Archaeological Investigation of the Eastern Half of Historic Block 91, Tucson, Pima County, Arizona

J. Homer Thiel

Contributions by

Robert B. Ciaccio
Michael W. Diehl
James M. Heidke
J. Homer Thiel
Christine H. Virden-Lange
Jennifer A. Waters

Technical Report No. 2012-13
Desert Archaeology, Inc.

Archaeological Investigation of the Eastern Half of Historic Block 91, Tucson, Pima County, Arizona

J. Homer Thiel

Contributions by

Robert B. Ciaccio
Michael W. Diehl
James M. Heidke
J. Homer Thiel
Christine H. Virden-Lange
Jennifer A. Waters

Submitted to

Beatrix Gallatrix
City of Tucson
P.O. Box 27210
Tucson, Arizona 85726-7210

Technical Report No. 2012-13
Desert Archaeology, Inc.
3975 North Tucson Boulevard, Tucson, Arizona 85716 • May 2014

ABSTRACT

Archaeological excavations were conducted on the eastern half of historic Block 91 in September and October 2011 for the City of Tucson. Documentary research indicated that area was first settled in 1883, when a pair of duplexes were constructed. Development was stagnant until the early 1900s, when rental housing, a planing mill, and a set of commercial buildings, including a hotel and restaurant, were constructed. Gradually, the area transformed into a commercial area where Tucson residents could purchase and repair automobiles, shop for groceries, or obtain a meal at a restaurant. In 1957, the area was cleared for use as a parking lot. Later the Greyhound bus terminal was constructed and was in use into the early 2000s, before it too was demolished.

Archaeological research sought to examine changes in Tucson lifeways at the transition between the nineteenth and twentieth centuries, changes in trash disposal and privy usage, and ethnic and socioeconomic factors influencing diet in Tucson.

Backhoe stripping exposed 100 archaeological features; 51 were completely or partially excavated. Among these were 10 privy pits, eight of which yielded artifact assemblages, while two others were never used. Also documented were six pet burials, two trash middens, a large machinery pit for a wood mill, and various planting pits and fencelines. Over 15,000 artifacts were recovered, mostly from the privy pits. Many of the features could be associated with specific households. The recovered artifacts and food remains could often be linked to specific middle class families headed by European-American white collar and skilled laborers, as well as materials generated by the S.P. Dining Room, a restaurant staffed by immigrant Chinese men. Analysis of the artifacts, food remains, and features provided new data that allowed the research questions to be addressed.

The eastern half of Block 91 was assigned site number AZ BB:13:820 (ASM). Project materials are curated at the Arizona State Museum as Accession No. 2009-699.

COMPLIANCE SUMMARY

Date: 15 May 2014

Report Title: *Archaeological Investigation of the East Half of Historic Block 91, Tucson, Pima County, Arizona*, by J. Homer Thiel. Technical Report No. 2012-13. Desert Archaeology, Inc., Tucson.

Client Project Name: Plaza Centro Archaeology, City of Tucson Project #09-30

Compliance Agencies: City of Tucson, Arizona State Museum

Compliance Level: City of Tucson

Applicable Laws/Regulations: City of Tucson Resolution No. 12443 (1983); City of Tucson Administrative Directive *Protection of Archaeological and Historical Resources in City Projects* (1995, updated 2005); Arizona Antiquities Act; Arizona State Burial Act ARS § 41-844

Applicable Permits: Arizona Antiquities Act Project Specific Permit 2009-128ps

Tribal Consultation: Not applicable

Project Description: Archaeological testing and subsequent data recovery

Final Disposition of Project Artifacts, Field Notes, Data, and Records: Arizona State Museum; project materials are curated as Accession No. 2009-699

Location (Land Ownershup; City, County, State; Legal Description):

> **Land Ownership:** City of Tucson
> **City, County, and State:** Tucson, Pima County, Arizona
> **Legal Description**: Section 13, Township 14 South, Range 13 East on the USGS 7.5-minute topographic quad Tucson, Ariz. (AZ BB:13 [NW]). The property of Pima County Assessor's parcels 117-06-175A and 117-06-1650.

Number of Surveyed Acres: N/A

Number of Sites: 1, AZ BB:13:820 (ASM)

List of Register-eligible Properties: Historic Block 91

Recommendations: Archaeological testing on the eastern half of Block 91 located numerous significant Territorial-era features on City of Tucson property. The data recovery program successfully mitigated the impacts of planned construction activities on the cultural resources. Therefore, following data recovery, Desert Archaeology, Inc., recommended that construction and land modifiction activities proceed as planned. During data recovery, more than 15,000 artifacts were recovered, providing information about the lives of the residents, workers, and customers associated with the block.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ACKNOWLEDGMENTS

Archaeological projects require the expertise of many different people. The project was conducted for the City of Tucson with Dr. Jonathan Mabry, the City of Tucson's Historic Preservation Officer, providing oversight.

Dan Arnit of Innovative Excavating conducted the backhoe excavation. Allen Denoyer, Christine Virden-Lange, Tyler Theriot, Samuel Higuera Fisher, Jeffrey Charest, Olivia Charest, Adam Searcy, Barry Price Searcy, James Marsh, and Mario Archederra conducted the archaeological excavations. Ken Fite and Evan Garner volunteered on the project.

Artifacts were processed in the laboratory by Susan Blair under the direction of Lisa Eppley. Tatiana Yatskievych operated the flotation machine. Artifacts were analyzed by Homer Thiel, Susan Blair, and Christine Virden-Lange. Native American ceramics were analyzed by James Heidke. Michael Diehl and Jennifer Waters examined the plant remains and faunal bone. Robert Ciaccio photographed artifacts and Allen Denoyer prepared an illustration. Tyler Theriot and Susan Hall drafted maps.

Project support was provided by Jean Kramer and Patricia Castalia. The technical report was edited and formatted by Emilee Mead and Donna Doolittle. Homer Thiel was the Project Director. William Doelle served as Principal Investigator.

CHAPTER 1

INTRODUCTION AND BACKGROUND

J. Homer Thiel
Desert Archaeology, Inc.

This report presents the results of archaeological testing and data recovery on the eastern half of Historic Block 91 prior to commencement of the Plaza Centro project, a private development on City of Tucson-owned property. The project involved two parcels near the intersection of 4th Avenue and Toole Avenue in downtown Tucson, Pima County (City of Tucson Project No. 09-30). City of Tucson involvement meant that cultural resoruce compliance laws were in effect and therefore archaeological testing and data recovery were necessary prior to any construction or land modification activities. A survey and archival study (Diehl 2005) revealed that one of the parcels was once the location of the Southern Pacific Employees Club, which was constructed and used in the early twentieth century. Testing and data recovery on that property resulted in the discovery of an 1880s warehouse, an ore sampling works, and the club (Thiel 2010). The second parcel overlay Historic Block 91, an area that contained homes and commercial buildings during the late nineteenth and early twentieth centuries.

The City of Tucson required archaeological testing to explore the extent and nature of any surviving cultural deposits on Block 91. If significant cultural resources were located, data recovery would be scheduled (Diehl 2009). Testing and data recovery subsequently took place in September 2011.

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.

In 1990, Tucson was designated a Certified Local Government by the Arizona State Historic Preservation Office (SHPO). This status allows the City to assume some of the authority for reviewing projects that affect historical resources. City projects that might not have otherwise been covered under the National Historic Preservation Act or comparable state-level preservation laws now undergo review for impacts to both standing historical properties and archaeological sites. Consequently, hundreds of cultural resources assessments and surveys have been conducted in Tucson, especially in the downtown area.

The history of the project area, results of testing and data recovery, analyses of recovered artifacts and food remains, and an evaluation of several research questions are presented in this report. Block 91 was assigned Arizona State Museum (ASM) site number AZ BB:13:820 (ASM). The project was conducted under Arizona Antiquities Permit 2009-128ps. The project records and artifacts are curated at ASM under Accession Number 2009-699.

PROJECT AREA LOCATION AND DESCRIPTION

The project area is located in Pima County in Section 13, Township 14 South, Range 13 East on the USGS 7.5-minute topographic quad Tucson, Ariz. (AZ BB:13 [NW]) (Figure 1.1). Specifically, the project area consists of the former site of the Greyhound Bus Station (Figure 1.2). It was roughly triangular-shaped, and encompasses slightly more than 1 acre, measuring east-west roughly 84 m along Broadway Boulevard and approximately 76 m, north-south, along the former Herbert Avenue (presently the alley adjacent to the Rialto Theater). Toole Avenue runs at an angle along the northeastern side of the block such that the parcel narrows to the east. The eastern half of the area was covered primarily by asphalt pavement, while the western half was covered by concrete floors and slabs associated with the former bus station. After demolition of the station, the project area was used as a parking lot. The City entered into a partnership with a private company to develop the parcel, with construction of a commercial and residential building beginning in 2012.

The Area of Potential Effects (APE) refers to the "geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist" (36 CFR 800.16[d]). The APE for the current project includes the footprint of the

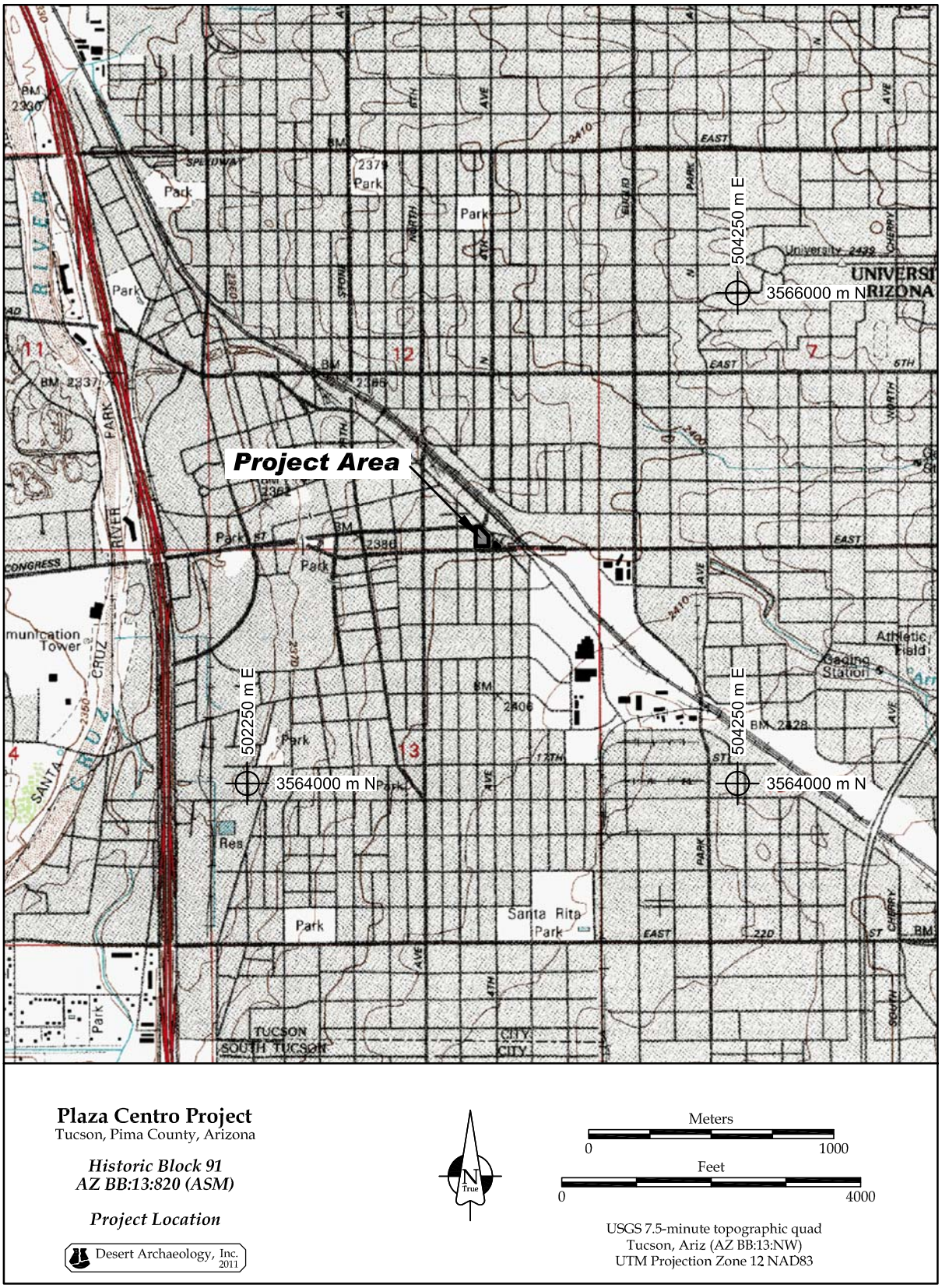


Figure 1.1. Reproduction of USGS 7.5-minute topographic quad Tucson, Ariz. (AZ BB:13 [NW]), showing location of project area.

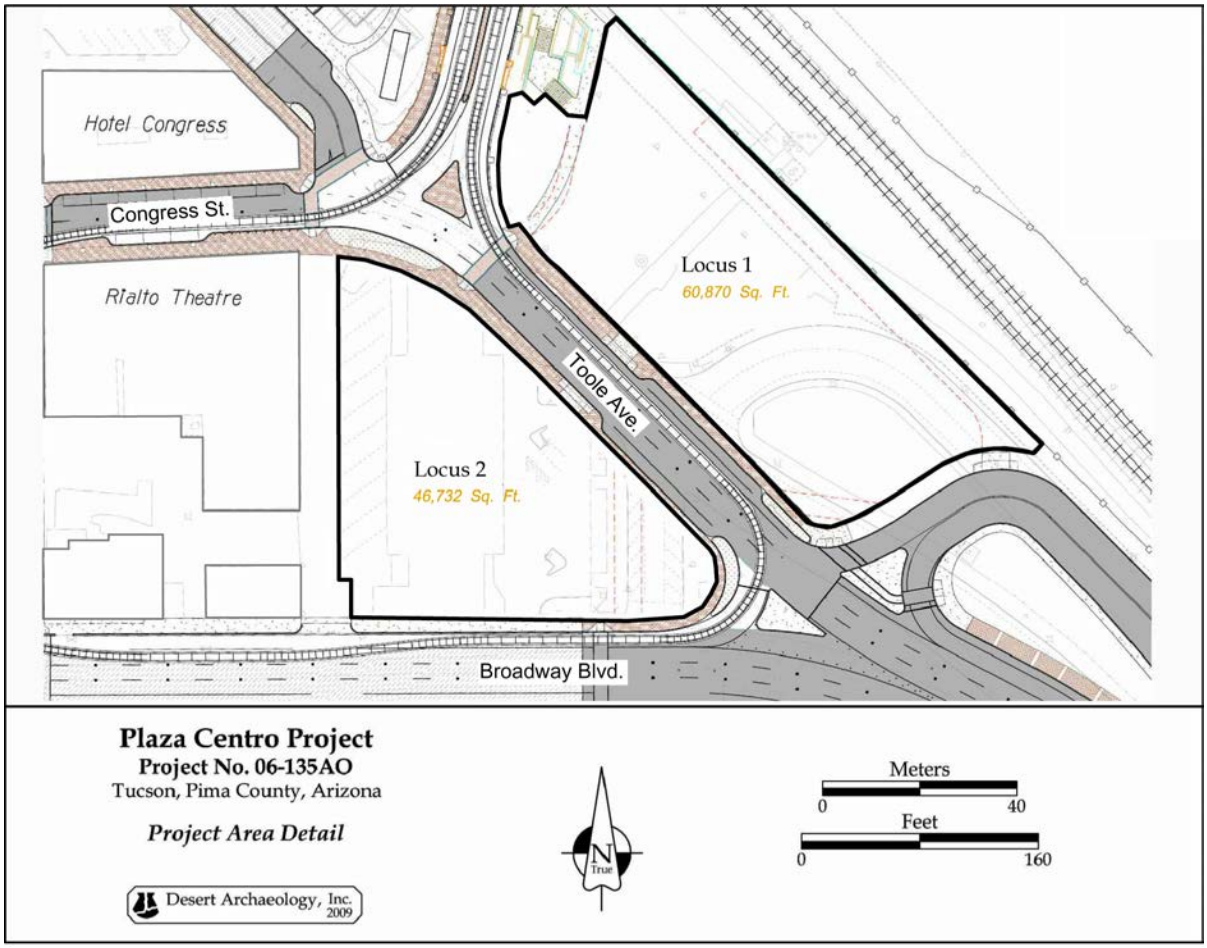


Figure 1.2. The parcel designated Locus 2 is the location of the eastern half of Historic Block 91 project area.

construction project area and any other standing historic properties that may be significantly affected by the proposed construction.

ENVIRONMENTAL SETTING OF THE PROJECT AREA

The project area is located in the bajada zone of the Tucson Basin approximately 1.2 km east of the Santa Cruz River floodplain. The surrounding area is fully developed, but once supported vegetation typical of the Arizona Uplands subdivision of the Sonoran Desert Scrub series (Hansen 1996). The elevation of the project area averages approximately 2,395 ft above sea level.

CULTURAL BACKGROUND OF THE PROJECT AREA

The history of the Southwest and of the Tucson Basin is marked by a close relationship between people and the natural environment. Environmental conditions have strongly influenced subsistence practices and social organization, and social and cultural changes have, in turn, made it possible to more efficiently exploit environmental resources. Through time, specialized adaptations to the arid region distinguished people living in the Southwest from those in other areas. Development of cultural and social conventions also became more regionally specific, and by A.D. 650, groups living in the Tucson Basin can be readily differ-entiated from those living in other areas of the Southwest. Today, the harsh desert climate no longer isolates Tucson and its inhabitants, but life remains closely tied to the unique resources of the Southwest. The chronology of the Tucson Basin is summarized in Table 1.1.

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

Archaeological investigations suggest the Tucson Basin was initially occupied some 13,000 years ago, a time much wetter and cooler than today. The Paleoindian period is characterized by small, mobile groups of hunter-gatherers who briefly occupied

Table 1.1. Periodization and chronology of the Santa Cruz Valley-Tucson Basin prehistory.

Era/Period	Phase	Date Range
Historic		
American Statehood	–	A.D. 1912-present
American Territorial	–	A.D. 1856-1912
Mexican	–	A.D. 1821-1856
Spanish	–	A.D. 1694-1821
Protohistoric	–	A.D. 1450-1694
Prehistoric		
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. 700-750
	Tortolita	A.D. 500-700
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.

temporary campsites as they moved across the countryside in search of food and other resources (Cordell 1997:67). The hunting of large mammals, such as mammoth and bison, was a particular focus of the subsistence economy. A Clovis point characteristic of the Paleoindian period (circa 9500 B.C.) was collected from the Valencia site, AZ BB:13:74 (ASM), located along the Santa Cruz River in the southern Tucson Basin (Doelle 1985:183-184). Another Paleoindian point was found in Rattlesnake Pass, in the northern Tucson Basin (Huckell 1982). These rare finds suggest prehistoric use of the Tucson area probably began at this time. Paleoindian use of the Tucson Basin is further supported by archaeological investigations in the nearby San Pedro Valley and elsewhere in southern Arizona, where Clovis points have been discovered in association with extinct mammoth and bison remains (Huckell 1993, 1995). However, because Paleoindian sites have yet to be found in the Tucson Basin, the extent and intensity of this occupation are currently unknown.

Archaic Period (7500-2100 B.C.)

The transition from the Paleoindian period to the Archaic period was accompanied by marked climatic changes. During this time, the environment came to look much as it does today. Archaic period groups pursued a mixed subsistence strategy, characterized by intensive wild plant gathering and the hunting of small animals. The only Early Archaic period (75006500 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. Investigations conducted at Middle Archaic period sites include excavations along the Santa Cruz River (Gregory 1999), in the northern Tucson Basin (Roth 1989), at the La Paloma development (Dart 1986), and along Ventana Canyon Wash and Sabino Creek (Dart 1984; Douglas and Craig 1986). Archaic period sites in the Santa Cruz floodplain are found to be deeply buried by alluvial sediments, suggesting more of these sites are present, but undiscovered, due to the lack of surface evidence.

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

The Early Agricultural period (previously identified as the Late Archaic period) was the time when

domesticated plant species were first cultivated in the Greater Southwest. The precise timing of the introduction of cultigens from Mexico is not currently known, although direct radiocarbon dates on maize indicate it was being cultivated in the Tucson Basin and several other parts of the Southwest by 2100 B.C. (Mabry 2008). By at least 400 B.C., groups were living in substantial agricultural settlements in the floodplain of the Santa Cruz River. Recent archaeological investigations suggest canal irrigation also began sometime during this period.

Several Early Agricultural period sites are known from the Tucson Basin and its vicinity (Diehl 1997; Ezzo and Deaver 1998; Freeman 1998; Gregory 2001; Huckell and Huckell 1984; Huckell et al. 1995; Mabry 1998, 2008; Roth 1989). While there is variability among these sites due to the 2,150 years included in the period, all excavated sites to date contain small, round, or oval semisubterranean pithouses, many with large internal storage pits. At some sites, a larger round structure is also present, which is thought to have been used for communal or ritual purposes.

Stylistically distinctive Cienega, Cortaro, and San Pedro type projectile points are common at Early Agricultural sites, as are a range of ground stone and flaked stone tools, ornaments, and shell jewelry (Diehl 1997; Mabry 1998). The fact that shell and some of the material used for stone tools and ornaments were not locally available in the Tucson area suggests trade networks were operating. Agriculture, particularly the cultivation of corn, was important in the diet and increased in importance through time. However, gathered wild plants, such as tansy mustard and amaranth seeds, mesquite seeds and pods, and agave hearts, were also frequently used. 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)

Although 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 containers 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, marking the start of the Early Agua Caliente phase (A.D. 50350).

Architectural features became more formalized and substantial during the Early Ceramic period, representing a greater investment of effort in construction, and perhaps more permanent settlement. A number of pithouse styles are present, including small, round, and basinshaped houses, as well as slightly larger subrectangular structures. As during the Early Agricultural period, a class of significantly larger structures may have functioned in a communal or ritual manner.

Reliance on agricultural crops continued to increase, and a wide variety of cultigens, including maize, beans, squash, cotton, and agave, were an integral part of the subsistence economy. Populations grew as farmers expanded their crop production to floodplain land near permanently flowing streams, and it is assumed that canal irrigation systems also expanded. Evidence from archaeological excavations indicates trade in shell, turquoise, obsidian, and other materials intensified and that new trade networks developed.

Hohokam Sequence (A.D. 500-1450)

The Hohokam tradition developed in the deserts of central and southern Arizona sometime around A.D. 500, and it is characterized by 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 was introduced to the ceramic assemblage during the Tortolita phase (A.D. 500-700). The addition of a number of new vessel forms suggests that, by this time, ceramics were utilized for many purposes.

Through time, Hohokam artisans embellished this pottery with highly distinctive geometric figures and life forms, such as birds, humans, and reptiles. The Hohokam diverged from the preceding periods in several other important ways: (1) pithouses were clustered into formalized courtyard groups, which, in turn, were organized into larger village segments, each with their own roasting area and cemetery; (2) new burial practices appeared (cremation instead of inhumation), in conjunction with special artifacts associated with death rituals; (3) canal irrigation systems were expanded and, particularly in the Phoenix Basin, represented huge investments of organized labor and time; and, (4) 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 the Classic (A.D. 1150-1450) period. At the start of the pre-Classic, small pithouse hamlets and villages were clustered around the Santa Cruz River. However, beginning by about A.D. 750, large, nucleated villages were established along the river or its major tributaries, with smaller settlements in outlying areas serving as seasonal camps for functionally specific tasks, such as hunting, gathering, or limited agriculture (Doelle and Wallace 1991). At this time, large, basin-shaped fea-

tures with earthen embankments, called ballcourts, were constructed at a number of the riverine 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 in addition to the valley floor (Doelle and Wallace 1986). An increase in population is apparent, and both functionally specific seasonal sites, as well as more permanent habitations, were now situated away from the river; however, the largest sites remained on the terraces just above the Santa Cruz. 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, 1996; Huntington 1986).

The Classic period is marked by dramatic changes in settlement patterns and possibly in social organization. Aboveground adobe compound architecture appeared for the first time, supplementing, but not replacing, the traditional semisubterranean pithouse architecture (Haury 1928; Wallace 1995). Although corn agriculture was still the primary subsistence focus, extremely large Classic period rock-pile field systems associated with the cultivation of agave 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 several Tucson Basin villages sometime around A.D. 1275-1300 (Gabel 1931). These features are found throughout southern and central Arizona, and consist of a central structure that was deliberately filled to support an elevated room upon a platform. The function of the elevated room is unclear; some were undoubtedly used for habitation, while others may have been primarily ceremonial. Building a platform mound took organized and directed labor, and the mounds are thought to be symbols of a socially differentiated 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, and Tucson Basin settlement was largely concentrated at only a half-dozen large, aggregated communities. Recent research has suggested that aggregation 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.

Protohistoric Period (A.D. 1450-1697)

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 Piman language, and, according to historic accounts and archaeological investigations, they lived in oval jacal surface dwellings rather than pithouses. 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). However, due to the paucity of historic documents and archaeological research, little can be said regarding this inadequately understood period.

Spanish and Mexican Periods (A.D. 1697-1856)

Spanish exploration of southern Arizona began at the end of the seventeenth century A.D. Early Spanish explorers in the Southwest noted the presence of Native Americans living in what is now the Tucson area. These groups comprised the largest concentration of population in southern Arizona (Doelle and Wallace 1990). In 1757, Father Bernard Middendorf arrived in the Tucson area, establishing the first local Spanish presence. Fifteen years later, construction of the San Agustín Mission near a Native American village at the base of Sentinel Peak (A-Mountain) was initiated, and by 1773, a church was completed (Dobyns 1976:33).

In 1775, the site for the Presidio of Tucson was selected on the eastern margin of the Santa Cruz River floodplain. In 1776, Spanish soldiers from the older presidio at Tubac moved north to Tucson, and construction of defensive and residential structures began. The Presidio of Tucson was one of several forts built to counter the threat of Apache raiding groups who had entered the region at about the same time as the Spanish (Thiel et al. 1995; Wilcox 1981). Spanish colonists soon arrived to farm the lush banks of the Santa Cruz River, to mine the surrounding hills, and to graze cattle. Many indigenous settlers were attracted to the area by the availability of Spanish products and the relative safety provided by the presidio. The Spanish and Native American farmers grew corn, wheat, and vegetables, and cultivated fruit orchards. The San Agustín Mission was known for its impressive gardens (Williams 1986).

In 1821, Mexico gained independence from Spain, and Mexican settlers continued farming, ranching, and mining activities in the Tucson Basin. By 1831, the San Agustín Mission had been abandoned (Elson and Doelle 1987; Hard and Doelle 1978), although settlers continued to seek the protection of the presidio walls.

American Period (1856-Present)

Through the 1848 settlement of the Mexican American War and the 1853 Gadsden Purchase, Mexico ceded much of the Greater Southwest to the United States, establishing the international boundary at its present location. The U.S. Army established its first outpost in Tucson in 1856, and in 1873, founded Fort Lowell at the confluence of the Tanque Verde Creek and Pantano Wash to guard against continued Apache raiding.

Railroads arrived in Tucson and the surrounding areas in the 1880s, opening the floodgates of Anglo-American settlement. With the surrender of Geronimo in 1886, Apache raiding ended, and settlement in the region boomed. Local industries associated with mining and manufacturing continued to fuel growth, and the railroad supplied the Santa Cruz River valley with commodities it could not produce locally. Meanwhile, homesteaders established numerous cattle ranches in outlying areas, bringing additional residents and income to the area (Mabry et al. 1994).

By the turn of the twentieth century, municipal improvements to water and sewer service, and the eventual introduction of electricity, made life in southern Arizona more hospitable. New residences and businesses continued to appear within an ever-widening perimeter around Tucson, and the city limits stretched to accommodate the growing population. Tourism, the health industry, and activities centered around the University of Arizona and Davis-Monthan Air Force Base contributed significantly to growth and development in the Tucson Basin in the twentieth century (Sonnichsen 1982).

HISTORICAL BACKGROUND OF THE PROJECT AREA

When incorporated in 1871, the original Tucson townsite was comprised of Sections 12 and 13. However, the township map drafted for the U.S. General Land Office in 1871 indicates that development was limited at that time to the southwest ¼ of Section 12 and the northwest ¼ of Section 13. No road alignments or buildings are shown in the vicinity of the project area. However, a street grid had already been envisioned and partly surveyed. A few slightly irregular streets remained on the downtown side of the tracks, reflecting the Spanish and Mexican periods.

The Southern Pacific (now Union Pacific) Railroad tracks, constructed in 1880, dramatically changed the urban landscape of Tucson, as they ran at an angle from the previously established street grid. Within only a few years, numerous businesses and commercial facilities served by the railroad were constructed on both sides of the tracks, and development began to spread to the northeast, joining downtown Tucson with the University of Arizona, which was founded in 1887.

The project area is located at the southeastern edge of what is now called the historic Tucson Warehouse District, an area that served as the primary distribution center of goods for Tucson and southern Arizona during the first half of the twentieth century (Rieder 1999). The district was listed on the National Register of Historic Places in 1997. Commercial properties within this district included railroad-related structures, warehouses, light industrial facilities for manufacturing and food processing, and early automotive showrooms and garages. The district hugged the railroad, which was, at that time, the primary mode of transportation.

A History of the Eastern Half of Block 91

Historic Block 91 was laid out by Sidney Foreman during his survey of the Tucson village site in 1872. The block was originally bounded on the north by E. 10th Street (renamed Congress Street), on the east by S. 4th Avenue, on the south by E. 11th Street (later Broadway Boulevard), and on the west by S. 5th Avenue. A north-south alley, later named S. Herbert Avenue, divided the block in half. The block was subdivided into 12 rectangular lots, each measuring 132 ft long (east-west) by 66 ft wide (north-south). The eastern half of the block contained Lots 1, 4, 5, 8, 9, and 12.

The Southern Pacific Railroad was constructed through the northeastern corner of the original Tucson townsite in early 1880. Toole Avenue was built to run parallel and south of the tracks, with the land set aside by Ordinance Number 24 by the City of Tucson (Hardy 1910:93). Almost all of Lot 1 and portions of Lots 4, 5, and 8 were sacrificed for construction of the new street. Congress Street was later widened, and the remaining portion of Lot 1 and some of Lot 4 were incorporated into the street.

Lots 9 and 12 were subdivided, and two north-south lots, Lots 14 and 15, were created along the

eastern side of the block (Figure 1.3). During the American Territorial period, Lots 4, 5, and 8 were typically owned by a single person; conversely, Lots 9 and 12 were owned together, and beginning in 1903, these five lots were all owned together. After Lots 14 and 15 were established, they were initially separately owned, although in 1899, one individual purchased both lots.

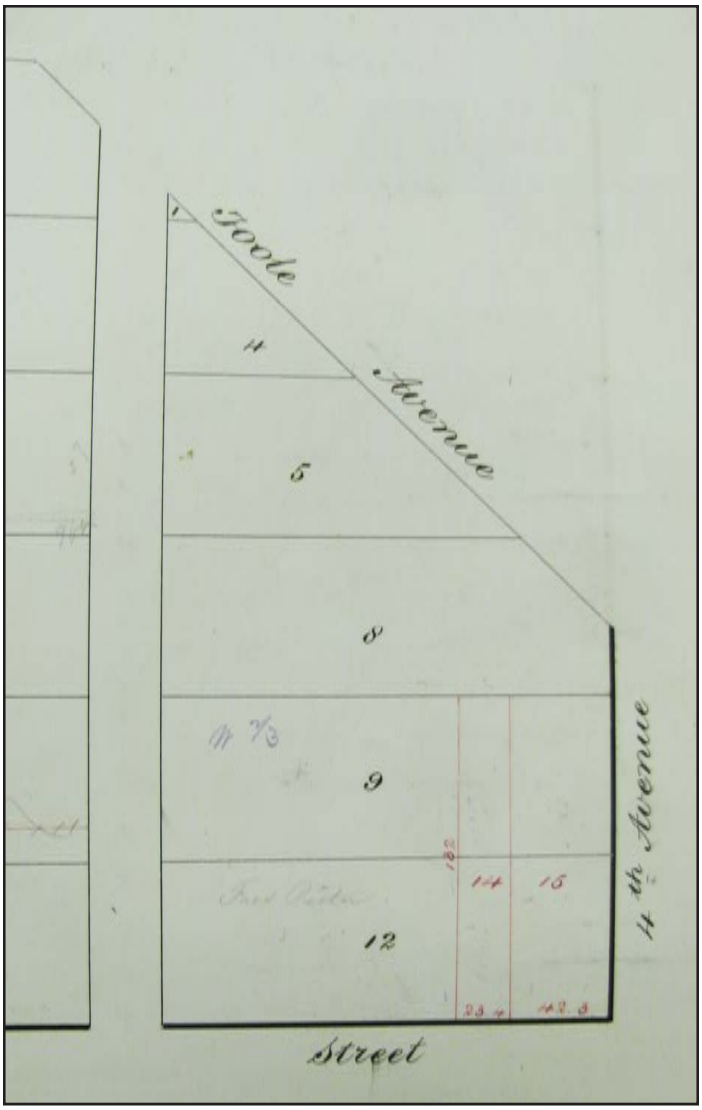


Figure 1.3. The 1898 City of Tucson Block Book showing the eastern half of Block 91 and lot numbers.

Archival Sources

Research was conducted at the Arizona Historical Society, Southern Arizona Division (AHS/SAD); the Special Collections at the University of Arizona; the Pima County Recorder's Office; the Pima County Public Library; and on various internet websites.

Resources consulted at AHS included bound volumes of Sanborn Fire Insurance maps, biographical files, biographical folders, early city directories, manuscripts, and photographs. Sanborn Fire Insurance maps were created to allow insurance adjustors in distant places to determine if properties could be insured. The color-coded maps were periodically updated, and they can be used to identify the buildings present on the eastern half of Block 91 from 1883 into the 1950s. The biographical files and folders contained newspaper clippings and contributed to biographies. The early city directories (those prior to 1918) are not indexed, and as such, were examined page-by-page for relevant entries.

The Special Collections at the University of Arizona houses the O'Quinn Tract Abstracts, volumes containing lists of property transactions. These were consulted to prepare a property title chain for the eastern half of the block from 1872 to 1923 (Table 1.2). Property deeds were subsequently examined at the Pima County Recorder's Office.

City directories were examined at AHS and the Pima County Public Library. Prior to 1918, the directories were arranged in approximate alphabetical order. From 1918 onward, the directories were arranged both alphabetically by name and also by street address. City directories allow for the identification of individuals (and their occupations) and businesses who occupied the block. All available directories were examined.

In recent years, many records have become available online. Arizona newspapers are available at the Library of Congress, Ancestry, NewspaperArchive, and GenealogyBank websites. The newspapers are searchable by key words. For this project, the newspapers were searched for personal names, business names, and block number. GoogleBooks was also searched using these terms.

Ancestry.com also provided census records and military records. Fami-lySearch.org provided birth, marriage, and death records. A website produced by the Arizona Department of Health Services, genealogy.az.gov, has posted birth records through 1935, and death records through 1960.

Sanborn Ferris Fire Insurance maps exist for the project area between 1883 and 1960 (Figures 1.4-1.9). The maps have been annotated here, with residences and businesses identified in census and city directory records.

Table 1.2. Property ownership of lots on the eastern half of Block 91.

Lot	Grantor	Grantee	Reference	Date	Amount	Comments
1, 4, 5, 8, 9, 12	Lippencott, H.	Safford, A.P.K.	7-525	4 October 1880	$1	–
12	Safford, A. P. K.	Griffith, William	12-789	23 March 1885	$650	–
9	Safford, A. P. K.	Griffith, William	9-578, 580	12 November 1880, 1 December 1880	$550	–
14, 15	Griffith, William M.	Pistor, Fred	15-396	23 July 1889	$1,500	–
14, 15	Griffith, William M.	Burkhalter, C. M.	16-116	13 April 1888	$1,000	–
14, 15	Griffith, William M.	Millar, R. T.	16-118	13 April 1888	$1,000	–
14, 15	Burkhalter, C. M.	Millar, R. T.	16-499	14 February 1896	$1	–
12	Tax Collector	Territory of Arizona	19-47	25 October 1886	–	–
14, 15	Griffith, William M.	Burkhalter, C. M.	21-89	3 April 1889	–	Deed is illegible
14, 15	Millar, R.	Bauer, John	9-242	4 May 1893	–	Mortgage
14, 15	Burkhalter, Jennie Y.	Clancy, John C.	25-642	20 September 1895	$900	–
14, 15	Millar, R. T., and wife	Clancy, John C.	28-674	29 September 1898	$1,230	–
4, 5, 8	Parker, Soledad, adm.	Safford, A. P. K.	29-252	9 April 1898	$1,400	Includes other land
4, 5, 8	Otero, Sabino	Parker, Soledad	29-254	31 May 1898	$1,400	Includes other land
4, 5, 8	Parker, Soledad et al.	Manning, L. H.	30-778	13 March 1901	$1,200	–
4, 5, 8	Manning, L. H.	Pistor, Fritz	33-663	29 April 1902	$2,000	–
14, 15	Clancy, John	Clancy, Florence	Misc 8-699	24 February 1908	$10	Clancys divide joint property
14, 15	Clancy, J. C., and wife	Dunseath, James R.	45-146	24 February 1908	$10	Transfer of joint property to John Clancy
14, 15	Dunseath, James R.	Clancy, J. C.	45-147	24 February 1908	$10	Transfer of joint property to John Clancy
14, 15	Clancy, John C., and wife	Lee, Frank H. et al.	56-373	18 February 1914	$10	–
4, 5	Clyne, Meade, and wife	Pistor, Fritz	61-560	1 August 1916	$10	Clearing up possible title problems
4, 5, 8, 9, 12	Pistor, Fritz, and wife	Vail, Z. T.	Mort 42-61	29 January 1917	–	Mortgage
14, 15	Drachman, Mose, and wife	Marchshall, Louise F.	63-398	16 March 1918	–	–

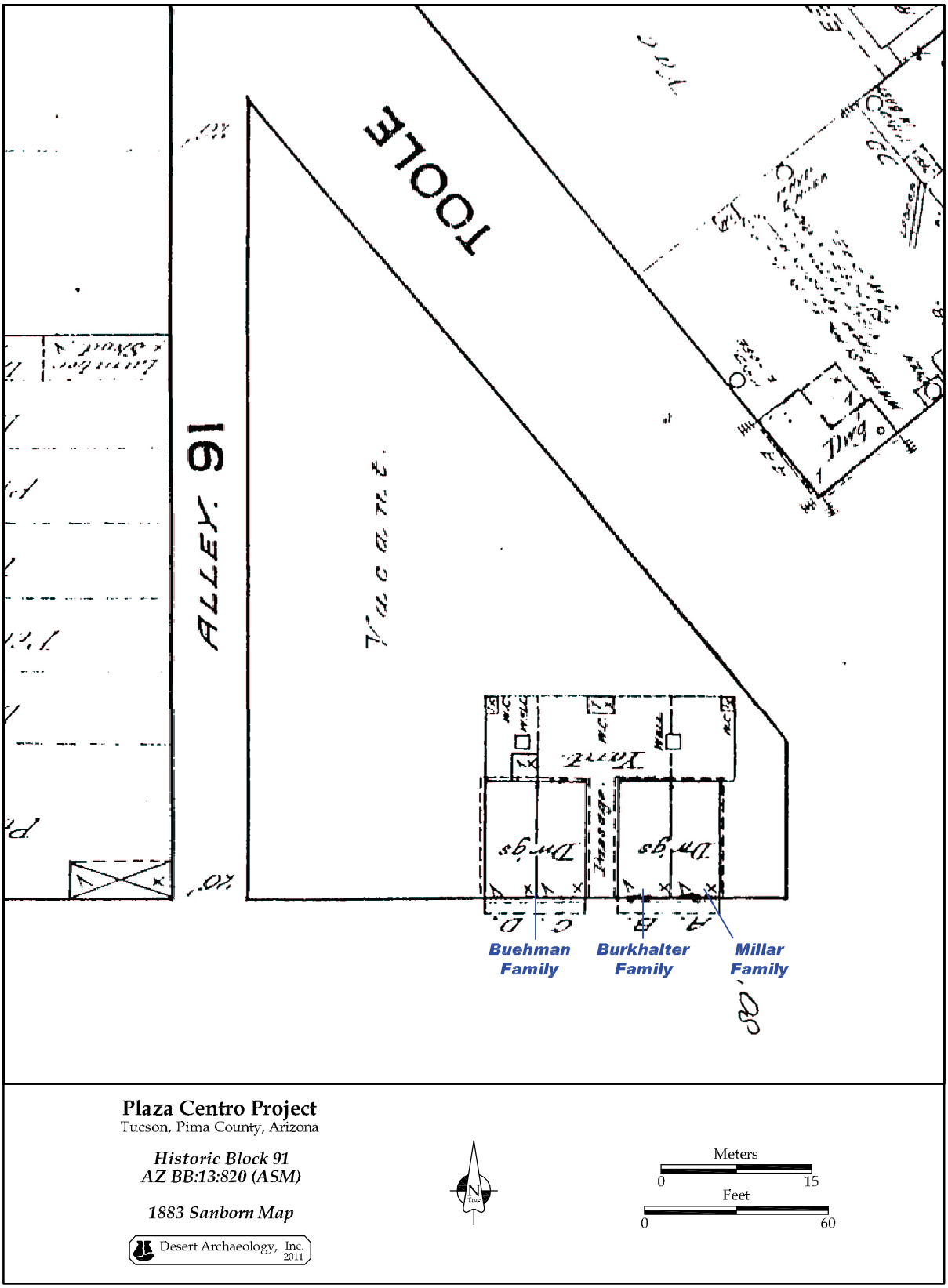


Figure 1.4. Sanborn Fire Insurance map, 1883, showing historical development in the project area.

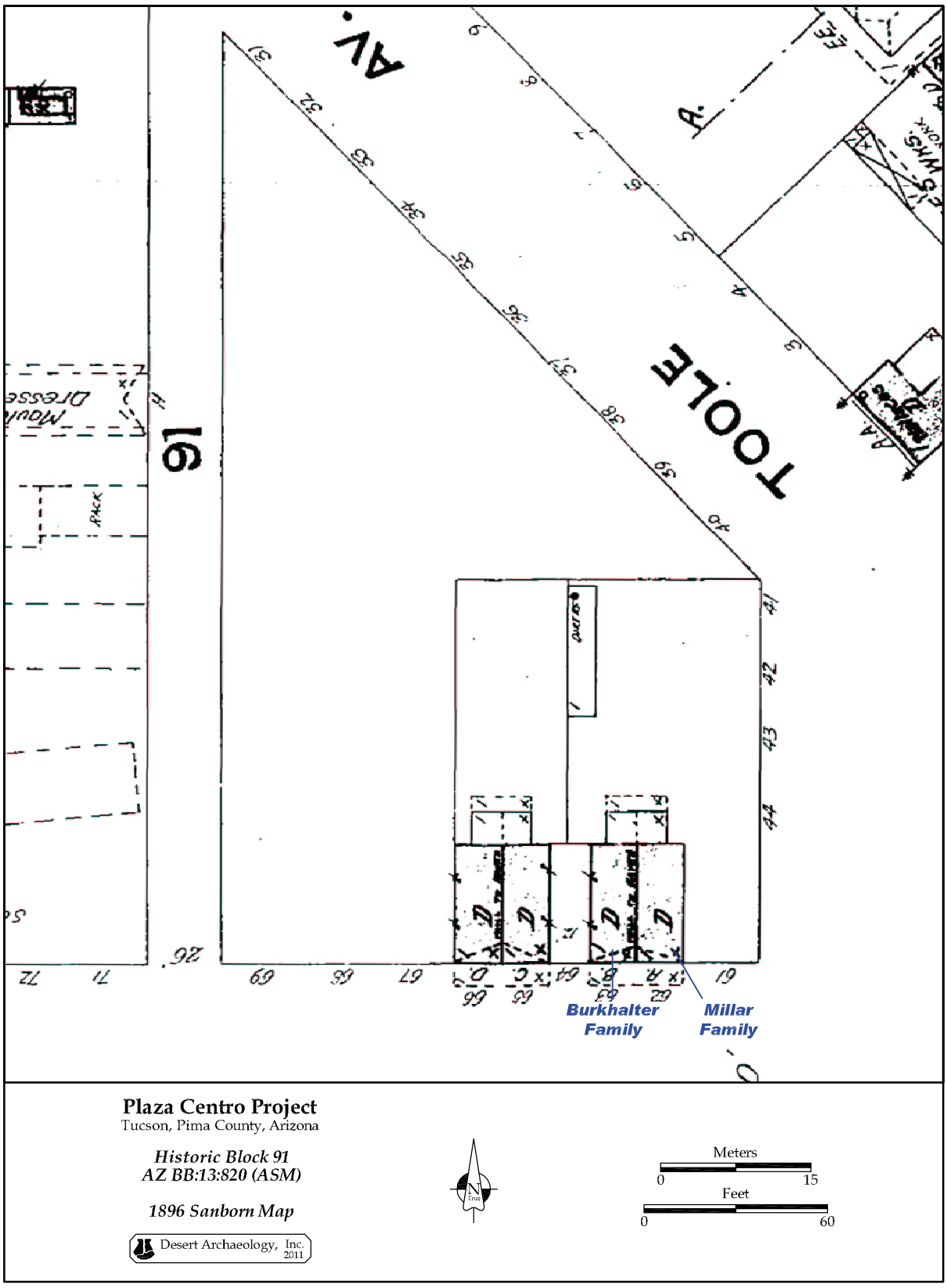


Figure 1.5. Sanborn Fire Insurance map, 1896, showing historical development in the project area.

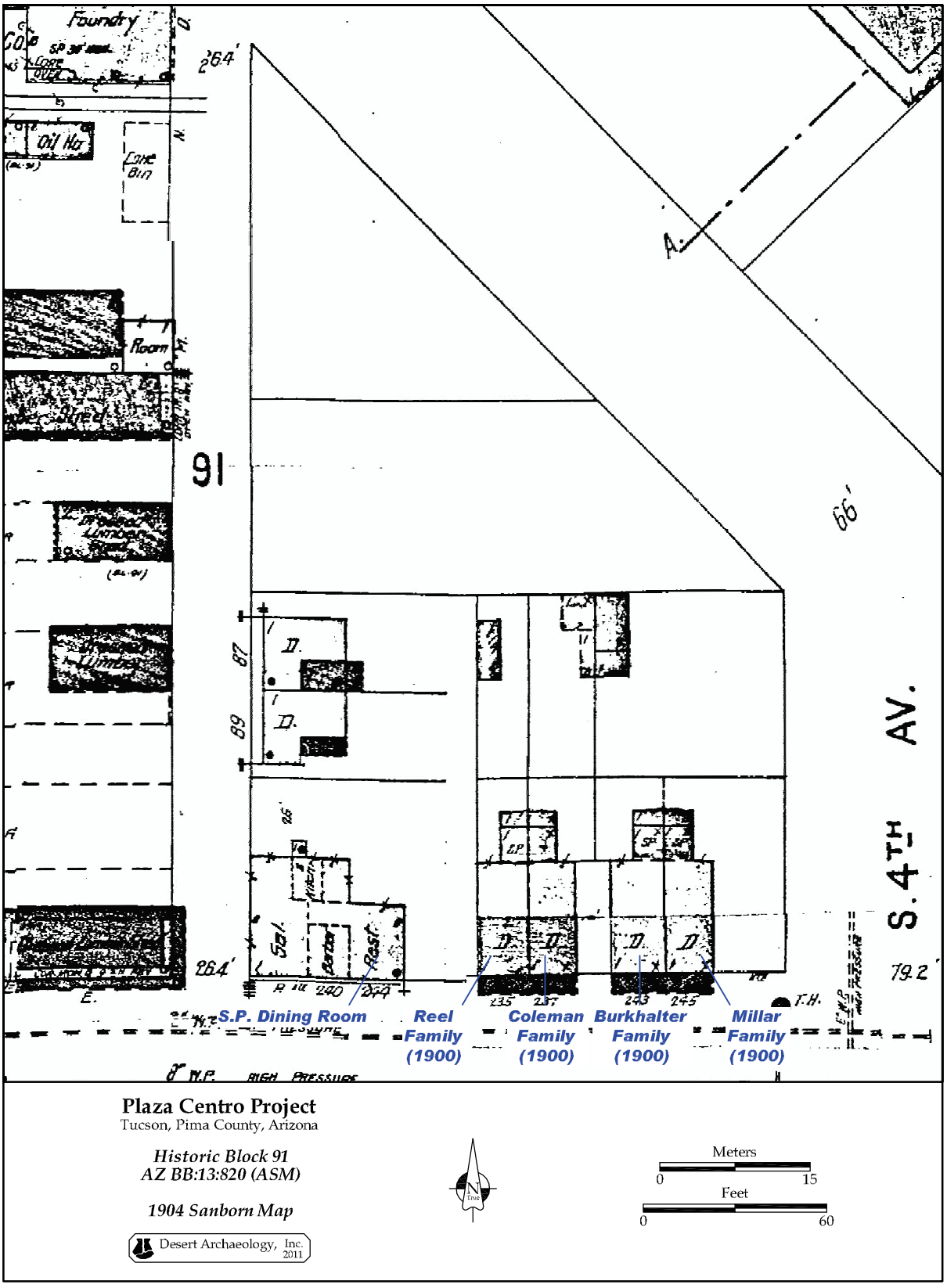


Figure 1.6. Sanborn Fire Insurance map, 1901, corrected 1904, showing historical development in the project area, with some names from the 1900 census.

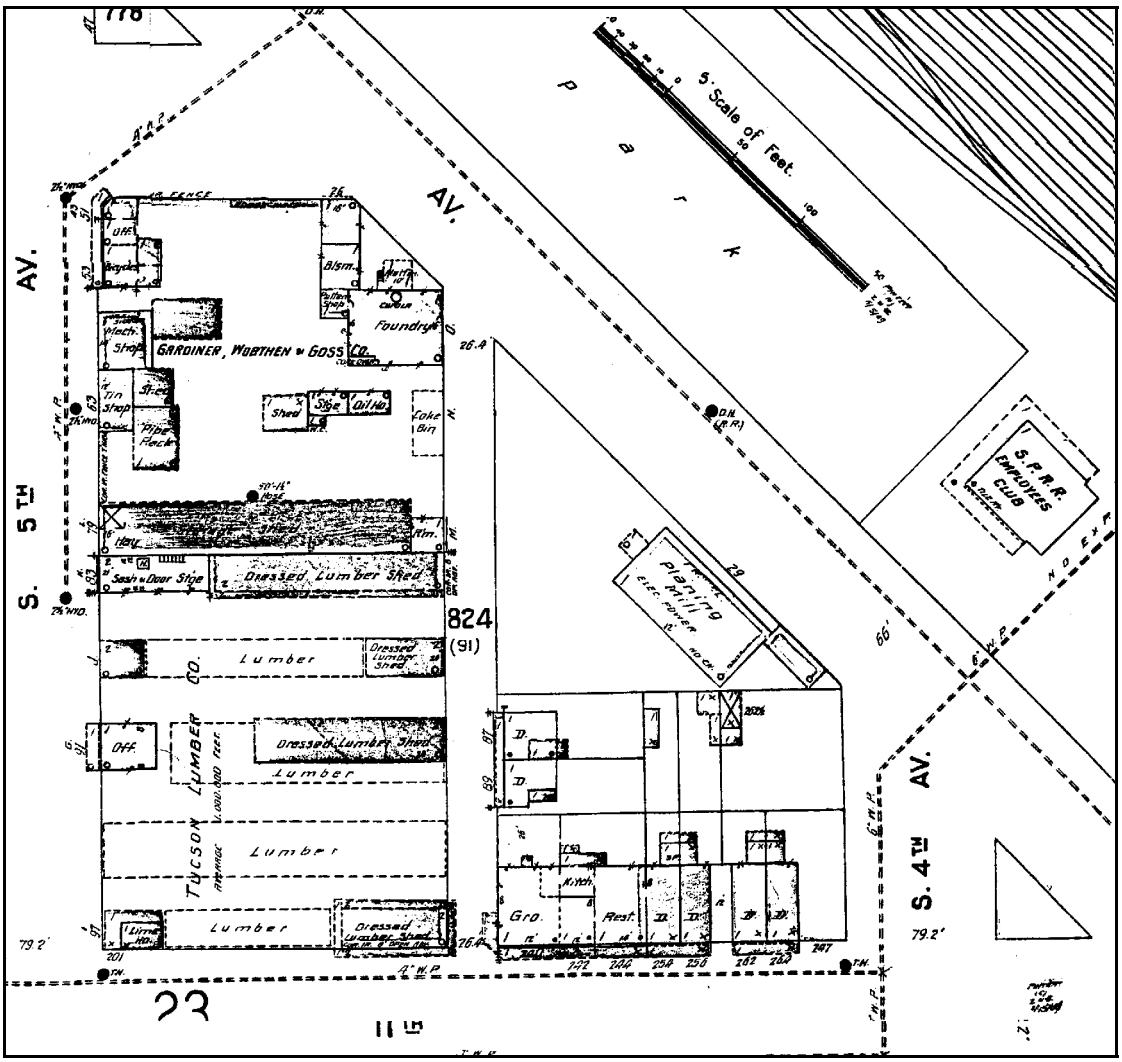


Figure 1.7. Sanborn Fire Insurance map, 1909, showing historical development in the project area.

Lots 1, 4, 5, and 8

Lots 1, 4, 5, and 8 were truncated by construction of Toole Avenue. Lot 1 was completely lost to the creation of Toole Avenue, while Lots 4, 5, and 8 were 66 ft wide (north-south) and varied in length. Lots 5 and 8 had 72.81 ft and 88.86 ft, respectively, of frontage along Toole Avenue. Lot 8 spanned the entire eastern half of the block, a total of 184.80 ft.

The initial owner of the eastern half of Block 91 was Dr. Henry Lippencott (1839-1908), a surgeon in the U.S. Army stationed at West Point in New York state. He sold the eastern half of Block 91 to Anson P. K. Safford (1830-1891) on 4 October 1880, for $1.00 (Pima County Deeds 7:525). Safford was the governor of Arizona from 1869-1877.

Lots 4, 5, and 8 changed ownership several times between 1898 and 1901, passing from the estate of Anson Safford to Soledad Parker, and then to Levi Manning (Pima County Deeds 29:252, 29:254, 30:778). Manning, a prominent Tucson businessman, held the property for only a year, selling it in 1902, to Fritz Pistor (Pima County Deeds 33:663).

Fritz Mortis Pistor (1859-1930) was born in Germany, and he came to the United States in 1880. He worked as a railroad machinist in 1900, living in Tucson with his wife Eliza Becker (1866-1954) and four children, Earl, Anna, Fritz, and William (1900 U.S. Census, AZ Territory, Pima County, Precinct 1, ED 26, sheet 10B).

The first construction on these lots took place between 1904 and 1909.

Tucson Planing Mill

The Tucson Planing Mill (also called the Tucson Sash Door and Planing Mill) opened "opposite Depot" at 29 Toole Avenue by November 1908. It was operated by Walter Baker and a Mr. Sinclair. At the time, the business made store, office, and bank fix-

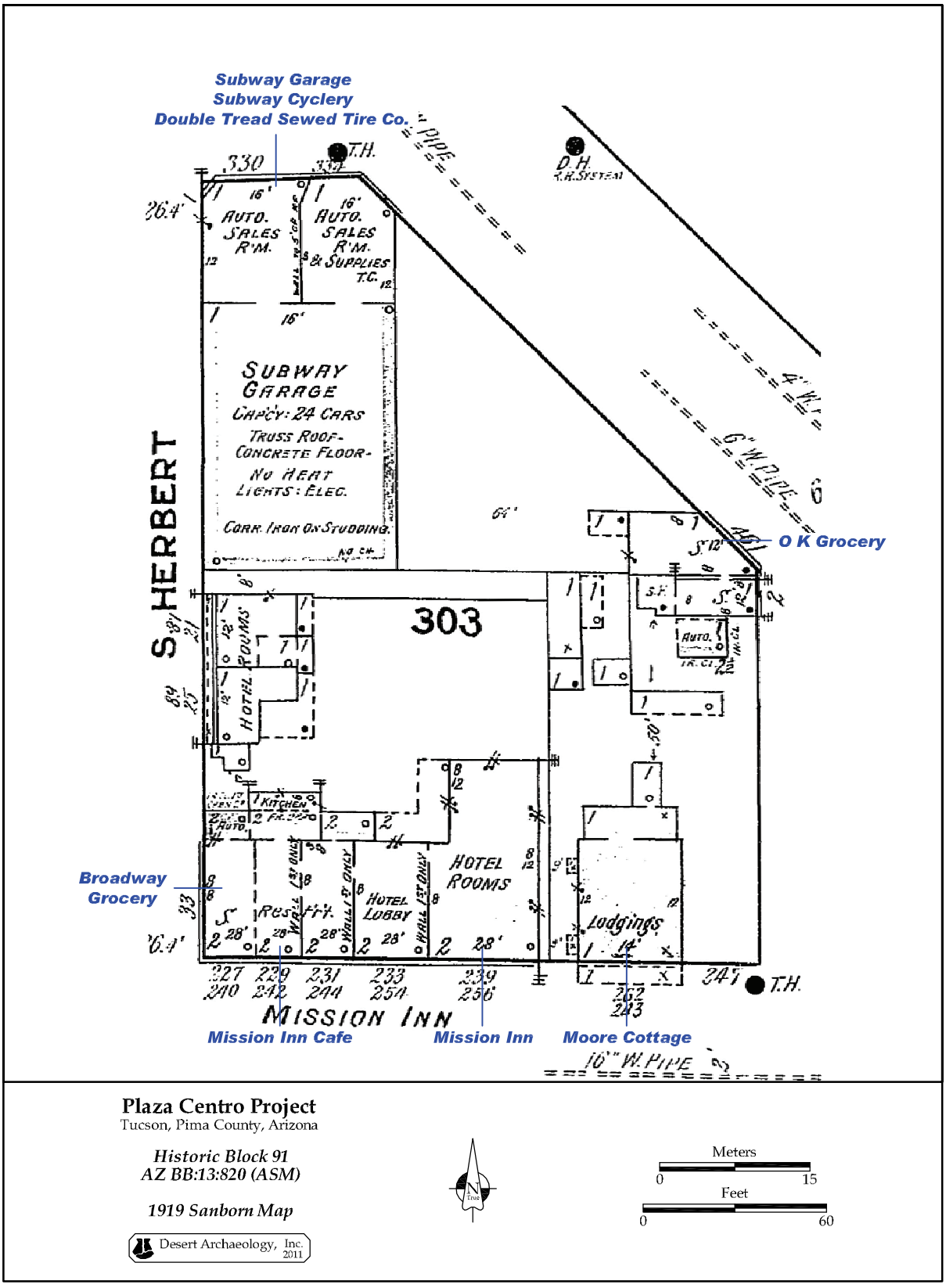


Figure 1.8. Sanborn Fire Insurance map, 1919, showing historical development in the project area.

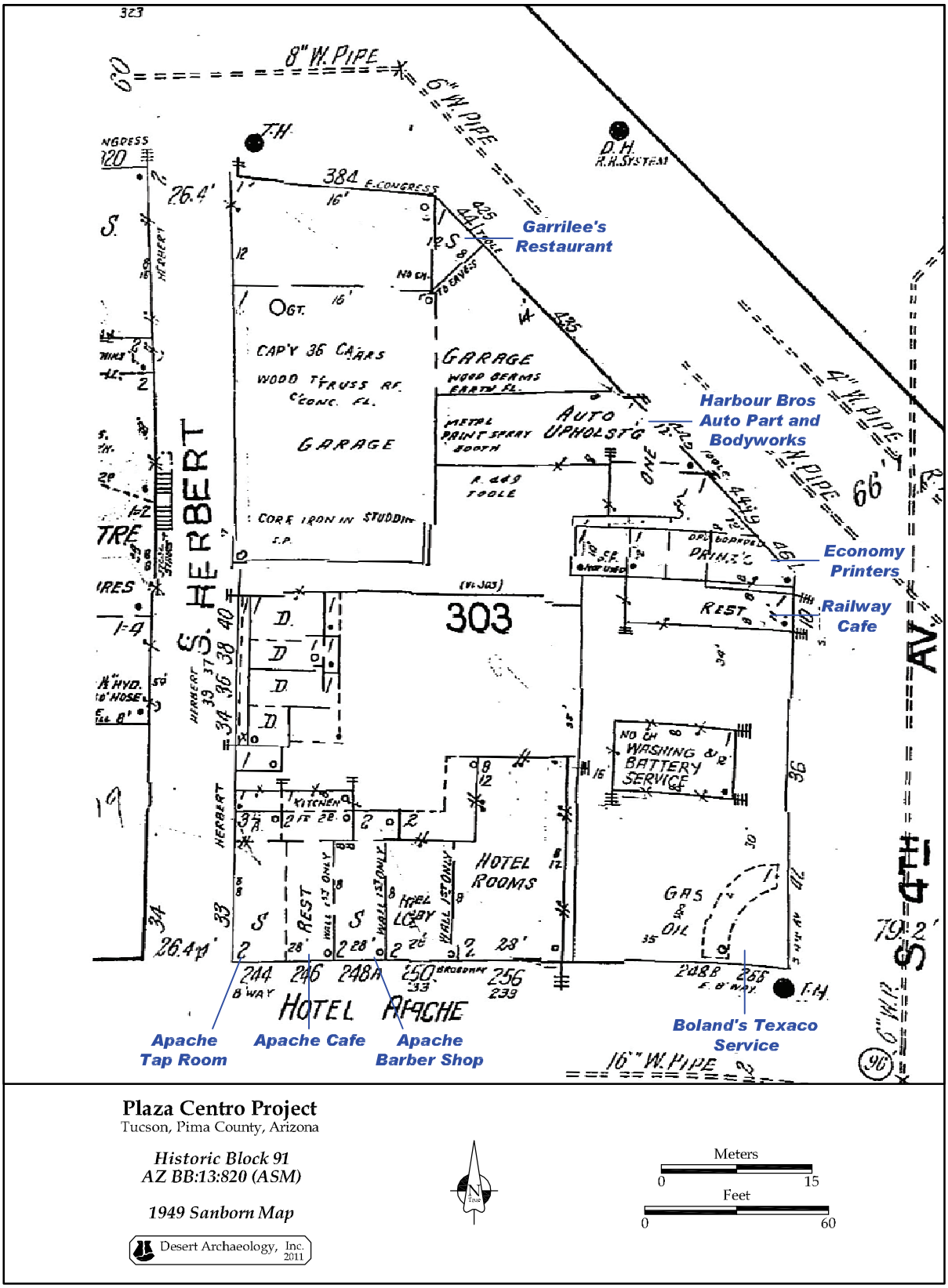


Figure 1.9. Sanborn Fire Insurance map, 1949, showing historical development in the project area.

tures (*Tucson Citizen* 1908a). In the spring of 1910, it was reported that the mill was, "open for business. Estimates given and all kinds of mill work. Sash, Doors, Screens, Mouldings, Turning, Band Sawing, Store, Office, Saloon Fixtures, artistic cabinet work" (*Tucson Citizen* 1910d:7). The mill burned in October 1910, and the owner, E. E. Jones planned, to rebuild immediately (*Tucson Citizen* 1910a). In 1911, an advertisement for the company noted that the Tucson Sash Door and Planing Mill were the exclusive agents for Beaver Board, which was meant to take the place of lath, plaster, and wallpaper (*Tucson Citizen* 1911a).

In March 1912, Walter mortgaged a "carpenter outfit" at the mill for $1,000 (*Tucson Citizen* 1912d). In 1912, the mill employed several men and had the "most improved, up-to-date and modern machinery" (*Tucson Citizen* 1912f:4). In July 1914, an advertisement stated, "For Sale- $500. Tucson Planing mill building. Good for garage or stable" (*Tucson Citizen* 1914b:9). By December 1914, Walter Baker had moved the Tucson Planing Mill to 416 N. 6th Avenue (*Tucson Citizen* 1914c). The mill and associated structures were torn down between 1914 and 1919.

461 S. Toole Avenue: Store

A commercial building was constructed at 461 S. Toole Avenue between 1914 and 1917. The O. K. Grocery operated there from 1917 through 1920, later moving to S. 3rd Avenue.

An unidentified restaurant was present in 1922, and the building was recorded as vacant in the 1928 city directory, although it was still listed at that time as a restaurant on the Sanborn map. From 1931-1935, the Shanghai Chop Suey restaurant, managed by Gin Shue, served meals from the building. The building was vacant in 1936.

In 1937, Howard and Helen Koonce lived in the building, with Howard working as a serviceman for Sears, Roebuck & Company.

Between 1938 and 1941, Floyd and Juna Johnson lived in the building at 461 S. Toole Avenue while operating a hand laundry. Floyd Dale Johnson was born in 1885, in Swan Creek, Warren County, Illinois, the son of John A. Johnson and Albina Howe. He would later work as a watchman, and he died from broncho-pneumonia and Alzheimer's (Floyd D. Johnson Certificate of Death, online at genealogy.az.gov). His wife, Juna Frances (Brockway) Johnson, was born in LaHarpe, Hancock County, Illinois, in 1887, the daughter of Samuel Brockway and Aurilla Mustain. She died in 1979, in Tucson. Floyd and Juna were the parents of two sons, Edgar and Glenn. The couple is buried in Evergreen Cemetery, Tucson.

In 1942, Lavern and Ruth Colbeck took over the laundry business for a year. Little is known about the couple. Lavern was born in 1906, and died in 1990. Ruth was born in 1911, and died in 1985. They had at least three sons, Lloyd Thomas, Gary, and Lavern Melvin. Lavern and Ruth are buried in East Lawn Palms Cemetery and Mortuary, Tucson.

From 1944-1957, the Economy Printing Company was in business in the building. Little is known about the company except that they printed forms for Pima County, and in 1945, they advertised they could make rubber stamps to order (*Tucson Citizen* 1945a). Howard Reynolds managed the company in 1954, and he reported that all his employees belonged to a union (*Tucson Citizen* 1954a). The building at 461 S. Toole Avenue was demolished in late 1957 or early 1958.

449/451 S. Toole Avenue: Commercial Building

Between 1919 and 1922, a commercial building was constructed at 449/451 S. Toole Avenue. The 1922 Sanborn Fire Insurance map indicates it was a restaurant with a kitchen located at the back. The building was vacant in 1928. From 1929-1930, the White Sewing Machine Company was present. This was a national company, incorporated in 1876, and it is still in business today as part of the Electrolux Corporation.

The building was vacant in 1931. From 1932-1946, Herbert L. Tucker ran a watchmaking and repair business from the building.

In 1948, the building at 449/451 S. Toole Avenue was empty, and in the following year, it was incorporated into the building to the north, 445 S. Toole Avenue. Afterward, the building was no longer listed in city directories.

445 S. Toole Avenue: Commercial Building

A commercial building was constructed at 445 S. Toole Avenue sometime between 1919 and 1922. The 1922 Sanborn map indicates a radiator shop was located in the structure. It was initially called the Subway Guarantee Auto Works (listed at 400 S. Toole Avenue in the corresponding city directory). An advertisement claimed that the business could, "repair injured metal auto bodies, fenders, etc… so that they are almost equal to new" (*Tucson Citizen* 1922a:4). The business also offered to examine radiators for free (*Tucson Citizen* 1922d), and by October, it advertised that radiators for every car were in stock (*Tucson Citizen* 1922e).

The Subway Radiator and Body Works operated from the building between 1927 and 1931. An advertisement reported, "If you are having trouble with your radiator, bring it to us (*Tucson Citizen* 1922b). The company specialized in copper radiators, which were reported to handle the region's alkali water better (*Tucson Citizen* 1922c). In 1932, it

was replaced by the Tucson Sheet Metal Works. The building was vacant between 1933 and 1935.

In 1937, F. C. Kranz had an auto repair business at 445 S. Toole Avenue. It was again the Subway Radiator and Body Works in 1938. Automobiles were painted and bodywork was completed there between 1939 and 1944, first by B. C. Gonzalez, then by Leo Montano, E. H. Smith, and later, by the GAZ Paint and Body Shop.

The Harbour brothers, Glenn and Ray, operated an automobile body and fender repair business from the building between July 1945 and 1954. In 1946, the Harbour's Paint, Body & Top Shop advertised that they rebuilt wrecks, installed rear floor mats, and made and installed sport tops (*Tucson Citizen* 1946). Harbour Brothers reopened at this address on 26 January 1948, having remodeled the building. The space was:

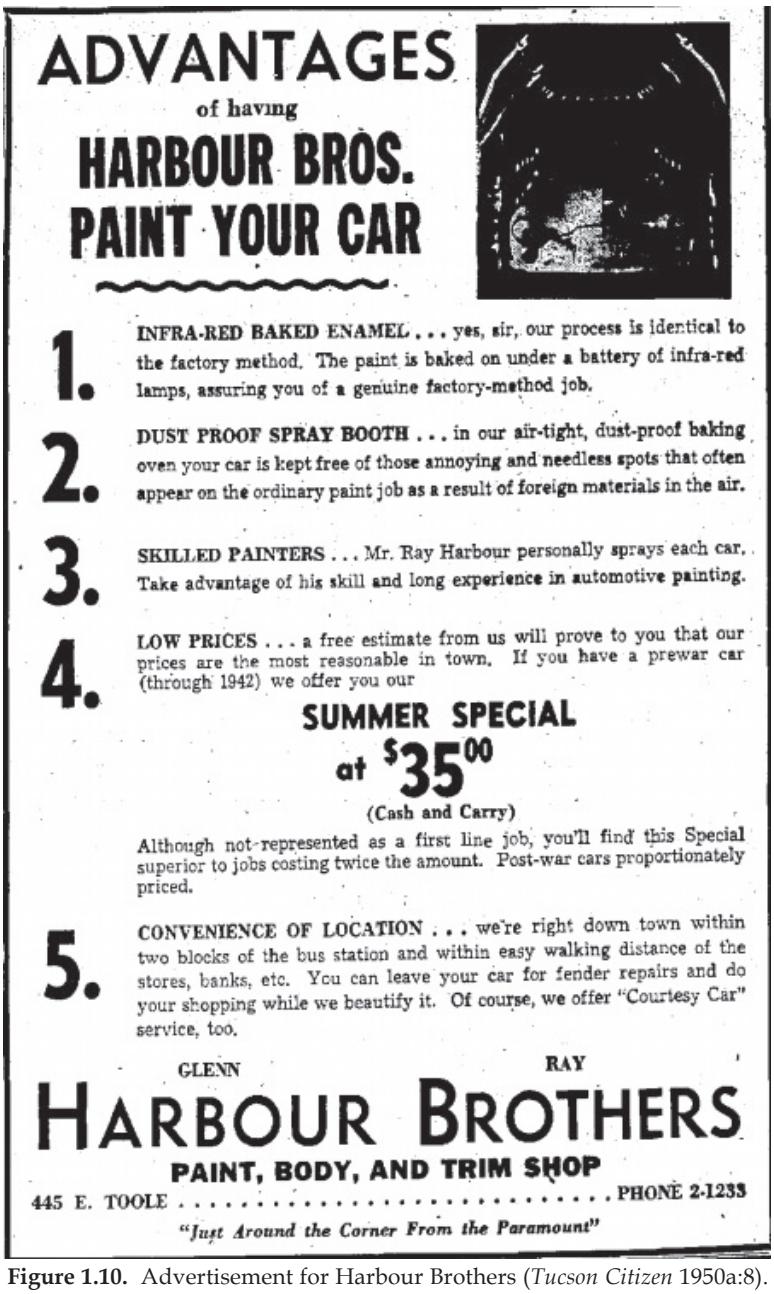
> designed for auto painting and body and fender work and furniture upholstery and refinishing, the new shop now is the most complete of its kind in the Southerwest. Harbour's will also feature auto upholstery. Newest innovation in Harbour's many services is the Factory Process for auto painting. The Baked Enamel Process will give the car its original factory finish- at only a fraction more than the cost of an ordinary paint job (*Tucson Citizen* 1948).

Another advertisement from 1950 indicated that a pre-war automobile could be painted by Ray Harbour in their dust-proof spray booth and then baked "under a battery of infra-red lamps" (*Tucson Citizen* 1950a:8) (Figure 1.10). The building at 445 S. Toole Avenue was not listed after 1954.

441 S. Toole Avenue: Garrilee's Fountain Lunch and Garrilee's Tavern

Between 1922 and 1930, a triangular building was constructed at 441 S. Toole Avenue, immediately adjacent to the Subway Guarantee Auto Works. In 1930, the Standard Buffet Lunch served meals.

From 1932-1957, Garrison E. Deal and his wife, Lena Lee Deal, operated a restaurant there, called variously, the Garrilee Fountain Lunch (1932-1942), Garrilee's Café (1946-1948), and Garrilee's Tavern (1952-1957). Garrison was born in Indiana, in 1901, and Lee was born in Oregon, circa 1899. In April 1930, Garrison and Lena lived in Tucson with their son Rob and Garrison's widowed mother, Rose Deal. Garrison and Lee were working as waiters at a lunch counter (1930 U.S. Census, AZ, Pima County, Tucson, ED 68, sheet 2B). In June 1958, police were called to the tavern when a fight broke out after a bartender refused to give a drunk patron another drink (*Tucson Citizen* 1958a). The tavern was closed, and the building was vacant in 1959.


ADVANTAGES
of having
HARBOUR BROS.
PAINT YOUR CAR

1. INFRA-RED BAKED ENAMEL . . . yes, sir, our process is identical to the factory method. The paint is baked on under a battery of infra-red lamps, assuring you of a genuine factory-method job.

2. DUST PROOF SPRAY BOOTH . . . in our air-tight, dust-proof baking oven your car is kept free of those annoying and needless spots that often appear on the ordinary paint job as a result of foreign materials in the air.

3. SKILLED PAINTERS . . . Mr. Ray Harbour personally sprays each car. Take advantage of his skill and long experience in automotive painting.

4. LOW PRICES . . . a free estimate from us will prove to you that our prices are the most reasonable in town. If you have a prewar car (through 1942) we offer you our

SUMMER SPECIAL
at $35.00
(Cash and Carry)

Although not represented as a first line job, you'll find this Special superior to jobs costing twice the amount. Post-war cars proportionately priced.

5. CONVENIENCE OF LOCATION . . . we're right down town within two blocks of the bus station and within easy walking distance of the stores, banks, etc. You can leave your car for fender repairs and do your shopping while we beautify it. Of course, we offer "Courtesy Car" service, too.

GLENN RAY
HARBOUR BROTHERS
PAINT, BODY, AND TRIM SHOP
445 E. TOOLE . . . . . PHONE 2-1233
"Just Around the Corner From the Paramount"

Figure 1.10. Advertisement for Harbour Brothers (*Tucson Citizen* 1950a:8).

384 E. Congress Street: Subway Garage and Automobile Sales

The Subway Garage was constructed on the northwestern corner of Lots 4 and 5 between 1914 and 1919, with a pair of automobile sales rooms along the north side, fronting Congress Street. The garage was named after the 4th Avenue subway, constructed to allow automobile, bicycle, and pedestrian traffic beneath the Southern Pacific Railroad tracks.

The exact date of construction is uncertain; however, a fall 1916 advertisement for Haynes Chevrolet, E. S. Peters agent, reported that the dealership was located in the "New Subway Garage" (*Tucson Citizen* 1916a:8).

The garage was opened by E. P. Ridgely and C. S. Harrison. P. C. ("Doc") Smith was a mechanic who worked at the garage soon after it opened. He suffered a broken hand when an automobile fell on it while he was working under the car. He took a week off from work. The garage was the local headquarters of the Auto Club of America (*Tucson Citizen* 1916e). By the end of November 1916, the garage had a full set of equipment, including "two drill presses, a lathe grinding machine, vulcanizing machine and motor generator set." The generator could be used to charge batteries. The garage was open from 7 a.m. to 10 p.m. (*Tucson Citizen* 1916d:14). The Saxon Motor Sales Company of Los Angeles brought four models to the garage in December 1916 (*Tucson Citizen* 1916f). Later that year, the garage obtained the exclusive contract to sell Eveready batteries (*Tucson Citizen* 1916g).

In 1917, the salesroom was painted with black and white stripes in preparation for Moline-Knight automobiles to be sold there, replacing King Eight autos (*Tucson Citizen* 1917d). The following year, Doc Smith left the garage and became the Superintendent of Water for the City of Tucson (*Tucson Citizen* 1918c). He was replaced by C. M. Rhody, with Ray Davis placed in charge of the garage (*Tucson Citizen* 1918e). In early 1918, the auto dealership sold Hudson Super-Sixes, Columbia, Chevrolet, and Oakland cars (*Tucson Citizen* 1918b). In October, two new departments were opened, an automobile paint division headed by T. Romero and a vulcanizing and retreading plant managed by Mr. Lightfoot and Mr. Wein. F. E. Gerlach was managing the garage (*Tucson Citizen* 1918d).

In 1919, the garage also contained the Subway Cyclery, the Double Tread Sewed Tire Company, and E. S. Peters Auto. The cyclery offered, "Motorcycle and bicycle repairing. Tires and accessories. New and second hand bicycles for sale" (*Tucson Citizen* 1919b:2:7). Between 1922 and 1930, the garage expanded to the Toole Avenue frontage, filling the triangular area between the old garage building and a new radiator shop. This addition was assigned street address 435 S. Toole Avenue. By 1924, the garage was listed in city directories at 384 E. Congress Street, with an automobile dealer, E. S. Peters, along the northern side of the building. The business was called the Subway Garage until 1932. In that year, it was managed by Bruce Ellis.

In 1933, the garage switched management and was called the Roberts Garage. Fred Caryle Roberts was a native of Lawrence, Kansas, and a veteran of the Spanish-American War. He was married in 1905, to Clara Fish, the daughter of Edward Nye Fish and Maria Wakefield, a prominent Tucson couple (*Tucson Citizen* 1958b). Roberts operated the garage at this location until 1954. From 1946-1954, he shared space with Herb Windett's Auto Service. Herb Windett specialized in automotive air conditioning, and after leaving the Congress Street location, he opened a new business at 137 S. 6th Avenue (*Tucson Citizen* 1962).

Lots 9 and 12

Anson Safford sold Lots 9 and 12 to William Griffith on 12 November and 1 December 1880, for a total of $1,200 (Pima County Deeds 9:578, 9:580). Both lots were 119.1 ft long (east-west) and 66.0 ft long (north-south). Griffith subsequently sold the two lots to Fritz Pistor in 1889, for $1,500 (Pima County Deeds 15:388). The Pistor family owned the two lots into the late 1950s.

Between 1901 and 1904, a commercial building was constructed by Fritz Pistor along the Broadway Boulevard frontage. Tax assessment records suggest construction took place in 1902-1903, because the assessed value of the property increased from $1,600 to $3,420. The 1904 Sanborn map shows a saloon at the southwestern corner, a barbershop in the center, and a restaurant on the east side. Between 1904 and 1909, an addition was added to the east side of the building, filling the Broadway frontage. This set of buildings stood until 1957.

87 and 89 S. Herbert Avenue: Two Dwellings

Two one-story dwellings were built on Lot 9 along Herbert Avenue between 1901 and 1904. The homes were initially assigned street addresses 87 and 89 S. Herbert Avenue, but were called 21 and 25 S. Herbert Avenue between 1919 and 1930, and 34-36-38-40 S. Herbert Avenue between 1949 and 1951.

Between 1919 and 1922, the houses were part of the Mission Inn, and part of the Hotel Apache in 1930.

Afterward, the houses reverted to rental housing. Individual residents could only be identified, however, for the period between 1929 and 1939. Residents were working class, including a few people who worked at nearby businesses. Only a few lived here for more than a year. Ed Burns, a laborer, lived at the southern house between 1934 and 1937. Clemente P. Valencia and his wife, Carmen Soto, lived at the northern house in 1932 and 1933. Clemente was a sheetmetal worker for the Southern Pacific Railroad.

By 1949, the houses at 87 and 89 S. Herbert Avenue were being used as the Raymond Rooms, a boardinghouse. The houses were probably torn down in 1957.

240/244 E. Broadway Boulevard: Brady & Co. Grocery, Groceteria 1, Broadway Grocery, Fuoco Locksmith, C. C. Simmons Cleaners, and Apache Café

An L-shaped building was constructed at the northeastern corner of S. Herbert Avenue and E. Broadway Boulevard on Lot 12 between 1900 and 1904. The 1904 Sanborn Fire Insurance map lists a saloon, a barber shop, and a restaurant in the building.

In 1904, the westernmost portion of the building housed the unidentified saloon. A grocery store opened between 1904 and 1908, replacing the saloon. Robert Lee Brady operated the store in 1908. Brady was the son of prominent Tucson pioneer Peter R. Brady (*Tucson Citizen* 1950c). In May 1909, a fire started in the grocery basement. Firemen arrived at 11:30 p.m. They broke down the basement doors and extinquished the fire, which caused $100 in damages (*Tucson Citizen* 1909b).

In 1915, the Roberts Store Groceteria No. 1 opened in the Hotel San Xavier building, managed by M. W. Roberts. He advertised that it was, "something new in the grocery line, some new way of handling goods and some new way of selling goods" (*Tucson Citizen* 1915b:3).

The grocery store was renamed the Broadway Grocery, and in 1916, W. J. Tinney and James E. English took over the space. They offered "Staple and Fancy Groceries at Living Prices" (*Tucson Citizen* 1916b:2) (Figure 1.11). In 1917, the *Tucson Citizen* (1917b) printed numerous recipes submitted by local housewives, featuring ingredients obtained at the grocery.

By 1919, the store was praised in one of the local Spanish language newspapers:

> El servicio que en entregas de mercancias esta dando a su numerosa clientele la Tienda de Abarortes 'Broadway Grocery Store,' cercana al que fue Hotel San Xavier, es magnifico. Pase Ud., haga una orden y se convencera de tal excelencia" (*Tucsonense* 1919:4).

The store went out of business sometime in 1920. In January 1921, Frank and Beatrice Fuoco moved their locksmith and sewing business from 240 E. Congress Street to the former grocery store (*Tucson Citizen* 1920b). Frank advertised himself as, "The Key Doctor, General Repair of Anything and Everything" (*Tucson Citizen* 1920a:7). Fuoco was a native of Italy, who moved to Tucson in 1920, after visiting his wife's brother in Nogales (*Tucson Citizen* 1954b). His wife, Beatrice, was a skilled seamstress who sold fancy work, knitting, crocheting, and sewing goods from the Mission Inn in 1921 (*Tucson Citizen* 1921b).

The store was vacant in 1926. The C. C. Simmons Cleaners operated from the corner store in 1930-1931. The Apache Café was located in the space in 1935-1951. The restaurant served alcohol in the Apache Tap Room. John Govorko ran the restaurant in 1942, and Gus Sideris ran it in 1944 (*Tucson Citizen* 1942). In 1947, T. J. Puryear managed the café. He had to summon the police when Willis Beaver stole a bag


The Broadway Grocery

Under San Xavier Hotel

Will continue its business under the new management of W. J. Tinney, for years connected with the grocery business in Tucson, and J. E. English, well known through his connection with the engine service of the Southern Pacific. They carry a full line of

Staple and Fancy Groceries

At Living Prices

With free auto delivery to all parts of the city

PHONE 1038

Figure 1.11. Advertisement for the Broadway Grocery (*Tucson Citizen* 1916b:2).

of carrots, walked around the corner, and tried to sell them to Mrs. Josephine Morris, who was working at the Railroad Café (*Tucson Citizen* 1947b).

242/246 E. Broadway Boulevard: Machinery Engineering Company, Dillard Dry Cleaners, Arizona Dry Cleaners, Apache Café

The second structural bay began as one story with a basement. In 1904, it housed an unidentified barber shop. In 1909, the room may have been part of the adjacent grocery store. In 1914, the lunch room for the Hotel San Xavier and in 1919, the restaurant for the Mission Inn were present in the space. In 1930-1931, Machinery Engineering Company occupied the room.

In 1935, Dillard Dry Cleaners rented the space, followed by Arizona Dry Cleaners in 1937. By the late 1940s, the Apache Café had taken over this spot.

244/248 E. Broadway Boulevard: Various Barber Shops

The third room of the structure housed George Malden's barbershop in 1930, Carl Jackson's barbershop in 1931, the Leonard E. Moore barbershop in 1935, and the Apache Barber Shop from 1937-1951, with George Martinich managing the shop in 1951.

244 E. Broadway Boulevard: The S.P. Dining Room

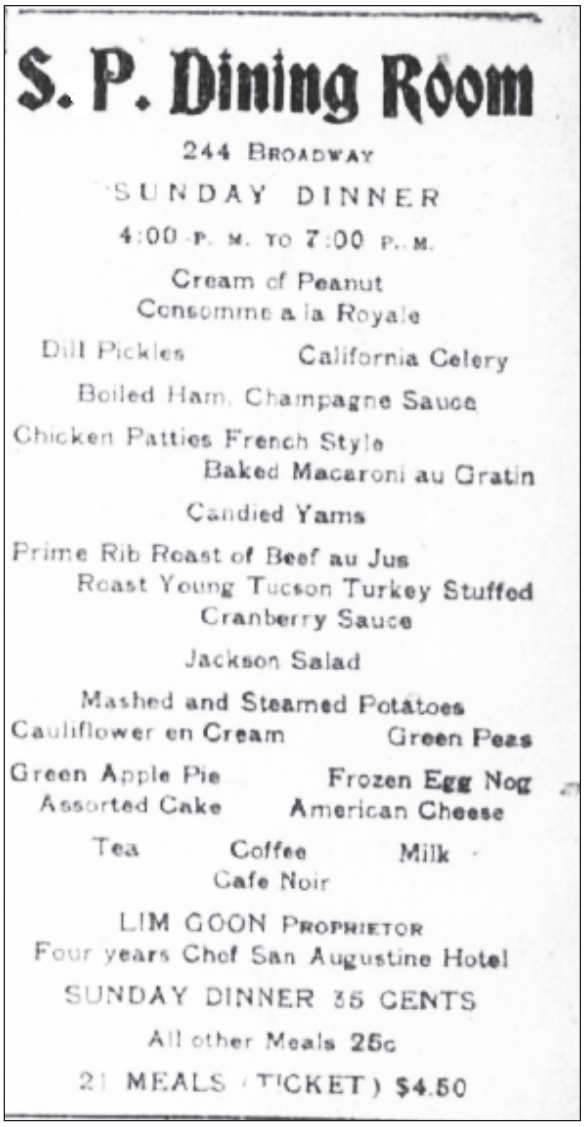
The 1904 Sanborn Fire Insurance map shows that the easternmost room in the structure built between 1900 and 1904 at 224 E. Broadway Bouelvard housed a restaurant. Newspapers and city directories identify this as the S.P. Dining Room, also known as the Esspee, Espee, and Ess Pee Restaurant. Lim Goon operated the business between 1905 and 1912.

Lim Goon was born circa 1868, in China, and he came to the United States in 1883 or 1884. He was married circa 1897, to Mary, who was apparently previously married. She was born circa 1877, in San Francisco, and in her lifetime, she was the mother of five children, two of whom died in infancy.

Lim was in Tucson by 1901 when he worked as a cook at the St. Augustine Hotel. In 1902, he also operated a general merchandise store at 474 S. Meyer Avenue.

In January 1905, the S.P. Dining Room advertised a Sunday dinner that featured cream of peanut soup, baked macaroni au gratin, and green apple pie (*Tucson Citizen* 1905a) (Figure 1.12).

In January 1909, Lim and Mary Goon's 6month-old son, Fred, died; he was buried in the Court Street Cemetery (Fred Good Standard Certificate of Death, online at genealogy.az.gov). On 19 April 1910, Lim, his wife Mary, and their 3-year-old son, Lim, lived at 472 Meyer Avenue in Tucson. Lin was operating


S. P. Dining Room

244 Broadway

SUNDAY DINNER

4:00 P. M. TO 7:00 P. M.

Cream of Peanut
Consomme a la Royale

Dill Pickles California Celery

Boiled Ham, Champagne Sauce

Chicken Patties French Style
Baked Macaroni au Gratin

Candied Yams

Prime Rib Roast of Beef au Jus
Roast Young Tucson Turkey Stuffed
Cranberry Sauce

Jackson Salad

Mashed and Steamed Potatoes
Cauliflower en Cream Green Peas

Green Apple Pie Frozen Egg Nog
Assorted Cake American Cheese

Tea Coffee Milk
Cafe Noir

LIM GOON Proprietor
Four years Chef San Augustine Hotel

SUNDAY DINNER 35 CENTS

All other Meals 25c

21 MEALS (TICKET) $4.50

Figure 1.12. Advertisement for the S.P. Dining Room (*Tucson Citizen* 1905a:15).

the restaurant when the census was taken (1910 U.S. Census, AZ Territory, Pima County, Tucson, Ward 2, ED 107, sheet 7B).

Lim Goon also had a ranch on the Rillito. He grew Chinese watermelons and sweet potatoes in the fall of 1911 (*Tucson Citizen* 1911b). The restaurant operated under Lim Goon's management until 1912. In 1913, W. F. Pistor operated the business and it closed soon afterward.

In 1918, Mrs. Lim Goon operated the Sasco-Silverbell Stage, which ran twice daily for $3.00 one-way (*Tucson Citizen* 1918a).

Mrs. Goon died in 1919:

> Lim Goon, the merchant of Sasco and Tucson, lost his wife by death Wednesday night. She died at their Tucson store, corner of Fourth and Toole av-

> enues. Mrs. Moy Goon was 42 years of age and had resided here with her husband for the past 19 years. Her native city was San Francisco, where she was a girl of the Mission Home. The Lims lived in Pasadena for two years before coming to Tucson. The deceased leaves two adopted children and one of her own. The funeral will be held on Saturday, as Friday is Chinese New Years (*Tucson Citizen* 1919e:4).

On 8 January 1920, Lim, listed as "Goon Lim" lived in Sasco, Pinal County, with his 8-year-old son, Harry Lim, and a hired man, Geronimo Garcia. He was a general store merchant (1920 U.S. Census, AZ, Pinal County, Sasco, ED 115, sheet 3B). On 21 April 1930, Lim lived at Silverbell, where he was still operating a general store (1930 U.S. Census, AZ, Pima County, Silverbell, ED 27, sheet 1A).

Lim Goon died on 7 April 1937, at 110 S. Scott Street in Tucson, from chronic myocarditis and aortic valve insufficiency. He is buried in Evergreen Cemetery (Lim Goon Standard Certificate of Death, online at genealogy.az.gov).

Hotel San Xavier, Mission Inn, Apache Hotel, and Park Hotel

The Hotel San Xavier opened in 1913, at 244 E. Broadway Boulevard. A second story had been added to the existing buildings on Lot 12. John Latz was the first proprietor, and he advertised that the new hotel had, "All outside, new and modern rooms steam heated, hot and cold water. Rooms with private bath. Telephone in every room, sanitary rooms, with the only vacuum cleaning system of its kind in the city of Tucson" (*Tucson Citizen* 1913:2). A German Red Cross card party was held at the hotel in February 1916, hosted by Mrs. C. H. Kroeger. The party was to raise money for the "benefit of orphans, widows and cripples of the European war" (*Tucson Citizen* 1916c:5).

By January 1919, the hotel changed names to the Mission Inn (*Tucson Citizen* 1919f). Charles M. Taylor managed the hotel until April 1919, when Hannah O'Sullivan and Mary Curry took over. They planned to make it "a first class family hotel where anyone's stay will be made agreeable" (*Tucson Citizen* 1919d:1:6). The Mission Inn restaurant opened on the first floor of the hotel in September 1919, under the management of Daniel Danzieger. Danzieger had previously worked at restaurants in California, including the Coronado Hotel in San Diego (*Tucson Citizen* 1919c).

Between 1924 and 1927, the hotel changed names to the Apache Hotel. In April 1945, the night clerk of the Apache Hotel accused Sergeant A. E. Stewart of tearing down the barber pole in front of the Apache Hotel barber shop (*Tucson Citizen* 1945c). Mrs. Elisa Pistor was the owner of the hotel in April 1948, when Mrs. W. C. Fenter fell in front of the building. Fenter filed suit two years later, claiming that the sidewalk at the entrance to the hotel was in poor condition and, as a result, she fell and broke her back and neck, causing permanent injuries (*Tucson Citizen* 1950b). In February 1953, police cornered Claude Wiltrout in the hotel. Wiltrout had beaten to death his 87-year-old step-grandfather, and was hiding in Tucson under an assumed name. He fled the hotel by jumping from a second story balcony onto a nearby roof and then ran down Toole Avenue before being apprehended (*Tucson Citizen* 1953). In the 1940s, the hotel sponsored a baseball team. The Hotel Apache Hotshots finished the 1947 season with six wins and three losses (*Tucson Citizen* 1947c). The team was later renamed the Hotel Apache Rats and then the Apache Hotel Sluggers (*Tucson Citizen* 1949c, 1949d).

The hotel was renamed the Park Hotel after mid-1954. The hotel was torn down in November 1957. Charles Salloum had leased the property from the Pistor estate, and to converted it into a parking lot for 600 cars (*Tucson Citizen* 1957). A service station and parking lot were present here in 1959 (*Tucson Citizen* 1959).

Lots 14 and 15

Lots 14 and 15 were set off from Lots 9 and 12 in 1889. Lot 14 was 132.0 ft long (north-south) by 23.4 ft wide (east-west). Lot 15 was also 132.0 ft long (north-south) by 42.3 ft wide (east-west).

The 1883 Sanborn Fire Insurance map shows a pair of newly built duplex dwellings that were constructed at the southeastern corner of the block, facing 11th Street. Both buildings were adobe, with facades along the front property line, facing south. A rear yard was shared by all four units, and the yard contained two wells and three water closets. The rest of the block stood vacant. A newspaper account, written by the son of an early occupant, reveals that the earliest residents of the two duplexes were the Charlie Burkholder [Burkhalter], Robert Millar, and Henry Buehman families (*Tucson Citizen* 1964) (Figure 1.13).

The 1886 Sanborn Fire Insurance map depicts the two duplexes, with three of the four dwellings having an addition on their rear (north) side. The map does not indicate the function of these additions, although it seems possible they were attached bathrooms or outhouses. At the back of the lot was a new rectangular structure, which had a dirt roof. The function of this structure is not known. The 1889 Sanborn Fire Insurance map shows a fourth addition had been added to the easternmost duplex. The

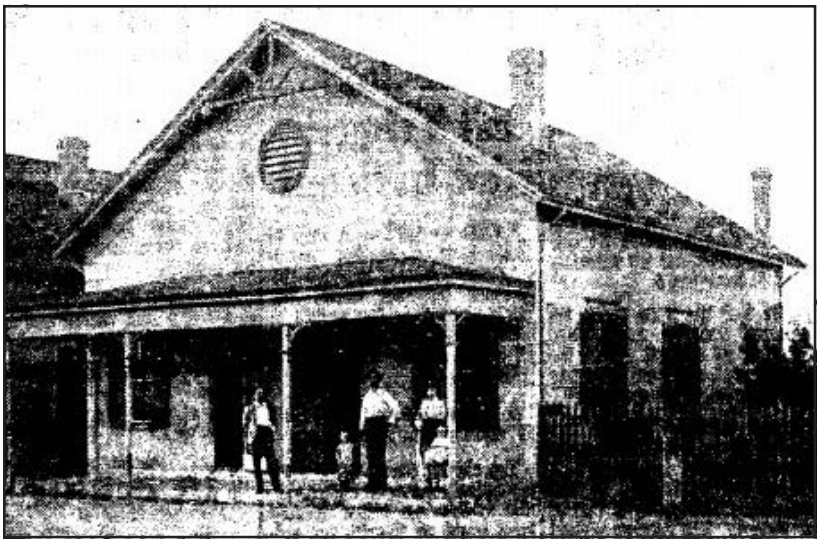


Figure 1.13. A photograph of the duplex on Lots 14 and 15 (*Tucson Citizen* 1964:12).

walled yard behind the duplexes was reconfigured. The 1896 Sanforn Fire Insurance map (see Figure 1.5) is identical, except that street numbers had been added to the block. The eastern duplex was assigned 62-63 E. 11th Street, and the western duplex 65 and 66 E. 11th Street. The structure at the back may have been designated 41 or 42 S. 4th Avenue, although it is unclear if this structure was occupied.

The 1901 Sanborn Fire Insurance map (see Figure 1.6) reveals that the street numbers had been changed, with the western duplex becoming 235-237 E. 11th Street and the eastern duplex 243-245 E. 11th Street. The rectangular, dirt-roofed shed was torn down and five new 1-room structures were built behind the duplexes, one behind 235 E. 11th Street and two each behind 237 and 243 E. 11th Street.

The western duplex was torn down between 1909 and 1914, and this portion of the lot became part of the San Xavier Hotel. The eastern duplex was a boarding house in 1914, and it was called the Moore Cottage in 1919 and 1922. The duplex was torn down between 1923 and 1927. In 1928, the Central Service Station owned by T. D. Sullivan was operating on the lot. The following year it was the Pronto Service Station. This service station frequently changed ownership; it was operated by C. H. Kroeger in 1930-1934, as Bill Leader's Texaco in 1941-1946, called Boland's Texaco Service in 1949, and was Kolb's Fourth & Broadway Texaco in 1951-1957. The station was still operating in 1958.

Six families who lived in the two duplexes have been identified. They are the Burkhalter family (1883-1896), the Millar family (1883-1900), the Buehman family (1883-1886), the Coleman family (1899-1900), the Clancy family (1895-1902), and the Reel family (1900). Other persons must have lived in the duplexes prior to 1900; however, because the early city directories for Tucson are not indexed, it is difficult to identify all residents.

Burkhalter Family

Charles M. Burkhalter lived at 243 E. 11th Street in 1883. Charles was born in April 1860, in New York, son of Nathan Burkhalter and Margaret Hogan (Park 1914:26). On 7 July 1870, Charles lived with his parents and siblings, Lucy, Fannie, and Myron, in Sullivan, Madison County, New York. His father worked as a distiller and farmer. Charles had attended school the previous year (1870 U.S. Census, NY, Madison County, Sullivan, page 120). On 9 June 1880, he lived with his parents and siblings, Myron, Lucy, and Harriet, in Sullivan. Charles was working as a bank clerk (1880 U.S. Census, NY, Madison County, Sullivan, ED 73, page 25).\

Charles was married on 18 June 1885, in Pima County, to Jennie Wagey (Negley and Lindley 1994:11). Jennie was born on 5 February 1861 or 1863, in Visalia, Tulare County, California, daughter of Henry Wagey and Georgia (—?—). On 4 August 1870, Jennie lived with her parents and siblings, Mary and Henry, in Venice township, Tulare County (the nearest post office was Visalia). Her father was a lumber manufacturer, and Mary had attended school in the previous year (1870 U.S. Census, CA, Tulare County, Venice, page 8).

By September 1887, Charles was the Southern Pacific agent in Tucson (*Arizona Weekly Citizen* 1887b). Charles purchased a portion of Lots 14 and 15 from William M. Griffith on 13 April 1888 (Pima County DRE 16:116).

In 1890, Charles was a delegate for the Democratic primaries (*Arizona Weekly Citizen* 1890d). Jennie was on the Grace Episcopal Church building committee in 1890 (*Arizona Weekly Citizen* 1893c).

In 1891, Jennie was one of the hostesses for a party of University of Arizona women (*Arizona Weekly Citizen* 1891i). Charles was one of the pallbearers at the funeral of John C. Handy (*Arizona Weekly Citizen* 1891c). In 1892, Charles was on the building committee for the Building and Loan Business (*Arizona Weekly Citizen* 1892b). Later that year, he was the vice-president of the Cleland and Democratic Club (*Arizona Weekly Citizen* 1892f). Jennie was visiting in Boston, Massachusetts, at the time (*Ari-*

zona Weekly Citizen 1892e). She returned in October from visiting relatives in New Jersey (*Arizona Weekly Citizen* 1892g). In November, Charles was one of the incorporators for the Electric Light and Power Company (*Arizona Weekly Citizen* 1892a). In December, Charles was a Democratic candidate for City Councilman-at-large (*Arizona Weekly Citizen* 1892c). Phoenix-based piano salesman A. Redewill sold the Burkhalters a new upright piano (*Arizona Weekly Citizen* 1892h).

Charles was first elected to the Tucson City Council in 1893. He was on the Finance, Licenses, Police, Building & Loan, Drain & Sewerage, and Purchasing committees (*Arizona Weekly Citizen* 1893e). He was also named President of the Tucson Building and Loan Association (*Arizona Weekly Citizen* 1893h). Charles invested $5.00 in the new Driving Park in late 1893 (*Arizona Weekly Citizen* 1893d).

In April 1894, Jennie participated in a Progressive Whist Tea hosted by Mrs. B. M. Jacobs and Mrs. S. M. Franklin at their homes. Jennie and her sister, Miss Waggy, went to California in July 1894, to escape the summer heat (*Arizona Weekly Citizen* 1894e). Jennie returned in late September (*Arizona Weekly Citizen* 1894c). Charles attended the sixth anniversary celebration of the Philharmonic Band in November (*Arizona Weekly Citizen* 1894g). Charles was reelected to the Tucson City Council in December 1894, receiving 50 more votes than Pedro Lopez (*Arizona Weekly Citizen* 1894b). The couple left for El Paso for Christmas in December of 1984 (*Arizona Weekly Citizen* 1894f).

In 1895, Jennie's brother, E. B. Waggy, was very sick at her residence (*Arizona Weekly Citizen* 1895l). In February, construction of the Burkhalter's new home began (*Arizona Weekly Citizen* 1895f). Jennie dressed in Japanese clothes for the Mother Goose Tableaux and Tea of All Nations event held by the Grace Guild (*Arizona Weekly Citizen* 1895a). In March, Jennie was summoned to Oracle, where her brother lay ill (*Arizona Weekly Citizen* 1895o). In April, Charles went to Oracle to see his wife, who was still caring for E. B. Waggy (*Arizona Weekly Citizen* 1895j). In June, Charles acted as a pallbearer at the funeral of Mrs. S. B. Pomeroy (*Arizona Weekly Citizen* 1895p). On 20 September 1895, Jennie Burkhalter sold their portion of the duplex to John C. Clancy for $900 (Pima County DRE 25:642).

In January 1896, Charles' niece, Miss Johnson, arrived to stay with the couple for the winter (*Arizona Weekly Citizen* 1896l). In April, the Burkhalters attended the Leap Year Party held at the opera house (*Arizona Weekly Citizen* 1896c). Around the same time, Jennie was elected President of the Grace Guild (*Arizona Weekly Citizen* 1896g). Lucy Johnson returned to California in late April (*Arizona Weekly Citizen* 1896h). Jennie spent the summer with relatives in California, returning in September (*Arizona Weekly Citizen* 1896m).

In 1897, the Burkhalters lost their clothes to thieves who stole the clothing from their clothesline (*Weekly Phoenix Herald* 1897). Later that year, they moved to 227 S. 5th Avenue. In 1899, Charles was the agent for the Southern Pacific Railroad, and was the manager of a baseball team in Tucson (*Weekly Republican* 1899). Charles was a member of the Democratic Party and was one of the delegates to the county convention in May 1900 (*Prescott Evening Courier* 1900).

Charles and Jennie lived at 227 S. 5th Avenue in June 1900. He was working as a railroad ticket agent (1900 U.S. Census, AZ Territory, Pima County, Precinct 1, ED 47, page 5). The following month, Jennie visited Boston (*Arizona Daily Citizen* 1900f). In January 1908, Charles worked as a peanut vender and pink lemonade salesman for the Elks Circus (*Arizona Daily Citizen* 1901e). Later that year, he was promoted and given charge of the Tucson freight and passenger division of the Union Pacific and South Pacific Railroad (*Arizona Daily Citizen* 1901b). In 1902, he was frequently sent to nearby communities on railroad business (*Tucson Citizen* 1902i, 1902j). In April 1902, Jennie presided over the banquet room at a party honoring Mrs. Sroufe and her sister, Mrs. Howze, of Birmingham, Alabama (*Tucson Citizen* 1902k). In July 1903, it was rumored that Burkhalter was being transferred to the coastal division (*Tucson Citizen* 1903g). The transfer did not take place until May 1905, when he was sent to Fresno, California (*Tucson Citizen* 1905b). "Charles M. Burkhalter left last night for Fresno, Cal., his future home, being seen off at the depot by quite an assemblage of friends who joined in wishing him the best of luck in his new field" (*Tucson Citizen* 1905d:4).

On 27 April 1910, the couple lived at 2403 Woolsey Street in Berkeley, Alameda County, California. Charles was working as a freight and passenger agent for a railway company (1910 U.S. Census, CA, Alameda County, Berkeley, ED 57, sheet 17B). On 15 January 1920, the couple lived at 3055 Dana Street in Berkeley. Charles was no longer working (1920 U.S. Census, CA, Alameda County, Berkeley, ED 165, sheet 15A). Charles died between 1920 and 1930. On 4 April 1930, Jennie lived by herself at 2405 Woolsey in Berkeley (1930 U.S. Census, CA, Alameda County, Berkeley, ED 285, sheet 4B). Jennie died on 4 September 1955, in San Bernardino.

Millar Family

Robert Threshie Millar was born on 6 February 1854, in Douglas, New Brunswick, Canada, son of James Miller and Helen Creighton, natives of Scotland. He came to the United States in 1878.

Robert was married on 3 February 1885, in Pima County, to Margaret Ann Reed. Margaret was born on 6 May 1864, in Elora, Ontario, Canada. She came to the United States around 1880.

Robert Millar purchased part of one of the duplexes on Lots 14 and 15 from William Griffith for $1,000, on 13 April 1888 (Pima County DRE 16:118).

Robert and Margaret were the parents of two sons. Leslie Creighton Millar was born on 11 March 1889, at the Millar home on E. 11th Street (Leslie Creighton Millar Original Certificate of Birth, online at genealogy.az.gov). Their second son, Edward Burkhalter Millar, was born on 14 October 1890; he received his middle name from the neighboring family (Edward Millar Bio-file, AHS/SAD). Robert was working as a carpenter when their third son was born on 14 October 1890, at the house, and he may have died young (Millar Standard Certificate of Birth, online at genealogy.az.gov).

In 1895, Robert was elected as a delegate to the grand lodge of the Knights of Pythias in Williams, Coconino County (*Arizona Weekly Citizen* 1895m). In June, Robert was appointed to the water contracting committee for the City Council (*Arizona Weekly Citizen* 1895e). "Fred Sovewall was arraigned before Justice Scott for burglarizing Mrs. Millars house near the depot yesterday. He denied the charge and said that he was innocent. Several witnesses however believe otherwise" (*Arizona Weekly Citizen* 1895f:4). In November, Robert was kicked in the stomach by Jim Sheridan (*Arizona Weekly Citizen* 1895n). In December, Robert was on the committee for the Oriental Order of Humility Ball (*Arizona Weekly Citizen* 1895h).

By 1896, Robert was head of the Samuel F. Baird Undertaking business.

In August 1896, Robert was president of the Tucson Marble Works, with plans to quarry marble from the Santa Rita Mountains (*Arizona Weekly Citizen* 1896q). The family spent two months at the seashore, returning in early September (*Arizona Weekly Citizen* 1896d). Soon afterward, Robert was reported to be "suffering from a severe attack of intermittent fever. His condition remains about the same, but hopes are entertained for his early recovery" (*Arizona Weekly Citizen* 1896j:4). Two weeks later, he had not improved (*Arizona Weekly Citizen* 1896k). In October, he was well enough to attend a Republican meeting (*Arizona Weekly Citizen* 1896p). He was reported to be emaciated and had lost 37 pounds (*Arizona Weekly Citizen* 1896i). He was elected secretary of the Pima County Republicans in October (*Arizona Weekly Citizen* 1896n). Robert ran for Tucson Councilman-at-large in 1896 (*Arizona Weekly Citizen* 1896e). He lost to Royal Johnson, 325 to 284 votes (*Arizona Weekly Citizen* 1896a).

In 1897, Millar was an undertaker living at 245 E. 11th Street. The couple sold a portion of the duplex to John C. Clancy on 29 September 1898 for $1,230 (Pima County DRE 28:674). The 1899 Tucson City Directory lists R. T. Millar as an undertaker living at 245 11th Street.

On 4 June 1900, the couple, their sons Leslie and Edward, and Margaret's brother, George Reed, lived at 245 E. 11th Street. Robert worked as an undertaker, the two boys were in school, and George Reed was a locomotive engineer (1900 U.S. Census, AZ Territory, Pima County, Tucson, ED47, sheet 4B). The 1901 and 1902 city directories list Robert Millar as a resident of 84 W. Alameda Street. In July 1902, it was rumored that Robert was to be appointed to the police force to fill a vacancy created when police officer W. H. Katzenstein was killed in the line of duty (*Tucson Citizen* 1902d). He did not receive the position. In June 1903, he worked as a carpenter at the Douglas smelter (*Tucson Citizen* 1903d). In January 1904, Robert was working at the Old Glory camp in the Oro Blanco mining district (*Tucson Citizen* 1904e). In March 1904, he paid two fines for assault and then filed a complaint against constable Nabor Pacheco for assault (*Tucson Citizen* 1904c). Robert and Margaret attended a surprise party for Mrs. O. T. Rouse, and each won prizes for card playing (*Tucson Citizen* 1904d). In 1907, Robert was constructing a new smelter at Sasco (*Tucson Citizen* 1907a). In 1908, Robert's brother, John C. Millar, died from a stroke in Tucson (*Tucson Citizen* 1908c).

Robert and Margaret divorced in January 1910, with Margaret suing for divorce because Robert had abandoned her and was not supporting her (*Tucson Citizen* 1910c). On 21 April 1910, Robert lived at 145 W. Pennington Street in Tucson. He was working as a bailiff for the City Court (1910 U.S. Census, AZ Territory, Pima County, Tucson, Ward 1, sheet 7A). Two days earlier, Maggie told the census taker she was a widow. Maggie, her son Lesley, her brother George, and her sister Ida lived nearby on W. Pennington Street. Her brother worked as a Southern Pacific steam engineer while Ida was a teacher at the university (1910 U.S. Census, AZ Territory, Pima County, Tucson Ward 1, sheet 5A). The divorce did not affect Robert's social life, as Robert attended Mrs. J. K. Brown's Easter party in March (*Tucson Citizen* 1910f). In the fall, he ran for County Recorder as a Republican, losing to W. J. Lindenfeld by 124 votes (*Tucson Citizen* 1910e).

Robert was working as a court bailiff when he died on 6 February 1914, at St. Mary's Hospital in Tucson, from shock after undergoing ether anesthesia following a fractured hip and thigh (Robert T. Miller Original Certificate of Death, online at genealogy.az.gov).

> Passing away on the birthday that completed his sixtieth year, Robert T. Millar, one of the oldest and most respected citizens of Tucson, died yesterday morning at a local hospital. Funeral arrangements will be under the auspices of the local lodge of Elks of which he was a member, and are awaiting word from two sons in the east. Mr. Miller was a deputy sheriff at the time of his death. Several days ago he fell and broke his hip, and he never recovered from the shock. His death was the direct result of the unfortunate accident. Mr. Millar had lived in Tucson for more than thirty-five years and was the first undertaker in the city of Tucson. He sold his business many years ago to the Reilly undertaking company. Two sons survive him, Robert T. Millar, living in New York City, and Leslie Millar of Minneapolis. The funeral arrangements are awaiting word from them (*Arizona Daily Star* 1914).

On 7 January 1920, Margaret and her son Leslie lived at 417 12th Street in Manhattan, New York. Leslie was working as a treasurer for a chemical company (1920 U.S. Census, NY, New York, Manhattan Assembly District 13, ED 945, sheet 10B). She has not been located on the 1930 census. Margaret is reported to have died in 1947. Robert and Margaret are buried in Evergreen Memorial Park in Tucson.

Buehman Family

The western duplex was the home of the Henry Buehman family from 1883 to perhaps 1888 (*Tucson Citizen* 1964). Henry Buehman was born in Bremen, Germany, on 14 May 1851, the son of Ludwig and Annie Buehman (Moore 1960) (Figure 1.14). He apprenticed as a photographer for three years before boarding a ship in 1868, bound for the United States. He arrived in New York City, where he spent two weeks before sailing to California via the Isthmus of Panama. He worked for a San Francisco area photographer for two years before opening his own studio at Visalia, California.

Two years later, he sold the business and invested the money in mining operations in California, Utah, and Nevada. None of the mining ventures made money. Henry became a naturalized citizen while living in Nevada (Pima County Great Register 1906). He arrived in Prescott, Arizona, in July 1873, planning to travel to Mexico to prospect.

A month later, Henry was in Tucson, where he made his home (Cooper 1995:1). He worked for a photographer named Juan Rodriguez (or Rodrigo). In November 1874, Henry took a series of photographs of Tucson street scenes when Hiram Stevens was running for U.S. Congress (*Arizona Citizen* 1874). He purchased Rodrigo's studio and stock in February 1875 (*Arizona Citizen* 1875e). His new studio was

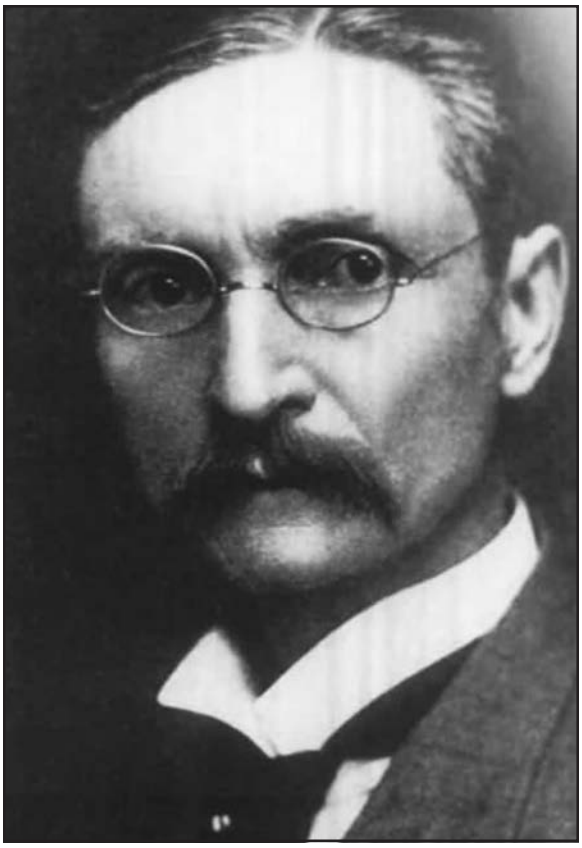


Figure 1.14. Henry Buehman.

described as a "one of the most cheerful places in Tucson." Buehman sold photographic views and had "an elegant selection of picture frames on hand." He had a side line to make more income, "Special attention will be paid to dentistry" (*Tucson Citizen* 1875a:2, 1875b).

In the summer of 1875, Henry and John Spring collected bird's eggs and nests, flowers, and plants to add to the Smithsonian Institute's collection (*Arizona Citizen* 1875c).

Buehman spent six weeks in the winter of 1875-1876 traveling to military posts and Apache Indian reservations, including Camp Bowie, Camp Apache, Camp Grant, and San Carlos, to take photographs (*Arizona Citizen* 1875d). He returned to Tucson in February 1876. During his time away, he had taken stereoscopic views and photographs, including many of Native Americans and natural views of the Gila and White rivers, which were described as being difficult to obtain. One photograph was of Eskiminsin plowing a field (*Arizona Citizen* 1876c). In April 1876, Buehman traveled to San Xavier del Bac and photographed the interior and exterior of the Spanish-era church (*Arizona Citizen* 1876b). Later that year, he made a trip to Guaymas, Sonora, to improve his health (*Arizona Citizen* 1876d).

Stereoscopes were a popular entertainment device in the late nineteenth century. Two photographs, taken in close proximity, were mounted on a single card and viewed through a stereoscope, resulting in a 3-D effect. Buehman marketed his stereoscopes as a souvenir of Arizona, or as a way to show friends and relatives elsewhere some of the sights of the territory (*Arizona Citizen* 1877a). He advertised that he was a "Landscape and General Photographer" (*Weekly Journal Miner* 1877:2). Buehman was sometimes hired to take pictures of businesses. In June 1879, he traveled to the Silver King mine to take photographs, perhaps to be used for marketing purposes (*Arizona Citizen* 1879a).

On 3 June 1880, Henry lived on Congress Street with the George Patch family. He was working as an artist (photographers were often called artists) (1880 U.S. Census, AZ Territory, Pima County, Tucson, page 5). In the fall of 1880, Henry was on the Republican ticket for state legislature (*Tombstone Daily Epitaph* 1880). The following year, the first Tucson City Directory reported that he lived at 316 Congress Street and had his studio at 105 Congress Street (Barter 1881:57).

In February 1881, Henry attended the wedding of Frank Miltenberg and Lucy Sresovich, held at the San Augustin Church (*Arizona Weekly Citizen* 1881c).

> Mr. Henry Buehman has one of the most extensive cabinets of minerals and natural curiosities to be found in the Territory. It contains specimens of ore from every mine of importance in Arizona, some of which are very beautiful. Mr. Buehman also has an album containing over two hundred floral specimens indigenous to Arizona, which he gathered in November on a trip to Camp Apache… Mr. H. Buehman has the scalp of an Apache who was killed in the recent Chiricahua outbreak. It belongs to Mr. Elijah Dobbs who with a companion, "raised" it from a veteran buck while pursuing a party that had stolen his mules. The trophy will be preserved with an account of the tragedy, by Mr. Buehman (*Arizona Weekly Citizen* 1881a:4).

In November 1881, Henry was a charter member of the Fraternal and Ancient Masons in Tucson. He was selected to be the group's secretary (*Arizona Weekly Citizen* 1881b). He attended the Myrtle Club soiree at Levin's Hall (*Arizona Weekly Citizen* 1881d).

Henry took a photograph of the First Grand Lodge of the Masons in Tucson in August 1882 (*Daily Arizona Citizen* 1882b).

The same month, construction was completed on his building on the southern side of Congress Street, between Church Avenue and Stone Avenue. The architect was A. P. Petit, and the builder was E. F. Morehouse. The interior was decorated by the firm of Gast and Tetum, who specialized in faux grain finishes. The two-story building had side walls of adobe and front and rear walls of wood, painted to resemble stone. The first floor was occupied by the *Arizona Daily Citizen* printing office and the G. A. Avery furniture store. Buehman had his photography studio on the second floor with three rooms. The front room was where he took pictures, the center one was a reception room, and the back room was for developing and reproducing photographs. The front room was unusual in that it had a glass roof and was furnished with mirrors and lights, allowing photographs to be taken in clear or cloudy weather. The reception room was also a sales room, in which visitors could purchase some of the 480 or so stereoscopic views. A variety of frames was also available for purchase. Picture frames were constructed in the work room. Eight other rooms were present on the second floor, and tenants included dentist Dr. Gladwin and the United States Commissioner, F. W. Gregg (*Daily Arizona Citizen* 1882a).

"Report hath it that Mr. Henry Buehman will, during his coming trip to the East, promise to 'honor and obey' (*Daily Arizona Citizen* 1882c). Henry traveled to Portland, Ionia County, Michigan, for his marriage on 19 October 1882, to Abbey Estella Morehouse. L. P. Morehouse, a Minister of the Gospel, conducted the ceremony, which was witnessed by A. F. Morehouse and Dewitt Chapman.

Estella Morehouse was born on 28 September 1846, in Portland, Michigan, daughter of Albert Farrand Morehouse and Sarah Catherine Freeman (Figure 1.15). On 2 September 1850, she lived with her parents and siblings, Gertrude, Frost, Lewis, and Judson, in Portland. Her father was working as a carpenter and a joiner (1850 U.S. Census, Michigan, Ionia County, Portland, pages 6-7). On 23 July 1860, Estella was living with her parents and siblings, Gertrude, Forrest, Lewis, Irene, Eliza, Heber, and Henry, in Portland. She had attended school the previous year (1860 U.S. Census, Michigan, Ionia County, Portland, page 22). On 21 July 1870, Estella lived with her parents and siblings, Gertrude, Irene, Eliza, Heber, and David, in Portland; she was teaching school (1870 U.S. Census, Michigan, Ionia County, Portland, page 18). On 4 June 1880, Stella was living in Lansing, Ingham County, Michigan, working as a teacher (1880 U.S. Census, Michigan, Ingham County, Lansing, ED 132, page 11). Shortly thereafter, she moved to Tucson, where she opened a kindergarten (Moore 1960). A scrapbook created by Estella survives and indicates she was skilled at paper pricking, sewing, weaving, and folding (www.artistbooks.com/estelle.shtml).

In September 1882, Henry was one of the Arizona Lodge No. 1, A.O.U.W. members chosen to travel to Denver in October to form a Grand Lodge for Colorado (*Arizona Weekly Citizen* 1882b). He was involved with the Republican Party in Pima County,

Figure 1.15. Estella (Morehouse) Buehman.

and was elected public administrator for Pima County while he was in Michigan (*Arizona Weekly Citizen* 1882c). Henry had brought back a large number of holiday goods from his East Coast trip. These included stereoscopes, stereoscopic views, statuary, photographs of famous paintings, oil paintings, steel engravings, and artist supplies were among the items offered (*Arizona Weekly Citizen* 1882d). At the end of the year, he was elected to serve as Financier for the A.O.U.W. (*Arizona Weekly Citizen* 1882a).

In February 1883, Buehman's photograph of the new Pima County Courthouse was offered for sale: "it brings out whatever beauties the building may possess" (*Arizona Weekly Citizen* 1883a:3).

In 1883, the year after their marriage, the couple moved to the newly constructed duplex on E. 11th Street (*Tucson Citizen* 1912b). Their first son, Willis Harry Buehman, was born there: "Born: Beuhman-In Tucson. September 19, 1883, to the wife of H. Buehman, a son" (*Arizona Weekly Citizen* 1883b:3). A second son, Albert Rex Buehman, was also born at the house: "There was born on Sunday morning, March 28th, to the wife of H. Buehman, a son. Mr. Buehman is now the happy father of two boys" (*Arizona Daily Citizen* 1886).

In 1884, Buehman and Hartwell again offered a wide variety of holiday goods at their gallery (*Arizona Weekly Citizen* 1884b). In 1887, Buehman was the Postmaster in Tucson (*Arizona Weekly Citizen* 1887a). In September 1887, he traveled to Casa Grande, and photographed the ruins there (*Arizona Weekly Citizen* 1887c). In 1888, Henry and his family traveled to San Francisco. He was reported to be in poor health and was expected to be gone most of the summer (*Arizona Weekly Citizen* 1888a). They were in Los Angeles in September, "daily trips to the beach where Mr. Buehman is developing his muscle by holding down the big waves" (*Arizona Weekly Citizen* 1888b:3). The Buehmans were members of the Congregational Church, with Henry serving as secretary (*Arizona Weekly Citizen* 1888c).

In June 1889, F. A. Hartwell moved to Phoenix to open a photography studio there (*Arizona Weekly Citizen* 1889a). Buehman was the secretary of the School Trustees in July (*Arizona Weekly Citizen* 1889i). The family lived at 206 Convent Street at the time (*Arizona Weekly Citizen* 1889d).

Henry traveled to Florence to examine the location of a proposed reservoir. While there, he took 18 photographs of the area surrounding the planned dam (*Tombstone Epitaph Prospector* 1889). He wrote a letter describing Florence and the surrounding area, including the Butte Reservoir (*Arizona Weekly Citizen* 1889b). In September, the Buehmans were among a group of people who accompanied Governor Safford and his wife on a tour of Tucson public schools (*Arizona Weekly Citizen* 1889e). In October 1889, Henry and son Harry visited Phoenix (*Arizona Weekly Citizen* 1889f).

A scandal involving a Tucson teacher beating students stirred up trouble in Tucson. Buehman voted against an investigation into the matter (*Arizona Weekly Citizen* 1889h).

> A Father's Word. ED. CITIZEN: I am a parent and have children in the public schools. The views of Mr. Buehman as to the manner of dealing with a teacher who abuses little children goes right to my heart. Parents who do not beat their own children as if they were dumb brutes are not in favor of employing "teachers" at high salaries to mistreat their little ones. Father (*Arizona Weekly Citizen* 1889c:3).

C. M. Strauss charged that R. Holladay had violently thrown his son Charley to the ground, seriously injuring his leg. Other boys claimed similar treatment. A meeting of the school board took place at Buehman's photography studio. Mr. Buehman interviewed four boys and reported that three had been hurt. Henry voted against censuring Holladay, preferring that he resign his position (*Arizona Weekly Citizen* 1889j). Buehman chose not to run for school trustee again (*Arizona Weekly Citizen* 1890g).

In 1890, the Buehman studio also sold oil paintings and camera outfits to amateur photographers

(*Arizona Daily Citizen* 1890a). Among the unusual items he sold were picture molding, a pillow sham holder, and molding to hold ceiling clothes in place (*Arizona Weekly Citizen* 1890k). He created a "Card of Baby Faces," with images of 400 children. Buehman specialized in taking portraits of infants and children, and he created a montage using their images (*Arizona Daily Citizen* 1890c). He called the picture the "Arizona Bonanza" (*Tombstone Epitaph Prospector* 1890:3). The same month, he produced a crayon picture of Mrs. P. R. Brady of Florence (*Arizona Weekly Citizen* 1890f). In August 1890, Buehman displayed a photograph of 35 children from Globe, entitled "Globe and Globules" (*Arizona Weekly Citizen* 1890i:3).

In September 1890, Buehman became a candidate for Pima County Assessor. He hung a 30-ft-long large banner over Congress Street (*Arizona Weekly Citizen* 1890h). The *Arizona Weekly Citizen* promoted his candidacy over the next several months, and he won the election. He received a salary of $300 for the position (*Arizona Weekly Citizen* 1891a). Buehman and his assistant, William Osborn, frequently traveled about assessing properties (*Arizona Weekly Citizen* 1891d). In his first year in office, he reported that property values had increased substantially (*Arizona Weekly Citizen* 1891f).

In December 1890, the Buehmans attended the Christmas celebration at the Congregational Church, with Henry reading " The Dutch Baby" and "The Patter of the Shingle," while his son Albert read "Ding Dong Bell" (*Arizona Weekly Citizen* 1890e).

In January 1891, Henry was installed as Junior Warden for the Masons in Tucson (*Arizona Weekly Citizen* 1891h). Buehman spent two weeks traveling through Pima County in his role as assessor (*Arizona Weekly Citizen* 1891b). In April, Mrs. Buehman attended a tea given in honor of Mrs. H. H. Cole (*Arizona Weekly Citizen* 1891g).

Buehman reported that he was selling some 400 photographs of the San Xavier Mission annually (*Arizona Weekly Citizen* 1891e). In 1892, he sent a photographer to other towns to photograph babies. He was preparing a massive card, measuring 4 ft by 6 ft, which would contain pictures of 3,000 babies. The card was to be shown at the World's Fair (*Weekly Journal Miner* 1892). To procure enough baby pictures, he offered to photograph children for free (*Arizona Weekly Citizen* 1892i). He called the photograph "Buehman's Babies," and displayed a copy of the photograph at his studio, amazing visitors (*Phoenix Weekly Herald* 1898:4).

Buehman owned a ranch outside of Tucson and occasionally spent time there (*Arizona Weekly Citizen* 1893g). He had 297 head of stock in mid-1893 (*Arizona Weekly Citizen* 1893f).

Henry wished to be Assessor again in 1894, but the Republicans chose Mr. Meyers instead, 25 votes to 13 (*Arizona Weekly Citizen* 1894h). Henry was instead nominated by the Republicans to run for mayor of Tucson in 1894, running against Charles Hoff (*Tombstone Prospector* 1894). He was subsequently elected and served as the mayor of Tucson between 1895 and 1899 (Buehman 1911).

Son Willis attended Edith Paul's eleventh birthday party in October 1894 (*Arizona Weekly Citizen* 1894a). In December, Estella was elected secretary of the Woman's Universal Benevolent Association (*Arizona Weekly Citizen* 1894i).

In 1895, Henry urged his fellow citizens to plant trees in front of their homes for Arbor Day, "I would suggest the avoidance of the cottonwood tree on account of its disagreeable feature" (*Arizona Weekly Citizen* 1895r:3). A box containing acid caught fire in his studio in March 1895, and the quick actions of workers from the French Restaurant limited damage to a carpet and the flooring (*Arizona Weekly Citizen* 1895i). He spent some time photographing signatures on Mexican land grant documents and enlarging the photographs. In at least one case, this was used as evidence for signature forgery (*Arizona Weekly Citizen* 1895b). In July, he was president of the Fourth of July parade (*Arizona Weekly Citizen* 1895c). In November, he went into the Catalina Mountains for a week on a bear hunting expedition (*Arizona Weekly Citizen* 1895g).

Willis Buehman recited "Hail to the Conquered" at the Congregational Church Social in February 1896 (*Arizona Weekly Citizen* 1896b).

In 1896, Mayor Buehman and Mr. Pettibone attended the Congregational Congress in Tempe, and while there, they visited the *Herald* newspaper office (*Phoenix Weekly Herald* 1896). Mrs. Buehman and her two sons left in September for a trip east to New Orleans to visit her sister and then to Michigan to visit other family members. Henry was to join them (*Arizona Weekly Citizen* 1896o). On his return, Henry was nominated on the Republican ticket for County Supervisor (*Arizona Weekly Citizen* 1896r). He won the seat by 15 votes (*Arizona Weekly Citizen* 1896f). He was also reelected as mayor, receiving 59 more votes than C. F. Schumaker (*Arizona Weekly Citizen* 1896a).

On 20 June 1900, Henry and Estella and their sons, Willis and Albert, lived at 102 Convent Street in Tucson. Henry was working as a photographer (1900 U.S. Census, AZ Territory, Pima County, Tucson, ED 48, sheet 25A). In October 1900, he visited the Pearce Mine in the Dragoon Mountains. He was impressed by the work being conducted there (*Arizona Daily Citizen* 1900g).

By 1901, Henry was on the board of the Benson Reform School, appointed in place of Charles

Connell (*Arizona Daily Citizen* 1901c; *Tucson Citizen* 1902e). The school acted as a reform school for wayward youths. A new facility was completed the next year, renamed the Territorial Industrial School. Buehman attended the opening ceremony in November 1903, acting as Secretary for the group (*Tucson Citizen* 1903b).

Buehman was on the Tucson City Council in 1902. He was an advocate for raising the gambling licenses from $12.50 to $17.50 a month (*Tucson Citizen* 1902c). He then proposed an ordinance raising the license tax for selling liquor (*Tucson Citizen* 1902g). This proved to be quite controversial, and the ordinance was voted upon (*Tucson Citizen* 1902h). Buehman's ordinance failed to pass; the vote was 475 against and 236 in favor (*Tucson Citizen* 1902f).

He again became interested in mining, this time in the Santa Rita Mountains (*Tucson Citizen* 1903f). In 1906, the Buehmans hosted the wedding of Otto Schley and Mrs. Evelyn Field Rae at their home at 98 Convent Street (*Tucson Citizen* 1906c). Buehman was elected vice president of the American-Mexican-Pacific Railway Company in November 1906 (*Tucson Citizen* 1906b). In 1907, Buehman and several other men complained about the red light district near Gay Alley. Mayor Slack of Tucson claimed that Buehman had wanted to lease some of the land to prostitutes, a charge Buehman denied (*Tucson Citizen* 1907b). He was made manager of the Black Jewelry Store and representative for the Building and Loan Association in 1908 (*Tucson Citizen* 1908b).

Mrs. Buehman kept herself busy by participating in clubs. As a member of the Literary Club, she gave a talk about the life and works of Wendell Phillips in December 1904 (*Tucson Citizen* 1904f). In April 1905, she and Henry hosted a social for the Congregational Church. "The spacious home was beautifully decorated with pepper boughs, roses and sweet peas" (*Tucson Citizen* 1905c:4).

On 22 April 1910, the couple lived at 98 Convent Street in Tucson, along with Henry's sister, Lucia Bates, born circa 1849, in Germany. Lucia came to the United States in 1861. Henry was still working as a photographer (1910 U.S. Census, AZ Territory, Pima County, Tucson, ED 106, sheet 11B). In August 1910, the City of Tucson filed suit against Henry and Estella Buehman, owners of the Tucson Natatorium Company. The City had passed Ordinance 313, which called for the widening of Alameda and Ott streets and the establishment of a public park between those streets (*Tucson Citizen* 1910b). The park was later named Sunset Park.

Estella published a history book in 1911 (Buehman 1911), relying on old newspaper clippings, books, and memories of the family's friends. Photographs taken by her husband illustrated the volume.

In July 1912, Henry filed a lawsuit against Mrs. M. E. Eisenmenger of El Paso and Dollie Dunbar of Tucson. Eisenmenger rented a house, known as "Number Twelve" to Dunbar, who operated a house of prostitution there. Buehman owned Lots 2, 10, and 30 on Block 233, and Mrs. Eisenmenger owned Lot 12 on the same block and leased the house on that lot to Dunbar on 20 May 1912. "The plaintiff further alleges that the women of the house appear in public in an unseemly manner; that, clad in scanty and immodest attire they show themselves at the doors and windows and solicit men passing by on the street." Buehman claimed that his properties had lost value due to the prostitution (*Tucson Citizen* 1912e:2).

Henry died at his home at 98 Convent Street on 19 December 1912, from acute lobar pneumonia (Henry Buehman Original Certificate of Death, online at genealogy.az.gov). A funeral was held from the family residence, and Masonic services were held at Evergreen Cemetery (*Tucson Citizen* 1912c).

Estella was living on Council Street in 1915, hosting meetings of the Daughters of the American Revolution (*Tucson Citizen* 1915a).

Estella died on 18 January 1916, from angina pectoris at 32 W. Council Street in Tucson (Estelle Morehouse Buehman Original Certificate of Death, online at genealogy.az.gov). Henry and Estella are buried in Evergreen Memorial Park in Tucson. Henry's son, Albert, took over the family business after his death.

Coleman Family

The 1899 Tucson City Directory, the 1900 U.S. Census, and the 1901 Tucson City Directory all indicate the Coleman family lived at 237 E. 11th Street. William Queen Coleman was born on 1 September 1863 in Port Huron, Michigan, son of William Coleman and Anna Shahan. William was married circa 1892, to Nanno Coleman. Nanno, who was often called Nellie, was born on 13 July 1867 in Ireland, daughter of Morris and Nellie Coleman.

On 4 June 1900, the couple and their daughter, Lizzie, born in April 1895, in Illinois, lived at the house. Nanno had lost two other children. William was working as a railroad machinist (1900 U.S. Census, AZ Territory, Pima County, Tucson, ED 47, sheet 4B).

In 1907, the family lived at 1st Avenue and 11th Street in Tucson (Alice Coleman Certificate of Birth, online at genealogy.az.gov).

On 23 April 1910, the couple and their children, William, Lizzie, Annie, and Alice, lived on E. 11th Street and 1st Avenue in Tucson. Annie was born on 30 October 1901, William Alfred was born on 11 July 1904, and Alice was born on 3 January 1907, all

in Tucson, with Dr. Hiram Fenner attending. The elder William Coleman worked as a railroad mechanic (1910 U.S. Census, AZ Territory, Pima County, Tucson Ward 2, ED 103, sheet 11B). Another daughter, Jessie, was born on 8 August 1911 (Jessie Coleman Original Certificate of Death, online at genealogy.az.gov).

On 15 January 1920, the couple and five children, Elizabeth, Annie, William, Alice, and Jessie, lived in Tucson, with William working as a mechanic for the Southern Pacific Railroad (1920 U.S. Census, AZ, Pima County, Tucson, ED 90, sheet 5A).

Nanno died on 16 August 1920, from peritonitis, and she is buried in Evergreen Memorial Park, Tucson (Nellie [sic] Coleman Original Certificate of Death, online at genealogy.az.gov).

> Mrs. Nellie Coleman, wife of W. G. Coleman, owner of the Coleman ranch, northwest of Tucson, died yesterday morning from typhoid fever. Funeral services will be conducted by Rev. Edward C. Clark of the Episcopal church at the Parker undertaking chapel at 4 o'clock Wednesday afternoon. Burial will be in Evergreen cemetery. Mrs. Coleman was born in Ireland 53 years ago and came to this country while quite young. She has lived in Arizona a number of years. During most of the time, the family managed the ranch. She contracted typhoid while nursing her son whose illness is said to have been caused by swimming in an irrigation ditch. In addition to her husband, she is survived by a son and three daughters, all of Tucson (*Arizona Daily Star* 1920).

William died from dysentery and "hypostatic pneumonia" on 4 February 1943, at the Pima County Hospital (William Q. Coleman Standard Certificate of Death, online at genealogy.az.gov).

> William Queen Coleman, 84, retired Southern Pacific employee who had resided in Tucson since 1898, died late Thursday in a local hospital after an illness of three weeks. Mr. Coleman spent 30 years in the employ of the Southern Pacific here. He had been a member of Tucson Lodge F. & A. M. No. 4 since 1899. Mrs. Coleman died here in 1920. Surviving are four daughters, Mrs. William J. Parker, Mrs. Harry T. Price, Mrs. Grady Beard, all of Tucson, and Mrs. Paul Stephens, San Diego, Calif., and one son, William A. Coleman, an employee of the Union Pacific railroad at Los Angeles, Calif. Funeral services are pending. Bring's Funeral Home is in charge of arrangements (*Arizona Daily Star* 1943).

Clancy Family

John Chester Clancy was born on 17 March 1861, in New York, son of John and Mary Clancy, natives of Ireland. On 1 June 1880, John lived with his parents and sisters, Elizabeth, Margarety, and Mary Ann, on Hudson Avenue in Brooklyn, Kings County, New York. He worked as an expressman (1880 U.S. Census, NY, Kings County, Brooklyn, ED 31, page 3).

He was married circa 1892, to Florence Janet Hawkins. Florence was born on 10 November 1863, in Ohio, daughter of David Hawkins and Minerva Louden. John and Florence had a daughter, Katherine, born on 30 August 1894, in California.

In August 1894, John attended the wedding of Charles Osgood and Ida Sanders in Los Angeles (*Arizona Weekly Citizen* 1894d). John Clancy purchased half of the duplex from Jennie Burkhalter on 20 september 1895, and the other half from the Millars on 29 September 1898 (Pima County DRE 25:642, 28:674).

In November 1895, "Engineer Clancy" was reported to be on the sick list (*Arizona Weekly Citizen* 1895g:3).

The 1899 city directory lists J. C. Clancy as an engineer living at 243 E. 11th Street. On 4 June 1900, the family lived at 243 E. 11th Street, with John working as a locomotive engineer (1900 U.S. Census, AZ Territory, Pima County, Tucson, ED 47, sheet 4B). In June 1906, Florence filed for divorce against John, claiming extreme cruelty (*Tucson Citizen* 1906a). It is unclear when the divorce actually took place. In February 1908, the Clancys were separated, and through a set of deeds, divided their joint property, with Florence retaining custody of their daughter, Katherine (Pima County DRE 46:146, 147; Misc. Records 8:699). She and her daughter spent the summer in Pomona in June 1908 (*Tucson Citizen* 1908d). She would later move to that town. A series of property deals on 24 February 1908, appear to represent the break-up and the division of common property, marking the end of the family's residence on Block 91 (Pima County DRE 45:146; Misc. 8:699).

On 15 April 1910, John boarded at a house at 73 Stone Avenue in Tucson. He was still working as a locomotive engineer (1910 U.S. Census, AZ Territory, Pima County, Tucson Ward 2, sheet 1A). He sold the Block 91 property to Frank Lee in February 1914 (Pima County DRE 56:373). John's daughter, Katherine, was married in August 1917, to Luther A. Nichols in Brooksdale, California (*Tucson Citizen* 1917c). In late 1917, John ran for City Councilman in the 2nd Tucson ward (*Tucsonense* 1917). He lost to Al Bernard by only 21 votes (*Tucson Citizen* 1917a).

On 14 January 1920, he worked as a railroad engineer while boarding at 148 Pennington Street (1920 U.S. Census, AZ, Pima County, Tucson Ward 1, sheet 13B). Meanwhile, on 12 January 1920, Florence was living in Pomona, Los Angeles County, California, with her elderly father (1920 U.S. Census, CA, Los Angeles County, Pomona Ward 2, ED 592, sheet 12A).

John died on 17 November 1939. Florence died on 12 May 1947. The couple is buried in the Pomona Cemetery and Mausoleum in Pomona, Los Angeles County (findagrave.com entries 70184789 and 70184810).

Reel Family

James A. Reel was born in January 1869, in Indiana. He was married circa 1895, to Mary "Mamie" (—?—). Mary was born in August 1873, in Indiana.

The 1899 city directory lists J. A. Reel as a machinist living at 246 12th Street in Tucson. On 4 June 1900, the couple lived with a 24-year-old lodger named Earnest Erickson at 235 E. 11th Street. James worked as a railroad machinist (1900 U.S. Census, AZ Territory, Pima County, Tucson, ED 47, sheet 4B).

By April 1910, James and Mary lived in San Francisco, San Francisco County, California, with James working as a railroad shop machinist (1910 U.S. Census, CA, San Francisco County, San Francisco, ED 236, sheet 12A).

In January 1920, James was reported to be single while living in a large boarding house on Howard Street in San Francisco. He was working as a machinist in an iron works (1920 U.S. Census, CA, San Francisco, San Francisco District 29, ED 33, sheet 8A). He has not been located on the 1930 U.S. Census.

10 S. Toole Avenue: Commercial Building

A commercial building was constructed between 1914 and 1919, at the north end of Lot 15. It was given the street address 10 S. 4th Avenue. The first use of the restaurant appears to have been Mother's Restaurant, which was open in May 1919. An advertisement stated, "If you wish good "Home Cooked" meals and pastries- the same as mother made- you should visit." C. B. Betts was the proprietor (*Tucson Citizen* 1919a). In February 1920, a nurse inspected all the restaurants in Tucson, and declared it was one of the "first-class" small restaurants (*Tucson Citizen* 1920c:7). In August 1921, the restaurant touted that it served regular dinners from 11:30 a.m. to 7:30 p.m., for 35 cents (*Tucson Citizen* 1921a)

In 1922, John R. Fox purchased the building. He opened the Club Grocery, listed in city directories from 1924-1930. A search for information in scanned newspaper databases about the grocery store did not yield any mentions of the grocery.

It was the Shue Gin Grocery from 1931-1935, with Gin Shue and his family living in the back of the building. Gin Shue also operated the adjacent Shanghai Chop Suey Restaurant during the same time. Gin Shue was born circa 1901, in China, son of Gin Ngak, and he came to the United States in 1907. He was living at 402 N. 4th Avenue in Tucson, with his father and brother Gin Pen (1920 U.S. Census, AZ, Pima County, Tucson Ward 1, ED 96, sheet 6A). Gin Shue and his wife became the parents of a daughter on 23 December 1941 (*Tucson Citizen* 1941). Gin Shue continued operating the Shanghai Café after 1935, 11 years in another location and then moving to 643 S. 6th Avenue in 1946 (*Tucson Citizen* 1946b). He became a U.S. citizen in November 1947 (*Tucson* Citizen 1947a).

The building at 10 S. Toole Avenue was vacant in 1936. From 1937-1951, it was the location of the Railroad Café. Its name was changed to the Rail-Way Café in 1952.

Newspaper research provided a few stories about the Railroad Café. In May 1943, Francisco Siquierios visited the café and fought with an employee after he was told he could not exchange a meal ticket for cash. He started arguing, and by the time Officer Larry Wilson had arrived, he was punching people. He was eventually subdued with tear gas, arrested, and sentenced to a fine of $25 or 25 days in jail (*Tucson Citizen* 1943). The following year, a dishwasher named Clifford Humbird was working at the café and was fired. He came back and somehow convinced the cook to leave, whereupon Humbird took over operation of the café, cooking, washing dishes, and serving meals. He broke a number of dishes while doing so. When he left at 5:00 a.m., he took $10 from the cash register. The manager of the café filed a complaint with the police, and Humbird was arrested for petty theft (*Tucson Citizen* 1944a). The following day, a court hearing was held, and the manager of the restaurant, Peter Bovine, testified he had checked the register before he left at 11 p.m., and when he came back at 6 a.m., $10 was missing. A waitress, Bertha Stanley, also said the money was missing, but that she had not seen Humbird take it. The judge found Humbird not guilty, but fined him $10 for public drunkenness (*Tucson Citizen* 1944b).

In July 1945, Charles Miller was arrested at the café. He had ordered a $1.50 steak, and when he received it, protested to the proprietor Fred V. Carlton that the steak was not worth that amount. Carlton insisted he pay, and the police were called, who arrested Miller for disturbing the peace. He was sentenced to $20 or 10 days in jail (*Tucson Citizen* 1945b). In August 1949, someone broke in, fixed themselves a meal, and then left with four or five cartons of cigarettes (*Tucson Citizen* 1949b). In September 1949, the café and the adjoining Economy Printers were broken into by a burglar (*Tucson Citizen* 1949a).

PREVIOUS RESEARCH

Archaeological investigations have been conducted in the downtown Tucson area for more than

50 years. Urban renewal projects in the 1960s raised awareness of the archaeological and historical resources of downtown Tucson after numerous important properties were lost without documentation (Lister and Lister 1989). A road construction project damaged a portion of the prehistoric Valencia site in the early 1980s, raising concerns that archaeological sites were being lost.

City undertakings that involve minimal ground disturbance, such as utility construction or renewal, are often archaeologically monitored to preserve archaeological information that might otherwise be lost. Larger undertakings can involve more extensive data recovery methods, including testing and excavation. As subsurface features and artifacts are encountered, historic city blocks are assigned ASM site numbers. Data recovered from these sites has been used to study the early history of Tucson, the realities of day-to-day life for the residents, patterns of urban development, the interplay of ethnic traditions, socioeconomic forces, and other important themes in the unwritten history of Tucson and the region.

Many city blocks have been studied by archaeologists in the ensuing years. The most relevant are those closest to the current project area.

In 2009, Desert Archaeology personnel excavated the property on the north side of S. Toole Avenue, immediately across the street from the current project area. Located next to the Southern Pacific Railroad passenger depot, the property was the site of the William B. Hooper & Company liquor warehouse, the Tucson Sampling Works, and the Southern Pacific employee clubhouse. Numerous artifacts associated with the ore sampling works were found, including crucibles, cupels, and ink or water bottles. Also located were pits filled with waste from the works, contaminated with arsenic, lead, and other hazardous materials. After completion of fieldwork, the site was cleaned by hazardous waste specialists (Thiel 2010).

Desert Archaeology explored the northern portion of Block 94, at the southeastern corner of E. Broadway Boulevard and S. 4th Avenue, uncovering features associated with several small apartments occupied by railroad workers and other lower-income residents in the early 1900s. These individuals purchased cheap whiteware ceramics and bought low-quality, high-quantity cuts of meat, an efficient method for working-class households to feed themselves (Thiel 1993).

Block 83 is located northwest of the project area at the northwestern corner of 5th Avenue and E. 10th Street. The western half of the block was explored in 1990, by Desert Archaeology, exposing numerous outhouse and well shafts filled primarily with trash discarded by well-to-do Tucson families, including the Radulovich, Felix, Vasquez, and Dalton families (Mabry et al. 1994).

Most of the eastern half of Block 83 was excavated in 2005, by Desert Archaeology. The portion studied had been the location of the Depot Park/Ramona Hotel, the Cactus Saloon, a barber shop, and the Quong Wo Laundry. Outhouses and wells on the lots yielded many artifacts that could be directly associated with the businesses. These included liquor bottles, shot glasses, stemware, an Anheiser-Busch mirror, and fragments from the hand-painted front window of the Cactus Saloon. Inexpensive whiteware ceramics were found in the well behind the Ramona Hotel. Artifacts from the Chinese-owned laundry included a variety of artifacts manufactured in China, as well as a large of buttons lost during the laundry work (Thiel 2009).

Tierra Right of Way conducted excavations at the location of the Wieland Brewery, located next to the Southern Pacific Railroad passenger depot. The foundations of the bottling plant and cold storage facility were located. A large pit contained hundreds of broken bottles, smashed during the bottling process (Jones and Hushour 2010).

These and other downtown projects have shown that the arrival of the Southern Pacific Railroad resulted in a dramatic increase in the quantity of consumer goods available in Tucson. Native American ceramics continued to be used for water storage until running water was installed inside buildings. The use of adobe as a building material rapidly decreased due to the importation of milled lumber, brick factories starting operation on the Santa Cruz River floodplain, and the opening of a rock quarry on Sentinel Peak in the late 1870s. Changes in ceramic styles, the lack of assimilation by Chinese residents, and the health care of Territorial-era Tucsonans have also been explored.

SIGNIFICANCE ASSESSMENT

National Register of Historic Places

The National Register of Historic Places (National Register) is the nation's inventory of historic sites. It was established after the passage of the National Historic Preservation Act of 1966 to promote preservation and study of historic resources. Most projects involving federal agencies, federal land, or federal funds require evaluation and mitigation of their impacts on properties eligible for the National Register. In addition, many state and local laws, ordinances, and regulations require similar evaluations.

Table 1.3. National Register eligibility criteria (Code of Federal Regulations, Title 36, Part 60).

The quality of significance in American history, architecture, archeology, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:
A. That are associated with events that have made a significant contribution to the broad pattern of our history; or
B. That are associated with the lives of persons significant in our past; or
C. That embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
D. That have yielded, or may be likely to yield, information important in prehistory or history.

For a property to be eligible for listing in the National Register, it must meet integrity requirements and at least one of four significance criteria. These criteria are summarized in Table 1.3. An important aspect of significance is a property's historic context (cultural affiliation and dates of use). If a historic context cannot be established, or if the property cannot be shown to be significant within its historic context, then it does not meet eligibility requirements for the National Register. Furthermore, except in special circumstances, properties must be at least 50 years old to be considered for inclusion in the National Register.

Significance of Block 91

Historic Block 91 was occupied by the 1880s, and, until recently, the eastern half contained both residential and commercial buildings. Prior to fieldwork, it was thought likely that the block would contain archaeological features, despite the demolition and construction activities that took place in the area in the 1950s through the early 2000s. Work on other downtown Tucson blocks has shown that cultural resources are typically preserved under the foundation slabs of modern buildings. It was expected that artifacts and food remains found in pit features on Block 91 would meet eligibility requirements for inclusion in the National Register under Criterion D, due to their potential to yield significant information about late nineteenth and early twentieth century urban life and the history of the Tucson.

RESEARCH ISSUES

Three research questions were developed to provide guidance regarding evaluation of the eligibility of the cultural resources within the project area for nomination to the National Register.

Changes in Tucson Lifeways through the Late Nineteenth and Early Twentieth Centuries

The recovery of late nineteenth and early twentieth century refuse from the project area, an ethnically mixed portion of downtown Tucson, offered the opportunity to reconstruct patterns of consumption and material culture. Important trends that have been observed at contemporaneous sites in Tucson include: (1) the development of the modern American pattern of mass consumption; (2) the persistence of a traditional Mexican consumption pattern; (3) the changing compositions, structures, and functions of households; (4) the stratification of economic classes; and, (5) a complicated relationship between the relative values of manufactured ceramics and the relative economic statuses of households (Diehl et al. 2003; Mabry et al. 1994; Thiel 1993, 2002). These previously observed patterns can be used to form hypotheses about material culture within the project area. The project areas include areas where commercial, industrial, and residential structures once stood, allowing for a comparison of different cultural contexts.

Trash Disposal and Privy Pits in Tucson

The project area was thought likely to contain privy pits and other features used for trash disposal. A recent study of privy pits in historic Tucson revealed a bimodal distribution of privy depths. The average is approximately 6.5 ft (little more than the standing height of the excavators), but there are numerous examples of privy pits that are at least twice as deep (Diehl et al. 2003). It is unclear if these deeper privies are functionally different than their shallow counterparts, perhaps having been initially excavated as wells. It is also possible the variation in depths is cultural or reflects evolving attitudes about disposal

and sanitation. The dimensions, placement, and contents of privy pits and other pits used for trash disposal can be compared with the growing database of similar features that have been archaeologically investigated in Tucson to explore changing attitudes about sanitation in Territorial-era Tucson.

Ethnic and Socioeconomic Factors Influencing Diet in Historic Tucson

Food remains, which consist of animal bones, preserved plant materials, and food and beverage containers, can provide insights into the lives of past Tucsonans. Basic questions about what people were consuming have begun to be answered with the results of archaeological investigations in downtown Tucson and in Barrio Libre, a predominantly Mexican-American neighborhood that was established south of town in the late nineteenth century. Patterns that have been observed at other sites include: (1) a surprisingly large quantity of packaged foods and beverages consumed by families living at, or near, poverty levels; (2) a correspondence between cuts of meat consumed and socioeconomic status; (3) the partial adoption of Euro-American food preparation techniques by Mexican-American households, but no opposite trend; (4) contrasts between cuts of meat and boarding houses; and, (5) distinction among types and cuts of meat that correspond to specific ethnic groups and income levels.

Food remains recovered from excavation areas can be compared with those recovered from other contemporaneous sites to determine if they lend weight to observations made elsewhere in Tucson. Features without historical documentation about the ethnic or socioeconomic background of their users can be compared to known data sets to infer their functions or sources.

SUMMARY

The eastern half of Block 91 was initially developed in 1883, and over the next 120 years saw residence, commercial, and industrial uses. This portion of the block served as the residences of a number of prominent Tucsonans, including the leading photographer and one of the first undertakers. Commercial enterprises operated on the 11th Street (later Broadway Boulevard) and Toole Avenue sides of the block, including restaurants, a hotel, and stores. Industrial enterprises included a planing mill, which manufactured doors, windows, and molding, as well as an automobile repair and sales operation.

Testing and data recovery took place on the block in 2011, and the results of fieldwork are reported in Chapter 2. Native American ceramics were recovered from several features and are described in Chapter 3. A large quantity of manufactured artifacts were found; these are examined in Chapter 4. Animal bone and plant remains were also recovered, which are studied in Chapters 5 and 6, respectively. Shell artifacts uncovered are described in Chapter 7. Finally, the concluding chapter, Chapter 8, addresses the three research questions and describes how the archaeological fieldwork has added to current understanding of Tucson's Territorial period.

CHAPTER 2

THE ARCHAEOLOGY OF THE EASTERN HALF OF BLOCK 91

J. Homer Thiel
Desert Archaeology, Inc.

Archaeological work on the eastern half of Block 91 began with testing of the project area. This phase began on 5 September 2011, and was completed on 7 September 2011. The work plan called for placement of two 7-ft-wide stripping trenches in the center of the property, a 6-m by 6-m stripping block between the trenches, and a 6-m by 6-m stripping area beneath the former Greyhound Bus Station (Diehl 2009). This plan was modified in the field as a cost-saving measure. The stripping area in the parking lot was expanded, rather than have the concrete floor of the former bus station cut.

A backhoe equipped with a 7-ft-wide stripping blade removed the asphalt and underlying soil to expose some 30 archaeological features along the east side of the property. These included the foundation of an 1883 duplex, a well, two outhouse pits, planting pits, postholes, and other features. It was apparent that other features were likely to be found in the surrounding area. Examination of the features indicated they were well-preserved and were likely to yield artifacts and food remains suitable for addressing the proposed research questions. After consultation with the City of Tucson, work proceeded directly to data recovery. The site was assigned Arizona State Museum (ASM) site number AZ BB:13:820 (ASM).

Data recovery began on 10 September 2011, and continued through 4 October 2011. During this time, additional asphalt parking lot surface and the concrete floor of the Greyhound Bus Station were removed by the backhoe. Of the available 3,588 m^2, 1,813 m^2 were stripped. This represented 51 percent of the available surface. Portions not stripped included the area along the southwestern side of the block where a basement was once present (destroying any historic features), a strip along the west side, which was the location of two dwellings and the Subway Garage (and was the stockpile area for asphalt and concrete), the area immediately along S. Toole Avenue (which was mostly destroyed by lowering of S. Toole Avenue), and the triangular, gravel-covered area on the east side of the property, which, historically, was part of S. 4th Avenue. Work focused largely on the interior, backyard area of the block, where pit features were expected.

The backhoe was used to strip the area until archaeological features were identified, typically due to a dark brown to black stain against the culturally sterile reddish-brown silty sand or reddish-white caliche substrate. All feature locations were sprayed with white marking paint and assigned a feature number. In total, 100 features were located (Figures 2.1-2.2; Table 2.1). Of these, 51 were excavated.

Features selected for excavation were those determined likely to contain artifacts, faunal bone, and botanical materials that could be useful in addressing the research questions outlined in the testing plan. All eight outhouse pits were excavated to their bases, as were all the identified animal burials and the six foundations. Also examined were trash-filled pits, some of the planting pits, and several features associated with the planing mill. All features were documented with standardized forms. Digital photographs were taken when appropriate, and a set of aerial photographs was taken on the morning of 29 September 2011. Oversized maps were prepared for the entire project area, documenting the location of features, utility trenches, and postholes.

Features were excavated in natural stratigraphic or arbitrary levels, with all fill screened through ¼-inch mesh. Artifacts were sorted by material type, bagged, and returned to the laboratory for processing. Flotation samples were collected from outhouse and trash-filled pits. Pollen samples were collected from four outhouse pits. Excavation also recovered large quantities of artifacts.

Following completion of fieldwork, the backhoe re-filled all deep excavation areas and spread the remaining fill over the site. Construction of a residential and business high rise commenced on the property in 2012, with completion in 2013.

A variety of features were present at the site. Those that were excavated are described here.

STRUCTURAL ELEMENTS

A large number of buildings were once present on the eastern half of Block 91 (Figures 2.3-2.6). The foundations for some of these buildings were located during fieldwork. However, because research fo-

cused on backyard areas, the buildings located along Herbert Avenue and along the west side of Broadway Boulevard were not found.

Feature 101: 243-245 E. 11th Street Duplex

Feature 101 was the adobe foundation for the eastern duplex fronting Broadway Boulevard. This house was reportedly built in 1883, and was torn down between 1922 and 1930. A few walls survived demolition and excavation of an area for underground fuel storage tanks.

Portions of two rooms survived, with the foundation appearing basically H-shaped. The foundation was constructed from adobe bricks 19-20 inches long, about 10 inches wide, and some 4 inches thick. The adobe bricks had been placed in a shallow foundation trench directly on the ground. An elevated wooden floor was once present inside the house. A few fired bricks found inside the house may have been floor joist supports. In places, the interiors of the rooms were filled with knocked over adobe walls. Mixed in among the adobe brick fragments were bits of plaster. Some of the bricks had white paint coating one side.

Feature 102: Commercial Building, 10 N. 4th Avenue

Feature 102 was the foundation for a commercial building that stood on the east edge of Block 15 at 10 N. 4th Avenue. The foundation was constructed from a variety of basalt and sedimentary rocks set into a cement mortar. The wall was almost 16 inches wide. Several concrete pads were on the interior of the foundation. In 1922, this was a store, in 1930, it was the Club Grocery, and in the late 1940s, this was the Railroad Café. The building was torn down around 1957.

Feature 134: Mission Inn/Hotel Apache, 233-239 E. 11th Street

Feature 134 was the hole that remained from the basement of the Apache Hotel. It was located during stripping, and the northeastern corner was probed using the backhoe. The basement was more than 6 ft deep, and was filled with demolition debris, including broken fired bricks, large rocks, and chunks of concrete. The basement was constructed between 1909 and 1919, and the hotel was demolished in 1957.

Feature 164: Commercial Building, 499/457 S. Toole Avenue

Feature 164 was a poorly preserved foundation located on the eastern side of Lot 8. The rectangular structure was at least 22 ft long, east-west, and 18 ft wide, north-south. The foundation was made from poured-in-place concrete with a fair amount of gravel. Vesicular basalt rocks were set into the concrete. The average thickness of the foundation was 17 inches.

A water or gas pipe entered the foundation in one area, and a sewer pipe was present through the center of the structure. The building was built between 1919 and 1922. In 1922, it housed a restaurant with a kitchen at its rear. It was the White Sewing Machine Company in 1930. This building was torn down in 1957.

Features 165, 174, and 175: Planing Mill, 29 S. Toole Avenue

Features 165, 174, and 175 were portions of a rectangular pit paralleling Toole Avenue on the east side of Lot 8. The pit was at least 49 ft long and was 5 ft wide. It was just over 5 ft deep. The pit was explored with an excavation unit in its southeastern corner and two toward the western end.

The portion of the pit at the eastern end had vertical walls and a pair of postholes located along each side of the pit, with each posthole 8.6 inches square. The posts were probably supports for machinery installed above the pit. The machinery was removed when the planing mill was dismantled in 1914. A layer of plate window glass, some of which appeared to be industrial in nature, lay across the bottom of the pit, along with a layer of decomposed sawdust. The mill is known to have manufactured doors, windows, and a variety of moldings; thus, the glass and sawdust likely represent waste and breakage from the last few months of work at the mill. The rest of the pit was filled with dirt containing domestic artifacts. The dirt was apparently scraped from the surrounding areas. The most interesting artifacts were fragments of a white porcelain flush toilet.

Feature 174 was likely the opening for a short stairway entering the pit on the south side, close to the western end. A unit measuring 1.40 m by 1.15 m was excavated in this area to a depth of 83 cm. Along one side of the unit were niches that appeared to have been for joists supporting wooden stairs. An upright post was present at the southeastern corner of the area. The artifacts present were similar to those recovered from the other two units.

Plaza Centro Project
Tucson, Pima County, Arizona

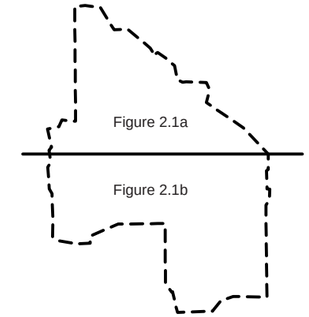
Historic Block 91
AZ BB:13:820 (ASM)

Overview - North

Desert Archaeology, Inc. 2011

Meters
0 4
Feet
0 16

Key
- Backhoe Stripping Area
- Foundation
- Inferred Foundation
- Greyhound Terminal Foundation
- Utility Trench Disturbance
- Other Disturbance
- Outhouse
- Other Feature
- Posthole



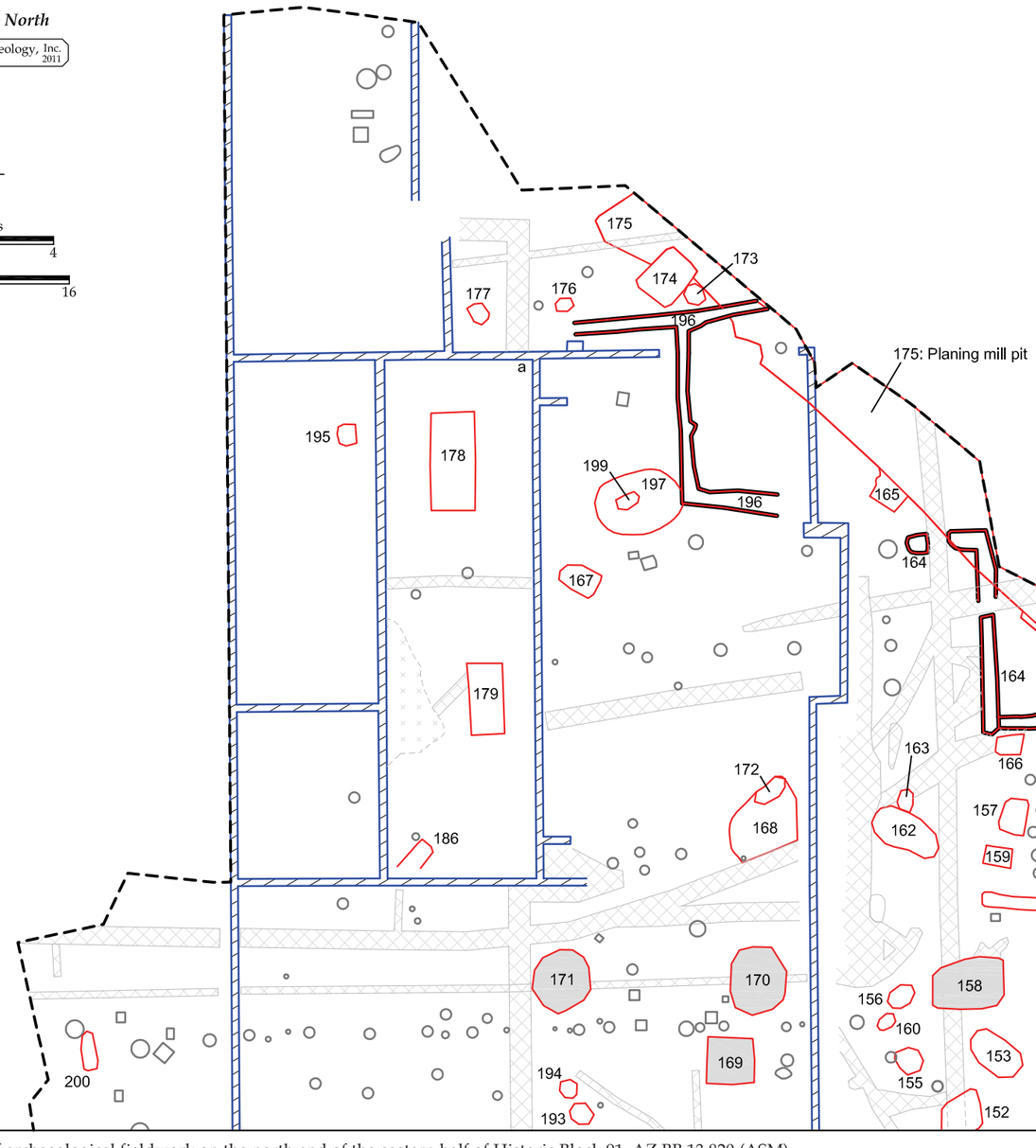


Figure 2.1a. Results of archaeological fieldwork on the north end of the eastern half of Historic Block 91, AZ BB:13:820 (ASM).

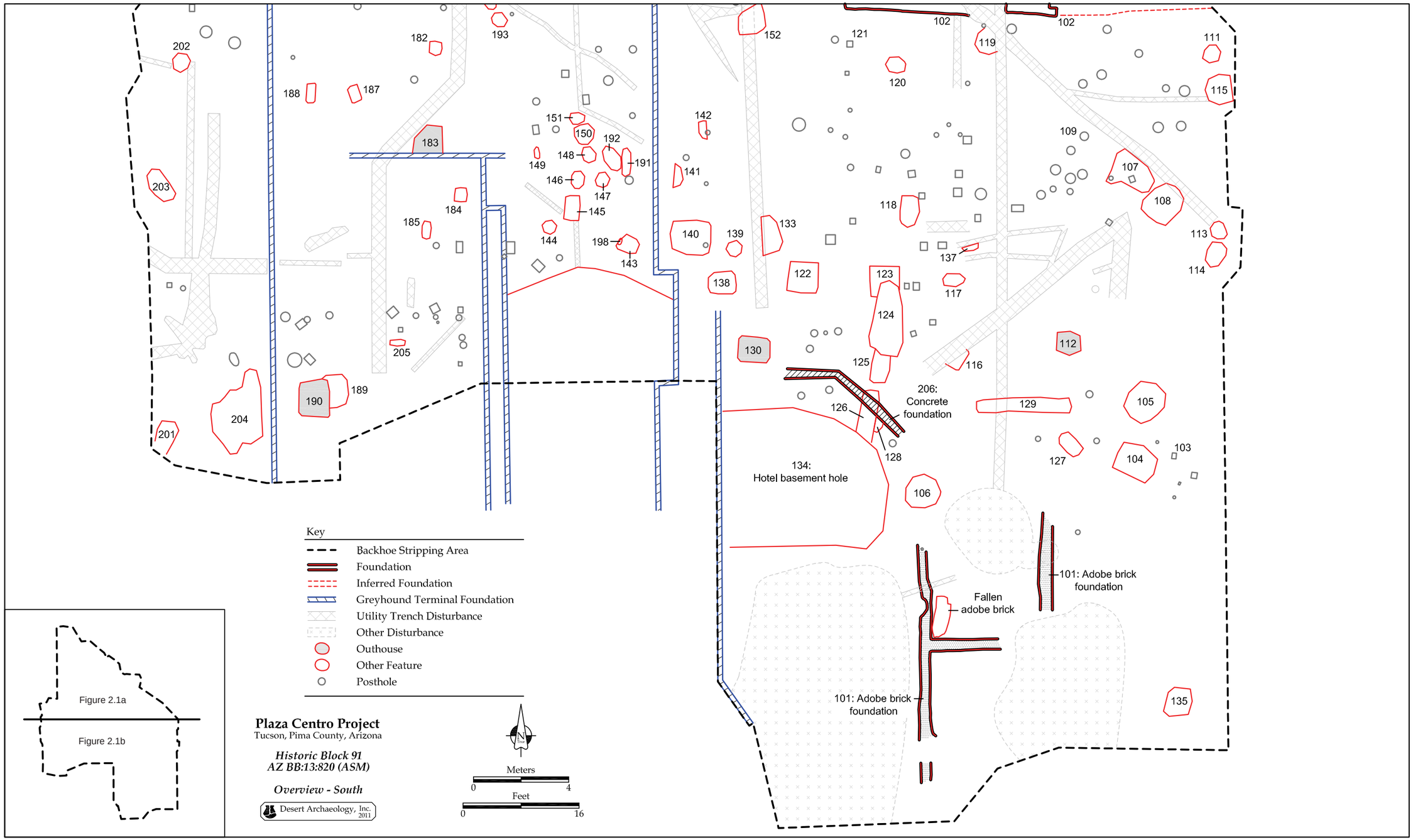


Figure 2.1b. Results of archaeological fieldwork on the south end of the eastern half of Historic Block 91, AZ BB:13:820 (ASM).

Figure 2.2. Aerial photograph of archaeological features on the eastern half of Block 91. The former Greyhound terminal foundation is visible on the right side of the picture (photo by Henry D. Wallace).

Feature 175 was the western end of the planing mill pit. A unit measuring 1.3 m by 1.1 m was excavated without screening to determine if a square stain represented an outhouse pit or a portion of the planing mill. It was determined to be part of the larger Feature 165 pit. The area contained a large number of nails and window glass.

Feature 178: Oil Changing Pit for the Subway Garage, 384 E. Congress Street

Feature 178 was a rectangular pit cut into caliche. It was 2.8 m long, 2.8 m wide, and 89 cm deep. The sides and base of the pit were stained with oil. The pit was filled with soil scraped from the surrounding area. A 1941 U.S. penny was found in the fill, suggesting the pit was filled after that date. The Subway Garage was in business from the mid-1910s until 1957. The function of the pit is uncertain. It may have been where a mechanic stood while underneath a vehicle.

Feature 196: Commercial Building, 445 S. Toole Avenue

Feature 196 was a foundation located on the eastern side of Lot 8. Only a small portion of the foundation was present, and it extended eastward beyond the stripped area. The surviving portion of the structure foundation was 5.5 m long and 3.5 m wide. It was constructed from basalt rocks set into a crude cement mortar that contained pieces of gravel. The foundation was 40-49 cm wide. The building was constructed between 1919 and 1922, and was depicted on the 1922 Sanborn Fire Insurance map as a radiator shop that was later incorporated into a garage. By 1949, this was the auto upholstering part of the Harbour Brothers business. The building was demolished in 1957.

Feature 206: Service Station, 266 E. Broadway Boulevarad

Feature 206 was a poured-in-place concrete foundation located on Lot 15. It was at least 5.8 m long, and the foundation wall was 30 cm wide. The foundation was for a gasoline station present on this portion of the Block from 1928 into the early 1960s.

PRIVY PITS

Outhouses, also called privies, latrines, and waste closets, were ubiquitous in Tucson backyards during the American Territorial period. Beginning in

Table 2.1. List of features documented on the eastern half of Block 91, AZ BB:13:820 (ASM).

Number	Type
101	Foundation, duplex
102	Foundation, store/restaurant
103	Fenceline
104	Planting pit
105	Planting pit
106	Well
107	Brick oven
108	Planting pit
109	Fenceline
110	Foundation
111	Planting pit
112	Outhouse pit
113	Small pit
114	Planting pit
115	Planting pit
116	Planting pit
117	Planting pit
118	Planting pit
119	Planting pit
120	Small pit
121	Postholes/fenceline
122	Unused outhouse pit
123	Unused outhouse pit
124	Large pit
125	Small pit
126	Large pit
127	Large pit
128	Small pit
129	Trench
130	Outhouse pit
132	Large pit
133	Planting pit
134	Basement, hotel
135	Planting pit
137	Small pit
138	Small pit
139	Small pit
140	Planting pit
141	Small pit
142	Small pit
143	Small pit
144	Planting pit
145	Metal-lined wooden box
146	Planting pit
147	Planting pit
148	Planting pit
149	Planting pit
150	Planting pit
151	Planting pit
152	Small pit
153	Large pit
155	Small pit
156	Small pit
157	Small pit
158	Outhouse pit
159	Planting pit
160	Small pit
161	Burial, dog
162	Planting pit
163	Small pit
164	Foundation
165	Sawmill pit
166	Planting pit
168	Trash midden
169	Outhouse pit
170	Outhouse pit
171	Outhouse pit
172	Burial, cat
173	Small pit
174	Pit associated with sawmill
175	Pit associated with sawmill
176	Small pit
177	Small pit
178	Large pit
179	Septic tank
182	Planting pit
183	Outhouse pit
184	Planting pit
185	Small pit
186	Small pit
187	Small pit
188	Burial, dog
189	Small pit
190	Outhouse pit
191	Planting pit
192	Planting pit
193	Small pit
194	Small pit
195	Planting pit
196	Foundation
197	Trash midden
198	Burial, bird
199	Burial, cat
200	Small pit
201	Small pit
202	Small pit
203	Small pit
204	Large pit
205	Burial, bird
206	Foundation

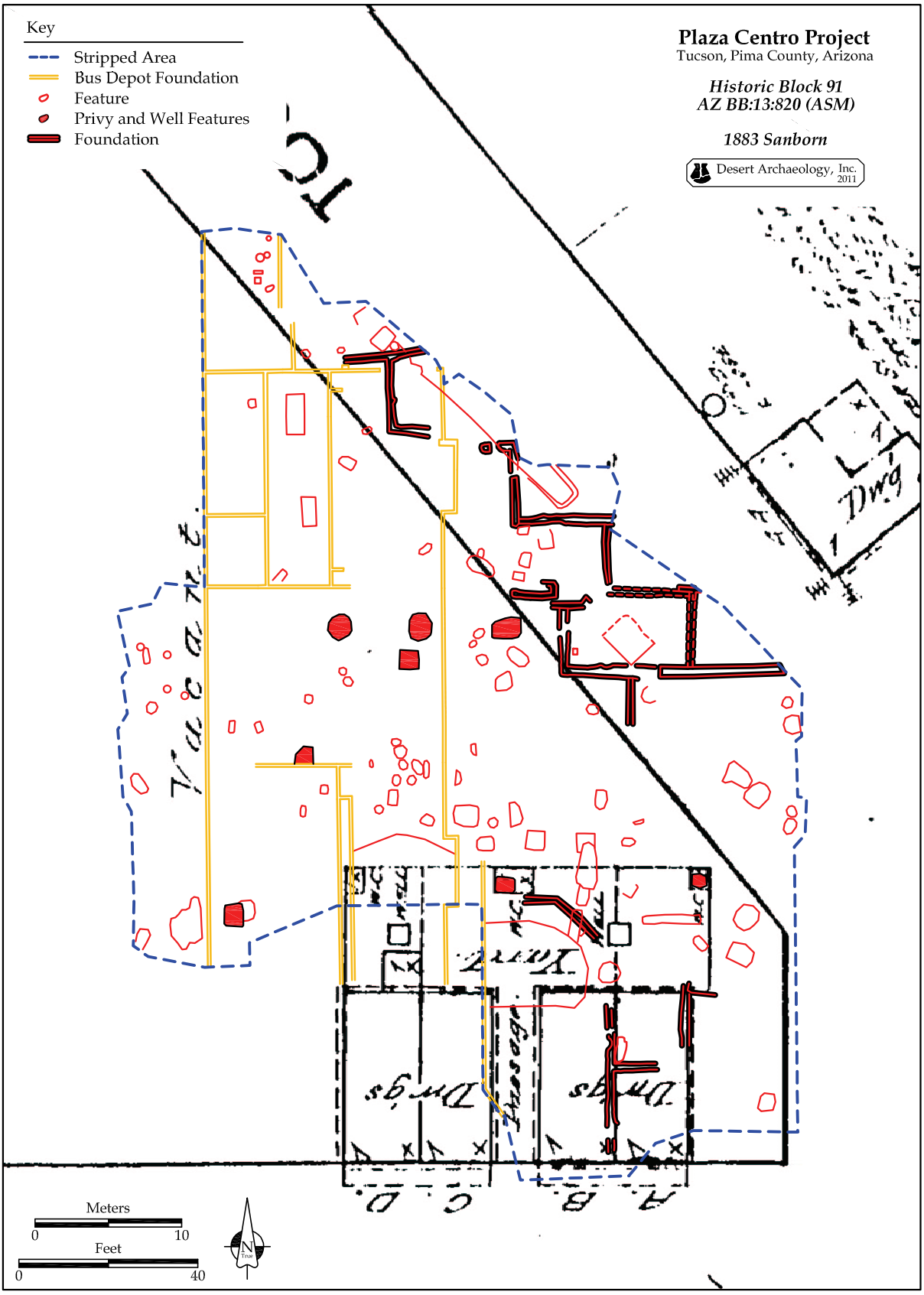


Figure 2.3. The 1883 Sanborn Fire Insurance map overlaid with archaeological features located on the eastern half of Block 91.

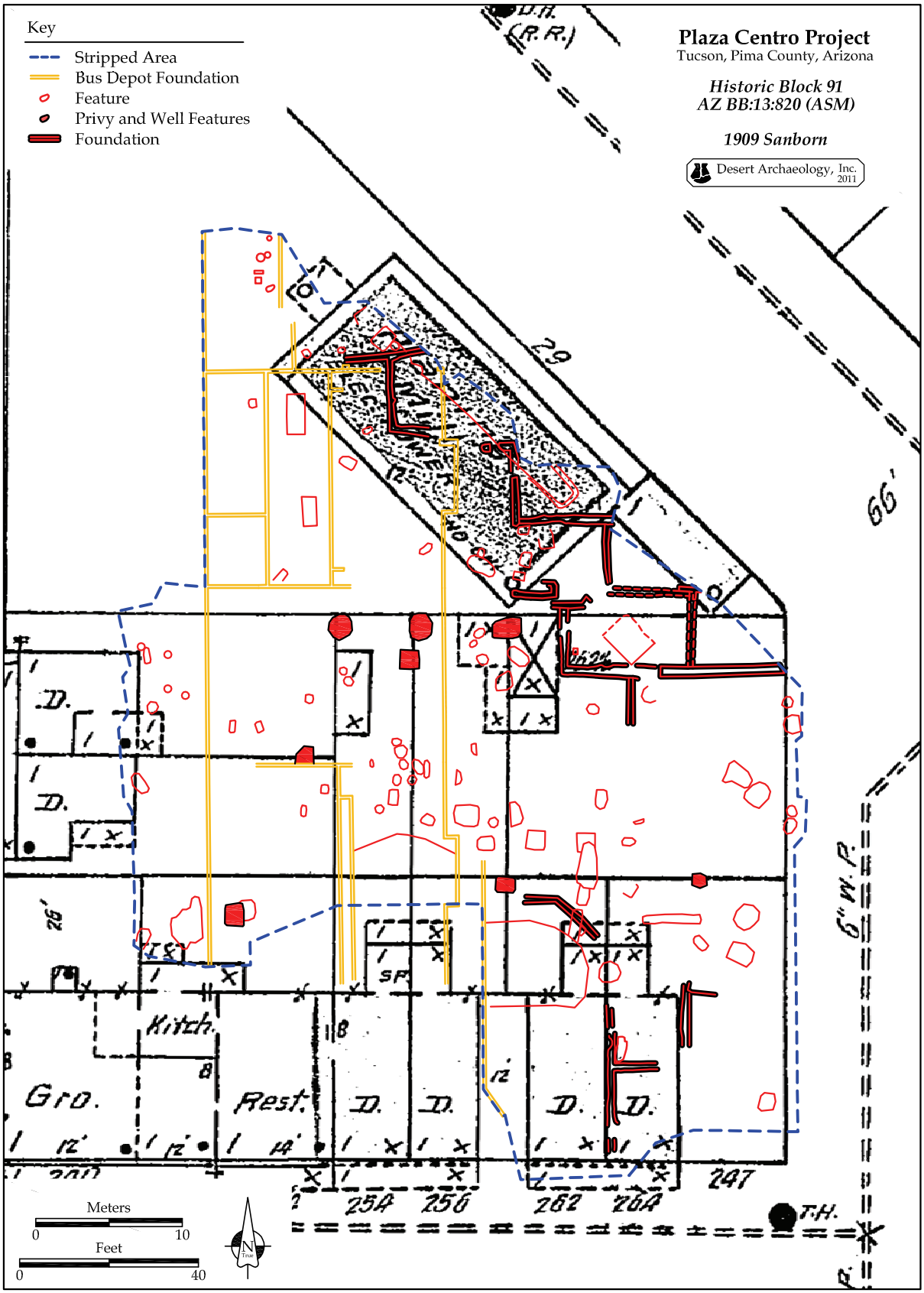


Figure 2.4. The 1909 Sanborn Fire Insurance map overlaid with the archaeological features located on the eastern half of Block 91.

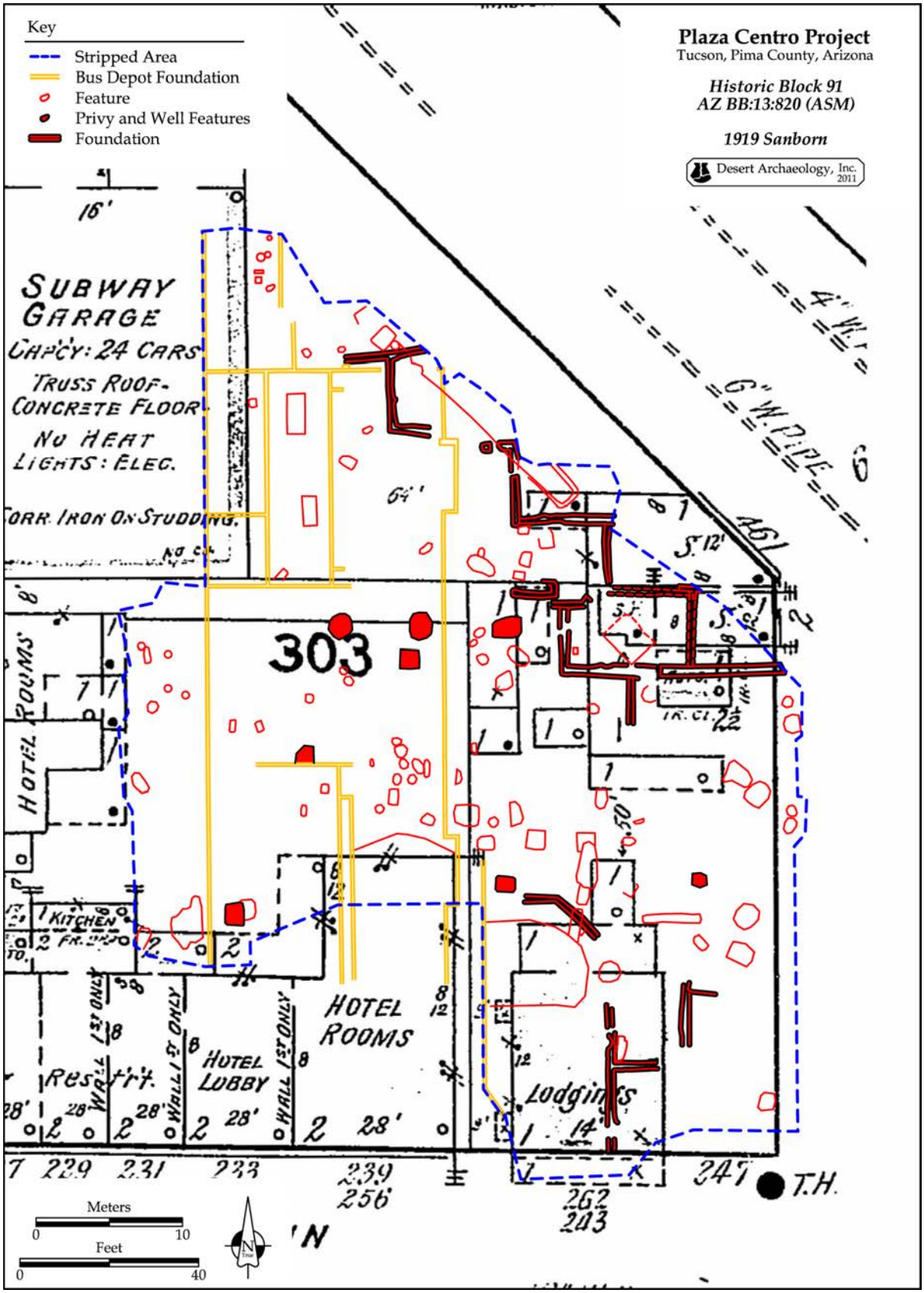


Figure 2.5. The 1919 Sanborn Fire Insurance map overlaid with the archaeological features located on the eastern half of Block 91.

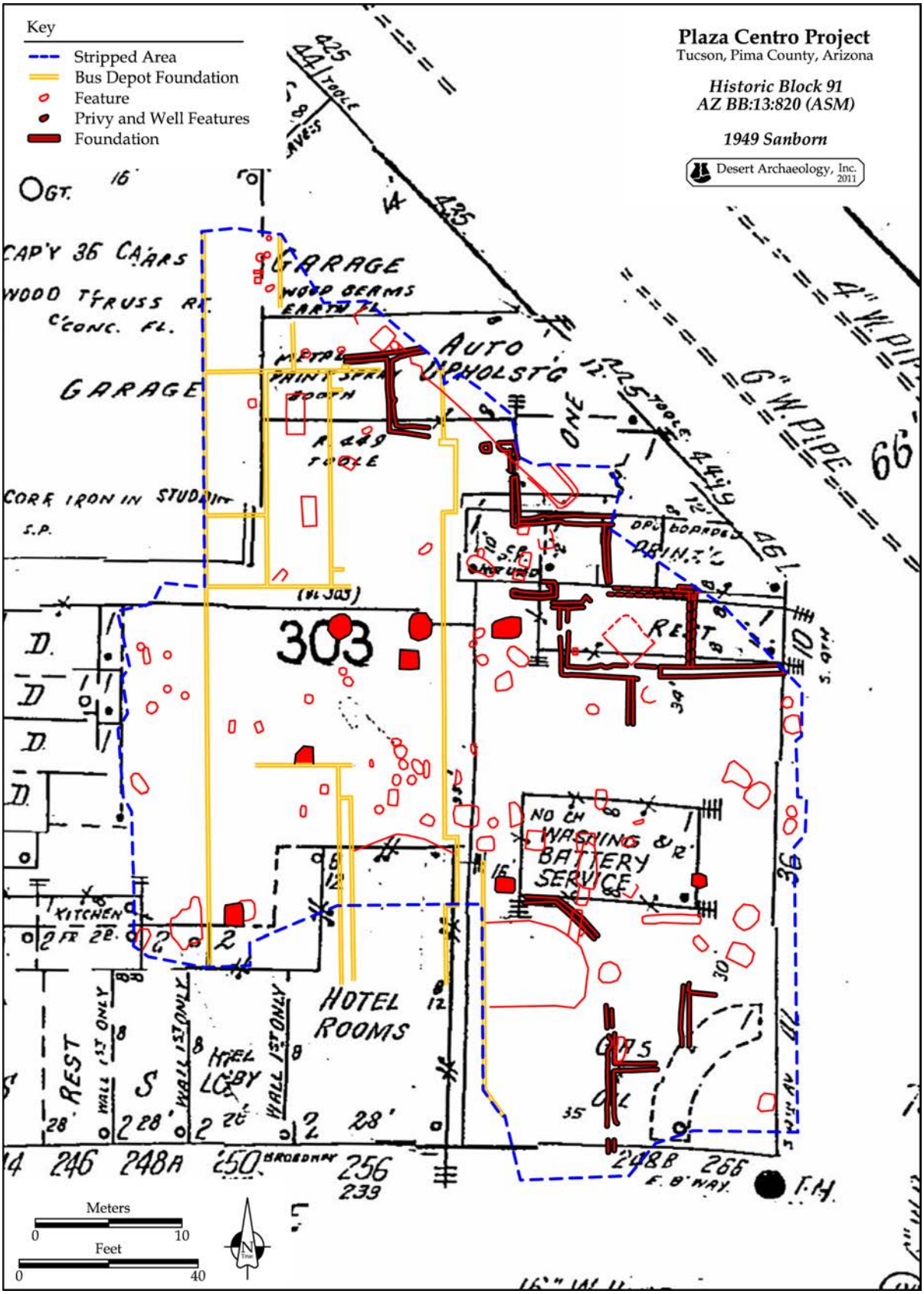


Figure 2.6. The 1949 Sanborn Fire Insurance map overlaid with the archaeological features located on the eastern half of Block 91.

the 1890s, indoor plumbing was gradually installed, although it did not become common until after the early 1900s.

The 1883 Sanborn Fire Insurance map depicts three outhouse pits on the block (the outhouse pits are labeled W.C. in Figure 2.3). Subsequent Sanborn maps do not identify outhouses, although some of the small, backyard buildings may represent outhouses.

Eight outhouse pits were located during stripping of the backyard area on the eastern half of Block 91. Two other pits that probably were originally intended to be outhouses were also found. Each was excavated for artifacts and food remains that could be examined to shed light on the lives of block residents. Excavation was conducted in 20-cm-thick levels, in halves, with a profile drawing prepared during the course of excavation. All were excavated to their bases, although the bottom of Feature 190 was only half excavated, as this feature contained few artifacts.

Two other pits located in the backyard were likely initially planned to be outhouse pits, but these were abandoned and filled in with clean sand. A decision to move the outhouses further north in the backyard was probably made. Each outhouse pit is described below.

Given that privy pits were used on this portion of Block 91 from 1883 through 1906, when Ordinance 220 authorized the placement of sewer pipes along S. Herbert Avenue (Hardy 1910:264), it would have been necessary for privy pits to be occasionally cleaned. In the early 1900s, John Geiger operated a business that specialized in clearing out privies and cesspools. "Preserve Your Health. Unsanitary Surroundings are the most Frequent Sources of Disease. Vaults and Cess Pools Cleaned and Thoroughly Renovated by J. E. Geiger & Sons, City Scavengers" (*Arizona Daily Citizen* 1900c:4).

An unfortunate incident occurred for Geiger, as he and two assistants were working to clean out a cesspool behind Martin's drugstore. They were digging out waste using a bucket when they reached a depth where that no longer worked. Juan Chavez, one of the assistants, was lowered into the pit to fill the buckets. Chavez fell off a ladder into the pit and was apparently overcome by fumes. The other assistant, Francisco Armenta, was then lowered into the pit using a rope; he cried out, and the rope went slack. Finally, Geiger himself was lowered into the pit, and he also passed out. A ladder from the firehouse arrived too late. Grappling hooks were initially used in an attempt to pull the bodies out, but this was unsuccessful. Eventually, Frank Murphy was lowered into the pit after it was determined to be free of gas, and he retrieved the three bodies (*Arizona Daily Citizen* 1900e; Catholic Diocese of Tucson Burial Records).

Feature 112

Feature 112 was located in the backyard of Lot 15 (Figure 2.7). The outhouse appears on the 1883 Sanborn Fire Insurance map, and was associated with the eastern half of the eastern duplex.

The pit was basically square, measuring 1.02 m by 1.00 m. The vertical walls of the shaft extended 1.63 m deep. When discovered, the top of the pit was filled with brown sand with a significant amount of gravel. This appears to have been a capping episode. The brown sand was excavated in two levels, totaling 1.03 m. Relatively few artifacts were present in this stratigraphic layer. Below this was a layer of white ash interspersed with greenish-gray organic loamy silty sand. This represented use of the pit for a latrine. The layer continued to the flat base of the pit, and was 59 cm deep. A wide variety of artifacts was present, including tin cans, nails, eggshells, animal bone (including a kitten skeleton), doll parts, buttons, bottles, and fragments of plaster figurines (one of which was a nude woman). The overall density of artifacts was low compared to the other outhouse pits.

No datable artifacts were found in the outhouse. The pit had to have been dug in 1883, when the duplex was constructed. It was probably used into the 1890s, although this is speculation.

Feature 122

Feature 122 was one of two adjacent pits located during backhoe stripping, appearing as square areas of light brown sand. It was located on Lot 14. The feature looked likely to be an outhouse pit, but the fill appeared to be very clean, which is untypical of other outhouse pits found in Tucson.

This pit measured 1.30 m in length and 1.25 m in width. A backhoe was used to cut out the edge of the pit to determine if it contained outhouse fill. The vertical shaft was found to be 71 cm deep, with a flat base. No artifacts were found in Feature 122. The most likely explanation for the feature is that it was intended to be an outhouse, but after the pit was dug, it was decided to place the pit further north, away from the house.

Feature 123

Feature 123 was the second of two adjacent pits; it was found in the middle of Lot 15. Like Feature 122, the pit was filled with clean tannish-brown sand. It was 1.9 m long and 1.3 m wide. The vertical walls of the shaft extended down 53 cm, and the base of the pit was flat. The bottom 20 cm contained a few

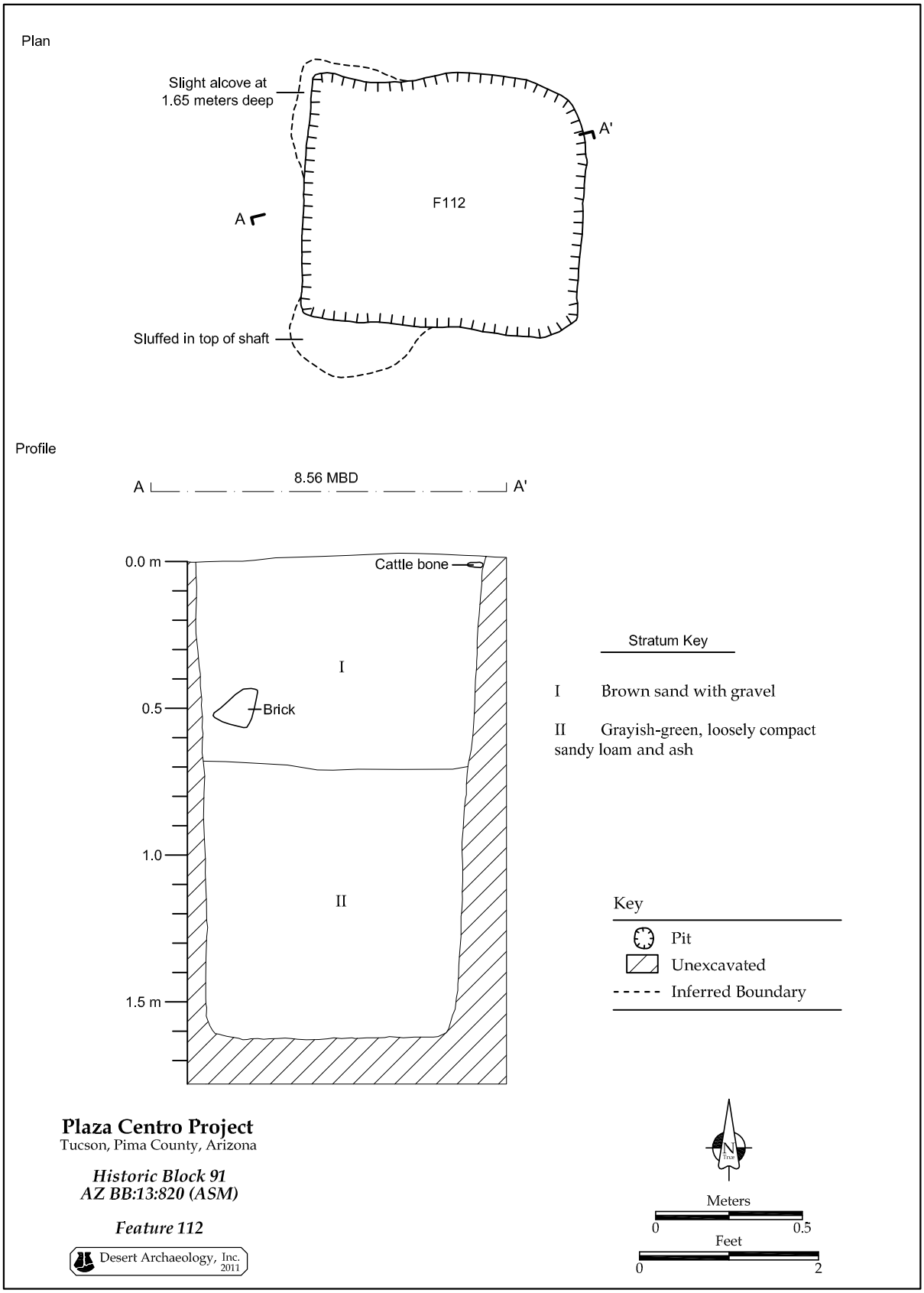


Figure 2.7. Plan view and profile of Feature 112, a privy pit located on Lot 15, Block 91, AZ BB:13:820 (ASM).

chicken bones, but otherwise, the pit contained no artifacts. The pit was probably initially planned as an outhouse, but was abandoned during construction. Later, a large pit was cut into the southern edge of the pit.

Feature 130

Feature 130 was located in the area centered between the two duplexes, on Lot 14. It is depicted on the 1883 Sanborn Fire Insurance map (Figure 2.8). The pit was located during stripping when a rectangular stain was found. It measured 1.30 m in length (east-west) and 96 cm in width (north-south). The pit had vertical walls and a flat base, totaling 1.32 m in depth.

The top of the pit contained brown sand with chunks of caliche. This layer was 41 cm deep, and it contained a relatively small number of artifacts, including tin cans, animal bones, broken bottle fragments, and a bead. The layer appears to represent the closing of the pit, with dirt from nearby areas scraped and dumped into it.

The next layer contained mottled yellow-green-brown sandy silt with ash and charcoal. Numerous small pieces of charcoal were present, probably derived from a wood stove. This layer was about 40 cm thick, and it contained a large number of artifacts, including lamp chimneys, bottles, Native American ceramics, doll parts, sewing pins, a bullet, eggshell, nails, and tin cans. The remaining 60 cm of fill to the base of the pit included more of the greenish-gray sandy silt, but also increasing numbers of chunks of charcoal. The density of artifacts decreased, but noteworthy items included a Tammany cast iron mechanical bank, lamp chimneys, bullets, a bone hairbrush, nails, cans, and a bottle stopper.

The outhouse pit was probably dug in 1883, and it may have been used by residents of both duplexes. Based on the width of the pit, it may have been a double-seater.

Eleven datable ceramic vessels were retrieved from Feature 130. These include seven vessels with the exact year of manufacture on their bases: 1876, 1877, 1880, 1883, 1883, 1884, and 1884. The later five vessels were hand-painted vessels made by "G. Noble." Another vessel has a reported manufacturing date starting in 1891, suggesting the pit was filled in the early 1890s.

Feature 158

Feature 158 was located toward the back of Lot 15 (Figure 2.9-2.10). It was the easternmost of three nearly identical outhouse pits that were probably dug at the same time. The pit was located when a dark rectangular stain was found during backhoe stripping. It was 1.56 m long (north-south) and 1.37 m wide at the top, narrowing to 1.38 m long and 92 cm wide at its base. The rectangular shaft totaled 2.30 m in depth.

The top of the pit contained material tossed into the pit as the lower fill decayed, compacted, and settled downward. The upper 65 cm of the pit contained reddish-brown sandy silt, ash, and gray silt. Three barrel hoops, a large can lid, fired bricks, white glass tiles, and other artifacts dating to the 1920s and 1930s were present near the top of the pit.

Below this lay brownish-green loamy sand with a high organic content. Lenses of white wood ash were present, especially in the bottom 36 cm of fill within the pit. The outhouse appears to have had a very long use-life, given the presence of 1.65 m of green-stained organic earth, which represented decomposed human waste.

As excavation proceeded, the number of artifacts increased dramatically. Items recovered from the pit included fragments of a large O'odham jar, fragments of a possible Paquimé bowl from Mexico, bottles, a rubber hose, a long piece of decorative ironwork, iron pipes, a Franklin stove top, doll parts, oyster shells, and brass spigots.

Datable artifacts included an 1884 Canadian penny and five ceramic vessels. At the top of the pit was a whiteware saucer dating from 1914-1925. The other four vessels, found deeper in the pit, dated to the 1890s to early 1900s.

Feature 169

Feature 169 was an outhouse pit located on Lot 9 (Figure 2.11). The pit was initially revealed as a square stain found during backhoe stripping, immediately south of another outhouse pit, Feature 170. The square shaft was 1.30 m on each side. The vertical shafts of the pit extended down to a flat base, and was only 1.08 m deep. The upper sides of the pit were lined with wood that once supported the floor of the outhouse. The floor had collapsed downward into the pit, and was present as a thin band of decomposed wood about two-thirds of the way down inside the pit.

The pit contained five stratigraphic layers, which were excavated in four levels. The top of the pit contained loosely compact dark gray silty sand, with some modern trash, as well as brick fragments and slag. This material was dumped in as the contents of the pit decomposed and settled downward. The second layer was loosely compacted reddish-brown silty sand that contained much gravel and a moder-

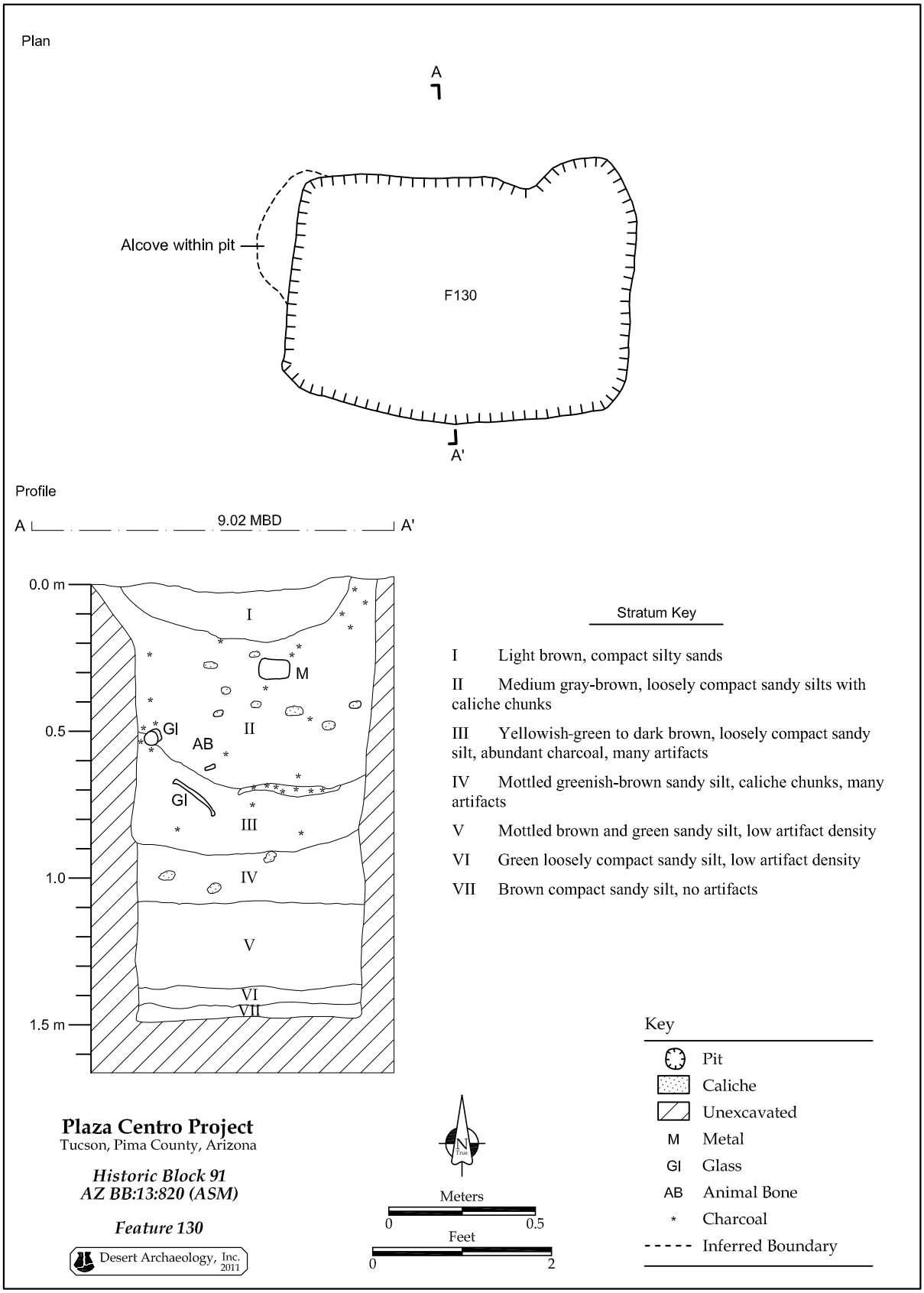


Figure 2.8. Plan view and profile of Feature 130, a privy pit located on Lot 14, Block 91, AZ BB:13:820 (ASM).

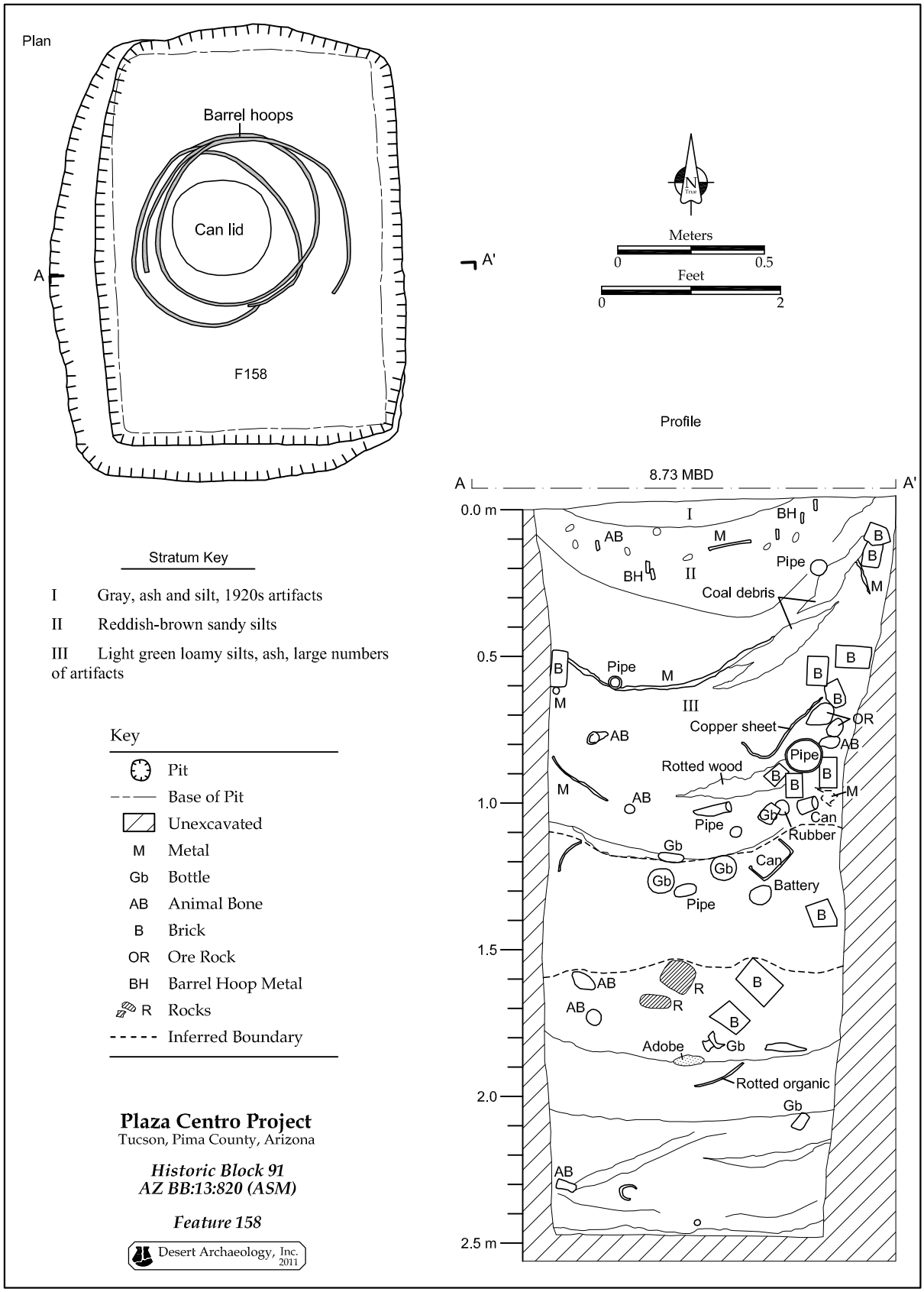


Figure 2.9. Plan view and profile of Feature 158, a privy pit located on Lot 12, Block 91, AZ BB:13:820 (ASM).

Figure 2.10. Photograph of Feature 158, a privy pit, Lot 12, Block 91, AZ BB:13:820 (ASM), during excavation; a decorative iron piece, goblets, bottles, and rubber hoses are among the visible artifacts

ate amount of artifacts. This layer probably represents soil shoveled in to fill the pit after it was no longer used as an outhouse.

The third layer was a loosely compacted dark brown sandy silt, with charcoal, coal, and many artifacts. Below this was a similar layer that contained a large amount of decomposed wood, in addition to many artifacts. The base of the pit contained loosely compacted gray sandy silt with gravel.

A surprising find in the middle fill of the pit was a complete set of brass silverware. The pieces were still stacked as if they had been dropped in a silverware box. It seems improbable that a complete set would be intentionally discarded. A more likely explanation is that the silverware was stolen and tossed into the outhouse pit as a hiding place. Other items found in the pit included three coins, bottles, 21 bullets, leather shoe fragments, and many pieces of animal bone.

Datable artifacts in the pit included three coins, an 1899 penny and two 1902 pennies. A small relief-molded serving platter bore a Homer Laughlin makers' mark dating from 1877-circa 1900. The pit likely filled in the early 1900s.

Feature 170

Outhouse Feature 170 was located just north of Feature 169, and was one of three outhouses found in an east-west row, which were likely constructed at the same time (Figure 2.12). It was found at the back of Lot 9.

The roughly square pit was 1.52 m long and 1.33 m wide. The vertical walls extended downward for 2.83 m to a flat base. The pit contained three major stratigraphic layers. The top layer was moderately compact medium brown sandy silt, with many caliche chunks, a small amount of ash and charcoal, and a relatively small number of artifacts. A later east-west iron water pipe trench cut through the center of the outhouse pit. This layer was the final fill event, with materials dumped in to close and fill the outhouse pit. Below that was loosely compact grayish-green loamy silt with ash and charcoal. Several large chunks of caliche were present, apparently slumped off the sides of the shaft. The third layer was very thick; it was a loosely compact grayish-green loamy silt with a very large number of artifacts. The density of artifacts increased toward the base of the pit. The pit had been dug through the caliche layer into the underlying sand, allowing liquids to percolate from the pit.

Artifacts in the outhouse included a very large number of food, beverage, and medicine bottles, dishes, a food storage crock, a reconstructible Native American vessel, doll dishes, leather shoes, buttons, bone toothbrushes, and animal bone. Three coins were recovered from the pit, but all were very corroded. Two were illegible, a Liberty nickel, produced by the government between 1883 and 1913, and an Indian head penny, which was produced between 1859 and 1909. The third coin probably dates to 1899. A trade token dated between 1882 and 1897 was found. Twelve ceramic vessels bore makers' marks that could be dated. Most dated to the 1890s and early 1900s. The pit was likely filled in the early 1900s.

Feature 171

Feature 171 was the third outhouse pit apparently constructed at the same time (Figure 2.13). It was located on Lot 9 during backhoe stripping, appearing as a large square stain. Like the adjacent Feature 170, a large iron water pipe ran east-west through the center of the pit. Another utility trench cut through the western side of the pit, but did not damage much of the pit.

The pit was square, measuring 1.5 m to a side. The vertical shaft extended down about 1.8 m to the flat base. The pit was filled with grayish-brown silty

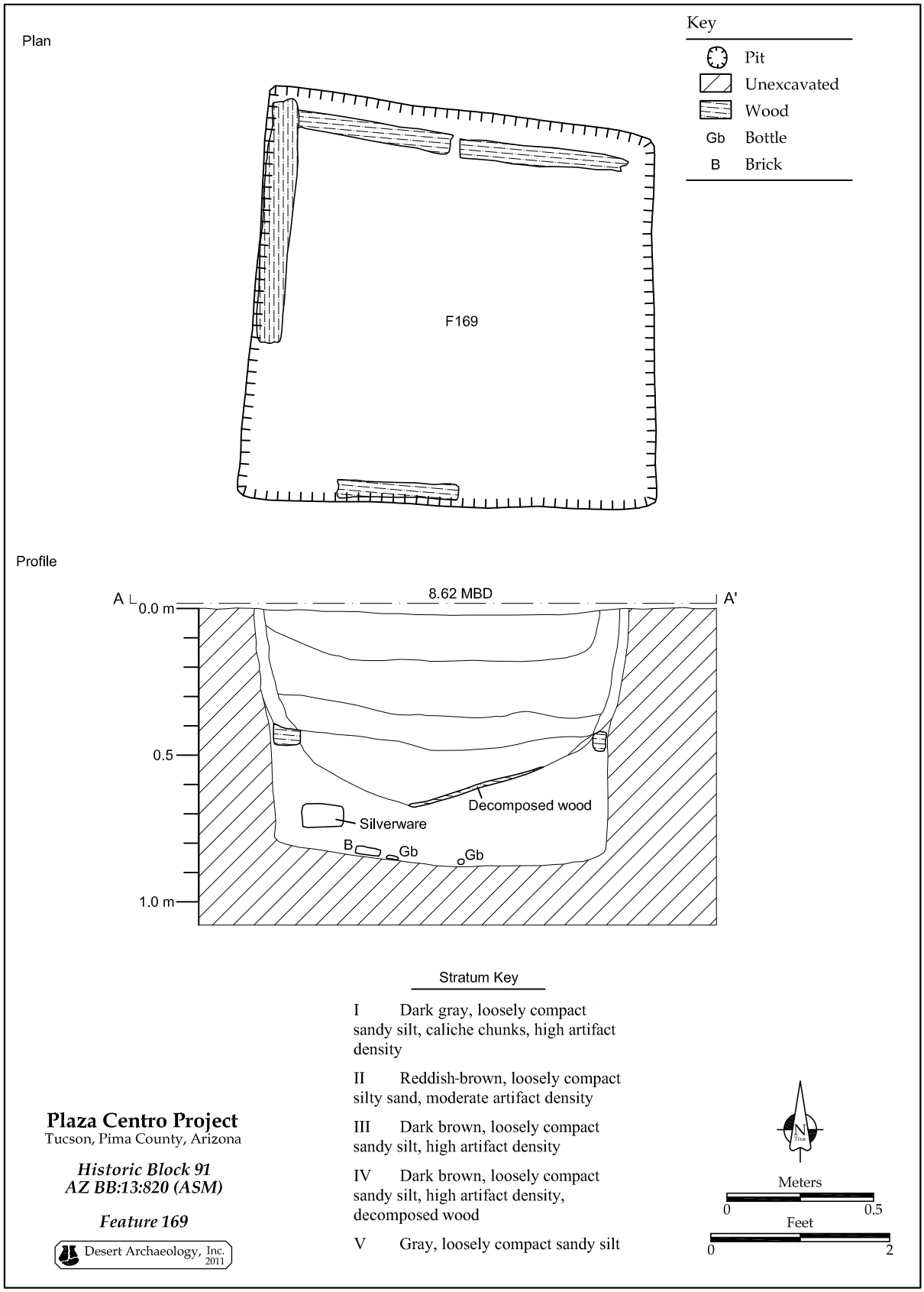


Figure 2.11. Plan view and profile of Feature 169, a privy pit located on Lot 9, Block 91, AZ BB:13:820 (ASM).

sand with occasional lenses of charcoal. Toward the base of the pit was a thick lens of white ash. Unlike other outhouse pits on the block, there was not much green staining toward the base of the pit.

Artifacts found in the pit included a steamer trunk, numerous bottles, two chamber pots, an enema bag, a brass faucet handle, buttons, a decorative carved ivory item that was probably part of a walking stick or cane, fragments of a rubber hose, lard cans, and large quantities of animal bone, including masses of chicken skeletons.

Datable artifacts included an illegible Indian head penny, dating to sometime between 1859 and 1909. Twelve ceramic vessels had datable makers' marks. The most recent was a saucer made by the Homer Laughlin company between 1901-1915. The remaining vessels mostly dated to the 1890s, with one of the chamber pots somewhat earlier, made between 1862 and 1873. The most likely date for the final filling of the pit is the early 1900s.

Feature 183

Feature 183 was an outhouse pit located on Lot 9 (Figure 2.14). The pit was discovered during backhoe stripping, appearing as a dark stain that was partially cut into by the foundation of the Greyhound Bus Station, which had removed the south edge of the outhouse. Because construction of the bus station cut into an unstable pit feature, the foundation extended deeper at this location. Approximately 10 cm of the southern side of the pit had been cut into by the foundation.

The pit was 1.26 m square, and the vertical walls extended down 1.80 m to a flat base. The top of the pit contained a central pocket of mottled fill that included caliche and light tan sand dumped in as the fill of the outhouse pit settled. Below that was a thick layer of mottled brown and light gray silty sand. This layer was approximately 85 cm thick. Below that, extending to the base of the pit, was greenish-brown soft loamy sand, 95 cm deep.

Artifacts found in the pit included bottles, a blue spatterware chamber pot lid, a razor stropping stone, and animal bone. Artifact density in this privy pit was lower than other outhouse pits on the block.

The only datable artifacts were two ceramic vessels with makers' marks, one from about 1885-1897, and the other extending to 1900. The most likely date for the pit is the 1890s or early 1900s.

Feature 190

Feature 190 was located at the southern edge of the stripped area, on Lot 12, appearing as an ashy stain (Figure 2.15). The pit was 1.49 m square. The vertical walls of the shaft extended downward 2.08 m down to a flat base. Several rodent burrows were found cutting through the walls of the pit.

The top of the pit contained caliche and sand, dumped in to close the pit. Below this were layers of brownish-gray sandy loam that extended to the base. The amount of wood ash increased significantly toward the bottom of the pit, including an almost 36-cm-deep layer near the bottom one-third of the pit, lying over a lens of crushed tin cans. The pit did not contain much evidence for fecal materials; instead, most of the fill appeared to be kitchen refuse.

Artifact density for the pit was quite low considering the size and depth of the pit. Restaurant china—plain, thick, undecorated whiteware ceramics—was the most common item found. Other artifacts included a peppersauce bottle, an olive or pickle bottle, a light bulb base, barrel bands, eggshells, and animal bones.

Datable artifacts consisted of 20 ceramic vessels with makers' marks. Five were marked "NEW CASTLE CHINA, NEW CASTLE PA.," and date to after 1901. Another four were marked "HOMER LAUGHLIN CHINA, HOTEL," and dated between 1901 and 1915. Most of the remaining ceramics dated to slightly earlier. The likely date of the filling of the pit was the early 1900s to perhaps 1910. The feature is associated with the S. P. Dining Room, also known as the Espee Restaurant, which was in operation between 1905 and 1912.

SEPTIC TANK

Feature 179

A concrete septic tank was located on Lot 8. The tank was exposed during backhoe stripping but was not excavated. It was 2.1 m long (north-south) and 95 cm wide. The lid was missing, revealing that the tank contained two chambers. The northern chamber was filled with gravel. The southern chamber was originally empty, but was filled with rubble when uncovered. The tank was probably used by either one of the businesses fronting Toole Avenue, or perhaps by the Subway Garage.

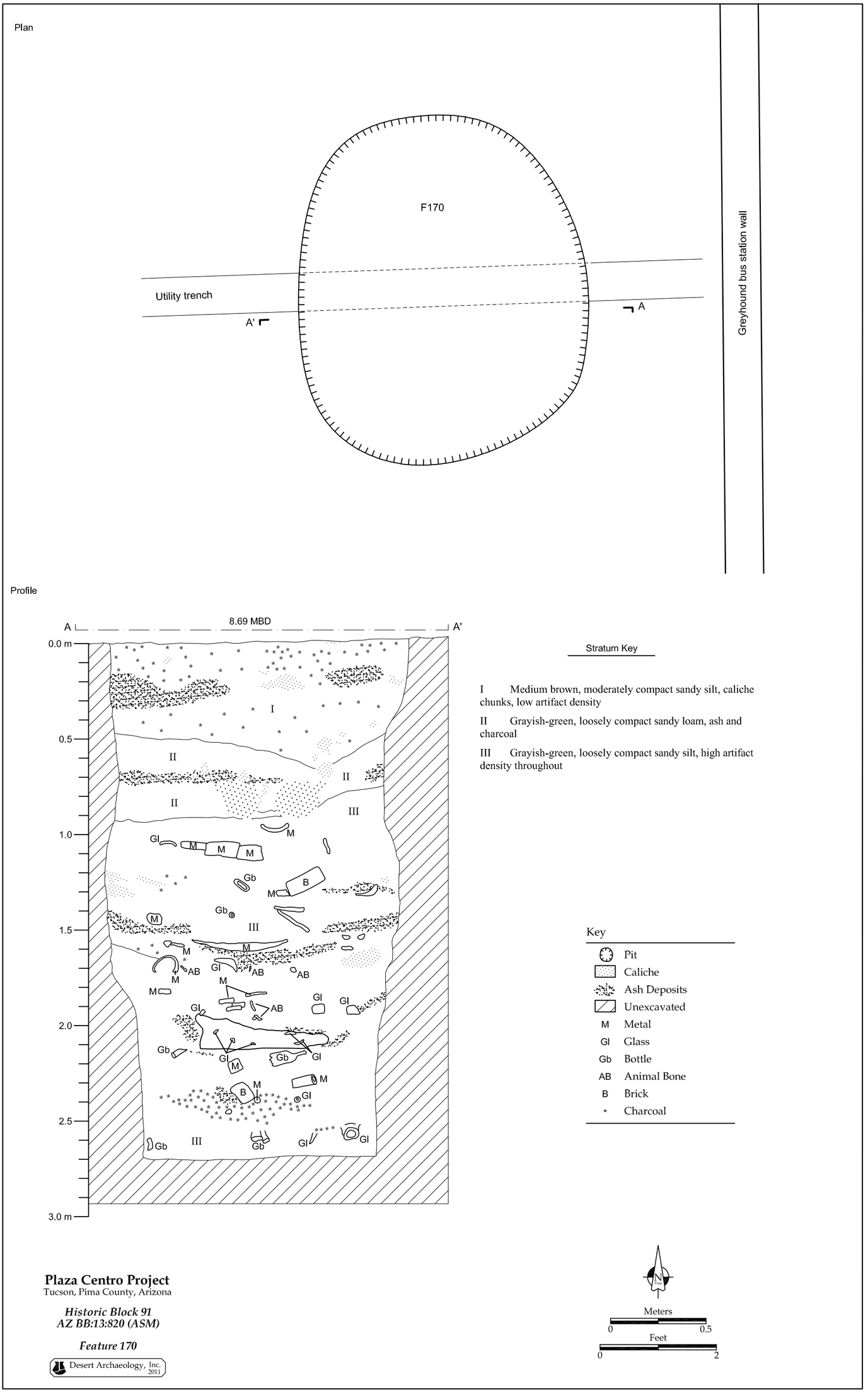


Figure 2.12. Plan view and profile of Feature 170, a privy pit located on Lot 9, Block 91, AZ BB:13:820 (ASM).

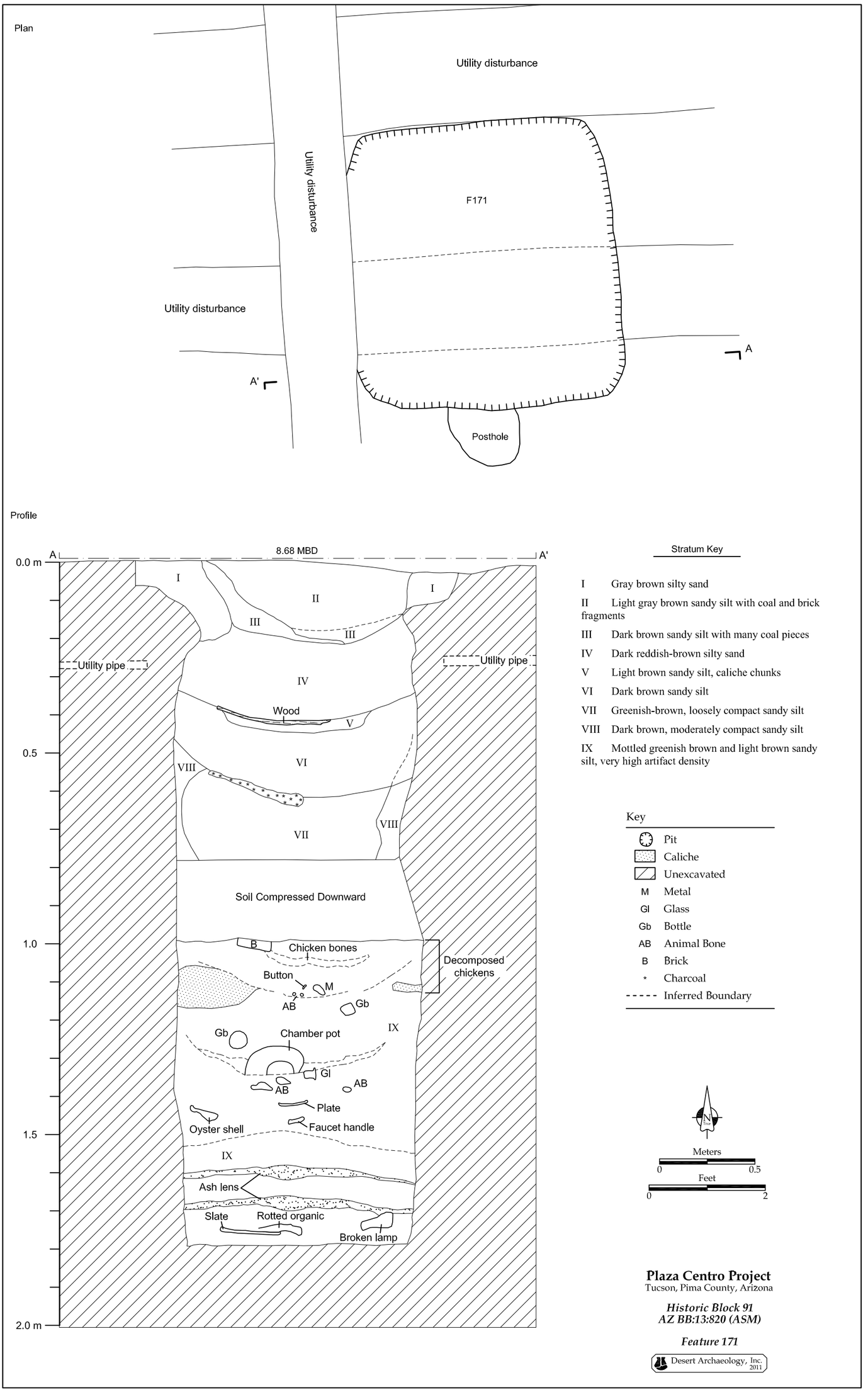


Figure 2.13. Plan view and profile of Feature 171, a privy pit located on Lot 9, Block 91, AZ BB:13:820 (ASM).

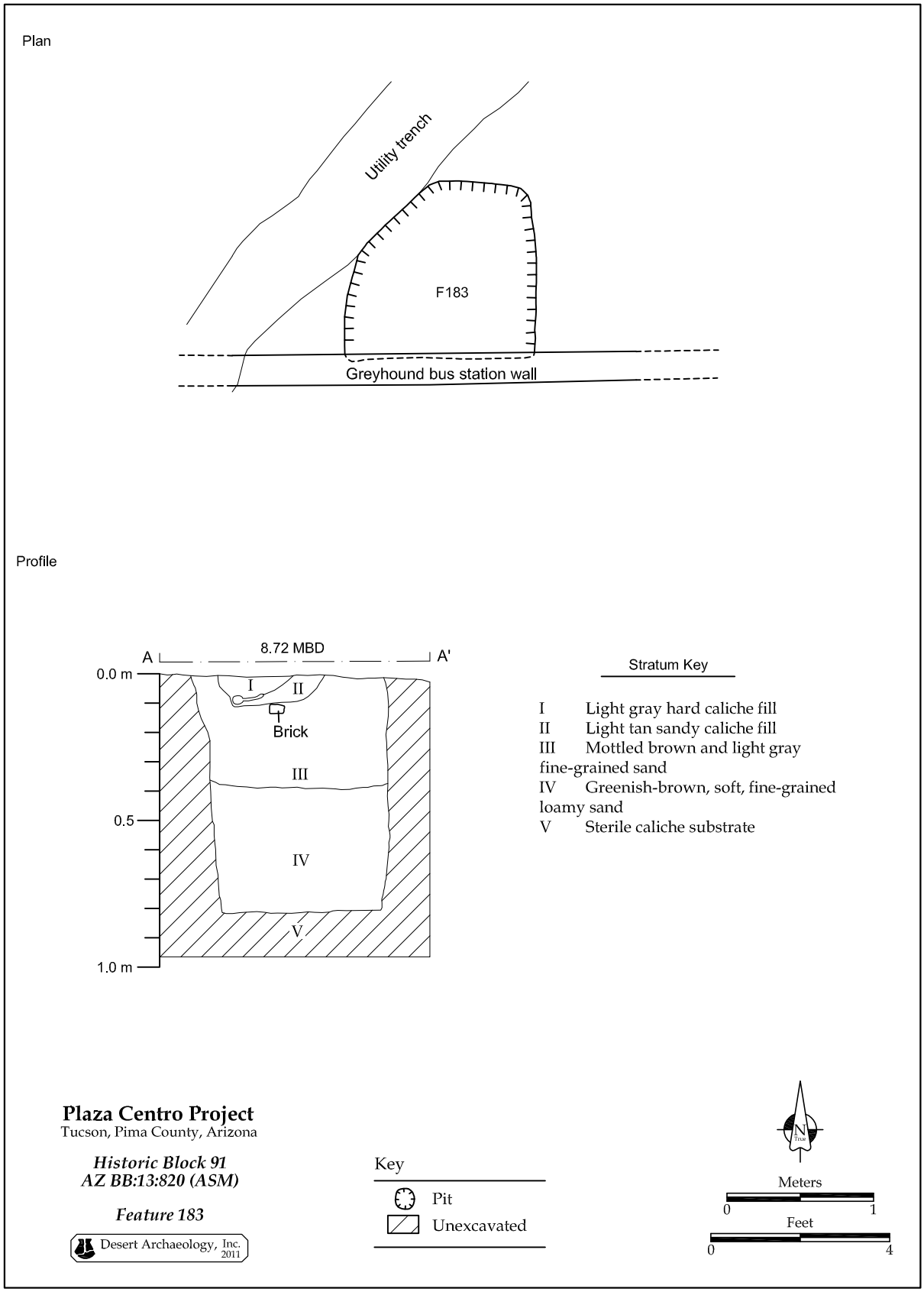


Figure 2.14. Plan view and profile of Feature 183, a privy pit located on Lot 9, Block 91, AZ BB:13:820 (ASM).

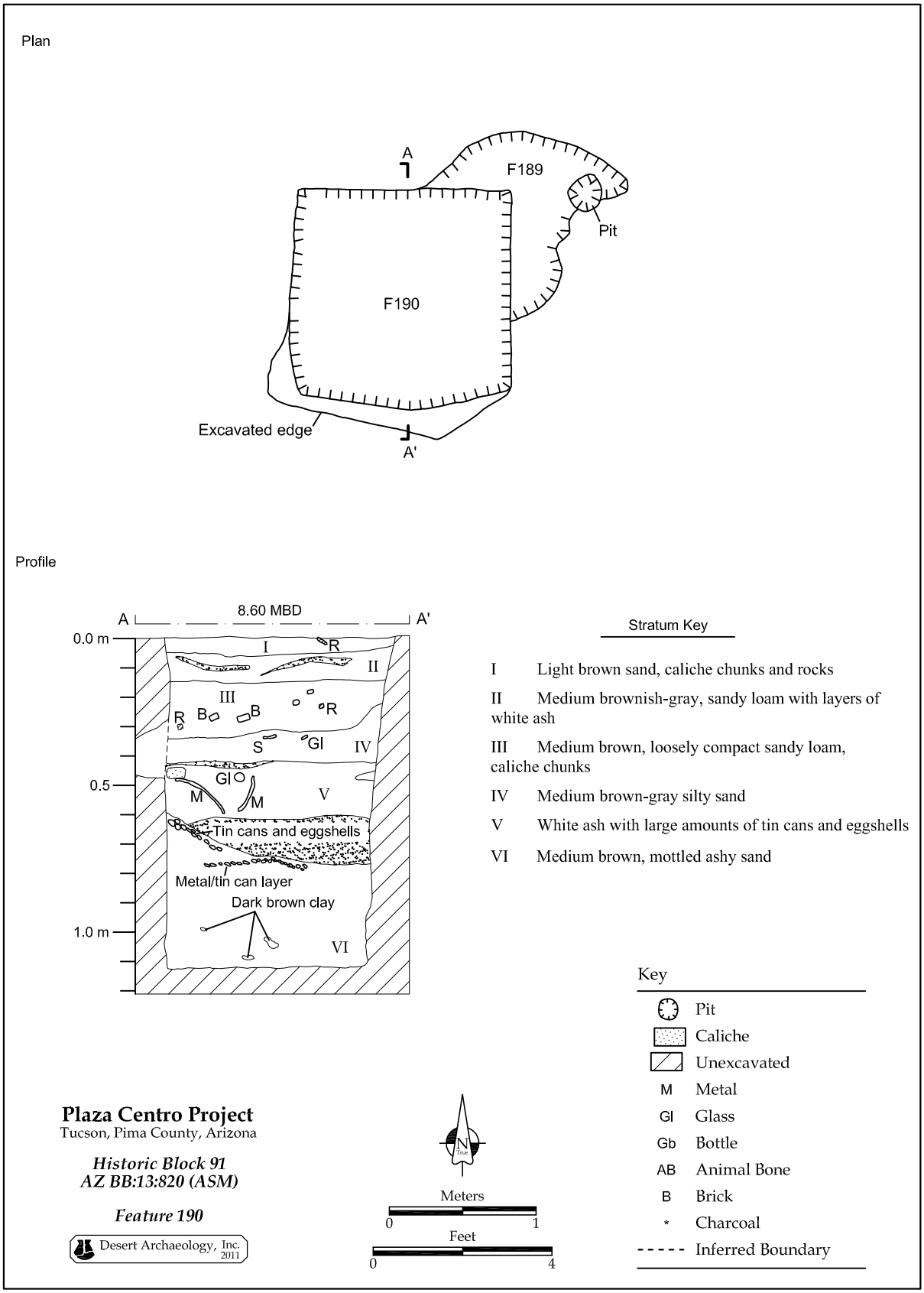


Figure 2.15. Plan view and profile of Feature 190, a privy pit located on Lot 12, Block 91, AZ BB:13:820 (ASM).

ANIMAL BURIALS

Six animal burials were located during fieldwork. Animal burials, usually dogs, are located on most downtown Tucson blocks.

Feature 161: Dog Burial

Feature 161 was a dog burial located on Lot 8 during backhoe stripping. The canid was buried in a shallow, oval pit measuring 80 cm in length (east-west) and 45 cm (north-south) in width. The pit was only 9 cm deep, although some of the fill had been removed by the backhoe.

Figure 2.16. Photograph of Feature 188, a dog burial found on Lot 9, Block 91, AZ BB:13:820 (ASM).

The dog was buried on its left side with the head to the east and rump to the west; the dog's face was pointed south. The legs were also on the south side of the grave and were slightly flexed. Slight green staining and fragments of animal bone were found in the dog's intestinal area, possibly representing the remnants of the dog's last meal. No baculum was present, indicating the dog was likely female.

Feature 172: Cat Burial

Feature 172 was an adult cat burial located on Lot 8 found during excavation of Feature 168, a trash midden. The burial had been cut into the midden. The cat lay in an oval pit, measuring 85 cm in length (southwest-to-northeast) and 41 cm in width. The pit was 15 cm deep, and was filled with medium brown sandy silt.

The cat was buried on its right side, with its head at the southwestern corner of the grave and its rump at the northeastern corner. The cat's head pointed east. The legs were extended, slightly flexed, to the east. There was no evidence for a container or wrapping around the cat.

Feature 188: Dog Burial

Feature 188 was a dog burial found on Lot 9 in the backyard of one of the houses fronting S. Herbert Avenue (Figure 2.16). A rectangular pit, filled with dark grayish-brown compacted sandy loam, was 80 cm long (north-south) and 42 cm wide. The pit was only 7 cm deep.

The dog was buried in a rectangular wooden box. The wood had decomposed, and the only remnants were nails at the north and south side of the box. The dog lay on its right side with its head at the south side and its rump at the north side of the grave. The dog's face pointed northeast. The legs were flexed and lay on the east side of the grave, on top of each other.

Feature 198: Bird Burial

Feature 198 was a bird burial found in the backyard of one of the homes fronting S. Herbert Avenue on Lot 9. The burial intruded into a small, trash-filled pit, Feature 143. The burial area was 30 cm long and 18 cm wide, although the edges of the pit were not discernable. It was 4 cm deep.

The bird lay on its back with its head to the southeast and feet to the northwest. The head was turned to face the east.

Feature 199: Cat Burial

Feature 199 was a cat burial located on Lot 8, found during excavation of Feature 197, a shallow trash-filled midden. The pit was roughly oval, measuring 55 cm in length by 38 cm in width. The fill around the burial, a gray-brown compact sandy silt, was only 8 cm deep. There was no evidence for a coffin or wrapping.

The cat lay on its left side with its head at the northeast corner of the grave and its tail extending to the southwest corner of the grave. The head was

not preserved, and its orientation could not be determined. The legs were flexed, apparently lying on top of each other and slightly disorganized.

Feature 205: Bird Burial

Feature 205 was a small bird burial located in the backyard in Lot 9. The burial was in a small pit measuring 35 cm in length (north-south) and 20 cm in width. It was only 5 cm deep, and was filled with compact light brown silt. The bone was very poorly preserved, and the orientation of the remains could not be determined.

MIDDENS

Two trash midden areas were identified. These were likely shallow depressions on the block, perhaps areas where dirt was mined to make adobe, and that were subsequently used as refuse disposal areas.

Feature 168

Feature 168 was located on Lot 8; it was 2.30 m long and 1.45 m wide. It was about 14 cm deep, and contained moderately compact light brown silty sand with a large amount of charcoal and white ash. Artifact density was high, and included animal bone, glass, Native American ceramics, whiteware, tin can fragments, and nails. The trash was domestic in origin. A cat burial, Feature 172, cut into the northern side of the midden.

Feature 197

Feature 197 was located on the north side of Lot 8. The oval-shaped feature was roughly 2.37 m long and 1.76 m wide. It was up to 11 cm deep, and was filled with dark brown silty sand with many charcoal chunks. The top 5 cm of fill contained many domestic artifacts, with trash decreasing toward the base of the midden. The artifacts appeared to date to the 1880s-1890s. A cat burial, Feature 197, lay below the midden, probably predating it.

PITS

Many pits (n = 65) were found scattered across the stripped portion of Block 91 (Table 2.2). Determining the function of individual pits can be difficult, because few clues are present about why a pit was initially dug. Some of the pits found on Block 91 appear to be planting pits, where residents dug holes into the caliche and planted trees and bushes. The trash found in the bottom of these pits was likely deposited to act as fertilizer. No pits dug specifically for trash disposal were found in the stripped area. Throughout the history of the block, most trash was apparently removed and deposited elsewhere.

KILN OR BRICK OVEN

Feature 107 was an unusual brick-lined kiln, or oven, located on Lot 15 (Figure 2.17). The keyhole-shaped feature was made from fired bricks that had become altered by intense heat, thus crumbling and cracking. A small amount of lime mortar was present among the bricks. A single layer of 20 bricks survived. The feature was 1.51 m long and 92 cm wide. At its deepest, the feature was 17 cm deep. The interior fill was a soft compacted light gray to white ash with charcoal chunks throughout, especially along the northern and southern ends. A few pieces of domestic trash were present in the ash. The caliche forming the interior base of the pit was highly oxidized.

The function of Feature 107 is uncertain. The opening on the north side was only 20 cm wide. The feature had experienced extreme heat, apparently from wood charcoal. No evidence for coal was noted. Possible explanations for the feature include use as a small kiln for firing china, a bread oven, or perhaps a smokehouse. Several historical archaeologists who examined a photograph of the feature did not think it would have been used for firing china.

FENCELINES AND POSTHOLES

The excellent preservation of features allowed several fencelines to be identified. Feature 103 was an east-west alignment of postholes along the eastern side of the Lot 9-Lot 12 boundary. Feature 109 was a north-south alignment of posts marking the boundary between Lots 14 and 15. Another east-west set of postholes, marking the boundary between Lots 8 and 9, was not assigned a distinct feature number. Wooden fences served to delineate backyard spaces on the block, creating privacy and preventing entry from unwelcome visitors. Dozens of other fence posts were located and mapped. Some may represent the location of post-in-ground outbuildings depicted on Sanborn Fire Insurance maps. Others may have been for utility poles or laundry line poles.

Table 2.2. Pits located during the fieldwork on the eastern half of Block 91, AZ BB:13:820 (ASM).

Number	Type	Excavated	Length (m)	Width (m)	Depth (m)	Shape
104	Planting pit	Yes	2.30	1.75+	0.09	Shallow, basin-shaped
105	Planting pit	Yes	1.80	1.45	0.43	Oval
108	Planting pit	Yes	1.90	1.56	0.19	Irregular shape
111	Planting pit	No	0.76	0.76	–	Circular
113	Small pit	No	0.90	0.84	–	Oval
114	Planting pit	No	1.08	0.70	–	Circular
115	Planting pit	No	1.26	1.17+	–	Circular
116	Planting pit	No	0.94	0.60	0.17	–
117	Planting pit	Yes	0.90	0.50	0.29	Irregular shape
118	Planting pit	Yes	1.37	0.80	0.09	Subrectangular
119	Planting pit	No	1.12	0.89	–	Oval
120	Small pit	No	0.84	0.66	–	Oval
124	Large pit	Yes	3.10	1.50	–	Oval, recent
125	Small pit	No	1.22+	0.82	–	Rectangular, planting bed?
126	Large pit	No	1.74	0.74	–	Rectangular, planting bed?
127	Large pit	No	1.13	0.64	–	Oval, gas station-related
128	Small pit	No	0.60+	0.55+	–	Square
129	Trench	No	3.56	0.66	–	Rectangular, gas station-related
132	Large pit	No	1.60	1.03	0.07	Rectangular
133	Planting pit	No	1.48	0.95+	–	Square
135	Planting pit	Yes	0.98	0.87	0.65	Semi-square
137	Small pit	No	0.62	0.24+	–	Rectangular, may be posthole
138	Small pit	Yes	1.25+	0.93	0.27	Subrectangular, similar trash as Feature 130
139	Small pit	Yes	0.81	0.62	0.17	Shallow, basin-shaped
140	Planting pit	Yes	1.40	1.40	0.15	Square, possibly abandoned outhouse pit
141	Small pit	No	1.00	0.50	–	Oblong
142	Small pit	No	0.82	0.35+	0.12	–
143	Small pit	Yes	0.90	0.70	0.22	Irregular shape
144	Planting pit	No	0.62	0.59	–	Circular
145	Metal-lined wooden box	Yes	0.78	0.43	0.14	Zinc-lined rectangular wooden box
146	Planting pit	Yes	0.70	0.32	0.20	Oblong
147	Planting pit	Yes	0.66	0.59	0.23	Circular with irregular base
148	Planting pit	No	0.74	0.56	–	Oval
149	Planting pit	No	0.50	0.23	–	Oval
150	Planting pit	No	0.89	0.86	–	Vircular
151	Planting pit	No	0.71	0.52	–	Oval
152	Small pit	No	1.18	1.13	0.15	Square
153	Large pit	Yes	1.73	1.01	0.13	Oblong, basin-shaped
155	Small pit	Yes	0.75	0.70	0.12	Subrectangular
156	Small pit	No	0.64	0.54	–	Oval
157	Small pit	No	1.02	0.63	0.29	Subrectangular
159	Planting pit	No	0.75	0.51	0.17	Subrectangular
160	Small pit	Yes	0.56	0.37	0.27	Oval, basin-shaped
162	Planting pit	Yes	1.60	0.75	0.30	Irregular shape
163	Small pit	No	0.65	0.40	–	Oval
166	Planting pit	No	0.71	0.50+	–	Rectangular or square
173	Small pit	No	0.62	0.55	–	Oval
176	Small pit	No	0.50	0.36	–	Oval

Table 2.2. Continued.

Number	Type	Excavated	Length (m)	Width (m)	Depth (m)	Shape
177	Small pit	No	0.60	0.46	–	Rectangular
182	Planting pit	No	0.53	0.53	0.13	Square
184	Planting pit	No	0.60	0.53	–	Square
185	Small pit	Yes	0.72	0.38	0.09	Shallow, basin-shaped
186	Small pit	No	0.86	0.50	–	Rectangular
187	Small pit	No	0.69	0.52	0.18	Irregular shape
189	Small pit	Yes	1.24	1.24	0.23	Irregular shape, associated with Feature 190
191	Planting pit	No	1.15	0.40	–	Oval
192	Planting pit	No	1.09	0.67	–	Oval
193	Small pit	No	0.70	0.58	–	Oval
194	Small pit	No	0.50	0.50	0.08	Subrectangular
195	Planting pit	No	0.58	0.50+	–	Subrectangular
200	Small pit	No	1.05	0.42	–	Subrectangular
201	Small pit	Yes	1.40	0.76	0.15	Oblong, basin-shaped
202	Small pit	No	0.84	0.76	–	Probably repair hole for pipes
203	Small pit	No	1.51	0.84	–	Oblong
204	Large pit	No	3.63	2.13	–	Irregular shape

Figure 2.17. Photograph of Feature 107, a possible kiln on Lot 15, Block 91, AZ BB:13:820 (ASM).

SUMMARY

Archaeologists documented a variety of features on the eastern half of Block 91. These included the remnants of residential, commercial, and industrial buildings that once stood around the perimeter of the block. The interior of the block served as the location of backyard privies, a well, animal burials, trash middens, planting pits, and fencelines.

In many ways, Block 91 was typical of early Territorial-era blocks in Tucson. Buildings were constructed close to the street, allowing for an interior courtyard area where activities, such as sleeping outdoors in the summer, could take place. Many Mexican households continued this tradition into the twentieth century, especially in the barrios south of Broadway Boulevard.

Much of downtown Tucson has been rebuilt over the years. The excellent preservation of features beneath the Greyhound Bus Terminal and its parking lot are an example of how modern construction activities have often left cultural resources intact. The exceptions are those buildings with basements, but as many archaeological projects have shown, features are usually intact beneath buildings, lawns, parking lots, sidewalks, and streets throughout the downtown area.

The artifacts recovered from features are reported in Chapters 3, 4, and 7. Many pieces of faunal bone, discussed in Chapter 5, were collected, including beef, pork, mutton, chicken, duck, fish, and doves or pigeons. Botanical information from the flotation and pollen samples are described in Chapter 6.

CHAPTER 3

NATIVE AMERICAN POTTERY FROM THE EASTERN HALF OF HISTORIC BLOCK 91

James M. Heidke
Desert Archaeology, Inc.

A total of 534 sherds, representing no fewer than 62 vessels, was recovered from 24 features located in the eastern half of Historic Block 91, AZ BB:13:820 (ASM). Virtually all of the historic Native American pottery recovered from Block 91 belongs to the "Papago" (Tohono O'odham) ceramic series, as discussed by Haury (1975), Fontana et al. (1962), Doelle (1983), Thiel and Faught (1995), Whittlesey (1997), Heidke (2002, 2003a, 2003b, 2005a, 2005b, 2006, 2008a, 2008b, 2009), and Heidke et al. (2010). Well-dated contexts fall within the latter portion of the American Territorial period (1881-1910).

ANALYSIS METHODS

Contextual Analyses

Following the procedure initiated by Wallace (1985:83), all the sherds recovered from a feature were laid out together in the order of the contexts and levels excavated. In many cases, a number of sherds within a bag or from different strata, levels, or bags within a feature conjoined (that is, the pieces literally fit together), while in other cases, aspects of the decoration or morphology and temper of a sherd 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 vessel. Because all the sherds recovered from a feature were laid out at one time, it was possible to quickly determine if pieces of the same pot were recovered from more than one vertical or horizontal provenience unit (Kobyliński and Moszcyński 1992). In this way, a more accurate estimate of the minimum number of vessels present in each deposit was obtained (Voss and Allen 2010). Up to 90 ft^2 of analysis space was available at any one time to lay out a feature's ceramic collection. In all, six sets of intra-feature conjoining or matching sherds was identified (Table 3.1).

Ceramic Attribute Analysis

The coding index used to record provenience, typological, technological, and morphological data is available elsewhere (Heidke 2006:Table 7.1). Additional qualitative and metric attribute data were recorded from a subsample of the pottery collection (all rim and decorated sherds); the coding index used for that analysis is also available elsewhere (Heidke 2006:Table 7.3). Two attributes of the pottery deserve additional explanation, temper type and vessel function.

Temper Type

Native American pottery produced in the Greater Southwest often contains abundant non-plastic "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 ("grog"), 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).

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 (Miksa 2011). 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. Temper attributes were recorded after examination of each sherd at 15-x magnification, using a Unitron ZSM binocular microscope fitted with a Stocker and Yale Lite Mite Series 9 circular illuminator.

Table 3.1. Summary of analyzed feature contexts having conjoining or matching sherd sets, Block 91, AZ BB:13:820 (ASM).

Feature Number	Conjoin/Match Number	Number of Sherds (Context[a])
130	Conjoin No. 1	34 (50, L2; 50.01, L1-2)
158	Conjoin No. 2	137 (50, L2; 50.01, L1)
158	Conjoin No. 3	2 (50.01, L2-3)
158	Match No. 4	28 (50, L1-2; 50.01, L1)
170	Match No. 5	83 (50, L1; 50.01, L2-3; 50.02, L1-4 and L6-8)
170	Conjoin No. 6	11 (50.02, L7-8)

[a]Contexts 50, 50.01, and 50.02 call out distinct fill episodes within a primary, extramural feature.

Vessel Function

Two different approaches were utilized to assess the likely uses pottery played in the lives of the site's occupants. The first approach is strictly typological, and it entailed the assignment of rim sherds and reconstructible vessels to vessel form categories originally created to classify the region's prehistoric pottery (Kelly 1978). The second approach examined a subset of those sherds—ones 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 are based on characteristics of historic and modern Piman, Yuman, and Puebloan pottery. The ethnographically based model that resulted from Braun's (1980) work provides an objective and replicable way to examine pottery function, regardless of when or where a pot was made. 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, most historic sherds could not be assigned to a vessel form or to a Shepard-Braun functional category. Some of those rims were classified as an "indeterminate flare-rim" form. Indeterminate flare-rim vessels may represent as many as 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.

HISTORIC POTTERY

Unfortunately, 15 ceramic-bearing features could not be dated. Those features yielded 153 sherds, representing no fewer than 33 vessels (Table 3.2). Six of the features were planting pits (Features 105, 135, 140, 146, 147, and 162), two were trash middens (Features 168 and 197), two were small pits (Features 138 and 155), one was a large pit (Feature 153), one was a sawmill pit (Feature 165), one was a well (Feature 106), one was a domestic cat burial (Feature 172), and the final context was a metal-lined wooden box (Feature 145).

To review the ceramic data for temporal trends, well-dated contexts were assigned to one of three temporal sets: 1880s-1900, 1891-1905, or 1900-1910. The 1880s-1900 set is comprised of outhouse pit Feature 169, whose fill is dated 1881-1890s, outhouse pit Feature 112, whose fill is dated 1883-1890s, outhouse pit Feature 183, whose fill is dated 1885-1897, and planting pit Feature 104 and outhouse pit Feature 130, both of whose fills are dated 1891-1900. Outhouse pit Feature 170 is the only member of the 1891-1905 set. The 1900-1910 set is comprised of outhouse pit Feature 158, whose fill is dated 1900-1905, outhouse pit Feature 171, whose fill is dated 1901-1905, and outhouse pit Feature 190, whose fill is dated 1901-1910.

Data tables are formatted following a standardized approach developed during the last decade. It has been used to report attributes of historic Native American pottery recovered from Block 83, AZ BB:13:401 (ASM) (Heidke 2009), Block 95, AZ BB:13:809 (ASM) (Heidke et al. 2010), 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 181, AZ BB:13:13 (ASM) (Heidke 2006, 2008b), Block 185, AZ BB:13:757 (ASM) (Heidke 2008a), and the León farmstead, AZ BB:13:505 (ASM) (Heidke 2005a, 2005b). Following a standardized method of reportage facilitates the synthesis of data gathered from multiple contexts at one site or many.

Historic O'odham Pottery from Block 91, circa 1880s-1900 Contexts

In total, 48 pottery sherds, representing portions of at least eight individual vessels, were recovered from 1880s-1900 contexts on Block 91 (Table 3.3). Additional information regarding characteristics of

Table 3.2. Native American pottery types recovered from undated contexts, Block 91, AZ BB:13:820 (ASM).

	Vessel Part							
	Body		Rim		Neck		Row Total	
Ceramic Type	MNV[a]	Sherd Count	MNV	Sherd Count	MNV	Sherd Count	MNV	Sherd Count
Historic Native American Types, Papago Series								
Sobaipuri Plain (folded rim coil)	0	0	1	1	0	0	1	1
Papago Plain	5	22	2	5	2	10	9	37
Papago Red	5	71	12	18	1	21	18	110
Possible Papago Red	1	1	0	0	0	0	1	1
Papago Black-on-red	2	2	1	1	0	0	3	3
Possible Papago Black-on-brown	1	1	0	0	0	0	1	1
Column Total	14	97	16	25	3	31	33	153

[a]MNV = Minimum number of vessels.

Table 3.3. Native American pottery types recovered from 1880s-1900 contexts, Block 91, AZ BB:13:820 (ASM).

	Vessel Part							
	Body Sherd		Rim Sherd		Reconstructible Vessel		Row Total	
Ceramic Type	MNV[a]	Sherd Count	MNV	Sherd Count	MNV	Sherd Count	MNV	Sherd Count
Historic Native American Types, Papago Series								
Papago Plain	1	2	0	0	0	0	1	2
Papago Red	1	5	2	4	1	34	4	43
Possible Papago Red	1	1	1	1	0	0	2	2
Possible Papago Black-on-red	1	1	0	0	0	0	1	1
Column Total	4	9	3	5	1	34	8	48

[a]MNV = Minimum number of vessels.

the red-slipped pottery types recovered from those contexts is provided in Table 3.4.

Temper Attributes

Temper Type. Temper type data are summarized in Table 3.5. Only one composition was observed, sand and fiber (presumably manure).

Temper Provenance. Temper provenance data are summarized in Table 3.6. Forty percent of the characterized vessels contain nonlocal sands from the granitic and mixed lithic Black Mountain Petrofacies. Temper in the remaining sherds was characterized as coming from indeterminate sources. The nonlocal granitic Sierrita Petrofacies is the likely source of the sherds characterized as containing sand from an indeterminate granitic source; verifying that assignment would require petrographic analysis. The remaining sherd could not be assigned to a specific source using only the binocular microscope; therefore, its temper provenance was recorded as "indeterminate."

Pottery Function

Typological Approach. The vessel form of Territorial-era O'odham pottery recovered from 1880s-1900 contexts on Block 91 is reported in Table 3.7.

Shepard-Braun Approach. The count of sherds in each functional category is summarized in Table 3.8, by ceramic type. The Papago Red pottery in categories C and E was well-suited for temporary storage, perhaps especially, water storage and cooling. Although their size and morphology indicate they could have been used to cook foods, it is unlikely that either of these red-slipped vessels were used in that way.

Historic O'odham Pottery from Block 91, circa 1891-1905 Context

A total of 111 pottery sherds, representing portions of at least six individual vessels, was recovered from the 1891-1905 context on Block 91 (Table

Table 3.4. Location of slip on historic Papago Red pottery recovered from 1880s-1900 contexts, Block 91, AZ BB:13:820 (ASM).

	Vessel Part			
		Rim Sherds[a]		
Slip Location	Body Sherds	Jar	Indeterminate	Row Total
Exterior only	4	0	0	4
Exterior, rim, and interior band below rim	0	2	0	2
Full slip	1	0	1	2
Column Total	5	2	1	8

[a]The "rim" sherd category includes rims and reconstructible vessels.

Table 3.5. Three-way classification of historic ceramic types recovered from 1880s-1900 contexts, by vessel part and temper type, Block 91, AZ BB:13:820 (ASM). (The "body" sherd category includes body and neck sherds; the "rim" sherd category includes rims and reconstructible vessels.)

Ceramic Type	Sand and Fiber
Papago Red	
Body	5
Rim	3
Possible Papago Red	
Body	1
Rim	1
Papago Plain	
Body	2
Possible Papago Black-on-red	
Body	1
Column Total	13

3.9). Additional information regarding characteristics of the red-slipped pottery types recovered from this context is provided in Table 3.10.

Temper Attributes

Temper Type. Temper type data are summarized in Table 3.11. Only one composition was observed, sand and fiber (presumably manure).

Temper Provenance. Temper provenance data are summarized in Table 3.12. One Papago Red rim sherd contained nonlocal sand from the granitic and mixed lithic Black Mountain Petrofacies. Temper in the remaining sherds was characterized as coming from indeterminate sources. The nonlocal granitic Sierrita Petrofacies is the likely source of the three sherds characterized as containing sand from an indeterminate granitic source; verifying that assignment would require petrographic analysis. One sherd contained sand from an unspecified, and likely nonlocal, volcanic source. The remaining sherd could not be assigned to a specific source using only the binocular microscope; therefore, its temper provenance was recorded as "indeterminate."

Pottery Function

Typological Approach. The vessel form of Territorial-era O'odham pottery recovered from the 1891-1905 context is reported in Table 3.13.

Shepard-Braun Approach. The count of sherds in each functional category is summarized in Table 3.14, by ceramic type. The Papago Black-on-red pitcher in category B would have made an excellent water carrying vessel (Figure 3.1). The Papago Black-on-red and Papago Plain bowls in category M could have been used in serving small groups (Figures 3.2 and 3.3, respectively), although the plain vessel would also have been useful in preparing food.

Historic O'odham Pottery from Block 91, circa 1900-1910 Contexts

A total of 222 pottery sherds, representing portions of at least 15 individual vessels, was recovered from 1900-1910 contexts on Block 91 (Table 3.15). Additional information regarding characteristics of the red-slipped pottery types recovered from these contexts is provided in Table 3.16.

One unusual vessel was recovered from the upper fill of outhouse pit Feature 158. The lower fill is dated 1900-1905, while the upper fill dates to after 1905. This vessel has been typed as Sikyatki Revival (Figure 3.4). Its clay body is uniformly light grayish-white, and almost lustrously polished on the exterior surface but wiped or scraped on the interior surface. Temper is abundant, at least 60 percent by volume, subrounded to rounded, mixed volcanic (rhyolitic) and granitic sand. The potter's primary forming technique appears to have been paddle-and-anvil, given that voids in the paste run parallel to the interior and exterior vessel walls and there are no indications of coil overlap. The black paint is carbon. The red paint is somewhat fugitive. Although the extant span of rim is not ideal, the vessel form

Table 3.6. Three-way classification of historic ceramic types recovered from 1880s-1900 contexts, by vessel part and temper source, Block 91, AZ BB:13:820 (ASM). (The "rim" sherd category includes rims and reconstructible vessels.)

	Temper Source			
Ceramic Type	Black Mountain Petrofacies	Indeterminate Granitic Source	Indeterminate Source	Row Total
Papago Red				
Rim	1	2	0	3
Possible Papago Red				
Rim	1	0	0	1
Possible Papago Black-on-red				
Body	0	0	1	1
Column Total	2	2	1	5

Table 3.7. Frequency of rim sherds and reconstructible vessels from 1880s-1900 contexts, reported by ceramic type and vessel form class, Block 91, AZ BB:13:820 (ASM).

	Historic Native American Ceramic Type		
Vessel Form	Papago Red	Possible Papago Red	Row Total
Jar Forms			
Tall flare-rim	2	0	2
Short flare-rim	0	1	1
Indeterminate Forms			
Indeterminate form	1	0	1
Column Total	3	1	4

Table 3.8. Frequency of rim sherds and reconstructible vessels from 1880s-1900 contexts, reported by ceramic type and functional category, Block 91, AZ BB:13:820 (ASM).

Functional Category	Papago Red
Independent Restricted Vessels	
C: Cooking (small- to medium-sized groups), temporary storage, and/or water cooling (13.0-25.5 cm aperture diameter)	1
E: Cooking (large group) and/or temporary storage (32.0-38.5 aperture diameter)	1

Table 3.9. Native American pottery types recovered from the 1891-1905 contexts, Block 91, AZ BB:13:820 (ASM).

	Vessel Part[a]									
	Body[b]		Rim		Reconstructible Vessel		Neck		Row Total	
Ceramic Type	MNV[c]	Sherd Count	MNV	Sherd Count	MNV	Sherd Count	MNV	Sherd Count	MNV	Sherd Count
Historic Native American Types, Papago Series										
Papago Plain	N/A	0	0	0	1	2	N/A	0	1	2
Papago Red	N/A	4	2	2	1	83	N/A	1	3	90
Papago Black-on-red	0	0	0	0	2	19	0	0	2	19
Column Total	0	4	2	2	4	104	0	1	6	111

[a]Body and neck sherds of the plain and red ware types were not inspected for conjoins with the rim sherds or reconstructible vessel; therefore, minimum number of vessel (MNV) estimates are not available (N/A) for those ware and vessel part combinations.
[b]Body sherd count includes handles.
[c]MNV = Minimum number of vessels.

Table 3.10. Location of slip on historic Papago Red pottery recovered from the 1891-1905 contexts, Block 91, AZ BB:13:820 (ASM).

	Vessel Part				
			Rim Sherds[a]		
Slip Location	Body Sherds	Neck Sherds	Jar	Indeterminate flare-rim	Row Total
Exterior only	4	0	0	0	4
Full slip	0	1	0	2	3
Exterior, rim, and interior band below rim	0	0	1	0	1
Column Total	4	1	1	2	8

[a]The "rim" sherd category includes rims and reconstructible vessels.

appears to be that of a seed jar or incurved bowl, with pinched/scalloped fluting/ruffling elaboration just below the lip. The type assignment was made by Charles Adams, Arizona State Museum Research Division, and Andrew Higgins, Arizona State Museum Collections Division.

Temper Attributes

Temper Type. Temper type data are summarized in Table 3.17. Only one composition was observed, sand and fiber (presumably manure). Interestingly, one of the Papago Plain rim sherds contained a charred seed in its paste. Paleobotanist Michael Diehl (personal communication 2012) identified it as a wheat seed.

Table 3.11. Three-way classification of historic ceramic types recovered from the 1891-1905 contexts, by vessel part and temper type, Block 91, AZ BB:13:820 (ASM). (The "body" sherd category includes body and neck sherds; the "rim" sherd category includes rims and reconstructible vessels.)

Ceramic Type	Sand and Fiber
Papago Red	
Body	5
Rim	3
Papago Plain	
Rim	1
Papago Black-on-red	
Rim	2
Column Total	11

Temper Provenance. Temper provenance data are summarized in Table 3.18. Twenty percent of the characterized vessels contain nonlocal sands from the granitic and mixed lithic Black Mountain Petrofacies. Temper in the remaining sherds was characterized as coming from indeterminate sources. The nonlocal granitic Sierrita Petrofacies is the likely source of the five sherds characterized as containing sand from an indeterminate granitic source; verifying that assignment would require petrographic analysis. The remaining three sherds could not be assigned to a specific source using only the binocular microscope; thus, their temper provenance was recorded as "indeterminate."

Pottery Function

Typological Approach. The vessel form of Territorial-era O'odham pottery recovered from 1900-1910 contexts is reported in Table 3.19.

Shepard-Braun Approach. The count of sherds in each functional category is summarized in Table 3.20, by ceramic type. The Papago Red pottery in

Table 3.12. Three-way classification of historic ceramic types recovered from 1891-1905 contexts, by vessel part and temper source, Block 91, AZ BB:13:820 (ASM). The "rim" sherd category includes rims and reconstructible vessels.

	Temper Source				
Ceramic Type	Black Mountain Petrofacies	Indeterminate Granitic Source	Indeterminate Volcanic Source	Indeterminate Source	Row Total
Papago Red					
Rim	1	2	0	0	3
Papago Black-on-red					
Rim	0	1	1	0	2
Papago Plain					
Rim	0	0	0	1	1
Column Total	1	3	1	1	6

Table 3.13. Frequency of rim sherds and reconstructible vessels from the 1891-1905 contexts, reported by ceramic type and vessel form class, Block 91, AZ BB:13:820 (ASM).

	Historic Native American Ceramic Type			
Vessel Form	Papago Red	Papago Black-on-red	Papago Plain	Row Total
Bowl Forms				
Semi-flare-rim, hemispherical	0	1	1	2
Jar Forms				
Indeterminate jar	1	0	0	1
Pitcher Forms				
Pitcher	0	1	0	1
Indeterminate Forms				
Indeterminate flare-rim form	1	0	0	1
Column Total	2	2	1	5

Table 3.14. Frequency of reconstructible vessels from the 1891-1905 contexts, reported by ceramic type and functional category, Block 91, AZ BB:13:820 (ASM).

	Historic Native American Ceramic Type		
Functional Category	Papago Black-on-red	Papago Plain	Row Total
Independent Restricted Vessels			
B: Permanent, secure storage and/or water carrying (6.0-12.5 cm aperture diameter)	1	0	1
Unrestricted Vessels (Deep)			
M: Food preparation and/or small group serving (13.0-25.5 cm orifice diameter)	1	1	2
Column Total	2	1	3

Figure 3.1. Papago Black-on-red pitcher recovered from outhouse pit Feature 170, Block 91, AZ BB:13:820 (ASM) (Catalog No. 189).

Figure 3.2. Papago Black-on-red small groups serving vessel recovered from outhouse pit Feature 170, Block 91, AZ BB:13:820 (Catalog No. 190).

category C was well-suited for temporary storage and/or water cooling. The Papago Black-on-red bowl in category N and the Papago Red bowl in category O would have made excellent large group serving vessels.

Figure 3.3. Papago Plain small groups serving vessel recovered from outhouse pit Feature 170, Block 91, AZ BB:13:820 (ASM) (Catalog No. 191).

A Brief Review of O'odham Pottery Technology as Reflected in the Block 91 Ceramics and Other Collections Recovered from 1880-1920 Deposits

Information recorded from pottery recovered from well-dated deposits at Block 91 and eight contemporaneous sites is summarized in Table 3.21. The ceramic attribute data compiled in this table were recorded from pottery recovered at the León farmstead (Heidke 2005a, 2005b), Block 83 (Heidke 2009), Block 95 (Heidke et al. 2010), Block 136 (Heidke 2002), Block 139 (Heidke 2003a), Block 172 (Heidke 2003b), Block 181 (Heidke 2006, 2008b), and Block 185 (Heidke 2008a). Cases are sorted on the midpoint of each deposit's date range; ties are ordered by sample size (largest to smallest). The length of deposition represented in each data set ranges from 5-40 years, with a mean average of 17 years.

The attribute frequency data reported in Table 3.21 reflect both decisions made by the potters—temper type, occurrence of folded rim coils, location of red slips, and decorated paint and slip color schemes—and consumer preference (type frequency, vessel function implied by slip location). All of these attributes are characteristics of "Papago" pottery that contributed to the ceramic typology of Fontana et al. (1962:101-116). The temper type, slip location, and ware frequency data are based on sherd counts, while the folded rim data are based on minimum number of vessel counts.

Each variable was reviewed for outlying values—that is, values that are so high or low that they stand apart from the other cases (Velleman and Hoaglin 1981)—because none of the variables in the 15 data sets appeared to exhibit appreciable variation over time or between locations. In total, 17 outlying values were identified. Twelve of these occur in the deposits recovered from the León farmstead and two of the four 1880-1900 data sets (Blocks 181 and 185). Those two 1880-1900 data sets likely ex-

Table 3.15. Native American pottery types recovered from 1900-1910 contexts, Block 91, AZ BB:13:820 (ASM).

	Vessel Part[a]									
	Body		Rim		Reconstructible Vessel		Neck		Row Total	
Ceramic Type	MNV[b]	Sherd Count	MNV	Sherd Count	MNV	Sherd Count	MNV	Sherd Count	MNV	Sherd Count
Historic Native American Types, Papago Series										
Papago Plain	1	6	2	2	0	0	1	2	4	10
Papago Red	1	37	6	6	1	137	1	2	9	182
Papago Black-on-red	0	0	1	2	0	0	0	0	1	2
Hopi-Tewa										
Sikyatki Revival	0	0	0	0	1	28	0	0	1	28
Column Total	2	43	9	10	2	165	2	4	15	222

[a]Body and neck sherds of the plain and red ware types 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 3.16. Location of slip on historic Papago Red pottery recovered from 1900-1910 contexts, Block 91, AZ BB:13:820 (ASM).

	Vessel Part					
			Rim Sherds[a]			
Slip Location	Body Sherds	Neck Sherds	Jar	Bowl	Indeterminate flare-rim	Row Total
Exterior only	33	1	0	0	0	34
Full slip	3	0	1	0	1	5
Exterior, rim, and interior band below rim	0	1	2	0	1	4
Indeterminate	1	0	0	1	1	3
Column Total	37	2	3	1	3	46

[a]The "rim" sherd category includes rims and reconstructible vessels.

Figure 3.4. Sikyatki Revival seed jar recovered from outhouse pit Feature 158, Block 91, AZ BB:13:820 (ASM) (Catalog No. 192).

Table 3.17. Three-way classification of historic ceramic types recovered from the 1900-1910 contexts, by vessel part and temper type, Block 91, AZ BB:13:820 (ASM). (The "body" sherd category includes body and neck sherds; the "rim" sherd category includes rims and reconstructible vessels.)

Ceramic Type	Sand and Fiber
Papago Red	
Body	39
Rim	7
Papago Plain	
Body	8
Rim	2
Papago Black-on-red	
Rim	1
Column Total	57

hibit some temporal mixing with earlier material (Heidke 2008a:45, 2008b:127). The 1887-1901 data set from Block 95, the 1891-1905 data set from Block 91, and the 1890-1910 data set from Block 181 contain the other outlying values. The 1890-1910 data set from Block 181 also likely exhibits some temporal mixing with earlier material (Heidke 2008b:132).

Frequencies of sand and crushed sherd temper greater than 2 percent (three cases), sand and fiber temper less than 80 percent (2 cases), occurrence of folded rims greater than 2 percent (three cases), plain ware greater than 12 percent (three cases), red ware 0.2 percent (three cases), total painted wares greater than 18 percent (one case), interior red slip greater than 25 percent (one case), and exterior red slip less than 75 percent (one case) are the outlying values.

Review of the temper type and folded rim percentage data shows that sand- and sand-and-crushed sherd tempering, folding of the rim to make a rim coil, and applying a red slip to pottery that was not tempered with fiber/manure were approaches to pottery making Tohono O'odham potters in the Tucson area rarely followed after 1887, or, if they did, pottery exhibiting those traits did not enter the local economy, as reflected in these archaeological deposits. Among the 1887-1920 deposits, the greatest amount of variability occurs in the percentage of Papago Plain, Papago Red, and the decorated Papago types present in each data set. This variability likely reflects consumer preference, rather than potter behavior.

Table 3.18. Three-way classification of historic ceramic types recovered from 1900-1910 contexts, by vessel part and temper source, Block 91, AZ BB:13:820 (ASM). (The "rim" sherd category includes rims and reconstructible vessels.)

	Temper Source			
Ceramic Type	Black Mountain Petrofacies	Indeterminate Granitic Source	Indeterminate Source	Row Total
Papago Red				
Rim	2	2	3	7
Papago Black-on-red				
Rim	0	1	0	1
Papago Plain				
Rim	0	2	0	2
Column Total	2	5	3	10

Table 3.19. Frequency of rim sherds and reconstructible vessels from 1900-1910 contexts, reported by ceramic type and vessel form class, Block 91, AZ BB:13:820 (ASM).

	Historic Native American Ceramic Type				
Vessel Form	Papago Red	Papago Black-on-red	Papago Plain	Possible Laguna Polychrome	Row Total
Bowl Forms					
Semi-flare-rim, outcurved	1	1	0	0	2
Jar Forms					
Tall flare-rim	3	0	0	0	3
Indeterminate Forms					
Indeterminate flare-rim form	3	0	2	0	5
Indeterminate bowl or seed jar	0	0	0	1	1
Column Total	7	1	2	1	11

Table 3.20. Frequency of rim sherds and reconstructible vessels from 1900-1910 contexts, reported by ceramic type and functional category, Block 91, AZ BB:13:820 (ASM).

	Historic Native American Ceramic Type		Row
Functional Category	Papago Red	Papago Black-on-red	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	0	2
Unrestricted Vessels (Deep)			
N: Communal serving/eating (26.0-31.5 cm orifice diameter)	0	1	1
O: Communal serving/eating (32.0-38.5 aperture diameter)	1	0	1
Column Total	3	1	4

The high percentage of Papago Red sherds slipped on their exterior surface suggests most of those vessels were jars. As noted, vessels assigned to Shepard-Braun categories C and E were likely used for storing and cooling water, an interpretation supported by many historic observations (*Arizona Citizen* 1876a; *Arizona Weekly Citizen* 1883e; Dobyns 1972; Hand 1994; Hosmer et al. 1991; Naranjo 2002). The sherds of exterior-slipped Papago Red vessels probably represent portions of other water storage/cooling vessels. Based on nineteenth century accounts, one of those jars typically held 3-5 gallons of water (*Arizona Weekly Citizen* 1883e; *New York Times* 1859).

Berger (1893:117) reported that demand for pottery serving those functions decreased after ice manufactories were established in Tucson, at least one of which, M. E. Clark's, went into operation in late 1879 (*Arizona Citizen* 1880). Availability of municipal water beginning in the 1880s further contributed to the demise of this important Tohono O'odham economic activity.

Table 3.21. Summary of temporal changes in select technological attributes of historic Tohono O'odham pottery recovered from excavations at the León farmstead and historic Blocks 83, 91, 95, 136, 139, 172, 181, and 185, circa 1880-1920.

Name or Block Number	León Farmstead	181	185	83	91	139	95	172	91	83	181	83	136	91	83
AZ ASM Site Number	BB:13:505	BB:13:13	BB:13:756	BB:13:401	BB:13:820	BB:13:644	BB:13:809	BB:13:668	BB:13:820	BB:13:401	BB:13:13	BB:13:401	BB:13:513	BB:13:820	BB:13:401
Date Range (A.D.)	1880-1890	1880-1900	1880-1900	1880-1900	1880-1900	1890-1895	1887-1901	1891-1901	1891-1905	1880-1920	1890-1910	1891-1910	1898-1911	1900-1910	1900-1920
Midpoint (sorted)	1885	1890	1890	1890	1890	1892	1894	1896	1898	1900	1900	1900.5	1904	1905	1910
Sample Size (MNV)[a]	1,054 (150)	2,072 (250)	277 (59)	245 (15)	48 (8)	1,098 (44)	187 (5)	1,131 (36)	111 (6)	1,239 (34)	854 (139)	174 (12)	188 (16)	222 (15)	65 (6)
Percent Temper Type															
Sand	11.2	11.2	13.1	1.3	0.0	2.3	0.5	0.0	0.0	0.2	12.1	0.0	1.7	0.0	0.0
Sand and sherd ("grog")	2.3	6.1	8.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Sand and fiber (manure)	85.5	78.3	77.4	98.7	100.0	97.7	99.5	100.0	100.0	99.8	85.5	100.0	98.3	100.0	100.0
Folded-rim Percent	2.8	2.1	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0
Type Frequency															
Plain ware	8.5	19.9	19.1	1.2	0.0	0.4	0.5	1.3	0.0	0.1	12.8	0.0	0.5	0.0	0.0
Red ware	0.2	1.1	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0
Papago Plain	58.3	34.5	28.1	11.0	4.2	46.5	0.0	14.9	1.8	13.6	34.0	0.0	15.4	5.2	9.2
Papago Red	19.6	43.5	48.4	83.3	93.7	38.5	19.8	82.8	79.3	84.3	48.6	96.5	84.0	93.8	89.2
Painted/slipped	13.3	1.1	2.5	4.5	2.1	14.6	79.7	0.9	17.1	2.1	4.2	3.5	0.0	1.0	1.5
Percent Slip Location															
Interior	20.8	17.6	13.7	4.4	25.0	11.0	10.8	8.5	37.5	2.2	17.1	13.7	14.1	11.6	8.6
Exterior	79.2	82.4	86.3	95.6	75.0	89.0	89.2	91.5	62.5	97.8	82.9	86.3	85.9	88.4	91.4
Painted Types[b]															
Black-on-red	P	P	P	P	?	P	P	P	P	a	P	P	a	P	a
Red-on-brown	P	a	P	a	a	a	a	a	a	a	P	a	a	a	a
Red-on-buff	P	a	P	a	a	a	a	a	a	a	a	a	a	a	a
Black-on-buff	P	P	P	a	a	a	a	a	a	a	a	a	a	a	a
White-on-red	a	a	a	a	a	a	P	a	a	P	a	a	a	a	a
Black-on-brown	a	a	a	a	a	a	a	a	a	a	P	a	a	a	a
Red-on-white	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a
Buff	P	P	P	a	a	a	a	a	a	a	P	a	a	a	P

[a] MNV = Minimum number of vessels.
[b] "P" indicates presence of a type, while "a" indicates its absence.

CHAPTER 4

HISTORIC ERA MANUFACTURED ARTIFACTS

J. Homer Thiel, Christine H. Virden-Lange, and Robert B. Ciaccio
Desert Archaeology, Inc.

Archaeologists typically find large quantities of historic artifacts discarded into features on downtown Tucson blocks. The arrival of the Southern Pacific Railroad in March 1880, led to the importation of enormous amounts of consumer goods into the community, including canned and bottled foods and beverages, sets of dishes, construction materials, and medicinal products. Features on the eastern half of Block 91, AZ BB:13:820 (ASM), were expected to include many discarded artifacts, and this proved to be the case.

In total, 15,857 artifacts were collected from 35 archaeological features on Block 91 (see Appendix A). This count does not include the Native American sherds reported in Chapter 3. Artifacts from eight privy pits are summarized in Table 4.1. Archaeologists initially collected all artifacts; however, the enormous numbers of nails and tin can fragments resulted in some items being discarded in the field. Glass fragments smaller than 1.00 inch in diameter were also discarded, except those pieces with visible embossed writing. The remaining artifacts were sorted by material type, taken to the Desert Archaeology laboratory, where they were washed, labeled, and repackaged for analysis.

The Native American ceramics are described in Chapter 3 (this volume), and are not included here. Data on the artifacts discussed in this chapter included basic material (glass, metal, non-Native American ceramics, biological, mineral, stone, synthetic, and composite), more specialized materials (iron, brass, lead, copper, and so forth), artifact form, portion, function, number of fragments, the minimum number of artifacts, product names and makers' marks, and more detailed descriptions. Non-diagnostic, unidentifiable, and duplicate artifacts were discarded after analysis. A selection of interesting, representative artifacts are illustrated here.

The recovered artifact assemblage is described in broad functional categories. Most of the assemblage was recovered from outhouse pits, some of which could be linked to specific households or a business (Table 4.2).

Feature 112, which had a relatively small set of artifacts, contained items discarded by the Millar family. Robert Millar worked as an undertaker when the family lived on the block. Feature 130 contains refuse discarded by the Burkhalter family in the 1890s, when Mr. Burkhalter was a ticket agent at the nearby Southern Pacific Railroad Depot. Feature 158 yielded artifacts thrown away by the Clancy family in the early 1900s. The Coleman family used Feature 170 in the 1890s and early 1900s. Mr. Coleman was a railroad machinist, and his wife Nellie was the mother of six children. The James Reel family threw their trash into Feature 171 in the early 1900s. Mr. Reel was a railroad machinist. Unidentified residents of the house at 87 S. Herbert Avenue threw refuse into Feature 183 from the mid-1880s into the early 1900s. Finally, Features 189 and 190 contained trash and food waste generated by the S. P. Dining Room restaurant from about 1901 to 1910.

KITCHEN ARTIFACTS

Artifacts used to store, prepare, and serve food and beverages are placed in the kitchen artifact category. They typically comprise the majority of artifacts found in features on Territorial-era Tucson city blocks. Most of the outhouse pits on the eastern half of Block 91 contained 50 to 87 percent kitchen artifacts, with Features 112 and 130 containing smaller percentages of kitchen items. However, this may reflect the fact that nails were collected from these two features. If nails are excluded, Feature 130 contained 47 percent kitchen artifacts. In all, 5,991 kitchen artifacts were identified, representing 38 percent of the total collected artifacts.

Food Preparation

Food preparation artifacts are used to prepare meals. They are typically found in small numbers at sites, because these items are durable and tend not to break easily. Thirty-six artifacts were placed in this category. These were fragments of yellowware or brown stoneware mixing bowls, pieces of a Mexican cooking bowl found in Features 104, 135, and 153, the top to a coffee grinder found in Feature 158, a frypan found in Feature 170, a small saucepot from Feature 158, and four pieces from a cooking stove, also found in Feature 158.

Table 4.1. Identifiable artifacts recovered from features on the eastern half of Block 91, AZ BB:13:820 (ASM), by functional category, quantity, and percentage. Native American ceramics are not included.

	Feature							
	112	130	158	169	170	171	183	190
Kitchen	7 (4)	193 (23)	680 (43)	244 (50)	1,848 (60)	1,170 (52)	422 (87)	496 (63)
Architecture	59 (34)	486 (58)	506 (32)	124 (26)	367 (12)	252 (11)	21 (4)	224 (28)
Furniture	60 (34)	75 (9)	29 (2)	3	124 (4)	226 (10)	3	8 (1)
Arms	–	5	1	2	–	24 (1)	–	3
Clothing	23 (13)	50 (6)	127 (8)	79 (16)	280 (9)	204 (9)	14 (3)	8 (1)
Personal	16 (9)	18 (2)	76 (5)	9 (2)	295 (9)	165 (7)	13 (3)	1
Activities	11 (6)	18 (2)	137 (9)	16 (3)	150 (5)	176 (8)	14 (3)	51 (6)
Transportation	–	–	26 (2)	7 (1)	24 (1)	12	–	1
Total	176	845	1,582	484	3,088	2,229	487	792

Table 4.2. Feature dates and associated families or businesses from the eastern half of Block 91, AZ BB:13:820 (ASM).

Feature	Type	Date	Associated Family or Business.
112	Outhouse pit	Unknown	Millar family, 245 E. 11th Street
130	Outhouse pit	1891-1900	Burkhalter family, 243 E. 11th Street
158	Outhouse pit	1900-1905	Clancy family, 243 E. 11th Street
165	Equipment pit	After 1914	Planing mill
169	Outhouse pit	1902-1910	Unknown
170	Outhouse pit	1891-1905	Coleman family, 237 E. 11th Street
171	Outhouse pit	1901-1905	Reel family, 235 E. 11th Street
178	Large pit	1940s	Subway Garage
183	Outhouse pit	1885-1905	Residents of 87 S. Herbert Avenue
189	Small pit	1901-1915	S. P. Dining Room restaurant, 240 E. 11th Street
190	Outhouse pit	1901-1910	S. P Dining Room restaurant, 240 E. 11th Street

Food Service

Food service artifacts are used at the dining room table to serve foods and beverages. They are often found in large quantities, because ceramic and glass dishes and glassware are easily broken. This was true on Block 91, where 2,212 artifacts were placed in this category.

Cup fragments were common, with 254 pieces coming from some 61 individual cups. Saucer fragments were less common, with 31 saucers represented by 124 pieces. Thirty-seven plates were identified from 226 fragments. One was a molded glass plate from Feature 169. Bowls were represented by 137 fragments from at least 35 different vessels. Feature 190 had the most vessels, with 11 identified. The ceramic vessels from Feature 190 were primarily thick-walled, sturdy dishes, suitable for use in a restaurant (Figure 4.1).

Serving platters were represented by 43 fragments from 16 separate platters found in Feature 104, Feature 158 (n = 2), Feature 169 (n = 1), Feature 170 (n = 1), Feature 171 (n = 3), Feature 189 (n = 2), and Feature 190 (n = 7). The platter from Feature 170 is described below, and was used as an advertising promotion item. The platters from Feature 190 varied in size, but all were thick, restaurant china, including one marked LEGAL CAFE. About the same number of serving bowls were present, 58 fragments from 14 bowls. There were eight glass bowls, five from Feature 130, one from Feature 158, and two from Feature 170. One of the bowls from Feature 170 had pressed designs and hand-engraved flowers (Figure 4.2). All the bowls were decorated, either through molded patterns or by engraved designs, such as the raspberries and leaves on two of the bowls from Feature 130. Ceramic serving bowls were found in Features 158, 162, 168, 170, and 171 (two examples). The bowl from Feature 158 was a small sauce dish made in China with a red line at the rim, a light blue background, and polychrome hand-painted flowers (Figure 4.3). This may have been a decorative item rather than an actual serving piece.

A few pieces of brass silverware were found scattered among the features, including a fork in Feature 158. Five teaspoons were recovered, one each from Features 112, 130, and 171 and two from Feature 158. Four tablespoons were also collected, one from Features 158 and 171 and two from Feature

Figure 4.1. Items from a place setting from the restaurant, discarded into the Feature 190 privy pit, Block 91, AZ BB:13:820 (ASM). Top row: a glass flower vase and a fragmentary serving platter; middle row: a small plate and a cup and saucer; front row: a bowl, a plate, and a butter pat dish (Catalog Nos. 2009-699-24-30, -195).

were present. The pieces were marked SANTA RITA, and likely represent silverware stolen from the Santa Rita Hotel, which opened in February 1904, on the block southwest of Block 91, on the southern side of Broadway Boulevard (*Tucson Citizen* 1903e). Someone probably dug a hole into the fill of Feature 169 and stashed the silverware. Why they did not return is unknown.

More specialized service vessels were also recovered. Two pressed glass salt shakers were found, one each in Features 170 and 171 (Figure 4.6). Two butter pats were found in Feature 190. Three moustache cups were present, one each in Features 158, 170, and 171. Moustache cups have a ceramic bridge across the interior of the cup, which helps keep a man's moustache from drooping into the tea, coffee, or other beverage.

Goblets were found in four features (Figures 4.7 and 4.8). Three were recovered from Feature 130, two from Feature 158, five from Feature 171, and 11 from Feature 190. One of the goblets from Feature 171 was a small cordial glass, suitable for drinking expensive after-dinner drinks, such as sherry,

Figure 4.2. A large pressed and engraved glass serving bowl from Feature 170, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-58).

170. All the pieces were very corroded, making it impossible to read any makers' marks that might have been present.

An unexpected discovery was a set of brass silverware in the Feature 169 privy, apparently dropped into the pit inside a box or a bag, as many of the pieces were still stacked on top of each other (Figures 4.4 and 4.5). Thirteen knives with iron blades, 11 forks, 11 teaspoons, and 12 tablespoons

Figure 4.3. A small Chinese-made sauce dish from Feature 158, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-51).

Figure 4.4. A set of brass silverware found in Feature 169, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-125).

Figure 4.5. Close-up of a knife handle, showing the Santa Rita Hotel name, recovered from Feature 169, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-124).

brandy, or fruit liqueurs. The goblets in Feature 190 were likely used at the saloon or restaurant that discarded trash into that outhouse pit. Glass cups and tumblers were more common, with 105 fragments representing 52 different vessels, found in six different features: Feature 130 (n = 2), Feature 158 (n = 8), Feature 170 (n = 34), Feature 171 (n = 4), Feature 174 (n = 1), and Feature 190 (n = 3). The two cups from Feature 130 were expensive, with engraved fern designs on them. One of the cups from Feature 158 had three gold bands, while another was blue glass with molded panels. The remaining cups were undecorated except horseshoe or star designs on their base.

Two teapots were present. Fragments from a plain white porcelain teapot were found in Feature 169. A reconstructible Chinese-made teapot, found in Feature 170, had an unusual brown glaze with raised light-colored bumps. Eight pitchers, represented by 41 fragments, were present, six in Feature 170 and two in Feature 171. One of the pitchers from Feature 171 was pale milky green in color, the glass having large raised circles on the exterior (Figure 4.9). It was hand blown, probably in Europe.

Three nursing bottles were found, two in Feature 158 and one in Feature 170. The bottles had graduated markings on the side to monitor milk consumption.

A wide variety of decorative styles was present among the recovered ceramics vessels. All the reconstructible vessels from the outhouse associated with the restaurant, Feature 190, were thick, durable whiteware vessels. The use of plain white vessels allowed dishes to be purchased piecemeal, when necessary, without needing to match a particular pattern.

Feature 158 yielded a relief-molded, tinted porcelain saucer and a relief-molded, decal-printed plate (Figures 4.10 and 4.11, respectively). The vessels were embellished with gilt lines. These items were discarded by members of the Clancy family around 1900-1905.

Feature 170, used by the Coleman family between 1891 and 1905, contained a variety of reconstructible vessels. A matching cup and saucer had transfer-printed blue foliage, curliques, and net-like designs (Figure 4.12). A blue transfer-printed plate had branches with leaves and blossoms, and was marked on the back WASHINGTON PATTERN/ J. & E. MAYERS (Figure 4.13). A green Chinese mustache cup had dark green foliage and pink and white flowers (Figure 4.14). A hand-painted porcelain pitcher had a light blue background with pink blossoms and purple and green foliage. The pitcher was probably manufactured and decorated in continental Europe (Figure 4.15). A square porcelain saucer had hand-painted blue, yellow, and red flowers with green and red leaves. The design looks vaguely Asian, but could also be an example of home decoration of a porcelain blank (Figure 4.16). The overall impres-

Figure 4.6. A molded salt shaker from Feature 171, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-107).

Figure 4.7. A molded cordial glass from Feature 170, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-87).

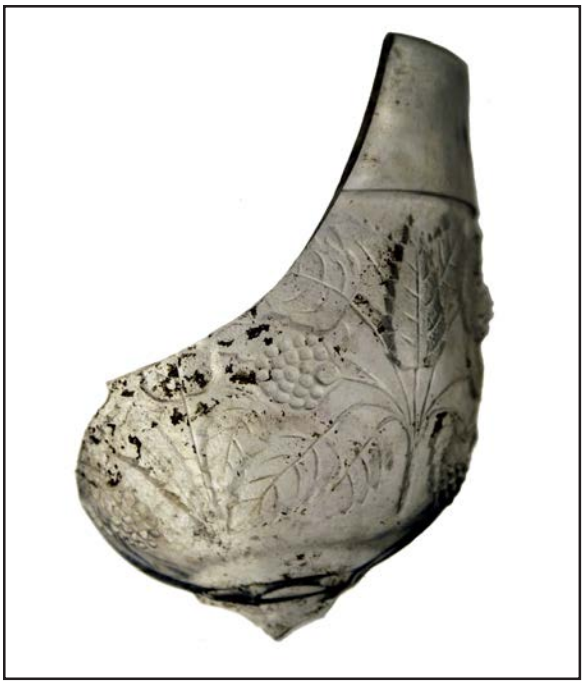


Figure 4.8. A goblet from Feature 130, Block 91, AZ BB:13:820 (ASM), was decorated with molded berries and leaves (Catalog No. 2009-699-74).

Figure 4.9. An unusual glass pitcher from Feature 171, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-117).

sion of the recovered dishes from this feature was that they were expensive, yet most were not part of matched sets.

In contrast, many of the ceramics vessels from Feature 171, deposited by the Reel family around 1901 to 1905, were matched. These included several Tea Leaf pattern cups (Figure 4.17). This pattern was very popular at the turn of the twentieth century. Also recovered was a saucer with brown transfer-

Figure 4.10. A tinted porcelain saucer from Feature 158, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-55).

Figure 4.11. A decal-printed and tinted porcelain plate from Feature 158, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-53).

printed flowers, leaves, and abstract geometric designs that was made in England, CAMBRIDGE PATTERN (Figure 4.18). Other fragments of this pattern were found scattered about the project area.

Figure 4.12. A matching transfer-printed cup and saucer from Feature 170, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-46).

Food Storage

A large amount of food was imported into Tucson during the American Territorial period (A.D. 1856-1912). It arrived in tin cans, glass bottles, ceramic jars, and paper and cardboard containers, with the latter two rarely surviving at archaeological sites. In total, 307 food storage artifacts were collected from Block 91.

The most common food storage artifact type found at downtown city blocks are tin cans. This proved to be the case on Block 91, with hundreds of fragments sometimes found in a single level. Most of the recovered tin cans were discarded in the field. Among the few that could be identified by size or shape were lard, meat, and fruit or vegetable cans.

Food bottles were represented by 188 fragments from 99 individual bottles or jars. Makers' marks and distinctive shapes allowed the contents of some of the bottles to be identified (Table 4.3). Feature 158 contained trash discarded by the Clancy family. Foods identified included catsup, flavoring extract, milk, syrup, and a light blue pickle bottle (Figure 4.19). Flavoring extracts were popular in late nineteenth and early twentieth century Tucson, coming in a variety of flavors, including vanilla, almond, coconut, and various fruits. They were used in beverages, baked goods, frostings, and other foods.

Feature 170, containing the Coleman family trash, yielded catsup, MELLIN'S children's food, flavoring extracts, fruit, mustard, olive oil, and peppersauce bottles. A HEINZ CHOW-CHOW jar recovered from the privy had a partial paper label (Figure 4.20). Chow-chow was a pickled condiment

Figure 4.13. A transfer-printed plate from Feature 170, Washington pattern, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-44).

Figure 4.14. A Chinese-made mustache cup from Feature 170, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-50).

that often contained chopped cabbage, chopped green tomatoes, peppers, and spices. It was popular in the American South.

Feature 171 contained bottles discarded by the Reel family. These included salad dressing, catsup, flavoring extract, fruit, olive oil, raspberry preserves, root beer, and LEA & PERRIN Worcestershire sauce. A peppersauce bottle from Feature 171 had distinctive ribbing on the neck, as well as gothic-style panels where the paper label was once attached (Figure 4.21).

A ceramic marmalade jar was found in Feature 112, discarded by the Millar family.

Several bottles of MELLIN'S FOOD for infants and invalids were recovered from Features 106, 169, and 170 (Figure 4.22). This baby food was manufactured in England. It was a powdered nutritional supplement that was mixed with milk that was very

Figure 4.15. A porcelain, hand-painted pitcher from Feature 170, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-54)

Figure 4.16. A porcelain, hand-painted square saucer from Feature 171, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-52).

popular among middle class mothers in the 1890s. It was advertised as a milk replacement, with nutrition comparable to breast milk (*The Epicure*

Figure 4.17. A Tea Leaf pattern cup from Feature 171, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-48).

1904:247). Infants could consume the food using the nursing bottles found in Features 158 and 170.

Canning jars are relatively uncommon in Arizona, because few households were actively canning foodstuffs. Therefore, it was surprising to see 77 fragments from 17 individual jars found in Features 158, 170, 171, and 183. Most were manufactured by the BALL company. Ten fragments from nine milk glass lids were also found, some marked BOYD'S. A complete MASON jar from Feature 171 retained its rubber ring and milk glass lid marked THE HERO FRUIT JAR COMPANY PHILA. PA (Figure 4.23). The presence of these canning jars in the Coleman, Clancy, and Reel households may indicate some home food preservation, or perhaps jars of preserved foods being sent to these families.

Alcoholic Beverage Bottles

Alcoholic beverage bottles can typically be identified by their distinctive shapes and the occasional embossed product name or bottle manufacturer's mark (Figure 4.24). In all, 477 artifacts were placed in this category; champagne, wine, beer, and liquor bottles were identified.

Olive green champagne and beer bottles were represented by 201 fragments from some 48 bottles. A round-bottomed light olive green wine bottle from Feature 158 was once enclosed by a wicker device, and was probably from southern Europe. A Chinese rice wine bottle was found in Feature 170.

Beer bottles were represented by 51 fragments of 18 individual bottles. All were made from brown glass. Also found were a beer barrel spigot in Feature 171 and ceramic tops from beer taps in Features 190 and 201.

Forty-one pumpkin seed flask fragments, representing 33 individual bottles, were found. These once held liquor. Liquor bottles were represented by 96 fragments of 21 bottles. The contents of a few of these liquor bottles could be identified. A rum bottle was found in Feature 165, and a SOUR MASH whiskey and an OLD BOURBON bottle were recovered from Feature 171. An unusual miniature brown liquor bottle found in Feature 170 was only 3.25 inches tall, and was probably a promotional item, given away so a customer could sample the contents.

Beverage

A smaller number of non-alcoholic beverage bottles were identified, with 111 artifacts placed in this category. These included at least one Hutchinson's stopper soda bottle, a MALTED MILK bottle, two unmarked milk bottles, an ARIZONA DAIRY milk bottle, a HIRE'S ROOT BEER extract bottle, and several ceramic ginger beer bottles manufactured in England. In total, 113 artifacts were placed in this category.

Unidentified Bottle Glass

Bottle glass that could not be identified to form or function was placed in this category. A total of 2,848 glass fragments, mostly plain bottle body

Figure 4.18. A transfer-printed saucer from Feature 171, Block 91, AZ BB:13:820 (ASM), Cambridge pattern (Catalog No. 2009-699-43).

Table 4.3. Food bottles from features from the eastern half of Block 91, AZ BB:13:820 (ASM).

Feature	Number	Type	Mark
158	1	Canning jar lid	GENUINE PORCELAIN LINER BOYD 8
158	1	Canning jar	Mason's Patent Nov 30 th 1858
158	1	Canning jar	Mason's Patent Nov 30th 1858
158	1	Canning jar	RED MASO
158	1	Catsup	CURTICE BROS
158	1	Catsup	Curtice Brothers Rochester New York
158	1	Flavoring extract	Curtise Brothers Preservers
158	1	Syrup	LONG'S SYRUP
158	1	Milk	ARIZON DAIRY
158	1	Milk	–
158	1	Pickle	HEINZ CHOW CHOW
169	1	Children's food	Large Size Mellin's Food Boston USA
170	1	Canning jar	CA SAN FRANCISCO CAL EMBOSSED LION TYPE FIGURE
170	1	Canning jar	MASON'S PATENT NOV 30 1858
170	1	Canning jar	PAT ASO
170	1	Canning jar	PAT NOV 18 8
170	1	Capers?	–
170	1	Catsup	–
170	1	Children's food	[M]ELLIN T'S
170	1	Flavoring	JA FOLGER & CO PIONEER FLAVORING EXTRACTS SAN FRANCISCO
170	1	Flavoring extract	DR PRICES DELICIOUS FLAVORING EXTRACTS
170	1	Flavoring extract	FOLGE PION
170	1	Flavoring extract	JA FOLGER & CO'S PIONEER FLAVORING EXTRACTS SAN FRANCISCO
170	1	Flavoring extract	xco s xtracts cisco
170	1	Flavoring extract	XTRACT
170	1	Fruit	FRUIT GROWERS TRADE / EMBOSSED TRIANGLE
170	1	Fruit?	TTING PACKING CO
170	2	Mustard	–
170	1	Olive oil	–
170	1	Olive oil	–
170	1	Olive?	–
170	1	Olive?	–
170	1	Peppersauce or olive oil	–
170	1	Pickle?	NATHAN AND WIGHT PATENTED
170	1	Pickle?	–
170	1	Pickle?	–
170	2	Pickles	–
170	1	Pickles or preserves?	–
170	1	Salad dressing	SALAD
171	1	Canning jar	Cap with pocelain lining / for mason fruit jar
171	1	Canning jar	MASON
171	1	Canning jar	Mason's Patent / Nov 30th 1858
171	1	Canning jar	Mason's patent Nov 30th 1858
171	1	Canning jar	Mason's Patent Nov 30th 1858
171	1	Canning jar	Mason's Patent Nov 30th 1858
171	1	Canning jar	Pat'd Nov 25 84 Mar 3285 Mar 16 86 June 29 86
171	1	Catsup bottle	Curtice Brothers Preservers / Rochester NY
171	1	Catsup?	–
171	1	Flavoring extract	JA Folger & CO's Pioneer Flavoring Extracts San Francisco

Table 4.3. Continued.

Feature	Number	Type	Mark
171	1	Fruit	SOUTHERN CALIFORNIA PACKING COMPANY LOS ANGELAS CALIFORNIA plus logo
171	1	Fruit	Southern California Pkg Co Los Angelas, Cal
171	1	Fruit	The Hero Fruit Jar Company Phila PA
171	1	Oil or peppersauce	–
171	1	Olive oil	–
171	1	Peppersauce	–
171	1	Pickle	–
171	1	Raspberry preserves	–
171	1	Root beer	Hire's improved Root Beer makes 5 gallons of delicious drink Manufactured by the Charles E Hines Co Ph
171	1	Sauce	Lea and Perrin
171	1	Sauce	Lea & Perrins/ worcestershire
171	1		Woodbury Improved w/ logo /
183	1	Canning jar	Ball/ Improved Mason Patent 1858
183	1	Canning jar	MAS_____ PAT____
183	1	Canning jar	MASON'S PATENT NOV 30TH 1858
190	1	Peppersauce	–
190	2	Peppersauce	–

Figure 4.19. A pickle jar from Feature 158, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-72).

Figure 4.20. A Heinz chow-chow bottle from Feature 170, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-90).

Figure 4.21. A peppersauce bottle from Feature 171, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-111).

Figure 4.22. A MELLIN'S FOOD cap found in Feature 169, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-131).

pieces, could not be identified to a specific bottle type.

ARCHITECTURAL ARTIFACTS

Architectural artifacts are usually the second-most common kind of artifact found at historic sites in Arizona. These are the components of homes, stables, and other outbuildings. In all, 2,526 items were placed in this category, representing 16 percent of the collected artifacts. In the privies, architectural artifacts ranged from 4 percent to 57 percent of the identified artifacts, although the discard of nails in the field reduced the percentage for most of these features.

Window

Prior to the arrival of the railroad in 1880, it was difficult to import glass into Tucson, because it came overland via freight wagons. Consequently, many Tucson homes in the early American Territorial period lacked window glass in the windows. After the railroad arrived, window glass could easily be brought in. A photograph of the duplex fronting E. 11th Street (later Broadway Boulevard) shows windows along the front and eastern side of the building. In total, 789 pieces of window glass were found, commonly recovered in outhouse pits. Also recovered was a lead sash weight from Feature 158.

Nails

Nails were used in home construction, for furnishings, in packing crates, and a myriad of other uses. In total, 1,641 were collected during the Block 91 fieldwork; however, most of the nails encountered during fieldwork were discarded in the field and not counted.

Construction Hardware and Materials

Twenty-three miscellaneous items were placed in these categories, including nine strap hinges, suitable for use in gates or stable doors, a bracket, a fragment of decorative stone from a mantle or fireplace, and a pair of glass knobs, perhaps used on a cupboard. A large piece of decorative ironwork was found in Feature 158 (Figure 4.25). The piece could have been used on a gate, a fence, or for a porch railing. Most construction materials—fired bricks, adobe bricks, scraps of wood, and cement—were not

Figure 4.23. A MASON jar with a HERO FRUIT JAR COMPANY lid found in Feature 171, Block 91, AZ BB:13:820 (ASM) (Catalog Nos. 2009-699-59 and -60).

Figure 4.24. Alcoholic beverage bottles from Block 91, AZ BB:13:820 (ASM). Back row: a champagne bottle from Feature 170 and a wine bottle from Feature 158; front row: a liquor bottle from Feature 130, a wine bottle from Feature 158, and a liquor bottle from Feature 170 (Catalog Nos. 2009-699-76, -85, -94, -101, and -109).

collected. A few unusual items were analyzed. These were two 1-inch-square floor tiles, two fragments of another floor tile, an iron bar, a red ceramic roofing tile, a chunk of cement, and pieces of western red cedar wood that were found at the top of Feature 171, perhaps the superstructure for that privy that had been knocked down and tossed into the top of the pit.

Door Parts

Doors were occasionally replaced or had hardware replaced; eight door-related artifacts were identified. Two white porcelain knobs and two brown ceramic knobs with a swirled design were recovered. Also found were a lock plate, a keyhole cover, and a strike plate. A hook for a screen door was found in Feature 112.

Electrical-related

Electricity first arrived in Tucson in 1882, although this initial endeavor failed. It was not until 1895 that reliable electrical service was instituted, 12 years after the duplex was constructed on Block 91. The duplex would have been retrofitted with electrical wiring, insulators, spools, outlets, and fixtures. It was not surprising, therefore, that 32 electrical artifacts were found during the project. These include 5 pieces of copper wire, 2 tube insulators, 11 spools, 2 fuses, an outlet, and 5 miscellaneous items. The tube insulators allowed wires to be run through existing wooden joists, placed in a hole drilled through the joist, shielding the wood from the wire. Some of the spools allowed wires to be strung along ceilings or in attic spaces.

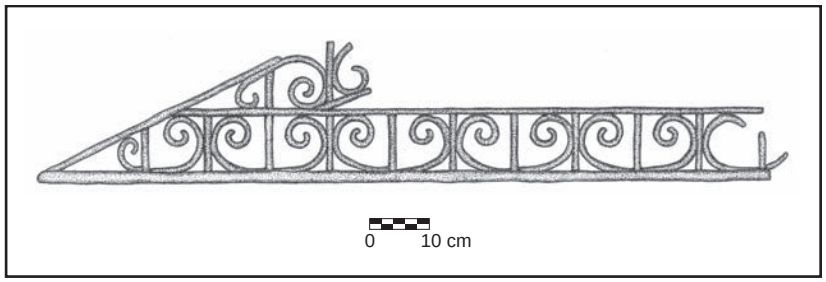


Figure 4.25. A section of decorative ironwork found in Feature 158, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-194).

Water and Gas-related

Well water first flowed through pipes in Tucson in 1882, and by 1890, the City of Tucson operated the system. Gas was also piped through the downtown in 1882, initially used to light homes and businesses (Sonnichsen 1982:108, 110). Water pipes were not installed near Block 91 until sometime between 1896 and 1901. The residences did not likely initially have full indoor plumbing, as some of the backyard privies remained in use until perhaps 1910. It is not known when gas pipes were installed on the block.

In all, 33 artifacts associated with the water and gas services on the block were recovered from Block 91. These included 15 pieces of iron pipe, one of which had a brass hose bib attached, 4 brass pipes, probably used for a gas fixture, a piece of lead pipe, 3 faucets, 6 brass valves, 2 couplings, and one additional fixture. Most of these items were found in the more recent features, such as outhouse pit Features 171 and 190. A large faucet that was probably used for an exterior hose was recovered from Feature 171 (Figure 4.26).

HOUSEHOLD FURNISHINGS

Home interiors contain a variety of furnishings, including kitchen stoves, chairs, tables, decorative items, and lighting apparatuses. Many of these items are made from perishable materials, such as wood, cloth, and leather, which decay and become invisible after they are discarded. Other furnishing components, such as nails, screws, and bolts, were also used for other purposes. In all, 556 furnishing artifacts were recovered. Among the privy pits, the percentage of furnishing artifacts ranged from less than 1 percent to a high of 34 percent in Feature 112, which contained a large number of lighting items.

Furniture and Hardware

A variety of furniture hardware or items were found, totaling 187 artifacts, about 4 percent of the recovered items. These included 2 white porcelain cupboard knobs, 2 white porcelain pulling knobs (used for window blinds or lights), 19 brass tacks, 1 furniture coaster, 1 white porcelain wheel, 3 hooks for hanging clothing, a curtain rod attachment, 2 drawer or cabinet escutcheons, and a drawer pull. A wood stove pipe damper, a gas burner, and an andiron part were found. Also recovered (from Feature 171) was a stove polish bottle (Figure 4.27).

Parts of several clocks were found; 31 fragments of an alarm clock were recovered from Feature 171. Three other clock gears were present in other features.

Decorative Items

People often had decorations in their homes. Period photographs of Tucson homes show framed photographs, paintings, and prints hanging on walls. Figurines, baskets, Native American pottery, vases, stuffed animals, and other items were displayed on mantles, shelves, and furniture surfaces.

Fourteen fragments from two or three ceramic figurines were recovered. Seven of these, from Feature 170, appear to be from a seated elf or fairy. These were likely inexpensive pieces. Sixty plaster sculpture fragments were found in Feature 112. These were poorly preserved, but at least one statue of a nude female was present.

Two fragments conjoined to form a pressed glass flower vase were found in Feature 190, the outhouse pit associated with a restaurant or saloon (see Figure 4.1).

Figure 4.26. A large brass faucet found in Feature 171, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-122).

Figure 4.27. An ACME BLACKING bottle found in Feature 171, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-98).

A rare find in Feature 171 was 20 fragments from an artificial flower arrangement. The pieces consisted of wire wrapped in a green fabric, with small artificial leaves attached.

China Painting

An unusual find from Feature 130 was a set of six hand-painted porcelain dishes (Figures 4.28 and 4.29). One was a saucer with pink flowers and green and brown foliage over a green border. The 7-inch-diameter vessel was stamped "13" on its back, and had the date 1884 in brown paint.

Two small butter pat dishes were 3 inches in diameter. One had blue cattails and diving birds, perhaps ducks, and was marked GN 1880 on its back. The other was a water scene with blue reeds and dragonflies, and was marked GN on its back.

Three small butter pat dishes were 3 inches square with rounded, scalloped edges. One had blue flowers with green, yellowish-green, and brown foliage. It was marked GN 1884 on its back, and there was pink paint along the back marley. The second dish had white flowers and green foliage over a pinkish-red background, and was marked GN 1883 on its back. The third dish had red grapes and red and green foliage over a light green background, and was marked G NOBLE 1883 on its back.

The 1880 U.S. census was examined to determine the identity of the painter. There were 14 individuals with the Noble surname in Arizona in that year; none lived in Tucson. One man with the first initial "G," George W. Noble, lived in Tombstone. The 1900 census lists 25 Nobles in Arizona, but again, none lived in Tucson in that year, and none had the first initial "G." An attempt to search for the name in scanned images of the *Arizona Weekly Citizen* was unsuccessful because the word was often used to describe people. The identity of the person who painted the dishes will likely never be known.

China painting was a popular pastime in the late nineteenth century. As more leisure time became available to middle and upper class families, through labor-saving devices, hiring servants, and the reduction in the number of hours worked, women began to participate in craft activities, such as painting, knitting, embroidery, and china painting. Guides to the craft were available (for example, see McLaughlin 1877), explaining, in detail, the materials needed, how to decorate and fire vessels, and providing illustration examples. A search of scanned newspaper issues from Tucson indicate that china painting was taught in the community, albeit the examples found postdated the recovered dishes. The Tucson Conservatory opened in January 1893, and among the topics taught was china painting (*Arizona Weekly Citizen* 1893b).

> An account of American ceramics would not be complete without a word on the enthusiasm for china-painting and clay-working which has possessed American women for the last two decades. The movement took serious shape soon after the Centennial Exposition, and may be said to have reached its height in 1893. In that at the World's Fair, a great quantity of so-called "amateur painting" was exhibited, and some of it was severely criticized. The criticism was taken to heart from that time the work greatly improved (Beach 1904).

A ceramic trivet was found in Feature 170, suggesting some pottery firing was done on the block

Figure 4.28. A saucer hand-painted in 1884 recovered from Feature 130, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-23).

Figure 4.29. Five small butter pats, hand-painted in the 1880s, from Feature 130, Block 91, AZ BB:13:820 (ASM) (Catalog Nos. 2009-699-18 to -22).

(Figure 4.30). The small, brick-lined, heavily fired feature, Feature 107, located on the eastern side of the block, may have been part of a kiln used to fire vessels.

Lighting

In total, 369 lighting artifacts were found. Four different types of lighting mechanisms were recovered. Most common were pieces from kerosene lamps, including 335 thin glass chimney fragments, 7 lamp base or reservoir pieces, and 8 brass burner parts. Ten of the chimney fragments had an etched design on them. Kerosene lamps were probably the most common mode of lighting in Tucson after the railroad arrival allowed for the easy transportation of kerosene into Tucson.

Seven milk glass lamp globe fragments were recovered from Features 130 and 170, some featuring painted autumn leaves. Lamp globes were likely to be found in parlors, and were more expensive than the everyday lamps, although both used kerosene.

A single clear glass fob was found in Feature 169, an outhouse pit. The fobs were used for either chandeliers that hung from the ceiling, or attached to parlor lamps.

Eight electric light bulb fragments, from seven individual light bulbs, were recovered. Three of the bulbs were found in Feature 190, the restaurant or saloon outhouse pit. Three were recovered from outhouse pits, two in Feature 171 and one from the upper fill in Feature 158. The last light bulb was found in Feature 178, the septic tank associated with the automobile repair business. Electricity arrived in Tucson in 1882, but it was not until 1895 that the electrical company was successful. Therefore, the fill layers containing these light bulbs likely date to after 1895 (Sonnichsen 1982:109-110).

Figure 4.30. A ceramic trivet found in Feature 170, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-17).

ARMS AND AMMUNITION

Many residents of Tucson owned firearms for personal protection, target shooting, and hunting. Newspaper accounts frequently describe acts of violence or accidental shootings, as well as hunting ex-

peditions into the nearby deserts and mountains, with deer, bighorn sheep, bear, mountain lions, bobcats, and rabbits among the animals procured. It is typical to find a variety of cartridges and bullets on city blocks. Few firearms or parts are found, probably because these were so valuable. Thirty-six arms and ammunition artifacts were found on Block 91. Feature 171 had the largest number of items in this category, comprising approximately 1 percent of the identified artifacts.

On Block 91, a probable powder flask was found in Feature 171. The brass item had curlique motifs embossed on both sides and the handle.

Ammunition was found in several features. Six lead bullets were located. One was a round musket ball from Feature 130, which would have come from an old-fashioned (by the 1890s) musket or pistol. The remaining five bullets were once contained in cartridges. Cartridges were represented by 30 artifacts, including 20 found in the base of Feature 171. Most were very poorly preserved, and the manufacturer's marks typically found on the cartridge head were unidentifiable, except a .22 caliber cartridge from Feature 158 marked "H," manufactured by the Winchester Repeating Arms Company from 1858 onward (Hull-Walski and Ayres 1989:139). One other center-fire cartridge from Feature 165 was identified as coming from a .45 Schofield or Smith & Wesson revolver, likely from an Army-issued weapon.

CLOTHING

Clothing-related artifacts include the remnants of clothing and footware, as well as artifacts used to make and repair clothing. In all, 816 artifacts were placed in the category, about 5 percent of the total artifacts. Clothing items represented 1 to 6 percent of the artifacts found in the eight privy pits, with Feature 169 having the highest number.

Apparel

Clothing is largely made from perishable components that decay when exposed to the elements. Among the 746 apparel artifacts from Block 91 were a few scraps of cloth and pieces of shoe leather. Clothing fasteners are made from more durable materials, and many are typically found at historic sites.

Buttons

In total, 252 buttons were recovered during the recent excavations on Block 91. Material types included porcelain, glass, shell, bone, rubber, glass, and metal. Shell buttons dominate the collection, with 42 percent (n = 107), followed by Prosser porcelain buttons, with 34 percent of the total (n = 85), metal, with 14 percent (n = 35), bone buttons, with 6 percent (n = 14), with glass buttons (n = 6) and buttons made from rubber (n = 5), each 2 percent of the collection. The buttons were recovered from 19 features, including outhouse pits, planting pits, and other types of pits (Table 4.4).

Buttons and other clothing fasteners are frequently the only portions of clothing that preserve in the archaeological record that provide a glimpse of past fashion trends. They can be valuable to the interpretation of archaeological features, often contributing answers to questions about chronology and the socioeconomic status of the sites' occupants. Many resources were used for identifying the buttons in the current collection, including collectors' guides, period catalogs such as Sears, Roebuck and Company, and reports from other archaeological projects.

The buttons were identified by material type, then measured in inches and converted into ligne, or line measurements, that are used in historical button analysis. The word ligne is French, which became the standard reference used by German button manufacturers in the early eighteenth century. It is used to describe and measure the diameter of the button; for example, 40 lignes equals 1 inch, which is a standard measurement used worldwide. A written description of each button was generated, noting attributes such as attachment type (2-hole, 4-hole, shank, self-shank), face treatment (decorated or undecorated), shape (disk, ball, geometric, realistic) and color. Their distribution is presented, by material type and line size, in Table 4.5

Buttons were originally used as adornments on clothing prior to being used as fasteners. With the change in function to that of a clothing fastener, different types of material and sizes were developed and used for specific purposes. For example, plain two-hole sew-through buttons made of cattle bone were inexpensive to make and were most likely to be sewn onto underwear, while shell buttons were found on shirts, cloaks, jackets, and dresses for men, women and children. A large elaborate pearl button found during the Block 91 project would have been used as a decorative fastener on a cloak or jacket for an adult, while a much smaller, undecorated two-hole sew-through shell button would have been used on a child's article of clothing.

From 1885 to 1917, the women's ready-made clothing industry expanded rapidly, with the demand for clothing from immigrant women who wanted to look "American." The advent of the shirtwaist (blouse) and skirt created a ready market for

Table 4.4. Distribution of buttons, by feature and material type, from the eastern half of Block 91, AZ BB:13:820 (ASM).

Feature	Feature Type	Date	Shell	Porcelain	Metal	Bone	Glass	Rubber	Total
105	Planting pit	N/A	1	–	–	–	–	–	1
112	Outhouse pit	1890s	4	13	–	1	–	–	18
130	Outhouse pit	1891-1900	5	6	1	–	4	–	16
135	Planting pit	1890s	–	1	–	–	–	–	1
138	Trash pit	1890s	–	–	–	–	1	–	1
140	Planting pit	N/A	–	2	1	–	–	1	4
158	Outhouse pit	1900-1905	19	14	10	–	–	2	45
162	Planting pit	N/A	3	1	1	–	1	–	6
165	Mill pit	N/A	6	1	–	–	–	–	7
168	Large pit	1880s-1890s	1	1	–	–	–	–	2
169	Outhouse pit	N/A	7	2	2	1	–	–	12
170	Outhouse pit	1891-1905	27	15	4	8	–	–	54
171	Outhouse pit	1901-1905	20	21	13	1	–	2	57
172	Cat burial	N/A	–	1	–	–	–	–	1
174	Stairwell	N/A	1	–	–	–	–	–	1
178	Large pit	1901-1915	4	1	–	1	–	–	6
183	Outhouse pit	1885-1905	6	3	1	–	–	–	10
190	Outhouse pit	1901-1910	3	2	–	2	–	–	7
197	Trash midden	1880-1900	–	1	2	–	–	–	3
Total			107	85	35	14	6	5	252

the button industry (Kidwell and Christman 1974:85). Men's dress shirts were pulled on over the head prior to the late 1890s, when the fashion changed and the shirts buttoned down the front. Thus, buttons were in higher demand between 1891 and 1910 as styles changed for men's, women's and children's fashions, which included the arrival of motoring coats, dusters, corset covers, union suits, and drawers (Farrel-Beck and Meints 1983:4).

An increasing middle class of citizens, spurred by the successful closure of the Spanish-American War in 1898, saw an increase of spending on "luxury items," such as a better variety and quality of ready-made clothes. This included the use of shell buttons (Farrell-Beck and Meints 1983:5). The Sears, Roebuck and Company catalogs of the day featured types of buttons by material type and line size that were suitable for the different fashions. Sizes between 12 and 20 lines were recommended for shirts, shirtwaists, and girls' and women's dresses.

The distribution of the button collection from the current project is presented, by material type and line size, in Table 4.5. Some 49 percent of the collection falls within the 12- to 20-line button sizes, and were manufactured from either shell or porcelain. This is similar to what was recorded for the León household, an early Tucson farmstead (Diehl 2005:97), although the material types there were reported as "shell and glass" (with some of the glass buttons probably being Prosser porcelain or ceramic buttons).

Shell Buttons

Buttons made from both freshwater and marine bivalves dominated the current collection (Table 4.6). Two types of shell buttons were manufactured from two types of shells. Pearl buttons were manufactured from the inner lining of mussels and oysters (both freshwater and marine), due to the nacre, or iridescent shine, of the shell lining. In oysters, pearls are formed from this nacre, which is how people started calling this "mother of pearl." Mother-of-pearl buttons are made from this lining. Several Pacific shellfish were also used to manufacture buttons that lack the crystalline nacre lining, and are known simply as shell buttons. Prior to 1891, buttons were cut from Pacific Ocean marine shells and freshwater European shells in both America and Europe, with the marine shell buttons more expensive to produce (Claassen 1994:66). At this time, the marine shell buttons were imported from Europe, primarily from Austria, to the United States. However, the high cost of the imported goods after the implementation of the McKinley tariff in 1890 motivated cottage industries to produce their own buttons from materials such as wood, bone, and local freshwater shell.

Several major centers arose for the manufacturing of what is called ocean pearl buttons in the United States prior to 1895, including Philadelphia, Pennsylvania, Newark, New Jersey, and both New York City and Amsterdam in New York state (Claasen 1994:5). The use of freshwater shells for

Table 4.5. Material type and line size for buttons from the eastern half of Block 91, AZ BB:13:820 (ASM).

	Line Size																		
Material	12	14	16	18	20	21	22	23	24	27	28	30	32	34	36	45	50	Rectangular	Total
Shell	5	22	15	11	13	5	10	7	9	3	2	–	1	4	–	–	–	–	107
Porcelain	5	5	33	4	2	0	11	2	15	7	1	–	–	–	–	–	–	–	85
Metal	–	–	1	1	1	1	4	–	3	8	3	3	1	6	–	1	1	1	35
Bone	1	–	–	–	3	–	6	–	4	–	–	–	–	–	–	–	–	–	14
Glass	–	–	–	–	–	–	1	–	1	–	1	–	–	1	2	–	–	–	6
Rubber	–	1	1	–	–	2	–	–	1	–	–	–	–	–	–	–	–	–	5
Total	11	28	50	16	19	8	32	9	33	18	7	3	2	11	2	1	1	1	252

Table 4.6. Shell buttons from the eastern half of Block 91, AZ BB:13:820 (ASM).

Feature	Style	Holes	Lignes	Count
105	Flat front	2	24	1
112	Flat front	4	12	1
	Flat front	2	24	2
	Inkwell	4	14	1
130	Flat front	2	14	1
	Flat front	2	16	1
	Inkwell	2	12	1
	Inkwell	4	12	2
158	Flat front	4	16	2
	Flat front	4	23	1
	Concave	2	14	3
	Concave	4	14	4
	Concave	4	16	2
	Concave	4	20	1
	Concave	4	21	1
	Concave	4	24	1
	Concave	4	27	1
	Concave	2	16	1
	Concave	2	18	1
	Inkwell	2	27	1
162	Concave	2	22	1
	Flat front	4	12	1
	Inkwell	2	18	1
165	Concave	4	22	1
	Concave	4	24	1
	Concave	1	21	1
	Inkwell	2	14	1
	Inkwell	2	18	1
	Inkwell	2	20	1
168	Concave	2	22	1
169	Concave	4	20	4
	Concave	4	21	1
	Concave	4	24	2
170	Inkwell	4	16	3
	Inkwell	2	16	1
	Inkwell	2	18	1
	Concave	2	18	1
	Concave	4	14	7
	Concave	4	16	1
	Concave	4	18	3
	Concave	4	20	2
	Concave	4	22	4
	Concave	4	23	1
	Concave	4	24	1
	Flat front	2	14	1
	Flat front	2	24	1
171	Flat front	2	16	1
	Flat front	2	18	1
	Flat front	2	20	2
	Flat front	Shank	16	1
	Flat front	Shank	27	1
	Flat front	Shank	32	1
	Concave	4	28	2
	Concave	2	14	1
	Concave	2	18	1
	Concave	2	21	2
	Concave	2	22	1
	Concave	2	23	1
	Concave	4	23	4
	Flat/fish-eye	2	22	1
174	Decorated	4	22	1
178	Tire	4	14	1
	Tire	4	16	1
	Flat/fish-eye	2	20	1
	Inkwell	2	16	1
183	Flat-faced	Shank	14	1
	Decorated	2	34	2
	Concave	2	34	2
	Flat/fish-eye	2	14	1
190	Concave	4	18	1
	Concave	4	20	2
Total				107

buttons from the Mississippi River Valley dates to at least 1800, where, the French Minister of the Interior, Dr. F. A. Michaux noted, in 1802, that a species of small mussels found in abundance in rivers such as the Ohio and Allegheny, were utilized not for food but for the manufacturing of cuff buttons (Coker 1919:64). However, the industry did not flourish at that time, either due to foreign competition, especially with Germany (Coker (1919:64), or the lack of adequate equipment for cutting the shells (Smith 1898:304). It was not until around 1892 that John F. Boepple, a German immigrant, initiated the freshwater pearl ornament and shell button industry, using skills he acquired in Germany and the shells he procured from the Iowa River (Boepple 1900).

Most of the early shell button manufacturing process was done by hand, using skilled laborers. After 1902, machinery was invented to expedite the process, including the double Barry finishing machine, which made the fish-eye cut (previously done by hand) and drill holes on the front of the button. This particular machine was considered the most important invention in the industrialization of button manufacturing (Claassen 1994:59). In the 1908 Sears, Roebuck and Company catalog, an advertisement can be seen for fish-eye freshwater pearl buttons

with 2 holes used for shirts, and explicitly stating what type of clothing a size and style of button were suited for, with larger pearl buttons used for cloaks, jackets, and dresses (Sears, Roebuck and Company 1908). Customers undoubtedly followed this trend to be "in style." Line size of both fresh and marine buttons ranged from 12 to 60 or larger, typically in even sizes, with an occasional odd size, such as 27, 45, and 55. The 26-line button seems to disappear from production sometime around 1911; interestingly, no 26-line buttons were recorded in the current collection. The 27-line button does not appear in catalogs until 1927 (Claassen 1994:77). Three buttons of this size were in the collection; however, the amount of degradation of most of the shell buttons suggests they may originally have been 28 lines.

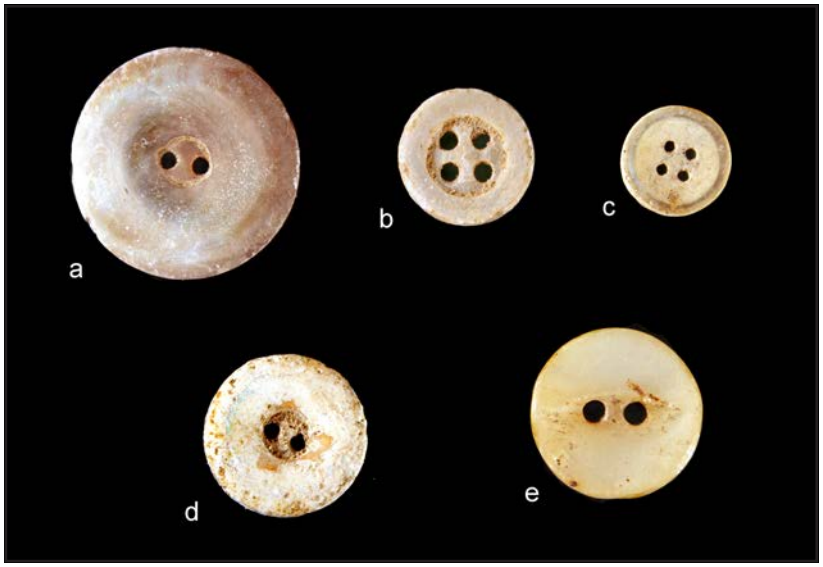


Figure 4.31. Plain shell buttons from Block 91, AZ BB:13:820 (ASM): (a) Feature 158 (Catalog No. 2009-699-160); (b) Feature 170 (Catalog No. 2009-699-161); (c) Feature 162 (Catalog No. 2009-699-162); (d) Feature 170 (Catalog No. 2009-699-163); (e) Feature 178 (Catalog No. 2009-699-164).

In all, 107 shell buttons were recovered, with roughly 20 identified as mother-of-pearl or pearl buttons. The remaining buttons were made of a more porcelaneous shell, and were identified as shell buttons. A variety of styles was present, such as the plain flat disk (n = 21), flat disk with fish-eye (n = 4), tire (n = 2), inkwell (n = 15), and concave (n = 65). The fish-eye is a lenticular cut, or stylized eye, on the front face of the button, with the two holes for attachment centered within the fish-eye (Figure 4.31). The inkwell and tire are both flat disk styles; however, the inkwell has a small recessed interior where the holes are drilled, while the tire style has a raised rim around the outer edge. The condition of the shell buttons ranged from good to very poor, with the shell degraded and, in some cases, exfoliating in nacreous layers (especially the marine shell buttons) due to the environment of the outhouse pits. None of the buttons appear to have been burned or reworked.

Four styles of attachment are present on the shell buttons, including 1-hole (n = 1), 2-hole (n = 41), 4-hole (n = 61), and shank (n = 4). In the late 1800s to the early 1900s, the shell buttons produced in America were primarily the sew-through button, while those coming from England were shanked (Jones 1924). Most popular and widely used with the increased availability of ready-made clothing, was the 2-hole sew-through button, followed by the 4-hole sew-through button. In the current collection, this trend is reversed. Four of the shell buttons exhibit self-shanks, in which the button and shank are made from a single piece of shell; three are from Feature 171, with a single specimen from Feature 183.

During production of the sew-through buttons using a lathe (a machine used for working the shell, in which the piece being worked is held and rotated while a cutting tool is applied to it), the back face often retains the original surface of the shell (Claassen 1994:75). Several shell buttons in the current collection exhibit original cortex or periostracum on the back face of the buttons, suggesting they may have been manufactured using the lathe method. These buttons were recovered from Features 170, 158, 183, and 105. For the machine-cut buttons, the face of the sew-through button usually carried some pattern, such as a scribed circle around the outer edge, while the back was plain and ground flat.

The size of the shell buttons was variable, ranging from 12 to 34 lines (see Table 4.5). The degree of accuracy of the line sizes was slightly compromised by the degradation of the edges of the shell buttons which, for the most part, were slightly chipped or chalky. The line sizing of the current collection compares well with line sizes offered in clothing catalogs between 1895 and 1922, which somewhat dictated the size and style of buttons that should be used on particular pieces of clothing, such as girls' and women's dresses, shirts, and shirtwaists (Claassen 1994:77). About 62 percent of the shell buttons recovered from features on Block 91 fall into this size category. Buttons that were more than 20

lines were recommended for fasteners on jackets, dresses, and coats; some 36 buttons (38 percent) recovered fall into this size range. Only five shell buttons were larger than 28 lines, representing 5 percent of the assemblage.

Three of the shell buttons were decorated with carved designs in the front face of the button (Figure 4.32). These buttons were manufactured from more iridescent shell species, similar to abalone, or *Haliotis*, rather than freshwater shell species. A small button made from a nacreous shell was recovered from the outhouse pit fill of Feature 174 (see Figure 4.32c). A series of six rays (lenticular in plan view) were carved onto the front surface of the button, which radiate outward from the center of the button, like spokes on a wheel or a flower petal motif. A narrow line was incised just inside the outer edge, enclosing the rays. Two sew-through holes were centered at the ends of two of the rays. The button measures 22 lignes, and is iridescent, with pinkish and greenish colors, similar to abalone.

Two other carved shell buttons were recovered from outhouse pit fill of Feature 183. The first specimen is a large button of 34 lines (see Figure 4.32b). It is iridescent pink, similar to abalone, but with a grayish tint to the shell. A dark gray periostracum is attached to the back of the button (similar to black abalone, or *Haliotis cracherodii*), which is a remnant of the exterior of the shell itself. Two sew-through holes were biconically drilled in the center of the button, and are incorporated into a large square grid carved onto the front face of the button. Along the grid lines, a series of shallow dots were drilled, and the raised area in between resembles a series of small rectangles. The dots and rectangles create a jeweled gridded effect on the shell surface. A narrow, carved line encircles the grid on the button surface; a series of 10 perforations were drilled along the outer edge of this carved line. A second carved line was incised on the outer edge of the 10 perforations, enclosing or framing them in a narrow band near the outer edge. Finally, a series of short, diagonal lines were feathered around the outer edge of the button. The deeper incised lines and dots emit a different color than the raised areas, which adds to the interest of the button.

A second carved button was recovered from Feature 183 (see Figure 4.32a). It is also large, measuring 34 lines, and was probably on a fancy coat or sweater. Two sew-through holes are centrally located on the button surface, and this area is slightly recessed from the surface of the button. The front of the button is concave, while the back is slightly convex. The shell is nacreous, similar to abalone, with pink and green colorations, and is quite thick. A small portion of periostracum is still present on the back of the button; it is heavily scratched from abrading, and it is a light cream color. The decoration on the front of the button has been divided into two panels, separated by four parallel rows of tiny dots drilled into the surface. Each panel contains a curved branch with leaves and small oval dots that may represent flower petals.

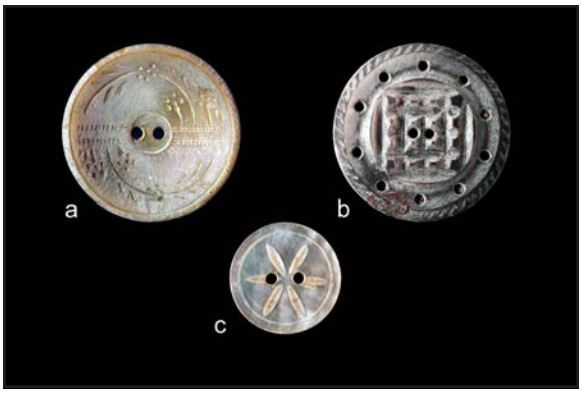


Figure 4.32. Decorated shell buttons from Block 91, AZ BB:13:820 (ASM): (a) Feature 183 (Catalog No. 2009-699-165); (b) Feature 183 (Catalog No. 2009-699-166); (c) Feature 174 (Catalog No. 2009-699-167).

Prosser or Porcelain Buttons

In all, 85 Prosser-style buttons were recovered during the current project (Table 4.7). Prosser buttons, sometimes called china buttons, were made of high-fired ceramic porcelain, and were an attempt to replicate imported Chinese porcelain and Bohemian porcelain buttons (Albert and Kent 1949:50; Ziesing 1989:144). Prosser buttons were extensively exported in large quantities to the U.S. in the mid- to late nineteenth century by the French (Ziesing 1989:147). Simultaneously, the U.S. manufacture of these buttons was established in an attempt to make them more available and affordable, although the industry did not compare to the French imports (Hughes and Lester 1991:31).

It has been argued that Prosser, or small china buttons have been misidentified from many nineteenth and twentieth century archaeological sites, and are sometimes confused with white "milk glass" or "glass" buttons (Sprague 2002:111). These particular porcelain buttons were manufactured using the Prosser process, developed by Richard Prosser in Birmingham, England, and date after 1840. They are identified as having a smooth top side, while the underside has an "orange peel" texture on the surface (bumpy or pitted like an orange peel), with a noticeable seam around the edge, all as a result of the manufacturing process. The back of a white glass button will have a very smooth or mirror-like finish, sometimes with a meandering fine line or very regular, fine lines in concentric circles or segments.

Table 4.7. Prosser-style buttons from the eastern half of Block 91, AZ BB:13:820 (ASM).

Feature	Style	Holes	Lignes	Count
Prosser plain, white				
112	Dish	4	14	1
	Smooth	2	12	5
	Dish	4	16	4
	Tire	4	16	1
	Dish	4	22	2
130	Pie crust	4	27	1
	Dish	4	16	1
	Pie crust	4	16	1
	Dish	4	24	3
135	Tire	4	23	1
140	Tire	4	16	1
	Saucer	4	18	1
158	Dish	4	16	1
	Saucer	4	14	2
	Saucer	4	16	7
	Saucer	4	24	1
	Saucer	4	20	1
	Saucer	4	27	1
	Dish	4	27	1
162	Dish	4	14	1
165	Tire	4	18	1
168	Tire	4	24	1
169	Tire	4	16	1
	Dish	4	22	1
170	Tire	4	16	1
	Pie crust	4	22	2
	Pie crust	4	24	1
Prosser plain, white (cont'd.)				
	Dish	4	24	3
	Saucer	4	16	3
	Saucer	4	22	1
171	Dish	4	16	1
	Dish	4	18	2
	Dish	4	20	1
	Dish	4	22	5
	Dish	4	24	4
	Dish	4	27	4
	Dish	3	16	1
	Inkwell	4	16	1
	Tire	4	16	1
172	Dish	4	24	1
178	Saucer	4	16	1
183	Dish	4	16	1
	Dish	4	28	1
	Saucer	4	24	1
190	Dish	4	23	1
	Tire	4	16	1
197	Pie crust	4	16	1
Subtotal				80
Prosser, decorated				
170	Dish	4	14	1
170	Dish	4	16	3
171	Dish	4	16	1
Subtotal				5
Total				85

Also, the interior of the porcelain button will show minute crystals, while the glass will be totally smooth (Sprague 2002:111).

The confusion in button types comes from the occasional inability to detect the "orange peel" on the back of the button. The majority of Prosser buttons are the same white color as the milk glass buttons, which adds to the confusion, although occasionally one will be colored black. However, according to Odland (2006:11), Prossers are "always small and sew-through, while glass buttons can be quite large and are usually domed, faceted, and fastened with a wire shank." This distinction between the types was used for the current collection of buttons.

Several varieties of Prosser buttons were produced using molds of various shapes, as well as paint or transfer-prints to create decorative and attractive buttons (see Table 4.7). In the current collection, six different design styles are represented (Figure 4.33). The terms used to describe the styles are commonly used by collectors and are consistent with those used in other archaeological reports (Sewell et al. 2010), but they are not period terms. The most ubiquitous is dish (n = 44), followed by saucer (n = 19), tire (n = 9), pie crust (n = 6), and smooth (n = 5). Eighty of the Prosser buttons are white in color, with another two colored black, and a single button that is decorated as a calico button. The calico button is a dish style, 4-hole sew-through with a white base color and a black painted swirly design across the surface (see Figure 4.33a). The designs on calico buttons were usually similar in style and color to whatever fabric they were sewn upon.

All the Prosser buttons are sew-through, with 2, 3, or 4 holes. In the current collection, the majority (79 of the buttons) are the 4-hole type, with a single representative of a 3-hole and five 2-hole sew-through buttons. The 3-hole button is somewhat unusual, in that typically the buttons are either 2- or 4-hole style.

The Prosser or porcelain buttons ranged in size from 12 to 28 lines, with most (58 percent) falling within the 12- to 20-line size range (see Table 4.5).

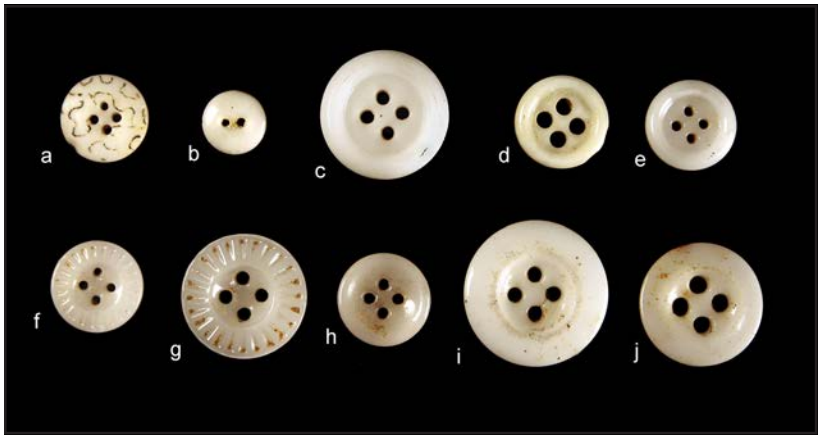


Figure 4.33. Prosser porcelain buttons from Block 91, AZ BB:13:820 (ASM): (a) Feature 171 (Catalog No. 2009-699-168); (b) Feature 112 (Catalog No. 2009-699-169); (c) Feature 158 (Catalog No. 2009-699-170); (d) Feature 190 (Catalog No. 2009-699-172); (e) Feature 168 (Catalog No. 2009-699-171); (f) Feature 197 (Catalog No. 2009-699-173); (g) Feature 170 (Catalog No. 2009-699-174); (h) Feature 170 (Catalog No. 2009-699-175); (i) Feature 171 (Catalog No. 2009-699-176); (j) Feature 190 (Catalog No. 2009-699-198).

This suggests the porcelain buttons were probably used on ladies' and girls' dresses, shirts for both men and women, and shirtwaists.

Metal Buttons

In total, 35 metal buttons were recovered during the current project (Table 4.8). Metal buttons were typically flat metal disks used for fastening trouser fly closures or suspenders on work-type clothing, and are usually associated with adult male clothing, with only a few women using this style of clothing (Sewell et al. 2010). Metal buttons are usually made from brass, iron, steel, or combinations of metals, and were manufactured in the U.S. as early as 1845 (Sewell et al. 2010). Exceptions to the flat disk style of metal buttons are those that are decorated with embossed or raised motifs, and two-piece military buttons that consist of a spherical front attached to a flat back with embossed lettering. In the current collection, eight of the buttons (23 percent) were identified as flat faced, three buttons had a recessed front face (9 percent), one had a raised rim (3 percent), five were cloth covered (14 percent), five were general service military (14 percent), four were stamped or embossed with designs (11 percent), one was domed (3 percent), and seven were so corroded that treatment of the front face could not be determined (20 percent).

Three of the metal buttons were too corroded to determine the type of attachment used. The bulk of the metal buttons (n = 25) had shank attachments, one of which was a bar shank. Of the remaining buttons, two of the flat-faced buttons were 2-hole sew-through style, while two flat-faced and two recessed-face buttons were the 4-hole sew-through style. Line size was variable, ranging from 16 to 50, with one button a rectangular style. Most of the buttons were in the medium-size range, from 22 to 28 lines (n = 18), with another group of 34 lines (n = 6).

Five military buttons were recovered from Feature 171, an outhouse pit dating 1901-1905 (Figure 4.34a). They all measure 34 lines, have shank attachments, and are identified as Federal General Service buttons, consisting of two pieces of brass (flat back and rounded front), with an eagle on the front with spread wings and its head to the right. The eagle has a raised shield on its chest, with several vertical bars on the interior. In the left talon, the eagle is clutching an olive branch, while three arrows of unequal lengths are clutched in the right talon. The backplate is readable on one of the buttons, with stamping that is circular around the outer edge of the button: "Horstmann Bros. & Co.", "PHILa." These buttons date from 1875 to 1893 (Ridgeway 2012), and were probably on a military uniform coat at one time. The Horstmann Brothers had their military button operations in both New York and Philadelphia from 1859 to 1893 (Ridgeway 2012).

Several decorated metal buttons were recovered from Feature 158, an outhouse pit dating to roughly 1900-1905. Two of the buttons are shank style, measuring 22 lines. They are decorated with a raised floral motif, such as a trumpet vine entwined with a banner or ribbon; these may have been on a coat. Two other 4-hole sew-through buttons, one from Feature 162 and the other from Feature 171, both have a flat face with a raised rim with a cross-hatch design stamped around the perimeter of the buttons. They were likely attached to work pants, and also still have remnants of thread present (Figure 4.34b, d). Another button, also shank style, measures 27 lines, and has a flat face with raised lines radiating out from the center, similar to a pants button. The last button (Figure 4.34c) was also recovered from the fill of Feature 158, and is a large shank style brass button measuring 34 lines, and was probably used on a coat. It has "ROCK ISLAND SYSTEM" embossed in raised letters on the front of the button, with a large 5-point star in the center. The background on the front face is stippled, and there is a raised edge around the button edge.

Table 4.8. Metal and cloth-covered buttons from the eastern half of Block 91, AZ BB:13:820 (ASM).

Feature	Style	No. of Holes	Lignes	Count	Comments
130	N/A	N/A	32	1	–
140	Flat-face	N/A	24	1	–
158	Recessed face	Shank	27	1	–
	Back only	Shank	20	1	–
	N/A	Shank	22	1	–
	N/A	Shank	30	1	–
	Decorated	Shank	22	2	Raised floral motif with banner
	N/A	Shank	27	1	–
	Stamped	Shank	27	1	Raised lines radiating out from center
	Stamped	Shank	34	1	"ROCK ISLAND SYSTEM"
	Cloth-covered	Shank	28	1	–
162	Recessed face	4	27	1	Thread attached
169	N/A	Shank	27	1	–
	Cloth-covered	Shank	24	1	–
170	Flat-face	Bar shank	18	1	–
	Recessed face	4	21	1	–
	Stamped	Shank	24	1	Pants/jeans
	Cloth-covered	Shank?	45	1	–
171	Flat-face	4	28	1	–
	Raised rim	NA	30	1	–
	Military	Shank	34	5	General Service
	Flat-face	4	28	1	–
	Flat-face	2	27	1	–
	Domed	Shank	22	1	–
	Flat-face	2	16	1	–
	Cloth-covered	Shank	Rectangular	1	18.21 mm by 14.75 mm by 3.75 mm
	Cloth-covered	Shank	30	1	–
183	N/A	Shank	50	1	–
197	Flat-face	Shank	27	2	Pants/jeans
Total				35	

The Chicago, Rock Island and Pacific Railroad Company was commonly referred to as the Rock Island System. It originated with the Rock Island and LaSalle Rail Road Company in Illinois, circa 1847. They underwent several transformations and mergers with other railroad enterprises that primarily serviced the Midwest and, in 1893, extended south into Texas via Ft. Worth and Dallas. New tracks were continually laid as the rail system expanded, eventually to include New Mexico and Oklahoma. In 1910, a connection with a line at Tucumcari, New Mexico, was joined with what later became the Southern Pacific, completing the line between Memphis and the Pacific coast. It would eventually service 14 states, with nearly 8,000 miles of track, but was one of the more minor railroads. It ceased operations in 1980, due to economic stress over the years, culminating with a rail strike, and sections of the railroad were subsequently partitioned to other rail lines, such as the Burlington Northern Railroad Company (Werner 2012).

Bone Buttons

Fourteen buttons manufactured from animal bone, usually cow, were recovered from six features (Table 4.9). Bone buttons were typically used to fasten underwear or trousers for both adults and children, usually males more than females (McChristian 1995). Bone buttons are typically round to oval disks, with the front face flat or recessed, and usually have two or four sew-through holes (Figure 4.35). Some of the holes are biconically drilled (from both sides of the disk), while others are uniconically drilled (one side). In the current collection, six of the buttons have four holes, six buttons have two holes, and two of the buttons have shanks on the back. The line sizes range from 12 to 24, with most (n = 10) in the me-

Figure 4.34. Metal buttons from Block 91, AZ BB:13:820 (ASM): (a) U.S. Army button from Feature 171 (Catalog No. 2009-699-179); (b) pants button from Feature 171 (Catalog No. 2009-699-180); (c) Rock Island System button from Feature 158 (Catalog No. 2009-699-181); (d) pants button from Feature 162 (Catalog No. 2009-699-182).

dium range, or 22 to 24 lines. The smallest button, from Feature 112, is the single 12-line button; it is also domed with a shank back.

Glass Buttons

Six buttons made from glass were recovered from three features (Table 4.10). Four buttons were recovered from Feature 130, an outhouse pit dating from about 1891-1900. There is one button each of lines 24, 28, 34, and 36; all have a shank style of attachment. Two of the buttons have a molded botanical motifs on the center of the button (Figures 4.36a, c). The former has a layer of clear glass with a floral motif in a brass metal frame with a glass shank, while the latter is molded black glass with a leaf pattern (six leaves) that extends from the center of the button to the outer edge. A third button from this feature (Figure 4.36d) is a molded black glass button with a stippled center and raised hobnails around the perimeter of the face. Also from this feature is another black glass shank button that is square, with two rows of raised hobnails. From Feature 138 comes a single domed glass button made of white milk glass that is set in a brass metal frame with a glass shank. It measures 36 lines and has a shank attachment (Figure 4.36b). Finally, a black glass button was recovered from Feature 162. Measuring just 22 lines, it is the only 2-hole sew-through glass button in the collection. All of these buttons were likely attachments on coats.

Rubber Buttons

Five buttons made from rubber were collected from three features (Table 4.11). A single button from Feature 140 was blue in color, with a shank attachment; it was 24 lines in size. Two black rubber buttons were recovered from Feature 158; both were 4-hole sew-through buttons, and were 21 lines each (Figure 4.37). Two blue rubber buttons came from Feature 171; they both are two-hole sew-through style buttons, with one measuring 14 lines and the other 16 lines.

Table 4.9. Bone buttons from the eastern half of Block 91, AZ BB:13:820 (ASM).

Feature	Style	No. of Holes	Lignes	Count	Comments
112	Domed	Shank	12	1	–
169	Concave	4	22	1	Holes biconically drilled
170	Flat-faced	2	22	2	Holes biconically drilled
	Concave	4	24	1	Holes uniconically drilled
	Flat-faced	Shank	24	1	–
	Flat-faced	2	20	3	Holes biconically drilled
	Flat-faced	2	22	1	Holes biconically drilled
171	Flat-faced	4	22	1	Holes biconically drilled
178	Recessed	4	22	1	Holes uniconically drilled
190	Fragment	4	24	1	Holes uniconically drilled
	Concave	4	24	1	–
Total				14	

Figure 4.35. A bone button from Feature 170, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-183).

Button Distribution

As mentioned, the distribution of the buttons, by feature and material type, is presented in Table 4.4. Outhouse pit Features 171, 170, and158 contained the bulk of the button assemblage (*n* = 156, or 62 percent), with the remaining buttons dispersed among the other 16 features. These three features contained the highest density of shell, porcelain, and metal buttons. Feature 170 produced the highest number of shell buttons (*n* = 27), with Features 135, 138, 140, and 172 lacking shell buttons. The highest number of porcelain buttons (*n* = 21) was recovered from Feature 171, while only Features 105, 138, and 174 did not contain any. Most of the metal buttons were recovered from just two features. Feature 158 had 10 metal buttons (29 percent), while Feature 171 had 13 (37 percent). More than half the bone buttons were recovered from outhouse pit Feature 170 (*n* = 8). All but two of the six glass buttons were recovered from outhouse Feature 130, while the rubber buttons were restricted to three features, Features 140, 158, and 171.

A higher density of buttons was recovered from outhouse pits compared to other types of pits and features. Temporally, the features dating to the post-1900s yielded the most (*n* = 115, or 46 percent); these include Features 158, 171, 178, and 190. Features dating to the pre-1900s had somewhat fewer buttons (*n* = 51, or 21 percent), but had an increase in the number of features from which they were recovered, including Features 112, 130, 135, 138, 168, 183, and 197. Features that dated from the late 1800s that overlapped into the early 1900s generated 54 buttons (21 percent), while those features that were not assigned a date had the least amount of buttons (*n* = 32, or 13 percent).

Buttons were widely distributed across the features examined during the current project, with a higher density of buttons associated with outhouse pits rather than other types of pits or features. A higher proportion of the assemblage was recovered from three outhouse pit features, Features 158, 170, and 171, which date from the late 1800s to the early 1900s. The button materials, styles, and sizes are similar to those found at other archaeological sites in the Tucson Basin that date to this time (Diehl 2005; Sewell et al. 2010; Thiel 2010; Thiel and Faught 1995), and are typical of what would be associated primarily on adult clothing, especially men's work pants, shirts, and a military coat. The finer mother-of-pearl buttons could have been on ladies' shirts, shirtwaists, or men's shirts. The smaller shell buttons may have been on children's clothing. The buttons are similar to those featured in period catalogs such as Sears, Roebuck and Company.

Other Clothing Artifacts

Some of the clothing artifacts recovered could be linked to men. Four pants rivets were found, one each in Features 104 and 170 and two in Feature 169. Pants were held up by either belts or suspenders. Two suspender clips were found in Feature 158, one in Feature 170, and one in Feature 190. These clips were used to properly size a set of man's suspenders.

Three collar buttons were found, two in Feature 158 and one in Feature 170. Five cufflinks were also found, one in Feature 170 and four in Feature 171. In the late nineteenth and early twentieth century, men wore detachable linen and celluloid collars and cuffs. This allowed men to wear the same shirt for many days, while changing out the collars and cuffs

Table 4.10. Glass buttons from the eastern half of Block 91, AZ BB:13:820 (ASM).

Feature	Style	Color	No. of Holes	Lignes	Count	Comments
130	Flat surface/decorated	Clear	Shank	36	1	Floral motif
	Spherical/decorated	Clear/black	Shank	34	1	Floral motif
	Spherical/decorated	Black	Shank	28	1	Hobnails
	Square/decorated	Black	Shank	24	1	Hobnails
138	Domed	White	Shank	36	1	Milk glass in frame
162	Flat-front/rounded back	Black	2	22	1	–
Total					6	

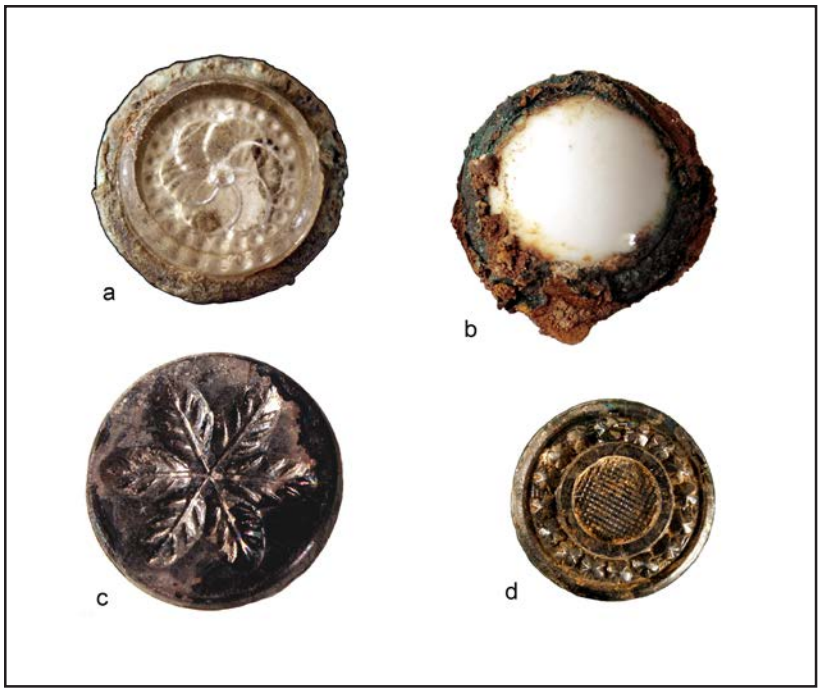


Figure 4.36. Glass buttons from Block 91, AZ BB:13:820 (ASM): (a) Feature 130 (2009-699-184); (b) Feature 138 (Catalog No. 2009-699-185); (c) Feature 130 (Catalog No. 2009-699-186); (d) Feature 130 (Catalog No. 2009-699-187).

Table 4.11. Rubber buttons from the eastern half of Block 91, AZ BB:13:820 (ASM).

Feature	Color	No. of Holes	Lignes	Count
140	Blue	Shank	24	1
158	Black	4	21	2
171	Blue	2	14	1
171	Blue	2	16	1
Total				5

to maintain a fresh appearance. At that time, washing clothes by hand was time consuming, and people laundered clothing less often.

Women's clothing items were also identified. Four corsets were represented by 49 fragments, including metal stays, brass eyelets, and pieces of cloth. Three of the corsets were found in the Feature 171 outhouse pit, while the fourth came from the adjacent Feature 170 outhouse pit.

Two buckles used to adjust women's garters were found, one each in Features 165 and 171. A strap adjuster, found in Feature 158, may have been used for a woman's undergarment.

Other garment items could not be placed with either sex. One clothing clip was found in Feature 130. Two other small buckles and three fasteners may also have been used on undergarments, one each in Features 130, 147, 158, 169, and 197. Four grommets and two snaps were also found. Thirty-three pieces of fabric were found, typically deep in the bottom of privy pits where the lack of oxygen helped retard decomposition. The fabric probably came from clothing, but may have ended up in the privy pit reused as toilet tissue.

Pieces of footwear, such as leather, heels, nails, and eyelets, were common. Fragments were recovered from outhouse Features 112, 130, 158, 169, 170, and 171. At least one boot was present in Feature 169, as evidenced by the large number of eyelets found in one level in the outhouse.

Accessories

Accessories include jewelry, beads, sequins, purses, and other non-essential items that people wear or carry to enhance their appearance. Forty accessory artifacts were found on Block 91.

Eight fragments from purses or pocketbooks and six pieces from three coin purse clasps were found. All the clasp frames were made from brass, and two had small chains attached. Those advertised in the 1897 Sears, Roebuck and Company catalog all had leather bodies with a nickel frame. Coin purses were probably carried by members of both sexes in Tucson. A coin purse was found with the body of a man buried in the Court Street Cemetery (Thiel and

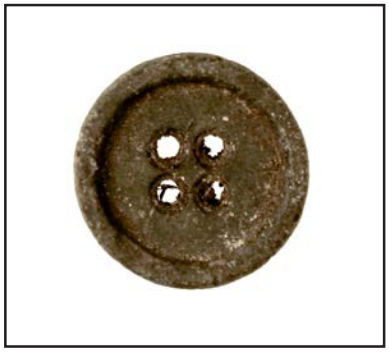


Figure 4.37. A rubber button recovered from Feature 158, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-188).

Margolis 2007). The larger purses would have been carried by women to hold small items, including money, combs, and handkerchiefs. While the 1897 Sears, Roebuck and Company catalog did not sell large purses or handbags, the 1908 version had numerous examples, suggesting these became fashionable at the turn of the twentieth century.

Eighteen fragments of jewelry were found. A hatpin, broken into two pieces, was also recovered from Feature 158 (Figure 4.38). Prior to the 1880s, most women wore bonnets, but afterward, until the 1910s, hats became fashionable. Women used a pair of hatpins to anchor hats to their hair to prevent them from falling or blowing off their heads.

Other items present included a heart-shaped pendant found in Feature 158 (Figure 4.39), a brass elk or deer's head jewelry fragment in Feature 158 (Figure 4.40), and a tear-shaped earring from Feature 183. Six beads were recovered, three black, two blue, and one gray. These beads could have been used for jewelry, or to decorate a dress, a purse, or perhaps some other item.

Figure 4.39. A heart-shaped pendant found in Feature 158, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-146).

Figure 4.40. A piece of jewelry in the form of a buck's head found in Feature 15, Block 91, AZ BB:13:820 (ASM)8 (Catalog No. 2009-699-193).

Clothing Manufacture and Maintenance

Artifacts used to make and repair clothing provide evidence for sewing and other needlework. Until fairly recently, most clothing manufacture took place in home settings, where family members or paid seamstresses sewed and mended clothing.

Thirty artifacts were placed in this category. Six safety pins, 9 straight pins, and 2 thimbles represent the simplest items that could be used by most people to repair a tear or replace a button (Figure 4.41). A pair of scissors and a folding ruler were found in Feature 171.

A Singer sewing machine wheel was found in Feature 158, while "SPERM SEWING MACHINE OIL" bottles were present in Features 170 and 171 (Figure 4.42). This oil was made from whale blubber. Sewing machines became popular in the mid-nineteenth century, with advertisements appearing in Arizona newspapers by 1866 (*Arizona Miner* 1866).

Blue indigo balls are commonly found at historic sites in Tucson, apparently used in dyeing clothing. Two balls were recovered from Feature 130 (Figure 4.43).

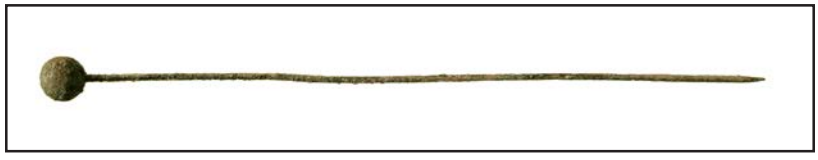


Figure 4.38. A brass-tipped hatpin found in Feature 158, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-153).

Elaborate bone crochet needles were recovered from Features 112, 170, and 171 (Figure 4.44). These were probably manufactured in Europe. The nineteenth century saw an increased interest in needlework in home settings for recreation and for practical use. By 1873, Mrs. M. J. Smith was selling crocheted goods, and crocheting was being taught in Arizona (*Arizona Sentinel* 1873). In 1890, the L. Zeckendorff & Company of Tucson offered a free 10-cent

Figure 4.41. A brass thimble recovered from Feature 171, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-119).

pattern book with the purchase of a ball of cotton crochet yarn (*Arizona Daily Citizen* 1890b). These are the first crochet needles identified at a historic site in Tucson.

PERSONAL

Personal items are likely to be used by a single person or a small group of people. They include items used to maintain or medicate one's body, as well as more private, valuable possessions, such as watches. In total, 715 personal artifacts were identified from Block 91, representing about 5 percent of the total artifacts. Between 2 to 9 percent of the artifacts found in the eight privy pits were placed in this category, with Feature 170 having the most items.

Figure 4.42. A SPERM SEWING MACHINE OIL bottle found in Feature 171, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-95).

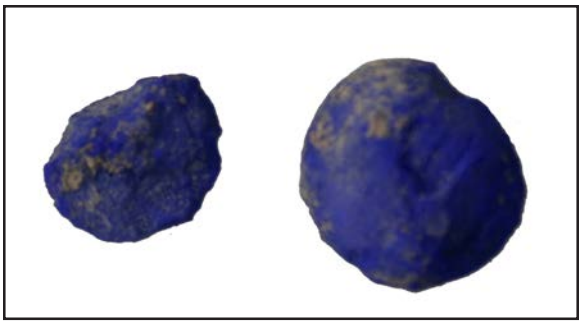


Figure 4.43. Two indigo balls found in Feature 130, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-144x).

A complete pocket watch was recovered from Feature 171. This is the type of artifact that was probably dropped accidentally into the outhouse pit as someone was using the outdoor bathroom. A gear from a second pocket watch was found in Feature 170.

Five clear eyeglass lenses were found, one each in Feature 165 and Feature 170 and three in Feature 171. One green sunglasses lens was also found in Feature 171. Advertisements in Tucson newspapers indicate that eyeglasses could be purchased at a stationary store in 1880. In 1900, jeweler George Cook advertised that he sold spectacles and eyeglasses, "Fitted to your eyes without extra charge, by competent optician" (*Arizona Daily Citizen* 1900b)

Medicines and Medical Devices

Proprietary and patent medicines were common in the nineteenth century. Bottled remedies and boxes of pills were sold in pharmacies and other stores, and could also be ordered through the mail. The products made extravagant claims for cures. By the end of the nineteenth century, as modern medicine was developing, chemists began to investigate and report on the contents of these purported curatives. It was soon apparent that most contained large amounts of alcohol. Many contained harmful ingredients. In 1906, Theodore Roosevelt signed the Food and Drug Act law, which allowed the government to regulate foods and drugs. A series of events in which people were poisoned or harmed by drugs led to the formation of the Food and Drug Administration.

Figure 4.44. Crochet hooks found in Block 91, AZ BB:13:820 (ASM), features: (a) Feature 171 (Catalog No. 2009-699-141); (b) Feature 170 (Catalog No. 2009-699-140); (c-d) Feature 112 (Catalog No. 2009-699-139 and 138x).

In all, 203 medical artifacts were recovered. Among these were 85 medicine bottles that had several dozen different embossed product, pharmacy, or manufacturer's marks (Table 4.12). These allow the contents of many of the bottles to be determined, and when researched, can inform on the purported health benefit of the contents. Other medicine bottles originally had paper labels, but could be identified either based on their distinctive shape, or due to dosage lines embossed on the exterior of the bottle, allowing the consumer to determine how much medicine to take.

A VASELINE CHESEBROUGH bottle was recovered from Feature 106. This petroleum jelly product was patented in 1872, by Robert Chesebrough. It was used as a skin ointment, a skin moisturizer, and a hair pomade, and was said to accelerate the healing of cuts and burns. A bottle sold for five cents at The Racket store at 110 E. Congress Street in Tucson in 1903 (*Tucson Citizen* 1903a).

Feature 130 contained three bottles. Two were from the Fred Fleishman and Company pharmacy in Tucson (Figure 4.45). Fleishman was a druggist in Tucson from 1881 until his death in 1924. The third bottle was VEGETABLE PAIN KILLER manufactured by the Davis company. This product, as suggested by the embossed name, was advertised to provide pain relief. As early as 1859, the medicine was advertised in Arizona as a "remedy for the cure of cholera morbus, burns, scalds, cuts, etc." (*Weekly Arizonian* 1859).

An AYER'S PILLS bottle was recovered from Feature 138. This product was advertised as a cure for constipation and biliousness. "Born So? Is that why you are so cheerful? Or is it because you keep your liver active with Ayer's Pills? All vegetable, mild, sugar-coated. They act directly on the liver" (*Tucson Citizen* 1904a:4).

A FIG SYRUP bottle was present in Feature 139. People in nineteenth century urban settings often had limited access to fresh vegetables and fruit and, as a result, often suffered from constipation and hemorrhoids. Fig syrup contained a large amount of fiber and acted as a laxative.

Twenty-two embossed medicine bottles were recovered from Feature 158. These included nine Fred Fleishman Druggist bottles and three VASELINE CHESEBOROUGH bottles.

A CALIFORNIA FIG SYRUP bottle from Feature 158 once contained a concoction claimed to "act gently yet promptly on the kidneys, liver and bowels and to cleanse the system effectively" (*Arizona Weekly Citizen* 1889k:2).

> Combines the juice of the Blue Figs of California…with the medicinal virtues of plants known to be most beneficial to the human system, forming the only perfect remedy to act gently yet promptly on the Kidneys, Liver and Bowels and to Cleanse the System Effectuality, so that pure blood, refreshing sleep, health and strength (*Arizona Daily Citizen* 1889a:4).

Two bottles of CHAMBERLAIN'S COUGH REMEDY were also found in Feature 158. A bottle could be purchased from Fleishman & Company for either 50 cents or a dollar. It was purported to cure a cold in two days (*Arizona Weekly Citizen* 1890a).

> There is nothing that strikes terror to the hearts of parents more than to be awakened in the night by the ringing cough which accompanies an attack of croup… Do not experiment with remedies of doubtful value, but get Chamberlain's Cough Remedy that has been in use for nearly forty years and never known to fail (*Tucson Citizen* 1909a:2).

A bottle of LYDIA PINKHAM'S VEGETABLE COMPOUND (Figure 4.46) supposedly "keeps the feminine organism in a strong and healthy condition" (*Arizona Republican* 1907:8). This product was marketed to women, and was heavily advertised in Tucson newspapers as early as 1882 (*Arizona Daily Citizen* 1900d; *Arizona Weekly Star* 1882). Lydia Pinkham began bottling her home-made concoction in 1876. The original formula contained pleurisy root, life root, fenugreek, unicorn root, and black cohosh, all plants with known medicinal benefits. The herbs were distilled and added to an 18 percent

Table 4.12. Embossed medicine bottles from the eastern half of Block 91, AZ BB:13:820 (ASM).

Feature	Embossed Product Name	Number
106	VASELINE CHESEBROUGH NEW YORK	1
130	FRED FLEISHMAN AND CO. DRUGGIST TUCSON	2
	VEGETABLE PAIN KILLER/ DAVIS	1
138	AYER'S PILLS/ LOWELL MASS.	1
139	FIG SYRUP	1
158	CALIFORNIA FIG SYRUP CO. SYRUP OF FIGS SAN FRANCISCO CAL.	1
	CHAMBERLAIN'S COUGH REMEDY	2
	CHAMBERLAIN'S PAIN BALM CHAMBERLAIN MED CO. DES MOINES IA USA	1
	FRED FLEISHMAN DRUGGIST TUCSON ARIZ.	9
	LISTERINE LAMBERT PHARMACAL COMPANY	1
	LYDIA PINKHAM'S VEGETABLE COMPOUND	1
	MILLER'S DRUG STORE	1
	NATIONAL REMEDY COMPANY NEW YORK	1
	SAM DR SWA KID GIN???	1
	VASELINE CHESEBROUGH NEW YORK	3
	W. RUMFORD CHEMICAL WORKS	1
165	[CHAMBER]LAIN'S CHOLERA AND [DIARR]HEA REMEDY	1
169	AYERS PECTORAL	1
	CATARRAH HAY FEVER ELY'S CREAM BALM NEW YORK	1
	RESINOL/ ----TO M	1
170	B & S HOMEOPATHIC COUGH & CROUP SYRUP	1
	BROMO-SELTZER/ EMRSON/ DRUG CO. BALTIMORE MD	1
	C. LANGLEY & CO. SAN FRANCISCO	1
	CALIFORNIA FIG SYRUP CO. SYRUP OF FIGS SAN FRANCISCO CAL.	3
	CHAMBERLAIN'S COUGH REMEDY/ CHAMBERLAIN MED CO./ DES MOINES IA USA	1
	DR. A. BOSCHEE'S GERMAN SYRUP/ PROPRIETOR/ LM GREEN	2
	DR. PITCHER'S CASTORIA	4
	FRED FLEISHMAN DRUGGIST TUCSON ARIZ.	5
	HOOD'S SARSAPARILLA GI HOOD & CO. APOTHECARIES LOWELL MASS	1
	HURT & TANNER DRUGGISTS SPRINGFIELD, TENN	1
	M. RYAN DRUGGIST WALLA WALLA WASH.	1
	PAINES CELERY COMPOUND	1
	SCOTT'S EMULSION/ WITH LIME AND SODA/ COD	1
	THE MOTHER'S FRIEND/ ATLANTA GA/ BRADFIELD REG'L CO	2
	VASELINE CHESEBROUGH NEW YORK	4
	WAKELEE'S CAMELINE	1
	WHITTMORE/ BOSTON/ USA	1
	WYETH & BRO PHILADA	2
171	BURNETT BOSTON [possible, could be extract]	1
	BROMO-SELTZER/ EMERSON/ DRUG CO. BALTIMORE MD	1
	ATWOOD & STEELE CHEMICAL WORKS/ CHICAGO	1
	D. A. BOSCHEE'S GERMAN SYRUP/ PROPRIETOR/ LM GREEN	1
	DR. JAYNE'S TONIC VERMIFUGE 242 CHESISI PHILA	1
	DR. PITCHER'S CASTORIA	1
	EAST LOS ANGELES DRUG STORE DR. A. SCHLOSS 621 DOWNEY AVE	1
	FRED FLEISHMAN DRUGGIST TUCSON ARIZ.	2
	HORNE & ABEL LOS ANGELES, CAL.	1
	KODOL DYSPEPSIA CURE	1
	SCOTT'S EMULSION/ WITH LIME AND SODA/ COD LIVER OIL	1
	WARNER SAFE LIVER KIDNEY CARE ROCHESTER, NY	4

Figure 4.45. A Fred Fleishman and Company pharmacy bottle from Feature 130, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-75).

Figure 4.46. A Lydia Pinkham's Vegetable Compound bottle from Feature 130, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-116).

alcohol mixture. This particular medicine is still sold today, in an altered form (Riddle 1997:250).

A bottle of LISTERINE was also recovered from Feature 158. This product was initially sold as an antiseptic, and it gained in popularity after use as a mouthwash was promoted in advertisements. Another bottle found in the privy pit was embossed MILLER'S DRUG STORE; the location of this pharmacy remains unknown. A RUMFORD CHEMICAL WORKS bottle may have once held acid phosphate, a popular product that was used to relieve mental and nervous exhaustion (Figure 4.47).

One bottle of CHAMBERLAIN's PAIN BALM was found in Feature 158. This product was advertised in Tucson newspapers as a cure for rheumatism and lumbago. It was a topical ointment applied to the surface of the skin as a pain reliever (*Tucson Citizen* 1903c). The Feature 158 medicine bottles suggest this household was concerned with lung problems (perhaps tuberculosis), skin conditions, constipation, and women's health problems.

One bottle of CHAMBERLAIN'S CHOLERA AND DIARRHEA REMEDY was found in Feature 165. This product was sold by druggists, and was reputed to cure colic, diarrhea, and dysentery (*Tucson Citizen* 1912a).

Three bottles were found in Feature 169. One was marked AYERS PECTORAL. This medicine was supposed to cure lung problems, including La Grippe; it was cherry flavored (*Arizona Weekly Citizen* 1893a). Another bottle once held ELY'S CREAM BALM, which was said to work as a cold, hay fever, and headache remedy (*Arizona Republican* 1909) (Figure 4.48).

The third bottle held RESINOL, a medicated soap that helped maintain a clear complexion. This medicine was advertised as: "Itching and irritation of the skin easily cured with Resinol Ointment. It is bland, soothing and non-poisonous- contains no lead or mercury" (*Charlotte Observer* 1897:8).

Thirty-six bottles were found in the Feature 170 privy pit. Five prescription bottles from the Fleishman drugstore were present. Three bottles of CALIFORNIA FIG SYRUP, one of CHAMBERLAIN'S COUGH REMEDY, and four of VASELINE CHESEBOROUGH were recovered. Two bottles of BOSCHEE'S GERMAN SYRUP were found. This product claimed to cure colds and "hereditary consumption" (*Tombstone Epitaph* 1891:2). Pharmacist Fred Fleischman offered free sample bottles in 1900 (*Arizona Daily Citizen* 1900a).

A bottle of B & S HOMEOPATHIC COUGH & CROUP SYRUP was used to treat coughing problems (Figure 4.49). One bottle of BROMO-SELTZER was found. This medicine was used for indigestion and was also used as a hangover cure. It was removed from the market in 1975, after it was discovered that the active ingredient, sodium bromide, was slightly toxic (<http://en.wikipedia.org/wiki/Bromo-Seltzer>).

Four bottles of DR. PITCHER'S CASTORIA were found. This product was a laxative, often marketed toward children. "What it is. Castoria is a purely vegetable Cathartic, pleasant as honey to the taste, the great remedy for Costiveness, Dyspepsia, Sick Headache, Billiousness and Piles" (*Jackson Citizen Patriot* 1870:4).

One bottle of WAKELEE'S CAMELINE was found. This product was said to help a person's complexion (*Seattle Daily Times* 1910).

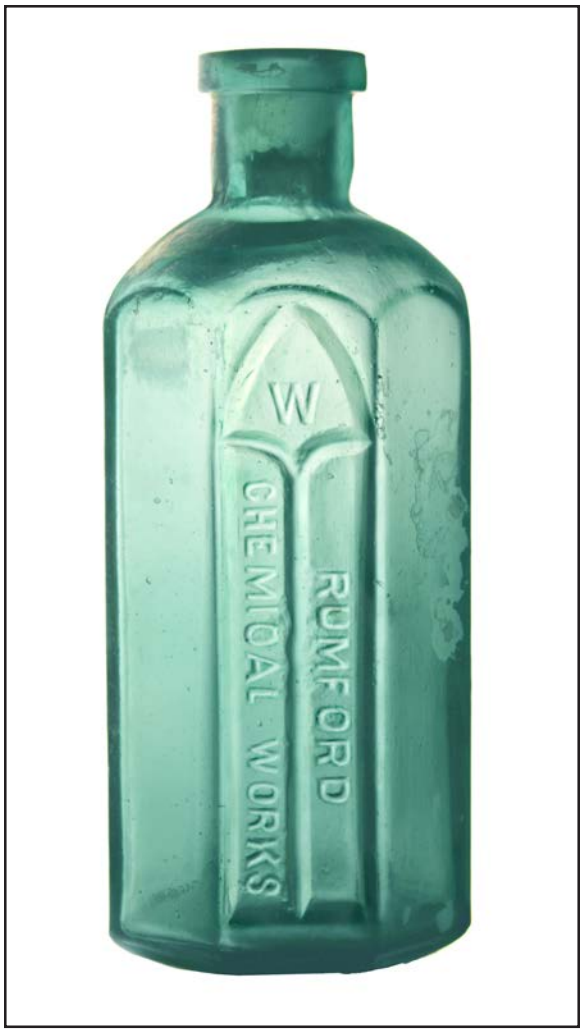


Figure 4.47. A Rumford Chemical Works bottle from Feature 158, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-65

Two bottles of THE MOTHER'S FRIEND were recovered from Feature 170. This product was marketed to women, in particular, and was "the best remedy for rising of the breast known" (*Coconino Weekly Sun* 1893:4). The substance was manufactured in Atlanta, Georgia, by the Bradfield Regulator Company. This was a liniment that was to be massaged onto the skin of a person. Chemical analysis of the product revealed that the product was 100 percent cottonseed oil (*Druggists Circular* 1910:195-196).

One bottle of SCOTT'S EMULSION, which was advertised to stop "wasting" was found (*Arizona Republican* 1905b:5). This product was a nutritional supplement that was supposed to be a "flesh producer." It was advertised to help people suffering from "consumption, scrofula, general debility, wasting diseases, emaciation, colds and chronic coughs" (*Arizona Daily Citizen* 1889c:2).

A bottle of PAINE'S CELERY COMPOUND was present. This concoction was purported to help nerve problems and rheumatism (*Arizona Republican* 1905a). The product was also advertised to help cure "a disordered and diseased liver," as a blood strengthener, and as an appetite aid (*Tucson Citizen* 1902a:5, 1902b:5). Analysis of the product revealed that it was 19.8 percent alcohol, sugar syrup, and glycerin (Minnesota State Dairy and Food Commissioner 1907:614).

One bottle of HOOD'S SARSAPARILLA was found (Figure 4.50). This medicine was supposedly made from a variety of plants, including dandelion, juniper berries, and dock. It purportedly cured a long list of ailments, including kidney and liver complaints, indigestion, headache, and pimples (*Arizona Sentinel* 1886). It was advertised as

> the best blood purifier before the public. It eradicates every impurity, and cures Scrofula, Salt Rheum, Boils, Pimples, all Humors, Dyspepsia, Billiousness, Sick Headache, Indigestion, General Debility, Catarrh, Rheumatism, Kidney and Liver Complaints, overcomes the tired feeling, creates an appetite and builds up the system (*Arizona Daily Citizen* 1889b:4).

Figure 4.48. An Ely's Cream Balm bottle from Feature 169, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-71).

Two bottles of POND'S EXTRACT were found. This was an eye medication. "Relieve the Eyes, Pond's Extract. Reduced one-half with pure soft water, applied frequently with dropper or eye cup, will remove

Figure 4.49. A B & S Homeopathic Cough & Croup Syrup bottle from Feature 170, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-91).

Figure 4.50. A Hood's Sarsaparilla bottle from Feature 170, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-88).

congestion and instantly relieve pain and inflammation" (*Arizona Daily Citizen* 1901a:2). This product was also sold as an antiseptic for wounds, sunburn, and as an aftershave (*Arizona Republican* 1911).

Several pharmacy bottles from out-of-state druggists were present in Feature 170. One was from the HURT & TANNER druggists of Springfield, Tennessee. That pharmacy was in operation from at least 1905 to 1916 (D. O. Haynes & Co. 1905, 1916).

Another was from the M. RYAN DRUGGIST of Walla Walla, Washington. Michael Ryan (1850-1924) operated a pharmacy in Walla Walla (see <http://themeehanfamily.com/lynch/3533.htm>). In 1880, he was a clerk in a drug store, and by 1897, he was managing the Ryan Drug Company in Walla Walla (1880 U.S. census, Washington, Walla Walla County, Walla Walla City, ED 47, page 4; *Western Druggist* 1896).

Chemists bottles were recovered, one from the WHITTMORE company of Boston and two from the WYETH & BRO. company of Philadelphia. These may have held preparations made by a pharmacy or particular chemical.

A glass item found in this privy pit may be an inhalant device, used to breath in medication for breathing problems, such as asthma or tuberculosis (Figure 4.51).

The household contributing refuse to Feature 170 had constipation problems, digestion concerns, women's complaints (perhaps after childbirth), and skin problems.

Seventeen bottles were found in Feature 171. These included a D. A. BOSCHEE'S GERMAN SYRUP, one bottle of DR. PITCHER'S CASTORIA, one bottle of SCOTT'S EMULSION, one bottle of POND'S EXTRACT, and one bottle of BROMO-SELTZER. Two bottles from Fred Fleischman's drugstore were also present.

Four bottles of WARNER'S SAFE LIVER & KIDNEY CURE were recovered (Figure 4.52). This proprietary medicine was manufactured in Buffalo, New York. It was claimed to cure a large variety of maladies, including kidney and

Figure 4.51. A glass item, probably an inhalant device, from Feature 170, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-84).

Figure 4.52. A bottle of Warner's Safe Kidney & Liver Cure found in Feature 171, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-113).

liver disease, urinary disorders, female complaint, malaria, general debility, rheumatism, constipation piles, and headaches (*Arizona Republican* 1905c; *Daily Tombstone Epitaph* 1887). The medicine contained 15.6 percent alcohol, sugar syrup, glycerine, and wintergreen (Minnesota State Dairy and Food Commissioner 1907:614).

A bottle of KODOL DYSPEPSIA CURE was said to help internal organs and to act as a digestion aid (*Coconino Sun* 1899:13); it was advertised as, "Of all the great scientific discoveries of the present age, Kodol Dyspepsia Cure is the latest and undeniably the greatest and most beneficial to the human race. Its discovery followed most intricate experiments, and most profound physiological research, conducted at great expense by men of the highest ability." The Minnesota State Dairy and Food Commissioner (1907) funded a study of various proprietary and patent medicines and determined that the medicine contained 18.1 percent alcohol, sugar syrup, strychnine, and salicylic acid.

A DR. JAYNE'S TONIC VERMIFUGE bottle was recovered (Figure 4.53). This product was supposed to kill intestinal worms. "Worms in children worry and fret them, the attending symptoms simulating many different diseases. When their presence is indicated use at once Dr. Jayne's Tonic Vermifuge, and you will rid their bodies of the worms and clear out their nests" (*Kansas City Times* 1890:8). Analysis of the medicine showed that it contained sodium santonate, pink root, jalap, erigeron, and turpentine (Brundage 1920:248f).

A chemical bottle marked BURNETT BOSTON was present, as was a bottle from the ATWOOD & STEELE CHEMICAL WORKS. A prescription bottle from the EAST LOS ANGELES DRUG STORE, which was operated by Dr. A. Schloss, was recovered. This drugstore was in operation between at least 1887 and 1905 (D. O. Yanes & Co. 1905; see also <http://www.bergsengs.com/State_Druggist.html>).

The Feature 171 household had members with digestion problems, parasitic worms, internal organ problems, and constipation.

An unusual artifact was located at the base of Feature 112, a Hodge pessary (Figure 4.54). This hard rubber device was oval and S-shaped in cross section. At the time of its discovery, its function was unknown. It was identified, by chance, when an identical artifact was found in an article on the nineteenth century Weir family cemetery in Virginia (Little et al. 1992).

A pessary was a medical device used by doctors to prevent a woman from suffering from a prolapsed

Figure 4.53. A Dr. Jayne's Tonic Vermifuge bottle from Feature 171, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-99).

Figure 4.54. A pessary from Feature 112, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-127).

uterus. This problem was somewhat common in the nineteenth century due to the number of children a woman might have, as well as the wearing of corsets (Little et al. 1992:401). The pessary was inserted into a woman's vagina and manipulated until it was in the correct position, "the object of the pessary is to sustain the uterus in its normal position without fixing it…" The item prevented the uterus from descending outside of the body. The introduction of a foreign item into the human body could cause other health problems, however, due to lack of cleanliness. A gynecological textbook states that the woman using the device should regularly douche (Gilliam 1903:197-201).

Hygiene Artifacts

Hygiene artifacts are used to clean and maintain the human body. The development of the germ theory in the late nineteenth century saw an increased concern with cleanliness and sanitation. Prior to the establishment of city water in the downtown area, Tucson residents relied on backyard wells to obtain water for bathing, or they could go to a bathhouse and pay $0.25 for a tub of hot water. In total, 440 artifacts were placed in this category.

The households on Block 91 used backyard privies or outhouses for bathrooms into the early 1900s. Chamberpots were also present inside the house, used by people who did not want to walk out to their privy in the middle of the night, for use by elderly or sick individuals, and for potty training small children. Eight pots and one lid, represented by 81 fragments, were found during the project (Figure 4.55).

A pair of reconstructible chamberpots was recovered. One from Feature 171 was made from plain white hardpaste earthenware, and was manufactured in England, marked on its base GEORGE JONES & SONS. This makers' mark was used between 1862 and 1873. A plain chamberpot lid was also found in Feature 171. The second pot found in Feature 170 was manufactured by the Homer Laughlin company between 1877 and about 1900, and it featured green transfer-printed primroses. The two pots were probably accidentally dropped into the outhouses.

Dental Hygiene

A ceramic toothpaste pot was found in Feature 170 (Figure 4.56). The transfer-printed lid was marked ORIENTAL TOOTH PASTE FOR CLEANSING BEAUTIFYING AND PRESERVING THE TEETH & GUMS PREPARED BY JEWSBURY & BROWN CHEMISTS 113 MARKET STREET MANCHESTER. This brand was described as "England's Favorite Dentrifice" and was purported to "gives peculiar fragrance to your breath and will preserve the teeth and gums to old age" (Braithwaite 1885:618). Two SOZODONT bottles were found in Feature 170. This powdered toothpaste is commonly found at sites in downtown Tucson, and was advertized in Tucson newspapers (*Tucson Citizen* 1904b).

Toothbrushes were represented by 11 fragments from eight separate brushes, one from the fill of the planing mill pit Feature 165, four from outhouse pit Feature 170, and three from outhouse pit Feature 171. The toothbrushes were made from cattle bone that was milled and polished, with the heads care-

Figure 4.55. Chamberpots from Block 91, AZ BB:13:820 (ASM): (a) a green transfer-printed chamberpot from Feature 170 (Catalog No. 2009-699-34x); (b) an undecorated chamberpot and lid from Feature 171 (Catalog Nos. 2009-699-33 and 35x).

Figure 4.56. An Oriental Tooth Paste lid and base from Feature 170, Block 91, AZ BB:13:820 (ASM) (Catalog Nos. 2009-699-31 and -32).

Figure 4.57. A bone-handled toothbrush from Feature 170, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-135).

Figure 4.58. Bone-handled brushes from Block 91, AZ BB:13:820 (ASM): (a) Feature 170 (Catalog No. 2009-699-133); (b) Feature 130 (Catalog No. 2009-699-134).

Figure 4.59. Razor stropping stone from Feature 183, Block 91, AZ BB:13:820 (ASM) (2009-699-129).

fully drilled for placement of bleached pig bristles. One brush was marked J.S. TAYLOR LONDON (Figure 4.57). The 1908 Sears, Roebuck and Company catalog lists brushes manufactured in France or Japan, ranging in price from $0.08 to $0.19 cents (Sears, Roebuck and Company1908).

Prior to the 1920s, only about 20 percent of Americans regularly brushed their teeth, and past archaeological projects in downtown Tucson indicate that dental hygiene varied dramatically among households.

Grooming

Nineteen hard rubber, Bakelite, or bone combs, comb fragments, and brushes were recovered. Seventeen of these were regular hair combs, while two, from Feature 171, were fine-toothed combs suitable for removing lice and lice eggs. Two brushes had bone hand-les, and were used as either hair or as nail brushes (Figure 4.58).

A stone razor strop was found in Feature 183; it was used for sharpening razor blades (Figure 4.59).

Several perfume or cologne bottles were found. One, recovered from Feature 170, was shaped like a boot (Figure 4.60). A bottle from Feature 158 had a partial paper label that read VIOLET TOILET WATER (Figure 4.61).

Other hygiene artifacts included the strainer portion for a ceramic soap dish, several cold cream jars, and fragments of wash basins and wash pitchers.

Syringes, Enema Kits, Douche Kits, and Hot Water Bottles

Numerous hygiene and medical delivery devices were recovered from five outhouse pits on Block 91 (Table 4.13). These syringes, enema or douche sets, and hot water bottles served to introduce water and medicines into the human body in an attempt to clean and medicate. People of this time period also suffered from constipation due to their

Figure 4.60. Boot-shaped perfume or cologne bottle from Feature 170, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-64).

Figure 4.61. Violet Toilet Water bottle from Feature 158, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-73).

Table 4.13. Hygiene and medical delivery artifacts from the eastern half of Block 91, AZ BB:13:820 (ASM).

Feature	Artifact	Portion
112	Enema/douche	Bulb, hose, coupling
158	hot water bottle	Bag, hose, couplings
158	Enema/douche	Bulb, hose, couplings
158	Enema/douche	Bulb, hose, couplings, nozzle
158	Syringe	Complete
170	Enema/douche	Bulb, hose, coupling
170	Hot water bottle	Bag, hose, couplings, nozzle
170	Enema/douche	Bulb
170	Enema/douche	Bulb, hose, coupling, nozzle
170	Enema/douche	Bulb, hose
170	Syringe	Plunger
170	Eyedropper	Complete
171	Syringe	Plunger
171	Enema/douches	2 bulbs, hose, couplings, 2 nozzles
183	Enema/douche	Nozzle

diet, and the same devices used for douching could also be used for enemas. The 1898 Sears, Roebuck and Company catalog sold two types of syringes used for douching and enemas, ranging in price from $0.65 to $2.20.

The douche, enema, and hot water bottle kits recovered from the block had several components, made from rubber, hard rubber, and brass. A rubber bulb or bag was used to contain the water or medicine to be introduced into the body. A length of rubber hose was present with couplings that allowed it to be attached to the liquid container and to the hard rubber insertion tips. The insertion tips could be either straight or bent at an angle and had four to six holes to allow the liquid to irrigate the person's interior. Shut-off valves or clamps were also present, allowing the user to start and stop the flow of liquid.

An example from Feature 170 is typical, with the bulb, tubing, shut-off valve, and replaceable nozzle with an irrigator tip (Figure 4.62).

Syringes were found in three features and likely served a similar purpose. An eyedropper from Feature 170 was probably used to introduce medicines into smaller openings, such as the eyes, ears, and nose.

Coins and Tokens

Ten coins and one trade token were recovered. Perhaps the most interesting was a trade token found in Feature 170 (Figure 4.63). It was marked GOOD

Figure 4.62. Enema or douche kit from Feature 170, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-126).

FOR 1 DRINK AT THE PARLOR/EL PASO, TEX./ OLD CHURCH AGE 270 YEARS/ PASO DEL NORTE MEX. and on the other side, EL PASO COURT HOUSE, with an image of the courthouse in El Paso, Texas (see <http://arago.si.edu/index.asp?con=2&cmd=1&id=223&img=2&pg=1>). The token dates from 1888 to 1897.

Eight coins minted in the U.S., five pennies and a nickel, were located. Three Indian head pennies were found in Feature 169, one from 1899 and two from 1902. Two additional Indian Head pennies were found in Feature 170, one of which appears to date to 1899, while the other had an illegible date. A Liberty nickel from that outhouse pit was also illegible, but would have been minted between 1883 and 1913. An Indian Head penny from Feature 171 was also illegible. A 1941 Lincoln head penny was found in Feature 178, the septic tank associated with one of the auto-related businesses.

Two foreign coins were found. A Canadian penny, minted in 1884, was found in Feature 158. The coin features Queen Victoria on one side. A Chinese coin was found in Feature 169 (Figure 4.64). The obverse face of the coin is marked "China, Guang Xü," which is the mint period, between 1875 and 1908, and the reverse side, marked "China, Guangzhou, Guangdong," which is the mint location (Olsen 1983:46-49). This particular coin was the most commonly recovered Chinese coin during the Tucson Urban Renewal project.

Figure 4.63. Trade token from Feature 170, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-120).

Figure 4.64. Chinese coin from Feature 165, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-82).

Religion

Religious artifacts are not commonly recovered at sites. Thirty fragments from a rubber figurine that appears to be an Old Testament individual was found in Feature 171.

Smoking

Many residents of Tucson used tobacco products during the American Territorial period. Cigarettes and cigars were popular among both the Mexican-American and Euro-Americans living here. Tobacco pipes were less popular. A search of the words "cigar," "cigarette," and "smoking pipe or pipe tobacco" in the *Arizona Weekly Citizen* between 1885 and 1896, clearly shows this. During this period, cigars are mentioned 672 times, cigarettes 163 times, smoking pipes 23 times, and tobacco pipes only five times. In total, 21 smoking artifacts were identified from Block 91.

A small advertising dish, a scalloped-rimmed platter or bone dish possibly used as an ashtray, was found in Feature 170 (Figure 4.65). It was marked FRANK TORRENCE SPRINGFIELD OHIO LARGEST EXCLUSIVE CIGAR BROKERAGE IN AMERICA. The back of the dish was marked DRESDEN. Franklin Pierce Torrence was born on 11 June 1855,

Figure 4.65. An advertising dish recovered from Feature 170, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-47).

in Jamestown, Greene County, Ohio. The 1880 U.S. census, which lists him as living with his wife Laura and their daughter Gertrude in West Liberty, Logan County, Ohio, did not record his occupation. In 1899, Frank was the defendant in a court case in Ohio. He had been selling cigars of the Carmencita brand, prepared by the Bucher and Bucher Company. Torrence then had labels and boxes created bearing the "La Camerita" name, and was accused of selling them to customers who thought they were the other brand (Laning Printing Company 1900:47). By 1900, he was living in Springfield, Clark County, Ohio, and was a cigar broker. By 1910, he was an investment promoter, and in 1920, he was the manager of a granite company. He died in October 1928. The dish was probably manufactured in the early 1900s, sometime between 1899 and 1910.

Two fragments of a brown glass snuff bottle were recovered from Feature 158. Eight fragments of metal tobacco tins were recovered, one each in Features 130 and 169, and the rest from Feature 158.

Five kaolin porcelain pipe stems and bowls were recovered, one each from Features 105, 162, and 170, and two from Feature 171 (Figure 4.66). Kaolin pipes are occasionally found in Tucson, almost always at

Figure 4.66. A kaolin clay pipe found in Feature 171, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-143).

residences occupied by Euro-Americans. Four Bakelite pipe stems were recovered, two each from Features 170 and 171.

Walking Stick or Umbrella Handle Part

A very unusual and atypical find from Feature 171 was an elephant ivory tube, 2.5 inches tall and 0.75 inches in diameter (Figure 4.67). The exterior was hand-carved, with a scene of a hunter standing next to a tree trunk, with his hunting dog sitting nearby and looking at the man. Green staining is present on one end of the tube, indicating it was connected to a piece of copper or brass. The function of the item is uncertain. When found, it was thought it might be part of a smoking pipe. However, research failed to find comparable examples. It now appears that the decorative tube was part of a walking stick or, perhaps, an umbrella. In any case, it was an expensive item at the turn of the twentieth century, and why someone would throw the item into an outhouse pit is unknown.

Figure 4.67. An ivory part for a walking stick or umbrella handle, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-142).

Locks and Keys

The use of locks and keys are typically restricted to a small number of people, an individual, the members of a family, or employees. A single padlock was recovered from Feature 165, the planing mill pit filled in after the mill burned in 1908. The lock was marked "U.S." on both sides, and was probably originally the property of the United States government.

ACTIVITIES

The activity category includes a variety of items used for work or recreation. In all, 695 artifacts, representing about 5 percent of the Block 91 artifacts, were placed in this broad category. Activity artifacts represented 3 to 9 percentage of the artifacts found in the eight privies, with Feature 158 having the most artifacts from this category.

Toys

Toys were surprisingly common, with 247 fragments recovered. Most common were fragments of dolls. In total, 123 fragments of bisque porcelain dolls were found, from as many as 40 dolls. Three different types of dolls were present. The smallest and least expensive were Frozen Charlottes. The name for this kind of doll derives from an American folk ballad about Fair Charlotte, a young girl who refused to dress warmly while going on a sleigh ride during the winter; she froze to death. The typical Frozen Charlotte doll was molded with non-moving arms either bent at the elbow and positioned as if she were still clutching the horse's reins, or with the arms extended along the side of the body. The smallest Frozen Charlotte doll from Block 91 was found in Feature 135, a planting pit, and was only slightly more than 1.5 inches tall (Figure 4.68c). Two additional Frozen Charlotte dolls from Features 158 and 170 were 2-1/4 inches and 3 inches tall, respectively (Figure 4.68a-b), and had jointed, moveable arms. Both were female, with one wearing a large bonnet. These were relatively inexpensive dolls. The smallest Frozen Charlottes may have been tucked into apron pockets of larger dolls.

The second type of doll was small, hollow bisque porcelain dolls that had bodies with jointed arms and either stationary or jointed legs. They were 3-5 inches tall, some with painted socks and shoes.

More commonly found at Block 91 were more expensive bisque porcelain dolls, which originally had cloth, leather, or composition material bodies, with attached heads, arms, and legs. The hollow heads were either painted, had molded hair, or had human hair wigs. Some had glass eyes and molded teeth. The largest was from Feature 170. It had a head 5-6 inches tall, and had a mark on its back shoulder of 1900-3 and a horseshoe (Figure 4.69). The doll was manufactured by the Ernst Heubach Company in Koppelsdorf, Germany, which operated from 1887 until after 1932. The "1900" was a mold number, and may have been related to the year a particular mold was created. Another doll found in Feature 170 was unmarked, had short blonde hair, and was 3 inches tall (Figure 4.70). It is uncertain if the doll was a boy or a girl.

Two other porcelain dolls, one from Feature 171 and from Feature 183, had identical mold marks, "1894." This mark was used by the Armand Marseille factories in Sonneberg and Koppelsdorf, Germany (Ernst Heubach was married to Armand Marseille's daughter). The Armand Marseille company began manufacturing dolls in 1884, and con-

Figure 4.68. Frozen Charlotte dolls from Block 91, AZ BB:13:820 (ASM): Feature 158 (Catalog No. 2009-699-36); (b) Feature 170 (Catalog No. 2009-699-37); (c) Feature 135 (Catalog No. 2009-699-38).

Figure 4.69. Large hollow-headed doll from Feature 170, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-40).

Figure 4.70. Blonde hollow-headed doll from Feature 170, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-39).

tinued into the 1930s. Today, the dolls are considered valuable collector's items.

A rubber doll or figurine was an unusual find in Feature 170 (Figure 4.71). The doll is wearing a Victorian-era dress and holding an umbrella. It was about 6 inches tall.

Cups, saucers, a teapot, and pitchers from doll tea sets were also common, with 58 fragments recovered. Many were plain porcelain, with a small number decorated with gilt lines and paint. Doll dishes were found in six of the eight outhouse pits, Features 130, 158, 170, 171, 183, and 190. A partial set from Feature 170 contained a plain cup and saucer and a slightly more elaborate teapot (Figure 4.72). The presence of so many toy dishes suggests that either girls were present during much of the Territorial period occupation of the block, or that both boys and girls played with toy tea sets.

Eleven marbles were found. Seven were plain fired clay marbles, while four were glass marbles, which were clear with swirled designs inside. Four rubber balls, used to play a variety of games, were recovered, one each in Features 130, 158, 170, and 171. Three gaming pieces were recovered. One flat disk may be part of a Tiddlywinks game, developed in the 1880s. Also found was a toy sled and a toy wheel in Feature 158.

An iron mechanical bank was found in Feature 130 (Figure 4.73). The bank was a seated male, whose raised right arm moved up and down, dropping a penny into a slot above the left forearm, the coin causing the head to turn back and forth. This was a "Tammany" bank, first manufactured in the 1870s. It had an initial patent date of 23 December 1873 (re-issued on 9 October 1877), and was manufactured by the J. & E. Stevens Company in Connecticut, as shown by the patents (<www.google.com/patents>) (Figure 4.74).

Figure 4.71. A rubber doll or figurine from Feature 170, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-137).

Figure 4.72. A doll tea set from Feature 170, Block 91, AZ BB:13:820 (ASM) (Catalog Nos. 2009-699-41 and -42).

Communication

Communication artifacts are used to transmit written, printed, or spoken messages from person to person. Their presence usually indicates that residents were literate. Census records suggest the majority of people known to have lived on the block could read and write. In total, 141 artifacts from Block 91 were placed in this category.

Nineteen fragments from ink bottles were found. Two were CARTER'S ink, and one was SANFORD ink (Figure 4.75). Bottles from these two companies are commonly found in Tucson. Ink residues were found in several bottles, with black, red, pink, and purple inks represented (Figure 4.76). The presence of brightly colored ink is unusual and atypical. This may suggest that someone doing art projects discarded trash into outhouse Features 170 and 171. One ceramic ink bottle base was also recovered, as was one part from a pen.

Figure 4.73. A well-preserved Tammany bank (a) and (b) one recovered from Feature 130, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-123).

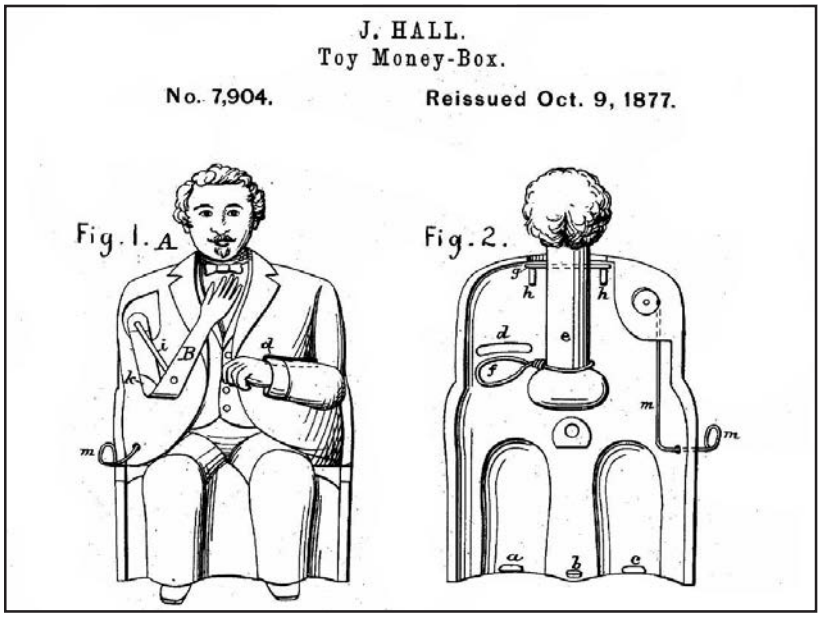


Figure 4.74. The 1877 patent for the Tammany bank.

Pencils were represented by 45 graphite leads, four wooden pencil bodies, and two brass ferrules (the portion that holds the rubber eraser). Two red-colored pencil leads were also found. A drawing compass was recovered from Feature 158. This device has a pointed anchoring tip and a place to attach a pencil; it was used to draw circles and for geometry lessons.

School slates were represented by 32 fragments. Twelve of these were from a near-complete example in Feature 171. These slates were commonly used by school children to practice handwriting. One piece of white chalk was also collected.

Clumps of newspapers were found in Features 170 and 171. Although words were visible on each, the newspapers could not be identified. The newspapers likely saw secondary use as toilet paper, and were subsequently discarded into the outhouse pits.

Photography

Photographer Henry Buehman lived on the block in the mid-1880s. A bottle found in Feature 171, marked EASTMAN ROCHESTER NY, probably once held chemicals used for processing photographs (Figure 4.77). The other artifacts found in this privy, however, date to the early 1900s, long after the Buehman family moved away. Therefore, the bottle is probably not directly associated with the photographer.

Gardening

Gardening artifacts include items used by residents of downtown Tucson to landscape and beautify their lots and homes; 87 artifacts were placed in this category. Five fragments from two flower pots were present, one of which featured a bark-like texture on its exterior. Eighty-two fragments of garden hose were found in Features 158, 169, 170, and 171. Most were made from black rubber and were about 1 inch in diameter, with brass fittings.

Paint

Forty-one pieces of paint or pigment were recovered. These included can fragments with red or yellow house paint adhering to them. Also found were a number of small, circular balls of indigo blue, grayish-blue, or blue and yellow pigment. These pigment balls were probably used to dye cloth, as noted above.

Figure 4.75. Four ink bottles from Block 91, AZ BB:13:820 (ASM): (a) Feature 190 (Catalog No. 2009-699-63); Carter's black ink bottle from Feature 171 (Catalog No. 2009-699-97); (c) Sanford bottle from Feature 170 (Catalog No. 2009-699-89); (d) elaborate bottle from Feature 171 (Catalog No. 2009-699-106).

Nuts, Bolts, Washers, and Screws

Like nails, screws and bolts had multiple uses, and 66 were recovered from Block 91. They could be found in furniture, wagons, machinery, and other objects. Only five screws were identified, but also recovered were 41 bolts (several with attached washers and nuts), 7 nuts, and 13 washers, several of which were copper, while others were rubber (and likely used in hoses or faucets).

Tools

Tools are rarely found during archaeology excavations in downtown Tucson, because they were expensive, long-lasting, and, if no longer wanted, could be sold to someone else for use as is or as scrap metal. The items found on Block 91 may have been discarded when people moved into or out of a house, or when someone changed their occupation.

Nine tools were recovered during the current project. A rasp, perhaps used to smooth the bottom of horse hooves, was found in Feature 158. A shingling hatchet (Figure 4.78) and an axe were found in Feature 170. Shingling hatchets are used to nail shingles onto structures. They have a large head, a nail slot (used to pull out nails), and a back blade. Two files, a wrench, a plumb bob, and an alligator wrench (Figure 4.79) were recovered from Feature 171. Alligator wrenches were used to bend iron and steel pipes or rods. A tool was also found in Feature 190, although it was too rusted to identify its use.

Figure 4.76. Two bottles with (a) purple and (b) pink ink residue from Feature 170, Block 91, AZ BB:13:820 (ASM) (Catalog Nos. 2009-699-83 and -67).

Miscellaneous Hardware

Miscellaneous hardware artifacts are items that do not readily fit into other categories; 104 of these were found on Block 91. These included 1 bracket, 4 couplings, 1 possible doorbell, 1 pulley, 3 metal caps, 2 pieces of chain, 1 small bell, 1 box hinge, 1 large staple, 1 round steel plate with holes cut into it, 3 hooks, 2 brass cans, 1 piece of bar metal, 31 metal strapping pieces, and 1 large brass item from Feature 171 that appears to have been the top to a large flagpole (Figure 4.80).

TRANSPORTATION

Transportation artifacts are those used to move people and goods from place to place. In all, 33 artifacts were placed in this category. None of the privy pits had more than 1 percent of this category; in fact, four had no transportation artifacts. Perhaps the most unusual of these items was a baby carriage wheel found in Feature 171.

Horse Equipment

Six horseshoes were recovered, one each from Features 139, 158, 162, 165, 170, and 174. Three of

Figure 4.77. An EASTMAN bottle from Feature 171, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-80).

Figure 4.78. A shingling hatchet from Feature 170, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-121).

Figure 4.79. An alligator wrench from Feature 171, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-118).

the shoes were large enough to have been used by draft horses. Three brass harness rivets or grommets were found, one in Feature 158 and two in Feature 170, as well as an iron harness buckle was recovered from Feature 158. Sanborn Fire Insurance maps suggest stables were present on the block in the 1880s and 1890s.

Wagon or Automotive Parts

Fragments from a red automobile headlight and a fuse were recovered from Feature 178. This septic tank was associated with the automobile repair business at the northwestern corner of Block 91. Two cotter pins were found in Feature 158. These were probably used in a wagon, given the date of the feature. Other possible wagon parts were found in Features 158, 171, and 190.

Railroad-related Items

Six railroad spikes, used to attach the iron rail to wooden ties, were found, one in Feature 158 and five in Feature 171. Several of the men living on the block worked for the Southern Pacific Railroad. They may have salvaged the spikes for use at home.

UNIDENTIFIED ARTIFACTS

Many of the recovered artifacts could not be identified either because they consisted of small fragments of larger items or because they were too rusty or corroded to identify. Some 4,489 artifacts, representing about 28 percent of the recovered artifacts, were placed in the unidentified category. Perhaps the most interesting was a large , 13-inch tall, brass item from Feature 171 (see Figure 4.80). The item has a decorative finial at its top, above a hollow cap with an interior rod. It may be a decorative flagpole tip.

FEATURE DATES

Dates of manufacture could be determined for dozens of artifacts found at the site, based on dates, product names, and manufacturer's marks. These included coins, a trade token, ceramic dishes, and glass bottles. Of these, the glass bottle dates, reported in collector's guides, are probably the least accurate. Datable artifacts were found in eight of the excavated features, including seven of the eight outhouse pits (Table 4.14).

The outhouse pits at the southern end of the block were expected to be earlier, while those at the northern end were anticipated to be more recent. Features 112 and 130 are on the 1883 Sanborn Fire Insurance map. Feature 112 lacked datable artifacts. Feature 130 contained six hand-painted dishes dating from 1880-1884, but several other dishes dated to the early 1890s. The likely date range, then, for the Feature

Figure 4.80. An unidentified item from Feature 171, Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-56).

130 artifacts is between 1891 and 1900. Feature 112 probably has a similar date, although this is uncertain.

Feature 190, located to the west, contained restaurant-style ceramic dishes. Many were manufactured between 1901 and 1905, and the likely date for this feature is between 1901 and 1910.

Features 169 and 183 were located in the central portion of the block. Feature 169 contained five datable artifacts, and appeared to have been filled between 1902 and 1910. Feature 183 also contained five datable artifacts, and the likely date for this outhouse pit is between 1885 and 1905.

Features 158, 170, and 171 were at the northern end of the block. All three outhouse pits are identical in size, and are arranged in an east-west row, suggesting all were dug at the same time. Feature 158 contained 14 datable artifacts, and the likely time span for when the pit was filled was between 1900 and 1905. Feature 170 contained 18 datable artifacts, and it was probably filled between 1891 and 1905. Feature 171 held 15 datable artifacts, and it was probably filled between 1901 and 1905.

Feature 178, the septic tank associated with the auto repair business, contained a 1941 penny, and likely dates to the 1940s. Feature 189 was a pit next to privy Feature 190. It contained nearly identical trash, suggesting it also dates to the 1901-1910 time span. Feature 165, the planing mill pit, contains trash that must date to after 1914, the year the structure was torn down. A Chinese coin found in the pit dated between 1875 and 1908. Of interest, this pit contained a smashed ceramic toilet, which may suggest indoor plumbing was installed in the houses on the block by the 1910s. This matches the archaeological findings, which suggest outhouse pits were not used after 1910.

SUMMARY

Large quantities of artifacts were found in features located on the eastern half of historic Block 91. These items were discarded by the people who lived or worked on the block, or by customers at the businesses, primarily the S. P. Dining Room restaurant.

Historical research, discussed in Chapter 1 (this volume), suggests the residents were middle class Euro-Americans, skilled laborers or white collar workers. The artifacts tossed away or lost by the Burkhalters, the Millars, the Clancys, and the Colemans reflect changes occurring in Tucson in the late nineteenth and early twentieth centuries. A huge variety of consumer goods was imported into Tucson via the Southern Pacific Railroad.

Residents of the block purchased both matched sets and dishes piecemeal. Members of the Reel family owned a set of brown transfer-printed dishes in the Cambridge pattern and another set of Tea Leaf pattern cups and saucers. Their neighbors, the Colemans, ate from Washington pattern dishes. In contrast, patrons at the S. P. Dining Room restaurant ate from durable, plain whiteware vessels that could be easily matched when broken. Ceramic dinnerwares could be purchased at local stores or through mail order catalogs, such as the popular Sears, Roebuck and Company catalog.

Canned and bottled foods and beverages were enjoyed by residents, including Heinz Chow-Chow, peppersauces, and raspberry preserves. Companies in Europe and the eastern United States packaged these items in tin cans and glass bottles. They were shipped via railroad to Tucson, purchased, and eaten months later.

The homes on the block were initially constructed from adobe brick, with imported windows and doors and hardwood floors. Additions, outbuildings, and new structures were later built from wood and fired bricks. In the early 1900s, the Tucson Sash, Door, and Planing Mill operated on the block, creating architectural elements and trimwork for the Tucson area.

Little information could be gleaned about the interior furnishings of the homes. Few furniture

Table 4.14. Datable artifacts from the eastern half of Block 91, AZ BB:13:820 (ASM).

Feature	Artifact	Number	Mark	Reference	Date
130	Butters, individual	1	NG 1880	–	1880
130	Butters, individual	1	No. 678/ 1883	–	1883
130	Butters, individual	1	NG 1883	–	1883
130	Butters, individual	1	NG 1884	–	1884
130	Butters, individual	1	NG 1884	–	1884
130	Butters, individual	1	1884	–	1884
130	Saucer	1	THOMAS FURNIVAL & SONS/ [lion and unicorn crest]/ TRADE MARK/ ENGLAND	Gibson 2011:79	1876-1890
130	Plate	1	ROYAL IRONSTONE CHINA/ [lion and unicorn crest] ALFRED MEAKIN/ ENGLAND	Gibson 2011:106	1891-1897
130	Vessel	1	H. AL[COCK]/ ENG[LAND]	Gibson 2011:23	1891-1900
130	Plate	1	76/ THOMAS HUGHES/ BURSLEM. 3	–	Probably 1876
130	Plate	1	77/ THOMAS HUGHES/ BURSLEM/ 6	–	Probably 1877
158	Plate	1	HOMER LAUGHLIN [eagle killing lion]/ WHITE GRANITE	Gates and Ormerod 1982: 132	1877-circa 1900
158	Plate	1	O.P. CO./SYRACUSE/CHINA	DeBolt 1994:106	1897-circa 1935
158	Cup	1	HOMER LAUGHLIN/ MADE IN U.S.A./ G 2 N	Gates and Ormerod 1982:136	1900+
158	Saucer	1	ENGLAND/ W. H. GRINDLEY	Godden 1994:294	Circa 1914-1925
158	Canadian penny	1	–	–	1884
158	Bottle	1	C. S. & C. LTD	Toulouse 1971:147	1875-1913
158	Bottle	1	M B & G CO.	Toulouse 1971:348	1900-1904
158	Bottle	5	AB	Toulouse 1971:26	1904-1907
158	Bottle	1	A B CO. C 3	Toulouse 1971:30	1905-1916
158	Bottle	1	A.B.G.M. CO K 21	Toulouse 1971:20	1886-1928
165	Chinese coin	1	–	Olsen 1983	1875-1908
169	Platter	1	LAUGHLIN [lion killing eagle]/ WHITE GRANITE	Gates and Ormerod 1982:132	1877- ca. 1900
169	American penny	1	–	–	1899
169	American penny	2	–	–	1902
169	Bottle	1	A B CO. 101	Toulouse 1971:30	1905-1916
170	Plate	1	IRONSTONE CHINA/ [crest]/ THOMAS HUGHES	Gibson 2011:89	1856-1891
170	Bowl	1	LAUGHLIN [eagle killing lion]/ LOUIS WVI/ DECOR./ 720	Gates and Ormerod 1982:132	1877-1900
170	Bowl	1	IRONSTONE CHINA/ [crest]/ J. G. MEAKIN/ HANLEY/ ENGLAND	Godden 1994:427	1890+
170	Bowl	1	TRADE MARK/ [crest]/ ROYAL PREMIUM/ SEMI PORCELAIN/ T. & R. BOOTE/ ENGLAND	Gibson 2011:36	1890-1906

Table 4.14. Continued.

Feature	Artifact	Number	Mark	Reference	Date
170	Plate	1	TRADE MARK/ crest/ ROYAL PREMIUM/ SEMI-PORCELAIN/ T. & R. BOOTE/ ENGLAND	Gibson 2011:35-36	1890-1906
170	Plate	1	TRADE MARK/ [crest]/ ROYAL PREMIUM/ SEMI-PORCELAIN/ T. & R. BOOTE/ ENGLAND	Gibson 2011:36	1890-1906
170	Platter	1	FRANK TORRENCE/SPRINGFIELD/OHIO... DRESDEN	DeBolt 1994:43	1890s
170	Doll	1	1900-3 [horseshoe]	–	1900?
170	Saucer	1	ROYAL/SEMI PORCELAIN/[crest]/JOHNSON BROS/ENGLAND	Godden 1964:355	1900+
170	Saucer	1	ROYAL/ SEMI-PORCELAIN/[crest]/ JOHNSON BROS/ ENGLAND	Godden 1964:355	1900+
170	Plate	1	[crest] TRADEMARK/ ROYAL SEMI PORCELAIN/ JOHN MADDOCK & SONS/ ENGLAND	Gibson 2011:99	Circa 1880-1906+
170	American penny	1	–	–	1899
170	American nickel	1	–	–	1883-1913
170	Alcohol bottle	1	R & CO 46	Toulouse 1971:439	1880-1900
170	Alcohol bottle	3	H & G CO	Toulouse 1971:246	1882-1933
170	Catsup bottle	1	HEINZ25	Toulouse 1971:236	1888-
171	Doll	1	1894	–	1894
171	Saucer	1	CAMBRIDGE/ R. H/ N2 [crown and garter]	Godden 1964:306	1860-1883
171	Chamber pot/lid	1	[crest]/ ROYAL PATENT/ IRONSTONE/ GEORGE JONES & SONS	Gibson 2011:94	1862-1873
171	Bowl	1	IRONSTONE CHINA/ POWELL & BISHOP/ ENGLAND	Godden 1964:509	1876-1878
171	Saucer	1	ROYAL/ [crown]/ STONE CHINA/ MADDOCK & CO/ BURSLEM ENGLAND/ TRADE MARK	Gibson 2011:96	1876-1903
171	Chamber pot/lid	1	[crown]/ WARRANTED/ C. CHALLINOR & CO./ ENGLAND	Godden 1964:137	1892-1896
171	Vessel	1	LAUGH[LIN]	Gates and Ormerod 1982:132	Circa 1877-1900
171	Platter	1	HOTEL/IRON STONE CHINA/ KNOWLES, TAYLOR/ AND/ TAYLOR	Gates and Ormerod 1982:119	Circa 1885
171	Vessel	1	[crest]/ K.T. & K.	Gates and Ormerod 1982:119	Circa 1890-circa 1907
171	Saucer	1	[H]OMER LAUGHL[IN]	Godden 1982:135	Circa 1901-1915
171	Saucer	1	C. C. THOMPSON & CO.	DeBolt 1994:190	late 1880s
171	Bottle	1	A.B.G.M. CO K 3	Toulouse 1971:20	1886-1928
171	Beer bottle	1	S B & G CO	Hull-Walski and Ayres 1989:79	1881-1905
171	Alcohol bottle	1	FHGW 17	Toulouse 1971:202	1880-1900
171	Alcohol bottle	1	R & CO	Toulouse 1971:439	1880-1900
178	American penny	1	–	–	1941
183	Doll	1	94	–	1894

Table 4.14. Continued.

Feature	Artifact	Number	Mark	Reference	Date
183	Plate	1	[IRON]STONE CHINA/ [crown]/ TRADE MARK/ ANTHONY SHAW & SON/ ENGLAND.	Gibson 2011:126	1850-1900
183	Vessel	1	[PEA]RLL [WHITE]	Gates and Ormerod 1982:53	Circa 1885-1897
183	Alcohol bottle	1	AB	Toulouse 1971:26	1904-1907
183	Alcohol bottle	1	A B CO B 6	Toulouse 1971:30	1905-1916
190	Bowl	1	LAUGHLIN [eagle eating lion]	Gates and Ormerod 1982:132	1877- circa 1900
190	Vessel	1	Homer Laughlin mark	Gates and Ormerod 1982:132	1877- circa 1900
190	Platter	1	WARRANTED/ K. T. & K./ GRANITE	Gates and Ormerod 1982:119	1890-circa 1907
190	Platter	1	K. T. &. K./ CHINA	Gates and Ormerod 1982:125	1890-circa 1910
190	Bowl	1	[HOMER LAUGHLIN C]HINA	Gates and Ormerod 1982:135	Circa 1901-1915
190	Platter	1	HOMER LAUGHLIN CHINA/ HOTEL	Gates and Ormerod 1982:135	Circa 1901-1915
190	Bowl	1	HOMER LAUGHLIN CHINA/ HOTEL	Gates and Ormerod 1982:135	Circa 1901-1915
190	Plate/bowl/saucer	1	SEMI/ [V]ITREO[S]/ K. T. & K.	Gates and Ormerod 1982:127	Circa 1904

components were recovered. Lighting and electrical artifacts indicate that homes were retrofitted with electricity and that kerosene lamps were replaced by electric lights. In the 1880s, wells were replaced by piped-in water. After indoor bathrooms were constructed, the backyard privies were abandoned and used as trash dumps. The Burkhalter family home was decorated by a number of hand-painted ceramic vessels created by G. Noble in the 1880s. The identity and relationship of this person, probably a woman, to the family is unknown. Their artistic ability is suggested by the high quality and diversity of the painted designs.

A small amount of ammunition was recovered from features. The different sizes of cartridges indicate that households owned more than one firearm, probably including pistols and shotguns.

Clothing artifacts were plentiful. A Rock Island System railroad button found in Feature 158 suggests John Clancy may have worked for that railroad prior to moving to Tucson to work as a railroad engineer. The elaborate glass buttons found in Feature 130 suggests Mrs. Burkhalter wore fancy dresses. A military button from the Reel family privy suggests a family member or visitor had served in the U.S. Army.

In general, the recovered clothing artifacts were typical of the time period. The discovery of a sewing machine oil bottle suggests the Clancy family owned a sewing machine and may have made their own clothing. Other clothing was likely manufactured by local seamstresses and tailors, or was purchased ready-made. Crochet needles were found in outhouses for the households of Mrs. Millar, Mrs. Coleman, and Mrs. Reel. These could be used for creating either clothing, including shawls, or household items, such as doilies.

Medical artifacts suggest block residents suffered from a variety of health concerns. A pessary found in Feature 112 may indicate Mrs. Millar suffered from a prolapsed uterus. Mrs. Burkhalter may have enjoyed a glass of Lydia Pinkham's Vegetable Compound, perhaps soothing her nerves with its potent contents. Breathing and coughing problems plagued several households. The turn of the nineteenth century was a time when many people came to Tucson in search of a cure for tuberculosis, and although residents of the block are not known to have contracted that usually fatal disease, there was likely concern whenever a family member developed a lingering cough.

Hygiene-related artifacts suggest many people used enemas and douches. Why this was the case is uncertain. Constipation was a problem for some households, which may explain the presence of the many enema kits. People in Tucson in the nineteenth and early twentieth century did not eat fresh fruits and vegetables year-round, and many likely had bowel troubles.

Previous excavations in downtown Tucson have shown that many households neglected their dental hygiene, at least if the absence of toothbrushes and tooth cleanser containers accurately indicates a concern with dental hygiene. On the eastern half of Block 91, toothbrushes, a ceramic toothpaste jar, and toothpaste bottles were only found in features associated with members of the Coleman and Reel families.

Someone in the Reel household smoked tobacco from a clay pipe. Cigarettes, cigars, snuff, and chewing tobacco were popular in Tucson. Clay and hard rubber smoking pipes are occasionally found, usually indicative of men who came from the eastern United States.

Many children's toys were made from perishable materials, including paper, cardboard, and wood. Those that survived on Block 91 included a variety of ceramic dolls, with examples present in features played with by Katherine Clancy and Lizzie Coleman. A handful of ceramic and glass marbles were found, likely played with by the boys on the block. The expensive iron Tammany bank, discarded by the Burkhalter family, was both a toy and a tool for teaching thrift.

By the 1890s, public and Catholic-run schools operated in Tucson, and most children received at least an elementary school education. Communication artifacts, such as ink bottles and pencil leads, suggest household occupants were actively writing letters and other documents.

Work-related artifacts included an alligator wrench, a tool often used by railroad workers. It was found in Feature 171; James Reel worked as a railroad shop machinist

A small number of transportation-related artifacts were recovered. A few households probably kept horses on the block. By the 1930s, automobile-related businesses fronted Toole and Congress streets, and one feature yielded a small number of auto parts.

Excavations on the eastern half of Block 91 have provided sets of artifacts that can be linked to a number of middle class Euro-American families. The features uncovered date between 1885 and 1915, a timespan that saw Tucson evolving from a sleepy adobe town to one with eastern architecture, electricity, running water, telephones, a street car system, a new university, and many other amenities. The information recovered from the artifacts is not typically recorded in written records—the types of dishes a family used, what sorts of toys the children played with, the types of bottled foods and beverages they enjoyed. The sample recovered during the current project helps advance current understanding of life in American Territorial period Tucson.

CHAPTER 5

VERTEBRATE FAUNAL REMAINS FROM HISTORIC BLOCK 91

Jennifer A. Waters
Desert Archaeology, Inc.

Meat was an important part of the diet for Tucson residents at the turn of the nineteenth century. The animal bone recovered from AZ BB:13:820 (ASM), historic Block 91, during archaeological excavations of the Plaza Centro property indicates a number of wild and domestic species were consumed. Vertebrate faunal material was deposited between 1885 and 1910. Analyzed features include outhouses associated with three private residences and one commercial property, a restaurant. The primary goals of the faunal analyses were to identify which meat cuts were used and if the meat diet differed among various ethnic and socioeconomic groups.

A wide variety of taxa are represented among the 1,916 identified specimens (Table 5.1). Domestic ungulates and birds were used for food, as were several marine fish. Some species almost certainly represent pets or pests. Other wild taxa may be intrusive to the cultural deposits, and do not represent food items. Chicken superseded beef as the primary meat for two of the residences. Both had evidence of home flocks, and appear to have used them for their main source of meat. The presence of primarily saw-cut bone, representing standard retail cuts among the large domestic mammals, confirms Euro-American food preferences and butchering methods. However, the meat diet was diverse and included unconventional species, such as marine fish and jackrabbit.

Faunal assemblages from four outhouses were chosen for the analysis. These features are all well-dated and are associated with three specific residences and one restaurant. Feature 130 is associated with the Burkhalter family, and was deposited between 1891 and 1900. Feature 170 dates from 1891-1905, and is associated with the Coleman family. Feature 183 is associated with the unnamed residents of 87 S. Herbert Avenue and dates from 1885-1905. Feature 190 was associated with the S. P. Dining Room, and was deposited between 1901 and 1910. The faunal subassemblages from Features 130, 183, and 190 were analyzed completely. Faunal remains from Feature 170 were sampled. All animal bone from Level 4 in Unit 131 was included in the analysis. Additionally, the five animal burials recovered from the project area were analyzed.

ANIMAL BURIALS

Six animal burials were recovered from Block 91, including two dogs, two cats, and two birds (Table 5.2). The two dog (*Canis lupus familiaris*) burials, Features 161 and 188, contained small- to medium-sized individuals. Both were 1.5-2.0 years of age at death, based on the presence of fusing long bone epiphyses (Sisson 1975:1437, 1451). The skeleton in Feature 161 was slightly larger and more robust than the individual in Feature 188. Feature 172 contained an adult cat. Feature 199 contained a subadult, domestic cat (*Felis catus*). This individual was probably 2-3 years of age at death, based on unfused and fusing long bone epiphyses (Amorosi 1989). Feature 198 contained an adult pigeon (*Columba livia*). The skeleton was 75 percent complete, including a skull and mandibles, most of the vertebral column, sternum, pelvis, and long bones. No butchering marks were noted, suggesting this was an intentional burial. A second, unknown bird was recovered from Feature 205. It was extremely fragmented, without much of the skeleton recovered. This individual was immature, but appears to be larger than a pigeon.

FEATURE ASSEMBLAGE DESCRIPTIONS

Feature 130, Burkhalter Outhouse

In total, 384 specimens are present in the outhouse assemblage from Feature 130 (Table 5.3). Approximately 67 percent of the assemblage was identifiable to the family level or below. At least eight taxa are represented, including at least one family of marine fish (5 percent), two wild mammal taxa (1 percent), and five domestic taxa (94 percent). Not all the taxa represent food items. For example, 33 kitten specimens from two individuals were recovered. Three small rodent (mouse-sized) specimens appear to be recent intrusions into the historic deposit. Other wild taxa include one jackrabbit (*Lepus* sp.) ulna. This specimen was burned, and appears to be part of the domestic trash deposit. Twelve fish specimens were present, with four positively identified as Sciaenidae (drums and croakers).

Table 5.1. List of taxa identified in analyzed features from AZ BB:13:820 (ASM).

Taxon	Common Name
Class Osteichthyes	Bony fishes
Family Lutjanidae	Sea perches and snappers
Family Pleuronectidae	Halibuts and flounders
Family Sciaenidae	Drums and croakers
Class Aves	Birds
Family Anatidae	Large ducks (mallard-sized)
Family Odontophoridae	New World quails
Callipepla sp.	Crested quails
Family Phasianidae	Partridges, grouse, turkeys, and pheasants
Gallus gallus	Chicken
Meleagris gallopavo	Turkey
Family Columbidae	Pigeons and doves
Zenaida sp.	Doves
Zenaida cf. *macroura*	Mourning dove (?)
Columba livia	Pigeon
Class Mammalia	Mammals
Family Leporidae	Rabbits and hares
Lepus sp.	Jackrabbits
Family Muridae	Rats and mice
Sigmodontinae	New World rats and mice
Family Canidae	Dogs, wolves, coyotes, and foxes
Canis lupus familiaris	Domestic dog
Family Felidae	Cats
Felis catus	Domestic cat
Family Suidae	Pigs and hogs
Sus scrofa	Domestic pig
Family Bovidae	Cattle, sheep, and goats
Bos taurus	Cattle
Ovis aries	Sheep
Capra hircus	Goat
Unidentifiable Taxa	
Aves	Bird, indeterminate size
Small Aves	Small bird (sparrow-sized)
Small-medium Aves	Small-medium bird (quail-/dove-sized)
Medium Aves	Medium bird (duck-sized)
Large Aves	Large bird (turkey-/chicken-sized)
Aves/Small mammal	Bird/small mammal
Small mammal	Small mammal (rabbit-/cat-sized)
Medium-large mammal	Medium-large mamal (pig-/sheep-sized)
Large mammal	Large mammal (cow-/horse-sized)
Indeterminate mammal	Mammal, indeterminate size
Unidentifiable animal	Class unknown

Chicken (*Gallus gallus*) specimens (43 percent, or $n = 106$) comprise the largest proportion of the identifiable specimens. At least six individuals are present in the trash from the outhouse, including one adult and five subadults. However, it does not appear that chickens were being raised by the Burkhalter family, as there are no chick (less than 2 months old) remains. Twenty-two percent ($n = 56$) of the identifiable assemblage consists of cattle (*Bos taurus*) remains. Sheep or goat (*Ovis aries* or *Capra hircus*) specimens make up 14 percent of the identifiable assemblage. Pig (*Sus scrofa*) specimens comprise 3 percent of the identifiable remains.

Feature 170, Coleman Outhouse

Approximately one-quarter of the total excavated assemblage from Feature 170 was analyzed. The analyzed sample was from Unit 131, Stratum 50.02, Level 4. It was chosen for analysis, because it is the largest assemblage from a single level within Feature 170. Further, all the levels from Unit 131 were roughly sorted and counted by taxon. In total, 478 specimens are present in the analyzed sample (see Table 5.3). Approximately 82 percent of the analyzed assemblage was identifiable at least to the family level. A minimum of eight taxa is represented, including two families of marine fish (6 percent), possible mourning dove (*Zenaida* cf. *macroura*) (14 percent), and five domestic taxa: chicken (58 percent), turkey (*Meleagris gallopavo*) (8 percent), pig (4 percent), cattle (5 percent), and sheep or goat (5 percent).

The three bird taxa make up 80 percent of the identifiable specimens. Chicken comprises the largest proportion (73 percent, or $n = 225$). The presence of a home flock is indicated by chick remains, and the wide age range of the chickens represented. Similarly, the number of chicken elements suggests chickens were raised by the Coleman family. In addition to the chicken specimens analyzed from Level 4 of Unit 131, nearly 900 more specimens were counted in the rough sort (Table 5.4). At least 13 individuals, based on 13 crania, are represented in the analyzed sample. At least 1 chick (less than 2 months old), 3 juveniles (2-3 months old), 6 subadults (3-6 months old), and 3 adults (more than 6 months old) are represented. The subadult and adult birds all appear to be female. Males have a spur on the tarsometatarsus, and females do not. There are 14 tarsometatarsi in the analyzed assemblage and none contain spurs. The presence of all females in a home flock is not unusual. A dozen hens are sufficient to keep a family of four supplied with meat and eggs, and only one male is required to breed with 12-15 females (Sando 1909:6, 198). To avoid infighting among male

Table 5.2. Animal burials recovered from AZ BB:13:820 (ASM).

Feature	Field Number	Type	MNE[a]	Percent Complete[b]	Age
161	1437	Dog	72	46	Juvenile
172	1261	Cat	160	100	Adult
188	1689	Dog	143	90	Juvenile
198	1597	Pigeon	75	75	Adult
199	1606	Cat	127	79	Subadult
205	1678	Unknown bird	10	< 25	Immature

[a]Minimum number of elements.
[b]Percentage of skeleton represented.

Table 5.3. Animal bone recovered from analyzed features at AZ BB:13:820 (ASM) (in number of identified specimens; burned bone is in parentheses.)

	Feature No.			
Taxon	130	170	183	190
Unspecified fish (Osteichthyes)	8	1	–	–
Drums and croakers (Sciaenidae)	4	–	–	–
Sea perches and snappers (Lutjanidae)	–	18	–	–
Sea perches or snappers? (cf. Lutjanidae)	–	–	–	27
Halibut and flounders (Pleuronectidae)	–	5	–	–
Large ducks (Anatidae)	–	–	1	4
Quails (*Callipepla* sp.)	–	–	1	1
Chicken (*Gallus gallus*)	111 (1)	225	26	113 (2)
Turkey (*Meleagris gallopavo*)	–	27	1	–
Turkey? (cf. *Meleagris gallopavo*)	–	5	–	–
Pigeon (*Columba livia*)	–	–	–	1
Doves (*Zenaida* sp.)	–	1	2	2
Mourning dove? (*Zenaida* cf. *macroura*)	–	53	–	–
Jackrabbit (*Lepus* sp.)	1 (1)	–	–	–
Small sigmodont (mouse-sized)	3	–	–	–
Medium sigmodont (woodrat-sized)	–	–	3	1
Domestic cat *(Felis catus*)	33	–	–	2
Pig (*Sus scrofa*)	7 (1)	14	21 (4)	33 (3)
Cattle *(Bos taurus*)	56	21	94 (3)	141 (7)
Sheep/Goat (*Ovis aries/Capra hircus)*	35 (2)	21	13	20 (1)
Identifiable totals	258 (7)	390 (0)	162 (7)	345 (13)
Large mammal (cattle-/horse-sized)	114 (18)	36 (5)	274 (46)	228 (105)
Medium-large mammal (pig-/sheep-/goat-sized)	3	24	10 (2)	6
Small mammal (rabbit-/cat-sized)	–	–	–	3
Small mammal/Bird	2	–	8	10 (2)
Indeterminate bird (unknown size)	5	24	3	5 (1)
Small-medium bird (quail-/dove-sized)	2 (2)	2	–	2
Unidentified animal (unknown class)	–	2	1	–
Unidentified totals	126 (20)	88 (5)	296 (48)	254 (108)
Feature Total	384 (27)	478 (5)	458 (55)	599 (121)

chickens, cockerels are usually sold as broilers at about 10 weeks of age (Chapman 1943:80). Another purpose of culling the flock is to eliminate sickly birds and poor producers (Chapman1943:80; Sando 1909:197). The adult birds in the assemblage may represent poor egg layers or old birds.

The other bird taxa identified in the assemblage from Feature 170 are turkey or possible turkey (n = 32) and possible mourning dove (n = 53). There are at least 10 doves represented, based on 10 crania. The Colemans may also have been raising doves in addition to chickens. The turkey specimens were

Table 5.4. Bone fragment counts from unanalyzed levels of Unit 131, Feature 170, AZ BB:13:820 (ASM).

	Level					
Taxon	1	2	3	5	6	7
Unspecified fish (Osteichthyes)	–	3	14	1	1	10
Large ducks (Anatidae)	1	2	–	–	–	–
Chicken (*Gallus gallus*)	20	113	212	459	45	38
Turkey (*Meleagris gallopavo*)	1	–	–	5	1	14
Pig or sheep/goat (*Sus scrofa or Ovis aries/Capra hircus*)	17	37	86	6	4	16
Cattle *(Bos taurus*)	24	39	51	18	13	13
Identifiable totals	63	194	363	489	64	91
Unidentified animal (unknown class)	31	20	54	40	26	26
Level totals	94	214	417	529	90	117

probably all from one adult. Five specimens were identified as possible turkey. They are all immature, but are larger than an adult chicken. Other domestic taxa include cattle (n = 21), sheep or goat (n = 21), and pig (n = 14). Marine fish (n = 24) are the only wild taxa represented. Those include specimens from the sea perch and snapper family (Lutjanidae) and the halibut and flounder family (Pleuronectidae), as well as one unspecified fish (Osteichthyes).

Feature 183, Outhouse at 87 S. Herbert Avenue

In all, 458 specimens are present in the outhouse assemblage from Feature 183 (see Table 5.3). Only 36 percent (n = 163) of the assemblage was identifiable to at least the family level. A minimum of nine taxa is represented, and includes wild taxa of large duck, quail, unspecified dove, and medium rodent. Domestic taxa comprise the largest proportion of the identifiable assemblage, and include cattle (58 percent, or n = 94), chicken (16 percent, or n = 26), pig (13 percent, or n = 21), and sheep or goat (8 percent, or n = 13). Other bird taxa comprise 3 percent of the identifiable assemblage, and include one specimen each of large duck (Anatidae), quail (*Callipepla* sp.), and turkey. Two specimens were identified as unspecified dove (*Zenaida* sp.). Three medium rodent (woodrat-sized) specimens comprise the remaining 2 percent (n = 3) of the Feature 183 identifiable assemblage. Despite the small numbers, it appears that chickens were being raised on the premises. At least five individual chickens are represented, including three adults, a juvenile, and a chick.

Feature 190, S.P. Dining Room Outhouse

In all, 599 specimens are present in the outhouse assemblage from Feature 190 (see Table 5.3). Approximately 58 percent of the assemblage was identifiable to at least the family level. A minimum of 11 taxa is represented, and includes both wild and domestic taxa. Wild taxa make up 10 percent of the identifiable assemblage, and include possible sea perch or snapper (n = 27), large duck (n = 4), quail (n = 1), pigeon (n = 1), unspecified dove (n = 2), and medium rodent (n =1). The medium rodent femur is intrusive to the trash deposit. Domestic taxa comprise the largest proportion of the identifiable assemblage, and include cattle (41 percent, or n = 141), chicken (33 percent, or n = 113), pig (10 percent, or n = 33), sheep/goat (6 percent, or n =20), and domestic cat (1 percent, or n = 2).

Although chicken specimens comprise one-third of the identifiable assemblage, it is not expected that they would have been raised on the premises, as this was a commercial property. Indeed, no chick bones are present. Many of the specimens include skull parts and lower legs, representing discards from the butchering process. Most of the tarsometatarsi exhibit chopmarks, where the lower legs were separated from the meatier portions. The wild birds represented may be food items, but the rodent specimen is not. Lim Goon was the owner of the restaurant from 1905-1912 (Chapter 2, this volume). Other Chinese deposits from this period in Tucson contain butchered cat bones (Cameron et al. 2006; Diehl and Waters 1997; Gust 1993; Waters 2009). However, it is unknown if the two cat specimens from Feature 190—one lumbar vertebral body and one proximal radius—represent food items, as neither display butchering marks. It is unlikely they were food items, if the deposit represents strictly food refuse from the restaurant.

Feature Assemblage Summary

The outhouse subassemblages from Block 91 are fairly similar in the number of taxa present. The assemblage from the restaurant, Feature 190, contains

11 discrete taxa, compared with the eight or nine taxa identified in each of the other assemblages. The bulk of each assemblage is comprised of the four main domestic taxa: cattle, pig, sheep/goat, and chicken. All but the outhouse assemblage associated with the residents of 87 S. Herbert Avenue, Feature 183, contain fish specimens. Only Feature 183 and the Coleman residence, Feature 170, contain turkey specimens. The relatively large amount of turkey bone in Feature 170, in conjunction with the presence of immature birds, suggests the Coleman family raised turkeys in addition to chickens and doves. Wild taxa comprise 6 percent of the identifiable assemblage from the Burkhalter residence, Feature 130, 18 percent from Feature 170, 5 percent from Feature 183, and 10 percent from Feature 190. The distribution of wild bird taxa differs among the features. Dove specimens were recovered in all but Feature 130, while quail and duck were present only in Features 183 and 190. A single pigeon specimen was recovered from Feature 190. Small mammals, including jackrabbit, rodents, and domestic cat, were recovered from all but Feature 170, although only the jackrabbit appears to be a food resource. The jackrabbit and wild birds were obtained locally, possibly through hunting, as opposed to the marine fish, which were probably purchased at the fish market near the railway station (see Chapter 2). Feature 170 contained the largest proportion of wild taxa; however, most (12 percent) were dove specimens. The slightly larger proportion of wild specimens from Feature 190 was primarily fish. The greater diversity of the restaurant assemblage may reflect the larger number of menu choices available to customers.

MEAT PREFERENCES AND SOCIOECONOMIC STATUS

Cuts of beef, pork, and mutton differ in quality and price (Figure 5.1). 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 should be recovered in features associated with higher incomes. Conversely, more of the least expensive meat cuts should be recovered in features associated with lower income individuals. Therefore, meat cut types are potential indicators of socioeconomic status among the represented properties at Block 91.

The ranks of beef cuts recovered are based on retail beef prices from the second half of the nineteenth century (Schulz and Gust 1983:48). The identified beef cuts and their ranks are listed, by property, in Table 5.5. The 196 cuts represented were divided into high, medium, and low quality groups. The short loin, sirloin, and round comprised the high quality, or the most expensive group. Medium priced beef cuts recovered include the chuck, cross or short rib, arm, and brisket or plate. The shank, head, tail, and feet are the lowest priced beef cuts identified in the assemblage.

Beef cut quality is very consistent among the residences, as most of the cuts are from high quality portions. More than two-thirds (67 percent) of the identifiable beef cuts consumed by the Burkhalter family, Feature 130, are from high quality portions (see Table 5.5). Another 23 percent are medium quality cuts, and only 10 percent of the cuts are from low quality portions. A similar proportion (66 percent) of high quality beef cuts were consumed by the residents of 87 S. Herbert Avenue, Feature 183. Similarly, 26 percent of the beef cuts are from medium quality portions, and only 9 percent are from low quality portions. The sample of identifiable beef cuts from the Coleman family outhouse, Feature 170, is fairly small (n = 11), but it also shows a majority of high quality cuts (73 percent). Medium quality cuts comprise a smaller proportion (9 percent), while low quality cuts make up 18 percent. The beef cuts from the S. P. Dining Room restaurant, Feature 190, show a different pattern. Only 43 percent of the identifiable beef cuts are from the high quality portions of the carcass. A nearly equal proportion (47 percent) represents medium quality cuts, particularly from the ribs. Again, like the residences, a small proportion (10 percent) of the beef cuts is from low quality portions.

Fewer pork cuts were identified in the assemblages (Table 5.6). The ranks of pork cuts are based on Azizi et al. (1996). The high quality butt ham, loin end, and rib end are the most expensive cuts, followed by the mid-priced Boston butt, picnic ham, and shank ham, and the low quality pork cuts, represented by the head, hock, and trotter. All but the head are present in the identifiable feature assemblages. Most of the pork cuts from the residences are from the high quality portions of the pig carcass. Only five identifiable pork cuts were in the Burkhalter residence, Feature 130, assemblage (see Table 5.6). Three (60 percent) are from high quality areas of the pig carcass, and two (40 percent) are from low quality portions. The sample of identifiable pork cuts (n = 7) from the Coleman residence, Feature 170, is also small. Nearly all (n = 6) are high quality cuts (86 percent). One is a medium quality cut from the picnic ham (14 percent). High quality cuts comprise 69 percent (n = 11) of the pork from 87 S. Herbert Avenue, Feature 183. Medium quality cuts comprise 19 percent (n = 3), and low quality cuts comprise 12 percent (n = 2). The restaurant assemblage from Feature 190 contains the largest num-

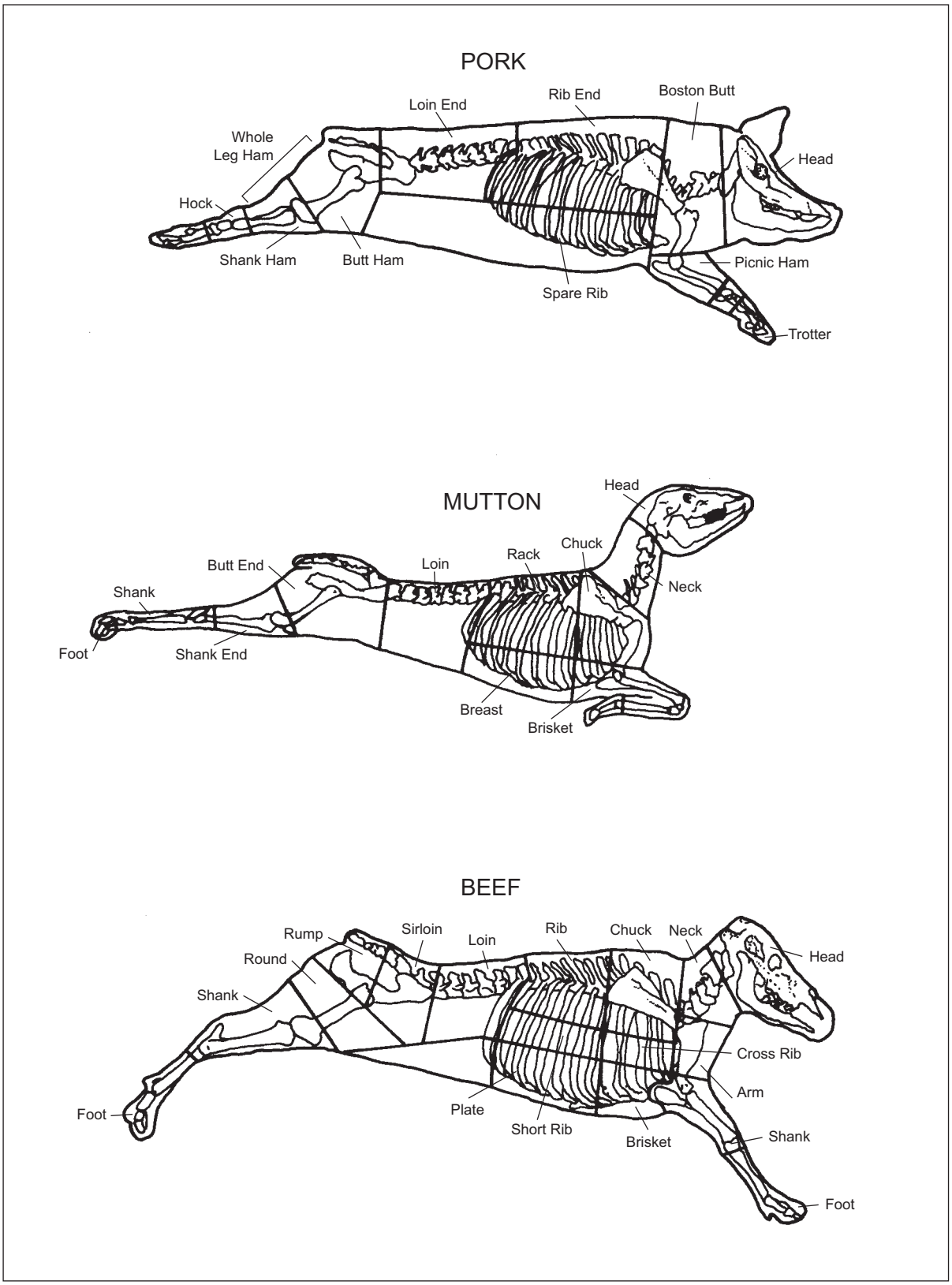


Figure 5.1. Locations of retail meat cuts for beef, pork, and mutton.

Table 5.5. Beef cuts and ranks, by feature, from AZ BB:13:820 (ASM) (in number of identified specimens).

		Feature			
Meat Cut	Rank	130	170	183	190
Loin	1	7	5	9	28
Sirloin	2	6	2	2	3
Rib	2	6	–	14	11
Round	3	1	1	11	1
Rump	4	1	–	2	4
Chuck	5	3	–	3	5
Arm	6	–	–	2	1
Short rib	6	2	–	6	15
Cross rib	6	1	1	1	22
Brisket/Plate	7	–	–	1	–
Head	9	–	–	1	3
Foreshank	9	–	1	1	3
Hindshank	9	1	1	2	4
Foot	10	2	–	–	–
Feature total		30	11	55	100

Table 5.6. Pork and mutton cuts and ranks, by feature, from AZ BB:13:820 (ASM) (in number of identified specimens).

		Feature			
	Rank	130	170 (FN 1761)	183	190
Pork Cuts					
Butt ham	1	1	3	2	6
Loin end	2	1	1	4	1
Rib end	2	1	2	2	4
Boston butt	3	–	–	3	–
Picnic ham	4	–	–	1	1
Shank ham	4	–	1	2	9
Spare rib	5	1	–	–	–
Head	6	–	–	–	–
Hock	6	1	–	1	2
Trotter	6	–	–	1	5
Feature total		5	7	16	28
Mutton Cuts					
Loin	1	7	2	1	4
Rack	2	4	6	1	3
Shank end	3	2	–	–	2
Neck	4	1	–	1	1
Chuck	4	6	2	2	–
Butt end	4	3	2	3	2
Breast	5	–	–	–	1
Brisket	6	1	–	–	–
Head	7	–	–	1	–
Shank	7	1	–	1	–
Foot	NR[a]	1	–	–	1
Feature total		26	12	10	14

[a]Not ranked; this part is not generally eaten.

ber of identifiable pork cuts (n = 28). They are more evenly distributed among the high, medium, and low quality portions. High quality pork cuts comprise 39 percent (n = 11), medium quality comprise 36 percent (n = 10), and low quality comprise 25 percent (n = 7). Pig foot bones are more common than the foot bones of other animals. Ten specimens, or 18 percent of all identifiable pork cuts, represent the hock and trotter, and were found in all but the Coleman family outhouse. No pig cranial specimens were identified.

The ranks of mutton cuts are based on Azizi et al. (1996). The loin is the most expensive cut, followed by the rack and shank end. The medium priced cuts include the neck, chuck, butt end, and the breast. Lower cost cuts include the brisket, foreshank, and hindshank. Mutton cuts show a more variable pattern among the feature assemblages (see Table 5.6). The Coleman residence, Feature 170, and the S. P. Dining Room, Feature 190, have larger proportions of high quality cuts. Mutton cuts from the Coleman residence include 67 percent (n = 8) high quality and 33 percent (n = 4) medium quality. The mutton cuts from the S. P. Dining Room include similar proportions to the Coleman residence, with 64 percent (n = 9) high quality and 29 percent (n = 4) medium quality cuts. The remaining 7 percent includes one foot bone, a phalanx. Unlike pigs, sheep feet are not usually eaten. Compared with the restaurant and Coleman family assemblages, the Burkhalter residence, Feature 130, contains a slightly lower proportion of identifiable mutton cuts from high quality (50 percent, or n = 13) portions and slightly higher proportions from medium quality (38 percent, or n = 10) portions. Twelve percent (n = 3) of the mutton cuts are from low quality areas of the carcass and includes one foot bone. In this instance, the feet may have been attached to the shank (see Table 5.6). However, there is no corresponding area of the carcass among the cuts from the restaurant that may be associated with the phalanx recovered there. The mutton cuts from 87 S. Herbert Avenue, Feature 183, show a completely different pattern. Only 20 percent (n = 2) are high quality, 60 percent (n = 6) are medium quality, and 20 percent (n = 2) are low quality, including a sheep or goat tooth fragment.

The recovery of head and foot bones of domestic large ungulates is cited as evidence for animal husbandry or on-site butchering. These bones were usually discarded during the butchering process, due to low food value (Lyman 1977:69). This does not necessarily apply to pigs' feet, however, which were, and still are today, sold in butcher shops. In addition to the sheep or goat foot bones and tooth fragment, a small amount of cattle cranial material was recovered from 87 S. Herbert Avenue, Feature 183,

and the S. P. Dining Room, Feature 190. All four of the specimens are parts of the hyoid bone. This series of bones supports the tongue, and is attached to the temporal bones by cartilage (Getty 1975:31-32). The tongues were probably separated from the head, because there are no mandibles or any other cranial material present in those assemblages. This suggests they were purchased in a butcher shop.

Two cattle foot bones, a scaphoid and a second phalanx, were noted in the Burkhalter outhouse, Feature 130. Although there is no corresponding foreshank cut in that assemblage (see Table 5.5), the presence of foot bones may indicate some on-site butchering of larger cuts of meat. Three cattle specimens from the residence at 87 S. Herbert Avenue, Feature 183, included a nearly complete ischium and pubis, in addition to a proximal femur and a sacrum. They are relatively unbutchered, and probably represent the entire retail rump cut (see Figure 5.1). That is a large amount of meat to cook at once, suggesting there was a large group to feed. A similar large cut was recovered from the S. P. Dining Room outhouse, Feature 190.

COMPARISONS WITH OUTHOUSE ASSEMBLAGES FROM BLOCK 83

The outhouse assemblages from Block 91 are compared with outhouse assemblages from nearby AZ BB:13:401 (ASM), historic Block 83, that were deposited between 1885 and 1910. Block 83 is two blocks northwest of the current project area (Thiel 2009). A large faunal assemblage was recovered during the excavation of the eastern half of the block (Waters 2009). The analyzed assemblage was recovered from primarily commercial properties. Five feature assemblages, representing two saloons, a boardinghouse, a private residence, and a Chinese laundry, were analyzed.

The basic types of meat represented among the outhouse assemblages from Block 91 are the same as those in the Block 83 assemblages. However, the proportions of meat types reflect the dietary preferences and economic status of the households, as well as the nature of the commercial properties. The percentages of the major meat animals, including cattle, sheep or goat, pig, and chicken, are shown in Table 5.7 for the assemblages from Block 91 and Block 83. Cattle specimens comprise the largest proportion of most of the identifiable assemblages, ranging from 41 percent to 58 percent. However, the Burkholder and Coleman residences, Features 130 and 170, respectively, at Block 91, contain relatively small proportions of cattle specimens, 22 percent and 13 percent, respectively. Chickens generally comprise larger proportions of the Block 91 identifiable assemblages compared to those from Block 83, ranging from 16 percent to 61 percent for the former and only 3-12 percent for the latter. The Coleman and Burkhalter outhouses contained large proportions of chicken specimens, 43 percent and 61 percent, respectively. The proportions of pig specimens from the two projects range from 3-33 percent of the identifiable assemblages. The highest percentage was from the Chinese laundry outhouses, Features 356 and 361, in Block 83. The lower percentages were from the Burkhalter and Coleman family outhouses in Block 91, with 3 and 4 percent, respectively, and the boardinghouse, Feature 240, on Block 83, with 8 percent of the identifiable assemblage. Sheep or goat proportions range from 4 percent to 18 percent for both projects. Most of the percentages are in the single digits except the Burkhalter family outhouse in Block 91 and the boardinghouse outhouse in Block 83, with 12 and 18 percent, respectively.

Table 5.7. Percentage of identifiable specimens represented by the major meat animals from analyzed features at AZ BB:13:820 (ASM) and AZ BB:13:401 (ASM).

	Taxon			
	Chicken (*Gallus gallus*)	Pig (*Sus scrofa*)	Cattle *(Bos taurus*)	Sheep/Goat (*Ovis aries/Capra hircus)*
AZ BB:13:820 (ASM)				
Feature 130	43	3	22	12
Feature 170	61	4	13	5
Feature 183	16	13	58	8
Feature 190	33	10	41	6
AZ BB:13:401 (ASM)				
Feature 207	7	16	49	5
Feature 240	12	8	41	18
Feature 252/253	5	19	48	5
Feature 286	5	13	55	6
Feature 356/361	3	33	49	4

Among the four private residences in the two project areas, the outhouse assemblage from 87 S. Herbert Avenue, Feature 183 in Block 91, is most like the private residence, Features 252 and 253 in Block 83, in terms of the proportions of the major meat animals. Both assemblages are comprised primarily of beef, with 58 percent and 48 percent, respectively. Beef is followed by pork, with 13 percent and 19 percent, respectively. The former assemblage had more chicken than the latter, 16 percent compared to only 5 percent. In contrast, the Burkhalter residence, Feature 130, and the Coleman residence, Feature 170, at Block 91, had higher proportions of chicken compared to beef and lower proportions of pork compared to the other assemblages (see Table 5.7). The Burkhalter assemblage contained the highest proportion of mutton among the residential assemblages, with 12 percent.

There were some similarities in meat preferences among the commercial properties from both projects. Beef comprises the largest proportion of all the commercial assemblages (see Table 5.7). However, the S. P. Dining Room, Feature 190 in Block 91, is most similar to the boardinghouse, Feature 240 in Block 83, in terms of the proportions of the major meat animals in the identifiable assemblage. The S. P. Dining Room and the boardinghouse have the smallest proportions of beef, with 41 percent each. These two features also have the lowest proportions of pig specimens, with 10 percent and 8 percent, respectively. The S. P. Dining Room is similar to the other commercial properties in Block 83 in the proportion of sheep or goat remains. All have single digit percentages, while the boardinghouse assemblage contains 18 percent sheep or goat specimens in the identifiable assemblage. The S. P. Dining Room has an exceptionally high amount of chicken, which comprises one-third of the identifiable assemblage. The next highest proportion of chicken is 12 percent, from the boardinghouse assemblage.

Meat cut quality was variable among the assemblages from both projects; however, all, except the S. P. Dining Room on Block 91 and the boardinghouse on Block 83, had relatively large proportions of high quality beef cuts and small proportions of low quality beef cuts (Table 5.8). Additionally, the residences in both project areas all had large proportions of high quality pork. There were more high quality mutton cuts from the Burkhalter and Coleman residences, Feature 130 and Feature 170 in Block 91. The outhouse associated with the residents of 87 S. Herbert Avenue, Feature 183 in Block 91, contained more medium quality mutton cuts, as did the private residence outhouse, Features 252 and 253 in Block 83. The quality of all meat types varied among the commercial properties in both project areas. All contained more high quality cuts of beef except the S. P. Dining Room, Feature 190 in Block 91, which had slightly more medium quality than high quality beef cuts and the boardinghouse outhouse, Feature 240 in Block 83, which contained relatively even proportions of high, medium, and low quality cuts. Most of the commercial properties had even distributions of pork cuts among the high, medium, and low quality areas of the pig carcass. Only the boardinghouse outhouse contained a greater proportion of low quality pork cuts. The quality of mutton cuts also varied among the commercial properties. Only the S. P. Dining Room had more high quality cuts.

It appears that, in general, families in the private residences served higher quality meats in greater quantities relative to medium and low quality meats than were served at the commercial enter-

Table 5.8. Percentage of identifiable meat cuts, by type, from analyzed features at AZ BB:13:820 (ASM) and AZ BB:13:401 (ASM).

	Taxon								
	Pig (*Sus scrofa*)			Cattle (*Bos taurus*)			Sheep/Goat (*Ovis aries/Capra hircus*)		
	High	Medium	Low	High	Medium	Low	High	Medium	Low
AZ BB:13:820 (ASM)									
Feature 130	60	–	40	67	23	10	50	38	12
Feature 170	86	14	–	73	9	18	67	33	–
Feature 183	69	19	12	66	26	9	20	60	20
Feature 190	39	36	25	43	47	10	64	29	7
AZ BB:13:401 (ASM)									
Feature 207	35	22	43	71	21	8	44	19	38
Feature 240	18	30	52	33	31	36	30	33	37
Feature 252/253	52	9	9	70	13	17	17	50	33
Feature 286	41	29	29	54	37	9	0	50	50
Feature 356/361	41	26	26	62	26	13	21	57	21

prises. Perhaps because they did not need to make a profit, the families in the private residences could spend more for higher quality meat cuts. Beef was likely more affordable, as nearly all the outhouse assemblages from both projects contain larger proportions of high quality beef cuts, although some of the meat cut choices were probably due to the food preferences of the time. Perhaps lower quality beef cuts were less desirable than lower quality pork cuts. Additionally, some of the sample sizes are small and may not reflect the true nature of the meat diet in some cases.

SUMMARY AND CONCLUSIONS

The faunal analysis includes four outhouse assemblages excavated at Block 91 during the Plaza Centro project. Three were associated with private residences, including the Burkhalter family, the Coleman family, and the unnamed residents at 87 S. Herbert Avenue. The only commercial property was the S. P. Dining Room restaurant. All residential households ate primarily high quality beef, pork, and mutton cuts. The one exception is the residents of 87 S. Herbert Avenue, who ate mostly medium quality mutton cuts. In contrast, the S. P. Dining Room offered a variety of high, medium, and low quality cuts of all meat types to their customers. The restaurant included a variety of meat cuts to appeal to a diverse clientele. The proportions of low quality beef and mutton cuts in the S. P. Dining Room assemblage were comparable to the residential households. The pork cuts were fairly evenly divided among high, medium, and low quality cuts. Restaurant patrons and the Burkhalter family enjoyed pigs' feet as much as other parts of the pig carcass. The mutton cuts display a differing distribution of quality per assemblage. The Coleman household and S. P. Dining Room contained more high quality cuts. The Burkhalter household had more even proportions among the high quality and medium quality cuts, while the residence at 87 S. Herbert Avenue contained a majority of medium quality cuts.

The Coleman household may have been in a lower income bracket compared with other residents in the project area. They appear to have relied on their home flock for most of their meat and, although they purchased high quality cuts of beef, pork, and mutton, they bought far less of these meats than other households except the Burkhalters. However, the Burkhalters likely purchased their chicken. Although chickens were being raised by the residents of 87 S. Herbert Avenue, their beef, pork, and mutton consumption was much higher than the Coleman household. Some hunting occurred, as indicated by jackrabbit and quail remains in the Burkhalter family outhouse and the outhouse associated with the residents of 87 S. Herbert Avenue.

Comparisons with the Block 83 outhouse assemblages show that the basic types of meat consumed by the residents and customers of the businesses are similar. However, the meat types were consumed in varying quantities. Most households and commercial establishments served more beef than any other kind of meat. Exceptions are the Burkhalter and Coleman families in Block 91. They consumed more chicken than beef. The meat diet of the Chinese laundry workers in Block 83 contained a greater proportion of pork. Both saloons in Block 83 served more pork than mutton or chicken, as did the private residence. Households in Block 91 preferred chicken over pork and mutton, as did patrons of the S. P. Dining Room. The boardinghouse in Block 83 served more chicken and mutton than pork.

Among the four private residences in the two project areas, the outhouse assemblage from 87 S. Herbert Avenue on Block 91 is most like the private residence on Block 83 in terms of the proportions of the major meat animals, as well as in the quality of beef and mutton cuts. Both had large proportions of high quality beef cuts and more medium and low quality mutton cuts. The Burkhalter and Coleman outhouse assemblages have more in common with the boardinghouse assemblage from Block 83. The differences between the two sets of residences may reflect differing socioeconomic classes. The commercial properties were more variable, but the S. P. Dining Room in Block 91 and the boardinghouse in Block 83 had similar proportions of beef and pork in their assemblages.

Acknowledgments

Chris Virden-Lange assisted in presorting the feature assemblages. This provided a much-needed streamlining of the analysis. Her help is greatly appreciated.

CHAPTER 6

FOOD PLANT AND WOOD CHARCOAL REMAINS FROM RESIDENTIAL AND COMMERCIAL PRIVIES FOUND ON HISTORIC BLOCK 91, TUCSON, ARIZONA

Michael W. Diehl
Desert Archaeology, Inc.

Excavations in downtown Tucson, Arizona, within the eastern half of Historic Block 91 resulted in the recovery of flotation samples from seven domestic and one commercial privy pits. These privies were used during the late nineteenth and early twentieth centuries, variously from 1885-1910. Samples from the lowest levels of these privies yielded wood charcoal and durable remnants of food plants (Table 6.1).

Wood charcoals included two general kinds of trees (Table 6.2). Locally available desertscrub plants, especially acacia or mesquite, accounted for most of the assemblage; these likely represent the remnants of wood harvested specifically for fuel. Nonlocal juniper, oak, and pine were recovered, which was harvested either on the montane slopes surrounding the Tucson Basin, or that was imported as lumber. To the extent that charcoal in the privies was from lumber, the lumber is assumed to have been scrap lumber left over after construction, cabinetmaking, or furnituremaking.

Food plant tissues primarily included only the most durable kinds of tissues that by virtue of either hardness or decay resistence, preserved well in outhouse pits (Table 6.3). Most of these tissues were unburned raspberry and fig seeds. Bell or chili pepper seeds, tomato seeds, a maize cupule (a fragment of the cob), a small fragment of citrus rind, and a few specimens of grain crops were observed. One wild grass family seed, likely a remnant of yard waste, was also identified.

The Block 91 privies yielded a narrow range of food plants and wood charcoal specimens. The assemblage illustrates the nearly universal appeal, at the time, of fresh or preserved raspberries and figs. The residential assemblage was otherwise unremarkable. The privy associated with the S. P. Dining Room contained no food remnants, and instead, contained large amounts of wood charcoal.

Residents of Tucson in the late nineteenth and early twentieth centuries had access to a wide variety of fresh and preserved foodstuffs. Produce, including watermelons, strawberries, potatoes, cabbages, garlic, chili peppers, corn, and wheat, was grown on the Santa Cruz River floodplain by Chinese and Mexican farmers. During late winter, oranges, lemons, and other citrus fruits were brought north from Hermosillo. Fruit sellers also sold tropical fruits, such as bananas and coconuts, brought north by ship and then carried by railroad from western seaports. An even wider variety of canned and dried fruits were imported via the railroad into the community.

Macrobotanical analyses from samples collected from historic features throughout Tucson have identified a variety of plants representing the remnants of American Territorial period meals. A previous study (Koziarski et al. 2010) has shown that raspberry seeds are more likely to be found in features associated with Euro-Americans, as well as white mustard seeds. Block 91 and the adjacent Block 95 were both occupied by Euro-Americans, and large quantities of raspberry seeds were found in outhouse pit features on both blocks (Figure 6.1).

In contrast, Chinese households tend to have higher quantities of prickly pear and purslane and smaller amounts of grapes, as compared with Euro-American and Mexican-American households. Mexican-American households have more maize, peppers, squash, wheat, and mesquite than their counterparts (Diehl 2009).

These differences in diet reflect culinary traditions and the availability of certain foods in the Sonoran Desert. Raspberries were difficult, if not impossible, to grow in Tucson during the American Territorial period. Euro-Americans who moved from the eastern United States and who wished to replicate the diet they had known in eastern states, were forced to purchase bottled raspberry products. It is not surprising that raspberry jam was offered to customers in Tucson grocery stores as early as 1871 (*Arizona Citizen* 1871).

Table 6.1. Uses of plant taxa and tissues observed in residential and commercial privies, Plaza Centro, Tucson, Arizona.

Common Name	Taxon	Part	Uses
Bell or chile pepper	*Capsicum* sp.	Seed	Chile or bell pepper seeds used as seasoning or by-product of fruit consumption
Citrus	*Citrus* sp.	Rind fragment	Rind tissue from lemon, lime, or orange, seeds used as seasoning or by-product of fruit consumption
Fig	*Ficus carica*	Seed	By-product of fruit consumption
Grape	*Vitis vinifera*	Seed	By-product of fruit consumption
Grass family	Gramineae	Seed fragment	Yard weed, waste
Maize	*Zea mays*	Cupule	By-product of grain consumption
Raspberry type	*Rubus* sp.	Seed	By-product of fruit consumption
Rice	*Oryza sativa*	Seed	Grain used as food
Tomato	*Solanum esculentum*	Seed	By-product of fruit consumption
Wheat	*Triticum* sp.	Seed	Grain used as food
Acacia/Mesquite	*Acacia/Prosopis* sp.	Wood	Fuel or yard waste
Desert tree legume	*Acacia/Cercidium/Olneya/Prosopis*	Wood	Fuel or yard waste
Juniper	*Juniperus* sp.	Wood	Fuel or burned lumber
Oak	*Quercus* sp.	Wood	Fuel or burned lumber
Ocotillo	*Fouquieria splendens*	Wood	Fuel or yard waste
Pine	*Pinus* sp.	Wood	Fuel or burned lumber

Table 6.2. Wood charcoal frequencies in flotation samples from residential and commercial privies, AZ BB:13:820 (ASM).

			Flotation Sample Attributes		Local Desertscrub Woods			Local Montane or Imported Woods			
Owner/User	Feature	FN	Volume (l)	Weight (gm)	Acacia-Mesquite	Desert Tree Legume	Ocotillo	Juniper	Oak	Pine	Unknown
Millar family	112	1031	5.0	21.6	20 (1.6)	0	0	0	0	0	0
	112	1183	6.0	16.4	0	17 (0.2)	0	3 (t)	0	0	0
Burkhalter family	130	1083	4.0	29.3	0	0	0	0	0	20 (7.9)	0
	130	1178	5.0	6.7	0	6 (t)	0	0	0	0	0
	130	1189	7.0	12.4	0	8 (0.1)	0	0	0	0	0
Clancy family	158	1691	6.0	129.9	15 (8.3)	0	0	0	0	5 (0.5)	0
	158	1715	3.0	11.3	0	8 (0.1)	0	12 (0.1)	0	0	0
Unknown	169	1340	5.0	60.5	20 (1.4)	0	0	0	0	0	0
Coleman/Reel family	170	1923	4.0	38.0	0	17 (0.5)	0	3 (t)	0	0	0
Residents of 87 S. Herbert St.	171	1950	10.0	92.2	12 (1.6)	0	0	8 (0.2)	0	0	0
Unknown	183	1556	5.0	79.6	15 (6.3)	0	0	0	2 (0.4)	3 (0.4)	0
S. P. Dining Room	190	1735	6.0	34.8	19 (2.6)	0	0	0	0	1 (t)	1 (t)
	190	1738	6.0	22.1	0	19 (0.5)	1 (t)	0	0	0	0

Notes: Numbers in parentheses = weight in grams; t = trace quantity, < 0.1 gm.

Table 6.3. Seed frequencies in flotation samples from residential and commercial privies, AZ BB:13:820 (ASM).

			Commercial or Local Garden Crops						Commercial Grain Crops			Weeds
Owner/User	Feature	FN	Bell or Chile Pepper	Citrus	Figs	Grapes	Raspberry	Tomato	Maize	Rice	Wheat	Grass
Millar family	112	1031	0	0	0	0	0	0	0	0	0	0
	112	1183	0	0	0	0	7	0	0	0	0	0
Burkhalter family	130	1083	0	0	0	0	4	0	0	0	0	0
	130	1178	0	0	0	0	107	0	0	0	0	0
	130	1189	0	0	0	0	173	0	0	0	0	0
Clancy family	158	1691	0	1	0	0	517	0	0	0	0	1
	158	1715	0	0	20	1	178	0	0	1	1	0
Unknown	169	1340	0	0	5	0	127	0	0	0	0	0
Coleman/Reel family	170	1923	2	0	16	0	480	2	0	0	0	0
Residents of 87 S. Herbert St.	171	1950	0	0	111	0	731	0	1	0	0	0
Unknown	183	1556	0	0	10	0	10	0	0	0	0	0
S. P. Dining Room	190	1735	0	0	0	0	0	0	0	0	0	0
	190	1738	0	0	0	0	3	0	0	0	0	0
Sum			2	1	162	1	2,334	2	1	1	1	1
% of Total			< 0.1%	< 0.1%	6.4%	< 0.1%	93.1%	< 0.1%	< 0.1%	< 0.1%	< 0.1%	< 0.1%

Note: 2,504 seeds, 1 small fragment of citrus rind, and 1 maize cupule were counted.

Figure 6.1. Crosse & Blackwell raspberry preserves bottle found in Feature 171, Historic Block 91, AZ BB:13:820 (ASM) (Catalog No. 2009-699-61).

CHAPTER 7

MARINE SHELL

Christine H. Virden-Lange
Desert Archaeology, Inc.

Recent archaeological investigations by Desert Archaeology, Inc., in the eastern half of Historic Block 91, AZ BB:13:820 (ASM), produced a small collection of shell artifact material from several different feature contexts, including eight outhouse pits, a small pit, and a metal-lined box that had been buried. The 40 pieces of shell represent approximately 36 individual specimens, with most of the material being unmodified fragments and whole valves. Only four of the shell artifacts, or 11 percent of the collection, had been manufactured into formal ornaments, specifically, whole shell beads by simple grinding. Most of the shell pieces (47 percent) were oyster shells that were probably consumed in nearby residences, with the shells deposited as trash in the outhouse pits. The remaining shell artifacts are a variety, which may have been consumed, but more than likely that had been collected recreationally as a natural history collection, a popular pastime during the time the features were in use. Thus, the main focus of the current marine shell collection appears to have been for dietary use.

METHODOLOGY

The **s**hell specimens were examined, and a set of linear measurements were obtained using a digital Vernier caliper, which records to the nearest hundredth of a millimeter. The diameters of the perforation of the beads were measured and described. A detailed record for each specimen was developed that included a written description of the artifact, as well as attributes such as the condition, shape, any decorative motifs, and technological features.

Ornament classification used for the beads is based on that developed for the shell material from Snaketown, AZ U:13:1 (ASM) (Haury 1937, 1976). The identification to genus and, if possible, to species for the marine shell was made in accordance with Keen (1971) and Abbott (1954), with additional sources such as Brusca et al. (2004) and Rehder (1992). Definitions of the terminology used in the descriptions relating to the structural elements of the shell used during this analysis, as well as useful descriptive illustrations, can be found in glossaries available in Keen (1971).

Assemblage

The marine shells in the current collection represent 12 genera (Table 7.1), and are dominated by pelecypods (bivalves). All the specimens that could be identified to the species level are native to the Pacific, with representatives from both the western coast of California, as well as the Gulf of California, with the majority coming from the Panamic Province. The Panamic Province is an area south of the western coast of California that is cooled, in part, by the upwelling of deep and cold ocean water off the coast. It is a more temperate region. The Panamic Province is bordered on the south by another cooler region, the Peruvian Province, which is, again, cooled by upwelling of colder ocean water. These differing biotic zones support different marine fauna, some of which prefer either the warmer or cooler waters of a specific region. The bivalves in the current collection are clams and oysters that prefer the warmer waters off the coast of southern California to Baja California, as well as the waters of the Gulf of California. Almost all are edible, with the oysters especially, cultivated for the food industry. *Argopecten circularis* probably originated from the warmer waters of the Gulf of California, as did *Brachidontes stearnsi, Chione, Epilucina californica, Mytella,* and several varieties of oysters, including *Ostrea conchaphila, Ostrea corteziensis,* and *Ostrea palumla.* Three other types of clams also native to the Gulf of California were present, including *Protothaca grata, Spisula*, and *Pecten.* These particular clams and oysters prefer warmer water and can often be found on the beach or in tide pools.

Marine shells that derived from the coast of California include *Epilucina californica*, or Californian lucine, with a range from Crescent City, California, to central Baja California. One of the species of oysters in the current collection, *Crassostra gigas*, or giant Pacific oyster, was actually imported from Japan around 1912, in the form of very young oysters called seed oysters, to be raised commercially along the coast of northern California (Abbott 1954:375; Rehder 1992:138). The range for this oyster is from southern Alaska to northern California, as well as Japan. Also present is another oyster native to California, *Ostrea lurida*, or Olympia (or native) oyster,

Table 7.1. Marine shell material recovered from Historic Block 91, AZ BB:13:820 (ASM).

Family/Genera/Species	Biotic Community	Count	MNI[a]
Pelecypods			
Argopecten circularius	Panamic Province	1	1
Brachidontes stearnsi	Panamic Province	1	1
Chione sp.	Panamic Province	1	1
Crassostrea gigas	California Province	1	1
Epilucina californica	Panamic Province	1	1
Mytella sp.	Panamic Province	3	1
Ostrea sp.		5	4
Ostrea conchaphila	Panamic Province	2	2
Ostrea corteziensis	Panamic Province	8	7
Ostrea lurida	California Province	1	1
Ostrea palumla	Panamic Province	2	2
Pecten sp.	Panamic Province	1	1
Protothaca grata	Panamic Province	2	2
Spisula sp.	Panamic Province	1	1
Unidentified marine bivalve		4	4
Gastropods			
Conus sp.	Panamic Province, California Province	4	4
Turitella anactor	Panamic Province	1	1
Indeteriminate marine univalve		1	1
Total		40	36

[a]MNI = Minimum number of individuals.

that has also been cultivated commercially, although not as extensively as the giant Pacific oyster. The range of *O. lurida* is from southern Alaska to southern Baja, California (Rehder 1992). None of the clams or oysters from either the Gulf of California or the coast of California had been modified into ornaments, although some of the edges on the oyster shells displayed chipping, possibly caused from prying open the shell for consumption (Figure 7.1b).

Several gastropods were also recovered. *Turitellas* have tightly coiled shells and live just below the sea floor in large colonies. The tower shells are among the most slender-spired of the gastropods, and are typically identified to species by the variability in the expression of the spiral ribs (Keen 1971:391). They are sometimes used for ornament manufacturing by abrading a perforation through the back of the outer lip for stringing through the aperture. A single *Turitella anactor* was collected during the recent excavations, but it has not been modified.

The second species of gastropods in the current collection are *Conus* shells, which can be found around the world. The Conidae family, or cone shells, are identified by the shape of the shell, which is a typical cone, broad at the shoulder, tapering gradually to a narrow base (Keen 1971:658). The spire at the top of the shoulder is usually either step-like or turreted. Ornamentation with blunt nodes or beads at the shoulder is frequent. The aperture is long, narrow, and generally uniform in width, while the outer lip is thin, sharp, and easily broken or chipped. The sculpture is mainly of revolving grooves on the base of the shell. Identification to species is typically based on the different color patterns on the exterior of the shells; thus, when these marking are not present, it is difficult to assign a particular shell to a particular species.

The four *Conus* shells in the current collection could not be identified to species, as the coloration was missing from the exterior of the shells, likely due to the acidic content of the outhouse environment that severely eroded the shells (Figure 7.1a). Also, one of the beads was darkly burned and cracking. The lengths of the beads ranged from 15.81 mm to 22.89 mm, with a mean of 19.62 mm; the width of the beads ranged from 9.88 mm to 14.39 mm, with a mean of 12.50 mm; the perforations (made by simple grinding down of the apex on the spire) ranged from 1.82 mm to 4.91 mm, with a mean of 2.98 mm.

Discussion

The shell collection recovered from the current excavations at Block 91 is dominated by marine bivalves, the bulk of which are unmodified fragments and whole valves (Table 7.2). No freshwater specimens were found in the feature fill. The artifacts were

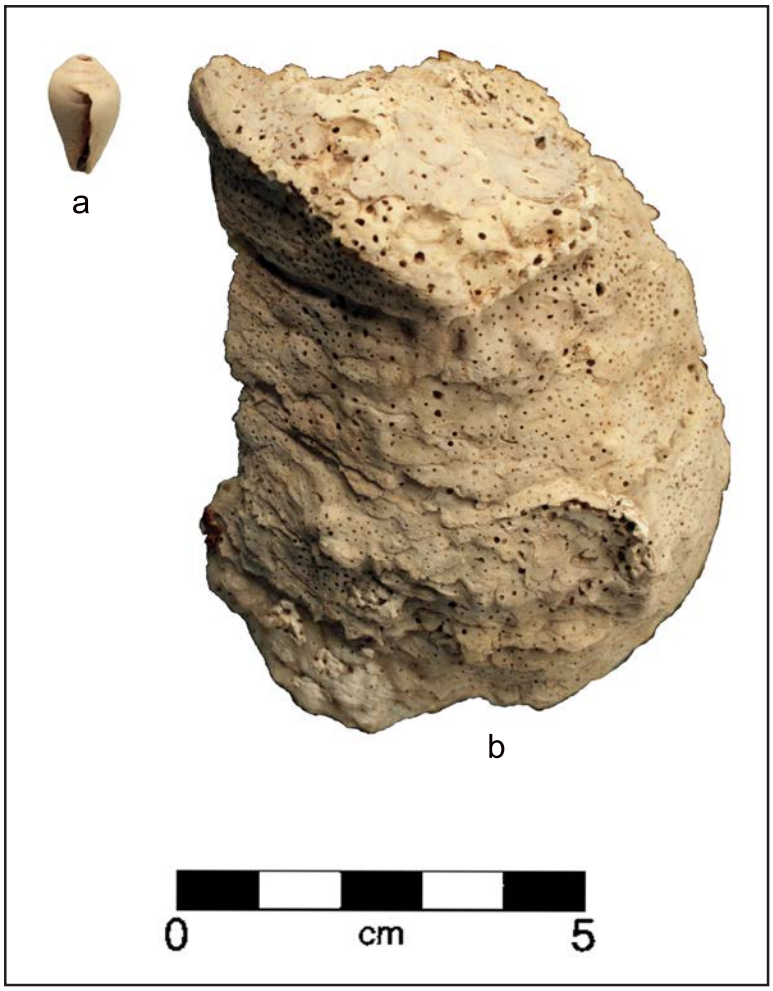


Figure 7.1. Selected shell artifacts from Historic Block 91, AZ BB:13:829 (ASM): (a) Conus whole shell bead; (b) Ostrea shell.

recovered from 10 features, eight of which were outhouse pits. The remaining two features included a small pit and a metal-lined wooden box that had been buried in the dirt. Outhouse pit Features 170 and 171 contained the most pieces of marine shells, with a total of 10 and nine respectively, or 52 percent of the collection. The remaining features had relatively smaller amounts of shell material. Oyster shells were the most ubiquitous of the bivalves, and were recovered from eight of the features, seven outhouse pits and the metal-lined wooden box.

It is not unusual for shell artifacts recovered from historic contexts in southern Arizona to reflect consumption of edible shellfish for dietary use (Koziarski et al. 2010:81-82; Virden-Lange 2014:Table 6; Vokes 1995:279-282, 2006:11-15; Vokes and Wiley 1998:402). The several species of oysters in the current collection are edible, and have been enjoyed as a food source since prehistoric times (Keen 1971:82), as evidenced by the presence of large shell middens on the coastline of the Gulf of California. Prior to the arrival of the railroad across southern Arizona, imported goods were brought overland by wagon from Mexico City, Guaymas, Yuma, San Diego, and Santa Fe (Barnes 1983). Not only did this make trade goods expensive, it was difficult to import fresh shellfish from markets on the west Pacific coastal area. However, with the advent of the rail system in 1880, the movement of fresh shellfish was facilitated by this mode of transportation to the inland markets such as Tucson, thereby decreasing the chances of spoilage (Vokes 2006).

A larger oyster species endemic to Japan was also imported to northern California, to be grown along those waters and then shipped inland to supply an ever-growing demand for this specialty item. Oysters were imported from the coasts as a delicacy to be enjoyed by those citizens who could afford them. In late nineteenth and early twentieth centuries in Tucson, the remains of oyster shells were more likely to be associated with trash deposits of Euro-American and Chinese households rather than other ethnic groups who inhabited Tucson at the time (Vokes 2003:111). Oyster shells were also recovered from the Southern Pacific Railroad Clubhouse, which was nearby, suggesting visitors to the clubhouse enjoyed this rare delicacy (Koziarski et al. 2010:82).

Not all the shell material in the current collection was attributed to dietary functions. The four *Conus* whole shell beads were single occurrences recovered from the pit fill of outhouse Features 130, 170, and 171, and a small pit, Feature 139. They may have been individual shells collected from the beach and brought home as souvenirs. Once home, it would be easy to grind the apex of the spire on the shell to create a perforation for stringing. This would enable the shell to be worn as a pendant. The dearth of shell jewelry in the collection suggests it was not the primary function for shells at this time for the current occupants of this part of Tucson.

During the earlier Prehistoric era, the use of marine shell as ornaments of personal adornment overshadowed the function of its usage as a food item. However, the use of shell shifts from this primary role of personal adornment to that of an exotic food

Table 7.2. Shell material from Historic Block 91, AZ BB:13:820 (ASM).

Feature	Unit	Stratum	Level	Bag Number	Artifact Form	Species	Common Name	Condition	Count	MNI[a]	Date[b]
112	103	50.01	1	1029	Unworked fragment	Unidentified marine bivalve	–	Burned	1	1	N/A
130	108	50	2	1135	Whole valve	*Crassostrea gigas*	Giant Pacific oyster	Unburned	1	1	1891-1900
130	108	50.01	1	1084	Unworked fragment	*Ostrea corteziensis*	Oyster	Unburned	1	1	1891-1900
130	108	50.01	1	1084	Whole valve	*Ostrea corteziensis*	Oyster	Unburned	1	1	1891-1900
130	108	50.01	1	1145	Whole valve	*Epilucina californica*	Califonian lucine	Unburned	1	1	1891-1900
130	108	50.01	1	1145	Whole valve	*Ostrea corteziensis*	Oyster	Unburned	1	1	1891-1900
130	108	50.01	5	1190	Whole shell bead	*Conus* sp.	Cone shell	Unburned	1	1	1891-1900
139	125	50	1	1159	Whole shell bead	*Conus* sp.	Cone shell	Unburned	1	1	1880-1920
145	133	50	1	1418	Unworked fragment	*Ostrea* sp.	Oyster	Unburned	2	1	N/A
158	127	50.01	2	1260	Whole valve	*Chione* sp.	Venus clam	Unburned	1	1	1900-1905
158	127	50.01	5	1353	Unworked fragment	*Ostrea conchaphila*	Banded rock oyster	Unburned	1	1	1900-1905
158	127	50.01	5	1353	Whole valve	*Argopecten circularius*	Pacific calico scallop	Unburned	1	1	1900-1905
168	129	50	1	1220	Unworked fragment	Unidentified marine bivalve	–	Unburned	1	1	N/A
170	131	50.01	2	1409	Unworked fragment	Unidentified marine bivalve	–	Unburned	1	1	1891-1905
170	131	50.01	3	1378	Whole valve	*Ostrea palumla*	Oyster	Unburned	1	1	1891-1905
170	131	50.02	2	1409	Unworked fragment	Unidentified marine bivalve	–	Unburned	1	1	1891-1905
170	131	50.02	3	1435	Whole shell bead	*Conus* sp.	Cone shell	Unburned	1	1	1891-1905
170	131	50.02	4	1777	Whole valve	*Protothaca grata*	Littleneck clam	Unburned	1	1	1891-1905
170	131	50.02	4	1777	Unworked fragment	*Protothaca grata*	Littleneck clam	Unburned	1	1	1891-1905
170	131	50.02	7	1847	Whole valve	*Pecten* sp.	Scallop	Unburned	1	1	1891-1905
170	131	50.02	7	1847	Unworked fragment	*Mytella* sp.	Musssel	Unburned	3	1	1891-1905
170	131	50.02	8	1894	Whole valve	*Turitella anactor*	Tower shell	Unburned	1	1	1891-1905
170	131	50.02	8	1894	Unworked fragment	*Spisula* sp.	Surf clam	Unburned	1	1	1891-1905
171	134	50.01	2	1450	Unworked fragment	*Ostrea conchaphila*	Banded rock oyster	Unburned	1	1	1901-1905
171	134	50.01	9	1871	Whole valve	*Brachidontes stearnsi*	Stearn's mussel	Unburned	1	1	1901-1905
171	134	50.01	9	1871	Unworked fragment	*Ostrea* sp.	Oyster	Unburned	1	1	1901-1905
171	134	50.01	9	1871	Unworked fragment	*Ostrea lurida*	Native Pacific oyster	Unburned	1	1	1901-1905
171	134	50.01	10	1929	Unworked fragment	*Ostrea corteziensis*	Oyster	Unburned	1	1	1901-1905
171	134	50.01	10	1929	Unworked fragment	*Ostrea corteziensis*	Oyster	Unburned	2	1	1901-1905
171	134	50.01	10	1929	Unworked fragment	*Ostrea corteziensis*	Oyster	Unburned	1	1	1901-1905
171	134	50.01	10	1929	Whole valve	*Ostrea corteziensis*	Oyster	Unburned	1	1	1901-1905
171	134	50.01	10	1929	Whole shell bead	*Conus* sp.	Cone shell	Unburned	1	1	1901-1905

Table 7.2. Continued.

Feature	Unit	Stratum	Level	Bag Number	Artifact Form	Species	Common Name	Condition	Count	MNI[a]	Date[b]
174	145	50.01	1	1710	Unworked fragment	*Ostrea* sp.	Oyster	Unburned	1	1	N/A
183	135	50	1	1483	Unworked fragment	*Ostrea palumla*	Oyster	Unburned	1	1	1885-1897
183	135	50.01	3	1545	Unworked fragment	Unidentified marine bivalve	–	Unburned	1	1	1885-1897
190	137	50	3	1584	Unworked fragment	*Ostrea* sp.	Oyster	Unburned	1	1	1901-1910
Total									40	36	

[a]MNI = Minimum number of individuals.
[a]N/A = Dates not available.

source during the Historic era. This time period also sees the presence of unmodified marine shells that may represent souvenirs collected by vacationers to the Pacific coast or Gulf of California, as the Victorian era ushered in an increased interest in natural history collections. The few specimens that were not eaten or utilized as shell ornaments were likely collected for this purpose.

CHAPTER 8

LIFE ON THE EASTERN HALF OF BLOCK 91

J. Homer Thiel
Desert Archaeology, Inc.

People often assume that construction of a building or parking lot in an urban setting will have completely destroyed any archaeological features that were once present. However, excavations throughout downtown Tucson have shown that, except areas with deep basements, cultural resources tend to survive in a well-preserved state. The concrete slabs and asphalt paving have actually helped protect the features from disturbance.

This was true on the eastern half of Block 91. After removing the asphalt paving and the floors of the former Greyhound Bus Terminal, intact archaeological resources were found scattered across the block. Archaeologists concentrated on the backyard areas, hoping to find deep shaft features, such as wells, privies, or midden deposits, into which residents discarded trash. Previous excavations have shown that shaft features often hold large quantities of artifacts and food remains, and that these can often be linked to specific households. Work on Block 91 resulted in the discovery of eight privies, a well (which did not yield artifacts), and two trash midden areas. Planting pits for trees and bushes, fencelines, pet burials, the adobe foundations of a duplex house built in 1883, and a large pit associated with a wood milling business that operated in the 1910s, were all also found.

Three research themes were proposed prior to the start of the project: (1) changes in Tucson lifeways through the late nineteenth and early twentieth centuries; (2) trash disposal and privy pits in Tucson; and, (3) ethnic and socioeconomic factors influencing diet in historic Tucson. The features, artifacts, and food remains uncovered provide information on each of these topics.

CHANGES IN TUCSON LIFEWAYS THROUGH THE LATE NINETEENTH AND EARLY TWENTIETH CENTURIES

Block 91 was settled in the early 1880s, only a few years after the arrival of the Southern Pacific Railroad in March 1880. The last decades of the nineteenth century and the first decades of the twentieth century saw Tucson double in population. In mid-1880, 17,006 people were counted in Pima County in the federal census, dipping to 12,673 in 1890, and rising to 14,689 in 1900. The higher number in 1880 is partially the result of large number of railroad construction workers enumerated in the county.

The same timespan saw the installation of utilities in downtown Tucson: telephone in 1881, water and natural gas in 1882, electricity in 1895, and sewer in 1901 (*Arizona Daily Citizen* 1901d; Sonnichsen 1982). A telegraph line linking Tucson to the outside world had been built in 1873 (Sonnichsen 1982). In part, the railroad arrival allowed for the construction of infrastructure, as the necessary wire, pipe, and other equipment could be easily brought to Tucson from factories located in the eastern United States. The material culture associated with these utilities, such as electrical insulators, iron water and gas pipes, and ceramic sewer pipes, is often found in backyard features and can be used as dating tools. For example, if a privy has ceramic electrical wire insulators, it probably dates to after 1895 (although there was also a failed electrical company that operated between 1882 and 1884).

Tucson served as a distribution hub for goods brought into the area via the railroad. Warehouses and a freight depot were constructed along the tracks. Boxcars arrived daily, containing a world's worth of goods. Prior to the railroad, goods were shipped overland to Tucson in freight wagons. As a result, everyday items were expensive and difficult to procure in a timely fashion. The railroad reduced shipping costs and expedited delivery of merchandise orders. Many stores opened in Tucson, some specializing in particular types of goods, such as ceramic dishes and glassware. Several department stores offered customers every conceivable item. The late nineteenth century also saw the growth of mail order catalogs, which provided consumers with another shopping option. Montgomery Ward and Sears, Roebuck and Company were two of the earliest large companies that offered quality goods at affordable prices.

Archival research suggests residents of Block 91 were middle class families headed by men who worked in white collar and skilled labor jobs from

about 1883 to the early 1900s. The earliest occupants were involved in civic activities, such as holding political offices, and were highly skilled, employed as a photographer and an undertaker. By the 1890s, most of the men were employed by the Southern Pacific Railroad in jobs that provided employment security, a factor that the previous generation may not have enjoyed. The end result was that these families likely had dependable incomes, which allowed for the purchase of quality goods and foods, perhaps higher quality than many of their neighbors.

The recovered artifacts were examined to determine if they provided clues about the economic status, ethnicity, recreation, health care, and hygiene of block residents.

The quality of artifacts recovered from the privy pits on Block 91 were suggestive of middle class status. Decorated ceramics, engraved glassware, a mechanical bank, abundant medical devices, an ivory walking stick part, hand-painted decorative vessels, and crochet needles were among the more expensive items recovered. The exception was the privy pit associated with the S. P. Dining Room, which contained a less diverse assemblage, with cheaper looking ceramics.

Previous archaeological projects have revealed that middle and upper class families routinely purchased more expensive food service vessels, often in matched sets (see Mabry et al. 1994). Families on Block 91 were expected to follow this trend, while the restaurant was expected to have very inexpensive ceramics. Food service vessels from the five privies from Block 91 containing eight or more vessels were examined. A slightly modified version of Henry's (1987) price indices, developed for ceramics from the 1920s, was used (transfer-printed and hand-painted whitewares were priced at the decal-printed level, and serving vessels were included at the plate price).

Feature 130 contained eight food service vessels discarded by the Burkhalter family, headed by a Southern Pacific Railroad ticket agent, between 1891 and 1900. Three of the eight vessels were porcelain; two of these were decorated. All five whiteware vessels were undecorated. The average price index score for the assemblage was 1.67.

Feature 158 contained 21 food service vessels thrown away by the Clancy family, headed by a Southern Pacific Railroad engineer, between 1900 and 1905. Nine of the vessels were porcelain, the highest percentage of the five sets examined. None of the whiteware vessels were plain; rather, most were decal-printed or had relief molding. No obvious matched sets were present. The average price index score for the assemblage was 2.13, the highest of the four residential households, suggesting the Clancys purchased quite expensive dishes.

Feature 170 yielded 35 vessels that once belonged to the Coleman family, headed by a Southern Pacific Railroad machinist, who dropped them into the privy between 1891 and 1905. There were eight porcelain vessels, representing about 23 percent of the total assemblage. Of these, only one was plain. One-third of the whiteware vessels were plain, while 14 were transfer-printed. Four matched sets were present among the recovered dishes: porcelain cups with gilt lines, whiteware vessels with blue transferprint flowers and foliage in the WASHINGTON pattern, green transfer-printed whiteware dishes with foliage and curlique lines, and brown transfer-printed vessels with flowers, foliage, and abstract geometric designs. This indicates the family purchased multiple pieces at the same time rather than piecemeal. The presence of so many decorated ceramics resulted in a higher average price index score, 1.82, for the assemblage.

Feature 171 was used by the Reel family, headed by a Southern Pacific Railroad machinist, between 1901 and 1905; they tossed 26 vessels into this privy. Only three of the 26 vessels were porcelain. Of the 23 whiteware vessels, 15 were plain, suggesting the Reels spent less on decorated ceramics than their neighbors. Among the eight decorated dishes were two matched patterns: whiteware vessels with gilt tea leaves and whiteware with a brown transferprint featuring flowers, foliage, and abstract geometric designs (identical pieces were found in Feature 170). The small number of decorated vessels is reflected in an average price index score of 1.51, the lowest for the residential households.

Feature 190 contained trash from the S. P. Dining Room discarded between 1901 and 1910. Of the 42 identified vessels, only three were porcelain. Of the 39 whiteware vessels, three had relief molding, while the rest were plain, mostly thick restaurant wares. The average price index score for the ceramics was 1.13, much lower than the residential households.

The average score for the four residential households, all headed by Southern Pacific employees, ranged from 1.51 to 2.13. What caused these differences? In part, these likely reflect the vagaries of the archaeological record. The vessels recovered from the privies represent a sample of the cupboard contents for each household. It is likely that not every broken dish ended up in the privies, and periodic cleaning of privies probably removed some of the dishes discarded into them. Certain dishes also had a greater likelihood of being broken because they were inherently more fragile (porcelain dishes are more likely to break than whitewares), or because they were used more often (everyday dishes versus dishes used for special occasions). Certain events may also result in dishes being discarded, such as

the purchase of a new set or the cleaning out of the cupboard when a new family moves in. Thus, a focus on the different scores is probably unwarranted; that is, stating that the Reel family spent less on ceramic vessels than the Clancy family does not account for all factors. However, it is apparent that the private households spent more than the restaurant, which was to be expected.

Downtown Tucson was home to people from many different cultural backgrounds, including Mexican-Americans, both longtime residents of Tucson and recent arrivals from Sonora, overseas Chinese immigrants who came in hopes of earning enough money to return to China as wealthy men, and African-Americans from the American South, who worked primarily as barbers, teamsters, and train porters.

The residents of Block 91 were people of European ancestry, including persons born in Ireland, Germany, Canada, New York, Michigan, Indiana, Ohio, and California. The earliest arrival to Tucson was Henry Buehman, who came to Arizona in 1873. The Burkhalters and Millars arrived in the early 1880s, while the Colemans, Reels, and Clancys came in the mid 1890s.

Previous archaeological studies have found material culture and food markers for Chinese immigrant and Mexican-American households. Chinese immigrants in Tucson tried to recreate their traditional diet, which included a much more diverse set of foods than was eaten by their Mexican and European neighbors (Diehl et al. 1998). Some meals included foods imported from China, such as sauces and dried cuttlefish. Some of the locally acquired food included items not typically eaten by their contemporaries, including cat and freshwater mussels from the Santa Cruz River. These meals were prepared in woks and served in imported Chinese vessels, including rice bowls and ceramic spoons. The Chinese also often wore traditional clothing, although many switched to Western clothing in an attempt to blend in. A Chinese Inspector in Tucson often confronted Chinese men and demanded to see their identification papers, which they were required to carry after the 1882 passage of the Chinese Exclusion Act. More than 400 Chinese men were deported from the community between 1894 and 1912, according to records created by the United States District Court. Some of the Chinese smoked opium, drank imported Chinese wine, and played games such as Fan or chess. The artifacts and food remains from sites occupied by Chinese immigrants are quite distinctive, and many of the items are not found at sites of their contemporaries (Thiel 1997; Thiel and Mabry 2006).

Mexican-American households also yield certain archaeological markers. Cattle skull and foot elements are common, the remains of meals incorporating meat harvested from these portions of the carcass. Cooking bowls imported from Mexico are often found, with a looped handle and fingerprint indentations along the rim that could serve as pouring spouts. Orange and green glazed terracotta dishes are sometimes present, as are O'odham flat ceramic *comals*, used to cook tortillas. Some households continued to use O'odham *ollas* for water storage and seasoning, even after piped city water became available. Through time, the amount of Mexican and O'odham pottery decreased, as commercially manufactured ceramic or metal equivalents became available. Mexican women appear to have favored brightly colored Gaudy Dutch vessels, with polychrome flowers and green and black foliage. Catholic religious artifacts, including crucifixes, rosary beads, and small brass medals, may be another indicator (Thiel 2005). Excavation beneath existing homes also yields Spanish language materials, such as letters, newspapers, and other printed materials, that were not likely to have been used by people of other ethnic origins (Thiel and Virdin-Lange 2014).

There are fewer identifiable material culture markers for Euro-American households, perhaps because items manufactured in Europe and the eastern United States were used by all ethnic and racial groups. However, items used in home food preservation, such as canning jars and ceramic crocks, are much more common in assemblages created by Euro-American families. This is likely because some residents from the eastern and midwestern United States continued to practice home canning or curing in crocks. Another possibility is that family members or friends may have sent canned goods to people living in Tucson as a present to remind them of their home back east. Portions of 17 canning jars were found on Block 91. In contrast, Mexican-American households traditionally relied on drying as the main form of food preservation in Tucson.

Tobacco pipes made from kaolin clay and hard rubber may be another marker. Mexican-Americans usually smoked cigars and cigarettes. Pipes are rarely found in Tucson, and the presence of five bowls and stems on Block 91 supports the idea that these were more often used by Euro-Americans, presumably men.

A few Mexican and Chinese artifacts are present in the features on Block 91, but overall, the number was low. The artifacts recovered correlate with the documentary record that Euro-Americans were the primary occupants of the residences.

A few other artifacts provide insights into the residents. A set of hand-painted dishes created by someone named G. Noble, probably a woman, reflect the increased leisure time available to some in-

dividuals in the nineteenth century. Free from the need to work constantly due to their family income, which allowed many families to hire servants, as well as labor-saving devices, such as washing machines and cookstoves, many upper middle class women began to dabble in a variety of crafts. It is uncertain if G. Noble lived on the block (no one by that name has been located in Tucson) or was a friend or relative of a block resident. In contrast, the recovery of crochet needles in several privies suggests one or more female residents of the block crocheted clothing and decorative items at home.

Residents of the block were very concerned about health care and personal hygiene. The nineteenth century saw the development of the "Miasma" theory for explaining the spread of diseases. Bad air and odors were thought to be factors behind the outbreak of epidemics and poor health. Proponents urged people to keep their living areas sanitary and free from dirt. The discovery of microscopic germs and their connection to diseases occurred toward the end of the nineteenth century. This led to calls for better sanitation and personal hygiene (Morton 2013).

Concurrent with this was the realization that many of the medicines sold in pharmacies or through mail order contained dangerous ingredients, some of which were poisonous or addictive. The early twentieth century saw the passage of the Pure Food and Drug Act of 1906, which provided for labeling of drugs, as well as monitoring and testing to ensure that harmful ingredients were not present (Cramp 1921).

Residents of Block 91 purchased a large number of proprietary medicines. The embossed product names allow the contents and purported cures to be identified, and these can be used to create health care profiles for individual households. The Clancy family purchased prescription medicines from the Fred Fleischman pharmacy in Tucson, as well as proprietary medicines for constipation, coughs, female complaints, pain, and skin conditions.

The Coleman family also dealt with constipation and coughs, but Mrs. Coleman was worried about maintaining her complexion, using the MOTHER'S FRIEND and WAKELEE'S CAMELINE on her skin. Someone in the household used PAINE'S CELERY COMPOUND, a purported pain cure, which contained almost 20 percent alcohol. Other medicines were supposed to cure eye and internal organs problems. An inhalant device was used to treat a lung condition.

The Reel family also suffered from constipation, and at least one family member had problems with internal organs, as seen by four WARNER'S SAFE LIVER KIDNEY CURE bottles and a bottle of KODOL DYSPEPSIA CURE. Both contained large amounts of alcohol.

A large number of artifacts relating to vaginal, urethral, and rectal hygiene were found in the outhouses. Late nineteenth and early twentieth century women were douching for many reasons. It was the most common form of birth control available to women of the time period. The Comstock laws, passed in 1873, prevented the distribution of materials deemed "obscene," which included information about birth control methods. Advertisements for douching equipment focused on the hygiene aspect, to avoid running afoul of these laws. Douching was also thought to help cure venereal diseases, yeast infections, and even cancer. Other advertisements urged women to douche as a marital aid, to please their husbands.

The vaginal irrigators and a urethral syringe found on Block 91 suggest a concern with cleanliness, and perhaps, an interest in contraception and/or solving medical conditions. Several hot water bags, with tubing and irrigators, were also recovered. These could have been used for either douching or enemas, the latter sometimes used as a laxative.

At about the time trash stopped being discarded on the block, the U.S. government began to institute rules regulating medical products, ensuring that consumers knew what they were dosing themselves with and halting the manufacture of toxic medicines.

The residents of Block 91 were generally participants in the trends that many of their fellow Americans were experiencing at the turn of the nineteenth to twentieth centuries. Their homes were being updated with new utilities, with electric lights illuminating their interiors, allowing the dangerous kerosene lamps to be put away or tossed into backyard privies. Water and sewer connections required indoor plumbing be installed, resulting in the final abandonment of backyard wells and privies. The running water allowed families to wash their dishes in kitchen sinks. These dishes were occasionally replaced with new styles, imported from Europe. Toward the early 1900s, people began to buy more American-made dishes, as the quality improved. Meals included many canned and bottled products, but also locally butchered meats. The people living on Block 91 could afford to visit local butcher shops and purchase high quality beef cuts. Some of the households were still raising chickens in their backyards. Some of the planting pits discovered may have been the location of fruit trees. The fencelines found in backyard areas may have helped partition yards, helpful since some households stabled horses at the rear of the lots.

TRASH DISPOSAL AND PRIVY PITS IN TUCSON

About two-thirds of the eastern half of Block 91 was stripped with a backhoe, revealing 10 privy, or outhouse, pits (two of which were abandoned during their construction). At least one of the privies visible on the 1883 Sanborn Fire Insurance map was destroyed by the later Hotel Apache basement, while the two other privies depicted were located. The remaining series of Sanborn maps do not call out these structures by name, although some appear as small backyard buildings. Stripping most of the backyard area ensured that most of the remaining privies on the block were found, although one or two privies may have been missed on the far western side of the stripped area, where the project backdirt was stockpiled.

Previous archaeological excavations in downtown Tucson have located more than 90 privy pits on residential blocks. Almost all of them date to after 1880, extending into the 1920s to early 1930s in some cases (Gray and Swope 2010).

The lack of earlier privies, predating the 1880s, is puzzling. No evidence for Spanish or Mexican period privies has been located inside the Tucson Presidio. Human waste was probably thrown into the street, over the Presidio wall, into nearby *acequias*, or onto nearby agricultural fields. In any case, none of the small number of Presidio-era pits excavated to date were obviously used as receptacles for human waste.

This trend may have continued into the early American Territorial period. Issues of Territorial-era Arizona newspapers are available online, in keyword searchable format, on the Library of Congress's Chronicling America website (chroniclingamerica.loc.gov). The *Arizona Citizen* and the *Weekly Arizona Citizen* between 1870 and 1896 were searched for the words privy or privies, water closets, and cesspools. Early Tucson ordinances were also examined to understand the sanitary concerns of local politicians.

The first mention of a privy occurs in 1873, located in the Pima County jail yard (*Arizona Citizen* 1873a). At that time, there was a concern that the structure could be used by prisoners to escape over the wall of the jail courtyard, and in September, four prisoners did just that (*Arizona Citizen* 1873b). A report completed in 1875 noted the "stench of privies, the air is rendered very impure, and the condition of the village necessarily very unhealthy" (*Arizona Citizen* 1875f:1).

It appears that some households did not have privies in the late 1870s. The Common Council of Tucson enacted an ordinance in March 1877, requiring all residences to construct "a privy with a door and proper ventilation, having a vault with escapement chimney from the same" (*Arizona Citizen* 1877b:2). Homes or businesses without a privy could be fined $100 (this would be the equivalent of about $2,200 in 2013 dollars). In October 1878, a committee inspected the county facilities and recommended a water closet be constructed in the jail yard (*Arizona Citizen* 1878).

The men inspecting the county facilities recommended that two additional water closets be placed inside the jail (*Arizona Weekly Citizen* 1883d). The City Jail had a "patent water closet and wash sink for the use of the prisoners" in 1883 (*Arizona Weekly Citizen* 1883c:4). Another patent water closet was installed in the new Pearson business block in 1884 (*Arizona Weekly Citizen* 1884a). The County Jail had flushing water closets by September 1886, when a drought caused the tank on top of the courthouse to run dry and 100 buckets of water had to be carried to use for the prisoners' water closet (*Arizona Weekly Citizen* 1886).

In 1889, Dr. Hollowbush was the city health officer for Tucson. He heard many complaints about neglected privies. "He has had a number of vaults filled up recently. Without sewerage it is a hard matter to keep a large city like Tucson clean and healthful" (*Arizona Weekly Citizen* 1889g:3). In March 1890, residents complained about the Palace Hotel's cesspool, which was located in the middle of Main Street, as well as the stench of the nearby Chinese laundries (*Arizona Weekly Citizen* 1890j). As a result, in April 1890, the City Marshall was told to be more vigilant about abating nuisances related to filthy yards and privies. The Palace Hotel began construction of a new cesspool (*Arizona Weekly Citizen* 1890c). However the hotel's cesspool continued to be a problem, and residents were concerned that disease could be spread by the waste overflowing from it into the street (*Arizona Weekly Citizen* 1890b).

Fears of a cholera epidemic led the *Citizen* to publish disinfection guidelines for privies, suggesting that bleach of dry chloride of lime should be sprinkled onto their contents (*Arizona Weekly Citizen* 1892d). The cesspool in the courthouse lawn caved in again in March 1895 (*Arizona Weekly Citizen* 1895k). The following week, the opening was covered over using railroad iron and planking (*Arizona Weekly Citizen* 1895q). Concerns about contagious and infectious diseases led to the passage of Ordinance No. 119 in December 1898, requiring permits from the city health officer before cesspools were dug (Hardy 1910:177). By November 1901, ordinances were enacted to prevent the construction of new privies and cesspools in areas served by the new sewer system (Hardy 1910:204-220).

The privies located by archaeologists are found in the backyards of residential or commercial lots. A single lot may have anywhere from one to five privy pits. The earliest privy pits are often located close to the back of the house. Water wells were sometimes close by. In the case of Block 91, the earliest privies are located within 20 feet of a water well. Through time, privies were located further to the back of house lots, perhaps as a greater understanding of hygiene and disease developed in the late nineteenth century.

Although more than 90 privy pits have been excavated, only 58 have been excavated to their bases, which ranged from 6 inches to 23 feet in depth, with a median depth of 5.9 feet and an average depth of 6.5 feet. Some of the deeper privy pits may have originated as wells, and after piped water became available, the well shafts were converted for use as privies.

Piped water became available on the block fairly early. The Tucson Water Company began operations in September 1882, and a water main was installed along 11th Street (later Broadway Boulevard) between 1883 and 1886. The exact date when indoor plumbing was installed in the duplexes along the street is not known. It is apparent, however, that privies continued to be used on the block into the early 1900s. Existing houses were likely initially plumbed for water in their kitchens, with construction of interior bathrooms occurring later. Problems with cesspools, water closets, and privies continued into the twentieth century. The Common Council enacted Ordinance No. 211 in January 1906, requiring these be kept in a healthy condition through the use of disinfectants or other means. The Health Officer for Tucson could notify people if he detected offenses, and a $50 fine could be imposed if they were not corrected (Hardy 1910:259-260).

Throughout downtown, including on Block 91, privy and well shafts are found filled with refuse, mostly dating between 1885 and 1920. Why was this the case? The City of Tucson did not institute trash collection until the 1910s (Diehl et al. 1997). Prior to that, residents were required to maintain their house lots free from trash. A city ordinance authorized dumping refuse into an arroyo south of the downtown area. Privy excavations reveal that much trash was dumped down these shafts, probably after their initial use as a bathroom ended.

Two other types of features are often found in Tucson that contain a large amount of trash. Soil mining pits have been located on Blocks 175 and 180, as well as the León farmstead, located west of the downtown area (Ciolek-Torrello and Swanson 1997; Thiel 2005; Thiel and Virdin-Lange 2014). These pits were dug to obtain material for adobe bricks and were subsequently used as trash dumps. Block 91 did not contain soil mining pits, and the adobe bricks used in construction of the two duplexes were likely manufactured nearby.

Sheet middens, layers of trash discarded onto the ground surface, sometimes in shallow depressions, are also occasionally located, especially in areas occupied during the earlier Spanish and Mexican periods (Thiel and Mabry 2006). Two small sheet middens were found on Block 91, containing household refuse that probably dated to the 1890s to early 1900s. Tucson newspapers frequently complained about trash accumulating on city lots. In response, the city Health Officer occasionally visited homes and required the lots to be cleaned up.

The trends in hygiene noted on the block—the short-lived trash middens filling in low spots, the movement and enlargement of privy pits from close to the house toward the backyard, and the abandonment of wells once city water became available—are typical of the downtown area.

ETHNIC AND SOCIOECONOMIC FACTORS INFLUENCING DIET IN HISTORIC TUCSON

Food remains recovered from the privy pits on Block 91 contained artifacts, plant remains, and animal bone that inform about the diet of the residents and S. P. Dining Room restaurant patrons. Documentary research revealed that the residents of Block 91 were middle class, working as skilled laborers, railroad workers, and in white collar occupations. All of these households were Euro-American, many with roots in the southern United States.

The patrons of the S. P. Dining Room are anonymous; no documentary sources list who dined at the restaurant. They could represent a cross section of Tucson residents, visitors, and travelers on the nearby railroad. Contemporary newspaper articles and court records suggest there was no formal segregation by race in terms of customers prior to 1912 (segregation is known to have taken place after Statehood was achieved in 1912). The restaurant was managed by a Chinese man, and the employees were likely primarily Chinese. These individuals may have also contributed refuse to the Feature 190 privy pit.

What did people eat in Tucson at the transition from the nineteenth to twentieth century? Previous research in documentary sources, primarily newspapers, as well as in evidence collected from archaeological excavations, suggests a great variety of foodstuffs was available. In the Presidio days, the majority of food was raised on the Santa Cruz River floodplain, and included wheat, corn, chili peppers, garbanzo beans, and squash. Orchards of peaches, quince, figs, and pomegranates were present in the

area. A few foodstuffs were imported, including spices and chocolate (Thiel 2008).

After the Americans moved into the area, a greater variety of foods became available, as freighting businesses carried goods overland. However, these canned and bottled foodstuffs were quite expensive due to freighting costs. By July 1879, bananas, pineapples, coconuts, and citrus fruit were being shipped overland into Tucson (*Arizona Citizen* 1879b).

The arrival of the railroad dramatically reduced freighting costs and allowed fresh foods (fruits, vegetables, and seafood) to be carried to Tucson in refrigerated boxcars from the west coast of the United States. At the same time, Chinese gardeners and Mexican farmers were growing a greater variety of produce on the Santa Cruz floodplain, including watermelons, strawberries, carrots, squash, chile peppers, sweet corn, and garlic (Thiel 2005). Overland freighting continued, with citrus fruits grown near Hermosillo, Sonora, and carried north in wagons.

What did the residents of Block 91 eat? Glass and metal food and beverage containers were recovered from most of the eight privy pits. Faunal bone was analyzed for four of the pits, allowing meat sources to be identified. Small quantities of marine shell from the Pacific Ocean were found in most of the privies. Flotation samples were processed from all eight features, and charred and uncharred plant materials were recovered.

Altogether, these sources provide some information regarding differences in diet among the households. All the households consumed large quantities of canned goods. Unfortunately, tin cans survive poorly once buried in downtown Tucson. It was impossible to determine their contents, either through labels, embossed names, or even the size and shape of the cans.

The Millar family deposited trash into Feature 112. The only food container recovered was a ceramic marmalade jar. Seven raspberry seeds were also found. These few items provide little information about the diet of this undertaker's household.

Feature 130 was filled with garbage tossed out by the Burkhalter family between 1891 and 1900. No food bottles were recovered. A small number of alcoholic beverage bottles were present, suggesting the Burkhalters occasionally enjoyed a drink. Three flotation samples were examined, yielding 284 raspberry seeds, likely originating from jam or preserves.

Faunal bone from the privy revealed that the Burkhalters occasionally enjoyed pigs' feet, purchased chickens instead of raising them, and participated in the hunting of wild game. The jackrabbits and quail recovered could be found on the outskirts of town. Chicken was the most common meat eaten, followed by beef, sheep/goat, and then pork. Two-thirds of the identified beef cuts came from high quality portions of the carcass, and only 9 percent came from the lowest quality portions, suggesting the family could afford more expensive meats than many of their contemporaries in Tucson.

Four oyster shells were also recovered. Oysters, both fresh and canned, were a high status food in Tucson in the late nineteenth century. The railroad arrival allowed oysters to be imported in barrels of ice and sea water from the Pacific Coast.

Feature 158 yielded trash from the Clancy family, dating to between 1900 and 1905. Canning jars were recovered. Two flotation samples were analyzed. A piece of citrus peel, 20 fig seeds, a grape seed, and 695 raspberry seeds were discovered. The orange, fig, and grape were probably fresh fruit, while the raspberry seeds almost certainly came from jam or preserves. A rice grain and a wheat grain were also present. One oyster and one scallop shell were recovered from this feature.

Feature 169 could not be linked to a specific household. One flotation sample was analyzed, providing five fig seeds and 127 grape seeds.

Feature 170 contained trash discarded by the Coleman family between 1891 and 1905. A Mellin's baby food bottle indicates an infant or child was present at the house. Other food bottles included catsup, mustard, peppersauce, olive oil, a Heinz Chow-Chow bottle, bottled fruit, and flavoring extracts.

One flotation sample was analyzed, yielding 2 bell or chile pepper seeds, 16 fig seeds, 480 raspberry seeds, and 2 tomato seeds. The presence of pepper and tomato seeds is intriguing, as these are very rarely identified among historic flotation samples in Tucson.

Faunal bone included two species of marine fish, chicken, turkey, cattle, sheep/goat, and pig. Chickens were raised by the family, as shown by the presence of a chick, juveniles, and adult female birds. Remains from at least 10 doves were present, suggesting the family may also have been raising this type of bird. Most of the beef cuts were high quality. Two littleneck clams, a scallop, and an oyster were recovered from the pit, suggesting the family enjoyed luxury foodstuffs. The overall diversity in food is higher than in the other households, which mirrors the higher quality ceramics used by the family.

Feature 171 was used by the Reel family between 1901 and 1905. Food bottles found included salad dressing, Lea & Perrins Worcestershire sauce, peppersauce, catsup, olive oil, raspberry preserves, and canned fruit. A Hires Root Beer bottle indicates residents consumed soft drinks. Canning jars were found in the pit.

One flotation sample was examined. It contained 111 fig seeds, 731 raspberry seeds, and a maize cupule. Seven oyster shells were present.

Feature 183 yielded refuse from the unidentified residents of the house at 87 S. Herbert Avenue. Canning jars were present in this privy. Ten fig seeds and 10 raspberry seeds were identified in the analyzed flotation sample.

Faunal bone present included cattle, chicken, pig, and sheep/goat. Chickens were raised in the backyard, as seen by the presence of a chick and juveniles. The beef cuts were mostly high quality (66 percent), with only 9 percent low quality, almost identical to the percentages seen for the Burkhalter family. The mutton cuts from this household were primarily medium quality. Only one oyster shell was recovered, suggesting this type of seafood was not regularly consumed by people living in the duplex.

Feature 190 contained trash discarded by workers at the S. P. Dining Room restaurant between 1901 and 1910. Two flotation samples were analyzed, but yielded only three raspberry seeds, somewhat surprising given the large amount of charcoal present in the feature.

Faunal bone present included a possible sea perch or snapper, a large duck, quail, pigeon, and dove. The restaurant appears to have been purchasing some wild game, which was widely available at local butcher shops. The restaurant was managed by a Chinese immigrant, Lim Goon, and previous Chinese households have been shown to have utilized a wide variety of meats, including species not typically eaten by their Tucson contemporaries (Diehl et al. 1997). Beef and chicken appear to be the most common meats served, followed by pig and sheep/goat. More medium quality beef cuts (47 percent) were present than high quality cuts (43 percent). The same division is seen in the pork cuts, while a larger percentage of high quality mutton cuts were present, perhaps suggesting diners ordered better cuts while dining out. Only one oyster shell was recovered, and shellfish does not appear to have been on the menu of the restaurant.

The containers, faunal bone, shell, and plant remains recovered from the eight privy structures suggests residents of the block and customers of the S. P. Dining Room had access to a wide variety of fresh and packaged foods and beverages. Local butchers and gardeners provided Tucson with meat, vegetables, and fruit. Some grain was also grown. Large amounts of foodstuffs were brought into the community from canning factories, breweries, and distributors located on the United States east coast. Produce and seafood was also arriving from the western United States.

The middle class Euro-American residents of Block 91 were eating better quality meats than some of their contemporaries, including higher quality beef. Some households continued to raise chickens for eggs and meat. Luxury items, like Pacific fish and oysters, were occasionally consumed. Some consumption of wild game suggests either recreational hunting or the purchase of game at local butcher shops. Raspberry seeds were the most common plant material identified from the flotation samples, and previous research has indicated that people of European origin were most likely to be eating raspberries in Tucson.

RECOMMENDATIONS

Archaeological data recovery was conducted on the eastern half of Block 91 in 2011. The project area lay in the heart of downtown, hidden beneath the Greyhound terminal and an asphalt-paved parking lot. Modern buildings, parking lots, streets, and lawns often cover and preserve archaeological features in downtown Tucson. Relatively few buildings have basements, and even in situations where a basement is present, surrounding areas are likely to contain well-preserved prehistoric and historic period archaeological resources.

Following the completion of the project, it was recommended that construction take place and subsequently a residential and commercial high rise was completed. It is recommended that archaeological projects take place in similar downtown blocks, as redevelopment takes place and the number of places with preserved archaeological resources is diminished.

The artifacts, food remains, field notes and maps, and digital photographs generated by the archaeological project are available at the Arizona State Museum as Accession Number 2009-699.

APPENDIX A

HISTORIC ARTIFACT DATA FROM BLOCK 91, AZ BB:18:820 (ASM)

J. Homer Thiel
Desert Archaeology, Inc.

Table A.1. Minimum number of artifacts, by functional category, for each feature on the eastern half of Block 91, AZ BB:13:820 (ASM).

	Feature																																				
Function	104	105	106	107	108	112	118	130	135	138	139	140	145	146	147	153	155	158	160	162	165	168	169	170	171	172	174	178	183	185	188	189	190	197	201	Total
Food preparation	1	–	–	–	–	–	–	–	1	–	–	–	–	–	–	1	–	6	–	–	6	1	16	3	–	–	1	–	–	–	–	–	–	–	–	36
Food service	57	29	–	1	1	3	4	143	8	6	13	39	3	3	7	10	1	257	–	139	121	73	70	385	219	4	28	54	156	2	–	6	348	9	13	2,212
Food storage	–	–	7	1	–	1	–	3	–	–	–	–	–	–	–	–	–	34	–	1	–	–	10	141	69	–	–	–	27	–	–	–	12	–	1	307
Alcoholic beverage	10	1	–	–	–	1	–	8	–	7	–	–	–	–	–	–	–	15	–	–	2	–	1	189	216	–	1	–	17	–	–	–	2	–	7	477
Beverage	30	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	17	–	–	–	–	30	5	14	–	2	1	12	–	–	–	–	–	–	111
Unidentified bottle glass	26	10	8	–	4	2	–	39	–	–	–	–	–	–	–	–	–	346	1	–	86	1	117	1,124	650	2	21	36	210	–	–	3	143	7	12	2,848
Architectural	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4	–	–	3	–	1	1	3	–	–	–	–	–	–	–	–	–	–	12
Window glass	–	–	1	–	–	4	–	47	–	6	–	–	–	–	–	–	–	179	–	–	12	–	61	166	203	–	7	–	15	–	–	1	87	–	–	789
Nails	11	23	19	–	4	54	–	437	35	24	1	–	30	2	–	3	–	295	–	105	–	122	61	191	31	–	3	–	5	–	11	38	132	–	4	1,641
Construction hardware	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	1	–	–	–	–	2	–	–	–	–	–	–	–	–	4
Door parts (locks, knobs, hinges)	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	1	–	1	–	1	1	2	–	–	1	–	–	–	–	–	–	–	–	8
Construction materials	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	1	–	–	–	2	–	–	1	–	–	–	–	2	–	–	7
Electrical-related	–	–	–	3	1	–	–	–	–	–	–	–	–	–	–	–	–	15	–	–	4	–	–	4	–	–	2	–	1	–	–	–	2	–	–	32
Water-related	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	17	–	–	1	–	2	2	9	–	–	–	–	–	–	–	2	–	–	33
Furniture	–	–	–	–	–	60	–	–	–	–	–	–	–	–	–	–	–	4	–	–	6	1	1	23	54	–	–	–	–	–	–	–	3	–	–	152
Hardware	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	10	–	2	4	1	1	4	8	–	–	–	2	–	–	–	–	–	2	35
Lighting	–	–	–	–	–	–	–	75	–	–	–	–	–	–	–	–	–	14	–	–	–	–	1	115	155	–	–	1	1	–	–	–	5	2	–	369
Arms	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	1
Ammunition	–	–	–	–	–	–	–	5	–	–	–	–	–	–	–	–	–	1	–	–	1	–	2	–	23	–	–	–	–	–	–	–	3	–	–	35
Apparel	1	1	–	–	–	19	–	27	1	1	–	6	–	–	1	–	–	115	–	6	8	2	77	259	192	1	1	6	10	–	–	–	8	4	–	746
Accessories	–	–	–	–	–	1	–	13	–	–	–	–	–	–	–	–	–	11	–	–	–	1	–	6	5	–	–	–	3	–	–	–	–	–	–	40
Making/repair/maintenance	–	–	–	–	–	3	–	5	–	–	–	–	–	–	1	–	–	3	–	–	–	1	2	8	6	–	–	–	1	–	–	–	–	–	–	30
Personal	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	2	6	–	–	–	–	–	–	–	–	–	–	9
Coins/tokens	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	4	4	1	–	–	1	–	–	–	–	–	–	–	11
Keys and locks	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Hygiene	1	–	–	–	–	15	–	11	–	1	–	7	–	–	–	–	–	33	–	6	5	4	1	212	86	–	48	–	8	1	–	–	1	–	–	440
Tobacco/smoking	–	1	–	–	–	–	–	2	–	–	–	–	–	–	–	–	–	8	–	1	–	–	2	5	2	–	–	–	–	–	–	–	–	–	–	21
Religious	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	30	–	–	–	–	–	–	–	–	–	–	30
Medicine	–	–	4	–	–	1	–	5	–	1	28	–	–	–	–	–	–	39	–	–	1	–	2	72	42	–	3	–	5	–	–	–	–	–	–	203
Activities	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	7	–	–	2	–	3	2	9	–	–	–	4	–	–	–	–	–	–	29
Tools	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	2	4	–	1	–	–	–	–	–	1	–	–	9
Toys	1	3	–	–	–	5	–	12	2	–	2	–	–	1	2	–	–	62	–	4	13	1	1	60	46	–	–	3	7	1	–	–	19	2	–	247
Miscellaneous hardware	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	14	–	–	–	–	1	8	24	–	–	–	–	–	–	–	27	–	–	75
Communication (printing, written materials)	1	–	–	–	–	5	–	5	1	–	3	9	–	–	–	3	1	22	–	1	1	–	4	37	46	–	–	–	–	–	–	–	2	–	–	141
Flower pots/gardening	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3	–	22	–	–	–	–	7	23	32	–	–	–	–	–	–	–	–	–	–	87
Paint	–	–	–	–	–	–	–	5	–	–	–	4	–	–	–	–	–	1	1	–	–	–	–	19	11	–	–	–	–	–	–	–	–	–	–	41
Nuts, bolts, and washers	–	1	–	–	1	1	–	1	–	–	–	–	–	–	–	–	–	18	–	1	1	1	5	11	12	–	1	2	3	–	–	–	1	–	1	61
Screws	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3	–	–	–	–	2	–	–	–	–	–	–	–	–	–	–	5
Transportation	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	7	–	–	–	–	–	–	–	–	–	–	8
Stable items	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	2	–	1	1	–	–	3	1	–	1	–	–	–	–	–	–	–	–	10
Automotive/mechanical	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5	–	–	–	–	–	–	4	–	–	5	–	–	–	–	1	–	–	15
Unidentified items	36	22	–	–	31	392	–	311	7	66	57	203	9	2	–	26	3	1,288	–	154	25	63	406	713	385	2	26	15	43	–	–	6	163	7	28	4,489
Total	175	92	40	5	42	568	4	1,154	57	112	105	268	42	8	11	46	5	2,870	2	425	306	274	890	3,801	2,610	9	149	125	530	4	11	54	964	31	68	15,857

REFERENCES CITED

Abbott, R. Tucker
1974 *American Seashells: The Marine Mollusca of the Atlantic and Pacific Coasts of North America*. 2nd ed. Van Nostrand Reinhold Company, New York.

Albert, Lillian Smith, and Kathryn Kent
1949 *The Complete Button Book.* Doubleday, Garden City, New York.

Amorosi, Thomas
1989 *A Postcranial Guide to Domestic Neo-Natal and Juvenile Mammals: The Identification and Aging of Old World Species*. BAR International Series No. 533. Oxford, England.

Arizona Citizen
1871 Advertisement for Bickers and Alling store. 11 February, p. 2. Tucson.

1873a Abstracts of the late Grand Jury's reports upon county matters. 22 March, p. 3. Tucson.

1873b Note about escape. 6 September, p. 3. Tucson.

1874 Note about studio. 7 November, p. 3. Tucson.

1875a Advertisement for Buehman's studio. 17 October, p. 2. Tucson.

1875b Note about Buehman studio. 7 August, p. 3. Tucson.

1875c Note about collecting. 5 June, p. 3. Tucson.

1875d Note about photography trip. 18 December, p. 3. Tucson.

1875e Note about purchase of studio. 20 February, p. 3. Tucson.

1875f Territorial Grand Jury proceedings. 13 March, p. 1. Tucson.

1876a Article about Papago women selling ollas in Tucson. 20 May, p. 3. Tucson.

1876b Note about photographing San Xavier, 29 April, p. 3. Tucson.

1876c Note about return to Tucson. 19 February, p. 3. Tucson.

1876d Note about trip to Mexico. 23 September, p. 3. Tucson.

1877a Article about stereoscopes. 30 November, p. 3. Tucson.

1877b Ordinance No. 6. 10 March, p. 2. Tucson.

1878 Report of Grand Jury committee. 26 October, p. 3. Tucson.

1879a Article about Silver King. 6 June, p. 3. Tucson.

1879b Note about tropical fruit. 11 July, p. 3. Tucson.

1880 Advertisement for M. E. Clark's ice factory. 3 January, p. 4. Tucson.

Arizona Daily Citizen
1886 Note about birth of son. 29 March, p. 4. Tucson.

1889a Advertisement for California Fig Syrup. 1 October, p. 4. Tucson.

1889b Advertisement for Hood's Sarsaparilla. 30 November, p. 4. Tucson.

1889c Advertisements for Scott's Emulsion and Fred Fleishman's drugstore . 17 October, p. 2. Tucson.

1890a Henry Buehman. 1 January, p. 12. Tucson.

1890b Local news. 26 April, p. 4. Tucson.

1890c Religious services. 26 April, p. 4. Tucson.

1900a Advertisement for Boschee's German Syrup. 1 May, p. 4. Tucson.

1900b Advertisement for George Cook jeweler. 26 May, p. 4. Tucson.

1900c Advertisement for J. E. Geiger & Sons. 24 April, p. 4. Tucson.

Arizona Daily Citizen

1900d For middle-aged women. 19 May, p. 3. Tucson.

1900e Geiger and his men perish in a cess pool. 21 September, p. 1. Tucson.

1900f Note about Mrs. Buehman. 26 July, p. 2. Tucson.

1900g Mr. Buehman visits Pearce Camp. 29 October, p. 1. Tucson.

1901a Advertisement for Pond's Extract. 3 December, p. 2. Tucson.

1901b Burkhalter's promotion headquarters Tucson. 30 August, p. 1. Tucson.

1901c Connell resigns Buehman appointed. 8 August, p. 1. Tucson.

1901d The first sewer work done. 15 January, p. 4. Tucson.

1901e Preparations for the circus. 8 January, p. 1. Tucson.

Arizona Daily Star

1914 Pioneer Tucsonan dies on birthday. 7 February, p. 8. Tucson.

1920 Mortuary. Mrs. Nellie Coleman. 17 August, p. 3. Tucson.

1943 William Coleman is dead, aged 84. 6 February, p. 3. Tucson.

Arizona Miner

1866 Advertisement for Grover & Baker sewing machine. 25 July, p. 1. Prescott.

Arizona Republican

1905a Advertisement for Paine's Celery Compound. 13 March, p. 3. Phoenix.

1905b Advertisement for Scott's Emulsion. 22 March, p. 5. Phoenix.

1905c Advertisement for Warner's Safe Cure. 11 January, p. 3. Phoenix.

1907 Advertisement for Lydia Pinkham's Vegetable Compound. 11 June, p. 8. Phoenix.

1909 Advertisement for Ely's Cream Balm. 11 November, p. 10. Phoenix.

1911 Advertisement for Pond's Extract. 17 January, p. 6. Phoenix.

Arizona Sentinel

1873 Advertisement for Mrs. M. J. Smith's store. 21 June, p. 5, Yuma.

1886 Advertisement for Hood's Sarsaparilla. 20 February, p. 4. Yuma.

Arizona Weekly Citizen

1881a Article about Buehman's collection. 30 October, p. 4. Tucson.

1881b F. & A. M. 6 November, p. 4. Tucson.

1881c Hand and heart. 20 February, p. 1. Tucson.

1881d Soiree of the Myrtle Club. 4 December, p. 3. Tucson.

1882a A.O.U.W. 31 December, p. 3. Tucson.

1882b Note about A.O.U.W. lodge. 24 September, p. 3. Tucson.

1882c Republican county convention. 24 September, p. 4. Tucson.

1882d Unmatched in Arizona. 24 December, p. 4. Tucson.

1883a The Best picture. 18 February, p. 3. Tucson.

1883b Born. 22 September, p. 3. Tucson.

1883c The City Hall. 4 August 1883, p. 4. Tucson.

1883d Grand Jury. 2 June, p. 3. Tucson.

1883e Tucson's trade. 24 November, p. 3. Tucson.

1884a The Pearson block. 15 March, p. 4. Tucson.

1884b A terrible fail. 27 December, p. 4. Tucson.

1886 Grand Jury report. 11 September, p. 3. Tucson.

1887a Installed. 8 January, p. 4. Tucson.

1887b Note about Burkhalter as agent. 3 September, p. 3. Tucson.

1887c Note about Buehman photographing Casa Grande. 3 September, p. 3. Tucson.

Arizona Weekly Citizen

1888a Note about Buehman family. 21 July, p. 4. Tucson.

1888b Note about Buehman's trip to California. 1 September, p. 3. Tucson.

1888c Sunday school anniversary. 8 December, p. 2. Tucson.

1889a Article about Hartwell. 8 June, p. 3. Tucson.

1889b The Butte reservoir. 24 August, p. 3. Tucson.

1889c A father's word. 12 October, p. 3. Tucson.

1889d Local news. 27 July, p. 1. Tucson.

1889e Local news. 28 September, p. 4. Tucson.

1889f Local news. 5 October 1889, p. 3. Tucson.

1889g Note about privies. 20 July, p. 3. Tucson.

1889h Note about school punishment. 12 October, p. 2. Tucson.

1889i School trustees. 13 July, p. 1. Tucson.

1889j School trustees. 12 October, p. 3. Tucson.

1889k Syrup of Figs. 4 May, p. 2. Tucson.

1890a Advertisement for Chamberlain's Cough Remedy. 18 January, p. 1. Tucson.

1890b Article about Palace Hotel cesspool. 17 May, p. 1. Tucson.

1890c City Council. 12 April, p. 3. Tucson.

1890d Democratic primaries. 23 August, p. 4. Tucson.

1890e Enjoyable occasion. 27 December, p. 4. Tucson.

1890f Local news. 12 April, p. 4. Tucson.

1890g Local news. 14 June, p. 3. Tucson.

1890h Local news. 27 September 1890, p. 3. Tucson.

1890i Note about Buehman photograph. 30 August, p. 3. Tucson.

1890j Note about smells. 29 March, p. 4. Tucson.

1890k Useful and ornamental. 1 February, p. 4. Tucson.

1891a Board of supervisors. 11 April, p. 3. Tucson.

1891b County notes. 28 March 1891, p. 4. Tucson.

1891c Funeral services. 3 October, p. 3. Tucson.

1891d Local news. 16 May, p. 3. Tucson.

1891e Local news. 30 May, p. 4. Tucson.

1891f Pima County. 15 August, p. 3. Tucson.

1891g Social notes. 11 April, p. 4. Tucson.

1891h Tucson Lodge No. 4, F. & A.M. 3 January, p. 4. Tucson.

1891i The University party. 27 June, p. 3. Tucson.

1892a Articles of incorporation of the Electric Light and Power Company. 19 November, p. 1. Tucson.

1892b Building and loan business. 9 January, p. 3. Tucson.

1892c The Democratic city ticket. 3 December, p. 3. Tucson.

1892d How to disinfect. 18 September, p. 3. Tucson.

1892e Local news. 30 July, p. 4. Tucson.

1892f Note about Democrats. 23 July, p. 4. Tucson.

1892g Note about Jennie Burkhalter. 8 October, p. 3. Tucson.

1892h Note about piano. 17 December, p. 3. Tucson.

1892i Our people abroad. 30 July, p. 3. Tucson.

1893a Advertisement for Ayer's Cherry Pectoral. 1 July, p. 1. Tucson.

Arizona Weekly Citizen

1893b Advertisement for Tucson Conservatory. 7 January, p. 3, Tucson.

1893c Dedication ceremonies. 8 April, p. 3. Tucson.

1893d Driving park profits. 14 October, p. 3. Tucson.

1893e New city council. 7 January, p. 3. Tucson.

1893f On a cash basis. 22 July, p. 1. Tucson.

1893g Personals. 10 June, p. 3. Tucson.

1893h Tucson Building and Loan Association. 14 January, p. 3. Tucson.

1894a Her eleventh mile post. 27 October, p. 3. Tucson.

1894b An even break. 15 December, p. 1. Tucson.

1894c Local news. 29 September, p. 4. Tucson.

1894d Marriage of Chas. R. Osgood and Miss Ida Sanders. 25 August, p. 3. Tucson.

1894e Note about Mrs. Burkhalter. 28 July, p. 3. Tucson.

1894f Personals. 15 December, p. 4. Tucson.

1894g Philharmonics Anniversary. 10 November, p. 2. Tucson.

1894h The Ticket. 15 September, p. 1. Tucson.

1894i W.U.B.A. 1 December, p. 3. Tucson.

1895a Article about Guild event. 9 February, p. 3. Tucson.

1895b Article about photographing land grant documents. 13 April, p. 4. Tucson.

1895c Fourth of July. 29 June, p. 3. Tucson.

1895d Local news. 2 February, p. 4. Tucson.

1895e Local news. 1 June, p. 3. Tucson.

1895f Local news. 5 October, p. 4. Tucson.

1895g Local news. 2 November, p. 3. Tucson.

1895h Local news. 14 December, p. 4. Tucson.

1895i A narrow escape from fire. 30 March, p. 4. Tucson.

1895j Note about Charles Burkhalter. 20 April, p. 4. Tucson.

1895k Note about courthouse cesspool. 16 March, p. 4. Tucson.

1895l Note about E. B. Waggy. 19 January, p. 3. Tucson.

1895m Note about Knights of Pythias. 16 March, p. 2. Tucson.

1895n Note about Millar being kicked. 9 November, p. 3. Tucson.

1895o Note about Mrs. Burkhalter. 2 March, p. 4. Tucson.

1895p Note about Pomeroy funeral. 15 June, p. 4. Tucson.

1895q Note about repaired courthouse cesspool. 23 March, p. 4. Tucson.

1895r To the citizens and property holders of Tucson. 9 February, p. 3. Tucson.

1896a The city election. 19 December, p. 3. Tucson.

1896b Congregational Church social. 29 February, p. 4. Tucson.

1896c The leap year party. 18 April, p. 3. Tucson.

1896d Local news. 5 September, p. 4. Tucson.

1896e Non-partisan citizens' ticket. 28 November, p. 3. Tucson.

1896f Note about Buehman's election. 21 November, p. 2. Tucson.

1896g Note about Grace Guild. 18 April, p. 4. Tucson.

1896h Note about Lucy Johnson. 25 April, p. 4. Tucson.

1896i Note about Millar. 3 October, p. 4. Tucson.

Arizona Weekly Citizen
1896j Note about Millar illness. 12 September, p. 4. Tucson.

1896k Note about Millar illness. 26 September, p. 4. Tucson.

1896l Note about Miss Johnson. 4 January, p. 3, Tucson.

1896m Note about Mrs. Burkhalter, 26 September, p. 4. Tucson.

1896n Note about Republican party. 17 October, p. 3. Tucson.

1896o Note about trip. 19 September, p. 3. Tucson.

1896p The Republicans met. 3 October, p. 1. Tucson.

1896q The Santa Ritas. 8 August, p. 1. Tucson.

1896r We've got em [Buehman for Supervisor]. 17 October, p. 4. Tucson.

Arizona Weekly Star
1882 Advertisement for Lydia Pinkham's Vegetable Compound. 13 July, p. 3. Tucson.

Arnold, Dean E.
1985 *Ceramic Theory and Cultural Process*. Cambridge University Press, Cambridge, England.

Azizi, Sharla C., Diane Dallal, Mallory A. Gordon, Meta F. Janowitz, Nadia N. S. Maczaj, and Marie-Lorraine Pipes
1996 *Analytical Coding System for Historic Period Artifacts*. Cultural Resource Group, Louis Berger and Associates, Inc., East Orange, New Jersey.

Barnes, Mark R.
1983 *Tucson: Development of a Community*. Ph.D. dissertation, Department of Anthropology, Catholic University of America, Washington, D.C. University Microfilms International, Ann Arbor, Michigan.

Barter, G. W.
1881 *Directory of the City of Tucson for the Year 1881*. H. S. Crocker & Co., Printers, San Francisco.

Beach, Frederick Converse
1904 *The Encyclopedia Americana,* vol. 4. The Americana Company, New York.

Berger, J. M.
1893 Report of Farmer, Papago Reservation. In *Sixty-Second Annual Report of the Commissioner of Indian Affairs to the Secretary of the Interior*, pp. 117-119. U.S. Government Printing Office, Washington D.C.

Boepple, John F.
1900 Story of Mr. Boepple (Letter to the Editor from Boepple). *Muscatine Journal,* 4 October:4.

Braithwaite, J. O.
1885 *Year-book of Pharmacy*. J. & A. Churchill, London, England.

Braun, David P.
1980 Experimental Interpretation of Ceramic Vessel Use on the Basis of Rim and Neck Formal Attributes. In *The Navajo Project: Archaeological Investigations, Page to Phoenix 500 KV Southwestern Transmission Line*, edited by D. Fiero, R. Munson, M. McClain, S. Wilson, and A. Zier, pp. 171-231. Research Papers No. 11. Museum of Northern Arizona, Flagstaff.

Brundage, Albert H.
1920 *A Manual of Toxicology*. Henry Harrison Co., New York.

Brusca, Richard C., Erin Kimrey and Wendy Moore (editors)
2004 *A Seashore Guide to the Northern Gulf of California*. Arizona-Sonora Desert Museum, Tucson.

Buehman, Estelle M.
1911 *Old Tucson: A Hop, Skip, and Jump History from 1539 Indian Settlement to New and Greater Tucson*. State Consolidated Publishing Company, Tucson.

Cameron, Judi L., Jennifer A. Waters, Barnet Pavao-Zuckerman, Vince M. LaMotta, and Peter D. Schulz
2006 Faunal Remains. In *Rio Nuevo Archaeology, 2000-2003: Investigations at the San Agustín Mission and Mission Gardens, Tucson Presidio, Tucson Pressed Brick Company, and Clearwater Site*, edited by J. H. Thiel and J. B. Mabry, pp. 13.1-13.59. Technical Report No. 2004-11. Desert Archaeology, Inc., Tucson.

Chapman, Paul W.
1943 *Chicken Raising Made Easy.* Macmillan Company, New York.

Charlotte Observer
1897 Advertisement for Resinol. 23 September, p. 8. Charlotte, North Carolina.

Ciolek-Torrello, Richard S., and Mark Swanson (editors)
1997 *Pit House, Presidio, and Privy: 1,400 Years of Archaeology and History on Block 180, City of Tucson, Arizona*. Technical Series No. 63. Statistical Research, Inc., Tucson.

Claassen, Cheryl
1994 Washboards, Pigtoes, and Muckets: Historic Musseling in the Mississippi Watershed. *Historical Archaeology* 28(2):1-145.

Coconino Sun
1899 Advertisement for Kodol Dyspepsia Cure. 25 March, p. 13. Flagstaff.

Coconino Weekly Sun
1893 Advertisement for Mother's Friend. 28 December, p. 4. Flagstaff.

Coker, Robert F.
1919 Fresh-water Mussels and Mussel Industries of the United States. *Bulletin of the U.S. Bureau of Fisheries for 1917-1918* 36(1):11-126.

Cooper, Evelyn S.
1995 *The Buehman Studios: Tucson in Focus.* Arizona Historical Society, Tucson.

Cordell, Linda
1997 *Archaeology of the Southwest*. 2nd ed. Academic Press, New York.

Cramp, Arthur J.
1921 *Nostrums and Quackery,* vol. II. American Medical Association, Chicago.

Daily Arizona Citizen
1882a The Buehman building. 25 August, p. 3. Tucson.

1882b A fine picture. 23 August, p. 3. Tucson.

1882c Note about Buehman engagement. 16 August, p. 3. Tucson

Daily Tombstone Epitaph
1882b A fine picture. 23 August, p. 3. Tucson.

1882c Note about Buehman engagement. 16 August, p. 3. Tucson.

1887 Advertisement for Warner's Safe Cure. 31 January, p. 3. Tombstone, Arizona.

Dart, Allen
1984 *Archaeological Site Significance Evaluations for Cienega Ventana Project*. Technical Report No. 84-8. Institute for American Research, Tucson.

1986 *Archaeological Investigations at La Paloma: Archaic and Hohokam Occupations at Three Sites in the Northeastern Tucson Basin, Arizona*. Anthropological Papers No. 4. Institute for American Research, Tucson.

Diehl, Allison C.
2005 *Cultural Resources Survey and Archaeological Monitoring Plan for the 4th Avenue Underpass Project, Tucson, Pima County, Arizona*. Project Report No. 05-164. Desert Archaeology, Inc., Tucson.

2009 *Archaeological Testing Plan for the Plaza Centro Project, Tucson, Pima County, Arizona.* Desert Archaeology, Tucson.

Diehl, Allison Cohen, Judi L. Cameron, Michael W. Diehl, James M. Heidke, and J. Homer Thiel
2003 *Archaeological Investigations at Blocks 139 and 159 in Barrio Libre, Tucson, Arizona*. Technical Report No. 2002-12. Desert Archaeology, Inc., Tucson.

Diehl, Allison Cohen, Timothy W. Jones, and J. Homer Thiel
1997 *Archaeological Investigations at El Dumpé, a Mid-Twentieth-Century Dump, and the Embankment Site, Tucson, Arizona*. Technical Report No. 96-19. Center for Desert Archaeology, Tucson.

Diehl, Michael W.
1997 *Archaeological Investigations of the Early Agricultural Period Settlement at the Base of A-Mountain, Tucson, Arizona*. Technical Report No. 96-21. Center for Desert Archaeology, Tucson.

Diehl, Michael W.
2009 Ethnicity, Wealth, Mercantiles, and Households: A Survey of American Territorial Period Macrobotanical Assemblages from Tucson, Arizona. In *Archaeological Investigations and Data Recovery at Historic Block 83, Tucson, Pima County, Arizona*, edited by J. H. Thiel, pp. 131-139. Technical Report No. 2006-11. Desert Archaeology, Inc., Tucson.

Diehl, Michael W., and Jennifer A. Waters
1997 Archaeobotanical and Osteofaunal Assessments of Diet Composition and Diversity. In *Archaeological Investigations of the Early Agricultural Period Settlement at the Base of AMountain, Tucson, Arizona*, by M. W. Diehl, pp. 53-71. Technical Report No. 96-21. Center for Desert Archaeology, Tucson.

Diehl, Michael W., Jennifer A. Waters, and J. Homer Thiel
1997 Food Remains from the Chinese and Mexican Features. In *Archaeological Investigations of a Chinese Gardener's Household, Tucson, Arizona (Revised)*, pp. 99-140. Technical Report No. 96-22. Center for Desert Archaeology, Tucson.

1998 Acculturation and the Composition of the Diet of Tucson's Overseas Chinese Gardeners at the Turn of the Century. *Historical Archaeology* 32(4):19-33.

Dobyns, Henry F.
1972 *The Papago People*. Indian Tribal Series, Phoenix.

1976 *Spanish Colonial Tucson: A Demographic History*. University of Arizona Press, Tucson.

Doelle, William H.
1983 Artifacts of Local Manufacture. In *Archaeological and Historical Investigations at Nolic, Papago Indian Reservation, Arizona*, by W. H. Doelle, pp. 79-100. Anthropological Papers No. 2. Institute for American Research, Tucson.

1985 The Southern Tucson Basin: Rillito-Rincon Subsistence, Settlement, and Community Structure. In *Proceedings of the 1983 Hohokam Symposium*, edited by A. E. Dittert, Jr., and D. E. Dove, pp. 183-198. Occasional Paper No. 2. Arizona Archaeological Society, Phoenix.

Doelle, William H., and Henry D. Wallace
1986 *Hohokam Settlement Patterns in the San Xavier Project Area, Southern Tucson Basin*. Technical Report No. 846. Institute for American Research, Tucson.

1990 The Transition to History in Pimería Alta. In *Perspectives on Southwestern Prehistory*, edited by P. E. Minnis and C. L. Redman, pp. 239-257. Westview Press, Boulder, Colorado.

1991 The Changing Role of the Tucson Basin in the Hohokam Regional System. In *Exploring the Hohokam: Prehistoric Desert Peoples of the American Southwest*, edited by G. J. Gumerman, pp. 279-345. University of New Mexico Press, Albuquerque.

Doelle, William H., David A. Gregory, and Henry D. Wallace
1995 Classic Period Platform Mound Systems in Southern Arizona. In *The Roosevelt Community Development Study: New Perspectives on Tonto Basin Prehistory*, edited by M. D. Elson, M. T. Stark, and D. A. Gregory, pp. 385-440. Anthropological Papers No. 15. Center for Desert Archaeology, Tucson.

Douglas, John E., and Douglas B. Craig
1986 *Investigations of Archaic and Hohokam Sites on the Flying V Ranch, Tucson, Arizona*. Anthropology Series, Archaeological Report No. 13. Pima Community College, Tucson.

Doyel, David E.
1991 Hohokam Cultural Evolution in the Phoenix Basin. In *Exploring the Hohokam: Prehistoric Desert Peoples of the American Southwest*, edited by G. J. Gumerman, pp. 231-278. University of New Mexico Press, Albuquerque.

Druggist Circular
1910 In North Dakota. Volume 54:195-196.

Elson, Mark D.
1998 *Expanding the View of Hohokam Platform Mounds: An Ethnographic Perspective*. Anthropological Papers No. 63. University of Arizona Press, Tucson.

Elson, Mark, and William H. Doelle
1987 *Archaeological Assessment of the Mission Road Extension: Testing at AZ BB:13:6 (ASM)*. Technical Report No. 87-6. Institute for American Research, Tucson.

The Epicure
1904 Advertisement for Mellins Food. Volume 10(127).

Ezzo, Joseph A., and William L. Deaver
1998 *Watering the Desert: Late Archaic Farming at the CostelloKing Site*. Technical Series 68. Statistical Research, Inc., Tucson.

Fish, Suzanne K., Paul R. Fish, and John H. Madsen (editors)
1992 *The Marana Community in the Hohokam World*. Anthropological Papers No. 56. University of Arizona Press, Tucson.

Fontana, Bernard L., William J. Robinson, Charles W. Cormack, and Ernest E. Leavitt, Jr.
1962 *Papago Indian Pottery*. University of Washington Press, Seattle.

Freeman, Andrea K. L. (editor)
1998 *Archaeological Investigations at the Wetlands Site, AZ AA:12:90 (ASM)*. Technical Report No. 97-5. Center for Desert Archaeology, Tucson.

Gabel, Norman E.
1931 Martinez Hill Ruins: An Example of Prehistoric Culture of the Middle Gila. Unpublished Master's thesis, Department of Anthropology, University of Arizona, Tucson.

Getty, Robert
1975 General Osteology. In *Sisson and Grossman's The Anatomy of the Domestic Animals*, by R. Getty, pp. 19-33. 5th ed. W. B. Saunders Company, Philadelphia.

Gilliam, David Tod
1903 *A Textbook of Practical Gynecology for Practitioners and Students*. F. A. Davis Company, Publishers, Philadelphia, Pennsylvania.

Gray, Marlesa A., and Karen K. Swope (editors)
2010 *Deathways and Lifeways in the American Southwest: Tucson's Historic Alameda-Stone Cemetery and the Transformation of a Remote Outpost into an Urban City: Vol. 3. History and Archaeology of the Joint Courts Postcemetery Period, 1875-2006*. Technical Report No. 10-97. Statistical Research, Inc., Tucson.

Gregory, David A.
1987 The Morphology of Platform Mounds and the Structure of Classic Period Hohokam Sites. In *The Hohokam Village: Site Structure and Organization*, edited by D. E. Doyel, pp. 183-210. American Association for the Advancement of Science, Southwestern and Rocky Mountain Division, Glenwood Springs, Colorado.

Gregory, David A. (editor)
1999 *Excavations in the Santa Cruz River Floodplain: The Middle Archaic Component at Los Pozos*. Anthropological Papers No. 20. Center for Desert Archaeology, Tucson.

2001 *Excavations in the Santa Cruz River Floodplain: The Early Agricultural Period Component at Los Pozos*. Anthropological Papers No. 21. Center for Desert Archaeology, Tucson.

Gust, Sherri M.
1993 Animal Bones from Historic Urban Chinese Sites: A Comparison of Sacramento, Woodland, Tucson, Ventura, and Lovelock. In *Hidden Heritage: Historical Archaeology of the Overseas Chinese*, edited by P. Wegars, pp. 177-212. Baywood Publishing Company, Amityville, New York.

Hand, George
1994 *Whiskey, Six-Guns & Red-Light Ladies: George Hand's Saloon Diary, Tucson, 1875-1878*, transcribed and edited by N. B. Carmony. High-Lonesome Books, Silver City, New Mexico.

Hansen, Eric
1996 *Desert Plants for the Botanically Challenged: A Pocket Field Guide to the Plants and Plant Communities of the Arizona Sonoran Desert*. Publications in Anthropology No. 2. Center for Indigenous Studies in the Americas, Phoenix.

Hard, Robert J., and William H. Doelle
1978 *The San Agustín Mission Site, Tucson, Arizona*. Archaeological Series No. 118. Arizona State Museum, University of Arizona, Tucson.

Hardy, Leslie C.
1910 *Charter and Ordinances of the City of Tucson*. Star Job Rooms, Tucson.

Harry, Karen G.
1995 Communitybased Craft Specialization: The West Branch Site. Paper presented at the Fall Meeting of the Arizona Archaeological Council, Flagstaff, Arizona.

Haury, Emil W.
1928 Tanque Verde Pithouses. Paper presented at the Annual Meeting of the American Association for the Advancement of Science, Flagstaff, Arizona.

1937 Shell. In *Excavations at Snaketown: Material Culture*, by H. S. Gladwin, E. W. Haury, E. B. Sayles, and N. Gladwin, pp. 135-153. Medallion Papers No. 25. Gila Pueblo, Globe, Arizona.

1975 *The Stratigraphy and Archaeology of Ventana Cave*. 2nd ed. Reprinted. University of Arizona Press, Tucson. Originally published 1950, University of Arizona Press, Tucson.

1976 *The Hohokam: Desert Farmers & Craftsmen. Excavations at Snaketown, 1964-1965*. University of Arizona Press, Tucson.

Haynes, D. O. & Co.
1905 *The Era Druggist's Directory,* vol. 11. D. O. Haynes & Co., New York.

1916 *The Era Druggist's Directory,* vol. 18. D. O. Haynes & Co., New York.

Heidke, James M.
1988 Ceramic Production and Exchange: Evidence from Rincon Phase Contexts. In *Recent Research on Tucson Basin Prehistory: Proceedings of the Second Basin Conference*, edited by W. H. Doelle and P. R. Fish, pp. 387-410. Anthropological Papers No. 10. Institute for American Research, Tucson, Arizona.

1996 Production and Distribution of Rincon Phase Pottery: Evidence from the Julian Wash Site. In *A Rincon Phase Occupation at Julian Wash, AZ BB:13:17 (ASM)*, by J. B. Mabry, pp. 47-71. Technical Report No. 96-7. Center for Desert Archaeology, Tucson.

2002 Historic Native American Ceramic Data. In *Exploring the Barrio Libre: Investigations at Block 136, Tucson, Arizona,* by J. H. Thiel, pp. 100-107. Technical Report No. 2001-08. Desert Archaeology, Inc., Tucson.

2003a Historic Native American Ceramic Data. In *Archaeological Investigations at Blocks 139 and 159 in Barrio Libre, Tucson, Arizona*, by A. C. Diehl, pp. 159-164. Technical Report No. 2002-12. Desert Archaeology, Inc., Tucson

2003b Historic Native American Ceramic Data. In *Archaeological Investigations of the Osborn and Hazzard Family Homes, Block 172, Tucson, Arizona,* by J. H. Thiel, pp. 91-95. Technical Report No. 2002-04. Desert Archaeology, Inc., Tucson.

2005a Historic-period Native American Ceramic Data. In *Down by the River: Archaeological and Historical Studies of the León Family Farmstead*, by J. H. Thiel, pp. 263-282. Anthropological Papers No. 38. Center for Desert Archaeology, Tucson.

2005b Native American Ceramics. In *Down by the River: Archaeological and Historical Studies of the León Family Farmstead*, by J. H. Thiel, pp. 147-178. Anthropological Papers No. 38. Center for Desert Archaeology, Tucson.

2006 Native American Pottery. In *Rio Nuevo Archaeology, 2000-2003: Investigations at the San Agustín Mission and Mission Gardens, Tucson Presidio, Tucson Pressed Brick Company, and Clearwater Site*, edited by J. H. Thiel and J. B. Mabry, pp. 7.1-7.94. Technical Report No. 2004-11. Desert Archaeology, Inc., Tucson.

2008a Native American Pottery from Historic Block 185. In *Archaeological Investigations at AZ BB:13:756 (ASM) and AZ BB:13:757 (ASM), Historic Block 185, Tucson, Pima County, Arizona*, edited by J. H. Thiel, pp. 33-54. Technical Report No. 2006-09. Desert Archaeology, Inc., Tucson.

2008b Native American Pottery from the Tucson Presidio, AZ BB:13:13 (ASM). In *Additional Archaeological and Historical Research in the Tucson Presidio, Historic Block 181, Tucson, Pima County, Arizona*, edited by J. H. Thiel, pp. 83-147. Technical Report No. 2006-10. Desert Archaeology, Inc., Tucson.

2009 Native American Pottery from Historic Block 83. In *Archaeological Investigations and Data Recovery at Historic Block 83, Tucson, Pima County, Arizona*, edited by J. H. Thiel, pp. 117-129. Technical Report No. 2006-11. Desert Archaeology, Inc., Tucson.

Heidke, James M., and Alan Ferg
2001 Ceramic Containers and Other Artifacts of Clay. In *Excavations in the Santa Cruz River Floodplain: The Early Agricultural Period Component at Los Pozos*, edited by D. A. Gregory, pp. 163-194. Anthropological Papers No. 21. Center for Desert Archaeology, Tucson.

Heidke, James M., Elizabeth J. Miksa, and Henry D. Wallace
2002 A Petrographic Approach to Sand-Tempered Pottery Provenance Studies: Examples from Two Hohokam Local Systems. In *Ceramic Production and Circulation in the Greater Southwest: Source Determination by INAA and Complementary Mineralogical Investigations*, edited by D. M. Glowacki and H. Neff, pp. 152-178. Monograph No. 44. Cotsen Institute of Archaeology, University of California, Los Angeles.

Heidke, James M., Elizabeth J. Miksa, and Michael K. Wiley
1998 Ceramic Artifacts. In *Archaeological Investigations of Early Village Sites in the Middle Santa Cruz Valley: Analyses and Synthesis,* edited by J. B. Mabry, pp. 471-544. Anthropological Papers No. 19. Center for Desert Archaeology, Tucson.

Heidke, James M., J. Homer Thiel, Christine H. Lange, and R. Jane Silva
2010 Artifacts Recovered from Block 95 Features. In *Archaeological Excavations of the Hooper Warehouse, the Tucson Sampling Works, and the Southern Pacific Railroad Clubhouse, Historic Block 95, Tucson, Pima County, Arizona*, edited by J. H. Thiel, pp. 53-72. Technical Report No. 2009-08. Desert Archaeology, Inc., Tucson.

Henry, Susan L.
1987 A Chicken in Every Pot: The Urban Subsistence Pattern in Turn-of-the-Century Phoenix, Arizona. In *Living in Cities: Current Research in Urban Archaeology*, edited by E. Staski, pp. 19-28. Special Publication Series No. 5. Society for Historical Archaeology, Pleasant Hills, California.

Hosmer, John, and The Ninth and Tenth Grade Classes of Green Fields Country Day School and University High School, Tucson (editors)
1991 From the Santa Cruz to the Gila in 1850: An Excerpt from the Overland Journal of William P. Huff. *Journal of Arizona History* 32(1):41-110.

Huckell, Bruce B.
1982 *The Distribution of Fluted Points in Arizona: A Review and An Update*. Archaeological Series No. 145. Cultural Resource Management Division, Arizona State Museum, University of Arizona, Tucson.

1993 *Archaeological Testing of the Pima Community College Desert Vista Campus Property: The Valencia North Project*. Technical Report No. 92-13. Center for Desert Archaeology, Tucson.

1995 *Of Marshes and Maize: Preceramic Agricultural Settlements in the Cienega Valley, Southeastern Arizona*. Anthropological Papers No. 59. University of Arizona Press, Tucson.

Huckell, Bruce B., and Lisa W. Huckell
1984 Excavations at Milagro, a Late Archaic Site in the Eastern Tucson Basin. Ms. on file, Arizona State Museum, University of Arizona, Tucson.

Huckell, Bruce B., Lisa W. Huckell, and Suzanne K. Fish
1995 *Investigations at Milagro, a Late Preceramic Site in the Eastern Tucson Basin*. Technical Report No. 94-5. Center for Desert Archaeology, Tucson.

Hughes, Elizabeth, and Marion Lester
1991 *The Big Book of Buttons.* New Leaf Publishers, Sedgwick, Maine.

Hull-Walski, Deborah A., and James E. Ayres
1989 *The Historical Archaeology of Dam Construction Camps in Central Arizona: Vol. 3. Laboratory Methods and Data Computerization.* Dames & Moore, Phoenix.

Huntington, Frederick W.
1986 *Archaeological Investigations at the West Branch Site: Early and Middle Rincon Occupation in the Southern Tucson Basin.* Anthropological Papers No. 5. Institute for American Research, Tucson.

Jackson Citizen Patriot
1870 Dr. Pitcher's Castoria. 16 February, p. 4. Jackson, Michigan.

Jones, Jeffrey T., and Jennifer Hushour
2010 The Wieland Bottling Works. *Archaeology Southwest*, Vol. 24(1-2):24-25.

Jones, W. Unite
1924 *The Button Industry.* Sir Isaac Pitman and Sons, London.

Kansas City Times
1890 Advertisement for Jayne's Tonic Vermifuge. 26 June, p. 8. Kansas City, Missouri.

Keen, A. Myra
1971 *Sea Shells of Tropical West America: Marine Mollusks from Baja California to Peru.* 2nd ed. Stanford University Press, Palo Alto, California.

Kelly, Isabel T.
1978 *The Hodges Ruin, a Hohokam Community in the Tucson Basin.* Anthropological Papers No. 30. University of Arizona Press, Tucson.

Kidwell, Claudia B., and Margaret C. S. Christman
1974 *Suiting Everyone: The Democratization of Clothing in America.* Smithsonian Institution Press, Washington, D. C.

Kobyliński, Zbigniew, and Waldemar A. Moszczyński
1992 Conjoinable Sherds and Stratificational Processes: An Example from Wyszogród, Płock Province, Poland. *Archaeologia Polano* 30:109-126.

Koziarski, Ralph, Michael W. Diehl, Christine H. Lane, and Douglas J. Taron
2010 Diet and Environmental Studies. In *Archaeological Excavations of the Hooper Warehouse, the Tucson Sampling Works, and the Southern Pacific Railroad Clubhouse, Historic Block 95, Tucson, Pima County, Arizona,* edited by J. H. Thiel, pp. 73-82. Technical Report No. 2009-08. Desert Archaeology, Inc., Tucson.

Laning Printing Company
1900 *Reports of Cases Argued and Determined in Ohio Courts of Record*, vol. 9. Laning Printing Company, Norwalk, Ohio.

Little, Barbara J., Kim M. Lanphear, and Douglas W. Owsley
1992 Mortuary Display and Status in a Nineteenth-Century Anglo-American Cemetery in Manassas, Virginia. *American Antiquity* 57:397-418.

Lister, Florence C., and Robert H. Lister
1989 *The Chinese of Early Tucson: Historic Archaeology from the Tucson Urban Renewal Project.* Anthropological Papers No. 52. University of Arizona Press, Tucson.

Lyman, R. Lee
1977 Analysis of Historic Faunal Remains. *Historical Archaeology* 11:67-73.

Mabry, Jonathan B.
2008 Chronology. In *Las Capas: Early Irrigation and Sedentism in a Southwestern Floodplain,* edited by J. B. Mabry, pp. 55-76. Anthropological Papers No. 28. Center for Desert Archaeology, Tucson.

Mabry, Jonathan B. (editor)
1998 *Archaeological Investigations of Early Village Sites in the Middle Santa Cruz Valley: Analyses and Synthesis.* Anthropological Papers No. 19. Center for Desert Archaeology, Tucson.

Mabry, Jonathan B., James E. Ayres, and Regina L. Chapin-Pyritz
1994 *Tucson at the Turn of the Century: The Archaeology of Block 83.* Technical Report No. 92-10. Center for Desert Archaeology, Tucson.

Masse, W. Bruce
1981 A Reappraisal of the Protohistoric Sobaipuri Indians of Southeastern Arizona. In *The Protohistoric Period in the American Southwest, A.D. 1450-1700*, edited by D. R. Wilcox and W. B. Masse, pp. 28-56. Anthropological Research Papers No. 29. Arizona State University, Tempe.

McChristian, Douglas C.
1995 *The U. S. Army in the West 1870-1880: Uniforms, Weapons and Equipment.* University of Oklahoma Press, Norman.

McLaughlin, M. Louise
1877 *China Painting: A Practical Manuel for the Use of Amateurs in the Decoration of Hard Porcelain.* Robert Clarke & Co., Cincinnati, Ohio.

Miksa, Elizabeth J.
2011 Half Million Points and Counting: Two Decades of Petrofacies Modeling in the Greater Tucson Basin and Avra Valley. In *Craft Specialization in the Southern Tucson Basin: Archaeological Excavations at the Julian Wash Site, AZ BB:13:17 (ASM): Part 2. Synthetic Studies*, edited by H. D. Wallace, pp. 553-617. Anthropological Papers No. 40. Center for Desert Archaeology, Tucson.

Minnesota State Dairy and Food Commissioner
1907 *Patent Medicines, Tonics, and Bitters*. Harrison & Smith Company, Minneapoli

Moore, Yndia Smalley
1960 Henry Buehman. *Arizoniana* 1(3):10-11.

Morton, Ashley M.
2013 Freedom from Worry: Douching as a Case Study for Historical Archaeological Approaches to Women's Health. Unpublished Master's Thesis, Anthropology Department, University of Idaho, Moscow.

Naranjo, Reuben V., Jr.
2002 Tohono O'odham Potters in Tombstone and Bisbee, Arizona – 1890-1920. Unpublished Master's thesis, American Indian Studies, University of Arizona, Tucson.

Negley, Floyd R., and Marcia S. Lindley
1994 *Arizona Territorial Marriages, Pima County, 1871-1912.* Arizona State Genealogical Society, Tucson.

New York Times
1859 Arizona and Sonora no. III. 10 January, p. 2. New York.

Odland, Jillian
2006 Buttons from Cocumscussoc. *Castle Chronicle* 15(1):1, 8-16.

Olsen, John W.
1983 An Analysis of East Asian Coins Excavated in Tucson, Arizona. *Historical Archaeology* 17:41-55.

Park, Lawrence
1914 Old Boston Family: The Savage Family. *New England Genealogical Historical Register* Vol. 68:18-32.

Phoenix Weekly Herald
1896 Interesting paragraphs. 16 April, p. 2. Phoenix.

1898 Territorial news. 7 April, p. 4. Phoenix.

Pima County Great Register
1906 Entry No. 240. Arizona Historical Society, Southern Arizona Division, Tucson.

Prescott Evening Courier
1900 Article about election. 19 May, p. 2. Prescott.

Ravesloot, John C. (editor)
1987 *The Archaeology of the San Xavier Bridge Site (AZ BB:13:14), Tucson Basin, Southern Arizona.* Archaeological Series No. 171. Arizona State Museum, University of Arizona, Tucson.

Rehder, Harald A.
1992 Shells. In *Pacific Coast, National Audobon Society Nature Guides*, by B. H. McConnaughey and E. McConnaughey. Alfred A. Knopf, Inc., New York.

Riddle, John M.
1997 *Eve's Herbs: A History of Contraception and Abortion in the West.* Harvard University Press, Cambridge, Massachusetts.

Ridgeway, Harry
2012 "The Relic Man", <http://www.relicman.com/buttons/backmark/HorstmannBros.htm, item B6341>. Accessed 1 May 2012.

Rieder, Morgan
1999 National Register of Historic Places Nomination Form for the Tucson Warehouse District. Ms. on file, Arizona State Historic Preservation Office, Phoenix, Arizona.

Roth, Barbara J.
1989 *Late Archaic Settlement and Subsistence in the Tucson Basin.* Ph.D. dissertation, Department of Anthropology, University of Arizona, Tucson. University Microfilms International, Ann Arbor, Michigan.

Sando, R. B.
1909 *American Poultry Culture*. Outing Publishing Company, New York.

Schulz, Peter D., and Sherri M. Gust
1983 Faunal Remains and Social Status in 19th Century Sacramento. *Historical Archaeology* 17:44-53.

Sears, Roebuck and Company
1908 *Sears, Roebuck & Co.* Catalogue No. 117, Chicago.

Seattle Daily Times
1910 Bon Marche store advertisement. 15 February, p. 22. Seattle.

Sewell, Kristin J., Kandus C. Linde, and Michael Heilen
2010 Adornment, Religious Objects, and Grave Inclusions. In *Deathways and Lifeways in the American Southwest: Tucson's Historic Alameda-Stone Cemetery and the Transformation of a Remote Outpost into an Urban City: Vol. 2. The History, Archaeology, and Skeletal Biology of the Alameda-Stone Cemetery*, edited by M. Heilen, J. T. Hefner, and M. A. Keur, pp. 297-363. Technical Report No. 10-96. Statistical Research, Inc., Tucson.

Shepard, Anna O.
1936 The Technology of Pecos Pottery. In *The Pottery of Pecos*, vol. 2, by A. V. Kidder and A. O. Shepard, pp. 389-587. Papers of the Southwestern Expedition No. 7. Phillips Academy, Andover, Massachusetts.

1942 Rio Grande Glaze Paint Ware: A Study Illustrating the Place of Ceramic Technological Analyses in Archaeological Research. In *Contributions to American Anthropology and History No. 39*, pp. 129-262. Carnegie Institution, Washington, D.C.

1995 *Ceramics for the Archaeologist*. 5th ed. Reprinted. Braun-Brumfield, Inc., Ann Arbor, Michigan. Originally published 1956, Publication No. 609. Carnegie Institution, Washington, D.C.

Sisson, Septimus
1975 Carnivore Osteology. In *Sisson and Grossman's The Anatomy of the Domestic Animals*, vol. 2, by R. Getty, pp. 1427-1503. W. B. Saunders Company, Philadelphia.

Smith, Hugh M.
1898 The Mussel Fishery and Pearl-Button Industry of the Mississippi River. *Bulletin of the U. S. Fisheries Commission* 18:289-314.

Sonnichsen, C. L.
1982 *Tucson: The Life and Times of an American City*. University of Oklahoma Press, Norman.

Swartz, Deborah L.
1998 *Archaeological Investigations at Small Sites on the Upper Bajada of the Tortolita Mountains, Northern Tucson Basin*. Technical Report No. 97-3. Center for Desert Archaeology, Tucson.

Thiel, J. Homer
1993 *Archaeological Investigations of Tucson Block 94: The Boarding House Residents of the Hotel Catalina Site*. Technical Report No. 93-5. Center for Desert Archaeology, Tucson.

1997 *Archaeological Investigations of a Chinese Gardener's Household, Tucson, Arizona*. Technical Report No. 96-22. Center for Desert Archaeology, Tucson.

2002 *Exploring the Barrio Libre: Investigations at Block 136, Tucson, Arizona*. Technical Report No. 2001-08. Desert Archaeology, Inc., Tucson.

2005 *Down by the River: Archaeological and Historical Studies of the León Family Farmstead*. Anthropological Papers No. 38. Center for Desert Archaeology, Tucson.

Thiel, J. Homer (editor)
2008 *Archaeological Investigations at AZ BB:13:756 (ASM) and AZ BB:13:757 (ASM), Historic Block 185, Tucson, Pima County, Arizona*. Technical Report No. 2006-09. Desert Archaeology, Inc., Tucson.

2009 *Archaeological Investigations and Data Recovery at Historic Block 83, Tucson, Pima County, Arizona*. Technical Report No. 2006-11. Desert Archaeology, Inc., Tucson.

2010 *Archaeological Excavations of the Hooper Warehouse, the Tucson Sampling Works, and the Southern Pacific Railroad Clubhouse, Historic Block 95, Tucson, Pima County, Arizona*. Technical Report No. 2009-08, Desert Archaeology, Inc., Tucson.

Thiel, J. Homer, and Michael K. Faught
1995 Historic Period Artifacts. In *Beneath the Streets: Prehistoric, Spanish, and American Period Archaeology in Downtown Tucson,* by J. H. Thiel, M. K. Faught, and J. M. Bayman, pp. 159-212. Technical Report No. 94-11. Center for Desert Archaeology, Tucson.

Thiel, J. Homer and Michael M. Margolis
2007 Excavation and Analysis of Burials 13 and 14 from the Court Street Cemetery, AZ BB:13:156 (ASM), Tucson, Pima County, Arizona. Project Report No. 07-136. Desert Archaeology, Inc., Tucson.

Thiel, J. Homer, and Christine H. Virdin-Lange
2014 *Results of Archaeological Monitoring and Data Recovery at the Charles O. Brown House, Historic Block 215, Tucson, Pima County, Arizona*. Technical Report No. 2013-02, Desert Archaeology, Inc., Tucson.

Thiel, J. Homer, and Jonathan B. Mabry (editors)
2006 *Rio Nuevo Archaeology, 2000-2003: Investigations at the San Agustín Mission and Mission Gardens, Tucson Presidio, Tucson Pressed Brick Company, and Clearwater Site*. Technical Report No. 2004-11. Desert Archaeology, Inc., Tucson.

Thiel, J. Homer, Michael K. Faught, and James M. Bayman
1995 *Beneath the Streets: Prehistoric, Spanish, and American Period Archaeology in Downtown Tucson*. Technical Report No. 94-11. Center for Desert Archaeology, Tucson.

Tombstone Daily Epitaph
1880 Republican ticket. 24 September, p. 4. Tombstone.

Tombstone Epitaph
1891 Advertisement for Boschee's German Syrup. 19 July, p. 2. Tombstone, Arizona.

Tombstone Epitaph Prospector
1889 Florence items. 20 August, p. 3. Tombstone.

1890 Note about Arizona bonanza. 26 April, p. 3. Tombstone.

Tombstone Prospector
1894 Notes about Charles Hoff and Henry Buehman running for mayor. 28 November, p. 3. Tombstone.

Tucson Citizen
1902a Advertisement for Paine's Celery Compound. 24 April, p. 5. Tucson.

1902b Advertisement for Paine's Celery Compound. 29 April, p. 5. Tucson.

1902c The city dads meet Billy Reid in eruption. 21 June, p. 5. Tucson.

1902d The city news in paragraphs. 31 July, p. 5. Tucson.

1902e Gov. Brodie in Old Pueblo. 22 July, p. 1. Tucson.

1902f The high license election big majority against. 4 October, p. 5. Tucson.

1902g The high license question attracts much interest. 8 August, p. 5. Tucson.

1902h Hugh license ordinance. 2 October, p. 5. Tucson.

1902i Men and engines train and traffic. 30 January, p. 5. Tucson.

1902j Men and engines train and traffic. 3 February, p. 8. Tucson.

1902k The social world and its doings. 28 April, p. 4. Tucson.

1903a Advertisement for The Racket. 21 November, p. 4. Tucson.

1903b Arizona's industrial school. 1 December, p. 8. Tucson.

1903c The best liniment. 2 May, p. 7. Tucson.

1903d The city news in paragraphs. 11 June, p. 7. Tucson.

1903e The Santa Rita Hotel plans of new structure. 2 March, p. 4. Tucson.

1903f In the Santa Rita operations progressing. 1 August, p. 5. Tucson.

1903g Mr. Sroule may be transferred to S.P. goat division. 29 July, p. 8. Tucson.

1904a Advertisement for Ayer's Pills. 6 September, p. 4. Tucson.

1904b Advertisement for Sozodont. 14 July, p. 8. Tucson.

1904c City news in paragraphs. 9 March, p. 5. Tucson.

1904d In the social world events of the current week. 7 May, p. 8. Tucson.

Tucson Citizen

1904e Items of the day of personal mention. 1 January, p. 5. Tucson.

1904f The social side of the Old Pueblo. 17 December, p. 8. Tucson.

1905a Advertisement for S.P. dining room. 14 January, p. 5. Tucson.

1905b C. M. Burkhalter gets promoted transferred to Fresno, Cal. 8 May, p. 8. Tucson.

1905c The city news in paragraphs. 29 April, p. 4. Tucson.

1905d Items of the day personal mention. 11 May, p. 4. Tucson.

1906a The city news in paragraphs. 12 June, p. 4. Tucson.

1906b The city news in paragraphs. 10 November, p. 4. Tucson.

1906c The social side. 1 June, p. 4. Tucson.

1907a The city news in paragraphs. 14 September, p. 5. Tucson.

1907b Mayor Slack was willing to use fists. 13 December, p. 8. Tucson.

1908a Advertisement for Tucson Planing Mill. 24 November, p. 8. Tucson.

1908b Manager for black store. 2 October, p. 5. Tucson.

1908c A pioneer stricken. 25 July, p. 5. Tucson.

1908d In society. 6 June, p. 6. Tucson.

1909a Advertisement for Chamberlain's Cough Remedy. 15 November, p. 2. Tucson.

1909b Basement fire in grocery. 29 May, p. 6. Tucson.

1910a E. E. Jones to rebuild Tucson Planing Mill. 25 July, p. 4. Tucson.

1910b File suit in order to establish park. 26 August, p. 5. Tucson.

1910c Judge Campbell to sit with Supreme Court next week. 7 January, p. 3. Tucson.

1910d The new Tucson Planing Mill. 22 April, p. 7. Tucson.

1910e Republicans nominate Moon for marshal race is close. 12 November, p. 4. Tucson.

1910f In society's realms. 26 March, p. 7. Tucson.

1911a Advertisement for Tucson Sash Door and Planning Mill. 30 September, p. 7. Tucson.

1911b Rillito rancher exhibits produce. 23 November, page 5, Tucson.

1912a Advertisement for Chamberlain's cholera medicine. 27 September, p. 4. Tucson.

1912b Former Mayor H. Buehman dies. 20 December, p. 1. Tucson.

1912c Funeral notice. 22 December, p. 1. Tucson.

1912d Public documents. 3 May, p. 4. Tucson.

1912e Seeks injunction to close house in restricted district. 2 July, p. 2. Tucson.

1912f Tucson Planing Mill. 30 September, p. 4. Tucson.

1913 Hotel San Xavier advertisement. 18 November, p. 2. Tucson.

1914a Advertisement for Mother's Restaurant. 14 May, p. 4. Tucson.

1914b Advertisement for Tucson Planing Mill. 23 July, p. 9. Tucson.

1914c Advertisement for Tucson Planing Mill. 11 December, p. 7. Tucson.

1915a D.A.R. to meet. 10 November, p. 5. Tucson.

1915b The Roberts Store. 12 January, p. 3. Tucson.

1916a Advertisement for Haynes Chevrolet. 27 October, p. 8. Tucson.

1916b The Broadway Grocery advertisement. 14 October, p. 2. Tucson.

1916c Card party for German Red Cross. 19 February, p. 5. Tucson.

1916d Complete equipment at Subway Garage. 25 November, p. 14. Tucson.

Tucson Citizen

1916e Doc Smith now in charge of repairs at Subway Garage. 18 November, p. 10. Tucson.

1916f Saxon representative new arrival in Tucson, 6 December, p. 9. Tucson.

1916g Subway Garage has agency for Everready battery. 9 December, p. 10. Tucson.

1917a Bernard shorn of power keeps council seat. 11 December, p. 5. Tucson.

1917b Citizen recipes help housewives. 13 April, p. 4. Tucson.

1917c Miss Clancy married. 22 August, p. 5. Tucson.

1917d New salesrooms for Moline-Knight at Subway Garage. 13 March, p. 5. Tucson.

1918a Ad for Sasco-Silverbell Stage. 31 August, p. 2. Tucson.

1918b Deans and Peters consolidate in auto business. 6 April, p. 3. Tucson.

1918c Lefebvre to be engineer; Smith Supt. of Water. 29 January, p. 2. Tucson.

1918d Subway Garage adds new departments. 19 October, p. 1. Tucson.

1918e Subway Garage changes. 15 February, p. 4. Tucson.

1919a Advertisement for Mother's Restaurant. 14 May, p. 4. Tucson.

1919b Advertisement for Subway Cyclery. 2 May, p. 7. Tucson.

1919c Mission Inn on Congress Street is again open. 10 September, p. 3. Tucson.

1919d Mission Inn under new management. 10 April, p. 6. Tucson.

1919e Mrs. Lim Goon, wife of merchant, died Wednesday. 31 January, p. 4. Tucson.

1919f Social items. 8 January, p. 3. Tucson.

1920a Advertisement for Fuoco the Key Doctor. 1 May, p. 7. Tucson.

1920b Oh, yes! 26 December, p. 7. Tucson.

1920c Survey nurse of National Tuberculosis Association makes report on restaurants. 6 February, p. 7. Tucson.

1921a Advertisement for Mother's Restaurant. 1 August, p. 7. Tucson.

1921b Polly the Shopper. 23 January, p. 9. Tucson.

1922a Advertisement for Subway Guarantee Auto Works. 22 April, p. 4. Tucson.

1922b Advertisement for Subway Radiator and Body Works. 17 December, section 2, p. 3. Tucson.

1922c Copper radiators on cars give longer use. 10 December, p. 1. Tucson.

1922d Leaky radiator should be fixed. 25 June, p. 1. Tucson.

1922e Radiators for every car carried in stock. 15 October, p. 4. Tucson.

1941 Births. 22 December, p. 32. Tucson.

1942 Driver loses in double accident. 20 May, p. 7. Tucson.

1943 Small dose of tear gas ends one man's war. 18 May, p. 10. Tucson.

1944a Ex-dishwasher charged with theft of $10. 1 May, p. 2. Tucson.

1944b Ex-dishwasher fined $10 For intoxication. 2 May, p. 2. Tucson.

1945a Advertisement for Economy Printing. 10 May, p. 9. Tucson.

1945b Court fails to solve big mystery of steak's price. 30 July, p. 11. Tucson.

1945c Sergeant arrest for upsetting pole, 5 April, p. 18. Tucson.

1946a Advertisement for Harbour Brothers. 10 November, p. 5. Tucson.

1946b Shanghai Café in another location. 10 December, p. 2. Tucson.

Tucson Citizen

1947a 23 take oath of citizenship. 5 November, p. 6. Tucson.

1947b Busy beaver is tracked by law. 4 January, p. 6. Tucson.

1947c Class C league final standings. 3 September, p. 8. Tucson.

1948 Advertisement for Harbour Brothers. 26 January, p. 25, Tucson.

1949a Armed bandit takes $800 in store holdup. 12 September, p. 1. Tucson.

1949b Auto stolen but is soon recovered. 2 August, p. 13. Tucson.

1949c Wildcats down Trojans, 54-23. 12 January, p. 13. Tucson.

1949d Wildkittens lose to Apache Hotel. 6 July 1949, p. 13. Tucson.

1950a Advertisement for Harbour Brothers. 20 April, p. 8. Tucson.

1950b Files damage suit after street fall. 1 April 1950, p. 10. Tucson.

1950c Mass said for Robert Brady. 2 September, p. 2. Tucson.

1953 Killing suspect capture here. 11 February, p. 1. Tucson.

1954a County print jobs assailed. 16 March 1954, p. 9. Tucson.

1954b Lock stylist's life filled with strange experiences. 26 June, p. 14. Tucson.

1957 Two parking lots planned downtown. 31 October, p. 11. Tucson.

1958a Lawless customer laid low in barroom brawl. 19 June, p. 23. Tucson.

1958b Mr. Roberts, Spanish War veteran, dies. 6 October, p. 20. Tucson.

1959 Arizona album. 24 June, p. 6. Tucson.

1962 Advertisement for Herb Windett's Auto Service. 21 July, p. 4. Tucson.

1964 Arizona album. 20 May, p. 12. Tucson.

Tucsonense

1917 Boleto Mixto para conciliares. 5 December, p. 4. Tucson.

1919 Excelente servicio. 6 May, p. 4. Tucson.

Velleman, Paul F., and David C. Hoaglin

1981 *Applications, Basics, and Computing of Exploratory Data Analysis*. Duxbury Press, Boston.

Virden-Lange, Christine

2014 Shell Artifacts from the 2007 and 2008 Excavations. In *Tucson's Origins: 4,000 Years of Prehistory and History at the Base of Sentinel Peak, the 2007 and 2008 Excavations at the Clearwater Site, AZ BB:13:6(ASM) and the Sentinel Peak Reach Canals, AZ BB:13:481 (ASM), Tucson, Pima County, Arizona* (Draft), edited by M. W. Diehl, J. H. Thiel, and M. L. Brack. Technical Report No. 2008-06. Desert Archaeology, Inc., Tucson.

Vokes, Arthur W.

1995 Shell Artifacts from the Downtown Projects. In *Beneath the Streets: Prehistoric, Spanish, and American Period Archaeology in Downtown Tucson*, by J. H. Thiel, M. K. Faught, and J. M. Bayman, pp. 279-282. Technical Report No. 94-11. Center for Desert Archaeology, Tucson.

2003 Marine Material from Block 139. In *Archaeological Investigations at Blocks 139 and 159 in Barrio Libre, Tucson, Arizona*, by A. C. Diehl, J. L. Cameron, M. W. Diehl, J. M. Heidke, and J. H. Thiel, pp. 113-115. Technical Report No. 2002-12. Desert Archaeology, Inc., Tucson.

2006 Shell Artifacts. In *Rio Nuevo Archaeology, 2000-2003: Investigations at the San Agustín Mission and Mission Gardens, Tucson Presidio, Tucson Pressed Brick Company, and Clearwater Site*, edited by J. H. Thiel and J. B. Mabry, pp. 11.1-11.18. Technical Report No. 2004-11. Desert Archaeology, Inc., Tucson.

Vokes, Arthur W. and Michael K. Wiley
1998 Shell, Stone and Mineral Artifacts. In *Phoenix's Hidden History: Archaeological Investigations at Blcks 72 and 73,* by J. H. Thiel, pp. 399-402. Anthropological Papers No. 26. Center for Desert Archaeology, Tucson. Pueblo Grande Museum Anthropological Papers No. 7. City of Phoenix Parks, Recreation and Library Department, Phoenix.

Voss, Barbara L., and Rebecca Allen
2010 Guide to Ceramic MNV Calculation: Qualitative and Quantitative Analysis. *Technical Briefs in Historical Archaeology* 5:1-9.

Wallace, Henry D.
1985 Decorated Ceramics. In *Excavations at the Valencia Site: A Preclassic Hohokam Village in the Southern Tucson Basin*, by W. H. Doelle, pp. 81-135. Anthropological Papers No. 3. Institute for American Research, Tucson.

1995 *Archaeological Investigations at Los Morteros, a Prehistoric Settlement in the Northern Tucson Basin*. Anthropological Papers No. 17. Center for Desert Archaeology, Tucson.

Wallace, Henry D., and William H. Doelle
1998 Classic Period Warfare in Southeastern Arizona. Paper presented at the 63rd Annual Meeting of the Society for American Archaeology, Seattle.

Wallace, Henry D., James M. Heidke, and William H. Doelle
1995 Hohokam Origins. *Kiva* 60:575-618.

Waters, Jennifer A.
2009 Vertebrate Faunal Remains from Historic Block 83. In *Archaeological Investigations and Data Recovery at Historic Block 83, Tucson, Pima County, Arizona*, edited by J. H. Thiel, pp. 141-155. Technical Report No. 2006-11. Desert Archaeology, Inc., Tucson.

Weekly Arizonian
1859 Advertisement for Perry David Vegetable Pain Killer. 12 May, p. 4. Tubac, Arizona.

Weekly Journal Miner
1877 Advertisement by Henry Buehman. 2 March, p. 2. Prescott.

1892 Territorial items. 2 March, p. 3. Prescott.

Weekly Phoenix Herald
1897 Note about stolen clothes. 21 January, p. 2. Phoenix.

Weekly Republican
1899 Arizona week by week. 24 August, p. 3. Phoenix.

Werner, George C.
2012 "Rock Island System." <http://www.tshaonline.org/handbook/online/articles/eqr11>. 1 May 2012. Texas State Historical Association, Denton, Texas.

Western Druggist
1896 News of the Month. Vol. 18:191.

Whittlesey, Stephanie M.
1997 Prehistoric Pottery. In *Pit House, Presidio, and Privy: 1,400 Years of Archaeology and History on Block 180, Tucson, Arizona*, edited by R. Ciolek-Torrello and M. T. Swanson, pp. 422-467. Technical Series No. 63. Statistical Research, Inc., Tucson.

Wilcox, David R.
1981 The Entry of Athapaskans into the American Southwest: The Problem Today. In *The Protohistoric Period in the North American Southwest, A.D. 1450-1700,* edited by D. R. Wilcox and W. B. Masse, pp. 213-256. Anthropological Research Papers No. 24. Arizona State University, Tempe.

1991 Hohokam Social Complexity. In *Chaco and Hohokam: Prehistoric Regional Systems in the American Southwest*, edited by P. L. Crown and W. J. Judge, pp. 253-275. School of American Research Press, Santa Fe.

Wilcox, David R., and Charles Sternberg
1983 *Hohokam Ballcourts and Their Interpretation.* Archaeological Series No. 160. Arizona State Museum, University of Arizona, Tucson.

Williams, Jack S.
1986 San Agustín del Tucson: A Vanished Mission Community of the Pimería Alta. *The Smoke Signal* No. 47. Tucson Corral of the Westerners, Tucson.

Willis, Douglas A.
1928 Story of Button Industry in Pre-Muscatine Era and Early Days Here Written by Willis. *Muscatine Journal* 31 December:9.

Ziesing, Grace H.
1989 Analysis of Personal Effects from Excavations of the Boott Mills Boardinghouse Backlots in Lowell, Massachusetts. In *The Boarding House System as a Way of Life,* edited by M. C. Beaudry and S. A. Mrozowski, pp. 141-168. Interdisciplinary Investigations of the Boott Mills, Lowell, Massachusetts, vol. III. Division of Cultural Resources, North Atlantic Regional Office, National Park Service, U. S. Department of the Interior, Boston.