. Academic Press, San Diego.
1989 Practical Data-Base Construction for Historical-Period Ceramic Analysis. In *Analysis and Publication of Ceramics: The Computer Data-Base in Archaeology*, edited by Jeffrey A. Blakely and W. J. Bennett, Jr., pp. 81–97. BAR International Series 551. British Archaeological Reports, Oxford.

Maker, H.J., H.E. Dregne, V.G. Link, and J.U. Anderson
1978 *Soils of New Mexico*. State University Agricultural Experiment Station Research Report 285. Las Cruces, New Mexico.

Mann, Michael E., Bradley, Raymond S., and Hughes, Malcolm K.
1999 Northern Hemisphere Temperatures during the Past Millennium: Inferences, Uncertainties, and Limitations. *Geophysical Research Letters*. 25(6):759–762.

Martin, A. C.
1972 *Weeds*. Golden Press, Western Publishing Company, Inc., New York, New York.

Martin, A. C. and W. D. Barkley
1961 *Seed Identification Manual*. University of California, Berkeley.

Martinez, Guadalupe A.
1996 LA 85036. In *Las Campanas de Santa Fe Sunset Golf Course, and Estates IV, Estates V, and Estates VII Excavations: Small Sites in the Piñon–Juniper Piedmont North of the Santa Fe River, Santa Fe County, New Mexico,* by Stephen S. Post, pp. 128–143. Archaeology Notes 193. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

Mary "Boots" Butler
2012 Personal communication with Matthew Barbour.

Maslin, Mark, Dan Seidov, and John Lowe
2001 Synthesis of the Nature and Causes of Rapid Climate Transitions during the Quaternary. In *The Oceans and Rapid Climate Change: Past, Present, and Future*. Geophysical Monograph 126. American Geophysical Union.

Matthews, M. H.
1979 Soil Sample Analysis of 5MT2148: Dominguez Ruin, Dolores, Colorado. Appendix B. In *The Dominguez Ruin: A McElmo Phase Pueblo in Southwestern Colorado*, edited by A. D. Reed. Bureau of Land Management Cultural Resource Series. vol. 7. Bureau of Land Management, Denver, Colorado.

Maxwell, Timothy D. and Kurt F. Anschuetz
1992 The Southwestern Ethnographic Record and Prehistoric Agricultural Diversity. In *Gardens in Prehistory: The Archaeology of Settlement Agriculture in Greater Mesoamerica*, edited by T.W. Killon, pp. 35–68. University of Alabama Press, Tuscaloosa.

Maxwell, Timothy D. and Stephen S. Post
1992 *An Archaeological and Historical Study of Old Pecos Trail*. Archaeology Notes 58. Office of Archaeological Studies, Museum of New Mexico. Santa Fe.

Mayne, Alan, and Tim Murray
2001 *The Archaeology of Urban Landscapes: Explorations in Slumland*. Cambridge University Press, Cambridge.

McBride, Pamela J.
2009 *Plant Remains from a Historic (circa 1930's) Privy and Trash Pit and a Late Coalition/Early Classic Period Occupation at LA 156207 in Downtown Santa Fe, New Mexico*. Museum of New Mexico, Office of Archaeological Studies, Ethnobotany Lab Technical Series #109, Santa Fe.
2010 *Plant Remains from a Spanish Colonial/Early Mexican Period Midden and Historic Outhouses, Santa Fe Railyard Site LA 146402*.

Museum of New Mexico, Office of Archaeological Studies, Ethnobotany Lab Technical Series #113, Santa Fe.
2012 Macrobotanical Analysis. In *Urban Archaeology in the Capitol Complex Historic Neighborhood, Santa Fe, New Mexico*, by Matthew J. Barbour, pp. 275–282. Museum of New Mexico, Office of Archaeological Studies, Archaeology Notes 403. Santa Fe.

McGee, H.
1984 *On Food and Cooking*. Charles Scribner's Sons, New York, New York.

McKenna, Peter J. and Judith Miles
1990 *Ceramic Manual for the Bandelier Archaeological Survey*. Manuscript on file, Bandelier National Park.

McNab, Henry W., and Peter E. Avers, compilers
1994 Ecological Subregions of the United States. Prepared in cooperation with Regional Compilers and the ECOMAP Team of the Forest Service, July 1994
Publication WO-WSA-5.

McNutt, Charles H.
1969 *Early Puebloan Occupations at Tesuque Bypass and in the Upper Rio Grande Valley*. Anthropological Papers No. 40. Museum of Anthropology, University of Michigan, Ann Arbor.

Medsger, O. P.
1966 *Edible Wild Plants*. MacMillan Publishing Company, Inc., Racine, Wisconsin.

Mehringer, P. J., Jr., and C. V. Haynes, Jr.
1965 The Pollen Evidence for the Environment of Early Man and Extinct Mammals at the Lehner Mammoth site, Southeastern Arizona. *American Antiquity* 31(1):17–23.

Meltzer, David J.
1991 Altithermal Archaeology and Paleoecology at Mustang Springs, on the Southern High Plains of Texas. *American Antiquity* 56(2).

Meltzer, David J., and Michael B. Collins
1987 Prehistoric Water Wells on the Southern High Plains: Clues to Altithermal Climate. *Journal of Field Archaeology* 14(1):9–28.

Menking, Kirsten M., and Roger Y. Anderson
2003 Contributions of La Nina and El Nino to Middle Holocene Drought and Late Holocene Moisture in the American Southwest. *Geology* 31(11):937–940.

Mera, H. P.
1932 *Wares Ancestral to Tewa Polychrome*. Laboratory of Anthropology Technical Series, Bulletin No. 4. Museum of New Mexico, Santa Fe.
1933 *A Proposed Revision of the Rio Grande Paint Sequence*. Laboratory of Anthropology Technical Series, Bulletin No. 5. Museum of New Mexico, Santa Fe.
1934 *A Survey of the Biscuit Ware Area in Northern New Mexico*. Technical Series Bulletin No.8. Laboratory of Anthropology. Museum of New Mexico Santa Fe.
1935 *Ceramic Clues to the Prehistory of North Central New Mexico*. Technical Series Bulletin No. 8. Laboratory of Anthropology, Museum of New Mexico Santa Fe.
1937 *The Rain Bird, a Study in Pueblo Design*. Laboratory of Anthropology Memoirs 2. Museum of New Mexico, Santa Fe.
1939 *Style Trends of Pueblo Pottery in the Rio Grande and Little Colorado Cultural Areas from the Sixteenth to the Nineteenth Century*. Laboratory of Anthropology Memoirs No. 3. Museum of New Mexico, Santa Fe.
1940 *Population Changes in the Rio Grande Glaze Paint Area*. Technical Series Bulletin No. 9. Laboratory of Anthropology, Museum of New Mexico, Santa Fe.

Merlan, Thomas,
1997 Life at Trinity Base Camp. Human Systems Research, Inc. Tularosa.

Merriam, C. H.
1898 *Life-Zones and Crop-Zones of the United States*. United States Department of Agriculture Division of Biological Survey Bulletin 10. United States Department of Agriculture, Washington.

Miller, George L.
1974 A Tenant Famer's Tableware: Nineteenth-century Ceramics from Tabb's Purchase. *Maryland Historical Magazine* 69:197–210.
1991 A Revised Set of CC Index Values for Classification and Economic Scaling of English

Ceramics from 1787 to 1880. *Historical Archaeology* 25(1): 1–25.

Millspaugh, C. F.
1974 *American Medicinal Plants: An Illustrated and Descriptive Guide to Plants Indigenous to and Naturalized in the Unites States Which are Used in Medicine*. Dover Publications, Inc., New York, New York.

Montana Historical Society
2010 Financial Records of Standard Firebrick Company, Pueblo, Colorado 1899–1956 in *Guide to the Anaconda Copper Mining Company Records 1876–1974.* On File, Montana Historical Society Research Collection, Helena, Montana.

Montgomery Ward and Company
1895 *Montgomery Ward and Co. 1894–1895 Catalogue and Buyers Guide No. 57*. Dover, New York.
1922 *Montgomery Ward and Co. 1922–1923 Catalogue and Buyers Guide No. 97, Fall & Winter*. H.C. Publishers, New York.

Moore, James L.
2001 *Prehistoric and Historic Occupation of Los Alamos and Guaje Canyons: Data Recovery at Three Sites near the Pueblo of San Ildefonso*. Archaeology Notes No. 244. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

Moore, James L., Jeffrey L. Boyer, and Daisy F. Levine
2003 *Adaptations on the Anasazi and Spanish Frontiers: Excavations at Five Sites Near Abiquiú, Rio Arriba County, New Mexico*. Archaeology Notes No. 187. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

Moore, M.
1990 *Los Remedios: Traditional Herbal Remedies of the Southwest*. Red Crane Books, Santa Fe, New Mexico.

Moore, Roger A.
1999 *Final Treatment Report for LA 122227, the D&RG Turntable, Santa Fe, Santa Fe County, New Mexico*. Technical Report No. 99-003. Southwest Archaeological Services, Aztec, New Mexico.

Moorhead, Max L.
1974 The Presidio of Santa Fe. New Mexico. *Historical Review* XLIX(2):123-142. University of New Mexico Press.
1975 *The Presidio: Bastion of the Spanish Borderlands*. University of Oklahoma Press, Norman.

Morgan, G. S., and S. G. Lucas
2002 Pleistocene Vertebrates from the White Sands Missile Range, Southern New Mexico. In *Geology of White Sands* edited by V. Lueth, K. A. Giles, S. G. Lucas, B. S. Kues, R.G. Myers, and D. Ulmer-Scholle, pp. 267–276. New Mexico Geological Society, Guidebook 53. New Mexico Geological Society, Albuquerque.
2005 Pleistocene Vertebrate Fauna in New Mexico from Alluvial, Fluvial, and Lacustrine deposits. In *New Mexico's Ice Ages* edited by S. G. Lucas, G. S. Morgan, and K. E. Zeigler, pp. 185–248. New Mexico Museum of Natural History and Science Bulletin 28. Museum of Natural History, Albuquerque.

Muenscher, W. C.
1987 *Weeds*. 2nd ed. Cornell University Press, Ithica, New York.

Murray, A. S., and A. G. Wintle
2000 Luminescence Dating of Quartz using an Improved Single-Aliquot Regenerative-Dose Protocol. *Radiation Measurements* 32:57–73.
2003 The Single Aliquot Regenerative Dose Protocol: Potential for Improvements in Reliability. *Radiation Measurements* 37:377–381.

Musil, A. F.
1963 *Identification of Crop and Weed Seeds*. Agricultural Handbook No. 219. U.S. Department of Agriculture, Washington D.C.

Myers, Sandra L.
1979 The Ranching Frontier: Spanish Institutional Backgrounds of the Plains Cattle Industry. In *New Spain's Far Northern Frontier: Essays on Spain in the American West: 1540–1821*, edited by David J. Weber, pp. 79–94. University of New Mexico Press, Albuquerque.

Native American Ethnobotany
n.d. The University of Michigan–Dearborn.

http://herb.umd.umich.edu (accessed 10-16-2011).

Neilson, Ronald P.
1987 Biotic Regionalization and Climatic Controls in Western North America. *Plant Ecology*. 70(3):135–147.

Nelson, Nels C.
1914 *Pueblo Ruins of the Galisteo Basin, New Mexico*. Anthropological Papers of the American Museum of Natural History 15(1). New York.
1916 Chronology of the Tano Ruins, New Mexico. *American Anthropologist* 18(2):159–180.

Newton, Talon, Stacy Timmons, Geoffrey Rawling, Frederick Partey, Trevor Kludt, Lewis Land, Mike Timmons, and Patrick Walsh
2009 *Sacramento Mountains Hydrogeology Study Open File Report – 518*. New Mexico Bureau of Geology and Mineral Resources, Socorro.

Nials, Fred
2012 *Bigger Isn't Always Better: The Role of Extreme Events at an Early Agricultural Period Village*. Lecture presented at the 13th Biennial Southwest Symposium, University of New Mexico, Albuquerque, January 14, 2012.

Niering, W. A. and N. C. Olmstead
1979 *The Audubon Society Field Guide to North American Wildflowers, Eastern Region*. Alfred A. Knopf, Inc., New York, New York.

Nims, F. C.
1881 *Health, Wealth, and Pleasure in Colorado and New Mexico: A Reliable Treatise on the Famous Pleasure and Health Resorts, and the Rich Mining and Agricultural Regions of the Rocky Mountains*. Belford, Clarke, Chicago. Centennial edition, Museum of New Mexico Press, 1980.

Noble, David G.
2008 *Santa Fe: History of an Ancient City*. School of American Research Press, Santa Fe.

Noel Hume, Ivor
1970 *A Guide to Artifacts of Colonial America*. Knopf, New York.

OAS (Office of Archaeological Studies)
1994 *Standardized Lithic Artifact Analysis: Attributes and Variable Code Lists*. Archaeology Notes No. 24b. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

Ody, P.
1993 *The Complete Medicinal Herbal*. Dorling Kindersley, New York.

Orcutt, Janet D.
1991 Environmental Variability and Settlement Changes on the Pajarito Plateau, New Mexico. *American Antiquity* 56(2):315–332.

Ortiz, Alfonso
1979 San Juan Pueblo. In *Handbook of the North American Indians*, vol. 9, Southwest, edited by Alfonso Ortiz, pp. 278–295. Smithsonian Institution, Washington, D.C.

Otero, Miguel Antonio
2007 *My Life on the Frontier, 1864–1882*. Sunstone Press, Santa Fe.

Otto, John S.
1977 Artifact and Status Differences–A Comparison of Ceramics from Planter, Overseer, and Slave Sites on an Antebellum Plantation. In *Research Strategies in Historical Archaeology*, edited by Stanley South. pp. 91–118. Academic Press, New York.

Pacific Monthly
1911 Portland, Oregon. Published 1898–1911.

Pantea, Michael P., Mark R. Hudson, V. J. S. Grauch, and Scott A. Minor
2011 *Three-Dimensional Geologic Model of the Southeastern Española Basin, Santa Fe County, New Mexico*. Scientific Investigations Report 2011–5025. U.S Geological Survey, U.S. Department of the Interior. Reston, Virginia.

Paul, Doris A.
1998 *The Navajo Code Talkers*. Dorrance Publishing Company, Inc. Pittsburgh.

Payne, Melissa
1999 Valley of Faith: Historical Archaeology in the Upper Santa Fe River Basin. Unpublished Ph.D. dissertation, Department of Anthropology, University of New Mexico, Albuquerque.

Pazzaglia, Frank J., and John W. Hawley
2012 Neogene (Rift Flank) and Quaternary Geology and Geomorphology. In *The Geology of New Mexico* edited by G. Mack and K. Giles, pp. 407–437. New Mexico Geological Society Special Publication 11. New Mexico Geological Society, Albuquerque.

Pearce, Thomas M.
1965 *New Mexico Place Names: A Geographical Dictionary*. University of New Mexico Press, Albuquerque.

Peckham, Stewart L.
1954 A Pueblo I Site Near San Felipe Pueblo, New Mexico. In *New Mexico Highway Salvage Archaeology*, 1(4):41–51. Museum of New Mexico, Santa Fe.
1957 Three Pithouse Sites near Albuquerque, New Mexico. In *New Mexico Highway Salvage Archaeology*, 3(12):39–70. Museum of New Mexico, Santa Fe.
1977 Field notes for trench monitoring, LA 4450 #33. LA 1051 site record. On file, Archaeological Records Management Section, Historic Preservation Division, Museum of New Mexico, Santa Fe.
1982 Nusbaum's Old Headquarters Excavations, 1916. *El Palacio* 88(2):41–42.
1984 The Anasazi Culture of the Rio Grande Rift. In *New Mexico Geological Society Guidebook: Rio Grande Rift, Northern New Mexico*, pp. 275–281. Thirty-fifth Field Conference.

Peterson, L. A.
1977 *Edible Wild Plants*. Collier Books, New York, New York.

Phagan, Carl J.
1993 *The Stone Artifacts from Arroyo Hondo Pueblo*. School of American Research Press. Santa Fe.

Phillips, Fred M., Leslie A. Peters, Michael K . Tansey, and Stanley N. Davis
1986 Paleoclimatic Inferences from an Isotopic Investigation of Groundwater in the Central San Juan Basin, New Mexico. *Quaternary Research* 26(2):179–193.

Phillips, R. and M. Rix
1993 *The Random House Book of Vegetables*. Random House, Inc., New York, New York.

Pielou, E. C.
1991 *After the Ice Age: The Return of Life to Glaciated North America*. University of Chicago Press, Chicago, Illinois.

Plewa, Tara M.
2009 A Trickle Runs Through It: An Environmental History of the Santa Fe River, New Mexico. Unpublished Ph.D. dissertation, University of South Carolina, Columbia.

Polk City Directories
1973–2010 Santa Fe Area. Polk City Directory, Livonia.

Polyak, Victor J., James C. Cokendolpher, Roy A. Norton, and Yemane Asmerom
2001 Wetter and Cooler Late Holocene Climate in the Southwestern United States from Mites Preserved in Stalagmites. *Geology* 29(7):643–646.

Polyak, Victor J., and Yemane Asmerom
2001 Late Holocene Climate and Cultural Changes in the Southwestern United States. *Science* 294(5).
2005 Orbital Control of Long-Term Moisture in the Southwestern USA. *Geophysical Research Letters* 32.

Polyak, Victor J., Jessica B.T. Rasmussen, and Yemane Asmerom
2004 Prolonged Wet Period in the Southwestern United States through the Younger Dryas. *Geology* 33(3):209–212.

Poore, R. Z.; M. J. Pavich, and H. D. Grissino–Mayer
2005 Record of the North American Southwest Monsoon from Gulf of Mexico Sediment Cores. *Geology* 32(1):5–8.

Post, Stephen S.
1996 *Las Campanas de Santa Fe: Sunset Golf Course, and Estates IV, Estates V, and Estates VII Excavations.* Archaeology Notes 193. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.
1999 *An Archaeological Investigation of the Former Sotero Romero Property (LA 110432) at the Cieneguita del Camino Real Subdivision in Santa Fe, New Mexico*. Archaeology Notes 254. Museum of New Mexico, Office of Archaeological Studies, Santa Fe.
2001 *The Archaic Sites Project: A Sample Archaeo-*

logical Inventory of the Former Santa Fe Ranch Lease, Taos Field Office, Bureau of Land Management, Santa Fe County New Mexico. Santa Fe Northwest Advisory Council Report No. 2. Submitted to Bureau of Land Management, Taos Field Office, Taos.

2002 *A Data Recovery Plan for Excavation at the New Mexico Museum of History Site: 700 Years of Human Occupation near the Palace of the Governors in Santa Fe, New Mexico*. Archaeology Notes 311. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

2008 Ancient Santa Fe: Ten Thousand Years of High Desert Living. In *Santa Fe: A History of an Ancient City Expanded and Revised Edition*, edited by David Grant Noble, pp. 1–14. School of Advanced Research Press, Santa Fe.

2010 *7,000 Years on the Piedmont- Fourteen Archaeological Sites along the Northwest Santa Fe Relief Route, Santa Fe County, New Mexico***.** Archaeology Notes 357. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

Post, Stephen S. and Matthew Barbour

2008 *Expanded Monitoring Plan at the Capitol Parking Structure, LA 158037*. Manuscript on file with the Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

Post, Stephen S. and David H. Snow

1982 *Archaeological Investigations for the Gallery Addition to the Museum of Fine Arts*. Laboratory of Anthropology Notes 282. Museum of New Mexico, Santa Fe.

Post, Stephen S. Nancy Akins, Eric G. Ozolins, Vincent H. Stefan, and Joseph F. Powell

1998 *The 124 Kearney Road Burials (LA 120430): Report on Human Remains Recovered from a Water Meter Excavation near Downtown Santa Fe, New Mexico.* Archaeology Notes 248. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

Post, Stephen S., Stephen C. Lentz, Matthew Barbour, Susan Moga, and Nancy J. Akins

2006 *Third Interim Report on the Data Recovery Program at LA 1051, El Pueblo de Santa Fe.* On file with the City of Santa Fe Public Works Division.

Potterton, D. (editor)

1983 *Culpepper's Color Herbal*. Sterling Publishing Co., Inc., New York, New York.

Pratt, Boyd C. and David H. Snow

1988 *The North Central Overview: Strategies for the Comprehensive Survey of the Architectural and Historic Archaeological Resources of North Central New Mexico*. Vol. 1, *Historic Overview of North Central New Mexico*. New Mexico State Historic Preservation Division, Santa Fe.

Prescott, J. R. and J. T. Hutton

1994 Cosmic Ray Contributions to Dose Rates for Luminescence and ESR Dating: Large Depths and Long-Term Time Variations. *Radiation Measurements* 23:497–500.

Preucel, Robert

2002 *Archaeologies of the Pueblo Revolt*: *Identity, Meaning and Renewal in the Pueblo World*. University of New Mexico Press, Albuquerque.

Rasmussen, J. B. T., V. J. Polyak, and Y. Asmerom

2006 Evidence for Pacific-Modulated Precipitation Variability during the Late Holocene from the Southwestern USA. *Geophysical Research Letters* 33.

Rathje, William L. and M. McCarthy

1977 Regularity and Variability in Contemporary Garbage. In *Research Strategies in Historical Archaeology*, edited by Stanley South, pp. 261–286. Academic Press, New York.

Rathje, William and Cullen Murphy

2001 *Rubbish! The Archaeology of Garbage*. The University of Arizona Press. Tuscon.

Rayburn, Ed

2000 *Overgrazing Can Hurt Environment, Your Pocketbook*. http://www.wvu.edu/~agexten/forglvst/overgraz.htm. (accessed Jan. 5, 2012). West Virginia Farm Bureau News, West Virginia University Agricultural Extension Service, Morgantown.

Reasoner, Mel A., and Margret A, Jodry

2000 Rapid Response of Alpine Timberline Vegetation to the Younger Dryas Climate Oscillation in the Colorado Rocky Mountains, USA. *Geology* 28(1):51–54.

Reed, Erik K.
1949 Sources of Upper Rio Grande Pueblo Culture and Population. *El Palacio* 56:163–184.

Reed, Judy
2010 Santa Fe in World War II, 1940–1947. In *All Trails Lead to Santa Fe, An Anthology Commemorating the 400th Anniversary of the Founding of Santa Fe, New Mexico in 1610* edited by the 400th Anniversary of Santa Fe Book Committee, pp. 383–402. Sunstone Press, Santa Fe.

Reed, Stewart, Nathan Bailey, and Oghenekome Onokpise
2000 *Soil Science for Archaeologists*. Florida Agricultural and Mechanical University and National Park Service Southeast Archeological Center, Tallahassee.

Reinhart, Theodore R.
1967 The Rio Rancho Phase: A Preliminary Report in Early Basketmaker Culture in the Middle Rio Grande Valley, New Mexico. *American Antiquity* 32:458–470.

Reiter, Paul
1938 *The Jemez Pueblo of Unshagi New Mexico with Notes on the Earlier Excavations at Amoxiumqua and Gusewa*. Monographs of the School of American Research No. 6. University of New Mexico and School of American Research, Volumes I–II, Santa Fe.

Reitz, Elizabeth J. and Elizabeth S. Wing
1999 *Zooarchaeology*. Cambridge Manuals in Archaeology. Cambridge University Press, Cambridge.

Rhoades, R. E.
1993 The Golden Grain: Corn. *National Geographic Magazine* 183(6):92–117.

Rock, James T.
1978 *Tin Canister Identification: Tin Cans*. Office of Geology, University of New Mexico, Albuquerque.
1981 *Tin Cans: Notes and Comments*. Klamath National Forest Region 5, Department of Agriculture, U.S. Forest Service.
1984 Cans in the Countryside. *Historical Archaeology* 18(2): 97–111.

Rodnight, H.
2008 How Many Equivalent Dose Values are Needed to Obtain a Reproducible Distribution? *Ancient TL* 26:3–9.

Rudecoff, Christine
1987 *Archival and Archaeological Research of the Water Street Parking Lot*. Laboratory of Anthropology Note 388. Museum of New Mexico, Santa Fe.

Roenke, Karl G.
1978 *Flat Glass: Its Use as a Dating Tool for Nineteenth-century Archaeological Sites in the Pacific Northwest and Elsewhere*. Northwest Anthropological Research Notes, Vol. 12, No. 2, Part 2, Moscow, Idaho.

Saint Michael's College
1962 Bulletin No. 10. Conducted by the Brothers of the Christian Schools, Santa Fe, New Mexico.

Sanford, A. R., A. J. Budding, J. P. Hoffman, O. S. Alptekin, C. A. Rush, and T. R. Toppozada
1972 *Seismicity of the Rio Grande Rift in New Mexico*. Circular 120. New Mexico Bureau of Geology and Mineral Resources. Socorro.

Santa Fe Reporter
1990 July 31, 1990.

Sawyer, David A. and Scott A. Minor
2006 *Cerrillos Uplift, the La Bajada Constriction, and the Hydrogeologic Framework of the Santo Domingo Basin, Rio Grande Rift, New Mexico*. Professional Paper 1720-A. U.S. Department of the Interior, U.S. Geological Survey, Denver, Colorado.

Sayles, E. B.
1983 *The Cochise Cultural Sequence in Southeastern Arizona.* Anthropological Papers of the University of Arizona, No. 42, Tucson.

Schaafsma, Polly
1992 *Rock Art in New Mexico*. Museum of New Mexico Press, Santa Fe

Schaafsma, Polly and Curtis F. Schaafsma
1974 Evidence of the Origins of the Pueblo

Katchina Cult as Suggested by Southwestern Rock Art. *American Antiquity* 39(4):535–534.

Schelberg, John D. and Gregory G. Everhart
2008 Adobe and Sandstone: Conchas Dam, Clyde Tingley, and the New Deal. In *Chasing Chaco and the Southwest, Papers in Honor of Frances Joan Mathien* edited by R. N. Wiseman, T. C. O'Laughlin, C. T. Snow, and Cathy Travis, pp. 133–146. The Archaeological Society of New Mexico No. 38. Archaeological Society of New Mexico, Albuquerque.

Schmader, Matthew, F.
1987 *Excavation of the Santo Niño site (LA 64677): An Early Coalition Period Pithouse in Northern Santa Fe.* Rio Grande Consultants, Albuquerque.
1994 *Archaic Occupations of the Santa Fe Area: Results of the Tierra Contenta Archaeological Project*. Final report submitted to the Archaeological Review Committee. Rio Grande Consultants, Albuquerque.

Scheick, Cherie L.
2003 *Final Results of Archaeological Investigations and Archival Study at the 125 Guadalupe Street Property, Santa Fe, New Mexico*. Southwest Archaeological Consultants, Santa Fe.
2005 *Coalition Period Remains Under the West Alcove, U.S. Federal Courthouse, Santa Fe, New Mexico*. SW477C. Southwest Archaeological Consultants, Inc. Santa Fe, New Mexico
2007 The Late Developmental and Early Coalition: Time or Process? *Kiva* 73 (22): 131–154.

Scheick, Cherie L. and Lonyta Viklund
2003 Chapter 2. Archaeological Research. In *Final Report: Archaeological Resources of "La Otra Banda del Río" City of Santa Fe Railroad Properties*, by Cherie L. Scheick, pp. 7–25. SW 458b. Southwest Archaeological Consultants, Inc. Santa Fe, New Mexico.

Schoenwetter, James, and Alfred E. Dittert
1968 An Ecological Interpretation of Anasazi Settlement Patterns. In *Anthropological Archaeology in the Americas*, edited by Betty J. Meggers, pp. 41–66. Anthropological Society of Washington, Washington, D.C.

Schroeder, Albert H.
1979 Pueblos Abandoned in Historic Times. In Handbook of North American Indians, vol. 9, Southwest, edited by A. Ortiz, pp. 236–254. Smithsonian Institution, Washington, D.C.

Schroeder, Albert H. and Dan S. Matson
1965 *A Colony on the Move: Gaspar Castano de Sosa's Journal, 1590–1591*. School of American Research, Santa Fe.

Schopmeyer, C. S.
1974 *Seeds of Woody Plants in the United States*. Agricultural Handbook No. 450. United States Department of Agriculture, Washington, D.C.

Schultz, Peter D., and Sherri M. Gust
1983a Relative Beef Cut Prices in the Late Nineteenth Century: A Note for Historic Sites Faunal Analysis. *Pacific Coast Archaeological Society Quarterly* 19(1):12–18.
1983b Faunal Remains and Social Status in 19th-century Sacramento. *Historical Archaeology* 17(1):44–53.

Schultz, Stanley K. and William P. Tishler
1999 Crashing Hopes: The Great Depression. In *American History 102: Civil War to the Present*. http://us.history.wisc.edu/hist102/weblect/lec18/18_preamble.htm. Accessed January 20, 2012. University of Wisconsin–Madison.

Schwartz, Douglas W.
1971 *Background Report on the Archaeology of the Site at Arroyo Hondo: First Arroyo Hondo Field Report, 1971*. School of American Research, Santa Fe.
1972 *Archaeological Investigations at the Arroyo Hondo Site: Second Field Report, 1971.* School of American Research, Santa Fe.

Schwartz, Douglas W. and R. W. Lang
1973 *Archaeological Investigations at the Arroyo Hondo Site: Third Field Report, 1972.* School of American Research, Santa Fe.

Scurlock, Dan
1988 The Protohistoric, Spanish Colonial, Mexican, and Early Territorial Periods. In *Trails, Rails, and Roads: The Central New Mexico East–West Transportation Corridor Regional Overview*. Vol. 1, *Historic Overview*, by B. C. Pratt, C. D. Biebel, and D. Scurlock, pp. 197-

290. State Historic Preservation Division, Santa Fe.
1998a A Poor Man's Cow: The Goat in New Mexico and the Southwest. *New Mexico Historical Review* 73(1):7–24.
1998b *From the Rio to the Sierra: An Environmental History of the Middle Rio Grande Basin*. USDA Forest Service General Technical Report RMRS-GTR-5, Rocky Mountain Research Station, U.S. Department of Agriculture, Fort Collins Colorado.

Sears, Roebuck and Company
1897 *Sears, Roebuck and Company Consumer Guide, Catalogue No. 104*. Chelsea House, New York.
1900 *Sears, Roebuck and Co. Consumers Guide Catalogue No. 110, Fall*. DBI Books, Northfield, Illinois.
1902 *Sears, Roebuck and Co. Company Catalogue No. 111*. Bounty Books, New York.
1909 *Sears, Roebuck and Company Consumers Guide, Catalogue No. 118*. Ventura Books, New York.
1927 *Sears, Roebuck and Company Catalogue*. Bounty Books, New York.

Sebastian, Lynne, and Signa Larralde
1989 *Living on the Land: 11,000 Years of Human Adaptation in Southeastern New Mexico*. U.S. Bureau of Land Management Cultural Resources Series No. 6, 1989. U.S. Bureau of Land Management, Santa Fe.

Seligman, Arthur
1933 Gov. Arthur Seligman Papers: New Deal Agencies, Civilian Conservation Corp. Reforestation Project, February–September 1933, Box 15, Folder 422.

Shephard, Stephen J.
1980 An Archaeological Model: Change in the Nineteenth-Century Middle Class. Paper presented at the annual meeting of the Society for American Archaeology, Philadelphia.

Sherman, Diana
2012 Analysis of 23 Cattle Skulls and Possible Consumption of Cattle Brains. In *Urban Archaeology in the Capitol Complex Historic Neighborhood, Santa Fe, New Mexico* by Matthew J. Barbour, pp. 285–292. Archaeology Notes 403. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

Shields, H.
1984 *Desert Plants: Recipes and Remedies*. Okesa Publications, Tularosa, New Mexico.

Short, C. W., and R. Stanley Brown
1939 *Public Buildings, A Survey of Architecture of Projects Constructed by Federal and Other Governmental Bodies between the Years 1933 and 1939 with the Assistance of the Public Works Administration*. U.S. Government Printing Office, Washington, DC.

Silverman, Jason
2006 *Untold New Mexico: Stories from a Hidden Past*. Sunstone Press, Santa Fe, New Mexico.

Simmons, Marc
1977 *Father Juan Agustin de Morfi's Account of Disorders in New Mexico, 1778.* Historical Society of New Mexico. Printed at St. Augustine Church, Isleta Pueblo, New Mexico.
1979a Settlement Patterns and Village Plans in Colonial New Mexico. In *New Spain's Far Northern Frontier: Essays on Spain in the American West*, edited by D. J. Weber, pp. 97–116. University of New Mexico Press, Albuquerque.
1979b History of Pueblo-Spanish Relations to 1821. In *Handbook of North American Indians*, vol. 9, Southwest, edited by A. Ortiz, pp. 178–193. Smithsonian Institution, Washington, D.C.
1985 The Chacóan Economic Report of 1803. *New Mexico Historical Review* 60(1):81–88.
1989 Santa Fe in the Days of the Trail. In *Santa Fe, History of An Ancient City,* edited by David Noble, pp.115–128. School of American Research Press, Santa Fe.
1990 *Spanish Government in New Mexico.* University of New Mexico, Albuquerque.

Skilnik, Bob
2006 *Beer: A History of Brewing in Chicago*. Barricade Books, New York.

Skinner, S, Alan, C. Shaw, C. Carter, M. Cliff, and C. Heathington
1980 *Archaeological Investigations at Nambe Falls*. Archaeological Research Program, Research Report 121, Department of Anthro-

pology, Southern Methodist University, Dallas.

Smith, G. I., and F. A. Street-Perrott
1983 Pluvial Lakes of the Western United States. In *Late Quaternary Environments of the United States, Volume 1, The Late Pleistocene* edited by S. C. Porter, pp. 190–212. University of Minnesota Press, Minneapolis.

Smith, J. P., Jr.
1977 *Vascular Plant Families*. Mad River Press, Inc., Eureka, California.

Smithsonian National Museum of Natural History Global Volcanism Program
2011 Smithsonian National Museum of Natural History Global Volcanism Program. http://www.volcano.si.edu/world/volcano.cfm?vnum=121002-D. Accessed February 2, 2012.

Snow, Cordelia T.
1989 The Egg and the Bow: Excavations of Spiegelberg No. 1, Santa Fe, New Mexico. Paper presented at the New Mexico Jewish Historical Society Meeting, Santa Fe.
1990 A Hypothetical Configuration of the Early Santa Fe Plaza Based on the 1573 Ordenanzas or the Law of the Indies. In *Santa Fe Historic Plaza Study I, with translations from Spanish Colonial Documents*, edited by Linda Tigges, pp. 55–74. Santa Fe Planning Department, Santa Fe.
1993 An Archaeological Reconnaissance at 105 Water Street, Santa Fe, New Mexico. Ms. on file, New Mexico Historic Preservation Division, Santa Fe.
1999 Archival Research. In *Preliminary Results of Archaeological Investigations and Archival Study at 60 East San Francisco Street, Santa Fe, New Mexico*, by Glenda Deyloff, pp. 14–35. Southwest Archaeological Consultants Research Series 442, Santa Fe.

Snow, Cordelia T. and David Kammer
1995 *Not Occupied since the Peace: The 1995 Archaeological and Historical Investigations at Historic Fort Marcy, Santa Fe, New Mexico*. Ms. on file, City of Santa Fe Planning Division.

Snow, David H.
1973 Some Economic Considerations of Historic Rio Grande Pueblo Pottery. In *Changing Ways of Southwestern Indians: A Historical Perspective*, edited by A. Schroeder, pp. 55–72. Rio Grande Press, Glorieta, New Mexico.
1982 The Rio Grande Glaze, Matte Paint, and Plainware Traditions. In *Southwestern Ceramics: A Comparative Review*, edited by A.H. Schroeder, pp. 235–278. The Arizona Archaeologist Vol. 15, Phoenix.
1988 *The Santa Fe Acequia System*. Planning and Land Use Department, City of Santa Fe, New Mexico.
1992 A Review of Spanish Colonial Archaeology in Northern New Mexico: Where We're At, As They Say. In *Current Research on the Late Prehistory and Early History of New Mexico*, edited by Bradley Vierra, pp. 185–194. New Mexico Archaeological Council, Special Publication No. 1. New Mexico Archaeological Council. Albuquerque.
1993 *Historical Overview and Archaeological Testing of a Lot near St. Theresa Clinic Building, Santa Fe Archdiocesan Property, Santa Fe, New Mexico*. Cross-Cultural Research Systems, Santa Fe.
1997 *Archaeological and Historical Investigations at El Castillo Retirement Residences, 250 E. Alameda, Santa Fe, New Mexico*. Cross-Cultural Research Systems, Santa Fe.
1999 The Pigs Running Loose in This Villa, Seventeenth-century Faunal Remains from Santa Fe's Historic Downtown District. In *Archaeology in Your Backyard*, pp. 45–52. Proceedings of a City of Santa Fe Symposium, Santa Fe.
2006 Historical Overview, 414 Old Santa Fe Trail: The Rio Chama Restaurant Property, Santa Fe, New Mexico. Ms. Prepared for ARCCOM. CCRS Contribution No. 266. Cross-Cultural Research Systems, Santa Fe.
2012 Historic Land Use and Occupation in and around LA 158037. In *Urban Archaeology in the Capitol Complex Historic Neighborhood, Santa Fe, New Mexico* by Matthew J. Barbour, pp. 321–324. Archaeology Notes 403. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

Snow, David H. and Matthew J. Barbour
2011 Archival Study of Land Use and Occupation at the First Judicial District Courthouse Complex Property, LA 156207. In *Archaeological Investigations at the Santa Fe Judicial Complex, Santa Fe, New Mexico*, by Steven

Lakatos, pp. 83–104. Archaeology Notes 424. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

Snow, David H. and Joanne V. Bowen
1995 *No Scum, No Vermin, Seventeenth-century Faunal Remains from Santa Fe's Downtown Historic District*. Report prepared for the City of Santa Fe, Archaeological Review Committee. On file, Office of Archaeological Studies Library, Santa Fe.

South, Stanley
1977 *Method and Theory in Historical Archaeology*. Academic Press, New York.

Spaulding, W.G., J. L. Betancourt, L. K. Croft, and K. L. Cole
1990 Packrat Middens: Their Composition and Methods of Analysis. In *Packrat Middens, the Last 40,000 Years of Biotic Change* edited by J. L. Betancourt. University of Arizona, Tucson.

Spicer, Edward
1962 *Cycles of Conquest*. University of Arizona Press, Tucson.

Spiegel, Z., and B. Baldwin
1963 *Geology and Water Resources of the Santa Fe Area, New Mexico*. U.S. Geological Survey Water-Supply Paper 1525.

Spude, Robert L.
2010 Progressive Santa Fe, 1880–1912. In *All Trails Lead to Santa Fe, An Anthology Commemorating the 400th Anniversary of the Founding of Santa Fe, New Mexico in 1610* edited by the 400th Anniversary of Santa Fe Book Committee, pp. 339–360. Sunstone Press, Santa Fe.

Starkovich, Britt M.
n.d. Faunal Analysis of the Santa Fe Railyard. On File, Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

Staski, Edward
1984 Just What Can a 19th-Century Bottle Tell Us? *Historical Archaeology* 18(1):38–51.

Steen, Charlie R.
1977 *Pajarito Plateau Archaeological Survey and Excavations*. Report LASL-77-4, Los Alamos Scientific Laboratory, Los Alamos.
1982 *Pajarito Plateau Archaeological Survey and Excavations, II*. Report LA-8860-NERP, Los Alamos National Laboratory, Los Alamos.

Steen, Charlie R. and Frederick C. V. Worman
1978 *Excavations on Mesita de los Alamos*. Report LA-7043-MS, Los Alamos Scientific Laboratory, Los Alamos.

Stevenson, James
1883 Illustrated Catalog of the Collections Obtained from the Indians of New Mexico and Arizona in 1879, pp. 307–422, In *Second Annual Report of the Bureau of Ethnology to the Smithsonian Institution*, 1880–1881, Washington.

Stevenson, M. C.
1915 *Ethnobotany of the Zuni Indians*. Thirtieth Annual Report of the Bureau of American Ethnology. Government Printing Office, Washington, D.C.

Stone, William J.
2001 Conceptual Hydrogeological Model of the Los Alamos Area—A Brief Overview. In *Water, Watersheds, and Land Use in New Mexico: Impacts of Population Growth on Natural Resources, Santa Fe Region 2001* edited by Peggy S. Johnson, pp. 21–24. New Mexico Bureau of Mines and Mineral Resources, Socorro.

Stuart, David E. and Rory P. Gauthier
1981 *Prehistoric New Mexico: Background for Survey*. Historic Preservation Bureau, Santa Fe.

Stubbs, Stanley A.
1954 Summary Report on an Early Pueblo Site in the Tesuque Valley, New Mexico. *El Palacio* 61(2):43–45.

Stubbs, Stanley A. and Bruce T. Ellis
1955 *Archaeological Investigations at the Chapel of San Miguel and the Site of La Castrense, Santa Fe, New Mexico*. Monographs of the School of American Research 18, Santa Fe.

Stubbs, Stanley A. and W. S. Stallings Jr.
1953 *The Excavation of Pindi Pueblo New Mexico*. Monographs of the School of American Re-

search and the Laboratory of Anthropology No. 18, Santa Fe.

Stuiver, M., P. M. Grootes, and T. F. Braziunas.
1995 The GISP2 18O Climate Record of the Past 16,500 Years and the Role of the Sun, Ocean, and Volcanoes. *Quaternary Research* 44:341–354.

Sullivan, Michael Ann
2004 Establishment of Los Alamos National Laboratory, 1943. Manuscript on file with the New Mexico Office of the State Historian, New Mexico State Record Center and Archives, Santa Fe.

Swetnam, T. W., C. D. Allen, and J. L. Betancourt
1999 Using the Applied Historical Ecology: Using the Past to Manage for the Future. *Ecological Applications* 9:1189–1206.

Sweet, M.
1976 *Common and Useful Plants of the West*. Naturegraph Company, Healdsburg, California.

Sze, Corinne P. and Beverly Spears
1988 *Santa Fe Historic Neighborhood Study*. City of Santa Fe.

TANM (Territorial Archive of New Mexico)
1848–1912 Microfilm Papers, Correspondence, and Government Transactions of New Mexico's Territorial Period. New Mexico Records and Archive, Santa Fe.

Taylor, K. C., P. A. Mayewski, R. B. Alley, E. J. Brook, A. J. Gow, P. M. Grootes, D.A. Meese, E. S. Saltzman, J. P. Severinghaus, M. S. Twickler, J. W. C. White, S. Whitlow, G. A. Zielinski
1997 The Holocene-Younger Dryas Transition Recorded at Summit, Greenland. *Science* 278:825–827.

Thein, S. J.
1979 A Flow Diagram for Teaching Texture-by-Feel Analysis. *Journal of Agronomic Education* 8:54–55.

Tomanova, E.
1986 *The Wild Flowers Book*. Galley Press, England.

Thomas, Chris D.
2005 Recent Evolutionary Effects of Climate Change In *Climate Change and Biodiversity* edited by Thomas E. Lovejoy and Lee Hannah. Yale University Press, New Haven and London.

Thoms, Alston V.
1977 *A Preliminary Projectile Point Typology for the Southern Portion of the Northern Rio Grande Region*. Unpublished Master's thesis, Department of Anthropology, Texas Tech University, Lubbock

Thomson, W. A. R. (editor)
1978 *Medicines From the Earth, A Guide to Healing Plants*. Harper & Row, San Francisco, California.

Thornbury, William D.
1954 *Principles of Geomorphology*. John Wiley & Sons, Inc. New York.

Tigges, Linda
1990 *Santa Fe Historic Plaza Study I, with Translations from Spanish Colonial Documents.* Santa Fe City Planning Department, Santa Fe.

Touchan, R., C. D. Allen, and T. W. Swetnam
1996 Fire History and Climatic Patterns in Ponderosa Pine and Mixed-Conifer Forests of the Jemez Mountains, Northern New Mexico. In *Fire Effects in Southwestern Forest: Proceedings of the Second La Mesa Fire Symposium* edited by C. D. Allen, pp. 33–46. Gen. Technical Report RM-GTR-286. United States Department of Agriculture Forest Service, Fort Collins, Colorado.

Toulouse, Betty
1977 *Pueblo Pottery of the New Mexico Indians; Ever Constant Ever Changing.*. Museum of New Mexico Press, Santa Fe.

Toulouse, Julian H.
1969a A Primer on Mold Seams. *Western Collector* Nov.–Dec., pp. 1–24.
1969b *Fruit Jars*. Thomas Nelson and Everybodys Press, Nashville, Tennessee, and Hanover, Pennsylvania.
1971 *Bottle Makers and Their Marks*. Thomas Nelson, New York.

Toussaint-Samat, M.
1992 *A History of Food*. Blackwell Publishers, Cambridge.

Treiman, Alan
2003 Valles Grande Caldera: Geologic History 1. Lunar and Planetary Institute webpage. http://www.lpi.usra.edu (accessed Dec. 12, 2011).

Tuan, Yi-Fu, and Cyril E. Everard
1973 *The Climate of New Mexico*. State Planning Office, Santa Fe.

Turnbow, Christopher A.
1997 Projectile Points as Chronological Indicators. In *OLE Volume II: Artifacts*, edited by John C. Acklen, pp.161–230. Report submitted to Public Service Company of New Mexico by TRC Mariah Associates, Inc. Albuquerque.

Twitchell, Ralph E.
1925 *The Story of New Mexico's Ancient Capital: Old Santa Fe*. Rio Grande Press, Chicago.
1963 *Leading Facts of New Mexican History*. Horn & Wallace Publishers. Albuquerque.

U.S. Department of Agriculture Natural Resource Conservation Service
2011 Plants Database. http://plants.usda.gov/java/ (accessed Oct. 16, 2011).
2013 http://www.nrcs.usda.gov/wps/portal/nrcs/site/national/home (accessed Feb. 15, 2013).

U.S. Department of the Interior Geological Survey
1977 Santa Fe, New Mexico. 7.5′ Series Topographic Quadrangle Map, 1:24,000

University of Michigan
1993 Native American Ethnobotany. http://www-personal.umd.umich.edu/~dmoerman/about_ethnobot.pdf (accessed Feb. 2, 2012).

Van Devender, T. R.
1990. Late Quaternary vegetation and climate of the Chihuahuan Desert, United States and Mexico, pp. 104–133 *in* J. L. Betancourt, T. R. Van Devender, and P. S. Martin (eds.), *Packrat middens. The Last 40,000 Years of Biotic Change*, Univiversity of Arizona Press, Tucson.

Van Devender, Thomas R., Julio L. Betancourt, and Mark Wimberley
1984 Biogeographic Implications of a Packrat Midden Sequence from the Sacramento Mountains, South-Central New Mexico. *Quaternary Research* 22(3):344–360.

Van Devender, Thomas R., and W. Geoffrey Spaulding
1979 Development of Vegetation and Climate in the Southwestern United States. *Science* 204:701–710.

Van Ness, John R.
1987 Hispanic Land Grants: Ecology and Subsistence in the Uplands of Northern New Mexico and Southern Colorado. In *Land, Water, and Culture: New Perspectives on Hispanic Land Grants*, edited by C. L. Briggs and J. R. Van Ness, pp. 141–216. University of New Mexico Press, Albuquerque.

Vietor, Richard H. K.
1994 *Contrived Competition: Regulation and Deregulation in America*. Belknap Press, Harvard University, Cambridge, Massachusetts.

Viklund, Lonyta
1996 *Results of Monitoring at 418 Sandoval Street, Santa Fe, New Mexico*. SW No. 407. Southwest Archaeological Consultants, Santa Fe.
2001 *Final Results of Archaeological Investigations of the Lensic Property, Santa Fe, New Mexico*. Southwest Archaeological Consultants Research Series 440d. Southwest Archaeological Consultants, Santa Fe.

Villanueva, Josè D., Julian P. Ceraño, Dave W. Stahle, Brian H. Luckman, Matthew D. Therrell
2006 Historical Droughts in North-Central Mexico. North American Drought Monitor Workshop. Mexico City, Mexico, October 18–19, 2006.

Von den Driesch, Angela
2004 *A guide to the measurement of animal bones from archaeological sites: as developed by the Institut für Palaeoanatomie, Domestikationsforschung und Geschichte der Tiermedizin of the University of Munich*. Vol. 1. Peabody Museum of Archaeology and Ethnology, Harvard University.

Vronsky and Westerman
1998 1998/99 Prognosis Based Upon 1929 Market Autopsy, Gold Eagle.

Warren, A. Helene
1979a The Glaze Paint Wares of the Upper Middle Rio Grande. In *Archaeological Investigations in Cochiti Reservoir, New Mexico*, Vol. 1, A Survey of Regional Variability, edited by J. V. Biella and R. C. Chapman. University of New Mexico, Office of Contract Archaeology, Albuquerque.
1979b Historic Pottery of the Cochiti Reservoir Area. In *Archaeological Investigations in Cochiti Reservoir, New Mexico,* Vol. 4, edited by J. V Biella and R. C. Chapman, pp. 235–245. University of New Mexico, Office of Contract Archaeology, Albuquerque.
1979c The Glaze Paint Wares of the Upper Middle Rio Grande. In *Archaeological Investigations in Cochiti Reservoir, New Mexico*, Vol. 4, *Adaptive Change in the Northern Rio Grande Valley*, edited by J. V. Biella and R. C. Chapman, pp. 149–168. University of New Mexico, Office of Contract Archaeology, Albuquerque.
1981 The Micaceous Pottery of the Rio Grande. In *Collected Papers In Honor of Eric Kellerman Reed: Papers of the Archaeological Society 6*, edited by A.H. Schroeder, pp. 148–166. Albuquerque Archaeological Society Press, Albuquerque.

Waters, Michael R., and C. Vance Haynes
2001 Late Quaternary Arroyo Formation and Climate Change in the American Southwest. *Geology* 29(5):399–340.

Weaver, Andrew J., Oleg A. Saenko, Peter U. Clark, and Jerry X. Mitrovica
2003 Meltwater Pulse 1A from Antarctica as a Trigger of the Bolling-Allerod Warm Interval. *Science* 299:1709–1713.

Weber, David J.
1992 *The Spanish Frontier in North America*. Yale University Press, New Haven, Connecticut.

Weber, W. A.
1976 *Rocky Mountain Flora*. Colorado Associate University Press, Boulder, Colorado.

Wieder, Moshe, and D. H. Yaalon
1982 Micromorphological fabrics and developmental stages of carbonate nobular forms related to soil characteristics. *Geoderma* 28(3):203–220.

Weiner, M. A.
1990 *Wiener's Herbal*. Quantum Books, Mill Valley, California.

Wendorf, Fred
1954 *Salvage Archaeology in the Chama Valley, New Mexico*. School of American Research Monograph No.17, Santa Fe.

Wendorf, F., and J. J. Hester (editors)
1975 *Late Pleistocene environments of the Southern High Plains*. Fort Burgwin Research Publication 9. Southern Methodist University.

Wendorf, F., and A. D. Krieger
1959 New light on the Midland discovery. *American Antiquity*, 25, 66–78.

Wendorf, Fred, and Erik Reed
1955 An Alternative Reconstruction of Northern Rio Grande Prehistory. *El Palacio* 62:131–173.

Wetherington, Ronald K.
1968 *Excavations at Pot Creek Pueblo*. Fort Burgwin Research Center Report No. 6, Taos.

Western Regional Climate Center
2011 Western Regional Climate Center. http://www.wrcc.dri.edu (accessed May 12, 2011).

Westphall, Victor
1965 *The Public Domain in New Mexico 1854–1891*. University of New Mexico Press, Albuquerque.
1983 *Mercedes Reales*. New Mexico Land Grant Series. University of New Mexico Press, Albuquerque.

Westrich, L.
1989 *California Herbal Remedies*. Gulf Publishing Company, Houston, Texas.

Weideman, Paul
2008 *Santa Fe New Mexican*, 05/01/2008–05/02/2008, The Santa Fe New Mexican and Media Span, Santa Fe, New Mexico.

Welsh, Michael E.
1985 A Mission in the Desert. On file, Albuquerque District, Corps of Engineers.

1995 *Dunes and Dreams: A History of White Sands National Monument*. Professional Paper No. 55. National Park Service, Division of History, Intermountain Cultural Resources Center. Santa Fe.

Wenker, Chris T.
2005a *Santa Fe Railyard Archaeological Testing: Preliminary Report*. Archaeology Notes 352. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.
2005b *Archaeological Testing Results in the Santa Fe Railyard Park: Preliminary Report*. Archaeology Notes 352B. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.
2006a *The Santa Fe Railyard and Railyard Park: Preliminary Report of Data Recovery Results at Five Historical Sites (LA 146410, LA 146411, LA 146412, LA 149909, and LA 149912)*. Archaeology Notes 359E. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.
2006b *The Santa Fe Railyard Park: Preliminary Report of Data Recovery Results at Five Historical Sites (LA 120957, LA 149909, LA 149912, LA 149913, and LA 149915)*. Archaeology Notes 359F. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.
2006c Archaeological Testing Results in the Santa Fe Railyard near Alarid Street: Preliminary Report. Archaeology Notes 352C. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

Wenker, Chris T. and Charles A. Hannaford
2005a *The Santa Fe Railyard: Preliminary Report of Data Recovery Results at Four Historical Sites in the North Railyard (LA 146403, LA 146405, LA 146407, and LA 146408)*. Archaeology Notes 359A. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.
2005b *The Santa Fe Railyard: Archaeological Research Design and Data Recovery Plan for the North and South Guadalupe and Baca Street Development Parcels*. Archaeology Notes 354b. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

Wenker, Chris T., Stephen S. Post, and James L. Moore
2005 *The Santa Fe Railyard: Archaeological Research Design and Data Recovery Plan for the North and South Guadalupe and Baca Street Development Parcels.* Archaeology Notes 354. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

Westphall, Victor
1983 *Mercedes Reales: Hispanic Land Grants of the Upper Rio Grande Region*. University of New Mexico Press, Albuquerque.

Whiting, Alfred E.
1966 *Ethnobotany of the Hopi*. Northland Press. Originally published in 1939 as Museum of Northern Arizona Bulletin 15.

Wikipedia.org
2013a Aerosol spray. http://en.wikipedia.org/wiki/Aerosol_spray (accessed February 15, 2013).
2013b The Hermitage (Nashville, Tennessee). http://en.wikipedia.org/wiki/The_Hermitage_ (accessed February 12, 2013).

Wieder, Moshe, and D. H. Yaalon
1982 Micromorphological Fabrics and Developmental Stages of Carbonate Nodular Forms Related to Soil Characteristics. *Geoderma* 28(3–4):203–220.

Williams, Jerry L. (editor)
1986 *New Mexico in Maps*, 2nd ed. University of New Mexico Press, Albuquerque.

Wilmsen, Edwin N.
1974 Lindenmeier: A Pleistocene Hunting Society. Harper & Row, New York.

Wilson, Christopher
1981 The Santa Fe, New Mexico Plaza: An Architectural and Cultural History, 1610–1921. Unpublished Master's thesis, University of New Mexico, Albuquerque.
1997 *The Myth of Santa Fe: Creating a Modern Regional Tradition*. University of New Mexico Press. Albuquerque.

Wilson, C. Dean
2000 Ceramic report for Nambe Project. Ms. on file, Office of Archaeological Studies, Museum of New Mexico, Santa Fe.
2003 A Reappraisal of the Nature and Significance of Spatial Distributions of Pottery from Sites in the Northern Southwest. In *Anasazi Archaeology at the Millennium: Proceedings of the Sixth Occasional Anasazi Symposium,* edited by Paul F. Reed, pp. 129–136.

Center for Desert Archaeology, Tucson, Arizona.
2004 Ceramic Analysis for the Peña Blanca Project. Ms. on file, Office of Archaeological Studies, Museum of New Mexico, Santa Fe.
2007 Insights from Powhoge Polychrome at Archaeological Sites. In *Texas and Points West; Papers in Honor of John A. Hedrick and Carrol P Hedrick*, edited by R. N. Wiseman, T. C. O'Laughlin, and C. T. Snow, pp. 175–185. Archaeological Society of New Mexico Papers 33, Albuquerque.
2011a Historic Indigenous Ceramic Types. In *Settlers and Soldiers: The Historic Component at El Pueblo de Santa Fe (LA 1051*) by S. C. Lentz and M. J. Barbour, pp. 223–335. Office Archaeology Notes 410, Office of Archaeological Studies, Santa Fe.
2011b Native American Ceramics. In *Results of Archaeological Monitoring at the First Judicial District Complex, Santa Fe, New Mexico*, by S. A. Lakatos, pp. 57–58. Office of Archaeological Studies notes 428, Office of Archaeological Studies, Santa Fe.

Winship, George P.
1896 *The Coronado Expedition: 1540–1542.* Annual Report 14, Part 1. Bureau of American Ethnology, Washington, D.C.

Wiseman, Regge N.
1988 *Pottery Production for the Spanish: A Preliminary Analysis of the Indian-Made Ceramics Recovered by the La Fonda Project, Santa Fe, New Mexico*. Laboratory Notes 499. Museum of New Mexico, Santa Fe.
1989 *The KP Site and Late Developmental Period Archaeology in the Santa Fe District*. Laboratory of Anthropology Notes 494. Museum of New Mexico, Santa Fe.
1992 *Early* Spanish Occupation of Santa Fe: Excavations at the La Fonda Parking Lot. In *Current Research on the Late Prehistory and Early History of New Mexico* edited by Bradley J. Vierra, pp. 207–214. New Mexico Archaeological Council, Special Publication No. 1. University of New Mexico, Albuquerque

Wintle, A. G., and A. S. Murray
2006 A Review of Quartz Optically Stimulated Luminescence Characteristics and Their Relevance in Single-Aliquot Regeneration Dating Protocols. *Radiation Measurements* 41:369–391.

Wood, C., and D. J. Smith
2004 Dendroglaciological Evidence for Neoglacial Advance of Saskatchewan Glacier, Banff National Park, Canadian Rocky Mountains. *Tree-ring Research* 60:59–65.

Woodmency, Jim
2001 *Weather in the Southwest*. Southwest Parks and Monuments Association, Tucson.

Woosley, Anne I., and Bart Olinger
1990 Ethnicity and the Production of Micaceous Ware in the Taos Valley. In *Clues to the Past: Papers in Honor of William M. Sundt*, edited by Meliha S. Duran and David T. Kirkpatrick. Papers of the Archaeological Society of New Mexico No. 16. New Mexico Archaeological Society, Albuquerque.

Wooten, E. O.
1908 *The Range Problem in New Mexico.* Agriculture Experiment Station Bulletin No. 66. New Mexico College of Agriculture and Mechanic Arts, Las Cruces.

Wozniak, Frank
1987 *Irrigation in the Rio Grande Valley, New Mexico: A Study of the Development of Irrigation Before 1945.* Prepared for the New Mexico Historic Preservation Division, Santa Fe, New Mexico.

Wroth, William
2010 Barrio de Analco, the Roots in Mexico and Role in Ealy Colonial Santa Fe, 1610–1780. In *All Trails Lead to Santa Fe, An Anthology Commemorating the 400th Anniversary of the Founding of Santa Fe, New Mexico in 1610* edited by the 400th Anniversary of Santa Fe Book Committee, pp. 163–178. Sunstone Press, Santa Fe.

Wueschner, Silvano A.
1999 *Charting Twentieth-Century Monetary Policy: Herbert Hoover and Benjamin Strong, 1917–1927*. Greenwood Press, Westport, CT.

Zomlefer, W. B.
1994 *Guide to Flowering Plants Families*. University of North Carolina Press, Chapel Hill, NC.

Appendix 1
Site Location Information

LA 158037

Unplatted land in Santa Fe, New Mexico;
UTM Zone 13 (NAD 83), E 414780, N 3949133;
USGS 7.5′ Santa Fe quadrangle (2002).

Appendix 2

Tables

Table 4.1. U.S. census record listings for families living within or adjacent to LA 158037.

Name	Relation	Age	Sex	Occupation
1880				
Jacob Esselbach	Head	40	M	Store Clerk
Julia Esselbach	Wife	38	F	Housekeeper
Arthur Esselbach	Son	7	M	–
Rudolph Esselbach	Son	4	M	–
Bertha Esselbach	Daughter	3	F	–
Patrick Garrett	Head	29	M	Farmer
Polinesia Garrett	Wife	20	F	Housekeeper
Andreas A. Romero	Head	19	M	Student
1900				
Guadalupe Chavez	Head	50	F	Nurse
Frederick Muller	Head	36	M	Farmer
Adella Muller	Wife	20	F	Housekeeper
Fritz Muller	Son	7	M	–
Alfred Muller	Son	5	M	–
Adella Muller	Daughter	2	F	–
Theodore Muller	Son	1	M	–
Pedro Barranca	Boarder	45	M	Servant
Desidero Romero	Head	65	F	Day Laborer
1910				
Ricardo Alarid	Head	46	M	Justice of the Peace
Socorro Alarid	Wife	32	F	–
Jacob Alarid	Son	6	M	–
Ricardo Alarid	Son	4	M	–
Estela Alarid	Step-daughter	1	F	–
Campbell (only name listed)	Boarder	31	M	Gardener
Miguel Chavez	Head	54	M	Stock Rusier (?)
Elizabeth (Lizzie) Chavez	Wife	44	F	–
Jose Asmijo	Boarder	56	M	Servant
Frederick (Fred) Muller	Head	47	M	U.S. Land Office
Adella Muller	Wife	40	F	–
Fred Muller	Son	18	M	–
Alfred Muller	Son	16	M	–
Adella Muller	Daughter	14	F	–
Theodore Muller	Son	12	M	–
Mulkin Muller	Son	8	M	–
Elsie Muller	Daughter	5	F	–
Luis Napoleon	Head	46	M	Works at Home
Emilia Napolean	Wife	38	F	Housekeeper
Arthur Speann	Head	38	M	–
1920				
Ricardo (Richard) Alarid	Head	56	M	Deputy Sheriff
Socorro Alarid	Wife	42	F	–
Ricardo Alarid	Son	18	M	–
Jim Alarid	Son	17	M	–
Jacob Alarid	Son	12	M	–

Table 4.1. (continued)

Name	Relation	Age	Sex	Occupation
Miguel Chavez	Head	63	M	Real Estate Agent
Elizabeth (Lizzie) Chavez	Wife	53	F	–
Frank W. Parker	Head	59	M	Attorney at Law
Anna D. Parker	Wife	50	F	–
Lillian P. Martin	Daughter	26	F	–
Frank W. Martin	Grandson	13	M	–
Frederick Muller	Head	56	M	Assistant Land Office
Adella Muller	Wife	46	F	–
Adella Muller	Daughter	23	F	Fryfirst Office
Theodore R. Muller	Son	20	M	Garage Mechanic
William G. Muller	Son	17	M	–
Elsie M. Muller	Daughter	14	F	–
Luis Napoleon	Head	55	M	Stone Mason Contractor
Emilia Napoleon	Wife	43	F	–
1930				
Amadeo Alarid	Head	60	M	–
Reyes Alarid	Wife	48	F	–
Arturo Alarid	Son	19	M	–
Amando Alarid	Son	16	M	–
Fred Alarid	Son	13	M	–
Leopolodo Alarid	Son	11	M	–
Ricardo (Richard) Alarid	Head	66	M	Superintendant Hwy. Dept.
Socorro Alarid	Wife	52	F	–
Peter C. Alarid	Grandson	3	M	–
Dolores Alarid	Granddaughter	1	F	–
William Beacham	Head	60	M	Hardware Merchant
Lenore Beacham	Wife	55	F	–
Roger William Birdseye	Head	40	M	Advertising
May Birdseye	Wife	41	F	–
Joan Birdseye	Daughter	2	F	–
Roy E. Butler	Head	32	M	Plumber
Clara Butler	Wife	27	F	–
Jean C. Butler	Daughter	4	F	–
Helen C. Butler	Daughter	1	F	–
James A. Carruth	Head	70	M	None
J. W. Chapman	Head	40	M	Lawyer, Private Practice
Mary M. Chapman	Wife	33	F	Chief Clerk, Bank
Julia Del Chapman	Daughter	8	F	–
Mary M. Chapman	Daughter	7	F	–
Jaspar W. Elliot	Head	35	M	Northern Pueblo Agency
Kora Elliot	Wife	33	F	–
Joan May Elliot	Daughter	4	F	–
Sybil Ervein	Head	37	F	Private Secretary
Shirley Ervein	Daughter	9	F	–
Howell Ervein	Son	8	M	–
Robert J. Hill	Head	54	M	Insurance Agent
Lottie M. Hill	Wife	41	F	–
Warren Hill	Son	18	M	–
Gail Hill	Son	11	M	–
Ralph Hill	Son	9	M	–

Table 4.1. (continued)

Name	Relation	Age	Sex	Occupation
Iris Hill	Daughter	8	F	–
Frederick Muller	Head	67	M	Chief Clerk, Land Office
Adella Muller	Wife	60	F	–
Elsie Muller	Daughter	25	F	–
Frank W. Parker	Head	69	M	Justice, Supreme Court
Anna D.	Wife	59	F	–
Frank W. Parker, Jr.	Son	23	M	Cartographer, Land Office
Frances B. Parker	Daughter-in-law	23	F	–
Romancita M. Romero	Head	52	F	Widow
Ramon Romero	Head	24	M	Truck Driver
Erma Romero	Wife	19	F	–
William G. Sargent	Head	62	M	DeVargas Hotel Employee
Dora Sargent	Wife	47	F	–
Jack Sargent	Son	15	M	–
George W. Streit	Husband	31	M	Banking
Frances Streit	Wife	27	F	–
Kate F. Hall	Mother-in-law	74	F	Widow
John C. Watson	Head	53	M	Justice, Supreme Court
Doris Watson	Wife	54	F	–
Alice R. Lyon	Lodger	45	F	Manager, Nat'l Gourmet
Edgar Baskam	Lodger	25	M	Salesman, grocery store
Amerson A. Watts	Head	31	M	State Treasurer (?)
Gertrude Watts	Wife	29	F	–
Dale Watts	Son	6	M	–
Joan Watts	Daughter	4	F	–
		1940		
Richard Alarid	Head	37	M	Barber, Self-Employed
Carmen Alarid	Wife	32	F	–
Pete Alarid	Son	12	M	–
Dolores Alarid	Daughter	11	F	–
Ira Anderon	Head	37	M	Bedspread Mill Stamper
Myrtle Anderson	Wife	32	F	Bedspread Machine Operator
Edna Anderson	Daughter	14		–
Fred G. Ball	Head	36	M	Accountant
Frances A. Ball	Wife	42	F	–
Fred G. Ball, Jr.	Son	19	M	–
Virginia Mertoga	Lodger	23	F	Asst. Secretary, State Gov.
Ellon Windsor	Lodger	24	F	Secretary
Ben Monfort	Lodger	34	M	Salesman, Peanut Co.
William Beacham	Head	71	M	–
Lenore Beacham	Wife	64	F	–
Cranfield H. Douthirt	Head	54	M	Physician, State Gov.
Kenk Douthirt	Wife	47	F	–
Fidel Duran	Head	45	M	Guard, State Government
Matilda Duran	Wife	44	F	Laundress
Bob Duran	Son	18	M	–
Vera Duran	Daughter	17	F	–
Marcela Duran	Daughter	15	F	–
Pauline Duran	Daughter	11	F	–

Table 4.1. (continued)

Name	Relation	Age	Sex	Occupation
Tony Chavez	Brother-in-law	24	M	Clerk, State Government
Isolene Gilbert	Head	50	M	Lodging
Ernest Gilbert	Brother	55	M	State Auditor
Julia Gilbert	Sister-in-law	50	F	–
Cecil Gilbert	Nephew	17	M	–
Marjorie Gilbert	Niece	14	F	–
Jennie Vandorn	Lodger	37	F	Hotel Housekeeper
Clara Dell	Lodger	14	F	–
Elsie Worlise	Lodger	37	F	Waitress
Alfred E. Hickmott	Head	44	M	Superintendant, Laundry
Nora Hickmott	Wife	35	F	–
Dolmos Hickmott	Son	6	M	–
Gus Kahn	Head	58	M	Shoe store, Owner
Martha M. Kahn	Wife	55	F	Cashier
Walter Kahn	Son	22	M	Manager, Shoe Store
Albert M. Kahn	Son	25	M	Bookkeeper
Rose S. McGill	Head	49	F	Clerical, State Government
Priscilla McGill	Daughter	19	F	Stenographer, Mining Co.
Adela Muller	Head	70	F	Widow
Ted Muller	Son	40	M	Carpenter
Anne Stinson	Head	41	F	Seamstress
Anna J. Stinson	Daughter	23	F	Telephone Operator
Edgar L. Wheeler	Head	63	M	Carpenter
Alta Wheeler	Wife	58	F	–

Table 4.2. Hudspeth City of Santa Fe Directory entries for occupants living within LA 158037.

Address	Dates	Occupant	Status	Profession
102 South Capitol	1934–1935	Feld, H. L.	renter	Assistant Manager, Santa Fe Book Stat. Co.
102 South Capitol	1936–1937	Kreasch, F. A.	renter	Jeweler
102 South Capitol	1938–1941	Horne, C. F.	renter	Office Engineer, NM Highway Planning & Survey
102 South Capitol	1942–1943	Burnett, R. B.	renter	Agent, Magnolia Petroleum Co.
102 South Capitol	1944–1948	Smith, L. W.	renter	Guard, Brims General Hospital
102 South Capitol	1949–1950	Conarty, Lewers R.	renter	Commissioner, NM Public Service Commission
102 South Capitol	1951–1952	Marshall, Joy	renter	unknown
102 South Capitol	1953–1960+	Hamlett, Cath, Mrs.	owner	Supervisor, State Land Office
104 South Capitol	1951–1960+	Apartments 1–8	renters	NA
112 South Capitol	1932–1933	Tyler, W. C.	renter	Owner, Tyler's Drug Store
116 South Capitol	ca. 1928–1941	Beacham, William	owner	President, Beacham-Minardot Hardware
116 South Capitol	1942–1957	Beacham, Leonore M., Mrs.	owner	Widow
116 South Capitol	1959–1960+	State Directory of Surplus Property	renter	State Office
116 South Capitol	1959–1960+	State Department Division of Indian Education	renter	State Office
116 South Capitol	1959–1960+	Division of Science, Math and Foreign Languages	renter	State Office
120 South Capitol	ca. 1928–1929	Lamb, Charles	renter	Clerk, State Corporation Commission
120 South Capitol	1930–1943	Butler, Roy E.	renter	Plumber
120 South Capitol	1930–1943	Butler & Foley Plumbers	renter	Business
120 South Capitol	1944–1946	Turner, Arthur	renter	unknown
120 South Capitol	1947–1948	Nelson, C. R.	renter	Engineer, State Highway Department
120 South Capitol	1949–1957	Compton, Jas. C.	owner	U.S. Army
120 South Capitol	1958–1960+	State Educators Retirement Building	renter	State Office
122 South Capitol	ca. 1928–1929	Hill, R. J.	unknown	Insurance Agent
122 South Capitol	1930–1933	Flores, A. R.	renter	Student
122 South Capitol	1934–1937	Fidel, J. N.	renter	Fidel Brothers Co.
122 South Capitol	1938–1939	Russel, D. M.	renter	Mining
122 South Capitol	1940–1948	vacant	NA	NA
122 South Capitol	1949–1956	Contractor License Board	renter	State Office
122 South Capitol	1957–1960+	Albuquerque Journal	renter	Business
122 South Capitol	1957–1960+	Merit System Council	renter	Business
130 South Capitol	ca. 1928–1935	Watson, J. C.	renter	Justice, NM Supreme Court
130 South Capitol	1936–1937	Flores, Sarah, Mrs.	renter	unknown, Boarding House
130 South Capitol	1938–1939	Burrus, R. E.	renter	unknown
130 South Capitol	1940–1943	vacant	NA	NA
130 South Capitol	1944–1954	Boswell, William W.	owner	unknown
130 South Capitol	1955–1956	Moyers, Erma H., Mrs.	renter	Office Manager, NM Education Association
130 South Capitol	1957–1960+	NM Education Association	renter	State Office
130 South Capitol	1959	Horace Mann Insurance Co.	renter	Business
130 South Capitol (rear)	1947–1950	Boswell, William H., Jr.	owner	Manager, Deluxe Cab Co.
130 South Capitol (rear)	1951–1952	Aker, Harold & Black, Jas.	renter	Aker-Salesman, Jas-Assistant Unit Instructor US Org. Reserves
130 1/2 South Capitol	1951–1952	Black, Jas. H.	renter	Assistant Unit instructor, US Org. Reserves
130 1/2 South Capitol	1953–1954	Lamborne, Robert	renter	Spotter, A-1 Cleaners
130 1/2 South Capitol	1955	vacant	NA	NA

Table 4.2. (continued)

Address	Dates	Occupant	Status	Profession
134 South Capitol	ca. 1928–1929	Yerex, Lowell	unknown	unknown
134 South Capitol	1930–1931	Elliott, J. W.	renter	Superintendent, NM Northern Pueblo Indian Agency
134 South Capitol	1932–1933	Carter, E. M., Mrs.	renter	Widow
134 South Capitol	1934–1935	Prichard, G. W.	renter	Lawyer
134 South Capitol	1936–1937	Miera, M. F.	renter	unknown
134 South Capitol	1938–1950	Ball, Fred G.	owner	unknown
134 South Capitol	1955–1957	Kirby, Jennie M., Mrs.	renter	Widow of Franklin
134 South Capitol	1958–1960+	State Proration Mtr Carriers	renter	State Office
134 1/2 South Capitol	1949–1950	Wallace, Jas. L.	renter	Assistant engineer, NM Power
134 1/2 South Capitol	1951–1952	Chumbres, Peter	renter	Assistant State Attorney General
134 1/2 South Capitol	1958–1960+	Ripley, Edward P.	renter	Lawyer
134 1/2 South Capitol	1958–1960+	Mullins, Robert J.	renter	Investor
134 1/2 South Capitol	1958–1960+	Chapman, John W.	renter	Lawyer
138 South Capitol	ca. 1928–1929	Chavez, Miguel	unknown	Real Estate
138 South Capitol	1930–1931	Chapman, J. W.	renter	Attorney, State Tax Commission
138 South Capitol	1932–1933	vacant	NA	NA
138 South Capitol	1934–1935	Owen, A. H.	renter	Pastor, First Baptist Church
138 South Capitol	1936–1937	Bickel, T. W.	renter	Muller's Garage, Studebaker Cars
138 South Capitol	1938–1948	Gilbert, Ernest	renter	Auditor, Sales Tax Division, Bureau of Revenue
138 South Capitol	1949–1952	State Ins. Comnr.	renter	State Office
138 South Capitol	1953–1957	State Highway Department	renter	State Office
138 South Capitol	1958–1960+	Mtr. Vehicle Div. Finance. Resp.	renter	State Office
138 South Capitol	1958–1960+	State Bureau of Revenue	renter	Drivers License Section
138 South Capitol	1960+	State Dept. of Educ. Natl. Def.	renter	State Office
138 South Capitol	1960+	Div. of Science, Math, For. Lang.	renter	State Office
138 South Capitol	1960+	Educe School Lunch Div.	renter	State Office
402 Don Gaspar	1930–1931	vacant	NA	NA
402 Don Gaspar	1932–1933	McDonnell, J. J.	renter	unknown
402 Don Gaspar	1934–1937	McGill, W. F.	renter	Lumberman
402 Don Gaspar	1938–1960+	McGill, Rose S., Mrs.	renter	Widow of W F
402 Don Gaspar	1947–1948	Bryan, Zell	renter	unknown
402 Don Gaspar	1949–1950	McCauley, Robert	renter	unknown
406 Don Gaspar	1930–1931	Watts, E. A.	owner	NM State Treasurer
406 Don Gaspar	1932–1933	Kingsley, P. F.	renter	State Agent, Fireman's Fund Insurance
406 Don Gaspar	1934–1950	Outhit, Canfield H.	renter	Director, County Health and State Bureau of Public Health
406 Don Gaspar	1951–1952	Martin, Mary E., Mrs.	owner	Widow, Secretary Treasurer Modern Construction Co.
406 Don Gaspar	1953–1954	Sunman, Loren L.	renter	Painter
406 Don Gaspar	1955–1956	Beatty, George R.	renter	Assistant Engineer, State Highway Department
406 Don Gaspar	1957	Meador, Raw W.	renter	Secretary and Executive Assistant, State Tax Commission
406 Don Gaspar	1958–1960+	Fidel, Victor	renter	Owner, Vic's Mobil Service Station
410 Don Gaspar	1930–1931	Streit, George	renter	unknown
410 Don Gaspar	1932–1933	Brown, A. K., Mrs.	renter	Widow of C.T.
410 Don Gaspar	1934–1937	Luchini, B. D.	renter	unknown
410 Don Gaspar	1938–1941	Worden, G. F.	renter	State Land Commission
410 Don Gaspar	1942–1943	Shepard, Guy	renter	State chairman, Democratic State Headquarters
410 Don Gaspar	1944–1956	Lusk, Georgia L Mrs.	owner	unknown
410 Don Gaspar	1957–1958	Stotts, David C.	renter	Service manager, Schneider Buick Co.
410 Don Gaspar	1958–1959	vacant	NA	NA
410 Don Gaspar	1959–1960+	Stine, Arth	renter	Mining Operations

Table 4.2. (continued)

Address	Dates	Occupant	Status	Profession
414 Don Gaspar	1930–1933	Birdseye, R. W.	renter	Publicity Director, Santa Fe Transportation Company
414 Don Gaspar	1934–1935	Livingston, Hyman	renter	President, H. Livingston and Co.
414 Don Gaspar	1936–1950	Kahn, Gus	owner	Owner, Kahn's Shoe Store
414 Don Gaspar	1951–1952	Kilkenny, Joe G.	renter	Shipping Clerk, NM School Book Depository
414 Don Gaspar	1953–1960+	Stine, Arth	owner	Mining Operations
416 Don Gaspar	ca. 1928–1929	Birdseye, R. W.	renter	Advertiser
416 Don Gaspar	1930–1931	Ervein, Sybil Mrs.	renter	Stenographer, Taxpayers Association of NM
416 Don Gaspar	1932–1933	Harrison, C. O.	renter	Dentist, 16-17 Laughlin Bldg.
416 Don Gaspar	1934–1937	Pincetl, Bertha, Mrs.	renter	Widow of M.F.
416 Don Gaspar	1938–1939	Julian, T. E.	renter	Tax Investigator, State Tax
416 Don Gaspar	1940–1941	Wheeler, L. E.	renter	Designer, State Highway Department
416 Don Gaspar	1942–1943	Beene, M. C.	renter	Director, NM Veterans Service Commission
416 Don Gaspar	1944–1957	Rutherford, William E.	owner	Freight Agent, Atchison, Topeka & Santa Fe Railway
416 Don Gaspar	1958	Shephard, John B.	renter	Teacher, Young Jr. High School
416 Don Gaspar	1959	Montgomery, Elizabeth	renter	unknown
416 Don Gaspar	1960+	Rourke, Frank	renter	Plumber
420 Don Gaspar	ca. 1928–1929	Carruth, J. A.	renter	Printer, Museum of NM
420 Don Gaspar	1930–1931	Carruth, C. H., Mrs.	renter	Widow of J. A.
420 Don Gaspar	1932–1933	Carter, W. C.	renter	Meat Cutter, Kaune Grocery Co.
420 Don Gaspar	1934–1939	Yoder, H. B.	renter	Clerk, State Highway Department
420 Don Gaspar	1940–1943	Stinson, Anne, Mrs.	renter	Dressmaker
420 Don Gaspar	1944–1946	Seibert, J. A.	renter	Structural Detailer, NM State Highway Dept.
420 Don Gaspar	1947–1948	Gray, G. J.	renter	Assistant staff manager? US Forest Service
420 Don Gaspar	1949–1950	Rutherford, Robert E.	renter	Wholesale manager?, Chas. Ilfeld
420 Don Gaspar	1951–1954	Newman, Rubel R.	renter	Widow of Walter
420 Don Gaspar	1955–1957	Newman, Rubel R., Mrs.	renter	Stenographer, State Dept. of Game and Fish
420 Don Gaspar	1958–1960+	Rutherford, William E.	owner	Agent, Atchison, Topeka & Santa Fe Railway
424 Don Gaspar	1947–1948	Irvin, Clint	renter	Pastor
424 Don Gaspar	1949–1960+	First Baptist Church Study	renter	Business
424, 428, or 430 Don Gaspar	ca. 1928–1960+	First Baptist Church	owner	Church
437-439 Galisteo	ca. 1928–1943	Alarid, Amadeo	owner	Janitor, Capitol Building
437-439 Galisteo	1944–1954	Alarid, Reyes P., Mrs.	owner	Widow of Amadeo
437-439 Galisteo	1955–1956	vacant	NA	NA
437-439 Galisteo	1957–1958	Savala, Pete	renter	Sheet Metal Worker
437-439 Galisteo	1958–1959	White Cottage Coffee Room	renter	Business
437-439 Galisteo	1960+	The Santa Fe Scene Publishers	renter	Business
437-439 Galisteo	1960+	Pinon Publishing Co.	renter	Business
443 Galisteo	1928–1932	Alarid, Richard Jr.	owner	Owner, Dick's Barber Shop
443 Galisteo	1932–1943	McKenzie, Donald	renter	unknown
443 Galisteo	1944–1946	Lane, A. W.	renter	Salesman, MacFeldhake Footwear
443 Galisteo	1947	Summa, Anthony	renter	Laborer
443 Galisteo	1947–1948	Smith, J. H.	renter	unknown
443 Galisteo	1949–1950	Mathey, Reba	renter	Telephone Operator
443 Galisteo	1951–1954	Apartments 1-3	renter	NA
443 Galisteo	1955–1956	Houkgreen, J. W.	renter	unknown
443 Galisteo	1957–1960+	Byers, Joe R.	renter	unknown

Table 4.2. (continued)

Address	Dates	Occupant	Status	Profession
443 Galisteo	1958–1960+	Smith, Robert B.	renter	unknown, DeVargas Hotel
443 Galisteo	1959	Bustos, Bennie J.	renter	unknown
443 Galisteo	1960+	Brown, Geo R.	renter	Bellman, DeVargas Hotel
449 Galisteo	ca. 1928–1929	Romero, Adolph	owner	Clerk, Zook's Pharmacy
449 Galisteo	1930–1931	Romero, Romancita, Mrs.	owner	Widow of Adolph
449 Galisteo	1932–1933	Baca, Nellie, Mrs.	renter	unknown
449 Galisteo	1934–1935	vacant	NA	NA
449 Galisteo	1936–1937	Romero, Ramon	owner	unknown
449 Galisteo	1938–1959	Romero, Ramon Jr.	owner	Driver, Broome Furniture
449 Galisteo	1949–1960+	Ray's Floor Covering Service	renter	Business
449 Galisteo	1955–1958	Alarid, Richard	renter	unknown
449 Galisteo	1958–1960+	Apartments 1–4	renter	NA
449 Galisteo (rear)	ca. 1928–1935	Romero, Ramon	owner	Laborer
450 Galisteo (rear)	1936–1937	Romero, Ramon Jr.	owner	unknown
451 Galisteo (rear)	1938–1943	Romero, Ramon	owner	Laborer
452 Galisteo (rear)	1944	vacant	NA	NA
451 Galisteo	1938–1943	Alarid, Richard Jr.	owner	Owner, Dick's Barber Shop
451 Galisteo	1944–1948	Summa, Anthony	renter	U.S. Army
451 Galisteo	1949–1950	Richards, Vada, Mrs.	renter	Housekeeper
451 Galisteo	1951–1956	vacant	NA	NA
451 Galisteo	1957–1958	Dick's Barber Shop	renter	Business
451 Galisteo	1958–1960+	Ethel's Beauty Shop	renter	Business
451 Galisteo (rear)	1951	Anderson, Myrtle	renter	Waiter, New Canton Café
111 Manhattan	ca. 1928–1935	Muller, Fred	owner	Real Estate and Insurance Agent
111 Manhattan	1936–1954	Muller, Adella, Mrs.	owner	Widow of Fred
111 Manhattan	1955–1956	vacant	NA	NA
111 Manhattan	1957–1958	Collier, Adella	owner	unknown
111 Manhattan	1958	vacant	NA	NA
111 Manhattan	1959	Harwell, Callie L.	renter	unknown
111 Manhattan	1960+	Evans, M. L.	renter	Owner, Evans Weatherproof Drumheads
111 Manhattan (rear)	1947–1948	King, Charles	renter	unknown
112 Manhattan (rear)	1947–1948	Orcutt, F.	renter	unknown
113 Manhattan (rear)	1949–1950	Kitzs, Steve	renter	unknown
111-1/2 Manhattan	1951–1952	Pepperis, Louis	renter	Owner, Louis' Flower Shop
111-1/2 Manhattan	1953–1956	Aragon, Andrew	renter	unknown
111-1/2 Manhattan	1957	vacant	NA	NA
111-1/2 Manhattan	1958	Harper, Clyde D.	renter	Salesman, Family Record Plan
111-1/2 Manhattan	1959–1960+	Bradley, Walter L.	renter	unknown
125 Manhattan	ca. 1928–1933	Parker, F. W.	owner	Clerk, State Land Office
125 Manhattan	1934–1937	vacant	NA	NA
125 Manhattan	1938–1939	Bell, W. P., Rev.	renter	Minister, First Baptist Church
125 Manhattan	1940–1946	vacant	NA	NA
125 Manhattan	1947–1960+	Apartments 1–6	renter	NA
129 Manhattan	1936–1937	Goodwin, Edna, Mrs.	renter	Clerk, US Treasury Department
129 Manhattan	1938	vacant	NA	NA
135 Manhattan	ca. 1928–1929	Thomas, B. R.	renter	Attorney at 241 Washington Ave.
135 Manhattan	ca. 1928–1929	Carter, A. H.	renter	Editor, NM State Records
135 Manhattan	1928–1929	Mumford, W. L.	renter	unknown
135 Manhattan	1930–1931	Williams, D. L.	renter	Superintendent, Capitol Building
135 Manhattan	1932–1937	Alarid, Richard Jr.	owner	Owner, Dick's Barber Shop
135 Manhattan	1938–1939	Martinez, G. D.	renter	unknown
135 Manhattan	1940–1941	Velarde, Marie	renter	Clerk, State Bureau of Revenue

Table 4.2. (continued)

Address	Dates	Occupant	Status	Profession
135 Manhattan	1942–1943	Reid, Githon	renter	unknown
135 Manhattan	1944–1948	Ortiz, Zoilo	renter	U.S. Army
135 Manhattan	1949–1950	Ortiz, Juan (John) D.	owner	Clerk
135 Manhattan	1951–1956	vacant	NA	NA
135 Manhattan	1957–1959	Bello, Joe S.	renter	unknown
135 Manhattan	1960+	Sena, Secundino	renter	unknown
135 Manhattan (rear)	1938	Francis, Gene, Mrs.	renter	Stenographer, Liquor Control Division, Bureau of Revenue
135-1/2 Manhattan	1936–1937	Gilcrease, M. A.	renter	Clerk
135-1/2 Manhattan	1938–1939	Alarid, Richard Jr.	owner	Owner, Dick's Barber Shop
135-1/2 Manhattan	1940–1941	Duran, Fidel	renter	unknown
135-1/2 Manhattan	1942–1943	Padilla, Eleuterio	renter	Assistant State Comptroller
135-1/2 Manhattan	1944–1948	Ethelbak, Mary, Mrs.	renter	unknown
135-1/2 Manhattan	1949–1950	O'Connor, Leo G.	renter	Plant Operator, Slade's Dairy
135-1/2 Manhattan	1951–1958	Andregg, Jos A.	renter	Apprentice Electrician
135-1/2 Manhattan	1958	vacant	NA	NA
135-1/2 Manhattan	1959	Alarid, Richard	renter	unknown
135-1/2 Manhattan	1960+	Ortiz, John	owner	Foreman, Creamland Dairies
137 Manhattan	1940–1941	Hickmott, A. E.	renter	Clerk, White Swan Grocery
137 Manhattan	1942–1943	Collamer, Bessie, Mrs.	renter	Waitress, DeVargas Coffee Shop
137 Manhattan	1944–1946	Smith, George	renter	U.S. Army
137 Manhattan	1947–1948	Lambert, J. L.	renter	Rate Clerk, Atchison, Topeka & Santa Fe Railway
137 Manhattan	1949–1950	vacant	NA	NA
137 Manhattan	1951–1954	Kidd, Margaret E., Mrs.	renter	unknown
137 Manhattan	1955–1956	Rodriguez, Gilbert	renter	Delivery Man, NM Selling Co.
137 Manhattan	1957	Perea, Teresita, Mrs.	renter	unknown
137 Manhattan	1958	vacant	NA	NA
137 Manhattan	1958–1960+	Perea, Maida	renter	Telephone Company Operator
139 Manhattan	1940–1948	Anderson, Myrtle, Mrs.	renter	Waitress , New Canton Café
139 Manhattan	1949–1950	Kidd, Margaret E., Mrs.	renter	Seamstress, Santa Fe Maid Shop
139 Manhattan	1951–1952	vacant	NA	NA
139 Manhattan	1953–1954	Bursik, Elmer J.	renter	unknown
139 Manhattan	1955–1958	Lucero, Willy R.	renter	Piano player, Eddy's Night Club
139 Manhattan	1957–1958	Padilla, Gabriletta, Mrs.	renter	unknown
139 Manhattan	1958–1959	Lopez, Ruby	renter	Clerk typist, State Driver's License
139 Manhattan	1959	Romero, Manuel	renter	unknown
139 Manhattan	1960+	vacant	NA	NA
141 Manhattan	1930–1931	Hensley, H. P.	renter	Clerk, State Land Office
141 Manhattan	1932–1939	Velarde, A. M., Mrs.	renter	Chief Clerk, State Auditor's Office
141 Manhattan	1940–1947	Alarid, Richard Jr.	owner	Owner, Dick's Barber Shop
141 Manhattan	1947–1957	Pete's Super Market	renter	Business
141 Manhattan	1958	vacant	NA	NA

NA = Not Applicable

5.1. Archaeological sites in the vicinity of LA 158037.

Component	Dates (AD)	**Total**
Pueblo		
Anasazi artifact scatter	1200–1600	2
Anasazi artifact scatter	1200–1325	1
Anasazi feature and artifact scatter	600–1400	1
Anasazi unknown	1100–1600	5
Anasazi unknown	1100–1300	2
Anasazi unknown	1–1600	2
Pueblo unknown	1539–1680	1
Pueblo unknown	1692–1821	3
Pueblo artifact scatter	1692–1821	1
Subtotal		18
Hispanic		
Hispanic ranching/agricultural	1692–1912	1
Hispanic ranching/agricultural	1846–1912	1
Hispanic ranching/agricultural	1821–1879	1
Hispanic ranching/agricultural	1610–1912	1
Hispanic single residence	1750–1856	1
Hispanic single residence	1880–1996	1
Hispanic residential complex/community	1605–1680	1
Hispanic residential complex/community	1605–1846	1
Hispanic residential complex/community	1714–1996	2
Hispanic residential complex/community	1821–1846	1
Hispanic residential complex/community	1853–1858	1
Hispanic residential complex/community	1780–1996	1
Hispanic artifact scatter	1600–1945	1
Hispanic artifact scatter	1720–1821	1
Hispanic artifact scatter	1600–1912	1
Hispanic artifact scatter	1767–1810	1
Hispanic artifact scatter	1700–1850	1
Hispanic artifact scatter	1700–1945	1
Hispanic artifact scatter	1600–1977	1
Hispanic simple feature	1605–2004	1
Hispanic simple feature	1610–1990	1
Hispanic simple feature	1870–1889	1
Hispanic simple feature	1740–1740	1
Hispanic features and artifact scatter	1835–1945	1
Hispanic unknown	1692–1821	3
Hispanic unknown	1846–1912	4
Hispanic unknown	1821–1846	1
Hispanic unknown	1945–1993	1
Hispanic unknown	1539–1993	1
Hispanic unknown	1539–1680	1
Subtotal		36
Anglo/Euroamerican		
Anglo/Euroamerican transportation/communication	1879–1955	1
Anglo/Euroamerican transportation/communication	1903–1955	2
Anglo/Euroamerican transportation/communication	1846–1900	1
Anglo/Euroamerican transportation/communication	1900–1930	1

Table 5.1. (continued)

Component	Dates (AD)	**Total**
Anglo/Euroamerican transportation/communication	1880–1955	1
Anglo/Euroamerican simple features	1912–1960	1
Anglo/Euroamerican simple features	1945–1960	1
Anglo/Euroamerican single residence	1856–1900	1
Anglo/Euroamerican single residence	1883–1912	1
Anglo/Euroamerican residential complex/community	1846–2000	3
Anglo/Euroamerican features and artifact scatter	1870–1945	1
Anglo/Euroamerican features and artifact scatter	1821–1912	1
Anglo/Euroamerican features and artifact scatter	1850–1930	1
Anglo/Euroamerican features and artifact scatter	1900–1971	1
Anglo/Euroamerican features and artifact scatter	1821–1859	1
Anglo/Euroamerican features and artifact scatter	1912–1990	1
Anglo/Euroamerican commercial	1881–1886	1
Anglo/Euroamerican industrial	1891–1960	1
Anglo/Euroamerican unknown	1846–1912	3
Anglo/Euroamerican unknown	1912–1945	3
Anglo/Euroamerican unknown	1945–1993	1
Anglo/Euroamerican artifact scatter	1700–1850	1
Anglo/Euroamerican military	1846–1851	1
Subtotal		30
Unknown		
Unknown features	?	6
Unknown simple feature	1900–1990	1
Unknown artifact scatter	900–1800	2
Subtotal		9
Total		93

Table 5.2. Archaeological sites with nineteenth- and twentieth-century components within 500 m of LA 158037.

LA No.	Site Name	Dates of Occupation	Ethnic Composition	Features
LA 1742	San Miguel Cemetery	1846 to 1912	Hispanic	human burials
LA 4450	Santa Fe Historic District	1100 to present	Hispanic & Anglo/Euroamerican	church, structures, depression
LA 20195	Second Ward School	1846 to present	Anglo/Euroamerican	structures, fence, privy
LA 54000	La Fonda Project	1539 to 1912	Hispanic	foundations, dugouts, midden, well
LA 54312	City of Santa Fe	1883 to 1960	Anglo/Euroamerican	power plant, foundations, well, refuse pit
LA 69193	Private ownership	1846 to 1912	Hispanic	foundations, refuse pits
LA 70092	Spiegelberg/Spitz	1858 to 1945	Anglo/Euroamerican	structures, ash stain, cobble wall
LA 80000	Santa Fe Plaza	1605 to present	Hispanic & Anglo/Euroamerican	irrigation ditch, refuse pit, plaza
LA101303	LA 101303	1692 to 1912	Hispanic & Anglo/Euroamerican	foundations, refuse
LA103293	Manuela Baca	1875 to1886	Hispanic & Anglo/Euroamerican	foundations, cobble-lined ramada
LA112663	418 Sandoval Street	1880 to present	Hispanic	foundation, privy, cistern, refuse
LA114215	East Devargas Street #86	900 AD to 1880	unknown	unknown
LA114216	Improvement Row #88	900AD to1880	unknown	unknown
LA114218	College St. Bridge #144	1600 to 1912	Hispanic (?)	artifact collection
LA114219	Old Valdez House #164	1720 to 1821	unknown	possible structure
LA114221	Our Lady of Light Chapel	1605 to present	Hispanic & Anglo/Euroamerican	cemetery, human burials, structures
LA114230	Alfredo Herrera House	1200 to 1945	Hispanic	structure
LA114231	Santa Fe River Bank #165	1900 to present	Anglo/Euroamerican	stone wall
LA114239	507 Agua Fria Well #205	1859 to 1889	Hispanic	well
LA114251	632 Paseo de Peralta	1610 to 1960	Hispanic & Anglo/Euroamerican	acequia, trash dump
LA114265	Jose Alarid House #148	600 AD to 1945	Hispanic	burials, mixing pit, artifact scatter
LA120279	Boyle Floral Company	1200 to1600	Anglo/Euroamerican	cistern, concrete floor & footings
LA122227	Denver & Rio Grande RR	1900 to 1930	Anglo/Euroamerican	masonry railroad turntable
LA127276	60 E. San Francisco St.	1750 to present	Hispanic & Anglo/Euroamerican	foundations, depression, posthole
LA146402	Santa Fe Railyard	1821 to present	Hispanic & Anglo/Euroamerican	foundations, middens, acequias, pits
LA146403	Santa Fe Railyard	1846 to 1900	Anglo/Euroamerican	foundations, windmill, well, water tank
LA146404	Santa Fe Railyard	1870 to1945	Anglo/Euroamerican	hearth, pits
LA146405	Santa Fe Railyard	1904 to 1955	Anglo/Euroamerican	foundations, refuse pits
LA146406	Santa Fe Railyard	1903 to 1955	Anglo/Euroamerican	railroad track, pit
LA146407	Acequia de Analco	1846 to 1912	Hispanic	acequia
LA146409	Santa Fe Railyard	1879 to 1955	Anglo/Euroamerican	structures, pits, thermal features
LA149909	Acequia de los Pinos	1692 to 1912	Hispanic	acequia
LA149910	Santa Fe Railyard	1912 to 1960	Anglo/Euroamerican	concrete foundation
LA149913	Santa Fe Railyard	1821 to1912	Anglo/Euroamerican	acequia
LA149914	Santa Fe Railyard	1912 to 1999	Anglo/Euroamerican	concrete foundation, rock wall
LA156207	Santa Fe Judicial Complex	1325 to 1950	Native, Hispanic, & Anglo/Euroamerican	foundation, privy, hearth, pithouse

Table 7.1. Scraping units, summary table.

SCU No.	Maximum Length (m)	Maximum Width (m)	Depth (m)	Area Impacted (sq m)
9	30.0	17.0	0.5	510.0
10	14.0	10.0	0.4	72.0
11	11.0	10.0	0.6	110.0
12	52.0	12.0	0.4	326.0
13	10.0	6.0	0.4	60.0
14	20.0	10.0	0.4	171.0
15	17.0	8.0	0.4	119.0
16	9.0	6.0	1.2	45.0
Total				1413.0

Note: Scraping Units 1–8 were excavated during archaeological investigations for the Capitol Parking Facility (see Barbour 2012a).

Table 7.2. Features, summary table.

SCU No.	BHT No.	STR No.	Feature		Center Point		Dimensions (m)			Depth (m)		Sample
			No.	Type	North	East	Length	Width	Thickness	Begin	End	
14	2	12	24	Domestic - refuse pit	519.13	479.99	0.77	0.31	0.05	9.24	9.19	100.0%
9	NA	10	252	Domestic - refuse pit	516.80	505.80	1.05	0.80	0.07	9.80	9.73	100.0%
9	NA	10	253	Construction - debris pit	515.85	517.39	0.97	0.70	0.32	9.80	9.48	100.0%
9	NA	10	254	Posthole	515.81	506.79	0.20	0.15	–	9.80	–	0.0%
9	NA	10	255	Posthole	516.10	507.79	0.20	0.15	–	9.75	–	0.0%
9	NA	10	256	Posthole	516.36	507.92	0.20	0.15	–	9.73	–	0.0%
9	NA	10	257	Posthole	518.20	505.14	0.23	0.15	–	9.73	–	0.0%
9	NA	10	258	Posthole	518.10	508.69	0.35	0.35	–	9.68	–	0.0%
9	NA	10	259	Construction - debris pit	516.85	513.75	0.76	0.45	0.14	9.75	9.58	100.0%
9	NA	10	260	Posthole	521.43	505.01	0.30	0.30	–	9.68	–	0.0%
9	NA	10	261	Posthole	521.13	506.87	0.40	0.40	0.19	9.66	9.47	100.0%
9	NA	10	262	Posthole	521.29	508.89	0.30	0.12	–	9.65	–	0.0%
9	NA	10	263	Posthole	521.33	510.36	0.25	0.25	–	9.66	–	0.0%
9	NA	10	264	Construction - debris pit	515.35	512.64	1.68	1.37	–	9.82	–	0.0%
9	NA	10	265	Construction - debris pit	516.00	519.28	2.53	1.73	–	9.73	–	0.0%
9	NA	10	266	Construction - debris pit	515.75	515.74	0.82	0.70	–	9.72	–	0.0%
9	NA	10	267	Animal burial pit	525.69	512.32	0.32	0.32	0.10	9.70	9.60	100.0%
9	NA	10	268	Posthole	521.44	511.81	0.30	0.30	–	9.66	–	0.0%
9	NA	10	269	Posthole	520.85	512.26	0.26	0.25	–	9.68	–	0.0%
9	NA	10	270	Posthole	520.88	512.66	0.25	0.20	–	9.66	–	0.0%
9	NA	10	271	VOID								
9	NA	10	272	Posthole	519.72	505.24	0.40	0.32	–	9.65	–	0.0%
9	NA	10	273	Posthole	527.10	505.37	0.34	0.33	–	9.50	–	0.0%
9	NA	10	274	Posthole	530.88	505.22	0.25	0.25	–	9.65	–	0.0%
9	NA	10	275	Structural elements	530.57	517.53	17.65	8.60	–	9.66	–	0.0%
9	NA	10	276	Construction - debris pit	527.62	516.75	1.08	0.70	–	9.65	–	0.0%
9	NA	10	277	Structural elements	530.07	510.10	4.25	3.00	0.06	9.63	9.57	7.8%
9	NA	10	278	Posthole	524.12	508.83	0.15	0.15	–	9.63	–	0.0%
9	NA	10	279	Posthole	524.11	509.24	0.14	0.14	–	9.61	–	0.0%
9	NA	10	280	Posthole	524.07	510.08	0.20	0.20	–	9.62	–	0.0%
9	NA	10	281	Posthole	523.99	510.90	0.20	0.20	–	9.66	–	0.0%
9	NA	10	282	Posthole	524.04	511.26	0.23	0.23	–	9.63	–	0.0%
9	NA	10	283	Posthole	524.01	511.74	0.23	0.20	–	9.64	–	0.0%
9	NA	10	284	Construction - debris pit	538.69	516.80	0.70	0.65	0.11	9.59	9.48	50.0%

Table 7.2. (continued)

SCU No.	BHT No.	STR No.	Feature		Center Point		Dimensions (m)			Depth (m)		Sample
			No.	Type	North	East	Length	Width	Thickness	Begin	End	
9	NA	10	285	Structural elements	525.06	510.51	3.00	0.50	–	9.65	–	0.0%
9	NA	10	286	Structural elements	525.95	510.31	3.00	0.48	–	9.65	–	0.0%
9	NA	10	287	Structural elements	527.05	510.51	3.00	0.73	–	9.66	–	0.0%
9	NA	10	288	Posthole	539.78	508.94	0.20	0.20	–	9.46	–	0.0%
9	NA	10	289	Posthole	539.56	570.18	0.18	0.18	–	9.52	–	0.0%
9	NA	10	290	Posthole	538.52	572.88	0.30	0.20	–	9.53	–	0.0%
9	NA	10	291	Posthole	538.53	513.26	0.15	0.14	–	9.54	–	0.0%
9	NA	10	292	Posthole	538.90	514.04	0.14	0.14	–	9.55	–	0.0%
9	NA	10	293	Posthole	538.99	514.11	0.33	0.30	–	9.53	–	0.0%
9	NA	10	294	Posthole	541.25	513.25	0.16	0.14	–	9.48	–	0.0%
9	NA	10	295	Structural elements	524.08	513.04	1.10	0.46	–	9.69	–	0.0%
9	NA	10	296	Structural elements	525.19	513.04	0.70	0.34	–	9.67	–	0.0%
9	NA	10	297	Structural elements	526.29	513.10	0.70	0.40	–	9.68	–	0.0%
9	NA	10	298	Structural elements	527.76	513.29	0.58	0.37	–	9.69	–	0.0%
9	59	10	299	Construction - debris pit	543.51	509.29	7.80	4.20	0.90	9.39	8.49	0.0%
9	NA	10	300	Animal burial pit	531.22	515.65	0.95	0.80	0.36	9.68	9.32	80.0%
NA	58	6	301	Construction - debris pit	509.95	506.98	3.15	1.00	1.00	10.13	9.13	0.0%
NA	58	6	302	Construction - debris pit	510.08	510.12	1.80	1.00	0.95	10.19	9.24	0.0%
9	60	10	303	Construction - debris pit	552.96	514.65	4.70	1.10	1.00	9.75	8.75	0.0%
10	NA	13	304	Posthole	512.89	464.31	0.30	0.26	–	8.88	–	0.0%
10	NA	13	305	Posthole	509.45	464.19	0.50	0.25	0.05	8.91	8.86	100.0%
10	NA	13	306	Posthole	512.11	465.30	0.62	0.21	0.11	8.90	8.79	100.0%
10	NA	13	307	Construction - debris pit	513.36	461.89	9.50	3.30	–	8.93	–	0.0%
10	NA	4	308	Posthole	510.75	471.99	0.25	0.25	–	8.91	–	0.0%
10	NA	13	309	Construction - debris pit	510.88	471.16	0.55	0.10	0.06	8.96	8.90	100.0%
10	NA	13	310	Construction - debris pit	512.49	468.81	14.00	5.00	0.32	8.98	8.66	7.0%
11	NA	13	311	Construction - debris pit	533.46	461.56	1.00	0.90	0.06	8.97	8.91	100.0%
11	NA	13	312	VOID								
12	NA	4	313	Posthole	511.76	494.82	0.26	0.26	0.06	9.60	9.54	100.0%
12	NA	4	314	Posthole	512.56	494.43	0.18	0.16	–	9.60	–	0.0%
12	NA	11	315	Posthole	513.57	494.74	0.18	0.28	–	9.63	–	0.0%
12	NA	11	316	Posthole	514.26	493.48	0.06	0.06	–	9.65	–	0.0%
12	NA	11	317	Posthole	514.82	493.68	0.26	0.25	–	9.53	–	0.0%

Table 7.2. (continued)

SCU No.	BHT No.	STR No.	Feature		Center Point		Dimensions (m)			Depth (m)		Sample
			No.	Type	North	East	Length	Width	Thickness	Begin	End	
12	NA	6	318	Posthole	512.77	497.08	0.23	0.23	–	9.67	–	0.0%
12	NA	11	319	Posthole	514.91	496.18	0.28	0.28	–	9.65	–	0.0%
12	NA	4	320	Bone Pit	507.45	494.35	0.90	0.50	0.20	9.68	9.48	100.0%
12	NA	11	321	Domestic - refuse pit	515.52	494.78	1.15	0.77	0.35	9.72	9.37	100.0%
12	NA	11	322	Domestic - refuse pit	518.07	494.83	1.70	1.60	0.02	9.69	9.67	100.0%
11	61	13	323	Construction - debris pit	532.34	464.16	3.90	–	0.10	8.77	8.67	0.0%
12	NA	11	324	Posthole	516.57	495.51	0.20	0.20	–	9.62	–	0.0%
12	NA	11	325	Posthole	521.15	494.00	0.18	0.18	–	9.56	–	0.0%
12	NA	11	326	Posthole	521.23	495.14	0.28	0.22	–	9.56	–	0.0%
12	NA	11	327	Posthole	521.39	496.87	0.16	0.16	–	9.56	–	0.0%
12	NA	11	328	Posthole	526.13	493.97	0.25	0.19	–	9.51	–	0.0%
12	NA	11	329	Posthole	525.94	494.45	0.24	0.18	–	9.51	–	0.0%
12	NA	11	330	Posthole	526.41	494.59	0.15	0.15	–	9.50	–	0.0%
12	NA	11	331	Posthole	526.38	497.34	0.34	0.32	–	9.48	–	0.0%
12	NA	11	332	Domestic - refuse pit	522.41	495.85	0.60	0.60	0.06	9.54	9.48	100.0%
12	NA	11	333	Posthole	518.43	495.34	0.26	0.26	–	9.65	–	0.0%
12	NA	11	334	Posthole	528.32	494.79	0.19	0.13	–	9.45	–	0.0%
12	NA	11	335	Posthole	532.29	494.70	0.23	0.22	–	9.44	–	0.0%
12	NA	11	336	Posthole	532.70	494.37	0.18	0.18	–	9.44	–	0.0%
12	NA	11	337	Posthole	533.59	495.62	0.23	0.23	–	9.44	–	0.0%
12	NA	11	338	Posthole	532.97	496.22	0.38	0.38	–	9.43	–	0.0%
12	NA	11	339	Domestic - refuse pit	523.70	494.31	0.70	0.75	0.56	9.73	9.17	100.0%
12	NA	11	340	Posthole	519.27	495.11	0.70	0.40	0.16	9.66	9.50	100.0%
12	NA	11	341	Domestic - refuse pit	527.58	494.63	0.95	0.70	0.20	9.58	9.38	100.0%
12	NA	11	342	Domestic - refuse pit	530.93	493.67	0.60	0.60	0.06	9.50	9.44	100.0%
12	NA	11	343	Domestic - refuse pit	519.11	493.59	0.63	0.39	0.10	9.67	9.57	100.0%
12	NA	11	344	Domestic - refuse pit	515.67	487.94	0.62	0.55	0.04	9.50	9.46	100.0%
12	NA	11	345	Domestic - refuse pit	520.16	493.65	0.33	0.30	0.04	9.60	9.56	100.0%
12	NA	11	346	Domestic - refuse pit	531.00	495.92	0.77	0.56	0.15	9.49	9.34	100.0%
12	NA	11	347	Domestic - refuse pit	516.72	493.66	0.38	0.34	0.05	9.68	9.63	100.0%
12	NA	11	348	Domestic - refuse pit	517.82	493.66	0.48	0.46	0.08	9.66	9.58	100.0%
12	NA	11	349	Domestic - refuse pit	529.95	493.97	0.98	1.00	0.23	9.50	9.27	100.0%
12	NA	4 & 6	350	Irrigation ditch	510.50	493.00	6.00	0.50	0.40	9.67	9.27	16.7%
13	NA	11	351	Bone pit	515.26	489.07	1.28	0.75	0.30	9.55	9.25	100.0%

Table 7.2. (continued)

SCU No.	BHT No.	STR No.	Feature		Center Point		Dimensions (m)			Depth (m)		Sample
			No.	Type	North	East	Length	Width	Thickness	Begin	End	
12	NA	11	352	Domestic - refuse pit	517.56	493.18	0.60	0.28	0.13	9.67	9.54	100.0%
13	NA	11	353	Domestic - refuse pit	522.19	490.39	0.77	0.71	0.30	9.53	9.23	100.0%
13	NA	11	354	Domestic - refuse pit	518.61	487.84	0.70	0.60	0.21	9.42	9.21	100.0%
13	NA	11	355	Domestic - refuse pit	517.80	488.81	0.80	0.80	0.18	9.52	9.34	100.0%
13	NA	11	356	Domestic - refuse pit	517.96	487.96	0.60	0.54	0.04	9.46	9.42	100.0%
13	NA	11	357	Posthole	519.68	490.60	0.20	0.16	–	9.61	–	0.0%
13	NA	11	358	Posthole	517.85	490.66	0.20	0.16	–	9.52	–	0.0%
13	NA	11	359	Posthole	515.92	490.22	0.20	0.16	–	9.53	–	0.0%
13	NA	11	360	Posthole	514.74	490.51	0.20	0.16	–	9.56	–	0.0%
13	NA	11	361	Posthole	522.73	485.18	0.18	0.18	–	9.24	–	0.0%
13	NA	11	362	Posthole	519.95	485.15	0.19	0.19	–	9.31	–	0.0%
13	NA	11	363	Posthole	517.81	485.22	0.30	0.30	–	9.33	–	0.0%
13	NA	11	364	Posthole	515.19	485.25	0.12	0.12	–	9.37	–	0.0%
13	NA	11	365	Domestic - refuse pit	516.64	487.98	0.70	0.65	0.13	9.50	9.37	100.0%
13	NA	11	366	Posthole	514.50	486.37	0.16	0.16	–	9.42	–	0.0%
13	NA	11	367	Posthole	520.17	487.94	0.18	0.18	–	9.45	–	0.0%
13	NA	11	368	Posthole	520.86	488.21	0.22	0.22	–	9.46	–	0.0%
13	NA	11	369	Domestic - refuse pit	518.95	488.98	0.65	0.56	0.15	9.53	9.38	100.0%
13	NA	11	370	Domestic - refuse pit	520.95	487.81	0.93	0.70	0.13	9.43	9.30	100.0%
13	NA	12	371	Posthole	519.30	479.27	0.18	0.18	–	9.24	–	0.0%
13	NA	12	372	Posthole	519.34	478.40	0.16	0.16	–	9.22	–	0.0%
13	NA	12	373	Posthole	520.23	478.45	0.20	0.20	–	9.25	–	0.0%
13	NA	12	374	Posthole	526.72	480.38	0.20	0.20	–	9.04	–	0.0%
13	NA	12	375	Posthole	522.51	472.65	0.16	0.16	–	9.06	–	0.0%
13	NA	12	376	Posthole	523.21	472.45	0.25	0.25	–	9.02	–	0.0%
13	NA	12	377	Posthole	524.92	472.44	0.27	0.27	–	8.95	–	0.0%
13	NA	12	378	Posthole	527.45	470.44	0.16	0.16	–	8.95	–	0.0%
13	NA	12	379	Posthole	533.66	473.58	0.33	0.32	–	8.93	–	0.0%
13	NA	11	380	Domestic - refuse pit	519.65	488.85	0.74	0.68	0.11	9.52	9.41	100.0%
16	NA	11	381	Storage tank	537.25	488.51	2.38	1.07	1.07	9.37	8.30	100.0%
16	NA	11 & 12	382	Straight-line cesspit privy	532.61	485.38	2.30	2.30	4.00	9.40	5.40	100.0%
13	NA	11	383	Domestic - refuse pit	520.30	489.21	0.96	0.84	0.40	9.47	9.07	100.0%
12	NA	11	384	Posthole	556.18	498.09	0.28	0.14	–	9.24	–	0.0%
12	NA	11	385	Posthole	555.12	498.17	0.28	0.14	–	9.22	–	0.0%
12	NA	11	386	Posthole	556.10	495.28	0.23	0.14	–	9.14	–	0.0%
12	NA	11	387	Posthole	557.64	493.46	0.26	0.26	–	9.21	–	0.0%
12	NA	11	388	Posthole	558.88	492.59	0.28	0.28	–	9.17	–	0.0%

Table 7.2. (continued)

SCU No.	BHT No.	STR No.	Feature		Center Point		Dimensions (m)			Depth (m)		Sample
			No.	Type	North	East	Length	Width	Thickness	Begin	End	
13	NA	11	389	Irrigation ditch	518.00	486.00	9.00	0.75	0.12	9.32	9.20	11.0%
14	NA	12	390	Domestic - refuse pit	519.29	472.08	1.84	0.54	0.05	9.11	9.06	100.0%
14	NA	12	391	Domestic - refuse pit	520.90	471.97	1.20	0.60	0.08	9.08	9.00	100.0%
12	NA	6	392	Domestic - refuse pit	509.50	494.00	1.00	0.70	0.40	9.67	9.27	100.0%
14	NA	12	393	Domestic - refuse pit	531.39	472.79	1.31	0.97	0.10	8.92	8.82	100.0%
12	NA	11	394	Domestic - refuse pit	555.82	493.52	0.70	0.56	0.11	9.19	9.08	100.0%
12	NA	11	395	Domestic - refuse pit	555.56	496.32	0.57	0.57	0.07	9.21	9.14	100.0%
16	63	11	396	Domestic - refuse pit	529.00	488.00	1.16	0.90	0.40	9.45	9.05	10.0%
16	63	11	397	Domestic - refuse pit	534.00	488.00	0.70	0.50	0.40	9.35	8.95	50.0%
12	NA	11	398	Posthole	555.87	467.69	0.31	0.26	0.11	9.21	9.10	100.0%
12	NA	11	399	Structural elements	538.00	493.00	5.00	0.80	0.23	9.50	9.27	100.0%
12	NA	11	400	Structural elements	541.00	494.00	0.60	0.60	0.21	9.30	9.09	100.0%
12	NA	11	401	Structural elements	547.60	494.80	0.66	0.50	0.21	9.21	9.00	100.0%
12	NA	11	402	Structural elements	551.00	488.00	10.00	0.60	0.21	9.24	9.03	100.0%
12	NA	11	403	VOID	–	–	–	–	–	–	–	–
12	NA	11	404	VOID	–	–	–	–	–	–	–	–
12	NA	4	405	Posthole	510.50	494.00	0.30	0.30	0.15	9.68	9.53	100.0%
15	NA	12	406	VOID								
15	NA	12	407	Posthole	557.48	476.75	0.18	0.18	–	8.76	–	0.0%
15	NA	12	408	Construction - debris pit	555.80	474.62	0.90	0.70	–	8.77	–	0.0%
12	NA	11	409	Structural elements	550.00	493.00	6.50	4.57	0.94	9.22	8.28	50.0%
15	NA	12	410	Structural elements	544.00	473.00	10.00	0.70	0.10	8.82	8.66	50.0%
15	NA	12	411	Structural elements	542.00	477.00	5.50	0.30	0.80	8.40	8.25	50.0%
NA	69	13	412	Construction - debris pit	550.08	469.02	1.85	–	0.50	8.93	8.43	0.0%

VOID = investigated and found not to be a feature

Note: Features 1--251 were documented during previous archaeological investigations at LA 158037 (see Barbour 2008a, 2012a).

Table 7.3. Backhoe trenches, summary table.

BHT No.	Orientation	Depth (m)	Total Size (sq m)	Area Outside SCU (sq m)
1*	north–south	1.2	15.0	0.0
2*	north–south	1.2	15.0	5.0
57	north–south	1.4	20.0	0.0
58	east–west	1.5	10.0	10.0
59	north–south	1.5	23.0	0.0
60	east–west	1.6	11.0	11.0
61	east–west	1.4	9.0	0.0
62	east–west	1.4	15.0	0.0
63	north–south	1.5	16.0	16.0
64	north–south	1.4	5.0	0.0
65	north–south	1.4	14.0	0.0
66	north–south	1.4	12.0	5.0
67	north–south	1.4	14.0	0.0
68	east–west	1.5	9.0	0.0
69	north–south	1.5	12.0	12.0
70	east–west	1.3	5.0	0.0
71	north–south	1.1	3.0	0.0
Additional Impacted Area (sq m)				59.0

* = excavated in 2007 during archaeological testing (see Barbour 2008a)

Table 7.4. Artifacts and samples, summary table.

Type	**Total**
Native ceramic	22
Animal bone	472
Flaked stone	3
Glass	194
Euroceramic	41
Metal	689
Flotation sample	20
Coprolite or pollen sample	2
OSL sample	2
Miscellaneous	123
Total	1,568

Table 7.5. Begin and end manufacture dates for Euroamerican artifacts at Historic period sites in NM.

Artifact	Begin	End	Reference
Ammo, cartridge: center fire	1858	2010	Logan 1948
Ammo, cartridge: pin fire	1836	1900	Logan 1948
Ammo, cartridge: rim fire	1845	2010	Logan 1948
Ammo, conical bullet	1855	1875	Lord 1963:15
Ammo, round ball	1600	1875	Brinckerhoff and Chamberlain 1972; Russell 1967
Bead, drawn	1600	2010	Deagan 1987:158-160
Bead, wound	1600	2010	Deagan 1987:158-160
Bottle Glass, sheared lip	1800	1890	Newman 1970:74
Bottle Glass, laid-on ring lip	1840	1880	Kendrick 1964:33-35
Bottle Glass, applied colored label	1935	2010	Deiss 1981:95
Bottle Glass, automatic bottling machine	1904	2010	Lorrain 1968:43
Bottle Glass, color: 7-up green	1900	2010	Lindsey 2011
Bottle Glass, color: amber	NA	NA	Lindsey 2011
Bottle Glass, color: aqua	NA	NA	Lindsey 2011
Bottle Glass, color: black	1600	1880	Lindsey 2011
Bottle Glass, color: brown	NA	NA	Lindsey 2011
Bottle Glass, color: clear	NA	NA	Lindsey 2011
Bottle Glass, color: cobalt	NA	NA	Lindsey 2011
Bottle Glass, color: olive	NA	NA	Lindsey 2011
Bottle Glass, color: purple	1880	1925	Kendrick 1964:39-41
Bottle Glass, color: white	1870	2010	Lindsey 2011
Bottle Glass, color: yellow	1915	1930	Deiss 1981:95
Bottle Glass, one-piece dip mold	1790	1920	Lorrain 1968:37-38 43
Bottle Glass, three-piece hinge mold	1810	1920	Lorrain 1968:38 43
Bottle Glass, turn mold	1880	1920	Newman 1970:72
Bottle Glass, two-piece hinge mold	1840	1920	Lorrain 1968:39-40 43
Puddled/hand-packed, adobe	400	1930	McHugh Lloyd Hand & Assoc. 1985
Brick, adobe	1598	2010	http://www.adobebuilder.com/adobe-home-construction
Brick, fire-hardened	1870	2010	Mckee 1973:45
Can, aluminum beer can	1959	2010	Clark 1977:11
Can, cone top	1935	1959	Rock 1981
Can, hole-in-cap	1820	1910	Fontana and Greenleaf 1962:86
Can, hole-in-top	1884	1945	Fontana and Greenleaf 1962:74
Can, key-wind closure	1866	2010	Rock 1984:103-105
Can, pull-tab	1963	1990	U.S. Patent No. 3349949
Can, sanitary	1898	2010	Rock 1984:105
Can, soldered seams	1810	1945	Rock 1984:99
Can, tapered	1875	2010	Rock 1984:103-105
Ceramic, black lead-glazed coarse earthenware	1700	1770	Deagan 1987:52-53
Ceramic, Guadalajara Polychrome	1650	1800	Deagan 1987:44-46
Ceramic, ironstone	1840	2010	Miller 1991:1-25
Ceramic, Jackfield type	1740	1790	Hume 1969:123-124
Ceramic, majolica: Abo Polychrome	1650	1750	Deagan 1987:81
Ceramic, majolica: Aaranama Polychrome	1750	1800	Deagan 1987:87
Ceramic, majolica: Aucilla Polychrome	1650	1700	Deagan 1987:76-77
Ceramic, majolica: Fig Springs Polychrome	1575	1650	Deagan 1987:74
Ceramic, majolica: Huejotzingo Blue-on-white	1700	1850	Deagan 1987:83
Ceramic, majolica: Mexico City Blue-on-cream	1600	1650	Deagan 1987:75
Ceramic, majolica: Mexico City Green-on-cream	1600	1650	Deagan 1987:75

Table 7.5. (continued)

Artifact	Begin	End	Reference
Ceramic, majolica: Puaray Polychrome	1675	1700	Deagan 1987:82
Ceramic, majolica: Puebla Blue-on-white	1675	1850	Deagan 1987:83-85
Ceramic, majolica: Puebla Polychrome	1650	1725	Deagan 1987:29 & 81
Ceramic, majolica: San Augustin Blue-on-white	1700	1730	Deagan 1987:82-83
Ceramic, majolica: San Elizario Polychrome	1750	1850	Deagan 1987:85-86
Ceramic, majolica: San Luis Polychrome	1650	1750	Deagan 1987:75-76
Ceramic, majolica: Sevilla Blue-on-blue	1550	1630	Deagan 1987: 63-64
Ceramic, majolica: Tumacacori Polychrome	1780	1860	Deagan 1987:90
Ceramic, Mexican red ware	1500	1750	Deagan 1987:37-39
Ceramic, olive jar early style	1492	1580	Goggin 1964
Ceramic, olive jar late style	1780	1850	Goggin 1964
Ceramic, olive jar middle style	1580	1780	Goggin 1964
Ceramic, pearlware	1780	1840	Hume 1969:129-133
Ceramic, reyware	1725	1825	Deagan 1987:51-52
Ceramic, white ware	1830	2010	Miller 1991:1-25
Glass-other, Ferguson-type syringe	1846	1900	Howard-Jones 1947
Glass-other, light bulb	1879	2010	Lorrain 1968:44
Glassware, cut	1600	1900	Lorrain 1968:35
Glassware, mold-blown	1790	1850	Lorrain 1968:35-36
Glassware, pressed	1827	2010	Lorrain 1968:38-39
Insulator, bee-hive	1885	2010	Berge 1980:153-164
Insulator, cable	1890	2010	Berge 1980:153-164
Insulator, double groove pony	1888	2010	Berge 1980:153-164
Insulator, double petticoat	1883	2010	Berge 1980:153-164
Insulator, generic	1844	2010	Berge 1980:153-164
Insulator, pony	1879	2010	Berge 1980:153-164
Insulator, threaded	1865	2010	Berge 1980:153-164
Insulator, transposition	1894	2010	Berge 1980:153-164
Lock, barrel key	1600	1920	Alth 1972
Lock, improved pin-tumbler lock (flat key)	1861	2010	Alth 1972
Lock, modern combination	1862	2010	Alth 1972
Lock, padlock	1921	2010	Alth 1972
Machinery, linotype hot press	1886	2010	Mergenthaler Linotype Company 1940
Metal-other, crown cap	1892	2010	Lorrain 1968:42
Metal-other, crown cap w/ plastic liner	1955	2010	Lorrain 1968:42
Metal-other, Hutchinson stopper	1879	1912	Lorrain 1968:42; Munsey 1970:101-106
Money/token, capped bust half dime	1829	1837	http://www.wikicoins.com/Capped_Bust_Half_Dime
Money/token, Indian head cent	1859	1909	http://indiancent.org/indian-cent-mintage/
Money/token, Lincoln cent	1909	2010	http://en.wikipedia.org/wiki/Lincoln_cent
Money/token, mercury dime	1916	1946	http://mercurydime.net/mercury-dime-mintage/
Money/token, Roosevelt dime	1846	2010	http://rooseveltdimes.net/roosevelt-dime-mintage/
Money/token, seated Liberty dime	1837	1891	http://en.wikipedia.org/widi/Dime_(United_States_coin)
Money/token, seated Liberty quarter	1838	1891	http://www.wikicoins.com/Seated_Liberty_Quarter
Money/token, seated silver Liberty dollar	1840	1873	http://www.wikicoins.com/Seated_Liberty-Dollar
Nail, hand-wrought	1598	1850	Nelson 1968:3
Nail, machine-cut	1830	1900	Nelson 1968:8
Nail, wire-drawn	1890	2010	Fontana and Greenleaf 1962:47; Nelson 1968:10
Window glass, cast-plate	1878	1930	Roenke 1978:5-11
Window glass, crown	1598	1930	Roenke 1978:5-11
Window glass, cylinder	1830	1930	Roenke 1978:5-11
Window glass, sheet-drawn	1917	2010	Roenke 1978:5-11
Wood, matchstick	1827	2010	The Great Idea Finder 2005
Wood, pencil	1560	2010	Petroski 1989

Table 7.6. Begin and end dates for manufacturing companies encountered in Euroamerican assemblages.

Manufacturer	Begin	End	Reference
Ammo, Remington Arms-Union Metallic Cartridge Co.	1911	1921	Gillio et al. 1980:37
Ammo, Remington Arms Company Inc.	1921	2010	Gillio et al. 1980:37
Ammo, Union Metallic Cartridge Co.	1867	1911	Gillio et al. 1980:37
Ammo, Winchester Repeating Arms Co.	1866	2010	Suydam 1982:8
Bottle glass, Adolphus Busch Glass Manufacturing Co.	1904	1928	Toulouse 1971:26
Bottle glass, A. H. Heisey Glass Co.	1893	1958	Toulouse 1971:233
Bottle glass, American Bottle Co.	1905	1929	Toulouse 1971:30
Bottle glass, A. S. Hinds Co.	1870	1925	Toulouse 1971:54
Bottle glass, Bagley & Co.	1871	1899	Toulouse 1971:77
Bottle glass, Brockway Glass Co.	1907	2010	Toulouse 1971:59
Bottle glass, Chattanooga Glass Co.	1901	1960	Toulouse 1971:108
Bottle glass, Cumberland Glass Manufacturing Co.	1883	2010	Toulouse 1971:380
Bottle glass, Cunninghams & Co.	1879	1907	Toulouse 1971:119
Bottle glass, Diamond Glass Co.	1888	2010	Toulouse 1971:550–551
Bottle glass, E.R. Squibb	1858	1895	Toulouse 1971:481
Bottle glass, Fairmount Glass Works	1889	1968	Toulouse 1971:200
Bottle glass, Foster Brothers Glass Co.	1929	2010	Toulouse 1971:197 466
Bottle glass, Gallo Glass Co.	1966	2010	Toulouse 1971:219
Bottle glass, Gayner Glass Works Co.	1898	2010	Toulouse 1971:133 216
Bottle glass, Glenshaw Glass Co.	1895	2010	Toulouse 1971:211
Bottle glass, Graham Glass Co.	1912	1930	Lockhart 2010:50
Bottle glass, Hazel-Atlas Glass Co.	1919	1925	Toulouse 1971:39–40
Bottle glass, Heintz	1888	2010	Toulouse 1971:236
Bottle glass, H. J. Heinz Co.	1860	2010	Toulouse 1971:236–238
Bottle glass, J. T. & A. Hamilton	1884	1943	Toulouse 1971:290
Bottle glass, Hermetic Fruit Jar Co., Kerr	1903	1929	http://www.sha.org/canning jars
Bottle glass, Kerr Glass Manufacturing Co.	1912	2010	Toulouse 1971:306–307
Bottle glass, Knox Glass Bottling Co.	1920	1968	Lockhart et al. 2008:1–4
Bottle glass, Latchford Glass Co.	1939	1957	Toulouse 1971:332
Bottle glass, Maryland Glass Corp.	1907	2010	Toulouse 1971:339
Bottle glass, Mason Fruit Jar Co.	1885	1900	Toulouse 1971:343
Bottle glass, Massillon Bottle & Glass Co.	1900	1904	Toulouse 1971:348
Bottle glass, Maywood Glass Co.	1930	1961	Toulouse 1971:357
Bottle glass, Metro Glass Bottle Co.	1935	1949	Toulouse 1971:174
Bottle glass, Muncie Glass Co.	1895	1910	Toulouse 1971:346
Bottle glass, Obear-Nestor Glass	1894	2010	Toulouse 1971:373–374
Bottle glass, Owens Bottle Co.	1911	1929	Toulouse 1971:393
Bottle glass, Owens Illinois Glass Co.	1929	1966	Toulouse 1971:403–406
Bottle glass, Pacific Coast Glass Co.	1925	1930	Toulouse 1971:414
Bottle glass, Pearl	1909	1912	Toulouse 1971:72
Bottle glass, Pennsylvania Bottle Co.	1929	1953	Toulouse 1971: 333
Bottle glass, Pierce Glass Co.	1912	1916	Toulouse 1971:367–368
Bottle glass, Reed Glass Co.	1927	1956	Toulouse 1971:432
Bottle glass, Root Glass Co.	1901	1932	Toulouse 1971:446
Bottle glass, Schram Glass Manufacturing Co.	1915	1925	Toulouse 1971:166 465
Bottle glass, Streator Bottle & Glass Co.	1881	1905	Toulouse 1971:461
Bottle glass, Thatcher	1900	2010	Toulouse 1971:496
Bottle glass, Three Rivers Glass Co.	1927	1937	Toulouse 1971:494
Bottle glass, Turner Brothers Glass Co.	1910	1929	Toulouse 1971:490
Bottle glass, United Drug Co.	1910	1930	Toulouse 1971:509
Bottle glass, Whitall-Tatum Glass Co.	1857	1938	Toulouse 1971:544–545
Bottle glass, William Franzen & Son	1900	1929	Toulouse 1971:536
Bottle glass, William McCully & Co.	1832	1886	Toulouse 1971:351
Bottle glass, Wyeth	1880	1910	Toulouse 1971:548

Table 7.7. Ceramic price indices.

Decoration	Average Price/Dozen			Indices		
	Cups/ Saucers	Plates	Bowls	Cups/ Saucers	Plates	Bowls
1895–1897						
Undecorated	$1.10	$0.68	$1.00	$1.00	$1.00	$1.00
Molded	$1.26	$0.75	$1.15	$1.15	$1.10	$1.15
Transfer	$1.49	$1.00	$1.37	$1.35	$1.47	$1.37
Gilt	$1.73	$1.32	$1.94	$1.57	$1.94	$1.94
Porcelain	$4.12	$2.71	$2.80	$3.75	$3.99	$2.80
1900–1902–1909						
Undecorated	$0.68	$0.50	$0.72	$1.00	$1.00	$1.00
Molded	$1.07	$0.73	$0.97	$1.57	$1.46	$1.35
Color, gilt	$1.70	$1.27	$1.71	$2.50	$2.54	$2.38
Porcelain	$2.82	$2.01	NA	$4.15	$4.02	4.00*
1922–1927						
Undecorated	$2.21	$1.50	$1.51	$1.00	$1.00	$1.00
Molded	$2.52	$1.63	$1.93	$1.14	$1.09	$1.28
Decal, transfer, sponged	$3.41	$1.70	$2.16	$1.54	$1.13	$1.43
Gilded, banded	$4.69	$2.36	$2.77	$2.12	$1.57	$1.83
Porcelain	$6.10	$4.31	$4.02	$2.76	$2.87	$2.66

* = Estimated value based on relationship of porcelain to other categories (no bowl prices available)

Table 10.1. Structure 4, 125 West Manhattan Avenue, resident and business directory.

Years	Occupant	Status	Profession
125 West Manhattan Avenue			
ca. 1928–1933	Parker, Frank W.	owner	Judge
1934–1937	Vacant	NA	NA
1938–1939	Bell, W. P., Rev.	renter	Minister
1940–1946	Vacant	NA	NA
125 West Manhattan Avenue, Apt 1			
1947–1948	Moody, John C.	renter	Director, National Catholic Community
1949–1950	Sterling, Mrs. Ruth	renter	Artist
1951–1952	Vacant	NA	NA
1953–1957	Johnson, Ray H. (wife Lorene)	renter	Clerk, Safeway Stores; Assistant Manager by 1955
1958	Dignan, Mary E.	renter	unknown
1959	Hall, Wendell	renter	Employee, U.S. Government
1960–1962	Sieps, Mary A., Mrs.	renter	unknown
1963–1966	Martinez, Bernabe	renter	Clerk, Bureau of Revenue
1967–1968	Vacant	NA	NA
1969–1970	Arguello, Gloria	renter	Employee, State Capitol
1971+	No longer listed	NA	NA
125 West Manhattan Avenue, Apt 2			
1947–1948	Estabrook, J. F.	renter	Manager, Miller Motors Inc.
1949–1950	Grum, Paula	renter	unknown
1951–1952	Vacant	NA	NA
1953–1954	Rogers, James J. (wife Mary A.)	renter	Rehab Counselor, Dept. of Public Welfare
1955–1956	Crumbaugh, George	renter	Salesman, Santa Fe Book & Stationery
1957	Vacant	NA	NA
1958–1960	Howard, Martha O.	renter	unknown
1961–1962	Romero, Dolores	renter	Accountant, PERA Board
1963	Romero, Dolores	renter	Secretary, Taxpayers Assn. of NM
1964–1965	Vacant	NA	NA
1966	Romero, Dolores	renter	Accountant, PERA Board
1967–1968	Stone, Leland	renter	Lawyer, State Public Service Commission
1969	No return of info	NA	NA
1970	Vacant	NA	NA
1971+	No longer listed	NA	NA
125 West Manhattan Avenue, Apt 3			
1947–1948	Forrest, C. V.	renter	Engineer, R. E. McKee
1949–1950	Samson, John G. (wife Philena)	renter	Dir. Of Publications (Publicity?), State Game & Fish Dept
1951–1952	Bichan, G. Fred S.	renter	Electrician
1953–1955	Helm, John Y. (and Willie M.)	renter	Deputy State Bank Examiner
1956–1957	Salazar, Frances	renter	Teacher, Kaune School
1958	Piper, Edwin E. (wife Julia H.)	renter	Gilbert White & Gilbert
1959	Vacant	NA	NA
1960	Vitilow, Charles W. (wife Ora L.)	renter	unknown
1960	Vitilow, Ora L. (husb. Charles W.)	renter	Clerk, State Dept of Finance & Administration
1961	Vacant	NA	NA
1962	Baca, Frances T.	renter	Secretary of State Office
1963	Maher, Patricia A.	renter	Bookkeeper, St. Michael's College
1964–1965	Vacant	NA	NA
1966	Townsend, Olivia	renter	Waitress, Senate Restaurant

Table 10.1. (continued)

Years	Occupant	Status	Profession
1967–1968	Vacant	NA	NA
1969–1970	Lucero, Cecelia	renter	Secretary, Avery-Bowman Insurance Agency
1971+	No longer listed	NA	NA
125 West Manhattan Avenue, Apt 4			
1947–1948	Dixon, J. J.	renter	Manager, United Press Associations
1949–1954	Vacant	NA	NA
1955–1957	Alexander, Monroe K.	renter	State Police Identification Officer
1958	Manning, Jack W.	renter	unknown
1959–1962	Coy, Lillian B.	renter	Research Analyst, then Field Rep., State Welfare Dept.
1963	Arguello, Samuel R.	renter	Employee, Foremost Dairy
1964–1967	Vacant	NA	NA
1968	Abeyta, Aurora L.	renter	Clerk, State Department of Health
1969	Garcia, Lucian (or Julian)	renter	Employee, Saint Vincent Hospital
1970	Vacant	NA	NA
1971+	No longer listed	NA	NA
125 West Manhattan Avenue, Apt 5			
1947–1950	Vacant	NA	NA
1951–1952	Erickson, Gerald W.	renter	Chief Accountant (unknown where)
1953–1954	Cline, Earl W.	renter	X-ray Technician, St. Vincent Hospital
1955–1956	Wuest, John L.	renter	unknown
1957	Vacant	NA	NA
1958	Ottati, Angelo J. (wife Mildred R.)	renter	Bartender, Bishop's Lodge
1959	Maez, Cora	renter	Operator, Telephone Company
1960	Greene, A. T.	renter	unknown
1961–1962	Gallegos, Patricia	renter	unknown
1963–1965	Vigil, Epitacio (wife Agatha)	renter	Correctional Officer, State Penitentiary
1966	Vigil, Epitacio (wife Agatha)	renter	Laborer, Robert E. McGee Contractors
1967–1968	Shoemaker, Anton D.	renter	Watchmaker, Rubber Bruce Jewelers
1969	Johnson	renter	Employee, State Capitol
1970	Vacant	NA	NA
1971+	No longer listed	NA	NA
125 West Manhattan Avenue, Apt 6			
1947–1948	Huffman, C. E.	renter	Estimator, R. E. McKee
1949–1950	Stover, Daniel I. (wife Joy H.)	renter	Auditor
1949–1950	Stover, Joy H. (husb. Daniel I.)	renter	Clerk, U.S. District Land & Survey
1951–1954	Smylie, Vernon G.	renter	Correspondent, Albuquerque Tribune
1955–1956	McGuire, George	renter	Mechanical Engineer, Wolgamood & Millington
1957–1958	Vacant	NA	NA
1959–1963	Fidler, Mrs. Helen H. (widow)	renter	Receptionist, Hilda C Voetberg
1964–1966	Vacant	NA	NA
1967	Sandoval, Cirilo G.	renter	unknown
1968	No return of information	NA	NA
1969–1970	Byrd, Jerry	renter	Manager, St. Vincent Hospital
1971+	No longer listed	NA	NA

NA = Not Applicable

Table 10.2. Structure 4, 125 West Manhattan Avenue, feature summary table.

SCU No.	BHT No.	STR No.	Feature		Center Point		Dimensions (m)			Depth		Sample
			No.	Type	North	East	Length	Width	Thickness	Begin	End	
10	NA	4	308	Posthole	510.75	471.99	0.25	0.25	–	8.91	–	0%
12	NA	4	313	Posthole	511.76	494.82	0.26	0.26	0.06	9.60	9.54	100%
12	NA	4	314	Posthole	512.56	494.43	0.18	0.16	–	9.60	–	0%
12	NA	4	320	Bone pit	507.45	494.35	0.90	0.50	0.20	9.68	9.48	100%
12	NA	4 & 6	350	Irrigation ditch	510.50	493.00	6.00	0.50	0.40	9.67	9.27	17%
12	NA	4	405	Posthole	510.50	494.00	0.30	0.30	0.15	9.68	9.53	100%

Table 11.1. Structure 6, 111 West Manhattan Avenue, resident and business directory.

Years	Occupant	Status	Profession
ca. 1928–1935	Muller, Frederick	owner	Real Estate and Insurance Agent
1936–1954	Muller, Mrs. Adella (widow)	owner	unknown
1955–1956	vacant	NA	NA
1957–1958	Collier, Adella	owner	unknown
1958	vacant	NA	NA
1959–1960	Harwell, Callie L.	renter	unknown
1961	Evans, M. L.	renter	Owner, Evans Weatherproof Drumheads
1962	Cline, Leonard E.	renter	Kitchen Helper, Palace Restaurant
1963	Cline, Leonard E.	renter	Student
1964–1966	vacant	NA	NA
1967+	no longer listed	NA	NA

NA = Not Applicable

Table 11.2. Structure 6, 111-1/2 West Manhattan Avenue, resident and business directory.

Years	Occupant	Status	Profession
1951–1952	Pepperis, Louis	renter	Owner, Louis' Flower Shop
1953–1956	Aragon, Andrew	renter	unknown
1957	Vacant	NA	NA
1958	Harper, Clyde D.	renter	Salesman, Family Record Plan
1959–1961	Bradley, Walter L.	renter	unknown
1962	Angel, Frank	renter	Clerk, State Motor Vehicle Dept.
1963	Burns, Francis	renter	Retired
1963	Trevigo, Pete P.	renter	Driver, R. E. McKee
1964–1966	Vacant	NA	NA
1967+	No longer listed	NA	NA

NA = Not Applicable

Table 11.3. Structure 6, 111 Rear West Manhattan Avenue, resident and business directory.

Years	Occupant	Status	Profession
1947–1948	King, Charles	renter	unknown
1947–1948	Orcutt, F.	renter	unknown
1949–1950	Kitzs, Steve	renter	unknown
1951–1960	No information found for this time period	NA	NA
1961	vacant	NA	NA
1962	Fite, C. R.	renter	unknown
1963+	no longer listed	NA	NA

NA = Not Applicable

Table 11.4. Structure 6, 111 West Manhattan Avenue, feature summary table.

SCU No.	BHT No.	STR No.	Feature		Center Point		Dimensions (m)			Depth		Sample
			No.	Type	North	East	Length	Width	Thickness	Begin	End	
NA	58	6	301	Construction - debris pit	509.95	506.98	3.15	1.00	1.00	10.13	9.13	0%
NA	58	6	302	Construction - debris pit	510.08	510.12	1.80	1.00	0.95	10.19	9.24	0%
12	NA	6	318	Posthole	512.77	497.08	0.23	0.23	–	9.67	–	0%
12	NA	6	392	Domestic - refuse pit	509.50	494.00	1.00	0.70	0.40	9.67	9.27	100%

Table 12.1. Structure 10, 104 South Capitol Street, resident and business directory.

Years	Occupant	Status	Profession
104 South Capitol Street, Apt 1			
1951–1952	Cruz, Francis M. (wife Virginia)	renter	State Department of Education
1953–1954	Strahlem, Richard E.	renter	Controller, State Highway Department
1955–1957	vacant	NA	NA
1958	Romero, Rosemary	renter	not listed
1959–1960	Bilbray, Clarence E.	renter	Office Engineer, Bureau of Land Management
1961–1965	vacant	NA	NA
1966	O'Connor, John F.	renter	Engineer, State Public Service Commission
1967–1970	vacant	NA	NA
1971–1972	Mosely, Dwayne	renter	Employee, State Health & Social Services Department
1973	Galtry, Stephen W.	renter	NA
1974–1975	vacant	NA	NA
1976	Santa Fe County Social Services	business	business
1977	vacant	NA	NA
1978–1980	Real Property Investment Inc.	business	business
1981	not listed	NA	NA
1982	Reasonable Facsimile Typography	business	business
1983–1984	not listed	NA	NA
1985–1990	New Mexico Retail Liquor Dealers Association	business	business
1991	Christie P. R. Real Estate	business	business
1992–1994	vacant	NA	NA
1995	Christie P. R. Real Estate	business	business
1996	vacant	NA	NA
1997	Christian Science Committee	business	business
1998–1999	A & B Mail Direct Mail Advertising Services	business	business
2000–2001	Plateau Salon Beauty Shop	business	business
2002–2004	Terry Ken Beauty Salon	business	business
2005–2007	not listed	NA	NA
2008–2009	Radiance-Advanced Skin Care	business	business
104 South Capitol Street, Apt 2			
1951–1952	Clarkson, Walter D. (wife Georgia)	renter	Pipefitter
1953–1954	Strahlem, Richard E.	renter	Controller, State Highway Department
1955–1957	vacant	NA	NA
1958–1959	Romero, Rosemary	renter	not listed
1960	Bilbray, Clarence E.	renter	Office Engineer, Bureau of Land Management
1961	Knight, Margret	renter	not listed
1962–1966	Ripley, Edward P. (wife Violet)	renter	Lawyer
1967–1971	vacant	NA	NA
1972	Szuszitzky, Tom C.	renter	Teacher, New Mexico School for the Deaf
1973	Rodriglez, Jose	renter	Security Guard
1974–1975	vacant	NA	NA
1976	Santa Fe County Social Services	business	County Office
1977	vacant	NA	NA
1978	Park & Associates Real Estate	business	business
1978	Union Copy	business	business
1979–1980	Real Property Investments	business	business
1981	vacant	NA	NA
1982	Reasonable Facsimile	business	business
1983–1984	not listed	NA	NA
1985–1996	Davenport & Associates	business	business
1997	Investors Escrow Inc.	business	business

Table 12.1. (continued)

Years	Occupant	Status	Profession
1998–2007	New Mexico Cable Communication Association	business	business
1999–2000	New Mexico Legislative Reports	business	business
2001–2009	Davenport & Associates	business	business
104 South Capitol Street, Apt 3			
1951–1952	vacant	NA	NA
1953–1954	Lazar, Louise	renter	Stenographer
1955–1956	Everett, Richard W.	renter	Assistant, Governor's Office
1957	vacant	NA	NA
1958	Rivera, Rosalie E.	renter	Accountant, Department of Welfare
1960	Goerner Chas. L.	renter	Student
1961	Tomas, Brian	renter	Director, State Department of Education
1962	Pino, Greg	renter	Lab Tech, State Highway Department
1963–1965	Dunifon, Carl P.	renter	Assistant, State Attorney General's Office
1966	Cobb, Tom	renter	Architect
1967–1971	vacant	NA	NA
1972	Winkley, Malcolm	renter	Student
1973	Roybal, J. M. (Teresa)	renter	Auditor, State Capitol
1974–1975	vacant	NA	NA
1976	Santa Fe County Social Services	business	County Office
1977	vacant	NA	NA
1978	Park & Associates Real Estate	business	business
1979–1980	Real Property Investments	business	business
1981–1984	not listed	NA	NA
1985–1990	New Mexico Legislative Reports	business	State Office?
1991	Investors Escrow Inc.	business	business
1991	Robinson Agency	business	business
1992–1994	vacant	NA	NA
1995–1996	Investors Escrow Inc.	business	business
1997	Felix Luna Studio	business	business
1998	New Mexico Legislative Reports	business	State Office?
1999	Investors Escrow Incorporated	business	business
2000–2001	vacant	NA	NA
2002	Donna Darden Interior Design	business	business
2003	vacant	NA	NA
2004–2005	Canyon Mortgage	business	business
2006–2007	not listed	NA	NA
2008–2009	New Mexico Legislative Reports	business	State Office?
104 South Capitol Street, Apt 4			
1951–1952	Hart Harry E.	renter	Salesman
1953–1954	Jarma, Emaline	renter	Office Secretary, Civil Aeronautics
1955–1956	Longbotham, Jean	renter	Service Representative, Mountain States Telephone
1957–1958	Longbotham, Jean	renter	Operator, Telephone Company
1959–1961	Coveney, Bonnie M.	renter	Writer
1962	Rice, Michael H.	renter	Court Reporter, Dearmley Meier
1963–1965	vacant	NA	NA
1966	Alexander, Lucille	renter	Supervisor, State Tax Commission
1967–1968	Powell, Helen K.	renter	Administrative Assistant, State Planning Office
1969–1970	vacant	NA	NA
1971	Martinez, Pauline	renter	Employee, State Land office
1972	Ellis, Fremont III	renter	Artist
1973	Lovato, Joseph	renter	not listed
1974–1975	vacant	NA	NA
1976	Santa Fe County Social Services	business	County Office
1977	vacant	NA	NA
1978	Park & Associates Real Estate	business	business
1978	Union Copy	business	business

Table 12.1. (continued)

Years	Occupant	Status	Profession
1979	Multiple Listing Service Real Estate Investment	business	business
1980–1983	not listed	NA	NA
1984–1987	Garcia, Beverly Ann & Associates	business	business
1988–1990	Rae Steven R.	renter	Consulting Engineer
1991	Christian Science Committee	business	business
1992–1996	vacant	NA	NA
1997	New Mexico Cable Television Association	business	business
1998–2001	AuthentKos Skin Body Care Studio	business	business
2002–2003	vacant	NA	NA
2004	Hallmark Properties Real Estate	business	business
2005–2008	not listed	NA	NA
2009	Robert Dunn Real Estate	NA	NA
104 South Capitol Street, Apt 5			
1951–1952	Chavez, Vera	renter	Receptionist, Attorney General's Office
1953–1954	Samaras, John	renter	not listed
1955–1957	vacant	NA	NA
1958	Geyer, Mariamne	renter	not listed
1959	Carter, Mrs. Gail	renter	Employee, State Capitol
1960–1961	Preli, Alfred	renter	Employee, Federal Aviation Agency
1962–1965	vacant	NA	NA
1966–1967	Oakley, Mrs. Delia	renter	Maid, Montezuma Hotel
1968–1969	vacant	NA	NA
1970	Griego, Ernest	renter	Shift Manager, Vips Restaurant
1971	vacant	NA	NA
1972	Chavez, Rosalie	renter	Manager, Court House Snack Bar
1973	Herman, Ruth	renter	not listed
1974–1975	vacant	NA	NA
1976	Santa Fe County Social Services	business	County Office
1977	vacant	NA	NA
1978–1986	not listed	NA	NA
1987	Rae, Steven R.	renter	Consulting Engineer
1988–1990	not listed	NA	NA
1991	James, Karen S.	renter	Christian Science Practioneer
1992–2001	Christian Science Committee	business	business
2002–2003	vacant	NA	NA
2004	Radiance Advanced Skin Care	business	business
2005+	No longer listed	NA	NA
104 South Capitol Street, Apt 6			
1951–1952	Hayes, Raymond (wife Patricia)	renter	Salesman, Goodman's Men's Store
1953–1954	Hubbard, Roy	renter	NA
1955–1960	Espinosa, Reginaldo (wife Josephine G.)	renter	not listed
1961	Espinosa, Reginaldo (wife Josephine G.)	renter	Whole Gasoline And Oil
1962–1965	Espinosa, Reginaldo (wife Josephine G.)	renter	Espinosa Motor Co.- Espinosa Oil Co.
1966	vacant	NA	NA
1967	Settle, Duane	renter	Planner, State Planning Office
1968	vacant	NA	NA
1969–1972	Cummings, Elaine	renter	Teller, First Northern Savings and Loan Association
1973	Sanders, C. R.	renter	Employee, State Capitol
1974–1975	vacant	NA	NA
1976	Santa Fe County Social Services	business	County Office
1977	vacant	NA	NA
1978	not listed	NA	NA
1979–1982	Amicus Secretary Services	business	business
1983–1984	not listed	NA	NA
1985	vacant	NA	NA
1986	not listed	NA	NA

Table 12.1. (continued)

Years	Occupant	Status	Profession
1987	New Mexico Hotel & Motel Company Association	business	business
1988–1990	not listed	NA	NA
1991	Davenport & Associates	business	business
1992–1995	Felix Luna Design Jewelry	business	business
1996–1999	vacant	NA	NA
2000–2005	Robert Dunn Real Estate	business	business
2006+	No longer listed	NA	NA
104 South Capitol Street, Apt 7			
1951–1952	Mueller. Chas A. (wife Betty J.)	renter	Lab Tech
1953–1954	vacant	NA	NA
1955	Dyche, Carmen	renter	Diet And Nutrition State Department of Education
1956	not listed	NA	NA
1957	Von Ehren Kroop, Hurley	renter	Engineer, State Highway Department
1958	Richardson, Bob	renter	not listed
1959–1963	Manly, Phillip T.	renter	Employee, Legislative Council
1964–1965	Horkay, John (wife Louise)	renter	Construction Worker
1966–1968	Wood, Mrs. Helen	renter	Clerk, Office of the State Engineer
1969–1970	Romero, Orlando (wife Rebecca)	renter	Orlando Employee State Highway Rebecca Student
1971–1972	Schwartz, Curtis	renter	Attorney, New Mexico Bureau of Revenue
1973–1975	vacant	NA	NA
1976	Santa Fe County Social Services	business	County Office
1977	vacant	NA	NA
1978–1990	not listed	NA	NA
1991–1993	UCC Search & Business	business	business
1994	Drug Abuse Treatment Alternative	business	business
1995	Felix Luna Design Jewelry	business	business
1996	vacant	NA	NA
1997	UCC Search & Business	business	business
1998–1999	vacant	NA	NA
2000–2001	Hallmark Properties Real Estate	business	business
2002	vacant	NA	NA
2003–2006	not listed	NA	NA
2007–2008	Brad M. Isaacson Architects	business	business
2009+	No longer listed	NA	NA
104 South Capitol Street, Apt 8			
1951–1959	Salazar, Lydia, Mrs.	renter	Secretary, State Corporation Commission
1960–1961	Clayton, Dallas	renter	Employee, University of California
1962	no return	NA	NA
1963	Badgett, Mrs. Bee R.	renter	Office Secretary, Tourism Division o New Mexico
1964–1968	vacant	NA	NA
1969–1970	Roach, Lila	renter	Cashier, La Fonda
1971	vacant	NA	NA
1972	Mast, L. L.	renter	NA
1973	Rodgers, John	renter	NA
1974–1975	vacant	NA	NA
1976	Santa Fe County Social Services	business	County Office
1977	vacant	NA	NA
1978–1990	not listed	NA	NA
1991–1996	UCC Search Incorporated Tax Line	business	business
1997	Garcia, Beverly Ann & Associates	business	business
1998–2002	UCC Search Incorporated Tax Line	business	business
2003+	no longer listed	NA	NA

NA = Not Applicable

Table 12.2. Structure 10, 104 South Capitol Street, feature summary table.

SCU No.	BHT No.	STR No.	Feature		Center Point		Dimensions (m)			Depth		Sample
			No.	Type	North	East	Length	Width	Thickness	Begin	End	
9	NA	10	252	Domestic - refuse pit	516.80	505.80	1.05	0.80	0.07	9.80	9.73	100%
9	NA	10	253	Construction - debris pit	515.85	517.39	0.97	0.70	0.32	9.80	9.48	100%
9	NA	10	254	Posthole	515.81	506.79	0.20	0.15	–	9.80	–	0%
9	NA	10	255	Posthole	516.10	507.79	0.20	0.15	–	9.75	–	0%
9	NA	10	256	Posthole	516.36	507.92	0.20	0.15	–	9.73	–	0%
9	NA	10	257	Posthole	518.20	505.14	0.23	0.15	–	9.73	–	0%
9	NA	10	258	Posthole	518.10	508.69	0.35	0.35	–	9.68	–	0%
9	NA	10	259	Construction - debris pit	516.85	513.75	0.76	0.45	0.14	9.75	9.58	100%
9	NA	10	260	Posthole	521.43	505.01	0.30	0.30	–	9.68	–	0%
9	NA	10	261	Posthole	521.13	506.87	0.40	0.40	0.19	9.66	9.47	100%
9	NA	10	262	Posthole	521.29	508.89	0.30	0.12	–	9.65	–	0%
9	NA	10	263	Posthole	521.33	510.36	0.25	0.25	–	9.66	–	0%
9	NA	10	264	Construction - debris pit	515.35	512.64	1.68	1.37	–	9.82	–	0%
9	NA	10	265	Construction - debris pit	516.00	519.28	2.53	1.73	–	9.73	–	0%
9	NA	10	266	Construction - debris pit	515.75	515.74	0.82	0.70	–	9.72	–	0%
9	NA	10	267	Animal burial pit	525.69	512.32	0.32	0.32	0.10	9.70	9.60	100%
9	NA	10	268	Posthole	521.44	511.81	0.30	0.30	–	9.66	–	0%
9	NA	10	269	Posthole	520.85	512.26	0.26	0.25	–	9.68	–	0%
9	NA	10	270	Posthole	520.88	512.66	0.25	0.20	–	9.66	–	0%
9	NA	10	272	Posthole	519.72	505.24	0.40	0.32	–	9.65	–	0%
9	NA	10	273	Posthole	527.10	505.37	0.34	0.33	–	9.50	–	0%
9	NA	10	274	Posthole	530.88	505.22	0.25	0.25	–	9.65	–	0%
9	NA	10	276	Construction - debris pit	527.62	516.75	1.08	0.70	–	9.65	–	0%
9	NA	10	284	Construction - debris pit	538.69	516.80	0.70	0.65	0.11	9.59	9.48	50%
9	NA	10	288	Posthole	539.78	508.94	0.20	0.20	–	9.46	–	0%
9	NA	10	289	Posthole	539.56	570.18	0.18	0.18	–	9.52	–	0%
9	NA	10	290	Posthole	538.52	572.88	0.30	0.20	–	9.53	–	0%
9	NA	10	291	Posthole	538.53	513.26	0.15	0.14	–	9.54	–	0%
9	NA	10	292	Posthole	538.90	514.04	0.14	0.14	–	9.55	–	0%
9	NA	10	293	Posthole	538.99	514.11	0.33	0.30	–	9.53	–	0%
9	NA	10	294	Posthole	541.25	513.25	0.16	0.14	–	9.48	–	0%
9	59	10	299	Construction - debris pit	543.51	509.29	7.80	4.20	0.90	9.39	8.49	0%
9	NA	10	300	Animal burial pit	531.22	515.65	0.95	0.80	0.36	9.68	9.32	80%
9	60	10	303	Construction - debris pit	552.96	514.65	4.70	1.10	1.00	9.75	8.75	0%

NA = Not Applicable

Table 13.1. Structure 11, 116 South Capitol Street, resident and business directory.

Years	Occupant	Status	Profession
ca. 1928–1940	Beacham, William	owner	President, Beacham-Minardot Hardware
1942–1957	Beacham, Mrs. Leonore M.	owner	Widow
1959–1960	State Directory of Surplus Property	business	State Office
1959–1960	State Department Division of Indian Education	business	State Office
1959–1960	Division of Science, Math and Foreign Languages	business	State Office
1961–1962	vacant	NA	NA
1963–1964	State Vocational and Technical Education Division	business	State Office
1965–1968	State Department of Education - Lunch Division	business	State Office
1967–1968	State Health/Physical Education & Recreation Division	business	State Office
1969+	No longer listed	NA	NA

NA = Not Applicable

Table 13.2. Structure 11, 116 South Capitol Street, feature summary table.

SCU No.	BHT No.	STR No.	Feature		Center Point		Dimensions (m)			Depth		Sample
			No.	Type	North	East	Length	Width	Thickness	Begin	End	
12	NA	11	315	Posthole	513.57	494.74	0.18	0.28	–	9.63	–	0%
12	NA	11	316	Posthole	514.26	493.48	0.06	0.06	–	9.65	–	0%
12	NA	11	317	Posthole	514.82	493.68	0.26	0.25	–	9.53	–	0%
12	NA	11	319	Posthole	514.91	496.18	0.28	0.28	–	9.65	–	0%
12	NA	11	321	Domestic - refuse pit	515.52	494.78	1.15	0.77	0.35	9.72	9.37	100%
12	NA	11	322	Domestic - refuse pit	518.07	494.83	1.70	1.60	0.02	9.69	9.67	100%
12	NA	11	324	Posthole	516.57	495.51	0.20	0.20	–	9.62	–	0%
12	NA	11	325	Posthole	521.15	494.00	0.18	0.18	–	9.56	–	0%
12	NA	11	326	Posthole	521.23	495.14	0.28	0.22	–	9.56	–	0%
12	NA	11	327	Posthole	521.39	496.87	0.16	0.16	–	9.56	–	0%
12	NA	11	328	Posthole	526.13	493.97	0.25	0.19	–	9.51	–	0%
12	NA	11	329	Posthole	525.94	494.45	0.24	0.18	–	9.51	–	0%
12	NA	11	330	Posthole	526.41	494.59	0.15	0.15	–	9.50	–	0%
12	NA	11	331	Posthole	526.38	497.34	0.34	0.32	–	9.48	–	0%
12	NA	11	332	Domestic - refuse pit	522.41	495.85	0.60	0.60	0.06	9.54	9.48	100%
12	NA	11	333	Posthole	518.43	495.34	0.26	0.26	–	9.65	–	0%
12	NA	11	334	Posthole	528.32	494.79	0.19	0.13	–	9.45	–	0%
12	NA	11	335	Posthole	532.29	494.70	0.23	0.22	–	9.44	–	0%
12	NA	11	336	Posthole	532.70	494.37	0.18	0.18	–	9.44	–	0%
12	NA	11	337	Posthole	533.59	495.62	0.23	0.23	–	9.44	–	0%
12	NA	11	338	Posthole	532.97	496.22	0.38	0.38	–	9.43	–	0%
12	NA	11	339	Domestic - refuse pit	523.70	494.31	0.70	0.75	0.56	9.73	9.17	100%
12	NA	11	340	Posthole	519.27	495.11	0.70	0.40	0.16	9.66	9.50	100%
12	NA	11	341	Domestic - refuse pit	527.58	494.63	0.95	0.70	0.20	9.58	9.38	100%
12	NA	11	342	Domestic - refuse pit	530.93	493.67	0.60	0.60	0.06	9.50	9.44	100%
12	NA	11	343	Domestic - refuse pit	519.11	493.59	0.63	0.39	0.10	9.67	9.57	100%
12	NA	11	344	Domestic - refuse pit	515.67	487.94	0.62	0.55	0.04	9.50	9.46	100%
12	NA	11	345	Domestic - refuse pit	520.16	493.65	0.33	0.30	0.04	9.60	9.56	100%
12	NA	11	346	Domestic - refuse pit	531.00	495.92	0.77	0.56	0.15	9.49	9.34	100%
12	NA	11	347	Domestic - refuse pit	516.72	493.66	0.38	0.34	0.05	9.68	9.63	100%
12	NA	11	348	Domestic - refuse pit	517.82	493.66	0.48	0.46	0.08	9.66	9.58	100%
12	NA	11	349	Domestic - refuse pit	529.95	493.97	0.98	1.00	0.23	9.50	9.27	100%
13	NA	11	351	Bone pit	515.26	489.07	1.28	0.75	0.30	9.55	9.25	100%
12	NA	11	352	Domestic - refuse pit	517.56	493.18	0.60	0.28	0.13	9.67	9.54	100%

Table 13.2. (continued)

SCU No.	BHT No.	STR No.	Feature		Center Point		Dimensions (m)			Depth		Sample
			No.	Type	North	East	Length	Width	Thickness	Begin	End	
13	NA	11	353	Domestic - refuse pit	522.19	490.39	0.77	0.71	0.30	9.53	9.23	100%
13	NA	11	354	Domestic - refuse pit	518.61	487.84	0.70	0.60	0.21	9.42	9.21	100%
13	NA	11	355	Domestic - refuse pit	517.80	488.81	0.80	0.80	0.18	9.52	9.34	100%
13	NA	11	356	Domestic - refuse pit	517.96	487.96	0.60	0.54	0.04	9.46	9.42	100%
13	NA	11	357	Posthole	519.68	490.60	0.20	0.16	–	9.61	–	0%
13	NA	11	358	Posthole	517.85	490.66	0.20	0.16	–	9.52	–	0%
13	NA	11	359	Posthole	515.92	490.22	0.20	0.16	–	9.53	–	0%
13	NA	11	360	Posthole	514.74	490.51	0.20	0.16	–	9.56	–	0%
13	NA	11	361	Posthole	522.73	485.18	0.18	0.18	–	9.24	–	0%
13	NA	11	362	Posthole	519.95	485.15	0.19	0.19	–	9.31	–	0%
13	NA	11	363	Posthole	517.81	485.22	0.30	0.30	–	9.33	–	0%
13	NA	11	364	Posthole	515.19	485.25	0.12	0.12	–	9.37	–	0%
13	NA	11	365	Domestic - refuse pit	516.64	487.98	0.70	0.65	0.13	9.50	9.37	100%
13	NA	11	366	Posthole	514.50	486.37	0.16	0.16	–	9.42	–	0%
13	NA	11	367	Posthole	520.17	487.94	0.18	0.18	–	9.45	–	0%
13	NA	11	368	Posthole	520.86	488.21	0.22	0.22	–	9.46	–	0%
13	NA	11	369	Domestic - refuse pit	518.95	488.98	0.65	0.56	0.15	9.53	9.38	100%
13	NA	11	370	Domestic - refuse pit	520.95	487.81	0.93	0.70	0.13	9.43	9.30	100%
13	NA	11	380	Domestic - refuse pit	519.65	488.85	0.74	0.68	0.11	9.52	9.41	100%
16	NA	11	381	Storage tank	537.25	488.51	2.38	1.07	1.07	9.37	8.30	100%
16	NA	11 & 12	382	Straight-line cesspit privy	532.61	485.38	2.30	2.30	4.00	9.40	5.40	100%
13	NA	11	383	Domestic - refuse pit	520.30	489.21	0.96	0.84	0.40	9.47	9.07	100%
12	NA	11	384	Posthole	556.18	498.09	0.28	0.14	–	9.24	–	0%
12	NA	11	385	Posthole	555.12	498.17	0.28	0.14	–	9.22	–	0%
12	NA	11	386	Posthole	556.10	495.28	0.23	0.14	–	9.14	–	0%
12	NA	11	387	Posthole	557.64	493.46	0.26	0.26	–	9.21	–	0%
12	NA	11	388	Posthole	558.88	492.59	0.28	0.28	–	9.17	–	0%
13	NA	11	389	Irrigation ditch	518.00	486.00	9.00	0.75	0.12	9.32	9.20	11%
12	NA	11	394	Domestic - refuse pit	555.82	493.52	0.70	0.56	0.11	9.19	9.08	100%
12	NA	11	395	Domestic - refuse pit	555.56	496.32	0.57	0.57	0.07	9.21	9.14	100%
16	63	11	396	Domestic - refuse pit	529.00	488.00	1.16	0.90	0.40	9.45	9.05	10%
16	63	11	397	Domestic - refuse pit	534.00	488.00	0.70	0.50	0.40	9.35	8.95	50%
12	NA	11	398	Posthole	555.87	467.69	0.31	0.26	0.11	9.21	9.10	100%

NA = Not Applicable

Table 14.1. Structure 12, 120 South Capitol Street, resident and business directory.

Years	Occupant	Status	Profession
ca. 1928–1929	Lamb, Charles	renter	Clerk, State Corporation Commission
1930–1943	Butler, Roy E.	renter	Plumber
1930–1943	Butler & Foley Plumbers	business	business
1944–1946	Turner, Arthur	renter	unknown
1947–1948	Nelson, C. R.	renter	Engineer, State Highway Department
1949–1957	Compton, Jas. C.	owner	U.S. Army
1958–1962	State Educators Retirement Building	business	State Office
1963–1967	State Planning Office	business	State Office
1968	vacant	NA	NA
1969+	no longer listed	NA	NA

NA = Not Applicable

Table 14.2. Structure 12, 120 South Capitol Street, feature summary table.

SCU No.	BHT No.	STR No.	Feature		Center Point		Dimensions (m)			Depth		Sample
			No.	Type	North	East	Length	Width	Thickness	Begin	End	
14	2	12	24	Domestic - refuse pit	519.13	479.99	0.77	0.31	0.05	9.24	9.19	100%
13	NA	12	371	Posthole	519.30	479.27	0.18	0.18	–	9.24	–	0%
13	NA	12	372	Posthole	519.34	478.40	0.16	0.16	–	9.22	–	0%
13	NA	12	373	Posthole	520.23	478.45	0.20	0.20	–	9.25	–	0%
13	NA	12	374	Posthole	526.72	480.38	0.20	0.20	–	9.04	–	0%
13	NA	12	375	Posthole	522.51	472.65	0.16	0.16	–	9.06	–	0%
13	NA	12	376	Posthole	523.21	472.45	0.25	0.25	–	9.02	–	0%
13	NA	12	377	Posthole	524.92	472.44	0.27	0.27	–	8.95	–	0%
13	NA	12	378	Posthole	527.45	470.44	0.16	0.16	–	8.95	–	0%
13	NA	12	379	Posthole	533.66	473.58	0.33	0.32	–	8.93	–	0%
14	NA	12	390	Domestic - refuse pit	519.29	472.08	1.84	0.54	0.05	9.11	9.06	100%
14	NA	12	391	Domestic - refuse pit	520.90	471.97	1.20	0.60	0.08	9.08	9.00	100%
14	NA	12	393	Domestic - refuse pit	531.39	472.79	1.31	0.97	0.10	8.92	8.82	100%
15	NA	12	407	Posthole	557.48	476.75	0.18	0.18	–	8.76	–	0%
15	NA	12	408	Construction - debris pit	555.80	474.62	0.90	0.70	–	8.77	–	0%

NA = Not Applicable

Table 15.1. Structure 13, 122 South Capitol Street, resident and business directory.

Years	Occupant	Status	Profession
ca. 1928–1929	Hill, R. J.	unknown	Insurance Agent
1930–1933	Flores, A. R.	renter	Student
1934–1937	Fidel, Joseph N.	renter	Owner, Fidel Brothers Co.
1938–1939	Russel, D. M.	renter	Mining
1940–1948	vacant	NA	NA
1949–1956	Contractor License Board	business	State Office
1957–1960	Albuquerque Journal	business	business
1957–1960	Merit System Council	business	business
1961–1962	vacant	NA	NA
1963+	no longer listed	NA	NA

NA = Not Applicable

Table 15.2. Structure 13, 122 South Capitol Street, feature summary table.

SCU No.	BHT No.	STR No.	Feature		Center Point		Dimensions (m)			Depth		Sample
			No.	Type	North	East	Length	Width	Thickness	Begin	End	
10	NA	13	304	Posthole	512.89	464.31	0.30	0.26	–	8.88	–	0%
10	NA	13	305	Posthole	509.45	464.19	0.50	0.25	0.05	8.91	8.86	100%
10	NA	13	306	Posthole	512.11	465.30	0.62	0.21	0.11	8.90	8.79	100%
10	NA	13	307	Construction - debris pit	513.36	461.89	9.50	3.30	–	8.93	–	0%
10	NA	13	309	Construction - debris pit	510.88	471.16	0.55	0.10	0.06	8.96	8.90	100%
10	NA	13	310	Construction - debris pit	512.49	468.81	14.00	5.00	0.32	8.98	8.66	7%
11	NA	13	311	Construction - debris pit	533.46	461.56	1.00	0.90	0.06	8.97	8.91	100%
11	61	13	323	Construction - debris pit	532.34	464.16	3.90	–	0.10	8.77	8.67	0%
NA	69	13	412	Construction - debris pit	550.08	469.02	1.85	–	0.50	8.93	8.43	0%

NA = Not Applicable

16.1. Euroamerican artifacts by function-based analytic category.

Category	Type	Function	Count	Category %	Assemblage %
Unassignable	Unidentifiable	unidentifiable	23	95.8%	2.3%
		can, aerosol	1	4.2%	0.1%
	Subtotal		24	100.0%	2.4%
Economy/ production	Agricultural	chicken wire	9	50.0%	0.9%
	Machinery	belt	1	5.6%	0.1%
	Mining	cupel	7	38.9%	0.7%
	Commercial establishment	shopping bag	1	5.6%	0.1%
	Subtotal		18	100.0%	1.8%
Food	Unidentifiable	foil	1	5.6%	0.1%
	Canned goods	canned goods, indet.	3	16.7%	0.3%
		coffee can	1	5.6%	0.1%
		veg. or fruit can	1	5.6%	0.1%
	Bottled goods	bottled goods, indet.	1	5.6%	0.1%
		condiment bottle	11	61.1%	1.1%
	Subtotal		18	100.0%	1.8%
Indulgences	Miscellaneous	lead paper/foil	2	2.8%	0.2%
		indulgence bottle, indet.	19	26.8%	1.9%
	Soda/carbonated beverage	soda bottle	27	38.0%	2.7%
	Wine	wine bottle	5	7.0%	0.5%
	Beer	beer bottle	11	15.5%	1.1%
	Liquor	whiskey bottle	1	1.4%	0.1%
		liquor bottle, indet.	4	5.6%	0.4%
	Candy	wrapper	1	1.4%	0.1%
		bag	1	1.4%	0.1%
	Subtotal		71	100.0%	7.1%
Domestic	Dishes	bowl	4	4.0%	0.4%
		cup	3	3.0%	0.3%
		vessel, indet.	24	23.8%	2.4%
		mixing/serving bowl	1	1.0%	0.1%
	Glassware	vessel, indet.	15	14.9%	1.5%
		bowl	1	1.0%	0.1%
		casserole dish	1	1.0%	4..9%
	Canning/ storage	canning jar	49	48.5%	0.2%
		crock	2	2.0%	0.1%
	Cleaning	bleach bottle	1	1.0%	10.1%
	Subtotal		101	100.0%	0.1%
Furnishings	Heating, cooking, and lighting	heating, indet.	1	12.5%	0.1%
		oil tank	1	12.5%	0.1%
	Furniture	furniture, indet.	3	37.5%	0.3%
		flower pot	3	37.5%	0.3%
	Subtotal		8	100.0%	0.8%
Construction/ maintenance	Unidentifiable	filings	191	26.7%	19.1%
	Tools	water hose	4	0.6%	0.4%
		paint roller	1	0.1%	0.1%
	Hardware	hardware, indet.	1	0.1%	0.1%
		bolt	1	0.1%	0.1%
		latch	1	0.1%	0.1%

Table 16.1. (continued)

Category	Type	Function	Count	Category %	Assemblage %
		lock, indet.	2	0.3%	0.2%
		nail, indet. cut	13	1.8%	1.3%
		nail, indet. wire	263	36.8%	26.4%
		nail, finish	6	0.8%	0.6%
		nail, box	2	0.3%	0.2%
		wire	2	0.3%	0.2%
		tack, poster	2	0.3%	0.2%
		washer	1	0.1%	0.1%
		nail, common	109	15.2%	10.9%
		screw, indet.	3	0.4%	0.3%
		screw, wood	1	0.1%	0.1%
		nail, shingle	22	3.1%	2.2%
		nail, slate	4	0.6%	0.4%
		nail, flooring	2	0.3%	0.2%
		bolt, square	1	0.1%	0.1%
		nail, barbed roofing felt	1	0.1%	0.1%
		nail, wire stringer	1	0.1%	0.1%
	Building materials	linoleum	1	0.1%	0.1%
		tile	5	0.7%	0.5%
		window glass	45	6.3%	4.5%
		roofing paper	12	1.7%	1.2%
	Electrical	box, switch/outlet	1	0.1%	0.1%
		insulator	5	0.7%	0.5%
		insulated wire	1	0.1%	0.1%
		non-insulated wire	1	0.1%	0.1%
		outlet cover	1	0.1%	0.1%
	Fencing	fence staple	6	0.8%	0.6%
	Plumbing	tubing	1	0.1%	0.1%
		meter seals	2	0.3%	0.2%
	Subtotal		715	100.0%	71.6%
Personal effects	Clothing	adjustment slide	1	3.1%	0.1%
		clip	1	3.1%	0.1%
	Boots and shoes	boot, indet.	23	71.9%	2.3%
	Grooming items/ personal hygiene	perfume/cologne bottle	1	3.1%	0.1%
		pomade jar	1	3.1%	0.1%
		toiletry bottle	1	3.1%	0.1%
	Medicine/health	eyedropper	1	3.1%	0.1%
		prescription bottle	1	3.1%	0.1%
		medicine bottle, indet.	2	6.3%	0.2%
	Subtotal		32	100.0%	3.2%
Entertainment/ leisure	Toys	miniature dish	1	50.0%	0.1%
		doll	1	50.0%	0.1%
	Subtotal		2	100.0%	0.2%
Transportation	Cars and Trucks	suspension spring	1	33.3%	0.1%
	Animal Power	horseshoe nail	1	33.3%	0.1%
	Lubricants/fluids/fuel	motor oil container	1	33.3%	0.1%
	Subtotal		3	100.0%	0.3%
Military/arms	Small arms	rim fire cartridge	6	100.0%	0.6%
	Subtotal		6	100.0%	0.6%
Total			998		100.0%

Table 16.2. Euroamerican dinnerware sherds and mean number of vessels.

Paste	Ware	Function	Plain/None		Traditional		Art Nouveau		**Total**	
			Count	MNV*	Count	MNV	Count	MNV	Count	MNV
Porcelain	Continental porcelain	vessel, indet.	–	–	–	–	4	1	4	1
Refined earthenware	Nonvitreous white-bodied earthenware	bowl	–	–	2	2	–	–	2	2
		cup	2	2	–	–	–	–	2	2
		vessel, indet.	7	5	4	4	–	–	11	9
	Semivitreous white-bodied earthenware	bowl	–	–	1	1	–	–	1	1
		cup	1	1	–	–	–	–	1	1
		vessel, indet.	8	5	–	–	–	–	8	5
	Vitreous white-bodied earthenware	bowl	–	–	1	1	–	–	1	1
Unrefined earthenware	Earthenware	mixing/serving bowl	1	1	–	–	–	–	1	1
Total									31	23

*MNV = Mean Number of Vessels

Table 16.3. Euroamerican artifacts from the agricultural fields.

Category	Type	Function	Count	Assemblage %
Unassignable	Unidentifiable	unidentifiable	1	3.2%
Indulgences	Soda/carbonated beverage	soda bottle	3	9.7%
Domestic	Dishes	vessel, indet.	5	16.1%
Construction/ maintenance	Hardware	nail, indet., wire	9	29.0%
		nail, common	13	41.9%
Total			31	100.0%

Table 16.4. Structures 4 and 6, Euroamerican artifacts from associated features.

Category	Type	Function	STR 4			STR 6	STR 4 & 6	**Total**
			F. 313	F. 320	F. 405	F. 392	F. 350	
Unassignable	Unidentifiable	unidentifiable	–	–	–	1	–	1
Indulgences	Soda/carbonated beverage	soda bottle	–	1	–	–	–	1
Domestic	Dishes	vessel, indet.	–	2	–	–	–	2
	Glassware	vessel, indet.	–	–	4	–	–	4
		bowl	–	1	–	–	–	1
	Canning/storage	canning jar	–	–	39	–	–	39
Furnishings	Furniture	flower pot	–	1	–	–	–	1
Construction/ maintenance	Hardware	lock, indet.	–	2	–	–	–	2
		nail, indet. wire	3	12	–	–	1	16
		nail, common	1	–	–	–	–	1
	Building materials	tile	–	1	–	–	–	1
Total			4	20	43	1	1	69

Table 16.5. Structure 10, Euroamerican artifacts from associated features.

Category	Type	Function	F. 252	F. 253	F. 259	F. 277	F. 299	**Total**
Unassignable	Unidentifiable	unidentifiable	–	–	–	1	–	1
Economy/ production	Agricultural	chicken wire	–	–	1	–	–	1
	Machinery	belt	–	–	–	–	1	1
Food	Bottled goods	condiment bottle	11	–	–	–	–	11
Indulgences	Miscellaneous	lead paper/foil	–	1	–	–	–	1
	Soda/carbonated beverage	soda bottle	–	–	3	9	1	13
	Beer	beer bottle	1	–	–	–	–	1
	Candy	wrapper	–	–	–	1	–	1
Domestic	Dishes	vessel, indet.	4	–	–	1	–	5
	Glassware	vessel, indet.	–	–	–	3	–	3
		casserole dish	1	–	–	–	–	1
Construction/ maintenance	Tools	water hose	–	–	–	4	–	4
	Hardware	hardware, indet.	1	–	–	–	–	1
		nail, Indet. cut	–	–	1	–	–	1
		nail, Indet. wire	20	4	1	–	–	25
		nail, box	1	–	–	–	–	1
		nail, common	6	11	13	–	–	30
		nail, slate	–	–	4	–	–	4
		nail, flooring	–	–	2	–	–	2
	Building materials	tile	–	–	–	1	–	1
		window glass	–	1	2	4	–	7
	Plumbing	tubing	–	–	1	–	–	1
Personal effects	Boots and shoes	boot, indet.	22	–	–	–	–	22
	Grooming items/ personal hygiene	toiletry bottle	–	–	–	1	–	1
	Medicine/health	prescription bottle	–	–	–	–	1	1
Entertainment/ leisure	Toys	miniature dish	1	–	–	–	–	1
Transportation	Cars and trucks	suspension spring	–	–	–	–	1	1
Total			68	17	28	25	4	142

Table 16.6. Structure 11, Euroamerican artifacts from associated features.

			Feature No.																											
Category	Type	Function	321	322	339	340	341	342	343	345	346	347	349	351	352	353	354	355	356	365	369	370	380	381	383	389	394	395	396	398	409	**Total**
Unassignable	Unidentifiable	unidentifiable	1	–	4	–	–	–	–	–	–	–	–	2	2	–	–	–	–	–	1	2	–	–	–	2	–	–	–	–	–	14
		can, aerosol	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1
Economy/ production	Agricultural	chicken wire	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	7	–	–	–	–	–	1	–	–	–	8
	Mining	cupel	–	–	–	6	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	7
Food	Canned goods	canned goods,	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
		coffee can	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1
		veg. or fruit can	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
	Bottled goods	bottled goods,	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1
Indulgences	Miscellaneous	indulgence bottle, indet.	–	–	3	–	2	–	–	–	–	–	2	–	–	1	1	–	–	1	–	–	–	–	–	–	–	1	–	–	–	11
	Soda/carbonated beverage	soda bottle	1	–	–	–	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	5
	Wine	wine bottle	–	–	–	–	1	–	–	–	1	–	–	–	1	–	1	–	–	–	–	–	–	–	–	–	1	–	–	–	–	5
	Beer	beer bottle	–	–	–	–	–	–	–	–	–	–	1	–	–	1	–	–	–	–	–	1	–	–	–	1	–	–	–	–	–	4
	Liquor	whiskey bottle	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	1
		liquor bottle, indet.	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1
	Candy	bag	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1
Domestic	Dishes	bowl	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	1	–	–	–	1	4
		cup	–	–	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	3
		vessel, indet.	1	–	2	–	1	–	–	–	–	–	–	1	–	–	1	–	–	–	–	–	–	1	1	1	–	–	–	–	1	10
		mixing/serving bowl	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	1
	Glassware	vessel, indet.	–	–	–	–	–	–	–	–	–	–	1	2	–	–	–	–	–	–	–	–	–	–	–	–	3	–	–	–	–	6
	Canning/storage	canning jar	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	9	–	–	–	–	–	–	–	–	–	10
		crock	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
	Cleaning	bleach bottle	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1
Furnishings	Heating, cooking, and lighting	oil tank	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	1
	Furniture	furniture, indet.	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	1
		flower pot	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Construction/ maintenance	Hardware	nail, indet. cut	–	–	2	–	–	–	–	–	–	–	2	1	1	–	2	–	–	–	–	1	–	–	–	1	–	–	1	–	–	11
		nail, indet. wire	2	–	58	3	27	2	3	1	12	–	2	1	1	6	–	1	1	–	1	9	1	–	2	6	30	6	–	2	–	177
		nail, finish	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	5	–	–	–	–	6
		nail, box	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
		tack, poster	–	–	1	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
		nail, common	2	1	16	–	–	2	–	–	–	1	1	–	2	1	1	3	–	–	1	–	1	–	–	5	18	1	–	1	–	57
		screw, indet.	–	–	2	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3
		screw, wood	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	1
		nail, shingle	1	1	1	–	1	–	–	–	1	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	16	–	–	–	–	22
		bolt, square	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
		nail, barbed roofing	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
	Building materials	window glass	1	–	5	–	3	–	–	–	1	–	2	5	–	–	–	–	–	–	1	3	–	–	1	2	–	–	–	–	–	24
	Electrical	box, switch/ outlet	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1
		insulator	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3	3
		non-insulated wire	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
	Fencing	fence staple	–	–	1	–	–	–	–	–	1	–	–	1	1	–	–	–	–	–	1	1	–	–	–	–	–	–	–	–	–	6
	Plumbing	meter seals	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	1	2

Table 16.6 (continued)

			Feature No.																												
Category	Type	Function	321	322	339	340	341	342	343	345	346	347	349	351	352	353	354	355	356	365	369	370	380	381	383	389	394	395	396	398	409	**Total**
Personal effects	Clothing	adjustment slide	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
		clip	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
	Boots and shoes	boot, indet.	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
	Grooming items/ personal hygiene	perfume/cologne bottle	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	1
		pomade jar	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	1
	Medicine/health	eyedropper	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1
		medicine bottle, indet.	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	1	–	–	–	–	2
Entertainment/ leisure	Toys	doll	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	1
Transportation	Animal power	horseshoe nail	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Military/Arms	Small arms	rim fire cartridge	–	1	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	4	–	–	–	–	–	6
Total			10	3	103	9	41	4	3	1	20	2	12	13	9	10	7	4	1	1	5	35	2	2	6	27	78	10	1	3	14	436

Table 16.7. Structure 12, Euroamerican artifacts from associated features.

Category	Type	Function	F. 390	F. 391	F. 393	F. 410	F. 411	**Total**
Unassignable	Unidentifiable	unidentifiable	–	3	2	–	–	5
Economy/ production	Commercial establishment	shopping bag	1	–	–	–	–	1
Food	Canned goods	canned goods, indet.	–	–	–	–	2	2
Indulgences	Miscellaneous	indulgence bottle, indet.	3	–	5	–	–	8
	Soda/carbonated beverage	soda bottle	–	1	1	1	–	3
	Beer	beer bottle	–	2	1	–	3	6
	Liquor	liquor bottle, indet.	–	–	–	–	3	3
Domestic	Glassware	vessel, indet.	–	1	1	–	–	2
Furnishings	Heating, cooking and lighting	heating, indet.	–	–	–	–	1	1
	Furniture	furniture, indet.	1	1	–	–	–	2
Construction/ maintenance	Unidentifiable	filings	–	–	191	–	–	191
	Tools	paint roller	–	–	–	–	1	1
	Hardware	nail, indet. cut	–	–	1	–	–	1
		nail, indet. wire	–	1	2	–	–	3
		wire	–	2	–	–	–	2
		nail, common	–	1	–	–	–	1
		nail, wire stringer	–	–	–	–	1	1
	Building materials	linoleum	–	1	–	–	–	1
		window glass	1	3	1	–	–	5
		roofing paper	–	–	12	–	–	12
	Electrical	insulator	–	–	–	–	2	2
		insulated wire	–	–	–	–	1	1
		outlet cover	–	–	–	–	1	1
Transportation	Lubricants/ fluids/fuel	motor oil container	–	–	–	–	1	1
Total			6	16	217	1	16	256

Table 16.8. Structure 13, Euroamerican artifacts from associated features.

Category	Type	Function	F. 305	F. 310	F. 311	**Total**
Unassignable	Unidentifiable	unidentifiable	–	1	–	1
Food	Unidentifiable	foil	–	1	–	1
Indulgences	Miscellaneous	lead paper/foil	–	–	1	1
	Soda/carbonated beverage	soda bottle	–	2	–	2
Domestic	Dishes	vessel, indet.	–	2	–	2
	Canning/storage	crock	–	1	–	1
Furnishings	Furniture	flower pot	–	1	–	1
Construction/ maintenance	Hardware	bolt	–	1	–	1
		latch	–	1	–	1
		nail, indet. wire	–	33	–	33
		washer	–	1	–	1
		nail, common	–	7	–	7
	Building materials	tile	–	3	–	3
		window glass	1	8	–	9
Total			1	62	1	64

Table 17.1. Fauna recovered from LA 158037.

Taxon	Common Name	Count	Col. %
Unknown small	unknown small	1	0.2%
Small mammal/ medium–large bird	small mammal/ medium–large bird	8	1.7%
Small mammal	small mammal	1	0.2%
Small–medium mammal	small–medium mammal	2	0.4%
Medium–large mammal	medium–large mammal	22	4.7%
Large mammal	large mammal	3	0.6%
cf. *Sylvilagus* sp.	cottontails	2	0.4%
cf. *Oryctolagus*	domestic rabbit	9	1.9%
Small cf. *Canis familiaris*	small dog	1	0.2%
Small ungulate	small ungulate	18	3.8%
Small–medium ungulate	small–medium ungulate	1	0.2%
Medium ungulate	medium ungulate	1	0.2%
Large ungulate	large ungulate	18	3.8%
Medium–large ungulate	medium-to-large ungulate	111	23.5%
Bos taurus	cattle*	148	31.4%
cf. *Ovis* or *Capra*	ovis or capra species	1	0.2%
Ovis, Capra	sheep or goat	50	10.6%
Medium bird	medium bird	12	2.5%
Medium-large bird	medium-large bird	9	1.9%
Ducks	ducks	1	0.2%
Anas platyrhynchos	mallard	4	0.8%
Callipepla squamata	scaled quail	2	0.4%
Meleagris gallopavo	turkey*	4	0.8%
cf. Columbidae	pigeons and doves	1	0.2%
Columba livia	rock dove, domestic pigeon	1	0.2%
Gallus gallus	chicken	39	8.3%
Fish	fish	1	0.2%
Bivalve	bivalve	1	0.2%
Total		472	100.0%

* Count includes a partial skeleton.

Table 17.2. Agricultural field and irrigation ditch fauna.

	Agricultural Field Deposits		Feature 350, Irrigation Ditch	
Taxon	Count	Col %	Count	Col %
Medium-to-large mammal	4	26.7%	–	–
Small ungulate	2	13.3%	–	–
Medium-to-large ungulate	2	13.3%	8	80.0%
Cattle	3	20.0%	1	10.0%
Ovis or *Capra* species	1	6.7%	–	–
Sheep or goat	3	20.0%	–	–
Pigeons and doves	–	–	1	10.0%
Total	15	100.0%	10	100.0%
Age				
Juvenile	1	6.7%	–	–
Mature	14	93.3%	10	100.0%
Total	15	100.0%	10	100.0%
Completeness				
<10%	10	66.7%	8	80.0%
10–50%	3	20.0%	–	–
50–75%	1	6.7%	1	10.0%
75–95%	1	6.7%	1	10.0%
Total	15	100.0%	10	100.0%
Environmental alteration				
None	5	33.3%	1	10.0%
Pitting/corrosion	–	–	2	20.0%
Checked/exfoliated	10	66.7%	7	70.0%
Total	15	100.0%	10	100.0%
Processing				
None	13	86.7%	10	100.0%
Sawn through	1	6.7%	–	–
Defleshing	1	6.7%	–	–
Total	15	100.0%	10	100.0%

Table 17.3. Structure 4, 125 West Manhattan Avenue, summary of fauna.

	Feature 313 Posthole		Feature 320 Bone Pit		**Total**	
Taxon	Count	Col. %	Count	Col. %	Count	Col. %
Cottontails	–	–	1	0.8	1	0.8
Small ungulate	–	–	2	1.7	2	1.6
Large ungulate	3	50.0	–	–	3	2.4
Medium to large ungulate	–	–	4	3.4	4	3.2
Cattle	3	50.0	109	91.6	112	89.6
Sheep or goat	–	–	1	0.8	1	0.8
Chicken	–	–	2	1.7	2	1.6
Total	6	100.0	119	100.0	125	100.0
Age						
Juvenile	–	–	2	1.7	2	1.6
Mature	6	100.0	117	98.3	123	98.4
Completeness						
<10%	4	66.7	68	57.1	72	57.6
10–50%	1	16.7	26	21.8	27	21.6
50–75%	–	–	7	5.9	7	5.6
75–95%	1	16.7	3	2.5	4	3.2
Complete	–	–	15	12.6	15	12.0
Environmental alteration						
None	5	83.3	113	95.0	118	94.4
Checked/exfoliated	1	16.7	6	5.0	7	5.6
Burning						
Discard burn	5	83.3	–	–	5	4.0
Processing						
None	5	83.3	84	70.6	89	71.2
Chops	–	–	3	2.5	3	2.4
Cut through	–	–	29	24.4	29	23.2
Substantial cut	–	–	1	0.8	1	0.8
Sawn through	1	16.7	1	0.8	2	1.6
Steak, chop, or roast cuts	–	–	1	0.8	1	0.8
Second processing						
None	6	100.0	105	88.2	111	88.8
Chops	–	–	1	0.8	1	0.8
Cut through	–	–	12	10.1	12	9.6
Snap to dismantle	–	–	1	0.8	1	0.8

Table 17.4. Feature 320, cattle parts recovered.

Point Plot	Element	Portion	Processing	Second Processing	Count
1	Mandible	horizontal ramus	none	none	1
2	Mandible	horizontal ramus	none	none	1
3	Atlas	analytically complete	chops	none	1
3	Axis	analytically complete	none	none	1
3	Cervical vertebra	analytically complete	none	none	5
3	Thoracic 1	analytically complete	none	none	1
3	Rib	proximal fragment	cut through	cut through	1
4	Thoracic vertebra	spinous process	cut through	none	1
4	Rib	shaft fragment	none	none	7
4	Rib	shaft fragment	cut through	none	6
4	Rib	distal shaft fragment	none	none	4
4	Rib	distal shaft fragment	cut through	none	4
4	Rib	distal shaft fragment	cut through	cut through	9
4	Rib	shaft	sawn	none	1
4	Ossified cartilage	shaft fragment	none	none	4
5	Cranium	basioccipital	chops	chops	1
5	Mandible	process	chops	none	1
5	Hyoid	distal	substantial cut	snapped	1
6	Femur	analytically complete	none	none	1
6	Patella	analytically complete	none	none	1
6	Tibia	analytically complete	none	none	1
6	Astragalus	analytically complete	none	none	1
6	Calcaneous	analytically complete	none	none	1
6	Lateral malleolus	analytically complete	none	none	1
8	Cranium	maxilla	none	none	1
–	Cranium	basioccipital	none	none	1
–	Cranium	basioccipital	cut through	none	1
–	Cranium	face/frontal	none	none	1
–	Cranium	sphenoid	none	none	1
–	Cranium	petrosa	none	none	2
–	Cranium	zygomat	none	none	2
–	Cranium	brouse pad	none	none	1
–	Cranium	nasal	none	none	2
–	Cranium	nasal	cut through	none	1
–	Cranium	interior nasal	none	none	1
–	Mandible	mandibular condyle	none	none	1
–	Hyoid	analytically complete	none	none	1
–	Thoracic vertebra	body fragment	none	none	1
–	Thoracic vertebra	epiphysis	none	none	1
–	Rib	shaft fragment	none	none	21
–	Rib	shaft fragment	cut through	none	1
–	Rib	shaft fragment	cut through	cut through	2
–	Rib	proximal	none	none	1
–	Rib	proximal fragment	none	none	2
–	Rib	distal	cut through	none	3
–	Ossified cartilage	shaft fragment	none	none	5

Table 17.5. Structure 6, 111 West Manhattan Avenue, summary of fauna.

	Feature 392 Domestic Refuse Pit	
Taxon	Count	Col. %
Small ungulate	1	25.0%
Large ungulate	1	25.0%
Medium-to-large ungulate	1	25.0%
Domestic sheep or goat	1	25.0%
Total	4	100.0%
Age		
Mature	4	100.0%
Total	4	100.0%
Completeness		
<10%	3	75.0%
10–50%	1	25.0%
Total	4	100.0%
Environmental alteration		
Checked/exfoliated	4	100.0%
Total	4	100.0%
Processing		
None	3	75.0%
Defleshing	1	25.0%
Total	4	100.0%

Table 17.6. Structure 10, 104 South Capitol Street, summary of fauna.

	Feature 252		Feature 253		Feature 267		Feature 299		Feature 300		**Total**	
Common Name	Count	Col. %	Count	Col. %	Count	Col. %	Count	Col. %	Count	Col. %	Count	Col. %
Medium-to-large mammal	–	–	–	–	–	–	1	20.0%	1	50.0%	2	20.0%
cf. Small dog	–	–	1	100.0%	–	–	–	–	–	–	1	10.0%
Large ungulate	–	–	–	–	–	–	1	20.0%	–	–	1	10.0%
Cattle	1	100.0%	–	–	–	–	3	60.0%	1	50.0%	5	50.0%
Turkey	–	–	–	–	1	100.0%	–	–	–	–	1	10.0%
Total	1	100.0%	1	100.0%	1	100.0%	5	100.0%	2	100.0%	10	100.0%
Age												
Juvenile	–	–	–	–	–	–	3	60.0%	2	100.0%	5	50.0%
Mature	1	100.0%	1	100.0%	1	100.0%	2	40.0%	–	–	5	50.0%
Total	1	100.0%	1	100.0%	1	100.0%	5	100.0%	2	100.0%	10	100.0%
Completeness												
<10%	–	–	–	–	–	–	4	80.0%	1	50.0%	5	50.0%
10–50%	1	100.0%	–	–	–	–	1	20.0%	–	–	2	20.0%
50–75%	–	–	–	–	1	100.0%	–	–	1	50.0%	2	20.0%
75–95%	–	–	1	100.0%	–	–	–	–	–	–	1	10.0%
Total	1	100.0%	1	100.0%	1	100.0%	5	100.0%	2	100.0%	10	100.0%
Environmental alteration												
None	1	100.0%	1	100.0%	–	–	5	100.0%	–	–	7	70.0%
Checked/ exfoliated	–	–	–	–	1	100.0%	–	–	2	100.0%	3	30.0%
Total	1	100.0%	1	100.0%	1	100.0%	5	100.0%	2	100.0%	10	100.0%
Processing												
None	–	–	1	100.0%	1	100.0%	1	20.0%	1	50.0%	4	40.0%
Substantial cut	–	–	–	–	–	–	–	–	1	50.0%	1	10.0%
Sawn through	–	–	–	–	–	–	2	40.0%	–	–	2	20.0%
Defleshing	1	100.0%	–	–	–	–	–	–	–	–	1	10.0%
Steak, chop, or roast cuts	–	–	–	–	–	–	2	40.0%	–	–	2	20.0%
Total	1	100.0%	1	100.0%	1	100.0%	5	100.0%	2	100.0%	10	100.0%

Table 17.7. Structure 11, 116 South Capitol Street, summary of fauna.

	F. 321 Domestic-Refuse Pit		F. 322 Domestic-Refuse Pit		F. 332 Domestic-Refuse Pit		F. 339 Domestic-Refuse Pit		F. 340 Posthole		F. 341 Domestic-Refuse Pit		F. 342 Domestic-Refuse Pit	
Taxon	Count	Col. %	Count	Col. %	Count	Col. %	Count	Col. %	Count	Col. %	Count	Col. %	Count	Col. %
Unknown small	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Small mammal/medium–large bird	–	–	1	14.3%	–	–	–	–	–	–	–	–	1	50.0%
Small mammal	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Small–medium mammal	–	–	1	14.3%	–	–	1	5.3%	–	–	–	–	–	–
Medium-to-large mammal	–	–	2	28.6%	–	–	1	5.3%	–	–	–	–	–	–
Large mammal	–	–	–	–	–	–	2	10.5%	–	–	–	–	–	–
cf. Cottontails	–	–	–	–	–	–	–	–	–	–	–	–	–	–
cf. Domestic rabbit	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Small ungulate	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Small–medium ungulate	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Medium ungulate	–	–	–	–	–	–	1	5.3%	–	–	–	–	–	–
Large ungulate	1	11.1%	1	14.3%	–	–	1	5.3%	–	–	–	–	–	–
Medium-to-large ungulate	3	33.3%	2	28.6%	–	–	6	31.6%	1	33.3%	1	33.3%	1	50.0%
Cattle	–	–	–	–	–	–	2	10.5%	–	–	–	–	–	–
Sheep or goat	1	11.1%	–	–	1	50.0%	3	15.8%	–	–	1	33.3%	–	–
Medium bird	–	–	–	–	–	–	–	–	2	66.7%	1	33.3%	–	–
Medium–large bird	2	22.2%	–	–	–	–	–	–	–	–	–	–	–	–
Ducks	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Mallard	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Scaled quail	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Turkey	2	22.2%	–	–	–	–	–	–	–	–	–	–	–	–
Rock dove, domestic pigeon	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Chicken	–	–	–	–	–	–	2	10.5%	–	–	–	–	–	–
Fish	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Bivalve	–	–	–	–	1	50.0%	–	–	–	–	–	–	–	–
Total	9	100.0%	7	100.0%	2	100.0%	19	100.0%	3	100.0%	3	100.0%	2	100.0%
Age														
Not applicable/shell	–	–	–	–	1	50.0%	–	–	–	–	–	–	–	–
Immature	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Juvenile	5	55.6%	2	28.6%	–	–	3	15.8%	–	–	–	–	–	–
Mature	4	44.4%	5	71.4%	1	50.0%	16	84.2%	3	100.0%	3	100.0%	2	100.0%
Total	9	100.0%	7	100.0%	2	100.0%	19	100.0%	3	100.0%	3	100.0%	2	100.0%
Completeness														
<10%	7	77.8%	7	100.0%	2	100.0%	14	73.7%	1	33.3%	2	66.7%	2	100.0%
10–50%	2	22.2%	–	–	–	–	2	10.5%	–	–	–	–	–	–
50–75%	–	–	–	–	–	–	3	15.8%	2	66.7%	1	33.3%		–
75–95%	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Complete	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total	9	100.0%	7	100.0%	2	100.0%	19	100.0%	3	100.0%	3	100.0%	2	100.0%
Environmental alteration														
Not applicable/shell	–	–	–	–	–	–	–	–	–	–	–	–	–	–
None	5	55.6%	1	14.3%	2	100.0%	9	47.4%	3	100.0%	2	66.7%	1	50.0%
Pitting/corrosion	–	–	–	–	–	–	–	–	–	–	1	33.3%	–	–
Checked/exfoliated	4	44.4%	6	85.7%	–	–	10	52.6%	–	–	–	–	1	50.0%
Root etched	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total	9	100.0%	7	100.0%	2	100.0%	19	100.0%	3	100.0%	3	100.0%	2	100.0%
Animal alteration														
Carnivore	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Scat	–	–	–	–	–	–	1	100.0%	–	–	–	–	–	–
Total	–	–	–	–	–	–	1	100.0%	–	–	–	–	–	–
Burned or boiled														
Unburned	8	88.9%	7	100.0%	2	100.0%	15	75.0%	3	100.0%	3	100.0%	2	100.0%
Discard burn	–	–	–	–	–	–	4	20.0%	–	–	–	–	–	–
Boiled	1	11.1%	–	–	–	–	–	–	–	–	–	–	–	–
Tool fragment	–	–	–	–	–	–	1	5.0%	–	–	–	–	–	–
Total	9	100.0%	7	100.0%	2	100.0%	20	100.0%	3	100.0%	3	100.0%	2	100.0%
Processing														
None	8	88.9%	7	100.0%	2	100.0%	15	78.9%	3	100.0%	1	33.3%	2	100.0%
Chops	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Cut through	–	–	–	–	–	–	–	–	–	–	1	33.3%	–	–
Substantial cut	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Sawn through	–	–	–	–	–	–	3	15.8%	–	–	1	33.3%	–	–
Impact	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Marrow breakage	1	11.1%	–	–	–	–	–	–	–	–	–	–	–	–
Defleshing	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Steak, chop, or roast cuts	–	–	–	–	–	–	1	5.3%	–	–	–	–	–	–
Total	9	100.0%	7	100.0%	2	100.0%	19	100.0%	3	100.0%	3	100.0%	2	100.0%
Second processing														
None	8	88.9%	7	100.0%	2	100.0%	17	89.5%	3	100.0%	3	100.0%	2	100.0%
Substantial cut	–	–	–	–	–	–	1	5.3%	–	–	–	–	–	–
Sawn through	–	–	–	–	–	–	1	5.3%	–	–	–	–	–	–
Marrow breakage	1	11.1%	–	–	–	–	–	–	–	–	–	–	–	–
Total	9	100.0%	7	100.0%	2	100.0%	19	100.0%	3	100.0%	3	100.0%	2	100.0%

Table 17.7. (continued)

	F. 343 Domestic-Refuse Pit		F. 346 Domestic-Refuse Pit		F. 347 Domestic-Refuse Pit		F. 348 Domestic-Refuse Pit		F. 349 Domestic-Refuse Pit		F. 351 Bone Pit		F. 352 Domestic-Refuse Pit	
Taxon	Count	Col. %	Count	Col. %	Count	Col. %	Count	Col. %	Count	Col. %	Count	Col. %	Count	Col. %
Unknown small	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Small mammal/medium–large bird	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Small mammal	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Small–medium mammal	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Medium-to-large mammal	–	–	2	22.2%	–	–	–	–	1	2.3%	1	4.2%	–	–
Large mammal	–	–	–	–	–	–	–	–	–	–	–	–	–	–
cf. Cottontails	–	–	–	–	–	–	–	–	–	–	–	–	–	–
cf. Domestic rabbit	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Small ungulate	–	–	1	11.1%	1	50.0%	–	–	3	7.0%	1	4.2%	–	–
Small–medium ungulate	–	–	–	–	–	–	–	–	–	–	1	4.2%	–	–
Medium ungulate	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Large ungulate	–	–	–	–	–	–	–	–	3	7.0%	3	12.5%	–	–
Medium-to-large ungulate	–	–	5	55.6%	–	–	2	100.0%	24	55.8%	2	8.3%	1	100.0%
Cattle	–	–	–	–	–	–	–	–	1	2.3%	12	50.0%	–	–
Sheep or goat	–	–	–	–	–	–	–	–	8	18.6%	3	12.5%	–	–
Medium bird	–	–	–	–	–	–	–	–	1	2.3%	–	–	–	–
Medium–large bird	–	–	1	11.1%	–	–	–	–	–	–	1	4.2%	–	–
Ducks	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Mallard	–	–	–	–	1	50.0%	–	–	2	4.7%	–	–	–	–
Scaled quail	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Turkey	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Rock dove, domestic pigeon	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Chicken	2	100.0%	–	–	–	–	–	–	–	–	–	–	–	–
Fish	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Bivalve	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total	2	100.0%	9	100.0%	2	100.0%	2	100.0%	43	100.0%	24	100.0%	1	100.0%
Age														
Not applicable/shell	–	–	1	11.1%	–	–	–	–	–	–	–	–	–	–
Immature	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Juvenile	–	–	1	11.1%	–	–	–	–	1	2.3%	3	12.5%	–	–
Mature	2	100.0%	7	77.8%	2	100.0%	2	100.0%	42	97.7%	21	87.5%	1	100.0%
Total	2	100.0%	9	100.0%	2	100.0%	2	100.0%	43	100.0%	24	100.0%	1	100.0%
Completeness														
<10%		–	9	100.0%	1	50.0%	2	100.0%	35	81.4%	11	45.8%	1	100.0%
10–50%	2	100.0%	–	–	–	–	–	–	8	18.6%	10	41.7%	–	–
50–75%		–	–	–	1	50.0%	–	–	–	–	1	4.2%	–	–
75–95%	–	–	–	–	–	–	–	–	–	–	2	8.3%	–	–
Complete	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total	2	100.0%	9	100.0%	2	100.0%	2	100.0%	43	100.0%	24	100.0%	1	100.0%
Environmental alteration														
Not applicable/shell	–	–	–	–	–	–	–	–	–	–	–	–	–	–
None	1	50.0%	1	11.1%	2	100.0%	–	–	6	14.0%	11	45.8%	–	–
Pitting/corrosion	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Checked/exfoliated	–	–	8	88.9%	–	–	2	100.0%	37	86.0%	13	54.2%	1	100.0%
Root etched	1	50.0%	–	–	–	–	–	–	–	–	–	–	–	–
Total	2	100.0%	9	100.0%	2	100.0%	2	100.0%	43	100.0%	24	100.0%	1	100.0%
Animal alteration														
Carnivore	–	–	–	–	–	–	–	–	1	50.0%	–	–	–	–
Scat	–	–	–	–	–	–	–	–	1	50.0%	–	–	–	–
Total	–	–	–	–	–	–	–	–	2	100.0%	–	–	–	–
Burned or boiled														
Unburned	2	100.0%	9	100.0%	1	50.0%	2	100.0%	43	100.0%	24	100.0%	1	100.0%
Discard burn	–	–	–	–	1	50.0%	–	–	–	–	–	–	–	–
Boiled	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Tool fragment	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total	2	100.0%	9	100.0%	2	100.0%	2	100.0%	43	100.0%	24	100.0%	1	100.0%
Processing														
None	2	100.0%	9	100.0%	2	100.0%	–	–	39	90.7%	14	58.3%	–	–
Chops	–	–	–	–	–	–	–	–	1	2.3%	1	4.2%	–	–
Cut through	–	–	–	–	–	–	–	–	–	–	6	25.0%	–	–
Substantial cut	–	–	–	–	–	–	–	–	–	–	2	8.3%	–	–
Sawn through	–	–	–	–	–	–	–	–	2	4.7%	–	–	–	–
Impact	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Marrow breakage	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Defleshing	–	–	–	–	–	–	2	100.0%	1	2.3%	1	4.2%	–	–
Steak, chop, or roast cuts	–	–	–	–	–	–	–	–	–	–	–	–	1	100.0%
Total	2	100.0%	9	100.0%	2	100.0%	2	100.0%	43	100.0%	24	100.0%	1	100.0%
Second processing														
None	2	100.0%	9	100.0%	2	100.0%	2	100.0%	43	100.0%	23	95.8%	1	100.0%
Substantial cut	–	–	–	–	–	–	–	–	–	–	1	4.2%	–	–
Sawn through	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Marrow breakage	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total	2	100.0%	9	100.0%	2	100.0%	2	100.0%	43	100.0%	24	100.0%	1	100.0%

Table 17.7. (continued)

	F. 353 Domestic-Refuse Pit		F. 354 Domestic-Refuse Pit		F. 356 Domestic-Refuse Pit		F. 369 Domestic-Refuse Pit		F. 370 Domestic-Refuse Pit		F. 380 Domestic-Refuse Pit		F. 383 Domestic-Refuse Pit	
Taxon	Count	Col. %	Count	Col. %	Count	Col. %	Count	Col. %	Count	Col. %	Count	Col. %	Count	Col. %
Unknown small	–	–	–	–	–	–	–	–	1	10.0%	–	–	–	–
Small mammal/medium–large bird	–	–	–	–	5	50.0%	–	–	–	–	–	–	–	–
Small mammal	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Small–medium mammal	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Medium-to-large mammal	4	20.0%	–	–	–	–	–	–	–	–	–	–	–	–
Large mammal	–	–	–	–	–	–	–	–	–	–	–	–	–	–
cf. Cottontails	–	–	–	–	–	–	–	–	–	–	–	–	–	–
cf. Domestic rabbit	1	5.0%	2	11.1%	–	–	2	20.0%	–	–	–	–	–	–
Small ungulate	–	–	–	–	–	–	1	10.0%	1	10.0%	–	–	3	6.3%
Small–medium ungulate	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Medium ungulate	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Large ungulate	1	5.0%	–	–	–	–	–	–	1	10.0%	1	20.0%	1	2.1%
Medium-to-large ungulate	5	25.0%	1	5.6%	–	–	4	40.0%	4	40.0%	2	40.0%	22	45.8%
Cattle	–	–	–	–	–	–	2	20.0%	–	–	–	–	5	10.4%
Sheep or goat	2	10.0%	–	–	–	–	1	10.0%	1	10.0%	2	40.0%	16	33.3%
Medium bird	5	25.0%	–	–	–	–	–	–	1	10.0%	–	–	1	2.1%
Medium–large bird	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ducks	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Mallard	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Scaled quail	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Turkey	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Rock dove, domestic pigeon	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Chicken	2	10.0%	14	77.8%	5	50.0%	–	–	1	10.0%	–	–	–	–
Fish	–	–	1	5.6%	–	–	–	–	–	–	–	–	–	–
Bivalve	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total	20	100.0%	18	100.0%	10	100.0%	10	100.0%	10	100.0%	5	100.0%	48	100.0%
Age														
Not applicable/shell	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Immature	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Juvenile	1	5.0%	2	11.1%	–	–	1	10.0%	2	20.0%	1	20.0%	2	4.2%
Mature	19	95.0%	16	88.9%	10	100.0%	9	90.0%	8	80.0%	4	80.0%	46	95.8%
Total	20	100.0%	18	100.0%	10	100.0%	10	100.0%	10	100.0%	5	100.0%	48	100.0%
Completeness														
<10%	18	90.0%	2	11.1%	5	50.0%	7	70.0%	8	80.0%	3	60.0%	35	72.9%
10–50%	1	5.0%	3	16.7%	–	–	1	10.0%	1	10.0%	2	40.0%	10	20.8%
50–75%	1	5.0%	3	16.7%	3	30.0%	2	20.0%	1	10.0%	–	–	–	–
75–95%	–	–	3	16.7%	–	–	–	–	–	–	–	–	–	–
Complete	–	–	7	38.9%	2	20.0%	–	–	–	–	–	–	3	6.3%
Total	20	100.0%	18	100.0%	10	100.0%	10	100.0%	10	100.0%	5	100.0%	48	100.0%
Environmental alteration														
Not applicable/shell	–	–	–	–	–	–	–	–	–	–	–	–	3	6.3%
None	12	60.0%	17	94.4%	10	100.0%	8	80.0%	3	30.0%	3	60.0%	12	25.0%
Pitting/corrosion	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Checked/exfoliated	8	40.0%	–	–	–	–	2	20.0%	7	70.0%	2	40.0%	32	66.7%
Root etched	–	–	1	5.6%	–	–	–	–	–	–	–	–	1	2.1%
Total	20	100.0%	18	100.0%	10	100.0%	10	100.0%	10	100.0%	5	100.0%	48	100.0%
Animal alteration														
Carnivore	–	–	–	–	–	–	–	–	2	100.0%	–	–	–	–
Scat	–	–	–	–	–	–	–	–	–	–	–	–	1	100.0%
Total	–	–	–	–	–	–	–	–	2	100.0%	–	–	1	100.0%
Burned or boiled														
Unburned	18	90.0%	18	100.0%	10	100.0%	10	100.0%	10	100.0%	4	80.0%	48	100.0%
Discard burn	2	10.0%	–	–	–	–	–	–	–	–	1	20.0%	–	–
Boiled	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Tool fragment	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total	20	100.0%	18	100.0%	10	100.0%	10	100.0%	10	100.0%	5	100.0%	48	100.0%
Processing														
None	16	80.0%	15	83.3%	10	100.0%	5	50.0%	9	90.0%	2	40.0%	42	87.5%
Chops	1	5.0%	–	–	–	–	–	–	–	–	–	–	2	4.2%
Cut through	1	5.0%	1	5.6%	–	–	1	10.0%	–	–	–	–	1	2.1%
Substantial cut	2	10.0%	1	5.6%	–	–	–	–	–	–	–	–	–	–
Sawn through	–	–	1	5.6%	–	–	4	40.0%	1	10.0%	3	60.0%	3	6.3%
Impact	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Marrow breakage	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Defleshing	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Steak, chop, or roast cuts	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total	20	100.0%	18	100.0%	10	100.0%	10	100.0%	10	100.0%	5	100.0%	48	100.0%
Second processing														
None	20	100.0%	18	100.0%	10	100.0%	10	100.0%	10	100.0%	5	100.0%	48	100.0%
Substantial cut	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Sawn through	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Marrow breakage	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total	20	100.0%	18	100.0%	10	100.0%	10	100.0%	10	100.0%	5	100.0%	48	100.0%

Table 17.7. (continued)

	F. 389 Irrigation Ditch		F. 394 Domestic-Refuse Pit		F. 395 Domestic-Refuse Pit		F. 396 Domestic-Refuse Pit		F. 397 Domestic-Refuse Pit		**Total**	
Taxon	Count	Col. %	Count	Col. %	Count	Col. %	Count	Col. %	Count	Col. %	Count	Col. %
Unknown small	–	–	–	–	–	–	–	–	–	–	1	0.3%
Small mammal/medium–large bird	1	2.3%	–	–	–	–	–	–	–	–	8	2.6%
Small mammal	–	–	–	–	1	50.0%	–	–	–	–	1	0.3%
Small–medium mammal	–	–	–	–	–	–	–	–	–	–	2	0.7%
Medium-to-large mammal	2	4.5%	1	33.3%	1	50.0%	1	33.3%	–	–	16	5.3%
Large mammal	–	–	–	–	–	–	–	–	–	–	2	0.7%
cf. Cottontails	1	2.3%	–	–	–	–	–	–	–	–	1	0.3%
cf. Domestic rabbit	4	9.1%	–	–	–	–	–	–	–	–	9	3.0%
Small ungulate	1	2.3%	–	–	–	–	–	–	–	–	12	4.0%
Small–medium ungulate	–	–	–	–	–	–	–	–	–	–	1	0.3%
Medium ungulate	–	–	–	–	–	–	–	–	–	–	1	0.3%
Large ungulate	–	–	–	–	–	–	–	–	–	–	13	4.3%
Medium-to-large ungulate	5	11.4%	1	33.3%	–	–	1	33.3%	1	100.0%	94	31.1%
Cattle	3	6.8%	1	33.3%	–	–	–	–	–	–	26	8.6%
Sheep or goat	4	9.1%	–	–	–	–	1	33.3%	–	–	44	14.6%
Medium bird	1	2.3%	–	–	–	–	–	–	–	–	12	4.0%
Medium–large bird	5	11.4%	–	–	–	–	–	–	–	–	9	3.0%
Ducks	1	2.3%	–	–	–	–	–	–	–	–	1	0.3%
Mallard	1	2.3%	–	–	–	–	–	–	–	–	4	1.3%
Scaled quail	2	4.5%	–	–	–	–	–	–	–	–	2	0.7%
Turkey	1	2.3%	–	–	–	–	–	–	–	–	3	1.0%
Rock dove, domestic pigeon	1	2.3%	–	–	–	–	–	–	–	–	1	0.3%
Chicken	11	25.0%	–	–	–	–	–	–	–	–	37	12.3%
Fish	–	–	–	–	–	–	–	–	–	–	1	0.3%
Bivalve	–	–	–	–	–	–	–	–	–	–	1	0.3%
Total	44	100.0%	3	100.0%	2	100.0%	3	100.0%	1	100.0%	302	100.0%
Age												
Not applicable/shell	–	–	–	–	–	–	–	–	–	–	2	0.7%
Immature	1	2.3%	–	–	–	–	–	–	–	–	1	0.3%
Juvenile	16	36.4%	1	33.3%	–	–	–	–	–	–	41	13.6%
Mature	27	61.4%	2	66.7%	2	100.0%	3	100.0%	1	100.0%	258	85.4%
Total	44	100.0%	3	100.0%	2	100.0%	3	100.0%	1	100.0%	302	100.0%
Completeness												
<10%	15	34.1%	3	100.0%	1	50.0%	2	66.7%	1	100.0%	194	64.2%
10–50%	18	40.9%	–	–	1	50.0%	1	33.3%	–	–	62	20.5%
50–75%	1	2.3%	–	–	–	–	–	–	–	–	19	6.3%
75–95%	7	15.9%	–	–	–	–	–	–	–	–	12	4.0%
Complete	3	6.8%	–	–	–	–	–	–	–	–	15	5.0%
Total	44	100.0%	3	100.0%	2	100.0%	3	100.0%	1	100.0%	302	100.0%
Environmental alteration												
Not applicable/shell	–	–	–	–	–	–	–	–	–	–	3	1.0%
None	38	86.4%	1	33.3%	1	50.0%	–	–	–	–	149	49.3%
Pitting/corrosion	–	–	–	–	–	–	–	–	–	–	1	0.3%
Checked/exfoliated	6	13.6%	2	66.7%	1	50.0%	3	100.0%	1	100.0%	146	48.3%
Root etched	–	–	–	–	–	–	–	–	–	–	3	1.0%
Total	44	100.0%	3	100.0%	2	100.0%	3	100.0%	1	100.0%	302	100.0%
Animal alteration												
Carnivore	3	100.0%	–	–	–	–	–	–	–	–	6	66.7%
Scat	–	–	–	–	–	–	–	–	–	–	3	33.3%
Total	3	100.0%	–	–	–	–	–	–	–	–	9	100.0%
Burned or boiled												
Unburned	43	97.7%	2	66.7%	2	100.0%	3	100.0%	1	100.0%	291	96.0%
Discard burn	–	–	1	33.3%	–	–	–	–	–	–	9	3.0%
Boiled	1	2.3%	–	–	–	–	–	–	–	–	2	0.7%
Tool fragment	–	–	–	–	–	–	–	–	–	–	1	0.3%
Total	44	100.0%	3	100.0%	2	100.0%	3	100.0%	1	100.0%	303	100.0%
Processing												
None	41	93.2%	2	66.7%	2	100.0%	3	100.0%	1	100.0%	252	83.4%
Chops	–	–	–	–	–	–	–	–	–	–	5	1.7%
Cut through	–	–	–	–	–	–	–	–	–	–	11	3.6%
Substantial cut	–	–	–	–	–	–	–	–	–	–	5	1.7%
Sawn through	1	2.3%	1	33.3%	–	–	–	–	–	–	20	6.6%
Impact	1	2.3%	–	–	–	–	–	–	–	–	1	0.3%
Marrow breakage	–	–	–	–	–	–	–	–	–	–	1	0.3%
Defleshing	–	–	–	–	–	–	–	–	–	–	4	1.3%
Steak, chop, or roast cuts	1	2.3%	–	–	–	–	–	–	–	–	3	1.0%
Total	44	100.0%	3	100.0%	2	100.0%	3	100.0%	1	100.0%	302	100.0%
Second processing												
None	44	100.0%	3	100.0%	2	100.0%	3	100.0%	1	100.0%	298	98.7%
Substantial cut	–	–	–	–	–	–	–	–	–	–	2	0.7%
Sawn through	–	–	–	–	–	–	–	–	–	–	1	0.3%
Marrow breakage	–	–	–	–	–	–	–	–	–	–	1	0.3%
Total	44	100.0%	3	100.0%	2	100.0%	3	100.0%	1	100.0%	302	100.0%

Table 17.8. Structure 12, 120 South Capitol Street, summary of fauna.

	Feature 24 Domestic-Refuse		Feature 390 Domestic-Refuse		Feature 391, Domestic-Refuse		**Total**	
Taxon	Count	Col. %	Count	Col. %	Count	Col. %	Count	Col. %
Large mammal	–	–	1	100.0%	–	–	1	25.0%
Small ungulate	–	–	–	–	1	100.0%	1	25.0%
Medium-to-large	2	100.0%	–	–	–	–	2	50.0%
Total	2	100.0%	1	100.0%	1	100.0%	4	100.0%
Age								
Juvenile	1	50.0%	–	–	–	–	1	25.0%
Mature	1	50.0%	1	100.0%	1	100.0%	3	75.0%
Completeness								
<10%	2	100.0%	1	100.0%	1	100.0%	4	100.0%
Environmental								
None	1	50.0%	–	–	–	–	1	25.0%
Checked/exfoliated	–	–	1	100.0%	–	–	1	25.0%
Root etched	1	50.0%			1	100.0%	2	50.0%
Processing								
None	1	50.0%	1	100.0%	1	100.0%	3	75.0%
Sawn	1	50.0%	–	–	–	–	1	25.0%

Table 17.9. Address, ethnicity, date, feature type, and feature count for features in the feature database.

Ethnicity and Date	Feature Type	No. of Features
Structure 1, 141 West Manhattan Avenue		
Hispanic, 19th century	refuse pit	4
	privy	1
	Total	5
Hispanic, 20th century	refuse pit	7
	privy	8
	Total	15
Structure 2, 451 Galisteo Street		
Hispanic, 20th century	refuse pit	5
	other	1
	Total	6
Structure 3, 135½ West Manhattan Avenue		
Hispanic, 20th century	other	1
	Total	1
Structure 4, 125 West Manhattan Avenue		
Hispanic, 19th century	bone pit	8
	other	1
	Total	9
Anglo, 20th century	refuse pit	2
	privy	1
	bone pit	1
	construction debris	1
	Total	5
Structure 5, 135, 137, and 139 West Manhattan Avenue		
Hispanic, 19th century	construction debris	1
Hispanic, 20th century	refuse pit	1
	privy	1
	construction debris	1
	Total	3
Structure 6, 111 West Manhattan Avenue		
Anglo, 19th century	refuse pit	1
Anglo, 20th century	refuse pit	3
	construction debris	3
	other	1
	Total	7
Structure 7, 424, 428, or 430 Don Gaspar Avenue		
Anglo, 20th century	privy	1
	Total	1
Structure 11, 116 South Capitol Street		
Anglo, 20th century	refuse pit	5
	bone pit	1
	other	1
	Total	7

Table 17.10. Cattle treatment by feature.

Feature Type	Structure No.	Feature No.	Count	% Cranium	Cranium Processing	% Feet	% Hand Processed	% Retail
Nineteenth-century Hispanic								
Refuse pit	1	27	94	15.9%	chops	1.1%	2.6%	82.1%
		38	32	0.0%	none	9.4%	3.4%	93.1%
		45	3	0.0%	none	0.0%	33.3%	66.7%
		46	4	0.0%	none	0.0%	75.0%	25.0%
		207	25	0.0%	none	20.0%	20.0%	45.0%
Bone pit	4	13	5	40.0%	sawn	0.0%	0.0%	100.0%
		118	22	81.8%	sawn	4.5%	33.3%	0.0%
		126	3	33.3%	none	0.0%	0.0%	100.0%
		127	6	100.0%	chops and sawn	0.0%	0.0%	0.0%
		128	16	31.3%	chops	6.3%	0.0%	90.0%
		135	6	83.3%	sawn	0.0%	0.0%	100.0%
		136	9	44.4%	sawn	33.3%	0.0%	100.0%
		140	7	28.6%	sawn	28.6%	0.0%	0.0%
Construction	5	111	56	0.0%	none	3.7%	3.7%	63.0%
Other	4	14	7	0.0%	none	14.3%	0.0%	100.0%
Twentieth-century Hispanic								
Refuse pit	1	28	3	66.7%	chops	0.0%	0.0%	0.0%
		39	10	0.0%	none	0.0%	0.0%	100.0%
		75	7	0.0%	none	0.0%	0.0%	100.0%
		76	3	0.0%	none	33.3%	0.0%	100.0%
		77	4	0.0%	none	0.0%	25.0%	75.0%
		79	107	16.8%	chops	2.8%	1.2%	93.0%
		89	3	0.0%	none	0.0%	0.0%	100.0%
	2	43	42	2.4%	none	0.0%	9.8%	68.3%
		80	15	0.0%	none	0.0%	6.7%	93.3%
		87	3	0.0%	none	0.0%	0.0%	100.0%
		88	52	1.9%	none	7.7%	2.1%	63.8%
		91	58	3.4%	sawn	10.3%	18.0%	28.0%
	5	82	18	16.7%	none	0.0%	0.0%	100.0%
Privy	1	44	133	3.8%	sawn	6.8%	1.7%	81.5%
		73	5	0.0%	none	0.0%	0.0%	100.0%
		74	85	3.5%	sawn	2.4%	1.3%	91.3%
		78	90	1.1%	none	0.0%	2.2%	93.3%
		231	40	5.0%	none	2.5%	2.7%	97.3%
		232	30	0.0%	none	6.7%	14.3%	67.9%
		233	98	0.0%	none	1.0%	0.0%	96.9%
		234	7	71.4%	sawn	0.0%	0.0%	100.0%
		235	6	0.0%	none	0.0%	0.0%	100.0%
	5	224	4	0.0%	none	25.0%	0.0%	100.0%
Construction	5	105	7	0.0%	none	0.0%	0.0%	71.4%
Other	2	47	7	0.0%	none	0.0%	0.0%	100.0%
	3	84	14	21.4%	none	0.0%	0.0%	90.9%

Table 17.10. (continued)

Feature Type	Structure No.	Feature No.	Count	% Cranium	Cranium Processing	% Feet	% Hand Processed	% Retail
Twentieth-century Anglo								
Refuse pit	4	56	200	0.5%	chops	1.5%	3.6%	86.2%
		119	5	0.0%	none	0.0%	0.0%	60.0%
	6	1	47	0.0%	none	0.0%	4.3%	87.2%
		195	52	3.8%	chops	3.8%	4.2%	62.5%
		196	4	0.0%	none	0.0%	0.0%	75.0%
	11	339	2	0.0%	none	0.0%	0.0%	50.0%
		349	1	0.0%	none	0.0%	0.0%	100.0%
		354	0	0.0%	none	0.0%	0.0%	0.0%
		356	0	0.0%	none	0.0%	0.0%	0.0%
		383	5	0.0%	none	0.0%	20.0%	40.0%
Privy	4	62	34	0.0%	none	17.6%	3.6%	85.7%
	7	7	4	0.0%	none	0.0%	0.0%	75.0%
Bone pit	4	320	109	17.4%	chops and cuts	2.8%	33.3%	1.1%
	11	351	12	0.0%	none	0.0%	75.0%	0.0%
Construction debris	4	131	8	0.0%	none	0.0%	12.5%	62.5%
	6	6	7	0.0%	none	0.0%	0.0%	71.4%
		161	12	58.3%	none	8.3%	0.0%	100.0%
		206	7	14.3%	none	0.0%	16.7%	66.7%
Other	6	170	117	0.0%	none	6.8%	0.9%	78.9%
	11	389	3	0.0%	none	0.0%	0.0%	33.0%

Table 17.11. Sheep/goat treatment by feature.

Feature Type	Structure No.	Feature No.	Count	% cranium	Cranium Processing	% Feet	% Hand Processed	% Retail
Nineteenth-century Hispanic								
Refuse pit	1	27	49	12.2%	none	14.3%	30.6%	11.1%
		38	80	18.8%	chops	6.3%	25.0%	3.3%
		45	23	8.7%	none	4.3%	35.0%	10.0%
		46	12	0.0%	none	50.0%	0.0%	0.0%
		207	87	13.8%	none	24.1%	29.6%	3.7%
Bone pit	4	13	25	4.0%	none	84.0%	33.3%	0.0%
		118	15	13.3%	none	80.0%	0.0%	0.0%
		126	5	20.0%	none	0.0%	0.0%	0.0%
		127	21	4.8%	none	76.2%	0.0%	0.0%
		128	40	0.0%	none	85.0%	0.0%	0.0%
		135	42	4.8%	none	76.2%	12.5%	0.0%
		136	80	1.3%	none	90.0%	14.3%	0.0%
		140	45	4.4%	cuts	88.9%	66.7%	0.0%
Construction	5	111	99	30.3%	chops	7.1%	17.7%	4.8%
Other	4	14	6	33.3%	none	0.0%	25.0%	0.0%
Twentieth-century Hispanic								
Refuse pit	1	28	1	100.0%	none	0.0%	0.0%	0.0%
		39	13	0.0%	none	0.0%	0.0%	38.5%
		75	8	12.5%	none	12.5%	50.0%	6.7%
		76	7	0.0%	none	14.3%	16.7%	50.0%
		77	1	0.0%	none	100.0	0.0%	0.0%
		79	134	17.9%	chops, cuts, sawn	11.9%	24.5%	6.4%
		89	3	0.0%	none	0.0%	33.3%	0.0%
	2	43	93	52.7%	chops and cuts	20.4%	24.0%	8.0%
		80	9	0.0%	none	22.2%	14.3%	42.9%
		87	13	0.0%	none	7.7%	41.7%	0.0%
		88	24	4.2%	none	8.3%	23.8%	19.0%
		91	298	19.5%	chops	11.4%	19.4%	1.9%
	5	82	10	0.0%	none	20.0%	25.0%	0.0%
Privy	1	44	88	4.5%	chops, cuts, sawn	21.6%	23.1%	15.4%
		73	12	0.0%	none	8.3%	9.1%	81.8%
		74	40	2.5%	none	22.5%	40.0%	30.0%
		78	36	11.1%	cuts	19.4%	44.0%	4.0%
		231	5	0.0%	none	20.0%	25.0%	0.0%
		232	30	10.0%	none	33.3%	52.9%	0.0%
		233	12	0.0%	none	16.7%	0.0%	60.0%
		234	0	0.0%	none	0.0%	0.0%	0.0%
		235	7	0.0%	none	0.0%	42.9%	42.9%
	5	224	3	0.0%	none	0.0%	100.0%	0.0%
Construction	5	105	4	0.0%	none	0.0%	75.0%	0.0%
Other	2	47	13	0.0%	none	23.1%	50.0%	40.0%
	3	84	7	14.3%	none	57.1%	0.0%	0.0%

Table 17.11. (continued)

Feature Type	Structure No.	Feature No.	Count	% cranium	Cranium Processing	% Feet	% Hand Processed	% Retail
Twentieth-century Anglo								
Refuse pit	4	56	340	3.5%	chops	0.6%	49.4%	4.3%
		119	1	0.0%	none	100.0	0.0%	0.0%
	6	1	10	0.0%	none	0.0%	10.0%	40.0%
		195	31	6.5%	none	16.1%	20.8%	4.2%
		196	1	0.0%	none	100.0	0.0%	0.0%
	11	339	3	0.0%	none	0.0%	0.0%	66.7%
		349	8	25.0%	none	0.0%	0.0%	16.7%
		354	0	0.0%	none	0.0%	0.0%	0.0%
		356	0	0.0%	none	0.0%	0.0%	0.0%
		383	16	0.0%	none	31.3%	9.1%	0.0%
Privy	4	62	35	34.3%	chops	11.4%	21.0%	5.3%
	7	7	5	0.0%	none	0.0%	0.0%	20.0%
Bone pit	4	320	1	0.0%	none	0.0%	0.0%	100.0
	11	351	3	0.0%	none	0.0%	0.0%	0.0%
Construction debris	4	131	34	14.7%	none	11.8%	16.0%	16.0%
	6	6	3	0.0%	none	66.7%	0.0%	100.0
		161	8	0.0%	none	25.0%	0.0%	0.0%
		206	12	0.0%	none	0.0%	16.7%	0.0%
Other	6	170	15	0.0%	none	26.7%	0.0%	27.3%
	11	389	4	25.0%	none	0.0%	0.0%	33.3%

Table 17.12. Pig and chicken treatment by feature.

Feature Type	Structure No.	Feature No.	Pig Count	Pig % Cranium	Pig % Feet	Pig % Hand Processed	Pig % Retail Processing	Chicken Count	Chicken % Cranium	Chicken % Feet
Nineteenth-century Hispanic										
Refuse pit	1	27	1	0.0%	0.0%	0.0%	100.0%	0	0.0%	0.0%
		38	3	66.7%	0.0%	100.0%	0.0%	6	33.3%	16.7%
		45	0	0.0%	0.0%	0.0%	0.0%	0	0.0%	0.0%
		46	1	100.0%	0.0%	0.0%	0.0%	0	0.0%	0.0%
		207	5	80.0%	0.0%	0.0%	100.0%	17	0.0%	35.3%
Bone pit	4	13	0	0.0%	0.0%	0.0%	0.0%	0	0.0%	0.0%
		118	0	0.0%	0.0%	0.0%	0.0%	0	0.0%	0.0%
		126	0	0.0%	0.0%	0.0%	0.0%	0	0.0%	0.0%
		127	0	0.0%	0.0%	0.0%	0.0%	0	0.0%	0.0%
		128	0	0.0%	0.0%	0.0%	0.0%	1	0.0%	0.0%
		135	0	0.0%	0.0%	0.0%	0.0%	0	0.0%	0.0%
		136	0	0.0%	0.0%	0.0%	0.0%	0	0.0%	0.0%
		140	0	0.0%	0.0%	0.0%	0.0%	0	0.0%	0.0%
Construction	5	111	3	0.0%	33.3%	0.0%	100.0%	0	0.0%	0.0%
Other	4	14	0	0.0%	0.0%	0.0%	0.0%	0	0.0%	0.0%
Twentieth-century Hispanic										
Refuse pit	1	28	1	0.0%	0.0%	0.0%	0.0%	0	0.0%	0.0%
		39	2	0.0%	0.0%	0.0%	50.0%	0	0.0%	0.0%
		75	0	0.0%	0.0%	0.0%	0.0%	2	0.0%	0.0%
		76	2	0.0%	0.0%	0.0%	50.0%	1	0.0%	0.0%
		77	0	0.0%	0.0%	0.0%	0.0%	0	0.0%	0.0%
		79	1	0.0%	100.0%	0.0%	0.0%	00	0.0%	0.0%
		89	1	0.0%	100.0%	0.0%	0.0%	0	0.0%	0.0%
	2	43	0	0.0%	0.0%	0.0%	0.0%	0	0.0%	0.0%
		80	0	0.0%	0.0%	0.0%	0.0%	0	0.0%	0.0%
		87	2	0.0%	100.0%	0.0%	0.0%	0	0.0%	0.0%
		88	6	0.0%	16.7%	40.0%	60.0%	4	0.0%	0.0%
		91	0	0.0%	0.0%	0.0%	0.0%	4	0.0%	0.0%
	5	82	1	0.0%	0.0%	0.0%	0.0%	0	0.0%	0.0%
Privy	1	44	13	0.0%	7.7%	0.0%	41.7%	82	6.1%	8.5%
		73	0	0.0%	0.0%	0.0%	0.0%	0	0.0%	0.0%
		74	7	0.0%	57.1%	0.0%	66.7%	0	0.0%	0.0%
		78	3	0.0%	33.3%	0.0%	50.0%	67	10.5%	9.0%
		231	1	0.0%	0.0%	0.0%	100.0%	1	0.0%	100.0%
		232	0	0.0%	0.0%	0.0%	0.0%	6	16.7%	0.0%
		233	4	0.0%	0.0%	0.0%	75.0%	1	0.0%	100.0%
		234	0	0.0%	0.0%	0.0%	0.0%	4	0.0%	0.0%
		235	5	0.0%	0.0%	0.0%	100.0%	8	0.0%	0.0%
	5	224	0	0.0%	0.0%	0.0%	0.0%	0	0.0%	0.0%
Construction	5	105	0	0.0%	0.0%	0.0%	0.0%	1	0.0%	0.0%
Other	2	47	1	0.0%	0.0%	100.0%	0.0%	0	0.0%	0.0%
	3	84	1	0.0%	100.0%	0.0%	0.0%	3	0.0%	0.0%
Twentieth-century Anglo										
Refuse pit	4	56	2.0%	0.0%	50.0%	0.0%	0.0%	2	0.0%	0.0%
		119	0.0%	0.0%	0.0%	0.0%	0.0%	0	0.0%	0.0%
	6	1	10.0%	10.0%	0.0%	0.0%	88.9%	19	0.0%	5.3%
		195	1.0%	0.0%	0.0%	0.0%	0.0%	2	0.0%	0.0%
		196	0.0%	0.0%	0.0%	0.0%	0.0%	0	0.0%	0.0%
	11	339	0.0%	0.0%	0.0%	0.0%	0.0%	2	0.0%	0.0%
		349	0.0%	0.0%	0.0%	0.0%	0.0%	0	0.0%	0.0%
		354	0.0%	0.0%	0.0%	0.0%	0.0%	14	7.1%	64.3%
		356	0.0%	0.0%	0.0%	0.0%	0.0%	5	0.0%	0.0%
		383	0.0%	0.0%	0.0%	0.0%	0.0%	0	0.0%	0.0%
Privy	4	62	3.0%	0.0%	0.0%	0.0%	66.7%	70	2.9%	41.4%
	7	7	0.0%	0.0%	0.0%	0.0%	0.0%	0	0.0%	0.0%
Bone pit	4	320	0.0%	0.0%	0.0%	0.0%	0.0%	2	0.0%	0.0%
	11	351	0.0%	0.0%	0.0%	0.0%	0.0%	0	0.0%	0.0%
Construction debris	4	131	1.0%	0.0%	0.0%	0.0%	0.0%	1	0.0%	0.0%
	6	6	0.0%	0.0%	0.0%	0.0%	0.0%	0	0.0%	0.0%
		161	1.0%	0.0%	0.0%	0.0%	100.0%	2	0.0%	0.0%
		206	0.0%	0.0%	0.0%	0.0%	0.0%	0	0.0%	0.0%
Other	6	170	3.0%	0.0%	0.0%	0.0%	100.0%	7	0.0%	0.0%
	11	389	0.0%	0.0%	0.0%	0.0%	0.0%	11	9.1%	9.1%

Table 17.13. Mean values for crania, feet, and processing types by feature.

Fauna	Refuse (n = 28)	Privy (n = 12)	Bone Pit (n = 10)	Construction Debris (n = 6)	Other (n = 5)	**Total** (n = 61)
Cattle count	28.5	44.7	19.5	16.2	29.6	29.1
Cattle, % cranium	4.6%	7.1%	46.0%	12.1%	4.3%	12.6%
Cattle, % feet	3.2%	5.2%	7.6%	2.0%	4.2%	4.3%
Cattle, % hand processed	8.2%	2.2%	14.2%	5.5%	0.2%	7.1%
Cattle, % retail cuts	67.7%	90.7%	49.1%	72.5%	80.6%	70.7%
Sheep/goat count	45.5	22.8	27.7	26.7	9.0	33.3
Sheep/goat, % cranium	10.5%	5.2%	5.3%	7.5%	14.5%	8.7%
Sheep/goat, % feet	20.6%	12.8%	58.0%	18.4%	21.4%	25.0%
Sheep/goat, % hand processed	17.2%	29.8%	12.7%	20.9%	15.0%	19.1%
Sheep/goat, % retail cuts	11.9%	21.6%	10.0%	20.1%	20.1%	15.0%
Pig count	1.4	3.0	0.0	0.8	1.0	1.4
Pig, % cranium	9.2%	0.0%	0.0%	0.0%	0.0%	4.2%
Pig, % feet	13.1%	8.2%	0.0%	5.6%	20.0%	9.8%
Pig, % hand processed	5.0%	0.0%	0.0%	0.0%	20.0%	3.9%
Pig, % retail cuts	16.0%	41.7%	0.0%	33.3%	20.0%	20.5%
Chicken count	2.8	19.9	0.3	0.7	4.2	5.7
Chicken, % cranium	1.4%	3.0%	0.0%	0.0%	1.8%	1.4%
Chicken, % feet	4.3%	21.6%	0.0%	0.0%	1.8%	6.4%
Chicken, % processed	0.5%	3.7%	0.0%	0.0%	6.7%	1.5%

Table 17.14. Mean values for crania, feet, and processing types by feature type and century.

	Cattle		Sheep/goat		Pig		Chicken	
	19th	20th	19th	20th	19th	20th	19th	20th
Refuse pit	(n = 5)	(n = 23)	(n = 5)	(n = 23)	(n = 5)	(n =	(n = 5)	(n = 23)
Count	31.6	27.9	50.2	44.5	2.0	1.3	4.6	2.4
% cranium	3.2%	4.9%	10.7%	10.5%	49.3%	0.4%	6.7%	0.3%
% feet	6.1%	2.6%	19.8%	20.7%	0.0%	15.9%	10.4%	3.0%
% hand processed	26.9%	4.1%	24.0%	15.7%	20.0%	1.7%	1.2%	0.3%
% retail processing	62.4%	68.8%	5.6%	13.3%	40.0%	10.8%	–	–
Privy	(n = 0)	(n = 12)	(n = 0)	(n = 12)	(n = 0)	(n =	(n = 0)	(n = 12)
Count	0.0	44.7	0.0	22.8	0.0	3.0	0.0	14.3
% cranium	0.0%	7.1%	0.0%	5.2%	0.0%	0.0%	0.0%	2.7%
% feet	0.0%	5.2%	0.0%	12.8%	0.0%	8.2%	0.0%	22.8%
% hand processed	0.0%	2.1%	0.0%	29.8%	0.0%	0.0%	0.0%	3.3%
% retail processing	0.0%	90.7%	0.0%	21.6%	0.0%	41.7%	–	–
Bone pit	(n = 8)	(n = 2)	(n = 8)	(n = 2)	(n = 8)	(n = 2)	(n = 8)	(n = 2)
Count	9.3	60.5	34.1	2.0	0.0	0.0	0.1	1.0
% cranium	55.3%	8.7%	6.6%	0.0%	0.0%	0.0%	0.0%	0.0%
% feet	9.1%	1.4%	72.5%	0.0%	0.0%	0.0%	0.0%	0.0%
% hand processed	4.2%	54.2%	15.9%	0.0%	0.0%	0.0%	0.0%	0.0%
% retail processing	61.3%	0.6%	0.0%	0.0%	0.0%	0.0%	–	–
Construction debris	(n = 1)	(n = 5)	(n = 1)	(n = 5)	(n = 1)	(n = 5)	(n = 1)	(n = 5)
Count	56.0	8.2	99.0	12.2	3.0	0.4	0.0	0.8
% cranium	0.0%	14.5%	30.3%	2.9%	0.0%	0.0%	0.0%	0.0%
% feet	3.7%	1.7%	7.1%	20.7%	33.3%	0.0%	0.0%	0.0%
% hand processed	3.7%	5.8%	17.7%	21.5%	0.0%	0.0%	0.0%	0.0%
% retail processing	63.0%	74.4%	4.8%	23.2%	100.0%	20.0%	–	–
Other	(n = 1)	(n = 4)	(n = 1)	(n = 4)	(n = 1)	(n = 4)	(n = 1)	(n = 4)
Count	7.0	35.3	6.0	9.8	0.0	1.3	0.0	5.3
% cranium	0.0%	5.4%	33.3%	9.8%	0.0%	0.0%	0.0%	2.3%
% feet	14.3%	1.7%	0.0%	26.7%	0.0%	25.0%	0.0%	2.3%
% hand processed	0.0%	0.2%	25.0%	12.5%	0.0%	25.0%	0.0%	8.3%
% retail processing	100.0%	75.7%	0.0%	25.2%	0.0%	25.0%	–	–
All proveniences	(n = 15)	(n = 46)	(n = 15)	(n = 46)	(n = 15)	(n =	(n = 15)	(n = 46)
Count	19.7	32.2	41.9	30.5	0.9	1.6	1.6	7.0
% cranium	30.6%	6.7%	11.3%	7.8%	16.4%	0.2%	2.2%	1.1%
% feet	8.1%	3.0%	45.8%	15.3%	2.2%	12.3%	3.5%	7.3%
% hand processed	11.4%	5.6%	19.3%	19.1%	6.7%	3.0%	0.4%	1.9%
% retail processing	65.4%	72.8%	2.2%	19.2%	20.0%	20.6%	–	–

Table 17.15. Mean values for crania, feet, and processing types by feature type and ethnicity.

	Cattle		Sheep/goat		Pig		Chicken	
	Hispanic	Anglo	Hispanic	Anglo	Hispanic	Anglo	Hispanic	Anglo
Refuse	(n = 18)	(n = 10)	(n = 18)	(n = 10)	(n = 18)	(n = 10)	(n = 18)	(n = 10)
Count	26.8	31.6	48.1	41.0	1.4	1.3	1.9	4.4
% cranium	6.9%	0.4%	14.5%	3.5%	13.7%	1.0%	1.8%	0.7%
% feet	4.7%	0.5%	18.2%	24.8%	17.6%	5.0%	2.9%	7.0%
% hand processed	10.9%	3.2%	21.8%	8.9%	7.8%	0.0%	0.3%	0.7%
% retail processing	74.1%	56.1%	11.2%	13.2%	20.0%	8.9%	–	–
Privy	(n = 10)	(n = 2)	(n = 10)	(n = 2)	(n = 10)	(n = 2)	(n = 10)	(n = 2)
Count	49.8	19.0	23.3	20.0	3.3	1.5	16.9	35.0
% cranium	8.5%	0.0%	2.8%	17.2%	0.0%	0.0%	3.3%	1.5%
% feet	4.4%	8.8%	14.2%	5.7%	9.8%	0.0%	21.8%	20.7%
% hand processed	2.2%	1.8%	33.7%	10.5%	0.0%	0.0%	4.2%	1.5%
% retail processing	92.8%	80.4%	23.4%	12.7%	43.3%	33.3%	–	–
Bone pit	(n = 8)	(n = 2)	(n = 8)	(n = 2)	(n = 8)	(n = 2)	(n = 8)	(n = 2)
Count	9.3	60.5	34.1	2.0	0.0	0.0	0.1	1.0
% cranium	55.3%	8.7%	6.6%	0.0%	0.0%	0.0%	0.0%	0.0%
% feet	9.1%	1.4%	72.5%	0.0%	0.0%	0.0%	0.0%	0.0%
% hand processed	4.2%	54.2%	15.9%	0.0%	0.0%	0.0%	0.0%	0.0%
% retail processing	61.3%	0.6%	0.0%	50.0%	0.0%	0.0%	–	–
Construction debris	(n = 2)	(n = 4)	(n = 2)	(n = 4)	(n = 2)	(n = 4)	(n = 2)	(n = 4)
Count	31.5	8.5	51.5	14.3	1.5	0.5	0.5	0.8
% cranium	0.0%	18.2%	15.2%	3.7%	0.0%	0.0%	0.0%	0.0%
% feet	1.9%	2.1%	3.6%	25.9%	16.7%	0.0%	0.0%	0.0%
% hand processed	1.9%	7.3%	46.4%	8.2%	0.0%	0.0%	0.0%	0.0%
% retail processing	67.2%	75.2%	2.4%	29.0%	50.0%	25.0%	–	–
Other	(n = 3)	(n = 2)	(n = 3)	(n = 2)	(n = 3)	(n = 2)	(n = 3)	(n = 2)
Count	9.3	60.0	8.7	9.5	0.7	1.5	1.0	9.0
% cranium	7.1%	0.0%	15.9%	12.5%	0.0%	0.0%	0.0%	4.6%
% feet	4.8%	3.4%	26.7%	13.4%	33.3%	0.0%	0.0%	4.6%
% hand processed	0.0%	0.5%	25.0%	0.0%	33.3%	0.0%	11.1%	0.0%
% retail processing	97%	56.0%	13.3%	30.3%	0.0%	50.0%	–	–
All proveniences	(n = 41)	(n = 20)	(n = 41)	(n = 20)	(n = 41)	(n = 20)	(n = 41)	(n = 20)
Count	28.0	31.6	36.6	26.5	1.6	1.1	5.1	6.9
% cranium	16.4%	4.7%	10.2%	5.5%	6.0%	0.5%	1.6%	1.0%
% feet	5.4%	2.0%	27.7%	19.5%	13.4%	2.5%	6.6%	6.0%
% hand processed	6.3%	8.7%	25.0%	7.1%	5.8%	0.0%	2.0%	0.5%
% retail processing	77.5%	56.8%	11.7%	21.7%	21.8%	17.8%	–	–

Table 17.16. Mean values for crania, feet, and processing types by feature type, century, and ethnicity.

	Cattle			Sheep/goat			Pig			Chicken		
	19th Hispanic	20th Hispanic	20th Anglo	19th Hispanic	20th Hispanic	20th Anglo	19th Hispanic	20th Hispanic	20th Anglo	19th Hispanic	20th Hispanic	20th Anglo
Count												
Refuse	31.6	25.0	31.6	50.2	47.2	41.0	2.0	1.2	1.3	4.6	0.9	4.4
Privy	0.0	49.8	19.0	88.0	23.3	20.0	13.0	3.3	1.5	82.0	16.9	35.0
Bone Pit	9.3	–	60.5	34.1	–	2.0	0.0	–	0.0	0.1	–	1.0
Construction	56.0	7.0	8.5	99.0	4.0	14.3	3.0	0.0	0.5	0.0	1.0	0.8
Other	7.0	10.5	60.0	6.0	10.0	9.5	0.0	1.0	1.5	0.0	1.5	9.0
Total	19.7	32.7	31.5	41.3	33.5	26.5	0.9	2.0	1.1	1.6	7.1	6.9
% Cranium												
Refuse	3.2%	8.3%	0.4%	10.7%	15.9%	3.5%	49.3%	0.0%	1.0%	6.6%	0.0%	0.7%
Privy	0.0%	8.5%	0.0%	4.5%	2.8%	17.2%	0.0%	0.0%	0.0%	6.1%	3.3%	1.5%
Bone Pit	55.3%	–	8.7%	6.6%	–	0.0%	0.0%	–	0.0%	0.0%	–	0.0%
Construction	0.0%	0.0%	18.2%	30.3%	0.0%	3.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other	0.0%	10.7%	0.0%	33.3%	7.1%	12.5%	0.0%	0.0%	0.0%	0.0%	0.0%	4.6%
Total	30.6%	8.2%	4.7%	11.3%	9.6%	5.5%	16.5%	0.0%	0.5%	2.2%	1.3%	1.0%
% Feet												
Refuse	6.1%	4.2%	0.5%	19.8%	17.6%	24.8%	0.0%	24.4%	5.0%	10.4%	0.0%	7.0%
Privy	0.0%	4.4%	8.8%	21.6%	14.1%	5.7%	7.7%	9.8%	0.0%	8.5%	21.8%	20.7%
Bone Pit	9.1%	–	1.4%	72.5%	–	0.0%	0.0%	–	0.0%	0.0%	–	0.0%
Construction	3.7%	0.0%	2.1%	7.1%	0.0%	25.9%	33.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Other	14.3%	0.0%	3.4%	0.0%	40.1%	13.4%	0.0%	50.0%	0.0%	0.0%	0.0%	4.6%
Total	8.1%	3.8%	2.0%	45.8%	17.3%	19.5%	2.2%	19.8%	2.5%	3.5%	8.4%	6.0%
% Hand processed												
Refuse	26.9%	4.8%	3.2%	24.0%	21.0%	8.9%	20.0%	3.1%	0.0%	1.2%	0.0%	0.7%
Privy	0.0%	2.2%	1.8%	23.1%	33.7%	10.5%	0.0%	0.0%	0.0%	8.5%	4.%	1.5%
Bone Pit	4.2%	–	54.2%	15.8%	–	0.0%	0.0%	–	0.0%	0.0%	–	0.0%
Construction	3.7%	0.0%	7.3%	17.7%	75.0%	8.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other	0.0%	0.0%	0.5%	25.0%	25.0%	0.0%	0.0%	50.0%	0.0%	0.0%	16.7%	0.0%
Total	11.4%	3.3%	8.7%	19.3%	28.3%	7.2%	6.7%	5.4%	0.0%	0.4%	2.9%	0.5%
% Retail processing												
Refuse	62.4%	78.6%	56.1%	5.6%	13.3%	13.2%	40.0%	12.3%	8.9%	–	–	–
Privy	0.0%	92.8%	80.4%	15.4%	24.3%	12.3%	41.7%	43.3%	33.4%	–	–	–
Bone Pit	61.2%	–	0.6%	0.0%	–	50.0%	0.0%	–	0.0%	–	–	–
Construction	63.0%	71.4%	75.2%	4.8%	0.0%	29.0%	100.0%	0.0%	25.0%	–	–	–
Other	100.0%	95.5%	56.0%	0.0%	20.0%	30.3%	0.0%	0.0%	50.0%	–	–	–
Total	64.3%	85.1%	56.8%	2.2%	17.2%	21.7%	20.0%	22.8%	17.8%	–	–	–

Table 17.17. Results of the SPSS ANOVA tests.

	Feature Type		Century		Ethnicity		Ethnicity and Century	
Variable	F	Sig.	F	Sig.	F	Sig.	F	Sig.
Cattle count	0.71	0.59	1.05	0.31	0.10	0.76	0.52	0.60
Cattle, % cranium	8.87	0.00	13.19	0.00	3.24	0.08	6.65	0.00
Cattl,e % feet	0.65	0.63	4.54	0.04	2.24	0.14	2.52	0.09
Cattle, % hand processed	1.15	0.34	1.62	0.21	0.34	0.56	1.53	0.22
Cattle, % retail cuts	2.45	0.06	0.70	0.41	5.41	0.02	4.86	0.01
Sheep/goat count	0.60	0.67	0.40	0.53	0.37	0.55	0.27	0.76
Sheep/goat, % cranium	0.50	0.74	0.53	0.47	1.17	0.28	0.63	0.54
Sheep/goat, % feet	4.11	0.01	9.83	0.00	0.92	0.34	4.87	0.01
Sheep/goat % hand	1.06	0.38	0.00	0.97	10.49	0.00	6.27	0.00
Sheep/goat, % retail cuts	0.53	0.72	5.74	0.02	2.23	0.14	3.04	0.06
Pig count	2.31	0.07	0.88	0.35	0.56	0.46	1.20	0.31
Pig, % cranium	0.96	0.44	10.41	0.00	1.24	0.27	5.12	0.01
Pig, % feet	0.66	0.62	1.63	0.21	2.29	0.14	3.46	0.04
Pig, % hand processed	1.30	0.28	0.43	0.52	1.35	0.25	0.68	0.51
Pig % retail cuts	2.27	0.07	0.00	0.95	0.16	0.69	0.11	0.90
Chicken count	3.55	0.01	1.28	0.26	0.16	0.69	0.63	0.54
Chicken, % cranium	0.60	0.67	0.51	0.48	0.23	0.63	0.27	0.76
Chicken, % feet	2.37	0.06	0.40	0.53	0.01	0.92	0.27	0.76
Chicken, % processed	2.71	0.04	0.90	0.35	1.10	0.30	1.70	0.19

Table 17.18. Total counts for cattle and sheep or goat from features listed in 17.12.

Variable		Cattle Count	Sheep or Goat Count	**Total**
Century				
Nineteenth century	n =	270	542	812
	%	33.3%	66.7%	100.0%
Twentieth century	n =	1505	1488	2993
	%	50.3%	49.7%	100.0%
Total	n =	1775	2030	3805
	%	46.6%	53.3%	100.0%
Ethnicity				
Hispanic	n =	1121	1413	2534
	%	44.3%	55.8%	100.0%
Anglo	n =	654	617	1271
	%	51.4%	48.5%	100.0%
Total	n =	1775	2030	3805
	%	46.6%	53.3%	100.0%
Century and Ethnicity				
Nineteenth-century Hispanic	n =	270	524	812
	%	33.3%	66.7%	100.0%
Twentieth-century Hispanic	n =	851	871	1722
	%	49.4%	50.6%	100.0%
Twentieth-century Anglo	n =	654	617	1271
	%	51.4%	48.5%	100.0%
Total	n =	1775	2030	3805
	%	46.6%	53.3%	100.0%
Structure				
1	n =	764	561	1325
	%	57.7%	44.3%	100.0%
2	n =	177	450	627
	%	28.2%	71.8%	100.0%
3	n =	14	7	21
	%	66.7%	33.3%	100.0%
4	n =	437	690	1127
	%	38.8%	61.2%	100.0%
5	n =	85	116	201
	%	44.3%	57.7%	100.0%
6	n =	271	167	438
	%	61.9%	38.1%	100.0%
7	n =	4	5	9
	%	44.4	55.6	100.0%
11	n =	23	34	57
	%	40.3%	59.6%	100.0%
Total	n =	1775	2030	3805
	%	46.6%	53.3%	100.0%

Table 17.19. Cut, value, and yield.

	Economic		Yield	
Cut	Value	Index	Value	Rank
Head	lowest	–	very low	–
Tongue	lowest	–	very low	–
Neck	low	1.49	low	13.0
Chuck	high	3.07	highest	1.0
Rib	highest	5.64	highest	3.5
Short loin	highest	6.25	highest	3.5
Sirloin	highest	6.25	moderate	7.0
Rump	high	3.93	low	11.5
Round	high	4.53	highest	2.0
Hindshank	low	1.00	moderate	8.0
Tail	low	3.08	very low	–
Short rib	moderate	3.07*	low	6.0
Short plate	low	2.56	high	5.0
Brisket	low	2.56*	low	5.0
Cross rib	moderate	3.07*	low	6.0
Arm	moderate	3.07	high	6.0
Foreshank	low	2.66	moderate	9.0
Feet	lowest	1.00	very low	–

Value and yield derived from Lyman 1987:Table 2; economic index values modified from Craw 2012:471.
* assigned based on economic value; not used in the Capitol Parking analysis

Table 17.20. Summary of mean economic index and yield rank.

	Sample Size	Economic Index	Yield Rank
Century			
Nineteenth century	292	3.68	6.19
Twentieth century	1480	3.71	6.03
Ethnicity			
Hispanic	1137	3.71	6.00
Anglo	625	3.67	5.53
Century and Ethnicity			
Nineteenth-century Hispanic	292	3.68	6.23
Twentieth-century Hispanic	845	3.73	5.95
Twentieth-century Anglo	625	3.67	5.64
Structure			
1–141 West Manhattan Avenue	760	3.81	5.86
2–451 Galisteo Street	175	3.38	6.32
4–125 West Manhattan Avenue	435	3.49	6.13
6–111 West Manhattan Avenue	267	3.80	6.30
11–116 South Capitol Street	23	4.63	4.96
Structure, Ethnicity, and Century			
1–141 West Manhattan Avenue, Hispanic, 19th	132	3.78	6.13
1–141 West Manhattan Avenue, Hispanic, 20th	628	3.94	5.81
2–451 Galisteo Street, Hispanic, 20th	175	3.38	6.32
4–125 West Manhattan Avenue, Hispanic, 19th	79	3.50	4.94
4–125 West Manhattan Avenue, Anglo, 20th	356	3.49	5.78
6–111 West Manhattan Avenue, Hispanic, 19th	25	3.61	4.28
6–111 West Manhattan Avenue, Anglo, 20th	242	3.80	6.04
11–116 South Capitol Street, Anglo, 20th	23	4.63	4.96

Table 17.21. Processed cattle cranial bones (does not include mandibles or hyoids).

Structure No.	Feature	Portion	Side	Completeness	Processing	Location	Count
19th-century Hispanic							
4	13, Bone pit	partial cranium	axial	75–95%	sawn	base	1
	118, Bone pit	partial cranium	axial	75–95%	sawn	posterior	3
	127, Bone pit	partial cranium	axial	50–75%	none	–	1
	127, Bone pit	partial cranium	axial	50–75%	sawn	posterior	2
	127, Bone pit	partial cranium	axial	50–75%	chops	base	1
	128, Bone pit	partial cranium	axial	75–95%	impact	posterior	1
	128, Bone pit	partial cranium	left	10–50%	chops	split transverse	1
	135, Bone pit	partial cranium	axial	50–75%	sawn	medial	1
	135, Bone pit	partial cranium	axial	50–75%	sawn	posterior	1
	135, Bone pit	partial cranium	axial	75–95%	sawn	posterior	1
	135, Bone pit	partial cranium	axial	75–95%	sawn	posterior	1
	136, Bone pit	partial cranium	axial	75–95%	sawn	posterior	1
	136, Bone pit	partial cranium	right	50–75%	sawn	posterior	1
	136, Bone pit	partial cranium	right	75–95%	none	posterior	1
	140, Bone pit	partial cranium	axial	50–75%	sawn	split lengthwise and vertical	1
	140, Bone pit	partial cranium	axial	75–95%	none	–	1
20th-century Hispanic							
1	44, Privy	case fragment	indet.	<10%	sawn	surface	1
	234, Privy	partial cranium	left	10–50%	sawn	posterior	1
2	91, Refuse pit	occipital condyle	left	<10%	sawn	split transverse	1
20th-century Anglo							
4	320, Bone pit	basioccipital	axial	10–50%	chops	split transverse and inferior	1
	320, Bone pit	basioccipital	axial	10–50%	cut through	split transverse	1
	320, Bone pit	nasal	right	<10%	cut through	split vertical	1
6	195, Refuse pit	occipital condyle	right	<10%	chops	split transverse, cuts inferior	1
		max fragment	left	<10%	none	0	1

Table 17.22. Summary of cattle and sheep/goat crania and feet.

			Cattle					Sheep/goat			
Feature Type	Structure No.	No. of Features	Count	Processed Crania	Mean % Crania	No. of Features with Chopped or Sawn Crania*	Mean % Feet	Count	Mean % Crania	No. of Features with Chopped or Sawn Crania*	Mean % Feet
Nineteenth-century Hispanic											
Refuse pits	1	4	133	–	4.0%	1	2.6%	164	9.9%	1	18.7%
	6	1	25	–	0.0%	0	20.0%	87	13.8%	0	24.1%
Total refuse pits		5	158	–	3.2%	1	6.1%	251	10.7%	1	19.8%
Bone pits	4	8	74	19	55.3%	7	6.1%	273	6.6%	0	72.5%
Construction debris pits	5	1	56	–	0.0%	0	3.7%	99	30.3%	1	7.1%
Other	4	1	7	–	0.0%	0	14.3%	6	33.3%	0	0.0%
Total 19th-century		15	295	19	30.6%	8	8.1%	629	11.3%	2	45.8%
Twentieth-century Hispanic											
Refuse pits	1	7	137	–	11.9%	2	5.2%	167	18.6%	1	19.8%
	2	5	170	1	1.5%	1	3.6%	437	15.3%	2	14.0%
	5	1	18	–	16.7%	0	0.0%	10	0.0%	0	20.0%
Total refuse pits		13	325	–	8.3%	3	4.2%	614	15.9%	3	17.6%
Privies	1	9	494	2	9.4%	3	2.2%	230	3.1%	1	15.8%
	5	1	4	–	0.0%	0	25.0%	3	0.0%	0	100.0
Total privies		10	498	–	8.5%	6	4.4%	233	2.8%	1	14.2%
Construction debris pits	5	1	7	–	0.0%	0	0.0%	4	0.0%	0	0.0%
Other	2	1	7	–	0.0%	0	0.0%	13	0.0%	0	23.1%
	3	1	7	–	0.0%	0	0.0%	7	14.3%	0	57.1%
Total 20th-century		26	851	3	8.2%	9	3.8%	871	9.6%	3	17.3%
Twentieth-century Anglo											
Refuse pits	4	2	205	–	0.3%	1	0.3%	341	1.8%	1	50.3%
	6	3	103	1	1.3%	1	1.3%	42	2.2%	0	38.7%
	11	5	8	–	0.0%	0	0.0%	27	5.0%	0	6.3%
Total refuse pits		10	316	–	0.4%	2	0.4%	410	3.5%	1	24.8%
Privies	4	1	34	–	0.0%	0	17.6%	35	34.3%	1	11.4%
	7	1	4	–	0.0%	0	0.0%	5	0.0%	0	0.0%
Total privies		2	38	–	0.0%	0	8.8%	40	7.2%	1	5.7%
Bone pits	4	1	109	1	17.4%	1	2.8%	1	0.0%	0	0.0%
	11	1	12	–	0.0%	0	0.0%	3	0.0%	0	0.0%
Total bone pits		2	121	–	8.7%	1	1.4%	4	0.0%	0	0.0%
Construction debris pits	4	1	8	–	0.0%	0	0.0%	34	14.7%	0	11.8%
	6	3	26	–	24.4%	0	2.8%	23	0.0%	0	30.6%
Total construction		4	34	–	18.2%	0	2.1%	57	3.7%	0	25.9%
Other	6	1	117	–	0.0%	0	6.8%	15	0.0%	0	26.7%
	11	1	3	–	0.0%	0	0.0%	4	25.0%	0	0.0%
Total 20th-century Anglo		20	629	2	4.7%	3	2.0%	530	5.5%	2	19.5%

* does not include mandibles and hyoid

Table 17.23. Domestic rabbit, wild animal, and fish by time, ethnicity, and structure.

Structure No.	Sample Size	Domestic Rabbit		Rabbits & Squirrel		Deer		Wild Birds		Fish		**Total Wild**	
		Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %
20th-century Hispanic													
1	1447	1	0.1%	1	1.0%	3	0.2%	16	1.1%	7	0.5%	27	1.9%
2	772	–	–	–	–	–	–	1	0.1%	–	–	1	0.1%
4 & 6	63	–	–	1	1.6%	–	–	–	–	–	–	1	1.6%
20th-century Anglo													
4	959	6	0.6%	9	0.9%	–	–	–	–	4	0.4%	13	1.4%
4 & 6	10	–	–	–	–	–	–	1	10.0%	–	–	1	10.0%
6	529	8	0.2%	–	–	1	0.2%	1	0.2%	1	0.2%	3	0.6%
7	19	–	–	–	–	–	–	–	–	3	15.8%	3	15.8%
8	11	–	–	–	–	–	–	–	–	4	36.4%	4	36.4%
11	302	9	2.9%	1	0.3%	–	–	8	2.6%	1	0.3%	10	3.3%
Site Total	5530	24	0.4%	12	0.2%	4	0.1%	27	0.5%	20	0.4%	63	1.1%

Table 17.24. Correlation coefficients for sample size and taxon groups.

Group	Pearson Correlation	Sig. (2-tailed)	N =
Domestic rabbit	0.321	0.400	9
All wild	0.920	0.000*	9
Squirrel and rabbit	0.493	0.177	9
Deer	0.807	0.009*	9
Wild birds	0.707	0.033**	9
Fish	0.732	0.025**	9

*significant at the 0.01 level
** significant at the 0.05 level

Table 17.25. Counts and percent of those taxa by century, ethnicity, and century and ethnicity combined.

	Century				Ethnicity				Century and Ethnicity							
Fauna	19th		20th		Hispanic		Anglo		19th Hispanic		20th Hispanic		20th Anglo		**Total**	
	Count	Col. %	Count	Col. %	Count	Col. %	Count	Col. %	Count	Col. %	Count	Col. %	Count	Col. %	Count	Col. %
Cattle	431	33.6%	1388	44.8%	1137	39.6%	682	45.0%	298	31.7%	864	41.9%	657	47.6%	1819	41.5%
Sheep or goat	695	54.3%	1425	46.0%	1478	51.5%	642	42.4%	601	64.0%	964	46.7%	555	40.2%	2120	48.4%
Pig	27	2.1%	59	1.9%	60	2.1%	26	1.7%	14	1.5%	51	2.5%	21	1.5%	86	2.0%
Chicken	128	10.0%	229	7.4%	193	6.7%	164	10.8%	26	2.8%	184	8.9%	147	10.7%	357	8.1%
Total	1281	100.0%	3101	100.0%	2868	100.0%	1514	100.0%	939	100.0%	2063	100.0%	1380	100.0%	4382	100.0%

Table 19.1. Distribution of native ceramic sherds by structure and feature.

	Agricultural Fields	STR 6	STR 10	STR 11									Total	
		Fea. 392	Fea. 300	Fea. 321	Fea. 339	Fea. 349	Fea. 351	Fea. 353	Fea. 370	Fea. 389	Fea. 394	Fea. 395	n =	Col. %
Rio Grande Gray Ware														
Plain Gray Body	–	–	1	–	–	–	–	–	–	–	–	–	1	4.5%
Historic Micaceous Ware														0.0%
Smudged interior, mica-slipped exterior	–	–	–	–	1	1	–	–	–	–	–	–	2	9.1%
Polished interior with mica slip	–	–	–	–	–	–	–	1	–	–	–	–	1	4.5%
Historic Plain Ware														0.0%
Tewa Polished Red	–	–	–	–	–	–	–	–	–	–	1	1	2	9.1%
Tewa Polished Black	1	1	–	2	2	1	2	1	–	–	–	–	10	45.5%
Tewa Polychrome														0.0%
Tewa Polychrome, painted, undifferentiated	–	–	–	–	1	–	–	–	–	–	–	–	1	4.5%
Black-on-cream, undifferentiated	–	1	–	–	–	–	–	–	–	1	–	–	2	9.1%
Powhoge Polychrome	1	–	–	–	–	–	–	–	–	–	–	–	1	4.5%
Historic white cream, slipped, unpainted	–	–	–	–	–	–	–	–	1	–	–	–	1	4.5%
Tesuque Polychrome	–	–	–	–	–	1	–	–	–	–	–	–	1	4.5%
Feature Total	2	2	1	2	4	3	2	2	1	1	1	1	22	100.0%

Table 19.2. Distribution of vessel forms by ware.

Sherd Fragment	Ware					**Total**	
	Prehistoric Gray	Polished Micaceous	Tewa Red	Tewa Black	Tewa Polychrome	Count	Col. %
Bowl body	–	–	–	1	1	2	9.1%
Olla rim	–	–	1	–	–	1	4.5%
Jar neck	–	–	1	1	1	3	13.6%
Jar rim	–	–	–	–	1	1	4.5%
Jar body	1	–	–	6	3	10	45.5%
Unknown	–	3	–	2	–	5	22.7%
Total	1	3	2	10	6	22	100.0%

Table 20.1. Feature 350, flotation sample plant remains, count and abundance per liter.

Structure		Structures 4 & 6, 125 and 111 West Manhattan Avenue			
Feature		350 - Irrigation Ditch			
FS No.		1059	1060	1061	1062
Cultural					
Cultivars	Maize	–	–	–	+ c
	Raspberry/ blackberry	–	1.8	2.2	2.6
Other	Unknown taxon	–	–	–	1.9 pp
Noncultural					
Annuals	Amaranth	2.3	0.6	0.7	–
	Goosefoot	2.3	4.3	1.4	1.9
	Purslane	–	0.6	0.7	0.6
Other	Croton	–	–	0.7	–
	Groundcherry	–	–	–	0.6
	Mint family	–	0.6	–	–
Perennials	cf. Sedge	–	3.7	–	–

Plant parts are seeds unless indicated otherwise.
Cultural materials are either charred or are cultivars; noncultural materials are uncharred wild plants.
+ = 1–10/sample, c = cupule, cf. = compares favorably, pp = plant part

Table 20.2. Feature 350, flotation sample wood taxa by count and weight in grams.

Structure		Structures 4 & 6, 125 and 111 W. Manhattan Avenue			
Feature		350 - Irrigation Ditch			
FS No.		1059	1060	1061	1062
Cultural					
Conifers	Juniper	–	–	1/.01	–
	Piñon	–	1/.01	1/.01	2/.01
	Ponderosa pine	–	1/.01	–	–
	Unknown conifer	2/.02	2/.01	–	2/.01
Nonconifers	cf. Oak	1/.01	–	–	–
	Unknown nonconifer	–	–	3/.02	1/.01
Total		3/.03	4/.03	5/.04	5/.03

cf.= compares favorably

Table 20.3. Features 392, 252, 253, 339, and 349, flotation sample plant remains.

Structure		Structure 6, 111 W. Manhattan Avenue	Structure 10, 104 South Capitol Street		Structure 11, 116 South Capitol Street	
Feature		392 Domestic Refuse Pit	252 Domestic Refuse Pit, E 1/2	253 Construction Debris Pit, S 1/2	339 Domestic Refuse Pit, E 1/2	349 Domestic Refuse Pit, W 1/2
FS No.		1068	1001	1004	1031	1039
Cultural						
Annuals	Amaranth	1.0	–	–	0.5	–
Cultivars	Grape	–	–	–	0.5	–
Other	Groundcherry	–	–	–	0.5	–
	Unidentifiable seed	–	–	0.5	0.5	–
	Unknown taxon	–	+ fiber, 7.5 pp	1.1 pp, 0.5 pp[pc]	0.5 pp	2.2 pp
Noncultural						
Annuals	Amaranth	4.0	–	–	0.5	–
	Cheno-am	–	2.5	–	–	–
	Goosefoot	–	–	18.6	1.5	–
	Purslane	3.0	2.5	8.2	601.0	42.2
	Tansy mustard	–	17.5	–	–	–
Other	Bean family	–	–	1.6	–	–
	Groundcherry	0.8	–	–	2.5	–
	Mint family	–	5.0	–	–	–
	Nightshade	–	–	–	–	–
	Unidentifiable seed	–	–	0.5	–	–
Perennials	Sedge	1.5	–	–	2.5	–

Plant parts are seeds unless indicated otherwise.
Cultural materials are either charred or are cultivars; noncultural materials are uncharred wild plants.
pc = partially charred, pp = plant part

Table 20.4. Features 392, 252, 253, 339, 353, 354, and 356, flotation sample wood taxa.

Structure		Structure 6, 111 West Manhattan Avenue	Structure 10, 104 South Capitol Street		Structure 11, 116 South Capitol Street			
Feature		392 Domestic Refuse Pit	252 Domestic Refuse Pit, E 1/2	253 Construction Debris Pit, S 1/2	339 Domestic Refuse Pit, E 1/2	353, Domestic Refuse Pit, E 1/2	354 Domestic Refuse Pit, E 1/2	356 Domestic Refuse Pit, W 1/2
FS No.		1068	1001	1004	1031	1046	1043	1050
Cultural								
Conifers	Juniper	4/.04	2/.10	–	4/.02	5/.02	1/.01	1/.01
	Piñon	1/.01	–	–	–	–	–	–
	Ponderosa	–	–	–	–	1/.01	–	–
	Unknown	–	–	6/.02	–	2/.02	–	–
Nonconifers	Unknown Nonconifer	–	–	–	4/.05	–	1/.01	1/.01
Possibly Cultural								
Conifers	Juniper	–	8/.10 [u]	–	–	–	–	–
	Unknown	–	5/.20 [u]	–	–	–	–	–
Total		5/.05	15/.40	6/.02	8/.07	8/.05	2/.02	2/.02

[u] = uncharred

Table 20.5. Features 353, 354, 356, and 389, flotation sample plant remains, count and abundance per liter.

Structure		Structure 11, 116 South Capitol Street				
Feature		353 Domestic Refuse Pit, E 1/2	354 Domestic Refuse Pit, E 1/2	356 Domestic Refuse Pit, W 1/2	389 Irrigation Ditch	
FS No.		1046	1043	1050	1071	1083
Cultural						
Annuals	Amaranth	0.8	–	1.5	1.5	–
	Goosefoot	0.4	–	–	1.5	–
Cultivars	Maize	–	–	–	–	+ c
	Raspberry/ blackberry	0.4	–	–	0.8	–
	Strawberry	0.4	–	–	–	–
Grasses	Dropseed	2.9	–	–	–	–
	Grass family	0.4, + stem, + stem^{pc}	–	–	0.8	+ cf. stem
Other	Mint family	0.4	–	–	–	–
	Unknown taxon	0.4 pp	–	–	–	–
Noncultural						
Annuals	Amaranth	2.1	–	–	–	–
	Cheno-Am	–	–	–	–	1.1
	Goosefoot	2.9	2.2	0.5	–	–
	Purslane	169.6	40	19.4	9.0	16.4
	Spurge	–	2.2	–	–	–
Other	Bean family	–	–	–	–	0.6
	Groundcherry	2.9	4.4	0.5	0.8	1.1
	Mint family	0.4	2.2	–	–	–
	Nightshade	–	–	–	–	1.7
	Sedge family	–	–	–	–	0.6
	Vervain	3.3	–	–	–	–
Perennials	Sedge	2.1	4.4	1.5	1.5	1.1

Plant parts are seeds unless indicated otherwise.
Cultural materials are either charred or are cultivars; noncultural materials are uncharred wild plants.
+ = 1–10/sample, c = cupule, cf. = compares favorably, pc = partially charred, pp = plant part

Table 20.6. Features 395 and 382 and the agricultural field deposit, flotation sample plant remains.

		Structure 11, 116 South Capitol Street		Structures 11 & 12, 116 & 120 South Capitol Street	NA
Feature		395 Domestic Refuse Pit, S 1/2	395 Domestic Refuse Pit, N 1/2	382 Straight-line Cesspit	Agricultural Field Deposit
FS No.		1073	1074	1082	1085
Cultural					
Annuals	Cheno-Am	1.7	–	–	–
	Goosefoot	0.6	5.3	–	–
	Purslane	1.1	2.6	–	–
Cultivars	Cantaloupe	–	–	117.4	–
	Cherry	–	–	0.6	–
	Chile	–	–	14	–
	Coriander	–	–	0.3	–
	Fig	–	–	144.7	–
	Maize	–	–	–	+ c
	Raspberry/ blackberry	0.6	–	16.3	–
	Squash	–	–	6.2	–
	Strawberry	–	–	382.3	–
	Tomato	–	–	5.1	–
	Watermelon	–	–	3.7	–
	Wheat	0.6	–	–	–
Grasses	Dropseed grass	0.6	–	–	–
	Grass family	–	2.6, + cf. rachis	–	–
Other	Unidentifiable	0.6	–	–	–
Possibly Cultural					
Annuals	Beeweed/ Clammyweed	–	–	0.3	–
	Purslane	–	–	2.2	–
Grasses	Grass family	–	–	2.8	–
Other	Unidentifiable seed	–	–	3.7	–
	Unknown taxon	–	–	0.3 pp, ++ fiber	–
Perennials	Poppy	–	–	5.6	–
Noncultural					
Annuals	Amaranth	1.1	2.6	–	–
	Carpetweed	–	–	–	0.7
	Cheno-am	–	2.6	–	0.7
	Goosefoot	7.3	5.3	–	0.7
	Purslane	281.4	365.8	–	25.9
	Spurge	0.6	–	–	–
Grasses	Dropseed grass	0.6	–	–	–
Other	Croton	–	–	0.3	–
	Groundcherry	4.5	–	–	–
	Mint family	0.6	–	–	–

Plant parts are seeds unless indicated otherwise.
Cultural materials are either charred or are cultivars; noncultural materials are uncharred wild plants.
Some unburned wild plant material was classified possibly cultural because of context.
+ = 1–10/sample, ++ = 11–25/sample, c = cupule, cf. = compares favorably, pp = plant part
NA = Not Applicable

Table 20.7. Features 389, 395, and 382 and the agricultural field deposit, flotation sample wood taxa.

Structure		Structure 11, 116 South Capitol Street				Structures 11 & 12, 116 & 120 South Capitol Street	NA
Feature		389 Irrigation Ditch		395 Domestic Refuse Pit, S 1/2	395 Domestic Refuse Pit, N 1/2	382 Straight-line Cesspit	Agricultural Field Deposit
FS No.		1071	1083	1073	1074	1082	1085
Cultural							
Conifers	Juniper	2/.01	5/.03	1/.04	1/.01	–	9/.10
	Piñon	–	–	3/.07	–	–	2/.10
	Ponderosa pine	3/.01	1/.01	5/.04	2/.22	–	–
	Unknown conifer	2/.01	–	–	–	–	–
Nonconifers	cf. Oak	–	–	2/.02	–	–	–
	cf. Cottonwood/ willow	–	–	1/.01	4/.02	–	–
Possibly Cultural							
Conifers	Unknown conifer	–	–	–	–	9/5.7 u	7/.60 u
Total		7/.03	6/.04	12/.18	7/.25	9/5.7 u	18/.80

cf. = compares favorably, u = uncharred
NA = Not Applicable

Table 20.8. Features 393 and 311, flotation sample plant remains, count and abundance per liter.

Structure		Structure 12, 120 South Capitol Street	Structure 13, 122 South Capitol Street
Feature		393 Domestic Refuse Pit	311 Construction Debris Pit, N 1/2
FS No.		1069	1013
Cultural			
Cultivars	Mulberry	0.8	–
Noncultural			
Annuals	Amaranth	2.3	–
	Goosefoot	1.6	–
	Purslane	18.8	–
	Spurge	0.8	–
	Tansy mustard	9.4	–
Grasses	Dropseed grass	2.3	–
Other	Groundcherry	0.8	1.1
	Nightshade	1.6	–
	Unidentifiable seed	0.8	–
	Vervain	0.8*, 0.8	–
Perennials	Elm	0.8	–

Table 20.9. Features 393 and 311, flotation sample wood taxa by count and weight in grams.

Feature		393 Domestic Refuse Pit	311 Construction Debris Pit, N 1/2
FS No.		1069	1013
Cultural			
Conifers	Juniper	1/.01	5/.02
	Ponderosa	1/.01	–
Nonconifers	cf. Oak	2/.01	–
Total		4/.03	5/.02

Table 20.10. Number of samples of plant remains found in privies and domestic trash pits.

Excavation	Capitol Parking		Executive Office	
Taxon	Privies	DRP*	Privies	DRP
No. of samples	16	15	1	10
Annuals				
Amaranth	1	5	0	4
Beeweed	0	1	1	0
Cheno-Am	3	0	0	2
Goosefoot	2	6	0	3
Purslane	1	3	1	2
Russian thistle	1	3	0	0
Spurge	1	0	0	0
Sunflower	0	1	0	0
Tansy mustard	0	1	0	0
Cultivars				
Apple	1	0	0	0
Apricot/plum	1	0	0	0
Bean	0	1	0	0
Cantaloupe	1	0	1	0
Cherry	–	–	1	0
Chile	11	6	1	0
Coriander	–	–	1	0
Fig	13	2	1	0
Grape	12	3	0	1
Maize	0	2	0	0
Mulberry	1	0	0	1
Peach	3	1	0	0
Raspberry/ blackberry	13	4	1	2
Squash	–	–	1	0
Strawberry	9	2	1	1
Tomato	13	2	1	0
Watermelon	1	0	1	0
Wheat	0	3	0	1
Grasses				
Dropseed grass	1	1	0	2
Grass family	0	3	1	2
Sandbur	0	1	0	0
Other				
Aster family	0	1	0	0
Groundcherry	0	1	0	1
Mallow family	0	2	0	0
Mint family	0	1	0	1

Table 20.10. (continued)

Excavation	Capitol Parking		Executive Office	
Taxon	Privies	DRP*	Privies	DRP
No. of samples	16	15	1	10
Monocot	0	1	0	0
Nightshade	1	0	0	0
Sage	0	2	0	0
Sedge family	0	2	0	0
Unidentifiable seed	1	6	1	2
Unknown taxon	4	8	1	4
Vervain	–	–	0	1
Perennials				
Bulrush	0	1	0	0
Hedgehog cactus	1	0	0	0
Piñon	3	2	0	0
Poppy	–	–	0	1
Yucca	0	1	0	0

*DRP = domestic refuse pit

Table 20.11. Plant taxa found in early twentieth-century privy deposits in the Santa Fe area.

Taxon	LA 158037[1]	LA 146402[2]	LA 156207[3]
No. of Samples	17	1	1
Annuals			
Amaranth	+	-	-
Cheno-Am	+	-	-
Goosefoot	+	-	-
Purslane	+	-	-
Russian thistle	+	-	-
Spurge	+	-	-
Cultivars			
Apple	+	-	+
Apricot/plum	+	-	+
Cantaloupe	+	-	+
Chile	+	+	+
Coriander	+	-	+
Fig	+	+	+
Grape	+	+	+
Mulberry	+	+	+
Peach	+	-	+
Raspberry/blackberry	+	+	+
Squash	+	-	+
Strawberry	+	+	+
Tomato	+	+	+
Watermelon	+	+	+
Grasses			
Dropseed grass	+	-	-
Other			
Groundcherry	-	+	-
Nightshade family	+	+	-
Unidentifiable seed	+	-	-
Unknown taxon	+	-	-
Perennials			
Hegehog cactus	+	-	-
Piñon	+	+	+
Prickly pear cactus	-	+	-
Total Taxa	26	12	15

[1]McBride 2012 and current project; [2]McBride 2010; [3]McBride 2009

Table 21.1. Provenience data for samples.

Sample No.	Feature No.	Depth (cmbs)	Provenience/ Description	Analysis
1	382	Self-contained/ arbitrary	Human excrement from bottom of brick-lined cesspit/early septic tank associated with the Beacham and Butler families, AD 1910–1950; sample from area closest to the pipe.	pollen, parasite, phytolith, and macrofloral
2		–	Human excrement from bottom of brick-lined cesspit/early septic tank associated with the Beacham and Butler families, AD 1910–1950.	pollen, parasite, phytolith, and macrofloral

Table 21.2. Pollen types observed in samples.

Scientific Name	Common Name
Arboreal Pollen	
Acer	Maple
Alnus	Alder
Juglans	Walnut
Juniperus	Juniper
Pinus	Pine
Quercus	Oak
Ulmus	Elm
Nonarboreal Pollen	
Asteraceae	Sunflower family
Artemisia	Sagebrush
Low-spine	Includes ragweed, cocklebur, sumpweed
High-spine	Includes aster, rabbitbrush, snakeweed, sunflower, etc.
Cheno-am	Includes the goosefoot family and amaranth
Sarcobatus	Greasewood
Ephedra nevadensis -type (includes *E. clokeyi, E. coryi, E. funera, E. viridis, E. californica, E. nevadensis, and E. aspera*)	*Ephedra* , Jointfir, Mormon tea
Ephedra torreyana -type (includes *E. torreyana, E. trifurca, and E. antisyphilitica*)	*Ephedra* , Jointfir, Mormon tea
Eriogonum	Wild buckwheat
Fabaceae	Bean or legume family
Trifolium pratense	Red clover
Onagraceae	Evening primrose family
Poaceae	Grass family
Rhus	Sumac
Rosaceae	Rose family
Edible/Economic	
Apiaceae	Carrot or parsley family
Brassicaceae	Mustard or cabbage family
Cerealia	Economic members of the grass family including *Triticum* (wheat), *Avena sativa* (oat), *Hordeum vulgare* (barley), and *Secale cereale* (rye)
Fragaria	Strawberry
Lamiaceae	Mint family
Myrtaceae	Myrtle family
Phaseolus	Cultivated bean
Prunus	Cherry, plum
Syzygium aromaticum syn. *Eugenia*	Clove
Zea mays	Maize, corn
Indeterminate	Too badly deteriorated to identify
Microscopic charcoal	Microscopic charcoal fragments
Total pollen concentration	Quantity of pollen per cubic centimeter (cc) of sediment

Table 21.3. Macrofloral remains.

Sample No.	Identification	Part	Charred		Uncharred		Weight (g)/ Comments
			W	F	W	F	
1	Liters floated						0.70 L
	Light fraction weight						16.248 g
	Floral Remains						
	Apium graveolens	seed	–	–	8*	48*	–
	Capsicum	seed	–	–	5	110*	–
	Citrullus lanatus	seed	–	–	–	26*	–
	Cucumis melo	seed	–	–	31	176*	–
	Cucurbita	seed	–	–	–	2	–
	Ficus carica	seed	–	–	54*	8*	–
	Fragaria	seed	–	–	146*	130*	–
	cf. *Malus*	seed	–	–	–	16*	–
	Poaceae A	*Caryopsis*	–	–	1	–	–
	Setaria	floret	–	–	1	3	–
	Rubus	seed	–	–	10*	26*	–
	Solanum lycopersicum	seed	–	–	4	30*	–
	Solanum melongena	seed	–	–	2	–	–
	Vaccinium	seed	–	–	24*	8*	–
	Vitis	seed	–	–	2	8*	–
	Charcoal/Wood						
	Total charcoal >2 mm						0.001 g
	Juniperus	charcoal	–	1	–	–	0.001 g
	Total wood >2 mm						0.187 g
	Pinus cf. *strobus*	wood	–	–	–	7	0.161 g
	Pinus cf. *strobus*	wood	–	–	–	2pc	0.026 g
	Non-floral Remains						
	Feather		–	–	–	X	numerous
	Fibers in "z"-twist, cf. *Linum*		–	–	–	X	–
	Hair, human (light & dark)		–	–	–	X	numerous
	Hair, rabbit		–	–	–	X	–
	Insect	chitin	–	–	–	4166*	–
	Insect	larva	–	–	–	X	numerous
	cf. Silver		–	–	–	1	0.004 g
2	Liters Floated						0.70 L
	Light Fraction Weight						23.492 g
	Floral Remains						
	Anethum graveolens	seed	–	–	2	–	–
	Apium graveolens	seed	–	–	22*	36*	–
	Asteraceae	seed	–	–	1	–	–
	Taraxacum	seed	–	–	1	–	–
	Citrullus lanatus	seed	–	–	–	30*	–
	Cleome	seed	–	–	1	–	–
	Cucumis melo	seed	–	6	31	114*	–
	Ficus carica	seed	–	–	28*	16*	–
	Fragaria	seed	–	–	194*	232*	–
	cf. *Malus*	seed	–	–	–	3	–

Table 21.3. (continued)

Sample No.	Identification	Part	Charred		Uncharred		Weight (g)/ Comments
			W	F	W	F	
	Portulaca	seed	–	–	1	–	–
	Prunus cf. americana	seed (pit)	–	–	–	30*	–
	Rubus	seed	–	–	22*	10*	–
	Sambucus	seed	–	–	2	–	–
	Solanaceae	seed	–	–	2	40*	–
	Capsicum	seed	–	–	6	62*	–
	Solanum lycopersicum	seed	–	–	5	18*	–
	Solanum melongena	seed	–	–	1	–	–
	Stellaria	seed	–	–	1	8*	–
	Vaccinium	seed	–	–	12*	2	–
	Vitis	seed	–	–	–	4	–
	Charcoal/Wood						
	Total wood >2 mm		–	–	–	–	0.035 g
	Pinus cf. *strobus*	wood	–	–	–	2	0.035 g
	Non-floral Remains						
	Feather		–	–	–	X	few
	Hair, human (light & dark)		–	–	–	X	numerous
	Insect	chitin	–	–	–	5610*	–
	Insect	larva	–	–	–	X	moderate

W = whole; L = liter; pc = partiallly charred; F = fragment; g = grams; * = estimated frequency;
X = presence noted in sample; m = millimeters

Table 21.4. Index of macrofloral remains recovered.

Scientific Name	Common Name
Floral Remains	
Anethum graveolens	dill
Apium graveolens	celery
Asteraceae	sunflower family
Taraxacum	dandelion
Citrullus lanatus syn. *Citrullus vulgaris*	watermelon
Cleome	beeweed, spiderflower
Cucumis melo	cantaloupe, melon, honeydew melon, muskmelon
Cucurbita	squash, pumpkin, gourd
Ficus carica	common fig
Fragaria	strawberry
Malus	apple
Poaceae A	members of the grass family with larger-sized caryopses, such as *Agropyron* (wheatgrass), *Elymus* (ryegrass), *Bromus* (brome grass), etc.
Setaria	bristlegrass, millet
Portulaca	purslane
Prunus americana	American plum
Rubus	raspberry, blackberry, etc.
Salsola	Russian thistle
Sambucus	elderberry
Solanaceae	nightshade family
Capsicum	pepper
Solanum lycopersicum syn. *Lycopersicon*	tomato
Solanum melongena	eggplant
Stellaria	starwort
Vaccinium	blueberry, cranberry, bilberry
Vitis	grape
Charcoal/Wood	
Juniperus	juniper
Pinus strobus	eastern white pine

Table 22.1. Results of OSL analysis.

UNL No.	Feat. No.	Burial Depth (m)	H2O (%)*	K2O (%)*	±	U (ppm)	±	Th (ppm)	±	Cosmic (Gy)	Dose Rate (Gy/ka)	De (Gy)	No. of Aliquots	Age (ka)
3483	389	1	7.1	2.55	0.06	3.08	0.16	11.27	0.41	0.24	3.59±0.13	16.97±1.06	51	4.73±0.34
3484	350	1	15.4	2.76	0.06	3.06	0.15	11.54	0.45	0.24	3.44±0.14	30.89±1.78	55	8.98±0.64

Table 22.2. Skewness and overdispersion values.

UNL No.	Dose Recovery		Skew/ 2óc	Kurt/ 2ók	c/ ccrit	k/ kcrit	Overdisp	CAM/ Med	CAM/ PDF	CAM/ Mode	CAM/ Ave
	Rec/Appl	±									
3483	1.02	0.02	0.83	-0.19	0.08	-0.13	46	0.98	1.01	0.97	0.92
3484	1	0.03	0.19	-0.87	0.02	-0.56	42	0.99	0.97	1.54	0.92

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