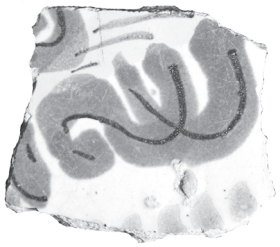
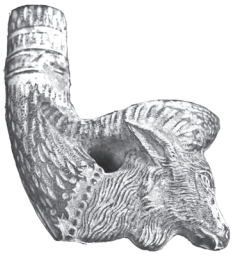
Additional Archaeological and Historical Research in the Tucson Presidio, Historic Block 181, Tucson, Pima County, Arizona





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Technical Report No. 2006-10
Desert Archaeology, Inc.

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Submitted to

Department of Urban Planning
& Design
City of Tucson
P.O. Box 27210
Tucson, Arizona 85726-7210

Technical Report No. 2006-10
Desert Archaeology, Inc.
3975 N. Tucson Boulevard, Tucson, Arizona 85716 • November 2008

ABSTRACT

Archaeological fieldwork was conducted on Block 181, in the historic heart of downtown Tucson, at various times between 2003 and 2006. Work took place before and during the stabilization and restoration of the historic Siqueiros-Jácome House, built in the 1860s and 1870s. Work was also conducted in the backyard of the house and beneath an adjacent parking lot, once the location of the Dodge Boarding House (circa 1898-1954).

Hundreds of features were located. Noteworthy were several Early Agricultural period pit structures, the first found on the terrace east of the Santa Cruz River floodplain. Colonial and Sedentary period Hohokam pit structures and pits were also located. The evidence suggests a substantial prehistoric presence in the downtown area. The survival of a diversity of prehistoric features in this heavily developed area was particularly encouraging.

The project area was the location of the northeastern corner of the Presidio San Agustín de Tucson, a Spanish and Mexican period walled fortress. Previous work on the property had located the adobe foundations of the northeastern tower of the fort. The current work encountered trash-filled pits containing Presidio era artifacts and food remains, providing additional information about the lifestyles of the people who lived in the fort from about 1776 to 1854.

The Siqueiros-Jácome House was occupied by the family of Juan Siqueiros and Soledad Jácome from about 1866 until Soledad's death in 1911. Features in the home's backyard yielded noteworthy assemblages of artifacts discarded by this family and the people who rented rooms in their house. The adjacent lot contained the remnants of the Dodge Boarding House, and several large trash-filled borrow pits provided artifacts and food remains discarded by boarding house residents. Little is known about the lives of these people, who typically stayed a short while before moving on to other quarters or other cities. The items thrown away by these people provide insights into their lives not recorded in contemporary records.

An important part of the project was the preservation in place of cultural resources. Large portions of the corner parking lot were not disturbed during construction and have the potential to provide significant new information for future archaeologists.

COMPLIANCE SUMMARY

Date: 21 November 2008

Report Title: Additional Archaeological Historical Research in the Presidio, Historic Block 181, Tucson, Pima County, Arizona

Client: City of Tucson

Client Project Name: Tucson Presidio Archaeology, COT 220

Compliance Agency: Desert Archaeology, Inc., has the contract for archaeological work associated with the Rio Nuevo redevelopment projects. The City of Tucson was the compliance agency for this particular project.

Compliance Level: Local

Applicable Laws/Regulations: Cultural resources compliance for City of Tucson projects is mandated from several sources. On 3 October 1983, Tucson's Mayor and Council passed Resolution No. 12443 that first defined procedures for protecting Tucson's rich, multicultural heritage. In 1999, these procedures were formalized in an Administrative Directive titled *Protection of Archaeological and Historical Resources in City Projects*, issued by the City Manager. Updated in 2005, the Administrative Directive includes policies and procedures that apply to City employees, rights-of-way, and projects. It also specifies coordination with other environmental laws and regulations where applicable. This Administrative Directive, as well as the State of Arizona statute related to human burials (ARS 41-844), are the primary cultural resources compliance mandates addressed in the present project.

Applicable Permits: ASM permit number 2005-100ps and ASM Burial Agreement Case No. 01-06.

Tribal Consultation: Tohono O'odham

Project Description: Archaeological work was conducted within and around the historic Siqueiros-Jácome House, in that house's backyard, and beneath the adjacent parking lot prior to the construction of the Presidio San Agustín de Tucson Park. The transformation of a parking lot and the restoration of the historic Siqueiros-Jácome House has enhanced the neighborhood, as well as preserving the historic qualities of the property. The completion of the Presidio San Agustín de Tucson Park has led to an influx of visitors, with approximately 20,000 passing through the park in its first year of operation. Archaeological excavations were conducted in locations of direct impacts from construction, such as foundation trenches and utility lines. An effort was made to leave as many of the subsurface archaeological resources intact as possible.

Fieldwork Dates and Crew Person-days: July 2003-March 2006, 380 person-days.

Final Disposition of Project Artifacts, Field Notes, Data, and Records: All project materials are curated at the Arizona State Museum as Accession Number 2005-0502.

Location
County: Pima
Description: Portions of Block 181, Tucson, Arizona, Township 14 South, Range 13 East, Section 12 (the southwest corner of Church Avenue and Washington Street)

Area of Potential Effect (APE): The APE consists of the area surrounding the southwestern corner of Church Avenue and Washington Street within Block 181, where archaeological data recovery took place.

Number of Surveyed Acres: 0

Number of Sites: 1. The Tucson Presidio was assigned site number AZ BB:13:13 (ASM) in 1954 (Olson 1985). A portion of the site where two Hohokam period ceramic vessels were found was previously assigned site number AZ BB:13:9 (ASM). Desert Archaeology, Inc., has used the AZ BB:13:13 designation for its projects within the boundary of the Tucson Presidio.

List of National Register-eligible Properties: AZ BB:13:13 (ASM), the Tucson Presidio, also known as AZ BB:13:9 (ASM).

List of National Register Ineligible Properties: Not applicable

Summary of Results: This archaeological project was conducted as part of the City of Tucson's Rio Nuevo project. The goals of fieldwork were to mitigate the impacts of construction by hand-excavating the majority of trenches where new foundations and utilities were planned. Excavations reveal that Block 181 contains a wealth of cultural resources. Prehistoric pit structures dating to the Early Agricultural and Hohokam periods are common. Tucson Presidio era features include trash-filled pits and adobe foundations. American Territorial period features include the standing Siqueiros-Jácome House, as well as privies, wells, and large trash-filled borrow pits. These features have provided significant information about the lives of past Tucsonans. Many of the findings made have been incorporated into the new park.

Recommendations: Many portions of the Presidio San Agustín de Tucson Park contain undisturbed subsurface cultural resources. Major ground-disturbing activities should be preceded by archaeological data recovery, and minor disturbances should be mitigated by monitoring of the work.

ACKNOWLEDGMENTS

The City of Tucson provided the funds to conduct this archaeological project. Marty McCune, the City's Historic Preservation Officer, and William O'Malley, Construction Manager for Downtown Development, served as our liaisons to the city. William Doelle was the Principal Investigator, and Homer Thiel was the Project Director. Patricia Castalia, Jean Kramer, Val Hintze, and Jason Hastings provided crucial office support. The Desert Archaeology Laboratory Director, Lisa Eppley, carefully prepared the numerous artifacts recovered for analysis and curation. Maps were prepared by Western Mapping, Inc. Catherine Gilman, Susan Hall, and Robert Ciaccio provided additional maps and illustrations. Emilee Mead and Andrea Mathews edited and formatted the report.

A large number of people participated in the fieldwork for this project. Field crew included Jenny Adams, Regina Chapin-Pyritz, Jeffrey Charest, Robert Ciaccio, Michael Cook, Hillary Duncan, Carolyn Gabe, Ned Gaines, Lisa Gavioli, Jennifer Huff, Damien Huffer, Robert Jones, Thomas Klimas, Chris Lange, Carlos Lavayen, John McClelland, Stacy Ryan, Jennifer Sandretto, Shuusake Sato, Kelly Swartz, Gaylen Tinsley, Tylia Varilek, Jenny Waters, Gregory Whitney, and Caramia Williams. Patti Bell served as tour guide and ably led hundreds of people through the site. She also coordinated the volunteer program, which saw the participation of several dozen individuals. Dan Arnit provided his usual backhoe expertise.

This report is dedicated to Betsy Marshall, who volunteered for many of the archaeological projects I have conducted in downtown Tucson and who passed away on 15 September 2008. She will be missed.

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CHAPTER 1

THE HISTORY AND ARCHAEOLOGY OF THE TUCSON PRESIDIO

J. Homer Thiel
Desert Archaeology, Inc.

Hidden beneath the surface of downtown Tucson are the remains of a constantly evolving community. Prehistoric era pit structures, Spanish period walls, and pits filled with American Territorial period trash lie beneath the lawns, sidewalks, streets, and structures in the area centered around the 1929 Pima County Courthouse. Over the last 15 years, Desert Archaeology, Inc., personnel have conducted a series of excavations in this area, with each successive project contributing additional information about Tucson.

Results of fieldwork completed between 2003 and 2007, during stabilization and prior to restoration of the historic Siqueiros-Jácome House and the subsequent restoration of El Presidio San Agustín del Tucson Park, are presented in this report. The work was conducted for the City of Tucson as part of the Rio Nuevo project, a downtown development program. The project area consisted of several lots owned by the city on the northern portion of Historic Block 171, located at the southwestern corner of West Washington Street and North Church Avenue. This is within Section 12 of Township 14 South, Range 13 East, in Baseline 12 (Figure 1.1). The work was conducted under Arizona State Museum permit 2005-100ps and Arizona State Museum Burial Agreement Case No. 01-06. All project materials are curated at the Arizona State Museum (ASM) under Accession Number 2005-0502. A total of 380 person-days was required to complete the excavations, which were directed by J. Homer Thiel, with Robert Ciaccio as crew chief. William Doelle was Principal Investigator. Work focused on those areas that were to be disturbed by park construction. One goal, which was achieved, was to leave large portions of the park undisturbed, providing future archaeologists the opportunity to explore cultural resources using as yet undeveloped techniques.

In all, archaeologists documented 43 prehistoric, 32 Spanish or Mexican period, and 108 American Territorial and American Statehood period features, including those identified only as "Historic," during fieldwork. These were assigned to site AZ BB:13:13 (ASM), a designation created in 1954 with the discovery of the northeastern corner of the Tucson Presidio and a Hohokam pit structure (Olson 1985). The site number AZ BB:13:9 (ASM) is sometimes used for the same area; however, this number was originally assigned to the prehistoric component. Desert Archaeology, Inc., has used the BB:13:13 designation in its projects within the boundaries of the presidio.

Readers are introduced to the history of the site in this chapter, and an overview of the Prehistoric era and the Spanish, Mexican, and American Territorial periods are presented. A brief summary describes the previous archaeological fieldwork on Historic Block 181.

ENVIRONMENT

The project area was located on the first terrace, which rises about 6 m above the eastern side of the Santa Cruz River floodplain. This terrace slopes downward from east to west, and is cut by several arroyos or washes that carry rainwater onto the floodplain. It originally supported typical Sonoran Desert vegetation, including mesquite and paloverde trees, creosotebushes, and saguaro cacti. The adjacent floodplain was cut by the Santa Cruz River, which ran through the area in a shallow streambed. Historically, most of the water was diverted into irrigation canals, also called *acequias*. The area had a high water table, as a result of a basalt ridge running eastward from Sentinel Peak (A-Mountain), forcing groundwater to the surface. The floodplain was quite marshy, and supported cottonwood and willow trees and a variety of grasses.

The water and dense vegetation attracted mammals, including deer, coyotes, jackrabbits, and cottontails. Many birds lived on the floodplain, or passed through as they followed seasonal migrations. Reptiles, including mud turtles, were also common. The plentiful water, plants, and animals were a major attraction to humans, who probably first passed through the Tucson Basin during the Paleoindian period.

Figure 1.1. A portion of the USGS 7.5-minute topographic quad, Tucson, Arizona, showing location of the project area.

PREHISTORIC TUCSON

The Tucson Basin and the greater Sonoran Desert have been the home of humans for at least 12,000 years. The chronology of the region, as developed by archaeologists over the last 75 years, is provided in Table 1.1. Prehistoric features are scattered throughout the downtown area (Figure 1.2).

Previous fieldwork in the downtown core of Tucson has identified a small number of prehistoric features dating from the Hohokam Pioneer to Sedentary periods (roughly A.D. 500-1150). Prior to the current project, a handful of pit structures had been identified (Olson 1985; Thiel 1998; Thiel et al. 1993). Prehistoric artifacts had been located over a wider area, and included some Tanque Verde phase sherds, pushing occupation to perhaps A.D. 1150-1300 (Ciolek-Torrello and Swanson 1997). Altogether the evidence suggests a village was present along much of the area later used for the presidio, and the time period of occupation suggests a ballcourt, a large oval earth embankment where ceremonies likely took place, was probably once present. To date, no evidence for a ballcourt has been found. If present, it may have been destroyed by historic development.

As archaeological projects are conducted in the downtown area, a variety of research issues can be addressed. These include the following:

- When was the initial occupation of the area?
- Was the occupation continuous, or were there periods when the area was unoccupied?
- What kinds of crops did the residents grow on the floodplain, and what types of wild plants and animals did they exploit?
- Is there evidence for trade or craft activities at the site?

Paleoindian Period (11,500?-7500 B.C.)

Archaeological investigations suggest the Tucson Basin was probably first occupied some 13,000 years ago, a time much wetter and cooler than today. During the Paleoindian period, small groups of mobile hunter-gatherers moved about in search of food and other resources. They lived briefly at temporary campsites as they moved across the countryside (Cordell 1997:67). Large animals, such as mammoth and bison, were the focus of hunting activities. Distinctive spear points were used during hunts. One of these points, of the Clovis variety, circa 9500 B.C., was found on the surface of the Valencia site, AZ BB:13:74 (ASM), located along the Santa Cruz River in the southern Tucson Basin (Doelle 1985:183). Another Paleoindian point was found in Rattlesnake Pass, in the northern

Table 1.1. Periods, phases, and chronology of the Santa Cruz Valley-Tucson Basin.

Periods	Phases	Date Ranges
Historic		
American Statehood		A.D. 1912-present
American Territorial		A.D. 1856-1912
Spanish and Mexican		A.D. 1694-1856
Protohistoric		A.D. 1450-1694
Hohokam Classic	Tucson	A.D. 1300-1450
	Tanque Verde	A.D. 1150-1300
Hohokam Sedentary	Late Rincon	A.D. 1100-1150
	Middle Rincon	A.D. 1000-1100
	Early Rincon	A.D. 950-1000
Hohokam Colonial	Rillito	A.D. 850-950
	Cañada del Oro	A.D. 750-850
Hohokam Pioneer	Snaketown	A.D. 650/700-750
	Tortolita	A.D. 500-650/700
Early Ceramic	Late Agua Caliente	A.D. 350-500
	Early Agua Caliente	A.D. 50-350
Early Agricultural	Late Cienega	400 B.C.-A.D. 50
	Early Cienega	800-400 B.C.
	San Pedro	1200-800 B.C.
	(Unnamed)	2100-1200 B.C.
Archaic	Chiricahua	3500-2100 B.C.
	(Occupation gap?)	6500-3500 B.C.
	Sulphur Springs-Ventana	7500-6500 B.C.
Paleoindian		11,500?-7500 B.C.

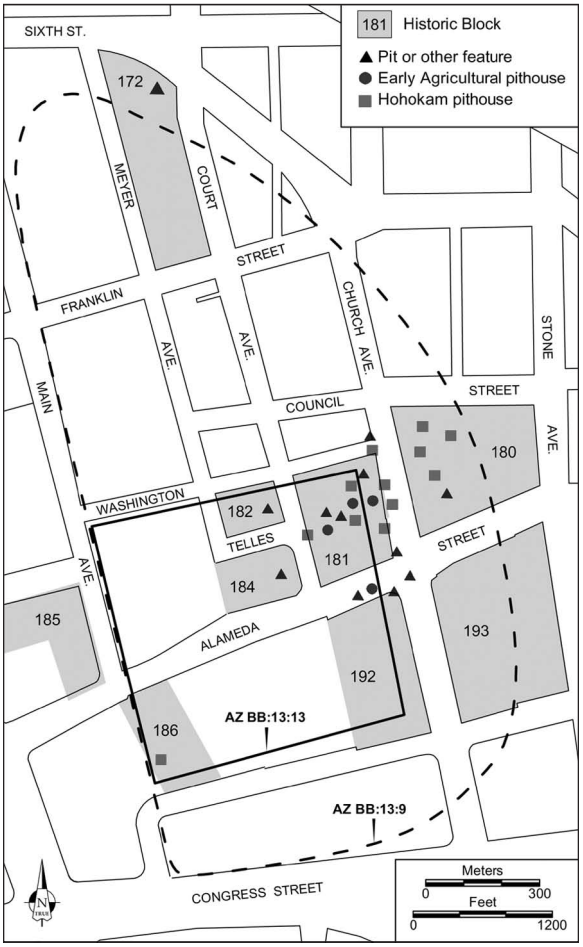


Figure 1.2. Location of prehistoric archaeological features in the downtown area. AZ BB:13:9 (ASM) is the prehistoric site, and AZ BB:13:13 (ASM) is the boundaries of the Historic era Tucson Presidio.

Tucson Basin (Huckell 1982). These rare finds suggest prehistoric use of the Tucson area probably began at this time. Mammoth and bison kill sites have been located in the nearby San Pedro Valley and at other locations in southern Arizona (Huckell 1993, 1995). Paleoindians were likely hunting in Tucson, but any sites they created would be deeply buried in the Santa Cruz River floodplain.

Archaic Period (7500-2100 B.C.)

About 9,500 years ago, the megafauna that lived in Arizona at the end of the last glacial age became extinct. Archaeologists debate whether this extinction was caused by humans or by the marked climatic changes that occurred at that time. Both factors may have been involved. As the climate changed, the environment began to look much as it does today, drier and more desert-like.

The people who lived in Arizona during the Archaic period began to intensively use wild plants, and they hunted smaller animals, such as deer, bighorn sheep, cottontails, and jackrabbits. The only early Archaic period (7500-6500 B.C.) site known from the Tucson Basin is found in Ruelas Canyon, south of the Tortolita Mountains (Swartz 1998:24). However, middle Archaic period sites dating between 3500 and 2100 B.C. are known from the bajada zone surrounding Tucson, and, to a lesser extent, from floodplain and mountain areas (Dart 1986; Douglas and Craig 1986). Archaic period sites in the Santa Cruz floodplain have been found to be deeply buried by water-lain sediments, and many of these sites probably remain hidden without any surface indications.

Early Agricultural Period (2100 B.C.-A.D. 50)

Around 4,100 years ago, cultivated plants were introduced from Mexico into the Southwest. Radiocarbon dates on pieces of charred maize have indicated that farmers were growing crops in Tucson by 2100 B.C. (Mabry 2008). By roughly 400 B.C., numerous agricultural settlements lined the banks of the Santa Cruz River. Archaeological discoveries in the last 15 years have greatly increased our understanding of this period. One surprise has been the presence of irrigation canals at several sites, extending the date for the use of these water control devices back in time by hundreds of years.

All of the excavated sites have been found to have small, round, or oval semisubterranean pit structures, many with large internal storage pits. At some sites, a larger round structure is also present, which is thought to have been for communal or ritual purposes. Most of the settlements in the Tucson Basin have been found within the Santa Cruz River floodplain (Diehl 1997a; Ezzo and Deaver 1998; Freeman 1998; Gregory 2001; Huckell and Huckell 1984; Huckell et al. 1995; Mabry 1998, 2008; Roth 1989). Work at the Tucson Presidio site, AZ BB:13:13 (ASM), in 2000-2001 led to the discovery of what was thought to be an Early Agricultural pit structure, the first found on the terrace above the river (Thiel and Mabry 2006). During the current project, two additional pit structures were located, and work on the block at the northeastern corner of Stone Avenue and Alameda Street resulted in the discovery of two more. A substantial settlement was almost certainly present in this area.

Several distinctive artifacts have been found at Early Agricultural period sites. Among these are Cienega, Cortaro, and San Pedro type spear and arrow points. Carved stone trays, carved stone X-shaped items, and small fired-clay bowls have also

been recovered, as have many different kinds of shell jewelry (Diehl 1997a; Mabry 1998). The shell and some of the stone materials, such as obsidian, were not locally available, suggesting that people traded with each other or, perhaps, traveled long distances to obtain raw materials. Agriculture, particularly the cultivation of maize, was important in the diet, and that importance increased through time. Gathered wild plants, including tansy mustard and amaranth seeds, mesquite seeds and pods, and agave hearts, were also very important. As in the preceding Archaic period, the hunting of animals such as deer, cottontail rabbits, and jackrabbits continued to provide an important source of protein.

Early Ceramic Period (A.D. 50-500)

Ceramic artifacts, including figurines and crude pottery, were first produced in the Tucson Basin during the Early Agricultural period (Heidke and Ferg 2001; Heidke et al. 1998). The widespread use of ceramic vessels marks the transition to the Early Ceramic period (Huckell 1993). Undecorated plain ware pottery was widely used in the Tucson Basin by about A.D. 50. The use of many storage vessels, probably used to store seeds and foodstuffs, resulted in a concurrent movement away from the use of underground storage pits.

Pit structures grew in size and became more elaborate. It took more effort to construct them, and they may have been more permanent than Early Agricultural period structures, which were probably only used for a season or two. A number of pit structure styles are present, including small, round, and basin-shaped houses, as well as slightly larger rectangular structures with rounded corners. A few structures are much larger; these were probably used for community or religious activities.

The importance of agricultural crops increased. Farmers during this period grew maize, beans, squash, cotton, and agave. It also appears that the number of people in the Tucson Basin was increasing. The amount of goods traded into the Tucson Basin, such as marine shell, turquoise, obsidian, and other materials, suggests new trade networks were developing.

To date, no Early Ceramic period features have been located in downtown Tucson.

Hohokam Sequence (A.D. 500-1450)

The Hohokam tradition developed in the deserts of central and southern Arizona sometime around A.D. 500. A defining character of the Hohokam was the introduction of red ware and decorated ceramics: red-on-buff wares in the Phoenix Basin and red-on-brown wares in the Tucson Basin (Doyel 1991; Wallace et al. 1995). Red ware pottery first appears in the Tortolita phase (A.D. 500-700). The addition of a number of new pottery vessel forms suggests that, by this time, ceramics were utilized for a variety of purposes: cooking, storage, and for rituals. Hohokam artisans decorated some of their pottery with highly distinctive geometric figures and life forms such as birds, humans, and reptiles.

The Hohokam differed from people of the preceding periods in a number of important ways. Pit structures were clustered into formal courtyard groups, which, in turn, were organized into larger village segments, each with its own food roasting area and cemetery. New burial practices appeared, with cremation becoming more popular than inhumation, in conjunction with special artifacts associated with death rituals. Canal irrigation systems were expanded and represented increased investments of organized labor and time. Large communal or ritual features, such as ballcourts and platform mounds, were constructed at many village sites.

The Hohokam sequence is divided into the pre-Classic (A.D. 500-1150) and Classic (A.D. 1150-1450). At the start of the pre-Classic, small clusters of pit structures and larger villages were centered around the Santa Cruz River. However, beginning about A.D. 750, larger villages were established along the river or its major tributaries, with smaller settlements in outlying areas serving as seasonal camps for hunting, gathering, or limited agriculture (Doelle and Wallace 1991). At this time, large, basin-shaped features with earthen embankments, called ballcourts, were constructed at a number of the villages. Although the exact function of these features is unknown, they probably served as arenas for playing a type of ball game, as well as places for holding religious ceremonies and for bringing different groups together for trade and other communal purposes (Wilcox 1991; Wilcox and Sternberg 1983).

Between A.D. 950 and 1150, Hohokam settlement in the Tucson area became even more dispersed, with people utilizing the extensive bajada zone as well as the valley floor (Doelle and Wallace 1986). Population increased, and new village sites and seasonal sites were occupied, where people gathered to harvest wild plants, hunt, and collect natural resources. The largest sites were still on the terraces just above the Santa Cruz, but other settlements were located away from the river. There is strong archaeological evidence for increasing specialization in ceramic manufacture at this time, with

some village sites producing decorated red-on-brown ceramics for trade throughout the Tucson area (Harry 1995; Heidke 1988, 1996b; Huntington 1986).

The Classic period is marked by dramatic changes in where people lived and possibly in how Hohokam society was organized. Aboveground adobe-walled compound architecture appeared for the first time, supplementing, but not replacing, the traditional pit structure, which was partially below ground (Haury 1928; Wallace 1995). Maize continued to be the primary crop grown. The Hohokam also grew other crops, as shown by the extremely large rock-pile field systems associated with the cultivation of agave. These have been found in both the northern and southern portions of the Tucson Basin (Doelle and Wallace 1991; Fish et al. 1992).

Platform mounds were also constructed at a number of Tucson Basin villages sometime around A.D. 1275-1300 (Gabel 1931). These large structures are found throughout southern and central Arizona, and consist of a central walled cell that was deliberately filled to support an elevated room upon a platform. The function of the elevated room is unclear. Some were dwellings, while others were used for ceremonies. Building a platform mound required someone to organize and direct laborers. Some researchers think the mounds point to a stratified society (Doelle et al. 1995; Elson 1998; Fish et al. 1992; Gregory 1987). By the time platform mounds were constructed, most smaller sites had been abandoned. In the Tucson Basin, settlement was largely concentrated at only a half-dozen large communities. Recent research has suggested that population concentration and abandonment in the Tucson area may be related to an increase in conflict and possibly warfare (Wallace and Doelle 1998). By A.D. 1450, the Hohokam tradition, as presently known, disappeared from the archaeological record.

Hohokam features and artifacts dating from the timespan between the Tortolita and Tanque Verde phases having been found in downtown Tucson, from roughly A.D. 500-1300. The largest number of ceramics date from the Early Rincon phase to the Late Rincon phase, A.D. 950-1150, perhaps suggesting a village was present in the downtown core area during that time.

Protohistoric Period (A.D. 1450-1694)

Little is known of the period from A.D. 1450, when the Hohokam disappeared from view, to A.D. 1697, when Father Kino first traveled to the Tucson Basin (Doelle and Wallace 1990). By that time, the Tohono O'odham people were living in the arid desert regions west of the Santa Cruz River, and groups who lived in the San Pedro and Santa Cruz valleys were known as the Sobaipuri (Doelle and Wallace 1990; Masse 1981). Both groups spoke the O'odham language, and according to historic accounts and archaeological investigations, they lived in oval jacal surface dwellings rather than pit structures. One of the larger Sobaipuri communities was located at Bac, where the Spanish Jesuits, and later the Franciscans, constructed the Mission of San Xavier del Bac (Huckell 1993; Ravesloot 1987). Another community was located at the base of a small mountain and was called Shook-shon. No Protohistoric features have been identified in the presidio area of downtown.

THE HISTORIC ERA IN DOWNTOWN TUCSON

The Historic era begins in southern Arizona with the exploration of the area by Jesuit priest Eusebio Francisco Kino and his military companion, Captain Juan Mateo Manje, beginning in 1691. Both men prepared written accounts of their journeys, describing the geography, natural resources, and Native American communities they encountered (Bolton 1936; Dobyns 1976; Officer 1987). It is possible, but uncertain, that earlier explorers Marcos de Niza and Francisco Vázquez de Coronado traveled through the area in 1539 and 1540, although some people think Coronado traveled along the San Pedro River in eastern Arizona. In any case, it was not until the late 1600s that the Spaniards established a permanent presence in the region. Kino and Manje moved out from their mission at Dolores, Sonora, and followed the San Pedro and Santa Cruz river valleys from northern Mexico as far as the Gila River, introducing new crops and domesticated animals, building mission "*visitas*," teaching Christianity to local populations, and recording what they saw (Bolton 1936). They were interested in the people and natural resources of the region. Their travels followed long-established trails between communities. Kino founded Spanish missions and *visitas* (visiting missions) at the locations of Native American population centers in southern Arizona (Figure 1.3).

For a generation after Kino's death in 1711, settlement in the San Pedro and Santa Cruz valleys slowed. He had been a great booster for the region, and had no immediate successor. Silver was discovered in the area in 1736, and Spanish settlers arrived in search of mineral wealth (Officer

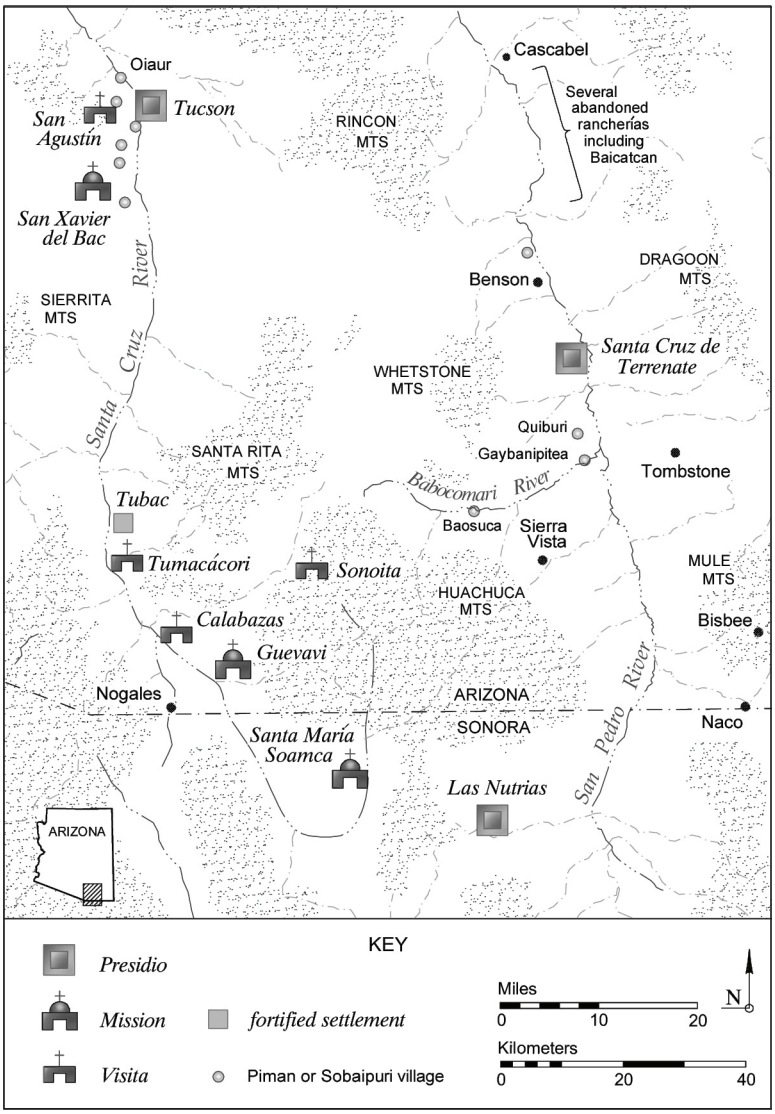


Figure 1.3. Spanish period settlements in the Pimería Alta.

1987). By 1800, a number of Spanish settlements, including forts and presidios of the "Presidio Line" and ranches, mines, missions, and *visitas,* were established throughout what is now modern Arizona. Not all lasted. Some of the settlements in the San Pedro River Valley were abandoned by the late 1700s, due to Apache hostility. More secure occupations at Tubac and Tucson continued in the Santa Cruz Valley (Kessell 1976; Officer 1987).

Interactions between the Spanish communities and local Native Americans became increasingly violent. The Apache often raided the area in search of livestock, goods, and slaves. The Spaniards, in response, traveled out in search of Apache *rancherías* and attacked them. Animosity sometimes developed among the native groups who were considered allies of the Spaniards. Piman groups grew annoyed with demands by missionaries for labor and the stoppage of native religious practices. This culminated in Piman attacks on San Xavier in 1744 and the Piman Revolt of 1751. In response, the Spaniards built a military fort at Tubac in 1752, signaling a shift of bureaucratic attention from religious to military matters. The Catholic Church lost political power in the area in a time that also saw the expulsion of Jesuit priests in 1767 and their replacement with the Franciscans (Kessell 1976).

The Tubac Presidio consisted of buildings clustered around a central plaza, with their outside walls forming a protective barrier, or "curtain," during battles (Gerald 1968). This compound was known as *casa muros,* and other examples were built at Buenavista, Fronteras, Horcasitas, and Terrenate. The buildings in these settlements had massive walls of adobe bricks, which were made with forms. Often, a single structure, the *casa fuerte* or "Captain's House," was built as the center of protection during siege situations, with thicker walls and higher parapets from which to fight (Shenk and Teague 1975).

Religious missions in southern Arizona, like Guevavi and San Agustín, were laid out in a rectangle. Within this, individual buildings served various economic and religious functions, such as tanning of animal hides, blacksmithing, and teaching Christianity. The missions were built next to permanent rivers and floodplains. These settings allowed European and Native American crops to be grown, and also provided fodder for cattle, sheep, goats, horses, and mules. Mules were used to bring supplies from warehouses to the south, luxury foods such as chocolate, religious items, arms, and ammunition. The objective of the mission settlements was self-sufficiency. As attacks by the Apache increased, missions were retrofitted with compound walls. The attacks increased, and a line of forts was established, beginning at the Gulf of Mexico, zigzagging the Rio Grande, crossing southern Arizona above the Gulf of California, and proceeding to the Pacific Ocean (Gerald 1968:12-13; Gerhard 1982).

Schook-shon Becomes Tucson

Father Kino had visited the Tucson Basin in the 1690s, finding a series of Pima *rancherías* along the Santa Cruz River. One of the villages, Schook-shon, was located at the base of a small, black mountain (Sentinel Peak, current day A-Mountain) (Schook-shon, in O'odham, means "at the base of the black" [hill]). Kino established a *visita* at the village, originally called San Cosme, but later changed to San Agustín. The village had several hundred residents. In 1762, a group of Sobaipuri Pima from the San Pedro River moved to the community to escape Apache attacks. The Spaniards were asked by residents of the village for help in building a chapel, and it was completed in 1771.

Four years later, Lt. Colonel Hugo O'Conor selected Tucson as the site of a new presidio fortress. He had been inspecting the existing forts for the Spanish military and determined that the dispersed layout of the Tubac Presidio was not easily defensible and that the fort was not in the best location. O'Conor's inspection tour was a result of another set of inspections, conducted by the Marqués de Rubí in 1766. Rubí was accompanied by royal engineers Nicolás de La Fora and Joseph de Urrutia, who drew maps and plans of the places they visited. The inspection tour led to a set of recommendations that included the realignment of the existing presidio system. Presidios were to be situated at regular intervals, about 120 miles apart, extending from the Gulf of California east to the Gulf of Mexico (Gerald 1868:7). The formal order instituting these changes was published as the Royal Regulations of 1772, leading to O'Conor's visit (Brinckerhoff and Faulk 1965).

O'Conor chose Tucson for several reasons:

> It is situated at a distance of eighteen leagues from Tubac, fulfills the requirements of water, pasture, and wood, and effectively closes the Apache frontier (McCarty 1976:26).

The Tucson Presidio was designed to bring greater security to the area. The presence of friendly Native American communities at the Mission San Agustín at the base of Sentinel Peak, and farther south at the Mission San Xavier del Bac, was another factor because these people could provide food, labor, and military intelligence.

The Royal Regulations of 1772 also provided detailed instructions about the staffing of presidios, how much soldiers were to be paid, and on their conduct. Presidial soldiers were to be paid salaries, but also had to support themselves and their families by working in the nearby fields and pastures. Each presidio was supposed to be manned with 57 men: 3 officers (1 captain, 1 lieutenant, 1 *alferez*), 43 soldiers (including 1 sergeant and 2 corporals), 10 Indians (1 a corporal), and a chaplain (Gerald 1968:18). Tucson initially had about 60 soldiers. By the 1790s, this had increased to around 100. The soldiers were relatively well paid, but probably found it difficult to spend their money in Tucson (Dobyns 1976). Relatively few manufactured goods could be transported to the community. Those that did come in were brought by mule trains or carried in oxen-pulled carts. Settlers relied on locally made goods, such as Native American pottery, to meet many of their needs. Crops and domesticated animals were raised along the Santa Cruz River, along the San Pedro River, or in nearby ranches. Some hunting of wild animals and gathering of native plants also took place. Life in Tucson was not easy, but many soldiers established roots and many have descendants living in the region in the twenty-first century.

The Original Tucson Presidio

No detailed documents, maps, or sketches describing the presidio have been located by researchers in the last 120 years. Spanish and Mexican period documents provide only a few details about the fort. Others come from early Euro-American visitors to the fort, beginning with the Mormon Battalion in 1846. Additional information comes from interviews in the first third of the twentieth century with people who had been born and raised inside the walls of the fort. Finally, archaeological excavations have provided additional data about the architecture, material culture, and diet of the presidio residents.

The earliest detailed map of Tucson was drawn in 1862, 86 years after the soldiers began construction of the fort (Figure 1.4). The 1772 Regulations provided a template for construction of the new presidios:

> In order to facilitate this change promptly and that the buildings be done in accordance with the new plan, the exterior walls are to be built first of adobes, with two small bastions in the angles; afterward on the interior will be built the chapel, the guardhouse, residences for the captain, officers, and chaplain, and quarters for the soldiers and Indians, sheltering everyone during the construction in campaign tents and temporary barracks. In this matter the captain and subaltern officers will apply themselves with all possible diligence and watchfulness, as they are obligated to do by their rank and their honor; and the aforesaid paymasters will keep a detailed and exact account of all they actually buy for the work. It is understood that this work should

> be done by the troops as a campaign task and that it will accrue to their benefit and protection; the Indian scouts are not to be burdened with more work than that of the soldiers, for both should be treated equally. All should be given a moderate gratuity for this special work, as regulated and vouched for by the captain, with the advice and accord of his subaltern officers (Brinckerhoff and Faulk 1965:63).

Presidio commanders likely tried to follow these instructions. Local environmental conditions, the types of building materials easily accessible, and the availability of skilled workers were factors in the construction of forts and led to deviations from the regulations. Maps and descriptions of nine contemporary Spanish presidios, all built in the 1770s, reveal which characteristics were considered most important (Gerald 1968). All of the 1770s presidios were surrounded by an enclosing wall. The area enclosed varied from square to rectangular to diamond-shaped. These differences were almost certainly a result of the topography of the area where the fort was situated, as well as other local factors, such as the number of residents.

Most of the presidios had square- or diamond-shaped bastions located at the northeastern and southwestern corners of the fort. Several of the forts had raised platforms for the bastions, suitable for mounting cannons.

Structures lined the interior of the walls, usually one or two rooms deep. These were homes,

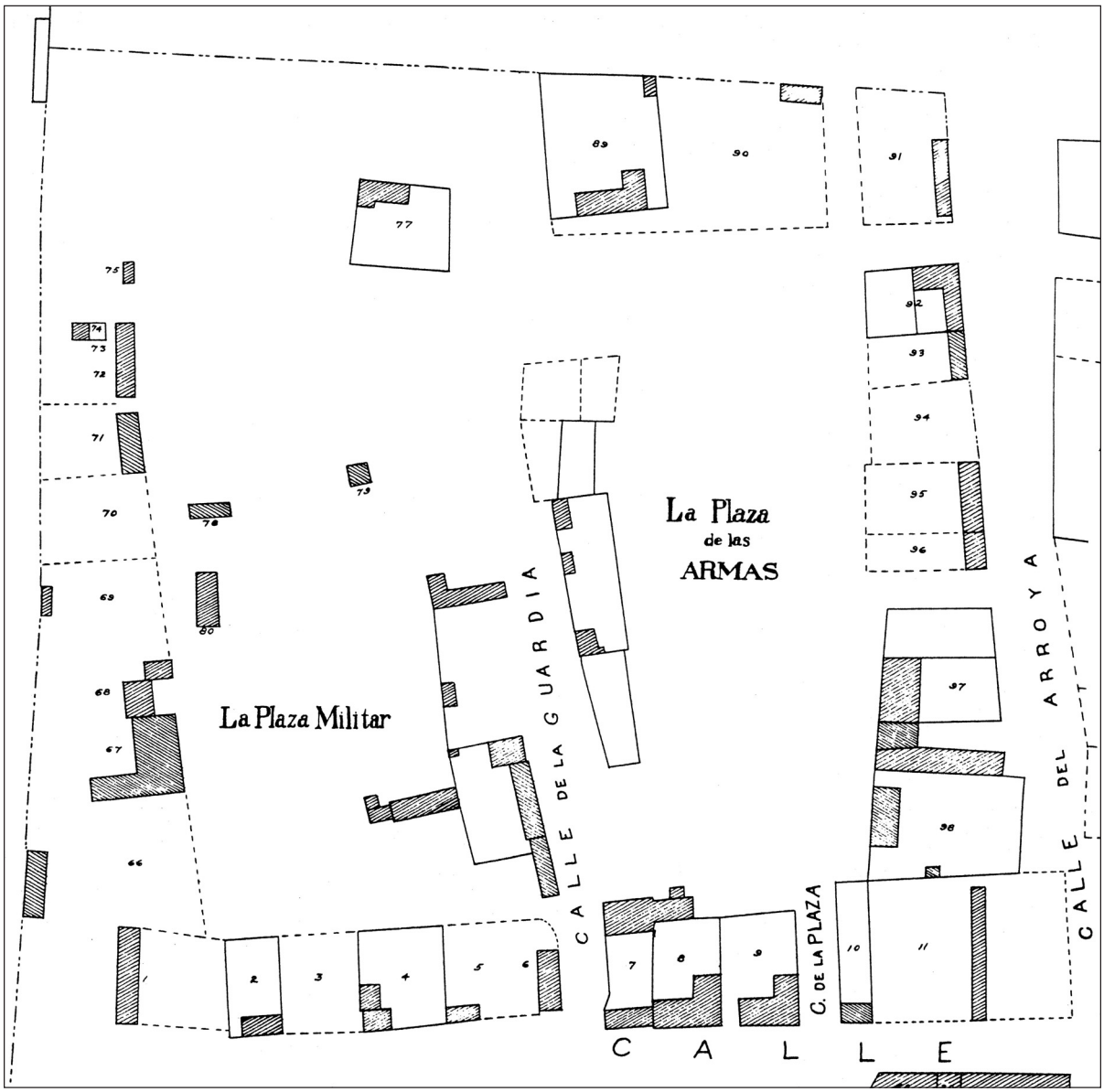


Figure 1.4. The 1862 Fergusson map showing that portion of Tucson within the confines of the presidio. (North is to the left.)

stables, and warehouses. A few larger buildings were present, usually positioned in the middle of the wall. The church and the commander's house were most often at these locations. The center of the presidio was an open plaza where soldiers could drill and other activities take place.

Corrals, garbage middens, and additional buildings were located outside the walls. This area was almost certainly cleared of vegetation to remove potential hiding places for attackers. Additionally, people living within the fort would have harvested whatever firewood was close by, and livestock would have eaten grass and other plants.

The 1770s presidios were not identical. The location of gates and buildings varied, as did their size. Many factors, including the use-life of the fort and the ability of researchers to study the physical remains of certain presidios, affect currents understanding of their plans.

The people who built the Tucson Presidio were supposed to follow the regulations, but the end result was quite dissimilar. There were several reasons for this. First, actual construction took much longer to complete than originally thought. The fort's first commander, Juan Bautista de Anza, was away in California in 1776, and placed control in the hands of Lt. Juan María de Oliva. Oliva was a career soldier, but he was illiterate, and he relied on others to prepare correspondence and manage the fort's finances. The quartermaster, Don Juan Felipe Beldarrain, mismanaged the fort's money, and construction was stalled. In 1776, the Tucson presidio probably consisted of a handful of adobe brick buildings with no surrounding wall, similar to the abandoned fortress at Tubac.

Don Pedro Allande y Saabedra took command in June 1777, and afterwards, claimed he had erected a rough log palisade with four bastions, a powder magazine, a guardhouse, and a fine church at his own expense (McCarty 1976:43-46). In the spring of 1779, Adjutant Inspector Don Roque de Medina visited the post and reported:

> The area of the presidio houses and jacales is fortified with a wide ditch roundabout and a palisade of logs which Captain Don Pedro Allande ordered built, and two ramparts on which the cannon are emplaced. Some of the houses of citizens and soldiers are outside the palisade and under only the defense of the artillery and the low works raised at one side at a greater distance from the water than they could have been put (Dobyns 1976:60).

The description of the wooden fort indicates it was built following the 1772 Regulations. Outside of the wood fortress were the beginnings of a larger fort. Medina reported that "Only on two walls is the material structure of this presidio to the height of a scant yard and a half, and it is of adobes" (Dobyns 1976:61). The wooden fort was probably located somewhere in the vicinity of Alameda Street and Church Avenue, since this was always the location of the presidio chapel and cemetery (assuming these were always inside the wooden walls).

The fort was initially armed with four bronze cannon with 66 cannon balls. Twelve other balls had been made into musket balls. The magazine was located away from the fort, but was poorly built and its door was stopped up with adobe bricks. A new magazine was being built (Dobyns 1976:61).

The adobe-walled presidio was completed between May 1782, when Allande noted that the presidio "was without a wall," and December 1783, when an inspection report stated that the wall was finished by Lt. José María Abate, "at his own cost" (Dobyns 1976:61, 77, 81). The impetus for completing the presidio was an attack on 1 May 1782, by a large number of Apache. Fortunately for the Spaniards, soldiers were present at several locations and were able to divide the Apache into smaller groups, allowing Allande and about 20 others to hold the stockade (Dobyns 1976:61).

The boundaries of the Tucson Presidio were reported by people who lived there as children to be Washington Street on the north, Church Avenue on the east, Pennington Street on the south, and Main Avenue on the west (see Figure 1.2). What remains unclear is if this was the size of the 1783 fort, or if it reflects later enlargements. At this size, the presidio would have been about 700 ft to a side. This was much larger than any of the other contemporary presidios. The 1772 Royal Regulations called for the expansion of presidios when there was no longer room to accommodate incoming settlers (Brinckerhoff and Faulk 1965:35). The Tucson Presidio may have been expanded through time after the original adobe was built; however, no documentary evidence confirming this has been located.

Life in the Tucson Presidio

The people who lived in and near the Tucson presidio—soldiers, family members, civilian families, and Native American families—were at the northern frontier of New Spain. To the north was the Gila River with its Piman communities. To the south were settlements, missions, ranches, and mines. Much further to the south, a couple of hundred miles away, was the nearest store, at Arizpe. Tucson existed, at times, in a state of isolation.

The soldiers and their families moved north from Tubac in 1776, and started work on the Tucson Presidio. Soldiers had a number of duties. They guarded the fort and the surrounding areas, watched

over horse and cattle herds, and participated in raids against the Apache. They also traveled back and forth to neighboring missions, the Presidio of Santa Cruz de Terrenate , and communities in Sonora, including Arizpe. In their spare time, they and their families raised crops and animals on the floodplains of the Santa Cruz and San Pedro rivers.

A census of the Spanish residents of Tucson was taken in 1797. A total of 395 individuals was counted, in both military and civilian families. The population ranged from 400 to 500 into the 1850s.

Soldiers' rosters from 1800 to 1818 survive, and reveal that the Tucson Presidio had 98-108 soldiers stationed there during this period (Table 1.2).

Many of the soldiers were married. The loss of the presidio chapel records, listing baptisms, marriages, and burials, prevents us from understanding many aspects of the families living in Tucson. Their wives were probably in their young teens when they married. They had many children, but only two or three lived to adulthood. Women cared for their households, raised children, and tended gardens. Life was probably difficult, especially after Mexican Independence in 1821, when Apache attacks increased, and Tucson became increasingly isolated. Members of the Mormon Battalion in 1846 and the 49ers in 1849-1850 reported trading with Tucson women for the sewing goods—thread, needles, and cloth—that they desperately needed (Officer 1987).

Table 1.2. Number of soldiers stationed at the Tucson Presidio in September 1817.

Titulo	Title	Number
Capitan	Captain	1
Teniente	Lieutenant	1
Alferez	Second lieutenant	2
Capellan	Chaplain	1
Sargento	Sergeant	11
Tambor	Drummer	1
Caravinero [carabinero]	Customs guard	6
Cadete	Cadet	1
Armero	Armorer	1
Soldados	Soldiers	81
Imbalidos [inbalidos]	Invalids	12

AMERICAN TERRITORIAL PERIOD

The American Territorial period began in 1856 with the arrival of American troops in March. Portions of the presidio were rapidly dismantled, with the adobe bricks recycled to be used as materials for new construction. The increase in population was one reason for destruction of the walls. According to a census found in the Sonoran State Archives in Hermosillo, there were 511 residents in Tucson in 1848. The 1860 Federal census, with Tucson as part of the New Mexico Territory, lists 956 residents. This growth is visible in the "Map of Tucson" created by John J. Mills for Major David Fergusson of the 1st Cavalry. The map reveals the growth of the community south and west of the fortress. A single building, perhaps the remnants of the corner tower, is visible in the area excavated in 2005-2006.

Property records housed at the Pima County Recorder's Office identify the earliest residents of the project area. The area was formally surveyed in 1872 by S. W. Foreman, who was laying out the Tucson townsite. He created Block 181, using the eastern wall of the presidio as a lot-dividing wall. The block had nine lots, with Lots 1 and 2 located at the northeastern corner of the block, Lot 3 immediately to the south, and Lots 8 and 9 on the western side of the block. The lots varied in size, probably because structures were already present when the block was originally surveyed (Figure 1.5).

The first residents of Lot 8 were members of the Siqueiros-Jácome family. Juan Siqueiros was born circa 1840, in what is today Arizona, probably the son of José Siqueiros and María Gonzáles. In about 1857, Juan was married, or took as his common-law wife, Soledad Jácome. Soledad was born in April 1840/1845 in Arizona, and died on 18 January 1911, in Tucson.[1]

Juan Siqueiros built a house in May 1860, in the area that is currently located between Broadway and Congress streets.[2] In 1862, Union forces retook Tucson from the Confederates and the first map of Tucson was drawn. William Oury was charged with recording the property deeds for the next several years. Four deeds indicate that Siqueiros lived at this house through March 1864.[3] Several individuals who may have been related to Juan lived nearby. Two houses to the west lived José Loreto Higuera, son of Acenscio Higuera and Dolores Siqueiros. Nearby lived Teresa Siqueiros, widow of Fernando Ruelas, a soldier killed by Apaches in May 1848.

[1]Arizona Territorial Board of Health, Original Certificate of Death, 1911 no. 254. This record indicates she was 76 years old when she died, suggesting an 1835 birth date.

[2]Tucson Deeds, Manuscript 1062, page 27, Arizona Historical Society, Southern Arizona Division, Tucson.

[3]Tucson Deeds, Manuscript 1062, pages 26, 27, 66, and 74. Arizona Historical Society, Southern Arizona Division, Tucson.

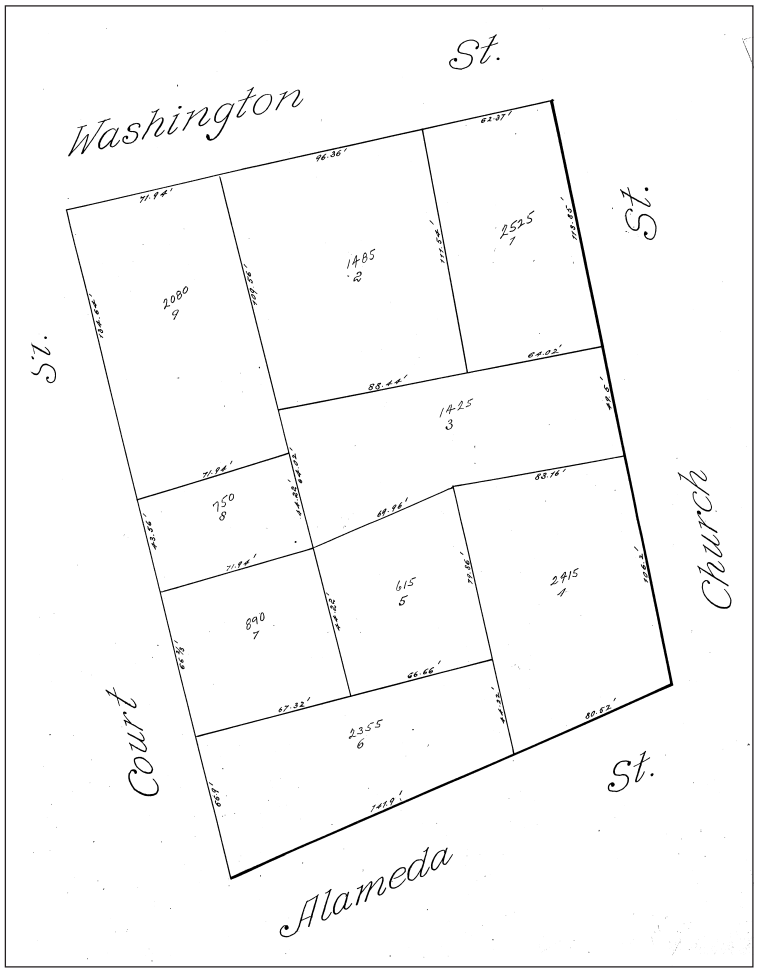


Figure 1.5. The 1900 Block Book map for Block 181. (Courtesy Arizona Historical Society, Tucson.)

Unfortunately, the exact relationships, if any, of these individuals remains unknown.

The Siqueiros-Jácome family is missing from the 1860 Federal census, as well as the 1864 and 1866 Territorial censuses. In April 1867, Juan Siquerus, Solidad Jacome, Inés Jacome, Isidoro Jacome, and Bernerda Jacome were living in Tucson.[4] On 1 June 1870, the family was living on Court Street.[5] Juan died circa 1873.

In August 1874, Soledad and her four daughters were living in Tucson.[6] On 28 September 1874, Soledad purchased the deed for Lot 8 of Block 181 from the Village of Tucson for $7.03.[7] On 5 February 1875, Soledad purchased the deed for Lot 3 of Block 181 from the Village of Tucson. This lot was directly east of Lot 8.[8] In June 1880, Soledad was living with her four daughters at the Court Street house. She was keeping house while Bernarda and Paulita attended school. Ignacio and Isadora were also at home.[9] Soledad sold Lot 3 of Block 181 to James McElliott on 7 February 1882.[10] Soledad lost control of her property for not paying taxes in December 1882, when the Sheriff of Pima County sold Lot 8 to William Griffith and others. She regained control by paying Griffith and his partners on 16 February 1883.[11] The 1883-1884 Tucson City Directory lists "Mrs. Soledad Jacome, dressmaker" at 110 Court Street.[12] The address was later changed to 184 N. Court Street.

On 18 June 1900, Soledad was living by herself in her Court Street home. She was working as a dressmaker.[13] Soledad sold her Lot 8 property to her daughter Isadora Siqueiros on 19 February 1908.[14] On 19 April 1910, Soledad was living with her daughter Dora. On the census, Soledad was listed as a widow who had had four children, three of whom were living. Dora was single when the census was taken, and was working as a dressmaker at home.[15] Soledad died at her home on 18 January 1911, from

[4]Names are spelled as recorded throughout. Juan Siquerus household, 1867 Arizona Territorial census, Pima County, Arizona Territory, Tucson, lines 522-526. A photographic copy of the census was viewed at the Arizona Historical Society in Tucson.

[5]Juan Zecedo household, 1870 U.S. census, Pima County, Arizona Territory, population schedule, Tucson, page 4, dwelling 41, family 42; NARA microfilm M593, roll 46.

[6]1874 Territorial census, Pima County, page 2, line 16; Arizona State Library; Archives and Public Records, Phoenix.

[7]Pima County Deed Record Entry, Book 2:500-502.

[8]Pima County Deed Record Entry, Book 11:242.

[9]Soledad Hacum household, 1880 U.S. census, Pima County, Arizona Territory, population schedule, Tucson, ED 5, page 15, dwelling 101, family 132; NARA microfilm T9, roll 36.

[10]Pima County Deed Record Entry, Book 11:244.

[11]Pima County Deed Record Entry, Book 8:35; 8:246.

[12]Cobler & Co. 1883 *Tucson and Tombstone General and Business Directory for 1883 and 1884.* Daily Citizen Steam Printing Establishment, Tucson.

[13]Soledad Jacome household, 1900 U.S. census, Pima County, Arizona Territory, population schedule, Tucson, ED 49, SD 11, sheet 18B, Dwelling 423, family 431; NARA microfilm T623, roll 47.

[14]Pima County Deed Record Entry, Book 45:134.

[15]Soledad Jacome household, 1910 U.S. census, Pima County, Arizona Territory, population schedule, Tucson, ED 102, sheet 4B, dwelling 112, family 120; NARA microfilm T624, roll 41.

"organic dis[ease] of heart," which she had suffered from for two years.[16] Her remains were handled by the Reilly Mortuary. Her two sons-in-law, Frank Mariscal and P. P. Lopez, appear to have paid for her burial in Holy Hope Cemetery in Tucson.[17]

Soledad Jácome was actually the mother of at least six children. Juan Siqueiros was probably the father of Inez, Bernarda, Petra, and Paula. No father is listed on the baptismal record for Phillipa.

Inez Siqueiros was born in January 1858, in Tucson. She was married to Pedro Pablo Lopez.

Isadora Jácome Siqueiros was born circa 1860, in Tucson. Isadora was married to Angelito Lopez.

Phillipa Jácome was born on 15 May 1862, and was baptized on 28 August 1862, in Tucson with Emanuel Usarraga and Jesús Palomino acting as her godparents.[18]

Antonia Bernarda Jácome was born circa April 1865, in Arizona. She was baptized on 20 February 1866, at the St. Augustine Catholic Church in Tucson, with Antonio Rodriguez and Dolores Ramirez serving as her *padrinos*.[19] Bernarda last appears on the 1880 Federal census.

Petra Siqueiros was born circa 31 August 1868. She was baptized on 24 September 1868, in Tucson, with Jesús Figueroa and Patricia Granilla acting as her godparents.[20] Petra died in April 1870 from smallpox.[21]

Paula Siqueiros was born on 18 June 1873. She was married circa 1889, to Francisco Mariscal.

The first identified residents of Lot 1 were the Telles-Vilderray family. Anastasio Telles purchased Lot 1 on 1 March 1875. He was born circa 1833, in Sonora, Mexico, and was married prior to 1858 to Manuela Vilderray [spelled Vildoragga in 1858 and Bilderalla in 1864]. In 1860, the couple lived in Tucson with their daughter Luisa. Anastacio worked as a laborer.[22] In 1864, Anastasio was a farmer in Tucson with $200 in personal possessions. He lived there with his wife and daughter. A number of other Telles lived nearby and are probable relatives: Cristiana (27), Maria (15), Prudencio (20), Hilario (22), Polonio (25), and Susanna (25).[23] In 1866, Anastacio and Manuela lived with daughter Louisa in Tucson.[24] The family lived in Tucson until at least 1875, but they are missing from the 1870 census, and could not be located on the 1880 census. Antonio Baldonado purchased Lot 2 on 4 February 1875.

The adjacent lot, Lot 2, was purchased by Herbert Dodge in 1885. Dodge was born in December 1861, in Illinois. He was married circa 1888 to Julia [Royce?]. Julia was born in January 1872, in Michigan. She had five children, one of whom died in childhood. The other four children were William C. (born in October 1889), Charles H. (born December 1888), Winnifred (born January 1892), and Hazel M. (born January 1895). On 18 June 1900, the couple, their four children, Julia's grandmother Julia Simpson, and a lodger named Lorenzo Haley lived at 187 North Church Avenue. Herbert was working as a grocer clerk, and William, Charles, and Winnifred were attending school.[25]

The 1908 Tucson City Directory indicates that William Dodge was working as a driver for the Union Meat Market, while Charles was a machine helper at the Southern Pacific Railroad shops.

On 15 April 1910, Julia headed a household at 187 North Church Avenue. She was now divorced from Herbert, an unusual situation for her time and place. She worked as a bookkeeper for a furniture store, with her eldest three children working at a grocery store. Living with the family as boarders were four women, A. Barker, Anne Barker, Maude McCormick, and Mamie McFadden.[26] The 1910-1911 city directory lists Julia Dodge as a bookkeeper at W. Golding, Winnifred as a bookkeeper at the Pacific Grocery, William working at the Union Meat Market, and Charles working at the Southern Pacific Railroad as a machine helper.

The family moved out of the Dodge Boarding House prior to the collection of data for the 1918 city directory, when four individuals lived in the home. The boarding house they operated on the adjacent Lot 1 had a variety of occupants through the years, none of whom stayed long. The boarding house was torn down in 1954.

[16]Arizona Territorial Board of Health, Original Certificate of Death, 1911 no. 254; "Aged Woman Dies," *Arizona Daily Star,* 19 January 1911, page 6, column 4.

[17]*Arizona Death Records,* 1976, Arizona State Genealogical Society, Tucson, Volume 1, page 627.

[18]St. Augustine Catholic Church Baptisms, 1:17 no. 141.

[19]Catholic Diocese of Tucson, Baptismal Records, Volume 1:33 no. 33.

[20]Catholic Diocese of Tucson, Baptismal Records, Volume 1:79. A photocopy of the register is available at the Special Collections at the University of Arizona as MS 296, Volume 3.

[21]Petra Zecedo entry, 1870 U.S. census, Pima County, Arizona Territory, mortality schedule, Tucson, page 1, line 2; NARA microfilm T655, roll 1.

[22]1860 Census, New Mexico, Doña Ana County, Tucson, page 5.

[23]1864 Census, A.T., Pima County, Tucson, lines 408-411, counted also on lines 1292-1294, where he is a farmer owning $300 in real estate and $200 in personal property.

[24]1866 Census, A.T., Pima County, Tucson, lines 642-644.

[25]Herbert Dodge household, 1900 U.S. census, Pima County, Arizona, Tucson, ED 49, sheet 18A).

[26]Julia Dodge household, 1910 U.S. census, Pima County, Arizona, Tucson, ED 102, sheet 17A.

Structures on Lot 1

The 1883 Sanborn Fire Insurance map reveals that a house was present on Lot 1 at that time (Figure 1.6). The adobe structure is called "old," and appears to have two rooms. It is not present on the 1886 map. The 1889 map also indicates the lot was vacant, with the Dodge family constructing a house on the adjoining Lot 3 to the south. Between 1889 and 1896, the Dodges built a two-story apartment house along the eastern side of Lot 1. The boarding house was divided into four separate units.

By 1901, a small outbuilding and stables had been built at the southwestern corner of Lot 1 (Figure 1.7).

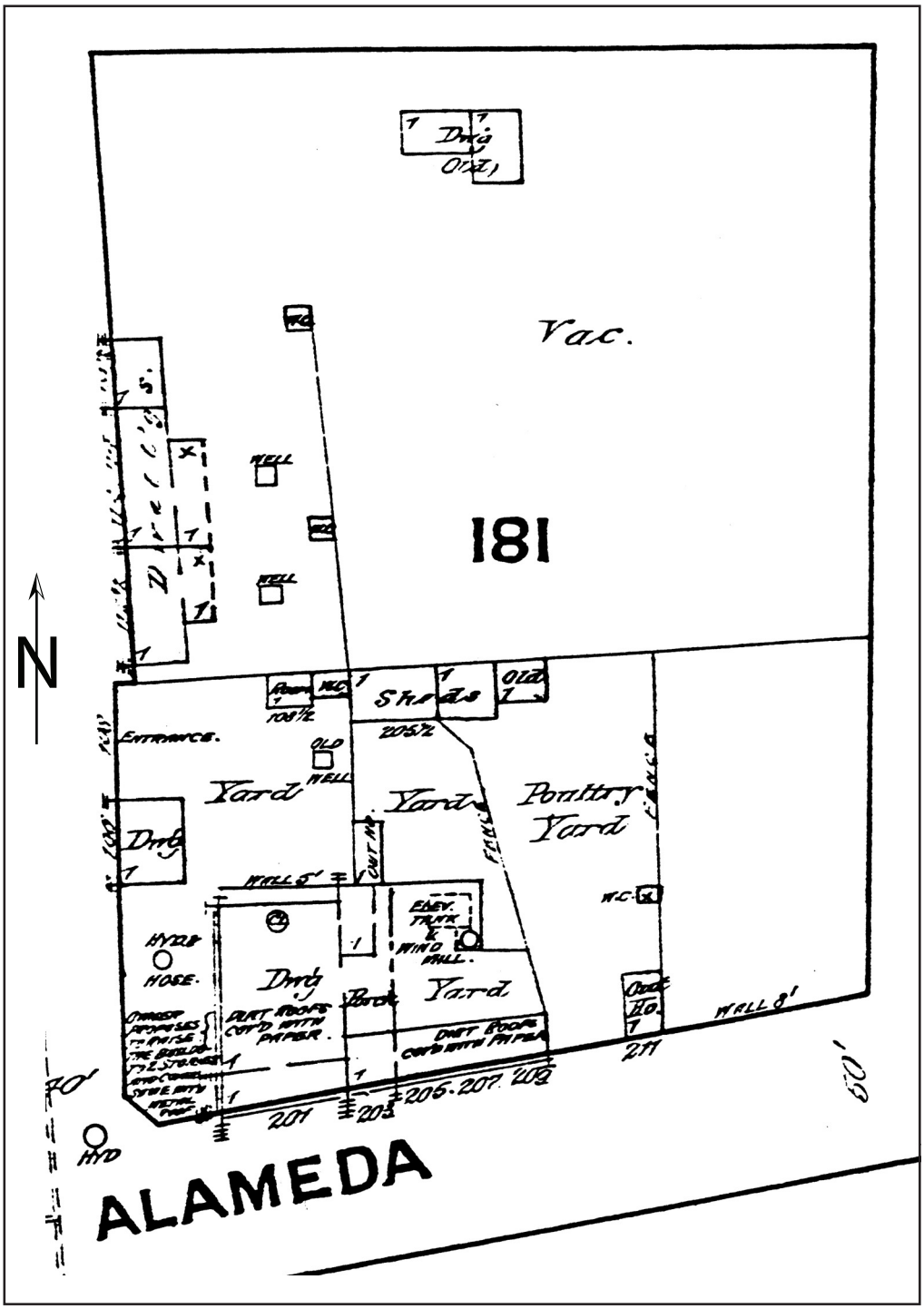


Figure 1.6. The 1883 Sanborn Fire Insurance map for Block 181.

These structures were demolished by 1909. An automobile garage was present along the western side of the lot prior to 1944. This garage was demolished prior to 1954. The boarding house itself was torn down in 1954.

PRESIDIO ARCHAEOLOGY

Many archaeology projects have been conducted within the boundaries of the Tucson Presidio. The first took place in 1929-1930, during construction of the Pima County Courthouse. Donald Page, an engineer employed by the City of Tucson, excavated a series of trenches and collected adobe bricks from the presidio walls, which were later used in a display on the southern side of the courthouse (Thiel et al. 1995).

Four projects have been conducted on the northern portion of Historic Block 181. In December 1954, businessman George Chambers observed the demolition of the Dodge Boarding House. He knew this was thought to be the corner of the Tucson Presidio, so he asked the landowner for permission to have the University of Arizona excavate a portion of the property. After receiving permission, he contacted Professor Emil Haury and arranged for financing of the project, which was conducted by Alan Olson, a graduate student. A thick adobe foundation, which formed a corner, was quickly located. The discovery of prehistoric pottery sherds diverted the attention away from the wall. The archaeologists uncovered a Rillito phase pithouse whose entrance extended beneath the wall (Olson 1985). Chambers wanted the property to become a park but local politicians were not interested. The area was subsequently paved over and became a parking lot.

In April 1981, archaeologists from the University of Arizona excavated six units in the backyard of the Siqueiros-Jácome House at 196 North Court Street (Mazany 1981). The archaeologists thought they had located two prehistoric pit structures, although the fieldwork reported on in this volume revealed they were actually excavating in presidio-era soil mining pits.

In 1998 and 1999, archaeologists and volunteers from the Center for Desert Archaeology excavated a series of trenches around the perimeter of the presidio (Thiel 2004). One trench was placed

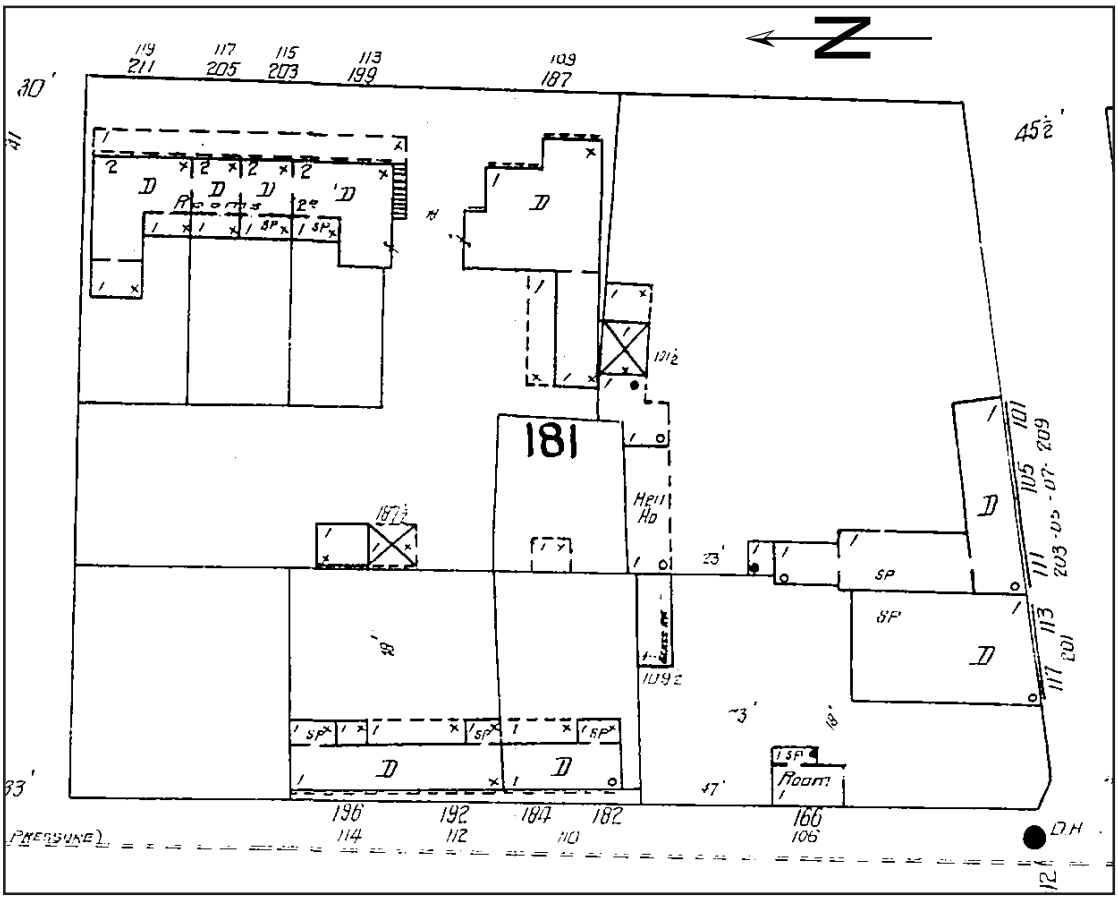


Figure 1.7. The 1901 Sanborn Fire Insurance map for Block 181.

between the dwelling at 138 West Washington Street, and extended from the southern side of the sidewalk to the back porch area. A planting area and eight postholes were found to cut into the caliche in this area. The postholes were likely for a fence dividing Lots 2 and 9 (Thiel 2004:61-63).

Other projects in the downtown area are summarized elsewhere (Thiel 2004). Archaeologists have located the western and eastern walls of the presidio, the probable east gate, the blacksmith shop, the cemetery, the northeastern tower, and several interior buildings, including a probable home.

SUMMARY

Previous archaeological and historical research has revealed a long history of occupation for downtown Tucson. Prior to the 2005-2006 project, archaeologists had already determined that intact features dating to the Early Agricultural period, the Hohokam sequence, the Spanish, Mexican, American Territorial, and American Statehood periods were present on Historic Block 181. Archival research had identified the families associated with the northern portion of the block, as well as the handful of buildings constructed on the property from the 1860s on.

The results of the 2005-2006 fieldwork are presented in this report. The archaeological fieldwork is summarized in Chapter 2, focusing on the methods used and on the public interpretation of the site. Chapters 3-5 include descriptions of the archaeological features located, while Chapters 6-9 describe the various kinds of artifacts found. Food remains are discussed in Chapters 10 and 11. Marine shell, which was used for ornaments and food, is described in Chapter 12. Finally, a concluding chapter summarizes the new information collected as a result of this project.

CHAPTER 2

ARCHAEOLOGICAL INVESTIGATIONS

J. Homer Thiel
Desert Archaeology, Inc.

The archaeological investigations reported in this volume spanned the period from 2003 to 2007. Fieldwork was conducted in several phases, timed to coincide with or precede restoration of the Siqueiros-Jácome House and the parking lot at the southwestern corner of Church Avenue and Washington Street. A total of 201 features was documented during the fieldwork (Figures 2.1-2.3; Table 2.1).

RESEARCH ISSUES

Three broad research issues have guided work during the various projects conducted for the Rio Nuevo redevelopment work. "A Changing Riverine Oasis" examines the relationship of humans with the Santa Cruz River within the more arid Tucson Basin. The presence of water allowed human settlements to be established along the river during the Prehistoric era, and was one of the reasons the Spanish Presidio was located in Tucson. Humans began to actively change the river with construction of irrigation canals over 3,000 years ago. These changes dramatically accelerated during the American Territorial period, as the population increased and new technologies allowed more water to be extracted from the ground.

"Oasis Communities" examines community organization and development. Decades of excavations at prehistoric sites in the Tucson Basin have shown that settlements tended to be located close to perennial water sources, often adjacent to irrigated agricultural fields. Households were often oriented around a common courtyard, where subsistence and craft activities took place. Specialized large-scale architecture, such as big houses, ballcourts, and platform mounds, were constructed throughout prehistory, and likely served as the location for religious and cultural ceremonies. The Historic era in Tucson initially saw settlement clustered within or adjacent to the presidio fortress or the nearby Mission of San Agustín. Tucson was surveyed and formally laid out in 1872, with the new grid superimposed on the more chaotic core of the presidio. Through time, neighborhoods became distinctive due to zoning, the prevailing ethnicity of residents, and the date and length of construction of buildings.

"Community Diversity" examines the people of Tucson, their ethnic backgrounds, architectural traditions, and food traditions. Native Americans have called Tucson home for thousands of years. Architectural traditions changed dramatically over this timespan, as did material culture. The Historic era saw the arrival of many new groups, each with their own architectural customs, modes of dressing and furnishing homes, and dietary preferences. Many of these groups are inadequately documented in contemporary records, and excavated materials are often the only way to explore their daily lives.

SUMMER 2003: WORK BENEATH THE SIQUEIROS-JÁCOME HOUSE FOUNDATION

The Siqueiros-Jácome House was last occupied in 1994. By 2003, the adobe brick walls of the house were cracking and caving in at their bases. Emergency stabilization of the house included the placement of concrete foundations under the adobe walls, which had been placed on the ground surface when the house was built in the 1860s and 1870s. Scaffolding was erected to support the walls, and Desert Archaeology excavated along the interior and exterior of the western wall of the house, as well as below the wall. Working conditions were particularly difficult, since at times, the archaeologists were basically burrowing beneath the adobes. A number of features, including a child's inhumation, were documented. A large number of artifacts, including many prehistoric sherds, were found. Most of the work was accomplished in July and August 2003.

SUMMER 2005: WORK WITHIN THE SIQUEIROS-JÁCOME HOUSE

Archaeologists returned to the Siqueiros-Jácome House in May and June of 2005 (Figures 2.4-2.5). The wooden floors of the house were removed and excavation conducted. Prehistoric features were

located beneath the southern and middle rooms and below the rear porch areas. Spanish or Mexican period features were located in the middle, northern, and northeastern rooms, including an extensive midden deposit along the northern side of the structure. A portion of the backyard was stripped in an area where a bathroom facility was planned, revealing an Early Agricultural period pit structure, a well that appeared on the 1883 Sanborn Fire Insurance map, and other American Territorial period features. At the completion of fieldwork, an open house was held, and several hundred visitors toured the site.

FALL 2005-WINTER 2006: EXCAVATIONS

Plans for the Presidio San Agustín del Tucson Park were finalized in the summer of 2005, and archaeologists returned to the backyard of the Siqueiros-Jácome House and the corner parking lot to work in areas that would be affected by construction (Figures 2.6-2.7). A large portion of the backyard was stripped using a backhoe, exposing dozens of features. Among those excavated were borrow pits, outhouse pits, and a Hohokam crematorium.

Work moved to the parking lot in December, following a groundbreaking ceremony. Desert Archaeology excavated trenches for the location of the mural wall, the eastern and northern presidio walls, and for the tower. The trench for the eastern wall of the tower was cut using a backhoe. The remaining trenches were hand-excavated. A block excavation was also placed around the location of a concrete base for a light pole. Features revealed during this work included Early Agricultural and Hohokam pit structures, borrow pits, and the foundation of the Dodge Boarding House.

SUMMER 2006-SUMMER 2007: MONITORING

Monitoring was conducted over the next year during construction of the Presidio San Agustín del Tucson Park. This monitoring resulted in documentation of a small number of additional features. A large portion of the site, particularly within the center plaza of the now-completed park, was left untouched, and will be available for study by future archaeologists.

METHODS

Desert Archaeology, Inc., uses a unit-based system for excavation. Each specific area excavated is given a unique unit number. A unit may consist of an entire feature, a portion of a feature, or a control unit (typically measuring 1 m by 2 m) either in a feature or in a nonfeature area. During fieldwork reported in this volume, excavation was generally conducted in stratigraphic levels, with an attempt made to separate differing soil layers. Standardized forms were completed for each level excavated within a unit, recording the depth excavated, the type of soil present, the amount of disturbance, and other information. Plan view, profile, and cross-section maps were drawn. Digital, black-and-white, and color slide photographs were taken.

All soil was screened through ¼-inch mesh. Artifacts were bagged by material type and sent to the Desert Archaeology laboratory for processing. During the third phase of work, certain mass-produced artifacts were counted and discarded in the field (tin cans, nails, bolts, barrel bands, and unidentifiable metal fragments). Flotation samples were collected from each level. Pollen samples were taken from pit structure floors and within the bottom fill of outhouses. Macrobotanical and radiocarbon samples were taken when possible.

All paperwork and photographs will be curated at the Arizona State Museum (ASM). Artifacts from the project will also be curated there, although some are to be loaned for an exhibit at the Siqueiros-Jácome House.

Arizona State Museum Burial Agreement Case #01-06 was negotiated with local Native American groups and the Descendientes of the Tucson Presidio prior to the start of fieldwork for the overall Rio Nuevo project. Two burials, a crematorium, a secondary cremation, and a small amount of isolated cremated human bone were subsequently found during fieldwork. These were repatriated to the Tohono O'odham Nation. A partial human skull was also found inside a historic privy feature. No cultural affiliation could be determined for the remains, and it has been included with collections curated at the Arizona State Museum.

SUMMARY

Three phases of fieldwork were conducted on the portion of Historic Block 181 where the Presidio San Agustín del Tucson Park was to be constructed. The archaeological work documented features spanning over 2,000 years, and resulted in the recovery of a large number of artifacts. The results of fieldwork are reported in the next three chapters: prehistoric features are described in Chapter 3, presidio-era features in Chapter 4, and American Territorial to American Statehood period features in Chapter 5.

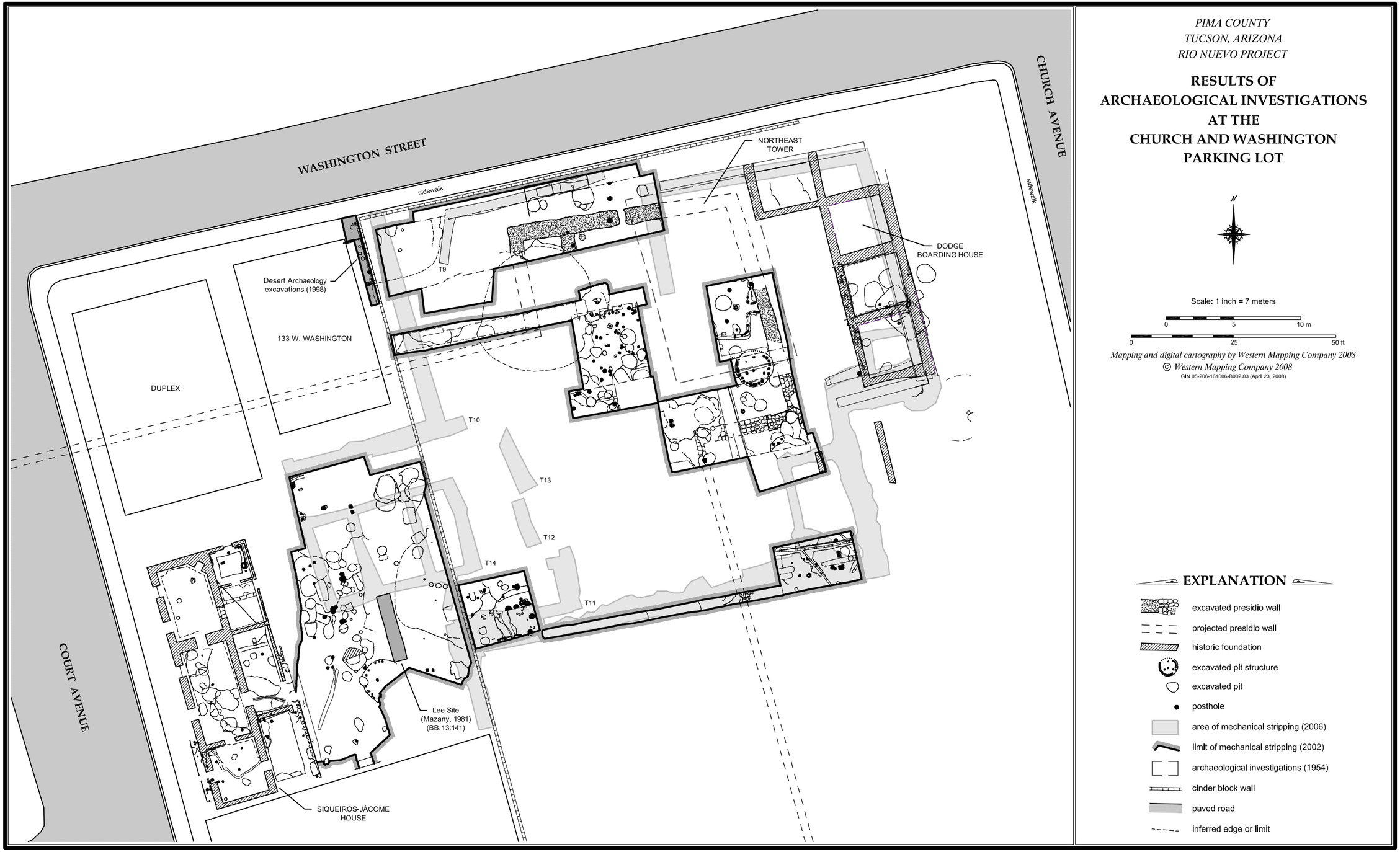
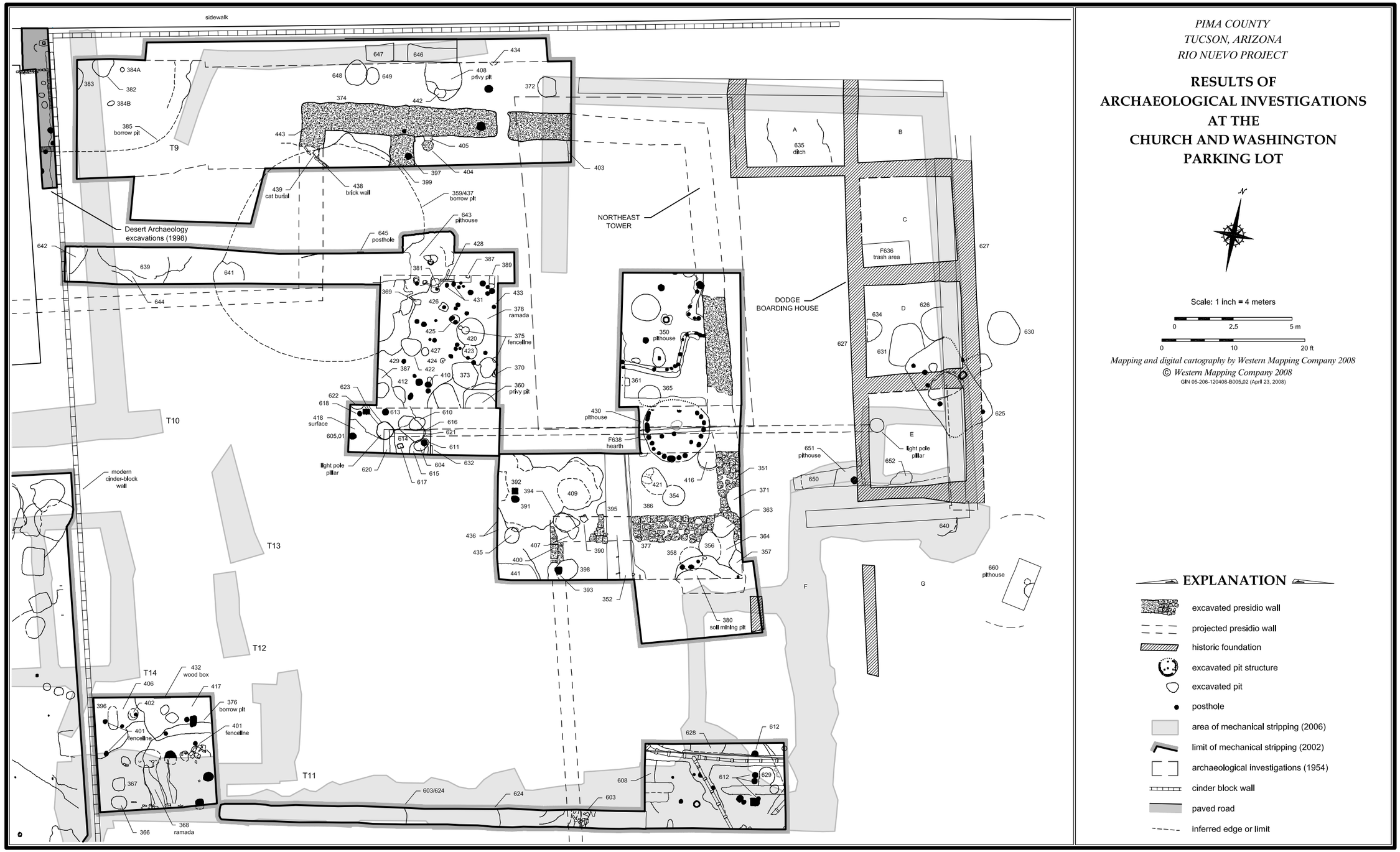


Figure 2.1. Plan view map showing the location of the archaeological excavations and the features discovered on Historic Block 181.

Figure 2.2. Archaeological features located on the Siqueiros-Jácome property, Historic Block 181.



PIMA COUNTY
TUCSON, ARIZONA
RIO NUEVO PROJECT

RESULTS OF ARCHAEOLOGICAL INVESTIGATIONS AT THE CHURCH AND WASHINGTON PARKING LOT

Scale: 1 inch = 4 meters

0 2.5 5 m

0 10 20 ft

Mapping and digital cartography by Western Mapping Company 2008

GIN 05-206-120408-B005,02 (April 23, 2008)

Figure 2.3. Archaeological features located on the Dodge Boarding House property, Historic Block 181, including those found during the 2001-2002 excavations.

Table 2.1. List of features documented during the 2003-2007 fieldwork on Historic Block 181.

Feature	Type	Era or Period	Date	Location	Excavated
359	Borrow pit	American Territorial	1890-1910	Parking lot along north wall	Yes
378	Surface	Presidio	1775-1850	Parking lot along north wall	Yes
380	Borrow pit	Prehistoric	—	Parking lot	Yes
408	Outhouse	American Territorial	1891-1900	Parking lot north tower wall	Yes
418	Surface	Presidio	1775-1850s	Parking lot	Yes
430	Pit structure	Early Agricultural	800 B.C.-A.D. 50	Parking lot	Yes
444	North room	American Territorial	—	North room	Yes
445	Middle room	American Territorial	—	Middle room	Yes
446	South room	American Territorial	—	South room	Yes
447	Inhumation	Hohokam	—	South room	Yes
449	Foundation	American Territorial	—	East porch	Yes
450	Small pit	American Territorial	—	East porch	Yes
451	Small pit	American Territorial	1856-1912	East porch	Yes
452	Pit	Hohokam	Rillito, 850-950	Exterior north room	Yes
453	Possible pit structure	Hohokam	—	Exterior south room	Yes
454	Small pit	American Territorial	—	East porch	Yes
460	Borrow pit	Presidio	1800-1850	Middle room	Yes
461	Small pit	Hohokam	Early-Middle Rincon, 950-1100	Middle room	Yes
462	Small pit	Hohokam	Rillito, 850-950	Middle room	Yes
463	Pit structure	Hohokam	—	South room	Yes
464	Small pit	Presidio	1775-1850	Middle room	Yes
465	Small pit	Hohokam	—	South room	Yes
466	Large pit	Presidio	1800-1850	Middle room	Yes
467	Occupation surface	Presidio	1775-1850	Middle room	Yes
468	Small pit	American Territorial	1850-1875	Middle room	Yes
469	Occupation surface	Presidio	1775-1850	Middle room	Yes
470	Occupation surface	Prehistoric	—	South porch	Yes
471	Small pit	American Territorial	1850+	South porch	Yes
472	Small pit	American Territorial	1850+	South porch	Yes

Table 2.1. Continued.

Feature	Type	Era or Period	Date	Location	Excavated
473	Bottle dump	Modern	1950s-1960s	Backyard	Yes
474	Occupation surface	Presidio	1775-1850	Middle room	Yes
475	Large pit	Presidio	1820-1850	Middle room	Yes
476	Occupation surface	American Territorial	1900+	Northeast room	Yes
477	Large pit	Hohokam	—	Middle room	Yes
478	Small pit	Hohokam	—	Middle room	Yes
479	Small pit	Hohokam	Rillito, 850-950	Middle room	Yes
480	Small pit	Hohokam	—	Middle room	Yes
481	Occupation surface	Presidio	1775-1850	Northeast room	Yes
482	Occupation surface	American Territorial	1860s	North room	Yes
483	Sewer trench	Modern	1915+	Backyard	Yes
484	Small pit	American Territorial	1880+	Backyard	Yes
485	Small pit	Prehistoric	—	Backyard	Yes
486	Small pit	Prehistoric	—	Backyard	Yes
487	Small pit	American Territorial	1880+	Backyard	Yes
488	Small pit	American Territorial	1880+	Backyard	Yes
489	Small pit	American Territorial	1880+	Backyard	Yes
490	Well	American Territorial	1900-1910	Backyard	Yes
491	Utility trench	American Territorial	1880+	Backyard	Yes
492	Pit structure	Early Agricultural	540-390 B.C. or 720-700 B.C.	Backyard	Yes
493	Inhumation	Hohokam	—	Middle room	Yes
494	Occupation surface	Presidio	1775-1850s	North room	Yes
495	Small pit	Hohokam	Early Rincon, 900-950	Middle room	Yes
496	Small pit	American Territorial	1850-1865	North room	Yes
497	Small pit	Hohokam	—	Middle room	Yes
498	Hearth	Presidio	1775-1850	North room	Yes
499	Hearth	Presidio	1775-1850	North room	Yes
500	Small pit	Hohokam	—	Backyard	Yes
501	Occupation surface	Presidio	Pre-1850	North room	Yes

Table 2.1. Continued.

Feature	Type	Era or Period	Date	Location	Excavated
502	Small pit	Hohokam	—	South room	Yes
503	Secondary cremation	Hohokam	—	Backyard	Yes
504	Small pit	Hohokam	Middle Rincon, 1000-1100	Middle room	Yes
505	Small pit	Presidio	1775-1850	North porch	Yes
506	Not used	—	—	—	—
507	Small pit	American Territorial	1850-1910	Triplex backyard	Yes
508	Roasting pit	Presidio	—	Triplex backyard	Yes
509	Trash concentration	Modern	1950s	Triplex backyard	Yes
510	Outhouse	American Territorial	1887-1900	Triplex backyard	Yes
511	Small pit	Modern	1950s	Triplex backyard	Yes
512	Small pit	Modern	1950s	Triplex backyard	Yes
513	Borrow pit	Presidio	1840-1865	Triplex backyard	Yes
514	Adobe brick wall	Presidio	Pre-1870	Triplex southeast room	Yes
515	Ash pit	Modern	1900-1940	Triplex backyard	Yes
516	Ash pit	Modern	1920-1940	Triplex backyard	Yes
517	Ash pit	Modern	1900-1940	Triplex backyard	Yes
518	Ash pit	Modern	1900-1940	Triplex southeast room	Yes
519	Surface/trash	Presidio	1800-1850	Triplex southeast room	Yes
520	Surface/trash	Presidio	1800-1850	Triplex southeast room	Yes
521	Posthole	Historic	—	Triplex southeast room	Yes
522	Posthole	Historic	—	Triplex southeast room	Yes
523	Small pit	American Territorial	1880-1900	Triplex backyard	Yes
524	Postholes	American Territorial	1880+	Triplex backyard	Yes
525	Small pit	Prehistoric	—	Triplex backyard	Yes
526	Not used	—	—	—	—
527	Outhouse	American Territorial	1910-1920	Triplex backyard	Yes
528	Small pit	Historic	—	Triplex backyard	—
529	Small pit	American Territorial	1850-1880	Triplex backyard	Yes
530	Small pit	Unknown	Unknown	Triplex backyard	No

Table 2.1. Continued.

Feature	Type	Era or Period	Date	Location	Excavated
531	Small pit	Unknown	Unknown	Triplex backyard	No
532	Small pit	Unknown	Unknown	Triplex backyard	No
533	Small pit	Prehistoric	—	Triplex backyard	Yes
534	Small pit	Prehistoric	—	Triplex backyard	Yes
535	Small pit	Unknown	Unknown	Triplex backyard	No
536	Small pit	Historic	—	Triplex backyard	No
537	Small pit	Historic	—	Triplex backyard	No
538	Small pit	Unknown	Unknown	Triplex backyard	No
539	Small pit	Unknown	Unknown	Triplex backyard	No
540	Small pit	Unknown	Unknown	Triplex backyard	No
541	Small pit	American Territorial	1880+	Triplex backyard	No
542	Small pit	Historic	—	Triplex backyard	No
543	Small pit	American Territorial	1890s+	Triplex backyard	No
544	Large pit	American Territorial	1890s+	Triplex backyard	No
545	Posthole	Historic	—	Triplex backyard	No
546	Posthole	Historic	—	Triplex backyard	No
547	Not used	—	—	—	—
548	Small pit	Historic	Historic	Triplex backyard	No
549	Not used	—	—	—	—
550	Small pit	Unknown	Unknown	Triplex backyard	No
551	Small pit	American Territorial	1890s+	Triplex backyard	Yes
552	Small pit	Unknown	Unknown	Triplex backyard	No
553	Posthole	Historic	—	Triplex backyard	No
554	Posthole	Historic	—	Triplex backyard	No
555	Not used	—	—	—	—
556	Not used	—	—	—	—
557	Posthole	American Territorial	1890s+	Triplex backyard	No
558	Posthole	American Territorial	1900+	Triplex backyard	Yes
559	Posthole	American Territorial	1890+	Triplex backyard	No

Table 2.1. Continued.

Feature	Type	Era or Period	Date	Location	Excavated
560	Posthole	American Territorial	1900+	Triplex backyard	Yes
561	Posthole	American Territorial	1900+	Triplex backyard	Yes
562	Not used	—	—	—	No
563	Small pit	Unknown	Unknown	Triplex backyard	No
564	Not used	—	—	—	—
565	Small pit	Unknown	Unknown	Triplex backyard	No
566	Not used	—	—	—	—
567	Not used	—	—	—	—
568	Not used	—	—	—	—
569	Small pit	American Territorial	1880-1900	Triplex backyard	Yes
570	Outhouse	American Territorial	1880-1900	Triplex backyard	Yes
571	Borrow pit	American Territorial	1880-1900	Triplex backyard	Yes
572	Small pit	American Territorial	1890s+	Triplex backyard	No
573	Small pit	American Territorial	1890s	Triplex backyard	Yes
574	Large pit	—	—	Triplex backyard	—
575	Large pit	American Territorial	1860-1880	Triplex backyard	Yes
576	Not used	—	—	—	—
577	Outhouse	American Territorial	1880-1900	Triplex backyard	Yes
578	Small pit	Prehistoric	—	North porch	Yes
579	Large pit	Presidio	1800-1850	North porch	Yes
580	Small pit	—	—	Triplex backyard	—
581	Posthole	American Territorial	1890+	Triplex backyard	Yes
582	Roasting pit	Historic	—	Triplex backyard	Yes
583	Postholes	American Territorial	1890s+	Triplex backyard	Yes
584	Small pit	Historic	—	Triplex backyard	No
585	Posthole	Historic	—	Triplex backyard	No
586	Borrow pit	Presidio	1775-1850	Triplex backyard	Yes
587	Small pit	Historic	—	Triplex backyard	No
588	Posthole	Historic	—	Triplex backyard	No

Table 2.1. Continued.

Feature	Type	Era or Period	Date	Location	Excavated
589	Posthole	Historic	—	Triplex backyard	No
590	Posthole	Historic	—	Triplex backyard	No
591	Ash-filled pit	—	—	North porch	—
592	Small pit	Prehistoric	—	North porch	Yes
593	Posthole	American Territorial	1885-1900	North porch	Yes
594	Large pit	Prehistoric	—	North porch	Yes
595	Small pit	Prehistoric	—	North porch	Yes
596	Posthole	American Territorial	1900+	Triplex backyard	Yes
597	Crematorium	Prehistoric	—	Triplex backyard	Yes
598	Posthole	American Territorial	1890+	Triplex backyard	Yes
599	Posthole	American Territorial	1900+	Triplex backyard	Yes
600	Large pit	American Territorial	1880+	Triplex backyard	No
601	Posthole	American Territorial	1900+	Triplex backyard	Yes
602	Posthole	American Territorial	1890+	Triplex backyard	Yes
603	Borrow pit	American Territorial	1860-1889	Mural wall	Yes
604	Small pit	Historic	—	Pole area	Yes
605	Pit	Historic	—	North porch	Yes
606	Surface	American Territorial	—	Pole area	Yes
607	Surface	American Territorial	—	Pole area	Yes
608	Pit structure	Prehistoric	—	Mural wall	Yes
609	Surface	Presidio	—	Pole area	Yes
610	Small pit	American Territorial	—	Pole area	Yes
611	Posthole	American Territorial	—	Pole area	Yes
612	Fence line	American Territorial	1880+	Mural wall	Yes
613	Posthole	American Territorial	1850+	Pole area	Yes
614	Surface	Modern	1900-1950	Pole area	Yes
615	Small pit	Presidio	Pre-1860	Pole area	Yes
616	Small pit	Presidio	1775-1850	Pole area	Yes
617	Posthole	American Territorial	1860-1880	Mural wall	Yes

Table 2.1. Continued.

Feature	Type	Era or Period	Date	Location	Excavated
618	Posthole	American Territorial	1850-1880	Pole area	Yes
619	Not used	—	—	—	—
620	Borrow pit	American Territorial	1890-1900	Entry ramp	Yes
621	Borrow pit	American Territorial	1850+	Entry ramp	Yes
622	Small pit	Presidio	1775-1850	Pole area	Yes
623	Posthole	Presidio	1775-1820	Pole area	Yes
624	Borrow pit	American Territorial	1890-1910	Mural wall	Yes
625	Pit structure	Hohokam	Middle Rincon, 1000-1100	East tower wall	Yes
626	Small pit	American Territorial	1850-1890	East tower wall	Yes
627	Foundation	American Territorial	1890-1954	East tower wall	Yes
628	Large pit	Presidio	1820-1860	Mural wall	Yes
629	Small pit	Presidio	1775-1850	Mural wall	Yes
630	Large pit	Prehistoric	—	East tower wall	Yes
631	Trash concentration	Hohokam	Middle Rincon, 1000-1100	East tower wall	Yes
632	Small pit	Presidio	1775-1850	Pole area	No
633	Not used	—	—	—	—
634	Small pit	Prehistoric	—	East tower wall	Yes
635	Ditch	Presidio	1780-1850	New north tower wall	Yes
636	Large pit	Prehistoric	—	East tower wall	Yes
637	Not used	—	—	—	—
638	Hearth	Presidio	1775-1850	Parking lot	Yes
639	Large pit	American Territorial	1880-1895	North wall trench	Yes
640	Small pit	American Territorial	1850+	New south tower wall	Yes
641	Small pit	Hohokam	Snaketown, 700-750	North wall trench	Yes
642	Large pit	American Territorial	1880-1900	North wall trench	Yes
643	Pit structure	Prehistoric	—	New north Presidio wall	Yes
644	Large pit	American Territorial	1900-1910	New north Presidio wall	Yes
645	Posthole	American Territorial	—	New north Presidio wall	No
646	Sheet trash	American Territorial	1870-1900	North tower wall	Yes

Table 2.1. Continued.

Feature	Type	Era or Period	Date	Location	Excavated
647	Small pit	American Territorial	1900+	North tower wall	Yes
648	Small pit	American Territorial	—	North tower wall	No
649	Small pit	American Territorial	—	North tower wall	No
650	Pit structure	Early Agricultural	800 B.C.-A.D. 50	South tower wall area	No
651	Pit structure	Hohokam	—	South tower wall area	No
652	Small pit	Hohokam	Middle Rincon 2 or 3, 1040-1100	South tower wall area	No
653	Trash concentration	—	—	Triplex backyard	No
654	Foundation	American Territorial	—	Triplex backyard	No
655	Not used	—	—	—	—
656	Large pit	Presidio	1775-1850	Parking lot	No
657	Trash concentration	American Territorial	—	Parking lot	No
658	Trash concentration	American Territorial	—	Parking lot, west side	No
659	Borrow pit	Presidio	1800-1850	Parking lot, SE corner	Yes
660	Pit structure	Hohokam	Cañada del Oro, 750-850	Parking lot, SE corner	Yes

Figure 2.4. View of the middle room of the Siqueiros-Jácome House, Historic Block 181, after removal of the wooden floor, prior to excavations in May 2005.

Figure 2.5. View of the middle room of the Siqueiros-Jácome House, Historic Block 181, after removal of the wooden floor, at the completion of excavations in June 2005.

Figure 2.6. Overview of the Siqueiros-Jácome House, Historic Block 181, backyard excavations, November 2005.

Figure 2.7. Overview of the parking lot excavations, Historic Block 181, January 2006.

CHAPTER 3

THE PREHISTORY OF BLOCK 181

Lisa Gavioli, Consultant
J. Homer Thiel, Desert Archaeology, Inc.

INTRODUCTION

One might think that after several hundred years of construction, demolition, and utility placement throughout the downtown core, traces of the prehistoric settlements that were once present in that area would have been destroyed. However, since the 1940s, many archaeological projects have revealed traces of these settlements. Through the years, each project has provided additional pieces of the puzzle, allowing a more complete understanding of the length of prehistoric occupation, the changing locations of settlements, and the activities that once took place there.

Recent work within the Presidio San Agustín del Tucson Park continued this trend, providing significant new information about the prehistoric occupation of the downtown core. Perhaps the biggest surprise on Historic Block 181 was the discovery of three Early Agricultural period pit structures, dating from about 2,000-2,500 years old.

Previous excavations in the Tucson Basin, most conducted since 1994, have documented large settlements from the Early Agricultural period. All of these sites, however, were within the Santa Cruz River floodplain. The three pit structures found during the current project, in addition to two found a couple blocks to the east by Statistical Research, Inc., in 2006-2007, indicate a village was located on the terrace above the floodplain during the Early Agricultural period. The likelihood that other features from this village survive on nearby blocks is very high.

Many features dating to the Hohokam Colonial and Sedentary periods were located during the current project. During previous fieldwork, many other Hohokam features have been found in the downtown core. Altogether, these findings suggest the gently sloping terrace on the eastern side of the Santa Cruz River was the location of a series of settlements between about A.D. 750 and A.D. 1150. Many villages had ballcourts during this timespan, and it is likely that one existed close to the downtown area. Villagers likely lived on the terrace and traveled to the floodplain, where a series of canals brought water to their fields of maize, beans, and squash. Again, further archaeological fieldwork in downtown Tucson is likely to provide a better view of the prehistoric Hohokam village. It is also likely, however, that much has been lost during the historic development of the area.

The descriptions of the prehistoric features found during the 2003-2007 fieldwork are presented in this chapter. Feature locations are shown on Figure 2.2, the Siqueiros-Jácome House property, and Figure 3.1, the Church and Washington Parking Lot. Analyses of the various types of prehistoric artifacts are presented in later chapters of this report.

Early Agricultural Period Features

Three Early Agricultural period pit structures were discovered during the current project; two were excavated, and the third was documented in profile.

Feature 430, Early Agricultural Period Pit Structure

Feature 430 was a pit structure located in the eastern half of the former parking lot (Figures 3.2 and 3.3). The southern portion of the structure was uncovered during the 2002-2003 excavations. During the current project, the remaining intact portion of the house was excavated.

The round house was 2.83 m long east-west and at least 2.22 m wide. The pit was about 23 cm deep. The northern portion of the house was destroyed by a historic utility trench.

Internal Features. Twenty-four postholes were present inside the pit structure, 20 of which ran around the inside edge of the pit, with a slight gap present in the southeastern side of the structure, possibly indicating the doorway into the house. Four internal postholes were found, probably supporting the roof. Postholes that might have been present along the northern side of the pit structure would have been destroyed by a trench for a utility line.

Internal Strata and Artifact Contents. Eighteen floor artifacts were present, although it is uncertain if any of these originated in the structure, or if they were from trash discarded into the pit after abandonment. The artifacts included 10 pieces of flaked stone, six pieces of ground stone including an unusual

quadrilaterally shaped piece of pumice (thought to be an intrusive historic artifact), a piece of possible red ochre, and a piece of micaceous schist. Many other pieces of flaked stone and ground stone were present in the fill above the floor.

Construction and Remodeling Evidence. This pit structure was built by digging a shallow, circular pit, about 20 cm deep, into the hard caliche layer. The floor was smooth, but was not covered with formally prepared plaster. Postholes were dug around the inside edge of the pit, with a few internal postholes excavated to provide roof supports. No evidence for remodeling was visible.

Stratigraphic Relationships. Feature 430 lay beneath a possible prehistoric hearth, Feature 633. It also lies stratigraphically below the eastern wall of the massive northeastern tower of the Tucson Presidio.

Abandonment and Postabandonment Evidence. A thick layer of charcoal-stained earth lay on the floor of the pit structure, concentrated toward the center of the pit. Relatively little burned daub was noted. This suggests the pit structure may have partially burned. The structure appears to have been cleared of most artifacts and subsequently used as a refuse disposal area. Large quantities of fire-cracked rocks were tossed into the pit, with 297 present in the fill above the floor.

Date. A radiocarbon date (Beta 227659) of 1330± 40 B.P. was obtained from charred plant material in the structure. At 2-sigma calibration, this provides a date of A.D. 640-770, which is within the Hohokam Pioneer period. The structure is a clear example of Early Agricultural period architecture, and this sample appears to be intrusive, perhaps introduced by rodent burrowing. It may suggest Pioneer period features are present in close proximity.

Feature 492, Early Agricultural Period Pit Structure

Feature 492 was a pit structure discovered by mechanical scraping in the backyard of the Siqueiros-Jácome House (Figure 3.4). Only the western half of the feature was excavated, as the rest of the structure extended beyond the project area. This round pit structure measured 3.15 m north-south. Its east-west dimensions were not determined, although it was at least 1.68 m wide. Except 17 postholes that encircled its floor area, no other internal features were identified. This was probably a habitation structure.

Internal Features. All the postholes found during excavation were located adjacent to the structure walls. They measured between 4 cm to 18 cm in diameter, and were between 3 cm to 14 cm deep. No artifacts were recovered from the postholes.

Internal Strata and Artifact Contents. Approximately 26 cm of stratified fill inside the house was removed by mechanical stripping to the floor. The upper few centimeters consisted of water-deposited silt and clay, while the lower 24 cm were composed of trash and collapsed structural debris. Burned roof and wall material, such as burned daub and charcoal, was present throughout the fill of the house, and this increased dramatically in the 5-10 cm above the structure floor. The floor itself was oxidized in small patches across the entire surface.

The fill contained 11 pieces of fire-cracked rock, flaked stone, animal bone, ground stone, and ceramics. Some of these items, including the ceramics, were probably deposited into the fill through rodent burrowing. No artifacts were lying directly on the floor.

Construction and Remodeling Evidence. Pit structure Feature 492 was constructed by excavation into caliche. A portion of the flat floor appears to have been either plastered or perhaps wet and smoothed. The walls of the house were not plastered, and were vertical. Based on the location of the internal postholes, the walls of the structure appear to have been built within the excavated pit. In many cases, a double row of postholes was present, indicating the structure was remodeled at least once, including replacement of internal posts. No postholes were found toward the center of the house, and given the small size of the structure, none may have been necessary.

Stratigraphic Relationships. The soil immediately above the pit structure was heavily disturbed by historic and modern activities. Feature 500, a prehistoric pit, Feature 503, a prehistoric secondary cremation, and an unnumbered possible pit or rodent burrow cut into the pit. Feature 489, an American Territorial or American Statehood period pit, was excavated into the southern edge of the feature. The structure itself was cut into the underlying caliche.

Abandonment and Postabandonment Evidence. This structure appears to have been cleared of artifacts. The house was likely burned, based on the presence of a burned roof and wall fall layer. One posthole had a blackened edge, perhaps indicating the post had burned in place. No artifacts were present on the floor.

Date. A radiocarbon date (Beta 227660) of 2380± 40 B.P. was obtained from charred plant material recovered from the structure. At 2-sigma calibration, this provides a date of either 720-700 B.C. or 540-390 B.C., both within the Early Cienega phase of the Early Agricultural period.

Figure 3.1. Map showing prehistoric features on Historic Block 181.

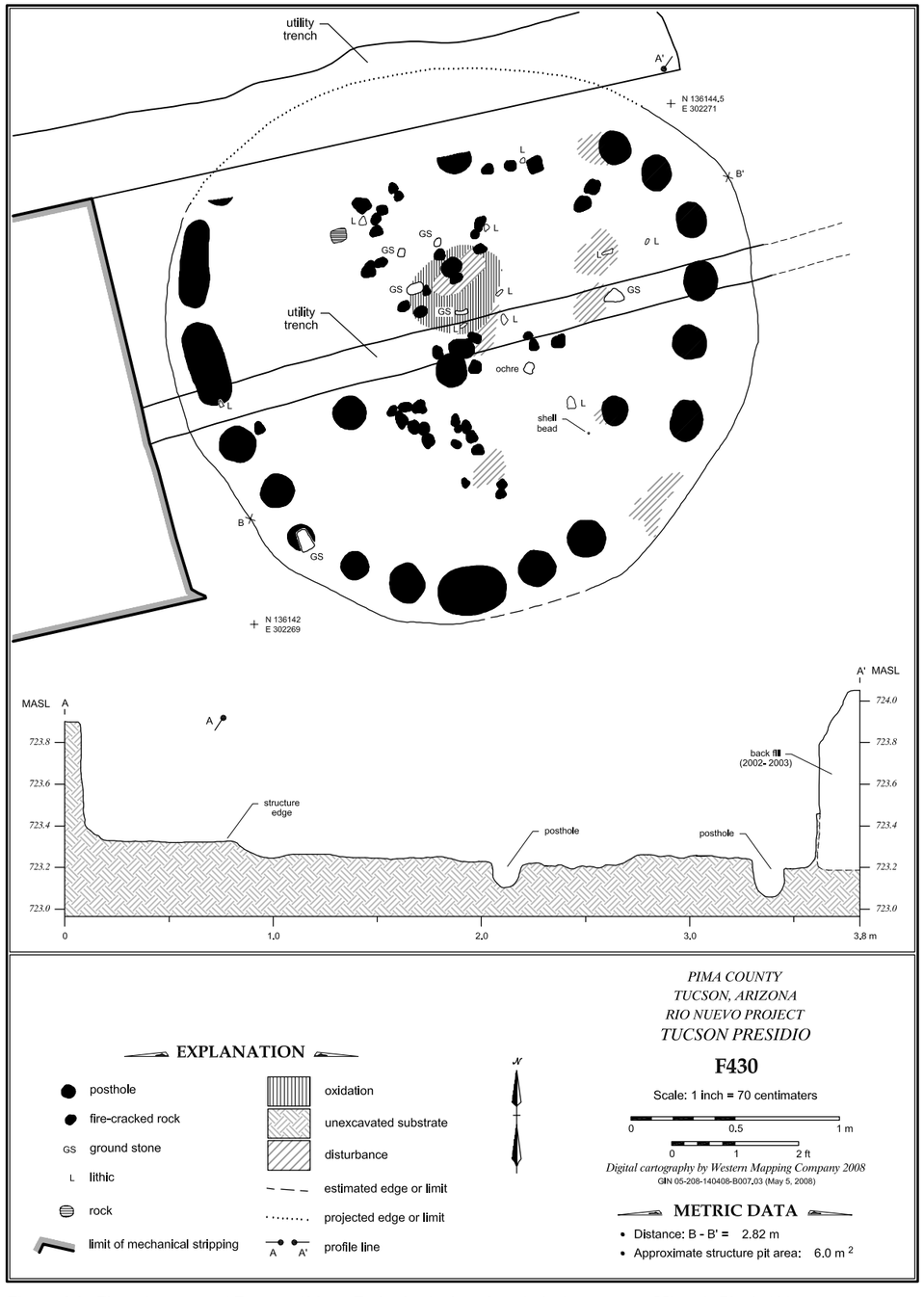


Figure 3.2. Plan view map of Feature 430, an Early Agricultural period pit structure, Historic Block 181.

Figure 3.3. Feature 430, an Early Agricultural period pit structure, Historic Block 181.

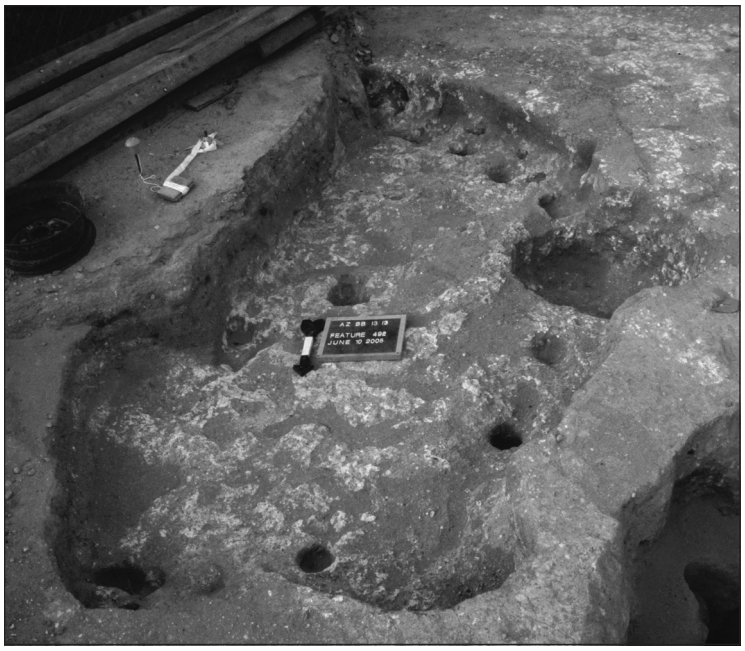


Figure 3.4. Feature 492, an Early Agricultural period pit structure, Historic Block 181.

Feature 650, Early Agricultural Period Pit Structure

Feature 650 was a pit structure discovered in the wall of a trench excavated for the southern wall foundation of the presidio tower. The structure was only documented in profile. The lack of excavation makes interpretation of the pit structure difficult. The visible portion of this pit structure was at least 2.65 m long. The top of the pit structure was at 80 cm below the modern ground surface, and it was approximately 65 cm deep.

Internal Features. A small pit or posthole, Feature 650.01, was located in the surviving floor. It was 27 cm wide and 25 cm deep. Flotation and pollen samples were taken from its fill. One other posthole or small pit was also present.

Internal Strata and Artifact Contents. The pit structure was filled with tan silty sand. No internal stratigraphy was visible, and no artifacts were visible in the pit profile.

Construction and Remodeling Evidence. This pit structure was originally constructed by excavation of a shallow pit into the underlying caliche layer. The floor was unprepared and flat. There was no evidence for remodeling.

Stratigraphic Relationships. The pit structure lay beneath a Hohokam pit structure, Feature 652. The foundation of the Dodge Boarding House, Feature 627, also lay over the pit structure. The structure itself was cut into the underlying caliche.

Abandonment and Postabandonment Evidence. The structure did not appear to be burned. No artifacts were visible on its floor.

Date. Based on its architecture, the structure dates to the Early Agricultural period.

Hohokam Period Features

Pre-Classic Hohokam features were relatively common within the project area. These included pit structures, storage pits, a soil-mining pit, inhumation burials, a cremation, and a crematorium.

Feature 380, Soil Mining Pit

Feature 380 was originally identified during the 2002-2003 project as a pit structure. The feature was further explored during the current project, revealing that it was actually a pit where soil and caliche were extracted, probably to make plaster for a nearby pit structure. Two excavation units were placed over the feature, south of the area previously examined.

The pit had relatively vertical walls and a flat base. It was 97 cm deep. A layer of sheet trash, approximately 20 cm thick, lay above the pit. The upper portion of the pit was filled with a 60-cm-thick brown silty sand with many large, blocky pieces of caliche. Below this was a 37-cm-thick brown silty sand layer that lacked large caliche chunks and also had fewer artifacts.

Screening of the fill resulted in the recovery of prehistoric ceramics, flaked stone, and ground stone. The lack of historic artifacts indicates the pit was dug during the prehistoric period.

Feature 447, Inhumation Burial

Feature 447 was found in the northwestern corner of the southern room of the Siqueiros-Jácome House. A small pit, measuring 63 cm in length by 43 cm in width, had been cut into the caliche and a child inhumation set in place. The pit survived to a depth of 8 cm, and was filled with brown silty sandy loam. Rodent burrowing had completely disarticulated the remains, some of which were found in other portions of the southern and middle rooms. A complete *Glycymeris* shell bracelet was found in the pit and was likely a burial offering. The bracelet was repatriated with the remains, as were the pieces of ceramics and flaked stone found in the pit.

Feature 452, Possible Pit

Feature 452 was located in two excavation units placed beneath the western adobe wall of the northern room of the Siqueiros-Jácome House, extending west to the exterior of the house. The feature was originally thought to be a pit structure, but this remains unclear. The pit was roughly 80 cm long by 70 cm wide, and it was 20 cm deep. Several possible postholes were noted; however, these may actually represent small rodent holes. Ceramics recovered from the pit indicate it dates to the Rillito phase (A.D. 850-950) of the Hohokam Colonial period.

Feature 453, Pit Structure

Feature 453 was a possible pit structure located in two units excavated beneath the western wall of the Siqueiros-Jácome House. It was not possible to determine the overall dimensions of the feature. This feature was poorly defined due to its location beneath an existing adobe wall, and due to the disturbance present in this area. (Most of the feature was removed when North Court Avenue was cut down along the western side of the Siqueiros-Jácome House.)

Internal Features. Eight postholes were present inside the possible pit structure. They ranged in size from 5 cm in diameter to 14 cm by 11 cm, and were from 4 cm to 23 cm deep.

Three small pits were also present. One, Feature 453.01, was a small bell-shaped pit. It measured some 50 cm by 26 cm, belling outward an additional 5 cm at the base. The pit was 37 cm deep. The pit was filled with the same soil as the pit structure, and its contents were not kept separate from the pit structure fill. Feature 453.02 was a small pit approximately 40 cm in diameter and 16 cm deep. It was filled with brown loamy sand, and was also excavated with the Feature 453 fill. Feature 453.03 was a third small pit, about 24 cm in diameter and 9 cm deep. One side of Feature 453.03 had been damaged by construction of the Siqueiros-Jácome House. The fill of the pit was also a brown loamy sand and was not kept separate from the Feature 453 fill.

Internal Strata and Artifact Contents. Seven cm of brown silty sand lay over the unprepared caliche floor. No floor artifacts were present.

Construction and Remodeling Evidence. The caliche floor of the structure appeared to be quite flat; no evidence for remodeling was visible.

Stratigraphic Relationships. Feature 453 lies beneath the western wall of the Siqueiros-Jácome House.

Abandonment and Postabandonment Evidence. The possible pit structure appears to have been cleared of artifacts before being abandoned. No evidence of burning was noted.

Date. Based on the presence of ceramics in the fill above the floor, the structure dates to the Hohokam sequence.

Feature 461, Small Pit

Feature 461 was a small pit found in the middle room of the Siqueiros-Jácome House. The pit was 1 m long, 62 cm wide, and 22 cm deep. The oval pit had sloping walls and a flat base. It was filled with gray-brown silty sand that contained prehistoric sherds, flaked stone, and ground stone. Several rodent burrows had disturbed the pit.

Feature 462, Small Pit

Feature 462 was immediately west of Feature 461 inside the Siqueiros-Jácome House. This small pit was 92 cm long, 55 cm wide, and 12 cm deep. It was filled with gray-brown silty sand that was moderately compact. Artifacts found in the pit included flaked stone and sherds. The ceramics date to the Rillito phase (A.D. 850-950). Rodent burrowing was

present, and some historic artifacts had been introduced into the pit.

Feature 463, Hohokam Pit Structure

Feature 463 was a pit structure discovered during excavation of the southern room of the Siqueiros-Jácome House, when a layer of soil underlying the wood floor was removed (Figures 3.5-3.7). Caliche was found in some portions of the room, but was missing in a rectangular area that was filled with a loose, dark gray-brown sandy silt that contained numerous prehistoric artifacts. Portions of the pit structure were also found in the middle room and in the southern porch area. The feature was hand-excavated in seven units. The portions beneath the eastern wall of the southern and middle rooms and the wall on the northern side of the southern room could not be excavated.

This rectangular pit structure measured 4.36 m in length and 3.98 m in width. Eight postholes, a floor groove, and a possible hearth area were present on the floor of the house. A possible entryway, pointing southwest, was present along the western side of the structure. The structure appears to have been burned, as suggested by a thin lens of charcoal on some portions of the floor.

Internal Features. Three postholes were found in the interior of the house, and five were located inside the wall groove along the eastern wall. The postholes measured between 6 cm and 25 cm in diameter, and were between 3 cm and 21 cm deep. No artifacts were recovered from these postholes. The wall groove was present along the western, southern, and eastern walls of the house and was 16-18-cm wide and was 6-18 cm deep. A possible fire hearth was located in the house, approximately 95 cm inside the western wall. The possible hearth consisted of a burned patch roughly 25 cm in diameter. A probable entrance for the house was present along the western side in an area that was very disturbed by rodents. An area measuring 30 cm in width and extending 70 cm out from the house toward the southwest was excavated.

Internal Strata and Artifact Contents. About 15 cm of fill were present inside the structure. This sediment was medium brown sandy silt that was very loosely compact and had been heavily disturbed by rodent burrowing. The floor was cut into the underlying caliche. No evidence for floor plaster survived.

The fill contained five pieces of fire-cracked rock, flaked stone, animal bone, ceramics, a worked sherd disk, shell, and ground stone. Artifacts with a floor context included a partial vessel, numerous sherds, pieces of flaked stone, a mano, a piece of ground stone used in shell working, and several handstones. The house had probably been cleaned out prior to abandonment, and most of the items recovered likely represented trash discarded into the feature.

Construction and Remodeling Evidence. This pit structure was constructed by excavation of a 12- to 15-cm-deep pit into caliche. The walls were vertical, with a floor groove placed immediately inside the walls. Postholes were set into the groove, and several additional postholes were placed into the floor of the house. The floor was originally flat. The structure was probably covered with wattle and daub. In one area, a layer of reddish-brown earth appears to represent roof material that fell into the house as it collapsed. No evidence of remodeling was noted.

Stratigraphic Relationships. The pit structure lay beneath Stratum 4.01, a brown silty sand that contained primarily prehistoric artifacts, but that had been extensively disturbed by rodents. An inhumation burial, Feature 493, was placed inside the house along its northern edge after it was abandoned. The house was built over a Hohokam storage pit, Feature 495, with caliche excavated during construction of the pit structure dumped over the top of the pit.

Abandonment and Postabandonment Evidence. This structure appears to have burned after it was abandoned. A thin lens of charcoal was present on portions of the floor. Extensive rodent burrowing may have removed additional areas of burning. After burning, the structure subsequently filled with trash and alluvial sediments.

Date. Based on its architecture and the presence of ceramics on the floor, the structure dates to the Hohokam sequence.

Feature 465, Small Pit

Feature 465 was a small pit located in the southern room of the Siqueiros-Jácome House. A portion of the pit had been disturbed during the 2003 stabilization work. The remaining portion was 65 cm long and 11 cm deep. The pit contained a dark gray fine silty sand that yielded sherds, flaked stone, and animal bone.

Feature 470, Surface

Feature 470 was a partially plastered occupation surface discovered in the southern porch area of the Siqueiros-Jácome House when loose dirt in the area (Stratum 4.01) was removed. The surface was at least 5.0 m long (north-south) by 2.1 m wide. The surface was most intact in the center of the

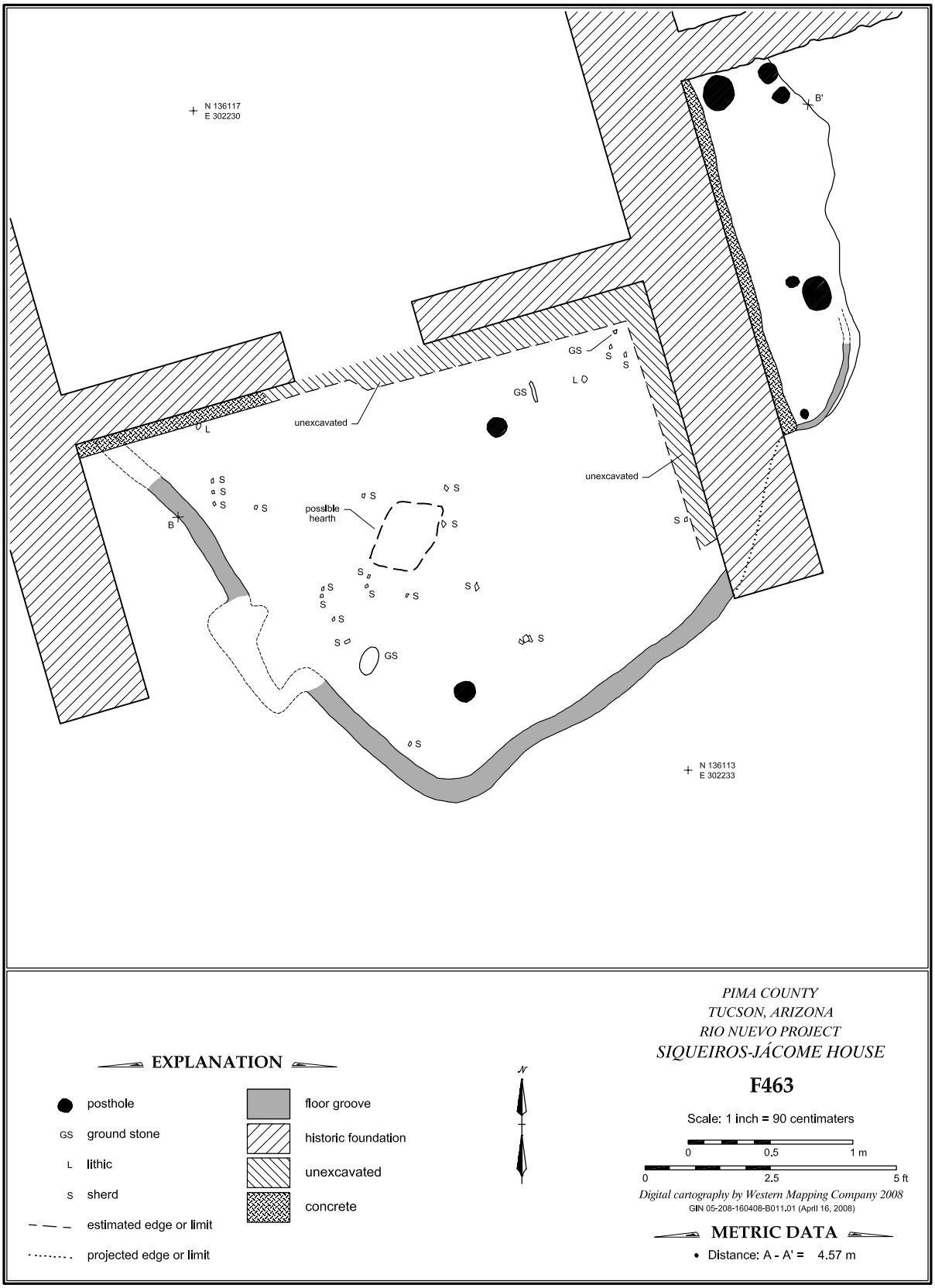


Figure 3.5. Plan view map of Feature 463, a Hohokam pit structure located beneath the Siqueiros-Jácome House, Historic Block 181.

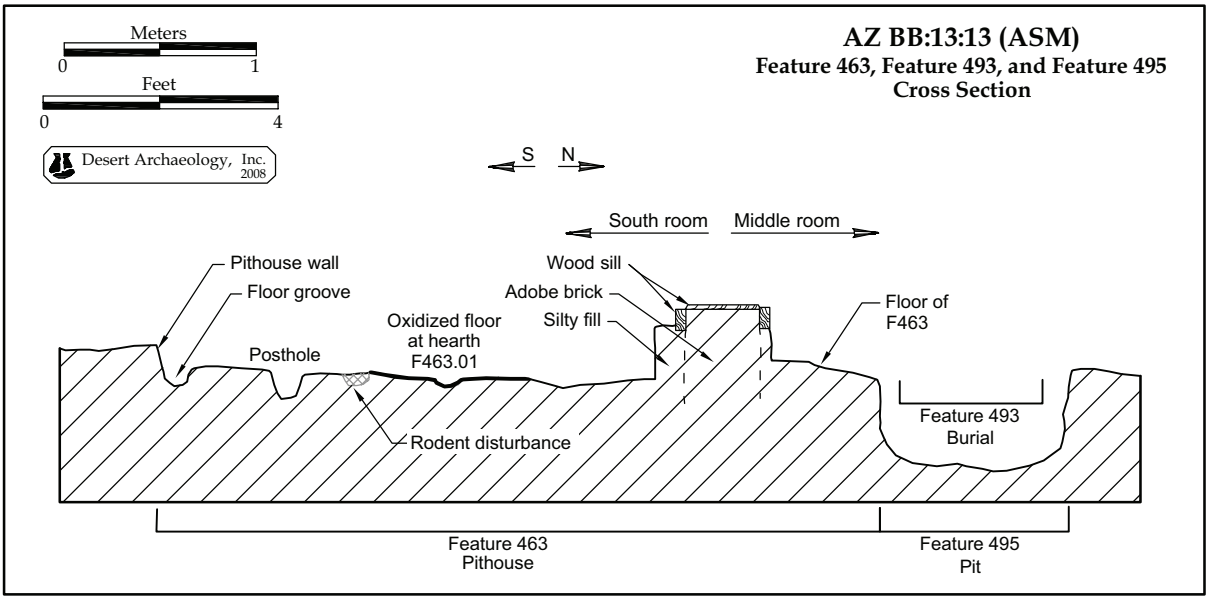


Figure 3.6. Cross section of Features 463, a pit structure, and Feature 495, a small pit, located beneath the southern and middle rooms of the Siqueiros-Jácome House, Historic Block 181.

Figure 3.7. Feature 463, a Hohokam pit structure on Historic Block 181.

porch area, with areas of caliche plaster. Other areas appeared to have only hard-packed, gray-brown silt. The date of the surface remains uncertain, although it may date to the Historic era. The use of plaster suggests Feature 470 was prehistoric, because no plastered historic floor surfaces were located elsewhere during the project.

A pair of American Territorial period pits, Features 471 and 472, cut through the surface along the southern side. Feature 463, a prehistoric pit structure, may have cut through Feature 470 along its western side, although this is not certain.

Feature 477, Small Pit

Feature 477 was a small pit located in the middle room of the Siqueiros-Jácome House (Figure 3.8). The pit was roughly circular, with a diameter ranging from 1.03 m to 1.09 m at its top and between 94 cm and 1.04 m at its base. The pit was 1.3 m deep. Feature 477 had vertical walls and a flat base, and was filled with a moderately compact gray-brown silty sand with a high charcoal content. Although rodents had burrowed into the pit, only prehistoric artifacts were recovered from the interior, including many ceramic sherds, pieces of flaked stone, ground stone, shell, and animal bone. The feature was probably a storage pit. Feature 478, a smaller pit, may have cut into Feature 477 along the northern side.

Feature 478, Small Pit

Feature 478 was a small pit found in the middle room of the Siqueiros-Jácome House immediately north of Feature 477. It was 47 cm long, 42 cm wide, and was 64 cm deep. The pit was filled with loosely compacted gray-brown silty sand with occasional pockets of ash. Rodent burrows were present. No artifacts were collected from the pit. A portion of

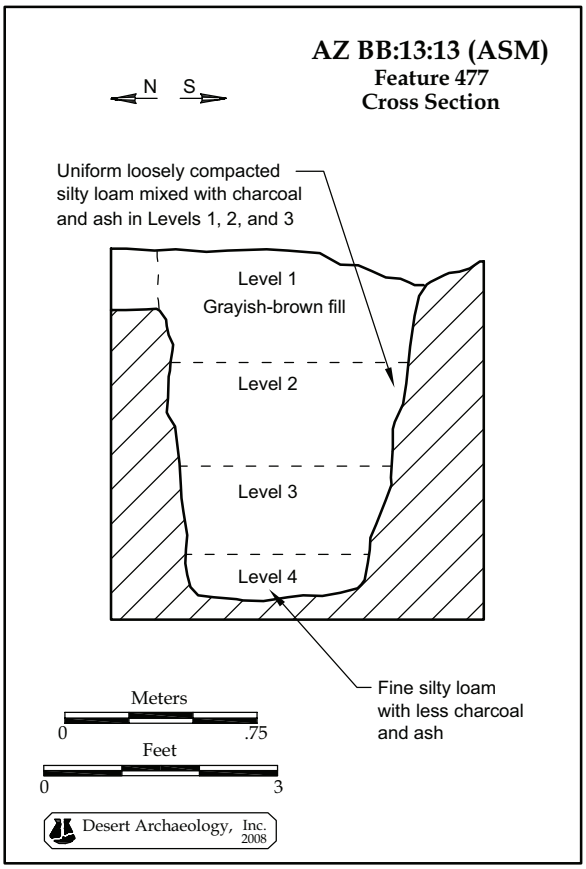


Figure 3.8. Profile of Feature 477, a pit, located beneath the middle room of the Siqueiros-Jácome House, Historic Block 181.

the fill was excavated with Feature 477 fill before it was realized they were two separate pits.

Feature 479, Small Pit

Feature 479 was a small pit located in the middle room of the Siqueiros-Jácome House. It was 66 cm long, 61 cm wide, and was 60 cm deep. It contained loosely compacted gray-brown silty loamy sand. Sherds, flaked stone, and animal bone were found in the fill. The ceramics from the pit date to the Rillito phase (A.D. 850-950) of the Hohokam Colonial period.

Feature 480, Small Pit

Feature 480 was a small pit located in the middle room of the Siqueiros-Jácome House immediately north of Feature 479. This pit was 50 cm long, 37 cm wide, and was 30 cm deep. It was oval in plan view and had a flat base. Feature 480 was filled with brown silty loam that yielded some sherds and pieces of flaked stone.

Feature 485, Small Pit

Feature 485 was a small pit located in the backyard of the Siqueiros-Jácome House. It was 56 cm long, 45 cm wide, and was 17 cm deep. The irregularly shaped pit was filled with pale gray redeposited caliche. Two sherds and four pieces of flaked stone were present, suggesting this may have been a prehistoric pit.

Feature 486, Small Pit or Posthole

Feature 486 was located in the backyard of the Siqueiros-Jácome House, and was a small pit or posthole. It was about 40 cm in diameter and approximately 68 cm deep. The feature was very rodent disturbed, making its true dimensions impossible to determine. The soil inside the pit was a loosely compact reddish-brown sandy silt. Ceramics and flaked stone were the only artifacts recovered, and the feature may date to the Prehistoric era.

Feature 493, Inhumation Burial

Feature 493 was an adult inhumation burial discovered in the middle room of the Siqueiros-Jácome House. The burial was extensively disturbed by rodents, and only a few bones remained in place.

During the current project, archaeologists uncovered a subrectangular pit that was 1.05 m long (southeast-northwest) by 55 cm wide. The pit was 20 cm deep, and was filled with brown silty sand. Numerous rodent burrows were present. The burial pit was located along the inside of the northern wall of pit structure Feature 463. It lay above a storage pit, Feature 495. A fibula, an ulna, and a few other long bone fragments were discovered in the feature. Other adult human bone, found scattered about in neighboring units, also probably came from this individual. Animal bone, ceramics, and flaked stone were also recovered when the pit fill was screened through 1/8-inch mesh. The burial dates to the Hohokam sequence.

Feature 495, Small Pit

Feature 495 was a small pit located in the southern room of the Siqueiros-Jácome House (see Figure 3.6). It lay beneath the edge of pit structure Feature 463, which had been built over the pit. The oval pit was 1.30 m long, 1.17 m wide, and was 61 cm deep. It was filled with a moderately compact brown silty sand with caliche and gravel inclusions. Screening the fill resulted in the recovery of sherds, flaked stone, a mano, and animal bone. The ceramics date

to the Early Rincon phase (A.D. 950-1000) of the Hohokam Sedentary period.

Feature 497, Pit

Feature 497 was a small, irregularly shaped pit located in the middle room of the Siqueiros-Jácome House. It was 1.01 m long, 46 cm wide, and 31 cm deep. The pit was filled with a loose light brown silty sand that contained two pieces of fire-cracked rocks, sherds, and pieces of flaked stone. About 20 percent of the pit had been disturbed by rodent burrowing.

Feature 500, Small Pit

Feature 500 was a small pit located in the backyard of the Siqueiros-Jácome House. It cut into the western side of Feature 492, the Early Agricultural period pit structure. The oval-shaped pit was 76 cm long, 45 cm wide, and was 36 cm deep. It had near vertical walls and a flat base. The feature was filled with a dark grayish-brown compact silty sand. Charcoal was noted throughout the fill, but was more dense at the base. A few sherds and some flaked stone were present in the fill, indicating a Hohokam sequence date.

Feature 502, Small Pit

Feature 502 was a small pit present in the southern room of the Siqueiros-Jácome House. It was 64 cm long, 59 cm wide, and was 32 cm deep. The pit narrowed to a basal length of 55 cm and was only 32 cm wide. The pit was filled with very loosely compacted light brown silty sand. Sherds and pieces of flaked stone were present in the fill. Rodents had burrowed through the pit at some time since it was originally dug.

Feature 503, Secondary Cremation

Feature 503 was a Hohokam secondary cremation that intruded into Feature 492, an Early Agricultural period pit structure. The cremation pit was oval, measuring about 33 cm long by 25 cm wide. It was 14 cm deep, and was a medium brown-gray sandy silt. A cluster of calcined human bone lay at the base of the pit, with several pieces of fire-cracked rocks lying on top. Two prehistoric ceramics were found in the pit fill.

Feature 504, Small Pit

Feature 504 was a small pit found in the middle room of the Siqueiros-Jácome House. The pit was 90 cm long, 64 cm wide, and was 34 cm deep. It was filled with moderately compacted reddish-brown silty sand. Many caliche nodules and flecks of charcoal were present. The fill was screened, yielding prehistoric ceramics and flaked stone. Numerous rodent burrows were present, and some of the artifacts may have been carried into the pit.

Feature 525, Pit

Feature 525 was a pit located in the Siqueiros-Jácome House backyard. It was discovered in the profile of Feature 510, a historic outhouse pit. A small portion of the pit was excavated; it contained an extremely compact gray-brown silt. A few sherds and pieces of flaked stone were found. The pit was at least 1.5 m long, and was roughly 10 cm deep.

Feature 533, Small Pit

Feature 533 was a small pit located in the center of the Siqueiros-Jácome House backyard. The pit was about 70 cm in diameter, and was 8 cm deep. The northern half of the feature was excavated. It contained a very densely compacted grayish-black sandy silt. Many pieces of charcoal were present, including chunks about 3 cm in diameter. No artifacts were present in the excavated portion of the pit. The feature may date to the Historic era; however, the lack of any manufactured artifacts makes that unlikely.

Feature 578, Small Pit

Feature 578 was a small pit found in the northern porch area of the Siqueiros-Jácome House. It was discovered after a historic compacted surface was removed. The pit appeared as a 42-cm-diameter area of stained soil. Excavation revealed it had straight walls and a flat base. It was filled with a light brown sandy silt, which was homogenous for the entire 28 cm depth of the feature. A partially reconstructible ceramic vessel, other sherds, and flaked stone were found in the pit.

Feature 592, Small Pit

Feature 592 was an oval, basin-shaped pit found in the area beneath the northern porch of the Siqueiros-Jácome House. The pit was 77 cm long and at least 46 cm wide. It was 29 cm deep, and was filled with grayish-brown sandy silt. Ten ceramic sherds, a piece of flaked stone, and several historic artifacts were found in the fill. The historic items were probably brought into the pit via several rodent burrows.

Feature 594, Large Pit

Feature 594 was a large pit found in the northern porch area. The pit was at least 2.1 m long and 1.7 m wide. The western portion of the pit was disturbed by construction of the Siqueiros-Jácome House in the 1870s, and the full dimension of the feature is not known. It was 28 cm deep, and filled with a light gray-brown sandy silt. Artifacts found in the feature included 20 pieces of flaked stone and eight small Hohokam sherds.

Feature 595, Small Pit

Feature 595 was a small pit found in the northern porch area of the Siqueiros-Jácome House. It was 86 cm long and 58 cm wide. The pit was 19 cm deep, and was filled with a loosely compacted gray silt with a large amount of charcoal and ash. The base of the pit cut into the underlying caliche. Ceramic sherds and pieces of flaked stone were recovered from the fill.

Feature 597, Crematorium

Feature 597 was a crematorium found in the center of the Siqueiros-Jácome House backyard. The subrectangular pit measured 1.13 cm in length (east-west) and 64 cm in width. It was only 10 cm deep, and was filled with light gray-brown sandy silt that was compact for the first 5 cm and then became less compact below. The base and edges of Feature 597 were heavily burned. Large chunks of charcoal lay on the floor of the pit, with smaller pieces present in the fill. Pockets of calcined bone were scattered throughout the fill. Ceramic sherds and a single piece of flaked stone were recovered. All soil from the pit was collected for reburial. A historic posthole, Feature 599, cut into the crematorium.

Feature 608, Pit Structure

Feature 608 was a pit structure discovered during hand-excavation of a trench along the southern side of the project area (Figure 3.9). Portions of the trench cut through the very disturbed floor of the pit structure. An area of burned plaster was located, and the excavation area was expanded to the north, ultimately encompassing 10 separate units. The structure was very heavily disturbed by historic pits and a sewer line that was probably installed in the 1890s.

The pit structure was 5.40 m long (east-to-west) and 3.66 m wide. Nine postholes and a hearth were present inside the structure. Although the entrance to the structure did not survive, it probably pointed south.

Internal Features. A hearth, Feature 608.01, was located on the plaster floor of the structure. The hearth was 25 cm long by 23 cm wide. It was 8 cm deep, and was lined with oxidized plaster. The hearth contained ash. No artifacts were present. Nine postholes were present that cut through the floor of the structure. The posts ranged from about 8 cm to 30 cm in diameter, and were between 14 cm and 39 cm deep.

Internal Strata and Artifact Contents. Between 30-40 cm of mottled light brown sandy silt lay over the floor. Many pieces of burned daub were present in this layer, which contained many artifacts. The last several centimeters above the floor were often very heavily stained with charcoal.

Two manos, several small sherds, and several pieces of flaked stone rested directly on the floor. The house appears to have been cleaned out prior to being burned.

Construction and Remodeling Evidence. Feature 608 was constructed by excavation of a subrectangular pit into the underlying caliche layer. Portions of the floor were covered with a thin layer of caliche plaster, ranging in thickness from 2 cm to 4 cm. The plaster survived in varying conditions throughout most of the house, but was extensively damaged by historic activities. No walls survived.

The entrance probably faced south, based on the location of the hearth. Unfortunately, some of the likely entrance area was disturbed, and the remainder extended outside the project area to the south. This pit structure was originally a habitation structure, as suggested by the presence of a hearth.

Stratigraphic Relationships. The pit structure was built on the caliche layer. Two pits, Features 628 and 629, and a fenceline, Feature 630, intruded into the structure.

Abandonment and Postabandonment Evidence. The structure was heavily burned, with large amounts of daub from the roof and walls of the structure lying on the floor over a lens of charcoal. After burning, the area was used for general trash disposal, as seen by the large numbers of artifacts in the fill above the house.

Date. Based on its architecture and the presence of decorated pottery, the structure dates to the Hohokam sequence.

Feature 625, Pit Structure

Feature 625 was a pit structure discovered in the backhoe trench excavated for the eastern tower wall foundation (Figures 3.10-3.11). The backhoe

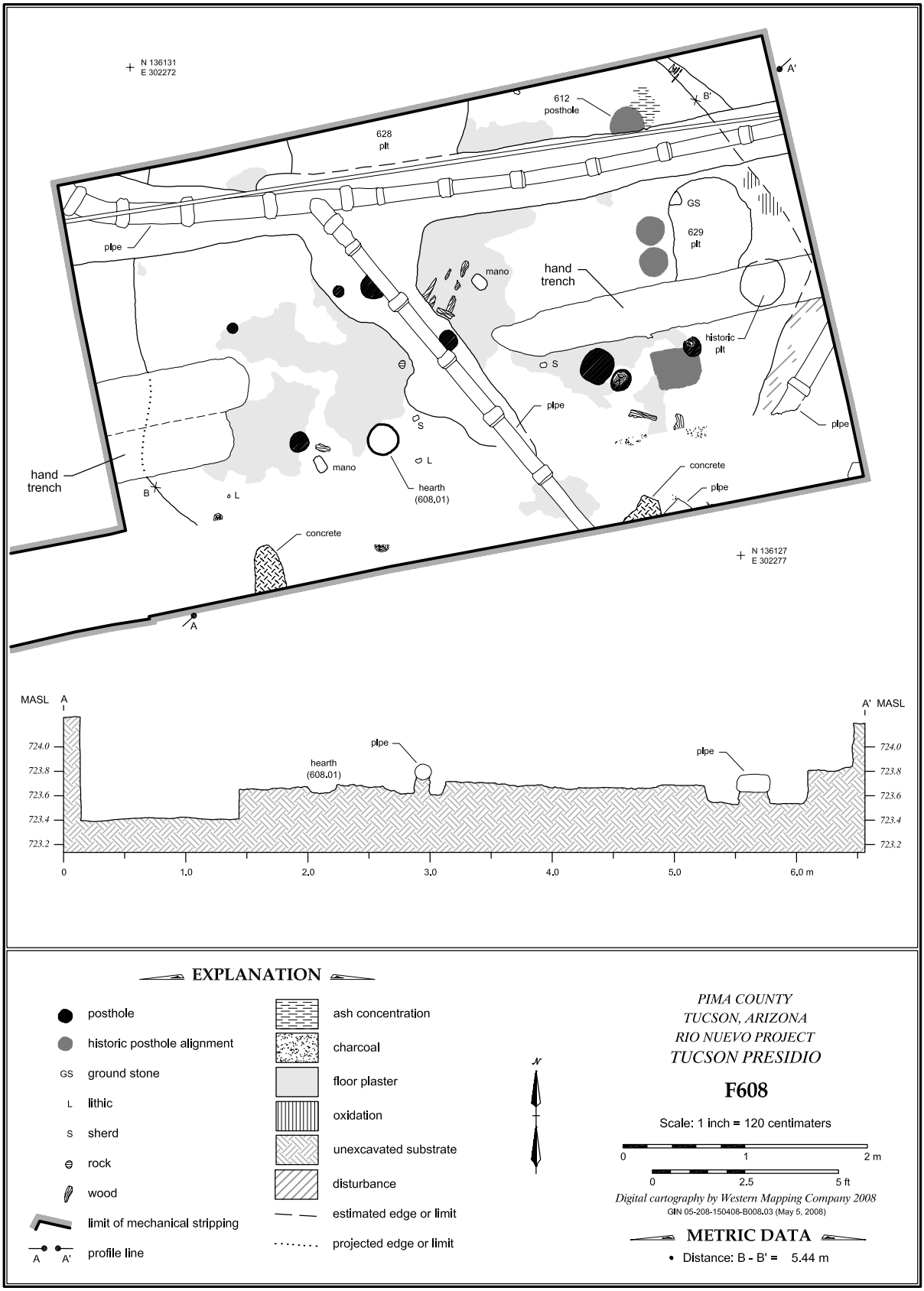


Figure 3.9. Plan view map of Feature 608, a Hohokam pit structure, Historic Block 181.

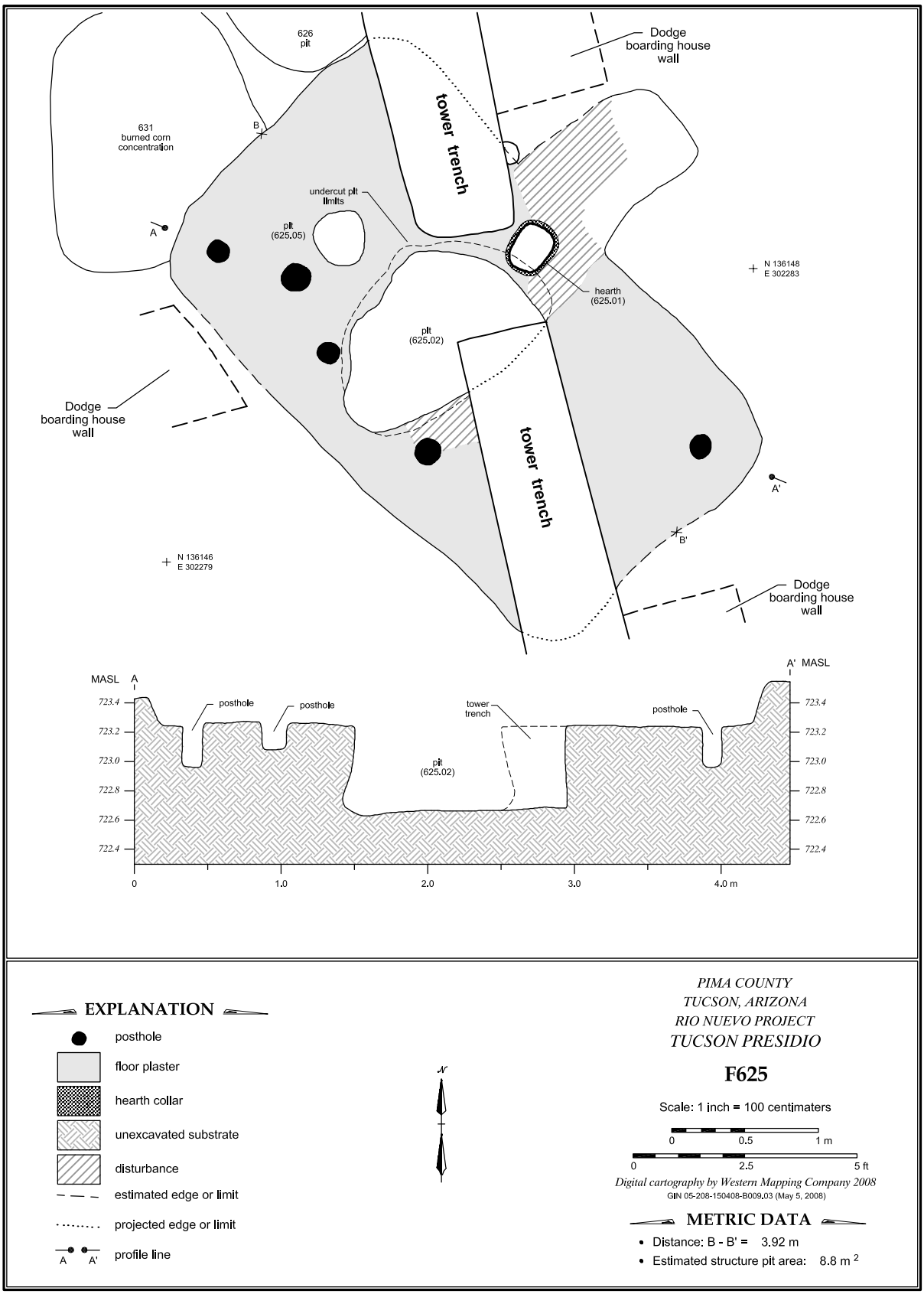


Figure 3.10. Plan view map of Feature 625, a Middle Rincon phase pit structure, Historic Block 181.

Figure 3.11. Feature 625, a Hohokam pit structure on Historic Block 181.

trench cut diagonally through the structure, which was also impacted slightly by Feature 627, the wall foundations of the Dodge Boarding House. The surviving portions of the pit structure were excavated in a 1-m by 2-m control unit and by three other irregularly shaped units.

The pit structure measured 3.98 m in length (southeast to northwest) and 2.24 m in width. Six postholes, a hearth, a small sherd-lined pit, and a large central storage pit were present inside the structure. The entrance to the structure survived and pointed northeast.

Internal Features. A hearth, Feature 625.01, was located immediately inside the entrance. The hearth measured 30 cm in length (east-west) and 25 cm in width. It was 8 cm deep, and was lined with oxidized plaster. The hearth contained ash. Several sherds and a possible polisher lay on top of the hearth fill.

A large storage pit, Feature 625.02, lay immediately west of the hearth. The pit was 1.48 m long and 96 cm wide at the top. It belled outward toward the base, measuring 1.55 m long and 1.20 m wide. The pit was 56 cm deep. Feature 625.02 was filled with brown sandy silt that was loosely compact. There were many pieces of charcoal and chunks of burned daub present throughout the pit.

A small sherd-lined pit, Feature 625.03, was present in the northwestern quarter of the house. The pit was about 36 cm in diameter and was 17 cm deep. It was filled with a brown silty sand. Charcoal and burned daub were present in moderate quantities. Two large sherds lay along the western side of the pit.

Five postholes were present, cutting through the floor of the structure. The posts ranged from 15 cm to 18 cm in diameter, and were 21-31 cm deep.

Internal Strata and Artifact Contents. Between 10 cm and 16 cm of mottled light brown sandy silt lay over the floor. The last several centimeters above the floor were more heavily stained with charcoal. No artifacts were found directly associated with floor. Sherds, flaked stone, and charred corn were found throughout the structure.

Construction and Remodeling Evidence. This pit structure was constructed by excavation of a subrectangular pit into the underlying caliche layer. The walls and floor of Feature 625 were covered with a thin layer of caliche plaster. Most of the plaster was still present and in good condition, with only a small area adjacent to the large storage pit damaged by construction of the boarding house foundation wall. The floor sloped upward to meet the walls.

An entrance was present along the eastern side of the house, pointing slightly northeast. The entrance was approximately 1.05 long by 80 cm wide. It may not have been plastered, with the southern half appearing to merely be tamped earth.

This pit structure was originally a habitation structure, as suggested by the presence of a hearth. Construction of the large central pit, which was extremely close to the hearth, indicates a change in function from habitation to storage.

Stratigraphic Relationships. The pit structure lay beneath the Dodge Boarding House, constructed in the 1890s. The adjacent prehistoric trash concentration, Feature 631, is probably related to burning of the pit structure.

Abandonment and Postabandonment Evidence. The structure was burned, with the floor plaster in the southeastern corner of the house and the walls blackened. A layer of charcoal-stained earth was present throughout many portions of the pit structure floor. After the structure burned, the large central storage pit was likely cleared out, with the burned corn and other items tossed outside the structure in the adjacent area excavated as Feature 631.

Date. Based on its architecture and the presence of decorated pottery, the structure dates to the Hohokam sequence. The ceramics dated to the Middle

Rincon phase (A.D. 1000-1100) of the Hohokam Sedentary period.

Feature 630, Large Pit

Feature 630 was a large pit found in the eastern portion of the parking lot area. The oval pit was 1.60 m long (north-south) by 1.32 m wide. It was basin shaped, and was 10 cm deep. The upper portion of the pit may have been removed by historic activities and by backhoe stripping. The pit was filled with a soft reddish-brown silty sand with a very small amount of charcoal flecking. Artifacts found in the pit included some Native American ceramics, two pieces of ground stone, and a piece of flaked stone.

Feature 631, Trash Concentration

Feature 631 was a trash concentration found adjacent to Feature 625, a pit structure within the Dodge Boarding House foundation, Feature 627. The trashy area was at least 1.7 m long (north-south) and 1.4 m wide. It was excavated in a single unit for three levels, totaling 24 cm in depth. The soil in the area was a medium brown silty sand, with a large amount of daub and charcoal flecks and chunks, and a very large amount of burned corn. Screening of the soil yielded ceramics, flaked stone, a metate, fired clay figurine fragments, a turquoise bead, red ochre, and large amounts of carbonized maize. The feature may represent material dug out of the adjacent pit structure, Feature 625, after a burning event. The ceramics from this pit date to the Middle Rincon phase (A.D. 1000-1100) of the Hohokam Sedentary period.

Feature 634, Small Pit

Feature 634 was a small pit found beneath the Dodge Boarding House, Feature 627, and adjacent to a pit structure and trash concentration, Features 625 and 631, respectively. The pit was probably 1 m in diameter; however, an interior foundation wall of the boarding house ran through the western portion of the pit. The pit was circular, and had straight walls and a flat base. It was filled with two layers of soil. The top layer was a brown sandy silt with a moderate amount of charcoal. This layer was 32 cm deep and yielded ceramics, flaked stone, and figurine fragments. The bottom layer was 19 cm thick, and contained about one-third of a decorated jar, along with other sherds and flaked stone. The ceramics from this pit date to the Middle Rincon phase (A.D. 1000-1100) of the Hohokam Sedentary period.

Feature 636, Large Pit

Feature 636 was a large pit found below the Dodge Boarding House. It was at least 1.25 m long and 60 cm wide, extending beneath the thick foundation walls. The edges of the feature were poorly defined, and the feature may be a trash concentration instead of a pit. It contained mottled brown and grayish-brown silty sand with a moderate amount of charcoal flecking. Some 12 cm of soil was excavated, yielding ceramics, flaked stone, and a shell bracelet fragment.

Feature 641, Small Pit

Feature 641 was a small pit found in the north-central portion of the former parking lot. It measured 1.12 m in length and at least 80 cm in width, extending south into an unexcavated area. The pit was oval with straight walls and a flat base. It was filled with a dark brown silty sand with a moderate amount of charcoal. Screening of the soil resulted in the recovery of ceramics and flaked stone. Some historic artifacts were also present, perhaps intrusive from the overlying trash-filled borrow pit, Feature 359. However, it is also possible this feature dates to presidio times.

Feature 643, Hohokam Pit Structure

Feature 643 was a pit structure discovered in the trench excavated for the northern tower wall foundation (Figure 3.12). The structure was heavily impacted by historic ground-disturbing activities, including excavation of a borrow pit, Feature 359.

The surviving portion of this pit structure was at least 1.94 m long by 1.90 m wide, with the northern, western, and southern sides of the pit structure destroyed by historic disturbances. An entry, a hearth, and a probable floor groove were the surviving internal features of the structure. The pit structure was likely used for habitation.

Internal Features. A small hearth, Feature 643.01, was located in the center of the surviving floor. The hearth was about 22 cm in diameter, and 7 cm deep. It was completely plastered, and was filled with white ash. The entrance to the structure consisted of a slightly plastered surface extending eastward from the house, about 10 cm higher than the plastered floor of Feature 643.

Internal Strata and Artifact Contents. Between 10 cm and 16 cm of mottled light brown sandy silt lay over the floor. The last several centimeters above the floor were more heavily stained with charcoal. A large slab of rock lay over the hearth, and a portion of a jar was nearby, resting close to the floor.

Figure 3.12. Feature 643, a Hohokam pit structure, Historic Block 181.

Other artifacts, including ceramics and flaked stone, were present in the fill above the floor.

Construction and Remodeling Evidence. Feature 643 was constructed by excavating into the underlying caliche layer. The floor was made from 4 cm of caliche plaster; it was quite smooth and in good condition. There was no evidence for remodeling.

Stratigraphic Relationships. The pit structure lay beneath Feature 359, a borrow pit filled with trash in the 1890s. The structure itself was cut into the underlying caliche.

Abandonment and Postabandonment Evidence. The structure was burned, with the floor plaster slightly oxidized and a fair amount of charcoal-stained earth lying directly on top of the floor. The hearth was filled with white ash. The presence of a large jar sherd and, nearby, a rock slab on top of the hearth, may suggest either a catastrophic accidental burning event, or perhaps the purposeful abandonment and burning of the house.

Date. Based on its architecture, the structure dates to the Hohokam sequence.

Feature 651, Hohokam Pit Structure

Feature 651 was a pit structure discovered in the trench excavated for the southern tower wall foundation. The structure was impacted by construction of the Dodge Boarding House in the 1890s. It was documented in profile, and a small portion of the floor was exposed. The surviving portion of this pit structure was at least 1.25 m long. The top of the house began at about 90 cm below the modern ground surface, and was 30 cm deep.

Internal Features. A single posthole was noted in the plaster floor of the pit structure.

Construction and Remodeling Evidence. Feature 651 was constructed by excavation of a pit. A plaster floor was built, and the lower portion of the western wall was also plastered. There was no evidence for remodeling.

Stratigraphic Relationships. The pit structure lay beneath the foundation of the Dodge Boarding House, Feature 627. It, in turn, cut into an underlying Early Agricultural period pit structure, Feature 650.

Abandonment and Postabandonment Evidence. The structure was burned, with the floor plaster slightly oxidized. No floor artifacts were noted in the small portion of the floor that was exposed.

Date. Based on its architecture, the structure dates to the Hohokam sequence.

Feature 652, Small Pit

Feature 652 was a small pit located in the southern tower wall trench. It was discovered in the wall of the trench, and a portion of the pit was subsequently excavated. The pit was 85 cm long; its width was not determined. The top of the pit was 75 cm below the modern ground surface, and it was 40 cm deep, filled with dark brown sandy silt. A cluster of sherds was present at the top of the feature, with other sherds dispersed throughout the fill. The pit dates to the Middle Rincon phase (A.D. 1000-1100) of the Hohokam Sedentary period.

Feature 660, Pit Structure

Feature 660 was a pit structure discovered by construction workers in the southeastern corner of the project area. The workers were removing dirt in the area of a park feature and encountered an area of dark-stained soil with numerous ceramic sherds. A 1-m by 2-m unit was placed in the stain, and was excavated in stratigraphic levels to the floor of the structure.

The visible stain was approximately 4.75 m long (north-south); its width could not be determined.

The entrance to the house was likely to the west or east. The top of the house began at about 50 cm below the modern ground surface, and was 36 cm deep. Most of the remaining portion of the house survives intact beneath the stabilized earth of the park.

Internal Features. A single posthole was noted in the floor of the pit structure. A floor pit was also present, and that portion within the test unit was excavated.

Internal Strata and Artifact Contents. Two internal strata were present. The upper fill of the house was a loosely compact grayish-brown silty sand. Many pieces of pottery, flaked stone, animal bone, and a figurine fragment were present in this layer of the fill. Approximately 3 cm above the floor was a brown silty sand with pieces of daub, gravel, and charcoal. This appears to represent the fallen roof and walls of the structure. The density of artifacts decreased in this level, although there was a cluster of sherds lying directly on the floor.

Construction and Remodeling Evidence. This pit structure was constructed by excavation of a pit into caliche. It is unclear if a plaster floor was present. The floor was quite hard and smooth, but instead of plaster, this may have been caliche that had been tamped down to create a floor surface. No evidence of remodeling was visible in the unit excavated.

The floor pit, Feature 660.01, was circular, had vertical walls, and was 68 cm deep. It was filled with the same brown silty sand that lay on the floor. Only a few artifacts were found in the portion of the pit excavated. Among these was a single fragment of cremated human bone.

Stratigraphic Relationships. The pit structure lay beneath the foundations of the Dodge Boarding House, Feature 627. It cut into the caliche layer underlying the project area. Because the area above the structure had been removed by construction activities, it is impossible to make more detailed observations about how this pit structure relates to other nearby features.

Abandonment and Postabandonment Evidence. The structure does not appear to have burned. The only floor artifacts were a cluster of sherds and two solitary sherds.

Date. Based on the recovered ceramics, the structure dates to the Cañada del Oro phase (A.D. 750-850) of the Hohokam Colonial period.

Prehistoric Downtown Tucson

Archaeological projects on or near Historic Block 181 have located 74 prehistoric features. These span the Early Agricultural to Sedentary periods, from about 800 B.C. to A.D. 1150. Additionally, a few stray Classic period pottery sherds, but no features, have been located on Historic Block 180, extending the known timespan of occupation of the downtown into the Tanque Verde phase (A.D. 1150-1300) (Ciolek-Torrello and Swanson 1997).

All known prehistoric features located within the heart of downtown Tucson are listed in Table 3.1. Most of these features have been found in the last 20 years, as archaeological projects have been conducted prior to construction projects. The 24 features that could be dated to a single period, by type, are summarized in Table 3.2. Many other features cannot be securely dated, either because they lacked artifacts, were not excavated, or contained mixed deposits spanning more than one period.

The features found downtown on the terrace overlooking the Santa Cruz River floodplain include pit structures, pits, bell-shaped storage pits, roasting pits, caliche mining pits, a crematorium, a cremation, and inhumation burials. Irrigation canals, dating from the Rillito to the Early Rincon phases (A.D. 850-1000), have been found on the floodplain immediately west of the terrace, drawing water from the Santa Cruz River or nearby springs and distributing it to agricultural fields nearby (Thiel, Gregory, Palacios-Fest, and Nials 2005).

Each archaeological project in the downtown core of Tucson has helped accumulate information on the time breadth, location, and function of the prehistoric settlements once present there. As noted, current understanding of the downtown area is growing gradually as projects take place and additional features are located. The historic and modern development of the area has likely destroyed many archaeological features; however, many more likely await discovery.

Table 3.1. Prehistoric features located in downtown Tucson, by project.

Block	Feature	Type	Phase	Period	Reference
172	99	Roasting pit	—	Unknown	Thiel 2003:30
180	14	Pit structure	Tortolita	Hohokam Pioneer	Ciolek-Torrello and Swanson 1997:119-140
	25	Fieldhouse	—	Pre-Classic	Ciolek-Torrello and Swanson 1997:119-140
	32	Pit structure	—	Hohokam Pioneer (late)	Ciolek-Torrello and Swanson 1997:119-140
	92	Pit structure	Rincon	Hohokam Sedentary	Ciolek-Torrello and Swanson 1997:119-140
	109	Pit	—	Hohokam Colonial to Sedentary	Ciolek-Torrello and Swanson 1997:119-140
	112	Pit	—	Unknown	Ciolek-Torrello and Swanson 1997:119-140
181	1	Pit	Agua Caliente	Early Ceramic	Gilman 1997
	2	Pit	Cañada del Oro to Early Rincon	Hohokam Colonial to Sedentary	Gilman 1997
	3	Pit structure	—	Unknown	Diehl 1999
	3	Borrow pit	—	Unknown	Gilman 1997
	350	Pit structure	Rincon	Hohokam Sedentary	Thiel and Mabry 2006
	380	Borrow pit	—	Hohokam	This report
	405	Roasting pit	—	Possibly Protohistoric	Thiel and Mabry 2006
	412	Pit	—	Hohokam?	Thiel and Mabry 2006
	416	Pit	—	Unknown	Thiel and Mabry 2006
	430	Pit structure	—	Early Agricultural	Thiel and Mabry 2006
	434	Roasting pit or hearth	—	Unknown	Thiel and Mabry 2006
	447	Inhumation burial	—	Hohokam	This report
	452	Possible pit structure	—	Hohokam?	This report
	453	Pit structure	—	Hohokam Colonial?	This report
	461	Pit	—	Hohokam	This report
	462	Pit	—	Hohokam Colonial?	This report
	463	Pit structure	Cañada del Oro	Hohokam Colonial	This report
	465	Pit	—	Prehistoric	This report
	470	Occupation surface	—	Unknown	This report
	477	Pit	—	Hohokam	This report
	478	Pit	—	Unknown	This report
	479	Pit	Rillito	Hohokam Colonial	This report
	480	Pit	—	Hohokam	This report
	485	Pit	—	Prehistoric	This report
	486	Pit	—	Prehistoric	This report
	492	Pit structure	Late Cienega	Early Agricultural	This report
	493	Inhumation burial	—	Hohokam	This report
	495	Pit	Early Rincon	Hohokam Sedentary	This report
	497	Pit	—	Prehistoric	This report
	500	Pit	—	Hohokam	This report
	502	Pit	—	Prehistoric	This report
	503	Cremation	—	Hohokam	This report

Table 3.1. Continued.

Block	Feature	Type	Phase	Period	Reference
181	504	Pit	—	Prehistoric	This report
	525	Pit	—	Prehistoric	This report
	533	Pit	—	Prehistoric	This report
	578	Pit	—	Prehistoric	This report
	592	Pit	—	Prehistoric	This report
	594	Large pit	—	Hohokam	This report
	595	Pit	—	Prehistoric	This report
	597	Crematorium	—	Hohokam	This report
	608	Pit structure	—	Hohokam	This report
	625	Pit structure	Middle Rincon	Hohokam Sedentary	This report
	630	Large pit	—	Hohokam	This report
	631	Midden	Middle Rincon	Hohokam Sedentary	This report
	634	Pit	Middle Rincon	Hohokam Sedentary	This report
	636	Large pit	—	Prehistoric	This report
	641	Pit	—	Prehistoric	This report
	643	Pit structure	—	Hohokam	This report
	650	Pit structure	Late Cienega	Early Agricultural	This report
	651	Pit structure	—	Hohokam	This report
	652	Pit	Middle Rincon	Hohokam Sedentary	This report
	660	Pit structure	Cañada del Oro	Hohokam Colonial	This report
	C	Pit structure	—	Hohokam Colonial to Sedentary	Thiel 1998
182	6	Pit	Rincon	Hohokam Sedentary	Swartz 1996
184	–	Two ceramic vessels	—	Hohokam Colonial	*Arizona Daily Star* 1943
190	3	Pit structure	—	Hohokam	Thiel 2004
	26	Pit structure	—	Hohokam	Thiel 2004
192	15	Pit	—	Unknown	Thiel et al. 1995:97-105
	16	Bell pit	Cañada del Oro	Hohokam Colonial	Thiel et al. 1995:97-105
	32	Pit structure	—	Pre-Classic	Thiel et al. 1995:97-105
	54	Borrow pit	Rincon	Hohokam Sedentary	Thiel et al. 1995:97-105
	58	Borrow pit	—	Unknown	Thiel et al. 1995:97-105
	100	Pit	Rincon	Hohokam Sedentary	Thiel et al. 1995:97-105
	103	Bell pit	—	Unknown	Thiel et al. 1995:97-105
	104	Bell pit	—	Unknown	Thiel et al. 1995:97-105
254	3370	Pit structure	—	Early Agricultural	John Hall, personal communication 2008
	19021	Pit structure	—	Early Agricultural	John Hall, personal communication 2008
	22242	Roasting pit	—	Prehistoric	John Hall, personal communication 2008

Table 3.2. Counts of prehistoric features, by type and temporal phase.

Feature Type	Early Agricultural	Early Ceramic	Pioneer	Colonial	Sedentary
Pit structure	5	–	2	3	3
Pit	–	1	–	1	5
Roasting pit	–	–	–	–	–
Bell-shaped pit	–	–	–	1	–
Mining pit	–	–	–	–	1
Midden	–	–	–	–	1
Ceramic vessels	–	–	–	1	–

CHAPTER 4

SPANISH AND MEXICAN PERIOD ARCHAEOLOGY

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Previous archaeological research within the confines or immediately adjacent to the Tucson Presidio have documented portions of the eastern and western walls, the northeastern tower, the blacksmith shop, the cemetery, and several domestic dwellings. A few trash-filled pits have also been located, with larger (but artifact-sparse) adobe mining pits found on the floodplain, west of the fortress.

These finds, most made since 1992, have provided a more complete understanding of the layout of the fort and of the lives of Tucson residents at that time. Work conducted on Historic Block 181 provides additional information, especially due to the large number of artifacts and food remains recovered.

The presidio-era discoveries made during previous archaeological fieldwork are briefly summarized in this chapter. Descriptions of the archaeological features found during the current project follow. Analyses of the artifacts and food remains found in presidio-era features are included in later chapters of this report.

PREVIOUS ARCHAEOLOGICAL WORK WITHIN THE TUCSON PRESIDIO

Portions of the Tucson Presidio have been uncovered during several projects since 1929. What information has archaeology provided about the fortress?

Architectural elements of the fortress have been found at several locations. The eastern wall and the southeastern corner of the fort were found in the area of the Pima County Courthouse. This portion of the perimeter wall had a rock and lime mortar foundation that supported a 22-inch-wide adobe brick wall. Other sections of the eastern and western walls had adobe bricks placed directly on the ground surface. This may indicate that portion with the rock foundation had been rebuilt. Historical records suggest the fort was repaired several times during its history (Thiel et al. 1995). Internal adobe brick buttresses along the west wall also provide evidence for the repair and maintenance of the wall (Thiel 2004).

The east gate of the presidio was probably located in the present-day courthouse courtyard. In 1929, a large mesquite post was found in this area, thought at that time to be for the gate. In 1992, an opening was discovered south of the post location (Thiel et al. 1995).

The northeastern tower was excavated in 1954 and again in 2002-2003. The tower projected from the east wall approximately 20 ft and was about 58 ft to a side (Thiel and Mabry 2006). The adobe foundations of the tower were placed directly on the ground surface and were roughly 39-45 inches (98-115 cm) wide. Construction of the tower involved placement of a basal course of adobe bricks, which were then covered with a thick layer of poured adobe material. This technique may have been used because the structure was being rapidly built. Two probable post supports were located inside the tower, almost certainly for the wooden walkway that lined its interior (Thiel and Mabry 2006).

The presidio chapel and cemetery once stood along the east wall of the fort, north of the eastern gate. Burials have been located in the area from the northern wing of the Pima County Courthouse to the north side of Alameda Street. The burials are continuous in this area, with many excavated in 1969-1970 and 1992 by archaeologists. (Others were found during road improvement and the courthouse construction in the 1920s.) The exact location of the chapel has not yet been determined. At least one account indicates burials were placed within the chapel, so it is possible that the chapel was once in the area where burials were excavated (Thiel et al. 1995). Another pair of burials was located on Historic Block 180. Both were adult males, and one had a stone projectile point imbedded in his spine, revealing that these individuals were killed by Native Americans. They may have been buried outside the cemetery if it was uncertain who they were (Ciolek-Torrello and Swanson 1997).

The presidio blacksmith shop was located in the west lawn of Tucson City Hall (Thiel 2004). The portion uncovered included a wall, a hearth area, and a floor on which lay several pieces of ground stone with evidence for metal working (copper was embedded into the surface of the artifacts).

Portions of several interior structures have been located. Walls were built from adobe bricks, which were either placed directly on the ground surface or that were erected on a cobble foundation. Floors were

made from tamped earth. One corner fireplace, made from a quarter circle of molded adobe, has been found (Thiel and Mabry 2006; Thiel et al. 1995).

Trash disposal appears to have been casual, with refuse either tossed into nearby pits where soil and caliche were mined to make adobe bricks or merely tossed onto the ground. One aspect of this is that artifacts were trampled by people and animals, and they were exposed to environmental conditions (heat, rain, and so forth). The result is that artifacts are usually broken into very small pieces. None of the assemblages found to date can be associated with particular households.

HISTORIC BLOCK 181 FEATURE DESCRIPTIONS

The 2003-2007 excavations uncovered 32 features that are thought to date to the Spanish and Mexican periods, 1674-1856 (Figure 4.1; see also Figures 2.2 and 2.3). Many portions of the project area were extensively used during the American Territorial period, and many presidio-era features were likely destroyed by mining caliche and soil for adobes, as well as by the excavation of planting pits, privies, and other features. Supporting evidence for this includes the presence of presidio-era Mexican majolica sherds in many American Territorial period features.

Feature 378, Extramural Tamped Surface

Feature 378 was a hard-packed ground surface first documented during the 2002-2003 excavations at the presidio (Figure 4.2). During the current work, this surface was documented immediately north of the previously examined area.

A 3.1-m by 1.3-m portion of the surface was exposed. It was a compact brown silty sand. No artifacts were present on the surface. A posthole, designated Feature 378.99, was found to originate from this surface. The posthole measured 28 cm in length by 21 cm in width, and was 32 cm deep. The posthole contained brown sandy silt, with decomposed wood present at the base of the pit. The post appears to have been round.

The Feature 378 surface probably dates to late presidio times, perhaps to the 1840s to 1850s.

Feature 418, Extramural Tamped Surface

Feature 418 was a hard-packed ground surface documented previously during the 2002-2003 excavations at the presidio (see Figure 4.2). It was relocated during the current project, and consisted of a compacted brown silty sand with many small pieces of caliche. No surface artifacts were present in the 2-m by 2-m area uncovered. Two small pits, Features 616 and 623, cut through the surface.

This ground surface was created during late presidio times, and was probably formed either by tamping or by traffic over the area.

Feature 460, Large Pit

Feature 460 was located in the middle room of the Siqueiros-Jácome House and excavated in three units. This trash-filled pit was 1.50 m long, 1.36 cm wide, and 32 cm deep, cutting into the sterile caliche. It was excavated in three levels, with a portion of the dirt screened through 1/8-inch mesh to recover small fish bones. The upper fill was moderately compact brown silty sand. The base of the feature was filled with compact brown silty sand. Several rodent burrows were present, and Feature 464, a small pit, cut into the southeastern side of the feature. The oval-shaped pit had sloping walls. Artifacts recovered from the pit included majolica, a gun spall, numerous animal bones, including fish, and peach pits and squash or watermelon seeds.

Feature 464, Small Pit

Feature 464 was a small pit located in the middle room of the Siqueiros-Jácome House. It cut into another presidio-era pit, Feature 460. Feature 464 was 78 cm long and at least 62 cm wide (it extended east beneath the eastern wall of the house). It was 25 cm deep. The pit was filled with a loosely compact, ashy, brown silty sand. It was heavily rodent disturbed. Artifacts found in the pit included animal bone, Native American pottery, and majolica sherds.

Feature 466, Large Pit

Feature 466 was a large pit located in the middle room of the Siqueiros-Jácome House. It was 1.70 m long, 1.25 m wide, and 28 cm deep. The pit was filled with light grayish-brown sandy silt with a high ash and charcoal content. Majolica sherds, Native American ceramics, flaked stone, ground stone, and animal bones were recovered from the fill.

Feature 467, Occupation Surface

Feature 467 was an occupation surface that was located in the middle room of the Siqueiros-Jácome

Figure 4.1. Plan view map showing location of Spanish and Mexican period features located on Historic Block 181.

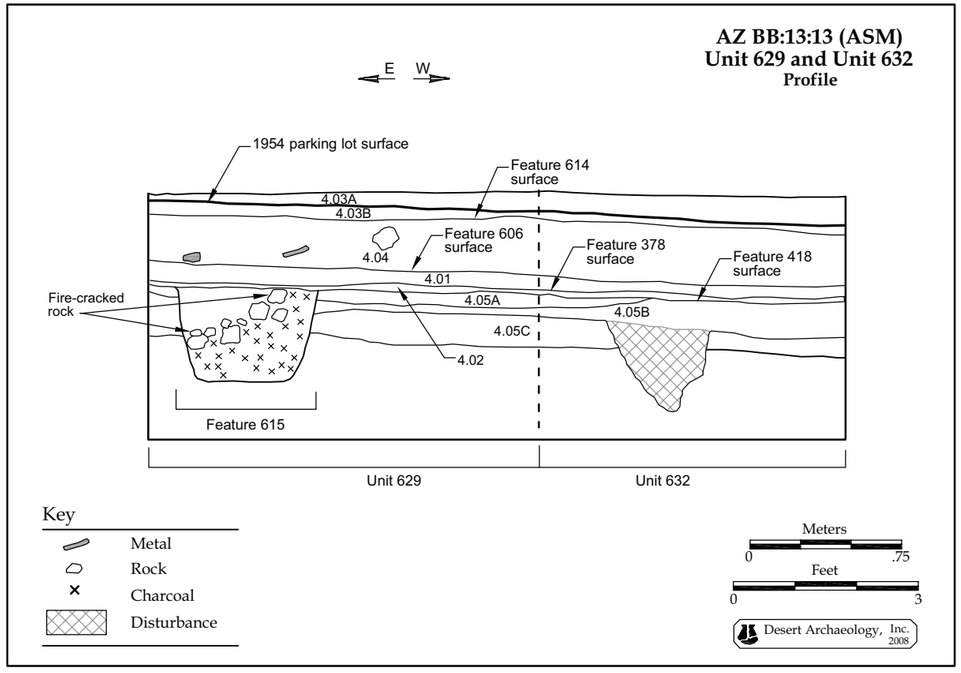

Figure 4.2. Profile of Units 629 and 632, showing Features 378, 418, 606, 614, and 615, Historic Block 181.

House in two units. The surface measured at least 2.0 m in length by 1.5 m in width. Feature 468, an American Territorial period pit, cut through this surface, thereby postdating it.

Feature 469, Occupation Surface

Feature 469 was an occupation surface located in two units in the middle room of the Siqueiros-Jácome House. The surface was at least 2.0 m long by 1.5 m wide. It was composed of a very compact gray-brown silty sand that had obviously been tamped down to form the surface, probably in an outdoor area.

Feature 474, Occupation Surface

Feature 474 was an occupation surface found in two excavation units in the middle room of the Siqueiros-Jácome House. It was above Feature 475, a large pit. The hard-packed surface had been tamped down and was quite flat.

Feature 475, Large Pit

Feature 475 was a presidio-era pit found along the north side of the middle room of the Siqueiros-Jácome House, extending beneath the wall to the north. The pit measured at least 2.20 m in length (north-south) and 1.69 m in width. It was 12 cm deep. The pit was filled with ash and dark gray-brown silty sand. The portion excavated yielded Native American ceramics, majolica, animal bone, shell, flaked stone, and ground stone.

Feature 481, Occupation Surface

Feature 481 was a presidio-era occupation surface located in the northeastern room of the Siqueiros-Jácome House. The surface consisted of tamped-down tan clay with a small amount of gravel present. The surface was exposed in an area measuring 1.66 m by 1.45 m, extending beyond the unit into unexplored areas. It sloped down to the southwest. Additional presidio-era trash lay beneath the surface.

Feature 494, Occupation Surface

Feature 494 was an occupation surface located in the northern half of the north room of the Siqueiros-Jácome House. It was located beneath alternating lenses of gray, orange, and gray silty sands. The surface continued to the north, west, and east beyond the edges of the excavated area, although it was not present in the southern portion of the room. Several rodent burrows cut through the surface.

Feature 498, Hearth

Feature 498 was a fire hearth found in the north room of the Siqueiros-Jácome House when a circular area of ash and rocks was discovered. The hearth was about 40 cm in diameter and was 13 cm deep. The hearth was filled with charcoal and ash and contained numerous pieces of fire-cracked rocks. Some of the rocks may have functioned as trivets, used to support cooking pots. Native American ceramics, ground stone, shell, and animal bone were collected from the fill. The feature was likely the location of a cooking fire for a nearby residence.

Feature 499, Hearth

Feature 499 was a fire hearth, located a short distance from hearth Feature 498, in the north room of the Siqueiros-Jácome House (Figure 4.3). Only a portion of the hearth was excavated; the rest remains in place in the eastern side wall of the excavation unit. The hearth was 55 cm long and only 8 cm deep. The hearth contained several large pieces of fire-cracked rock lying in ash and charcoal. Screening of the hearth contents yielded Native American ceramics, ground stone, animal bone, and metal artifacts.

Feature 501, Occupation Surface

Feature 501 was an occupation surface located in the north room of the Siqueiros-Jácome House along its northern side. The surface extended across the width of the room, 2.55 m, and extended north for 1.5 m. It sloped steeply down to the northeast, and eventually disappeared. The surface either represents a purposely tamped down area or an area that saw heavy foot and hoof traffic. A single posthole cut through the surface. Additional presidio-era trash lay beneath the surface.

Feature 505, Small Pit

Feature 505 was a small, circular pit that was revealed in the northern porch area of the Siqueiros-Jácome House. The pit was approximately 46 cm in diameter and was basin shaped. Feature 505 was filled with soft grayish-brown silt. A few pieces of animal bone and flaked stone were recovered from the pit.

Feature 508, Roasting Pit

Feature 508 was a small roasting pit found in the backyard of the Siqueiros-Jácome House, cutting into a large presidio-era borrow pit, Feature 513. The roasting pit was roughly 71 cm in diameter and was 14 cm deep. It was filled with charcoal, eight pieces of fire-cracked rock, and brown loam. A large Native American sherd lay at the base of the pit.

Artifacts found in the borrow pit included Native American ceramics, majolica, a gunflint, shell, a hammerstone, a Pima arrow point, and animal bone.

Feature 513, Borrow Pit

Feature 513 was a large adobe mining pit found in the backyard of the Siqueiros-Jácome House. It was approximately 10.3 m long (north-south) by 5 m wide. It was about 60 cm deep in the center. The bowl-shaped pit was filled with three distinct layers of sediments. Stratum 50, the uppermost layer, was a light brown sandy silt 13-32 cm thick. Beneath this was Stratum 50.02, a lens of loose silty loam mixed with fine sand, which was 5-15 cm thick. Beneath this was Stratum 50.01, a layer of light orange-brown, coarse sandy silt that was 15-26 cm deep.

This feature originally extended to the east into Lot 1; however, much of this area was probably mined for adobe material during construction of the Dodge Boarding House.

The upper fill, Stratum 50, of the borrow pit Feature 513 contained American Territorial period artifacts, including whole bottles, a bone-handled knife, metal, and English ceramics. Beneath the upper fill, Strata 50.01 and 50.02 yielded presidio-era artifacts. A large number of artifacts was recovered from the pit, including majolica sherds, Native American pottery, a piece of Zuni pottery, a musketball, and a gunflint. Additionally, animal bones and many flotation samples were collected from pit Feature 513.

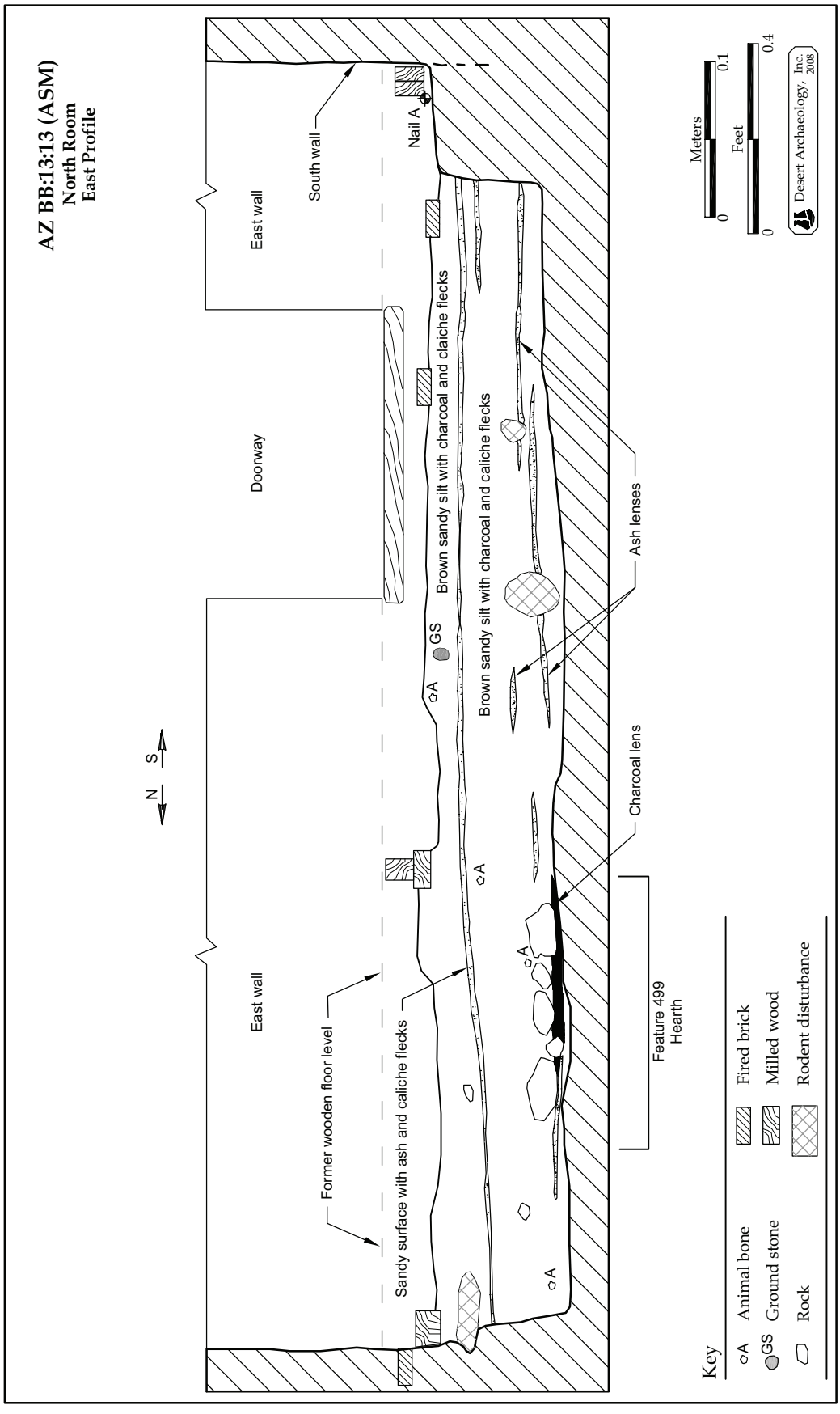

Figure 4.3. Profile along eastern wall of the northern room of the Siqueiros-Jácome House, showing location of Feature 499, Historic Block 181.

Feature 514, Wall

Feature 514 was an adobe wall found beneath the modern floor in the southeastern room of the Siqueiros-Jácome House (Figures 4.4 and 4.5). The wall was at least 2.5 m long (east-west) and was 26 cm wide. The eastern portion of the wall had been truncated by later construction of the southeastern room.

The wall was constructed from unfired adobe bricks set directly on the ground surface. Individual bricks were 19.5 inches long by 10.0 inches wide and 4.0 inches thick. This size of bricks has been found at other Mexican period and American Territorial period sites (Thiel et al. 1995:220-221). The wall survived to a height of 29 cm, and consisted of two-and-a-half courses of bricks. After excavation, the area was backfilled, and a protective cover built over the wall to preserve it in place.

The wall may date to the early American Territorial period, but this is still unclear. The western portion of the wall bonds into the eastern wall of the north room of the Siqueiros-Jácome House. This room was built in the mid-1860s; however, portions of an older structure may have been incorporated into the room.

Midden deposits had built up on either side of the wall, designated Feature 519 on the north side and Feature 520 on the south side. The artifacts recovered from the middens appear to date to presidio times. The wall may have been placed in a very narrow trench cutting into the midden, although no trench was observed.

Feature 519, Trash Midden

Feature 519 was a trash midden discovered beneath the floor of the southeastern room. The midden lay north of an adobe wall, Feature 514, and probably dates to after construction of the wall. A sample of the midden, measuring 2.8 m (east-west), 1.0 m (north-south), and 27 cm in depth was excavated. The midden continued below this level, but was left in place for future archaeologists to examine.

Three levels were excavated in the sediments. The first was an 8-cm-thick band of soil lying above a hard-packed earth floor surface. This brown silty sand contained numerous charcoal flecks and chunks. The compact surface appears to represent a dirt floor or a courtyard area, and had been purposely tamped down. Beneath this was a medium brown silty sand that was loosely compact. It was excavated in two arbitrary levels totaling 19 cm in thickness. The lower level had more charcoal than the first level, and also yielded pieces of adobe. Artifacts found during excavation of this unit dated to the early American Territorial period to late presidio times, probably before 1860.

Figure 4.4. Feature 514, an adobe wall dating to the Mexican period, Historic Block 181.

Figure 4.5. Profile of Feature 514, Historic Block 181.

Feature 520, Trash Midden

Feature 520 was a trash midden found beneath the floor of the southeast room of the Siqueiros-Jácome House. It was located on the south side of an adobe wall, Feature 514. The midden was examined in an area measuring 2.8 m in length by 2.0 m in width, and excavated to a depth of 32 cm. The first soil layer within the midden was a grayish-brown silt that lay over three compact ground surfaces. The tamped ground surfaces lay above each other, and represent the renewal of the original dirt floor in the area by the addition of a thin layer of soil and careful tamping. All three floors were similar, and were composed of light reddish-brown sandy clay with caliche nodules.

Feature 579, Large Pit

Feature 579 was a large pit located beneath the north porch of the Siqueiros-Jácome House. The pit was explored in an excavation unit measuring 1.2 m square. It extended into unexplored areas to the west, north, and east, so its actual dimensions remain unknown. The pit had steeply sloping sides, and was at least 66 cm deep, filled with a gray-brown sandy silt. Artifacts found in the pit dated to presidio times, and included Native American ceramics, animal bone, flaked stone, and a majolica sherd.

Feature 586, Borrow Pit

Feature 586 was a borrow pit located in the backyard of the Siqueiros-Jácome House. It was explored in two excavation units, and the feature was found to contain presidio-era trash. The pit was at least 2.00 m long and 1.45 wide; it was 63 cm deep. The upper portion of the pit contained a consolidated layer of ash. Below this, was a layer of charred wood and ashes. There was some evidence, such as reddening of the soil, to indicate the burning took place in the pit. Beneath this was a layer of ashy material that lay on top of a thin layer of consolidated caliche and sand that had apparently washed into the pit after it was originally dug.

A variety of artifacts were found in the pit, including musketballs, a gun part, a bead, Native American ceramics, a ground stone mano, and majolica sherds. Animal bone, plant remains, and freshwater mollusk shells were also present.

Borrow pit Feature 571 and three small postholes, Features 558, 560, and 561 cut into the fill of Feature 586.

Feature 609, Extramural Surface

Feature 609 was an extramural surface discovered in the parking lot, and it was uncovered in two units. The surface was uncovered in an area measuring roughly 3.5 m (east-west) by 2.0 m (north-south). The light brownish-gray compact silt surface was between two soil layers. It was cut into by Features 605.01 and 610, both American Territorial period features.

This surface was formed either by purposeful tamping of the ground surface, or by being walked over repeatedly.

Feature 615, Small Pit

Feature 615 was a small pit discovered near the light pole base in the parking lot (Figure 4.6; see also Figure 4.2). The pit was 79 cm long by at least 60 cm wide. The pit extended into the south profile in an unexcavated area. It was filled with a homogenous brown sandy silt with many charcoal chunks, pieces of caliche, and fire-cracked rocks. It cut into Feature 616, another small pit. Screening the soil resulted in the recovery of animal bones, flaked stone, ceramics, metal, and historic ceramics. A flotation sample was

Figure 4.6. Feature 615, a roasting pit from the presidio occupation, Historic Block 181.

collected from the fill. The feature was probably a roasting pit, where meat or other foodstuffs were cooked.

Feature 616, Small Pit

Feature 616 was a small pit found near the light pole base in the corner parking lot. The oval, basin-shaped pit measured 1.29 m in length by 77 cm in width. It was 12 cm deep, and was filled with a light brown sandy silt. Screening of the fill resulted in the recovery of poorly preserved animal bone, ceramics, flaked stone, and a chalcedony concretion. This feature cut into Feature 418 surface. The pit also cut slightly into pit Feature 615.

Feature 622, Small Pit

Feature 622 was a small pit located in a unit near the light pole base. The basin-shaped pit was 55 cm long and extended into an unexcavated area. It was 18 cm deep, and was filled with brown sandy silt. No artifacts were present in the fill. Feature 622 probably dates to presidio times.

Feature 623, Posthole

Feature 623 was a small posthole found in the parking lot, in the light pole excavation area. The posthole was 19 cm long and 16 cm wide. It was 9 cm deep, and was filled with gray-brown sandy silt. No artifacts were present. The posthole cut through a hard surface, Feature 418.

Feature 628, Large Pit

Feature 628 was a large pit discovered during excavation of a prehistoric pit structure, Feature 608, along the south-central portion of the parking lot. The pit was at least 1.63 long, with a 33-cm-wide portion excavated. The pit was disturbed on the southern side by a sewer pipe and extended north into an unexcavated area. The pit had fairly vertical walls and a flat base. It was 35 cm deep, and was filled with a brown sandy silt. Screening of the soil resulted in the recovery of a San Elizario Polychrome majolica sherd, early brown transfer-print ceramics, Chinese porcelain, Native American ceramics, flaked stone, a hammerstone, and fragments of ground stone.

Feature 629, Small Pit

Feature 629 was a small, oval pit located during excavation of a pit structure, Feature 608. The basin-shaped pit was 75 cm long by 60 cm wide. It was 10 cm deep, and was filled with brown sandy silt. Animal bone and Native American ceramics were found in the pit.

Feature 632, Pit

Feature 632 was a pit found in the parking lot area. It was at least 20 cm deep, and was filled with light brown sandy silt with caliche chunks and charcoal staining. The feature was not excavated. It is in close proximity to several presidio-era pits.

Feature 635, Presidio "Moat"

Feature 635 was a shallow ditch dug around the northeastern corner of the north tower of the presidio (Figures 4.7-4.8). The feature was explored by excavating three units. The ditch ran from the southeast, curving around the corner of the tower to the northwest. The ditch was 2.6 m wide and was about 50 cm deep. The upper 25 cm were filled

Figure 4.7. Feature 635, a ditch or "moat" located on the exterior of the northeastern *torreón*, Tucson Presidio, Historic Block 181.

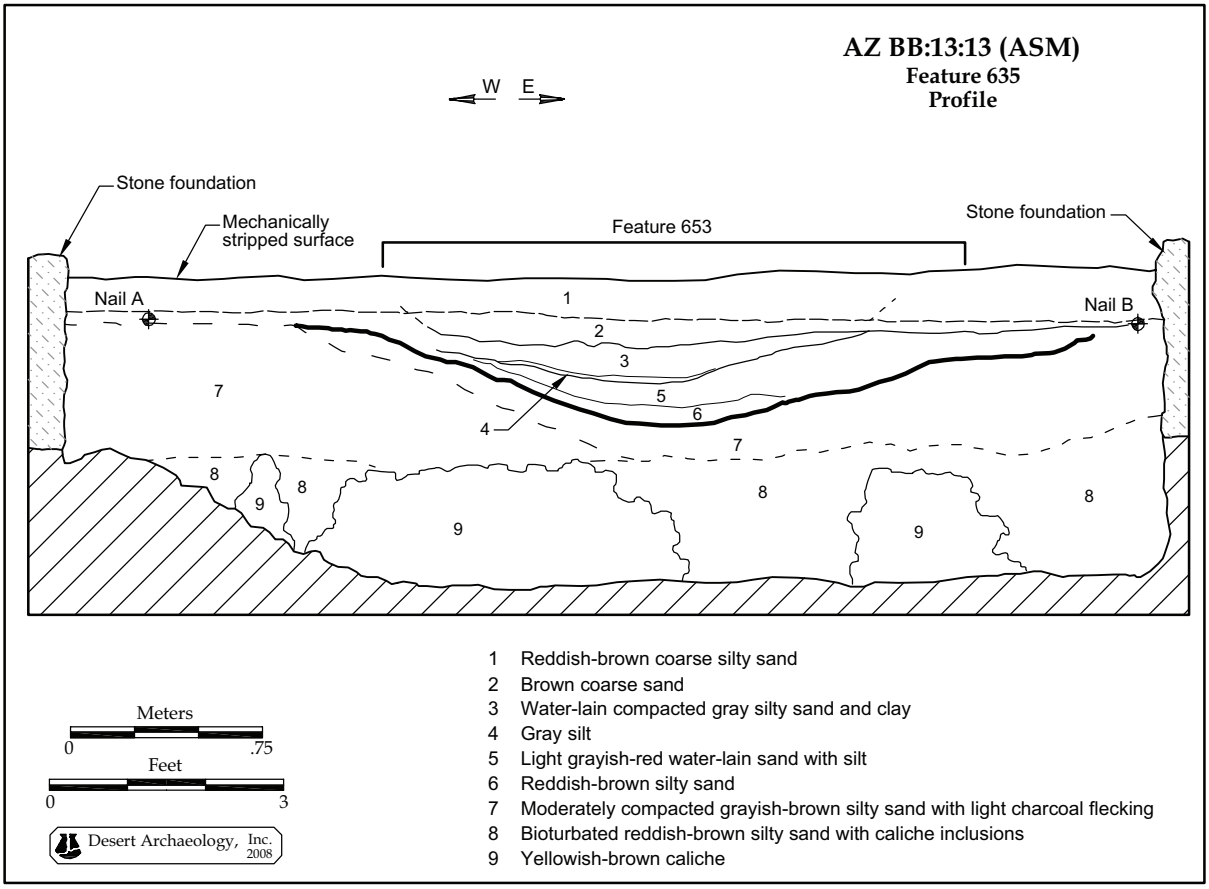

Figure 4.8. Profile of Feature 635, a shallow ditch, Historic Block 181.

with reddish-brown sand with a slight amount of charcoal staining. This layer contained many artifacts. The lower 25 cm of fill were water-lain layers of sand, silt, and clay. There was very light charcoal flecking and a small amount of gravel. The number of artifacts decreased dramatically in the lower layer. The base of the ditch was excavated into the underlying sediments and did not have a formally prepared lining.

Artifacts recovered from the ditch included majolica ceramics, Native American pottery, animal bone, flaked stone, and metal. The European ceramics found in the upper portion of the ditch suggest it was filled in during the 1850s. The moat may have been built during the closing years of the fort's existence.

Feature 638, Hearth

Feature 638 was a small hearth located inside the foundations of the northeastern tower of the presidio. The hearth was approximately 50 cm in diameter, and was 7 cm deep. It was filled with charcoal, ash, and gray sandy silt. Native American ceramic sherds were found in the fill. The hearth was cut by a modern electrical line. The feature may date to the Prehistoric era.

DISCUSSION

Recent excavations within the Presidio San Agustín del Tucson Park documented 32 features dating to the Spanish and Mexican periods, from 1776 to 1856. These features were all located inside the fort, a short distance away from the exterior walls and the northeastern tower. Most of the features probably relate to use of the area by people living inside the fort. A large number of artifacts and food remains associated with these features was recovered and are discussed in later chapters.

The features provide a better sense of the kinds of activities that occurred in and around the homes of presidio-era Tucsonans. The people of the Tucson Presidio lacked materials and technology to produce paved surfaces inside their homes, or on exterior areas adjacent to their homes where activities

such as cooking, chores, or sleeping took place. Instead, they wetted the earth and then tamped it, perhaps with a wooden tool, or with their feet. The resulting surface was kept clean by periodic sweeping, and would have been stable until the next heavy rainfall. This type of surface is still used today by some people in Arizona and in Sonora, Mexico.

A number of pits were also found. The original function of the most of these pits is unknown. They were primarily quite small, and often, but not always, served as a location for trash disposal. One feature was a large pit in which dirt and caliche were mined to make adobe bricks and/or mud plaster. Given the size of the fort, with its tall walls and many interior buildings, similar pits were almost certainly scattered throughout the interior and around the exterior of the fort.

A particularly interesting find was the fabled "moat" that surrounded the outside of the presidio. Pennington Street, to the south, was once described as an arroyo that formed as the water further eroded one such ditch. The ditch found during the current project was quite shallow and curved around the foundation of the northeastern tower. The old story that the ditch was formed by mining of dirt for adobes appears to be untrue. This feature was clearly carefully designed to drain water away from the base of the fragile adobe walls.

Many other features dating to the presidio were probably once present on Historic Block 181, but they would have been damaged or destroyed by American Territorial period activities. Features from this timespan are described in Chapter 5 (this volume).

CHAPTER 5

AMERICAN TERRITORIAL AND AMERICAN STATEHOOD PERIOD ARCHAEOLOGY: THE SIQUEIROS-JÁCOME HOUSE AND THE DODGE BOARDING HOUSE

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Block 181 was laid out in 1872 and divided into nine lots (see Figure 1.5, this volume). These lots varied in size and shape, reflecting existing property ownership when the area was surveyed. During the 2003-2006 fieldwork, excavations were conducted on Lots 1, 2, 3, and 8. Lot 8 was the location of the Siqueiros-Jácome House, a historic home built in the 1860s and 1870s. Lots 1, 2, and 3 were a parking lot at the time of the excavation, but had previously been the location of a boarding house and another dwelling labeled "old" on the 1883 Sanborn Fire Insurance map.

Archaeological features dating to the American Territorial period (1856-1912) and American Statehood period (1912 onward) are described in this chapter. The feature descriptions presented here are divided into those uncovered at the Siqueiros-Jácome House and those beneath the parking lot where the Dodge Boarding House once stood.

ARCHAEOLOGICAL FEATURES AT THE SIQUEIROS-JÁCOME HOUSE

As noted in Chapter 1 (this volume), excavations were conducted beneath the adobe walls and wooden floors of the structure, in the back porch area, and throughout much of the backyard (Figure 5.1). Only a couple of features dating to the American Territorial period were found inside the house. Construction of the house in the 1860s and 1870s effectively sealed the interior space. Several American Territorial period features were, however, found in the porch area. This area was probably not enclosed until the early 1880s. In contrast, the backyard was crowded with features created by the occupants of the house. These included a well and outhouses, a large adobe-mining pit, fencelines, and other postholes and pits. Each of the excavated features is described below.

Feature 468, Small Pit

Feature 468 was a shallow pit located in the northeastern corner of the middle room of the house. It cut through Feature 467, a Spanish-Mexican period occupation surface. The pit was 85 cm long, 65 cm wide, and 14 cm deep. It was filled with a charcoal-rich, very dark brown silty sand, loosely compacted until the base of the pit. The oval, basin-shaped pit was completely excavated and contained transfer-print ceramics, buttons, cloth, animal bone, and metal artifacts. It was the only American Territorial period feature located in the middle room.

Feature 471, Small Pit

Feature 471 was a small pit found in the southern porch area. It was 85 cm long, 80 cm wide, and 9 cm deep. The pit was filled with a light gray-brown silt with caliche chunks and gravel inclusions. Several rodent runs were present. The pit yielded Native American ceramics, a piece of majolica, metal, flaked stone, animal bone, and two glass beads. The pit cut through Feature 470, a probable prehistoric occupation surface.

Feature 472, Small Pit

Feature 472 was immediately west of Feature 471, and was another small pit. It measured 1.10 m in length, 1.10 m in width, and 32 cm in depth. It was filled with a very loosely compact gray-brown sandy silt. Numerous rodent holes were present. Artifacts found in the pit included historic ceramics, flaked stone, a button, animal bone, a shell bracelet fragment, and many Native American ceramics.

Feature 473, Artifact Concentration

Feature 473 was a cluster of 17 complete bottles found lying against the wall at the southern side of the property (Figure 5.2). Many of the bottles still had their paper labels, with "A.B.C. Beer" represented by several examples. The cluster of artifacts was 80 cm long, 48 cm wide, and 22 cm deep. Other artifacts found with the bottles included an aspirin tin, a button, a battery, animal bone, Native American ceramics, and pieces of metal. A root from the nearby historic fig tree ran beneath the artifacts.

Feature 476, Hard Surface

Feature 476 was a hard occupation surface discovered in the northeastern room. The surface lay beneath a layer of smashed adobe bricks and was on top of presidio-era trash. At one time, it was probably continuous across the entire unit, although it was discovered only after a portion had been dug through. The surface abruptly dips down along the eastern side. A single probable posthole cut through the surface. Feature 476 may be the same as Feature 482, found in the northern room. The surface probably dates to about the time the northern room of the house was built. The smashed bricks likely represent construction debris dumped into the area.

Feature 482, Original Floor of the North Room

Feature 482 was the original dirt floor of the northern room of the Siqueiros-Jácome House. The hard surface extended across the entire interior of the room. The floor was tamped in place in the 1860s. A single pit, Feature 496, cut through this surface.

Feature 483, Sewer Trench

Feature 483 was a sewer trench located along the eastern side of the porch area. A ceramic sewer pipe was in place in the trench, which is about 50 cm wide, and it was traced for 3.4 m. The trench was not excavated. The trench and the pipe probably date to the 1910s to 1920s.

Feature 484, Small Pit

Feature 484 was a small pit found in the backyard area. It measured 50 cm in length, 45 cm in width, and 19 cm in depth. The pit contained a brown silty sand and relatively few artifacts, consisting of some pieces of glass and flaked stone. The pit may have been a planting feature.

Feature 487, Small Pit

Feature 487 was a small pit located in the backyard area. It was approximately 31 cm in diameter and was 8 cm deep. The pit was filled with a loosely compact brown silt, and it contained a large number of irregular quartz nodules, along with flaked stone, glass, and metal. The pieces of quartz suggest someone with an interest in rock collecting or mining was living in the Siqueiros-Jácome House when the pit was filled.

Feature 488, Small Pit

Feature 488 was a small pit located in the backyard. It was 93 cm long, 63 cm wide, and 11 cm deep. The pit was filled with a loosely compact reddish-brown silty sand with a high charcoal content. It was basin shaped and cut into the underlying caliche. Native American ceramics, flaked stone, animal bone, and metal were collected from the pit.

Feature 489, Small Pit

Feature 489 was a small pit found in the backyard area. It was 70 cm long, at least 56 cm wide, and 24 cm deep. A portion of the pit extended into the balk wall and was not excavated. The pit was filled with a compact brown silty loam with a few flecks of charcoal. It contained a number of quartz nodules, identical to those found in Feature 487. Also recovered were Native American ceramics, flaked stone, and animal bone. The pit cut into Feature 492, an Early Agricultural period pit structure.

Feature 490, Well

Feature 490 was a well located in the backyard. The well appears on the 1883 Sanborn Fire Insurance map for the property. During scraping of the backyard, the well was discovered as a large, ashy, irregular stain. The southern half of the well was subsequently excavated to the 5-ft level. The first 20 cm was extremely compact, requiring a small pickaxe to remove the sediment. Afterward, the soil in the feature became much softer. The well was at least 1.80 m in diameter, constricting to 1.06 m in diameter at 1.83 m below the scraped ground surface. The overall depth of the well was not determined. Most

Figure 5.1. Plan view map showing American Territorial and American Statehood period features on the Siqueiros-Jácome House property.

Figure 5.2. Feature 473, a pile of American Statehood period bottles in the backyard of the Siqueiros-Jácome House.

of the well was filled with a medium brown silty sand. The walls of the feature were caliche, and they were quite irregular due to sloughing off of the caliche while the well was in use or when it was abandoned and being filled.

Artifacts found in the feature included Historic Native American ceramics, flaked stone, shell, animal bone, bottle and lamp globe glass, plain whiteware ceramics, metal, buttons, and leather. The artifact density was moderate, and many of the items appear to have been trampled, being broken into relatively small sizes.

Feature 491, Utility Trench

Feature 491 was a utility trench running southwest to northeast across the backyard. A metal pipe, for water or natural gas, was in the trench, which was not excavated. The trench was 26 cm wide.

Feature 494, Occupation Surface

Feature 494 was a tamped surface found in the northern portion of the north room of the Siqueiros-Jácome House. It was a hard-packed grayish-brown sandy silt with a small amount of charcoal flecking. The surface lay beneath another surface, Feature 482. Feature 494 probably represents either an early floor of the northern room of the Siqueiros-Jácome House or the historic ground surface present when the house was built.

Feature 496, Small Pit

Feature 496 was a small, bell-shaped pit located in the northern room of the Siqueiros-Jácome House. The pit was 30 cm in diameter at the top, belling out to 35 cm at the base. It was 26 cm deep, and was filled with several layers of ash separated by lenses of coarse brown sand. A tin bowl or plate lay at the base of the pit. Also recovered were Native American sherds, animal bones, and historic ceramics. The pit probably dates to after the 1856 Euro-American arrival into Tucson and before the circa 1866 construction of this room of the house.

Feature 507, Small Pit

Feature 507 was a small trash-filled pit located in the eastern side of the Siqueiros-Jácome House backyard. The pit measured 1.40 m in length, 1.25 m in width, and about 13 cm in depth. The pit contained a very fine grayish-brown silt. Many artifacts were found in the fill, including Native American ceramics, a pencil lead, buttons, and an obsidian arrow point tip.

Feature 509, Trash Concentration

Feature 509 was a trash concentration dating to the 1950s or 1960s, located in the backyard of the Siqueiros-Jácome House. The trash was in an area that measured approximately 70 cm long, 50 cm wide, and 14 cm thick. Broken glass, metal, and Native American ceramics were collected from the feature. The trash intruded into two Presidio era features, Feature 508, a roasting pit, and Feature 513, a borrow pit.

Feature 510, Outhouse Pit

Feature 510 was an outhouse pit discovered in the Siqueiros-Jácome House backyard. The rectangular pit was 82 cm long, 70 cm wide, and 63 cm deep. It had vertical sides and a flat base. The pit was excavated in three arbitrary levels, and the outhouse was discovered to be filled with a soft gray silt. Several charcoal lenses were present, probably representing ash dumped into the pit in an effort to control odor. A variety of artifacts were found in the pit, including an 1865 penny, an English transfer-print bowl, a porcelain saucer, wire mesh, faunal bone, eggshells, buckles, and buttons. A large number of desiccated figs and peach pits were also recovered.

Feature 511, Small Pit

Feature 511 was a small bowl-shaped pit found in the Siqueiros-Jácome House backyard. The pit was roughly 1 m in diameter, and was filled with a soft brown silty sand. Artifacts contained in the 22-cm-deep pit dated to the 1950s and were not kept except fragments of a painted plaster figurine.

Feature 512, Small Pit

Feature 512 was a small, oval pit found in the backyard of the Siqueiros-Jácome House. It measured 1.2 m in length by 90 cm in width. The 15-cm-deep pit was filled with layers of charcoal and ash. It contained many artifacts, including eggshells, animal bones, glass bottles, Native American pottery, and plaster. The items dated to the 1950s.

Feature 515, Small Pit

Feature 515 was a small, circular pit located in the backyard of the Siqueiros-Jácome House. It was 32 cm in diameter and 12 cm deep, filled with ash. The entire fill of the pit was submitted as a flotation sample. Features 516 and 517 were similar, nearby pits; all three pits cut into Feature 513, an underlying borrow pit.

Feature 516, Small Pit

Feature 516 was a small, oval pit located in the backyard. The pit was 41 cm long, 33 cm wide, and 17 cm deep, filled with ash. Native American ceramics, animal bone, and metal artifacts were present in the fill.

Feature 517, Small Pit

Feature 517 was a small, oval pit located in the backyard. It was 36 cm long, 28 cm wide, and 29 cm deep. The pit was filled with ash, and the edges of the pit were slightly oxidized, suggesting the ash was very hot when it was dumped. Artifacts present included flaked stone, metal, historic non-Native ceramics, and animal bone. Like Features 515 and 516, this pit cut into the underlying borrow pit, Feature 513.

Feature 518, Small Pit

Feature 518 was a small ash-filled pit found in the backyard. It measured 33 cm in length, 29 cm in width, and 12 cm in depth. The western side of the pit was somewhat reddened from heat, probably when the hot ashes were dumped into the pit. Artifacts present included Native American sherds, flaked stone, and metal.

Feature 521, Posthole

Feature 521 was a posthole found in the backyard near another post, Feature 522. The posthole was 16 cm long by 13 cm wide, and 22 cm deep. It was dug into caliche. The organic brown loam inside the hole contained two iron screws.

Feature 522, Posthole

Feature 522 was a posthole found in the backyard near Feature 521, another post. The posthole was 20 cm long, 15 cm wide, and 17 cm deep. The posthole was cut into caliche. The organic brown loam inside the hole contained a few small artifacts.

Feature 523, Small Pit

Feature 523 was a small pit located in the southeastern portion of the backyard, a short distance north of the fig tree. It was 1.4 m long (north-south), 60 cm wide, and 43 cm deep. It was filled with a dark grayish-brown silty loam. Artifacts found in the fill included animal bone, flaked stone, glass, metal, and a fruit pit. The pit cut through a presidio-era borrow pit, Feature 513.

Feature 524, Posts

Feature 524 was a set of wooden posts for a fenceline or a ramada structure, located in the backyard of the Siqueiros-Jácome House. The four posts were all roughly 9 cm^2 and ran in a north-south alignment in the area north of the fig tree. The individual postholes were 21 cm deep.

Feature 527, Outhouse Pit

Feature 527 was an outhouse pit found in the northern portion of the Siqueiros-Jácome House backyard. The subrectangular pit was 2.10 m long

(north-south) by 1.47 m wide. The vertical-walled pit was at least 1.4 m deep, although excavation was terminated before the base of the pit was found. The upper portions of the pit were dug into by a bottle hunter in the 1960s, and subsequently refilled with soil that contained many chunks of asphalt and modern trash. A small area along the northern side remained undisturbed, and consisted of brown coarse sandy silt with bits of caliche and pockets of ash. Artifacts found in the undisturbed portion of the pit included a dog skull, whole bottles, buttons, and window glass. The Feature 527 outhouse pit had been cut into an earlier outhouse pit, Feature 577.

Feature 529, Small Pit

Feature 529 was a small pit found in the backyard. It measured 1.33 m in length (north-south) by 1.26 m in width. The 7-cm-deep pit was filled with a gray loam with a high charcoal and ash content. It was completely excavated, and yielded Native American sherds, flaked stone, animal bone, a piece of glass, and two buttons. The base of the pit was cut into the underlying caliche.

Feature 551, Small Pit

Feature 551 was a small pit located in the backyard, just east of the northern porch. The pit was 90 cm long by 65 cm wide. It was 11 cm deep, and was filled with a light gray sandy silt with some caliche and charcoal chunks. Native American ceramics, animal bone, and a piece of glass were found in the portion of the pit that was sampled.

Feature 558, Posthole

Feature 558 was a posthole located in the backyard of the Siqueiros-Jácome House, just east of the door for the southeastern room. The post cut into a presidio-era borrow pit, Feature 586. The posthole was 20 cm long (east-west) and 17 cm wide. It was 13 cm deep, with vertical walls. The fill was a gray-brown sandy silt that was removed without screening.

Feature 560, Posthole

Feature 560 was another posthole found in the backyard, and it cut into borrow pit Feature 586. The hole was 18 cm^2 and 11 cm deep, filled with a brown sandy silt. The posthole had vertical walls and a flat base. No artifacts were present.

Feature 561, Posthole

Feature 561 was a third posthole found in the backyard, and it cut through Feature 586, a borrow pit. This post was 16 cm in diameter, had a flat base, and was 13 cm deep. The posthole was filled with an ashy brown sandy silt.

Feature 569, Pit

Feature 569 was an irregularly shaped pit found in the Siqueiros-Jácome House backyard. It was 1.40 m long (north-south), 84 cm wide, and 16 cm deep. The pit was filled with pale gray loam that contained a large amount of ash and a layer of coarse-grained sand, probably water-deposited. Artifacts found in the pit included Native American ceramics, nails, buttons, flaked stone, and some historic ceramics.

Feature 570, Outhouse Pit

Feature 570 was an outhouse pit located in the northeastern corner of the Siqueiros-Jácome House backyard. The pit measured 1.7 m in length and 1.4 m in width. It was excavated to a depth of 1.75 m, with excavation terminating at that point due to OSHA regulations. The fill was a light grayish-brown silty sand with charcoal and ash deposits. Deeper in the feature, the fill became a greenish-gray soft silt.

Artifacts found in the pit included a chamber pot lid, Native American ceramics, animal bones, buttons, flaked stone, a hand-painted cameo, a thimble, bottles, and a shoe.

Feature 571, Borrow Pit

Feature 571 was a large borrow pit located in the northern portion of the Siqueiros-Jácome House backyard (Figure 5.3). It was at least 7 m long and 6 m wide, with the southern and eastern edges of the pit identified, but the northern and western edges extending beyond the excavation area. Twelve excavation units, totaling 21 m^2, were cut into the pit, which ranged 50-71 cm in depth, averaging 61 cm.

The pit was filled with layers of brown silty sand, ash, charcoal, and greenish-gray silt. Some

Figure 5.3. Western profile of Feature 571, a large soil mining pit in the backyard of the Siqueiros-Jácome House.

areas of the pit contained a very compact layer of pale brown silty sand. This sediment layer was explored in only one unit.

The pit contained a large number of artifacts, including a variety of glass bottles, nails, barrel bands, a complete iron stove, whiteware dishes, lamp parts, an opium pipe, clay pipes, school slates, pencil leads, many doll parts, a "MALT EXTRACT" bottle that was filled with fish bone and fish scales, marbles, and harness rivets.

Numerous later postholes and small pits cut into the large borrow pit.

Feature 573, Large Pit

Feature 573 was a large pit located in the backyard of the Siqueiros-Jácome House. It was at least 2.23 m long by 1.10 m wide, with a depth of 15 cm. The pit cut into another pit, Feature 586, and was, in turn, cut into by Feature 557, a small posthole. The northwestern quarter of the pit was excavated. It contained a light brown, very compact silt with relatively small numbers of artifacts. Those present included glass, Native American ceramics, animal bone, and metal.

Feature 575, Large Pit

Feature 575 was a large, oval pit found in the northeastern portion of the Siqueiros-Jácome House backyard. The pit was 1.45 m long and 1.02 m wide; it was roughly 25 cm deep and was basin shaped. The pit was filled with a uniform brown coarse sandy silt. The pit was cut into by an outhouse, Feature 527, which had removed the northwestern corner of the pit.

A poorly preserved cattle skull was present in the pit. Also recovered were Native American sherds, flaked stone, glass, and historic ceramics.

Feature 577, Outhouse Pit

Feature 577 was an outhouse pit located in the northeastern corner of the Siqueiros-Jácome House backyard. The pit measured 90 cm in length by 55 cm in width; however, much of the pit was removed historically during construction of another outhouse pit, Feature 527. The surviving portion of the pit was 1.47 m deep, and was filled with a homogenous brown coarse sandy silt. Pockets of ash and charcoal were present in this dirt. The base of the pit extended beyond the 5-ft level, so the actual depth of the pit could not be determined. A clay pipe was among the artifacts recovered from this outhouse.

Feature 581, Posthole

Feature 581 was a posthole found in the north-central portion of the backyard, cutting into a borrow pit, Feature 571. The posthole was 23 cm long; the width was not determined. The hole was 42 cm

deep, and was filled with a gray-brown sandy silt. The remains of a 4-inch-square wood post were present.

Feature 582, Cooking Pit

Feature 582 was a small cooking pit located in the backyard of the Siqueiros-Jácome House, intruding into Feature 571, a borrow pit. Pit Feature 582 was approximately 68 cm in diameter and was 34 cm deep. The round pit had near-vertical walls and a flat base. It was filled with ash, and contained some 90 pieces of fire-cracked rock and nine fragments of brick. Glass, metal, Native American ceramics, and animal bone were also present in the fill.

Feature 583, Postholes

Feature 583 was a pair of postholes located in the backyard of the Siqueiros-Jácome House, both cutting into a borrow pit, Feature 571. One posthole measured 27 cm in length, 24 cm in width, and 71 cm in depth. The second posthole was 24 cm long, 18 cm wide, and 46 cm deep. Both postholes contained the decomposed remains of the wooden posts, which measured 6 inches by 8 inches.

Feature 593, Posthole

Feature 593 was a small posthole located in the northern porch area. The post was 17 cm long by 15 cm wide. It was 28 cm deep, and was filled with charcoal and ash. The edges of the posthole were burned, indicating the post burned in place. Below the charcoal was an unconsolidated, brown silty sand. A few pieces of flaked stone, animal bone, and historic ceramics were found. Among the ceramics was a purple transfer-print cup base with a scene featuring a weeping willow and an Italianate building.

Feature 596, Posthole

Feature 596 was a posthole located in the backyard of the Siqueiros-Jácome House. It was 29 cm long, 17 cm wide, and 94 cm deep. The posthole was filled with a soft brown sandy silt that surrounded the decomposed remnants of a 4-inch-square post. The post cut through the fill of Feature 571, a large borrow pit.

Feature 598, Posthole

Feature 598 was a posthole found in the backyard of the Siqueiros-Jácome House, intruding into a borrow pit, Feature 571. It was exposed in profile and was not excavated. The posthole was 25 cm wide and 40 cm deep. It was filled with a grayish-brown sandy silt.

Feature 599, Posthole

Feature 599 was a posthole found in the center of the Siqueiros-Jácome House backyard, cutting through a prehistoric crematorium, Feature 597. The posthole was 27 cm long and 24 cm wide. It was 26 cm deep, and was filled with a light brown sandy silt that included many small caliche chunks. A few artifacts—a pencil lead, a glass fragment, and some metal bits—were present but were not collected.

Feature 601, Posthole

Feature 601 was a posthole located in the northern portion of the Siqueiros-Jácome House backyard, cutting into borrow pit, Feature 571. It was exposed in profile and was not completely excavated. The posthole was 65 cm wide and 46 cm deep. It was filled with a light brown sandy silt. At the base of the hole was a large, complete tin can. The post may have originally been seated inside the can, although no remnants of the post remained to verify this.

Feature 602, Posthole

Feature 602 was a posthole found in the Siqueiros-Jácome House backyard, cutting through borrow pit Feature 571. It was exposed in profile and was not excavated. This post was 26 cm wide and 26 cm deep; it was filled with a homogenous gray sandy silt.

HISTORIC ERA ARCHAEOLOGICAL FEATURES ON THE DODGE BOARDING HOUSE PROPERTY

The archaeological excavations on Lots 1, 2, and 3 were conducted in areas that were to be disturbed by the construction of park futures (Figure 5.4). These included the foundations of the tower and mural walls and a block excavation around a concrete light

Figure 5.4. Plan view map showing American Territorial and American Statehood period features on the Dodge Boarding House property.

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pole foundation, which was to be removed. Unlike work at the Siqueiros-Jácome House, which included large-scale stripping of the backyard and a wide exposure of features, work in the vicinity of the boarding house was less systematic. Consequently, an understanding of how the backyard area of the house was used is less well developed.

Feature 359, Adobe Mining Pit

Feature 359 was a large adobe mining pit that was subsequently filled with trash generated by the Dodge Boarding House residents in the 1890s. The pit was 9.5 m long (east-west) and at least 5.0 m wide (north-south). Portions of the pit were uncovered in the 2002-2003 excavations (Thiel and Mabry 2006).

A 4-ft-wide trench was excavated through the length of the pit for the new northern wall of the presidio tower. Five units were excavated in stratigraphic levels. The pit was bowl-shaped, with the center of the deepest portion at about 1.1 m deep. A layer of fill lay above the pit, representing material dumped in this area after the 1890s to raise the ground level. The base of the pit cut into the underlying caliche and into two features, Features 641, a pit, and Feature 643, a Hohokam pit structure. Feature 645, a posthole, intruded into the top of the pit.

The pit contained four layers of fill. Stratum 50 was a thin ashy layer. Below was Stratum 50.01, a thick layer of orange sand that was dumped into the pit to fill the area. Beneath that layer was Stratum 50.02, a brown loamy silt layer that contained a large number of artifacts. Stratum 50.03 was a compact layer of brown sandy silt at the base of the pit, representing initial filling of the pit after it was excavated in the 1890s.

A very large number of artifacts was recovered from the pit. These included pieces from a matched bedroom set, including a chamber pot and lid, a small pitcher, and a toothbrush cup. Other items included buttons, a thimble, a metal wagon wheel, an 1891 Indian head penny, porcelain dolls, a Black Friars gin bottle, a Chinese tea pot, a children's alphabet bowl, and infant food bottles.

Feature 408, Outhouse

Feature 408 was an outhouse shaft originally located during the 2002-2003 excavations. At that time, the outhouse was excavated to 2.02 m below the modern ground surface. During the 2005-2006 field session, the remainder of the outhouse was mechanically excavated in three 20- to 30-cm-thick levels, with the dirt stockpiled for hand-screening.

When originally dug, the outhouse pit measured 1.38 m in length, 1.17 wide, and 2.72 m deep. Levels 9-11 contained greenish-gray loamy sand with large amounts of artifacts. The shaft of the outhouse cut through the caliche layer into the underlying coarse sand layer, allowing fluids to drain from the pit.

Artifacts recovered from the lower levels included medicine and liquor bottles, a poker chip, school slates, a toy oven, and nails. A most unusual discovery was a partial human skull.

Feature 603, Adobe Mining Pit

Feature 603 was a large adobe mining pit located along the middle portion of the southern side of the large parking lot. The pit was 7.6 m long (east-west). Its width could not be determined, however, because it extended north and south of the 7-cm-wide trench excavated for the foundation of the southern mural wall. The pit was almost 2 m deep in its center. Along the western side, it was cut into by Feature 624, another adobe mining pit.

The pit was dug into the caliche layer to recover soil for adobe bricks. Afterwards, it was filled with brown silty sand, with a moderate amount of charcoal flecking and chunks, pieces of gravel, and occasional pieces of adobe bricks or fired bricks.

Artifact density was low, with a variety of English and Mexican ceramics, pieces of bottle glass, nails, can fragments, a decorative metal lid, animal bone, and buttons.

Feature 604, Small Pit

Feature 604 was a small pit located in the block excavation around a light pole. The pit was 58 cm long, 42 cm wide, and 31 cm deep. It originated in Stratum 4.03, and was probably a small planting pit. No artifacts were collected from this feature, which probably dated to the 1930s or 1940s.

Feature 606, Extramural Tamped Surface

Feature 606 was a hard-packed ground surface exposed in excavations Units 629 and 632 in an area measuring 3.5 m in length and 2.0 m in width. The surface lay beneath a soil layer designated Stratum 4.04, and was cut into by a posthole, Feature 605.01, and a small pit, Feature 604. The surface

was formed by tamping down a caliche and gravel-rich silt. It dates to the early American Territorial period.

Feature 607, Extramural Tamped Surface

Feature 607 was another hard-packed ground surface exposed in excavation Units 629 and 632 in an area measuring 3.5 m by 2.0 m, extending beyond the excavation boundaries. The surface was sandwiched between levels of Stratum 4.01. It was a light gray sandy silt that was tamped down either intentionally or by having been walked across. It was poorly preserved.

Feature 610, Small Pit

Feature 610 was a small pit located in the excavation Units surrounding the light pole base. The pit was 72 cm long by 55 cm wide. It was 11 cm deep, and was filled with a brown coarse sandy silt. No artifacts were present. The pit cut through a tamped surface, Feature 609.

Feature 611, Posthole

Feature 611 was a posthole found in the excavation units around the light pole base. The posthole was square, measuring 26 cm to a side; it was 22 cm deep. Feature 611 originated in Stratum 4.01. Feature 604, a small pit, cut into the post. Glass artifacts were collected from the posthole, while Native American ceramics and animal bone were observed but discarded.

Feature 612, Postholes

Feature 612 was a set of four postholes discovered while excavating a prehistoric pit structure, Feature 608. The postholes were 23 cm square and originally contained 4-inch by 4-inch posts, with decomposed wood noted in each posthole. One posthole was excavated, revealing a depth of 25 cm. The posts may have been for a fence or perhaps for a small shed or outbuilding.

Feature 613, Posthole

Feature 613 was a posthole found in the light pole excavation area. It was 26 cm square and 8 cm deep. It originated in Stratum 4.01 and was filled with a brown sandy silt.

Feature 614, Extramural Tamped Surface

Feature 614 was a hard tamped surface found in the light pole excavation area, Units 629 and 632. The surface was at least 3.5 m long by 2.0 m wide, extending beyond the excavated area. The surface was discovered lying beneath Stratum 4.03. It was cut by Feature 604, a small pit, and Feature 614.01, a posthole. It lay above Stratum 4.04. The surface is thought to date to sometime between 1900 and 1950.

Feature 614.01, Posthole

Feature 614.01 was a square posthole, measuring 30 cm to a side. It originated in the surface, Feature 614. It was 49 cm deep and filled with soft dark brown sandy silt. The posthole appears to have dated to the period between 1900 and 1950s.

Feature 617, Posthole

Feature 617 was a posthole found while excavating a unit in Feature 620, a borrow pit. The posthole was 25 long, 24 cm wide, and 44 cm deep. It was filled with a grayish-brown sandy silt.

Feature 618, Posthole

Feature 618 was a posthole cutting through surface Feature 378. The hole was 27 cm long (north-south) and 20 cm wide. It contained a 4-inch-square post, which was quite decomposed. The post was 24 cm deep, and the fill around the post consisted of a reddish-brown silty sand.

Feature 620, Adobe Mining Pit

Feature 620 was a probable adobe mining pit located in the northwestern corner of the parking lot. The pit was found in a 1-m by 2-m unit, and only a small area was investigated. It was at least 1 m long and 60 cm wide, extending into unexcavated areas. The pit was 40 cm deep, and was filled with compact gray-brown sandy silt and a thick lens of ashy gray-brown silt. A posthole, Feature 617, intruded into the pit.

Screening of the fill yielded a variety of artifacts, including a cartridge shell, Native American ceramics, a marble, nails, shoe leather, and cloth. Many of these items were burned.

Feature 621, Adobe Mining Pit

Feature 621 was a second probable adobe mining pit located in the northwestern corner of the parking lot, a short distance west of Feature 620. The pit was exposed in only a small area, and was at least 1 m long and 20 cm wide, extending into unexcavated areas. The feature was at least 9 cm deep, filled with gray-brown silty sand. Artifacts found in the small portion excavated included 3 barrel straps, 5 tin can fragments, 2 nails, and pieces of bottle glass.

Feature 624, Adobe Mining Pit

Feature 624 was a large adobe mining pit found along the southern side of the parking lot. The western portion of this feature was excavated as Feature 376 during the 2002-2003 fieldwork. In 2005-2006, the pit was explored through the excavation of six units, 652, 658, 661, 669, 672, and 709.

The pit was at least 14 m long. Its width was not determined, however, because it extends north and south of the area investigated. The pit was roughly 2 m deep. The base of the pit cut into the underlying caliche. It was filled with layers of ash and sand.

A large number of artifacts was present in the pit, probably discarded by residents of the Dodge Boarding House. These included clay pipes, a chamber pot, dish fragments, bottles, and nails.. The artifacts dated to the 1890s.

Feature 626, Small Pit

Feature 626 was a small pit discovered immediately adjacent to Feature 625, a prehistoric pit structure. Circular pit Feature 626 measured 1.4 m in length and at least 1.0 m in width, with a portion removed in a backhoe trench that was excavated along the eastern tower foundation. It had straight walls and a flat base. The pit was 52 cm deep, and it was filled with brown silty sand. Screening of the soil from inside the pit yielded animal bone, Native American ceramics, metal, glass, and historic ceramics. Feature 626 predates the construction of the Dodge Boarding House, which was built over the pit.

Feature 627, Dodge Boarding House Foundation

Feature 627 was the rock and mortar foundation of the Dodge Boarding House, constructed around 1898 and demolished in December 1954 (Figure 5.5). The C-shaped structure was at least 27.0 m long (north-south) and 10.2 m wide. Individual rocks ranged from 4 cm by 8 cm to over 1 m in diameter. The adobe bricks that once formed the walls of the house were 32.0 cm long by 10.5 cm thick. The adobe bricks were laid directly onto the flat top of the foundation.

Individual rooms on the first floor of the boarding house varied in size (Table 5.1).

Water pipes ran into the structure along the southern side of the foundation. A ceramic sewer pipe was present running into the northwestern corner of the building, the likely location of a bathroom. Ceramic sewer pipes probably also ran into the structure on the southern side. Gas lines were also noted along the western side of the boarding house foundation.

During demolition of the house, the adobe walls were knocked down, with some falling into the crawlspace beneath the floor. Other architectural debris present included pieces of wood, plaster, and tarpaper.

Feature 639, Large Pit

Feature 639 was a large pit located during excavation of the north tower wall foundation trench. The feature was 3.0 m long and at least 1.3 m wide, extending to the north and south beyond the excavated area. It was 48 cm deep, and filled with dark brown sandy silt with many lenses of ash along the eastern half of the pit. Screening of the pit fill yielded many artifacts, including Native American ceramics, buttons, a curry comb, a school slate, glass bottle fragments, and metal.

The feature was probably a shallow pit dug to obtain soil to make adobe bricks.

Feature 640, Large Pit

Feature 640 was a large pit found beneath the Dodge Boarding House. The pit was 2.0 m long and at least 76 cm wide. It was 59 cm deep, and was filled with three distinct layers of sediment. The top layer was a moderately compacted grayish-green ashy sand with some evidence for in situ burning. The middle layer was a loose, light brown silty sand and ash. The bottom layer was gray silty sand and ash with a large number of rocks.

Figure 5.5. The Dodge Boarding House foundations, Feature 627 (located on the right side of the photograph).

Animal bones, metal, a tiny piece of Chinese porcelain, and glass were found in the pit. The pit predates construction of the Dodge Boarding House in the 1890s. The feature may date to presidio times.

Feature 642, Pit

Feature 642 was a pit located at the western end of the new northern wall foundation trench. The pit was at least 1.3 m long by at least 78 cm wide. It extended north and south into unexcavated areas. The western side of the feature may have been destroyed by the construction of the dwelling at 138 West Washington Street in the early 1900s.

The pit was 34 cm deep, and was filled with grayish-brown silty sands with many small lenses of ash. The base of the pit cut into the underlying caliche layer.

Table 5.1. Dodge Boarding House room dimensions, Historic Block 181.

Room	North-South (m)	East-West (m)
A	4.45	4.20
B	3.90	4.20
C	3.90	4.10
D	3.84	4.00
E	4.35	4.10
F	7.80	4.80
G	7.60	4.20

Artifacts recovered from the pit included Native American ceramics, bottle glass, a spoon or fork handle, two pieces of printer's type, animal bone, and a hammerstone. Among the ceramics found in the pit were pieces of annular/sponge print, yellowware, flow blue, and plain whiteware. One piece of majolica, with an unusual white glaze with mustard yellow splotches, was also collected.

Feature 644, Large Pit

Feature 644 was a large pit found in the northern wall trench. The pit was at least 2.38 m long and 1.60 m wide, extending into unexcavated areas. It was 14 cm deep, and was filled with dark brown silty sand, with ash and charcoal present at its base. Many artifacts were present in pit Feature 644, including corset parts, shoe fragments, a doll hand, a checker, clay marbles, and various types of ceramics. The European ceramics found had matching patterns with ceramics recovered from Feature 359.

Feature 645, Posthole

Feature 645 was a posthole exposed in the northern wall trench profile. The posthole was 24 cm wide, and had straight sides and a flat base. The feature was 39 cm deep and was filled with gray ash. It probably dates to the early 1900s.

Feature 646, Sheet Trash

Feature 646 was an area of sheet trash found along the north-central portion of the parking lot, northwest of Feature 408, an outhouse. The trash was present in an area at least 2.2 m long by 60 cm wide, although its actual extent remains uncertain. A 20-cm-thick level was excavated in the light brown silty sand. Screening resulted in the recovery of animal bone, a bullet, two buttons, a clay pipe face, tin cans, a tin plate, and Native American ceramics. Other ceramics included pieces from a whiteware cup, a yellowware bowl or cup, red and blue transfer-print bowls or saucers, and an annular ware cup or bowl. The trash appears to date to before 1900.

Feature 647, Small Pit

Feature 647 was a small, rectangular pit found along the north-central portion of the parking lot. The pit was 1.35 m long and 67 cm wide. It had vertical walls and a flat base. The pit was 16 cm deep, and was filled with a light gray sandy silt. Two cartridges, 18 nails, tin can fragments, a button, and animal bone were among the artifacts found in the feature. It was probably a planting pit associated with the Dodge Boarding House.

Feature 648, Small Pit

Feature 648 was a small circular pit located in the north-central portion of the parking lot. It was about 80 cm in diameter. The pit was not excavated.

Feature 649, Small Pit

Feature 648 was a small circular pit located in the north-central portion of the parking lot. It was approximately 80 cm in diameter. The pit was not excavated.

LIFE ON HISTORIC BLOCK 181

Hundreds of people likely lived on the two properties on Block 181 over the course of 130 years. These individuals lived in the Siqueiros-Jácome House from 1866 through 1994, the Telles family house apparently in the 1870s, and the Dodge Boarding House from about 1898 to 1954.

No evidence for the Telles home was located. Its physical remains were apparently destroyed when a large pit, Feature 359, was excavated to collect soil and caliche to made adobe bricks for the boarding house. The Siqueiros-Jácome House is still standing, albeit after extensive restoration efforts. Much of the original fabric of the building—adobe brick walls, plaster, ceilings, windows, doors, and woodwork—was retained, allowing visitors to view the materials of an early American Territorial period home. The physical remnants of the Dodge Boarding House are also visible within the new park, with both adobe walls and stone foundations interpreted. Both of these latter buildings were constructed close to the street, a typical feature of American Territorial period Tucson, with rear yards available.

Backyard areas were the focus of many activities. The Siqueiros-Jácome family had a well excavated in the middle of their backyard. The date of its initial construction is not known. It was present in 1883, depicted on the Sanborn map, and was probably in use into the early 1900s.

Residents of the presidio had several options for obtaining water. Several wells are reported to have been present within the fort, necessary due to the frequent attacks by the Apache. They could also walk down the terrace outside the main gate and get water from the nearby *acequia*, or they could travel a short distance to the south, and collect water from Los Ojitos, several springs in the area of modern-day Carrillo School. During the early American Territorial period, a peddler circulated through the downtown area with a water tank mounted on his wagon, selling water to households that lacked water. Water was stored in large O'odham *ollas*, which were porous enough to allow surface evaporation to help keep the contents cool.

Tucson's first water supply system opened in 1881 as a private business, and water pipes were run down many streets in 1882. The water company was taken over in 1890 by the city. By the early 1900s, most homes in the downtown area were probably connected, this taking place as the water table was dropping through pumping and a prolonged drought, thereby drying up wells in downtown Tucson. Soledad Jácome and her tenants probably used the well into the early 1900s. After indoor plumbing was installed in the rooms at the back of the house, the well was filled with trash and dirt.

The 1883 Sanborn map also depicts two privies (also called outhouses, latrines, or waste closets) in the backyard, one in the southeastern corner, probably beneath the current fig tree, and another in the northeastern corner of the lot. The archaeological excavations uncovered five privy pits in the backyard, all concentrated in the northeastern corner. The privies were probably used for less than 10 years each, assuming they range in date from the

1870s to the 1910s. A privy would generally be used until it became full, developed a disagreeable odor, or the household members changed. The shaft was then filled with refuse and dirt, while the wooden superstructure would probably be moved to the new location. Privy shafts in Tucson range from a meter deep to 5.5 m, averaging about 2 m in depth (Diehl 2003:25). It is common to find anywhere from one to seven privy pits on each residential lot occupied prior to the 1910s.

Archaeologists have not located privies that date before 1880, leaving the question of what happened sanitation-wise during the early American Territorial period. Chamber pots may have been emptied into the streets (early accounts often describe how disgusting the streets were), or they may have been emptied onto the fields on the floodplain.

The placement of the outhouses suggests Mrs. Jácome understood the dangers of close proximity of the well and human waste deposited in privies. She was constrained by the relatively small space available in her backyard for the two kinds of features, which were, at most, 15 m apart. Both shaft features cut through the caliche layer, about 1.2-1.5 m deep, into the underlying sand and gravel layer below. It is possible that liquids from the privy pits could have migrated through the sand into the well, but it also seems likely that the sand would have filtered out harmful bacteria.

Also present in the backyard was a pair of large pits where soil and caliche were mined to make adobe bricks. One of the pits, Feature 513, may have been dug in the mid-1860s for construction of the northernmost room of the house, although it may have been originally dug during the presidio occupation (the lowest level contained primarily presidio-era artifacts). The other larger and deeper pit was dug in the late 1870s or early 1880s, prior to construction of the southern two rooms. Both pits were later used for the disposal of trash, and large quantities of artifacts and food remains were found in them.

The City of Tucson did not institute trash collection until the 1910s (Diehl et al. 1997). Prior to that, people had to dispose of their refuse on their own, and many threw garbage down disused well and privy shafts or into the large mining pits in their backyards. Backyards were probably often somewhat unpleasant places to be, especially during the hot, muggy summer months.

While less of the Dodge Boarding House backyard was explored, many of the same types of features were discovered. Two very deep privy shafts were located, both a short distance from the backdoors of the house (one was excavated in 2002). No well was located, and it is uncertain if there was ever one on the property, since city water was apparently piped into the structure when it was built. Borrow pits along the back and sides of the boarding house property were the source of material for adobe bricks and then became trash receptacles.

Scattered about the boarding house backyard were a few features that appear to have been planting pits, where small shrubs and trees were installed. Also located were a few postholes and a fenceline. The fence may have enclosed a garden. The other posts could have been used for things like a laundry line, or perhaps to hold electrical or telephone lines.

Excavation of features from both properties yielded large quantities of artifacts. These are reported in the following chapters.

CHAPTER 6

NATIVE AMERICAN POTTERY FROM THE TUCSON PRESIDIO, AZ BB:13:13 (ASM)

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Native American pottery made during the Prehistoric and Historic eras was recovered during recently conducted excavations at the Tucson Presidio, AZ BB:13:13 (ASM). Pottery was recovered from nonfeature deposits, prehistoric features, presidio features, and American Territorial period features (Tables 6.1 and 6.2). Altogether, a total of 14,730 sherds was recovered.

THE CERAMIC SAMPLE

Thirty-nine percent of the sherds (n = 5,758) were recovered from nonfeature contexts. They were cleaned by laboratory personnel and counts were tallied; otherwise, they were left unanalyzed. Fifty-five percent of the pottery recovered from prehistoric contexts was fully analyzed, following the methods outlined below; the other 45 percent consists of 537 plain ware body sherds from analyzed features and eight undifferentiated sherds from unanalyzed features. Twelve of the 2,654 sherds recovered from presidio contexts were cleaned and tallied but otherwise left unanalyzed. Nearly 70 percent of the 5,090 sherds recovered from American Territorial period contexts were analyzed, with the remaining 1,543 sherds counted but not analyzed. Finally, 12 sherds recovered from modern feature contexts and four sherds from unknown contexts were counted but otherwise left unanalyzed. The analyzed prehistoric features yielded portions of at least 519 vessels, the presidio features yielded 411 vessels, and the American Territorial period features yielded 518 vessels.

Ceramic evidence of disturbance was present in features from all time spans. Prehistoric features yielded the least evidence of mixing, with just 4.4 percent of the vessels in those features from the Historic era. However, most prehistoric features contained ceramic types produced during multiple phases, and thus, they were impossible to date using typological means. Presidio features yielded the most evidence of temporal mixing, as 38.7 percent of the vessel fragments recovered from these features were prehistoric. Ten percent of the vessels recovered from American Territorial period features were prehistoric.

The prehistoric pottery was typed following descriptions presented in Greenleaf (1975), Heidke (1990a, 2003d), Kelly (1978), and Wallace (1986a, 1986b, 2001, 2004). The Historic era Native American pottery recovered from Block 181 belongs to the "Papago" (Tohono O'odham) ceramic series, discussed by Haury (1975), Fontana et al. (1962), Doelle (1983), Thiel and Faught (1995), Whittlesey (1997), Naranjo (2002), and Heidke (2005a, 2005b, 2006), although the work of some Piman and Gileño potters may also be represented in the collection (Heidke 2006:7.42, 7.44).

In addition to the "Papago" ceramic series proposed by Fontana et al. (1962), a ceramic type proposed by Di Peso (1953) is of interest here: Sobaipuri Plain. Sobaipuri Plain (Di Peso 1953:148-154) shares many characteristics with Fontana and others' (1962:105) ceramic type Papago Plain, Variant 1; both types may exhibit casts of burned-out organic temper, medium-to-thick vessel walls, carbon cores, and rim coils. However, Di Peso (1953) never actually defined what he meant by the term "rim coil." He refers to a passage in Haury (1950), "One clear cut diagnostic feature, however, is seen in the rims of both bowls and jars. This is the addition of a coil at the rim, creating a band about the orifice" (Haury 1975:344). Di Peso (1953:Figure 14) illustrates a schematic cross section of a Sobaipuri Plain jar that clearly shows the coil separate from the body of the vessel. Fontana et al. (1962:103) use the term in much the same way: "'Rim-coiled' refers to one or two coils of clay added to the entire circumference of the rim. These added coils are not smoothed out." The author recently examined the Amerind Foundation's type collection of Sobaipuri Plain rim sherds recovered from the Presidio de Santa Cruz de Terrenate, AZ EE:4:11 (ASM)[1].

[1]Although Di Peso thought the site to be the Sobaipuri village of Quiburi, most scholars now think it is the Presidio de Santa Cruz de Terrenate (Gerald 1968:20; Gilpin and Phillips 1999:34; Seymour 1989:215).

Table 6.1. Ceramic types recovered from excavations at the Tucson Presidio, AZ BB:13:13 (ASM), reported by era.

		Prehistoric Contexts		Historic Contexts						
				Spanish-Mexican Presidio		American Territorial		Nonfeature, Unknown, and Modern Contexts	Row Total	
Ceramic Type	Production Date Range (A.D.)	MNV[a]	Sherd Count	MNV	Sherd Count	MNV	Sherd Count	Sherd Count	MNV	Sherd Count
Prehistoric Native American Types										
Tucson Basin Red-on-brown Ware										
Indeterminate pre-Classic red-on-brown	50-1150	41	41	18	18	5	5	–	64	64
Indeterminate red-on-brown	50-1450	25	25	19	20	5	5	–	49	50
Snaketown Red-on-brown	700-750	1	1	–	–	1	1	–	2	2
Snaketown or Cañada del Oro red-on-brown	700-850	5	6	–	–	–	–	–	5	6
Cañada del Oro Red-on-brown	750-850	18	19	5	5	–	–	–	23	24
Cañada del Oro or Rillito red-on-brown	750-950	15	16	4	5	1	1	–	20	22
Cañada del Oro, Rillito, or Early Rincon red-on-brown	750-1000	5	5	1	1	1	1	–	7	7
Rillito Red-on-brown	850-950	37	38	12	14	5	6	–	54	58
Rillito or Early Rincon red-on-brown	850-1000	11	11	13	13	4	4	–	28	28
Rillito or Early, Middle, or Late Rincon red-on-brown	850-1150	2	2	4	4	1	1	–	7	7
Early Rincon Red-on-brown	950-1000	11	11	10	10	3	3	–	24	24
Early or Middle Rincon red-on-brown	950-1100	10	10	26	27	3	5	–	39	42
Early, Middle, or Late Rincon red-on-brown	950-1150	8	8	2	2	3	3	–	13	13
Early, Middle, or Late Rincon, or Tanque Verde red-on-brown	950-1450	3	3	5	5	1	1	–	9	9
Middle Rincon Red-on-brown	1000-1100	69	157	17	18	7	7	–	93	182
Middle or Late Rincon red-on-brown	1000-1150	4	4	1	1	3	3	–	8	8
Middle or Late Rincon, or Tanque Verde red-on-brown	1000-1450	1	1	–	–	2	2	–	3	3
Late Rincon Red-on-brown	1100-1150	1	1	–	–	–	–	–	1	1
Tanque Verde Red-on-brown	1150-1450	3	3	2	2	2	2	–	7	7

Table 6.1. Continued.

Ceramic Type	Production Date Range (A.D.)	Prehistoric Contexts		Historic Contexts				Nonfeature, Unknown, and Modern Contexts	Row Total	
				Spanish-Mexican Presidio		American Territorial				
		MNV[a]	Sherd Count	MNV	Sherd Count	MNV	Sherd Count	Sherd Count	MNV	Sherd Count
Tucson Basin Red Ware										
Tortolita Red	500-850	3	3	–	–	–	–	–	3	3
Rincon Red	1000-1100	5	5	–	–	–	–	–	5	5
Unidentified red ware type (possibly Rincon Red)		2	2	–	–	–	–	–	2	2
Tucson Basin Polychrome										
Rincon Polychrome	1000-1100	3	3	–	–	–	–	–	3	3
Phoenix Basin Red-on-buff Ware										
Indeterminate red-on-buff	700-1300	–	–	6	6	–	–	–	6	6
Sweetwater, Snaketown, or Late Snaketown red-on-buff	675-750	1	1	–	–	–	–	–	1	1
Sweetwater, Snaketown, Late Snaketown, or Early Gila Butte red-on-buff	675-800	–	–	1	1	–	–	–	1	1
Snaketown or Late Snaketown red-on-buff	700-750	–	–	1	1	–	–	–	1	1
Late Snaketown Red-on-buff	730-750	1	1	–	–	–	–	–	1	1
Late Snaketown, Early Gila Butte, Late Gila Butte, or Santa Cruz red-on-buff	730-900/950	1	1	–	–	–	–	–	1	1
Early Gila Butte or Late Gila Butte red-on-buff	750-850/900	7	12	1	1	–	–	–	8	13
Early Gila Butte, Late Gila Butte, or Santa Cruz red-on-buff	750-900/950	–	–	–	–	1	1	–	1	1
Early Gila Butte through Late Sacaton red-on-buff	750-1125/1150	–	–	1	1	–	–	–	1	1
Santa Cruz Red-on-buff	850/900-900/950	5	7	3	3	1	1	–	9	11
Santa Cruz or Early Sacaton red-on-buff	850/900-1020	1	1	–	–	–	–	–	1	1
Santa Cruz, Early Sacaton, or Middle Sacaton 1 red-on-buff	850/900-1070/1080	–	–	1	1	–	–	–	1	1
Santa Cruz through Late Sacaton red-on-buff	850/900-1125/1150	1	1	–	–	–	–	–	1	1
Early Sacaton or Middle Sacaton 1 red-on-buff	900/950-1070/1080	–	–	1	1	–	–	–	1	1

Table 6.1. Continued.

		Prehistoric Contexts		Historic Contexts						
				Spanish-Mexican Presidio		American Territorial		Nonfeature, Unknown, and Modern Contexts	Row Total	
Ceramic Type	Production Date Range (A.D.)	MNV[a]	Sherd Count	MNV	Sherd Count	MNV	Sherd Count	Sherd Count	MNV	Sherd Count
Middle Sacaton 1 or Middle Sacaton 2 red-on-buff	1020-1100	2	2	–	–	–	–	–	2	2
Middle Sacaton 1, Middle Sacaton 2, or Late Sacaton red-on-buff	1020-1125/1150	1	1	–	–	–	–	–	1	1
Middle Sacaton 1, Middle Sacaton 2, Late Sacaton or Casa Grande red-on-buff	1020-1300	–	–	2	2	–	–	–	2	2
Red-on-buff Ware Variant										
Snaketown or Gila Butte-Cañada del Oro style	700-850/900	–	–	1	1	–	–	–	1	1
Gila Butte-Cañada del Oro style	750-850/900	1	1	1	1	–	–	–	2	2
Santa Cruz-Rillito or Sacaton-Rincon style	850/900-1125/1150	–	–	1	1	–	–	–	1	1
Brown Corrugated Ware										
Obliterated Corrugated		2	4	–	–	–	–	–	2	4
Indented Obliterated Corrugated		1	1	–	–	–	–	–	1	1
Indeterminate Tucson Basin Ware										
Indeterminate plain or red ware		4	4	–	–	2	2	–	6	6
Indeterminate plain or red-on-brown ware		3	3	–	–	1	1	–	4	4
Indeterminate red-on-brown or red ware		1	1	–	–	–	–	–	1	1
Prehistoric/Historic Wares										
Tucson Basin Plain Ware										
Unmodified body sherd		N/A	537	N/A	1,523	N/A	617	–	N/A	2,677
Modified body sherd		10	10	4	4	1	1	–	15	15
Rim sherd		77	80	99	106	45	48	–	221	234
Neck sherd		84	109	N/A	72	N/A	38	–	84	219
Sharp "Gila" shoulder		2	2	N/A	–	N/A	–	–	2	2
Reconstructible vessel		1	9	–	–	–	–	–	1	9

Table 6.1. Continued.

Ceramic Type	Production Date Range (A.D.)	Prehistoric Contexts		Historic Contexts						
				Spanish-Mexican Presidio		American Territorial		Nonfeature, Unknown, and Modern Contexts	Row Total	
		MNV[a]	Sherd Count	MNV	Sherd Count	MNV	Sherd Count	Sherd Count	MNV	Sherd Count
Stucco-coated Tucson Basin Plain Ware										
Unmodified body sherd		1	9	–	–	–	–	–	1	9
Red ware										
Unidentified red ware		6	6	25	145	9	38	–	40	189
Lower Colorado Buff Ware										
Yuman Stucco Ware		–	–	–	–	1	1	–	1	1
Historic Native American Types										
Papago Series										
Sobaipuri Plain (folded rim coil)		1	1	28	33	5	7	–	34	41
Papago Plain		11	12	57	501	190	1,257	–	258	1,770
Papago Red		6	6	9	53	158	1,391	–	173	1,450
Possible Papago Red		–	–	–	–	10	10	–	10	10
Papago Buff		1	1	11	12	16	24	–	28	37
Papago Black-on-red		1	3	3	8	22	50	–	26	61
Papago Red-on-brown		–	–	9	13	3	4	–	12	17
Papago Black-on-brown		–	–	2	2	2	2	–	4	4
Papago Red-on-white		1	1	–	–	2	2	–	3	3
Papago Black-on-buff		1	1	–	–	1	1	–	2	2
Zuni Series										
Matsaki Brown-on-buff	1400-1680	–	–	1	1	–	–	–	1	1
Zuni Polychrome	1680-1900	–	–	2	2	–	–	–	2	2

Table 6.1. Continued.

Ceramic Type	Production Date Range (A.D.)	Prehistoric Contexts		Historic Contexts				Nonfeature, Unknown, and Modern Contexts	Row Total	
				Spanish-Mexican Presidio		American Territorial				
		MNV[a]	Sherd Count	MNV	Sherd Count	MNV	Sherd Count	Sherd Count	MNV	Sherd Count
Acoma Series										
Laguna Polychrome	1830-1940	–	–	1	1	–	–	–	1	1
Acoma or Zuni series										
Indeterminate sherd-tempered, matte paint type	After 1680	1	1	–	–	1	1	–	2	2
Indeterminate White Ware										
Indeterminate black-on-white type		–	–	1	1	–	–	–	1	1
Ceramics from unanalyzed contexts (see "Sampling Strategy")										
Nonfeature contexts		–	–	–	–	–	–	5,758	–	5,758
Prehistoric contexts		–	8	–	–	–	–	–	–	8
Presidio contexts		–	–	–	12	–	–	–	–	12
Territorial contexts		–	–	–	–	–	1,543	–	–	1,543
Modern contexts		–	–	–	–	–	–	12	–	12
Unknown contexts		–	–	–	–	–	–	4	–	4
Column Total		519	1,212	411	2,654	518	5,090	5,774	1,448	14,730

Note: See text for discussion of sampling strategy.
[a]MNV = Minimum number of vessels.

Table 6.2. Summary of analyzed/unanalyzed features and nonfeature units excavated at the Tucson Presidio, AZ BB:13:13 (ASM). (Unlisted, excavated features lacked Native American pottery.)

Prehistoric Contexts	
Analyzed	Features 380, 430, 447, 452, 453, 461, 462, 463, 477, 479, 480, 492, 493, 495, 497, 500, 503, 504, 525, 578, 592, 594, 595, 597, 608 (and subfeature 608.06), 625 (and subfeatures 625.01, 625.02), 630, 631, 634, 641, 643, 652, and 660
Unanalyzed	Features 485 and 486
Spanish-Mexican Presidio Contexts	
Analyzed	Features 460, 464, 466, 475, 498, 499, 513, 519, 520, 579, 586, 615, 622, 628, 629, 635, 659; nonfeature units 507-512
Unanalyzed	Features 508, 616, 638
American Territorial Contexts	
Analyzed	Features 408, 468, 510, 527, 570, 571, 577, 603, 624, 640
Unanalyzed	Features 359, 450, 451, 454, 471, 472, 484, 488, 489, 490, 496, 507, 523, 529, 551, 569, 573, 575, 596, 617, 620, 621, 626, 639, 642, 644, 646, 647
Other Unanalyzed Contexts	
Nonfeature	Units other than 507-512
Modern	Features 473, 512, 516, 518
Unknown	Features 522 and 582

At 15x magnification, most Sobaipuri Plain "coiled" vessels appear to have had the rim folded over rather than applied separately, based on observations of sand and organic temper casts that follow the curvature of the paste up and over the inner vessel wall. The folding process itself usually yielded a smooth, rounded lip. Additionally, examples displaying erosion at the very top of the lip exhibit a homogeneous paste—*not* a coil distinct from the body, which is what would be expected if coils were attached separately. Occasionally, the coil looked as if it had been applied separately. In those cases, a V- to U-shaped groove is visible at the top of the lip where the two pieces came together, or, if the rim was eroded at the very top of the lip, a line separating the paste of the coil from the paste of the body is visible.

A similar technological procedure was followed by potters in the Tucson area, based on an examination of Native American pottery sherds recovered from many historic sites. To track their occurrence, plain ware sherds exhibiting folded "rim coils" are reported as "Sobaipuri Plain" in this and earlier reports (Heidke 2002, 2003a, 2003b, 2005a, 2006, 2008c; Thiel and Faught 1995). However, as discussed below, in the Tucson area, most of those vessels were tempered with sand or with a mixture of sand and crushed potsherds (grog). Moreover, the category's name should not be taken to imply that Sobaipuri potters (Gilpin and Phillips 1999; Masse 1981) produced all the "Sobaipuri Plain" pots (see Thiel and Faught 1995:202), because Tohono O'odham potters also made vessels with that morphological attribute (Fontana et al. 1962; Haury 1975).

ANALYSIS METHODS

As discussed, 7,874 of the 14,730 sherds (53.5 percent) were analyzed. The coding index used to record provenience, typological, technological, morphological, and use-alteration data from Native American pottery recovered from presidio and American Territorial period contexts is available in Heidke (2006:Table 7.1). Falina Enriquez conducted that analysis under the supervision of the author. Additional qualitative and metric attribute data were recorded from a subsample of the pottery collection. The subsample contained all rim sherds, reconstructible vessels, and prehistoric and historic decorated wares; the coding index used for that supplemental analysis is also available in Heidke (2006:Table 7.3). Three attributes of the pottery recovered from the Tucson Presidio excavations deserve additional explanation, because they are addressed repeatedly below. These attributes are: temper type, temper provenance, and vessel function.

Temper Type and Provenance

Native American pottery produced in the Greater Southwest often contains abundant temper, such as sand, disaggregated rock, and crushed sherd. For example, Tohono O'odham pottery is known to have been tempered with various types of material, including sand, crushed schist, ground potsherds, and dried and sifted horse manure (Fontana et al. 1962:57-58, 135). Both sand and crushed rock tempers can be used as indicators of provenance after their geological sources have been identified (Arnold 1985; Heidke et al. 2002; Shepard 1936, 1942).

In the current assemblage, both prehistoric and historic sherds were often sand-tempered. However, some prehistoric pottery was tempered with a mixture containing sand and various proportions of crushed metamorphic rocks and minerals (phyllite, gneiss/schist, and/or muscovite mica), whereas some historic sherds were tempered with a mixture of sand and crushed potsherds (grog) or sand and fiber (presumably manure). Sherds of Historic era sand-tempered plain and red ware vessels are very difficult to separate from those made throughout prehistory (Haury 1975:343-344; Whittlesey 1997:453), which is why they are not referred to here as "Papago" ceramic types. Except during the Agua Caliente phase (A.D. 50-500), tempering a vessel's paste with a mixture of sand and crushed potsherds was never common among Tucson area prehistoric potters. However, recent archaeological studies indicate that practice was relatively common during the eighteenth and nineteenth centuries (Heidke 2006; Thiel and Faught 1995:Table 7.7). This finding provides a confident way to identify some Historic era O'odham pottery.

Manure-tempered pots also contain sand. The presence of both sand and fiber casts (presumably from horse manure) in a sherd seems to contradict Fontana and others' (1962:135) assertion that Tohono O'odham potters added only one type of nonplastic temper to their clay. I have argued elsewhere that the likely reason why ceramicists see two types of temper is that the pedogenic clays used by Tohono O'odham potters usually contained a sand-sized component (Heidke and Wiley 1997a). Thus, a potter may have added manure to a clay that already contained some sand-sized material. Petrographic analyses support this conclusion (Miksa et al. 2006).

During the last two decades, an intensive program of wash sand sampling in the Tucson Basin has provided evidence that many spatially discrete sand temper compositions were available to Native American potters (Heidke and Wiley 1997b; Heidke et al. 1998; Kamilli 1994; Lombard 1986, 1987a, 1987b, 1987c, 1987d, 1989, 1990; Miksa 2009). Therefore, analysis of the sand temper component of a sherd provides evidence as to whether the pot was produced in the Tucson Basin, and, if so, where it was likely to have been made.

Generic compositions are defined when the sands within a well-defined region are studied and it is determined that they can be divided into subsets based on similar compositions. Generic compositions are also visible in sand-tempered pottery, where they are characterized as "generic" temper resources. Further study of the sands within a well-defined region may determine that the generic sand compositions can be broken into subsets based on additional spatial and compositional information. When that is accomplished, petrofacies, or sand composition zones, are defined. Individual petrofacies compositions may also be visible in sand-tempered pottery, or pottery produced from a clay that naturally contains sand-sized grains, where they are characterized as "specific" temper resources. These specific temper resource zones are also referred to as petrofacies. Currently, 37 petrofacies are defined for the greater Tucson area (Figure 6.1).

Temper type and provenance were characterized with respect to that petrofacies model, although no sherds were point counted during this project to verify the author's provenance assignments. However, 44 sherds were thin-sectioned in preparation for petrographic analysis at a later date (Table 6.3). Temper attributes were recorded after each sherd was examined at 15x magnification, using a Unitron ZSM binocular microscope fitted with a Stocker and Yale Lite Mite Series 9 circular illuminator.

Vessel Function

Two different approaches are utilized throughout this chapter to assess the likely uses that pottery played in the lives of the residents of the sites at various times. The first approach is strictly typological, and entailed the assignment of rim sherds and reconstructible vessels to vessel form categories originally created to classify the prehistoric pottery of the region (Kelly 1978). The second approach examined a subset of the rim sherds and, when present, reconstructible vessels—those with measurable orifice and/or aperture diameters—and placed them into functional categories determined by their overall morphology and size (Braun 1980). Braun's morphological classification is based on Shepard's (1995:230) geometric taxonomy of vessel shape, while the functional categories he developed

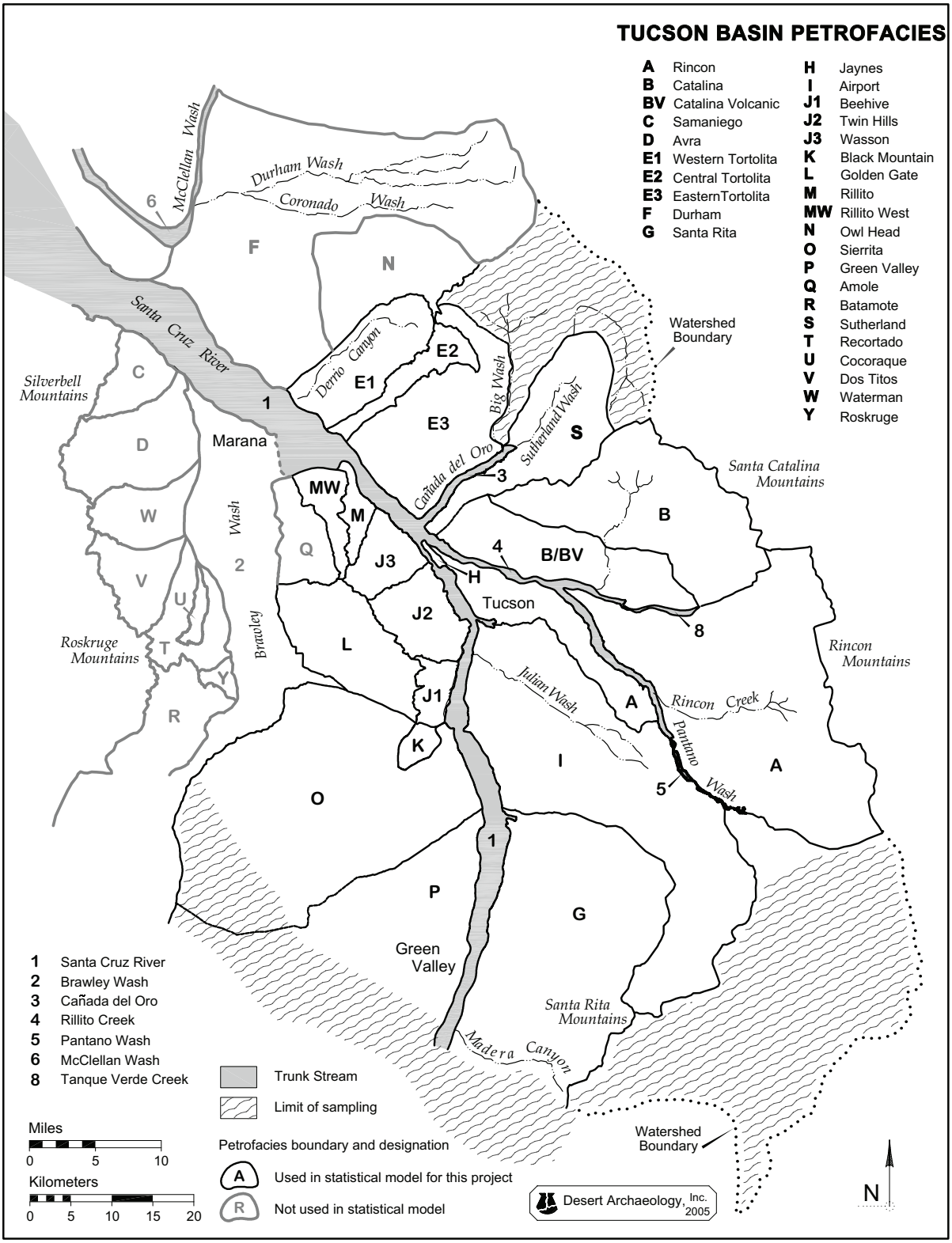

Figure 6.1. Current Tucson Basin petrofacies map, showing locations, letter designations, and names.

Table 6.3. Thin-section inventory and binocular microscopic temper characterization of sherds from the Tucson Presidio, AZ BB:13:13 (ASM).

Thin Section Number	Accession Number	Catalog Number	Feature Number	Field Number	Observation Number	Ceramic Type	Vessel Shape	Temper Type	Temper Source Generic	Temper Source Specific
CTA220-01	2005-0502	1	477	5605	1	Plain ware	Jar	>25 percent gneiss/schist	Volcanic	Indeterminate
CTA220-02	2005-0502	2	0	6143	1	Plain ware	Bowl	Sand and sherd	Volcanic	Indeterminate
CTA220-03	2005-0502	3	571	7242	8	Plain ware	Bowl	Sand and sherd	Volcanic	Indeterminate
CTA220-04	2005-0502	4	586	7385	8	Plain ware	Bowl	Sand and sherd	Volcanic	Indeterminate
CTA220-05	2005-0502	5	495	6050	6	Indeterminate pre-Classic red-on-brown	Bowl	Sand	Volcanic	Beehive Petrofacies
CTA220-06	2005-0502	6	652	9179	9	Stucco-coated plain ware	Jar	Sand	Volcanic	Beehive Petrofacies
CTA220-07	2005-0502	7	0	6202	1	Plain ware	Bowl	Sand and sherd	Volcanic	Beehive Petrofacies
CTA220-08	2005-0502	8	460	5296	1	Plain ware	Bowl	Sand and sherd	Volcanic	Beehive Petrofacies
CTA220-09	2005-0502	9	466	5364	2	Unnamed Historic red ware	Bowl	Sand and sherd	Volcanic	Beehive Petrofacies
CTA220-10	2005-0502	10	513	6574	7	Papago Buff	Jar	Sand and sherd	Volcanic	Beehive Petrofacies
CTA220-11	2005-0502	11	586	7419	5	Unnamed Historic red ware	Bowl	Sand and sherd	Volcanic	Beehive Petrofacies
CTA220-12	2005-0502	12	477	5601	5	Middle Rincon Red-on-brown	Bowl	7-25 percent gneiss/schist	Volcanic	Twin Hills Petrofacies
CTA220-13	2005-0502	13	608	8319	1	Plain ware	Jar	1-7 percent gneiss/schist	Volcanic	Twin Hills Petrofacies
CTA220-14	2005-0502	14	466	5372	3	Middle Rincon Red-on-brown	Bowl	1-7 percent gneiss/schist	Volcanic	Twin Hills Petrofacies
CTA220-15	2005-0502	15	625	8384	12	Indeterminate pre-Classic red-on-brown	Bowl	Sand	Volcanic	Twin Hills Petrofacies
CTA220-16	2005-0502	16	652	9179	6	Plain ware	Jar	Sand	Volcanic	Twin Hills Petrofacies
CTA220-17	2005-0502	17	461	5256	1	Early Rincon Red-on-brown	Jar	Sand	Volcanic	Twin Hills Petrofacies
CTA220-18	2005-0502	18	0	6226	1	Plain ware	Bowl	Sand and sherd	Volcanic	Twin Hills Petrofacies

Table 6.3. Continued.

Thin Section Number	Accession Number	Catalog Number	Feature Number	Field Number	Observation Number	Ceramic Type	Vessel Shape	Temper Type	Temper Source Generic	Temper Source Specific
CTA220-19	2005-0502	19	624	9089	6	Papago Red	Indeterminate flare-rim	Sand and fiber	Granitic	Indeterminate
CTA220-20	2005-0502	20	586	7427	4	Papago Buff	Indeterminate	Sand	Granitic and mixed lithic	Airport Petrofacies
CTA220-21	2005-0502	21	468	5414	1	Papago Plain	Bowl	Sand and fiber	Granitic and mixed lithic	Black Mountain Petrofacies
CTA220-22	2005-0502	22	475	5540	7	Papago Plain	Jar	Sand and fiber	Granitic and mixed lithic	Black Mountain Petrofacies
CTA220-23	2005-0502	23	513	6681	2	Papago Red	Bowl	Sand and fiber	Granitic and mixed lithic	Black Mountain Petrofacies
CTA220-24	2005-0502	24	527	6921	2	Papago Plain	Bowl	Sand and fiber	Granitic and mixed lithic	Black Mountain Petrofacies
CTA220-25	2005-0502	25	571	7147	6	Papago Red	Indeterminate flare-rim	Sand and fiber	Granitic and mixed lithic	Black Mountain Petrofacies
CTA220-26	2005-0502	26	571	7282	22	Papago Red	Indeterminate flare-rim	Sand and fiber	Granitic and mixed lithic	Black Mountain Petrofacies
CTA220-27	2005-0502	27	571	7429	3	Papago Plain	Bowl	Sand and fiber	Granitic and mixed lithic	Black Mountain Petrofacies
CTA220-28	2005-0502	28	571	7487	12	Papago Red	Jar	Sand and fiber	Granitic and mixed lithic	Black Mountain Petrofacies
CTA220-29	2005-0502	29	603	7631	1	Papago Plain	Bowl	Sand and fiber	Granitic and mixed lithic	Black Mountain Petrofacies
CTA220-30	2005-0502	30	603	8363	5	Papago Plain	Bowl	Sand and fiber	Granitic and mixed lithic	Black Mountain Petrofacies
CTA220-31	2005-0502	31	624	7943	2	Papago Red	Jar	Sand and fiber	Granitic and mixed lithic	Black Mountain Petrofacies

Table 6.3. Continued.

Thin Section Number	Accession Number	Catalog Number	Feature Number	Field Number	Observation Number	Ceramic Type	Vessel Shape	Temper Type	Temper Source Generic	Temper Source Specific
CTA220-32	2005-0502	32	624	9078	4	Papago Buff	Jar	Indeterminate	Granitic and mixed lithic	Black Mountain Petrofacies
CTA220-33	2005-0502	33	624	9078	6	Papago Red	Jar	Sand and fiber	Granitic and mixed lithic	Black Mountain Petrofacies
CTA220-34	2005-0502	34	624	9089	5	Papago Red	Jar	Sand and fiber	Granitic and mixed lithic	Black Mountain Petrofacies
CTA220-35	2005-0502	35	624	9129	2	Papago Red	Indeterminate flare-rim	Sand and fiber	Granitic and mixed lithic	Black Mountain Petrofacies
CTA220-36	2005-0502	36	624	9169	2	Papago Black-on-red	Jar	Sand and fiber	Granitic and mixed lithic	Black Mountain Petrofacies
CTA220-37	2005-0502	37	624	9169	39	Papago Plain	Bowl	Sand and fiber	Granitic and mixed lithic	Black Mountain Petrofacies
CTA220-38	2005-0502	38	625	8423	1	Indeterminate red or plain ware	Jar	Sand	Granitic or metamorphic	Indeterminate
CTA220-39	2005-0502	39	603	8430	3	Papago Red	Bowl	Sand and fiber	Granitic or granitic and mixed lithic	Indeterminate
CTA220-40	2005-0502	40	624	9078	47	Papago Plain	Jar	Sand and fiber	Granitic or granitic and mixed lithic	Indeterminate
CTA220-41	2005-0502	41	571	7242	9	Papago Plain	Jar	Sand and fiber	Granitic or granitic and mixed lithic	Indeterminate
CTA220-42	2005-0502	42	571	7367	1	Papago Plain	Jar	Sand and fiber	Granitic or granitic and mixed lithic	Indeterminate
CTA220-43	2005-0502	43	0	6255	3	Papago Plain	Bowl	Sand and fiber	Granitic or granitic and mixed lithic	Sierrita Petrofacies
CTA220-44	2005-0502	44	527	6867	1	Papago Red	Jar	Sand and fiber	Granitic or granitic and mixed lithic	Sierrita Petrofacies

are based on characteristics of historic and modern Piman, Yuman, and Puebloan pottery. The ethnographically based model Braun (1980) developed provides an objective and replicable way to examine pottery function, regardless of when or where a pot was produced. The interested reader is referred to Heidke (2006:7.5-7.22) for a detailed presentation of the methods used here to implement the functional study.

Unfortunately, many Historic era sherds could not be assigned to a vessel form or a Shepard-Braun functional category. Those rims were usually classified as an "indeterminate flare-rim" form. Any given "indeterminate flare-rim" vessel may represent one of seven different Tohono O'odham vessel forms: the *hí-to-ta-kut*, *í o la ki ta kut*, *bí kut*, *há a i cú kai tu ta kut*, *sú-u-te-ki-wá-i-kut, sí to ta kut,* and the *wá i kut*. All seven of those vessel forms have everted, or flaring, rims (Fontana et al. 1962:33-49), and they cannot be differentiated in archaeological collections because the rim of the vessel is often broken away from the body at the neck.

Conjoining and Matching Sherds

All rim sherds, reconstructible vessels, and decorated pottery recovered from a feature were laid out at one time in the order of the excavated strata and levels. In some cases, a number of sherds within a bag or from different strata, levels, or units within a feature conjoined (that is, the pieces literally fit together), while in other cases, aspects of the decoration or morphology and temper were similar enough to consider multiple sherds "matching" portions of a single vessel. When conjoins or matches were observed, the vessel was recorded in the provenience containing the largest portion of the pot. Because all diagnostic sherds recovered from a feature were laid out at one time, it was possible to quickly assess if pieces of individual pots were recovered from more than one vertical or horizontal excavation unit. In so doing, a more accurate estimate of the minimum number of vessels (MNV) present in each feature was obtained.

Four intrafeature sets of conjoining and eight sets of matching sherds were identified in the prehistoric features (Table 6.4). Two cross-feature sets of conjoining and four sets of matching sherds were also identified in the prehistoric features (Table 6.5). The numerous intrafeature and cross-feature matches and conjoins that tie together the fill of prehistoric Features 625 (Strata 10 and 11), 631 (Stratum 50, Levels 1-3), and 652 (Stratum 50, Level 1) are especially notable; they indicate all three features accumulated trash rapidly and at the same time. Eleven intrafeature sets of conjoining and 15 sets of matching sherds were identified in the historic features (see Table 6.4). One cross-feature set of matching sherds was also identified in the historic features (see Table 6.5).

THE PREHISTORIC POTTERY COLLECTION AND OTHER FIRED CLAY OBJECTS

The unnamed prehistoric village underlying the Tucson Presidio is designated BB:13:9. It was originally recorded by Emil Haury on 16 February 1943, and its known limits extend from Washington Street on the north, to Pennington Street on the south, to Main Avenue on the west, and to Church Avenue on the east. Haury returned to the site in December 1954, to guide mitigation efforts related to construction of a parking lot (Olson 1985). Since that time, at least 10 archaeological projects have been conducted in various portions of the site (Bayman and Faught 1995; Gilman 1997; Heidke 2008c, previously unpublished data from the Rio Nuevo Project, on file at Desert Archaeology, Inc.; Heidke et al. 2004; Mazany 1981; Swartz 1996; Thiel 1998; Whittlesey 1997). The minimum number of painted, red-slipped, polychrome, and corrugated vessels recovered from each of these projects is summarized in Table 6.6. A cumulative frequency graph of those types was prepared following the approach outlined by Doelle et al. (1985:9, 12-13) and Doelle and Wallace (1986:58-62) (Figure 6.2). The graph illustrates that the occupational history of BB:13:9 is similar to "early" large villages in the Tucson Basin (Doelle 1988:Figure 19.9), rather than the "later" large villages (Doelle 1988:Figure 19.10)—that is, its occupation began by the Pioneer period.

The fill of most prehistoric features excavated during the current project yielded temporally mixed pottery collections, with types produced during more than one phase, and often the Historic era, represented. However, nine features exhibited little to no mixing (Table 6.7). In Cañada del Oro phase Feature 660, 2.6 percent of the sherds (9.4 percent of the vessels) are not representative of that phase. In Rillito phase Features 452, 462, and 479, 0.7 percent of the sherds (2.9 percent of the vessels) do not belong to that phase. Early Rincon phase Feature 495 exhibited no temporal mixing. Finally, in the Middle Rincon phase Features 625, 631, 634, and 652, only 0.8 percent of the sherds (5.3 percent of the vessels) are earlier types.

The presence of four cross-feature matches and one conjoin among three of the four Middle Rincon features suggests all of those deposits accumulated

Table 6.4. Summary of features and contexts at the Tucson Presidio, AZ BB:13:13 (ASM), having intrafeature conjoining or matching sherd sets.

Feature (or Unit) Number	Conjoin/Match Number	Number of Sherds (Contexts[a])	Notes
Prehistoric era features			
452	Match No. 9	3 (10)	?
463	Match No. 14	14 (10, 11, 20)	?
477	Match No. 11	6 (50)	?
477	Match No. 12	2 (50)	?
477	Match No. 13	2 (50)	?
625	Conjoin No. 1	2 (11)	?
625	Match No. 2	3 (11)	Cross-feature match
625	Conjoin No. 6	2 (10, 11)	Cross-feature conjoin
631	Match No. 2	12 (50)	Cross-feature match
631	Match No. 5	17 (50)	Cross-feature match
631	Conjoin No. 8	4 (50)	?
634	Conjoin No. 3	5 (50, 50.01)	?
Historic era features and units			
0 (Units507 and 511)	Match No. 15	2 (4.01)	?
0 (Units 509 and 510)	Conjoin No. 16	3 (4.03)	?
0 (Units 510 and 511)	Match No. 17	3 (4.03)	?
0 (Unit 510)	Match No. 18	3 (4.03)	?
0 (Units 510 and 511)	Match No. 19	2 (4.03)	?
466	Match No. 20	2 (50)	?
513	Conjoin No. 24	2 (50, 50.02)	?
527	Match No. 26	3 (50)	?
570	Conjoin No. 27	2 (50)	?
570	Match No. 28	5 (50)	?
571	Conjoin No. 37	8 (50)	?
571	Conjoin No. 38	2 (50)	?
571	Match No. 39	5 (50)	?
571	Conjoin No. 40	9 (50)	?
571	Match No. 41	4 (50)	?
586	Match No. 21	3 (50)	?
586	Conjoin No. 22	2 (50)	?
586	Conjoin No. 23	3 (50)	?
603	Conjoin No. 29	2 (50.01)	?
603	Match No. 30	5 (50.01, 50.02)	?
603	Match No. 31	4 (50.03)	?
603	Match No. 32	5 (50.03)	?
624	Conjoin No. 33	4 (50)	?
624	Conjoin No. 34	2 (50)	?
624	Match No. 35	4 (50)	?
624	Match No. 36	3 (50)	?

[a]Contexts 4.01 and 4.03 are discrete overburden strata containing cultural materials; Context 10 is undifferentiated room/house fill; Context 11 is roof/wall fall; Context 20 is direct floor contact; Contexts 50, 50.01, 50.02, and 50.03 are discrete fill strata of a primary, extramural feature.

Table 6.5. Summary of features and contexts at the Tucson Presidio, AZ BB:13:13 (ASM), having cross-feature conjoining or matching sherd sets.

First Feature Number	Number of Sherds (Contexts[a])	Second Feature Number	Number of Sherds (Contexts[a])	Third Feature Number	Number of Sherds (Contexts[a])	Conjoin or Match Number
Prehistoric era features						
578	9 (50)	592	1 (50)	N/A	–	Conjoin No. 10
625	3 (11)	631	12 (50)	N/A	–	Match No. 2
625	2 (11)	631	4 (50)	652	35 (50)	Match No. 4
625	1 (11)	631	17 (50)	N/A	–	Match No. 5
625	2 (10, 11)	631	1 (50)	N/A	–	Conjoin No. 6
625	1 (11)	631	1 (50)	652	1 (50)	Match No. 7
Historic era features						
510	1 (50)	513	1 (50.01)	N/A	–	Match No. 25

[a]Context 10 is undifferentiated room/house fill; Context 11 is roof/wall fall; Contexts 50 and 50.01 are discrete fill strata of a primary, extramural feature.

at about the same time, and thus, can be evaluated as a whole (once multiple entries for the matching and conjoining cases are deleted). The frequency of sectioned design layouts (32.1 percent), the wavy-edged solid motif (0.0 percent), and the wavy-capped fringe motif (16.1 percent) in the Middle Rincon phase red-on-brown pottery recovered from Features 625, 631, 634, and 652 is consistent with a deposit that accumulated sometime during Middle Rincon 2 or Middle Rincon 3 times, circa A.D. 1040-1100 (Heidke 1996a:Table 3.3). The orientation of Haury's Pithouse 1 entryway (Olson 1985:Figures 1 and 2) suggests it may have formed a courtyard group with the current project pithouse Feature 625. Finally, the single piece of Rincon Red-on-brown pottery illustrated from the 1954 excavation (Olson 1985:Figure 5j) is consistent with Wallace's (1986b) type Middle Rincon Red-on-brown.

Temper Source

Interpretation of sand temper provenance data is contingent upon knowing how far potters are willing to travel to collect temper and what sand temper resources were locally available to the inhabitants of a site. In two recent studies, Heidke et al. (2002:Table 12.2) and Heidke (2009:Table 4.10) summarize the distance traditional potters travel to collect sand temper. They found that potters who use sand temper tend to exploit nearby resources. In the combined data batch of 24 cases, 71 percent of the potters were found to travel no more than 1 km to collect sand, and 3 km is the farthest distance documented. Those facts lead to the conclusion that any sand tempered pottery displaying a composition available in washes located within 3 km of the archaeological site from where it was recovered should, in a behavioral sense, be considered the product of "local" manufacture (because some potters are known to travel that far to collect sand temper). However, the evidence also suggests that agreement between the composition of a sherd's sand temper and that of the sands found in the washes located closest to the sherd's recovery site may be a better measure of "local" ceramic production. Sand-tempered pottery displaying compositions that are not available within 3 km of a site are best considered "nonlocal" items.

Temper sources of the red-on-brown, red, polychrome, and plain ware vessels recovered from well-dated Colonial and Sedentary period deposits identified at BB:13:9 are summarized in Table 6.8. Row totals represent minimum number of vessel counts (see Table 6.7), and exclude earlier skip-phase and later mixed-in types. Additional provenance data recorded from prehistoric types recovered from undated, mixed, or later contexts at the site are provided in Table 6.9. BB:13:9 is located in a granitic and mixed lithic compositional environment referred to as the Airport Petrofacies (I). Only one sherd containing that composition was identified; therefore, by the criterion of compositional agreement, there is little evidence for local ceramic production at the site. However, the provenance of two sherds was characterized as coming from an unspecified, or indeterminate, granitic and mixed lithic source; one or both of those sherds may be tempered with Airport Petrofacies sand.

Table 6.6. Painted and/or slipped prehistoric ceramic types recovered from excavations at AZ BB:13:9 (ASM), reported by project.

Ceramic Ware and Type	Production Date Range (A.D.)	Project Citations[a]										Row Total
		1	2	3	4	5	6	7	8	9	10	
Tucson Basin Red-on-brown Ware												
Indeterminate pre-Classic red-on-brown	50-1150	64	–	–	–	–	1	1	20	1	8	95
Indeterminate red-on-brown	50-1450	49	–	–	–	–	49	–	28	1	13	140
Snaketown Red-on-brown	700-750	2	–	4	–	–	–	–	–	–	1	7
Snaketown or Cañada del Oro red-on-brown	700-850	5	–	–	–	–	–	–	–	–	–	5
Cañada del Oro Red-on-brown	750-850	23	–	21	–	2	4	–	–	–	2	52
Cañada del Oro or Rillito red-on-brown	750-950	20	–	13	–	–	1	–	1	–	1	36
Cañada del Oro, Rillito, or Early Rincon red-on-brown	750-1000	7	–	–	–	–	–	–	1	–	3	11
Rillito Red-on-brown	850-950	54	65	34	–	1	13	–	1	–	3	171
Rillito or Early Rincon red-on-brown	850-1000	28	–	54	–	1	–	–	2	–	11	96
Rillito or Early, Middle, or Late Rincon red-on-brown	850-1150	7	–	5	–	–	5	–	5	2	–	24
Early Rincon Red-on-brown	950-1000	24	–	23	–	–	–	–	–	–	3	50
Early or Middle Rincon red-on-brown	950-1100	39	–	101	1	–	31	–	12	–	8	192
Early, Middle, or Late Rincon red-on-brown	950-1150	13	–	50	–	–	–	–	5	–	–	68
Early, Middle, or Late Rincon, or Tanque Verde red-on-brown	950-1450	9	–	19	1	–	3	–	17	3	–	52
Middle Rincon Red-on-brown	1000-1100	93	–	62	2	–	–	–	23	2	10	192
Middle or Late Rincon red-on-brown	1000-1150	8	–	12	–	–	–	–	3	–	–	23
Middle or Late Rincon, or Tanque Verde red-on-brown	1000-1450	3	–	5	–	–	–	–	3	–	–	11
Late Rincon Red-on-brown	1100-1150	1	–	–	–	–	1	–	–	–	–	2
Tanque Verde Red-on-brown	1150-1450	7	–	8	–	–	15	–	–	–	2	32
Tucson Basin Red Ware												
Tortolita Red	500 -850	3	–	4	–	–	–	–	–	–	2	9
Rincon Red	1000-1100	5	–	19	–	–	–	–	5	–	–	29
Unidentified red ware type (possibly Rincon Red)		2	–	–	–	–	–	–	6	–	–	8
Tucson Basin Polychrome												
Rincon Polychrome	1000-1100	3	–	3	–	–	1	–	3	–	–	10

Table 6.6. Continued.

Ceramic Ware and Type	Production Date Range (A.D.)	Project Citations[a] 1	2	3	4	5	6	7	8	9	10	Row Total
Phoenix Basin Red-on-gray, Red-on-buff, and Red Wares												
Sweetwater Red-on-gray	675-700	–	–	–	–	–	–	–	1	–	–	1
Sweetwater, Snaketown, or Late Snaketown red-on-buff	675-750	1	–	–	–	–	–	–	–	–	–	1
Sweetwater, Snaketown, Late Snaketown, or Early Gila Butte red-on-buff	675-800	1	–	–	–	–	–	–	–	–	–	1
Snaketown Red-on-buff/gray	700-750	–	–	–	–	–	–	–	–	1	–	1
Snaketown or Late Snaketown red-on-buff	700-750	1	–	3	–	–	9	–	–	–	–	13
Snaketown, Late Snaketown, Early Gila Butte, or Late Gila Butte red-on-buff	700-850/900	–	–	–	–	–	1	–	–	–	–	1
Indeterminate red-on-buff	700-1300	6	–	–	–	–	4	–	3	–	5	18
Late Snaketown Red-on-buff	730-750	1	–	–	–	–	–	–	–	–	1	2
Late Snaketown, Early Gila Butte, Late Gila Butte, or Santa Cruz red-on-buff	730-900/950	1	–	–	–	–	–	–	–	–	–	1
Early Gila Butte or Late Gila Butte red-on-buff	750-850/900	8	–	12	–	–	–	–	–	–	2	22
Early Gila Butte, Late Gila Butte, or Santa Cruz red-on-buff	750-900/950	1	–	3	–	–	–	–	–	–	–	4
Early Gila Butte through Late Sacaton red-on-buff	750-1125/1150	1	–	–	–	–	–	–	–	–	–	1
Santa Cruz Red-on-buff	850/900-900/950	9	–	4	–	–	–	–	–	–	–	13
Santa Cruz or Early Sacaton red-on-buff	850/900-1020	1	–	–	–	–	–	–	–	–	–	1
Santa Cruz, Early Sacaton, or Middle Sacaton 1 red-on-buff	850/900-1070/1080	1	–	–	–	–	–	–	–	–	–	1
Santa Cruz through Late Sacaton red-on-buff	850/900-1125/1150	1	–	2	–	–	–	1	–	–	1	5
Early Sacaton or Middle Sacaton 1 red-on-buff	900/950-1070/1080	1	–	–	–	–	–	–	–	–	–	1
Early Sacaton, Middle Sacaton 1, Middle Sacaton 2, or Late Sacaton red-on-buff	900/950-1125/1150	–	–	10	–	–	1	–	1	–	1	13
Middle Sacaton 1 or Middle Sacaton 2 red-on-buff	1020-1100	2	–	–	–	–	–	–	–	–	–	2
Middle Sacaton 1, Middle Sacaton 2, or Late Sacaton red-on-buff	1020-1125/1150	1	–	–	–	–	–	–	–	–	–	1
Middle Sacaton 1, Middle Sacaton 2, Late Sacaton or Casa Grande red-on-buff	1020-1300	2	–	–	–	–	–	–	–	–	–	2
Casa Grande Red-on-buff	1125/1150-1300	–	–	–	–	–	2	–	–	–	–	2
Vahki Red		–	–	–	–	–	3	–	–	–	–	3
Salt Red		–	–	–	–	–	1	–	–	–	–	1

Table 6.6. Continued.

Ceramic Ware and Type	Production Date Range (A.D.)	Project Citations[a] 1	2	3	4	5	6	7	8	9	10	Row Total
Red-on-buff Ware Variant												
Snaketown or Gila Butte-Cañada del Oro style	700-850/900	1	–	–	–	–	–	–	–	–	–	1
Gila Butte-Cañada del Oro style	750-850/900	2	–	–	–	–	–	–	–	–	–	2
Santa Cruz-Rillito or Sacaton-Rincon style	850/900-1125/1150	1	–	–	–	–	–	–	–	–	–	1
Brown Corrugated Ware												
Clapboard Corrugated		–	–	–	–	–	–	–	1	–	–	1
Obliterated Corrugated		2	–	–	–	–	–	–	–	–	–	2
Indented Obliterated Corrugated		1	–	–	–	–	–	–	–	–	–	1
Indeterminate Corrugated type		–	–	–	–	–	3	–	–	–	–	3
Other, Low Frequency Decorated Wares and Types												
Trincheras Purple-on-red		–	–	–	–	–	1	–	–	–	–	1
San Carlos Red-on-brown	1200-1450	–	–	–	–	–	1	–	–	–	–	1
Pinto or Gila polychrome	1250-1450	–	–	–	–	–	–	–	1	–	–	1
Indeterminate red-on-brown		–	–	–	–	–	3	–	–	–	–	3
Indeterminate red-on-brown or red-on-buff		–	–	–	–	–	1	–	–	–	–	1
Column Total		515	65	471	4	4	154	2	142	10	77	1,444

Note: All counts are minimum number of vessels.

[a]1 = This project; 2 = Mazany (1981); 3 = Bayman and Faught (1995); 4 = Swartz (1996); 5 = Gilman (1997); 6 = Whittlesey (1997); 7 = Thiel (1998); 8 = Heidke et al. (2004); 9 = Heidke (2008b); 10 = previously unpublished data from the Rio Nuevo Project, on file at Desert Archaeology, Inc.

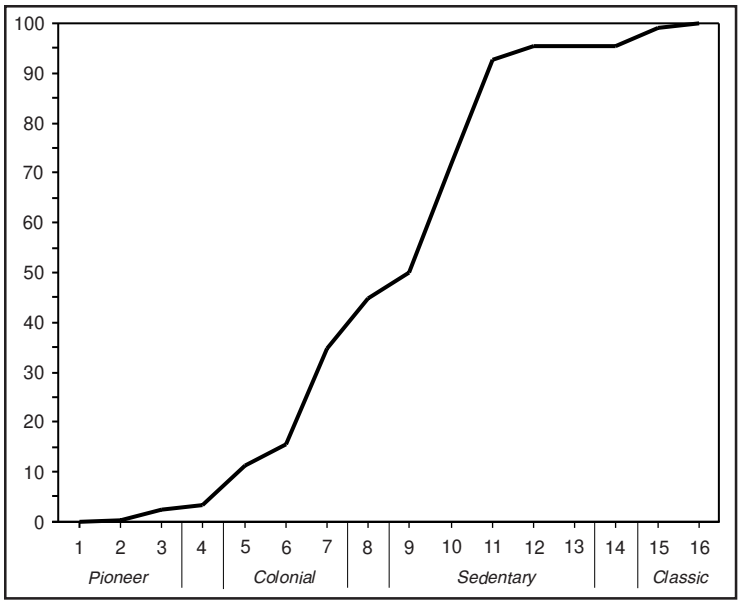

Figure 6.2. Cumulative frequency graph of temporally diagnostic ceramic types recovered from AZ BB:13:9 (ASM). (The graph represents 959 vessels, recovered from 10 projects.)

Most of the red-on-brown, red, and plain ware sherds are tempered with volcanic Twin Hills Petrofacies (J2) sand. The nearest source of sand with that composition lies about 1.0 km west of the site, within the distance that traditional potters are known to have traveled to collect sand temper. Therefore, the pottery tempered with Twin Hills Petrofacies sand may have been made at BB:13:9. Alternatively, the Twin Hills Petrofacies sand-tempered pottery may have been produced at St. Mary's Hospital Ruin, AZ AA:16:26 (ASM), located approximately 2.5 km west of BB:13:9 and an inferred site of pottery production (Heidke 1999; Heidke et al. 2002).

Fewer prehistoric sherds recovered from BB:13:9 are tempered with Beehive Petrofacies (J1) sand. The closest source of sand with that nonlocal composition is located approximately 5.2 km southwest of the site. Recently, direct and indirect evidence of ceramic production—including ground stone pottery manufacturing tools, micaceous rock temper, processed hematite, unfired tempered clay balls and pottery, usage of specific small decorative elements, and provenance data—have shown that potters living at the West Branch, AZ AA:16:3 (ASM), Valencia, AZ BB:13:15 (ASM), and Julian Wash, AZ BB:13:17 (ASM) sites, all located within 3.0 km of the Beehive Petrofacies, were actively involved in ceramic production during the Sedentary period (Heidke 2000, 2003c, 2008d; Heidke and Ryan 2005). Production of the Colonial period, Beehive Petrofacies sand-tempered pottery recovered from BB:13:9 may have occurred at the Valencia, Julian Wash, and/or Dakota Wash, AZ AA:16:49 (ASM), sites.

Four sherds tempered with metamorphic Catalina Petrofacies (B) sand, two with granitic Western Tortolita Petrofacies (E1) sand, and one with granitic and mixed lithic Black Mountain Petrofacies (K) sand were recovered from BB:13:9. Finally, some temper compositions were characterized as an unspecified, or indeterminate, volcanic, granitic, or granitic and mixed lithic composition. Twenty-five petrofacies located in the greater Tucson area display one of those three generic compositions. Volcanic sources include the Avra (D), Beehive (J1), Twin Hills (J2), Wasson (J3), Golden Gate (L), Batamote (R), Recortado (T), Waterman (W), and Roskruge (Y) petrofacies; granitic sources include the Cañada del Oro (3), Western Tortolita (E1), Central Tortolita (E2), Eastern Tortolita (E3), Sierrita (O), Amole (Q), and Sutherland (S) petrofacies; and granitic and mixed lithic sources include the Santa Cruz River (1), Brawley Wash (2), McClellan Wash (6), Durham (F), Santa Rita (G), Jaynes (H), Airport (I), Black Mountain (K), and Green Valley (P) petrofacies.

Temper Type

The temper type of red-on-brown, red, polychrome, and plain ware pottery recovered from well-dated Colonial and Sedentary period deposits (Table 6.10) and undated, mixed, or later contexts (Table 6.11) conforms with a previously known pattern regarding the use of sand and micaceous gneiss/schist tempers: gneiss/schist- and muscovite mica-tempering represent an aspect of technological style that reached its peak in the Rillito phase, and largely died out by A.D. 1100. (Deaver 1984:397-398, Figure 4.69; Kelly 1978:72-76; Wallace et al. 1995:607, Figure 6). Review of the data in Tables 6.10 and 6.11 shows that most vessels recovered from BB:13:9 that were produced before the Rillito phase or after the Early Rincon phase are sand-tempered. During the Rillito-to-Early Rincon interval, sand-tempered vessels were also made; however, pots containing some gneiss/schist temper outnumber sand-tempered vessels 9.4:1. Further, pots heavily tempered with gneiss/schist (that is, those in which at least 25 percent of the temper is gneiss/schist) are most common during Rillito times.

Table 6.7. Ceramic types recovered from well-dated prehistoric features at the Tucson Presidio, AZ BB:13:9 (ASM), reported by phase.

		Phase									
		Cañada del Oro[a]		Rillito[b]		Early Rincon[c]		Middle Rincon 2 or Middle Rincon 3[d]		Row Total	
Ceramic Type	Production Date Range (A.D.)	MNV[e]	Sherd Count	MNV	Sherd Count	MNV	Sherd Count	MNV	Sherd Count	MNV	Sherd Count
Prehistoric Native American Types											
Tucson Basin Red-on-brown Ware											
Indeterminate pre-Classic red-on-brown	50-1150	2	2	2	2	2	2	5	5	11	11
Indeterminate red-on-brown	50-1450	1	1	–	–	–	–	3	3	4	4
Snaketown or Cañada del Oro red-on-brown	700-850	1	1	–	–	–	–	–	–	1	1
Cañada del Oro Red-on-brown	750-850	3	3	–	–	–	–	–	–	3	3
Cañada del Oro or Rillito red-on-brown	750-950	2	2	6	6	–	–	–	–	8	8
Cañada del Oro, Rillito, or Early Rincon red-on-brown	750-1000	–	–	–	–	1	1	–	–	1	1
Rillito Red-on-brown	850-950	–	–	10	11	–	–	4	4	14	15
Rillito or Early Rincon red-on-brown	850-1000	–	–	1	1	3	3	1	1	5	5
Rillito or Early, Middle, or Late Rincon red-on-brown	850-1150	–	–	–	–	–	–	1	1	1	1
Early Rincon Red-on-brown	950-1000	–	–	–	–	4	4	–	–	4	4
Early or Middle Rincon red-on-brown	950-1100	–	–	–	–	1	1	3	3	4	4
Early, Middle, or Late Rincon red-on-brown	950-1150	1	1	–	–	–	–	2	2	3	3
Early, Middle, or Late Rincon, or Tanque Verde red-on-brown	950-1450	–	–	–	–	–	–	3	3	3	3
Middle Rincon Red-on-brown	1000-1100	–	–	–	–	–	–	45	131	45	131
Tucson Basin Red Ware											
Tortolita Red	500-850	3	3	–	–	–	–	–	–	3	3
Rincon Red	1000-1100	–	–	–	–	–	–	2	2	2	2
Unidentified red ware type (possibly Rincon Red)		–	–	–	–	–	–	2	2	2	2
Unidentified red ware		–	–	1	1	–	–	1	1	2	2
Tucson Basin Polychrome											
Rincon Polychrome	1000-1100	–	–	–	–	–	–	2	2	2	2
Phoenix Basin Red-on-buff Ware											
Sweetwater, Snaketown, or Late Snaketown red-on-buff	675-750	1	1	–	–	–	–	–	–	1	1
Early Gila Butte or Late Gila Butte red-on-buff	750-850/900	3	3	–	–	–	–	2	2	5	5

Table 6.7. Continued.

Ceramic Type	Production Date Range (A.D.)	Phase: Cañada del Oro[a] MNV[e]	Cañada del Oro[a] Sherd Count	Rillito[b] MNV	Rillito[b] Sherd Count	Early Rincon[c] MNV	Early Rincon[c] Sherd Count	Middle Rincon 2 or Middle Rincon 3[d] MNV	Middle Rincon 2 or Middle Rincon 3[d] Sherd Count	Row Total MNV	Row Total Sherd Count
Phoenix Basin Red-on-buff Ware (continued)											
Santa Cruz Red-on-buff	850/900-900/950	–	–	4	6	–	–	–	–	4	6
Santa Cruz or Early Sacaton red-on-buff	850/900-1020	–	–	–	–	1	1	–	–	1	1
Middle Sacaton 1 or Middle Sacaton 2 red-on-buff	1020-1100	–	–	–	–	–	–	1	1	1	1
Red-on-buff Ware Variant											
Gila Butte-Cañada del Oro style	750-850/900	1	1	–	–	–	–	–	–	1	1
Indeterminate Tucson Basin Ware											
Indeterminate plain or red ware		–	–	–	–	–	–	1	1	1	1
Indeterminate plain or red-on-brown ware		–	–	–	–	–	–	1	1	1	1
Tucson Basin Plain Ware											
Unmodified body sherd		N/A	75	N/A	108	N/A	31	N/A	515	N/A	729
Modified body sherd		–	–	–	–	–	–	3	3	3	3
Rim sherd		6	6	6	6	4	4	17	17	33	33
Neck sherd		7	14	4	4	2	2	10	12	23	32
Sharp "Gila" shoulder		1	1	–	–	–	–	–	–	1	1
Stucco-coated Tucson Basin Plain Ware											
Unmodified body sherd		–	–	–	–	–	–	1	9	1	9
Historic Native American Types											
Papago Series											
Papago Plain		–	–	–	–	–	–	1	1	1	1
Acoma or Zuni series											
Indeterminate sherd-tempered, matte paint type	After 1680	–	–	–	–	–	–	1	1	1	1
Column Total		32	114	34	145	18	49	112	723	196	1,031

[a]Feature 660 (10, 11, 20, 30); Context 10 is undifferentiated house fill, Context 11 is roof/wall fall, Context 20 is floor contact, and Context 30 is fill of a secondary feature within a structure.
[b]Features 452 (10), 462 (50), and 479 (50); Context 50 is fill of an extramural feature.
[c]Feature 495 (10).
[d]Features 625 (10, 11), 631 (50), 634 (50), and 652 (50).
[e]MNV = Minimum number of vessel counts.

Table 6.8. Temper provenance data for ceramics recovered from well-dated prehistoric deposits at the Tucson Presidio, AZ BB:13:9 (ASM).

	Temper Provenance									
	Volcanic			Granitic		Granitic and Mixed Lithic	Metamorphic	Granitic or Metamorphic Source	Indeterminate	
Phase (Date) and Wares	Twin Hills	Beehive	Indeter-minate	Tortolita West	Indeter-minate	Airport	Catalina	Indeterminate	Indeterminate	Row Total
Cañada del Oro (750-850)										
Red-on-brown	7	–	–	–	–	–	–	–	2	9
Red	–	–	–	–	2	–	–	1	–	3
Plain (rim sherds)	4	–	–	–	–	–	–	–	2	6
Rillito (850-950)										
Red-on-brown	6	3	7	–	–	–	–	–	3	19
Plain (rim sherds)	3	–	1	–	–	–	–	–	2	6
Early Rincon (950-1000)										
Red-on-brown	4	5	1	–	–	–	–	–	1	11
Plain (rim sherds)	–	3	–	–	–	–	–	–	1	4
Middle Rincon 2 or Middle Rincon 3 (1040-1100)										
Red-on-brown	26	30	3	–	–	1	–	–	2	62
Red	1	2	–	1	1	–	–	–	–	5
Polychrome	–	1	1	–	–	–	–	–	–	2
Plain (rim sherds)	5	4	1	1	1	–	1	1	3	17
Column Total	56	48	14	2	4	1	1	2	16	144

Note: Minimum number of vessel counts are reported; earlier skip-phase and later mixed-in sherds removed from counts.

Table 6.9. Supplementary provenance temper data for prehistoric ceramic types recovered from undated, mixed, or later contexts at the Tucson Presidio, AZ BB:13:9 (ASM), reported by minimum number of vessel counts.

		Temper Provenance							
		Volcanic			Granitic and Mixed Lithic		Meta-morphic	Indeter-minate	
Ceramic Type	Production Date Range (A.D.)	Twin Hills	Beehive	Indeter-minate	Black Moun-tain	Indeter-minate	Catalina	Indeter-minate	Row Total
Tucson Basin Red-on-brown Ware									
Snaketown Red-on-brown	700-750	2	–	–	–	–	–	–	2
Cañada del Oro Red-on-brown	750-850	7	–	5	–	2	–	6	20
Rillito Red-on-brown	850-950	11	7	6	–	–	–	20	44
Early Rincon Red-on-brown	950-1000	7	9	2	–	–	–	2	20
Middle Rincon Red-on-brown	1000-1100	19	21	3	1	–	1	3	48
Late Rincon Red-on-brown	1100-1150	–	–	–	–	–	–	1	1
Tanque Verde Red-on-brown	1150-1450	–	2	2	–	–	2	1	7
Tucson Basin Polychrome									
Rincon Polychrome	1000-1100	–	–	–	–	–	–	1	1
Column Total		46	39	18	1	2	3	34	143

Table 6.10. Temper type data for ceramics recovered from well-dated prehistoric deposits at the Tucson Presidio, AZ BB:13:9 (ASM), reported by minimum number of vessel counts.

	Temper Type						
Phase and Wares	>25% Gneiss/ schist	>25% Gneiss/ schist and Muscovite Mica	7-25% Gneiss/ schist	1-7% Gneiss/ schist	Sand (<1% Gneiss/ schist)	Crushed Sherd and Sand	Row Total
Cañada del Oro (750-850)							
Red-on-brown	2	–	1	–	6	–	9
Red	–	–	–	–	3	–	3
Plain (rim sherds)	2	–	–	–	4	–	6
Rillito (850-950)							
Red-on-brown	11	1	5	1	1	–	19
Plain (rim sherds)	3	1	–	2	–	–	6
Early Rincon (950-1000)							
Red-on-brown	2	–	3	4	2	–	11
Plain (rim sherds)	1	1	1	1	–	–	4
Middle Rincon 2 or Middle Rincon 3 (1040-1100)							
Red-on-brown	2	–	1	8	50	1	62
Red	–	–	–	1	4	–	5
Polychrome	–	–	–	–	2	–	2
Plain (rim sherds)	1	–	–	–	14	2	17
Column Total	24	3	11	17	86	3	144

Note: Earlier skip-phase and later mixed-in sherds removed from counts.

Table 6.11. Supplementary temper type data for prehistoric ceramic types recovered from undated, mixed, or later contexts at the Tucson Presidio, AZ BB:13:9 (ASM), reported by minimum number of vessel counts.

		Temper Type							
Ceramic Type	Production Date Range (A.D.)	>25% Gneiss/ schist	>25% Gneiss/ schist and Muscovite Mica	7-25% Gneiss/ schist	1-7% Gneiss/ schist	Sand (<1% Gneiss/ schist)	Crushed Sherd and Sand	Indeter-minate	Row Total
Tucson Basin Red-on-brown Ware									
Snaketown Red-on-brown	700-750	–	–	–	–	2	–	–	2
Cañada del Oro Red-on-brown	750-850	8	1	1	1	8	–	1	20
Rillito Red-on-brown	850-950	22	3	5	8	4	–	2	44
Early Rincon Red-on-brown	950-1000	–	–	5	10	3	–	2	20
Middle Rincon Red-on-brown	1000-1100	1	–	8	21	17	1	–	48
Late Rincon Red-on-brown	1100-1150	–	–	–	–	–	–	1	1
Tanque Verde Red-on-brown	1150-1450	–	–	–	1	6	–	–	7
Tucson Basin Polychrome									
Rincon Polychrome	1000-1100	–	–	–	–	–	–	1	1
Column Total		31	4	19	41	40	1	7	143

Pottery Function

Two different approaches were utilized to assess the likely uses pottery played in the lives of the prehistoric inhabitants of the Tucson Presidio site. The first approach was strictly typological, and entailed the assignment of rim sherds to vessel form categories. The second approach examined a subset of the rim sherds, placing them into functional categories determined by their overall morphology and size.

Typological Approach

The vessel form of Colonial and Sedentary period Hohokam pottery recovered from well-dated deposits is reported in Table 6.12. The overall bowl-to-jar ratio is 2.5:1. Unfortunately, except the Middle Rincon phase sample, sample sizes in each phase are quite small, and, in the entire sample, more than half the rim sherds were assigned to indeterminate categories.

Shepard-Braun Approach

The count of Middle Rincon sherds in each functional category is summarized in Table 6.13, by ceramic ware. The low percentage of cooking vessels and the high percentage of storage vessels makes this collection of Middle Rincon pottery unique among seven contemporary collections recovered from other sites (Heidke and Ryan 2005:Table 3.10). However, each of those collections had a much larger sample size (median average = 215 rim sherds/reconstructible vessels, range = 96-245 cases).

Observations Regarding Incising, Massed Hachure, and Micaceous Tempers

The preceding review of temper provenance and type and, to a limited extent, vessel function, provide the reader a sense of the major developments in the potter's craft over time, as expressed in the assemblage from BB:13:9. However, those developments did not occur in isolation. Some ideas regarding pottery aesthetics show the varying influence of Middle Gila Hohokam potters on their Tucson area contemporaries. Attribute data recorded from all pre-Rillito phase decorated potsherds recovered from the Tucson Presidio site are summarized in Table 6.14. It supplements similar data sets recorded from pottery recovered at the Redtail site, AZ AA:12:149 (ASM) (Heidke 1989:Tables 5.9 and 5.12), the Julian Wash site (Heidke 2007e:Table B.5), and the Dove Mountain sites (Heidke et al. 2008:Table 5.20). Ceramics recovered from Julian Wash and the Dove Mountain sites indicated that

Table 6.12. Vessel form data for ceramics recovered from well-dated prehistoric deposits at the Tucson Presidio, AZ BB:13:9 (ASM), reported by ceramic ware.

	Phase													
	Cañada del Oro				Rillito			Early Rincon		Middle Rincon 2 or Middle Rincon 3				
Vessel Form	Plain	Red	Red-on-brown	Red-on-buff	Plain	Red-on-brown	Red-on-buff	Plain	Red-on-brown	Plain	Red-on-brown	Red	Polychrome	Row Total
Bowl Forms														
Flare-rim	–	–	1	–	1	4	1	–	1	–	–	–	–	8
Outcurved	–	–	1	–	–	–	–	–	–	–	4	–	–	5
Hemispherical	–	–	–	–	–	–	–	1	–	1	1	1	–	4
Semi-flare-rim, outcurved	1	–	–	–	–	–	–	–	–	1	–	–	–	2
Cauldron	–	–	–	–	–	–	–	–	–	1	–	–	–	1
Plate/Platter	–	–	–	–	–	–	–	–	–	–	1	–	–	1
Indeterminate bowl form	1	–	–	–	–	1	–	–	–	1	4	–	2	9
Jar Forms														
Short flare-rim	–	–	–	–	1	–	–	–	–	–	6	–	–	7
Tall flare-rim	–	–	–	–	2	–	–	1	–	1	–	–	–	4
Seed	–	–	–	1	–	–	–	–	–	–	–	–	–	1
Scoop Forms														
Indeterminate scoop form	–	–	–	–	–	–	–	–	1	–	–	–	–	1
Indeterminate Forms														
Indeterminate flare-rim form	4	1	–	–	2	–	–	2	–	7	3	–	–	19
Indeterminate bowl or scoop	–	–	–	–	–	–	–	–	–	–	2	–	–	2
Indeterminate bowl or seed jar	–	–	–	–	–	–	–	–	–	2	–	–	–	2
Indeterminate	–	–	–	–	–	–	–	–	–	3	–	–	–	3
Column Total	6	1	2	1	6	5	1	4	2	17	21	1	2	69

Table 6.13. Frequency of Middle Rincon 2 or Middle Rincon 3 rim sherds in each functional group, reported by ceramic ware, the Tucson Presidio, AZ BB:13:9 (ASM).

	Ware		
Function	Red-on-brown	Plain	Row Total
Cooking	–	1	1
Large group serving	2	1	3
Small group serving	2	–	2
Storage	6	–	6
Column total	10	2	12

the frequency of incised exterior surfaces was similar in both the Middle Gila River and Tucson areas prior to development of the Snaketown style; afterward, potters in the two areas followed different trajectories. The pre-Rillito phase data from BB:13:9 confirms the idea that, by the Snaketown phase, potters in the two areas followed different trajectories. Potters in the Middle Gila area continued to incise their vessels through the early Colonial period, while potters in the Tucson area rarely incised their vessels.

Although Tucson Basin potters evidently rejected the idea of incising early on, evidence from the Julian Wash site indicated they followed their contemporaries' evolution of the Snaketown design style into what Wallace (2001:224-226) has termed "Late Snaketown" (Heidke 2009). Tucson Basin potters created designs with massed hachure-filled designs just as their Middle Gila peers did. Four Julian Wash features contained both Late Snaketown Red-on-buff and Snaketown Red-on-brown sherds, and some of the Snaketown Red-on-brown sherds in those features exhibited massed hachure (Heidke 2009:Table 4.18). No Snaketown Red-on-brown sherds with massed hachure were recovered from the Dove Mountain sites or from BB:13:9, although three Late Snaketown Red-on-buff sherds were recovered from one of the Dove Mountain sites, Wild Burro Canyon, AZ AA:12:170 (ASM), and one was recovered from BB:13:9. Further, during the subsequent early Colonial period, Tucson area potters began to make frequent use of micaceous tempers, an approach to tempering that Middle Gila potters had been using for generations.

Decorative Elements

Intra-regional, temper source-related stylistic variability has been documented in Sedentary period red-on-brown pottery collections (Heckman and Whittlesey 1999:131, Table 17; Heidke 1990b, 2008d), with some of the strongest evidence coming from an examination of small decorative elements. Colonial and Sedentary period Hohokam ceramic types often utilize geometric elements and/or representations of life forms in their designs (Haury 1976:Figures 12.73, 12.86, 12.87, 12.99; Heidke 1990b:Figure 6.7, 1995:Figures 5.24-5.26; Wallace 1986a:Figure 6.5). Two earlier studies (Heidke 2008d:Tables 15.9, 15.10; Heidke and Ryan 2005:Tables 3.14, 3.15) have summarized the known range and frequency of Early and Middle Rincon Red-on-brown element categories by temper source (petrofacies) and by archaeological recovery site. Rillito, Early Rincon, and Middle Rincon phase decorative elements observed on potsherds recovered from BB:13:9 are summarized in Table 6.15. No new elements were identified.

Modified Sherds

Modified sherds were classified according to the number of edges ground, the shape of those edges (straight, rounded, disk, or indeterminate), and if perforation of a sherd disk was evident (indeterminate, absent, partial, or complete). A total of 18 modified sherds was recovered from excavations at the Tucson Presidio; the ware, type of modification, and recovery context's temporal placement for these sherds are reported in Table 6.16.

Some of the modifications, such as mendholes and ground rims, probably reflect actions taken to extend the use-lives of the modified vessels. Large and small unperforated disks and small perforated disks were recovered. Large unperforated disks are inferred to have been used as pot lids, or covers (Haury 1976:252). The large plain ware disk recovered from a Middle Rincon context is 18.0 cm in diameter. The small unperforated disks recovered from prehistoric deposits had diameters of 3.1 cm and 4.0 cm. Both of the Historic era disks had diameters of 4.0 cm, and may actually be prehistoric. The five perforated disks recovered from prehistoric deposits ranged from 3.5 cm to 6.0 cm in diameter (mean = 4.46 cm, median = 4.25 cm). The perforated disk recovered from a presidio context measured 5.0 cm in diameter, and may also be prehistoric. The recovery of perforated disks, which resemble spindle whorls found at other sites in the region (Swartz 1995), suggests fiber spinning occurred at BB:13:9. The four sherds characterized by having one or two ground edges may reflect the reuse of sherds as scraping tools; all may be prehistoric. Finally, a plain ware sherd shaped like a ground stone palette was recovered from a temporally mixed prehistoric deposit.

Table 6.14. Summary of attribute data recorded from pre-Rillito phase red-on-brown and red-on-buff ceramics, the Tucson Presidio, AZ BB:13:9 (ASM).

Ceramic Type	Sherd Size (cm^2)	Vessel Shape	Vessel Form	Vessel Part	Temper Type	Incised?
Tucson Basin Red-on-brown Ware						
Snaketown Red-on-brown	5-16	Jar	Indeterminate	Body	Sand	No
	16-49	Jar	Indeterminate	Body	Sand	No
Snaketown or Cañada del Oro red-on-brown	5-16	Bowl	Indeterminate	Body	>25% gneiss/schist	No
	5-16	Bowl	Indeterminate	Body	Sand	No
	5-16	Bowl	Flare-rim	Body	>25% gneiss/schist + muscovite mica	No
	5-16	Jar	Indeterminate	Body	Sand	No
	<5	Bowl	Indeterminate	Body	7->25% gneiss/schist	No
Cañada del Oro Red-on-brown	<5	Bowl	Flare-rim	Body	>25% gneiss/schist	No
	5-16	Bowl	Indeterminate	Body	>25% gneiss/schist	No
	5-16	Bowl	Indeterminate	Body	>25% gneiss/schist	No
	5-16	Bowl	Indeterminate	Body	Sand	No
	5-16	Bowl	Indeterminate	Body	Sand	No
	5-16	Bowl	Indeterminate	Body	Sand	No
	5-16	Bowl	Indeterminate	Body	Sand	No
	5-16	Bowl	Indeterminate	Body	Sand	No
	5-16	Bowl	Indeterminate	Body	Sand	No
	5-16	Jar	Indeterminate	Body	>25% gneiss/schist	No
	5-16	Jar	Indeterminate	Body	>25% gneiss/schist	No
	5-16	Jar	Indeterminate	Body	Indeterminate	No
	5-16	Jar	Indeterminate	Body	7->25% gneiss/schist	No
	5-16	Jar	Indeterminate	Body	Sand	No
	5-16	Jar	Indeterminate	Body	Sand	No
	5-16	Bowl	Flare-rim	Rim	>25% gneiss/schist	No
	5-16	Bowl	Indeterminate	Rim	Sand	No
	5-16	Bowl	Outcurved	Rim	Sand	No
	16-49	Bowl	Indeterminate	Body	1-7% gneiss/schist	No
	16-49	Bowl	Flare-rim	Body	>25% gneiss/schist	No
	16-49	Bowl	Flare-rim	Body	1-7% gneiss/schist	No
	16-49	Jar	Indeterminate	Body	>25% gneiss/schist + muscovite mica	No
	16-49	Jar	Indeterminate	Body	>25% gneiss/schist	No
Middle Gila Red-on-buff Ware						
Sweetwater, Snaketown, or Late Snaketown red-on-buff	<5	Bowl	Indeterminate	Body	>25% gneiss/schist	Yes
Sweetwater, Snaketown, Late Snaketown, or Early Gila Butte red-on-buff	5-16	Bowl	Semi-flare-rim, outcurved	Rim	>25% gneiss/schist	No
Snaketown or Late Snaketown red-on-buff	5-16	Jar	Indeterminate	Body	>25% gneiss/schist + muscovite mica	Yes
Late Snaketown Red-on-buff	5-16	Bowl	Plate/Platter	Rim	>25% gneiss/schist	No

Table 6.14. Continued.

Ceramic Type	Sherd Size (cm^2)	Vessel Shape	Vessel Form	Vessel Part	Temper Type	Incised?
Early Gila Butte or Late Gila Butte red-on-buff	<5	Bowl	Indeterminate	Body	>25% gneiss/schist + muscovite mica	Yes
	5-16	Bowl	Indeterminate	Body	>25% gneiss/schist	No
	5-16	Bowl	Indeterminate	Rim	>25% gneiss/schist	Yes
	5-16	Bowl	Indeterminate	Rim	>25% gneiss/schist	Yes
	5-16	Jar	Indeterminate	Body	>25% gneiss/schist	Yes
	5-16	Jar	Indeterminate	Body	>25% gneiss/schist	Yes
	5-16	Jar	Seed	Rim	>25% gneiss/schist	Yes
	49-100	Jar	Indeterminate	Body	>25% gneiss/schist	No

Table 6.15. Rillito, Early Rincon, and Middle Rincon Red-on-brown isolated elements, reported by temper source, from the Tucson Presidio, AZ BB:13:9 (ASM).

	Pottery Tempered with Twin Hills Petrofacies Sand			Pottery Tempered with Beehive Petrofacies Sand		Pottery Tempered with Sand from an Unspecified Volcanic Source	Pottery Tempered with Sand from an Unspecified Source	
Element Category (Categories 1-129 after Haury 1976:Figure 12.99)	Rillito Red-on-brown	Early Rincon Red-on-brown	Middle Rincon Red-on-brown	Early Rincon Red-on-brown	Middle Rincon Red-on-brown	Rillito Red-on-brown	Rillito Red-on-brown	Row Total
1 ●●●	–	–	–	–	–	1	–	1
2 ///	2	–	1	–	2	–	–	5
52 I	–	1	–	–	–	–	–	1
55.1 ZZ	–	–	–	1	2	–	–	3
102.1 ◘	–	–	1	–	–	–	–	1
132 ⊥	–	–	–	–	–	–	1	1
Lizard, positive	–	–	–	–	1	–	–	1
Column total	2	1	2	1	5	1	1	13

Fired Clay Figurines

Ceramic figurines have been recovered from contexts that encompass the time between the end of the Middle Archaic period and the Classic period, 2100 B.C.-A.D. 1450, in southern Arizona (Ferg 1998a, 1998b, 2003; Gregonis 1999; Haury 1965, 1976; Heidke and Ferg 1997, 2001; Kelly 1978; Morss 1954; Stinson 2005, 2006). In the Tucson area, they are frequently found in assemblages from Early Agricultural times through the Sedentary period (Kelly 1978; Stinson 2005). Many figurines are anthropomorphic. They commonly lack detailed features and have limited ornamentation. Although they are ubiquitous, their function is difficult to discern. Some of the functional classes suggested for figurine use include healing and curing rituals, cult figures, life-cycle ceremony, initiation ceremony, toys, and ancestor ritual (Guillen 1988, 1993; Marcus 1998; Voigt 1983, 1991).

A total of 14 figurine fragments was recovered from excavations at the Tucson Presidio (Table 6.17). Recovery contexts include Cañada del Oro, Rillito, and Middle Rincon phase deposits, as well

Table 6.16. Summary of modified sherds recovered from excavations at the Tucson Presidio.

	Prehistoric Contexts							
	Middle Rincon 2 or Middle Rincon 3 Deposits		Temporally Mixed Deposits		Presidio Contexts	American Territorial Contexts		
Modification	Plain Ware	Middle Rincon Red-on-brown	Plain Ware	Cañada del Oro Red-on-brown	Plain Ware	Plain Ware	Papago Red	Row Total
Modification to extend vessel use-life								
Mendhole	-	1	–	–	–	–	–	1
Ground rim	–	–	–	–	–	–	1	1
Disk-shaped objects and tools								
Unperforated disk	1	–	1	–	1	1	–	4
Perforated disk	1	–	4	–	1	–	–	6
Jar lid	1	–	–	–	–	–	–	1
Edge-ground tools								
One edge ground rounded	–	–	1	1	–	–	–	2
Two edges ground straight	–	–	–	–	2	–	–	2
Shaped objects								
Palette-like	–	–	1	–	–	–	–	1
Column Total	3	1	7	1	4	1	1	18

as temporally mixed prehistoric deposits, presidio, American Territorial, and undated nonfeature contexts; however, it is likely that all the figurines were made during the Prehistoric era. Heads, torsos, and appendages are represented. Three additional types of fired clay objects were recovered. One resembles a fragment of a carved shell bracelet or pendant, one is a small cylindrical object, and one appears to be a small squeeze, or lump, of clay that was exposed to a fire long enough to harden.

HISTORIC ERA POTTERY

Project Director J. Homer Thiel provided dating information for the contexts recovered from the Tucson Presidio and Historic Block 181. To review temporal trends in the ceramic data, many Historic era deposits were assigned to one of six temporal sets: 1775-1850, 1800-1850, 1820-1865, 1860-1889, 1880-1900, and 1890-1910. The extent of each set's date range is illustrated in Figure 6.3. Examination of that figure makes clear the degree of overlap between date ranges; it also shows when changes in administration between the Spanish and Mexican governments (1821) and the Mexican and American governments (1856) occurred (indicated by dashed, vertical lines).

The 1775-1850 contexts include small pit Features 464 (Stratum 50), 622 (Stratum 50), and 629 (Stratum 50), large pit Feature 586 (Stratum 50), hearth Features 498 (Stratum 50) and 499 (Stratum 50), and ditch Feature 635 (Stratum 59). The 1800-1850 contexts include large pit Features 460 (Stratum 50), 466 (Stratum 50), 475 (Stratum 50), 579 (Stratum 50), and 659 (Stratum 50), and surface with trash Features 519 (Strata 10, 40) and 520 (Strata 4, 10, 40). The 1820-1865 contexts include large pit Feature 628 (Stratum 50) and nonfeature Units 507-512. The 1860-1889 context consists of large pit Feature 603 (Stratum 50). The 1880-1900 contexts include large pit Feature 571 (Stratum 50) and privy Features 408 (Stratum 50), 510 (Stratum 50), 570 (Stratum 50), and 577 (Stratum 50). Finally, the 1890-1910 context consists of large pit Feature 624 (Stratum 50). The ceramic-bearing Historic era deposits that were not assigned to one of the six groups listed above are listed in Table 6.2.

Data tables for each temporal set are formatted following a standardized approach developed by the author. It has been used to report attributes of historic Native American pottery recovered from Block 83, AZ BB:13:401 (ASM) (Heidke 2008a), Block 136, AZ BB:13:513 (ASM) (Heidke 2002), Block 139, AZ BB:13:644 (ASM) (Heidke 2003a), Block 172, AZ BB:13:668 (ASM) (Heidke 2003b), Block 185, AZ BB:13:756 (ASM) and AZ BB:13:757 (ASM) (Heidke

Table 6.17. Summary of figurine fragments and other fired clay objects recovered from excavations at the Tucson Presidio.

Type of Fired Clay Object	Prehistoric Contexts				Presidio Contexts	American Territorial Contexts	Undated, Nonfeature Contexts	Row Total
	Cañada del Oro	Rillito	Middle Rincon 2 or Middle Rincon 3	Temporally Mixed Deposits				
Figurines								
Head	–	–	–	1	–	–	1	2
Torso	1	–	3	–	–	–	–	4
Leg	–	–	–	–	1	–	–	1
Indeterminate straight cylindrical torso or limb fragment	–	1	–	2	–	–	1	4
Indeterminate curved cylindrical torso or limb fragment	–	–	–	2	–	1	–	3
Other fired clay objects								
Faux shell bracelet or pendant (incised design present)	–	–	–	1	–	–	–	1
Cylinder	–	–	1	–	–	–	–	1
"Squeeze" (or "lump")	–	–	–	1	–	–	–	1
Column Total	1	1	4	7	1	1	2	17

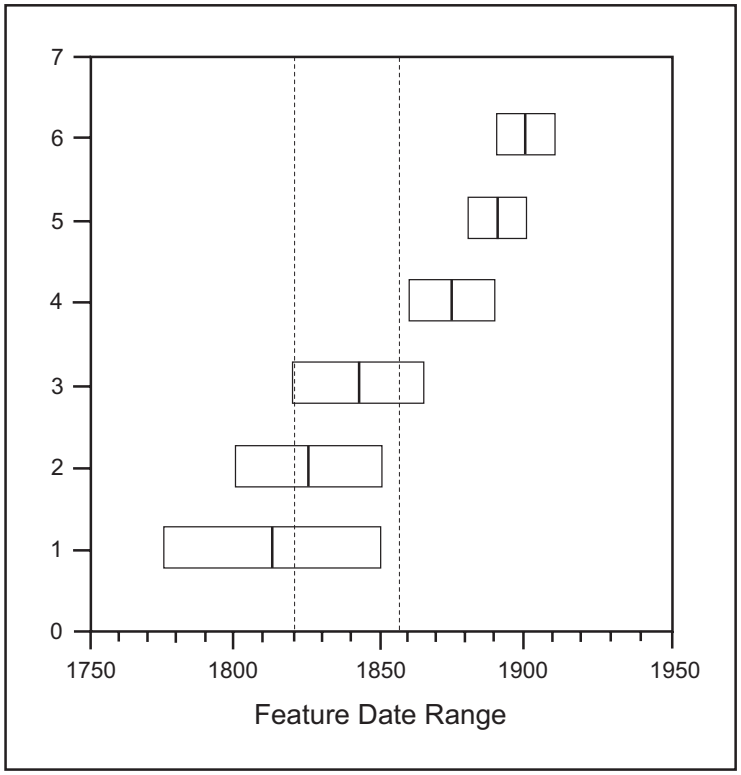

Figure 6.3. Date ranges of well-dated Historic era features and deposits recovered from the current project.

2008c), San Agustín Mission, AZ BB:13:6 (ASM) (Heidke 2006), and the León farmstead, AZ BB:13:505 (ASM) (Heidke 2005a), as well as previous excavations at the Tucson Presidio and Historic Block 181 (Heidke 2006). Following a standard method of reportage facilitates the synthesis of data gathered from multiple contexts at one site or data from many sites (Heidke 2006:Tables 7.50, 7.51).

Historic O'odham Pottery from the Tucson Presidio, AZ BB:13:13 (ASM), circa 1775-1850

A total of 390 pottery sherds, representing portions of at least 63 individual vessels, was recovered from the seven features assigned to the 1775-1850 set (Table 6.18). Additional information regarding characteristics of the red-slipped pottery recovered from those features is provided in Table 6.19. These presidio features exhibit temporal mixing, with prehistoric painted pottery making up 6.1

Table 6.18. Native American pottery types recovered from contexts at the Tucson Presidio, AZ BB:13:13 (ASM), that date from 1775-1850.

		Vessel Part[a]							
		Body Sherd		Rim Sherd		Neck		Row Total	
Ceramic Type	Production Date Range (A.D.)	MNV[b]	Sherd Count	MNV	Sherd Count	MNV	Sherd Count	MNV	Sherd Count
Prehistoric Native American Types									
Tucson Basin Red-on-brown Ware									
Indeterminate red-on-brown	50-1450	3	3	–	–	–	–	3	3
Rillito Red-on-brown	850-950	–	–	1	3	–	–	1	3
Rillito or Early Rincon red-on-brown	850-1000	2	2	–	–	1	1	3	3
Early Rincon Red-on-brown	950-1000	–	–	1	1	–	–	1	1
Early or Middle Rincon red-on-brown	950-1100	5	5	2	2	1	2	8	9
Early, Middle, or Late Rincon, or Tanque Verde red-on-brown	950-1450	–	–	1	1	–	–	1	1
Middle Rincon Red-on-brown	1000-1100	–	–	1	1	–	–	1	1
Phoenix Basin Red-on-buff Ware									
Sweetwater, Snaketown, Late Snaketown, or Early Gila Butte red-on-buff	675-800	–	–	1	1	–	–	1	1
Red-on-buff Ware Variant									
Snaketown or Gila Butte-Cañada del Oro style	700-850/900	1	1	–	–	–	–	1	1
Santa Cruz-Rillito or Sacaton-Rincon style	850/900-1125/1150	1	1	–	–	–	–	1	1
Prehistoric/Historic Wares									
Plain ware		N/A	223	11	15	N/A	16	11	254
Red ware		N/A	28	12[c]	16	N/A	3	12	47
Historic Native American Types									
Papago Series									
Sobaipuri Plain (folded rim coil)		–	–	7	7	–	–	7	7
Papago Plain		N/A	29	3	4	N/A	7	3	40
Papago Red		N/A	4	–	–	N/A	–	–	4
Papago Buff		2	2	–	–	–	–	2	2
Papago Black-on-red		1	2	1	1	–	–	2	3
Papago Red-on-brown		1	1	4[d]	8	–	–	5	9
Column Total		16	301	45	60	2	29	63	390

[a]Prehistoric/historic plain and red ware, including Papago types, body and neck sherds were not inspected for conjoins; therefore, minimum number of vessel (MNV) estimates are not available (N/A) for those ware and vessel part combinations.
[b]MNV = Minimum number of vessels.
[c]One red ware rim sherd exhibits a folded-over rim coil.
[d]One Papago Red-on-brown rim sherd exhibits a folded-over rim coil.

Table 6.19. Location of slip on historic red ware and Papago Red pottery recovered from contexts at the Tucson Presidio, AZ BB:13:13 (ASM), that date from 1775-1850.

	Red Ware				Papago Red	
	Vessel Part				Vessel Part	
			Rim Sherds			
Slip Location	Body Sherds	Neck Sherds	Bowl	Indeterminate Flare-rim Form	Body Sherds	Row Total
Full slip	12	3	6	–	2	23
Exterior only	9	–	–	1	2	12
Interior only	7	–	–	–	–	7
Interior and rim	–	–	4	–	–	4
Indeterminate	–	–	1	–	–	1
Column total	28	3	11	1	4	47

percent of the sherds (33.3 percent of the vessels). Those values suggest some of the plain ware pottery may also be prehistoric, especially because typological criteria for separating prehistoric and historic sand-tempered plain ware are lacking.

Temper Type

The temper type data are summarized in Table 6.20. Two compositions dominate this collection: sand (44.9 percent) and sand mixed with crushed sherd (31.8 percent). Those temper types occur in the plain and red ware, Sobaipuri Plain, Papago Red-on-brown, Papago Black-on-red, and Papago Buff sherds. Also occurring in the plain ware are a number of sherds tempered with mixtures of sand and crushed gneiss/schist. The gneiss/schist-tempered sherds may represent mixing of earlier prehistoric plain ware sherds into the deposits, as those temper types are known to have been commonly used from approximately A.D. 850 to 1100 (Deaver 1984:397-398, Figure 4.69; Kelly 1978:72-76; Wallace et al. 1995:607, Figure 6). The remaining sherds are all tempered with sand and fiber (presumably manure, 12.5 percent). Virtually all examples of mixed sand and fiber temper occur in the Papago Plain and Papago Red sherds, although one red ware rim sherd also exhibits that temper type.

Pottery Function

Two different approaches were utilized to assess the likely uses O'odham pottery may have played in the lives of Tucson Presidio inhabitants from 1775 to 1850. As mentioned, the first approach was strictly typological, and entailed the assignment of rim sherds and reconstructible vessels to vessel form categories originally created to classify prehistoric pottery from the region, while the second approach examined a subset of the rim sherds and reconstructible vessels, placing them into functional categories determined by their overall morphology and size.

Typological Approach. The vessel form of presidio-period O'odham pottery recovered from 1775-1850 contexts is reported in Table 6.21. Four bowl vessel forms comprise 80 percent of the determinate forms (bowls represent 73.7 percent of all rims); a tall flare-rim jar represents the only other determinate form identified. Two of the bowl vessel forms have semi-flaring rims, suggesting some of the three "indeterminate flare-rim" cases may also be bowls.

Shepard-Braun Approach. The count of sherds in each functional class is summarized in Table 6.22. Plain ware, red ware, Sobaipuri Plain, Papago Plain, and Papago Red-on-brown vessels are represented. The functional interpretation of each vessel form class follows the methodology described in Heidke (2006). The small collection shows a clear orientation toward meal preparation and cooking (plain ware "R," "S," and "TT," Sobaipuri Plain "C" and "D," and Papago Plain "M") and small group serving (red ware and Papago Red-on-brown "M"). The high percentage of deep, unrestricted serving vessels (Shepard-Braun category "M") is consistent with a cuisine that featured soups and stews, while the shallow, unrestricted plain ware vessels assigned to categories R, S, and TT may have been used as griddles, or *comales*, for cooking tortillas (based on the dimensions of 176 *comales* reported in Arnold 1978:Appendices 2A-2C). Finally, this collection is notable for its lack of dedicated storage vessels. Other 1771-1840s contexts have yielded 7-21 percent storage containers, 15-43 percent preparation/cooking pots, and 36-70 percent serving vessels (Heidke 2006, 2008c).

Table 6.20. Three-way classification of historic ceramic types recovered from contexts at the Tucson Presidio, AZ BB:13:13 (ASM), that date from 1775-1850, by vessel part and temper type.

	Plain Ware		Red Ware		Sobaipuri Plain	Papago Plain		Papago Red	Papago Red-on-brown		Papago Black-on-red		Papago Buff	
Temper Type	Body	Rim	Body	Rim	Rim	Body	Rim	Body	Body	Rim	Body	Rim	Body	Row Total
Sand	119	7	17	5	3	–	–	–	1	3	–	1	2	158
Sand and crushed sherd	84	4	14	5	4	–	–	–	–	1	–	–	–	112
Sand and fiber	–	–	–	1	–	36	3	4	–	–	–	–	–	44
>25 percent gneiss/schist	32	–	–	–	–	–	–	–	–	–	–	–	–	32
7-25 percent gneiss/schist	4	–	–	–	–	–	–	–	–	–	–	–	–	4
Indeterminate	–	–	–	1	–	–	–	–	–	–	1	–	–	2
Column Total	239	11	31	12	7	36	3	4	1	4	1	1	2	352

Note: The "body" sherd category includes body and neck sherds.

Historic O'odham Pottery from the Tucson Presidio, AZ BB:13:13 (ASM), circa 1800-1850

A total of 635 pottery sherds, representing portions of at least 99 individual vessels, was recovered from the seven features assigned to the 1800-1850 set (Table 6.23). Additional information regarding characteristics of the red-slipped pottery recovered from those features is provided in Table 6.24. These presidio features exhibit significant temporal mixing, with prehistoric painted pottery making up 8.0 percent of the sherds (49.5 percent of the vessels). Those values alone suggest some of the plain ware pottery must also be prehistoric.

Table 6.21. Frequency of rim sherds in each vessel form class recovered from contexts at the Tucson Presidio, AZ BB:13:13 (ASM), that date from 1775-1850, reported by ceramic type.

Vessel Form	Plain Ware	Red Ware	Sobaipuri Plain	Papago Plain	Papago Red-on-brown	Papago Black-on-brown	Row Total
Bowl Forms							
Outcurved bowl	2	6	–	1	–	–	9
Plate/Platter	3	1	–	1	–	–	5
Semi-flare-rim, outcurved bowl	1	1	–	–	1	–	3
Semi-flare-rim, hemispherical bowl	–	1	–	1	1	–	3
Indeterminate bowl	3	2	1	–	1	1	8
Jar Forms							
Tall flare-rim jar	–	–	5	–	–	–	5
Indeterminate jar	–	–	1	–	–	–	1
Pitcher							
Indeterminate pitcher	1	–	–	–	–	–	1
Indeterminate Forms							
Indeterminate flare-rim form	1	1	–	–	1	–	3
Column Total	11	12	7	3	4	1	38

Table 6.22. Frequency of rim sherds in each Shepard-Braun functional class recovered from contexts at the Tucson Presidio, AZ BB:13:13 (ASM), that date from 1775-1850, reported by ceramic type.

	Ware/Type					
Functional Category	Plain Ware	Red Ware	Sobaipuri Plain	Papago Plain	Papago Red-on-brown	Row Total
Independent Restricted Vessels						
C: Cooking (small- to medium-sized groups), temporary storage, and/or water cooling (13.0-25.5 cm aperture diameter)	–	–	2	–	–	2
D: Cooking (large group) and/or temporary storage (26.0-31.5 cm aperture diameter)	–	–	1	–	–	1
Unrestricted Vessels (Deep)						
M: Food preparation and/or small group serving (13.0-25.5 cm orifice diameter)	–	7	–	2	2	11
Unrestricted Vessels (Shallow)						
R: Collecting, processing, and/or individual-to-large group serving (13.0-25.5 cm orifice diameter)	1	–	–	–	–	1
S: Collecting, processing, and/or communal serving (26.0-31.5 cm orifice diameter)	1	–	–	–	–	1
TT: Collecting, processing, and/or communal serving (>38.5 cm orifice diameter)	1	–	–	–	–	1
Column Total	3	7	3	2	2	17

Table 6.23. Native American pottery types recovered from contexts at the Tucson Presidio, AZ BB:13:13 (ASM), that date from 1800-1850.

		Vessel Part[a]							
		Body Sherd[b]		Rim Sherd		Neck		Row Total	
Ceramic Type	Production Date Range (A.D.)	MNV[c]	Sherd Count	MNV	Sherd Count	MNV	Sherd Count	MNV	Sherd Count
Prehistoric Native American Types									
Tucson Basin Red-on-brown Ware									
Indeterminate pre-Classic red-on-brown	50-1150	5	5	1	1	–	–	6	6
Indeterminate red-on-brown	50-1450	5	5	–	–	–	–	5	5
Cañada del Oro Red-on-brown	750-850	3	3	–	–	–	–	3	3
Cañada del Oro or Rillito red-on-brown	750-950	1	2	1	1	–	–	2	3
Cañada del Oro, Rillito, or Early Rincon red-on-brown	750-1000	1	1	–	–	–	–	1	1
Rillito Red-on-brown	850-950	–	–	3	3	–	–	3	3
Rillito or Early Rincon red-on-brown	850-1000	2	2	–	–	–	–	2	2
Rillito or Early, Middle, or Late Rincon red-on-brown	850-1150	2	2	–	–	–	–	2	2
Early Rincon Red-on-brown	950-1000	–	–	2	2	–	–	2	2
Early or Middle Rincon red-on-brown	950-1100	8	8	3	3	–	–	11	11
Early, Middle, or Late Rincon, or Tanque Verde red-on-brown	950-1450	2	2	1	1	–	–	3	3
Middle Rincon Red-on-brown	1000-1100	4	5	1	1	–	–	5	6
Phoenix Basin Red-on-buff Ware									
Santa Cruz Red-on-buff	850/900-900/950	2	2	–	–	–	–	2	2
Santa Cruz, Early Sacaton, or Middle Sacaton 1 red-on-buff	850/900-1070/1080	1	1	–	–	–	–	1	1
Middle Sacaton 1, Middle Sacaton 2, Late Sacaton or Casa Grande red-on-buff	1020-1300	1	1	–	–	–	–	1	1
Prehistoric/Historic Wares									
Plain ware		N/A	465	35	37	N/A	8	35	510
Red ware		N/A	22	5	6	N/A	1	5	29
Historic Native American Types									
Papago Series									
Sobaipuri Plain (folded rim coil)		–	–	2	2	–	–	2	2
Papago Plain		N/A	28	4	4	N/A	2	4	34
Papago Red		N/A	1	–	–	N/A	–	–	1

Table 6.23. Continued.

Ceramic Type	Production Date Range (A.D.)	Vessel Part[a]						Row Total	
		Body Sherd[b]		Rim Sherd		Neck			
		MNV[c]	Sherd Count	MNV	Sherd Count	MNV	Sherd Count	MNV	Sherd Count
Papago Series (continued)									
Papago Black-on-red		1	5	–	–	–	–	1	5
Papago Red-on-brown		–	–	–	–	1	1	1	1
Papago Black-on-brown		–	–	–	–	1	1	1	1
Acoma Series									
Laguna Polychrome	1830-1940	1	1	–	–	–	–	1	1
Column Total		39	561	58	61	2	13	99	635

[a]Prehistoric/historic plain and red ware, including Papago types, body and neck sherds were not inspected for conjoins; therefore, minimum number of vessel (MNV) estimates are not available (N/A) for those ware and vessel part combinations.
[b]Body sherd count includes sharp shoulders.
[c]MNV = Minimum number of vessels.

Table 6.24. Location of slip on historic red ware and Papago Red pottery recovered from contexts at the Tucson Presidio, AZ BB:13:13 (ASM), that date from 1800-1850.

	Red Ware			Papago Red	
	Vessel Part			Vessel Part	
	Body Sherds	Neck Sherds	Rim Sherds		
Slip Location			Bowl	Body Sherds	Row Total
Exterior only	8	1	–	1	10
Interior only	9	–	–	–	9
Full slip	5	–	4	–	9
Indeterminate	–	–	1	–	1
Column Total	22	1	5	1	29

Temper Type

The temper type data are summarized in Table 6.25. Two compositions dominate the collection: sand (39.8 percent) and sand mixed with crushed sherd (33.2 percent). Those temper types occur in the plain and red ware, Sobaipuri Plain, Papago Red-on-brown, Papago Black-on-brown, and Papago Black-on-red sherds, as well as in one Papago Plain body sherd. Also occurring in the plain ware are sherds tempered with crushed gneiss/schist, muscovite mica, or phyllite. Sherds containing those micaceous rocks and minerals represent 23.6 percent of all plain ware, and denote additional temporal mixing in the 1800-1850 deposits. The remaining sherds are all tempered with sand and fiber (presumably manure, 6.1 percent). Virtually all examples of mixed sand and fiber temper occur in the Papago Plain and Papago Red sherds, although one Sobaipuri Plain rim sherd also exhibits that temper type.

Pottery Function

Typological and functional approaches were utilized to assess the likely uses O'odham pottery may have played in the lives of Tucson Presidio inhabitants at this time.

Typological Approach. The vessel form of presidio O'odham pottery recovered from 1800-1850 contexts is reported in Table 6.26. Six bowl vessel forms comprise all the determinate forms (bowls represent 84.4 percent of all rims). Two of the bowl vessel forms have semi-flaring rims, suggesting some of the three "indeterminate flare-rim" cases may be bowls, too.

Shepard-Braun Approach. The count of sherds in each functional class is summarized in Table 6.27. Plain ware, red ware, and Papago Plain vessels are represented. The very small collection shows an orientation toward meal preparation (plain ware "M" and "S") and large group serving (plain ware "N" and "O," red ware and Papago Plain "N"). The large, shallow, unrestricted plain ware vessel assigned to Shepard-Braun category "S" may have been used as a griddle, or *comal*. Finally, as in the 1775-1850 set of pottery, this collection is notable for its lack of dedicated storage containers.

Historic O'odham Pottery from the Tucson Presidio, AZ BB:13:13 (ASM), circa 1820-1865

A total of 970 pottery sherds, representing portions of at least 119 individual vessels, was recovered from the feature and units assigned to the 1820-1865 set (Table 6.28). Additional information regarding characteristics of the red-slipped pottery recovered from those features is provided in Table 6.29. These presidio to American Territorial features exhibit some temporal mixing, with prehistoric painted pottery comprising 2.4 percent of the sherds (18.5 percent of the vessels). Those values suggest some of the plain ware pottery may also be prehistoric.

Temper Type

The temper type data are summarized in Table 6.30. Three compositions dominate the collection: sand and fiber (presumably manure, 38.2 percent of examined sherds), sand-and-crushed-sherd (28.1 percent), and sand (27.3 percent). Virtually all the "Papago" ceramic types (that is, Papago Plain, Papago Red, Papago Black-on-brown, and Papago Buff) are tempered with sand and fiber, although a Papago Red-on-brown body sherd is sand-tempered and a Papago Buff body sherd displays sand-and-

Table 6.25. Three-way classification of historic ceramic types recovered from contexts at the Tucson Presidio, AZ BB:13:13 (ASM), that date from 1800-1850, by vessel part and temper type.

	Plain Ware		Red Ware		Sobaipuri Plain	Papago Plain		Papago Red	Papago Red-on-brown	Papago Black-on-brown	Papago Black-on-red	
Temper Type	Body	Rim	Body	Rim	Rim	Body	Rim	Body	Body	Body	Body	Row Total
Sand	219	4	6	–	–	–	–	–	–	–	–	229
Sand and crushed sherd	147	17	17	5	1	1	–	–	1	1	1	191
>25 percent gneiss/schist	77	8	–	–	–	–	–	–	–	–	–	85
Sand and fiber	–	–	–	–	1	29	4	1	–	–	–	35
1-7 percent gneiss/schist	17	2	–	–	–	–	–	–	–	–	–	19
7-25 percent gneiss/schist	12	1	–	–	–	–	–	–	–	–	–	13
Mixed sand and 1-25 percent muscovite mica	1	–	–	–	–	–	–	–	–	–	–	1
>25 percent gneiss/schist and muscovite mica	–	1	–	–	–	–	–	–	–	–	–	1
>25 percent phyllite	–	1	–	–	–	–	–	–	–	–	–	1
Indeterminate	–	1	–	–	–	–	–	–	–	–	–	1
Column Total	473	35	23	5	2	30	4	1	1	1	1	576

Note: The “body” sherd category includes body and neck sherds.

Table 6.26. Frequency of rim sherds in each vessel form class recovered from contexts at the Tucson Presidio, AZ BB:13:13 (ASM), that date from 1800-1850, reported by ceramic type.

Vessel Form	Plain Ware[a]	Red Ware	Sobaipuri Plain	Papago Plain	Row Total
Bowl Forms					
Outcurved bowl	3	2	1	–	6
Plate/Platter	6	–	–	–	6
Hemispherical bowl	2	–	1	–	3
Semi-flare-rim, outcurved bowl	1	–	–	1	2
Semi-flare-rim, hemispherical bowl	2	–	–	–	2
Straight-walled bowl	1	–	–	–	1
Indeterminate bowl	2	3	–	2	7
Jar Forms					
Indeterminate jar	–	–	–	1	1
Scoop Forms					
Indeterminate-shaped scoop	1	–	–	–	1
Indeterminate Forms					
Indeterminate flare-rim form	3	–	–	–	3
Column Total	21	5	2	4	32

[a]Only sand- and sand mixed with crushed sherd-tempered plain ware are reported.

Table 6.27. Frequency of rim sherds in each Shepard-Braun functional class recovered from contexts at the Tucson Presidio, AZ BB:13:13 (ASM), that date from 1800-1850, reported by ceramic type.

	Ware			
Functional Category	Plain Ware[a]	Red Ware	Papago Plain	Row Total
Unrestricted Vessels (Deep)				
M: Food preparation and/or small group serving (13.0-25.5 cm orifice diameter)	2	–	–	2
N: Communal serving/eating (26.0-31.5 cm orifice diameter)	1	1	1	3
O: Communal serving/eating (32.0-38.5 cm orifice diameter)	1	–	–	1
Unrestricted Vessels (Shallow)				
S: Collecting, processing, and/or communal serving (26.0-31.5 cm orifice diameter)	1	–	–	1
Column Total	5	1	1	7

[a]Only sand- and sand mixed with crushed sherd-tempered plain ware are reported.

crushed-sherd temper. The sand and sand mixed with crushed sherd temper types occur primarily in the plain ware, red ware, and Sobaipuri Plain sherds, although a Sobaipuri Plain rim sherd exhibits sand and fiber temper. Also occurring in the plain and red ware are sherds tempered with mixtures of sand and crushed gneiss/schist with/without muscovite mica. As noted, those sherds likely represent mixing of prehistoric plain ware into these deposits, although at a much lower percent than in the 1800-1850 contexts.

Pottery Function

Typological and functional approaches were utilized to assess the likely uses O'odham pottery may have played in the lives of Tucson Presidio inhabitants at this time.

Typological Approach. The vessel form of presidio to American Territorial pottery recovered from 1820-1865 contexts is reported in Table 6.31. Seven bowl vessel forms comprise 87.9 percent of the determinate forms (bowls represent 69.4 percent

Table 6.28. Native American pottery types recovered from contexts at the Tucson Presidio, AZ BB:13:13 (ASM), that date from 1820-1865.

		Vessel Part[a]							
		Body Sherd		Rim Sherd		Neck		Row Total	
Ceramic Type	Production Date Range (A.D.)	MNV[b]	Sherd Count	MNV	Sherd Count	MNV	Sherd Count	MNV	Sherd Count
Prehistoric Native American Types									
Tucson Basin Red-on-brown Ware									
Indeterminate pre-Classic red-on-brown	50-1150	3	3	–	–	–	–	3	3
Indeterminate red-on-brown	50-1450	1	2	–	–	–	–	1	2
Cañada del Oro or Rillito red-on-brown	750-950	1	1	1	1	–	–	2	2
Rillito Red-on-brown	850-950	1	1	–	–	–	–	1	1
Rillito or Early Rincon red-on-brown	850-1000	5	5	–	–	–	–	5	5
Early Rincon Red-on-brown	950-1000	–	–	2	2	–	–	2	2
Early or Middle Rincon red-on-brown	950-1100	2	2	1	1	–	–	3	3
Early, Middle, or Late Rincon red-on-brown	950-1150	–	–	1	1	–	–	1	1
Middle Rincon Red-on-brown	1000-1100	1	1	–	–	–	–	1	1
Phoenix Basin Red-on-buff Ware									
Indeterminate red-on-buff	700-1300	2	2	1	1	–	–	3	3
Prehistoric/Historic Wares									
Plain ware		N/A	446	31	32	N/A	38	31	516
Red ware		N/A	44	3[c]	4	N/A	4	3	52
Historic Native American Types									
Papago Series									
Sobaipuri Plain (folded rim coil)		–	–	10	12	2	2	12	14
Papago Plain		N/A	251	39	43	N/A	24	39	318
Papago Red		N/A	30	2	2	N/A	4	2	36
Papago Buff		6	7	–	–	–	–	6	7
Papago Red-on-brown		1	1	–	–	–	–	1	1
Papago Black-on-brown		1	1	–	–	–	–	1	1
Zuni Series									
Zuni Polychrome	1680-1900	1	1	–	–	1	1	2	2
Column Total		25	798	91	99	3	73	119	970

[a]Prehistoric/historic plain and red ware, including Papago types, body and neck sherds were not inspected for conjoins; therefore, minimum number of vessel (MNV) estimates are not available (N/A) for those ware and vessel part combinations.
[b]MNV = Minimum number of vessels.
[c]One red ware rim sherd exhibits a folded-over rim coil.

of all rims); tall straight-collared, tall flare-rimed, and short flare-rimed jars represent the other determinate forms identified. Two of the bowl vessel forms have semi-flaring rims, suggesting some of the 20 "indeterminate flare-rim" cases may also be bowls.

Shepard-Braun Approach. The count of sherds in each functional class is summarized in Table 6.32. Plain ware, red ware, Sobaipuri Plain, Papago Plain, and Papago Red vessels are present. A wide range of tasks are represented in the collection: meal preparation (Sobaipuri Plain and Papago Plain

Table 6.29. Location of slip on historic red ware and Papago Red pottery recovered from contexts at the Tucson Presidio, AZ BB:13:13 (ASM), that date from 1820-1865.

	Red Ware				Papago Red			
	Vessel Part				Vessel Part			
	Body Sherds	Neck Sherds	Rim Sherds		Body Sherds	Neck Sherds	Rim Sherds	
Slip Location			Bowl	Jar			Bowl	Row Total
Full slip	19	1	2	1	11	3	2	39
Exterior only	12	–	–	–	18	1	–	31
Interior only	13	3	–	–	1	–	–	17
Column Total	44	4	2	1	30	4	2	87

"M"), cooking (Sobaipuri Plain "C" and Papago Plain "R" and "S"), small group serving (red ware and Papago Red "M"), large group serving (plain ware and Papago Plain "N," red ware, and Papago Plain "O"), and storage (plain ware "I," red ware "C," and Papago Plain "H"). The shallow, unrestricted Papago Plain vessels in Shepard-Braun categories "R" and "S" may have been used as griddles, or *comales*.

Historic O'odham Pottery from Historic Block 181, circa 1860-1889

A total of 470 pottery sherds, representing portions of at least 76 individual vessels, was recovered from Feature 603, the only member of the 1860-1889 set (Table 6.33). Additional information regarding characteristics of the red-slipped pottery recovered from that feature is provided in Table 6.34. This American Territorial period feature exhibits some temporal mixing, with prehistoric painted pottery making up 2.5 percent of the sherds (15.8 percent of the vessels). Those values suggest some of the plain ware pottery may also be prehistoric.

Temper Type

The temper type data are summarized in Table 6.35. Two compositions dominate the collection: sand and fiber (presumably manure, 61.4 percent of examined sherds) and sand (26.5 percent). Virtually all the "Papago" ceramic types (Papago Plain, Papago Red, Papago Black-on-red, Papago Red-on-white, and Papago Buff) are tempered with sand and fiber, although Papago Red-on-brown and Papago Black-on-brown body sherds are sand-tempered. A Sobaipuri Plain rim sherd also displays sand and fiber temper. The sand and sand mixed with crushed sherd temper types occur primarily in the plain and red ware. Also occurring in the plain ware are sherds tempered with mixtures of sand and crushed gneiss/schist. As noted, those sherds likely represent mixing of prehistoric plain ware into the deposit.

Pottery Function

Typological and functional approaches were utilized to assess the likely uses that O'odham pottery may have played in the lives of Historic Block 181 inhabitants at this time.

Typological Approach. The vessel form of American Territorial period pottery recovered from the 1860-1889 context is reported in Table 6.36. Six bowl vessel forms comprise 78.3 percent of the determinate forms (bowls represent 48.1 percent of all rims); tall and short flare-rimed jars represent the other determinate forms. Two of the bowl vessel forms have semi-flaring rims, suggesting some of the 22 "indeterminate flare-rim" cases may be bowls, too.

Shepard-Braun Approach. The count of sherds in each functional class is summarized in Table 6.37. Plain ware, Papago Plain, and Papago Red vessels are present. A wide range of tasks are represented in the collection: meal preparation (plain ware and Papago Plain "M"), cooking (Papago Plain "C," "D," and "TT"), individual serving (plain ware "Q"), small group serving (Papago Red "M"), large group serving (plain ware and Papago Plain "N"), and storage (plain ware "G" and Papago Red "B" and "C"). The Papago Red vessel assigned to Shepard-Braun category "B" would have made a good water carrying container, while the Papago Red vessel assigned to category "C" would have been well-suited to water cooling, as well as for dry storage (Hand 1994:15, 41, 44, 83, 105, 135, 154, 172, 175; Hosmer et al. 1991:56-57; Naranjo 2002). The large, shallow, unrestricted Papago Plain vessels assigned to category "TT" may have been used as griddles, or *comales*.

Table 6.30. Three-way classification of historic ceramic types recovered from contexts at the Tucson Presidio, AZ BB:13:13 (ASM), that date from 1820-1865, by vessel part and temper type.

	Plain Ware		Red Ware		Sobaipuri Plain		Papago Plain		Papago Red		Papago Red-on-brown	Papago Black-on-brown	Papago Buff	
Temper Type	Body	Rim	Body	Rim	Body	Rim	Body	Rim	Body	Rim	Body	Body	Body	Row Total
Sand and fiber	–	–	–	–	–	2	274	39	34	2	–	1	5	357
Sand and crushed sherd	197	20	37	2	1	5	–	–	–	–	–	–	1	263
Sand	237	3	10	1	1	2	–	–	–	–	1	–	–	255
>25 percent gneiss/schist	42	4	–	–	–	–	–	–	–	–	–	–	–	46
Mixed sand and 1-25 percent muscovite mica	4	–	1	–	–	–	–	–	–	–	–	–	–	5
7-25 percent gneiss/schist	2	2	–	–	–	–	–	–	–	–	–	–	–	4
1-7 percent gneiss/schist	2	1	–	–	–	–	–	–	–	–	–	–	–	3
Indeterminate	–	1	–	–	–	1	–	–	–	–	–	–	–	2
Column Total	484	31	48	3	2	10	274	39	34	2	1	1	6	935

Note: The "body" sherd category includes body and neck sherds.

Table 6.31. Frequency of rim sherds in each vessel form class recovered from contexts at the Tucson Presidio, AZ BB:13:13 (ASM), that date from 1820-1865, reported by ceramic type.

Vessel Form	Plain Ware	Red Ware	Sobaipuri Plain	Papago Plain	Papago Red	Row Total
Bowl Forms						
Outcurved bowl	3	–	1	7	–	11
Plate/Platter	1	–	–	4	–	5
Semi-flare-rim, outcurved bowl	2	2	–	–	1	5
Semi-flare-rim, hemispherical bowl	–	–	1	2	–	3
Hemispherical bowl	–	–	–	1	1	2
Incurved bowl	1	–	–	1	–	2
Flare-rim bowl	–	–	–	1	–	1
Indeterminate bowl	16	–	2	12	–	30
Jar Forms						
Tall straight-collared jar	2	–	–	–	–	2
Tall flare-rim jar	–	–	1	–	–	1
Short flare-rim jar	–	1	–	–	–	1
Indeterminate Forms						
Indeterminate flare-rim form	6	–	3	11	–	20
Indeterminate vessel form	–	–	2	–	–	2
Column Total	31	3	10	39	2	85

Table 6.32. Frequency of rim sherds in each Shepard-Braun functional class recovered from contexts at the Tucson Presidio, AZ BB:13:13 (ASM), that date from 1820-1865, reported by ceramic type.

	Ware/Type					
Functional Category	Plain Ware	Red Ware	Sobaipuri Plain	Papago Plain	Papago Red	Row Total
Independent Restricted Vessels						
C: Cooking (small- to medium-sized groups), temporary storage, and/or water cooling (13.0-25.5 cm aperture diameter)	–	1	1	–	–	2
Simple and Dependent Restricted Vessels						
H: Specialized, temporary dry storage (13.0-25.5 cm orifice diameter)	–	–	–	1	–	1
I: Specialized, temporary storage (26.0-31.5 cm orifice diameter)	1	–	–	–	–	1
Unrestricted Vessels (Deep)						
M: Food preparation and/or small group serving (13.0-25.5 cm orifice diameter)	–	1	2	3	1	7
N: Communal serving/eating (26.0-31.5 cm orifice diameter)	1	–	–	2	–	3
O: Communal serving/eating (32.0-38.5 cm orifice diameter)	–	1	–	1	–	2
Unrestricted Vessels (Shallow)						
R: Collecting, processing, and/or individual-to-large group serving (13.0-25.5 cm orifice diameter)	–	–	–	2	–	2
S: Collecting, processing, and/or communal serving (26.0-31.5 cm orifice diameter)	–	–	–	1	–	1
Column Total	2	3	3	10	1	19

Table 6.33. Native American pottery types recovered from contexts at the Tucson Presidio, AZ BB:13:13 (ASM), that date from 1860-1889.

Ceramic Type	Production Date Range (A.D.)	Vessel Part[a]								Row Total	
		Body Sherd		Rim Sherd		Reconstructible Vessel		Neck			
		MNV[b]	Sherd Count	MNV	Sherd Count	MNV	Sherd Count	MNV	Sherd Count	MNV	Sherd Count
Prehistoric Native American Types											
Tucson Basin Red-on-brown Ware											
Indeterminate red-on-brown	50-1450	1	1	–	–	–	–	–	–	1	1
Snaketown Red-on-brown	700-750	1	1	–	–	–	–	–	–	1	1
Cañada del Oro or Rillito red-on-brown	750-950	1	1	–	–	–	–	–	–	1	1
Rillito or Early Rincon red-on-brown	850-1000	3	3	–	–	–	–	–	–	3	3
Rillito or Early, Middle, or Late Rincon red-on-brown	850-1150	–	–	1	1	–	–	–	–	1	1
Early or Middle Rincon red-on-brown	950-1100	1	1	1	1	–	–	–	–	2	2
Middle Rincon Red-on-brown	1000-1100	–	–	–	–	–	–	1	1	1	1
Middle or Late Rincon, or Tanque Verde red-on-brown	1000-1450	2	2	–	–	–	–	–	–	2	2
Indeterminate Tucson Basin Ware											
Indeterminate plain or red ware		–	–	1	1	–	–	–	–	1	1
Indeterminate plain or red-on-brown ware		–	–	1	1	–	–	–	–	1	1
Prehistoric/Historic Wares											
Plain ware		N/A	142	10	10	–	–	N/A	9	10	161
Red ware		N/A	5	1	1	–	–	N/A	–	1	6
Historic Native American Types											
Papago Series											
Sobaipuri Plain (folded rim coil)		–	–	1	1	–	–	–	–	1	1
Papago Plain		N/A	143	27	38	–	–	N/A	23	27	204
Papago Red		N/A	46	8	8	1	1	N/A	9	9	64
Papago Buff		3	7	–	–	–	–	–	–	3	7
Papago Black-on-red		1	1	3	4	–	–	1	1	5	6
Papago Red-on-brown		1	2	1	1	–	–	–	–	2	3
Papago Black-on-brown		1	1	–	–	–	–	–	–	1	1
Papago Red-on-white		1	1	1	1	–	–	–	–	2	2
Acoma or Zuni series											
Indeterminate sherd-tempered, matte paint type	After 1680	–	–	1	1	–	–	–	–	1	1
Column Total		16	357	57	69	1	1	2	43	76	470

[a]Prehistoric/historic plain and red ware, including Papago types, body and neck sherds were not inspected for conjoins; therefore, minimum number of vessel (MNV) estimates are not available (N/A) for those ware and vessel part combinations.

[b]MNV = Minimum number of vessels.

Table 6.34. Location of slip on historic red ware and Papago Red pottery recovered from contexts at the Tucson Presidio, AZ BB:13:13 (ASM), that date from 1860-1889.

	Red Ware		Papago Red					
	Vessel Part		Vessel Part					
	Body Sherds	Rim Sherds	Body Sherds	Neck Sherds	Rim Sherds and Reconstructible Vessels			
Slip Location	Bowl				Bowl	Jar	Indeterminate Flare-rim form	Row Total
Exterior only	3	–	34	6	–	–	–	43
Full slip	2	1	10	2	1	1	2	19
Exterior, rim, and interior band below rim	–	–	–	–	1	2	1	4
Interior only	–	–	2	1	–	–	–	3
Interior, rim, and exterior band	–	–	–	–	1	–	–	1
Column Total	5	1	46	9	3	3	3	70

Historic O'odham Pottery from Historic Block 181, circa 1880-1900

A total of 2,103 pottery sherds, representing portions of at least 278 individual vessels, was recovered from the five features assigned to the 1880-1900 set (Table 6.38). Additional information regarding characteristics of the red-slipped pottery recovered from those features is provided in Table 6.39. These American Territorial period features exhibit some temporal mixing, with prehistoric painted pottery comprising 1.4 percent of the sherds (9.7 percent of the vessels). Those values suggest some of the plain ware pottery may also be prehistoric.

Temper Type

The temper type data are summarized in Table 6.40. One composition dominates the collection: sand and fiber (presumably manure, 78.2 percent of examined sherds). Virtually all the "Papago" ceramic types (i.e., Papago Plain, Papago Red, Papago Black-on-red, and Papago Buff) are tempered with sand and fiber, although a Papago Black-on-buff body sherd is sand-tempered and a Papago Buff body sherd contains sand and crushed sherd temper. One Sobaipuri Plain rim sherd also displays sand and fiber temper. Sand (11.2 percent) and sand mixed with crushed sherd (6.1 percent) temper types occur primarily in the plain and red ware. Also occurring in the plain ware are sherds tempered with crushed gneiss/schist, muscovite mica, or phyllite. As noted, those sherds likely represent mixing of prehistoric plain ware into the deposits.

Pottery Function

Typological and functional approaches were utilized to assess the likely uses O'odham pottery may have played in the lives of Historic Block 181 inhabitants at this time.

Typological Approach. The vessel form of American Territorial period pottery recovered from 1880-1900 contexts is reported in Table 6.41. The seven bowl vessel forms comprise 61.5 percent of the determinate forms (bowls represent 38.1 percent of all rim sherds and reconstructible vessels), while the six jar vessel forms make up the remaining 38.5 percent of determinate forms (jars represent 20.9 percent of all rim sherds and reconstructible vessels). Three of the bowl vessel forms have semi-flaring rims, suggesting some of the 94 "indeterminate flare-rim" cases may also be bowls.

Shepard-Braun Approach. The count of sherds and vessels in each functional class is summarized in Table 6.42. Plain ware, red ware, Papago Plain, Papago Red, and possible Papago Red vessels are present. A wide range of tasks are represented in the collection: meal preparation (Papago Plain "M"), cooking (plain ware "S" and "T," Papago Plain "C," "D," "E," "EE," "R," and "TT"), individual serving (plain ware "Q" and Papago Red "L"), small group serving (red ware and Papago Red "M"), large group serving (Papago Plain "N" and Papago Red "N" and "O"), and storage (plain ware "I," red ware "B" and "C," Papago Red "A," "C," "D," and "G," and possible Papago Red "B"). The Papago Red vessel assigned to Shepard-Braun category "A" and possible Papago Red vessel assigned to category "B" would also have made good

Table 6.35. Three-way classification of historic ceramic types recovered from contexts at the Tucson Presidio, AZ BB:13:13 (ASM), that date from 1860-1889, by vessel part and temper type.

Temper Type	Plain Ware		Red Ware		Sobaipuri Plain	Papago Plain		Papago Red		Papago Red-on-brown		Papago Black-on-brown	Papago Black-on-red		Papago Red-on-white		Papago Buff	Row Total
	Body	Rim	Body	Rim	Rim	Body	Rim	Body	Rim	Body	Rim	Body	Body	Rim	Body	Rim	Body	
Sand and fiber	–	–	–	–	1	166	27	55	9	–	1	–	2	3	1	1	3	269
Sand	104	5	5	–	–	–	–	–	–	1	–	1	–	–	–	–	–	116
>25 percent gneiss/schist	40	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	43
Sand and crushed sherd	5	2	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	8
1-7 percent gneiss/schist	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
Column Total	151	10	5	1	1	166	27	55	9	1	1	1	2	3	1	1	3	438

Note: The "rim" category includes rim sherds and reconstructible vessels; the "body" sherd category includes body and neck sherds.

Table 6.36. Frequency of rim sherds and reconstructible vessels in each vessel form class recovered from contexts at the Tucson Presidio, AZ BB:13:13 (ASM), that date from 1860-1889, reported by ceramic type.

Vessel Form	Plain Ware	Red Ware	Sobaipuri Plain	Papago Plain	Papago Red	Papago Red-on-brown	Papago Black-on-red	Papago Red-on-white	Acoma or Zuni Series	Row Total
Bowl Forms										
Plate/Platter	2	–	–	3	–	–	–	–	–	5
Semi-flare-rim, outcurved bowl	–	–	–	4	1	–	–	–	–	5
Semi-flare-rim, incurved bowl	–	–	–	2	1	–	–	–	–	3
Cauldron	3	–	–	–	–	–	–	–	–	3
Hemispherical bowl	–	1	–	–	–	–	–	–	–	1
Incurved bowl	1	–	–	–	–	–	–	–	–	1
Indeterminate bowl	–	–	–	4	1	–	2	–	1	8
Jar Forms										
Tall flare-rim jar	–	–	–	1	2	–	1	–	–	4
Short flare-rim jar	–	–	–	–	1	–	–	–	–	1
Indeterminate Forms										
Indeterminate flare-rim form	3	–	1	13	3	1	–	1	–	22
Indeterminate bowl or scoop	1	–	–	–	–	–	–	–	–	1
Column Total	10	1	1	27	9	1	3	1	1	54

Table 6.37. Frequency of rim sherds and reconstructible vessels in each Shepard-Braun functional class recovered from contexts at the Tucson Presidio, AZ BB:13:13 (ASM), that date from 1860-1889, reported by ceramic type.

	Ware/Type			
Functional Category	Plain Ware	Papago Plain	Papago Red	Row Total
Independent Restricted Vessels				
B: Permanent, secure storage and/or water carrying (including pitchers) (6.0-12.5 cm aperture diameter)	–	–	2	2
C: Cooking (small- to medium-sized groups), temporary storage, and/or water cooling (13.0-25.5 cm aperture diameter)	–	1	1	2
D: Cooking (large group) and/or temporary storage (26.0-31.5 cm aperture diameter)	–	1	–	1
Simple and Dependent Restricted Vessels				
G: Dry storage (6.0-12.5 cm orifice diameter)	1	–	–	1
Unrestricted Vessels (Deep)				
M: Food preparation and/or small group serving (13.0-25.5 cm orifice diameter)	1	1	1	3
N: Communal serving/eating (26.0-31.5 cm orifice diameter)	1	1	–	2
Unrestricted Vessels (Shallow)				
Q: Individual serving (6.0-12.5 cm orifice diameter)	1	–	–	1
TT: Collecting, processing, and/or communal serving (>38.5 cm orifice diameter)	–	2	–	2
Column Total	4	6	4	14

Table 6.38. Native American pottery types recovered from contexts at the Tucson Presidio, AZ BB:13:13 (ASM), that date from 1880-1900.

		Vessel Part[a]									
		Body Sherd[b]		Rim Sherd		Reconstructible Vessel		Neck		Row Total	
Ceramic Type	Production Date Range (A.D.)	MNV[c]	Sherd Count	MNV	Sherd Count	MNV	Sherd Count	MNV	Sherd Count	MNV	Sherd Count
Prehistoric Native American Types											
Tucson Basin Red-on-brown Ware											
Indeterminate pre-Classic red-on-brown	50-1150	2	2	–	–	–	–	–	–	2	2
Indeterminate red-on-brown	50-1450	3	3	–	–	–	–	–	–	3	3
Cañada del Oro, Rillito, or Early Rincon red-on-brown	750-1000	1	1	–	–	–	–	–	–	1	1
Rillito Red-on-brown	850-950	3	4	2	2	–	–	–	–	5	6
Rillito or Early Rincon red-on-brown	850-1000	1	1	–	–	–	–	–	–	1	1
Early Rincon Red-on-brown	950-1000	1	1	2	2	–	–	–	–	3	3
Early or Middle Rincon red-on-brown	950-1100	1	3	–	–	–	–	–	–	1	3
Early, Middle, or Late Rincon red-on-brown	950-1150	1	1	1	1	–	–	–	–	2	2
Middle Rincon Red-on-brown	1000-1100	3	3	3	3	–	–	–	–	6	6
Middle or Late Rincon red-on-brown	1000-1150	1	1	1	1	–	–	–	–	2	2
Tanque Verde Red-on-brown	1150-1450	–	–	1	1	–	–	–	–	1	1
Phoenix Basin Red-on-buff Ware											
Santa Cruz Red-on-buff	850/900-900/950	1	1	–	–	–	–	–	–	1	1
Prehistoric/Historic Wares											
Plain ware		N/A	361	30	32	–	–	N/A	14	30	407
Red ware		N/A	14	7[d]	7	–	–	N/A	1	7	22
Lower Colorado Buff Ware											
Yuman Stucco Ware		1	1	–	–	–	–	–	–	1	1
Historic Native American Types											
Papago Series											
Sobaipuri Plain (folded rim coil)		–	–	3	3	–	–	2	2	5	5
Papago Plain		N/A	513	97	140	1	8	N/A	54	98	715
Papago Red		N/A	637	92	122	–	–	N/A	136	92	895

Table 6.38. Continued.

Ceramic Type	Production Date Range (A.D.)	Vessel Part[a]								Row Total	
		Body Sherd[b]		Rim Sherd		Reconstructible Vessel		Neck			
		MNV[c]	Sherd Count	MNV	Sherd Count	MNV	Sherd Count	MNV	Sherd Count	MNV	Sherd Count
Historic Native American Types (continued)											
Possible Papago Red		N/A	–	5	5	–	–	N/A	–	5	5
Papago Buff		6	6	2	2	–	–	–	–	8	8
Papago Black-on-red		–	–	1	1	1	8	1	4	3	13
Papago Black-on-buff		1	1	–	–	–	–	–	–	1	1
Column Total		26	1,554	247	322	2	16	3	211	278	2,103

[a]Prehistoric/historic plain and red ware, including Papago types, body and neck sherds were not inspected for conjoins; therefore, minimum number of vessel (MNV) estimates are not available (N/A) for those ware and vessel part combinations.
[b]Body sherd count include handles.
[c]MNV = Minimum number of vessels.
[d]Two red ware rim sherds exhibit folded-over rim coils.

Table 6.39. Location of slip on historic red ware and Papago Red pottery recovered from contexts at the Tucson Presidio, AZ BB:13:13 (ASM), that date from 1880-1900.

	Red Ware				Papago Red							
	Vessel Part				Vessel Part							
	Body Sherds	Neck Sherds	Rim Sherds		Body Sherds	Neck Sherds	Rim Sherds					
Slip Location			Bowl	Jar			Bowl	Jar	Indeterminate Flare-rim form	Other	Indeterminate	Row Total
Exterior only	2	–	–	–	570	124	–	–	–	–	–	696
Full slip	8	1	2	1	52	10	26	3	27	1	–	131
Exterior, rim, and interior band below rim	–	–	–	–	–	–	–	19	7	–	–	26
Interior only	4	–	1	–	15	2	1	–	–	–	–	23
Exterior and rim	–	–	–	1	–	–	–	1	–	–	–	2
Interior and rim	–	–	1	–	–	–	–	–	–	–	–	1
Indeterminate	–	–	–	1	–	–	1	2	3	–	1	8
Column Total	14	1	4	3	637	136	28	25	37	1	1	887

water carrying containers. The Papago Red vessels assigned to categories "C" and "D" would have been well-suited to water cooling as well as for storage. The shallow, unrestricted plain ware and Papago Plain vessels assigned to categories "R," "S," "T," and "TT" may have been used as griddles, or *comales*.

These findings can be compared with similar data drawn from ethnographic studies. Rice (1987:Table 9.5) reports the percentage of cooking, storage, and serving vessels from 10 different cultures. The average percentage of cooking vessels in those 10 cultures is 53 (range 26-87 percent, standard deviation = 19 percent), the average percentage of storage vessels is 16 (range 2-31 percent, standard deviation = 11 percent), and the average percentage of serving vessels is 23 (range 8-41 percent, standard deviation = 14 percent). By those measures, the inferred percentages of cooking (43.4 percent) and serving (24.1 percent) vessels fall within the documented ranges, while the inferred percentage of storage (35.5 percent) vessels exceeds the ethnographic range by less than 5 percent.

Historic O'odham Pottery from Historic Block 181, circa 1890-1910

A total of 860 pottery sherds, representing portions of at least 145 individual vessels, was recovered from Feature 624, the only member of the 1890-1910 set (Table 6.43). Additional information regarding characteristics of the red-slipped pottery recovered from that feature is provided in Table 6.44. This late American Territorial period feature exhibits some temporal mixing, with prehistoric painted pottery comprising 0.6 percent of the sherds (3.4 percent of the vessels). Those values suggest a small amount of the plain ware pottery may also be prehistoric.

Temper Type

The temper type data are summarized in Table 6.45. One composition dominates the collection: sand and fiber (presumably manure, 85.4 percent of examined sherds). Virtually all the "Papago" ceramic types (Papago Plain, Papago Red, Papago Red-on-brown, Papago Black-on-red, and Papago Buff) are tempered with sand and fiber, although one Papago Red and one Papago Black-on-brown rim sherd are sand-tempered. Sand (12.1 percent) and sand mixed with crushed sherd (0.1 percent) temper types occur primarily in the plain ware, red ware, and Sobaipuri Plain. Also occurring in the plain ware are sherds tempered with various amounts of crushed gneiss/schist. As noted, those sherds likely represent mixing of a small amount of prehistoric plain ware into the deposit.

Pottery Function

Typological and functional approaches were utilized to assess the likely uses O'odham pottery may have played in the lives of Historic Block 181 inhabitants at this time.

Table 6.40. Three-way classification of historic ceramic types recovered from contexts at the Tucson Presidio, AZ BB:13:13 (ASM), that date from 1880-1900, by vessel part and temper type.

	Plain Ware		Red Ware		Sobaipuri Plain		Papago Plain		Papago Red		Possible Papago Red	Black-on-red Papago		Papago Black-on-buff	Papago Buff		Row Total
Temper Type	Body	Rim	Body	Rim	Body	Rim	Body	Rim	Body	Rim	Rim	Body	Rim	Body	Body	Rim	
Sand and fiber	1	–	–	–	–	1	567	98	773	92	5	1	2	–	5	2	1,547
Sand	213	4	1	2	1	–	–	–	–	–	–	–	–	1	–	–	222
Sand and crushed sherd	82	15	14	5	1	2	–	–	–	–	–	–	–	–	1	–	120
>25 percent gneiss/schist	52	7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	59
1-7 percent gneiss/schist	9	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	13
7-25 percent gneiss/schist	12	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	12
>25 percent gneiss/schist and muscovite mica	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Mixed sand with 1-25 percent gneiss/schist and muscovite mica	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
>25 percent phyllite	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Indeterminate	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3
Column Total	375	30	15	7	2	3	567	98	773	92	5	1	2	1	6	2	1,979

Note: The "rim" category includes rim sherds and reconstructible vessels; the "body" sherd category includes body, neck, and handle sherds.

Table 6.41. Frequency of rim sherds and reconstructible vessels in each vessel form class recovered from contexts at the Tucson Presidio, AZ BB:13:13 (ASM), that date from 1880-1900, reported by ceramic type.

Vessel Form	Plain Ware	Red Ware	Sobaipuri Plain	Papago Plain	Papago Red	Possible Papago Red	Papago Black-on-red	Papago Buff	Row Total
Bowl Forms									
Semi-flare-rim, outcurved bowl	–	2	1	11	13	–	–	–	27
Semi-flare-rim, incurved bowl	–	–	–	14	4	–	1	–	19
Plate/Platter	7	–	–	5	–	–	–	–	12
Outcurved bowl	2	2	–	1	3	–	–	–	8
Incurved bowl	2	–	1	–	2	–	–	–	5
Hemispherical bowl	1	–	–	–	1	–	–	–	2
Semi-flare-rim, hemispherical bowl	–	–	–	2	–	–	–	–	2
Indeterminate bowl	4	–	–	5	5	1	–	1	16
Jar Forms									
Tall flare-rim jar	1	1	–	16	20	–	–	–	38
Short flare-rim jar	–	1	1	–	1	–	–	–	3
Seed jar	1	–	–	–	1	–	–	–	2
Semi-flaring angled long-collared jar	–	–	–	–	2	–	–	–	2
Semi-flaring short straight-collared jar	–	–	–	–	–	1	–	–	1
Angled, straight-collared jar	–	–	–	–	1	–	–	–	1
Indeterminate jar	2	1	–	–	–	–	–	–	3
Cup									
Indeterminate cup	–	–	–	–	–	–	1	–	1
Other Vessel Form									
Other	1	–	–	–	1	–	–	–	2
Indeterminate Forms									
Indeterminate flare-rim form	9	–	–	44	37	3	–	1	94
Indeterminate vessel form	–	–	–	–	1	–	–	–	1
Column Total	30	7	3	98	92	5	2	2	239

Typological Approach. The vessel form of late American Territorial period pottery recovered from the 1890-1910 context is reported in Table 6.46. The seven bowl vessel forms make up 56.2 percent of the determinate forms (bowls represent 36.1 percent of all rim sherds and reconstructible vessels), while the four jar vessel forms comprise the remaining 43.8 percent of determinate forms (jars represent 27.1 percent of all rim sherds and reconstructible vessels). Two of the bowl vessel forms have semi-flaring rims, suggesting that some of the 49 "indeterminate flare-rim" cases may also be bowls.

Shepard-Braun Approach. The count of sherds and vessels in each functional class is summarized in Table 6.47. Papago Plain, Papago Red, and Papago Black-on-red vessels are present. A wide range of tasks are represented in the collection: meal preparation (Papago Plain "M"), cooking (Papago Plain "C," "D," "E," "EE," and "R"), individual serving (Papago Black-on-red "L"), small group serving (Papago Red and Papago Black-on-red "M"), large group serving (Papago Plain "N" and Papago Red "N," "O," and "OO"), and storage (Papago Red "B," "C," and "D," and Papago Black-on-red "C"). The Papago Red vessel assigned to Shepard-Braun category "B" would have made a good water carrying container. The Papago Red and Papago Black-on-red vessels assigned to categories "C" and "D" would have been well-suited to water cooling as well as storage. The large, shallow, unrestricted Papago Plain vessel assigned to category "R" may have been used as a griddle, or *comal*. As with the 1880-1900 collection, the inferred percentages of cooking (35.6 percent) and serving (28.8 percent) vessels fall within the ethnographic ranges documented in Rice (1987:Table 9.5), whereas the inferred percentage of storage (35.6 percent) vessels exceeds the ethnographic range by less than 5 percent.

Table 6.42. Frequency of rim sherds and reconstructible vessels in each Shepard-Braun functional class recovered from contexts at the Tucson Presidio, AZ BB:13:13 (ASM), that date from 1880-1900, reported by ceramic type.

	Ware/Type					
Functional Category	Plain Ware	Red Ware	Papago Plain	Papago Red	Possible Papago Red	Row Total
Independent Restricted Vessels						
A: Water carrying/storage (including cups) and/or permanent storage (<6.0 cm aperture diameter)	–	–	–	1	–	1
B: Permanent, secure storage and/or water carrying (including pitchers) (6.0-12.5 cm aperture diameter)	–	1	–	–	1	2
C: Cooking (small- to medium-sized groups), temporary storage, and/or water cooling (13.0-25.5 cm aperture diameter)	–	1	20	17	–	38
D: Cooking (large group) and/or temporary storage (26.0-31.5 cm aperture diameter)	–	–	2	3	–	5
E: Cooking (large group) and/or temporary storage (32.0-38.5 cm aperture diameter)	–	–	1	–	–	1
EE: Cooking (large group) and/or temporary storage (>38.5 cm aperture diameter)	–	–	1	–	–	1
Simple and Dependent Restricted Vessels						
G: Dry storage (6.0-12.5 cm orifice diameter)	–	–	–	2	–	2
I: Specialized, temporary storage (26.0-31.5 cm orifice diameter)	1	–	–	–	–	1
Unrestricted Vessels (Deep)						
L: Individual serving in domestic context (6.0-12.5 cm orifice diameter)	–	–	–	1	–	1
M: Food preparation and/or small group serving (13.0-25.5 cm orifice diameter)	–	2	4	3	–	9
N: Communal serving/eating (26.0-31.5 cm orifice diameter)	–	–	5	3	–	8
O: Communal serving/eating (32.0-38.5 cm orifice diameter)	–	–	–	1	–	1
Unrestricted Vessels (Shallow)						
Q: Individual serving (6.0-12.5 cm orifice diameter)	1	–	–	–	–	1
R: Collecting, processing, and/or individual-to-large group serving (13.0-25.5 cm orifice diameter)	–	–	1	–	–	1
S: Collecting, processing, and/or communal serving (26.0-31.5 cm orifice diameter)	1	–	–	–	–	1
T: Collecting, processing, and/or communal serving (32.0-38.5 cm orifice diameter)	2	–	–	–	–	2
TT: Collecting, processing, and/or communal serving (>38.5 cm orifice diameter)	–	–	1	–	–	1
Column Total	5	4	35	31	1	76

O'odham Pottery Systematics: A Review of Technological Attributes Exhibited by Material Recovered from Well-dated, Tucson-area Historic Era Deposits

Fontana and others' (1962:101-116) discussion of "Papago" pottery types is generally considered the classic work on the subject. However, although they drew upon ceramic collections from an expansive area ". . . all of this material is flawed by a frustrating lack of chronological control" (Fontana et al. 1962:102). Eight archaeological projects recently conducted at sites located in the central Tucson area have yielded a number of well-dated deposits containing historic Native American pottery (Heidke 2002, 2003a, 2003b, 2005b, 2006, 2008a, 2008c). That material provides the type of chronological control Fontana et al. (1962) thought they lacked, although the samples themselves are drawn from a much smaller area. Additionally,

Table 6.43. Native American pottery types recovered from contexts at the Tucson Presidio, AZ BB:13:13 (ASM), that date from 1890-1910.

		Vessel Part[a]									
		Body Sherd		Rim Sherd		Reconstructible Vessel		Neck		Row Total	
Ceramic Type	Production Date Range (A.D.)	MNV[b]	Sherd Count	MNV	Sherd Count	MNV	Sherd Count	MNV	Sherd Count	MNV	Sherd Count
Prehistoric Native American Types											
Tucson Basin Red-on-brown Ware											
Indeterminate pre-Classic red-on-brown	50-1150	2	2	–	–	–	–	–	–	2	2
Early, Middle, or Late Rincon red-on-brown	950-1150	–	–	1	1	–	–	–	–	1	1
Early, Middle, or Late Rincon, or Tanque Verde red-on-brown	950-1450	–	–	1	1	–	–	–	–	1	1
Middle or Late Rincon red-on-brown	1000-1150	1	1	–	–	–	–	–	–	1	1
Indeterminate Tucson Basin Ware											
Indeterminate plain or red ware		–	–	1	1	–	–	–	–	1	1
Prehistoric/Historic Wares											
Plain ware		N/A	91	2	2	–	–	N/A	15	2	108
Red ware		N/A	3	1[c]	1	–	–	N/A	–	1	4
Historic Native American Types											
Papago Series											
Sobaipuri Plain (folded rim coil)		–	–	1	1	–	–	–	–	1	1
Papago Plain		N/A	169	56	69	2	4	N/A	48	58	290
Papago Red		N/A	284	53	66	1	15	N/A	45	54	410
Possible Papago Red		N/A	–	5	5	–	–	N/A	–	5	5
Papago Buff		2	3	–	–	–	–	–	–	2	3
Papago Black-on-red		1	1	10	22	1	3	2	5	14	31
Papago Red-on-brown		1	1	–	–	–	–	–	–	1	1
Papago Black-on-brown		–	–	1	1	–	–	–	–	1	1
Column Total		7	555	132	170	4	22	2	113	145	860

[a]Prehistoric/historic plain and red ware, including Papago types, body and neck sherds were not inspected for conjoins; therefore, minimum number of vessel (MNV) estimates are not available (N/A) for those ware and vessel part combinations.
[b]MNV = Minimum number of vessels.
[c]The red ware rim sherd exhibits a folded-over rim coil.

variability related to social and economic factors needs to be further explored (Whittlesey 1997:439). Therefore, it would be inappropriate to extend the findings reported here at this time. More well-dated samples, covering a broader range of social and economic statuses, need to be recovered from deposits located within and, especially, outside the Tucson area before that can happen.

Information recorded from pottery recovered from the well-dated deposits discussed above is summarized in Table 6.48. This reflect decisions made by the potters—temper type, occurrence of folded rim coils, location of red slips, and decorated paint and slip color schemes—as well as those that reflect consumer preference (type frequency, vessel function implied by slip location). All of these attributes are characteristics of "Papago" pottery that contributed to Fontana and others' (1962:101-116) typology. The temper type, slip location, and ware frequency data are based on sherd counts, whereas the folded rim data are based on minimum number of vessel counts.

Table 6.44. Location of slip on historic red ware and Papago Red pottery recovered from contexts at the Tucson Presidio, AZ BB:13:13 (ASM), that date from 1890-1910.

	Red Ware		Papago Red					
	Vessel Part		Vessel Part					
	Body Sherds	Rim Sherds	Body Sherds	Neck Sherds	Rim Sherds and Reconstructible Vessels			
Slip Location		Indeterminate Flare-rim form			Bowl	Jar	Indeterminate Flare-rim form	Row Total
Exterior only	1	–	254	38	–	–	–	293
Full slip	2	1	20	5	12	2	9	51
Exterior, rim, and interior band below rim	–	–	–	–	1	16	5	22
Interior only	–	–	10	2	–	–	–	12
Interior and rim	–	–	–	–	1	–	–	1
Interior, rim, and exterior band	–	–	–	–	–	–	1	1
Indeterminate	–	–	–	–	1	4	2	7
Column Total	3	1	284	45	15	22	17	387

Tucson Presidio, AZ BB:13:13 (ASM), circa 1775-1850

Attributes of the Native American pottery recovered from Tucson Presidio 1775-1850 and 1800-1850 deposits was compared with similar data from San Agustín Mission (1771-1821), Historic Block 185 (1800-1840), and previously excavated 1810s-1820s and 1820s-1830s deposits at the Tucson Presidio (Heidke 2006:Table 7.50, 2008c:Table 3.23). Review of the temper type, folded rim coil, ceramic type frequency, and slip location data shows that, in most cases, current project values fall within the attribute frequency ranges documented in the other collections.

A lower frequency of sand and crushed sherd tempered pottery was documented in the current data sets, which is the only consistent difference noted among the collections. The values of 32.0 and 33.2 percent are internally consistent, but are lower than the lowest value previously documented (41.7 percent). At least three explanations appear plausible. First, the new values are accurate and simply establish a new lower value. Second, the percentage of sand-tempered pottery is artificially high in these deposits due to mixing with prehistoric material, thus depressing the percentage of other temper types. Third, inter-analyst variability in the recognition of grog temper occurred.

The second explanation seems to best fit the facts, as mixing with prehistoric pottery was documented in the 1775-1850 and 1800-1850 deposits. Further, the 1800-1850 deposits contained a higher percentage of plain ware (87.8 percent) than the highest value documented previously (85.2 percent), and a lower percentage of red ware (5.0 percent versus 6.8 percent, the previous low). This pattern could easily have been caused by temporal mixing with prehistoric material. Finally, the percentage of vessels with folded rims is lower in the 1800-1850 deposits (4.3 percent) than the lowest value documented previously (14.4 percent). That could also have been caused, at least in part, by mixing with prehistoric material (a time when rim coils were absent).

With the exceptions noted above, the 1775-1850 and 1800-1850 O'odham pottery collections are remarkably similar to those previously recovered from 1771-1840s deposits from San Agustín Mission, Historic Block 185, and the Tucson Presidio. This suggests most of the interassemblage variation likely reflects decisions made by the potters, or "noise" due to temporal mixing, rather than consumer preference.

Tucson Presidio, AZ BB:13:13 (ASM), circa 1820-1865

Attributes of the Native American pottery recovered from Tucson Presidio 1820-1865 deposits was compared with similar data from previously excavated 1820s-1830s deposits at the Tucson Presidio and 1840-1869 deposits at the León farmstead (Heidke 2006:Table 7.50). Review of the temper type, folded rim coil, ceramic type frequency, and slip location data shows that, in most cases, the current project's values are intermediate. This finding is

Table 6.45. Three-way classification of historic ceramic types recovered from contexts at the Tucson Presidio, AZ BB:13:13 (ASM), that date from 1890-1910, by vessel part and temper type.

	Plain Ware		Red Ware		Sobaipuri Plain	Papago Plain		Papago Red		Possible Papago Red	Papago Red-on-brown	Papago Black-on-brown	Papago Black-on-red		Papago Buff	
Temper Type	Body	Rim	Body	Rim	Rim	Body	Rim	Body	Rim	Rim	Body	Rim	Body	Rim	Body	Row Total
Sand and fiber	–	–	–	–	–	217	58	329	53	5	1	–	3	11	1	678
Sand	88	1	3	1	1	–	–	–	1	–	–	1	–	–	–	96
>25 percent gneiss/schist	16	–	–	–	–	–	–	–	–	–	–	–	–	–	–	16
7-25 percent gneiss/schist	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
1-7 percent gneiss/schist	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Sand and crushed sherd	1	–	–	–	–	–	–	–	–	–	–	–	–	–	-	1
Indeterminate	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Column Total	106	2	3	1	1	217	58	329	54	5	1	1	3	11	1	794

Note: The “rim” category includes rim sherds and reconstructible vessels; the “body” sherd category includes body and neck sherds.

Table 6.46. Frequency of rim sherds and reconstructible vessels in each vessel form class recovered from contexts at the Tucson Presidio, AZ BB:13:13 (ASM), that date from 1890-1910, reported by ceramic type.

Vessel Form	Plain Ware	Red Ware	Sobaipuri Plain	Papago Plain	Papago Red	Possible Papago Red	Papago Black-on-brown	Papago Black-on-red	Row Total
Bowl Forms									
Semi-flare-rim, outcurved bowl	–	–	–	5	9	–	–	3	17
Semi-flare-rim, incurved bowl	–	–	–	13	2	–	–	–	15
Outcurved bowl	–	–	–	–	2	–	1	1	4
Plate/Platter	–	–	–	2	–	–	–	–	2
Hemispherical bowl	1	–	–	–	–	–	–	–	1
Incurved bowl	–	–	–	–	–	1	–	–	1
Straight-walled bowl	–	–	–	1	–	–	–	–	1
Indeterminate bowl	–	–	1	4	2	–	–	–	7
Jar Forms									
Tall flare-rim jar	–	–	–	5	17	–	–	3	25
Short flare-rim jar	–	–	–	2	1	–	–	–	3
Semi-flaring angled long-collared jar	–	–	–	2	1	–	–	–	3
Semi-flaring tall straight-collared jar	–	–	–	1	–	–	–	–	1
Indeterminate jar	–	–	–	1	3	–	–	–	4
Indeterminate Forms									
Indeterminate flare-rim form	1	1	–	22	17	4	–	4	49
Column Total	2	1	1	58	54	5	1	11	133

consistent with the 1820-1865 temporal placement (also intermediate) *and* a changing technological tradition, because it is during this span that many potters adopted the sand and fiber approach to tempering that resulted in the ceramic types Papago Plain and Papago Red.

In three cases, the percentage values from the 1820-1865 collection are not intermediate. The percentage of sand-tempered pottery is lowest in the 1820-1865 collection from the Tucson Presidio. However, this trend is not monotonic over time; the percentage of sand-tempered pottery clearly declined during the nineteenth century, but the decline was not uniform. When 18 data sets spanning 1771-1821 to 1880-1900 are arranged by their midpoint and the amount of change in the percentage of sand-tempered pottery recorded from adjacent sets, the amount of sand-tempered pottery declined 10 times, exhibited no change once, and increased six times. The range of the data batch is -16.1 percent to +21.1 percent, with a median value of -2.4 percent. Accordingly, the -4.4 percent and +7.4 percent changes in this series fall within the range of values documented in the larger data batch (and longer temporal series). The percentage of pottery exhibiting a folded rim is also lowest in the 1820-1865 collection from the Tucson Presidio. The occurrence of folded rim coils also exhibits a non-uniform decline over the nineteenth century. Finally, the percentage of Papago Red pottery is lowest in the 1820-1865 Tucson Presidio collection. The percentage of Papago Red pottery clearly increased during the nineteenth century, but in this case, the rate of increase was not uniform or is not expressed uniformly in archaeological deposits.

With the minor exceptions noted above, the 1820-1865 O'odham pottery collection displays values consistent with its temporal placement, suggesting the variation may be stochastic and the major trends reflect decisions made by the potters.

Historic Block 181, circa 1860-1889

Attributes of the Native American pottery recovered from Historic Block 181 Feature 603 (1860-1889) were compared with similar data drawn from 1860-1880 deposits at the Carrillo household, previously excavated 1870-1890 deposits at the Tucson Presidio, 1870-1880 and 1880-1890 deposits at the León farmstead, and 1870-1889 deposits from Historic

Table 6.47. Frequency of rim sherds and reconstructible vessels in each Shepard-Braun functional class recovered from contexts at the Tucson Presidio, AZ BB:13:13 (ASM), that date from 1890-1910, reported by ceramic type.

	Ware/Type			
Functional Category	Papago Plain	Papago Red	Papago Black-on-red	Row Total
Independent Restricted Vessels				
B: Permanent, secure storage and/or water carrying (including pitchers) (6.0-12.5 cm aperture diameter)	–	1	–	1
C: Cooking (small- to medium-sized groups), temporary storage, and/or water cooling (13.0-25.5 cm aperture diameter)	11	14	3	28
D: Cooking (large group) and/or temporary storage (26.0-31.5 cm aperture diameter)	6	3	–	9
E: Cooking (large group) and/or temporary storage (32.0-38.5 cm aperture diameter)	1	–	–	1
EE: Cooking (large group) and/or temporary storage (>38.5 cm aperture diameter)	1	–	–	1
Unrestricted Vessels (Deep)				
L: Individual serving in domestic context (6.0-12.5 cm orifice diameter)	–	–	1	1
M: Food preparation and/or small group serving (13.0-25.5 cm orifice diameter)	1	3	3	7
N: Communal serving/eating (26.0-31.5 cm orifice diameter)	5	2	–	7
O: Communal serving/eating (32.0-38.5 cm orifice diameter)	–	2	–	2
OO: Communal serving/eating (>38.5 cm orifice diameter)	–	1	–	1
Unrestricted Vessels (Shallow)				
R: Collecting, processing, and/or individual-to-large group serving (13.0-25.5 cm orifice diameter)	1	–	–	1
Column Total	26	26	7	59

Block 185 (Heidke 2006:Table 7.51, 2008c:Table 3.23). Review of the temper type, folded rim coil, ceramic type frequency, and slip location data shows that, in most cases, current project values fall within the range established in those roughly contemporaneous collections. A lower frequency of sand and crushed sherd tempered pottery was documented in the current data set. However, its value is only 0.5 percent lower than the lowest value documented previously (1.8 percent versus 2.3 percent). Similarly, the percentage of Papago Red pottery (14.1 percent) is 2.0 percent lower than the lowest value documented previously (16.1 percent). Neither of these differences seem significant.

With these two minor exceptions, the 1860-1889 O'odham pottery collection displays values consistent with its temporal placement. Nevertheless, this was an interval of time during which the changes noted in the preceding interval continued: the percentage of sand- and sand-and-crushed-sherd-tempered pottery declined, the percentage of vessels displaying a rim coil declined, while the percentage of sand-and-fiber-tempered Papago Plain and Papago Red pottery increased. Additionally, the modal location of the red-slipped surface changed from the interior surface to the exterior surface during this interval. Although all of these changes are technological and, therefore, under the control of potters, the latter change may reflect a shift in consumer preference.

Historic Block 181, circa 1880-1900

Attributes of the Native American pottery recovered from Historic Block 181 1880-1900 deposits was compared with similar data from contemporaneous deposits on Historic Blocks 83 and 185 (Heidke 2008a:Table 5.22, 2008c:Table 3.23). The Block 181 sample size is 7.5-8.5 times larger than the other samples. Regardless, the percentage of each of the three temper types, as well as the percentage of vessels with folded rims in the Block 181 collection, fell within the range of values established at the sites. Those attributes are particularly sensitive to potter beh avior, regardless of consumer preference. The Block 181 collection contained a

Table 6.48. Summary of temporal changes in select technological attributes of historic Native American pottery recovered from excavations at the Tucson Presidio, AZ BB:13:13 (ASM), and Historic Block 181.

	Historic deposits that accumulated prior to City Water service			Historic deposits that accumulated during and after the arrival of City Water (1883)		
Feature Date Range	1775-1850	1800-1850	1820-1865	1860-1889	1880-1900	1890-1910
Maximum Sample Sizes: Sherd Count (MNV)[a]	366 (42)	584 (50)	947 (97)	456 (62)	2072 (250)	854 (139)
Temper Type[b]						
Percentage sand-tempered	45.1	39.8	27.3	26.5	11.2	12.1
Percentage sand and crushed sherd-tempered	32	33.2	28.2	1.8	6.1	0.1
Percentage sand and fiber-tempered	12.6	6.1	38.3	61.4	78.3	85.5
Folded Rims						
Percentage folded rim coils[c]	23.7	4.3	12.9	1.9	2.1	1.5
Type Frequency						
Percentage plain ware pottery[d, e]	71.3	87.8	56.1	35.6	19.9	12.8
Percentage red ware pottery[e]	12.8	5.0	5.5	1.3	1.1	0.5
Percentage Papago Plain pottery[e, f]	10.9	5.8	33.6	44.8	34.5	34
Percentage Papago Red pottery[e, g]	1.1	0.2	3.8	14.1	43.5	48.6
Percentage decorated pottery[e]	3.8	1.2	0.9	4.2	1.1	4.2
Slip Location						
Percentage interior-slipped[h]	73.9	64.3	64.4	32.9	17.6	17.1
Percentage exterior-slipped[i]	26.1	35.7	35.6	67.1	82.4	82.9
Decorated Types Present ("P")[j]						
Papago Black-on-red	P (S & SS)	P (S & SS)	–	P (SF)	P (SF)	P (SF)
Papago Red-on-brown	P (S & SS)	P (S & SS)	P (S)	P (S)	–	P (SF)
Papago Red-on-buff	–	–	–	–	–	–
Papago Buff	P (S & SS)	–	P (SS & SF)	P (SF)	P (SS & SF)	P (SF)
Papago Black-on-brown	–	P (S & SS)	P (SF)	P (S)	–	P (S)
Papago Black-on-buff	–	–	–	–	P (S)	–
Papago Red-on-white	–	–	–	P (SF)	–	–
Papago White-on-red	–	–	–	–	–	–

[a]Prehistoric types and indeterminate wares not included in sherd and minimum number of vessel (MNV) counts.
[b]Indeterminate temper type observations were deleted before percentage values were calculated.
[c]Calculation based on the MNV count of all historic Native American rim sherds and reconstructible vessels; percentage figures include Sobaipuri Plain and any other cases of folded-over rim coils noted in other types.
[d]Calculation based on the sherd count of all historic Native American types; the "plain ware" category includes plain ware and Sobaipuri Plain observations.
[e]Calculation based on the sherd count of all historic Native American types.
[f]Calculation based on the sherd count of all historic Native American types; the "Papago Plain" category includes Papago Plain and possible Papago Plain observations.
[g]Calculation based on the sherd count of all historic Native American types; the "Papago Red" category includes Papago Red and possible Papago Red observations.
[h]Percentage based on all sherds slipped on their: (1) interior surface; (2) interior and rim; (3) interior, rim, and exterior band; and (4) fully-slipped on all interior and exterior surfaces; indeterminate observations were deleted before percentage values were calculated.
[i]Percentage based on all sherds slipped on their: (1) exterior surface; (2) exterior and rim; and (3) exterior, rim, and interior band; indeterminate observations were deleted before percentage values were calculated.
[j]"S" indicates sand-tempered, "SS" indicates sand and crushed sherd-tempered, and "SF" indicates sand and fiber-tempered.

higher percentage of plain ware and Papago Plain than either of the other two collections, as well as the lowest percentage of decorated types. However, the differences were not marked, and ranged from 0.8 percent up to 6.4 percent. Between-site variability in the frequency of types may be an expression of consumer preference, or it may simply reflect the degree of stochastic variation present in collections from this time.

Historic Block 181, circa 1890-1910

Attributes of the Native American pottery recovered from Historic Block 181 Feature 624 (1890-1910) were compared with similar pottery recovered from 1890-1895 deposits at Historic Block 139, 1891-1901 deposits from Historic Block 172, and 1891-1910 deposits from Historic Block 83 (Heidke 2006:Table 7.51, 2008a:Table 5.22). The Feature 624 collection differed from the other collections in many ways, but most, if not all, the differences may be attributable to the fact that the Block 181 deposit contained a mixture of prehistoric and historic pottery (see previous discussion of this feature's temper type data). While the collections from the other three blocks contained little sand-tempered and no sand-and-crushed-sherd-tempered pottery, 12.2 percent of the Block 181 pottery contained those temper types. That percentage is nearly equal to the percentage of plain and red ware (13.3 percent). The Block 181 collection also contained a very low frequency of vessels with rim coils, while no vessels exhibiting that attribute were recovered from the other three blocks.

Another difference relates to the frequency of interior and exterior slipping. The Block 181 collection contained a higher percentage of interior slipped Papago Red pottery and a lower percentage of exterior slipped sherds than any of the other three collections. However, the 3.4 percent difference from the site with the most similar values (Block 83) is not too great, and may simply reflect the degree of stochastic variation present in collections from this time.

Discussion

Twenty-six Historic era features, or well-dated sets of features, have recently been recovered from archaeological projects conducted in the central Tucson area (Heidke 2002, 2003a, 2003b, 2005b, 2006, 2008a, 2008c) (Figure 6.4). Identifying technological change in the O'odham pottery recovered from those deposits is complicated by the fact that there is a great degree of temporal overlap between many of the deposits. The review of pottery recovered from the Tucson Presidio and Block 181 (above) showed that the frequency of technological attributes in those deposits was generally very similar to that recorded from roughly contemporaneous material. Still, the clearest picture of technological change over time should occur when dated deposits exhibiting little to no overlap are arranged sequentially. Just such a summary is presented in Table 6.49. Review of the data reported there shows that O'odham pottery production during the 1771-1920 span was a dynamic process, with distinct unidirectional temporal trends present.

The percentage of sand-tempered pottery declined from a high of 39.8 percent in the 1771-1821 deposits, to a low of 11.2 percent in the 1880-1890 deposits, and is absent thereafter (1891-1920). Similarly, the percentage of sand-and-crushed-sherd-tempered pottery declined from a high of 55.2 percent in the 1771-1821 deposits, to a low of 2.3 percent in the 1880-1890 deposits, and is absent thereafter (1891-1920). The manufacture of

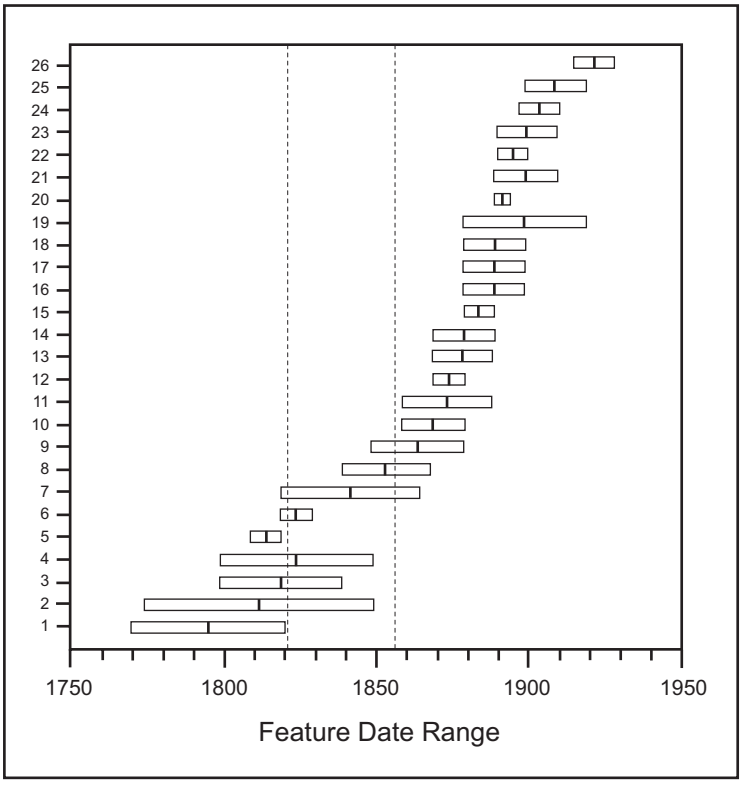

Figure 6.4. Date ranges of well-dated Historic era features and deposits recovered from eight archaeological projects recently conducted at sites located in the central Tucson area.

Table 6.49. Summary of temporal changes in select technological attributes of historic Native American pottery recovered from well-dated contexts in the Tucson area.

Site Name	San Agustín Mission	Tucson Presidio	León Farmstead			Block 172	Block 83
AZ ASM Site Number	BB:13:6	BB:13:13	BB:13:505			BB:13:668	BB:13:401
Deposit Date Range	1771-1821	1820-1830	1840-1869	1870-1880	1880-1890	1891-1901	1900-1920
Midpoint of Date Range	1796	1825	1854	1875	1885	1896	1910
Feature Numbers	64, 161, 166, 177, 178, 193, 203	409, 411	4 (Stratum 50.03), 14, 25, 28	4 (Stratum 50.02)	4 (Stratum 50.01)	46, 54	113 (Level 5), 286 (Level 1), 289 (Levels 11-12), 330, 342, 361 (Levels 1-2)
Arrival of City Water	N/A	N/A	1930s	1930s	1930s	1901	1890s
Sample Size (MNV)	3,396 (476)	1,094 (109)	831 (123)	116 (16)	1,054 (150)	1,131 (36)	65 (6)
Temper Type							
Percentage sand-tempered	39.8	31.7	34.7	20.5	11.2	0.0	0.0
Percentage sand and crushed sherd-tempered	55.2	41.7	16.0	3.6	2.3	0.0	0.0
Percentage sand and fiber-tempered	1.4	20.4	47.6	72.3	85.5	100.0	100.0
Folded Rims							
Percentage folded-rim coils	14.4	26.2	14.5	0.0	2.8	0.0	0.0
Type Frequency							
Percentage plain ware	85.2	60.3	34.3	7.8	8.5	1.3	0.0
Percentage red ware	13.2	12.2	2.6	0.0	0.2	0.0	0.0
Percentage Papago Plain	1.0	17.0	41.9	75.0	58.3	14.9	9.2
Percentage Papago Red	0.2	5.0	18.9	17.2	19.6	82.8	89.2
Percentage painted/slipped types	0.4	5.4	2.3	0.0	13.3	0.9	1.5
Slip Location							
Percentage interior-slipped	87.8	63.6	44.5	56.2	20.8	8.5	8.6
Percentage exterior-slipped	11.8	36.4	55.5	43.8	79.2	91.5	91.4
Reference	Heidke 2006	Heidke 2006	Heidke 2005b	Heidke 2005b	Heidke 2005b	Heidke 2003b	Heidke 2007a

Note: All sites are AZ # (ASM).

pottery tempered with sand and fiber (from horse manure) displays the complementary countertrend. The percentage of sand-and-fiber-tempered pottery increased from a low of 1.4 percent in the 1771-1821 deposits, to a high of 100.0 percent in the 1891-1901 deposits, and continued at that level in the 1900-1920 deposits.

The production of vessels displaying a folded rim coil loosely follows the trends related to sand and sand-and-crushed-sherd tempers. Vessels with rim coils are common in deposits that accumulated before 1870, but rare thereafter. The production of plain and red ware pottery also follows the trends related to sand and sand-and-crushed-sherd tempers. The percentage of plain ware pottery declined from a high of 85.2 percent in the 1771-1821 deposits, to a low of 1.3 percent in the 1891-1901 deposits, and is absent thereafter (1900-1920). Similarly, the percentage of red ware pottery declined from a high of 13.2 percent in the 1771-1821 deposits, to a low of 0.2 percent in the 1880-1890 deposits, and is absent thereafter (1891-1920).

The manufacture of Papago Plain and Papago Red pottery displays the complementary countertrend. The percentage of Papago Plain pottery increased from a low of 1.0 percent in the 1771-1821 deposits, to a high of 75.0 percent in the 1870-1880 deposits, and then declined to 9.2 percent in the 1900-1920 deposits. The percentage of Papago Red pottery increased from a low of 0.2 percent in the 1771-1821 deposits, to a high of 89.2 percent in the 1900-1920 deposits.

The modal surface exhibiting a red slip changed over time. The percentage of red ware and Papago Red pottery that was slipped on its interior surface declined from a high of 87.8 percent in the 1771-1821 deposits, to a low of 8.5 percent in the 1891-1901 deposits, and stayed at about that level in the 1900-1920 deposits (8.6 percent). Conversely, the percentage of red ware and Papago Red pottery that was slipped on its exterior surface increased from a low of 11.8 percent in the 1771-1821 deposits, to a high of 91.5 percent in the 1891-1901 deposits, and continued to stay near that level in the 1900-1920 deposits (91.4 percent). Although the percentage of exterior slipping increased over time, the actual percentage of red-slipped vessels stayed relatively constant from 1771 through 1890 (see Table 6.49). The decade from 1880 to 1890 is critical to understanding the relationship between wares and slips, for it is during that time that the percentage of exterior-slipped red ware nearly doubled, from 43.8 to 79.2 percent in the 1870-1880 deposits, while the percentage of red-slipped vessels stayed nearly constant (17.2 percent in the 1870-1880 deposits and 19.8 percent in the 1880-1890 deposits). More than 80 percent of all sherds recovered from deposits that accumulated during the following three decades are red-slipped, and more than 90 percent of them display slipping on their exterior surface (Figure 6.5).

Painted and Buff-slipped Types

Five decorated types, consisting of designs painted on plain brown, red-slipped, and cream- or buff-slipped backgrounds, were recovered from well-dated deposits at the Tucson Presidio and Block 181 (see Table 6.48), as were a number of

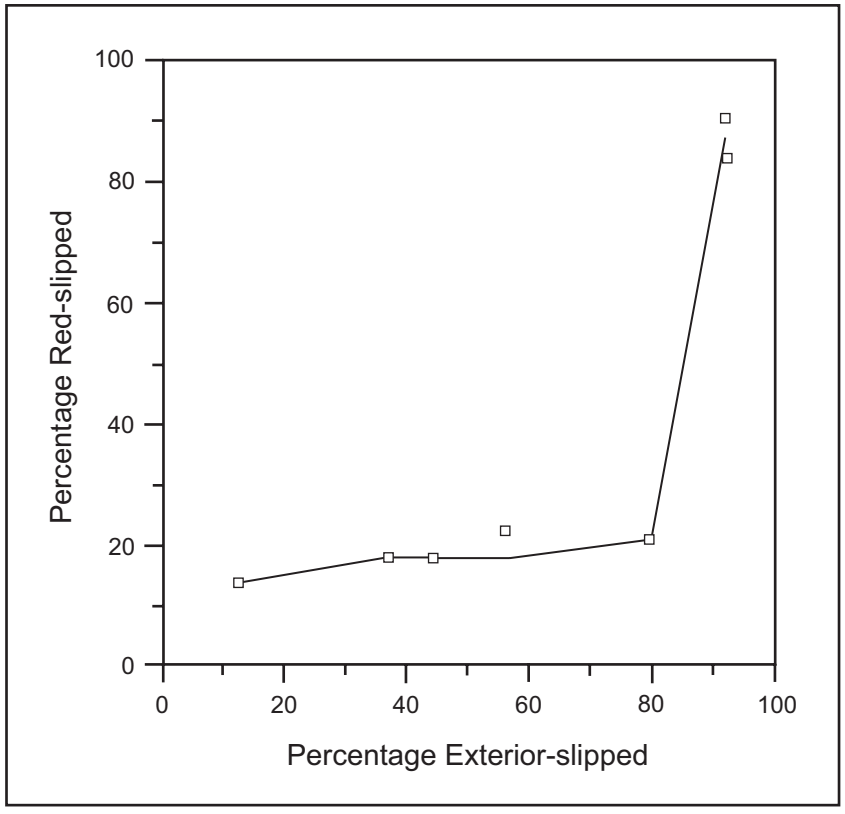

Figure 6.5. Relationship between red ware percent and percentages of red wares slipped on their exterior surface.

sherds that only displayed a cream- or buff-colored slip. Two known historic painted types were not recovered during the current project, but they have been recovered from other nearby locations. A sufficient number of Historic era deposits have now been excavated to provide the means to date the eight painted or buff-slipped types (Table 6.50).

The most common type, Papago Black-on-red, occurs in deposits dating from 1771-1821 through 1891-1910, suggesting this type was made from 1770 to 1910 (Figure 6.6). The early end of this date range modifies Fontana and others' (1962:106-109) opinion about when this type was first made. They thought Papago Black-on-red was not produced before 1860. Further, the 1910 end date suggested by these Tucson area deposits may be too early, as Doelle (1983:93) provides evidence that Papago Black-on-red manufacture continued in the Papaguería until the 1920s. The second most common decorated type, Papago Red-on-brown, occurs in deposits dating from 1771-1821 through 1890-1910, suggesting it was also made from 1770 to 1910. That range falls within the one proposed by Fontana et al. (1962:103-105, 109): 1700-1930.

Papago Red-on-buff, Papago Black-on-brown, Papago Black-on-buff, Papago Red-on-white, and Papago White-on-red occur less frequently. Papago Red-on-buff occurs in deposits dating from 1771-1821, 1810-1820, 1880-1890, and from 1880-1900, suggesting two interrupted production spans: 1770-1820 and 1880-1900. Papago Black-on-brown occurs in deposits dating from 1800-1850 through 1890-1910, suggesting it was made from 1800 to 1910. Papago Black-on-buff occurs in deposits dating from 1850-1880 through 1880-1900, suggesting it was made from 1850 to 1900. Papago Red-on-white has only been recovered from one deposit, Block 181 Feature 603, which is dated between 1860-1889, suggesting this type was produced from 1860 to 1890. Papago White-on-red occurs

Table 6.50. Summary of dated contexts containing painted "Papago" ceramic types.

AZ ASM Site No.	Date Range	Papago Black-on-red	Papago Red-on-brown	Papago Red-on-buff	Papago Buff	Papago Black-on-brown	Papago Black-on-buff	Papago Red-on-white	Papago White-on-red
BB:13:513	1916-1929	–	–	–	–	–	–	–	–
BB:13:401	1900-1920	–	–	–	P	–	–	–	–
BB:13:513	1898-1911	–	–	–	–	–	–	–	–
BB:13:401	1891-1910	P	–	–	–	–	–	–	–
BB:13:668	1891-1901	P	–	–	–	–	–	–	–
BB:13:13	1890-1910	P	P	–	P	P	–	–	–
BB:13:644	1890-1895	P	–	–	–	–	–	–	–
BB:13:401	1880-1920	–	–	–	–	–	–	–	P
BB:13:401	1880-1900	P	–	–	–	–	–	–	–
BB:13:757	1880-1900	P	P	P	P	–	P	–	–
BB:13:13	1880-1900	P	–	–	P	–	P	–	–
BB:13:505	1880-1890	P	P	P	P	–	P	–	–
BB:13:13	1870-1890	P	–	–	P	–	–	–	P
BB:13:757	1870-1889	–	P	–	P	–	P	–	–
BB:13:13	1860-1889	P	P	–	P	P	–	P	–
BB:13:757	1850-1880	–	P	–	–	–	P	–	–
BB:13:505	1840-1869	P	P	–	–	–	–	–	–
BB:13:13	1820-1865	–	P	–	P	P	–	–	–
BB:13:13	1820-1830	P	P	–	P	–	–	–	–
BB:13:13	1810-1820	P	–	P	–	–	–	–	–
BB:13:13	1800-1850	P	P	–	–	P	–	–	–
BB:13:13	1775-1850	P	P	–	P	–	–	–	–
BB:13:6	1771-1821	P	P	P	–	–	–	–	–

Note: "P" indicates type present.

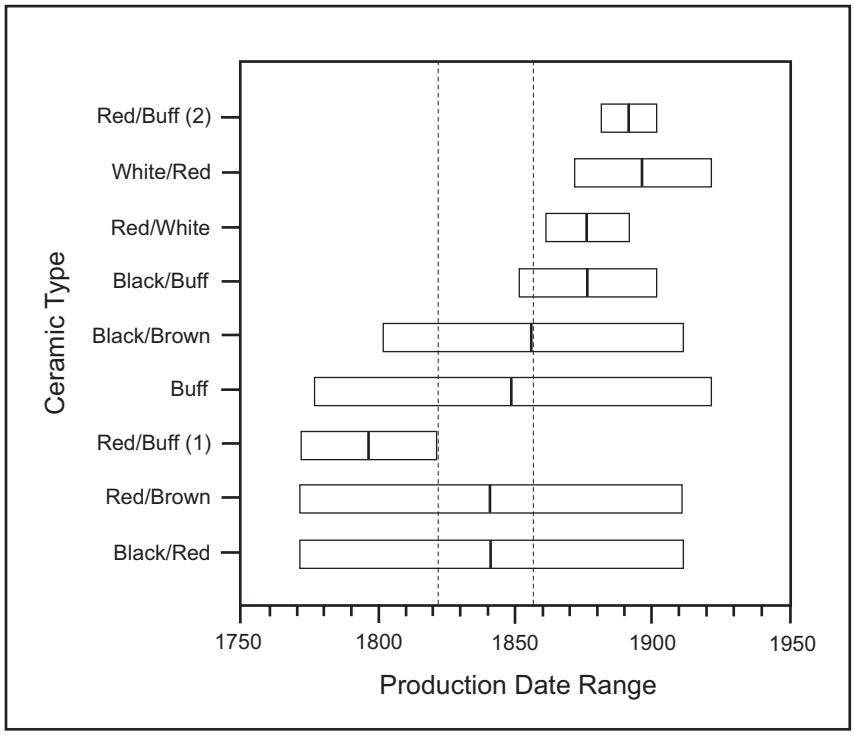

Figure 6.6. Maximum ceramic production date ranges for painted "Papago" ceramic types.

in deposits dating from 1870-1890 through 1880-1920, suggesting it was manufactured from 1870 to 1920. Finally, Papago Buff pottery occurs in deposits dating from 1775-1850 through 1900-1920, suggesting the type was made from 1775 through 1920. All of these types were tempered with sand or sand and crushed sherd before 1850, whereas after 1860, they were usually sand-and-fiber-tempered (based on evidence from the Tucson Presidio and Block 181; see Table 6.48).

SUMMARY

Native American pottery produced during the Prehistoric and Historic eras was recovered from the Tucson Presidio. Pottery was recovered from nonfeature deposits, prehistoric features, presidio features, and American Territorial period features. Altogether, 14,730 sherds were recovered. Ceramic evidence of disturbance was present in features from all time spans. Most prehistoric features contained ceramic types produced during multiple prehistoric phases, and for that reason, were impossible to date using typological means. Presidio features yielded the most evidence of temporal mixing, while 10 percent of the vessels recovered from American Territorial period features were prehistoric.

Prehistoric Collection

Nine prehistoric features exhibited little to no typological mixing. One contained Cañada del Oro phase pottery, three Rillito phase pottery, one Early Rincon phase pottery, and four Middle Rincon phase types. Only one sherd recovered from those features was tempered with sand from the local source, Airport Petrofacies (I); therefore, there is little evidence of local ceramic production at the site. Two additional sherds were characterized as coming from an unspecified or indeterminate granitic and mixed lithic source; one or both of these may be tempered with Airport Petrofacies sand. Most of the red-on-brown, red, and plain ware sherds are tempered with volcanic Twin Hills Petrofacies (J2) sand. The nearest source of sand with that composition lies about 1.0 km west of the site, within the distance traditional potters travel to collect sand temper. Alternatively, that pottery may have been made at St. Mary's Hospital Ruin, which is located approximately 2.5 km to the west.

A lesser number of the prehistoric sherds recovered from the site are tempered with Beehive Petrofacies (J1) sand. The closest source of sand with that nonlocal composition is located approximately 5.2 km southwest of the site. Recently, direct and indirect evidence of ceramic production has shown that potters living at the West Branch, Valencia, and Julian Wash sites were actively involved in ceramic production during the Sedentary period. Production of the Colonial period, Beehive Petrofacies sand-tempered pottery may have occurred at the Valencia, Julian Wash, and/or Dakota Wash sites.

The temper type of red-on-brown, red, polychrome, and plain ware pottery recovered from the nine well-dated Colonial and Sedentary period deposits conforms with a previously known pattern regarding the use of sand and micaceous gneiss/schist tempers. That is, gneiss/schist- and muscovite mica-tempering represent a technological style that reached its peak in the Rillito phase and largely died out by A.D. 1100. Most vessels

recovered from the site that were produced before the Rillito phase or after the Early Rincon phase are sand-tempered. During the Rillito to Early Rincon interval, pots containing some gneiss/schist temper outnumber sand-tempered vessels. Pots heavily tempered with gneiss/schist are most common during Rillito times.

Eighteen modified sherds were recovered. Some of the modifications, such as mendholes and ground rims, probably reflect actions taken to extend the useful lives of the modified vessels. Large unperforated disks are inferred to have been used as pot lids, or covers. Small perforated and unperforated disks were recovered; the small perforated disks resemble spindle whorls found at other sites in the region. Four sherds characterized by having one or two ground edges may reflect their reuse as scraping tools. Finally, a plain ware sherd shaped like a ground stone palette was recovered from a temporally mixed prehistoric deposit.

Fourteen figurine fragments were recovered. Recovery contexts include Cañada del Oro, Rillito, and Middle Rincon phase deposits, as well as temporally mixed prehistoric deposits, presidio, American Territorial, and undated nonfeature contexts. However, all the figurines were likely made during the Prehistoric era. Heads, torsos, and appendages were found. Three additional types of fired clay objects were recovered. One resembles a fragment of a carved shell bracelet or pendant, one is a small cylindrical object, and one appears to be a small squeeze or lump of clay that was exposed to a fire.

Historic Collection

Project Director J. Homer Thiel provided the author with dating information for the Historic era contexts. To review temporal trends in the ceramic data, many of them were assigned to one of six temporal sets. Seven features were assigned to a 1775-1850 set, another seven features were assigned to an 1800-1850 set, one feature and some nonfeature excavation units were assigned to an 1820-1865 set, one feature was assigned to an 1860-1889 set, five features were assigned to an 1880-1900 set, and one feature was assigned to an 1890-1910 set. Typological information and other attributes of the pottery from those deposits—location of red slips, temper type, and vessel form and size—were reported and compared with similar data drawn from contemporaneous collections. The review showed that the technological attribute frequencies were very similar to the frequency data recorded from contemporaneous collections. Based on those findings, a review of technological change over time was initiated using well-dated deposits exhibiting little to no overlap. Data sets spanning 1771-1920 were arranged sequentially, and distinct unidirectional temporal trends were identified in the temper type, rim coil, ceramic type, and slip location data. Finally, revised production date ranges for eight painted or buff-slipped types were proposed, based on the recovery of those types at the Tucson Presidio and from a number of additional sites located in the central Tucson area.

CHAPTER 7

FLAKED STONE FROM THE TUCSON PRESIDIO, HISTORIC BLOCK 181

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Analysis of the flaked stone assemblage from the most recent Tucson Presidio excavations, AZ BB:13:13 (ASM), centered on characterizing the nature of flaked stone use in the time periods represented. While the conclusions were limited by some temporal mixing of the deposits, some evaluations of Early Agricultural period and Hohokam lithic technology at the site were possible, and the presence of a number of historic artifacts related to flintlock firearms provided interesting comparisons with previous historic excavations in the area.

ASSEMBLAGE DESCRIPTION

Four major temporal divisions were recognized during fieldwork—Early Agricultural period, Hohokam, Spanish to Mexican periods, and American Territorial—although mixing within the deposits may render these less than accurate. The only materials analyzed from nonfeature surface contexts were projectile points ranging from the Middle Archaic period to the Historic era (Figure 7.1a-j), a gunflint (Figure 7.2a), gunspalls (Figure 7.2b-d), and strike-a-lights (Figure 7.2g-i).

The assemblage from two Early Agricultural period pithouses, Features 430 and 492, numbers 218 artifacts and contains the typical range of good-quality local materials seen in coeval assemblages from the Santa Cruz River floodplain (Table 7.1). These include large numbers of rock variously identified as metasediment, silicified limestone, and fine-grained black basalt. The flaking properties of these materials are consistently good, and their appearance is similar enough, it is unlikely that the three different materials would have been discriminated by prehistoric knappers. As a group, they would have been recognized as easily flaked, durable black material that was readily available as cobbles in the bedload and lag gravels of the Santa Cruz River. Other frequently occurring materials include fine-grained rhyolites and quartzites, which were also plentiful in the immediate area of the site.

All but 10 of the Early Agricultural period artifacts are debitage; the balance includes five cores and five retouched implements (Table 7.2). The retouched implements are typical for the time period (Table 7.3); the scraper and projectile point fragment (a non-diagnostic tip) were recovered from Feature 430, and the general biface, humpback biface, and perforator came from Feature 492.

Features identified as Hohokam that contained flaked stone include four pithouses, 10 extramural pits, and a trash concentration; the flaked stone assemblage numbers 963 artifacts (see Table 7.2). The raw material types represented mirror those in the Early Agricultural features, although fine-grained materials occur in higher proportions and medium-grained materials are less common (see Table 7.1). Retouched implements are fairly numerous and varied (see Table 7.3), as expected from a Hohokam village that was occupied for a reasonable amount of time. The only projectile point from a Hohokam context is a Colonial Stemmed point, dating to A.D. 750-950, recovered from extramural pit Feature 462 (see Figure 7.1k).

The assemblage from the Spanish and Mexican periods (n = 1,453) was recovered from nine extramural pits, three borrow pits, a ditch, and a trash concentration. Raw material distributions are essentially the same as those seen in the Hohokam assemblage (see Table 7.1). A variety of retouched implements were recovered, including several bifaces and projectile points (see Table 7.3). However, the presence of several prehistoric points (see Figure 7.1l-r; outnumbering the historic Piman points, Figure 7.1s-v) raises the possibility that the deposits do not represent a pure historic technology. The demonstrably earlier artifacts may have been scavenged by presidio residents, or may have simply mixed with historic artifacts when historic pits intruded into prehistoric deposits. Of primary interest here are the projectile points and the gunspalls: the points to demonstrate the time depth of the occupation of the immediate presidio area (Table 7.4), and the gunspalls to illuminate how Spanish armaments fit into the greater European gunspall/

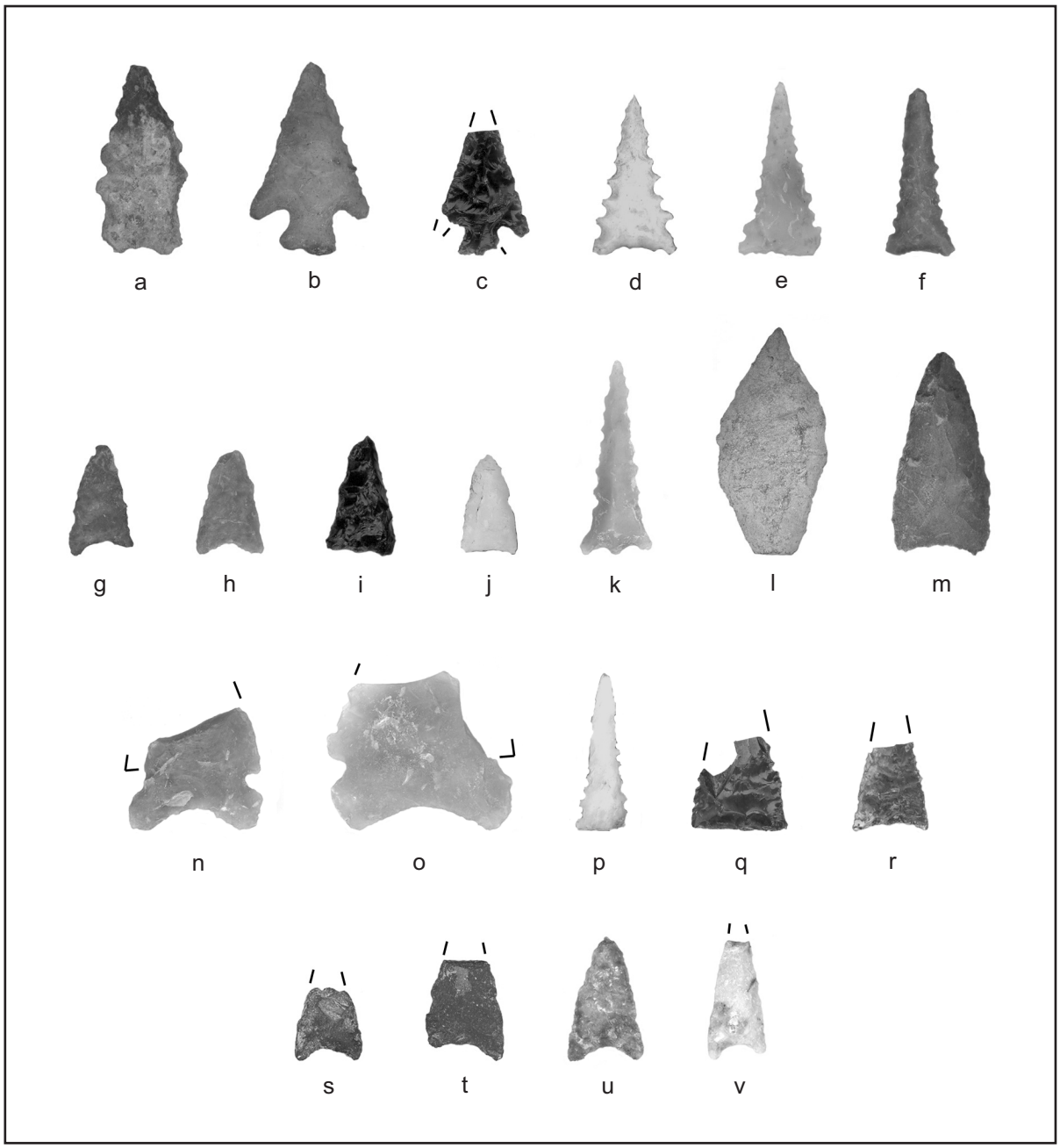

Figure 7.1. Projectile points from AZ BB:13:13 (ASM): (a) San José, undated surface contexts, Middle Archaic period; (b-c) Cienega, undated surface contexts, Early Agricultural period; (d-f) Sedentary Serrated, undated surface contexts, Hohokam Sedentary period; (g-j) Piman, Historic era; (k) Colonial Stemmed, Feature 462, Hohokam Colonial period; (l) Tapering Stemmed, Early Archaic period; (m) Cortaro, Middle Archaic period; (n-o) Chiricahua, Middle Archaic period; (p) Sedentary Serrated, Hohokam Sedentary period; (q) Arizona Triangular, Hohokam Classic period; (r) Arizona Concave-based Triangular, Hohokam Classic period; (s-v) Piman, Historic era.

gunflint production and distribution network. This is discussed in a following section.

The American Territorial period assemblage is limited to 47 pieces from a borrow pit (see Table 7.2). A single strike-a-light recycled from a French gunspall or flint is the most interesting artifact in a collection otherwise composed of debitage, two cores, and a scraper.

FLAKED STONE TECHNOLOGY OVER TIME IN THE TUCSON PRESIDIO AREA

General Technology

The debitage attributes from the features identified as Early Agricultural are an uncanny match for the mean of the values observed in Early and

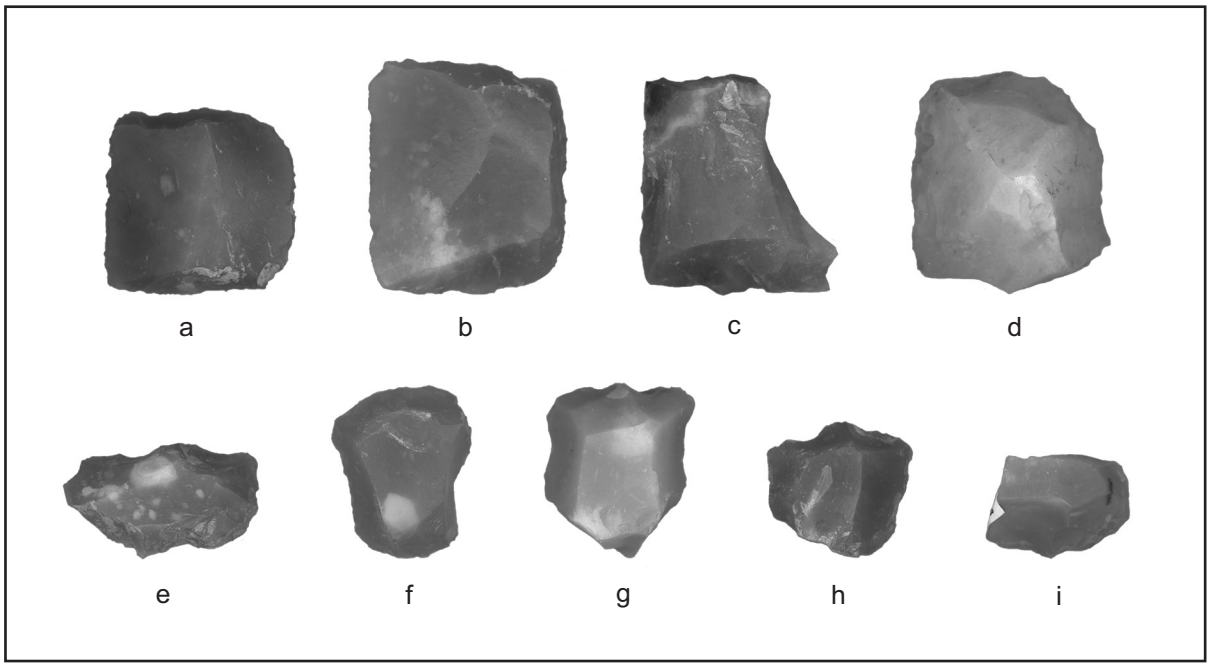

Figure 7.2. Gunflint, gunspalls, and strike-a-lights from AZ BB:13:13 (ASM): (a) gunflint, surface, French chalcedony; (b) gunspall, Spanish and Mexican periods, French chalcedony; (c) gunspall fragment, surface, French chalcedony; (d) gunspall, surface, chert; (e) strike-a-light, Spanish and Mexican periods, French chalcedony; (f) strike-a-light, American Territorial period, French chalcedony; (g-i) strike-a-lights, surface, French chalcedony.

Late Cienega phase assemblages previously recovered in the Tucson Basin (Table 7.5), suggesting even mixing of Cienega phase deposits here. However, the debitage from contexts identified as Hohokam are not appreciably different from the Early Agricultural material, and it does differ considerably from what is expected for Tucson Basin Hohokam debitage from any time period.

Raw material patterns suggest some differences between the Early Agricultural and Hohokam assemblages; the Hohokam and Spanish-Mexican materials show very few differences. Again, due to the mixing observed in the collected artifacts (the presence of bottle glass and metal in contexts identified as prehistoric), it is uncertain if these patterns truly reflect archaeological reality, or if they are simply the result of repeated occupations churning up the same plot of ground.

Gunflints and Gunspalls

The history of European gunflint production is a saga of tightly controlled flint sources and guarded production techniques. The market was controlled for nearly 100 years by the Dutch, who were superceded for the next 80 years by the French, who, in turn, lost their monopoly on the gunflint trade to the English following the Napoleonic Wars. The gunflints produced at single quarries during each of these blocks of time supplied most of the armies of the Continent and North America, with the result that opposing forces fired musket balls at each other on charges sparked by gunflints from the same producer (Hanson 1970:53).

The shift from flints produced in one country to another was driven by design innovations and increasingly efficient production techniques. Thus, the Dutch gunspalls (thicker, lenticular flints produced on direct-percussion flakes) of the seventeenth century were supplanted by the more morphologically regular and raw material-conserving blade-based gunflint technology developed in France in the eighteenth century, which, in turn, was replaced by English flints knapped from Brandon flint following the disruptions of the Napoleonic Wars at the beginning of the nineteenth century (Hanson 1970:53, 1971:110; Kenmotsu 1990:96; Mason 1971:108; Witthoft 1966:25).

Two gunflints, 5 gunspalls, and 12 strike-a-lights (many of which are likely recycled from exhausted gunflints and spalls) were recovered from features and nonfeature surface contexts at the Tucson Presidio (Table 7.6). Metrics from the gunspalls and flints with the least amount of observed use-wear suggest they were originally manufactured to specifications of roughly 30 mm on a side, with thicknesses of at least 7 mm but not exceeding 10 mm (see Figure 7.2a-d). Roughly half of these pieces are made of a honey-colored chalcedony (see Figure

Table 7.1. Percentage of flaked stone raw material distributions from various temporal contexts, AZ BB:13:13 (ASM).

	Fine-grained							Medium-grained						Noncrystalline or Cryptocrystalline									
Time Period	Other Igneous	Rhyolite	Metasediment	Silicified Limestone	Other Metamorphic	Quartzite	Total Percentage	Basalt	Other Igneous	Rhyolite	Quartzite	Other Metamorphic	Total Percentage	Obsidian	Unspecified Chert	Buff's Chert	Rillito Peak Jasper	Other Jasper	Chalcedony	Quartz	Other/Unknown	Total Percentage	Total (*n*)
Early Agricultural	15	6	4	8	–	7	39	15	11	14	–	–	41	–	11	2	–	–	1	2	3	20	218
Hohokam	15	12	6	6	2	8	48	11	10	8	1	2	32	1	13	1	1	1	1	2	2	20	958
Spanish and Mexican	16	11	7	6	–	10	50	7	14	7	–	3	31	1	12	1	1	1	1	1	2	19	1,455
Total	15	11	6	6	1	9	48	9	12	8	1	2	32	1	12	1	1	1	1	1	2	20	2,631

Table 7.2. Flaked stone artifact class distributions from various temporal contexts, AZ BB:13:13 (ASM).

Time Period	Debitage	Core	Uniface	Biface	Core Tool	Core Hammer	Cobble Hammer	Other	Total
Early Agricultural	208	5	2	3	–	–	–	–	218
Hohokam	927	10	7	8	1	2	6	2	963
Unspecified prehistoric	54	–	–	–	–	–	–	–	54
Spanish and Mexican (1775-1856)	1,387	30	5	21	–	2	–	8	1,453
American Territorial (1856-1912)	43	2	1	–	–	–	–	1	47
Total	2,619	47	15	32	1	4	6	11	2,735

Table 7.3. Flaked stone tool distributions from various temporal contexts, AZ BB:13:13 (ASM).

Time Period	Utilized Flake	Utilized Core	Expedient Uniface	Scraper	Perforator	Notch	Denticulate	Composite Uniface	Irregular Biface	Stage 1 Biface	Stage 2 Biface	Stage 3 Biface	Humpback Biface	Bifacial Knife	Projectile Point	Gunspall	Gunflint	Strike-a-light	Total
Early Agricultural	1	–	–	1	1	–	–	–	–	–	1	–	1	–	1	–	–	–	6
Hohokam	6	1	–	2	1	3	–	1	1	3	2	–	–	1	1	–	1	–	23
Spanish and Mexican	4	–	1	1	1	1	1	–	–	5	1	1	–	–	14[a]	1	–	7	38
American Territorial	2	–	–	1	–	–	–	–	–	–	–	–	–	–	–	1	–	–	4
Total	13	1	1	5	3	4	1	1	1	8	4	1	1	1	16	2	1	7	71

[a]Ten of these points predate the Spanish and Mexican periods and likely represent scavenging behavior.

Table 7.4. Projectile points recovered from AZ BB:13:13 (ASM).

Time Period	Lake Mojave	San Jose	Chiricahua	Cortaro	Unspecified Early Agricultural	Cienega	Initial Stemmed	Colonial Tanged Stemmed	Sedentary Serrated	Arizona Short Triangular	Arizona Triangular	Unspecified Historic	Piman	Total
Early Agricultural	–	–	–	–	1	–	–	–	–	–	–	–	–	1
Hohokam	–	–	–	–	–	–	–	1	–	–	–	–	–	1
Unspecified prehistoric	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Spanish and Mexican	1	–	1	1	–	–	1	–	1	1	1	–	6	13
Undated surface collection	–	1	–	–	1	2	–	–	3	–	–	2	4	13
Total	1	1	1	1	2	2	1	1	4	1	1	2	10	28

7.2a-c, e-i), indicating origins in the French workshops that controlled quarrying and gunflint production during much of the eighteenth century (Hanson 1970:53; Kenmotsu 1990:96; Woodall et al. 1997:25-26). Their presence in mid-nineteenth century Spanish and Mexican contexts in Tucson suggests southern Arizona was at the end of the supply line, where difficulties in delivery may have led to specialized components such as French gunflints being conserved and recycled well past the time they had become obsolete in Europe, having been supplanted by English flints. It should be noted that English flints are not present in the presidio assemblage.

The French chalcedony accounts for 47 percent of the presidio gunspalls and recycled strike-a-lights, compared with 57 percent of the gunflints/spalls/lights from the Lot 7 Presidio assemblage (Sliva et al. 2007) and 29 percent of those from the León family farmstead (Thiel, Diehl, Adams, Sliva, and Vokes 2005). In Lot 7, three of the four came from the Spanish and Mexican periods (1800-1850) and one from the American Territorial period (1890-1910). In the Block 181 presidio assemblage, three came from Spanish-Mexican (1800-1850) contexts and one from the American Territorial period, while five others are from indeterminate contexts. Most of the gunflints at the León household were recovered from a series of large, superimposed borrow pits containing artifacts dating between the 1840s and 1860s.

The higher relative frequencies of French flints and spalls in presidio contexts than in the outlying León household suggests differential access between the military installation and private individuals, although the lack of post-1800 European

Table 7.5. Debitage technological profiles from AZ BB:13:13 (ASM), with comparative data from previous work in the Tucson Basin.

Data Source/Time Period	Total Flaked Stone	Total Debitage	Complete Debitage		
			Total	Average Size (mm)	Average Mass Index
AZ BB:13:13 (ASM)					
Early Agricultural	218	208	114	28.03	0.149
Hohokam	963	927	495	27.49	0.128
Spanish and Mexican	1,424	1,387	588	29.26	0.170
American Territorial	47	43	26	36.85	0.225
Composite Tucson Basin					
Early Cienega phase	8,077	6,762	1,315	25.11	0.116
Late Cienega phase	25,817	19,882	5,935	30.92	0.186
Average Cienega phase values	*N/A*	*N/A*	*N/A*	*28.02*	*0.151*
Hohokam	9,612	8,530	4,238	34.28	0.213

Table 7.6. Gunflints, gunspalls, and strike-a-lights from surface and Historic era pit contexts at AZ BB:13:13 (ASM).

Artifact Type	Raw Material	Time Period	Feature	Length (mm)	Width (mm)	Thickness (mm)
Gunflint	Honey-colored chalcedony	Indeterminate	0	24.66	25.22	8.84
Gunflint fragment	Quartz	Indeterminate	641	21.36	N/A	N/A
Gunspall	Honey-colored chalcedony	Spanish and Mexican (1800-1856)	460	31.10	27.33	7.77
Gunspall fragment	Honey-colored chalcedony	Indeterminate	0	29.88	N/A	9.18
Gunspall	Chert	Indeterminate	0	27.44	29.64	13.67
Gunspall fragment	Quartz	Indeterminate	0	20.54	18.74	9.59
Strike-a-light	Honey-colored chalcedony	Spanish and Mexican (1800-1856)	513	26.00	15.85	7.07
Strike-a-light	Honey-colored chalcedony	Spanish and Mexican (1800-1856)	579	22.31	N/A	N/A
Strike-a-light fragment	Honey-colored chalcedony	American Territorial (1890-1910)	359	22.60	18.64	8.10
Strike-a-light	Honey-colored chalcedony	Indeterminate	0	18.83	13.28	9.46
Strike-a-light	Honey-colored chalcedony	Indeterminate	0	19.09	18.49	7.81
Strike-a-light	Honey-colored chalcedony	Indeterminate	0	23.18	19.90	10.53
Strike-a-light	Buff's chert	Spanish and Mexican (1800-1856)	466	26.58	16.69	10.22
Strike-a-light	Chert	Spanish and Mexican (1800-1856)	513	16.41	12.25	7.06
Strike-a-light	Chert	Spanish and Mexican (1800-1856)	513	30.90	24.74	10.16
Strike-a-light	Chert	Spanish and Mexican (1800-1856)	519	18.05	11.10	5.08

Table 7.6. Continued.

Artifact Type	Raw Material	Time Period	Feature	Length (mm)	Width (mm)	Thickness (mm)
Strike-a-light	Chert	Spanish and Mexican (1800-1856)	520	18.85	9.93	7.13
Strike-a-light	Chert	Spanish and Mexican (1800-1856)	520	22.35	18.00	8.55
Strike-a-light	Chert	Spanish and Mexican (1800-1856)	579	24.13	15.93	11.61

flints raises questions about the supply system. Why were the presidio residents exhausting gunflints that were 50 years out of date on the Continent (as well as gunspalls, which were even more obsolete), particularly when other European goods clearly made their way to southern Arizona? Half the recovered pieces were made of materials other than the French chalcedony (see Figure 7.2d), including one local chert, but most of these are heavily used strike-a-lights that cannot be definitively identified as having originally been designed as gunflints. The possibility of local gunflint production is left open, but the extent to which this happened and the identity of the knappers (Spanish/Mexican or Native American) cannot be determined with the data currently available.

CHAPTER 8

ANALYSIS OF GROUND STONE AND OTHER STONE ARTIFACTS FROM HISTORIC BLOCK 181, AZ BB:13:13 (ASM)

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The assemblage described here is complex, reflecting the archaeological record of human use in what is called Historic Block 181, AZ BB:13:13 (ASM). The assemblage includes an array of tools from the prehistoric occupation, prehistoric tools that may have been secondarily used by historic inhabitants, and a few historic stone items, as well as pigments, minerals, and rocks that were collected by both prehistoric and historic people (Tables 8.1 and 8.2). Distinguishing prehistoric from historic items was complicated by the layer of prehistoric trash that covered the area when both presidio and American Territorial period people settled in this locale. These later settlers dug holes in the ground that churned up stone items and redistributed them across the surface, leaving them to erode into empty borrow pits and changing their stratigraphic relationship from their original, prehistoric deposition. Other empty pits, especially outhouse pits, were filled with historic trash, creating additional stratigraphic confusion.

The ground stone and other stone artifacts found in features sorted into four prehistoric time categories (see Table 8.1) and two historic time categories (see Table 8.2) are evaluated here. The purpose is to provide additional information to address specific questions presented in the project research design. Specifically, the artifacts were analyzed with a technological approach (Adams 2002), used to recognize the types of activities represented during each time period and to recognize consistencies or differences in the represented activities throughout all occupations (Tables 8.1-8.4). Specific attributes of each artifact are presented in Table A.1.

ARTIFACTS FROM PREHISTORIC CONTEXTS

The prehistoric features in Historic Block 181 that contained ground stone artifacts were pithouses and extramural pits, covered by a disturbed layer of sheet trash (Table 8.5). Artifacts were recovered from two Early Agricultural period pithouses, Features 430 and 492; one Colonial period pithouse, Feature 660; two Sedentary period pithouses, Features 463 and 625; and two pithouses dated to a broader time span considered Hohokam, Features 608 and 643 (see Table 8.5). The Colonial (A.D. 750-950) and Sedentary (A.D. 950-1150) periods are narrower time periods within the more general Hohokam chronology (A.D. 500-1450), and the Early Agricultural period (1200 B.C.-A.D. 50) preceded the Hohokam period. Evidence for multiple Prehistoric era settlements, by itself, is remarkable. With the additional historic occupation, this location was clearly used repeatedly over a long span of time for a wide range of activities involving ground stone artifacts and various rocks and minerals.

Early Agricultural Contexts

The ground stone assemblage from two Early Agricultural pithouses is small (n = 25), accounting for only 27 percent of the prehistoric assemblage recovered from Historic Block 181 (see Table 8.1). Even this small assemblage, however, hints at the range of activities that occupied the inhabitants during this early time period (see Table 8.5). For example, food-processing activities are evident by a broken basin mano found on the floor of pithouse Feature 492. Basin manos and metates were typical of this time period. During all time periods, metates were more often removed by their owners when they left than were manos, or the metates were scavenged by neighbors after the owners left. Manos are sometimes the only remaining tool providing evidence of food-processing activities.

Other activities represented in Feature 492 are shown by a piece of yellow limonite and a thin tablet found on the pithouse floor. The limonite was ground, probably to make a powder for use as a colorant (Munsell Value 2.5Y 8/6). The tablet was shaped by flaking the edges, but has no obvious use-wear (Figure 8.1a). These pieces were in the

Table 8.1. Ground stone artifact types from Prehistoric era contexts at Historic Block 181, AZ BB:13:13 (ASM).

	Early Agricultural		Hohokam		Colonial Period		Sedentary Period		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Artifacts										
Abraders	1	20	1	9	–	–	–	–	2	5
Balls	1	20	–	–	–	–	–	–	1	2
Figurines	–	–	–	–	–	–	1	4	1	2
Hammerstones	–	–	1	9	–	–	5	19	6	14
Handstones	–	–	1	9	1	50	1	4	3	7
Lapstones	–	–	–	–	–	–	3	12	3	7
Manos	1	20	3	27	–	–	6	23	10	23
Metates	–	–	2	18	–	–	4	15	6	14
Netherstones	1	20	2	18	–	–	2	8	5	11
Ornaments	–	–	–	–	–	–	1	4	1	2
Polishers	–	–	–	–	1	50	3	12	4	9
Slabs	–	–	1	9	–	–	–	–	1	2
Tablets	1	20	–	–	–	–	–	–	1	2
Subtotal[a]	5	100	11	99	2	100	26	101	44	100
Fire-cracked rocks[a]	10	56	–	–	–	–	7	47	17	40
Pigment[a]	1	6	–	–	–	–	4	27	5	12
Raw material	1	6	–	–	–	–	1	7	2	5
Unidentified[a]	6	33	6	35	3	60	3	7	18	43
Subtotal[b]	18	78	6	35	3	60	15	37	42	49
Total artifacts[c]	23	27	17	20	5	6	41	48	86	101
Ecofacts										
Minerals	2	100	–	–	–	–	2	67	4	80
Natural	–	–	–	–	–	–	1	33	1	20
Subtotal[d]	2	100	–	–	–	–	3	100	5	100
Grand total[e]	25	27	17	19	5	5	44	48	91	99

Note: Totals may not equal 100 due to rounding.
[a]Percentage of subtotaled artifacts.
[b]Percentage of total artifacts.
[c]Totals and percents of total artifacts.
[d]Totals and percents of ecofact assemblage only.
[e]Totals and percents of all artifacts and ecofacts.

process of being manufactured when the inhabitants abandoned the pithouse. Other broken and fire-cracked pieces, likely postdepositional trash, were found on the pithouse floor and in the pithouse fill (see Table A.1).

Artifacts on the floor of pithouse Feature 430 are primarily broken and fire-cracked pieces, also from trash deposits. The only whole piece is a rectangular abrader made from an unusual black, vesicular volcanic rock (Figure 8.2a). Even though it was found on the floor of the pithouse, the abrader was probably from the historic occupation, perhaps buried there by someone from the boardinghouse. The rock appears to have been mechanically shaped and is not at all typical of the vesicular rocks found in Arizona (Carlos Lavayén, personal communication 2007).

A ball found among the roof and wall fall deposits of pithouse Feature 430 was lightly ground to enhance its naturally spherical shape (Figure 8.3), and like the tablet found in pithouse Feature 492, the ball exhibits no use-wear. These two pieces may have been used in a way that left no trace, or they may never have been used. Perhaps the most relevant information derived from the Early Agricultural ground stone artifacts is that most useful items were probably removed when the inhabitants left their homes.

Table 8.2. Ground stone artifact types from Historic era contexts at Historic Block 181, AZ BB:13:13 (ASM).

	Presidio		American Territorial		Unknown		Total	
	No.	%	No.	%	No.	%	No.	%
Artifacts								
Cruciforms	–	–	–	–	1	17	1	2
Figurines	–	–	–	–	–	–	–	–
Hammerstones	1	7	–	–	–	–	1	2
Handstones	3	21	3	9	–	–	6	12
Lapstones	1	7	1	3	–	–	2	4
Manos	2	14	8	25	–	–	10	19
Metates	2	14	3	9	1	17	6	12
Netherstones	–	–	1	3	–	–	1	2
Ornaments	–	–	–	–	3	50	3	6
Pecking stones	1	7	–	–	–	–	1	2
Pestles	1	7	–	–	–	–	1	2
Polishers	1	7	9	28	1	17	11	21
Scrapers	1	7	–	–	–	–	1	2
Shaped	–	–	2	6	–	–	2	4
Tablets	–	–	1	3	–	–	1	2
Trivets	1	7	–	–	–	–	1	2
Whetstones	–	–	4	13	–	–	4	8
Subtotal[a]	14	98	32	99	6	101	52	102
Fire-cracked rocks[a]	14	35	4	6	19	40	37	71
Pigment[a]	–	–	11	16	–	–	11	21
Unidentified[a]	12	30	22	32	23	48	57	110
Subtotal[b]	26	65	37	54	42	88	105	67
Total artifacts[c]	40	25	69	44	48	31	157	100
Ecofacts								
Minerals	5	83	21	95	–	–	26	50
Natural	1	17	1	5	–	–	2	4
Subtotal[d]	6	100	22	100	–	–	28	54
Grand total[e]	46	25	91	49	48	26	185	100

Note: Totals may not equal 100 due to rounding.
[a]Percentage of subtotaled artifacts.
[b]Percentage of total artifacts.
[c]Totals and percents of total artifacts.
[d]Totals and percents of ecofact assemblage only.
[e]Totals and percents of all artifacts and ecofacts.

Hohokam Colonial Period Contexts

The assemblage from Colonial period contexts is the smallest of all time periods, totaling only five pieces (see Table 8.1). Ground stone artifacts were recovered from pithouse Feature 660 (n = 2) and extramural pit Feature 462 (n = 3). Both of the ground stone artifacts from the pithouse were in trash fill and were fire-cracked; one was broken beyond recognition, and the other was once a handstone (see Table A.1). Neither was probably associated with use of the pithouse. The pithouse has been more narrowly dated to the Cañada del Oro phase, based on the ceramic association (Chapter 6, this volume).

Except a polisher, artifacts from the extramural pit were also fire-cracked beyond recognition. The polisher was originally used to burnish another stone surface, and subsequently was used as a pecking stone after it broke. It was not burned and was probably not recycled through the same roasting or heating activities as other artifacts in the pit (see Table A.1). Associated ceramics from this pit were dated to the Rillito phase (A.D. 850-950).

Table 8.3. Comparisons of ground stone artifacts from prehistoric contexts at Historic Block 181, AZ BB:13:13 (ASM).

	Early Agricultural		Hohokam		Colonial Period		Sedentary Period		Total	
Variable	No.	%	No.	%	No.	%	No.	%	No.	%
Context										
Extramural pit	–	–	1	6	3	60	18	41	22	24
Pithouse fill	4	16	3	18	1	20	6	14	14	15
Roof/wall fall	10	40	8	47	1	20	5	11	24	26
Floor	11	44	5	29	–	–	13	30	29	32
Interior pit	–	–	–	–	–	–	2	5	2	2
Subtotal	25	100	17	100	5	100	44	101	91	99
Condition										
Broken	8	62	12	75	5	100	19	56	44	65
Whole	5	38	4	25	–	–	15	44	24	35
Subtotal	13	100	16	100	5	5	34	100	68	100
Burning										
Fire-cracked	15	75	5	42	4	80	13	39	37	53
No	4	20	4	33	1	20	18	55	27	39
Yes	1	5	3	25	–	–	2	6	6	9
Subtotal	20	100	12	100	5	100	33	100	70	101
Design										
Expedient	2	40	1	17	1	50	13	48	17	43
Strategic	3	60	5	83	1	50	14	52	23	58
Subtotal	5	100	6	100	2	2	27	100	40	101
Wear										
Light	1	20	1	14	–	–	4	17	6	16
Moderate	4	80	5	71	2	100	15	63	26	68
Heavy	–	–	1	14	–	–	3	13	4	11
Unused	–	–	–	–	–	–	2	8	2	5
Subtotal	5	100	7	99	2	100	24	101	38	100
Use										
Single	4	40	3	33	–	–	15	63	22	46
Reused	–	–	1	11	–	–	2	8	3	6
Multiple	–	–	1	11	–	–	2	8	3	6
Redesigned	–	–	–	–	1	20	–	–	1	2
Recycled	5	50	4	44	4	80	3	13	16	33
Unused	1	10	–	–	–	–	2	8	3	6
Subtotal	10	100	9	99	5	100	24	100	48	99
Sequence										
Concomitant	–	–	1	17	–	–	2	29	3	15
Sequential	2	100	5	83	5	100	5	71	17	85
Subtotal	2	100	6	100	5	100	7	100	20	100
Activities										
Food processing	1	11	3	33	–	–	7	23	11	21
General processing	–	–	–	–	1	25	1	3	2	4
Ornamentation	–	–	–	–	–	–	5	17	5	10
Manufacture	1	11	1	11	–	–	2	7	4	8
Pottery manufacture	–	–	–	–	–	–	2	7	2	4

Table 8.3. Continued.

	Early Agricultural		Hohokam		Colonial Period		Sedentary Period		Total	
Variable	No.	%	No.	%	No.	%	No.	%	No.	%
Stone manufacture	–	–	1	11	–	–	5	17	6	12
Pigment processing	1	11	–	–	–	–	–	–	1	2
Procurement	1	11	–	–	–	–	–	–	1	2
Multiple	4	44	4	44	3	75	6	20	17	33
Unused	1	11	–	–	–	–	2	7	3	6
Subtotal	9	99	9	99	4	100	30	101	52	102

Note: Subtotals vary because not all tabulations include indeterminate, not applicable, and unidentified variables; total percentages vary due to rounding.

Hohokam Sedentary Period Contexts

The Sedentary period assemblage is the largest from dated prehistoric contexts within Historic Block 181. Further, it has the greatest variety of stone artifact types (see Table 8.1), used in the greatest number of activities, with the most moderately and heavily worn tools (see Table 8.3). The ground stone artifacts were recovered from two pithouses, Features 463 and 625, and four extramural pits, Features 461, 477, 495, and 631 (see Table 8.5).

One pithouse, Feature 625, had only two pieces of ground stone on the floor; these provide little information about the daily activities that occurred within. One is a broken netherstone, and the other is a piece of ground pigment. The netherstone may have been discarded as trash after the pithouse was no longer occupied. The pigment is a red, earthy hematite (Munsell Value 10R 4/6). A somewhat lighter shade of red earthy hematite (Munsell Value 10R 5/6) was found among the roof/wall fall deposits, associated with a chopper with remnants of red pigment on it (Munsell Value 10R 4/6). The chopper was fire-cracked and subsequently used as an abrader to powder the pigment.

A broken trough metate also found in the roof and wall fall deposits provides additional evidence that the inhabitants of Historic Block 181 ground their food on trough metates, probably open-trough metates (Adams 2002:121-127). Such metates are still valued today by Native American women who traditionally grind some of their food, primarily for rituals. Pithouse Feature 625 was dated by ceramic association to the Middle Rincon phase (A.D. 1000-1100), making the use of trough metates in the Tucson Basin an extensive technological tradition.

A floor assemblage was recovered from pithouse Feature 463, which provides additional interesting insight into the activities associated with it and with the Sedentary period at Historic Block 181. Manufacturing activities are well represented by two hammerstones, an unused mano, and a polisher that was also used as a pecking stone (Figure 8.4). The hammerstones could have been used to rough out the mano shape. The polisher/pecking stone was probably used in more delicate manufacturing activities. A basin mano and a handstone on the floor were used for food grinding and other general processing tasks, respectively. A horn-shaped piece of caliche may have been attached to a figurine, although its exact function is unclear.

Fire-cracked rocks, some of which were secondarily used ground stone artifacts, were on the floor and throughout the pithouse fill of Feature 463. It was common, both prehistorically and historically, to place ground stone pieces into roasting and heating pits, and these artifacts probably entered the pithouse depression when roasters or ovens were cleaned out. A complete, unburned pottery polisher (Figure 8.5a) was also found in the fill.

The extramural pits, Features 461, 477, 495, and 631, contained a variety of broken and whole tools (see Table A.1). Food-processing tools included broken and whole manos (Figure 8.6) and broken metates. Manufacturing activities are represented by a pottery polisher, hammerstones (one of which was probably used for flaking lithics), lapstones, a turquoise pendant that broke during hole manufacture, processed red pigment chunks made from earthy hematite (Munsell Value 10R 4/6), and an unmodified piece of schist that was used to powder red pigment (Munsell Value 10R 5/8).

Hohokam Contexts

Two pithouses, Features 608 and 643, and one extramural pit, Feature 630, could not be dated more precisely than to sometime during the Hohokam occupation. The extramural pit had only one broken ground stone piece that was not more specifically identifiable.

Table 8.4. Comparisons of ground stone artifacts from historic contexts at Historic Block 181, AZ BB:13:13 (ASM).

	Presidio		American Territorial		Unknown		Total	
Variable	No.	%	No.	%	No.	%	No.	%
Context								
Extramural pit	16	35	3	3	–	–	19	10
Borrow pit	21	46	76	84	–	–	97	52
Outhouse pit	–	–	12	13	–	–	12	6
Ditch	1	2	–	–	–	–	1	1
Hearth	7	15	–	–	–	–	7	4
Sheet trash	1	2	–	–	46	96	47	25
Unknown	–	–	–	–	2	4	2	1
Subtotal	46	100	91	100	48	100	185	99
Condition								
Broken	18	72	45	85	29	88	92	83
Whole	7	28	8	15	4	12	19	17
Subtotal	25	100	53	100	33	100	111	100
Burning								
Fire-cracked	26	74	25	52	34	87	85	70
No	5	14	17	35	5	13	27	22
Yes	4	11	6	13	–	–	10	8
Subtotal	35	99	48	100	39	100	122	100
Design								
Expedient	7	78	11	50	–	–	18	51
Strategic	2	22	11	50	4	100	17	49
Subtotal	9	100	22	100	4	100	35	100
Wear								
Light	2	17	4	14	–	–	6	13
Moderate	10	83	22	76	3	75	35	78
Heavy	–	–	3	10	–	–	3	7
Unused	–	–	–	–	1	25	1	2
Subtotal	12	100	29	100	4	100	45	100
Use								
Single	8	40	12	33	7	35	27	36
Reused	–	–	4	11	–	–	4	5
Multiple	1	5	1	3	–	–	2	3
Redesigned	–	–	1	3	–	–	1	1
Recycled	11	55	18	50	12	60	41	54
Unused	–	–	–	–	1	5	1	1
Subtotal	20	100	36	100	20	100	76	100
Sequence								
Concomitant	–	–	1	5	–	–	1	3
Sequential	10	100	19	95	6	100	35	97
Subtotal	10	100	20	100	6	100	36	100

Table 8.4. Continued.

	Presidio		American Territorial		Unknown		Total	
Variable	No.	%	No.	%	No.	%	No.	%
Activities								
Food processing	1	5	4	9	–	–	5	6
General processing	2	10	1	2	–	–	3	4
Ornamentation	–	–	11	23	2	13	13	16
Manufacture	2	10	9	19	–	–	11	13
Pottery manufacture	–	–	2	4	–	–	2	2
Stone manufacture	2	–	–	–	–	–	2	2
Pigment processing	1	5	–	–	–	–	1	1
Multiple	12	60	20	43	13	81	45	54
Unused	–	–	–	–	1	6	1	1
Subtotal	20	90	47	100	16	100	83	99

Note: Subtotals vary because not all tabulations include indeterminate, not applicable, and unidentified variables, total percentages vary due to rounding.

The two whole manos found on the floor of pithouse Feature 608 were each used in a different metate. One was used in a trough metate, and the other was used in a flat/concave metate. The ends of manos used in trough metates rubbed against the trough sides, creating distinctive use-wear during food grinding. Flat/concave manos do not have such use-wear because the metate surfaces start out flat and only become concave through the movement of small manos in both reciprocal and circular strokes across the surface of the metate. It is not unusual to find only manos left on the floors of pithouses. The manos could have been stored there for use with metates set up in outdoor spaces or under the cover of ramadas. Alternatively, the manos could have been left behind while the metates were taken to new locations when the food grinders left their homes.

An abrader among the roof/wall fall deposits might have been used by the occupants, but other broken items in the same deposit were probably postoccupational trash. The abrader was used in multiple smoothing activities involving edges, surfaces, and grooves. It was manufactured from a quartz-rich rock unusual in the Tucson Valley (Figure 8.7).

One whole hammerstone and one complete abrader were found in the fill of pithouse Feature 608 and were probably not related to the occupation of the structure. Other broken, mostly fire-cracked pieces (see Table A.1) were also abundant in the fill and were probably discarded there with material cleaned out of roasting pits or hearths.

A large slab was on the floor of pithouse Feature 643 (see Table A.1). It had not been shaped, and there was no visible use-wear to help interpret its use. The slab may have been brought in as raw material for later use.

Summary

Based on what remained in prehistoric contexts, an expected array of daily activities appeared to have occurred there throughout prehistory. Most of the artifacts were burned from being recycled into thermal activities. The few artifacts left by Early Agricultural occupants were typical of that time. Basin and flat/concave manos and metates were commonly used to grind both domesticated maize kernels, as well as gathered seeds. Those pieces that were large enough to make a determination had moderate wear (see Table 8.3). Hohokam food-processing technology later developed more efficient tool designs with trough manos and open-trough metates, which were commonly used for grinding seeds and kernels that were dried for storage (Adams 1999). These tool types are also represented among the Hohokam deposits in Historic Block 181.

Manufacturing activities are represented by hammerstones, lapstones, and polishers, including pottery polishers. Evidence for the use of red colorants was sparse but consistent throughout the prehistoric contexts. It is not too surprising that most of the useful tools from both Early Agricultural and Hohokam pithouses were removed, probably by the inhabitants when they departed for new homes. Anything useful left behind was likely scavenged for secondary use. Some of those scavengers were probably historic occupants of either the boardinghouse, or by members of the Siqueiros-Jácome family, as subsequently described.

Table 8.5. Contexts with ground stone artifacts from various time periods at Historic Block 181, AZ BB:13:13 (ASM).

	Early Agricultural		Hohokam		Colonial		Sedentary		Presidio		American Territorial		Unknown	
	Feature	Count	Feature	Count	Feature	Count	Feature	Count	Feature	Count	Feature	Count	Feature	Count
Pithouse fill	492	4	608	3	660	1	463	6		–		–		–
Pithouse roof/wall fall	430	9	608	8	660	1	625	5		–		–		–
	492	1		–		–		–		–		–		–
Pithouse floor	430	6	608	3		–	463	11		–		–		–
	492	5	643	2		–	625	2		–		–		–
Pithouse interior feature		–		–		–	625	2		–		–		–
Hearth		–		–		–		–	498	6		–		–
		–		–		–		–	499	1		–		–
Borrow pit		–		–		–		–	460	5	359[a]	14		–
		–		–		–		–	513	11	57[b]	38		–
		–		–		–		–	586	4	603[a]	5		–
		–		–		–		–	659	1	624[a]	19		–
		–		–		–		–		–		–		–
Exterior pit		–	630	1	462	3	461	4	466	5	487	2		–
		–		–		–	477	11	475	6	489	1		–
		–		–		–	495	1	579	3		–		–
		–		–		–		–	628	2		–		–
Outhouse		–		–		–		–		–	408[a]	2		–
		–		–		–		–		–	510[b]	2		–
		–		–		–		–		–	527[b]	1		–
		–		–		–		–		–	570[b]	7		–
Trash		–		–		–	631	8	520	1		–	0	46
Other		–		–		–		–	635	1		–	0	2

[a]Dodge Boardinghouse features.
[b]Jacome-Siquieros features.

ARTIFACTS FROM HISTORIC CONTEXTS

Presidio Contexts

The earliest historic time represented in the Historic Block 181 area dates to the time of the Spanish Presidio (1771-1831). Some of the features from that time contained ground stone artifacts, including seven large pits, Features 460, 466, 475, 513, 579, 586, and 628; two hearths, Features 498 and 499; one large trash area, Feature 520; and a ditch, Feature 635 (see Table 8.5). Most of the ground stone artifacts found in these features were probably remnants from prehistoric occupations. The prehistoric artifacts eroded into the depressions of borrow pits or trash pits excavated by the presidio occupants. These pieces included broken and whole handstones, broken manos and metates, whole lapstones, pestles, hammerstones, pecking stones, and fire-cracked ground stone and rocks. An unusual scraper with a ground edge was found in trash Feature 520, and could have been used by either prehistoric or presidio inhabitants (Figure 8.8).

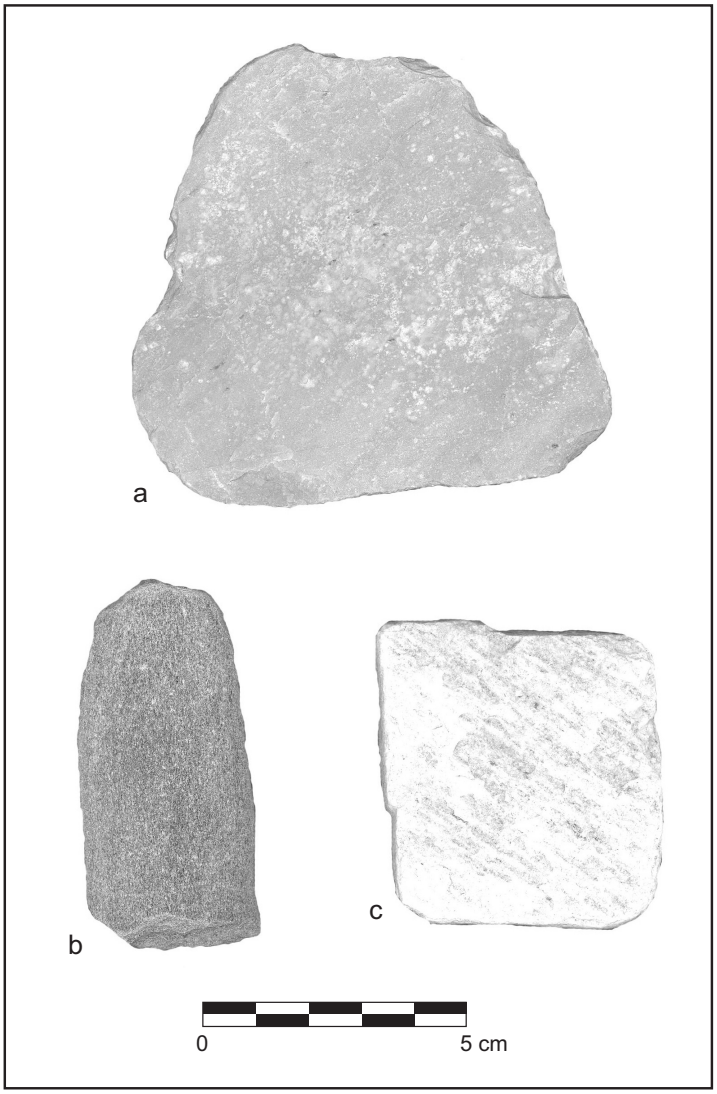

Figure 8.1. Tablet-shaped pieces from Historic Block 181, AZ BB:13:13 (ASM): (a) carefully shaped tablet with small notches and ground edges recovered from the floor of Early Agricultural pithouse Feature 492; Catalog Number 2005-502-200; (b) broken tablet with ground edges recovered from American Territorial extramural pit Feature 571; Catalog Number 2005-502-207; (c) unmodified tabular piece of gneiss that may have been intended for a tablet, recovered from American Territorial extramural pit Feature 571; Catalog Number 2005-502-206.

A few mineral pieces were probably accumulated by the presidio inhabitants. These copper-based minerals were probably collected by prospectors interested in finding valuable copper deposits. These pieces were likely brought back to the Tucson settlement from sources in the Sierrita or Santa Rita mountains to be assayed for mineral content (Homer Thiel, personal communication 2007). Chunks of indigo were more common than red pigment during the historic occupation. However, ground stone pieces from features associated with the presidio occupation were probably not used during this time period, but rather, were of prehistoric origin.

American Territorial Period

Some of the American Territorial period features in the Historic Block 181 area were related to the Dodge Boarding House (circa late 1890s-1954) and others to the Siqueiros-Jácome family (1874-1911). The features included borrow pits dug to remove the clay-rich soil and caliche for the manufacture of adobe bricks. Other pits were dug to contain refuse. These and the outhouse pits were excavated into prehistoric trash deposits, which contained some artifacts that had been there for thousands of years, as described. Artifacts from these prehistoric deposits would have been accessible to the Siqueiros-Jácome family and to the residents of the boardinghouse if they needed a stone for some activity for which a metal tool was not immediately available, such as pounding a nail, or smoothing a piece of wood. Other prehistoric stones would have been expe-

diently selected for historic pit roasting. Such historic uses of prehistoric tools are only fortuitously recognizable.

Ground stone artifacts related to the boardinghouse features were from outhouse Feature 408 and borrow pit Features 359, 603, and 624 (Table 8.6; see Table A.1). Prehistoric pieces recovered include broken manos and metates, polishers, lapstones, and handstones. These pieces probably filled the pits from surrounding prehistoric trash deposits.

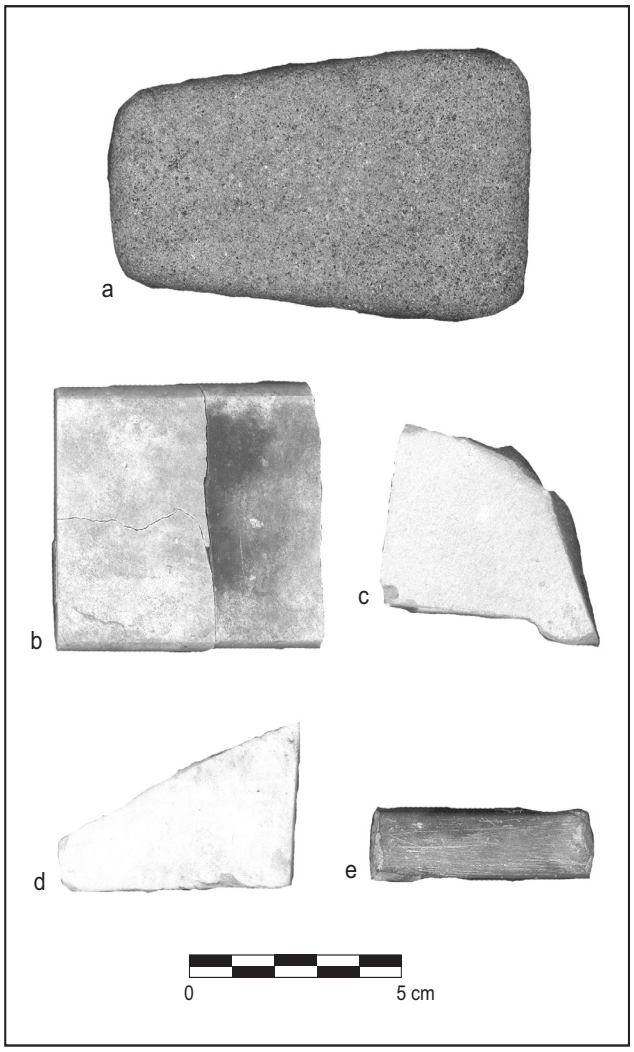

Figure 8.2. Four whetstone fragments and an abrader from Historic Block 181, AZ BB:13:13 (ASM): (a) abrader found on the floor of Early Agricultural period pithouse Feature 430, but probably a historic piece; Catalog Number 2005-502-197; (b) broken whetstone with two conjoined fragments that were found in different levels of outhouse pit Feature 510; Catalog Number 2005-502-202; (c-d) whetstone fragments found in American Territorial period borrow pit Feature 571; Catalog Numbers 2005-502-210 and 2005-502-209; (e) secondarily used whetstone fragment found in American Territorial outhouse pit Feature 570; Catalog Number 2005-502-213.

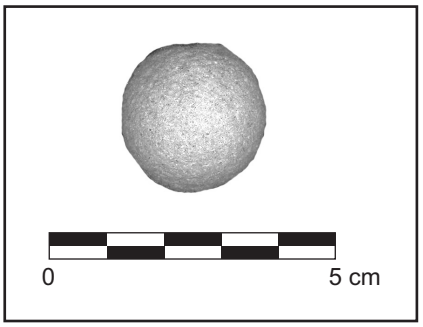

Figure 8.3. Ball recovered from Historic Block 181, AZ BB:13:13 (ASM). Small, almost perfectly formed with some light grinding to shape, but no evidence for how it was used; found in the roof/wall fall deposits of Early Agricultural period pithouse Feature 430; Catalog Number 2005-502-196.

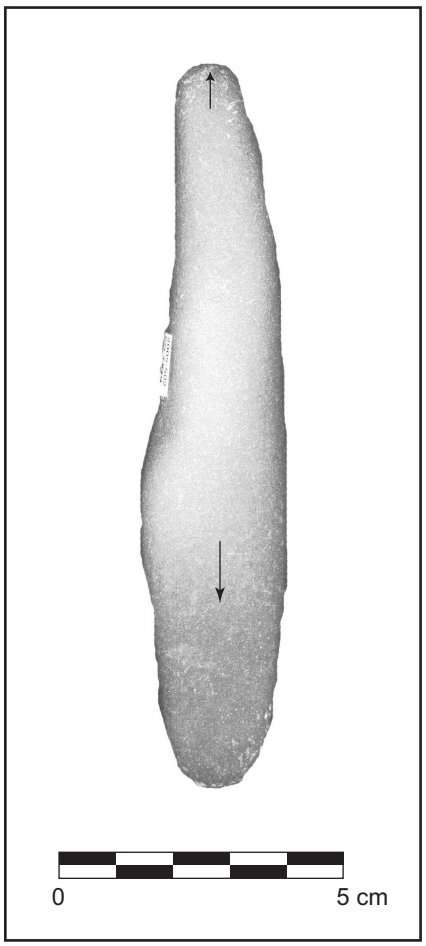

Figure 8.4. Unusual polisher from Historic Block 181, AZ BB:13:13 (ASM). Used for multiple tasks with edges and sides used for polishing hard surfaces (bottom arrow) and ends used for delicate pecking (top arrow); it was recovered from the floor of Sedentary period pithouse Feature 463; Catalog Number 2005-502-199.

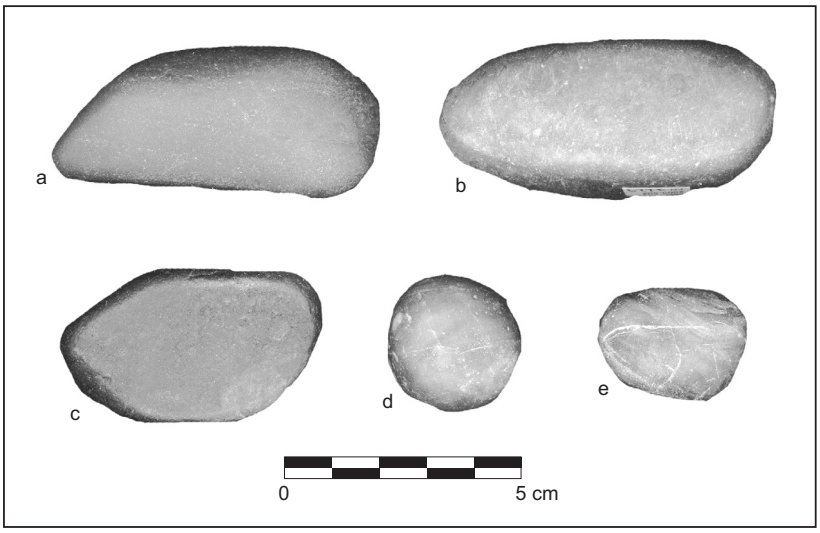

Figure 8.5. Polishers from Historic Block 181, AZ BB:13:13 (ASM): (a) pottery polisher recovered from the fill of Sedentary period pithouse Feature 463; Catalog Number 2005-502-198; (b-c) pottery polishers recovered from the fill of an American Territorial borrow pit associated with the Siqueiros-Jácome household, Feature 571; Catalog Numbers 2005-502-205 and 2005-502-211; (d-e) polishers used to burnish other hard surfaces, recovered from the fill of an American Territorial borrow pit associated with the Siqueiros-Jácome household, Feature 571; Catalog Numbers 2005-502-204 and 2005-502-208.

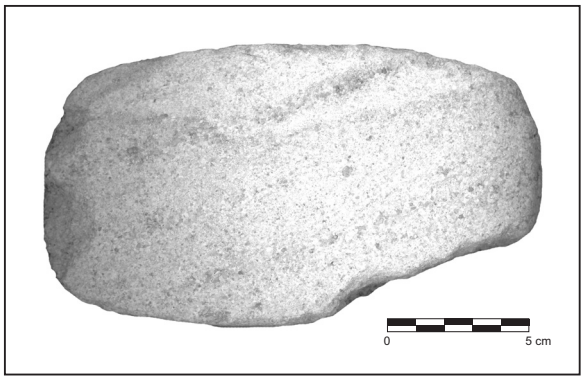

Figure 8.6. Trough mano from Historic Block 181, AZ BB:13:13 (ASM). Recovered from the fill of a small pit, Feature 495, dated to the Sedentary period; Catalog Number 2005-502-201.

A large piece of muscovite was recovered from borrow pit Feature 359, and was probably used historically. Small pieces of muscovite are locally available and were used prehistorically for ornaments. However, this piece from Feature 359 is unusually large. Historically, large pieces of muscovite were sometimes used for viewing windows in stoves.

A broken mano recovered from borrow pit Feature 624 had been secondarily used as an abrader. The abrading surface is convex, and the use-wear is consistent with use as a sanding block to modify wooden pieces; such use was more likely to have been historic than prehistoric. Copper minerals and quartzite pebbles that are markers of copper deposits were recovered from all three borrow pits associated with the boardinghouse. It is easy to imagine prospectors coming to town with their mineral samples and staying at the boardinghouse while their samples are evaluated.

Interestingly, pieces of indigo were also found in two of the borrow pits, Features 359 and 624, and in the outhouse pit, Feature 408. Indigo was also abundant in Feature 571, the borrow pit associated with the Siqueiros-Jácome family (Table A.1). Indigo is commonly associated with historic contexts and is a blue pigment recipe that was imported into the United States Southwest from Mexico.

The abrader, found on the floor of Early Agricultural period pithouse Feature 430 mentioned previously, was probably associated with the American Territorial period occupation of the Dodge Boarding House. The vesicular texture is fine, but abrasive enough to have been used in the early stages of sharpening a broad bladed tool, perhaps an axe head or a machete, but not the finer cutting edge of a razor or a knife. It was fortuitously buried near the boardinghouse, ending up on the floor of the prehistoric pithouse.

Features associated with the Siqueiros-Jácome family include borrow pit Feature 571, and three outhouse features, 510, 527, and 570. All the whetstone fragments found among Historic Block 181 features were recovered from Siqueiros-Jácome features. Five pieces from four different whetstones were found, two in the borrow pit and one each in outhouse Features 510 and 570 (Figure 8.2b). One whetstone from outhouse Feature 510 was broken into two pieces that refit, although the burn pattern on one piece indicates it was treated differently than the other piece, which remains unburned (Figure 8.2c). Together, these pieces are from a whetstone with opposing surfaces that angle toward each other on one side. The other whetstones are of a uniform thickness. These different surface configurations would allow for different sharpening motor habits. However, all the whetstones are very fine textured and would have been for personal use with sharpening razors or knives.

The prehistoric artifacts found in the Siqueiros-Jácome features are the usual broken and, in some cases, fire-cracked prehistoric tools; however, also

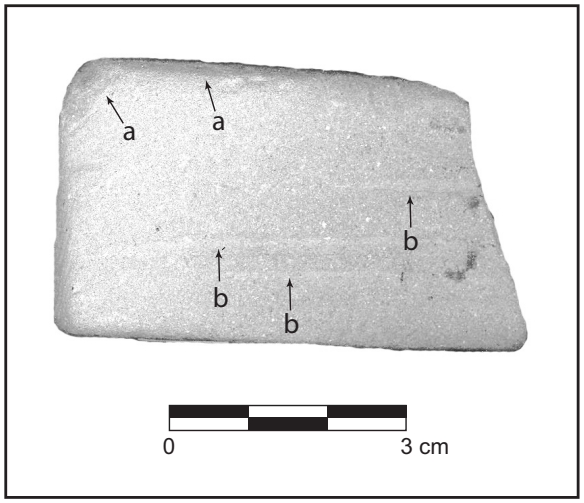

Figure 8.7. Multiple-use abrader from Historic Block 181, AZ BB:13:13 (ASM). Edges and surfaces are faceted from smoothing flat surfaces (a), grooves for sharpening points (b), and a depression for shaft smoothing; recovered from the roof/wall fall deposits of Hohokam pithouse Feature 608; Catalog Number 2005-502-214.

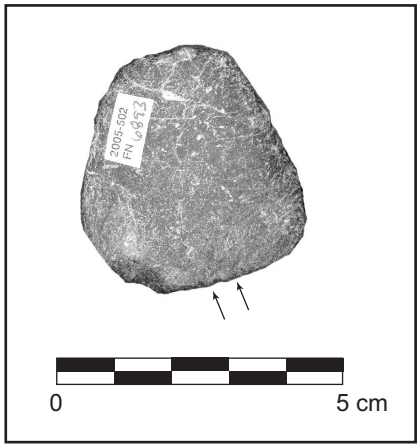

Figure 8.8. Ground stone scraper from Historic Block 181, AZ BB:13:13 (ASM). Edge rounded and chipped (arrows) from scraping against a flat resilient surface; recovered from sheet trash with presidio deposits; Catalog Number 2005-502-203.

recovered were a secondarily used mano (Figure 8.9) and several whole polishers that were used in manufacturing activities, especially pottery polishers (Figure 8.5b-e). Even though pottery polishers are commonly associated with prehistoric activities, these may have been used to manufacture historic pottery. They may also have been collected by children due to their shiny, smooth appearance.

CONCLUSION

The analyses of both prehistoric and historic ground stone and other stone assemblages have made it clear that the area now designated as Historic Block 181 has been an attractive location for people to intermittently live and work for millennia. Some of the most interesting stone artifacts were not associated with an obvious feature to indicate if they were used by prehistoric or historic occupants. For example, turquoise ornaments (Figure 8.10) and a cruciform (Figure 8.11) were loose in the sheet trash around the features.

Cruciforms were manufactured from fine quartz and chert rocks as early as the Archaic and Early Agricultural periods, and were apparently not common during Hohokam times (Adams 202:198; Ferg 1998:559-572). The cruciform found in Historic Block 181 is a coarser felsic volcanic rock and is larger than earlier cruciforms. Was it a poorly executed cruciform from the Early Agricultural occupation? Could it have been a historic replica of a Christian symbol? Unfortunately, the answers are currently elusive.

Stone played a much larger role in the lives of the prehistoric occupants than it did in the lives of the historic occupants at Historic Block 181. Ground stone tools were important for food-processing and manufacturing activities prehistorically, but were replaced by their metal counterparts beginning with the presidio occupation and completed by the occupants of the Dodge Boarding House and the Siqueiros-Jácome family. Even though most of the ground stone tools recovered from Historic era features were probably from prehistoric trash deposits, a few recovered pieces provide interesting insight into the historic use of Historic Block 181. Copper minerals and some quartzite pebbles are evidence that some of the inhabitants wandered the mountains south of Tucson looking for productive copper-bearing deposits. Indigo fragments are evidence of coloring activities. An abrader and several whetstone fragments indicate the need for sharp cutting instruments. Excavations at Historic Block 181 have documented previously inaccessible information about the role of stone items in the lives of the people who lived there, especially during the Historic era.

Acknowledgments

Before I can even begin to analyze ground stone artifacts, they are processed through the laboratory at Desert Archaeology, Inc., under the direction of Lisa Eppley. Carlos Lavayén, resident geologist,

Table 8.6. Ground stone artifact types from two historic contexts at Historic Block 181, AZ BB:13:13 (ASM).

	Siqueiros-Jácome		Dodge Boarding-house		Total	
	No.	%	No.	%	No.	%
Artifacts						
Handstones	2	13	1	8	3	9
Lapstones	–	–	1	8	1	3
Manos	5	31	3	25	8	25
Metates	–	–	3	25	3	9
Netherstones	1	6	–	–	1	3
Polishers	6	38	3	25	9	28
Shaped	1	6	1	8	2	6
Tablets	1	6	–	–	1	3
Whetstones	4	25	–	–	4	13
Subtotal[a]	20	100	12	99	32	86
Fire-cracked rocks[a]	4	11	–	–	4	13
Pigment[a]	7	19	4	14	11	34
Unidentified[a]	10	27	12	43	22	69
Subtotal[b]	21	57	16	57	37	57
Total artifacts[c]	41	59	28	41	69	100
Ecofacts						
Minerals	6	86	12	100	18	56
Natural	1	14	–	–	1	3
Subtotal[d]	7	100	12	100	19	59
Grand total[e]	48	55	40	45	88	100

Note: Totals may not equal 100 due to rounding.
[a]Percentage of subtotaled artifacts.
[b]Percentage of total artifacts.
[c]Totals and percents of total artifacts.
[d]Totals and percents of ecofact assemblage only.
[e]Totals and percents of all artifacts and ecofacts.

identified the rock types and defined a relative distance to rock sources. Ted Oliver helped me write queries so I could retrieve the data I needed from the database. After writing, the Production Department, under the direction of Emilee Mead, fixed my prose and formatted this chapter for publication. Homer Thiel, project director, answered all my many questions and edited the draft before it went to production. Additionally, all office support staff helped in their usual ways; Jean Kramer and Val Hintze run the office. And of course, Trish Castalia and Bill Doelle make projects happen.

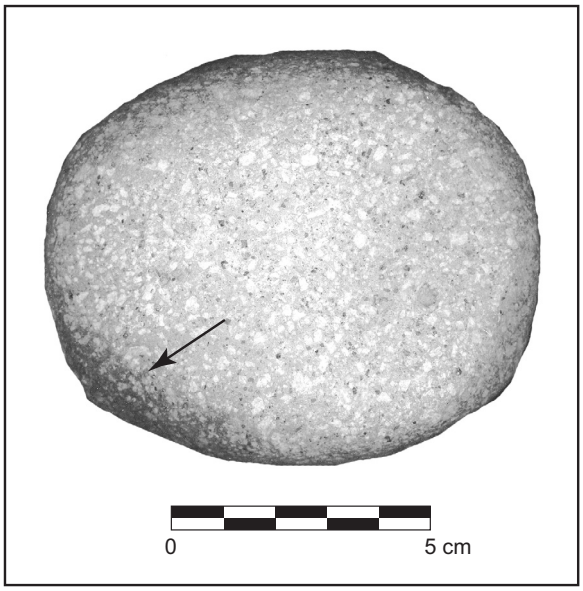

Figure 8.9. Basin mano from Historic Block 181, AZ BB:13:13 (ASM). Initially used in a basin metate with secondary use against a flat/concave metate; arrow points to facet from use with a basin metate; found in an American Territorial borrow pit, Feature 571; Catalog Number 2005-502-212.

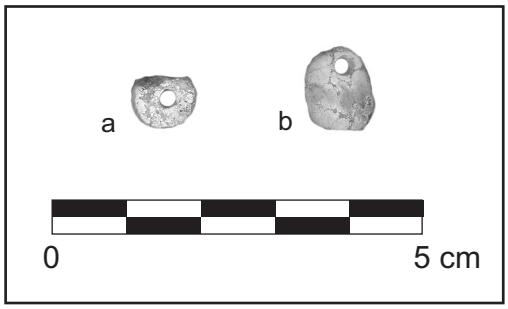

Figure 8.10. Turquoise ornaments recovered from sheet trash, Historic Block 181, AZ BB:13:13 (ASM): (a) bead with use-wear in the hole; Catalog Number 2005-502-234; (b) pendant without use-wear in the hole; Catalog Number 2005-502-235.

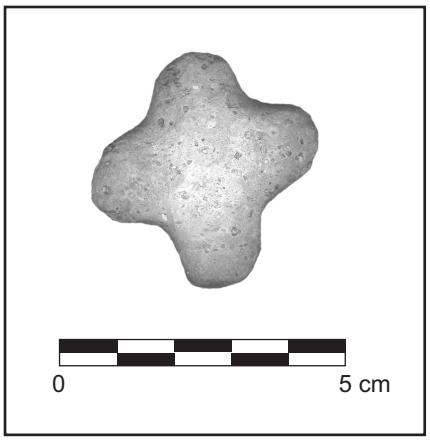

Figure 8.11. Cruciform recovered from sheet trash, Historic Block 181, AZ BB:13:13 (ASM); Catalog Number 2005-502-236.

CHAPTER 9

HISTORIC ERA ARTIFACTS

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Desert Archaeology, Inc.

Artifacts manufactured in North America, Europe, and Asia were recovered from features within or behind the Siqueiros-Jácome House and beneath the corner parking lot, Historic Block 181. A small number were discarded by the people who lived within the Tucson Presidio between 1776 and 1856; many more items were thrown away by American Territorial period residents of the Siqueiros-Jácome House and the Dodge Boarding House.

Study of these items was directed toward answering some basic questions.

(1) What kinds of material culture were used by people living in the Tucson Presidio? Did the artifacts recovered differ dramatically from those found during previous excavations?
(2) What was life like for Soledad Jácome and her daughters? Was there evidence for her career as a seamstress? What kind of dishes did she own, and how did they differ from contemporaneous households? Do medical artifacts suggest particular health care concerns? Was the trash discarded solely by members of the family, or was there evidence for tenants?
(3) What was life like for the residents of the Dodge Boarding House? How did the material culture recovered differ from that of the Siqueiros-Jácome family? Many people moved to Tucson suffering from tuberculosis. Is there evidence for this illness among the residents?

Most of the historic artifacts recovered during the current project were analyzed. A standardized computer coding form was used. Among the variables recorded were form, function, portion, number of fragments, and minimum number of artifacts. Specialized forms were filled out for artifacts with maker's marks, product names, or distinctive decorations. The information in that database was used in the following analyses.

PRESIDIO ARTIFACTS

The kinds of artifacts recovered during previous projects from presidio time excavations within or near the walls of the fortress have not been particularly diverse. Only a few kinds of items have been found. This low diversity was probably a result of the long distance to stores and markets where manufactured goods could be purchased, the recycling of metal items, and the extensive use of perishable materials such as cloth, basketry, and leather.

This trend continued with the current fieldwork. Native American ceramics were most common (Chapter 6, this volume), and include cooking, storage, and serving vessels. Most of the pottery was made by local Pima and O'odham, although a small number of Zuni ceramics have also been found (Thiel 2006). Several vessel forms, such as round *comales* (tortilla griddles) and *chocolatero* pots, were copies of metal vessels used by the Spaniards (Heidke 2006).

Mexican majolica ceramics were common, with large shallow bowls or plates and cups the most frequently recovered from presidio-era features. Most of the majolica sherds found during the current project were broken into small pieces; no complete vessels were found.

Majolica was a tin-glazed earthenware manufactured in the Valley of Mexico. This type of pottery has its origin in Moorish Spain, and the techniques to produce it were exported to Mexico (Lister and Lister 2001). Majolica is classified by the painted decorations present on the vessels. These decorations were based on contemporary designs in Europe and China. Many Chinese vessels had blue-on-white designs, with a variety of design motifs that included waterfowl, flowers, and floral elements. European ceramic vessels often bore multicolored designs, and these were also replicated.

Blue-on-white types of majolica found in Tucson include Puebla Blue-on-white, which has a dark blue band at the rim with lighter blue bands and suspended blue dots below, and San Agustín Blue-on-white, which has two-toned floral designs surrounded by blue hatched lines and dark blue dots on light blue, or the reverse (Figure 9.1). The central portion of these vessels was often decorated, sometimes with floral and geometric elements (see Figure 9.1), or with wading waterfowl (Figure 9.2).

Polychrome varieties included San Elizario Polychrome, which has broad blue bands bordered by black bands with suspended blue dots below, and Tumacacori Polychrome, which has a light blue glaze and black lines with yellow, blue, and dark blue dots (Figure 9.3).

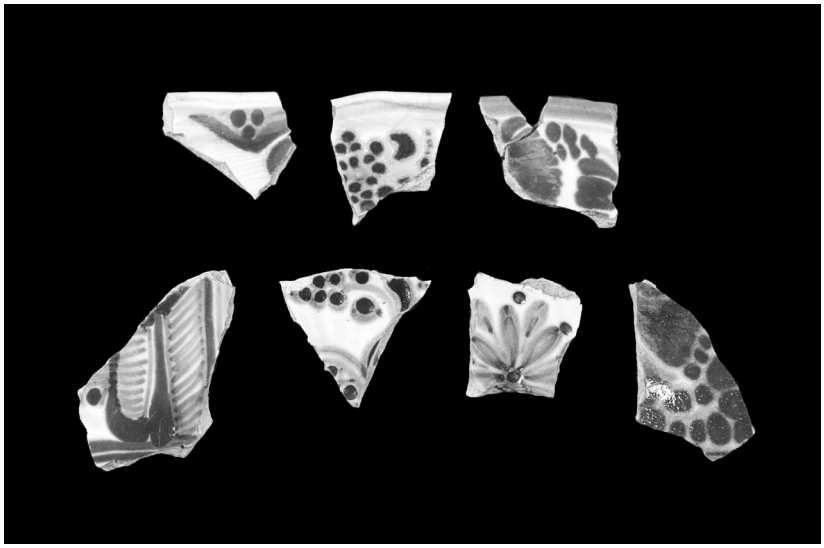

Figure 9.1. Blue varieties of majolica, Historic Block 181. Top row: Puebla Blue-on-white and San Agustín Blue on white; bottom row: unidentified blue-on-white sherds.

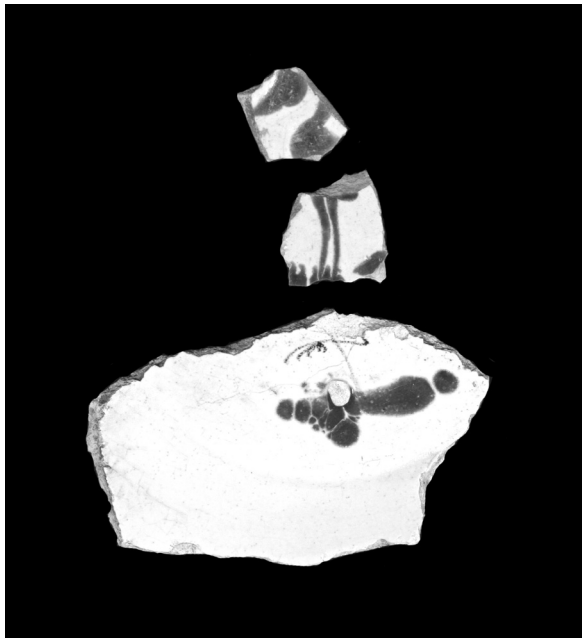

Figure 9.2. Blue-on-white majolica bird design, Historic Block 181.

A particularly interesting sherd was a fragment of an Aranama Polychrome plate or bowl (Figure 9.4). This type of majolica has a gold band outlined in black or brown below the interior rim. The area below that has yellow, green, and brown floral sprays. The middle of the plate is decorated with brown and yellow swirls highlighted with black lines, with areas of green foliage nearby. A visitor from Saudi Arabia attended an open house during the excavations and saw the sherd on display. He noted that the brown and black design formed the word "Allah" in Arabic. This was independently confirmed by another Saudi and a third individual who reads Arabic. Majolica's origins lie in Spain during the Moorish period, when Arabs controlled the area. Arabic words were often incorporated into the designs painted onto their ceramics (Watson 2004). It is very unlikely that the people painting the designs in Mexico knew their origins.

A number of unnamed polychrome varieties were among the many majolica sherds recovered (Figure 9.5). A pinkish-yellow variety with a sage green band outlined in brown on the interior rim was previously found during excavations in the Tucson City Hall lawn (Thiel 2004). The other varieties have not been previously seen within the presidio.

A few other ceramic types, including green-glazed terra cotta cooking and serving bowls and thick oliveware storage vessels, have been recovered in past projects. A very small number of Chinese porcelains, primarily tea cups, have also been found. These delicate vessels traveled from China to the Philippines, then to the west coast of Mexico, before being carried by freight train to Tucson. Beginning in the 1820s, after Mexico gained independence from Spain, English transfer-prints and shell-edged vessels arrived in Tucson in small quantities. A few sherds of these vessels were found during the current project. Glass container fragments are rare, although a few dark olive green bottle fragments have been found in presidio-era deposits.

Arms and ammunition artifacts found in past projects within the presidio include a trigger guard and a ramrod holder for a musket, a trigger guard for a Brown Bess musket, gunflints made from European and local stone, and many lead musketballs. Native American arrow points have also been located, and may indicate the presence of Native Americans within the community. Other explanations could be that the arrows were brought to the fort inside the carcasses of hunted animals, or were fired into the area during Apache attacks. During the current project, gunflints were found (Chapter 7, this volume), as were a number of lead musketballs (Figure 9.6). The musketballs ranged in diameter from 1.3 cm to 1.6 cm.

A few clothing artifacts have been found within the presidio, including brass buttons, beads, and a brass shoe buckle. During the current project, a brass shanked button and two beads, one of glass

Figure 9.3. Polychrome varieties of majolica from Historic Block 181. Top row: San Elizario Polychrome; bottom row: Tumacacori Polychrome.

and one of turquoise, were found in presidio-era deposits (Figure 9.7).

Fine-toothed bone combs were also imported into Tucson. These combs would have been suitable for removing lice and their eggs from a person's hair. Religious artifacts, such as rosary beads, crucifixes, and religious medals, have been found in burials within the Tucson Presidio and San Agustín Mission cemeteries and, in one case, in a soil mining pit near the fort. Surviving records indicate all residents of Tucson were Roman Catholic, and many residents likely carried religious items on their person.

Tools are noticeably absent from the archaeological features associated with the Tucson Presidio. Strike-a-lights, small stone implements that could be used to start fires, are the only tools recovered to date (see Chapter 7). Excavations at the Presidio of Santa Cruz de Terrenate uncovered a few tools, including an auger, a gouge bit, and a sickle (Di Peso 1953). Metal tools were probably carefully maintained, and were either repaired when broken or the metal reused for something else.

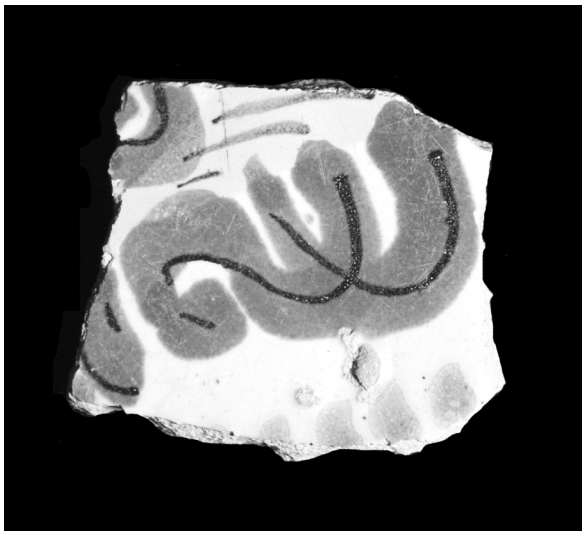

Figure 9.4. Aranama Polychome sherd with a design incorporating the Arabic word "Allah," recovered from Historic Block 181.

Artifact counts for 13 presidio-era features are presented in Table 9.1. As noted, Native American ceramics were the most common artifact. Food service artifacts, primarily fragments of majolica vessels, are the second-most common. Other artifacts are present in smaller numbers, with the likelihood that some items, such as the nails and some of the buttons, were probably introduced into the features by burrowing rodents.

The overall lack of diversity in artifacts from this sample, one of the largest sample of features excavated from presidio times, again points out the lack of access to goods, the careful recycling of materials, and the use of perishable materials (cloth, basketry, and leather) that leave no visible sign of their presence after they decompose.

AMERICAN TERRITORIAL PERIOD ARTIFACTS FROM THE SIQUEIROS-JÁCOME HOUSE

Archival research suggests the northern room of the Siqueiros-Jácome House was built around 1866, and the middle and southern room were constructed in the 1870s. The two rooms on the eastern side of the north room and the porch areas were in place by 1883. The 1883 Sanborn map indicates the

Figure 9.5. Unidentified polychrome majolica sherds from Historic Block 181.

presence of a well and an outhouse in the backyard. The archaeological features found there suggest indoor toilets were not installed until the 1910s, or perhaps even the 1920s.

Like all other residential blocks investigated in the downtown core, the backyard of the Siqueiros-Jácome House contained a lot of trash discarded into soil mining pits, a well, outhouses, and other small pits. Trash collection did not begin in Tucson until the 1910s, and most people used convenient holes on their property to dispose of refuse (Diehl et al. 1997).

A number of features contained trash thrown away by members of the Siqueiros-Jácome family and/or their tenants. One pit, Feature 474, was beneath the middle room of the house and dates to the 1870s, prior to construction of that room. Only a few artifacts were recovered from this pit.

Other features located in the backyard of the Siqueiros-Jácome House contained large quantities of artifacts. Features 510, 570, and 577 were privy pits that were converted into trash pits. Feature 571 was a very large soil mining pit, while Feature 529 was a shallow trash-filled pit. Other backyard features contained smaller quantities of trash.

Artifacts recovered from these features were likely discarded by members of the Siqueiros-Jácome family, who lived in the house from 1866 until at least 1911, or by tenants who lived in one of the rooms of the home. Most of these tenants remain unidentified, and most were probably Mexican-Americans. However, the presence of an opium pipe and Chinese ceramics indicates at least one tenant was an overseas Chinese immigrant. The kinds of artifacts recovered from the Siqueiros-Jácome House are summarized in Table 9.2.

Kitchen

Residents of the house had several options for cooking food. A corner fireplace was present in the northern room, and the southern room had a cook stove with a stovepipe passing through the ceiling and roof. There was no clear evidence for a backyard stove, or *comal*, but it would not be surprising if one had once been present. A small iron stove was found in Feature 571 and could have been used for limited cooking. A single pot may have fit on its top, for heating a room.

Food preparation artifacts included pieces from glazed bowls made in Mexico. These bowls have a loop handle on one side of the rim and fingerprint

Figure 9.6. A pair of lead musketballs, Historic Block 181.

Figure 9.7. A brass button and two beads from Historic Block 181.

Table 9.1. Artifact counts for presidio-era features, Historic Block 181.

	Feature													
	460	464	466	475	499	513	519	520	579	586	615	628	635	Total
Kitchen														
Food preparation	–	–	–	–	–	4	–	–	–	5	1	–	3	13
Food service	28	1	20	13	–	88	21	28	10	61	–	4	18	292
Beverage bottle	–	–	–	–	–	–	–	–	–	–	–	–	7	7
Native American ceramics	240	8	170	93	8	303	35	52	31	249	11	29	114	1,343
Architectural														
Nails	–	–	–	1	1	1	7	5	–	–	–	–	–	15
Furniture														
Lighting	–	–	–	–	–	–	–	–	1	–	–	–	–	1
Furniture	1	–	–	1	–	1	–	–	–	–	–	–	–	3
Ammunition														
Gun parts	–	–	–	–	–	1	–	–	–	1	–	–	–	2
Ammunition	1	–	1	1	–	–	–	–	1	4	–	–	–	8
Clothing														
Buttons	–	–	2	1	–	2	2	–	–	1	–	–	1	9
Making/repair	–	–	–	–	–	–	1	2	–	–	–	–	–	3
Accessories	–	–	–	–	–	–	–	–	–	1	–	–	–	1
Personal														
Tobacco pipe	–	–	–	–	–	–	–	–	–	–	–	–	1	1
Activities														
Barrel band	–	–	–	–	–	–	–	–	–	1	1	–	–	2
Ore sample	–	–	–	–	–	–	–	–	1	–	–	–	–	1
Unidentified														
Unidentified items	2	–	–	–	–	4	5	2	3	6	–	–	–	22
Total	272	9	193	110	9	404	71	89	47	329	13	33	144	1,723

impressions on the other, probably acting as small spouts. The interiors of the bowl are glazed brown or olive green, and some have darker brown lines painted on the interior. Some of the bowls have soot on the outside, showing they were used to cook stews and soups. Other foods were cooked in Native American vessels, and *ollas* were used to store water. A frying pan, tongs, and a pie plate were also found.

Food service artifacts included cups and saucers, tumblers, a goblet, bowls, plates, a water pitcher, a teapot, forks, spoons, and knives. Most common were plain whitewares. These are frequently found in poorer households, and one benefit of having no decoration is that one could create a matched set, even when purchasing vessels piecemeal. There were smaller numbers of decorated vessels, and only a few matched. Most of the ceramics were made in England, typical for the time period. Among the reconstructible pieces were a plain plate and a sponge-stamped saucer from Feature 571 and a transfer-printed bowl from Feature 510 (Figure 9.8). The overall impression is that Soledad Jácome did not have much money to spare on the dishes she purchased for use by her family.

Residents of the house purchased many packaged foods, including fruits and vegetables in tin cans, catsup, mustard, olive oil, olives, flavoring extracts, and jellies. An "EXTRACT OF MALT" bottle was found (Figure 9.9). This was given to children as a nutritional supplement.

Table 9.2. Artifact counts for features associated with the Siqueiros-Jácome House and the Dodge Boarding House, Historic Block 181.

	Feature								
	Siqueiros-Jácome House					Dodge Boarding House			
	510	529	570	571	577	359	408	624	Total
Kitchen									
Food preparation									
Stove parts	–	–	–	1	–	–	–	3	4
Mixing/cooking bowls	–	–	23	70	6	9	–	27	135
Frying pans	–	–	–	5	–	8	–	–	13
Pie plates	–	–	–	1	–	–	–	–	1
Tongs	–	–	–	3	–	–	–	–	3
Tea or coffee pots	–	–	–	–	–	–	–	34	34
Miscellaneous items	–	–	–	–	–	–	8	19	27
Food service									
Cups	–	–	4	105	–	109	18	49	285
Saucers	5	–	1	86	–	24	7	65	188
Bowls	8	–	16	63	5	56	8	46	202
Rice bowls	–	–	–	7	1	11	1	6	26
Plates	6	4	10	114	1	36	4	51	226
Platters	–	–	–	–	–	8	–	2	10
Pitchers	1	–	–	3	–	22	–	14	40
Butter dishes	–	–	–	–	–	–	2	–	2
Egg cups	–	–	–	–	–	–	–	1	1
Tumblers	–	–	2	14	–	16	2	60	94
Shot glasses	–	–	–	–	–	–	–	1	1
Drinking glasses	5	–	–	81	–	56	148	48	338
Glass dishes	–	–	–	–	–	–	–	6	6
Goblets	–	–	1	73	–	4	5	32	115
Mugs	–	–	–	11	–	3	–	9	23
Forks	–	–	–	4	–	–	1	–	5
Tablespoons	–	–	–	2	–	–	–	–	2
Teaspoons	–	–	–	1	–	–	–	–	1
Serving spoons	–	–	–	3	–	2	–	3	8
Knives	–	–	–	2	–	–	1	–	3
Miscellaneous vessels	13	4	82	632	9	206	51	342	1,339
Lids	–	–	–	6	–	9	1	3	19
Handles	–	–	–	1	–	–	–	–	1
Nursing bottle parts	–	–	–	–	–	–	–	1	1
Teapots	–	–	–	1	–	16	18	–	35
Food storage									
Bottles/jars	9	–	23	86	–	218	12	124	472
Tin cans	78	7	261	2,638	35	4,255	810	4,947	13,031
Canning jars	–	–	–	2	1	4	3	4	14
Stoppers	–	–	–	1	–	–	–	–	1
Miscellaneous	–	–	6	2	–	14	2	17	41

Table 9.2. Continued.

	Feature								
	Siqueiros-Jácome House					Dodge Boarding House			
	510	529	570	571	577	359	408	624	Total
Beverage									
Soda bottles	–	–	–	38	20	6	–	39	103
Stoppers	–	–	–	5	–	–	–	1	6
Canteens	–	–	–	–	–	–	–	1	1
Alcoholic beverage									
Bottles	–	–	–	42	–	4	–	1	47
Beer bottles	7	–	11	328	9	174	187	321	1,037
Wine bottles	–	–	2	–	–	–	–		2
Liquor bottles	14	–	7	535	4	709	48	986	2,303
Miscellaneous	–	–	1	1	–	3	3	6	14
Unidentified bottle glass									
Bottle glass	85	–	46	1,291	86	1,587	91	922	4,108
Bottle seals	–	–	–	1	–	–	–	–	1
Bottle caps	–	–	–	3	–	2	–	–	5
Bottle stoppers or cocks	–	–	–	–	–	2	2	–	4
Architecture									
Window glass	11	–	14	68	10	278	7	403	791
Screens	28	–	–	–	–	26	–	–	54
Nails	101	5	111	1,714	71	1,704	378	2,073	6,157
Tiles	–	–	–	2	–	–	–	1	3
Door parts	–	–	–	5	–	6	1	4	16
Door latches or hooks	–	–	–	3	–	1	–	–	4
Electrical insulators	–	–	–	2	–	–	–	1	3
Electrical wires	–	–	–	14	–	–	–	2	16
Electrical fuses	–	–	–	–	–	3	–	2	5
Faucets	–	–	–	2	–	1	–	–	3
Pipes	–	–	–	2	–	–	1	–	3
Sewer pipes	–	–	–	1	–	–	–	–	1
Miscellaneous items	–	–	–	–	–	2	–	2	4
Furniture									
Curtain weights	–	–	–	1	–	–	–	–	1
Figurines	–	–	–	2	–	1	1	4	8
Knobs	–	–	1	1	–	1	1	–	4
Drawer pulls	–	–	–	3	–	–	–	–	3
Furniture parts	–	–	2	1	–	–	72	5	80
Clock parts	–	–	–	–	–	–	–	3	3
Tacks	–	–	–	1	–	–	–	–	1
Miscellaneous items	–	–	–	–	–	8	–	37	45
Lighting									
Candlestick holders	–	–	–	4	–	–	–	–	4
Lamp parts	7	–	4	26	1	255	29	176	498
Lamp shades	–	–	–	7	–	1	–	5	13
Light bulbs	–	–	–	–	–	–	1	4	5

Table 9.2. Continued.

	Feature								
	Siqueiros-Jácome House					Dodge Boarding House			
	510	529	570	571	577	359	408	624	Total
Arms									
Gun parts	–	–	–	1	–	–	–	–	1
Gun flints	–	–	–	2	–	1	–	–	3
Bullets	2	–	6	7	1	–	12	8	36
Cartridges	3	–	–	28	–	9	–	–	40
Shot	–	–	–	2	–	–	–	5	7
Miscellaneous items	–	–	–	–	–	–	–	1	1
Clothing									
Clothing parts									
Buttons	11	2	17	145	6	47	41	70	339
Collar buttons	–	–	–	2	–	2	–	1	5
Cuff links	–	–	–	–	–	–	–	1	1
Buckles	3	–	–	1	–	3	–	3	10
Corset parts	–	–	–	1	–	–	3	5	9
Eyelets	–	–	–	2	–	8	5	7	22
Grommets	–	–	–	5	–	1	–	6	12
Rivets	2	–	2	28	–	4	5	26	67
Miscellaneous	3	–	1	8	–	9	6	4	31
Shoe parts	10	–	3	24	–	9	3	29	78
Garter snaps	–	–	–	–	–	2	1	–	3
Suspender buckles	–	–	–	10	–	4	–	–	14
Accessories									
Barrettes	–	–	–	5	–	1	–	2	8
Beads	–	–	7	2	9	2	–	1	21
Hairpins	–	–	1	3	–	–	–	3	7
Jewelry parts	1	–	2	4	–	4	2	16	29
Decorative pins	–	–	–	8	–	–	–	–	8
Rings	–	–	–	1	–	–	–	–	1
Making and repair									
Irons	–	–	–	–	–	1	–	–	1
Needles	–	–	–	1	–	–	–	1	2
Pins	–	–	–	–	–	–	–	–	8
Safety pins	–	–	–	1	–	5	–	2	7
Thimbles	–	–	1	3	–	–	1	1	6
Sewing machine oil bottles	3	–	–	–	–	–	–	–	3
Personal									
Cosmetic bottles or jars	–	–	–	19	1	–	1	4	25
Eyeglass lenses	–	–	–	2	–	–	–	3	5
Harmonicas	–	–	–	5	–	1	–	–	6
Pocket watches	–	–	–	1	–	1	–	–	2
Purses	–	–	–	1	–	–	2	–	3
Miscellaneous locks	–	–	–	1	–	1	–	–	2

Table 9.2. Continued.

	Feature								
	Siqueiros-Jácome House					Dodge Boarding House			
	510	529	570	571	577	359	408	624	Total
Coins	–	–	–	1	–	2	1	2	6
Tokens	–	–	–	–	–	1	–	–	1
Keys and locks	1	–	–	5	–	–	–	1	7
Padlocks	–	–	–	2	–	–	–	–	2
Mirrors	–	–	–	–	–	–	–	1	1
Miscellaneous items	–	–	–	–	–	–	–	14	14
Hygiene									
Basins	–	–	–	5	–	31	–	41	77
Wash pitchers	–	–	–	–	–	30	–	6	36
Soap dishes	–	–	–	–	–	–	–	1	1
Spittoons	–	–	–	–	–	–	–	1	1
Bedpans	–	–	–	–	–	–	–	14	14
Brushes	–	–	–	1	–	–	–		1
Combs	–	–	1	16	–	1	2	14	34
Toothbrushes	–	–	–	–	–	10	3	3	16
Chamber pots	–	–	1	–	–	48	–	24	73
Sink stoppers	–	–	–	–	–	1	–	–	1
Vessels	–	–	–	1	–	14	–	1	16
Smoking									
Tobacco cans	–	–	–	3	–	–	–	–	3
Pipes	–	–	–	37	1	4	1	19	62
Snuff cans	–	–	–	–	–	–	–	1	1
Ash trays	–	–	–	1	–	–	–	–	1
Opium pipe bowls	–	–	–	1	–	–	–	1	2
Medicine									
Bottles	3	–	8	86	–	145	11	68	321
Medical devices	1	–	1	11	–	–	6	7	26
Activities									
Batteries	–	–	–	19	1	–	–	1	21
Bucket parts	–	–	–	2	–	–	–	–	2
Fish hooks and gear	–	–	–	3	–	–	–	–	3
Locks	–	–	–	1	–	–	–	–	1
Barrel parts	–	–	9	132	2	41	2	36	222
Strapping	–	–	–	–	–	–	–	13	13
Crucibles	–	–	–	–	–	–	–	2	2
Miscellaneous items	–	–	–	–	–	3	–	43	46
Tools									
Axe heads	–	–	–	1	–	–	–	–	1
Handles	–	–	–	2	–	–	–	–	2
Hooks	–	–	1	1	–	–	–	5	7
Tools	1	–	2	2	–	–	–	4	9

Table 9.2. Continued.

	Feature								
	Siqueiros-Jácome House					Dodge Boarding House			
	510	529	570	571	577	359	408	624	Total
Toys									
Poker chips	–	–	–	3	–	–	–	–	3
Dice	–	–	–	1	–	–	–	–	1
Gaming pieces	–	–	–	5	–	–	–	–	5
Toy dishes	–	–	–	23	–	5	–	4	32
Doll parts	–	–	3	94	–	17	1	22	137
Marbles	–	–	1	17	–	8	–	2	28
Other toys	–	–	–	1	–	–	3	1	5
Hardware									
Couplings	–	–	–	1	–	2	–	–	3
Knobs	–	–	–	1	–	–	–	–	1
Nuts and bolts	3	–	–	20	–	4	1	5	33
Washers	–	–	–	3	–	–	1	1	5
Other hardware	4	–	–	1	1	1	2	1	10
Communication									
Ink bottles	1	–	–	9	–	8	–	17	35
Pen nibs	–	–	–	1	–	–	–	–	1
Pencil slates or leads	–	–	–	85	1	12	5	12	115
School slates	4	–	6	107	–	3	–	8	128
Printer's type	–	–	–	–	–	–	–	1	1
Newspapers	–	–	–	–	–	1	–	1	2
Miscellaneous items	–	–	–	–	–	–	–	1	1
Farming									
Shovels	–	–	–	–	–	1	–	–	1
Hoes	–	–	1	2	–	–	–	–	3
Scythes	–	–	1	–	–	–	–	–	1
Staples	–	–	1	1	3	3	–	14	22
Wires	–	–	1	3	–	18	–	5	27
Flowerpots	–	–	–	–	–	–	–	2	2
Miscellaneous items	–	–	–	–	–	–	–	2	2
Transportation									
Wagon parts	–	–	–	19	–	3	–	–	22
Horse gear	–	–	–	28	–	2	2	23	55
Horseshoes	–	–	1	7	–	2	4	3	17
Chains	–	–	–	1	–	–	–	–	1
Bicycle tires	–	–	–	–	–	3	–	–	3
Miscellaneous items	1	–	–	4	–	4	–	1	10
Unidentified									
Unidentified items	47	3	13	31	3	358	21	410	886
Total	482	25	719	9,245	288	10,761	2,072	11,971	35,563

Figure 9.8. Three dishes discarded by the Siqueiros-Jácome family, a sponge-stamped saucer, a transfer-print bowl, and a plain whiteware plate, Historic Block 181.

A small number of soda and mineral water bottles were present. A much larger number of alcoholic beverage bottles were present, and based upon their color and finish, champagne or wine, hard liquors, whiskey, and beer appear to have been consumed by people living in the house.

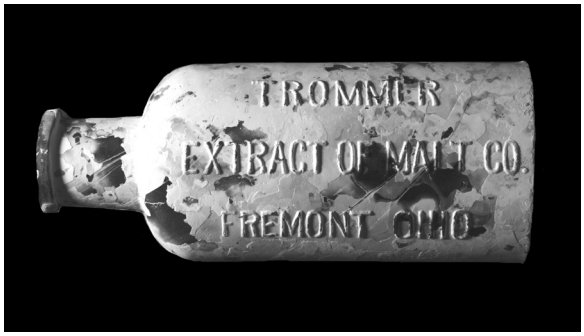

Figure 9.9. An "Extract of Malt" bottle, the Siqueiros-Jácome House, Historic Block 181.

Architecture

Architectural artifacts are those used to construct buildings. The original three rooms of the Siqueiros-Jácome House were constructed from a number of different kinds of materials. The foundation and walls were made from adobe bricks, which were, in turn, made from a mixture of dirt, straw or other plant materials, and water. The exterior lower walls were later faced with dressed stone blocks to prevent the lower walls from eroding. Interior walls were plastered and painted white. Wallpaper was present in several rooms. Door and window lintels were made from mesquite that had been shaped with an axe or an adze. Manufactured doors and windows were installed, probably after the arrival of the railroad. Sawn beams are present in all three rooms, with the beams in the northern room slightly thicker than those in the other two rooms. It is unknown if these are the original beams. The northern room had a saguaro rib ceiling, and the middle and southern rooms had packing crate ceilings. A *manta,* or ceiling cloth, was present in the southern room. The original roof was flat, consisting of packed earth. A pitched tin roof was added after 1880. A fired brick fireplace and chimney were present in the northeastern corner of the northern room.

American Territorial period sites typically yield many nails and pieces of window glass. Nails are somewhat problematic, however, because they are used for many purposes in addition to nailing together parts of homes, such as in wooden shipping crates, furniture, and in scrap wood used for cooking fires. Hundreds of nails were present in the backyard features, as were many pieces from broken windows. Other architectural artifacts included three door locks, a latch hook, two electrical insulators, and a pair of faucets.

Furniture

Furniture artifacts are rare at archaeological sites in Tucson. Furnishings tended to be used for long periods of time, often passed down from generation to generation. Some materials, such as wood and fabric, decompose and leave no trace of their

presence. Other portions of furniture, especially nails, are difficult to identify as having come from a table or a chair.

Those furniture-related artifacts that are identified are typically the most distinctive portions. This proved to be the case from the backyard, where two fragments of figurines, a ceramic knob, three drawer pulls, and a tack were found. Lighting artifacts were more common, and included candlesticks, the brass burner parts and chimneys of kerosene lamps, and pieces from a milk glass lamp shade. A brass gas lamp was also found in Feature 510.

Arms and Ammunition

Ammunition—cartridge shells, bullets, musketballs, and buckshot—are frequently found during excavations in Tucson. Much less common are the actual weapons that would have fired the ammunition.

Therefore, it was a surprise when construction workers uncovered a Remington New Model Army, .44 revolver in Feature 571 while digging a utility trench (Figure 9.10). This type of handgun was made between 1858 and 1875, and has an 8-inch-long barrel. It was used by the United States Army beginning in 1863. The iron revolver was missing its wooden stock, probably as a result of decomposition, as well as the cylinder where the cap and ball would have been loaded.

Why would a handgun be thrown away? This was a valuable item. Even if were broken, it could have been repaired or its parts reused in another revolver. We will never know the reason why it was discarded. However, why it was owned is clear. Violent crimes were common in Tucson in the late nineteenth century. Newspaper accounts from the 1880s and 1890s regularly describe robberies, attacks against women, and shootings. These crimes were often concentrated among people of lower socioeconomic standing. Soledad Jácome almost certainly acquired the revolver for personal protection for herself and her daughters.

A pair of gunflints was also found in the backyard; they are discussed in Chapter 7.

A variety of ammunition was present, including .22 cartridges and larger shotgun shells. A number of lead musketballs were present, some of which may date to presidio times. It is common to find a variety of ammunition at urban Tucson sites. What is unclear is if people actually owned corresponding weapons and if they collected spent cartridges to reuse or to recycle the metal.

Figure 9.10. A Remington New Model Army revolver, found in Feature 571, the Siqueiros-Jácome House, Historic Block 181.

Clothing

Documents indicate that Soledad Jácome and her daughter Isadora were seamstresses. Isadora was especially well-known for her Mexican wedding dresses. She probably learned her skills from her mother.

Thus, a large number of clothing-related artifacts were expected to be found in backyard features. This proved to be the case. These items included buckles, collar buttons, suspender buckles, eyelets, a corset part, pants rivets, shoes, and several hundred buttons. The buttons were made from a variety of materials, including bone, shell, milk glass, glass, brass, and Bakelite (Figure 9.11). Of the 181 buttons found in the five features, 46 percent were milk glass and 27 percent were shell (Table 9.3). These were the most utilitarian of buttons, used for undergarments, shirts, and blouses. While there were many decorative buttons, plain ones were most common. Much of the sewing work done by Soledad Jácome was likely on everyday pieces of clothing, in addition to the occasional expensive dress with large decorative buttons.

The women of the household had a variety of jewelry: hatpins, brooches, pendants, a ring, beads, and barrettes (Figure 9.12). Most of the jewelry was inexpensive, although a fragment of a gold locket was found.

Sewing artifacts included straight pins, safety pins, four thimbles, a ruler, and a bone container probably used to hold pins (Figure 9.13). Working as a seamstress was one of the few respectable professions available for a single woman in Tucson. It also was one that required little capital investment, with perhaps the most expensive item being a sewing machine.

Personal

Personal artifacts are those typically owned by a single person, or perhaps by a handful of family members. At least one member of the family was concerned about their appearance, as seen by the presence of a ceramic cold cream jar lid. The women also wanted to smell nice, and owned several bottles of perfume that were quite elaborate (Figure 9.14). A number of hair combs were found, including some with fine teeth, suitable for removing lice and their eggs (Figure 9.15).

Figure 9.11. A variety of buttons, made from several types of materials, were found in the large soil mining pit, Feature 571, the Siqueiros-Jácome House, Historic Block 181.

Catholic church records indicate the family visited the St. Augustine Cathedral to baptize children. Religious artifacts are rarely found at archaeological sites in Tucson, because they were valued and were kept close by their owners. A small crucifix found in Feature 571 may have been lost accidentally (Figure 9.16).

Tobacco was consumed within the household. Numerous fragments of clay pipes were found. A hard rubber pipe bowl, shaped like a ram's head, was an unusual find (Figure 9.17). The bowl was made to replicate the more expensive Meerschaum pipes offered in turn-of-the-century Sears, Roebuck and Company catalogues. An even more surprising find was a package for Duke's Cameo cigarettes, found beneath the northern room of the house (Figure 9.18). It is extremely rare to find well-preserved paper artifacts. The lack of exposure to water undoubtedly prevented this item from decomposing, and revealed that residents smoked cigarettes as well as pipes.

A reconstructible Chinese opium pipe, found in Feature 571, suggests a Chinese man once lived in the household (Figure 9.19). The interior of the pipe is coated with a

Table 9.3. Buttons from the Siqueiros-Jácome House and the Dodge Boarding House, Historic Block 181.

Feature	Brass	Shell	Bone	Milk Glass	Colored Glass	Hard Rubber	Other	Total
Siqueiros-Jácome House								
510	4	1	–	6	–	–	–	11
529	1	–	–	1	–	–	–	2
570	–	4	1	11	–	–	1	17
571	21	43	13	60	3	1	4	145
577	–	1	–	5	–	–	–	6
Subtotal	26	49	14	83	3	1	5	181
Dodge Boarding House								
359	12	13	5	13	2	2	–	47
408	1	30	4	5	1	–	–	41
624	18	17	7	25	2	–	1	70
Subtotal	31	60	16	43	5	2	1	158
Total	57	109	30	126	8	3	6	339

Figure 9.12. Jewelry once owned by the women of the Siqueiros-Jácome House, Historic Block 181.

Figure 9.13. Sewing artifacts discarded included a bone pin holder, two straight pins, and a thimble, the Siqueiros-Jácome House, Historic Block 181.

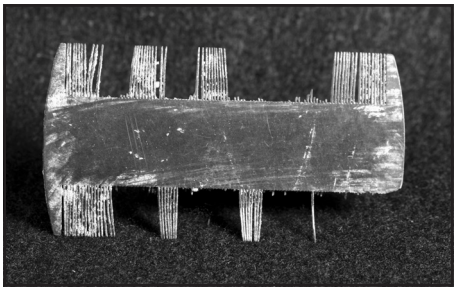

Figure 9.15. A fine-toothed, hard rubber comb from Feature 571, the Siqueiros-Jácome House, Historic Block 181.

Figure 9.14. A cold cream jar lid and a pair of perfume bottles from Feature 571, the Siqueiros-Jácome House, Historic Block 181.

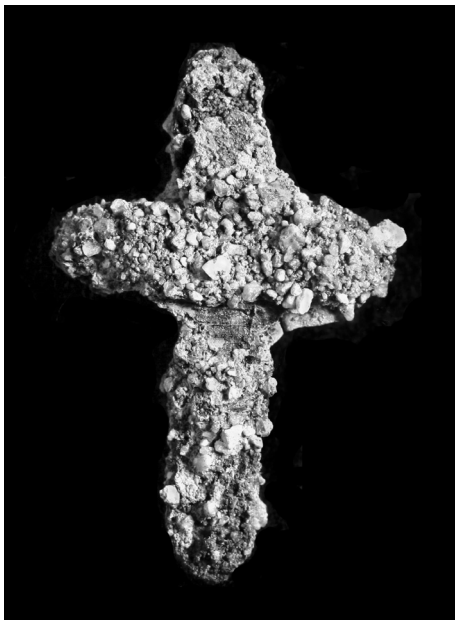

Figure 9.16. A brass crucifix was found in Feature 571, the Siqueiros-Jácome House, Historic Block 181.

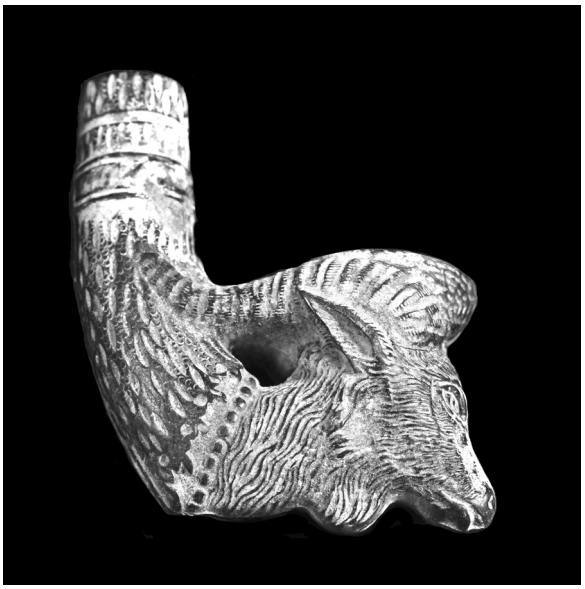

Figure 9.17. A hard rubber pipe bowl in the shape of a ram's head, the Siqueiros-Jácome House, Historic Block 181.

Figure 9.18. A Cameo brand cigarette package was found in the dirt beneath the floor of the northern room of the Siqueiros-Jácome House, Historic Block 181.

Figure 9.19. A Chinese opium pipe, the Siqueiros-Jácome House, Historic Block 181.

black residue, presumably the remnants of the opium once smoked in this bowl.

A variety of medicine bottles were found in the backyard. Most were broken, but a few were complete or reconstructible, with readable embossed product or maker's names (Table 9.4). Hamlin's Wizard Oil was made from a combination of alcohol, gum camphor, sassafras oil, myrrh, capsicum, and chloroform (Oleson 1899:86). It was reported that it "cures all aches, pains, soreness, swelling and inflammation from any cause" (Miller 1896) (Figure 9.20). Hostetter's Stomach Bitters was 44 percent alcohol and a variety of plant parts, including cinnamon, rhubarb, orange peel, and gentian root (Oleson 1899:96, 208). It was reported that it "Tones the Digestive Organs, Strengthens the Nerves, Regulates the Liver, Kidneys and Bowels, and Gives Permanent Vigor to the Enfeebled System" (*North American Review Advertiser* 1891:50). J. W. Bull's Cough Syrup was a simple mixture of sugar syrup and morphine. The morphine content was high enough that the original paper labels on the bottles warned that the product should be kept out of the reach of children and the directions for use carefully followed (Oleson 1899:29).

Altogether, the medical products indicate that members of the Siqueiros-Jácome household suffered from constipation, coughs, and general aches and pains. The high alcohol and morphine content of some of the purchased products probably made patients feel better in the short term, but generally, these medicines did little to alleviate real health concerns.

Among the other personal items discarded by the Siqueiros-Jácome household was a coin, six keys and a padlock, wash basin fragments, ceramic toothpaste containers, tobacco tins, an ash tray, a nursing bottle, a chamberpot lid, parts from enema or douche kits, a jackknife, a purse clasp, two eyeglass lenses, and harmonicas.

Table 9.4. Medicine bottles recovered from the backyard of the Siqueiros-Jácome House, Historic Block 181

Feature Number/ Product Name	Purported Cure
570	
Hamlin's Wizard Oil	Pain killer
571	
Dr. Mile's New Heart Cure	Heart problems
Wyncoop Iceland Pectoral	Cough or tuberculosis
Eye	Eye condition
Jacques Chemical Works	—
Castor Oil	Laxative
Fred Fleishman	Prescription medicine
Dr. Hostetter's Stomach Bitters	Digestion
Ayer's Pills	Constipation and digestion
Davis Vegetable Pain Killer	Pain killer
J. W. Bull's Cough Syrup	Cough

Activities

Activity artifacts is a category for items that do not fit well into other categories. A fairly large number of toys and recreational items were found in the backyard. A variety of dolls were present. The most inexpensive were small Frozen Charlottes, whose compact size and stationary arms and legs made them very durable (Figure 9.21). Moderately priced dolls had hollow heads that were attached to cloth bodies, along with separate porcelain arms and legs. Numerous examples of these dolls, most with black hair, were found in the backyard features. The largest example was unusual in that she had blonde hair. A few fragments of more expensive French or German dolls were found. These dolls had bisque porcelain heads, with human hair wigs, attached to a cloth body with porcelain arms and legs.

Figure 9.20. A Hamlin's Wizard Oil bottle, the Siqueiros-Jácome House, Historic Block 181.

Also found were a variety of marbles, including plain and glazed fired clay examples (Figure 9.22). Other toys and recreational artifacts included poker chips, a porcelain gaming piece decorated with a bell, and a number of pieces from toy tea sets.

Communication artifacts included ink bottles, a pen nib, graphite pencil leads, and pieces of school slates (Figure 9.23). The large number of communication artifacts, especially the ceramic and glass ink bottles, suggests a high degree of literacy within the household. Documents reveal that Soledad Jácome could not read or write, which is not surprising given the lack of a school in Tucson when she was a child. In contrast, Soledad made sure her daughters attended a school, probably the Catholic school operated by the Sisters of Saint Joseph.

A number of bolts and nuts were also found, and could have come from a wagon or other machinery, or perhaps attached to scrap wood burned in stoves and fireplaces.

Other activity artifacts included 19 battery cores, fishing equipment, an axe, a hoe, fencing staples, and a sickle. The presence of a fishing hook and a couple of probable fishing weights is surprising. Although fishing was a popular pastime in Tucson in the 1880s and 1890s, newspaper articles reported that it was an activity done by Euro-American, Mexican-American, and Chinese men and boys.

Transportation

Transportation artifacts are those used to move people and goods from one place to another. Transportation-related artifacts from the backyard were primarily rings, rivets, and buckles from horse harnesses or saddles. A horseshoe was found in Feature 570. Several wagon parts, including a brake handle, were found. The Sanborn Fire Insurance maps do not show stables in the backyard of the house, and the backyard seems rather small for a horse to be present, making the origin of these items uncertain.

AMERICAN TERRITORIAL PERIOD ARTIFACTS FROM THE DODGE BOARDING HOUSE

Artifacts discarded by residents of the Dodge Boarding House in two borrow pits, Features 359 and 624, and a privy, Feature 408, were analyzed to examine the lifestyles of these people. Artifacts are summarized by functional categories in Table 9.2, and the following descriptive section presents the collection in more detail.

Figure 9.21. Dolls played with by the Siqueiros-Jácome girls included a Frozen Charlotte, a black-haired hollow-headed doll, and a large blonde hollow-headed doll, Historic Block 181.

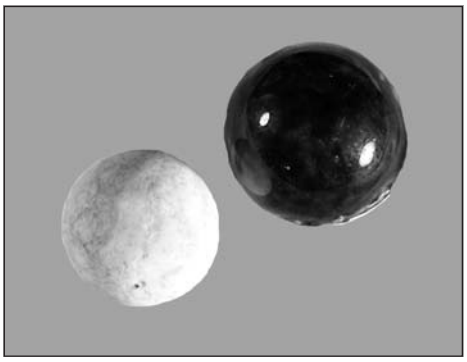

Figure 9.22. Two fired clay marbles were played with by children of the household, the Siqueiros-Jácome House, Historic Block 181.

Kitchen

It is uncertain if the residents of the boarding house had a communal kitchen where a single cook prepared food, if there was a communal kitchen in which individual residents prepared meals, or if there were individual kitchens for each resident. Boarding houses typically had a communal kitchen, and that is the most likely situation for the Dodge Boarding House.

Figure 9.23. Communication artifacts found in Feature 571 included a variety of ink bottles and a slate pencil. (The tallest bottle was for mineral water.)

Food preparation artifacts included yellowware mixing bowls, Mexican cooking bowls, and several pieces from iron cooking stoves. The presence of the Mexican vessels, along with a number of Chinese dishes, probably indicates a Chinese or Mexican cook worked in the kitchen of the boarding house. Perhaps the most unusual food preparation artifact recovered was portions of a brass samovar, a Russian device used to make tea, found in Feature 624.

The usual variety of dishes was present, although individual butter dishes, goblets, tumblers, and platters are indicative of the institutional nature of the house and suggest communal meals were served. Among the decorated vessels were several matching pieces bearing Aesthetic style decorations featuring sampans, foliage, and fan-like designs (Figure 9.24). A decal-printed porcelain cup had overpainted flowers and the words "Think of me" in gilt on its exterior. An elaborately decorated celadon Chinese teapot, with pinkish-red flowers and

Figure 9.24. An Aesthetic-style cup and a fragment of a cup bearing the phrase "Think of Me," the Dodge Boarding House, Historic Block 181.

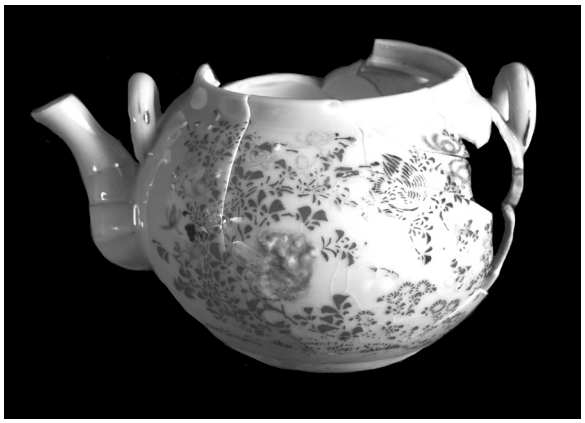

Figure 9.25. A Chinese teapot found in Feature 359, the Dodge Boarding House, Historic Block 181.

blackbirds on its exterior, was likely a luxury item (Figure 9.25). Overall, a surprising number of expensive, decorated dishes were used by people living in the boarding house.

The same types of food and beverage storage containers were found at the Dodge Boarding House as at the nearby Siqueiros-Jácome House, with a few interesting differences. A large bottle held Spanish olives (Figure 9.26). A number of Mellin's Infant Food bottles were found in Feature 359 (several were also found in the same feature during the 2001-2002 excavations). A nursing bottle lid was found in Feature 624 (Figure 9.27). Together, these indicate the presence of a baby living in the boarding house.

Many alcoholic beverage bottles were found in Features 359 and 624 (Figure 9.28). Among these were several with intact labels. One was a Black Friar's gin bottle whose label had a picture of a friar in a black robe and was marked "Trade Mark, Medal Health Exhibition 1884, Black Friar's Distillery, Established 1793." This bottle was found in Feature 359. Several bottles of Boar's Head Stout were located in Feature 624, with the paper labels having a view of an angry-looking boar. The boarding house had a slightly higher percentage of alcoholic beverage bottles (10 percent of the overall artifacts versus 9 percent), compared with the Siqueiros-Jácome household.

Architecture

The Dodge Boarding House was a two-story, unfired adobe brick building on a stone foundation. The house eventually had a tar paper roof, pieces of which were found scattered around its ruins. It likely had manufactured windows and doors, plastered and painted interior walls, milled woodwork, and wooden floors. A variety of materials were present, and after the house was demolished in December 1954, the stone foundations were left in place and adobe bricks were found in what was once the crawlspace beneath the floors, indicating the floors had been salvaged prior to demolition.

The recovered architectural artifacts were dominated by nails and window glass. Among the other items found were several iron door looks, ceramic doorknobs, a latch, an electrical fuse, and a faucet.

Furniture

Boarding house furnishings would include pieces located in a communal living area (couches, chairs, tables, clocks, and so on), a communal bathroom (tub, sink stand, and perhaps toilet sets), along with individual bedroom furnishings (beds, night stand, wardrobe, and so on). The only furnishing items found were a set of bedsprings that had been dropped into Feature 408, along with a few porcelain knobs for drawers or cupboards. A few personal furnishings, that is, fragments of several figures, were also recovered.

The lighting artifacts found in the boarding house features indicate residents had kerosene lamps. A milk glass lamp globe with hand-painted flowers had been tossed into Feature 359, as had a crystal lamp fob, from perhaps a library lamp or a

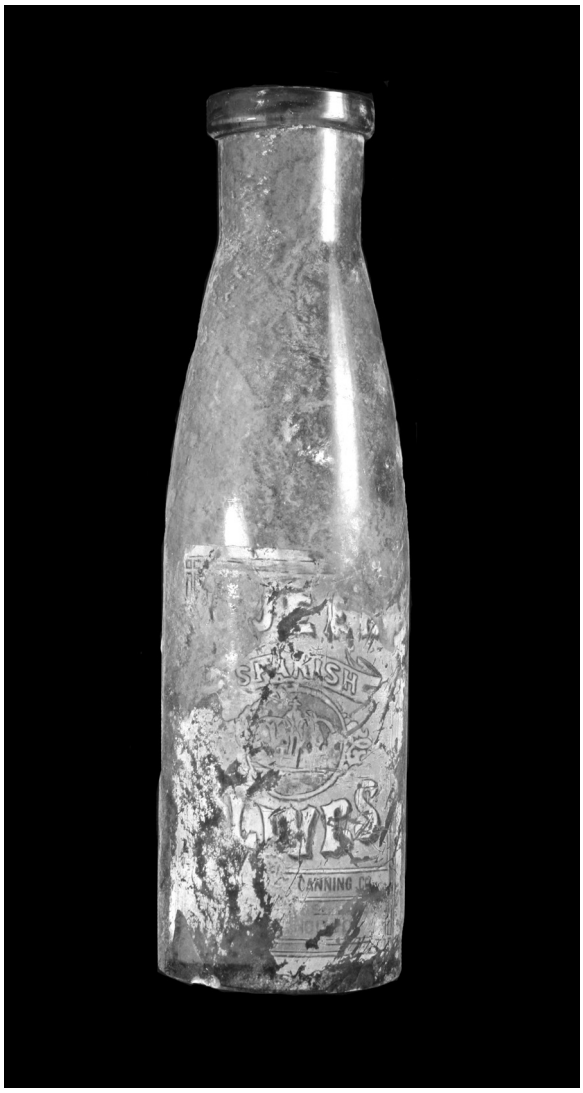

Figure 9.26. A green glass bottle bears a partial paper label, "SPANISH OLIVES," the Dodge Boarding House, Historic Block 181.

chandelier. The latter two items were from lamps that were two to three times as expensive as the kerosene lamps. A lightbulb found in Feature 408 suggests electrical lighting was installed in the boarding house in the early 1900s.

Arms and Ammunition

A small number of shotgun cartridges and a gunflint were found in the boarding house features. During the late nineteenth and early twentieth century, recreational shooting was popular in Tucson, especially in the vicinity of Warner's Lake. This lake, dammed in 1875, was located at the base of Sentinel Peak (today's A-Mountain). A large variety of waterfowl were drawn to the lake,

Figure 9.27. A ceramic cover for a nursing bottle, manufactured in England, the Dodge Boarding House, Historic Block 181.

Figure 9.28. A brown beer or liquor bottle, the Dodge Boarding House, Historic Block 181.

and residents frequently reported shooting ducks and other birds there.

Clothing

Clothing remnants found in the boarding house features included a variety of buttons, corset parts, pants rivets, and shoes. Among the 158 buttons recovered from the three features were many shell buttons, comprising 38 percent (see Table 9.3). These buttons were common in the nineteenth century, and they were made from shells pulled from the Mississippi River. A few sewing artifacts were found, including a sewing machine oil bottle. Perhaps the most interesting was a fragment from a tatting shuttle, a device used to make lace (Figure 9.29).

Personal

Personal artifacts were scattered throughout the boarding house features. A Chinese coin recovered from Feature 359 was likely lost by an overseas immigrant working in the house (Figure 9.30). Another Chinese coin was found in Feature 624. Several purse clasps once belonged to female residents.

A number of residents smoked tobacco. Several clay pipes, one with tobacco still preserved inside, were found. Also recovered was a more expensive ceramic pipe bowl and a fragment from another, featuring a man's face (Figure 9.31).

Hygiene artifacts suggest residents had toilet sets in their rooms: a chamberpot, a wash basin, and a pitcher. Some may have had soap dishes and toothbrush holders. A matching set was found in Features 359 and 624, consisting of pieces with a purple transfer-print pattern of foliage. Several bottles of Murray & Lanman Florida Water, a scented concoction that was used to perfume bathwater, were recovered. The bone-handled toothbrushes recovered reveal that residents brushed their teeth, something that many of their contemporaries did not do (Figure 9. 32).

A variety of medicine bottles were found (Table 9.5). Among the proprietary bottles was one marked "ENO'S FRUIT SALT," as well as a local bottle from the Fred Fleischman drugstore (Figure 9.33). The fruit salt was advertised as "a household remedy for preventing and curing by natural means all functional derangements of the liver." Its main ingredients were baking soda, tartaric acid, and Rochelle salt (Oleson 1899:60). Trask's Magnetic Ointment was made from lard, raisins, and fine cut tobacco (Oleson 1899:181). Lydia Pinkham's Compound contained barks and roots in an alcohol and water solution (Oleson 1899:23). Thompson's Eye Water was a medicine that contained zinc, and some doctors believed it damaged people's eyes (Clark 1856:225). Essence of Jamaica consisted of ginger root steeped in alcohol. It was made by a variety of manufacturers, some of who substituted wood alcohol, which caused users to go blind (Thomson 1897:174). Another dangerous concoction was Dr. Crossman's Specific Mixture, which had opium as a primary ingredient (Brundage 1920:248j). Ayer's Compound Sarsaparilla was said to cure scrofula, a skin disease caused by tuberculosis, and blood disorders (*Daily Kennebec Journal* 1879).

Residents of the boarding house suffered from a variety of medical complaints, including tuberculosis and coughing, constipation, female troubles, and eye problems. The medical products they purchased often contained dangerous, addictive ingredients. By the late 1890s and early 1900s, investigations by chemists and doctors were pointing out these dangers. This eventually led to the creation of the Food and Drug Administration, which ultimately required all medicines to be effective and safe.

Figure 9.29. A tatting shuttle fragment from Feature 624, the Dodge Boarding House, Historic Block 181.

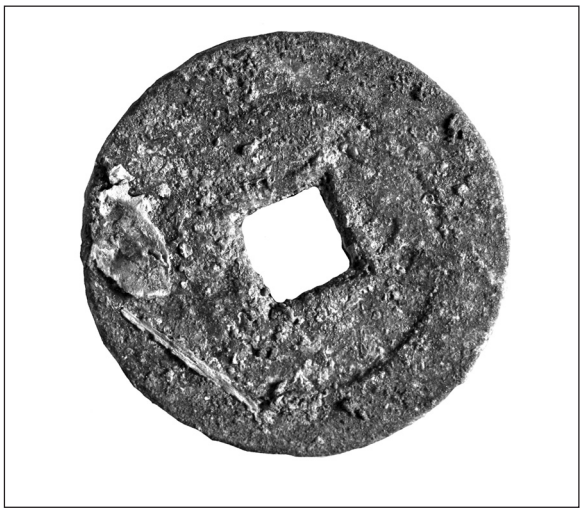

Figure 9.30. A Chinese coin, the Dodge Boarding House, Historic Block 181.

Figure 9.31. A clay pipe, a glazed earthenware pipe bowl, and a fragment of a glazed earthenware pipe bowl, featuring a head wearing a laurel wreath, the Dodge Boarding House, Historic Block 181.

Figure 9.32. A bone toothbrush from Feature 408, the Dodge Boarding House, Historic Block 181.

A decal-printed spittoon, probably made in France, shows a concern for keeping floors clean and, probably, of the growing awareness of the dangers of germs and bacteria in the spread of diseases such as tuberculosis (Figure 9.34).

Activities

The children of the boarding house played with many toys (Figure 9.35). A complete hollow-headed porcelain doll head, originally with blue glass eyes and a now-decomposed human hair wig, was recovered from Feature 359. A small iron toy stove was probably once a prized possession for a little girl. While girls played with dolls discarded into the trash-filled pits after they broke, boys probably played with marbles and a tin horse.

Transportation

Residents of the boarding house had several transportation options. Horseshoes, harness fragments, and wagon or carriage parts point toward the use of riding and driving horses. Pieces from a bicycle innertube were also found. Bicycles were expensive at the turn of the nineteenth century, with the least expensive in the 1897 Sears, Roebuck and Company catalogue listed at $24.95 (over $600 in modern dollars). The proximity to the downtown area suggests walking was probably the most common mode of transportation for boarding house residents .

Table 9.5. Medicine bottles recovered from the Dodge Boarding House, Historic Block 181.

Feature	Product Name	Purported Cure
359	Dr. S. Pitcher's Castoria	Constipation
	Hamlin's Wizard Oil	Pain reliever
	Lydia E. Pinkham's Compound	Female restorative; menstrual pain
	Chamberlain's Cough Remedy	Cough
	San Francisco Syrup of Figs	Constipation
	A. Trask's Magnetic Ointment (two bottles)	Skin problems
	Sarsaparilla	—
408	Fred Fleishman	Prescription medicine
	Murine Eye Remedy	Eye problems
	Eno's Fruit Salt	Cured everything, especially liver problems
	The Arcadian Pharmacy, C. J. Flower, Prop., Tucson	Prescription medicine
624	Dr. Crossman's Specific Mixture	—
	Ayer's Compound Sarsaparilla	Scrofula and blood disorders
	Jacques Chemical Works	—
	Essence of Jamaica	—
	Dr. Thompson's Eye Water	Eye problems

Unidentified Artifacts

Many artifacts recovered from the boarding house could not be identified because they were smashed into tiny pieces, were rendered unrecognizable by corrosion or rust, and/or were parts of a larger, more complex item. One item, a flat stamped brass item with griffins facing each other, is of particular interest (Figure 9.36). The piece could have decorated furniture or perhaps an elaborate hat.

ARTIFACT FUNCTIONAL ANALYSIS

Everyone understands that the types of furnishings, clothing, appliances, and toys change through time. For example, in the last 50 years, people have switched from vinyl records, to cassette tapes, to compact disks, and now to digital files. Similar changes occurred in the past, although technological changes took place at a slower rate.

Artifacts manufactured in North America, Europe, and Asia were placed into functional categories during analysis. These data, which do not include counts of Native American ceramics, underscore the immense changes in consumer purchases from the presidio days to the American Territorial period (Table 9.6).

Securely dated presidio features yielded 360 manufactured items. Kitchen artifacts, primarily majolica dishes, represented 88 percent of the collection. Architectural items, clothing, and arms contributed between 3-4 percent each. All other categories were 1 percent or less.

Clearly, as seen by the overall low diversity of items recovered, people made do with few imported goods. The reliance on locally manufactured items, such as Native American ceramic vessels, was high. Items made from perishable materials, such as textiles, leather, and basketry, were also probably important, although their decomposition prevents us from knowing exactly what was inside the homes of presidio-era Tucson residents.

Functional categories for the Siqueiros-Jácome House and the Dodge Boarding House features were surprisingly similar. Kitchen artifacts accounted for 67-72 percent of the recovered items. Architectural items comprised 20 percent of both sets of artifacts. Most of the architectural items were nails, many of which are likely to have been used for non-architectural purposes, such as in packing crates. Window glass was the second-most common architectural artifact.

Other categories formed 6 percent, or less, of the collection. The Siqueiros-Jácome House had many more activity artifacts, primarily dolls, pencils, and school slates. This suggests the presence of children in the household, and may indicate that although children were present in the boarding house, they may have been there for shorter periods, and may not have spent time attending school while in Tucson.

Perhaps the most relevant difference was that clothing-related artifacts, especially buttons, contributed 3 percent of the Siqueiros-Jácome household items, and only about 1 percent of the Dodge Boarding House artifacts. This reflects Soledad

Figure 9.33. An "ENO'S FRUIT SALT" bottle and a prescription medicine bottle marked "Fred Fleishman Druggist, Tucson, Ariz," the Dodge Boarding House, Historic Block 181.

Figure 9.34. A French spittoon, the Dodge Boarding House, Historic Block 181.

Jácome's career as a seamstress, during which she discarded unwanted buttons and other clothing remnants into the large trash pit in her backyard.

The functional category percentages are also quite similar to those calculated for the León family farmstead for the time between the 1870s and 1890s, and at the Pima County Courthouse excavations (Thiel 2005:120; Thiel and Faught 1995:205). It would appear that after the arrival of Euro-Americans in 1856, and the rapid influx of consumer goods, the kinds of items discarded by different households were very similar. Through time, there was a decrease in the overall percentage of kitchen artifacts and a concurrent increase in architectural and clothing-related artifacts, at least in the Tucson area.

Figure 9.35. Children living in the Dodge Boarding House, Historic Block 181, played with a variety of dolls, including a Frozen Charlotte with a red dress and an apron (upper row center), a medium-sized hollow-headed doll with black hair (upper right), and a hollow-headed European bisque porcelain doll that originally had blue glass eyes (left). They also played with a porcelain doll cup, a painted marble, and a tin horse.

Figure 9.36. A decorative item, perhaps for a piece of furniture or a hat, the Dodge Boarding House, Historic Block 181.

CHANGING CERAMICS

The types of ceramic vessels, how they were used, and how they were decorated changed through time in Tucson. The various types of ceramics found in presidio features are listed in Table 9.7. Some prehistoric sherds are included with these counts, a result of the long occupation of the site.

During presidio times, residents relied on Native American vessels for cooking, storage, and serving foods, with Native American pottery representing 82 percent of the sherds recovered. The presence of bean pots suggests stews and soups were served. *Comal* fragments indicate tortillas were made by the women of the Tucson Presidio on ceramic griddles, probably placed on top of a trivet of rocks in a cooking fire. Mexican pottery was fairly common, with many different varieties of majolica represented. Polychrome varieties are more common than blue varieties, although it is also easier to identify these types, because they have larger decorated areas than the blue-on-white varieties. The people of the presidio used the colorful dishes to brighten their tables, and it helped families retain dining customs established in Mexico, where it was customary to serve meals in majolica dishes.

The American Territorial period saw an influx of a number of different varieties of European, American, and Asian dishes. New vessel forms were imported overland or by railroad, including toilet sets (mostly pitchers and wash basins), Chinese food and beverage storage vessels, and spittoons.

Table 9.6. Functional categories for artifacts from the Siqueiros-Jácome House and the Dodge Boarding House, Historic Block 181.

	Presidio		Siqueiros-Jácome		Dodge Boarding House	
Function	Count	Percent	Count	Percent	Count	Percent
Kitchen	314	88	7,181	67	17,197	72
Architectural	15	4	2,164	20	4,896	20
Furniture	4	1	61	<1	604	3
Arms	10	3	52	<1	36	<1
Clothing	13	4	338	3	347	1
Personal	1	<1	217	2	543	2
Activities	3	1	587	6	345	1
Transportation	–	–	61	<1	47	<1
Total	360		10,661		24,015	

The types of ceramics for food preparation, food service, food storage, and hygiene-related vessels found in features associated with the Siqueiros-Jácome family and the Dodge Boarding House are summarized in Table 9.8. Note that some older ceramics, presidio Mexican majolica, and prehistoric Hohokam sherds were also found in the American Territorial period features.

The Siqueiros-Jácome residents used many Native American vessels for cooking food and storing water. Sherds from these vessels formed about 64 percent of the vessel sherds recovered. In contrast, it appears that the Dodge Boarding House residents used Native American vessels primarily for water storage, with those sherds representing approximately 53 percent of the vessel sherds.

Significant differences are visible in the types of vessels used in the two households, when considering the imported items, that is, those made in Europe, the eastern United States, Mexico, China, and Japan (Table 9.9). Soledad Jácome's cupboard contained mostly plain whitewares, with some Mexican cooking vessels and a smaller number of decorated whiteware vessels. She probably purchased the plain vessels because they were less expensive, and individual purchases still resulted in a matched set. The decorated vessels may have been occasional purchases, or perhaps gifts from her clients.

The residents of the Dodge Boarding House had fewer plain vessels and more expensive decorated dishes, especially European and Asian porcelains. The people renting rooms in the house probably brought along many of their own dishes for use in the house, and the middle class status of these individuals is evident in their purchases of elaborately decorated cups, saucers, bowls, and plates.

The Siqueiros-Jácome household relied on Native American ceramics for cooking and water storage. Native American sherds comprised about 64 percent of the ceramic vessel fragments, while contributing only 53 percent of the boarding house ceramics. The Siqueiros-Jácome family used more plain whitewares (23 percent) than the boarding house residents (18 percent). In turn, the boarding house discarded more decorated whitewares and porcelain. The overall impression from the collection is that the boarding house residents spent more money on ceramic vessels than Soledad Jácome.

ETHNICITY

Is it possible to determine the ethnic identity of residents based on the artifacts they discarded? The Siqueiros-Jácome family were Mexican-Americans, while the known residents of the Dodge Boarding House were of European ancestry, most having been born in the eastern United States.

Mexican ceramics were found in features associated with both households. Some of these were older majolica sherds scattered throughout the presidio area soil. Some of the majolica sherds may represent heirloom pieces owned by the Siqueiros-Jácome family, although this is uncertain. Fragments of handled cooking bowls, made in Mexico, were found in features associated with both households. Thus, a Mexican-American woman may have worked as a cook in the boarding house.

Chinese artifacts were also found in both households. The boarding house features yielded Chinese coins, as well as fragments of rice bowls, wine cups, rice wine jars, and food storage jars. These items indicate that a Chinese servant was probably

Table 9.7. Ceramic types from presidio features, Historic Block 181.

	Feature													
	460	464	466	475	499	513	519	520	579	586	615	628	635	Total
Mexican														
Glazed earthenware	–	–	–	–	–	5	–	–	–	5	1	–	3	14
Unidentified white majolica	6	1	2	–	–	20	–	9	1	23	–	–	–	62
Puebla Blue-on-white majolica	–	–	–	–	–	–	–	–	–	1	–	–	–	1
San Agustín Blue-on-white majolica	–	–	–	–	–	8	3	1	–	1	–	–	–	13
Wavy Rim Blue majolica	–	–	–	–	–	–	–	–	–	1	–	–	–	1
Huejotzingo Blue majolica	1	–	1	–	–	3	–	–	2	–	–	–	–	7
Unidentified blue majolica	3	–	5	3	–	22	4	3	2	10	–	1	–	53
Aranama Polychrome majolica	9	–	3	–	–	7	4	6	3	5	–	–	–	37
San Elizario Polychrome majolica	3	–	–	1	–	7	2	–	1	4	–	1	–	19
Tumacacori Polychrome majolica	1	–	8	4	–	5	1	4	1	2	–	–	1	27
Unidentified polychrome majolica	3	–	–	–	–	7	3	2	–	15	–	–	–	30
European														
Plain whiteware	3	–	–	–		5	1	2	–	1	–	–	–	12
Whiteware, hand-painted	–	–	–	–	–	–	1	–	–	–	–	–	–	1
Transfer-print, blue	–	–	–	2	–	–	–	–	–	–	–	–	1	3
Transfer-print, red	–	–	–	–	–	–	–	–	–	–	–	–	1	1
Transfer-print, black	–	–	–	–	–	–	–	1	–	–	–	–	1	2
Transfer-print, brown	–	–	–	–	–	–	–	–	–	–	–	1	–	1
Flow blue	–	–	–	–	–	–	–	–	–	–	–	–	1	1
Whiteware, sponge-print	–	–	–	–	–	–	–	–	–	–	–	–	1	1
Whiteware, annular	–	–	–	–	–	1	–	–	–	–	–	–	–	1
Asian														
Chinese light blue porcelain	–	–	1	1	–	–	–	–	–	–	–	1	–	3
Chinese white porcelain	–	–	–	–	–	2	–	–	–	1	–	–	–	3
Chinese Famille red	–	–	–	–	–	2	–	–	–	–	–	–	–	2
Native American	240	8	170	93	8	303	35	52	31	249	11	29	114	1,343
Total	269	9	190	104	8	397	54	80	41	318	12	33	123	1,638

Table 9.8. Ceramic types for food preparation, food service, food storage, and hygiene-related vessels, Historic Block 181.

	Feature								
	Siqueiros-Jácome House					Dodge Boarding House			
	510	529	570	571	577	359	408	624	Total
Mexican									
Majolica	4	7	41	48	3	9	–	25	137
Earthenware	–	–	20	69	6	3	–	49	147
Whiteware									
Plain	10	–	38	814	8	235	64	353	1,522
Transfer-printed	8	1	13	16	2	70	17	44	171
Flow blue	–	–	1	6	–	16	–	13	36
Hand-painted	–	–	1	22	1	3	–	49	76
Annular	–	–	6	13	–	3	–	5	27
Annular and sponge-stamped	–	–	2	26	–	5	–	8	41
Sponge-stamped	–	–	2	7	–	2	–	2	13
Decal-print	–	–	–	5	–	12	13	1	31
Gilt	1	–	–	19	–	13	1	–	34
Tinted	–	–	–	–	1	16	–	–	17
Solid color	–	–	–	–	–	4	–	3	7
Mocha	–	–	–	–	–	–	–	1	1
Porcelain									
Plain	1	–	–	24	–	37	3	41	106
Decal-print	1	–	–	1	–	77	3	88	170
Hand-painted	4			12		49	–	4	69
Gilt	–	–	–	3	–	17	2	29	51
Tinted	–	–	–	1	–	22	–	13	36
Majolica									
European	–	–	–	–	–	3	–	27	30
Stoneware									
Coarse	–	–	–	–	–	–	–	–	–
Brown	–	–	–	1	–	7	–	–	8
Buff	–	–	–	7	–	–	–	1	8
Gray	–	–	–	–	–	–	–	–	–
Yellowware	–	–	5	2	–	28	–	5	40
Other	–	–	–	–	–	33	–	3	36
Asian									
Chinese stoneware	–	–	–	1	–	–	–	7	8
Chinese glazed-ware	–	–	–	–	–	–	–	2	2
Chinese celadon	–	–	–	–	–	4	1	4	9
Chinese blue porcelain	–	–	2	13	1	1	–	6	23
Chinese white porcelain	–	–	1	13	–	24	–	5	43
Chinese, other	–	–	1	4	–	–	19	2	26
Japanese porcelain	–	–	–	4	–	36	–	1	41
Subtotal	29	8	133	1,131	22	729	123	835	3,010
Native American	21	298	268	1,744	61	987	12	882	4,273
Grand total	50	306	401	2,875	83	1,716	135	1,717	7,283

Table 9.9. Percentage of vessels, by location of manufacture, from the Siqueiros-Jácome House and the Dodge Boarding House, Historic Block 181.

	Siqueiros-Jácome House		Dodge Boarding House	
	Count	Percent	Count	Percent
Mexican	198	15	86	5
European or American whiteware	870	66	652	40
European or American decorated whiteware	153	12	301	18
European or American porcelain	47	4	385	23
European Majolica	–	–	30	2
European or American stoneware	15	1	77	5
Asian	40	3	112	7
Total	1,323		1,643	

employed at the boarding house, perhaps as a cook or janitor. The backyard features of the Siqueiros-Jácome House had rice bowls and an opium pipe; again, pointing toward the presence of a Chinese individual within the household, perhaps a short-term renter.

SUMMARY

The historic artifacts found during excavations on Block 181 spanned the eighteenth through the twentieth centuries. Discarded or lost by residents of the community, the items found strongly resemble those recovered from previous excavations in downtown Tucson.

There were few surprises in the types of artifacts recovered from presidio features. Residents made do with relatively small quantities of imported goods, using locally made items and/or materials manufactured from organic materials. Among the many pieces of majolica were pieces of several rare, unnamed varieties. Research on Mexican majolicas is incomplete. A basic question—when were specific types manufactured?—has not been answered. Further archaeological research in Mexico must be conducted to answer these and other questions.

Artifacts found during archaeological excavations at the Siqueiros-Jácome House and the Dodge Boarding House provide details about the lives of these residents not available from other sources. The Siqueiros-Jácome family prepared meals using Mexican and Native American cooking vessels. Meals were served mostly on plain whiteware vessels, with a few decorated dishes providing some variety. Soledad purchased canned and bottled foods from stores in her neighborhood. She raised her daughters after her husband left the family, purchasing dolls as play things for them. She worked at home, sewing and repairing clothes. She made extra money by renting out rooms to others, including at least one overseas Chinese immigrant. A bottle of heart medicine is a poignant find, because Soledad eventually died from heart failure in 1911.

In contrast, the residents of the Dodge Boarding House were primarily middle-class Euro-Americans, recent arrivals from the eastern United States. There is some evidence to suggest Mexican and/or Chinese servants may have worked in the house, perhaps in the kitchen. Some residents may have come to Tucson for work opportunities, others in search of renewed health, hoping to cure themselves from diseases like tuberculosis. Some of the residents were infants and children. The greater affluence of the residents, as compared to the Siqueiros-Jácome family, is seen by the greater number of decorated and porcelain vessels. Some of these dishes were probably brought to the house by residents. While many people came to Tucson in the late nineteenth and early twentieth century in search of a cure from tuberculosis, the medicine bottles recovered from the boarding house indicate health care concerns involving pain relief and eye care. However, the presence of a spittoon points out the growing awareness of the spread of tuberculosis through expectoration. A 1905 newspaper article advised Tucsonans to spit into spittoons, gutters, or sewer openings instead of onto street surfaces, where bacteria-laden dust could be stirred up (*Tucson Citizen* 1905).

While the focus of this chapter has been on presidio-era and American Territorial period artifacts, a few later items were found during the course of the project. These included a pile of 1940s beer bottles in the backyard of the Siqueiros-Jácome House. A

Figure 9.37. A postcard featuring Betty Bronson, Siqueiros-Jácome House, Historic Block 181.

postcard with silent movie star Betty Bronson's photograph was found within the house, as the wainscoting was removed during the restoration process (Figure 9.37). This memento points out that residents continued to live in the house as late as 1994, but that they left few physical traces of their lives. After the City of Tucson instituted garbage collection in the 1910s, the amount of trash discarded onto city lots decreased substantially. Therefore, future archaeologists will have a more difficult time understanding the everyday lives of Tucson residents in the twentieth century.

CHAPTER 10

MACROBOTANICAL REMAINS FROM HISTORIC BLOCK 181, AZ BB:13:13 (ASM), TUCSON, ARIZONA

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Excavations at AZ BB:13:13 (ASM) in Historic Block 181, Tucson, Arizona, yielded flotation samples from features that spanned an interval of several thousand years, from the Early Agricultural period (2100 B.C.-A.D. 150) through the American Territorial period (A.D. 1856-1912). Analyses of 61 flotation samples from these features yielded a macrobotanical assemblage of wood charcoal and seeds consistent with discarded food waste, firepit or wood-burning stove gleanings, weeds, and possible animal fodder.

Plant remains from Hohokam features generally suggest subsistence efforts dedicated to farming. The assemblages are consistent with prior studies that indicate, relative to other intervals, farming was less important during the Early Agricultural period, and of greatest importance during the Middle Rincon phase (A.D. 1000-1100) of the Hohokam Sedentary period. Early Agricultural period features lacked cultigens. Otherwise, they were consistent with prior studies of San Pedro phase (1200-800 B.C.) and Cienega phase (800 B.C.-A.D. 150) assemblages that indicate wild resources were very important in Early Agricultural period subsistence strategies.

Plant remains from historic features indicate Spanish and Mexican occupants of the Tucson Presidio depended on a wide variety of cultigens. Although they were probably locally grown, several—vine grapes, mustard seed, wheat, chiles, and possibly watermelons—were introduced into the Tucson region by colonizing Spaniards. These foods were augmented by cactus fruit. The presence of alfalfa suggests some of the macrobotanical assemblage is comprised of animal fodder.

Two American Territorial period (A.D. 1856-1912) components were represented by features related to the Siqueiros-Jácome household and the Dodge Boarding House. Dependence on agricultural staples is indicated, although increased access by Tucson residents to the broad and growing markets of the industrially growing United States are evident in the addition of new commodities, such as raspberries.

The contents of the plant assemblages recovered during the Presidio-Triplex project excavations on Block 181 are described in this chapter. The frequencies of identified seeds and wood charcoal fragments in each sample are reported, and the range of uses for the identified taxa are briefly discussed.

LABORATORY PROCEDURES

Sixty-one flotation samples were recovered, including 17 from prehistoric contexts and 44 from historic contexts. The methods and procedures used for field collecting archaeological plant remains followed standards described in Pearsall (1989:16, 19-23). Flotation samples were processed using a recirculating flotation tank and catchment system fitted with a fine synthetic mesh similar to organza. The collected light fractions were air dried and stored in zip-lock plastic bags. The procedure for counting plant remains in prehistoric samples differed from the procedure used in counting specimens in historic samples.

In flotation samples collected from prehistoric contexts, only charred plant remains were identified. Plant tissues found in open-air sites generally do not survive centuries of interment unless they have been charred or at least partially carbonized. Non-charred remains are likely of recent origin, and are usually not germane to the study of prehistoric subsistence (Miksicek 1987; Minnis 1981). All charred seeds were counted. In each light fraction sample, 20 randomly selected wood charcoal fragments larger than 2 mm were counted. In two instances, fewer than 20 wood charcoal fragments were available for identification, and in one instance, 21 fragments were counted.

In flotation samples from historic contexts, all charred and non-charred seeds were counted because the relatively recent origin of the deposits—from the late eighteenth century and more recent times—greatly increased the likelihood that non-charred economic plants would be recovered intact. Typically, 20 wood or charcoal fragments were

identified from each sample, although one sample yielded only 14 wood fragments. Three samples contained such abundant quantities of charcoal that the standard count was extended to 30 fragments.

Five samples of hand-collected macrobotanical specimens were also analyzed. These were identified and, where multiple taxa occurred in one sample, counted and weighed separately.

SAMPLE QUALITY ASSESSMENT

The sample volumes, light fraction weights, and contaminants recovered from the samples were recorded. The general characteristics of prehistoric flotation samples are described in Table 10.1, and historic samples are described in Table 10.2. Overall, sample quality was good. All prehistoric samples yielded at least one charred seed and some wood charcoal. All but four historic samples (from Features 508, 615, 620, and 635) yielded seeds, and all historic samples yielded wood charcoal or noncharred wood fragments.

The flotation samples were adequate for representing the contexts from which they were obtained. Mean sample volumes from prehistoric (5.6 liters) and historic (5.3 liters) contexts were close to the ideal 6.0-liter sample. There were no statistically significant associations, using a Spearman's R test (Levin and Fox 1988:330-331), between sample volume and number of identified seeds or taxa in either the prehistoric or historic sample when outliers (samples with numbers of seeds that exceeded the unadjusted means by more than two standard deviations) were included.

Contaminants were infrequent in both prehistoric and historic contexts. In prehistoric deposits, only one sample (Feature 492, FN 6338) contained a substantial amount of modern (non-charred) seeds. Insect exoskeleton fragments and snail shell recovery rates were low, with each occurring only in two samples. Historic sample contaminants were limited to insect exoskeleton fragments. Given the origins of many of the historic features (many of the samples came from outhouse pits), higher insect exoskeleton fragment recovery in historic deposits may be related to the origins of the deposits from

Table 10.1. General characteristics of Block 181 prehistoric flotation samples from AZ BB:13:13 (ASM).

				Modern Contaminants			Charred	
Feature	FN	Volume (liters)	Weight (g)	Uncharred Seeds	Insect Fragments	Snails	Seeds (*n*)	Taxa (*n*)
Middle Rincon phase								
625	8202	4.0	14.3	0	1-50	0	3	2
625.02	8669	10.0	126.9	0	0	1-50	35	2
625.03	8675	4.5	8.7	0	0	0	9	3
631	8357	6.5	103.3	0	0	0	345	2
	8433	6.0	119.6	0	0	0	1,315	2
634	8470	4.0	5.9	0	0	0	10	5
643	9016	10.0	12.2	0	0	0	12	2
	9106	5.0	7.9	0	0	0	3	1
	9166	5.0	10.4	0	0	0	6	2
643.01	9167	10	1.3	0	0	0	3	1
652	9170	3.5	22.8	0	0	0	1	1
Rillito phase								
462	5276	4.0	2.5	0	0	0	1	1
479	5652	4.5	5.0	0	0	0	6	3
Snaketown phase								
641	9007	4.5	5.4	0	0	0	1	1
Early Agricultural period								
430	8939	10.0	31.3	1-50	0	1-50	6	3
492	6328	5.5	6.7	0	1-50	0	5	3
	6338	7.0	18.7	51-100	0	0	1	1

Table 10.2. General characteristics of Block 181 historic flotation samples from AZ BB:13:13 (ASM).

Feature	FN	Unit	Stratum	Level	Volume (liters)	Weight (g)	Insect Fragments	Seeds (*n*)	Taxa (*n*)
0	5986	510	4.03	1	3.0	7.3	0	1	1
	6111	510	4.03	3	6.5	52.8	0	10	2
	6197	510	4.03	4	5.0	48.9	0	18	6
	6215	510	4.03	5	6.5	120.0	0	95	11
	6240	510	4.03	6	6.0	59.4	0	317	11
	6263	510	4.03	7	7.0	122.3	0	278	7
	6283	510	4.03	9	3.5	9.0	0	17	3
359	8834	691	50.02	1	6.0	109.2	0	385	3
408	7927	651	50	9	5.0	8.2	1-50	81	6
460	5220	472	50	1	7.5	170.6	0	39	6
466	5373	486	50	2	4.0	30.6	0	6	5
475	5550	501	50	1	6.0	26.8	0	3	1
498	6176	528	50	1	5.0	265.5	0	6	2
499	6192	529	50	1	4.0	125.0	0	6	4
508	6400	545	50	1	6.0	488.4	0	0	0
510	6453	547	50	1	6.0	139.4	0	1,985	9
	6476	547	50	1	6.0	87.2	0	2,639	6
	6492	547	50	3	5.5	23.0	0	300	6
513	6554	552	50	4	5.0	14.1	1-50	4	3
	6576	557	50	1	6.0	47.4	0	3	3
	6604	557	50	3	6.0	33.4	0	1	1
	6617	557	50.01	1	4.0	19.0	0	4	3
516	6527	554	50	1	4.5	49.4	0	0	0
518	6510	556	50	1	5.0	89.6	0	2	1
520	6891	571	4.02	2	6.5	70.5	0	3	1
	6904	571	4.02	4	5.0	26.8	0	2	2
	6917	571	4.02	6	6.0	29.4	1-50	1	1
527	6919	574	50	3	6.0	31.8	0	3	3
	6840	574	50	1	5.0	75.6	0	48	8
570	6944	577	50	3	5.5	30.1	0	2	1
	7087	582	50	2	5.5	85.5	0	0	0
	7093	582	50	6	7.0	62.6	0	945	6
	7143	582	50	8	5.5	39.9	101-500	1,032	5
	7060	583	50	4	6.0	45.5	0	2	2
579	7217	593	50	3	5.0	20.1	0	1	1
586	7384	600	50	1	6.0	122.0	0	53	10
	7410	607	50	1	6.0	368.1	0	53	5
615	7855	643	50	1	5.0	374.8	0	0	0
620	7877	642	50.01	1	4.0	99.8	0	0	0
626	8332	663	50	3	2.0	1.8	0	4	2
635	8680	682	50.01	1	6.0	7.4	0	0	0
	8770	689	50.01	1	7.0	17.1	0	0	0
638	8696	690	50	1	4.0	74.6	0	6	1
639	9068	711	50	1	3.0	21.1	1-50	8	7

which they were obtained. Minimally, the presence of a concentrated and odorous supply of food waste and digested food by-products must have been attractive to local insect infestations. Given the very good seed recovery rates observed in the historic contexts, however, it is suspected that the effects of insect depredation or disturbance of the historic macrobotanical assemblage were minimal.

IDENTIFIED TAXA AND THEIR USES

Thirty-three seed taxa and 13 wood charcoal taxa were identified in the prehistoric and historic components of Block 181. The frequencies of charred seeds and maize cupules from prehistoric contexts are enumerated in Table 10.3; non-charred and charred seeds from historic contexts are described in Table 10.4. Wood charcoal fragments from prehistoric contexts are listed in Table 10.5, while historic wood specimens are described in Table 10.6. Table 10.7 provides the tissues that were identified in hand-collected macrobotanical samples. Rather than review the range of potential uses for each identified taxon, their likely economic uses are summarized in Table 10.8.

Introduced Cultigens

Introduced cultigens are Eurasian or Central American cultigens introduced to the Greater Southwest by any among the waves of Spanish, Euro-American, or overseas Chinese immigrants to southern Arizona. This category is dominated by plants that are of direct use to humans as food.

Table 10.3. Charred seed frequencies from Block 181 prehistoric contexts, AZ BB:13:13 (ASM).

		Taxa												
Feature	FN	*Trianthema* sp. (False Purslane)	*Carnegiea gigantea* (Saguaro Cactus)	*Echinocereus* sp. (Hedgehog Cactus)	*Chenopodium* sp. or *Amaranthus* sp.)	*Chenopodium* sp. (Goosefoot)	Compositae (Aster-type Family)	*Descurainia* sp. (Tansy Mustard)	*Zea mays* (Maize Cupules)	*Zea mays* (Maize Kernels)	*Phaseolus* cf. *vulgaris* (Common Bean)	*Prosopis juliflora* (Mesquite)	*Gossypium* cf. *hirsutum* (Domestic Cotton)	Unidentified
Middle Rincon phase														
625	8202	0	0	0	0	0	0	0	1	2	0	0	0	0
625.02	8669	0	0	0	0	0	33	0	0	2	0	0	0	0
625.03	8675	0	0	0	0	4	4	0	0	1	0	0	0	0
631	8357	0	0	0	0	0	0	0	0	336	9	0	0	0
	8433	0	0	0	0	0	0	0	0	1,313	2	0	0	0
634	8470	0	0	0	0	0	0	1	0	4	1	2	2	0
643	9016	0	0	0	0	0	0	0	11	0	0	1	0	0
	9106	0	0	0	3	0	0	0	0	0	0	0	0	0
	9166	0	0	1	0	5	0	0	0	0	0	0	0	0
643.01	9167	0	0	0	0	3	0	0	0	0	0	0	0	0
652	9170	0	0	0	0	0	0	0	0	1	0	0	0	0
Rillito phase														
462	5276	0	0	0	0	0	0	0	0	0	0	1	0	0
479	5652	3	0	0	0	0	0	0	1	0	0	0	0	0
Snaketown phase														
641	9007	0	0	0	0	0	0	0	1	0	0	0	0	0
Early Agricultural period														
430	8939	0	1	0	0	4	0	0	0	0	0	0	0	1
492	6328	0	1	0	0	3	0	0	0	0	0	0	0	0
	6338	0	0	1	0	0	0	0	0	0	0	0	0	0

Table 10.4. Seed frequencies from Block 181 historic contexts, AZ BB:13:13 (ASM).

Feature	Field Number	Unit	Stratum	Level	*Trianthema* sp. (False Purslane)	Cactaceae (Cactus Family)	*Carnegiea gigantea* (Saguaro Cactus)	*Opuntia* sp. (Prickly Pear Cactus)	*Chenopodium* sp. or *Amaranthus* sp.	*Chenopodium* sp. (Goosefoot)	*Cleome* sp. (Spiderflower)	*Polanisia* sp. (Clammyweed)	*Ambrosia* sp. (Ragweed)	*Descurainia* sp. (Tansy Mustard)	*Sinapis* sp. (White Mustard)	*Cucurbita* cf. *pepo* (Squash or Pumpkin)	*Citrullus lanatus* (Watermelon)	Gramineae (Grass Family)	*Eragrostis* sp. (Lovegrass)
Presidio																			
0	5986	510	4.03	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	6111	510	4.03	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6197	510	4.03	4	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0
	6215	510	4.03	5	0	0	8	8	0	28	0	0	0	0	0	4	0	0	0
	6240	510	4.03	6	2	0	0	0	2	236	0	0	0	0	0	2	0	6	0
	6263	510	4.03	7	0	0	0	0	0	232	0	0	4	0	0	0	0	0	0
	6282	510	4.03	9	0	0	0	0	0	11	0	0	0	0	5	0	0	0	0
460	5220	472	50	1	2	0	8	0	0	0	8	0	0	0	0	0	0	0	0
466	5373	486	50	2	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
498	6176	528	50	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
499	6192	529	50	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
513	6554	552	50	4	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0
	6576	557	50	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6604	557	50	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6617	557	50.01	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
520	6891	571	4.02	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6904	571	4.02	4	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	6917	571	4.02	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
579	7217	593	50	3	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
586	7384	600	50	1	0	2	0	0	0	0	0	0	0	16	0	0	0	0	0
	7410	607	50	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	16
638	8696	690	50	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dodge Boarding House																			
359	8834	691	50.02	1	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
408	7927	651	50	9	0	0	4	0	0	0	0	0	0	0	42	0	0	0	0
626	8332	663	50	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
639	9068	711	50	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Siqueiros-Jácome Household																			
510	6453	547	50	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6476	547	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6492	547	50	3	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
570	6944	577	50	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7087	582	50	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7093	582	50	6	0	0	0	0	0	0	0	0	0	0	800	0	0	129	0
	7143	582	50	8	0	0	14	0	0	0	0	0	0	0	960	0	0	0	0
577	7060	583	50	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modern																			
518	6510	556	50	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
527	6919	574	50	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6840	574	50	1	14	0	1	0	0	26	0	0	0	0	0	0	0	1	0

Table 10.4. Continued.

Feature	Field Number	*Triticum aestivum* (Wheat)	*Zea mays* (Maize)	*Juglans* sp. (Walnut Shell)	*Phaseolus* cf. *vulgaris* (Common Bean)	*Prosopis juliflora* (Mesquite)	cf. *Melilotus* sp. (Sweet Clover)	cf. *Medicago sativa* (Alfalfa)	*Gossypium hirsutum* (Domestic Cotton)	*Sphaeralcea* sp. (Globemallow)	*Portulaca* sp. (Purslane)	*Rubus* sp. (Raspberry)	*Malus* sp. (Apple)	*Capsicum* sp. (Bell or Chile Pepper)	*Solanum* sp. or *Physalis* sp. (Nightshade or Groundcherry Type)	*Solanum esculentum* (Tomato)	*Vitis vinifera* (Domestic Vine Grape)	Unidentified
Presidio		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	5986	9	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	6111	4	3	0	2	2	0	0	0	1	0	0	0	1	0	0	0	0
	6197	18	18	1	4	2	0	0	0	0	0	0	0	2	0	0	0	2
	6215	8	38	0	6	2	0	0	0	0	8	0	0	0	0	0	7	0
	6240	10	25	0	1	5	0	0	0	0	0	0	0	0	0	0	1	0
	6263	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6282	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
460	5220	2	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0
466	5373	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
498	6176	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
499	6192	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
513	6554	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6576	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	6604	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6617	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
520	6891	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6904	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6917	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
579	7217	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
586	7384	4	2	0	1	0	0	0	0	0	0	0	0	6	0	0	0	5
	7410	4	0	0	5	0	0	16	0	0	0	0	0	20	0	0	0	0
638	8696	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dodge Boarding House																		
359	8834	336	0	0	0	33	0	0	0	0	0	0	0	0	0	0	0	0
408	7927	0	0	0	0	0	1	0	0	0	0	28	0	0	0	0	5	1
626	8332	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
639	9068	0	2	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0
Siqueiros-Jácome Household																		
510	6453	2	5	0	0	0	0	0	0	0	0	1,961	2	0	0	0	3	10
	6476	0	0	1	0	1	0	0	0	0	0	2,629	1	0	0	0	0	1
	6492	0	0	1	0	0	0	0	0	0	0	291	0	1	0	0	0	2
570	6944	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
	7087	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7093	0	0	0	0	0	0	0	0	0	0	2	0	0	7	4	3	0
	7143	0	0	0	0	0	0	0	0	0	0	22	0	0	9	0	27	0
577	7060	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Modern																		
518	6510	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
527	6919	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0
	6840	2	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0

Table 10.5. Wood charcoal frequencies from Block 181 prehistoric contexts, AZ BB:13:13 (ASM).

		Taxa						
Feature	Field No.	*Atriplex* sp. (Saltbush)	*Phragmites* sp. (Common Reed)	Leguminosae (Desert Tree Legume)	*Olneya* sp. (Ironwood)	*Prosopis* sp. (Mesquite)	*Populus* sp. or *Salix* sp. (Cottonwood or Willow)	Unidentified
Middle Rincon phase								
625	8202	0	0	0	0	4 (1.1)	16 (3.2)	0
625.02	8669	0	0	0	0	13 (25.8)	7 (7.7)	0
625.03	8675	0	1 (t)	19 (2.8)	0	0	0	0
631	8357	0	0	20 (1.2)	0	0	0	0
	8433	2 (1.2)	0	0	6 (0.3)	11 (1.0)	2 (t)	0
634	8470	1 (t)	0	0	0	12 (0.4)	6 (0.3)	1 (0.1)
643	9016	1 (t)	5 (0.1)	0	0	14 (0.5)	0	0
	9106	0	0	0	0	14 (1.8)	5 (0.1)	1 (0.1)
	9166	0	0	0	0	20 (0.9)	0	0
643.01	9167	0	1 (t)	19 (0.2)	0	0	0	0
652	9170	0	0	0	0	20 (1.8)	0	0
Rillito phase								
462	5276	0	0	0	0	20 (2.3)	0	0
479	5652	0	0	0	0	18 (0.9)	0	2 (t)
Snaketown phase								
641	9007	0	3 (0.1)	0	0	14 (0.2)	2 (t)	0
Early Agricultural period								
430	8939	0	0	0	0	20 (3.5)	0	0
492	6328	0	0	0	0	0	0	15 (0.1)
	6338	0	0	0	8 (0.1)	0	12 (t)	0

Note: Weight (g) in parentheses.

Two taxa, however, alfalfa and sweet clover, are Eurasian forage crops that are exclusively useful as animal fodder. Mustard seeds are likely the remnants of condiments or spices used to flavor food. The remaining specimens were staples (chiles, tomatoes, and wheat) or commodities (apples, apricots, figs, plums, and watermelons). Vine grapes are dual-use crops that may be a by-product of either fruit consumption, as a commodity, or of efforts to ferment wine for ordinary use or sacraments. Except mustard, raspberries, and sweet clover, all of these taxa were observed growing locally in Tucson by the mid-nineteenth century (Bartlett 1854; Hammond and Howes 1950).

Indigenous Cultigens

Indigenous cultigens are Native American crops endemic to the Greater Southwest that were grown during prehistoric and historic times. These include three major staples (beans, maize, and squash) and one fiber crop (cotton). Maize is the most ancient of these, with a local record of use that extends to the mid-second millennium B.C. (Mabry 2007:67).

High-value Sonoran Desert Plants

Some indigenous Sonoran Desert plants produced such an abundance of edible tissues that the number of calories or other nutrition to be gleaned from them, for modest effort, made their use attractive both during prehistoric times, and well into the twentieth century. Wild plants with records of great importance as foods include prickly pear and saguaro cactus, walnuts, and mesquite pods. Three weedy categories produced large quantities of small starchy seeds (cheno-ams, goosefoot, and tansy mustard), and were also valued as *quelites* or pot vegetables, and as flavoring agents.

Table 10.6. Wood charcoal frequencies from Block 181 historic contexts, AZ BB:13:13 (ASM).

Feature	FN	Unit	Stratum	Level	*Atriplex* sp. (Saltbush)	*Juniperus* sp. (Juniper)	*Quercus* sp. (Oak)	Leguminosae (Desert Tree Legume)	*Olneya* sp. (Ironwood)	*Prosopis* sp. (Mesquite)	Pinaceae (Pine Family)	*Pseudotsuga menziesii* (Douglas Fir)	*Pinus* sp. (Pine)	*Populus* sp. or *Salix* sp. (Cottonwood or Willow)	*Celtis* sp. (Hackberry)	Unidentified
0	5986	510	4.03	1	0	0	0	0	0	20 (0.7)	0	0	0	0	0	0
	6111	510	4.03	3	0	0	0	0	0	20 (1.7)	0	0	0	0	0	0
	6197	510	4.03	4	1 (0.1)	0	0	0	0	18 (2.8)	0	0	0	1 (t)	0	0
	6215	510	4.03	5	0	0	0	0	0	16 (2.7)	0	0	0	2 (0.2)	0	2 (0.2)
	6240	510	4.03	6	0	0	0	0	0	18 (4.3)	0	0	0	0	0	2 (0.1)
	6263	510	4.03	7	0	0	0	0	0	20 (5.3)	0	0	0	0	0	0
	6282	510	4.03	9	0	0	0	0	0	20 (0.8)	0	0	0	0	0	0
359	8834	691	50.02	1	0	0	0	0	0	6 (1.0)	1 (t)	0	0	12 (1.1)	0	1 (0.1)
408	7927	651	50	9	0	0	0	0	0	10 (0.5)	0	4 (t)	0	4 (t)	0	2 (t)
460	5220	472	50	1	0	0	0	0	0	30 (25.3)	0	0	0	0	0	0
466	5373	486	50	2	0	0	0	3 (0.2)	0	26 (4.2)	0	0	0	0	0	1 (t)
475	5550	501	50	1	0	0	0	0	0	19 (1.9)	0	0	0	0	1 (t)	0
498	6176	528	50	1	0	0	0	0	0	20 (5.6)	0	0	0	0	0	0
499	6192	529	50	1	0	0	0	0	0	20 (18.9)	0	0	0	0	0	0
508	6400	545	50	1	0	0	0	0	0	19 (9.5)	0	0	0	0	0	1 (1.4)
510	6453	547	50	1	0	0	1 (0.1)	0	1 (3.5)	0	0	14 (4.7)	1 (0t)	1 (1.5)	0	10 (2.1)
	6476	547	50	1	0	0	0	11 (0.3)	2 (t)	6 (0.2)	0	1 (0.4)	0	0	0	0
	6492	547	50	3	0	0	0	0	0	20 (0.3)	1 (t)	0	0	0	0	1 (t)
513	6554	552	50	4	0	3 (t)	0	0	0	17 (0.2)	0	0	0	0	0	0
	6576	557	50	1	0	2 (0.1)	0	0	0	15 (0.4)	0	0	0	3 (t)	0	0
	6604	557	50	3	0	0	0	0	0	2 (0.3)	0	0	0	18 (1.5)	0	0
	6617	557	50.01	1	0	0	0	0	0	20 (0.6)	0	0	0	0	0	0
516	6527	554	50	1	0	4 (0.4)	0	0	0	16 (2.5)	0	0	0	0	0	0

Table 10.6. Continued.

Feature	FN	Unit	Stratum	Level	*Atriplex* sp. (Saltbush)	*Juniperus* sp. (Juniper)	*Quercus* sp. (Oak)	Leguminosae (Desert Tree Legume)	*Olneya* sp. (Ironwood)	*Prosopis* sp. (Mesquite)	Pinaceae (Pine Family)	*Pseudotsuga menziesii* (Douglas Fir)	*Pinus* sp. (Pine)	*Populus* sp. or *Salix* sp. (Cottonwood or Willow)	*Celtis* sp. (Hackberry)	Unidentified
518	6510	556	50	1	0	0	0	0	0	20 (10.6)	0	0	0	0	0	0
520	6891	571	4.02	2	0	0	0	0	0	20 (3.9)	0	0	0	0	0	0
	6904	571	4.02	4	0	0	0	0	0	20 (2.3)	0	0	0	0	0	0
	6917	571	4.02	6	0	0	0	0	0	20 (0.3)	0	0	0	0	0	0
527	6919	574	50	3	0	0	0	0	0	20 (1.0)	0	0	0	0	0	0
	6840	574	50	1	0	0	0	0	0	16 (1.2)	0	0	0	0	0	4 (0.1)
570	6944	577	50	3	0	0	0	0	0	19 (0.5)	0	0	0	1 (t)	0	0
	7087	582	50	2	0	0	0	0	0	20 (6.7)	0	0	0	0	0	0
	7093	582	50	6	0	0	0	0	0	17 (5.9)	0	3 (0.3)	0	0	0	0
	7143	582	50	8	0	1 (t)	0	0	0	19 (1.5)	0	0	0	0	0	0
577	7060	583	50	4	0	0	0	0	0	20 (2.9)	0	0	0	0	0	0
579	7217	593	50	3	1 (t)	0	0	1 (t)	0	18 (1.2)	0	0	0	0	0	0
586	7384	600	50	1	0	0	0	0	0	6 (0.6)	0	0	0	14 (1.0)	0	0
	7410	607	50	1	0	0	0	0	0	14 (4.8)	0	0	0	6 (0.4)	0	0
615	7855	643	50	1	0	0	0	0	0	20 (16.6)	0	0	0	0	0	0
620	7877	642	50.01	1	0	0	0	0	0	8 (1.8)	1 (t)	10 (2.6)	0	1(0.1)	0	0
626	8332	663	50	3	0	0	0	0	0	13 (0.1)	0	0	0	1 (t)	0	0
635	8680	682	50.01	1	0	0	0	0	0	20 (0.1)	0	0	0	0	0	0
	8770	689	50.01	1	0	0	0	0	0	20 (0.1)	0	0	0	0	0	0
638	8696	690	50	1	0	0	0	0	0	20 (0.8)	0	0	0	0	0	0
639	9068	711	50	1	0	0	0	0	0	20 (1.1)	0	0	0	0	0	0

Note: Weight (gm) in parentheses.

Table 10.7. Hand-collected macrobotanical specimens from the Siqueiros-Jácome House, AZ BB:13:13 (ASM).

Feature	Field Number	Unit	Stratum	Level	Weight (g)	Description
510	6417	547	50	1	13.0	6 *Ficus carica* fruit, seeds, and fruit fragments[a]
					0.3	1 *Juglans* sp., nutshell
					21.1	13 *Prunus armeniaca* fruit, seeds, and fruit fragments[a]
					16.4	Unidentified wood charcoal
					2.4	*Zea mays* 12-row cob fragment
510	6480	547	50	3	109.6	50 *Ficus carica* fruit, seeds, and fruit fragments[a]
					1.6	*Pinus* sp. tabular (worked) wood charcoal fragments
					0.8	3 *Prunus domestica* seeds
					80.0	47 *Prunus armeniaca* fruit, seeds, and fruit fragments[a]
					0.4	*Quercus suber* fragments
570	6460	570	50	1	32.4	22 *Ficus carica* fruit, seeds, and fruit fragments[a]
					4.3	*Pinus* sp. tabular (worked) wood charcoal fragments
					5.9	*Populus* sp. or *Salix* sp. wood charcoal fragments
					2.3	3 *Prunus domestica* seeds
					79.0	44 *Prunus armeniaca* seeds
					0.1	*Quercus suber* fragment of one cork bottle stopper
					2.8	*Zea mays* 12-row cob fragment
570	7118	582	50	7	0.4	*Prunus* sp. seed
577	7018	583	50	1	6.1	*Prosopis* sp. wood charcoal fragments

[a]Minimum number of fruits.

Other Sonoran Desert Plants

Twelve taxa are included in the category listed as "Other Sonoran Desert Plants." These are taxa of documented but slight food value, such as purslane (another potherb), low-value grasses, and weeds.

Wood Charcoal

All the observed wood or charcoal specimens were of potential value as fuel, although saltbush seems of such limited value as to only have been useful for kindling. Medicinal preparations in Native American ethnopharmacological use relied on the leaves of saltbush rather than the wood. One taxon, common reed, offered multiple uses in architectural construction, or as a cigarette for native tobacco during prehistoric times. The hard-wooded mesquite, ironwood, desert legume, and oak may have been used for fuel or for making tool handles or furniture.

Most of the remaining taxa could have been used for fuel, furniture, tools, or in construction. Cork from the corkbark oak was, in one instance, clearly recognizable as a bottle-stopper; in the other instance, the cork had disintegrated to the point that it could not be recognized as a specific kind of artifact.

SUBSISTENCE AND THE BLOCK 181 MACROBOTANICAL ASSEMBLAGE

With an occupation that spanned 2,000 years of prehistory, and that also included a Spanish or Mexican Presidio component, two American Territorial period components (the Dodge Boarding House and the Siqueiros-Jácome House), and several American Statehood period features, the current assemblage defies an easy general description. Each component of BB:13:13 in Block 181 is reviewed below, by occupation phase or period.

Modern Features

Two modern features that were likely filled during the American Statehood period (A.D. 1912-present) yielded three flotation samples. Contents included 26 goosefoot seeds, a nightshade-groundcherry seed, a grass family (Gramineae) seed, three mesquite seeds, two wheat seeds, a maize seed, and a bean cotyledon. The assemblage probably represents a mix of yard waste and food remains.

Table 10.8. Economic uses for identified wood and seed taxa.

Taxon	Common Name	Economic Use
Eurasian or New World Cultigens introduced by Spanish, Euro-Americans, or Overseas Chinese		
Capsicum sp.	Bell or chile pepper	Food
Citrullus lanatus	Watermelon	Food
Ficus carica	Fig palm	Food
Malus sp.	Apple	Food
cf. *Melilotus* sp.	Sweet clover	Fodder
Medicago sp.	Alfalfa	Fodder
Prunus domestica	Plum	Food
Prunus cf. *armeniaca*	Apricot	Food
Rubus sp.	Raspberry or blackberry	Food
Sinapis sp.	Eurasian mustard	Food
cf. *Solanum esculentum*	Tomato	Food
Triticum aestivum	Wheat	Food
Vitis vinifera	Vine grape	Food
Indigenous Cultigens		
Cucurbita pepo	Squash or gourd	Food
Gossypium cf. *hirsutum*	Cotton	Fiber production
Phaseolus vulgaris	Common bean	Food
Zea mays	Maize	Food, fodder
Sonoran Desert Plants with Established Records of Potentially Great Importance as Foods		
Carnegiea gigantea	Saguaro cactus	Food, ornamental
Cheno-ams	Goosefoot or amaranth	Food, quelites, fodder, or weed
Chenopodium sp.	Goosefoot	Food, quelites, fodder, or weed
Descurainia sp.	Tansy mustard	Food, quelites, fodder, or weed
Juglans sp.	Walnut	Food
Opuntia sp.	Prickly pear cactus	Food, ornamental, weed
Prosopis juliflora	Honey mesquite	Food
Other Sonoran Desert Plants		
Ambrosia sp.	Ragweed	Weed
Cactaceae	Cactus family	Food, ornamental, weed
Cleome sp.	Spider flower	Weed
Compositae	Aster family	Weed
Echinocereus sp.	Hedgehog cactus	Food, ornamental, weed
Gramineae	Grass family	Food, fodder
Eragrostis sp.	Lovegrass	Food, fodder
Polanisia sp.	Clammyweed	Weed
Portulaca sp.	Purslane	*Quelites* or weed
Sphaeralcea sp.	Globemallow	Weed
Solanum or *Physalis* type	Nightshade or groundcherry	Weed
Trianthema sp.	False purslane	Weed
Woods Used as Fuel, in Construction, Tools, or Stoppers		
Atriplex sp.	Saltbush	Fuel
Celtis sp.	Hackberry	Fuel
Leguminosae	Desert legume	Fuel, tools
Olneya sp.	Ironwood	Fuel, tools
Phragmites sp.	Common reed	Fuel, construction
Pinaceae	Pine family	Fuel, construction

Table 10.8. Continued.

Taxon	Common Name	Economic Use
Pinus sp.	Pine	Fuel, construction
Populus sp. or *Salix* sp.	Cottonwood or willow	Fuel, construction
Prosopis sp.	Mesquite	Fuel, construction, tools
Pseudotsuga menziesii	Douglas fir	Fuel, construction
Quercus sp.	Oak	Fuel, construction, tools
Quercus suber	Corkbark oak	Bottle stopper fragments

The Dodge Boarding House

Four features that spanned the 1880s through 1910 of the American Territorial period (1856-1912) were associated with the Dodge Boarding House. These included a borrow pit, two extramural pits, and an outhouse pit. The plant remains identified in these features are generally consistent with burning yard waste and with food refuse.

The probable yard waste remnants include the false purslane, cheno-am, and nightshade-groundcherry seeds. These grow prolifically in disturbed soils, including alleyways, backyards, and waste places, throughout the Tucson Basin, and the frequencies of the potentially valuable plants were low. The sweet clover seed may also have been a yard waste remnant, or alternatively, something that was dispersed from a small quantity of stored fodder. The latter possibility raises the prospect of one or more cows being kept in the vicinity of the Dodge Boarding House. Thirty-three mesquite seeds in the assemblage might reflect the efforts of a Euro-American housekeeper attempting to emulate Native American mesquite flour preparation. However; given the general preference for cultigens and the sweet clover seed, it seems more likely that the mesquite seeds were used for animal fodder or that they represent yard waste.

Food refuse included a relatively large quantity of wheat grains, as well as beans, maize kernels and cupules, mustard seeds, raspberry seeds, vine grape seeds, and saguaro cactus seeds. In these taxa, we see the dominant grains represented for use in baking, possibly for making tortillas (depending on the clientele at the Dodge Boarding House), and a rather diverse array of fruit offered as side dishes or incidental refreshments.

The Siqueiros-Jácome Household

Another American Territorial period assemblage was represented by the Siqueiros-Jácome household contexts deposited from 1880-1900. The identified taxa represent a mixed range of materials, including small amounts of fodder and yard waste, and prodigious quantities of food refuse. The principal yard waste taxa were false purslane and nightshade-groundcherry seeds. Animal fodder was represented by grasses (Gramineae), and possibly, mesquite and cheno-ams. The latter two may also have been used as vegetables or potherbs (Bye 2000).

Definite food waste included maize, wheat, apple seeds, apricot pits, chile peppers, whole figs, plums, tomatoes, raspberries, mustard seeds, vine grapes, and walnuts. Some of these were undoubtedly locally grown. There is, for example, a live fig tree still standing in the Block 181 parcel near the location of the Siqueiros-Jácome household. No apricot trees remain in the area, but their virtue as a local cash crop is celebrated in the *Arizona Daily Star* (*Arizona Daily Star* 1892).

Raspberries generally thrive in areas with partial shade and abundant water, neither of which characteristic seems consistent with Tucson prior to the installation of water mains. The raspberries may represent the remnants of preserves imported to Tucson by coach or rail. They indicate the occupants of the Siqueiros-Jácome household had sufficient discretionary surplus income to at least occasionally purchase expensive food items best characterized as commodities rather than essential staples.

The Presidio de Tucson

Twenty-two flotation samples were recovered from 10 features associated with the Spanish or Mexican period occupations of the Presidio de Tucson, circa 1780-1850. The samples contain a very diverse array of seeds, consistent with weeds, animal fodder, and food. Goosefoot seeds were particularly abundant, and occurred in seven samples; grass family (Gramineae) seeds were also present, along with a single probable alfalfa seed. All three plants would have provided excellent forage for animals. They could have been obtained in or on the margins of local agricultural fields, harvested,

and fed to animals. Mesquite seeds in the assemblage represent either remnant animal fodder or the local presence of Native Americans or *mestizos* who produced mesquite flour for human consumption. A number of weed taxa were also observed, including false purslane, spiderflower, clammyweed, ragweed, globemallow, purslane, and nightshade/groundcherry type seeds.

Foods in the assemblage included beans, chile peppers, maize, mustard, prickly pear cactus, saguaro cactus, squash or pumpkin, unidentified cactus, vine grapes, walnuts, a possible watermelon seed, and wheat. Wheat was particularly abundant, occurring in 15 samples ($U_{wheat} = 0.68$), as compared with maize ($U_{maize} = 0.27$). Prior studies have established that historical Tucson assemblages with greater wheat ubiquities than maize ubiquities tend to be associated with economically well-off households, such as the León household. The preference for wheat reflects a tradition handed down from Spanish colonial times, and is consistent with an effort to maintain a certain degree of social distance from *mestizos* and Native Americans, for whom maize was an important and widely available food (Diehl and Waters 2004; Diehl et al. 2005).

Middle Rincon Phase Subsistence Efforts

The Middle Rincon phase (A.D. 1000-1100) was the most strongly represented prehistoric component, with five discrete houses represented by eight features and 11 flotation samples (see Table 10.3). The assemblage was substantially similar to other Rincon phase assemblages and consistent with prior studies that characterize the Middle Rincon phase as a period of intensive, indeed primary, reliance, on agricultural products to the near exclusion of wild plant taxa (Diehl 1997b; Diehl and Waters 2006). Maize was the most abundant taxon, occurring as either cupules or kernels in every house pit with a ubiquity of 1 ($U_{maize} = 1.0$; $n = 5$ houses). Beans, mesquite, and goosefoot (a valuable wild crop commensal) seeds each occurred in two of five houses ($U_{beans, mesquite, goosefoot} = 0.40$). Additionally, one domesticated cotton seed was observed, providing further evidence for intensive floodplain agriculture during the Middle Rincon phase. Together these high ubiquity plants indicate a primary dependence on cultigens, high-density floodplain weeds that grow on the margins of cultivated fields, and mesquite pods.

The remaining Middle Rincon phase taxa included hedgehog cactus fruit, cheno-ams (undifferentiated goosefoot or amaranth seeds that were too broken or heat-distorted to identify with greater precision), and an aster-type composite (a weed). Each was represented in only one sample (ubiquity = 0.20).

Rillito Phase Subsistence Efforts

The Rillito phase (A.D. 850-950) was weakly represented by one sample from each of two features (see Table 10.3). This low number of well-dated features is inadequate to draw general conclusions about the Rillito phase component of BB:13:13. Only three taxa were represented, false purslane (a weed), maize, and mesquite, each in only one sample (ubiquity = 0.50). The occurrence of these taxa is consistent with some dependence on agriculture and mesquite. With only two samples, however, comparisons with other time intervals or with other Rillito phase sites are not supported.

A Snaketown Phase Feature

One maize cupule was the only charred macroplant remain from Feature 641, representing the Snaketown phase (A.D. 700-750). Some dependence on maize is indicated by its presence in the sample; however, no comparisons among components at BB:13:13 or with other Snaketown phase sites can be supported with a single flotation sample.

Early Agricultural Period Subsistence

An Early Agricultural period (2100 B.C.-A.D. 150) component is represented by three flotation samples from two features. It is common for San Pedro phase (1200-800 B.C.) and Cienega phase (800 B.C.-A.D. 150) assemblages to produce high ubiquities of maize (Diehl 1997b; Diehl and Waters 2006), but Features 430 and 492 lacked maize. The use of cactus fruit (saguaro and hedgehog) and goosefoot is, however, indicated by their occurrence in the samples.

CONCLUSION

Excavations in Block 181 at BB:13:13 add considerable depth to a growing body of data concerning food, economics, and ethnicity in southern Arizona during the Spanish and Mexican periods (1775-1856) and the American Territorial period (1856-1912). They also contribute accretionally to the study of prehistoric subsistence economy in the Tucson Basin from 1200 B.C. through the twelfth century A.D.

The macrobotanical assemblage strongly suggests that floodplain farming, in conjunction with harvesting mesquite and cactus fruit, were the economic foundation on which Middle Rincon phase (A.D. 1000-1100) society rested. There is a moderate

amount of evidence from Rillito phase (A.D. 850-950) contexts that supports the general idea that agriculture was important during the ninth century, although statistical comparisons with other intervals of time or with other sites are obviated by the limited number of well-dated and analyzed prehistoric contexts.

Features associated with the Presidio de Tucson yielded a diverse array of foodstuffs that reiterate the importance of wheat, rather than maize, to colonizing Spaniards and their Mexican Republican descendants. However, as a matter of practical necessity, Tucson's Presidio residents incorporated some maize, along with beans and chiles, imported from the south by migrating Spaniards, into the mix. The presence of some commodities, such as mustard seeds and vine grapes, suggests efforts were made to render an Iberian flair to recipes despite the strong incorporation of Native American domestic crops. There is also moderate evidence for the deposition of animal fodder in some features, an indication that domestic livestock were kept in or near the premises.

By the late nineteenth-century, Mexican-Americans and Euro-Americans both seem to have continued to expand the local cuisine by adding European domesticated commodities, such as mustard and raspberries, to their dietary palette. But where American (or "Americanized") tastes in Dodge Boarding House features ran to wheat as the primary grain, occupants of the Siqueiros-Jácome household seem to have made more use of maize. The greater ubiquity of maize in the Siqueiros-Jácome household features may indicate middle socioeconomic status, possibly comparable to, or slightly lower than, was enjoyed by the occupants of the León household (Diehl et al. 2005). However, the rest of the Siqueiros-Jácome assemblage, in which apricots, figs, plums, mustard, and raspberries were well represented, does not seem consistent with compelling deprivation or an inability to obtain commodity fruits or preserves.

CHAPTER 11

VERTEBRATE FAUNAL REMAINS FROM THE PRESIDIO ERA AND AMERICAN TERRITORIAL PERIOD FEATURES AT THE TUCSON PRESIDIO, AZ BB:13:13 (ASM)

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Meat was an important part of the diet for the Spanish and Mexicans living in the Tucson Presidio, AZ BB:13:13 (ASM). During excavations at the triplex in 2005, over 4,500 animal bone fragments were collected from three features that dated primarily to the Spanish and Mexican periods (1694-1854), the Presidio era. Three analyses of faunal assemblages from BB:13:13 that date to the same time were previously conducted (Cameron et al. 2006; Diehl and Waters 2004; Thiel and Faught 1995). Based on the animal bones recovered, domestic taxa provided most of the meat consumed by presidio residents. Chickens, pigs, sheep or goats, and cattle were butchered inside the presidio walls, although beef comprised the largest proportion of the meat diet. Traditional butchering methods using axes, cleavers, and knives were used to dismember carcasses and to divide body parts into edible portions. Comparisons with other Spanish and Mexican period faunal assemblages from southern Arizona area show differences by site type and by location in the variety and proportions of animals used.

Traditional butchering techniques gradually gave way to the methods of the modern meat-packing industry by the turn of the nineteenth century. This is reflected in the faunal assemblage from American Territorial period deposits recovered in the backyard of the triplex. The analyzed animal bone was part of the household trash deposited between 1880 and 1900 by Mrs. Jácome and her daughters, as well as by various renters. The animals that comprised the meat diet were similar to those consumed by presidio residents some 50 years prior.

A few faunal bones were recovered from prehistoric features during the project, although most were almost certainly introduced by Historic era rodent burrowing. The sample size for prehistoric faunal bone was too small to provide useful information.

METHODS

The sampling strategy for both components, Presidio era and American Territorial period, included the best-dated features. Faunal material from analyzed contexts was recovered through ¼-inch dry screening, and was counted and weighed. The Western Archeological and Conservation Center (WACC) and Stanley J. Olsen comparative collections at the Arizona State Museum (ASM), as well as several published references (Getty 1975; Gilbert 1990; Gilbert et al. 1985; Hoffmeister 1986; Olsen 1964, 1968, 1979; Peterson 1990; Sisson 1953; Stebbins 1985), assisted in the identification of faunal specimens. The number of identified specimens (NISP) was tabulated for all identifiable taxa. In this case, identifiable includes all specimens identified at or below the order level. Fragments from recently broken identifiable specimens were refitted, when possible, and counted as one. Bone surface modifications resulting from both cultural and natural agents were recorded. Recorded variables for identifiable bone included provenience, taxon, element, element part and side, degree of fusion, amount present, degree of burning, and other surface modifications, including butchering marks.

Unidentifiable large mammal (pig-/sheep-/cattle-sized) bone scrap was counted and weighed, but was not otherwise analyzed. Due to the small size of most bone fragments, refitting was not attempted for the unidentifiable bone. Consequently, each fragment was counted as one. Unidentifiable bone comprised only 23 percent of the bone fragments from the American Territorial period sample. In contrast, the Presidio era assemblage included 72 percent unidentifiable bone. The large proportion of unidentifiable bone is primarily the result of a combination of preservation problems and excavation techniques. Much of the unidentifiable bone exhibited traces of gypsum (calcium sulfate) crystals. This substance so weakened the structure of the bone that a single blow with a

shovel reduced even complete elements into fragments. Most of the unidentifiable specimens are large mammal long bone shaft pieces. Based on the distribution of taxa in the identifiable assemblages, these are probably primarily cattle bone. Not all of the breakage is from recent excavation damage, however. The high incidence of chopmarks on long bone fragments may also indicate breakage for marrow.

Over one-third (approximately 39 percent) of the assemblage recovered from the Presidio era features was analyzed. Three large pit features, including Features 460, 586, and 659, were selected for analysis. Feature 659 was completely analyzed. Only bone from the lower levels, below Level 1, of Features 460 and 586 was analyzed. The American Territorial period faunal assemblage was also sampled, and approximately 45 percent of the bone from well-dated features was analyzed. Feature 510, an outhouse pit, was completely analyzed. Additionally, the bone from the lower levels, below Level 1, of one unit in Feature 578, a large borrow pit, was analyzed.

THE PRESIDIO ERA ASSEMBLAGE

The meat diet represented by the three analyzed features in the Presidio era assemblage was comprised almost entirely of domestic animals, with cattle (*Bos taurus*) being consumed most often. The overwhelming majority (74 percent) of identifiable bone was from cattle (Table 11.1). Other domestic taxa, including chicken (*Gallus gallus*), pig (*Sus scrofa*), sheep/goat (*Ovis aries/Capra hircus*), and large artiodactyl (pig-/cattle-sized), comprised 10 percent of the identifiable assemblage. Eleven canid specimens, probably from a large dog (*Canis* cf. *lupus familiaris*), are present in the assemblage, and make up the remaining 4 percent. The large canid is represented by an articulated right hind foot and a scapula fragment from Feature 586. There are no butchering marks on the bones, although it was not possible to determine if the animal was solely a pet rather than a food item. The only wild taxa positively identified in the assemblage were fish remains (n = 40, or 13 percent). Three specimens were positively identified to the minnow and carp family (Cyprinidae), and are probably chubs (*Gila* sp.), the most common local genus (Barnet Pavao-Zuckerman, personal communication 2008). The remaining specimens (n = 37) were identified only as bony fishes (Osteichthyes), but are most likely cyprinids as well. The fish remains were recovered from Feature 460, and include at least two individuals, represented by two left opercula (skull parts).

The minimum number of individuals (MNI) for each discrete taxon per feature is shown in parentheses in Table 11.1. All domestic taxa have an MNI of one except cattle and sheep/goat. Multiple individuals of these taxa were identified by differences in size, repetitions in element representation, and variations in bone development or estimated age. The aging of domestic animals within animal husbandry has a long history. For example, the eruption of teeth occurs at regular intervals in pig, sheep, and cattle, providing a guide to the ages of the individuals represented (see Silver 1970; Sisson 1953). Epiphyseal fusion rates for postcranial elements are also established, and they provide age range estimates for domestic taxa (Silver 1970).

The standard MNI calculation for the sheep/goat specimens in the presidio assemblage yields a minimum of three individuals. However, based on epiphyseal fusion rates, at least four sheep/goat individuals are present. One additional animal is present in Feature 586 (Table 11.2). The specimens with preserved epiphyseal portions from Feature 460 are all part of an articulated left hind foot. The age at death was between 13 and 16 months, based on one fusing proximal first phalanx. The age, however, was probably closer to 16 months, because the other proximal phalanges in the foot are already fused. The younger of the two individuals represented in Feature 586 was less than 2½-3 years at death, based on one unfused calcaneus. The other individual was older than 3 years at death, based on one fused distal radius. The single individual from Feature 659 was less than 5 years old at death, based on one unfused thoracic vertebral pad. Very little sheep/goat cranial material was identified; one incisor was recorded from Feature 586.

The standard MNI calculation, based on element repetitions, for cattle specimens in the presidio assemblage yields a minimum of six individuals, or two per feature. Feature 460 contained at least two adult or subadult individuals, represented by 2 right proximal humeri, 2 right distal femurs, 2 right astraguli, and 2 right distal metatarsals. The younger individual was less than 2½-3 years old at death, based on two paired unfused distal metatarsals. The other individual was more than 3½-4 years old at death, based on a fused proximal humerus and a distal radius (Table 11.3). Feature 586 contained at least two adult or subadult individuals, represented by two right astraguli. The younger individual was less than 1½ years old at death, based on an unfused proximal first phalanx. The other individual was at least 5 years old at death, based on a fused lumbar vertebral pad (see Table 11.3). Feature 659 contained at least two adult or subadult individuals, represented by 2 right scapulae, 2 right proximal radii, and 2 left distal metacarpal (1 fused, 1 unfused). One of the individuals was between 2-2½ years old at death, based on two paired distal metacarpals, one unfused and one fusing. The older individual was aged at least 5 years at death, based on two fused

Table 11.1. Taxa represented in Presidio era features at AZ BB:13:13 (ASM). (Quantities are number of identifiable specimens unless otherwise noted; quantities in parentheses are minimum number of individuals.)

Taxon	Feature 460	Feature 586	Feature 659
Unspecified bony fish (Osteichthyes)	37	–	–
Unspecified minnow or carp (Cyprinidae)	3 (2)	–	–
Chicken (*Gallus gallus*)	–	2 (1)	–
Dog? (*Canis* cf. *lupus familiaris*)	–	11 (1)	–
Large artiodactyl (pig-/cattle-sized)	–	–	2
Pig (*Sus scrofa*)	–	3 (1)	–
Sheep/Goat (*Ovis aries/Capra hircus*)	9 (1)	8 (1)	6 (1)
Cattle (*Bos taurus*)	8 (2)	73 (2)	67 (2)
Identifiable total	137 (5)	97 (6)	75 (3)
Large mammal (pig-/sheep-/cattle-sized)	525[a]	555[a, b]	197[a]

[a]Number of fragments.
[b]One is a tool.

Table 11.2. Epiphyseal fusion rates for sheep/goat specimens from AZ BB:13:13 (ASM).

Element	Fused	Unfused	Age at Fusion[a]
Feature 460			
Distal first or second phalanx	3	–	Before birth
Proximal first or second phalanx	2	1 (fusing)	13-16 months
Distal metatarsal	–	1	20-28 months
Feature 586			
Distal tibia	1	-	1½-2 years
Calcaneus	–	1	2½-3 years
Distal radius	1	-	3 years
Feature 659			
Vertebral body	–	1	5 years

[a]Silver 1970.

thoracic vertebral pads. No intact cattle maxillae or mandibles were present. However, at least three separate skulls are represented among the fragmentary cranial material recovered from the features.

The age profiles for sheep/goat and cattle, with individuals aged from less than 1 year to over 5 years, shows that animals of all ages were killed and that some were used for purposes other than food. Most animals raised primarily for food are slaughtered before they are fully grown, although a small number are kept alive for breeding. The use of cattle for draft or dairying and the use of sheep for wool production would result in more animals living to an older age (Landon 1996:96).

Bone Surface Modifications

Bone surface modifications resulting from both cultural and environmental processes were present on much of the faunal material from the Presidio era features at BB:13:13. Cultural processes, such as burning and butchering, are biostrationomic, occurring before burial (Lyman 1994:402). In contrast, modifications by environmental processes tend to occur after burial.

Environmental Modifications

The Presidio era assemblage was in fair to poor condition. A total of 212 (79 percent) analyzed specimens exhibit postdepositional bone surface modifications resulting from environmental factors. The most common type of modification varied depending on feature location. Erosion affected the largest number of modified specimens from the two features excavated in the triplex area, Features 460 and 586. A total of 85 specimens exhibited bone surface erosion. Erosion is most commonly associated with exposure to sunlight, moisture, and temperature fluctuations before bone is buried (Behrensmeyer 1978).

Traces of gypsum were noted on 49 specimens. Gypsum forms in soil under differing circumstances. For example, gypsum crystals may form

Table 11.3. Epiphyseal fusion rates for cattle specimens from AZ BB:13:13 (ASM).

Element	Fused	Unfused	Age at Fusion[a]
Feature 460			
Proximal metatarsal	2	–	Before birth
Distal first or second phalanx	5	–	Before birth
Proximal radius	1	–	12-18 months
Proximal first or second phalanx	5	–	1½ years
Distal metatarsal	1	2	2½-3 years
Proximal femur	–	1	3½ years
Proximal humerus	1	1	3½-4 years
Distal radius	1	–	3½-4 years
Distal femur	–	1	3½-4 years
Vertebral body	–	5	5 years
Feature 586			
Proximal metacarpal	1	–	Before birth
Distal first or second phalanx	5	–	Before birth
Proximal first or second phalanx	1	1	1½ years
Distal tibia	2	–	2-2½ years
Calcaneus	–	1	3-3½ years
Proximal femur	–	1	3½ years
Proximal tibia	–	1	3½-4 years
Vertebral body	1	1	5 years
Feature 659			
Proximal metatcarpal	2	–	Before birth
Proximal metatarsal	2	–	Before birth
Distal first or second phalanx	4	–	Before birth
Scapula	2	–	7-10 months
Proximal radius	2	–	12-18 months
Proximal first or second phalanx	4	–	1½ years
Distal metacarpal	1	2 (1 is fusing)	2-2½ years
Distal metatarsal	1	1	2½-3 years
Proximal femur	1	v	3½ years
Distal femur	1	-	3½-4 years
Proximal tibia	–	1	3½-4 years
Innominate	1	–	4½ years
Vertebral body	2	2 (1 is fusing)	5 years

[a]Silver 1970.

when, under the proper conditions, autotrophic sulfur bacteria produce sulfuric acid in the presence of calcium carbonate (caliche) or calcium phosphate (hydroxyapatite), the latter of which is the inorganic component comprising 70 percent of bone (Lyman 1994:72; Waksman 1952:67). Substances such as gypsum may also be formed from solutes carried through the soil by water. Gypsum crystals often co-occur with surface erosion on bones in the Presidio era assemblage. This combination of environmental weathering led to the destruction of many bone surfaces and was responsible for much of the breakage leading to the large proportion of unidentifiable bone.

Forty-one specimens were stained. Dark-colored staining on bone from BB:13:13 was likely caused by manganese oxide in the soil matrix (Brain and Sillen 1988:464, cited in Lyman 1994:421). A total of 33 specimens exhibited root-etching. Root-etching is thought to result from the acidic secretions of plant roots, although whether the acid is secreted by the roots themselves, or by the fungi associated with decomposing roots, is unknown (Grayson 1988:30; Lyman 1994:375). Root-etching may have occurred either before or after burial. Only two specimens were abraded. Abrasion is usually the result of "the tumbling of bones in a liquid that contains sediment" (Lyman 1994:185). However, several processes other than fluvial transport can abrade bone, such as trampling and eolian activity (Lyman and references cited 1994:187). Caliche-coating, covering less than 25

percent of the bone surface, was present on only one specimen. Caliche-coating on bone results from the precipitation of calcium carbonate. In an arid environment with high rates of evapotranspiration, calcium carbonate is distributed throughout the soil horizon. The depth of dense accumulations of caliche is dependent upon soil moisture and texture (McFadden and Tinsley 1985:30-32).

Evidence of animal damage was present on 15 specimens. Carnivore gnawing was observed on 11 analyzed specimens. Four specimens exhibited "bore holes," possibly from insects (cf. Lyman and references cited 1994:393-394).

Staining, accompanied by abrasion, was the most common type of bone modification in the assemblage from Feature 659. Feature 659 was located in the southeastern corner on the opposite side of the project area from the triplex. A total of 62 specimens exhibited staining; 18 of these were also abraded. One specimen was stained and eroded, and one specimen exhibited gypsum crystals. Two specimens exhibit carnivore gnawing. The staining on specimens from Feature 659 is different from that on specimens from the other features. The former specimens were completely stained a dark brown color, while the latter specimens had spots of dark-colored or purple staining.

Cultural Modifications

One bone tool manufactured from a large mammal (pig-/sheep-/cattle-sized) long bone shaft was recovered in the Presidio era assemblage. The specimen from Feature 586 (FN 7413) is the distal fragment of an awl-like implement. The tool exhibits scrapes where it was formed into a blunt point that is polished from an unknown use.

Several bone tools were recovered during excavations in Presidio era deposits at the San Agustín mission site (Cameron et al. 2006:13.21). These tools, along with the specimen from Feature 586, confirm that, prior to the 1850s, imported goods in Tucson were in short supply and were very expensive (Faught et al. 1995:42). People had to make do with what they brought with them and what they could make on site. No shops sold manufactured goods until later in the Mexican period. Many residents reworked and reused their metal implements for as long as possible. The bone tools in the Presidio era assemblages are very crudely made, and may represent quick substitutes for metal tools.

Only six specimens in the Presidio era assemblage exhibit evidence of burning. One cattle thoracic vertebra from Feature 460 was partially charred; the rest of the burned specimens were from Feature 586 and are also cattle. A third phalanx was charred/calcined. The other specimens were browned, and include a lumbar vertebra, a rib, and two third phalanges. Burning colors generally indicate the length of exposure to heat and/or the temperature of the fire. Higher temperatures and longer burning periods produce bone colors from brown to black to gray to white (Gilchrist and Mytum 1986:31). Most bones recovered from archaeological sites were probably not burned during cooking. Rather, bone burned to a greater degree is probably the result of having been tossed into the cooking fire after consumption of the meat, or of trash burning (Lyman 1994:388). Browned bone may represent bone from meat that was roasted. However, the charred and calcined specimens were more likely the result of incineration rather than food preparation due to the intensity of burning (cf. Gilchrist and Mytum 1986:36). Individual pit features produced both burned and unburned specimens, indicating much of the bone was burned prior to final deposition (cf. Stahl and Zeidler 1990, cited in Lyman 1994:392). Butchering marks were also observed, and are discussed below.

Element Representation and Butchering Practices

Butchering marks were observed on 71 identifiable specimens, or 27 percent of the analyzed assemblage. Most (n = 62, or 87 percent) of the specimens with butchering marks exhibit chopmarks made by axes or cleavers. These marks are indicative of dismemberment and dividing the carcass into edible portions. Only two specimens (3 percent) exhibit cutmarks made by a thin blade, probably the result of skinning and defleshing. Seven specimens (10 percent) display both chopmarks and cutmarks. The large number (n = 226) of unidentifiable long bone shaft fragments with chopmarks may indicate breakage for marrow as well.

The element representation and incidence of butchering marks on sheep/goat and cattle specimens from the Presidio era assemblages are shown in Table 11.4 and Table 11.5, respectively. Only three specimens were positively identified as pig, and all are tooth fragments. The sheep/goat skeleton was better represented with 23 specimens. Identified elements include: 1 incisor, 1 thoracic vertebra, 6 ribs, 1 scapula, 1 radius, 1 ulna, 1 femur, 1 tibia, 2 tarsals, 1 metapodial, 1 metatarsal, 2 sesamoids, and 4 phalanges. As noted, the last seven specimens belong to the same left, hind foot. The only butchering marks on the sheep/goat specimens occur on one distal tibia from Feature 586. Both chopmarks and cutmarks are present on that specimen. Due to the small sample size and the virtual lack of butchering marks, it is not possible to interpret the sheep/goat element representation and estimate the carcass

Table 11.4. Sheep/goat elements from Presidio era features at AZ BB:13:13 (ASM).

Feature	Element	Butchering Marks	NISP[a]
460	Scapula	None	1
	Metatarsala	None	1
	Metapodial	None	1
	Sesamoid[b]	None	2
	Phalanx[b]	None	4
586	Incisor	None	1
	Rib	None	2
	Radius	None	1
	Femur	None	1
	Tibia	Chopmarks and cutmarks	1
	Astragalus	None	1
	Calcaneus	None	1
659	Thoracic vertebra	None	1
	Rib	None	4
	Ulna	None	1
Site total			23

[a]Number of identified specimens.
[b]Specimens are from the same foot.

apportionment. However, because skull and foot elements are present and the butchering marks are almost exclusively chopmarks, caprines (sheep or goats) appear to have been butchered within the presidio walls using traditional methods. The presence of a nearly complete hind foot suggests feet were removed and discarded during the butchering process.

Most of the assemblage consists of cattle specimens. All are listed in Table 11.5, with butchering marks noted. To offset some of the effects of fragmentation on the NISP (Grayson 1984), the minimum number of elements (MNE) was calculated and then standardized for cattle anatomical portions (after Stiner 1994:240).

The MNE for selected portions of the cattle skeleton are shown in Table 11.6. The standardized MNEs are composed of the raw MNE counts collapsed into seven anatomical regions. The MNE for each region was calculated using the most common portion of each unpaired element and the sum of the rights and lefts of the most common portion, usually an articular end, of each type of paired element. The seven regions include the head (skull parts and maxillae), axial column (ribs, vertebrae, and innominates), the upper front limbs (scapulae and humeri), lower front limbs (radii, ulnae, and metacarpals), upper hind limbs (femurs), lower hind limbs (tibiae and metatarsals), and the feet (phalanges). The MNEs are summed for each anatomical region and then divided by the expected number of MNEs per anatomical region to obtain the standardized MNE. Each standardized MNE represents a bone-based MNI estimate for each of the seven regions (Stiner 1994:241). The highest standardized MNE serves as the estimated number of carcasses represented. The MNI percentages based on the standardized MNEs from Table 11.6 are displayed in Figure 11.1, using the standardized MNEs for the upper hind region (3.00) as 100 percent. The MNI is lower using this method because all the features were combined for the calculations, and fusion age was not considered.

As illustrated in Figure 11.1, the upper hind, lower front, and upper front were the best represented portions of the cattle carcass. The lower hind was less well-represented. The feet, the skull, and the axial skeleton are underrepresented. The meatier and higher quality portions of the carcass are the axial, upper front, and upper hind regions. The lower front, lower hind, and particularly, the skull and feet, contain less and lower quality meat. The relatively good representation of the meatier portions indicates the Presidio era pit assemblages primarily contain evidence of secondary butchering, or the subsequent partitioning of the carcass into edible portions. The low proportion of axial specimens may indicate these elements were removed during initial butchering, or they may represent the most common end-product of tertiary butchering for consumption, disposed of elsewhere. Similarly, low proportions of the skull and feet regions imply that most of the initial butchering, including removal of the head and feet, occurred elsewhere.

Faunal assemblages dated to the Spanish and Mexican periods are dominated by chopped cattle bone. Traditionally, Hispanic butchers used cleavers, while hand-saws were associated almost exclusively with Euro-American butchers (Chapin-Pyritz and Mabry 1994:155). The early use of cleavers and axes to dismember and separate the carcass was very different from methods used later by the modern meatpacking industry. Nearly 90 percent of the cattle specimens with butchering marks exhibit only chopmarks. Chopmarks are primarily involved in initial butchering and secondary apportionment. Only seven specimens display cutmarks, either alone or in combination with chopmarks, including 1 rib with cutmarks only, 5 ribs with chopmarks and cutmarks, and 1 lumbar vertebra with cutmarks. Cutmarks may be an indicator of skinning, a step of initial butchering, or tertiary butchering, particularly deboning and meat removal. The low proportion of cutmarks also implies that secondary butchering was a focus of the dismemberment strategy represented by the assemblage. This makes sense in communal dining conditions where larger, bone-in cuts are consumed.

It was assumed that elements from the meatier portions of the cattle carcass would have more butchering marks than elements from less meaty portions.

Table 11.5. Cattle elements from Presidio era features at AZ BB:13:13 (ASM).

Feature	Element	Butchering Marks[a]	NISP[b]
460	Skull	None	3
	Isolated teeth	None	4
	Cervical vertebra	None	1
	Thoracic vertebra	None	4
	Lumbar vertebra	None	7
	Caudal vertebra	None	1
	Unspecified vertebra	None	3
	Rib	Chopmarks and cutmarks (15)	27
	Costal cartilage	None	1
	Scapula	Chopmarks	1
	Humerus	Chopmarks (2)	3
	Radius	Chopmarks (2)	3
	Ulna	Chopmarks	1
	Metacarpal	Chopmarks	1
	Femur	Chopmarks (2)	3
	Tibia	Chopmarks	1
	Astragalus	Chopmarks	2
	Metatarsal[c]	None	4
	Sesamoid (hind)[d]	None	4
	Sesamoid (unspecified)	None	6
	Phalanx (hind)[d]	None	6
	Phalanx (unspecfied)	None	2
586	Skull part (squamous temporal)	Chopmarks (1)	6
	Isolated tooth	None	2
	Cervical vertebra	Chopmarks	2
	Thoracic vertebra	None	1
	Lumbar vertebra	Chopmarks (1)	5
	Unspecified vertebra	Chopmarks (1)	2
	Rib	Chopmarks (8)	18
	Humerus	Chopmarks (1)	4
	Ulna	Chopmarks	1
	Carpal (pisiform)	None	1
	Metacarpal	None	1
	Innominate (pubis)	None	1
	Femur	None	1
	Tibia	Chopmarks (2)	5
	Astragalus	Chopmarks (1)	2
	Calcaneus	Chopmarks (1)	2
	Sesamoid	None	9
	Phalanx	None	10
659	Skull part	None	6
	Horn core with frontal	None	1
	Maxilla	None	3
	Isolated tooth	None	2
	Cervical vertebra	Chopmarks (3)	5
	Thoracic vertebra	Chopmarks (2)	4
	Lumbar vertebra	Chopmarks	2
	Sacrum	None	2
	Rib	Chopmarks and cutmarks (5)	7
	Scapula	Chopmarks (1)	3

Table 11.5. Continued.

Feature	Element	Butchering Marks[a]	NISP[b]
659	Radius	Chopmarks (1)	2
	Carpal (unciform)	None	1
	Carpal (trapezoid/magnum)	None	2
	Metacarpal	None	5
	Innominate (acetabulum)	None	1
	Femur	Chopmarks (1)	3
	Patella	Chopmarks (1)	2
	Tibia	None	1
	Astragalus	Chopmarks	1
	Tarsal (2nd-3rd)	None	2
	Metatarsal	Chopmarks (1)	4
	Phalanx	None	6
	Long bone	Chopmarks and cutmarks	2
Site total			228

[a]Number in parentheses is the number of identified specimens with butchering marks.
[b]Number of identified specimens.
[c]One articulates with the hind sesamoids and phalanges.
[d]Specimens are from the same foot.

Table 11.6. Body part representation (in minimum number of elements) of cattle specimens from Presidio era features at AZ BB:13:13 (ASM).

Body Part	Feature 460	Feature 586	Feature 659	rMNE[a]	sMNE[b]	sMNE/MNI[c]
Skull	1	1	1	3	0.75	0.25
Axial	16	13	12	41	0.73	0.24
Upper front	4	2	2	8	2.00	0.67
Lower front	4	2	5	11	1.83	0.61
Upper hind	3	1	2	6	3.00	1.00
Lower hind	5	2	3	10	1.25	0.42
Feet	8	9	6	23	0.96	0.32

[a]Total raw MNE.
[b]Total standardized MNE.
[c]Anatomical completeness index.

All portions generally conform to this assumption. Elements from the upper hind region exhibit the highest proportion of butchering marks, with 57 percent. Roughly 46 percent each of elements from the upper front portion and the axial portion display butchering marks. Most parts with little meat show few butchering marks. Skull parts have a low proportion (4 percent) of butchering marks, and foot elements exhibit no butchering marks at all. However, the lower front and the lower hind portions have higher than expected proportions of butchering marks, 33 percent and 38 percent, respectively. The elements in these portions are not surrounded by much meat, and the relatively large proportions with butchering marks may reflect the use of these parts for the traditional dish of menudo (cf. Diehl et al. 2005:193). This may also reflect a particular butchering strategy for removal of the lower legs and feet.

Due to heavy fragmentation of the assemblage and the small number of each element type with butchering marks, estimates of cattle carcass apportionment patterns were not attempted. Nonetheless, some descriptive statements about initial, secondary, and, less frequently, tertiary butchering practices may be made. As noted, the cranial elements exhibit very low proportions of butchering marks. One squamous temporal specimen contained chopmarks, possibly to remove the brain. Removal of the head is indicated by chopmarks on cervical vertebrae specimens, particularly the atlas. Other vertebrae have longitudinal chopmarks through the bodies, indicating splitting of the carcass. One lumbar vertebra exhibits cutmarks on the transverse process, suggesting meat removal. Parallel chopmarks on many of the ribs indicate secondary apportionment. Only one rib specimen contains cutmarks

indicative of meat removal. This implies that ribs were eaten on the bone. Chopmarks on the proximal radius and ulna suggest separation from the humerus. Rather than chopping through the metapodials, the lower leg and foot appear to have been removed by chopping through the podials and/or the distal tibia and radius/ulna. Chopmarks on the distal ends and shafts of the radius and ulna imply separation from the carpus and foot. Likewise, the distal tibia appears to have been involved in the disarticulation of the lower hind leg. Three distal tibia specimens have chopmarks. Chopmarks were also noted through the calcaneus and astragalus, indicating the removal of the lower hind leg.

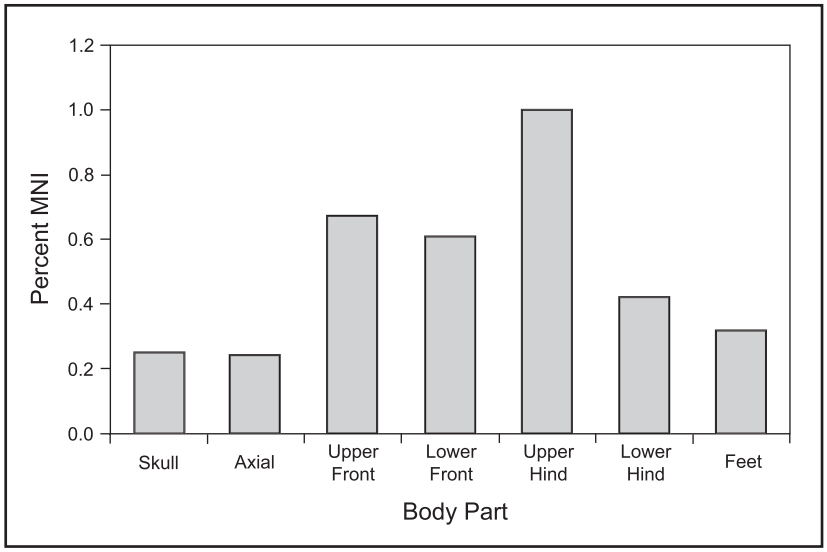

Figure 11.1. Cattle body part representation in Presidio era features at AZ BB:13:13 (ASM).

As mentioned, there is not much evidence for tertiary butchering. There are relatively few shallow cutmarks involved in deboning and meat removal. This suggests many of the cuts were consumed with the bone in, although the pervasive erosion of bone surfaces in the assemblage could have obscured many of the more shallow cuts. Many of the limb bones were systematically partitioned through some part of the shaft, ostensibly to divide the carcass into edible portions of meat. Although there is minimal evidence for marrow processing in the presidio assemblage, partitioning of various long bones may have been intended to retrieve bone marrow. This duality in the analyzed sample makes it difficult to determine the degree to which bone marrow was habitually used (cf. Landon 1996:78, 93).

Comparisons with Other Presidio Era Assemblages in the Tucson Area

The presidio faunal assemblage is compared with seven other faunal assemblages recovered from southern Arizona sites that date to the Spanish and Mexican periods (Table 11.7). The earliest assemblage in the comparison comes from the Mission San Miguel de Guevavi, AZ EE:9:1 (ASM), and dates from 1701-1773 (Gillespie 1992). Roughly contemporaneous with the presidio assemblage from Block 181 are the assemblages from the Tucson Presidio era occupations in Block 192 (Thiel and Faught 1995), Block 185 (Broockman 2008), and the Mission San Agustín de Tucson locus (Cameron et al. 2006). The assemblage associated with the Mission San Agustín de Tucson itself, AZ BB:13:16 (ASM), dates from 1795-1820 (Pavao-Zuckerman and LaMotta 2007). Two assemblages from the Tubac Presidio are used in the comparison as well, including the Spanish Colonial occupation from 1750-1800, and the Mexican Garrison occupation from 1800-1850 (Hewitt 1975). The proportion of identifiable specimens is relatively low, ranging from 6 percent for the assemblages from the Mission San Agustín and the Mexican Garrison occupation at Tubac, to 35 percent for the assemblage from the Tucson Presidio in Block 192.

Assemblages in the comparison range in size from 42 identifiable specimens from the Tucson Presidio in Block 192, to 726 identifiable specimens from the Tucson Presidio in Block 185. The minimum number of taxa (taxonomic richness) present in a faunal assemblage depends on assemblage size; that is, larger assemblages generally contain a greater number of taxa than smaller assemblages (Grayson 1984:132). This is mostly true for the assemblages in the comparison. The smallest assemblage from the Tucson Presidio in Block 192 contains six discrete taxa, while the largest assemblage from the Tucson Presidio in Block 185 contains 14 discrete taxa. The correspondence is not exact, however. The small assemblage from Guevavi contains at least 15 discrete taxa, and the Mission San Agustín assemblage contains 19 discrete taxa. The Tucson Presidio assemblage from Block 181 contains only six discrete taxa.

A diet based primarily on domestic animals will generally consist of only a few taxa, including, but not limited to, cattle, caprines, pigs, and chickens. The hunting of wild species brings in several more possible taxa, including, but not limited to, rabbits,

Table 11.7. Characteristics of Hispanic faunal assemblages from the Spanish and Mexican periods.

Site	NISP[a]	Percent ID	Number of Taxa	Proportion of Wild Taxa	Cattle[b]	Sheep[b]	Pig[b]
Mission San Miguel de Guevavi (1701-1773) (Gillespie 1992)	56	19	15	71	2 (15%)	9 (69%)	2 (15%)
Mission San Agustín de Tucson (1795-1820) (Cameron et al. 2006)	548	6	19	27	344 (94 %)	23 (6%)	–
Tubac Presidio (1750-1800) (Hewitt 1975)	389	9	15	11	57 (28%)	143 (69%)	6 (3%)
Tubac Presidio (1800-1850) (Hewitt 1975)	430	6	15	6	120 (40%)	178 (60%)	1 (<1%)
Tucson Presidio, Mission Locus (1775-1854) (Cameron et al. 2006)	394	21	13 (6 features)	12	247 (89%)	20 (7%)	10 (4%)
Tucson Presidio, Block 181 (1775-1850) (This volume)	309	20	6 (3 features)	13	228 (89%)	23 (10%)	3 (1%)
Block 192 (circa 1780-1850) (Thiel and Faught 1995)	42	35	6	10	24 (80%)	6 (20%)	–
Block 185 (circa 1775-1850) (Broockman 2008)	726	26	14	13	290 (70%)	123 (30%)	–

[a]Number of identifiable specimens
[b]Percentages represent the portion of the sum of the NISP of the three domestic taxa.

deer, turtles, and fish. Commensal taxa include those that are associated with humans and anthropogenic environments, but that are not primarily used as food sources (Pavao-Zuckerman and LaMotta 2007:255). These include frogs and toads, rodents, dogs, cats, horses, and burros. The Guevavi assemblage is composed of 71 percent wild, mostly commensal taxa. The Mission San Agustín also contains a relatively high proportion (21 percent) of wild taxa. Because these assemblages were deposited primarily by Native Americans, many of the taxa probably represent hunted animals. In contrast, the Spanish and Mexican residents of the Tucson and Tubac Presidios ate mostly domestic animals. This is shown in the low proportion of wild taxa in the assemblages and, generally, in the low taxonomic richness of the presidio assemblages.

Based on the high proportion of cattle bone in the large domestic ungulate subassemblages, beef was the mainstay of the meat diet. Mutton and, especially, pork consumption were more variable than beef consumption. Except Mission San Miguel de Guevavi and the Tubac Presidio, cattle bone comprises between 70 percent and 94 percent of the bone from large domestic animals, including cattle, caprines, and pig (see Table 11.7). Caprines are better represented than cattle in the assemblages from Guevavi and Tubac. They comprise 69 percent of the large domestic animal subassemblage from Guevavi, 69 percent of the Spanish Colonial subassemblage from Tubac, and 60 percent of the Mexican Garrison subassemblage from Tubac. In contrast, cattle specimens in these subassemblages represent 15 percent, 28 percent, and 40 percent, respectively.

What could account for these differences? The Guevavi and Tubac assemblages do not have anything in common except that they are outside of Tucson. One is from a mission, while the other is from a presidio. The Guevavi assemblage represents one of the earliest European-influenced occupations in the area. The Spanish Colonial assemblage from Tubac is also slightly earlier than the other assemblages in the comparison, but the Mexican Garrison assemblage is roughly contemporaneous. Broockman (2008) suggests that a larger proportion of caprines in assemblages is a response to raiding by Native Americans. Caprines were generally less prone to capture by raiding than cattle due to the difficulty in herding them and their resistance to stampeding. Additionally, the location of the Tubac Presidio near the Santa Rita Mountains decreased visibility, and was more conducive to raiding by Native American groups. Because Guevavi is in the vicinity of the Tubac Presidio, the mission residents likely faced a similar situation regarding raiding. Unlike the presidio at Tubac, the Tucson Presidio appears to have had better success in settling Native American groups and dealing with raiding (Broockman 2008). This may explain the preponderance of beef bones in the Tucson Presidio assemblages.

Summary and Conclusions

The distribution of animal bone within the presidio walls on Block 181 shows that cattle were the primary source of meat, with chickens, sheep or goats, and pigs making smaller contributions. Local fish were the only wild taxa consumed. Cattle and sheep/goats are represented by both juveniles and adults. The age profile for cattle and sheep/goat specimens in the assemblage includes animals ranging in age from juveniles less than 1 year old to adults more than 5 years old. The range in ages at slaughter suggests not all animals were killed in their prime, and were raised for more than meat.

Element representation among the domestic taxa indicates complete animals were butchered and processed by presidio residents. Butchering was accomplished with axes and cleavers, and the finer work was done with knives. The relatively good representation of all portions of the cattle carcass suggests the presidio pit assemblages are the result of initial and secondary butchering, including dismemberment and apportionment into segments. Just over one-quarter of the identifiable assemblage exhibits butchering marks; most are chopmarks made by an ax or a cleaver, further suggesting initial and secondary butchering. Little evidence for tertiary butchering, such as cutmarks from deboning and meat removal, is present. Cutmarks may also indicate skinning, part of the initial butchering process.

Elements from the meatier portions of the cattle carcass display a higher proportion of butchering marks. The lower front and lower hind limb bones are consistently chopped through at various points on their shafts, indicating secondary apportionment, fracturing for marrow, or both. Because these bones have little or low-quality meat, marrow processing seems more likely. However, meat from the lower legs and feet were used in making menudo, a traditional Mexican dish. Chopmarks through shafts of the lower limb bones also may be the result of the removal of the lower legs and feet during butchering. In the end, "Butchery marks on bones reflect all stages of the butchery process, and it is not always possible to correlate specific marks, or even mark clusters, with a single step in the butchery process" (Landon 1996:92). Nonetheless, based on element representation and butchering marks, complete animals were certainly butchered within the presidio walls using traditional methods.

Comparisons with other faunal assemblages from the Spanish and Mexican periods show that

domestic animals provided most of the meat for the Hispanic residents of the Tucson area. Higher proportions of wild taxa are present in the mission assemblages of Guevavi and San Agustín, probably due to hunting by the native populations, although some of the taxa are probably commensal as well. Beef was, by far, the most popular meat eaten by occupants of the Tucson Presidio and Mission San Agustín, comprising most of the meat consumed in the Spanish and Mexican periods. Assemblages from the Tubac Presidio and Mission San Miguel de Guevavi contained higher proportions of sheep and goats, possibly in response to increased raiding by Native American groups.

AMERICAN TERRITORIAL PERIOD ASSEMBLAGE

Domestic taxa comprise 67 percent (n = 539) of the identifiable American Territorial period assemblage, with the largest proportion (47 percent, or n = 381) from cattle (*Bos taurus*) (Table 11.8). Other domestic animals include pig (*Sus scrofa*), with 3 percent (n = 26), sheep/goat (*Ovis aries/Capra hircus*), with 12 percent (n = 98), chicken (*Gallus gallus*), with 3 percent (n = 21), and horse or burro (*Equus* sp.), with less than 1 percent (n = 1). Together, medium artiodactyl (pig-/sheep-/goat-sized) and large artiodactyl (pig-/cattle-sized) make up 2 percent (n = 12) of the identifiable assemblage.

Wild taxa comprise the remaining 33 percent (n = 265) of the identifiable assemblage. The greatest number (n = 255) of wild specimens belong to a single mullet (*Mugil* sp.). Although several specimens with no diagnostic features were identified as unspecified bony fish (Osteichthyes), they are also probably part of the mullet. All the bones were recovered in a bottle labeled "Extract of Malt." The striped mullet (*Mugil cephalus*) is the native species (Miller and Lowe 1976:150). Mullets are anadromous fishes and as such, may be caught in either marine or riverine waters. Its only known freshwater location in Arizona is the lower Colorado River, although it is common in the Gulf of California. The fish in question was likely purchased at a Tucson market. Wild mammal taxa (n = 6) consist of cottontail (*Sylvilagus* sp.) and jackrabbit (*Lepus* sp.). Based on bone color and the lack of surface modifications, the cottontail specimens are almost certainly recent intrusions to the historic deposits. The jackrabbit specimens are unmodified and may also be intrusive. Two additional bird specimens include unidentified large duck (Anatidae) and turkey (*Meleagris gallopavo*). Both may be wild or domestic.

Element Representation and Slaughtering Ages of the Large Domestic Ungulates

The cattle, pig, and sheep/goat elements represented in the faunal assemblage from the Jácome backyard locus are shown in Table 11.9. Over half (58 percent) of the cattle specimens consist of vertebrae and ribs. Over one-third (37 percent) are long bones, and only 4 percent are from the skull or feet. An even higher proportion (68 percent) of sheep/goat specimens are vertebrae and ribs. Long bones comprise 24 percent, while cranial and foot bones make up 7 percent. The pig skeletal representation varies from the ruminants. A greater proportion (58 percent) of the pig specimens are long bones, 27 percent are cranial or foot bones, and only 15 percent are ribs. No vertebrae were identified.

The presence of head and foot bones in historic archaeological assemblages is cited as evidence for animal husbandry or on-site butchering, because the "cranial and foot bones of cows and sheep are commonly discarded in the butchering process due to low food value" (Lyman 1977:69). As noted, there are very few cranial or foot bones from cattle or sheep/goats in the domestic ungulate assemblage. This suggests that beef and mutton were purchased

Table 11.8. Taxa represented in the American Territorial period features from the Jácome backyard locus at AZ BB:13:13 (ASM).

Taxon	Feature 510	Feature 571
Bony fishes (Osteichthyes)	–	88
Mullet (*Mugil* sp.)	–	167
Unidentified duck (Anatidae)	–	2
Chicken (*Gallus gallus*)	11	10
Turkey (*Meleagris gallopavo*)	2	–
Cottontail (*Sylvilagus* sp.)	–	4
Jackrabbit (*Lepus* sp.)	–	2
Horse/Burro (*Equus* sp.)	–	1
Medium artiodactyl (pig-/sheep-/goat-sized)	4	6
Large artiodactyl (pig-/cattle-sized)	–	2
Pig (*Sus scrofa*)	10	16
Sheep/Goat (*Ovis aries/Capra hircus*)	74	24
Cattle (*Bos taurus*)	156	313
Identifiable total[a]	169	635
Medium bird (chicken-sized)	1	–
Large mammal (pig-/sheep-/cattle-sized)	143	103
Unidentifiable total[b]	144	103

[a]Number of identified specimens.
[b]Number of fragments.

Table 11.9. Cattle, pig, and sheep/goat elements (number of identified specimens, NISP) from the Jácome backyard at AZ BB:13:13 (ASM).

Element	Cattle	Cattle/Pig	Pig	Pig/Sheep/Goat	Sheep/Goat
Skull	–	–	1	–	–
Hyoid (cranial)	1	–	–	–	–
Maxillary molar	–	–	–	–	1
Unspecified cheek tooth	2	–	–	–	2
Cervical vertebra	24	–	–	–	2
Thoracic vertebra	42	–	–	–	2
Lumbar vertebra	45	–	–	–	7
Sacrum	5	–	–	–	–
Caudal vertebra	3	–	–	1	3
Unspecified vertebra	3	–	–	1	–
Rib	97	1	4	6	53
Innominate	12	–	3	–	3
Scapula	35	1	2	–	1
Humerus	26	–	1	–	2
Radius	9	–	–	–	2
Ulna	13	–	–	–	2
Femur	33	–	5	–	7
Patella	2	–	–	–	1
Tibia	10	–	1	–	5
Fibula	–	–	2	–	–
Calcaneus	1	–	–	–	2
Carpal/tarsal	9	–	2	–	1
Metapodial	–	–	4	–	1
Phalanx	2	–	–	–	–
Long bone	7	–	1	2	1
Total	381	2	26	10	98

rather than raised and butchered on-site, while the opposite appears true for pork. However, the heads and feet of pigs were often sold in butcher shops.

Another possible indicator of animal husbandry or on-site butchering is the slaughtering ages of the animals represented in the assemblage. Unfortunately, no intact teeth in maxillae or mandibles are present in the assemblage; consequently, tooth eruption sequences cannot be used for aging. However, some proportion of all three of the domestic ungulate taxa contained specimens with epiphyseal portions. Less than one-third of the cattle and sheep/goat specimens contained epiphyseal portions, with 28 percent and 21 percent, respectively. Almost half (42 percent) of the pig specimens contained epiphyseal portions. Nearly 48 percent of the cattle specimens with epiphyseal portions were vertebral bodies. These elements do not fuse until 5 years of age, and therefore, are not especially useful for age determinations. Multiple individuals within each taxon were identified by differences in size, repetitions in element representation, and variations in bone development or estimated age.

A wide range is represented in the ages of cattle. Most (n = 86, 81 percent) of the cattle specimens with epiphyses are unfused or fusing, but very few are from elements that fuse early (Table 11.10). The earliest fusing specimen in the cattle subassemblage is the scapula. The supraglenoid tuberosity fuses between 7-10 months (Getty 1975; Silver 1970). One fusing specimen and three fused specimens were identified. Two distal humeri are unfused, and one distal humerus is fusing. This epiphysis fuses in cattle at 12-18 months of age. The epiphyses of the remaining unfused elements are from more mature animals, ranging in fusion age from 2 years to 5 years. There is one, possibly two, veal calves represented by the fusing scapula and distal humerus. The age ranges are close enough that the specimens could be from the same animal. The scapula and distal humerus are from two different retail cuts, the chuck and shank, but they are part of the same secondary cut, the shoulder, as are the proximal humerus, distal radius, and distal ulna (Azizi et al. 1996). One fusing proximal femur indicates the presence of one individual aged 3½ years at death.

Table 11.10. Epiphyseal fusion rates for cattle specimens from the Jácome backyard at AZ BB:13:13 (ASM).

Element	Fused	Unfused	Fusing	Age at Fusion[a]
Scapula	3	–	1	7-10 months
Distal humerus	1	2	1	12-18 months
Proximal radius	4	–	–	12-18 months
Proximal first or second phalanx	1	–	–	1½ years
Distal tibia	–	3	–	2-2½ years
Proximal femur	1	6	1	3½ years
Proximal humerus	1	7	–	3½-4 years
Distal radius	1	1	–	3½-4 years
Distal ulna	1	2	–	3½-4 years
Proximal tibia	3	3	–	3½-4 years
Distal femur	–	4	–	3½-4 years
Innominate	3	–	–	4½ years
Vertebral body with pad	1	51	4	5 years

[a]Silver 1970.

Nearly all (94 percent) of the unfused specimens are from elements that fuse at 3½ years or older.

At least four individuals are represented by the unfused proximal humeri, indicating the presence of other immature animals in addition to the veal calves. The size alone of the specimens suggests they are subadults rather than calves. Additionally, there are three fused acetabula and four vertebrae with fusing pads, indicating an age at death of older than 4½-5 years. In summary, at least eight individual cattle are represented, ranging in age from 10-18 months to over 5 years.

There are 21 (21 percent) sheep/goat specimens with epiphyseal portions. Over three-quarters (n = 16) of the sheep/goat specimens with epiphyses are fused (Table 11.11). Two proximal femurs are unfused. This part of the femur fuses between 2½-3 years in sheep. The rest of the unfused specimens are from elements that fuse between 3-5 years. At least three individuals are represented: two were less than 2½ years old at death (two unfused proximal femurs) and another was older than 3½ years at death (fused innominate).

All the pig specimens (n = 11, or 42 percent of the total pig specimens) with epiphyses are unfused and are from elements that fuse at 2 years or older (see Table 11.11). All specimens in the pig subassemblage could represent animals younger than 2 years old at death. The older end of the age range is unknown because there are no elements with intact epiphyses that are fused.

Table 11.11. Epiphyseal fusion rates for pig and sheep/goat specimens from the Jácome backyard locus at AZ BB:13:13 (ASM).

Element	Fused	Unfused	Age at Fusion[a]
Pig			
Distal tibia	–	1	2 years
Distal metapodial[b]	–	4	2-2¼ years
Fibula shaft	–	1[c]	3 years
Proximal humerus	–	1	3½ years
Proximal femur	–	1	3½ years
Distal femur	–	1	3½ years
Innominate	–	2	6-7 years
Sheep			
Distal humerus	1	–	10 months
Proximal radius	1	–	10 months
Distal ulna	1	–	2½ years
Proximal femur	–	2	2½-3 years
Calcaneus	1	–	2½-3 years
Distal femur	–	4	3-3½ years
Distal radius	–	1	3 years
Innominate	1	–	3½ years
Proximal tibia	–	5	3½ years
Vertebral body with pad	–	4	5 years

[a]Silver 1970.
[b]Combination of metacarpal and metatarsal fusion rates.
[c]Small and immature; average epiphyseal fusion of the proximal and distal ends.

Butchering Marks

Sixty-nine percent (n = 357) of the large domestic ungulates exhibit butchering marks. This total includes 16 pig specimens, 296 cattle specimens, 4 medium artiodactyl (pig-/sheep-/goat-sized) specimens, and 41 sheep/goat specimens. Butchered specimens comprise 62 percent of the pig bone, 78 percent of cattle bone, 40 percent of medium artiodactyl bone, and 42 percent of sheep/goat bone. In addition to the large ungulates, one chicken specimen displays butchering marks.

Butchering marks include chopmarks, sawmarks, cutmarks, and various combinations of the three. Sawmarks reflect the Euro-American style of butchering where the carcass is apportioned into specific cuts. Chopmarks made with an ax or a cleaver are primarily involved in initial butchering and secondary apportionment and may indicate home butchering. Few of the butchered specimens exhibit cutmarks made by a thin blade, used in deboning. Overall, sawmarks outnumber chopmarks; 66 percent of the specimens with butchering marks exhibit sawmarks and 45 percent exhibit chopmarks (Table 11.12). Pig and cattle specimens with butchering marks exhibit similar proportions of chopmarks and sawmarks. Approximately 31 percent of pig specimens contain chopmarks, compared with 40 percent of cattle specimens. Sawmarks are much more common; 75 percent of pig specimens display sawmarks, compared to 73 percent of cattle specimens. The relative proportions of chopmarks versus sawmarks found on sheep/goat specimens are almost the reverse of the pig and cattle specimens. Chopmarks were noted on 82 percent of the sheep/goat specimens with butchering marks, compared to only 15 percent for sawmarks. The only chicken specimen with butchering marks exhibits only chopmarks.

Differences between the pig and cattle specimens and the sheep/goat specimens may indicate home butchering for sheep/goat. Secondary sheep/goat were recovered that may have been separated at the triplex rather than by a professional butcher. This is examined in more detail below.

Meat Cuts, Meat Preferences, and Socioeconomic Status

Tenants in the triplex on Block 181 appear to have been eating primarily purchased meat. Therefore, an examination of which meat cuts were consumed will reveal their meat preferences and, possibly, their socioeconomic status. Meat cuts of beef, pork, and mutton differ in quality and price (Figure 11.2). Therefore, the faunal remains from the Jácome backyard locus are potentially good indicators of the socioeconomic status of the people who lived in the triplex. Schulz and Gust (1983:45) suggest "the frequency of consumption of differently priced cuts will vary with the socioeconomic status of consumers." Greater quantities of the more expensive meat cuts reflect a social unit with a higher income. Conversely, more of the least expensive meat cuts should be recovered in features associated with lower income individuals.

The ranks of beef cuts recovered from the Jácome backyard locus are based on retail beef prices from the second half of the nineteenth century (Schulz and Gust 1983:48). The loin was the most expensive cut, followed by the rib and sirloin, round, rump, chuck, arm, cross rib, and short rib; brisket and short plate; neck; and, finally, the foreshank, hindshank, and foot. The identified cattle elements, beef cuts, and their ranks are listed in Table 11.13. The cuts represented were divided into high-, medium-, and low-quality groups. High-priced beef cuts identified include the loin, rib, sirloin, round, and rump. Medium-priced beef cuts recovered include the chuck, cross or short rib, arm, and brisket or plate. Low-priced beef cuts include the neck, head, foreshank, hindshank, and foot. Thirty-two percent (n = 103) of the beef cuts identified are from the high-quality meat cut group, followed by 39 percent (n = 125) for the medium group and 28 percent (n = 90) for the low group.

Fewer (n = 73) mutton cuts are present in the assemblage (Table 11.14). The loin is the most expensive cut, followed by the rack, shank end, chuck and butt end, the breast, neck and brisket, and the foreshank, hindshank, and foot. A total of 34 specimens (47 percent of the identified meat cuts) is present from the high-quality loin and rack. The medium-

Table 11.12. Quantities of pig, sheep/goat, medium artiodactyl, and cattle (in number of identified specimens, NISP) with butchering marks from the Jácome backyard locus at AZ BB:13:13 (ASM).

	Pig	Sheep/Goat	Medium Artiodactyl	Cattle
Chopmarks[a]	3	33	1	79
Sawmarks	10	5	3	176
Cutmarks	1	2	-	-
Chopmarks and sawmarks	2	1	-	39
Chopmarks and cutmarks	–	-	-	1
Sawmarks and cutmarks	–	-	-	1
Totals[b]	16 (62%)	41 (42%)	4 (40%)	296 (78%)

Note: The percentages do not add up to 100, because some specimens exhibit multiple butchering marks.
[a]One chicken tibiotarsus (leg bone) also exhibits chopmarks.
[b]Percentage of specimens per taxon with butchering marks.

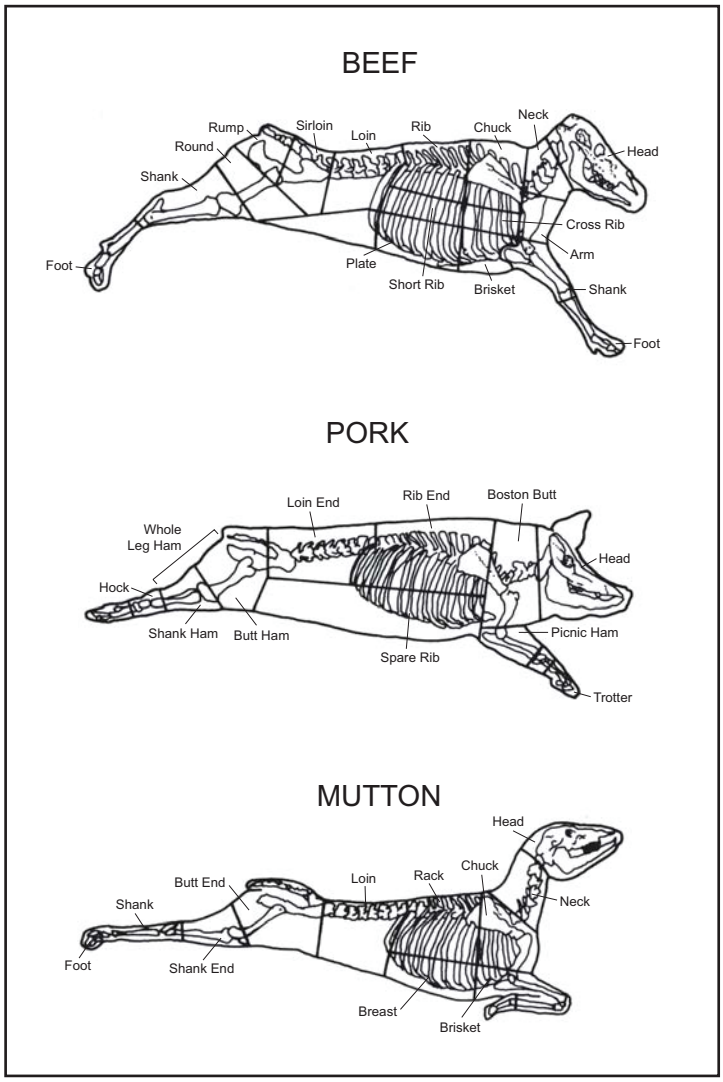

Figure 11.2. Locations of retail meat cuts for beef, pork, and mutton.

quality cuts include the chuck, butt end, and shank end. While these retail cuts are present in the assemblage, some of the elements that would normally be part of these retail cuts are not butchered in the conventional way and may be part of a secondary cut, the leg, which encompasses the butt end and shank end in addition to the shank and foot (see Figure 11.2).

Three possible legs are represented by two nearly complete right femurs and a distal left femur broken at midshaft. One nearly complete femur has cutmarks on the head and articulates with a proximal tibia. The other nearly complete femur displays cutmarks on the shaft. The distal femur contains no butchering marks. In addition to the femur and tibia, the complete leg includes the sacrum, innominate, tarsals, metatarsal, and phalanges. With few or none of these other elements present, it suggests the secondary cut was modified and consisted primarily of the femur and tibia. Medium quality cuts, including the leg, comprise over one-third (36 percent, or $n = 26$) of the meat cuts. The remainder (18 percent, or $n = 13$) of the mutton cuts is made up of low-quality cuts, including the neck, head, brisket, and shank. One articulated elbow from the brisket portion was noted from Feature 571 (see Table 11.14). This cut also deviates from the standard retail cut that would terminate at the proximal radius and ulna shafts. The nearly complete ulna is present, so both the brisket and the foreshank are represented.

Far fewer ($n = 25$) pork cuts were identified in the assemblage (Table 11.15). The butt ham is the most expensive cut, followed by the loin (rib end and loin end), the Boston butt, the picnic ham and the shank ham, the spare ribs, and the head, hock, and trotter. The high-quality butt ham and rib end are represented in the identifiable assemblage and comprise nearly 36 percent ($n = 9$) of identifiable pork cuts. A somewhat lower proportion (28 percent, or $n = 7$) of the pork cuts are mid-priced cuts, including the Boston butt and shank ham. The low-quality cuts, including the head and hock, comprise 36 percent ($n = 9$) of the pork cuts.

Generally, the proportions of meat cuts are fairly evenly distributed among the three price categories. The largest proportions of mutton and pork are from the high-priced cuts. The proportion of beef from the mid-priced cuts is only slightly higher than that of the high-priced beef cuts. Low-quality cuts comprise 28 percent of beef cuts and only 15 percent of mutton cuts. Although a higher proportion (36 percent) of pork cuts fall into the low-priced category, pigs' heads and feet are more commonly purchased than these same parts of cattle and sheep. Because neither the high- nor low-priced categories are represented in large proportions, the meat cut distribution suggests the assemblage was deposited by persons from the middle to lower socioeconomic class.

Meat Cut Thickness

Meat cut thickness measurements may be used to examine consumption patterns, as well as to estimate consumer group size. In previous studies, the

Table 11.13. Cattle elements and corresponding meat cuts from the Jácome backyard locus at AZ BB:13:13 (ASM).

Element	Cut	Rank[a]	NISP[b]
Lumbar vertebra	Loin	1	45
Thoracic vertebra (6-12)	Rib	2	6
Proximal rib (6-12)	Rib	2	8
Sacrum (top)	Sirloin	2	4
Ilium	Sirloin	2	7
Femur head	Sirloin	2	1
Femur shaft	Round	3	20
Proximal femur	Rump	4	6
Ischium/acetabulum	Rump	4	5
Sacrum (bottom)	Rump	4	1
Thoracic vertebra (1-5)	Chuck	5	17
Proximal rib (1-5)	Chuck	5	11
Scapula blade	Chuck	5	35
Rib shaft	Short or cross rib	6	43
Proximal humerus	Arm	6	18
Distal rib	Brisket or plate	7	1
Cervical vertebra	Neck	8	24
Unspecified cheek tooth	Head	9	2
Hyoid	Head	9	1
Distal humerus	Foreshank	9	8
Radius	Foreshank	9	9
Ulna	Foreshank	9	13
Carpals	Foreshank	9	3
Distal femur	Hindshank	9	6
Patella	Hindshank	9	2
Tibia	Hindshank	9	10
Calcaneus	Hindshank	9	1
Naviculo-cuboid	Hindshank	9	4
Tarsal	Hindshank	9	2
Caudal vertebra	Tail	9	3
Phalanx	Foot	10	2
Total			318

[a]Based on Azizi et al. (1996).
[b]Number of identified specimens.

Table 11.14. Sheep/goat elements and corresponding meat cuts from the Jácome backyard locus at AZ BB:13:13 (ASM).

Element	Cut	Rank[a]	NISP[b]
Lumbar vertebra	Loin	1	7
Thoracic vertebra	Rack	2	2
Proximal rib (6-12)	Rack	2	25
Proximal tibia	Shank end	3	5
Nearly complete femur	Leg[c]	3	2
Nearly complete femur with proximal tibia	Leg[c]	3	2
Proximal rib (1-5)	Chuck	4	8
Scapula	Chuck	4	1
Humerus shaft	Chuck	4	1
Femur shaft	Butt end	4	3
Innominate	Butt end	4	1
Caudal vertebra	Butt end	4	3
Cervical vertebra	Neck	6	2
Distal humerus[d]	Brisket	6	1
Proximal radius[d]	Brisket	6	1
Nearly complete ulna[d]	Brisket	6	1
Maxillary tooth	Head	7	1
Mandibular tooth	Head	7	2
Proximal ulna	Foreshank	7	1
Lateral malleolus	Hindshank	7	1
Calcaneus	Hindshank	7	2
Metatarsal	Hindshank	7	1
Total			73

[a]Based on Azizi et al. (1996).
[b]Number of identified specimens.
[c]Secondary cut.
[d]Articulate, elbow joint.

more expensive beef cuts from the loin, round, and sirloin tended to be butchered into thinner steaks (Hatch 1983:465, 1984:350). Less expensive cuts, such as the beef foreshank and hindshank, tended to be butchered into larger cuts. It is generally more economical to buy larger, less expensive cuts of meat to feed large groups of people. Small groups are better served by smaller cuts, eliminating leftovers. The recovery of the secondary mutton cuts from features in the Jácome backyard locus at BB:13:13 suggests larger cuts of meat were prepared and eaten by the residents of the triplex. Meat cut thicknesses were examined to see if this tendency is present in other cuts or meat types.

The thickness of meat cuts was determined by measuring the distance between roughly parallel butchering marks on the large domestic ungulate bones. The mean, median, and range for cut measurements in the high-, medium-, and low-quality groups of beef, mutton, and pork cuts are shown in Table 11.16. Cranial and foot elements were not included because they do not represent actual cuts; meat is removed from them, but they are not butchered into discrete portions. Specimens from many cuts are not included because they are incomplete or are not parallel cut. However, because the samples of complete pork and mutton cuts are so small, minimum lengths of incomplete specimens with butchering marks were recorded, and the maximum lengths are included in Table 11.16 for those meat types as well as beef. The small number of measurable pork cuts is probably the result of the small

Table 11.15. Pig elements and corresponding meat cuts from the Jácome backyard locus at AZ BB:13:13 (ASM).

Element	Cut	Rank[a]	NISP[b]
Innominate	Butt ham	1	3
Proximal femur	Butt ham	1	1
Femur shaft	Butt ham	1	3
Rib shaft	Rib end	2	2
Scapula	Boston butt	3	2
Proximal humerus	Boston butt	3	1
Distal femur	Shank ham	4	1
Tbia shaft	Shank ham	4	1
Fibula shaft	Shank ham	4	2
Distal rib	Spare rib	5	2
Frontal/parietal/ squamous temporal	Head	6	1
Carpal or tarsal	Hock	6	2
Proximal metapodial (2nd or 5th)	Hock	6	4
Total			25

[a]Based on Azizi et al. (1996).
[b]Number of identified specimens.

number of pig specimens in the sample. However, the small number of measurable mutton cuts more likely reflects the purchase of larger cuts, with a minimum of butchering marks on the bones.

The cut thicknesses show that the assumption that high-quality cuts are smaller than lower quality cuts is true only for beef cuts in the sample and, even then, there is some variability in the lengths. All (n = 42) the measurable high-quality beef cuts are steaks, with the mean thickness ranging from 18 mm to 38 mm. The low range values suggest uniformity in cuts as a result of purchase from the butcher. There are fewer (n = 10) incomplete specimens, but they represent roasts, including the rib roast (proximal rib) and round roast (femur shaft). While these were purchased as retail cuts, the longer lengths show some variability in size among even the high-quality beef cuts. The medium-quality beef cuts display greater diversity among all variables. The mean thickness ranges from 21 mm to 83 mm, and the cuts consist of blade steaks at one end, and rib roasts at the other end. The range values are higher than for the high-quality cuts. The number (n = 51) of incomplete cuts nearly equals the number (n = 59) of measurable cuts. Three, nearly complete scapulae indicate the purchase of at least three, unbutchered chuck retail cuts (see Figure 11.2). The longest scapula measures 315 mm in length. The low-quality beef cuts from the foreshank and hindshank are all relatively large. The mean thickness ranges from 62 mm to 84 mm. The range values for this group are lower than for the medium group, indicating less variability in cut sizes. Most, if not all, of these cuts are roasts, which is predictable for the low-quality cuts.

Only four mutton cuts display parallel cutmarks. The mean and median values are the actual thicknesses. The majority of specimens with butchering marks represent large cuts. The mutton cuts from the high-quality loin and rack portions are represented by a loin chop, rib chops, and rib roasts, with the mean thickness ranging from 30 mm to 65 mm, and the highest minimum length measuring 125 mm. The medium-quality mutton cuts from the shank end and chuck are almost exclusively thicker cuts, except one blade steak with a thickness of 17 mm. The three probable secondary leg cuts are also included in this group. The highest minimum length is 260 mm. The low-quality mutton cuts include the brisket and shank portions. As with the other meat types, these cuts are much larger than the high-quality cuts. Unlike the other meat types, however, there are no parallel cut portions in the low-quality mutton group. One cut is represented by an articulated distal humerus, proximal radius, and nearly complete ulna and measures 226 mm in length.

Eight pork cuts display parallel cutmarks. As with the mutton cuts, the measures of central tendency are less meaningful due to small quantities. Nonetheless, the meat cut thicknesses are quite variable within the high- and medium-quality groups. The high-quality pork cuts vary in mean thickness from 16 mm to 63 mm. The butt ham portion is represented by thinner ham slices among the measurable cuts and larger bone-in hams among the incomplete cuts. Two ribs represent the back rib or country-style rib. The medium-quality pork cuts range in median thickness from 23 mm to 36 mm. The Boston butt portion is represented by two blade steaks among the measurable cuts and a possible arm roast in the incomplete cuts. The shank ham portion contains one thinner cut among the measurable specimens, and three thicker cuts among the incomplete cuts. Like the low-quality beef cuts, the single spare rib in the low-quality pork cut group is relatively thick. Unlike the mutton cuts, the small number of specimens with measurable cuts probably reflects the small number of pork cuts in the assemblage. None of the incomplete cuts are larger than 80 mm, which is well within the size limits for retail cuts.

This analysis shows that the residents of the triplex ate meat cuts appropriate for individual portions, such as steaks, as well as larger cuts, like roasts. The presence of incomplete cuts with longer lengths than complete parallel cuts suggests some larger cuts were purchased. These include the legs of mutton and lamb and the large beef chuck roasts represented by nearly complete scapulae. These examples, along with the butchering mark data, suggest large cuts were apportioned into smaller pieces at home.

Table 11.16. Meat cut thickness by meat type and arranged by rank (measurements are in millimeters).

Meat Type	Rank	Cut	Number[a]	Mean	Median	Range	HML[b]	Number[c]
Beef	High	Loin	11	25	20	27	–	–
		Sirloin	5	21	20	17	95	2
		Rib	2	29	29	5	115	8
		Round	18	18	18	30	120	-
	Medium	Rump	6	38	33	47	98	5
		Chuck	25	21	20	83	315	19
		Arm	5	36	20	74	124	6
		Short rib	8	83	83	28	85	12
		Cross rib	15	84	75	103	106	9
	Low	Foreshank	12	62	61	50	105	16
		Hindshank	5	77	95	66	120	4
Total			112					81
Pork	High	Butt ham	2	16	16	0	80	5
		Rib end	2	63	63	8	–	–
	Medium	Boston butt	2	23	23	12	36	1
		Shank ham	1	36	36	0	69	3
	Low	Spare rib	1	95	95	0	–	–
Total			8					9
Mutton	High	Loin	1	30[d]	30[d]	0	–	–
		Rack	2	65[d]	65[d]	0	125	24
	Medium	Shank end	–	–	–	–	43	4
		Leg	–	–	–	–	260	3
		Chuck	1	17[d]	17[d]	0	83	1
		Butt end	–	–	–	–	160	5
	Low	Brisket	–	–	–	–	226	2
		Shank	–	–	–	–	87	1
Total			4					40

[a]Number of measurable cuts.
[b]Highest minimum length.
[c]Number of incomplete cut.
[d]Actual thickness.

The presence of both steaks and roasts indicates variation in either the purchase and consumption patterns of the triplex residents, or in household sizes. Changes in consumption patterns may reflect community versus individual dining, for example, or joint purchases of larger cuts to divide among the three households. Because the triplex was rental property, the size of the households may have changed frequently, with both small and large groups occupying the building.

Comparisons with Contemporaneous Assemblages

The assemblage from the Jácome backyard was compared with other urban Tucson faunal assemblages from about the same time. Most urban faunal assemblages contain high proportions of retail butchered bone and high proportions of beef bone (Henry 1982:353). However, the ethnicity of the people depositing the trash was expected to affect these characteristics in somewhat predictable ways. Under certain conditions, butchering techniques are related to ethnicity. For example, the presence of chopmarks in greater numbers than sawmarks in historic faunal assemblages might be a good indicator of ethnicity (Thiel and Faught 1995:209). Greater proportions of chopmarks versus sawmarks are associated with early Chinese and Mexican assemblages. Traditionally, Mexican and Chinese butchers used axes and cleavers to divide the carcass into portions (Diehl et al. 2005:194; Gust 1982:109). Handsaws were associated almost exclusively with Euro-American butchers (Chapin-Pyritz and Mabry 1994:155). The amount of beef represented in an urban faunal assemblage may also depend on the ethnicity of the consumers. For example, pork was preferred over beef in China, where the eating of pork has a long tradition (Gust 1993:185). Pork bones

outnumbered beef bones, or comprised substantial proportions of the faunal assemblages from Chinatowns in Arizona, California, and Nevada (Gust 1993).

The faunal assemblages from the sites shown in Table 11.17 represent three ethnic groups present in Tucson around the turn of the nineteenth century. All date to somewhere between 1870 and 1910. Three Chinese assemblages are included in the comparison. The Tucson Chinatown assemblage was recovered from four features: a privy, a well, and two trash deposits (Gust 1993:179). Feature 21 in Block 136 was a borrow pit filled with refuse attributed to a local Chinese grocer in the Barrio Libre (Diehl et al. 2002). Feature 34 in Block 185 was from a trash midden deposited by Chinese laborers (Waters 2008). Three Mexican-American assemblages are included in Table 11.17. In addition to the assemblage from the Jácome backyard, the others were recovered from a trash area, Feature 1, in Block 139, and from Feature 26 in Block 180, a small borrow pit and trash deposit (Cameron 2003; Jones 1997). Two Euro-American assemblages from Block 83 were collected from Feature 14 (Levels 4-5) and Feature 18 (Levels 9-12), both privies. Block 83 also included one mixed Mexican- and Euro-American privy deposit (Feature 14, Levels 1-4) from the same period (Mabry and Ayres 1994).

Cattle bone comprises the majority of the large domestic ungulate subassemblages in all the faunal assemblages; between 63 percent and 100 percent consist of cattle specimens (Figure 11.3; see Table 11.17). The Mexican-American and Chinese subassemblages contain slightly lower proportions of cattle bone than the Euro-American subassemblages. There are discernible differences among the proportions of pig bone as well. Most of the subassemblages contain pig percentages in the single digits, that is, between 1 percent and 7 percent. However, two of the three Chinese subassemblages, Tucson Chinatown and Block 185, contain 31 percent and 19 percent, respectively. Sheep/goat percentages are more variable, ranging between 0 percent and 19 percent. In this case, the higher proportions are in Chinese and Mexican-American subassemblages, including the Jácome backyard, Feature 26 in Block 180, and Feature 21 in Block 136.

All the assemblages in the comparison have greater proportions of sawmarks than chopmarks among the large domestic ungulate specimens with butchering marks (Figure 11.4; see Table 11.17). There is, however, some variability by ethnic group. Except the Mexican-American assemblage from Block 139, the Chinese and Mexican-American assemblages where butchering marks were reported had higher proportions of chopmarks versus sawmarks in the large ungulate subassemblage when compared to the Euro-American subassemblages. The Chinese subassemblage from Block 185 contained 44 percent chopmarks, compared to 56 percent sawmarks. The Jácome backyard subassemblage contained 40 percent chopmarks, compared

Table 11.17. Comparisons among the faunal assemblage from the Jácome backyard locus at AZ BB:13:13 (ASM) and contemporaneous assemblages in Tucson.

Site	Dates	Sample Size	Cattle NISP[a]	Caprid NISP	Pig NISP	Chopmarks	Sawmarks	Ethnicity
Tucson Chinatown	1880-1910	2,090	1,179	107	573	N/A[b]	N/A[b]	Chinese
Block 185, Feature 34	1880-1900	814	245	27	62	78	98	Chinese
Block 136, Feature 21	1890-1910	1,965	572	135	49	N/A[c]	N/A[c]	Chinese
Block 180, Feature 26	1870-1905	1,084	565	132	28	149	275	Mexican-American
Jácome backyard	1880-1900	804	381	98	26	158	237	Mexican-American
Block 139, Feature 1	1891-1900	706	192	–	4	8[d]	237[d]	Mexican-American
Block 83, Feature 14 (Levels 1-4)	1893-1907	932	373	–	–	–	102[e]	Mixed[f]
Block 83, Feature 14 (Levels 5-6)	1886-1893	951	360	–	–	–	63[e]	Euro-American
Block 83, Feature 18 (Levels 9-12)	1893-1902	347	246	2	–	–	54[e]	Euro-American

[a]Number of identified specimens.
[b]Gust (1993:193) notes that there were mostly hand-saw marks.
[c]Not reported.
[d]Butchering marks on cattle and very large mammal bone only.
[e]Includes cutmarks.
[f]Mexican- and Euro-American.

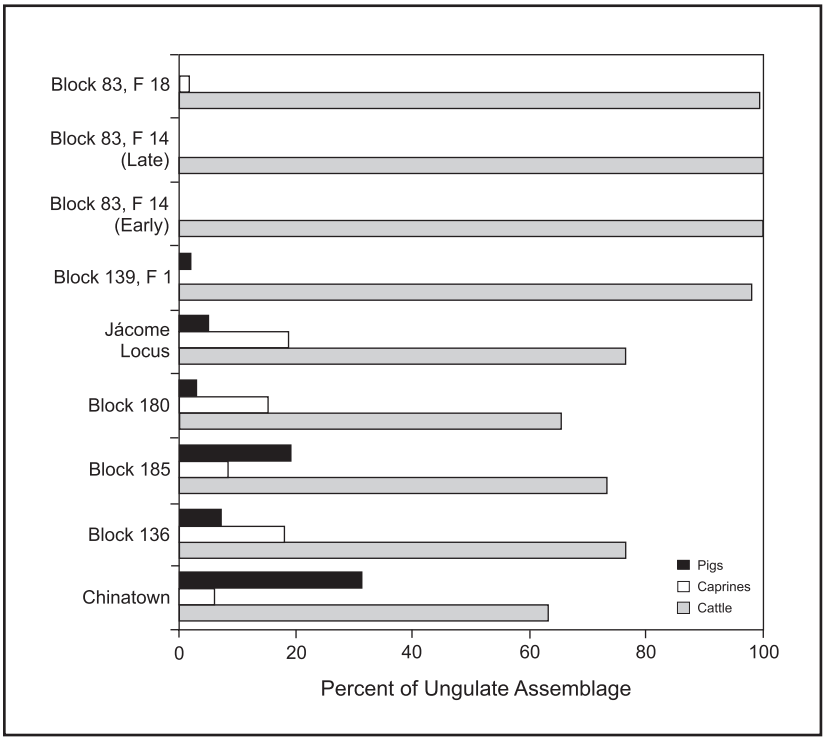

Figure 11.3. Percentages of large domestic ungulates in urban Tucson faunal assemblages.

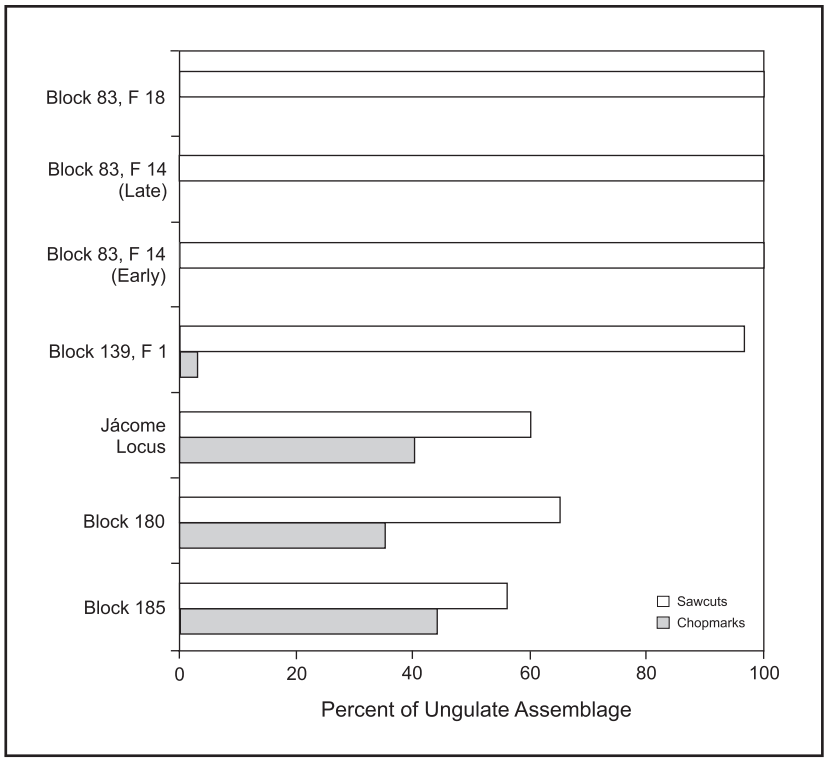

Figure 11.4. Percentages of butchering marks on large domestic ungulates in urban Tucson faunal assemblages.

to 60 percent sawmarks. The Mexican-American subassemblage from Block 180 contained 35 percent chopmarks, compared to 65 percent sawmarks. The Mexican-American subassemblage from Block 139 contained only 3 percent chopmarks and 97 percent sawmarks. This subassemblage more closely resembles the Euro-American assemblages from Block 83 that contained no chopmarks at all.

The coming of the railroad to Tucson in 1880 "opened the floodgates of Anglo-American settlement" (Thiel 2002:6), which created a market for individual meat cuts. This was "in contrast with the slaughter and consumption of the entire animal in one location" (Clonts 1983:351), and ushered in the systematic techniques used by the modern meat-packing industry. Rather than being chopped into pieces with cleavers and hatchets, carcasses were divided into specific wholesale and retail cuts using hand-saws and, after the advent of electricity, band saws. Therefore, Chinese and Mexican assemblages dating to 1880 and later may be difficult to distinguish from Euro-American assemblages, based on beef proportions and butchering marks alone. However, the Chinese and Mexican-American assemblages in the comparison do show slight differences from the Euro-American assemblages in both the consumption of beef and butchering methods.

While there is little to no evidence for the slaughter and consumption of animals in the Jácome backyard assemblage, the presence of a relatively large proportion of chopmarks and large meat cuts suggests

some home butchering occurred after the initial purchase of meat from the butcher shop. Home butchering may reflect socioeconomic status rather than ethnicity. All the assemblages with relatively high proportions of chopmarks were deposited by households from the lower to middle classes. However, the households containing few to no chopmarks and 98-100 percent beef bones are not all from the upper income bracket. The Euro-American households represented by Feature 14 in Block 83 were lower to middle class, while the household represented by Feature 18 was from the upper class (Mabry and Ayres 1994:181). The assemblage from Feature 1 in Block 139 was associated with the Acevedo family, a working class Mexican-American household (Diehl and Thiel 2003:76). Based on the assemblages in this comparison, home butchering and lower beef consumption appear to have some relation to ethnicity.

Summary and Conclusions

Large domestic ungulates, primarily cattle, comprise the majority of the faunal assemblage from analyzed contexts in the Jácome backyard locus at BB:13:13. Wild taxa are represented by a small proportion of the assemblage and include fish, duck, turkey, and rabbits. The element representation of the large domestic ungulates shows that cattle and sheep/goat are represented primarily by retail cuts from the vertebrae and ribs. The pig specimens are mainly long bones with a greater number of cranial and foot bones. High proportions of cranial and foot bones among cattle and sheep/goat specimens may indicate animal husbandry or on-site butchering because of their low food value. Very few specimens from these areas of the skeleton were present among cattle and sheep/goat specimens. Meat from pig crania and feet were commonly eaten and could be purchased from a butcher.

The age profile shows that a range of ages is present in the cattle and sheep/goat subassemblages, while the pig subassemblage is represented by only young animals. Most animals raised primarily for food are slaughtered before they are fully grown, although a small number are kept alive for breeding. The use of cattle and sheep for draft, dairying, and wool production would result in more animals living to an older age (Landon 1996:96). These animals would eventually find their way into the meat supply, however. Older pigs do not have much use beyond meat production and breeding. Based on the skeletal evidence, large domestic ungulates were not likely raised in the backyard of the triplex. Rather, cuts from older cattle and sheep/goats were probably purchased at the butchers at reduced prices. Likewise, the butchering marks on the large domestic ungulate bone suggest retail cuts were purchased from a butcher. More sawcut bone than chopped bone was present among the cattle and pig specimens. However, the sheep/goat specimens contained higher proportions of bone with chopmarks versus sawmarks.

The retail meat cuts represented include those from high-, medium-, and low-quality groups. The high- and medium-quality cuts are present in nearly even proportions, while the low-quality cuts are fewer except the pig subassemblage. Low-quality cuts comprise over one-third of the specimens, consisting of the head and hock. Meat from the head and feet of pigs is more likely to be consumed than meat from the head and feet of cattle and sheep/goats.

Although the skeletal evidence for animal husbandry of cattle and sheep is scant, the occurrence of on-site butchering may be indicated. The presence of possible secondary and other large butchering cuts among the cattle and sheep/goat specimens suggests the purchase of secondary cuts from the butcher. Similarly, the large number of chopmarks on sheep specimens indicates home butchering of mutton occurred. This may also be the case with the beef cuts, although to a lesser extent. This pattern is not apparent for the pork cuts, which consist of the usual retail portions with accompanying saw marks.

Comparisons of the Jácome backyard assemblage with contemporaneous assemblages from Tucson suggest the ethnicity of households has some influence on the composition of their faunal assemblages. The types of butchering marks present on large domestic ungulate bone appear to be good indicators of ethnicity for these assemblages that date between 1870 and 1910. While chopmarks do not outnumber sawmarks in the Chinese and Mexican-American assemblages, the proportion of chopmarks in relation to sawmarks is higher than in the Euro-American household assemblages. Likewise, the large proportion of beef in the assemblages does not necessarily indicate uniformity in meat consumption among ethnic groups. While beef represents the major part of the meat diet for all households, there is a difference in degree among ethnic groups, with Chinese and Mexican-Americans eating proportionally less beef than their Euro-American counterparts.

Acknowledgments

Barnet Pavao-Zuckerman of the Arizona State Museum identified the fish remains.

CHAPTER 12

THE TUCSON PRESIDIO SHELL ASSEMBLAGE

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Excavations at the Tucson Presidio site, AZ BB:13:13 (ASM), in central Tucson resulted in the recovery of 194 pieces of shell, which are estimated to represent approximately 123 individual items. This collection reflects an occupation that extends back into the preceramic Early Agricultural period, and that continued intermittently into the recent Historic era. The specific contexts and temporal associations of the shell material are provided in Appendix B (this volume).

METHODOLOGY

The procedures and analytical structures utilized during this analysis have been described in other publications about Early Agricultural period and Hohokam sequence shell assemblages (Vokes 1986, 1998, 2001). Readers are referred to these publications for questions of process. Definitions for specific terminology related to the structural elements of shell can be found in glossaries available in most malacology guides, while figures illustrating these elements and their associated nomenclature have been published in previous texts (Vokes 1984, 1986).

The artifact classification structure used here is based largely on the system presented by Haury (1937, 1976) for the material from Snaketown, AZ U:13:1 (ASM). The nomenclature and biological determinations were made in accordance with Keen (1971); additional information was obtained from Abbott (1974). The freshwater and terrestrial pelecypods and gastropods were identified through the use of several guides, particularly Bequaert and Miller (1973), Abbott (1989), and Cheatum and Fullington (1971).

GENERA AND SPECIES

Two general sources of shell were available to the inhabitants of southern Arizona prior to the arrival of Europeans. The first of these is the marine communities along the coasts of California and northwestern Mexico, while the other is the streams and rivers that drain the region, which contained populations of freshwater mollusks. Finally, terrestrial snails inhabited the region, and while these are present in the current sample, they do not appear to have been purposely collected. In the Historic era, the possible sources for shell, particularly marine material, increased substantially, with the introduction of new and exotic markets and populations. This is particularly true after the arrival of the railroad to Tucson in 1880, which linked the community to an intercontinental exchange system incorporating rail and marine shipping networks.

The species of shell identified in the current collection are summarized in Table 12.1. It is clear that, throughout the occupation of the presidio, the Gulf of California provided most of the marine material. The collection includes 11 marine pelecypod genera, which equals the number of marine gastropods; however, the pelecypods are substantially more numerous in frequency. This is largely the result of an emphasis on four different genera, each of which served a somewhat different role in the local economy throughout the temporal span of the occupation. *Glycymeris* is largely associated with one artifact form, the shell bracelet, which is one of the most common ornaments associated with the Hohokam. In contrast, *Laevicardium* is represented almost exclusively by unworked fragments, which were associated with several temporal periods. The other genera are *Trachycardium* and *Chione*, both associated with the arrival of the Europeans. Both of these are part of a complex of edible clams present in the Gulf of California that may reflect an exploitation of a food resource, although there is little direct evidence of this. Not included in this analysis are numerous oyster shells that were pervasive in many of these deposits, but that were not retained in the analyzed assemblage. These oysters were consumed as a delicacy, particularly after the railroad provided a relatively safe means to transport these shellfish to the interior communities with the development of "refrigerated" ice cars.

Among the most exotic shells in the current sample is a cowry with a very distinctive shape, a broad skirt that surrounds the dorsum. This specimen is

Table 12.1. Shell species present in the Tucson Presidio data recovery collections.

Species	MNI[a]	NISP[b]	Biotic Province
Marine			
Pelecypods			
Glycymeris			
Glycymeris sp.	7	7	Panamic community
Glycymeris gigantea	12	12	Panamic community
Laevicardium elatum	14	15	Panamic and Californian communities
Trachycardium			
Trachycardium sp.	7	7	Panamic community
Trachycardium panamensis	4	6	Panamic community
Argopecten circularis	1	1	Panamic community
Spondylus sp.	1	1	Panamic community
Dosinia ponderosa	1	1	Panamic community
Ostrea corteziensis	1	1	Panamic community
Chione			
Chione sp.	3	3	Panamic and Californian communities
Chione californiensis	2	4	Panamic and Californian communities
Chione undatella	3	6	Panamic and Californian communities
Protothaca sp.	2	2	Panamic community
Donax gouldii	1	1	Panamic community
Tivela sp.	2	2	Panamic community
Unidentified	6	7	—
Gastropods			
Olivella			
Olivella sp.	1	1	Panamic community
Olivella dama	5	5	Panamic community
Conus sp.	1	1	Panamic community
Cerithidea valida	1	1	Panamic community
Columbella sp.	1	1	Panamic community
Turritella leucostoma	*1*	1	Panamic community
Oliva			
Oliva sp.	*1*	1	Panamic community
Oliva incrassata	1	1	Panamic community
Agaronia testacea	1	1	Panamic community
Strombus gracilor	1	1	Panamic community
Turbo fluctuosus	1	1	Panamic community
Trivia solandri	1	1	Californian community
Cypraea moneta	1	1	Indo-Pacific
Unidentified	3	3	—
Unidentified marine nacreous	1	3	—
Freshwater/Terrestrial			
Pelecypods			
Anodonta californiensis	32	91	Freshwater
Gastropod			
Helisoma sp.	1	1	Freshwater
Helix sp.	1	1	Terrestrial (escargot)
Rumina decollata	1	1	Terrestrial (recent introduction)

[a]MNI = Minimum number of individuals (estimated).
[b]NISP = Number of identified specimens (counted).

identified as a *Cypraea moneta* (Figure 12.1r; Table 12.2), a species endemic to the Indo-Pacific with a range that extends from the eastern coast of Africa to the Hawaiian Islands. How this south Pacific shell came to be deposited in borrow pit Feature 624, dating to the American Territorial period, near the beginning of the twentieth century, is a matter of conjecture. However, shipping lanes did link this region with the west coast of North America, and this shell may have been a colorful memento.

The second general source for shell is the rivers and streams that cross the region. For the inhabitants of the western Tucson Basin, the most reliable of these is the Santa Cruz River, which passes a short distance west of the presidio's location. This river, which today is characterized by intermittent surface flow, provided a reliable supply of freshwater in the Prehistoric and early Historic era, as the volcanic rock base of the area pushed the water to the surface. Under these conditions, the river would probably have been a convenient source for freshwater shellfish and other aquatic resources.

Anodonta californiensis is a moderately large, although very gracile, bivalve that was endemic to most of the permanent watercourses in Arizona prior to the impoundment of the rivers that occurred early in the last century (Bequaert and Miller 1973:220-223). Its presence in considerable quantities in prehistoric sites that occur along the Salt and other Arizona rivers has lead to the suggestion that some prehistoric populations may have exploited this shellfish as a food resource, as well as raw material for the local artisans (Haury 1976:308; Howard 1987:77; Vokes 1988:373). However, *Anodonta* has been comparatively rare in the assemblages from precontact period sites in the Tucson Basin. In the current collection, the shellfish is relatively well represented, with 91 fragments representing at least 32 valves, which makes it the most numerous genus in the sample. Excavations of American Territorial period contexts associated with the Rio Nuevo and Urban Renewal projects in central Tucson provided evidence that this shellfish was consumed by the Chinese population in the late nineteenth and early twentieth centuries (Bequaert and Miller 1973:221; Lister and Lister 1989:Figure 3.35; Vokes 2006:11.13-11.15).

The presence of a relatively large terrestrial snail of the genus *Helix* (Figure 12.1s) in the current sample is perplexing. This snail shell is very similar to the species *Helix aspersa*, commonly named the speckled escargot shell. This snail was originally endemic to southern Europe, although it has become naturalized in many parts of the world due to its epicurean uses. This specimen was recovered from the fill of an American Territorial period borrow pit, Feature 571. Because this is an isolated specimen, its origin and significance is unclear.

The presence of freshwater and terrestrial gastropods (see Table 12.1) in the current assemblage is likely fortuitous. *Helisoma*, one of the most widely distributed aquatic gastropods, appears to prefer slow-moving bodies of water (Bequaert and Miller 1973:108-109), such as the canal channels that crossed the project area. Although the shell is relatively large compared with other local gastropods, it is also very fragile. Fragments are often recovered from stream-associated debris. Its presence in an Early Agricultural period structure, Feature 492, is likely fortuitous, possibly having been introduced into that context through the harvesting of streamside plants or scooping of the river's sediments for the plastering of the houses.

The occurrences of the gastropod *Rumina decollata* is also fortuitous, but with the added twist that this is an invasive species to North America, having been introduced from Europe in the early 1800s. Its presence in Feature 527, an outhouse dating circa 1910-1920, is not surprising, because by this time, the species had become naturalized. *Rumina decollata* is now a common pest in the gardens and lawns of southern Arizona.

THE ARTIFACT ASSEMBLAGE

The overall shell assemblage (Table 12.3) is dominated by unworked fragments and unmodified valves. The worked ornaments include finished artifacts, pieces of manufacturing debris, and fragmentary material.

Finished Shell Artifacts

The portion of this shell collection fashioned into formal artifacts is relatively small, and largely reflects material recovered from the precontact occupation, although a few artifacts were found in deposits postdating the establishment of the Tucson Presidio in 1775. These latter forms may reflect mixing of material through inadvertent disturbance of earlier deposits, or the intentional collection of ornaments by later inhabitants when encountered during their daily activities. In addition to the bracelet, beads largely dominate the collection of finished artifacts. There are also a few pendants and several plain and decorated bracelet fragments.

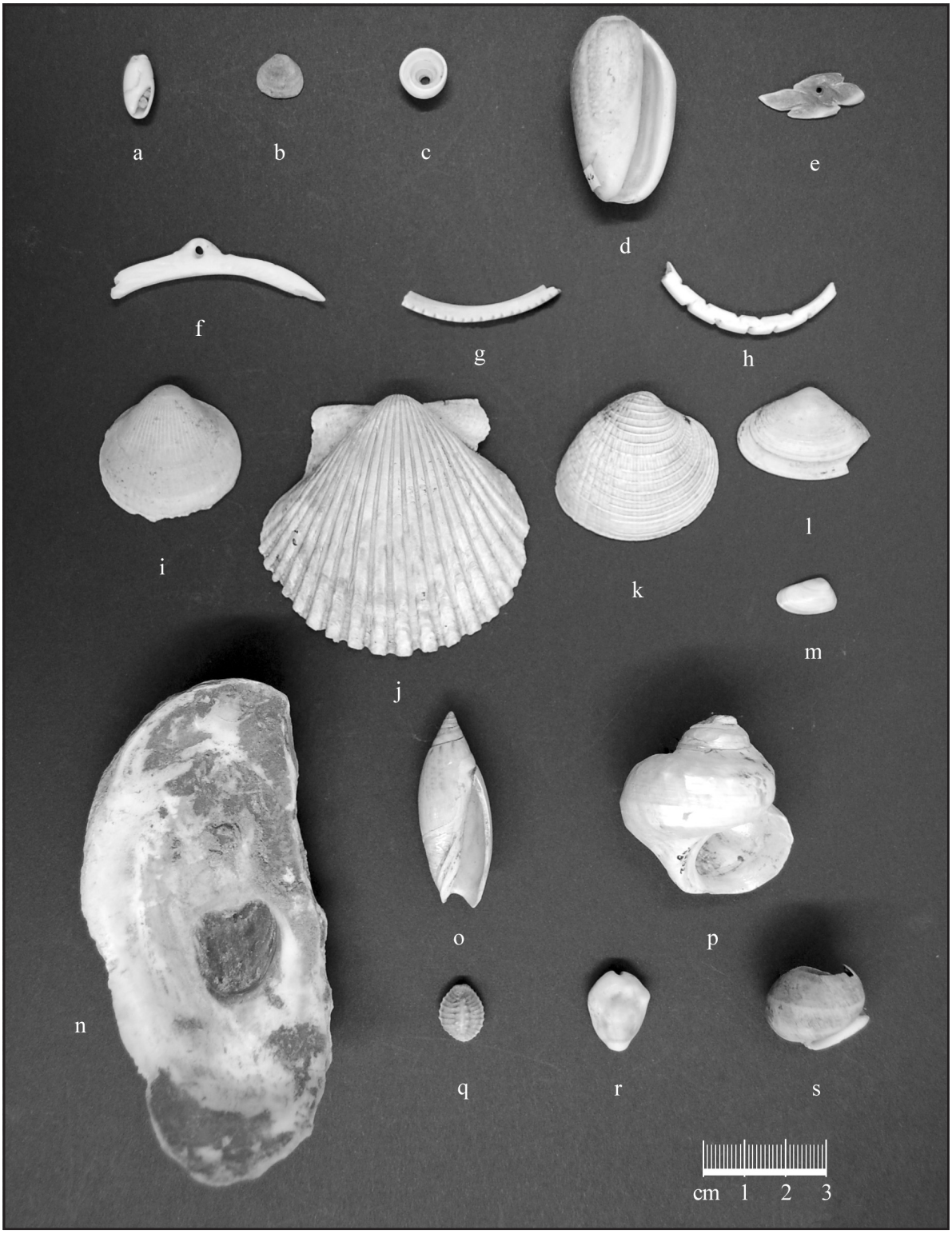

Figure 12.1. Examples of artifacts and whole valves recovered from the Tucson Presidio site, AZ BB:13:13 (ASM).

Beads

The majority of the beads in the current sample are whole shell forms. These specimens exhibit two different approaches for suspending shells. Seven of the eight beads are simple spire-lopped forms (Figure 12.1a), in which the valve's apex is ground or broken away, and the interior columella struc-

Table 12.2. Shell artifacts and valves key for Figure 12.1.

Figure ID	Artifact Form	Species	Bag No.
a	Whole shell bead, spire-lopped form	*Olivella dama*	6350
b	Whole shell bead	*Glycymeris* sp.	8372
c	Cap bead	*Oliva* sp.	8956
d	Whole shell pendant	*Oliva incrassata*	5946
e	Cut pendant, flying-bird motif	*Spondylus* sp.	4940
f	Plain bracelet, dorsal margin	*Glycymeris gigantea*	5338
g	Decorated bracelet, marginal nicking	*Glycymeris gigantea*	6580
h	Decorated bracelet, carved band	*Glycymeris gigantea*	8077
i	Whole valve	*Glycymeris* sp.	5299
j	Whole valve	*Argopecten circularis*	7976
k	Whole valve	*Chione undatella*	6863
l	Whole valve	*Tivela* sp.	9028
m	Whole valve	*Donax gouldii*	4550
n	Painted shell	*Ostrea corteziensis*	9073
o	Whole valve	*Agaronia testacea*	7554
p	Whole valve	*Turbo fluctuosus*	7985
q	Whole valve	*Trivia solandri*	6571
r	Whole valve	*Cypraea moneta*	8118
s	Nearly intact valve	*Helix* sp. *(cf. Helix aspersa)*	7480

ture is sufficiently cleared away to permit passage of the cord. The other technique of suspension involved grinding back the beak/umbo area of a small, juvenile *Glycymeris* valve (Figure 12.1b) to perforate the shell wall above the taxodontic plate. The suspension cord could then loop around the shelf created by the plate, allowing the shell to hang below the cord.

The only other shell bead present in the current sample is a single example of a "cap" bead (Figure 12.1c). This type of bead is fashioned from the middle and lower portions of a medium-sized univalve's spire, where the shell's body whorl and the spire's apex are completely removed. In this bead, the shell appears to have been an *Oliva* valve. Beads of this style were reportedly utilized in a necklace that was recovered from a burial associated with a late Classic site along the San Pedro River (Carpenter 1977). Carpenter (1977) noted that the cap-bead form could be the product of natural polishing and surface reduction from beach wear. However, the current specimen is clearly ground to shape, with both the shoulder area and the apex ground flat across. It was recovered from the floor of an Early Agricultural period pithouse, Feature 430, which makes this one of the earliest known examples of this style of bead. Another early example of this type of bead is reported from the Stone Pipe site, AZ BB:13:425 (ASM), where a similar bead was found in an Agua Caliente phase structure (Vokes 1998:446).

Pendants

Three different pendants were present in the current collection. The simplest is a whole shell pendant that was created by breaking away the apex of an *Oliva incrassata* shell (Figure 12.1d). As with the whole shell beads, the natural shape and coloration of these relatively large shells provide the decorative elements.

The two carved pendants were both representations of the abstract "flying bird" motif. The more intact version (Figure 12.1e) of this motif is a fairly small, complete flying bird pendant carved from a *Spondylus* shell, likely from the back of the valve. The exterior surface of the pendant is predominately red, while the white interior mantle covers the inner face. The side wing extensions are uneven, with one more extended and uniform in shape than the other, which is shorter and stubbier. The upper and lower extensions are defined by four incised notches or grooves that extend above and below the edges of the wings, with the notches roughly converging toward the center. The biconical perforation is placed along the midline of the long (horizontal) axis.

The other flying bird pendant is represented by two fragments of *Anodonta californiensis* that join to represent most of a very abstract flying bird pendant. The pendant broke along the juncture between one of the wings, with the body leaving one

Table 12.3. Genera summarized by artifact form from the Tucson Presidio data recovery project.

	Finished Artifact Forms								Manufacturing Evidence		Whole Unmodified Valves	Fragments		
	Beads		Pendants		Bracelets									
						Decorated								
	Whole Shell	Cap	Whole Shell	Cut Form	Plain	Marginal Nicking	Carved Band	Painted Shell	Chippage	Carved Debris		Worked, Unknown Form	Unworked	Total (MNI)[a]
Marine														
Pelecypods														
Glycymeris	1	–	–	–	11	2	1	–	1	–	1	–	2	19
Laevicardium	–	–	–	–	–	–	–	–	–	1	–	–	13	14
Trachycardium	–	–	–	–	–	–	–	–	–	–	–	–	11	11
Argopecten	–	–	–	–	–	–	–	–	–	–	1	–	–	1
Spondylus	–	–	–	1	–	–	–	–	–	–	–	–	–	1
Dosinia	–	–	–	–	–	–	–	–	–	–	–	–	1	1
Ostrea	–	–	–	–	–	–	–	1	–	–	–	–	–	1
Chione	–	–	–	–	–	–	–	–	–	–	2	–	6	8
Protothaca	–	–	–	–	–	–	–	–	–	–	–	–	2	2
Donax	–	–	–	–	–	–	–	–	–	–	1	–	–	1
Tivela	–	–	–	–	–	–	–	–	–	–	1	–	1	2
Unidentified	–	–	–	–	–	–	–	–	–	–	–	–	6	6
Gastropods														
Olivella	6	–	–	–	–	–	–	–	–	–	–	–	–	6
Conus	1	–	–	–	–	–	–	–	–	–	–	–	–	1
Cerithidea	–	–	–	–	–	–	–	–	–	–	–	–	1	1
Columbella	–	–	–	–	–	–	–	–	–	–	1	–	–	1
Turritella	–	–	–	–	–	–	–	–	–	–	–	–	1	1
Oliva	–	1	1	–	–	–	–	–	–	–	–	–	–	2
Agaronia	–	–	–	–	–	–	–	–	–	–	1	–	–	1
Strombus	–	–	–	–	–	–	–	–	–	–	–	–	1	1
Turbo	–	–	–	–	–	–	–	–	–	–	1	–	–	1
Trivia	–	–	–	–	–	–	–	–	–	–	1	–	–	1
Cypraea	–	–	–	–	–	–	–	–	–	–	1	–	–	1
Unidentified	–	–	–	–	–	–	–	–	–	–	1	–	2	3
Unidentified nacreous	–	–	–	–	–	–	–	–	–	–	–	–	1	1
Freshwater/Terrestrial														
Pelecypods														
Anodonta	–	–	–	1	–	–	–	–	–	–	–	1	30	32
Gastropods														
Helisoma	–	–	–	–	–	–	–	–	–	–	1	–	–	1
Rumina	–	–	–	–	–	–	–	–	–	–	–	–	1	1
Helix (Escargot)	–	–	–	–	–	–	–	–	–	–	–	–	1	1
Total	8	1	1	2	11	2	1	1	1	1	13	1	80	123

[a]MNI = Minimum number of individuals.

wing essentially intact and the other only partially present. The head is a small tabular extension that rises above the plane established by the lines of the wings; the perforation is placed at the base of this extension. A second drilled depression is located immediately below the perforation, near the midline of the wing axis. The tail section is broken away, but notches along the base edge of the break suggest it was originally very short, if not simply defined by the notching.

Bracelets

There are 14 finished bracelet fragments in the current collection, 11 of which are characterized as plain bands, in that they are not embellished beyond what was required to fashion their basic form. The three exceptions include two bands that are decorated with notches cut into the ventral edge, and a third decorated band that is carved with a series of larger and deeper notches spaced to emulate the undulating motion of a snake's body as it moves.

Plain Bracelets. All of the 11 bands considered to be plain bracelets are fragmentary, with the specimens representing 5-20 percent of the original band. Four of these segments incorporated portions of the dorsal margin, but only three retained portions of the umbo and beak areas. In two cases, the umbones essentially retained their natural form and were not perforated. The umbo of the third example (Figure 12.1f) is ground to a dome-shaped extension that projected out from the band, which was perforated by drilling the beak. The tip of the beak was first ground to create a flat surface for the drill bit to set. Haury (1976:313) suggests such perforations of the umbo may have been to provide a point of attachment for small objects, such as feathers, which would hang below the band as tassels.

The exterior surfaces of six bands are ground back to artificially steepen the natural slope of the shell. In five instances, this created a nearly vertical face to the natural plane of the valve. The intention appears to have been to give the band a nearly flat, visible surface when viewed on the arm. There is considerable range in the widths of the bands, with specimens ranging from a narrow 3.41 mm, to a maximum of 10.16 mm, with all but one less than 5.69 mm.

Decorated Bracelets. As noted, three bracelets in the sample exhibit decorative treatments intended to embellish the bracelet. The simplest of these are two specimens that retain sections of the ventral margin that were decorated by cutting shallow notches along the lower edge of the exterior margin (Figure 12.1g). This is a decorative technique identified by Haury (1976:313) as marginal nicking. The exterior surfaces are ground back to create a vertical face, and the adjacent underside of the margin edge is also ground smooth. In each case, the intersections of these edges were notched in an apparent effort to emulate the natural crenellations normally present along this portion of the margin. The execution of these notches is somewhat variable, with one band section exhibiting 18 shallow notches, while the other fragment has 19 more well-defined notches.

The other decorated specimen (Figure 12.1h) is a fragment incorporating the ventral and ventral-side margin, which is decorated with a set of deeply cut notches that alternate along the interior and exterior faces, giving the band a somewhat sinuous appearance. Both the upper and lower edges have five notches that are cut relatively deep, but that are quite narrow and widely spaced, giving the band a somewhat angular appearance.

Painted Shell

An intact and otherwise unmodified oyster shell was recovered from Feature 624, a borrow pit dating to the late American Territorial period. This shell is identified as *Ostrea corteziensis,* a relatively common oyster endemic to the Gulf of California. The shell has a layer of dark, vibrant blue pigment coating portions of the interior surface (Figure 12.1n). Also present are an area of a peach-colored pigment and some small vestiges of a darker red layer below the blue. Close examination of the pigment layers revealed that, below the blue paint is a layer of sandy soil, indicating the blue pigment may not have been directly applied to the shell, but rather splashed onto it later. However, the peach-colored layer, which is concentrated in the central depression of the inner face, appears to be beneath the sandy soil and in direct contact with the surface of the shell. Thus, the shell may have been used to prepare certain pigments, with the final blue layer a later event or an accidental spill.

Manufacturing Evidence

Evidence indicating that local artisans were supplying some of the demand for the shell ornaments is found in two artifacts that represent the waste, or by-products of carving and bracelet manufacturing. One is a piece of chippage from the lower back of a thick *Glycymeris* shell. The piece is from the interior portion of the valve, suggesting it may have derived during the reduction and widening of the central perforation of a bracelet.

The other fragment is a small, but thick section of a side panel from a *Laevicardium* valve. The edge

of the natural margin forms one side, while the opposite edge has vestiges of a groove-and-snap break. No effort was made to smooth over the resulting uneven cut edge produced by snapping the shell along the groove, which indicates the current fragment is waste.

Whole Valves

One of the 13 whole shells in the current sample is the *Helisoma*, which likely represents an environmental specimen, while the other 12 shells appear to be culturally collected specimens. All of these cultural, whole, unmodified valves were recovered from deposits associated with periods postdating the arrival of the Europeans. Most (n = 9) valves date to the American Territorial period, with three valves associated with the preceding Presidio era.

While a few—*Glycymeris* (Figure 12.1i) and *Argopecten* (Figure 12.1j)—could represent raw material for local artisans, some may be pieces mixed from earlier contexts. The other bivalves are genera not commonly associated with precontact cultures in the region. All of these appear to be endemic to the Gulf of California, and may have been collected as natural history specimens, or possibly as mementos of a visit to the area. It is noteworthy that these bivalves, *Chione* (Figure 12.1k), *Protothaca*, and *Tivela* (Figure 12.1l), are all edible clams. These specimens are in very good condition, retaining the sculpture and much of the natural coloration, which indicates they were probably not collected as beach drift, but rather, were collected either as live specimens or shortly after death. The *Donax* (Figure 12.1m) is a good example of overall condition, with the subtle color shading on the exterior still discernible.

Similarly, the whole gastropods represent genera that are rarely recovered in the precontact era. Both *Agaronia* (Figure 12.1o) and *Trivia* (Figure 12.1q) are known from Hohokam assemblages, but they are not common. The presence of the exotic cowry, *Cypraea moneta* (see Figure 12.1r), in an American Territorial period borrow pit, Feature 624, is very unusual. Details about how this unusual shell came to be deposited in Tucson can only be guessed, although its presence certainly reflects on the expanding network of exchange and travel into which this frontier community outpost was being integrated.

As noted, the numerous fragmentary pieces of oyster that were recovered were not examined. In the Southwest, oysters are generally limited to the Historic era, principally to the period after the arrival of the railroad in 1880, because it was only with the ability to move perishable cargo by insulated rail cars, which were packed with ice, that the shellfish could be supplied to the interior markets such as Tucson. All oysters are edible, and several species were actively harvested and shipped to markets.

Fragmentary Material

Shell fragments that, while worked, are too incomplete to be classified, or that lack any evidence of having been worked, are often encountered in archaeological assemblages. In the current assemblage, only one fragment was worked, while there are 80 unmodified fragmentary specimens, representing 65 percent of the total collection examined. These two disparate results reflect the relatively low presence of worked artifacts within the collection, in contrast to the number of unworked shells. The single worked fragment is a medium-sized rectangular fragment from the middle back of an *Anodonta* valve that has one ground edge.

Most of the unmodified fragments are from historic contexts and, like the unmodified valves, are species or genera not associated with the traditional repertoire of the precontact assemblages. Several are fragmentary examples of genera also represented in the sample of unmodified valves.

DISCUSSION

The current collection represents a series of occupations that, in their totality, extended over several millennia (Tables 12.4 and 12.5). The diversity of the shell assemblage reflects the changes in use associated with these occupations. Like other Early Agricultural period assemblages, the material associated with the preceramic era emphasized various styles of beads. During the later Hohokam sequence, *Glycymeris* bracelets, which were not present in the prior assemblage, were, by far, the most common artifact form. The other worked forms recovered from contexts associated with the Hohokam are also ornaments associated with this period. Flying bird images are a relatively common motif on Colonial and Sedentary period ceramics, and whole shell beads are found throughout the precontact occupation of the region, although small *Glycymeris* beads are strongly associated with the Classic period.

There is considerable diversity of genera present in Historic era deposits, but few are worked, suggesting these may have been collected for other reasons. It is during the late nineteenth century that

Table 12.4. Temporal association for genera recovered during the Tucson Presidio data recovery project.

	Precontact			Anglo "Era"			
Genus	Early Agricultural Period	Hohokam	Presidio Era	American Territorial Period	Modern (Pre-WW II)	Unknown	Total (MNI) [a]
Marine							
Pelecypods							
Glycymeris	–	7	7	4	–	–	19
Laevicardium	1	1	6	4	1	1	14
Trachycardium	–	–	9	2	–	–	11
Argopecten	–	–	–	1	–	–	1
Spondylus	–	–	–	–	–	1	1
Dosinia	–	–	1	–	–	–	1
Ostrea	–	–	–	1	–	–	1
Chione	–	–	4	3	1	–	8
Protothaca	–	–	2	–	–	–	2
Donax	–	–	–	1	–	–	1
Tivela	–	–	–	2	–	–	2
Unidentified	–	–	5	–	–	1	6
Gastropods							
Olivella	2	2	2	–	–	–	6
Conus	–	–	1	–	–	–	1
Cerithidea	–	–	–	1	–	–	1
Columbella	–	–	1	–	–	–	1
Turritella	–	–	1	–	–	–	1
Oliva	1	–	–	–	–	1	2
Agaronia	–	–	–	1	–	–	1
Strombus	–	–	1	–	–	–	1
Turbo	–	–	–	1	–	–	1
Trivia	–	–	1	–	–	–	1
Cypraea	–	–	–	1	–	–	1
Unidentified	–	–	1	2	–	–	3
Unidentified nacreous	–	–	–	1	–	–	1
Freshwater/Terrestrial							
Pelecypods							
Anodonta	1	5	18	8	–	–	32
Gastropods							
Helisoma	1	–	–	–	–	–	1
Rumina	–	–	–	–	1	–	1
Helix (escargot)	–	–	–	1	–	–	1
Total	6	15	60	34	3	4	123

[a]MNI = Minimum number of individuals.

many individuals became interested in amassing natural history collections. That much of the historic marine shell are intact, unmodified valves that appear to have been collected as live specimens or shortly after death may be a reflection of this collecting pastime. Similarly, the presence of two exotic shells, the cowry *Cypraea moneta* and the terrestrial snail from the genus *Helix*, may also reflect this collecting behavior. The character of the Historic era sample is reminiscent of the material

Table 12.5. Artifact forms recovered from the Tucson Presidio data recovery project, by temporal association.

	Precontact			Anglo "Era"			
Artifact Form	Early Agricultural Period	Hohokam Sequence	Presidio Era	American Territorial Period	Modern (Pre-WWII)	Unknown	Total (MNI)[a]
Finished Artifact Forms							
Beads							
Whole shell	2	3	3	–	–	–	8
Cap	1	–	–	–	–	–	1
Pendants							
Whole shell	–	–	–	–	–	1	1
Cut pendant, flying bird	–	1	–	–	–	1	2
Bracelets							
Plain	–	5	4	2	–	–	11
Decorated, marginal nicking	–	–	1	1	–	–	2
Carved band, snake	–	1	–	–	–	–	1
Painted shell	–	–	–	1	–	–	1
Manufacturing Evidence							
Chippage debris	–	–	1	–	–	–	1
Carved waste/Debris	–	1	–	–	–	–	1
Whole Valves							
Unmodified valves	–	–	3	8	–	–	11
Fragmentary Material							
Worked, unknown form	–	1	–	–	–	–	1
Unworked	2	3	49	22	2	2	80
Total	5	15	61	34	2	4	121

Note: Local snails *Helisoma* and *Rumina* not listed.
[a]MNI = Minimum number of individuals.

recovered from American Territorial contexts excavated during the Rio Nuevo project (Vokes 2006). In that collection, several unusual genera were present, although nothing like the exotic cowry encountered here. That assemblage was also characterized as being comprised of largely unmodified specimens, including several whole valves, suggesting some of the material may also have been collected as souvenirs, or as malacological specimens (Vokes 2006:11.15).

CHAPTER 13

PRESIDIO ARCHAEOLOGY

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The overall research design theme for the Rio Nuevo Archaeology project has been based on exploration of the concept of community. The community concept is subdivided into a set of related themes that guide the investigation and interpretation of Tucson's long history by looking at: (1) the relationships between "oasis communities" and the Santa Cruz River; (2) the building blocks of communities; (3) the types of communities; (4) community diversity; and (5) the cultural contexts of communities. Although not all of these subthemes are applicable for the current project, the larger idea of exploring the changing community is a useful way to explore the data collected during the archaeological work on Block 181.

A PREHISTORIC OASIS COMMUNITY

Since 1943, archaeologists have known that downtown Tucson was the location of a prehistoric settlement. In that year, a pair of Hohokam ceramic vessels was found by workers excavating a trench. Emil Haury, of the Department of Anthropology at the University of Arizona, explored the area but failed to locate any features, although he did find a small sand-filled channel and the trigger guard from a Spanish musket. Since 1943, many prehistoric features and artifacts have been discovered.

Currently, the earliest known use of the downtown area was during the Late Cienega phase (400 B.C.-A.D. 50) of the Early Agricultural period. Five small, round pit structures have been found, three on Block 181 and two more several blocks to the east. These structures were cut into the caliche, with small postholes placed around the inside edge of the round pit, and a framework of thin saplings or poles created, resembling an upside down basket covered with thatching and mud. These houses were likely used for only a year or two before being abandoned and new structures built.

The Late Cienega phase saw the development of numerous settlements on the Santa Cruz River floodplain and the use of small irrigation ditches to water fields. Maize, beans, and possible squash are known to have been grown in Tucson during the Early Agricultural period; however, only maize was found in a sample from the Tucson Presidio site. Saguaro and hedgehog cactus fruit and goosefoot were also found in flotation samples from pit structures on Block 181. Few artifacts were recovered from the two excavated structures, not revealing much about the activities of site residents. Based on finds from contemporary sites located on the floodplain we know that these people hunted animals and birds on the floodplain, probably to protect their crops, as well as in the adjacent mountains, where larger animals such as deer and bighorn sheep were more likely to be found. These people experimented with pottery, crafted many kinds of ground stone tools, and probably had elaborate basketry, matting, and cotton fabrics, although these latter crafts do not usually survive at open-air sites.

Evidence for occupation of the downtown area during the Early Ceramic period has not been found. The area may have been vacant during this period, or sites may be located in as yet unexplored areas.

In contrast, Hohokam features spanning the Pioneer period through the Sedentary period have been located within or adjacent to the presidio. Six pit structures are known from Block 181, and others have been located in adjacent areas. The houses have plastered floors and walls, formal plastered hearths, and entrances pointed in various directions, probably indicative of courtyard groups. Feature 625, one of the Block 181 houses, had been remodeled into a storage structure. Many additional houses are almost certainly present on Block 181 and in adjacent areas that have not been heavily disturbed, such as the TransAmerica Building parking lot, immediately to the south. Given the size of the settlement and the date of the occupation, it is also very likely that a ballcourt was once present in the vicinity.

Hohokam artifacts found include decorated and plain ware ceramics, flaked stone tools, ground stone implements and ornaments, shell jewelry, and fired clay figurines.

Not enough animal bones were recovered from Hohokam deposits to make valid observations, although residents probably hunted primarily small game in the vicinity of their fields. In contrast, among the many plant remains found in Hohokam

features were domesticates (maize, beans, and cotton) and wild species (cactus fruit, mesquite, goosefoot, and false purslane). An irrigation canal was revealed a short distance west of the terrace overlooking the floodplain, with others located only a few hundred meters to the northwest. The Hohokam farmed the Santa Cruz River floodplain extensively and lived on the terrace, allowing them to maximize their field areas.

The small irrigation canal adjacent to the terrace was part of a system that had its roots in the Early Agricultural period. For several thousand years, farmers had been excavating small irrigation ditches throughout the floodplain, watering a variety of crops. Previous fieldwork found evidence for settlements within the floodplain, including villages and fieldhouses. The presence of a village on the terrace overlooking the floodplain may be indicative of several factors. Houses were less likely to be damaged by flood or moisture from the high water table. Residents on the terrace also had a bird's eye view of the floodplain and could monitor their fields from a distance. Further, placement of structures and activity areas on the terrace decreased the amount of irrigable land devoted to non-farming activities, thereby increasing the amount of land available for crops.

Water was important to the prehistoric residents of the Early Agricultural and Hohokam settlements on the terrace overlooking the floodplain. The relatively high water table, the springs present at the base of the terrace, and the irrigated fields that were developed all helped lead to the creation of stable, long-lived communities in prehistoric times in Tucson.

A MILITARY COMMUNITY

The location of the Spanish fort was selected in 1775, and the soldiers moved north from Tubac the following year. The adobe brick fort was completed in 1783, and stood until the 1850s. Since 1992, the eastern and western walls and the northeastern corner tower have been located, in addition to the remnants of several interior buildings, the cemetery, and other features such as adobe mining pits and an exterior ditch. The layout of the fort, although seriously impacted by historic and modern construction activities, is slowly being deciphered.

Many interior features have yielded artifacts and food remains, and these collections have improved our understanding of daily life. Goods were imported into the community, carried north from military and civilian warehouses and stores in Sonora. Military goods included weapons, ammunition, gunpowder, horse gear, and uniforms. Civilian goods included foodstuffs (such as chocolate and sugar), cooking and serving vessels, clothing, tools, and religious paraphernalia. The long distance to markets and warehouses made these goods expensive, and while some items were considered necessities (such as gunpowder), others were luxuries.

Metal items were recycled when they were worn out or became obsolete. Few metal artifacts have been recovered from the Tucson Presidio. In contrast, the fragments of majolica dishes found suggest that trash was discarded into open spaces around the fortress, with no systematic attempt to segregate trash. As a result, most majolica fragments recovered are very small (most are less than 1 cm across).

Locally manufactured goods, including pottery produced by the O'odham and gunflints and strike-a-lights made from local stone, were a necessity. Ceramic vessels included cooking pots, *chocolateros* (used for making hot chocolate), and *comales* (used for cooking tortillas). The latter two were almost certainly based upon metal examples provided by the Spanish. Many locally made items were probably fashioned from wood, leather, horsehair, basketry, or cloth, although these have not survived.

Faunal bone from the presidio deposits are primarily from domesticated animals, with cattle most common, followed by sheep, pigs, and chickens. Butchering took place on-site, with cleavers and axes used to break carcasses into smaller portions. A small amount of wild game was eaten, including local fish, cottontails, and jackrabbits.

Similarly, domesticated crops such as wheat, corn, beans, chile peppers, squash or pumpkin, watermelon, grapes, and walnuts were eaten by residents of the fortress, with a small amount of wild gathered foods, including saguaro and prickly pear fruits, supplementing the diet. Wheat was most common, and was considered a high status food source in Tucson.

For 80 years, the Tucson Presidio walls protected the 400-500 residents of the fortress. The Apache frequently raided the community, sending residents inside the walls with their cattle, sheep, and horses. There were times of peace, however, especially the time span between the 1790s and the early 1820s, but there were also times of warfare and hardship.

By the 1840s, Tucson was the only surviving Euro-American community in what is now modern Arizona. The other towns, missions, ranches, and mines had all been abandoned due to incessant attacks by the Apache. It is unclear why Tucson survived while other settlements failed, al-

though it may have been because the people had significant advantages: more water, better agricultural fields, and a strong military tradition.

THE SIQUEIROS-JÁCOME FAMILY

When combined, information recovered from documents, architecture, artifacts, and food remains, allow a more complete portrait of the Siqueiros-Jácome family to be developed. Juan Siqueiros and Soledad Jácome were a working class, Mexican-American couple. They built a simple, traditional one-room house, probably in 1866, with thick adobe walls and a flat roof made from saguaro ribs and mud. A corner fireplace heated the room in the winter, with Soledad cooking foods in O'odham pottery (and perhaps iron or brass kettles). Water was drawn from a well in the backyard, only a short distance away from privy pits. Sometime in the mid-1870s, two additional rooms were added on to the north, and other rooms and porches were later added to the eastern side of the house.

Juan's disappearance in the mid-1870s, perhaps through death or perhaps abandoning the family, probably resulted in Soledad renting out the additional rooms to provide income for herself and her four daughters. She also worked as a seamstress, mending clothing, with the many recovered small milk glass buttons suggesting she often mended underclothing, shirts, and blouses. She also sewed more elaborate articles of clothing, and probably taught one of her daughters how to make Mexican wedding dresses.

The family ate primarily beef, with smaller amounts of mutton, pork, chicken, and wild animals. Plant species identified from charred remains include maize, wheat, apples, apricots, chile peppers, plums, tomatoes, mustard, grapes, and walnuts, overall an unusually large assortment. All of these are plants available in the region. Raspberry seeds were also found, and would have been introduced as bottled preserves only after the Euro-American entrance into Tucson. One privy pit yielded many figs, suggesting the fig tree currently in the corner of the backyard was over 100 years old.

Tucson changed dramatically during Soledad Jácome's lifetime. At the time of the American entrance, there were perhaps 500 residents. By the time of Soledad's death in 1911, more than 16,000 people called Tucson home. People no longer had to fear the Apache. However, life was not always easy. As a single mother in the 1870s, Soledad had few options for earning an income. Through hard work, she was able to ensure her children had an education, and she was able to support herself, overcoming many of the problems Mexican-American women had to endure.

DODGE FAMILY BOARDING HOUSE

Excavations in 2001-2002 and in 2005-2006 uncovered portions of several large mining pits where soil and caliche were collected to make adobe bricks. Afterwards, the pits were filled with trash, most of it dating to the occupation of the Dodge Boarding House, which opened around 1898.

Census records and city directories indicate the boarding house catered to Euro-Americans, mostly middle-class—recent arrivals from the eastern United States. Some of these individuals probably came to Tucson in search of economic opportunities; others may have come in an attempt to cure themselves of tuberculosis in the area's dry heat.

At least one Overseas Chinese immigrant lived in the household, as seen by the presence of a small but diverse number of imported Chinese artifacts, including Chinese coins, medicine bottles, and opium pipe fragments.

Residents of the boarding house consumed large quantities of beef butchered using Euro-American techniques. Mutton, pork, chicken, and turkey were also consumed. Plant remains from the house included yard waste, deposited in the pits during periodic clean-ups of the backyard, and food remains, which included wheat, beans, maize, mustard, raspberries, grapes, and saguaro cactus seeds. The mustard and raspberries probably arrived as preserved foods. Numerous tin can fragments were present in the trash, and the boarding house residents likely ate a lot of food imported into Tucson.

The late eighteenth and early nineteenth centuries saw dramatic changes in Tucson, including a large increase in the number of Euro-American residents of the community, who were drawn to the area in search of jobs or improved health. One aspect of this influx was the development of voluntary segregation within the community. The Dodge Boarding House apparently catered to people of primarily European ancestry. The surviving census and city directory records indicate Mexican-Americans were not welcome at the boarding houses; thus, not all changes to the Tucson community were positive.

FUTURE RESEARCH

Many areas of intact archaeological deposits survive in the downtown core, including the plaza

inside the new presidio park, the lawns of the courthouse and city hall, and beneath Alameda Street in the cemetery area. Many prehistoric and historic features and artifacts likely lie hidden.

Many questions remain to be answered. How extensive was the Early Agricultural period village? Was the downtown area occupied during the Early Ceramic period? Is there evidence for a Hohokam ballcourt? Did the southwestern corner of the Spanish fort also have a square tower, or was it a diamond-shaped tower like those at the Santa Cruz de Terrenate Presidio? These and other questions may be examined by future archaeologists exploring the roots of our community.

COMPLIANCE SUMMARY

Work conducted on several lots on the northern side of Historic Block 181 between 2003 and 2007 sought to mitigate the effects of the stabilization and restoration of the Siqueiros-Jácome House and the subsequent construction of El Presidio de San Agustín Park. Excavations were focused in those areas where work would impact buried cultural resources, primarily at the locations of new foundations and beneath the walls and floors of the rooms inside the Siqueiros-Jácome House. Many prehistoric and historic features were discovered, and these contained large numbers of artifacts and food remains. Results of the fieldwork are presented in this report. All field documentation and artifacts recovered are curated at the Arizona State Museum (ASM) as Accession Number 2005-0502.

This portion of AZ BB:13:6 (ASM) was listed in 1976 on the National Register of Historic Places as part of El Presidio Historic District. The archaeological fieldwork suggests the portion of the archaeological site within the El Presidio del San Agustín Park is eligible under Criterion A, due to its association with the Tucson Presidio, under Criterion C based on the architectural remains of the presidio and the standing Siqueiros-Jácome House, and under Criterion D because of the potential to yield important information for both the Prehistoric and Historic eras in the as yet unexcavated portions of the site.

One goal was to leave large portions of the site undisturbed for future archaeologists. Toward that end, the eastern half of the northern room of the Siqueiros-Jácome House, the area beneath the historic fig tree in the Siqueiros-Jácome House backyard, and the large plaza area in the new park all have undisturbed resources awaiting the development of new techniques and tools for future archaeologists.

It is recommended that ground-disturbing activities be avoided, if possible, within the park. Should this prove impossible, any plans should be reviewed by a qualified archaeologist and efforts made to mitigate the disturbance through archaeological excavation or monitoring.

APPENDIX A

SUPPLEMENTAL GROUND STONE DATA

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Table A.1. Selected attributes of the ground stone artifacts recovered from Historic Block 181, AZ BB:13:13 (ASM).

Time/ Feature	Feature Type	Context	FN	Artifact	Subtype	Condition	Burned	Design	Use	Sequence	Wear	Designed Activity	Actual Activity	Length (cm)	Width (cm)	Thickness (cm)	Weight (g)	Second Use	Rock Type	Availa-bility	Residue	Color
American Territorial Period, 1856-1912																						
359	Borrow pit	Pit fill	8601.01	Mineral	Natural	–	–	–	–	–	–	–	–	–	–	–	–	–	Copper minerals	–	–	–
359	Borrow pit	Pit fill	8616.01	Mineral	Natural	–	–	–	–	–	–	–	–	–	–	–	–	–	Copper minerals	–	–	–
359	Borrow pit	Pit fill	8649.01	Mineral	Natural	–	–	–	–	–	–	–	–	–	–	–	–	–	Copper minerals	–	–	–
359	Borrow pit	Pit fill	8914.01	Mineral	Natural	–	–	–	–	–	–	–	–	–	–	–	–	–	Copper minerals	–	–	–
359	Borrow pit	Pit fill	8981.01	Mineral	Natural	Broken	–	–	–	–	–	–	–	–	–	–	–	–	Muscovite	–	–	–
359	Borrow pit	Pit fill	8743.01	Shaped	–	Broken	No	Strategic	–	–	–	–	–	–	–	–	–	–	Muscovite	–	None	–
359	Borrow pit	Pit fill	8703.01	Unidentified	–	Broken	No	–	Redesigned	–	Moderate	–	Multiple	–	–	–	–	Scraper	Basalt	Local/ Vicinity	None	–
359	Borrow pit	Pit fill	8832.01	Metate	–	Broken	Fire cracked	–	Recycled	Sequential	Moderate	Food processing	Multiple	–	–	–	–	Fire-cracked rock	Granite	Local/ Vicinity	None	–
359	Borrow pit	Pit fill	8748.01	Metate	Trough	Broken	–	–	–	–	Moderate	Food processing	–	–	–	–	–	–	–	–	None	–
359	Borrow pit	Pit fill	8758.01	Unidentified	–	Broken	–	–	–	–	–	–	–	–	–	–	–	–	–	–	None	–
359	Borrow pit	Pit fill	8826.01	Mano	–	Broken	Fire cracked	–	Recycled	Sequential	Moderate	Food processing	Multiple	–	–	–	–	Fire-cracked rock	–	–	None	–
359	Borrow pit	Pit fill	8881.01	Unidentified	–	Broken	Fire cracked	–	Recycled	Sequential	–	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	None	–
359	Borrow pit	Pit fill	8892.01	Pigment	Processed	–	–	–	–	–	–	Ornamentation	Decorative	–	–	–	5.2	–	Indigo	–	Pigment	Blue
359	Borrow pit	Pit fill	8903.01	Pigment	Processed	–	–	–	–	–	–	Ornamentation	Decorative	–	–	–	–	–	Indigo	–	Pigment	Blue
408	Outhouse fill	Outhouse fill	7956.01	Unidentified	–	Broken	Fire cracked	–	Recycled	Sequential	–	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	None	–
408	Outhouse fill	Outhouse fill	8341.01	Pigment	Processed	–	–	–	–	–	–	Ornamentation	Decorative	–	–	–	0.8	–	Indigo	–	Pigment	Blue
487	Small pit	Pit fill	5805.01	Mineral	Natural	–	–	–	–	–	–	–	–	–	–	–	–	–	Quartzite	–	–	–
487	Small pit	Pit fill	5805.02	Mineral	Natural	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
489	Small pit	Pit fill	5825.01	Mineral	Natural	–	–	–	–	–	–	–	–	–	–	–	–	–	Quartzite	–	–	–
510	Outhouse fill	Outhouse fill	6487.01	Abrader	Whetstone	Broken	No	Strategic	Single	–	Moderate	Sharpening	Manufacture	–	5.5	1.2	–	–	–	–	None	–
510	Outhouse fill	Outhouse fill	6487.02	Polisher	–	Broken	No	Expedient	Reused	–	Moderate	Polishing	Manufacture	–	4.3	2.5	–	Polisher	–	–	None	–
527	Outhouse fill	Outhouse fill	6935.01	Handstone	–	Broken	Fire cracked	–	Recycled	Sequential	–	General processing	Multiple	–	–	–	–	Fire-cracked rock	–	–	None	–
570	Outhouse fill	Outhouse fill	7064.01	Mineral	Natural	–	–	–	–	–	–	–	–	–	–	–	–	–	Copper minerals	–	–	–
570	Outhouse fill	Outhouse fill	7102.01	Mineral	Natural	–	–	–	–	–	–	–	–	–	–	–	–	–	Quartzite	–	–	–
570	Outhouse fill	Outhouse fill	6993.01	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
570	Outhouse fill	Outhouse fill	7001.01	Mano	–	Broken	Yes	Strategic	–	–	Moderate	Food processing	–	–	–	–	–	–	Quartzite	Local/ Vicinity	None	–
570	Outhouse fill	Outhouse fill	7001.02	Unidentified	–	Broken	Fire cracked	–	Recycled	Sequential	–	–	Multiple	–	–	–	–	Fire-cracked rock	Quartzite	Local/ Vicinity	None	–
570	Outhouse fill	Outhouse fill	7078.01	Unidentified	–	Broken	–	–	–	–	–	–	–	–	–	–	–	–	–	–	None	–
570	Outhouse fill	Outhouse fill	7125.01	Abrader	Whetstone	Broken	Yes	Strategic	Reused	–	Moderate	Sharpening	–	–	–	–	–	Abrader	–	–	None	–
571	Borrow pit	Pit fill	7155.01	Mineral	Natural	–	–	–	–	–	–	–	–	–	–	–	–	–	Copper minerals	–	–	–
571	Borrow pit	Pit fill	7193.01	Mineral	Natural	–	–	–	–	–	–	–	–	–	–	–	–	–	Copper minerals	–	–	–

Table A.1. Continued.

Time/ Feature	Feature Type	Context	FN	Artifact	Subtype	Condition	Burned	Design	Use	Sequence	Wear	Designed Activity	Actual Activity	Length (cm)	Width (cm)	Thickness (cm)	Weight (g)	Second Use	Rock Type	Availa-bility	Residue	Color
American Territorial Period (continued)																						
571	Borrow pit	Pit fill	7476.01	Mineral	Natural	–	–	–	–	–	–	–	–	–	–	–	–	–	Copper minerals	–	–	–
571	Borrow pit	Pit fill	7474.02	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
571	Borrow pit	Pit fill	7474.03	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
571	Borrow pit	Pit fill	7527.01	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
571	Borrow pit	Pit fill	7182.01	Natural shape	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Gneiss	Vicinity/ Distant	–	–
571	Borrow pit	Pit fill	7231.01	Abrader	Whetstone	Broken	No	Strategic	Single	–	Moderate	Sharpening	Manufacture	–	–	–	–	–	–	–	–	–
571	Borrow pit	Pit fill	7280.02	Unidentified	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
571	Borrow pit	Pit fill	7258.02	Mineral	Natural	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
571	Borrow pit	Pit fill	7229.01	Polisher	Pebble	Whole	Yes	Expedient	Single	–	Light	Polishing	Pottery manufacture	7.2	3.2	3.0	52.4	–	Basalt	–	Carbon	–
571	Borrow pit	Pit fill	7521.01	Polisher	Pebble	Whole	No	Expedient	Single	–	Moderate	Polishing	Manufacture	3.1	2.4	1.4	15.2	–	Basalt	–	None	–
571	Borrow pit	Pit fill	7230.01	Polisher	Pebble	Whole	No	Expedient	Single	–	Moderate	Polishing	Pottery manufacture	5.5	3.2	2.1	52.4	–	Basalt	–	None	–
571	Borrow pit	Pit fill	7285.01	Polisher	Pebble	Whole	No	Expedient	Single	–	Light	Polishing	Manufacture	–	–	–	–	–	Rhyolite	–	None	–
571	Borrow pit	Pit fill	7475.01	Tablet	–	Broken	No	Expedient	–	–	–	Paraphernalia	–	–	3.3	0.6	–	–	Phyllite	Vicinity/ Distant	None	–
571	Borrow pit	Pit fill	7450.01	Mano	Flat/ Concave	Broken	Yes	Strategic	Reused	Concomitant	Moderate	Food processing	Food processing	–	–	–	–	Lapstone	Granite	Local/ Vicinity	None	–
571	Borrow pit	Pit fill	7430.01	Handstone	Flat/ Concave	Whole	No	Expedient	Single	–	Light	General processing	General processing	8.0	9.1	5.0	538.7	–	Quartzite	Local/ Vicinity	None	–
571	Borrow pit	Pit fill	7473.01	Mano	Flat/ Concave	Whole	Yes	Strategic	Single	–	Moderate	Food processing	Food processing	9.8	9.5	4.6	660.9	–	Quartzite	Local/ Vicinity	None	–
571	Borrow pit	Pit fill	7280.01	Shaped	–	Broken	No	–	–	–	–	Paraphernalia	–	–	5.4	1.5	–	–	Tuff	Local/ Vicinity	None	–
571	Borrow pit	Pit fill	7189.01	Mano	Basin	Whole	Yes	Strategic	Reused	Sequential	Heavy	Food processing	Food processing	10.9	8.2	4.5	669.3	Mano	Volcanic, felsic	Local/ Vicinity	None	–
571	Borrow pit	Pit fill	7258.01	Polisher	Pebble	Whole	No	Expedient	Single	–	Moderate	Polishing	Manufacture	3.0	2.8	2.0	21.3	–	–	–	None	–
571	Borrow pit	Pit fill	7287.01	Abrader	Whetstone	Broken	No	Strategic	Single	–	Heavy	Sharpening	Manufacture	–	5.8	1.1	–	–	–	–	None	–
571	Borrow pit	Pit fill	7148.01	Mano	–	Broken	–	–	–	–	Moderate	Food processing	–	–	–	–	–	–	–	–	None	–
571	Borrow pit	Pit fill	7170.01	Netherstone	–	Broken	–	–	–	–	Moderate	General processing	–	–	–	–	–	–	–	–	None	–
571	Borrow pit	Pit fill	7186.01	Unidentified	–	Broken	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	None	–
571	Borrow pit	Pit fill	7170.02	Unidentified	–	Broken	No	–	–	–	Moderate	–	–	–	–	–	–	–	–	–	None	–
571	Borrow pit	Pit fill	7371.01	Unidentified	–	Broken	Fire cracked	–	Recycled	–	–	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	None	–
571	Borrow pit	Pit fill	7325.01	Unidentified	–	Broken	Fire cracked	–	Recycled	Sequential	–	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	None	–
571	Borrow pit	Pit fill	7451.01	Unidentified	–	Broken	Fire cracked	–	Recycled	Sequential	–	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	None	–
571	Borrow pit	Pit fill	7451.02	Unidentified	–	Broken	Fire cracked	–	Recycled	Sequential	–	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	None	–
571	Borrow pit	Pit fill	7526.01	Unidentified	–	Broken	Fire cracked	–	Recycled	Sequential	–	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	None	–
571	Borrow pit	Pit fill	7150.01	Pigment	Processed	–	–	–	–	–	–	Ornamentation	Decorative	–	–	–	0.3	–	Indigo	–	Pigment	Blue
571	Borrow pit	Pit fill	7321.01	Pigment	Processed	–	–	–	–	–	–	Ornamentation	Decorative	–	–	–	0.4	–	Indigo	–	Pigment	Blue
571	Borrow pit	Pit fill	7520.01	Pigment	Processed	–	–	–	–	–	–	Ornamentation	Decorative	–	–	–	0.4	–	Indigo	–	Pigment	Blue
571	Borrow pit	Pit fill	7328.01	Pigment	Processed	–	–	–	–	–	–	Ornamentation	Decorative	–	–	–	1.0	–	Indigo	–	Pigment	Blue
571	Borrow pit	Pit fill	7477.01	Pigment	Processed	–	–	–	–	–	–	Ornamentation	Decorative	–	–	–	1.3	–	Indigo	–	Pigment	Blue

Table A.1. Continued.

Time/ Feature	Feature Type	Context	FN	Artifact	Subtype	Condition	Burned	Design	Use	Sequence	Wear	Designed Activity	Actual Activity	Length (cm)	Width (cm)	Thickness (cm)	Weight (g)	Second Use	Rock Type	Availa-bility	Residue	Color
American Territorial Period (continued)																						
571	Borrow pit	Pit fill	6961.01	Pigment	Processed	–	–	–	–	–	–	Ornamentation	Decorative	–	–	–	2.0	–	Indigo	–	Pigment	Blue
571	Borrow pit	Pit fill	7190.01	Pigment	Processed	–	–	–	–	–	–	Ornamentation	Decorative	–	–	–	2.4	–	Indigo	–	Pigment	Blue
603	Borrow pit	Pit fill	7687.01	Mineral	Natural	–	–	–	–	–	–	–	–	–	–	–	–	–	Copper minerals	–	–	–
603	Borrow pit	Pit fill	7717.01	Polisher	Pebble	Broken	No	Expedient	Single	–	Moderate	Polishing	–	–	3.5	1.0	–	–	Basalt	Local/ Vicinity	None	–
603	Borrow pit	Pit fill	8369.01	Mano	–	Broken	Fire cracked	–	Recycled	Sequential	Moderate	Food processing	Multiple	–	–	–	–	Fire-cracked rock	Basalt/Andesite, vesicular	Local/ Vicinity	None	–
603	Borrow pit	Pit fill	8439.01	Unidentified	–	Broken	–	–	–	–	–	–	–	–	–	–	–	–	–	–	None	–
603	Borrow pit	Pit fill	7737.01	Unidentified	–	Broken	Fire cracked	–	Recycled	Sequential	–	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	None	–
624	Borrow pit	Pit fill	8550.01	Mineral	Natural	–	–	–	–	–	–	–	–	–	–	–	–	–	Copper minerals	–	–	–
624	Borrow pit	Pit fill	9071.01	Mineral	Natural	–	–	–	–	–	–	–	–	–	–	–	–	–	Copper minerals	–	–	–
624	Borrow pit	Pit fill	8114.01	Mineral	Natural	–	–	–	–	–	–	–	–	–	–	–	–	–	Quartzite	–	–	–
624	Borrow pit	Pit fill	8296.01	Mineral	Natural	–	–	–	–	–	–	–	–	–	–	–	–	–	Unknown	–	–	–
624	Borrow pit	Pit fill	8221.01	Mineral	Natural	–	–	–	–	–	–	–	–	–	–	–	5,604.0	–	Copper minerals	Vicinity/ Distant	–	–
624	Borrow pit	Pit fill	8535.02	Unidentified	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
624	Borrow pit	Pit fill	8114.02	Mineral	Natural	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
624	Borrow pit	Pit fill	8535.01	Polisher	–	Broken	–	–	–	–	Moderate	Polishing	–	–	–	–	–	–	Basalt	Vicinity/ Distant	None	–
624	Borrow pit	Pit fill	8497.01	Lapstone	–	Broken	No	Expedient	Single	–	Moderate	Smoothing	Manufacture	–	–	–	–	–	Andesite	Local/ Vicinity	None	–
624	Borrow pit	Pit fill	8213.01	Metate	–	Broken	Fire cracked	–	Recycled	Sequential	–	Food processing	Multiple	–	–	–	–	Fire-cracked rock	Basalt/Andesite, vesicular	Local/ Vicinity	None	–
624	Borrow pit	Pit fill	8249.01	Mano	–	Broken	Fire cracked	Strategic	Multiple	Sequential	Heavy	Food processing	Multiple	–	–	–	–	Abrader	Dacite	Local/ Vicinity	None	–
624	Borrow pit	Pit fill	8249.02	Polisher	Pebble	Broken	No	Expedient	–	–	Light	Polishing	Manufacture	–	–	–	–	–	Volcanic, felsic	Local/ Vicinity	None	–
624	Borrow pit	Pit fill	8556.02	Unidentified	–	Broken	–	–	–	–	–	–	–	–	–	–	–	–	–	–	None	–
624	Borrow pit	Pit fill	8179.01	Unidentified	–	Broken	Fire cracked	–	Recycled	Sequential	–	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	None	–
624	Borrow pit	Pit fill	8192.01	Unidentified	–	Broken	Fire cracked	–	Recycled	Sequential	–	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	None	–
624	Borrow pit	Pit fill	8515.01	Unidentified	–	Broken	Fire cracked	–	Recycled	Sequential	–	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	None	–
624	Borrow pit	Pit fill	8556.01	Unidentified	–	Broken	Fire cracked	–	Recycled	Sequential	–	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	None	–
624	Borrow pit	Pit fill	8535.03	Handstone	–	Broken	Fire cracked	Strategic	–	–	Moderate	Food processing	Food processing	–	–	–	–	–	–	–	None	–
624	Borrow pit	Pit fill	8538.01	Pigment	Processed	–	–	–	–	–	–	Ornamentation	Decorative	–	–	–	1.0	–	Indigo	–	Pigment	Blue
Presidio, 1775-1856																						
460	Borrow pit	Pit fill	5224.01	Mineral	Natural	–	–	–	–	–	–	–	–	–	–	–	–	–	Copper minerals	–	–	–
460	Borrow pit	Pit fill	5248.01	Natural shape	Pebble	–	–	–	–	–	–	–	–	–	–	–	–	–	Quartzite	–	–	–
460	Borrow pit	Pit fill	5240.01	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
460	Borrow pit	Pit fill	5286.01	Handstone	Flat/ Concave	Whole	Yes	Expedient	Multiple	Sequential	Moderate	General processing	Multiple	6.5	6.7	3.4	215.0	Pecking stone	Quartzite	Local/ Vicinity	Carbon	–

Table A.1. Continued.

Time/ Feature	Feature Type	Conte–t	FN	Artifact	Subtype	Condition	Burned	Design	Use	Sequence	Wear	Designed Activity	Actual Activity	Length (cm)	Width (cm)	Thickness (cm)	Weight (g)	Second Use	Rock Type	Availa-bility	Residue	Color
Presidio (continued)																						
460	Borrow pit	Pit fill	5226.01	Handstone	–	Broken	–	–	–	–	Moderate	General processing	–	–	–	–	–	–	Volcanic, felsic	Local/ Vicinity	None	–
466	Large pit	Pit fill	5394.04	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	Basalt, vesicular	Local/ Vicinity	–	–
466	Large pit	Pit fill	5394.01	Metate	–	Broken	Fire cracked	–	Recycled	Sequential	–	–	Multiple	–	–	–	–	Fire-cracked rock	Basalt, vesicular	Local/ Vicinity	None	–
466	Large pit	Pit fill	5394.03	Unidentified	–	Broken	Fire cracked	–	Recycled	–	–	–	Multiple	–	–	–	–	Fire-cracked rock	Basalt, vesicular	Local/ Vicinity	None	–
466	Large pit	Pit fill	5394.02	Unidentified	–	Broken	Fire cracked	–	Recycled	Sequential	–	–	Multiple	–	–	–	–	Fire-cracked rock	Basalt, vesicular	Local/ Vicinity	None	–
466	Large pit	Pit fill	5370.01	Unidentified	–	Broken	Fire cracked	–	Recycled	Sequential	–	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	None	–
475	Large pit	Pit fill	5543.01	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
475	Large pit	Pit fill	5543.02	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
475	Large pit	Pit fill	5543.03	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
475	Large pit	Pit fill	5552.01	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
475	Large pit	Pit fill	5552.02	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
475	Large pit	Pit fill	5552.03	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
498	Hearth	Hearth fill	6177.02	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
498	Hearth	Hearth fill	6178.03	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
498	Hearth	Hearth fill	6178.04	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
498	Hearth	Hearth fill	6177.01	Trivet	–	Whole	Fire cracked	–	Single	–	–	Architectural	Other	–	–	–	–	–	–	–	–	–
498	Hearth	Hearth fill	6178.01	Unidentified	–	Broken	Fire cracked	–	Recycled	Sequential	–	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	None	–
498	Hearth	Hearth fill	6178.02	Unidentified	–	Broken	Fire cracked	–	Recycled	Sequential	–	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	None	–
499	Hearth	Hearth fill	6193.01	Polisher	Pebble	Broken	No	Expedient	Single	–	Moderate	Polishing	Manufacture	–	4.6	1.9	–	–	Shale	Vicinity/ Distant	None	–
513	Borrow pit	Pit fill	6558.01	Mineral	Natural	–	–	–	–	–	–	–	–	–	–	–	–	–	Copper minerals	–	–	–
513	Borrow pit	Pit fill	6611.01	Mineral	Natural	–	–	–	–	–	–	–	–	–	–	–	–	–	Copper minerals	–	–	–
513	Borrow pit	Pit fill	6749.01	Mineral	Natural	–	–	–	–	–	–	–	–	–	–	–	–	–	Copper minerals	–	–	–
513	Borrow pit	Pit fill	6518.01	Mano	Trough	Broken	Yes	Strategic	Single	–	Moderate	Food processing	Food processing	–	–	–	–	Mano	Basalt/Andesite, vesicular	Local/ Vicinity	None	–
513	Borrow pit	Pit fill	6720.01	Handstone	Flat/ Concave	Broken	No	Expedient	–	–	Moderate	General processing	General processing	–	–	–	–	–	Granite	Local/ Vicinity	None	–
513	Borrow pit	Pit fill	6736.01	Pecking stone	Cobble	Whole	No	Expedient	Single	–	Moderate	Percussion	Stone manufacture	8.4	6.8	4.5	303.2	–	Volcanic, felsic	Local/ Vicinity	None	–
513	Borrow pit	Pit fill	6805.01	Hammer-stone	Billet	Whole	No	Expedient	Single	–	Moderate	Percussion	Stone manufacture	7.4	6.8	5.5	287	–	–	–	None	–
513	Borrow pit	Pit fill	7088.01	Metate	Trough	Broken	–	–	–	–	Moderate	Food processing	–	–	–	–	–	–	–	–	None	–
513	Borrow pit	Pit fill	6703.01	Mano	–	Broken	Fire cracked	–	Recycled	Sequential	Moderate	Food processing	Multiple	–	–	–	–	Fire-cracked rock	–	–	None	–
513	Borrow pit	Pit fill	6806.01	Unidentified	–	Broken	Fire cracked	–	Recycled	–	–	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	None	–

Table A.1. Continued.

Time/ Feature	Feature Type	Context	FN	Artifact	Subtype	Condition	Burned	Design	Use	Sequence	Wear	Designed Activity	Actual Activity	Length (cm)	Width (cm)	Thickness (cm)	Weight (g)	Second Use	Rock Type	Availa-bility	Residue	Color
Presidio (continued)																						
513	Borrow pit	Pit fill	6789.01	Lapstone	Flat	Whole	Yes	Expedient	Single	–	Light	General processing	Pigment processing	103	75	21	257.6	–	Quartzite	Local/ Vicinity	Pigment	10R 5/8
520	Trash	Sheet trash	6893.01	Scraper	–	Whole	No	Expedient	Single	–	Light	Scraping	Scraping	4.3	4.0	1.0	23.7	–	Basalt	Local/ Vicinity	None	–
579	Large pit	Pit fill	7214.01	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
579	Large pit	Pit fill	7218.01	Unidentified	–	Broken	Fire cracked	–	Recycled	Sequential	–	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	None	–
579	Large pit	Pit fill	7218.02	Unidentified	–	Broken	Fire cracked	–	Recycled	Sequential	–	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	None	–
586	Borrow pit	Pit fill	7421.01	Mineral	Natural	–	–	–	–	–	–	–	–	–	–	–	–	–	Copper minerals	–	–	–
586	Borrow pit	Pit fill	7414.01	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
586	Borrow pit	Pit fill	7414.02	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
586	Borrow pit	Pit fill	7426.01	Pestle	Cobble	Whole	Yes	Strategic	Single	–	Moderate	General processing	General processing	132.0	73.0	62.0	1.019.0	–	Quartzite	Local/ Vicinity	None	–
628	Large pit	Pit fill	8166.01	Unidentified	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
628	Large pit	Pit fill	8165.01	Unidentified	–	Broken	Fire cracked	–	Recycled	Sequential	–	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	None	
635	Ditch	Canal sediments	8709.01	Unidentified	–	Broken	–	–	–	–	–	–	–	–	–	–	–	–	–	–	None	–
659	Borrow pit	Pit fill	9202.01	Unidentified	–	Broken	–	–	–	–	–	–	–	–	–	–	–	–	–	–	None	–
Hohokam Sedentary Period, A.D. 950-1150																						
461	Small pit	Pit fill	5258.01	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
461	Small pit	Pit fill	5199.01	Mineral	Natural	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
461	Small pit	Pit fill	5200.01	Mano	Trough	Broken	Indeter-minate	Strategic	–	–	Moderate	Food processing	Food processing	–	9.5	3.4	–	–	Basalt/Andesite, vesicular	Local/ Vicinity	None	–
461	Small pit	Pit fill	5218.01	Hammer-stone	Billet	Whole	No	Expedient	Single	–	Heavy	Percussion	Stone manufacture	7.5	7.0	4.9	378.0	–	–	–	None	–
463	Pithouse	Floor	5302.02	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
463	Pithouse	Floor	5834.01	Polisher	Other	Whole	No	Expedient	Multiple	Concomitant	Moderate	Polishing	Multiple	12.9	2.7	1.7	86.0	Pecking stone	Rhyolite	Vicinity	None	–
463	Pithouse	Floor	5285.01	Figurine	Animal part	Indeter-minate	No	Strategic	Single	–	–	Ornamentation	Symbolic	–	–	–	3.0	–	Tuff	Vicinity/ Distant	None	–
463	Pithouse	Floor	6004.01	Mano	Basin	Whole	Yes	Strategic	Reused	Concomitant	Moderate	Food processing	Food processing	8.4	8.9	6.2	681.0	Mano	Basalt/Andesite, vesicular	Local/ Vicinity	None	–
463	Pithouse	Floor	5832.01	Mano	Blank	Whole	No	Strategic	Unused	–	Unused	Food processing	Unused	17.9	10.8	7.6	2,236.0	–	Quartzite	Local/ Vicinity	None	–
463	Pithouse	Floor	6005.01	Handstone	Flat/ Concave	Whole	No	Expedient	Single	–	Light	General processing	General processing	9.6	8.1	5.2	516.0	–	Volcanic, felsic	Local/ Vicinity	None	–
463	Pithouse	Floor	6009.01	Netherstone	–	Broken	No	–	–	–	–	General processing	–	–	–	–	–	–	Volcanic, felsic	Local/ Vicinity	None	–
463	Pithouse	Floor	5254.01	Hammer-stone	Natural	Whole	Yes	Expedient	Single	–	Moderate	Percussion	Stone manufacture	7.3	6.4	4.4	290.0	–	–	–	None	–
463	Pithouse	Floor	6008.01	Hammer-stone	Natural	Whole	No	Expedient	Single	–	Moderate	Percussion	Stone manufacture	8.7	8.6	6.7	689.0	–	–	–	None	–
463	Pithouse	Floor	5836.01	Unidentified	–	Broken	Fire cracked	–	Recycled	Sequential	–	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	None	–
463	Pithouse	Floor	5302.01	Unidentified	–	Broken	Fire cracked	–	Recycled	Sequential	–	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	None	–
463	Pithouse	Pithouse fill	5672.01	Fire-cracked rock	–	Broken	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Table A.1. Continued.

Time/ Feature	Feature Type	Context	FN	Artifact	Subtype	Condition	Burned	Design	Use	Sequence	Wear	Designed Activity	Actual Activity	Length (cm)	Width (cm)	Thickness (cm)	Weight (g)	Second Use	Rock Type	Availa-bility	Residue	Color
Hohokam Sedentary Period (continued)																						
463	Pithouse	Pithouse fill	5262.01	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
463	Pithouse	Pithouse fill	6354.01	Polisher	Pebble	Whole	No	Expedient	Single	–	Moderate	Polishing	Pottery manufacture	7.1	3.0.	1.8	62.0	–	Rhyolite	Vicinity	None	–
463	Pithouse	Pithouse fill	5432.01	Metate	–	Broken	Fire cracked?	Strategic	–	–	Moderate	Food processing	Food processing	–	–	–	–	–	Basalt/Andesite, vesicular	Local/ Vicinity	None	–
463	Pithouse	Pithouse fill	5322.01	Lapstone	Other	Broken	Fire cracked	Expedient	Single	–	Moderate	Smoothing	Manufacture	–	–	–	–	–	Tuff, Beehive	Local/ Vicinity	None	–
463	Pithouse	Pithouse fill	6273.01	Unidentified	–	Broken	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	None	–
477	Small pit	Pit fill	5626.01	Polisher	Pebble	Whole	No	Expedient	Single	–	Light	Polishing	Pottery manufacture	5.2	3.8	2.7	76.0	–	Quartzite	–	None	–
477	Small pit	Pit fill	5603.01	Hammer-stone	Natural	Whole	No	Expedient	Single	–	Light	Percussion	Stone manufacture	5.8	5.7	4.2	202.0	–	–	–	None	–
477	Small pit	Pit fill	5634.01	Mano	Basin	Whole	No	Expedient	Single	–	Moderate	Food processing	Food processing	6.7	7.5	4.8	396.0	–	–	–	None	–
477	Small pit	Pit fill	5631.01	Metate	–	Broken	–	–	–	–	–	Food processing	–	–	–	–	–	–	–	–	None	–
477	Small pit	Pit fill	5616.01	Lapstone	Flat	Broken	No	Expedient	Reused	Sequential	Moderate	Smoothing	Multiple	–	–	1.4	–	Lapstone	Basalt/Andesite, vesicular	Local/ Vicinity	Pigment	10R 4/6
495	Small pit	Pit fill	6130.01	Mano	Trough	Whole	No	Strategic	Single	–	Moderate	Food processing	Food processing	18.2	10.6	5.0	1,356.0	–	Gneiss	Local/ Vicinity	None	–
625	Pithouse	Floor	8622.01	Netherstone	Flat	Broken	No	–	–	–	Moderate	–	–	–	–	–	–	–	Basalt/Andesite, vesicular	Local/ Vicinity	None	–
625	Pithouse	Floor	8395.01	Pigment	Processed	Broken	–	Strategic	–	–	–	Ornamentation	Decorative	–	–	–	0.4	–	Hematite, earthy	–	Pigment	10R 4/6
625	Pithouse	Roof/ Wall fall	8184.01	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
625	Pithouse	Roof/ Wall fall	8382.01	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
625	Pithouse	Roof/ Wall fall	8383.01	Metate	Trough	Broken	Fire cracked	Strategic	Recycled	Sequential	Heavy	Food processing	Multiple	–	–	10.6	–	Fire-cracked rock	–	–	None	–
625	Pithouse	Roof/ Wall fall	8387.01	Pigment	Processed	Broken	–	Strategic	–	–	–	Ornamentation	Decorative	–	–	–	8.6	–	Hematite, earthy	–	Pigment	10R 5/6
625	Pithouse	Roof/ Wall fall	8388.01	Fire-cracked rock	–	Broken	Fire cracked	–	Multiple	Sequential	Moderate	–	Multiple	–	–	–	–	Chopper	Basalt, vesicular	Local/ Vicinity	Pigment	10R 4/6
625.02	Large pit	Interior pit fill	8670.01	Mineral	Natural	–	–	–	–	–	–	–	–	–	–	–	–	–	Quartzite	–	–	–
625.02	Large pit	Interior pit fill	8670.02	Natural shape	Pebble	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
631	Trash	Pit fill	8378.01	Hammer-stone	Other	Whole	No	Expedient	Single	–	Light	Percussion	Manufacture	15	6.5	4.4	786.0	–	Schist	Vicinity	None	–
631	Trash	Pit fill	8354.01	Ornament	Pendant	Broken	No	Strategic	Unused	–	Unused	Ornamentation	Unused	–	–	0.3	–	–	Turquoise	Vicinity/ Distant	None	–
631	Trash	Pit fill	8380.01	Lapstone	Flat	Whole	No	Expedient	Single	–	Moderate	Smoothing	Stone manufacture	16.7	9.7	2.9	789.0	–	Basalt/Andesite, vesicular	Local/ Vicinity	None	–
631	Trash	Pit fill	8373.01	Metate	Trough	Broken	Indeter-minate	Strategic	Single	–	Heavy	Food processing	Food processing	–	–	–	–	–	Basalt/Andesite, vesicular	Local/ Vicinity	None	–
631	Trash	Pit fill	8379.01	Mano	Flat/ Concave	Whole	No	Strategic	Single	–	Moderate	Food processing	Food processing	8.0	6.9	3.9	347.0	–	Quartzite	Local/ Vicinity	None	–
631	Trash	Pit fill	8371.01	Pigment	Processed	Broken	–	Strategic	–	–	–	Ornamentation	Decorative	–	–	–	1.6	–	Hematite, earthy	–	Pigment	10R 4/6
631	Trash	Pit fill	8352.01	Pigment	Processed	Broken	–	Strategic	–	–	–	Ornamentation	Decorative	–	–	–	20.0	–	Hematite, earthy	–	Pigment	10R 4/6
631	Trash	Pit fill	8353.01	Raw material	–	–	–	–	–	–	–	–	–	15	9.1	1.8	269.5	–	Schist	Local/ Vicinity	Pigment	10R 5/8

Table A.1. Continued.

Time/ Feature	Feature Type	Context	FN	Artifact	Subtype	Condition	Burned	Design	Use	Sequence	Wear	Designed Activity	Actual Activity	Length (cm)	Width (cm)	Thickness (cm)	Weight (g)	Second Use	Rock Type	Availa-bility	Residue	Color
Hohokam Colonial/Rillito Phase, A.D. 850-950																						
462	Small pit	Pit fill	5275.01	Polisher	Pebble	Broken	No	Expedient	Redesigned	Sequential	Moderate	Polishing	Multiple	–	4.6	3.6	–	Pecking stone	Rhyolite	Vicinity	None	–
462	Small pit	Pit fill	5206.01	Unidentified	–	Broken	Fire cracked	–	Recycled	Sequential	–	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	None	–
462	Small pit	Pit fill	5206.02	Unidentified	–	Broken	Fire cracked	–	Recycled	Sequential	–	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	None	–
Hohokam Colonial/Cañada del Oro Phase, A.D. 750-850																						
660	Pithouse	Pithouse fill	9225.01	Handstone	Flat/ Concave	Broken	Fire cracked	–	Recycled	Sequential	Moderate	General processing	General processing	–	–	–	–	Fire-cracked rock	Tuff	Local/ Vicinity	None	–
660	Pithouse	Roof/ Wall fall	9229.01	Unidentified	–	Broken	Fire cracked	Strategic	Recycled	Sequential	–	–	–	–	–	–	–	Fire-cracked rock	Rhyolite	Local/ Vicinity	None	–
Hohokam [Unspecified], A.D. 500-1450																						
608	Pithouse	Floor	8408.01	Mano	Trough	Whole	No	Strategic	Single	–	Moderate	Food processing	Food processing	14.9	9.5	8.3	1,842.0	–	Basalt/Andesite, vesicular	Local/ Vicinity	None	–
608	Pithouse	Floor	8074.01	Mano	Flat/ Concave	Whole	Yes	Strategic	Single	–	Moderate	Food processing	Food processing	17.9	9.1	4.9	1,266.0	–	Schist	Local/ Vicinity	None	–
608	Pithouse	Floor	8106.01	Unidentified	–	Broken	–	–	–	–	–	–	–	–	–	–	–	–	–	–	None	–
608	Pithouse	Pithouse fill	7996.01	Hammer-stone	Natural	Whole	Yes	Expedient	Single	–	Light	Percussion	Stone manufacture	6.3	5.0	4.1	178.0	–	–	–	None	–
608	Pithouse	Pithouse fill	7997.01	Unidentified	–	Broken	Fire cracked	–	Recycled	Sequential	–	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	None	–
608	Pithouse	Pithouse fill	7997.02	Unidentified	–	Broken	Fire cracked	–	Recycled	Sequential	–	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	None	–
608	Pithouse	Roof/ Wall fall	8315.01	Abrader	Multiple	Whole	No	Strategic	Multiple	Concomitant	Heavy	Smoothing	Manufacture	6.1	3.6	1.7	44.0	Abrader	Quartz	–	None	–
608	Pithouse	Roof/ Wall fall	8315.04	Handstone	–	Broken	–	–	–	–	–	General processing	–	–	–	–	–	–	Basalt, vesicular	Local/ Vicinity	None	–
608	Pithouse	Roof/ Wall fall	8315.03	Netherstone	–	Broken	–	–	–	–	–	General processing	–	–	–	–	–	–	Basalt/Andesite, vesicular	Local/ Vicinity	None	–
608	Pithouse	Roof/ Wall fall	8315.02	Mano	Flat/ Concave	Broken	Yes	Strategic	Reused	Sequential	Moderate	Food processing	Food processing	–	9.0	3.5	–	Mano	Granite	Local/ Vicinity	None	–
608	Pithouse	Roof/ Wall fall	8308.01	Metate	Basin	Broken	No	Strategic	–	–	Moderate	Food processing	–	–	–	–	–	–	Quartzite	Local/ Vicinity	None	–
608	Pithouse	Roof/ Wall fall	8318.01	Netherstone	–	Broken	No	–	–	–	–	General processing	–	–	–	–	–	–	Volcanic, felsic	Local/ Vicinity	None	–
608	Pithouse	Roof/ Wall fall	8148.01	Metate	–	Broken	Fire cracked	–	Recycled	Sequential	Moderate	Food processing	Multiple	–	–	–	–	Fire-cracked rock	–	–	None	–
608	Pithouse	Roof/ Wall fall	8019.01	Unidentified	–	Broken	Fire cracked	–	Recycled	Sequential	–	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	None	–
630	Large pit	Pit fill	8347.01	Unidentified	–	Broken	–	–	–	–	–	–	–	–	–	–	–	–	–	–	None	–
643	Pithouse	Floor	9165.01	Slab	Flat	–	–	–	–	–	–	–	–	59.5	29.5	6.5	–	–	–	–	–	–
643	Pithouse	Floor	9109.01	Unidentified	–	Broken	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	None	–
Early Agricultural Period, 1200 B.C.-A.D. 50																						
430	Pithouse	Floor	8935.01	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
430	Pithouse	Floor	8957.01	Raw material	–	Whole	No	–	Unused	–	–	Procurement	Procurement	–	–	–	–	–	Schist	Vicinity	None	–
430	Pithouse	Floor	8974.01	Unidentified	–	Broken	–	–	–	–	–	Percussion	–	–	–	–	–	–	Diorite	Local/ Vicinity	None	–
430	Pithouse	Floor	8969.01	Abrader	Flat	Whole	No	Strategic	Single	–	Moderate	Smoothing	Manufacture	10.3	5.8	2.8	249.0	–	–	–	None	–
430	Pithouse	Floor	8972.01	Unidentified	–	Broken	Fire cracked	–	Recycled	–	–	–	–	–	–	–	–	Fire-cracked rock	–	–	None	–

Table A.1. Continued.

Time/ Feature	Feature Type	Context	FN	Artifact	Subtype	Condition	Burned	Design	Use	Sequence	Wear	Designed Activity	Actual Activity	Length (cm)	Width (cm)	Thickness (cm)	Weight (g)	Second Use	Rock Type	Availa-bility	Residue	Color
Early Agricultural Period (continued)																						
430	Pithouse	Floor	8973.01	Unidentified	–	Broken	Fire cracked	–	Recycled	–	–	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	None	–
430	Pithouse	Roof/ Wall fall	8926.02	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
430	Pithouse	Roof/ Wall fall	8926.03	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
430	Pithouse	Roof/ Wall fall	8926.04	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
430	Pithouse	Roof/ Wall fall	8926.05	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
430	Pithouse	Roof/ Wall fall	8926.06	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
430	Pithouse	Roof/ Wall fall	8930.01	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
430	Pithouse	Roof/ Wall fall	8931.01	Ball	Spherical	Whole	No	Strategic	–	–	–	Paraphernalia	Unused	2.8	2.7	2.8	24.0	–	Rhyolite	–	None	–
430	Pithouse	Roof/ Wall fall	8923.01	Netherstone	Basin	Broken	–	–	–	–	Moderate	–	–	–	–	–	–	–	Basalt/Andesite, vesicular	Local/ Vicinity	None	–
430	Pithouse	Roof/ Wall fall	8926.01	Unidentified	–	Broken	Fire cracked	–	Recycled	Sequential	–	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	None	–
492	Pithouse	Floor	6352.01	Mineral	Natural	–	–	–	–	–	–	–	–	–	–	–	–	–	Chrysocolla	–	–	–
492	Pithouse	Floor	6346.01	Unidentified	–	Broken	Fire cracked	–	Recycled	–	–	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	–	–
492	Pithouse	Floor	6349.01	Tablet	–	Whole	No	Strategic	Single	–	Light	Paraphernalia	–	8.7	8.9	0.6	75.0	–	Phyllite	Vicinity/ Distant	None	–
492	Pithouse	Floor	6330.01	Mano	Basin	Broken	Yes	Expedient	Single	–	Moderate	Food processing	Food processing	–	7.3	4.4	–	–	Tuff	Local/ Vicinity	None	–
492	Pithouse	Floor	6351.01	Pigment	Ground	Whole	–	Expedient	Single	–	Moderate	General processing	Pigment processing	–	–	–	7.0	–	Limonite, rock	–	Pigment	2.5Y 8/6
492	Pithouse	Pithouse fill	6322.02	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
492	Pithouse	Pithouse fill	6322.03	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
492	Pithouse	Pithouse fill	6322.04	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
492	Pithouse	Pithouse fill	6322.01	Unidentified	–	Broken	Fire cracked	–	Recycled	Sequential	–	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	None	–
492	Pithouse	Roof/ Wall fall	6344.01	Mineral	Natural	–	–	–	–	–	–	–	–	–	–	–	–	–	Copper minerals	–	–	–
Undesignated																						
0	–	Disturbed	4680.01	Unidentified	–	Broken	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
0	–	Sheet trash	4636.02	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
0	–	Sheet trash	4776.01	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
0	–	Sheet trash	5128.01	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
0	–	Sheet trash	5535.01	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
0	–	Sheet trash	5594.01	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
0	–	Sheet trash	5612.01	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
0	–	Sheet trash	5645.01	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Table A.1. Continued.

Time/ Feature	Feature Type	Context	FN	Artifact	Subtype	Condition	Burned	Design	Use	Sequence	Wear	Designed Activity	Actual Activity	Length (cm)	Width (cm)	Thickness (cm)	Weight (g)	Second Use	Rock Type	Availa-bility	Residue	Color
Undesignated (continued)																						
0	–	Sheet trash	5645.02	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
0	–	Sheet trash	5816.01	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
0	–	Sheet trash	6311.01	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
0	–	Sheet trash	7591.02	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
0	–	Sheet trash	8453.01	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
0	–	Sheet trash	8721.01	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
0	–	Sheet trash	8813.01	Fire-cracked rock	–	–	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
0	–	Sheet trash	5358.01	Unidentified	–	Broken	Indeterminate	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
0	–	Sheet trash	8852.01	Unidentified	–	Broken	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
0	–	Sheet trash	8729.01	Unidentified	–	Broken	Fire cracked	–	–	Sequential	–	–	Multiple	–	–	–	–	–	–	–	–	–
0	–	Sheet trash	4516.01	Unidentified	–	Broken	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
0	–	Sheet trash	7605.01	Fire-cracked rock	–	Broken	Fire cracked	–	Single	–	–	–	–	–	–	–	–	–	–	–	–	–
0	–	Sheet trash	7782.01	Fire-cracked rock	–	Broken	Fire cracked	–	Single	–	–	–	–	–	–	–	–	–	–	–	–	–
0	–	Sheet trash	4696.01	Unidentified	–	Broken	Indeterminate	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
0	–	Sheet trash	4516.02	Unidentified	–	Broken	Fire cracked	–	Recycled	–	–	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	–	–
0	–	Sheet trash	4636.01	Unidentified	–	Broken	Fire cracked	–	Recycled	–	–	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	–	–
0	–	Sheet trash	4916.01	Unidentified	–	Broken	Fire cracked	–	Recycled	–	–	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	–	–
0	–	Sheet trash	4925.01	Unidentified	–	Broken	Fire cracked	–	Recycled	–	–	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	–	–
0	–	Sheet trash	5212.01	Unidentified	–	Broken	Fire cracked	–	Recycled	–	–	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	–	–
0	–	Sheet trash	6149.01	Unidentified	–	Broken	Fire cracked	–	Recycled	–	–	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	–	–
0	–	Sheet trash	7893.01	Unidentified	–	Broken	Fire cracked	–	Recycled	–	–	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	–	–
0	–	Sheet trash	5599.02	Unidentified	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
0	–	Sheet trash	5723.01	Unidentified	–	Broken	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
0	–	Sheet trash	6358.01	Unidentified	–	Broken	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
0	–	Sheet trash	7591.01	Fire-cracked rock	–	Broken	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
0	–	Sheet trash	7801.01	Fire-cracked rock	–	Broken	Fire cracked	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
0	–	Sheet trash	6304.01	Fire-cracked rock	–	Broken	Fire cracked	–	Single	–	–	–	–	–	–	–	–	–	–	–	–	–
0	–	Sheet trash	6367.01	Cruciform	Cruciform	Whole	No	Strategic	Single	–	–	Paraphernalia	–	4.1	4.1	1.4	23.2	–	Volcanic, felsic	–	None	–

Table A.1. Continued.

Time/ Feature	Feature Type	Context	FN	Artifact	Subtype	Condition	Burned	Design	Use	Sequence	Wear	Designed Activity	Actual Activity	Length (cm)	Width (cm)	Thickness (cm)	Weight (g)	Second Use	Rock Type	Availa-bility	Residue	Color
Undesignated (continued)																						
0	–	Sheet trash	4901.01	Ornament	Bead	Whole	No	Strategic	Single	–	Moderate	Ornamentation	Decorative	0.8	0.6	0.6	0.2	–	Turquoise	Vicinity/ Distant	None	–
0	–	Sheet trash	8155.01	Ornament	Pendant	Whole	No	Strategic	Single	–	Unused	Ornamentation	Unused	1.1	1.0	0.3	0.4	–	Turquoise	Vicinity/ Distant	None	–
0	–	Sheet trash	5710.01	Ornament	Bead	Whole	No	Strategic	Single	–	–	Ornamentation	Decorative	0.3	0.3	0.05	0.01	–	–	–	None	–
0	–	Sheet trash	6159.01	Unidentified	–	Broken	No	–	–	–	–	–	–	–	–	–	–	–	–	–	None	–
0	–	Sheet trash	4833.01	Unidentified	–	Broken	–	–	–	–	–	–	–	–	–	–	–	–	–	–	None	–
0	–	Sheet trash	5663.01	Unidentified	–	Broken	–	–	–	–	–	–	–	–	–	–	–	–	–	–	None	–
0	–	Sheet trash	7650.01	Polisher	–	Broken	Fire cracked	–	Recycled	Sequential	–	Polishing	Multiple	–	–	–	–	Fire-cracked rock	–	–	None	–
0	–	Sheet trash	5040.01	Unidentified	–	Broken	Fire cracked	–	Recycled	Sequential	–	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	None	–
0	–	Sheet trash	6293.01	Unidentified	–	Broken	Fire cracked	–	Recycled	Sequential	–	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	None	–
0	–	Sheet trash	7883.01	Unidentified	–	Broken	Fire cracked	–	Recycled	Sequential	–	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	None	–
0	–	Sheet trash	5110.01	Unidentified	–	Broken	Fire cracked	–	Recycled	Sequential	Moderate	–	Multiple	–	–	–	–	Fire-cracked rock	–	–	None	–
0	–	Unknown	6958.01	Metate	–	Broken	Fire cracked	–	–	–	Moderate	Food processing	–	–	–	–	–	–	Gabbro	Local/ Vicinity	None	–

APPENDIX B

SUPPLEMENTAL SHELL DATA

Arthur W. Vokes
Arizona State Museum

Table B.1. Shell material recovered during the Tucson Presidio data recovery project.

Unit	Stratum	Level	Context	Artifact Form	Species	Count	MNI[a]	Bag No.
Feature 0, nonfeature overburden [Temporal assignment, not assigned]								
447	4	1	Fill	Cut pendant, flying bird	*Spondylus* sp.	1	1	4940
511	4.02	1	Fill	Whole shell pendant	*Oliva incrassata*	1	1	5946
511	4.02	1	Fill	Unworked fragment	*Laevicardium elatum*	1	1	5946
511	4.02	1	Fill	Unworked fragment	Unidentified marine bivalve	1	1	5946
Feature 359, borrow pit [Temporal assignment, American Territorial period (A.D. 1890-1900)]								
679	50	1	Pit fill	Unworked fragment	*Laevicardium elatum*	1	1	8598
698	50	1	Pit fill	Unworked fragment	*Anodonta californiensis*	2	1	8890
691	50.03	1	Pit fill	Unworked fragment	*Anodonta californiensis*	1	1	8844
Feature 408, outhouse [Temporal assignment, American Territorial period (A.D. 1890-1900)]								
651	50	10	Pit fill	Whole valve	*Argopecten circularis*	1	1	7976
651	50	11	Pit fill	Whole valve	*Turbo fluctuosus*	1	1	7985
Feature 430, pithouse [Temporal assignment, Early Agricultural period (2100 B.C.-A.D. 50)]								
696	11	1	Fill	Unworked fragment	*Laevicardium elatum*	1	1	8920
696	11	3	Floor fill	Unworked fragment	*Anodonta californiensis*	1	1	8936
696	20	1	Floor contact	Cap bead	*Oliva* sp.	1	1	8956
Feature 450, small extramural pit [Temporal assignment, American Territorial period (A.D. 1856-1912)]								
419	50	1	Pit fill	Whole valve	*Donax gouldii*	1	1	4550
Feature 452, extramural pit [Temporal assignment, Hohokam Colonial period, Rillito phase (A.D. 850-950)]								
433	10	1	Pit fill	Unworked fragment	*Anodonta californiensis*	1	1	4740
Feature 460, borrow pit [Temporal assignment, Presidio era (A.D. 1800-1850)]								
472	50	1	Pit fill	Unworked fragment	*Anodonta californiensis*	1	1	5222
480	50	1	Pit fill	Unworked fragment	*Anodonta californiensis*	1	1	5289
472	50	2	Pit fill	Whole shell bead	*Olivella dama*	1	1	5242
472	50	2	Pit fill	Unworked fragment	*Trachycardium* sp.	1	1	5242
480	50	2	Pit fill	Whole valve	*Glycymeris* sp.	1	1	5299
480	50	2	Pit fill	Unworked fragment	*Anodonta californiensis*	1	1	5299
480	50	2	Pit fill	Unworked fragment	*Trachycardium* sp.	1	1	5299
Feature 461, small extramural pit [Temporal assignment, Hohokam Sedentary period, Early-Middle Rincon (A.D. 950-1100)]								
470	50	1	Pit fill	Plain bracelet	*Glycymeris gigantea*	1	1	5204
Feature 463, pithouse [Temporal assignment, Hohokam sequence (A.D. 500-1450)]								
483	10	1	Fill	Plain bracelet	*Glycymeris* sp.	1	1	5324
483	11	1	Floor fill	Plain bracelet	*Glycymeris gigantea*	1	1	5338
478	11	1	Floor fill	Unworked fragment	*Anodonta californiensis*	1	1	5305
Feature 464, small extramural pit [Temporal assignment, Presidio era (A.D. 1775-1850)]								
482	50	1	Pit fill	Unworked fragment	Unidentified marine bivalve	1	1	5317
Feature 468, small extramural pit [Temporal assignment, American Territorial period (A.D. 1850-1875)]								
496	50	1	Pit fill	Unworked fragment	*Anodonta californiensis*	7	1	5406
Feature 472, small extramural pit [Temporal assignment, American Territorial period (A.D. 1850+)]								
499	50	1	Pit fill	Decorated bracelet, marginal nicking	*Glycymeris gigantea*	1	1	5520

Table B.1. Continued.

Unit	Stratum	Level	Context	Artifact Form	Species	Count	MNI[a]	Bag No.
Feature 475, large extramural pit [Temporal assignment, Presidio era (A.D. 1820-1850)]								
501	50	1	Pit fill	Unworked fragment	*Protothaca* sp.	1	1	5547
Feature 477, large extramural pit [Temporal assignment, Hohokam sequence (A.D. 500-1450)]								
503	50	2	Pit fill	Plain bracelet	*Glycymeris gigantea*	1	1	5617
503	50	2	Pit fill	Worked fragment, unknown form	*Anodonta californiensis*	1	1	5617
Feature 490, historic well [Temporal assignment, American Territorial period (A.D. 1900-1910)]								
521	50	1	Pit fill	Unworked fragment	*Cerithidea valida*	1	1	5866
Feature 492, pithouse [Temporal assignment, Early Agricultural period (2100 B.C.-A.D. 50)]								
522	10	1	Fill	Whole shell bead	*Olivella dama*	1	1	6323
522	10	1	Fill	Whole valve	*Helisoma* sp.	1	1	6323
522	11	1	Fill	Whole shell bead	*Olivella dama*	1	1	6350
Feature 498, extramural hearth [Temporal assignment, Presidio era (A.D. 1775-1850)]								
528	50	1	Pit fill	Chippage	*Glycymeris* sp.	1	1	6181
Feature 510, outhouse [Temporal assignment, American Territorial period (A.D. 1887-1900)]								
547	50	1	Pit fill	Unworked fragment	*Anodonta californiensis*	1	1	6418
547	50	3	Pit fill	Plain bracelet	*Glycymeris* sp.	1	1	6488
Feature 513, borrow pit [Temporal assignment, Presidio era (A.D. 1840-1865)]								
552	50	1	Pit fill	Whole shell bead	*Olivella* sp.	1	1	6498
557	50	1	Pit fill	Whole shell bead	*Conus* sp.	1	1	6571
557	50	1	Pit fill	Whole valve	*Trivia solandri*	1	1	6571
557	50	1	Pit fill	Whole valve	*Columbella* sp.	1	1	6571
557	50	1	Pit fill	Unworked fragment	*Laevicardium elatum*	1	1	6571
557	50	1	Pit fill	Unworked fragment	*Anodonta californiensis*	1	1	6571
557	50	1	Pit fill	Unworked fragment	*Chione* sp.	1	1	6571
557	50	1	Pit fill	Unworked fragment	*Turritella leucostoma*	1	1	6571
557	50	1	Pit fill	Unworked fragment	*Strombus gracilior*	1	1	6571
557	50	1	Pit fill	Unworked fragment	*Protothaca sp.*	2	1	6571
552	50	2	Pit fill	Unworked fragment	*Dosinia ponderosa*	1	1	6519
552	50	3	Pit fill	Decorated bracelet, marginal nicking	*Glycymeris gigantea*	1	1	6580
557	50	4	Pit fill	Unworked fragment	*Anodonta californiensis*	1	1	6609
557	50.01	1	Pit fill	Unworked fragment	*Anodonta californiensis*	1	1	6624
565	50	1	Pit fill	Plain bracelet	*Glycymeris gigantea*	1	1	6726
560	50	1	Pit fill	Unworked fragment	*Anodonta californiensis*	1	1	6647
562	50	1	Pit fill	Unworked fragment	*Glycymeris gigantea*	1	1	6678
562	50	1	Pit fill	Unworked fragment	*Chione* sp.	1	1	6678
568	50	1	Pit fill	Unworked fragment	Unidentified marine bivalve	1	1	6782
565	50	1	Pit fill	Unworked fragment	Unidentified marine bivalve	1	0	6726
562	50	2	Pit fill	Unworked fragment	*Anodonta californiensis*	1	1	6699
562	50	2	Pit fill	Unworked fragment	*Chione* sp.	1	1	6690
565	50.01	1	Pit fill	Unworked fragment	*Trachycardium panamensis*	1	1	6758
560	50.02	1	Pit fill	Unworked fragment	*Trachycardium* sp.	1	1	6656
560	50.02	1	Pit fill	Unworked fragment	Unidentified marine bivalve	1	1	6656
560	50.02	1	Pit fill	Unworked fragment	*Chione californiensis*	1	1	6656
565	50.02	1	Pit fill	Unworked fragment	*Trachycardium* sp.	1	1	6751

Table B.1. Continued.

Unit	Stratum	Level	Context	Artifact Form	Species	Count	MNI[a]	Bag No.
567	50.02	1	Pit fill	Unworked fragment	*Laevicardium elatum*	1	1	6768
567	50.02	1	Pit fill	Unworked fragment	*Anodonta californiensis*	1	1	6768
Feature 519, occupational surface/trash [Temporal assignment, Presidio era (A.D. 1800-1850)]								
548	10	1	Surface	Unworked fragment	*Laevicardium elatum*	1	1	6559
548	40	2	Surface	Unworked fragment	*Trachycardium panamensis*	2	1	6665
Feature 520, occupational surface/trash [Temporal assignment, Presidio era (A.D. 1800-1850)]								
571	4.02	1	Surface	Unworked fragment	*Laevicardium elatum*	2	1	6878
571	4.02	1	Surface	Unworked fragment	Unidentified marine bivalve	1	1	6878
571	4.02	2	Surface	Plain bracelet	*Glycymeris* sp.	1	1	6887
571	4.02	2	Surface	Unworked fragment	*Trachycardium panamensis*	3	2	6887
571	4.02	3	Surface	Plain bracelet	*Glycymeris gigantea*	1	1	6895
Feature 527, outhouse [Temporal assignment, American Territorial period (A.D. 1910-1920)]								
574	50	1	Pit fill	Unworked fragment	*Laevicardium elatum*	1	1	6830
574	50	2	Pit fill	Whole valve	*Chione undatella*	1	1	6863
574	50	2	Pit fill	Unworked fragment	*Rumina decollata*	1	1	6863
Feature 571, borrow pit [Temporal assignment, American Territorial period (A.D. 1880-1900)]								
584	50	2	Pit fill	Unworked fragment	*Anodonta californiensis*	1	1	7156
586	50	2	Pit fill	Whole valve	*Chione undatella*	1	1	7188
594	50	2	Pit fill	Unworked fragment	*Anodonta californiensis*	1	1	7253
615	50	2	Pit fill	Unworked fragment	*Anodonta californiensis*	4	2	7455
623	50	3	Pit fill	Whole valve	*Agaronia testacea*	1	1	7554
618	50	3	Pit fill	Unworked fragment	*Glycymeris gigantea*	1	1	7510
595	50	3	Pit fill	Unworked fragment	Unidentified marine univalve	1	1	7281
615	50	3	Pit fill	Unworked fragment	*Laevicardium elatum*	1	1	7463
615	50	3	Pit fill	Unworked fragment	Unidentified marine, nacreous	3	1	7463
615	50	4	Pit fill	Unworked fragment	*Helix* sp.	1	1	7480
615	50	4	Pit fill	Unworked fragment	*Trachycardium* sp.	1	1	7480
618	50	4	Pit fill	Unworked fragment	*Chione californiensis*	3	1	7522
Feature 579, large extramural pit [Temporal assignment, Presidio era (A.D. 1800-1850)]								
593	50	1	Pit fill	Unworked fragment	Unidentified marine bivalve	1	1	7200
Feature 586, borrow pit [Temporal assignment, Presidio era (A.D. 1800-1850)]								
600	50	1	Pit fill	Unworked fragment	*Anodonta californiensis*	20	3	7383
600	50	1	Pit fill	Unworked fragment	*Trachycardium* sp.	1	1	7383
607	50	1	Pit fill	Unworked fragment	*Anodonta californiensis*	6	1	7409
607	50	1	Pit fill	Unworked fragment	*Laevicardium elatum*	1	1	7409
607	50	1	Pit fill	Unworked fragment	*Laevicardium elatum*	1	1	7409
607	50	2	Pit fill	Unworked fragment	*Anodonta californiensis*	32	5	7417
607	50	3	Pit fill	Unworked fragment	Unidentified marine univalve	1	1	7425
Feature 603, borrow pit [Temporal assignment, American Territorial period (A.D. 1860-1889)]								
630	50.01	1	Pit fill	Unworked fragment	*Chione undatella*	3	0	7689
630	50.02	1	Pit fill	Unworked fragment	*Chione undatella*	1	1	7714
664	50.01	1	Pit fill	Unworked fragment	*Trachycardium* sp.	1	1	8283
672	50.02	1	Pit fill	Unworked fragment	*Laevicardium elatum*	1	1	8438
672	50.03	2	Pit fill	Plain bracelet	*Glycymeris* sp.	1	1	8566

Table B.1. Continued.

Unit	Stratum	Level	Context	Artifact Form	Species	Count	MNI[a]	Bag No.
Feature 608, pithouse [Temporal assignment, Hohokam sequence (A.D. 500-1450)]								
654	11	1	Fill	Cut pendant, flying bird	*Anodonta californiensis*	2	1	8020
668	11	1	Fill	Plain bracelet	*Glycymeris gigantea*	1	1	8313
657	11	1	Fill	Bracelet, carved band	*Glycymeris gigantea*	1	1	8077
668	11	1	Fill	Carved waste/Debris	*Laevicardium elatum*	1	1	8313
657	11	2	Floor fill	Unworked fragment	*Anodonta californiensis*	1	1	8312
Feature 624, borrow pit [Temporal assignment, American Territorial period (A.D. 1890-1910)]								
709	50	1	Pit fill	Painted whole valve	*Ostrea corteziensis*	1	1	9073
658	50	2	Pit fill	Whole valve	*Cypraea moneta*	1	1	8118
661	50.01	2	Pit fill	Whole valve	Unidentified marine univalve	1	1	8253
Feature 631, trash concentration [Temporal assignment, Hohokam Sedentary period, Middle Rincon phase (A.D. 1000-1100)]								
674	50	1	Trash deposit	Whole shell bead	*Olivella dama*	1	1	8349
674	50	2	Trash deposit	Whole shell bead	*Glycymeris* sp.	1	1	8372
674	50	2	Trash deposit	Whole shell bead	*Olivella dama*	1	1	8372
Feature 635, ditch [Temporal assignment, Presidio era (A.D. 1780-1850)]								
681	50	1	Fill	Plain bracelet	*Glycymeris gigantea*	1	1	8583
Feature 639, large extramural pit [Temporal assignment, American Territorial period (A.D. 1880-1895)]								
711	50	1	Pit fill	Unworked fragment	*Laevicardium elatum*	1	1	9064
Feature 644, large extramural pit [Temporal assignment, American Territorial period (A.D. 1900-1910)]								
708	50	1	Pit fill	Whole valve	*Tivela* sp.	1	1	9028
708	50	1	Pit fill	Unworked fragment	*Tivela* sp.	1	1	9028

[a]MNI = Minimum number of individuals.

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