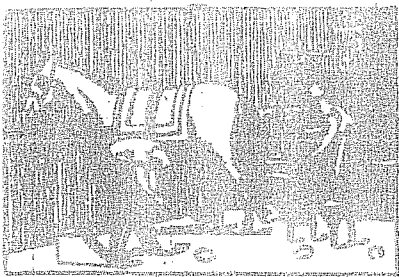


F. H. VOLLRATH

MAKER

ALL WORK IN MY LINE DONE WITH NEATNESS AND DISPATCH



Stands in the First Rank as a

Scientific Horseshoer

Treats all diseases of the feet and faulty gait. All work guaranteed satisfactory or no pay. Call at our office and get a card.

Carriage Painter

All Work First Class and at Reasonable Prices. Best Material used on all Vehicles. Finest Carriage



INVESTIGATIONS AT THE VOLLRATH-BLACKSMITH SHOP (41 BX 786), SAN ANTONIO, BEXAR COUNTY, TEXAS

F. H. VOLLRATH, Blacksmith and Carriage Maker

FLORES STREET, SAN ANTONIO, TEXAS.

FRED H. V. Blacksmith and



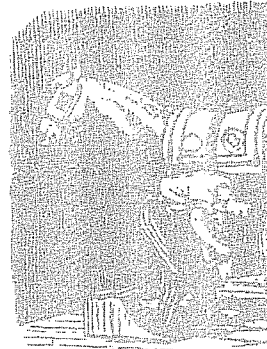
ALL WORK IN MY LINE DONE

WITH NEATNESS AND DISPATCH,

Guarantee to Give Perfect Satisfaction.

HORSESHOEING & SPECIALTY.

517 SOUTH FLORES ST. SAN ANTONIO, TEXAS.

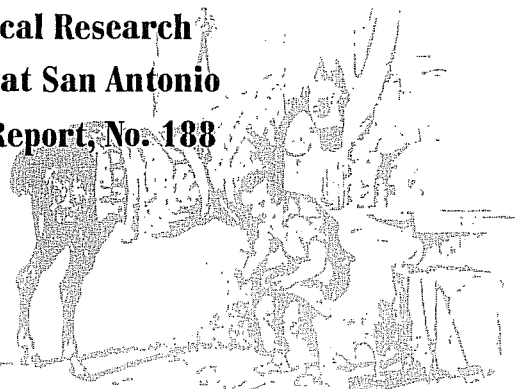


HORSESHOEING

FRED H. VOLLRATH BLACKSMITH AND CARRIAGE MA

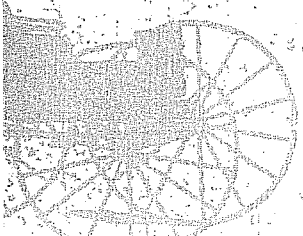
Center for Archaeological Research The University of Texas at San Antonio Archaeological Survey Report, No. 188

1990



Horseshoer

Treats all diseases of the feet and faulty gait. All work guaranteed satisfactory or no pay. Call at our office and get a card.



HORSESHOEING & SPECIALTY

**INVESTIGATIONS AT THE VOLLRATH BLACKSMITH SHOP (41 BX 786),
SAN ANTONIO, BEXAR COUNTY, TEXAS**

I. Wayne Cox, Maureen J. Brown, Jon Hageman, and Clinton McKenzie

Texas Antiquities Committee Permit No. 705

**Center for Archaeological Research
The University of Texas at San Antonio®
Archaeological Survey Report, No. 188**

1990

The following information is provided in accordance with the General Rules of Practice and Procedure, Chapter 41.11 (Investigative Reports), Texas Antiquities Committee:

1. Type of investigation: archival research and archaeological testing of New City Block 102, Bexar County, San Antonio, Texas;
2. Project name: archival research for the Bexar County Justice Center parking garage and investigations at the Vollrath blacksmith shop (41 BX 786);
3. County: Bexar;
4. Principal investigator: Jack D. Eaton; coprincipal investigators: I. Wayne Cox and Anne A. Fox;
5. Name and location of sponsoring agency: Bexar County Commissioners Court, Bexar County Courthouse, San Antonio, Texas;
6. Texas Antiquities Committee Permit No. 705;
7. Published by the Center for Archaeological Research, The University of Texas at San Antonio, San Antonio, Texas 78285-0658, 1990.

This book is printed on acid-free paper (Cougar No. 1 Opaque Offset).

A list of publications offered by the Center for Archaeological Research can be obtained by sending \$1.00 to the Center for Archaeological Research, The University of Texas at San Antonio, San Antonio, Texas 78285-0658.

ABSTRACT

In May 1988, archival research was initiated to evaluate the archaeological potential of New City Block 102, Lots 10 through 15, in downtown San Antonio, Texas, proposed site of the new Bexar County Justice Center parking garage. The research indicated that the southern portion of Lots 10 and 11 would required further investigation at the 1874 site of Vollrath's blacksmith shop. Field excavations were conducted in August 1988. This report discusses the archival research and the results of the field excavations.

TABLE OF CONTENTS

ABSTRACT	i
LIST OF FIGURES	iii
LIST OF TABLES	iii
ACKNOWLEDGMENTS	iv
EDITOR'S NOTE	v
INTRODUCTION	1
HISTORICAL BACKGROUND	1
PROPERTY FRONTING ON NUEVA STREET	1
PROPERTY FACING ONTO SOUTH FLORES STREET	1
BLACKSMITHING IN SAN ANTONIO	5
HISTORY OF VOLLRATH'S BLACKSMITH SHOP	6
DESCRIPTION OF FIELD WORK	9
ARTIFACTS	13
CERAMICS (Maureen J. Brown)	13
Soft-Paste Earthenware	13
Unglazed Earthenware	13
<i>Goliad</i> Ware	13
Lead-Glazed Earthenware	15
Tin-Glazed Earthenware	15
Hard-Paste/Refined Earthenware	15
Undecorated Refined Earthenware	16
Decorated Refined Earthenware	16
Transfer-Printed Ware	18
Flow Blue Ware	18
Hand-Painted Ware	18
Underglaze	18
Overglaze	19
Edgeware	19
Spongeware/Spatterware	19
Spatterware	19
Traditional Spongeware	19
Cut Spongeware	19
Slipware	19
Miscellaneous Wares	20
Lusterware	20
Yellowware	20
Porcelain	20
Stoneware	20
Observations	21
GLASS CONTAINERS (Jon Hageman)	22
Construction, Color, and Shape	22
The "Duerler Dilemma"	23
COINS (Clinton McKenzie)	25
BUTTONS/FASTENERS (Clinton McKenzie)	25
METAL	25
NAILS (Clinton McKenzie)	27
DISCUSSION AND CONCLUSIONS	29
REFERENCES CITED	30
LIST OF CITY DIRECTORIES FOR ADVERTISEMENTS	33

LIST OF FIGURES

1. Project Location	2
2. Location of NCB 102 in Downtown San Antonio	3
3. Bird's Eye View of San Antonio in 1873	4
4. The 1860 Division of Properties on the North End of NCB 102	5
5. Vollrath's Blacksmith Shop as Shown on the 1888 Sanborn Insurance Map	7
6. Exterior of Vollrath's Blacksmith Shop, ca. 1897-1910	8
7. Interior of Vollrath's Blacksmith Shop in December 1911	10
8. Plan of Excavations	11
9. Profile of Disturbance in the South End of Trench B	12
10. Ceramics from 41 BX 786	14
11. Examples of Duerler Bottles	26
12. Buttons from 41 BX 786	27
13. Metal Artifacts	28

LIST OF TABLES

1. Provenience of Ceramic Sherds	13
2. Undecorated Refined Earthenware: Ceramic Type and Sherd Identification	16
3. Characteristics of Stoneware from 41 BX 786	21
4. Glass Containers from 41 BX 786	22
5. Bottle Use, Color, and Date	23
6. Inventory of Whole Bottles	24
7. Identifiable Metal	29

ACKNOWLEDGMENTS

The field crew consisted of Ron Burkett, Maureen J. Brown, Kenneth Brown, H. C. Harrell, Jon Hageman, Clinton McKenzie, assisted by volunteers Darla Cox and Burnley "Duke" Smith. The site map and profile were produced by Kenneth Brown. Frances Meskill was responsible for the layout of the other illustrations and the cover design. As always, a debt of gratitude is due the county archivist, John Ogden Leal; the staff of the Daughters of the Republic of Texas Research Library; and the personnel from the history section of the San Antonio Main Library for their assistance in the research portion of these investigations.

EDITOR'S NOTE: The advertisements used on the cover of this report are from the San Antonio city directories which are a valuable resource in discovering the everyday life of a city. Included at the end of this report is a list of the city directories in which these advertisements were taken.

INTRODUCTION

In May 1988, the Bexar County Commissioners Court contracted the Center for Archaeological Research (CAR), The University of Texas at San Antonio (UTSA) to conduct background research on the northern portion of New City Block (NCB) 102, Lots 10 through 15, in downtown San Antonio (Figs. 1 and 2). This was the planned site for a new Bexar County Justice Center parking facility at West Nueva and South Flores Streets, adjacent to the new Justice Center building.

A search was conducted in the Bexar County Archives, Bexar County Deed Records, the Daughters of the Republic of Texas Research Library, files of the Center for Archaeological Research, and other sources to determine property ownership and what structures had previously occupied the area. As a result of that research it was determined that excavations within the southern half of Lots 10 and 11 would be required as this was the area of a blacksmith shop in 1874.

The excavations of Vollrath's 1874 blacksmith shop (Lots 10 and 11, NCB 102) were conducted by a team of archaeologists from the CAR-UTSA in August 1988. The project was conducted under the general supervision of Jack D. Eaton, principal investigator and acting Center director and coprincipal investigators, Anne A. Fox and I. Wayne Cox. The work was done under Texas Antiquities Committee Permit No. 705. All field notes, photographs, and drawings pertaining to this project are on file at the CAR-UTSA.

HISTORICAL BACKGROUND

PROPERTY FRONTING ON NUEVA STREET (Lots 14, 14A, 15, and 16)

The NCB 102 property was acquired by Tomas Antonio Travieso, eldest son of Vicente Alvarez Travieso of the Canary Islands and first *alguacil mayor* (sheriff) of San Fernando (Chabot 1937:163-165). The original grant could not be located, but it was indeed prior to 1808, for the property is listed in his will probated October 19 of that year. Travieso married twice, first to Gertrudis Rodriguez and second to Maria Rosalia Sendejo. The son of the second union, Vicente, acquired the property (*Spanish Wills*).

In 1812, one of Travieso's descendants conveyed the west portion of the property (Lots 14, 15, and 16) to Juan Antonio Padilla (*DR Vol. J1:224*). Padilla constructed a house near the creek as his residence probably at that time (*DR Vol. H1:436*). This is

probably the structure shown on the Koch (1873) map (Fig. 3). Juan A. Padilla died in the latter part of 1838, and the property passed to his wife, Apolonia Montes de Oca (*Probate Records B Red Volume:431*). After her death in 1846, the property was inherited by Alejo Montes (*DR Vol. H1:437*; Fig. 4). In 1870, Alejo Montes gave his wife, Clara, one half interest in the property (*DR Vol. V2:295*). The following year they jointly sold the western half (Lots 15 and 16) to Refugia Greer (Grier; *DR Vol. W1:360*). In 1885, Refugia Grier, now widowed, sold the lot to Edward Kotula for \$1625 (*DR Vol. 42:230*). In 1888, Kotula and his wife, Wilhelmina, sold the property to Octavia LeComtes for \$2800 (*DR Vol. 57:583*). In 1895, the property had an assessed value of \$3900, and the following year Octavia's husband, Leon, engaged Eugene Davis to erect a one-story brick store and an iron-clad warehouse at a cost of \$2500 (*Mechanic and Builders Liens Vol. H:462*). He leased this structure to R. E. Koehe as a livery stable (City Directory 1896-1897). In 1903, the stable was being operated by W. J. K. Sharkey (City Directory 1903-1904). The LeComtes had the stable reroofed and repaired in 1910, and Octavia was widowed by 1913 (*Mechanic and Builders Liens Vol. 426:509*). When Octavia LeComtes died February 15, 1917, the lot and structure with an appraised value of \$18,000, passed to her seven children (*Probate Records 8524*). A three-story fireproof building with a basement was constructed for the John Deere Plow Company on the lot in 1929 (*Sanborn Map and Publishing Company, Ltd. 1952*).

In 1875, the heirs of José Maria Montes conveyed their remaining holding (Lot 14) to Martin Munch, who conveyed it the following year to H. W. Monroe (*DR Vol. 1:111, Vol. 2:206*). Monroe sold the property to Isabella Anderson in 1874, and her heirs conveyed it to G. W. Dilworth, Sallie Dilworth, and Hugh Lewis in 1877 (*DR Vol. 4:227, Vol. 5:514*). They in turn sold the property to C. B. Wilson and J. M. Foster for \$500 in March 1883 (*DR Vol. 27:340*). They contracted the following month for the construction of a two-story frame house at a cost of \$5800 (*Mechanic and Builders Liens Vol. B:79*). This is the first indication of any structure on the lot. There is no listing for the address in the 1903 city directory, and the structure is not shown on the 1904 Sanborn insurance map (City Directory 1903-1904; *Sanborn Map and Publishing Company, Ltd. 1904*). The lot was still vacant in 1952 (*Sanborn Map and Publishing Company, Ltd. 1952*).

PROPERTY FACING ONTO SOUTH FLORES STREET (Lots 10, 11, A10, and A13)

By 1849, the eastern portion of the Travieso property had been conveyed to Melchor de la Garza,

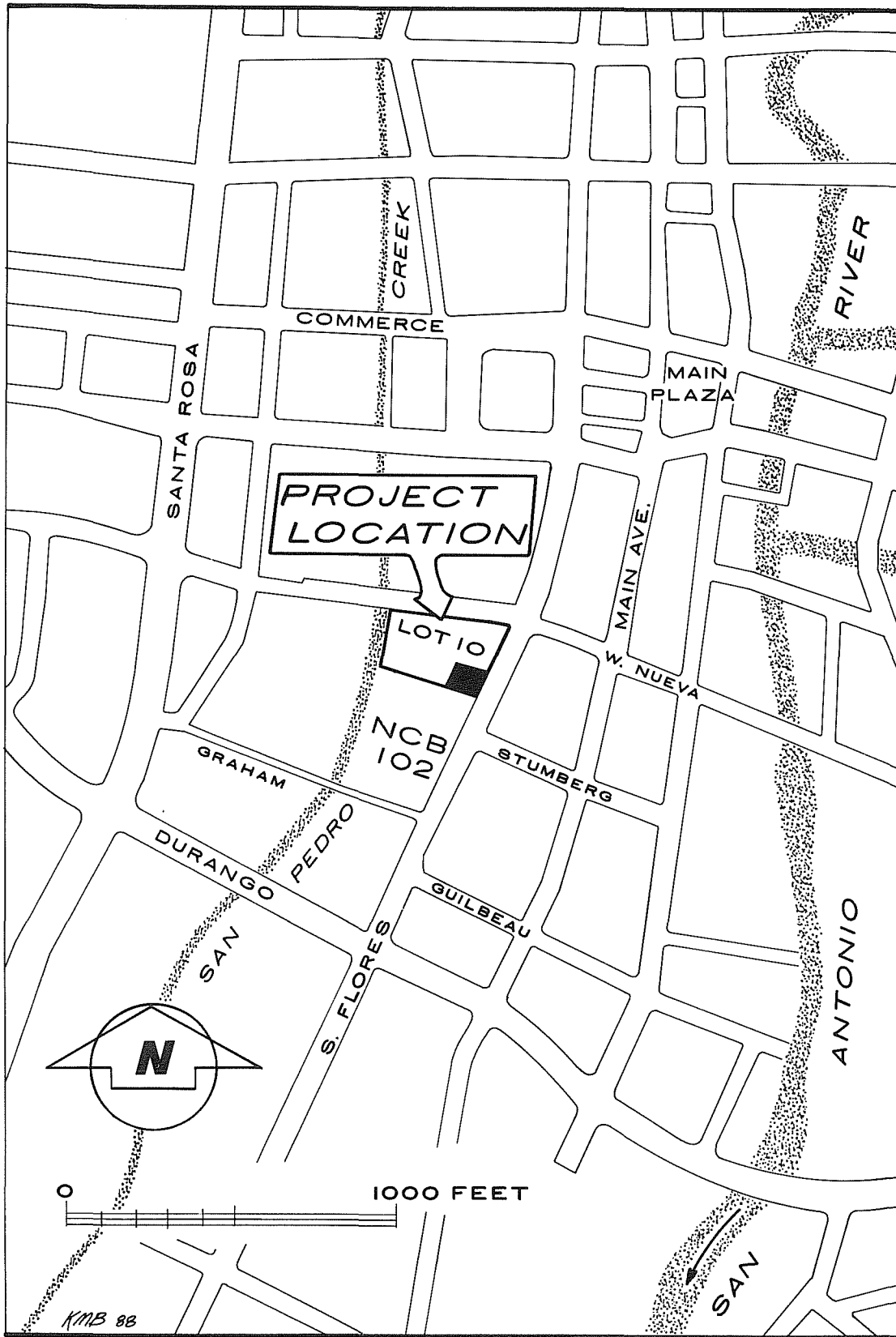


Figure 1. Project Location.

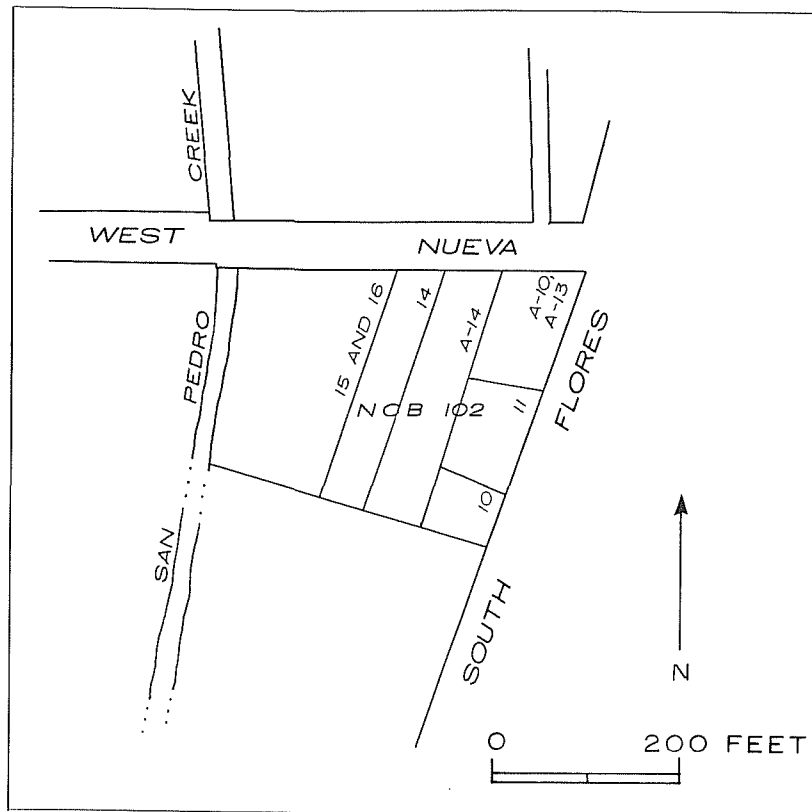


Figure 2. Location of NCB 102 in Downtown San Antonio. Indicated are the lots on the northern half of the block.

and upon his death in April 1849, the property passed to one of his heirs, Maria Guadalupe de la Garza (*DR Vol. H1:309*). She sold the property to Angel Serafin Le Comte de Watine, who, in turn, conveyed the property to Francois Guilbeau in February 1850 for \$600 (*DR Vol. H1:523*). Francois, born August 4, 1813, at Acenis, Brittany, came with his father, also Francois, to San Antonio in 1839 (*Chabot 1937:264*). In 1871, Francois Guilbeau, the son, purchased an additional 20 varas (55.5 feet) to the west, fronting on Nueva Street, from Manuel Montes de Oca to complete the present lots (*DR Vol. W2:195*). The houses on Lots 10 and 11 would have been constructed during the Guilbeau ownership (Figs. 2 and 4). In November 1874, Guilbeau sold the southern third (Lot 11) to Louis Vollrath for \$1000 (*DR Vol. 3:270*). Vollrath erected a stone blacksmith shop on the property which he and his heirs operated until after 1915 (*City Directories 1877-1917*).

In 1917, the property housed the New York Junk Shop owned by A. Schulman, most likely in a new structure, and by 1921, it was rental property (*City Directories 1917-1921*). By 1952, it was occupied by a wholesale dry goods warehouse for the Clark-Blugthe Company (*City Directory 1951*).

Lots 10, A10, A13, and 11 were acquired by the city in 1900 for nonpayment of taxes and purchased by Henry, Peter, and Theo Grandjean (*DR Vol. 258:489*). The two surviving brothers, Peter and Henry, sold the lots to Ed Pfefferling and J. F. Binz for a total figure of \$4500 in 1904, where they established a mule and horse trading lot (*DR Vol. 231:605, 607*). In 1905, John Dullnig leased the northern corner (201 South Flores Street) as a grocery store, where he remained until 1910 (*City Directories 1905-1910*). In 1905, Ed Pfefferling was running his business alone, but in 1905 he took Frank Kring as a partner (*City Directories 1905-1909*). In 1910, J. F. Binz rejoined the business and replaced Pfefferling in 1911 (*City Directory 1910-1911*). In 1914, Pfefferling and his brother, Henry, purchased the business (*City Directory 1914*). By 1917, the animal yards had become Mission Auto Company operated by F. A. and J. E. Foster (*City Directory 1917*). By 1921, the corner was occupied by the Lassner Feed Store (201-203 South Flores Street), a structure to the south (205-207 and 209 South Flores Street) was vacant, and B. H. Alberts had taken over the motor sales company (*City Directory 1921-1922*).

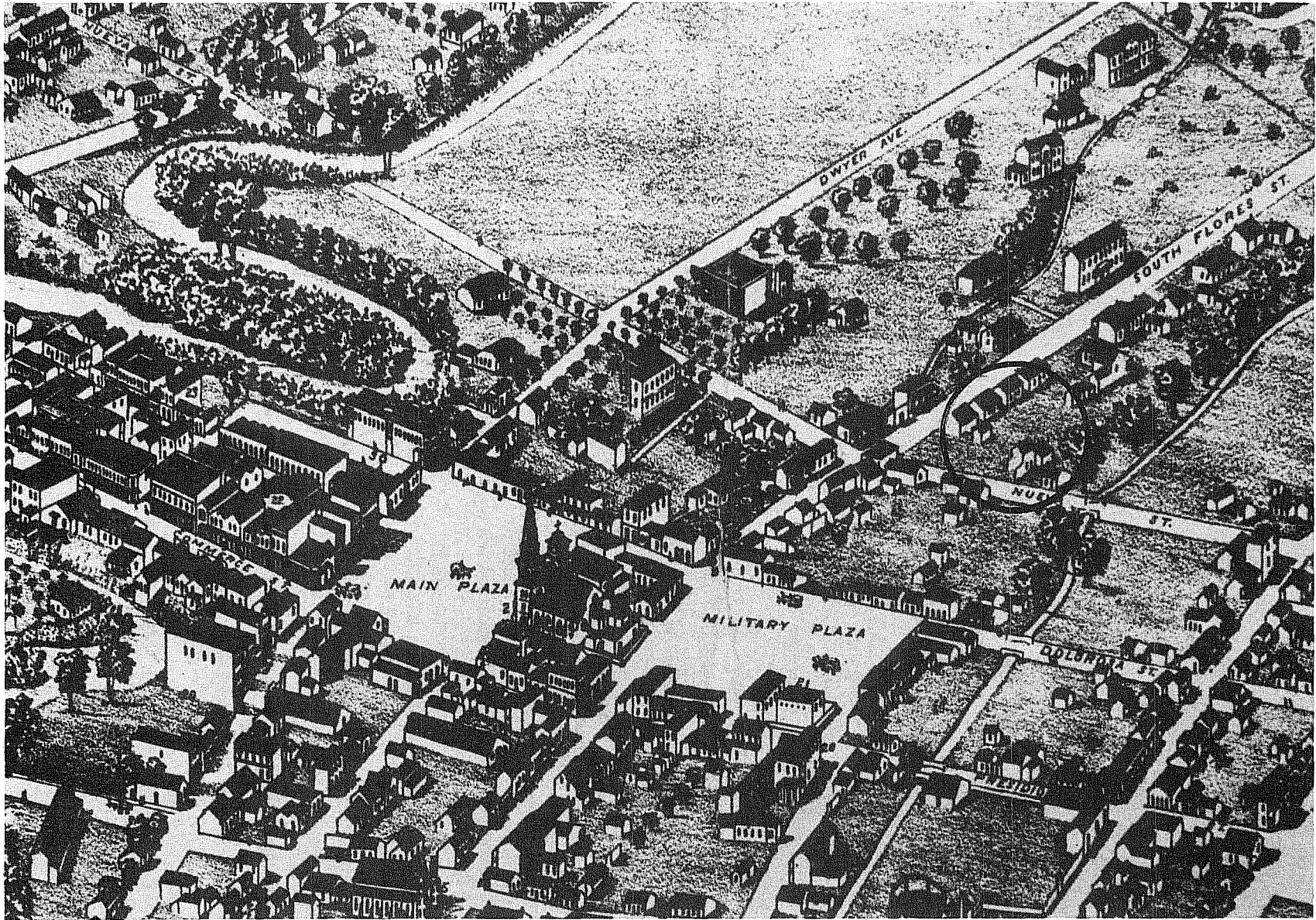


Figure 3. *Bird's Eye View of San Antonio in 1873*. View to the southeast. Project area is indicated by circle. Taken from Koch (1873).

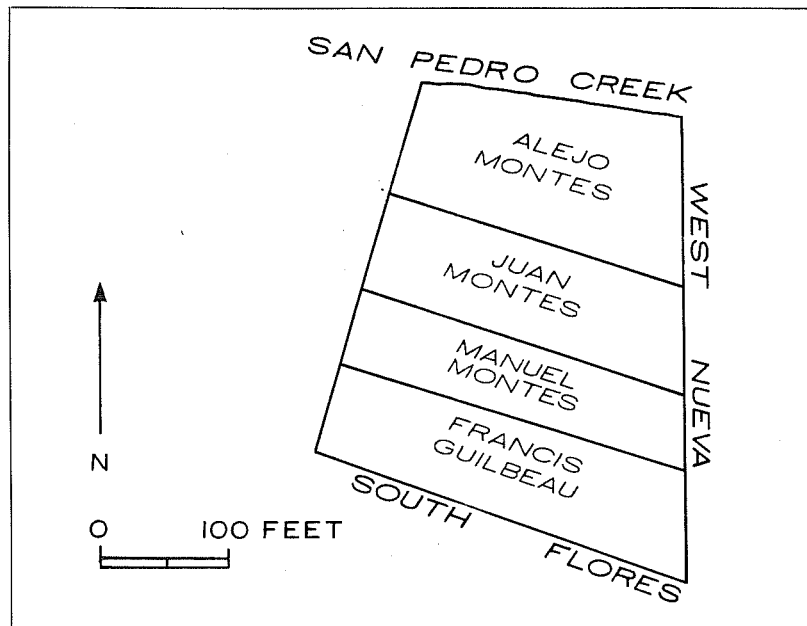


Figure 4. The 1860 Division of Properties on the North End of NCB 102.

BLACKSMITHING IN SAN ANTONIO

The beginning of the first recovery of iron from ore is not known but is generally conceded to have taken place about four millennia ago. Evidence of the knowledge of ironworking has been found in China ca. 2000 B.C., and the Egyptians and Syrians are believed to have had the knowledge about as early as the Chinese (Watson 1968:7-9). The development of iron metallurgy “. . . brought about one of the most significant revolutions in the history of mankind and led directly to the rise of modern civilization” (Simmons and Turley 1980:XV).

The blacksmith arrived in the new world with the invasion of Hernando Cortéz in 1519. They were required to shoe the horses, manufacture and repair the weapons of conquest, and to fabricate the attributes of peacetime (Watson 1968:10). The profession followed Juan de Oñate into New Mexico in 1598. As early as that year, fully equipped blacksmiths were established on the upper Rio Grande (Simmons and Turley 1980:XVI).

The first recorded blacksmith in San Antonio was Juan Banul. He was born John Van Luden in Brussels, Flanders, now Belgium (*LGS* 1737:54; *San Fernando Baptismal Records* 1731:353). At that time, Belgium was under Spanish rule, therefore, Banul was considered a Spanish subject. While still a young man,

he came to New Spain and arrived in San Antonio about 1719, probably with the Alarcón expedition. In 1721, he joined the Aguayo expedition as a *Cabo de Escuadra* (corporal) and helped establish six missions and two presidios in east Texas and Louisiana and returned to San Antonio shortly after that date (Chabot 1937:117; Nesmith 1975:1-2). Upon his return to San Antonio, he became an *El Maestro Herrero* (master smith), and was placed in charge of the forge at Mission San Antonio de Valero (The Alamo), where he also was in charge of the sawmill. In 1730, he married María Adriana Garcia, also of Belgium, the widow of Manuel Leal (Chabot 1937:19,117; Nesmith 1975:1-2). The following year, on November 14, she gave birth to a daughter, Manula (*San Fernando Baptismal Records* 1731:353). As late as 1737, he was the only blacksmith in the province of Texas (Nesmith 1975:1-2). In 1741, Banul received a grant of land for his service of over 20 years to the Crown. In 1747, he and his family were residing on the south side of the *calle potrero*, now Commerce Street at Iturri (Chabot 1937:174).

An inspection conducted December 14, 1772, when the mission was transferred from the College of Zacatecas, described the blacksmith shop (Leutenegger 1977:35):

Forge (Fraqua)

This room is about 7 or 8 varas long [approximately 19 1/2 or 22 feet] with a corresponding height and width. It contains a table with an anvil of two beaks, an anvil 7 arrabas in weight [approximately 175 pounds] with its block.

Two vises, 2 pincers, and a mallet.

Three hammers, a drill with its bit, a bevel, a screw plate with 5 screws, 3 chisels, 3 punches for cold and 1 for hot use, a drill, 4 flat files, 2 grinding stones, 2 with a medium knob, a hacksaw.

Some round tongs and a grinding stone, which is at the door of the forge.

Juan Banul died March 29, 1775, and was buried in the cemetery of San Fernando Cathedral (*San Fernando Burial Records 1775*).

When Stephen Austin founded his colony in east Texas, he counted four blacksmiths among the settlers: Thomas Blake, Philip Coonce, John L. Marshall, and Pashal P. Borden (White 1983:18, 33, 44, 45). The latter was the son of Gail Borden, a blacksmith in his native New York, and the brother of Gail, Jr., Thomas H., and John B. Borden (Webb 1952:189-191).

The 1830 census has no blacksmiths listed for San Antonio, while the census for Nacogdoches has five listed (White 1983:77-131). This is probably because the blacksmiths of San Antonio are included within the 38 "artisans" listed (White 1983:79-112, *passim* 123-126). By 1850, there were 22 blacksmiths in San Antonio, and a total of 27 within the county, as well as three wheelwrights, two farriers, and one "iron molder" (USDI-OC 1850). In 1860, blacksmithing stood third in Texas industries, behind grain and lumber. The average blacksmithing establishment employed two or three hands at an average wage of \$350 annually. While not impressive by today's standards, that salary was \$13 higher than the average industrial worker, \$45 more than the average person working in a mill, and \$106 more than the average farmhand (Dugas 1955:155). By 1870, the increasing number of foundries throughout the country producing cheap iron products had decreased the number of blacksmiths, but blacksmithing still remained as one of the top five industries in the state, for the increased amount of iron products increased the need for the blacksmith's skill to keep them in repair (Dugas 1955:162; Bealer 1969:24).

HISTORY OF VOLLRATH'S BLACKSMITH SHOP

In 1874, Louis Vollrath purchased Lot 10 (217 South Flores Street) and had a stone blacksmith shop constructed upon it (Fig. 5). Vollrath, a native of Saxony, a province of western Germany, was born in 1835 and emigrated to Texas in approximately 1855. He and his wife, Augusta, had nine children, five boys and four girls (USDI-OC 1880). Prior to opening his blacksmith shop, he had been a stockman (USDI-OC 1870).

A visitor to San Antonio, in 1874, describes the area in this manner (King and Champney 1874:108-110):

The Military plaza is surrounded by storehouses and shops, and is always filled with wagon teams and their picturesque and ragged drivers. From thence it is only a few steps to one of the Mexican quarters of the town, sometimes called 'Laredito'. There the life of the eighteenth century still prevails, without taint of modernism. . . . The residences on Flores street are all completely embowered in shrubbery and many are intrinsically fine. There are few wooden structures in the city. The solid architecture of previous centuries prevails. Putting up a house is a work of time; the Mexicans slowly saw and carve the great stones, but the working is solid when completed, and fire proof.

In 1877, there were 16 blacksmith shops operating in San Antonio, but by 1880, the number had grown to 24 (City Directories 1877-1880). Louis operated his blacksmith and wheelwright shop, assisted by his son, Frederick H., until his death, at age 45, when he was killed in a horseback riding accident. At that time, Frederick took over the business, assisted by his younger brother, Louis, Jr. (City Directory 1881-1882; *San Antonio Light* 1962:21).

By 1891, the number of blacksmith shops had increased to 31, and to 40 the following year. In 1877, when there were 16 blacksmith shops, the population was 17,710, or one shop for approximately every 1107 citizens. By 1891, the 31 blacksmith shops provided one for approximately every 1645 residents. By 1900, the population had grown to 53,321, the largest city in the state, and the number of blacksmith shops had increased to 65, or one for every 820 citizens (City Directories 1877-1900; USDI-OC 1900). This per capita increase probably reflects the fact that although after 1870 the blacksmith was no longer essential to as many fields, the increased availability of inexpensive iron products made his skills more frequently sought (Bealer 1969:25).

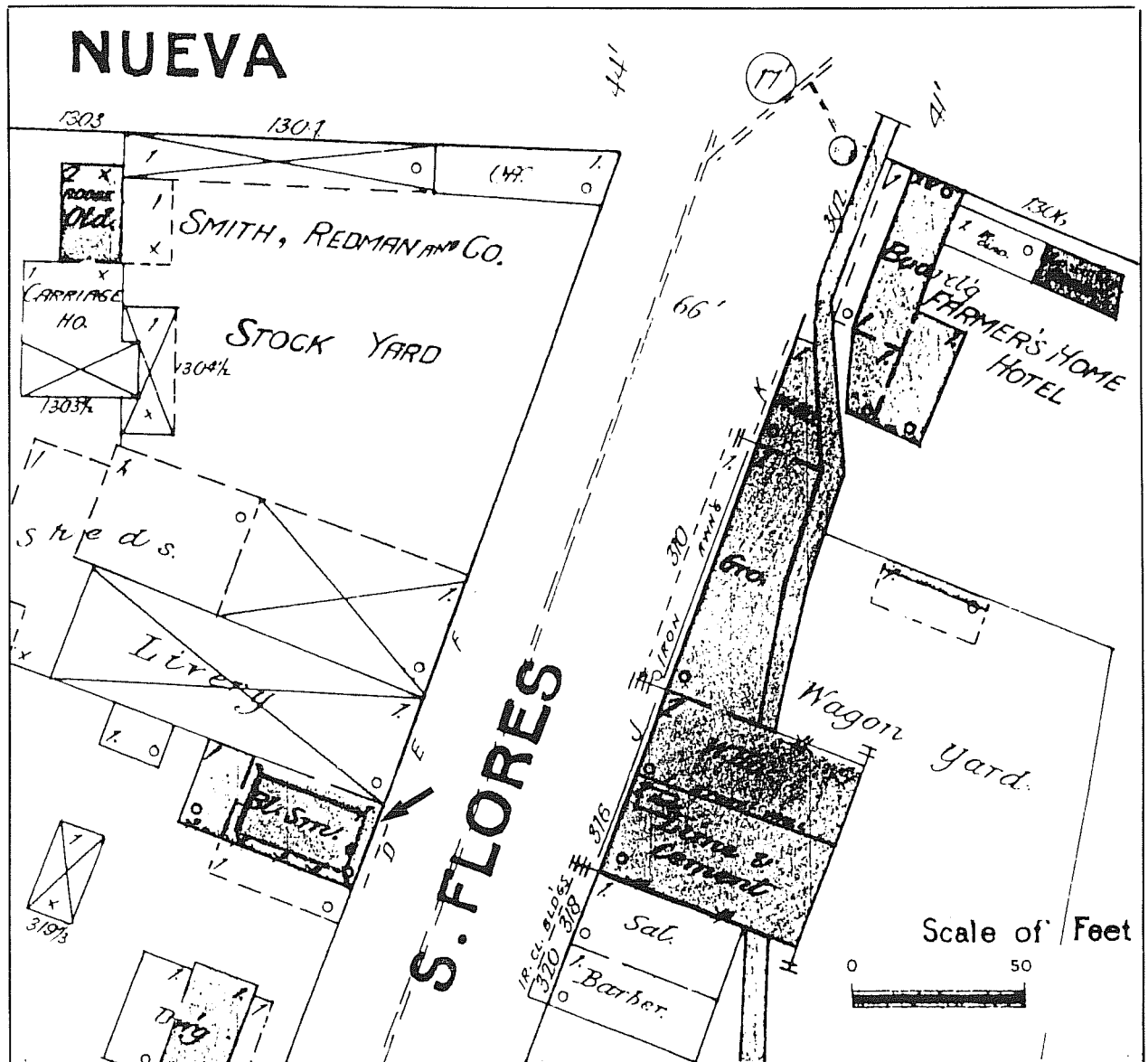


Figure 5. Vollerath's Blacksmith Shop as Shown on the 1888 Sanborn Insurance Map. Arrow indicates the Vollerath Blacksmith Shop.

The late 19th century saw the introduction of new inventions and scientific discoveries, and the increase of modern industrial methods began to have their effect on the age-old art of blacksmithing. In 1893, Henry Ford road tested his first gasoline-powered automobile, but by 1900 there were still fewer than 8000 automobiles in the United States. In 1909, Ford introduced his Model T Ford, and the following year sold 19,051 to the public (Watson 1968:102-103). Since the early automobiles resembled buggies more than anything else and were primarily metal, the blacksmith shop was still the usual place for repairs.

In 1899, Frederick, then 40 years old, turned the operation of the shop over to his brother, Louis, and became the agent for the business (City Directory 1899-1900). In October 1901, Louis Vollerath was working at his forge when a spark flew into a can of oil, which exploded throwing the burning liquid over him. He died of his injuries October 17, at age 36 (*San Antonio Express* 1901). Frederick again took over operation of the smith, and continued to operate it, with the aid of his brother, Herman, for the next nine years (Fig. 6). On June 2, 1910, Frederick was stricken with paralysis while at work. As he lay unconscious, a

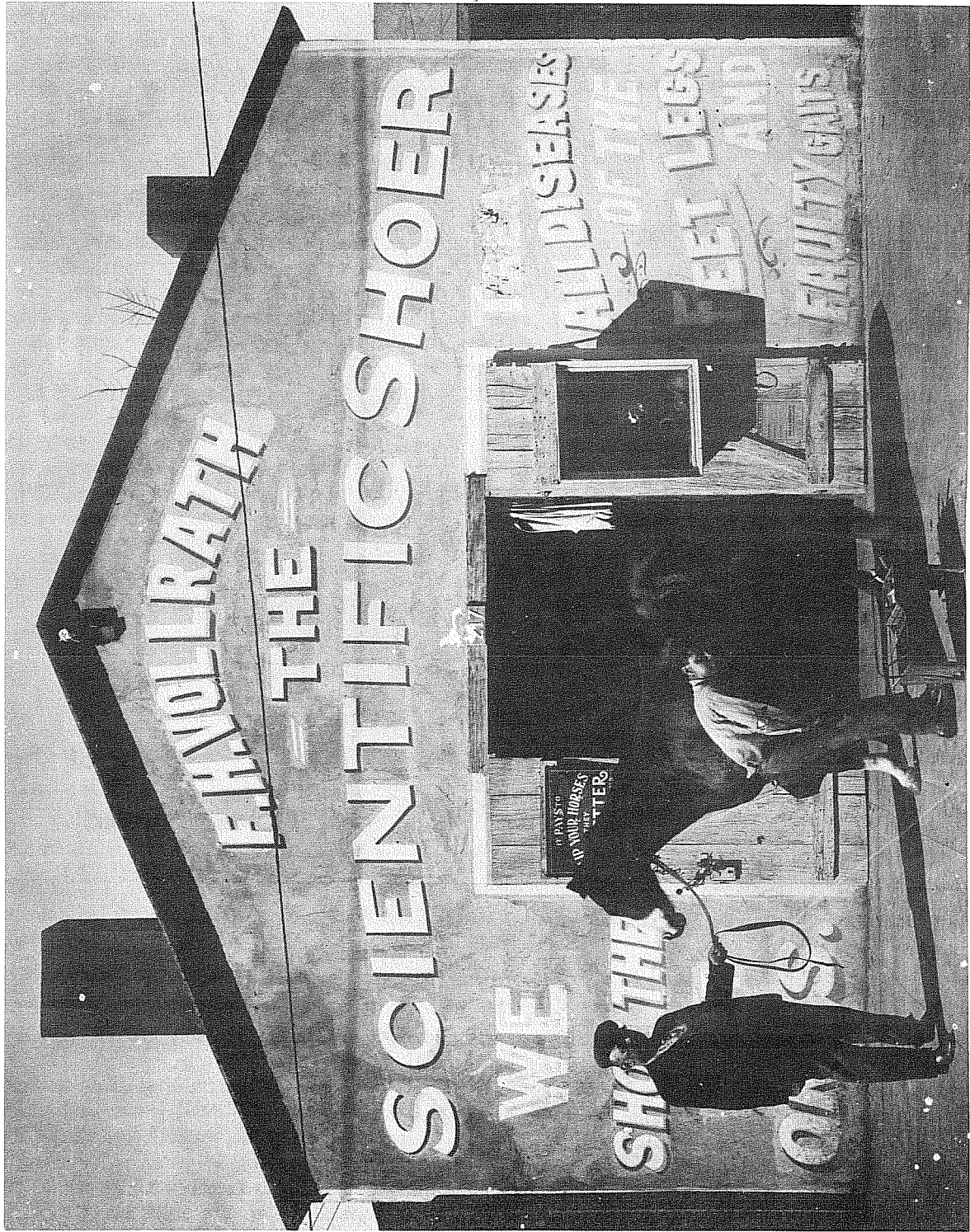


Figure 6. Exterior of Vollrath's Blacksmith Shop, ca. 1897-1910. F. H. Vollrath holding horse bridle.

woman robbed him of a \$1000 worth of jewelry. He was found later in the day, but died two days after, having never regained consciousness. He was buried in the family plot in Dignowity Cemetery (*San Antonio Express* 1910). A brother, Charles Adolph Vollrath, took over the shop until approximately 1915 when it was closed (Fig. 7).

Ownership of the property passed in six equal shares to Frederick Vollrath's heirs. Since he never married, these consisted of his remaining brothers, Charles and Herman, his sisters, Louisa Vollrath Loeffler, Mary E. and Augusta Vollrath, and the three children of deceased sister Emily Vollrath Schedler (*DR Vol. 633:428*).

After the blacksmith shop was closed, the property was occupied by various tenants until 1921-1922, when the various heirs conveyed the property to Nathan Kallison and Celestine Villemain (*DR Vol. 653:529, Vol. 657:279, Vol. 669:563*). Kallison then sold his interest to Villemain in 1922 (*DR Vol. 699:327*). It was probably at this time that the building was razed and replaced by a brick wholesale dry goods warehouse. This structure was leased to various tenants until 1960, when it was conveyed to C. T. Castro and Company (*DR Vol. 1463:615, Vol. 1893:284, Vol. 2153:523; Probate Records: No. 270609, Nichols*).

DESCRIPTION OF FIELD WORK

Excavation of NCB 102 began August 9, 1988, with a team of seven staff archaeologists and two experienced volunteers, assisted by a backhoe supplied by the contractor. The entire area had been cleared of standing structures, and the site of the blacksmith shop had been isolated from the other construction work for safety purposes.

The area of the blacksmith shop was specifically selected for investigation as the only portion of the project area where relatively undisturbed remains could be expected. The offices and sheds on the northern portion of the lot would not have possessed sufficient foundations to have survived the later construction on the site, and the western portion had been destroyed by a basement for the John Deere Plow Company in 1929.

The first trench excavated (Trench A) was placed north to south parallel to South Flores Street and seven feet to the west (Fig. 8). It became immediately apparent that the area had been badly disturbed by utility construction, and in the process of trenching, a one-inch water line was ruptured, causing abandonment of the excavation. The machine was relocated seven feet farther to the west, and Trench B was opened parallel to Trench A. This area was also totally disturbed, but a larger area was opened on the

southern limits of the lot, and a profile of the disturbance was produced (Fig. 9).

The machine was repositioned 21 feet farther to the west, and a third parallel trench (Trench C) was opened which exposed the south wall of the structure. The structure was encountered some seven feet north of its expected position. A further study of the records disclosed that this apparent error was a result of re-establishing the lot line without taking into account the widening of Nueva Street during the early 1900s. The structure proved to be constructed of ashler-dressed, 18-inch-thick limestone blocks.

Once the exact location of the building was established, an east-west excavation was begun at the anticipated midline of the structure (Trench D). The southwest corner was located 75 feet west of South Flores Street. To insure that we had, in fact, located the southwest corner, a trench was excavated 15 feet south, and parallel to, Trench D, with no structural features encountered (Trench E). Two additional trenches (Trenches F and G) in this area encountered several small trash pits.

On August 10, 1/4-inch screen was set up, and Trenches H, I, J, K, L, and M were opened on all sides of the structure. Trench H revealed an interior stone partition wall 25 feet from the western extremity of the building, which would have been 55 feet from the front, or eastern, wall that had been destroyed by the utility construction. In the process of opening Trench K, a brick foundation with concrete pylons was discovered three and one-half feet north of the blacksmith shop.

Further work was conducted in Trenches A and B in an attempt to locate some indication of the structure that may have survived the utility work, but the disturbance on the eastern 18 feet of the lot was too extensive. Trench A did reveal a concrete pad that was a part of a later structure that replaced the blacksmith shop.

The remainder of the field work concentrated on hand cleaning of the existing walls and excavation and screening of the materials in the various trash pits encountered. It will be noted in the artifact section of this report that the finds from the trenches on the western portion of the lot (Trenches D, E, F, and G) do not appear to be in association with the blacksmith shop but appear to relate to the previous structures that occupied the property (ca. 1849-1874). The artifacts from Trench J clearly date from the period after the destruction of the blacksmith shop and probably prior to the erection of the subsequent structure (ca. 1921).



Figure 7. Interior of Vollrath's Blacksmith Shop in December 1911. Charles Adolph Vollrath at anvil, second from right.

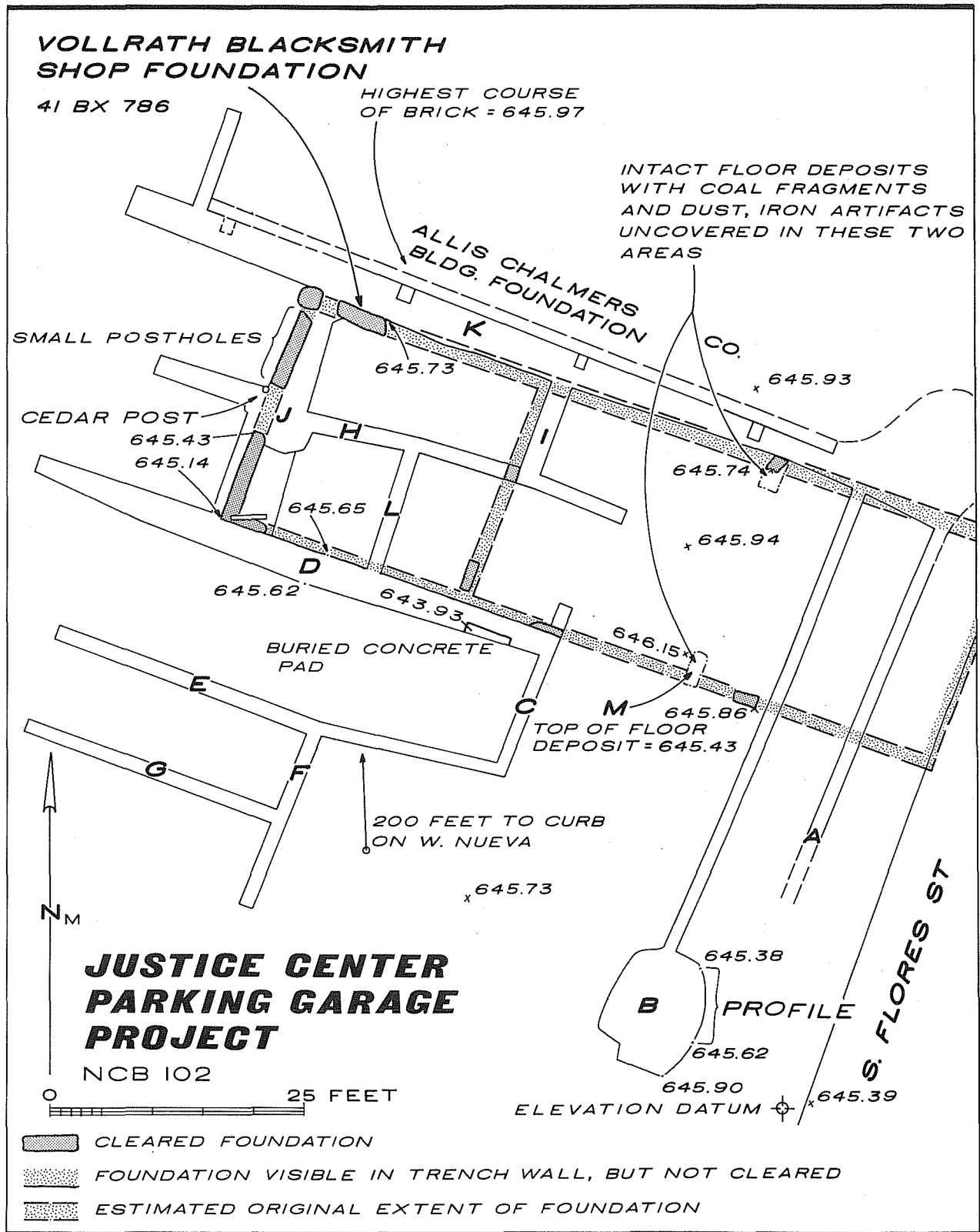


Figure 8. Plan of Excavations.

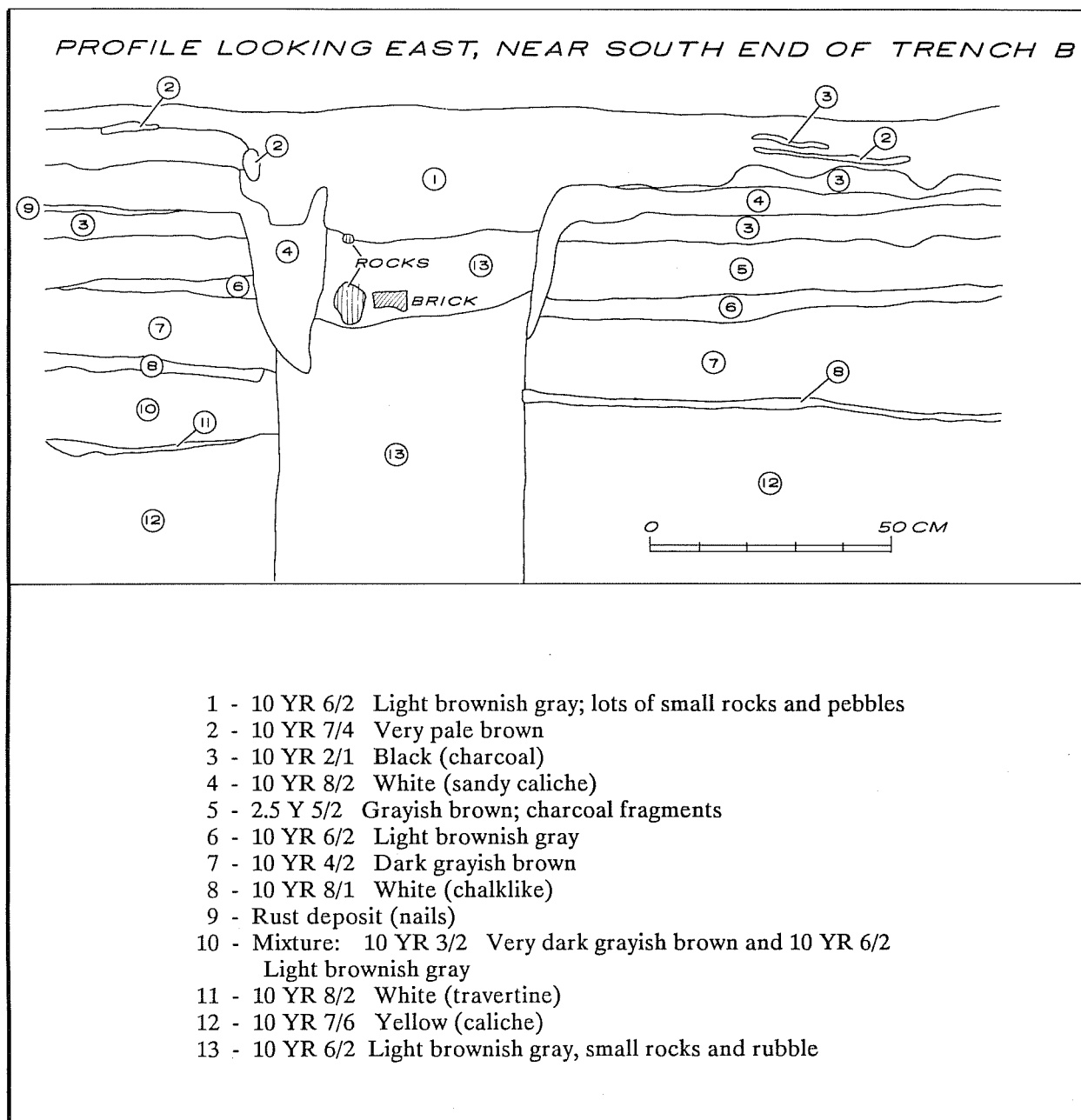


Figure 9. Profile of Disturbance in the South End of Trench B.

ARTIFACTS

CERAMICS (Maureen J. Brown)

Excavation of the Justice Center parking garage site (41 BX 786) has yielded a surprisingly wide variety of different types and styles of pottery within a relatively small sample. The types are divided into two main groups, soft-paste earthenwares and hard-paste/refined earthenwares. The reason for this method was to separate the Indian and Mexican handmade wares from the English, European, and Anglo-American wheel-turned and mass-produced wares. Within these two main categories there are also subgroups to divide the decorated wares from the undecorated, for example. The porcelain, stoneware, yellowware, and lusterware are described separately.

Table 1 shows the ceramic types collected from each trench. The undecorated refined earthenwares comprise 47% of the total ceramics. Of this percentage, 20% is pearlware, 60% is whiteware, and 20% is ironstone.

SOFT-PASTE EARTHENWARE

Unglazed Earthenware (2 specimens)

In San Antonio and other colonial Texas sites usually two types of unglazed earthenwares, hand-built or *Goliad* ware, and wheel-turned or *Valero* ware, are most commonly found (Ivey and Fox 1982).

Goliad Ware (2 specimens; Fig. 10, j)

The two specimens of unglazed earthenware are identified as *Goliad* ware, which appears to be a historic continuation of the ceramics made by the prehistoric peoples in south Texas, and is so named after the site where it was first identified, in Goliad, Texas (Ivey and Fox 1982). Fox describes *Goliad* ware as a locally handmade, hand-built ware, usually having a bone temper, showing the distinctive dark cores and variegated surface colors from being fired over campfires. *Goliad* ware continued to be made by some portion of the local population throughout the Spanish colonial period, 1718-1821, and perhaps even through the Mexican period, 1821-1836 (Ivey and Fox 1982). Two body sherds of this type are present in this collection, but are too small to determine vessel shape.

TABLE 1. PROVENIENCE OF CERAMIC SHERDS

CERAMIC TYPES	TRENCHES									TOTAL
	B	C	D	E	F	G	H	J	K	
Soft-Paste Earthenwares										
Unglazed	1					1				2
Lead-glazed						15		2		17
Tin-glazed			3							3
Hard-Paste Earthenwares										
Undecorated	2		29	14	7	95	3	2	5	157
Transfer printed			2	1		2		1	1	7
Flow blue						3				3
Hand painted		1	2	2		24	1		1	31
Edgeware			2		1	4			2	9
Slipware	1		1	2	1	3	1	1		10
Sponge/Spatterware			5	3		33		1	1	43
Miscellaneous	1		1	1		3			1	7
Lusterware							1	1		2
Yellowware						2				2
Porcelain		4	1			8		3		16
Stoneware	1		4	2	1	3		3	15	29
TOTAL	6	5	50	25	10	196	6	14	26	338

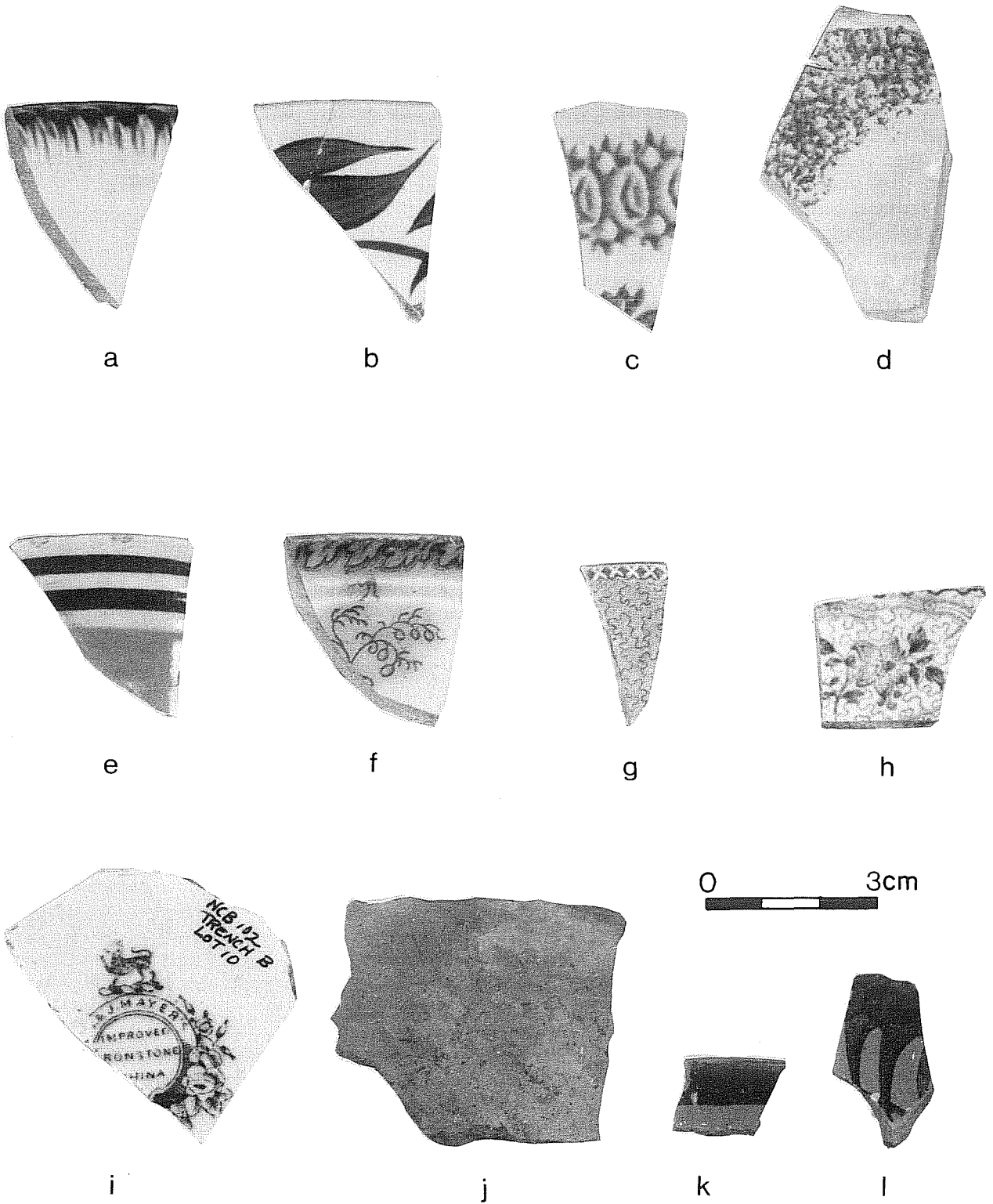


Figure 10. *Ceramics from 41 BX 786*. a, edgeware; b, hand painted; c, cut spongeware; d, spatterware; e, slipware; f-h, transfer printed; i, maker's mark on ironstone; j, *Goliad* ware; k-l, *Galera* ware.

Lead-Glazed Earthenware (17 specimens)

Included in this collection are 17 red paste, thin-walled, lead-glazed sherds, seven of which bear brown dots, bands, and swirled designs. Most of the sherds have an interior and exterior lead glaze, but four ceramic sherds only have an interior glaze. Fox (1986:111) points out that “sherds in the red paste group represent small jars and pots which were primarily mold-made in western Mexico.” This variety of thin, lead-glazed ceramic is called *Galera* ware (Fig. 10,k,l) and appeared in Texas about 1750 and continued in use into the early 1800s (Ivey and Fox 1982). Similar wares are still being made in some parts of Mexico today (*ibid.*). The lead-glazed earthenware specimens are identified as two rim sherds, 14 body sherds, and one unglazed body sherd.

Tin-Glazed Earthenware (3 specimens)

There are three known varieties of tin-glazed or tin-enameled earthenwares, named for the regions in which they are made. In France, these earthenwares are known as faience; in England and Holland, they are known as delft; and in Spain and the Mediterranean area as majolica.

The most common type of tin-glazed earthenware ceramic found in the San Antonio area and Texas colonial sites in general is Spanish majolica. This ceramic type has a cream-colored, tin-enameled glaze applied to a soft cream or pinkish colored paste with a variety of decorated styles (Clark 1974:82). Majolica got its name from the Spanish island of Majorca, which was a staging-post for Mediterranean trade routes (Haslam 1975:7). It was then introduced by the Spanish into Mexico in the middle of the 16th century with the principal *alfarerias* (pottery manufactories) at Puebla (Tunnell 1966:2). The majolica ceramics represented in this collection are three undecorated body sherds that may be fragments of a decorated vessel. Again, the shape of the vessel cannot be determined because of the small size of the fragments.

HARD-PASTE/REFINED EARTHENWARE

Hard-paste or refined earthenwares, commonly known as “whitewares,” were originally made in the latter half of the 18th century in the northwestern province of Staffordshire, England, better known as the “Pottery District.” The “district” is comprised of about 10 towns or hamlets, some of which are Stoke-on-Trent, Burslem, Hanley, Tunstall, and Longton (Wedgwood and Ormsbee 1947:1). The towns’ borders are so close together that most all of

them are within walking distance of the other. It was in this “district” that a combination of available clay and coal, along with opportunity, and cheap water transport of the Trent and Mersey Canals made the potteries, and thus the English whitewares so successful (*ibid.*:4). Many of these factories, like Spode and the Royal Minton Potteries, are still producing the same wares today. These wares were mass produced and “made for exportation to the United States in the first half of the 19th century” (Fox 1986:111). Large quantities were shipped to the coastal ports of New Orleans, and from there would be transferred to various other ports, one of which was Galveston, Texas. These quantities would then be carted inland to be sold in every major town, including San Antonio (*ibid.*).

It is important to note that refined earthenwares were developed in gradual stages. Godden (1975:140) writes that in “England, the refined, lightweight, whitish or cream-colored earthenware (‘Queen’s Ware’), replaced both the old tin-glazed delft and faience as well as the salt-glazed wares.” The introduction of flint (calcined and finely ground) and West Country clays into the body early in the 18th century, produced a stoneware body when fired at a high temperature, and a cream-colored ware when fired at a moderate temperature and dipped in a lead glaze (Godden 1975:141).

Creamware was introduced in about 1740, and by 1760 was the standard English pottery body being produced. The cream-colored ware gave way in turn to pearlware, basically a whiter body, the whiteness accentuated by a slightly blue glaze (*ibid.*). This glaze can more easily be seen in the crevices, such as that of a base foot ring, or handle attachment. Pearlware was introduced by Wedgwood as early as 1779, but did not come into general favor for some time (Godden 1975:141). Ivor Noël Hume (1969) writes of pearlware as “one of the landmarks in the evolution of English earthenware, providing a bridge between creamware . . . and the bone china, ironstone, granite and porcelaneous wares of the nineteenth century.”

Another such refined earthenware that follows both creamware and pearlware, and started being manufactured for mass production before ironstone is commonly called whiteware. This type of pottery was being exported from England to the Americas during the early 19th century, and can still be bought today. The distinguishing factors about whiteware is its whiteness, thin quality, and sometimes molded edges (Anne A. Fox, personal communication). However, occasionally one may find a slight tint of blue in the overglaze. Much of the time ceramicists do not bother to separate whiteware from pearlware, because they are so difficult to distinguish one from the other.

The last type of refined earthenware to be mass produced for exportation during the 19th century was ironstone china. It is of a more heavy durable body, making it highly saleable especially in the export markets, suffering little if any damage in transit and in the markets of the 19th century. The patent, "Ironstone China" was entered July 1813 under the name of Charles James Mason of Fenton in the Staffordshire Potteries (Godden 1975:204). So successful was Mason's patent that practically every potter of the 1830-1880 period made versions of it, and today's so-called "hotel wares" are closely related to the Victorian ironstone china (*ibid.*).

Undecorated Refined Earthenware (157 specimens)

During the latter half of the 19th century, 'plain' or undecorated ceramics became more popular than the earlier transfer-printed or painted wares. This was predominantly true for ironstone china. It should be mentioned here that many of the undecorated sherds may have been from unadorned portions of decorated vessels. In this instance, the collection of undecorated specimens would appear to be larger than that of the decorated, which may or may not be the actual case.

Table 2 was devised to show a layout of the different body types, sizes, and vessel forms for the undecorated refined earthenwares in this collection.

Decorated Refined Earthenware (110 specimens)

Archaeologists, ceramicists, and the like can now look back on the English-made refined earthenwares and distinguish between and date the creamwares and whitewares not so much by the body texture but more easily by the style or decoration added to the body. In addition, many of the decorated vessels, especially on the bottom of plate bases have manufacturers and/or importers marks (stamped, pressed, or painted). Listed in Table 1 are the different types of decorated "white paste" refined earthenwares found in this collection.

TABLE 2. UNDECORATED REFINED EARTHENWARE: CERAMIC TYPE AND SHERD IDENTIFICATION

Ceramic Type and Sherd Identification	TRENCHES							TOTAL	
	B	D	E	F	G	H	J		K
Pearlware									
Cup Fragments									
Base		1	1		1				3
Handle					1				1
Rim					6				6
Body					5				5
Plate Fragments									
Base					2		1		3
Rim				1	2				3
Saucer Fragments									
Base		1			1				2
Rim					4				4
Body				1	2				3
Unidentified (body)				2					2
Total Pearlware		2	5	1	23		1		32

Table 2. (continued)

Ceramic Type and Sherd Identification	B	D	E	TRENCHES			I	K	TOTAL
				F	G	H			
Whiteware									
Cup Fragments									
Handle/Body			1						1
Base					2			1	3
Rim		1	1	1	1				4
Plate Fragments									
Base		1				1			2
Rim					3			1	4
Body		1	1		4			1	7
Saucer Fragments									
Base					3				3
Rim		7		1	3	1			12
Body		1			2				3
Jar Fragments									
Body					1				1
Chamber Pot Fragments									
Base					1				1
Rim			1						1
Mug Fragments									
Base								1	1
Unidentified Body		9	4	3	33		1		50
Total Whiteware		20	8	5	53	2	1	4	93
Ironstone									
Plate Fragments									
Base*	1				4				5
Rim	1				2	1		1	5
Body		2	1	1	6				10
Handle Fragment					1				1
Saucer Fragments									
Base		1							1
Cup Fragments									
Rim		2							2
Unidentified Body		2			6				8
Total Ironstone	2	7	1	1	19	1		1	32

* "... & J. MAYER'S IMPROVED IRONSTONE CHINA"

Transfer-Printed Ware (7 specimens; Fig. 10, f-h)

Transfer-printed ware was a very popular item imported to the United States from England during the early 19th century. There are several steps involved in the process of transfer-printing a design onto a ceramic vessel, which are listed by Durrenberger (1965:9):

- Step 1: Etch the design on a copper plate
- Step 2: Ink the plate with a pigment in a suspension of oil
- Step 3: Press the plate on a piece of linen paper
- Step 4: Place the paper on the ware to be decorated
- Step 5: Transfer the design by rubbing the back with a flannel cloth
- Step 6: Heat vessel to drive off the oil base of the pigment, glaze and refire.

Transfer-printing on creamware was first used by Josiah Wedgwood in making his famous black-on-white "Queen's Ware" after the 1750s (Noël Hume 1969). The first indication of transfer-printed wares being imported into the United States by the mid-1780s is a black-on-white ware found at Williamsburg that can be dated shortly after 1783 (Noël Hume 1963:299). However, the major production of transfer-printed wares came from England around 1790 to the early 1850s.

The popularity of both the transfer-printed design/pattern and the changing demand for specific colors help to establish the date and time period of use of the vessel(s). The following is a list of designs and colors that were popular for a specific time period:

- 1750s Transfer-printing technique developed; black-on-white popular (Noël Hume 1969).
- Pre-1780 Blue became the most popular of the transfer-printed colors.
- 1780 "Willow" pattern first introduced by Thomas Turner of Caughley (public information, display plaque, Minton Museum, Stoke-on-Trent, England); usually found in the popular blue color.
- 1790-1793 Thomas Minton started producing the "Willow" pattern (*ibid.*). This pattern has been copied by many potteries, and is still being manufactured today.

- 1800-1820 Oriental designs followed by landscape scenes became prominent (Gilmore 1986:78).
- 1828 Lighter colors (pink, light blue, green, lavender, red, brown) introduced (Norman-Wilcox 1936; Gilmore 1986:78).
- 1840s and 1850s Pastoral scenes, flow blue, and mulberry designs became popular (Norman-Wilcox 1936; Gilmore 1986:78).
- Later Polychrome transfers came into use.

Transfer-printed wares in this collection include the following: three blue saucer rim sherds with a floral motif; one blue body sherd of a cup in an oriental pattern; one blue "spriglike" pattern body sherd to a saucer or bowl; one red saucer rim sherd with a geometric design; and one mulberry cup body sherd with an oriental-type pattern.

Flow Blue Ware (3 specimens)

The designs on flow blue ware were essentially produced the same way as on transfer-printed ware, except that the cobalt 'blue' from the design was intentionally allowed to run, creating a blurred or smeared look. This design was created sometime in the 1840s and was still listed in the 1908 Sears catalog (Schroeder 1971; Gilmore 1986:79).

In this collection, flow blue wares include three sherds with different geometric designs. Vessel forms include two plates and one saucer.

Hand-Painted Ware (31 specimens; Fig. 10, b)

Hand-painted ware is represented by two types, underglaze and overglaze. In most cases, the underglazed hand-painted wares have an earlier date than the overglazed wares.

Underglaze (13 specimens)

All of the underglaze hand-painted fragments appear to have floral motifs. Four sherds have the most commonly used blue-on-white floral design. The other colored floral patterns consist of one sherd with light blue and two sherds with red designs. Five sherds contain a polychromatic sprig-type design. Vessel forms represented are cups and saucers.

Overglaze (18 specimens)

Fifteen hand-painted overglazed sherds have a floral design, while three rim sherds have a reddish annular pattern. Vessel forms represented are three cups and three saucers.

Edgeware (9 specimens; Fig. 10,a)

Edgeware is so named for the ceramic vessels (usually on plates or on other flatware pieces; Fox 1983:139) that have a decoration along the rim. This decoration is usually in the form of a "cockled edge," also called shell edge or in the form of a brush stroke, also called feather edge, among other forms. Varying distinctions are made between the two. The edge decoration can either be incised or not incised. Moir (1987) has devised a useful chart showing the different patterns along with the dates that correspond to them. Moir's dates for edgeware are from the years 1775 to 1890. In Texas, this form of decoration is mainly found in blue and less commonly in green and mulberry.

Moir's chart was used as a comparison for the edgeware in this collection and as a means to describe the specimens. Three specimens have a green, noncockled edge (no incising, shell is brush stroked), dated ca. 1870-1890. One specimen has a blue, noncockled edge (poorly incised), dated ca. 1850-1865. Two specimens have a blue, noncockled edge (lightly incised trident), dated ca. 1840-1860. Two specimens have a blue, noncockled edge (fish scales), dated ca. 1820-1845. One specimen has an unidentifiable edge, mulberry color (poorly incised), unknown date approximation.

Spongeware/Spatterware (43 specimens)

In this collection are three different types of sponge-type wares: spatterware, traditional sponge, and cut spongeware. Spatterware became important as a marketplace commodity between 1820 and 1850, and was primarily a product for export (Robacker and Robacker 1978:32). Cut sponge decoration apparently began in Scotland, and was done by means of cutting out the smooth root of a sponge, dipping the sponge into a moistened color and then applying it to the vessel, leaving a stamped pattern (*ibid.*:74-76). Soon after 1845 the cut sponge decoration flourished in the English market (Robacker and Robacker 1978:80-81).

Spatterware (20 specimens; Fig. 10,d)

Seven red spattered sherds are represented by six fragments that appear to be that of a saucer (one base with a three-inch diameter and five body sherds) and one body fragment from a cup. In addition, seven light blue spatter-decorated saucer fragments (one rim and six body sherds) and four light blue spattered cup pieces (one rim and three body sherds) were collected. Two sherds have dichromatic spatter in light blue and mulberry (two body sherds: one cup and one saucer).

Traditional Spongeware (11 specimens)

Two cups are decorated in the plain or traditional spongeware style, represented in red (rim) and blue (rim and body). Also in blue are both a bowl (rim and a body fragment with interior and exterior decoration) and a saucer (three rim and three body sherds).

Cut Spongeware (12 specimens; Fig. 10,c)

Fragments from two saucers are decorated in the cut sponge style. One is decorated in a red cut sponge floral motif around the sides of the saucer with thin light blue painted rings around the base and rim (two rims, one base, and one body fragment). The other saucer is decorated in the same fashion with a green floral motif and a red painted rim (one rim, three body sherds).

A third vessel is either a cup or a cream pitcher decorated in yellow, green, and red geometric and floral cut sponge designs. It has two thin green painted lines along the base and a red line painted along the interior rim (one rim, two body sherds). One red and green body sherd is too small to be able to tell its vessel form.

Slipware (Banded/Mocha; 10 specimens; Fig. 10,e)

Refined earthenware or yellowware that has been decorated with slip (clay that has been mixed to a consistency of cream) is called slipware (or otherwise called "dipped"). Slip was usually added to the vessel before being fired. Slip was made in a variety of colors and was either used as a wash for an entire vessel, or, was applied with a brush as dots, narrow bands, wavy lines, or as colored panels (Labadie 1988:21). From 1790 until about the mid-1950s, three major designs dominated the English industry. They are banded slipware, mocha ware, and marbled slipware (Van Rensselaer 1966:378; Labadie 1988:21). By the first quarter of the 19th century additional decorations

known as the "worm," the "twig," and "cats eye" were being combined with mocha and banded designs (Labadie 1988:21). Other slipware decorative techniques produced effects known as tortoiseshell, agate, marble, and the combed pattern (Lewis 1985; Labadie 1988:21).

Cups decorated in the banded slip style in blue, brown, and yellow are included in this collection of refined earthenware. There appear to be two different patterns: one in which the rim contains two brown bands on white with a light blue wash below, and the other has a white edge followed by a light blue wash. There are a total of three rim and seven body sherds. The mocha ware pattern was found on two yellowware fragments (see description under "Yellowware").

Miscellaneous Wares (7 specimens)

The miscellaneous category includes several sherds that contain combinations of different decorations as previously discussed. These sherds include the following:

1. Blue transfer-printed saucer rim fragment decorated in a floral design with small dots of yellow overglazed paint.
2. Black transfer-printed saucer body fragment (two sherds) decorated in a floral and geometric motif with a layer of flow blue beneath the design.
3. Mulberry transfer-printed plate rim and body sherds (two sherds) in a floral motif with a layer of flow blue beneath the design.
4. Dichromatic (blue and red) transfer-printed saucer rim fragment in a geometric pattern with flow blue added.
5. Luster decorated (see description under "Lusterware") plate (rim and body) fragments (two sherds), unidentifiable design, with flow blue added.

LUSTERWARE (2 specimens)

Luster or "lustre" decoration is formed by applying thin metallic films to ceramics. On pottery the main effects are silver or copper luster. These can be applied in two basic ways: as embellishments to an enameled object, or as a complete or near complete covering to give the effect, partially at least, of a silver or copper object (Godden 1975:214). In England, usually the silver or platinum luster was applied to a white body, but the slightly later copper luster (derived from gold) was normally applied to a dark clay-colored body. From about 1840 a good range of inexpensive copper luster earthenware was produced (Godden 1975:215).

Of the two specimens in this collection, one is a plate rim fragment with a gold-lustered rim, and the other is a saucer base fragment covered with an orangish copper luster.

YELLOWWARE (2 specimens)

Fox (1986:122) has described yellowwares as having "a creamy yellow paste and a clear or mottled brown glaze." Yellowware was not solely produced by the English potters. By the 19th century, American potters were making yellowware as well. Many of the early American yellowware makers immigrated to the United States from England, where they had formerly served as apprentices for the yellowware manufacturers. One such potter was a man by the name of John Hancock (McCabe 1984:8), who had served as an apprentice under Josiah Wedgwood. He came to the United States in 1828 and commenced a pottery in South Amboy, New Jersey. By 1839, he began the manufacture of yellowware. Yellowware decorated with a slipped mocha ware pattern with a white annular band, called "pseudo-mocha," dates from the 19th century into the 20th century (Gilmore 1986:80).

The two slipped mocha ware sherds in this collection are of the "pseudo-mocha" type with the white band. These two body sherds appear to be fragments of a bowl.

PORCELAIN (16 specimens)

Porcelain is a highly fired clay. The common factors that differentiate porcelain from whiteware are its whiteness in color, its smoothness to the touch (almost glassylike), and the ringing sound made when hit lightly on a table. A total of 16 porcelain ceramic sherds is included in this collection. Four sherds are rim fragments painted green with a pencil-thin line of yellow along the edge of the rim. One sherd contains a pink floral motif and was surprisingly located in Trench E, while the other three sherds were located in Trench J. These four porcelain sherds are pieces to a toy saucer. The other 12 sherds are undecorated. Identifiable vessel forms are two plates and two saucers.

STONEWARE (29 specimens)

Unlike the ceramic wares previously discussed, stoneware is mixed with only one clay material. The clay is then fired at a very high temperature to give it great density and hardness. The color of the paste depends on where the clay is collected, and ranges

from a blue gray or off-white to a dark brown (Ketchum 1983:447). Even in the small assemblage of stoneware in this collection, there is an assortment of types of clay bodies with various slips and glazes added to them. Table 3 presents attributes of the stoneware sherds.

OBSERVATIONS

The ceramic sherds found during excavation of the Justice Center parking garage site (41 BX 786) seem to be associated with late 19th-century through early 20th-century trash pits. The largest trash pits were located on the westernmost area of the site (in the west end of Trenches D, E, F, and G). Trench G contained the largest quantity of ceramics and the greatest variety of types. This trench does not appear to be connected with Vollrath's blacksmith shop. Located in that vicinity were two houses that faced South Flores Street. One was an adobe house, built in 1849, and the other was a small house built in 1873. The ceramic wares seem to fit into this time frame, since we find the presence of the earlier pearlware as well as the later ironstone. Therefore, the trash pits appear to be

located in the back yard of the houses, and the ceramic fragments were probably discarded by the people who lived in them.

Trench B may or may not be associated with one of these two houses. The only diagnostic sherd found in the whole collection was found in this trench. Printed on an ironstone plate sherd (Fig. 10,i) is the stamp mark for T. J. & J. Mayer's, earthenware manufacturers in Longport, England, from 1843 to 1855 (Godden 1966:424).

Trenches H, J, and K were probably associated with Vollrath's blacksmith shop. Trench H contained a great many diagnostic artifacts (glass bottles, coins, etc.), but very few ceramic sherds. The eastern end of Trench K contained 25 ceramic sherds, 15 of which were from a stoneware crock, which was possibly a storage container. These trash pits are believed to be in back and alongside the blacksmith shop.

The examination and analysis of the ceramics from the Justice Center parking garage site (41 BX 786) conclude that the greatest number of ceramic sherds were located in the back yard of two mid-19th-century houses. These ceramics were mainly dinnerwares and a few containers. There are a few Mexican handmade wares, possibly from an earlier residence, but this is

TABLE 3. CHARACTERISTICS OF STONEWARE FROM 41 BX 786

Paste Color	Interior Slip	Exterior Slip	Glaze (Interior/Exterior)	Vessel Fragments	Trench
Tan	Brown	Brown	Interior/Exterior (lead)	Base	K
Tan	Brown	Gray	None/Exterior (salt)	Body	K
Gray	Green	Gray	Interior/Exterior (lead)	Body	D
Gray	Black	Gray	None/Exterior (salt)	Body	G
Gray	White	Brown	Interior/Exterior	Body	E
Reddish	Green	Green	None/Exterior (lead)	Body	D
Reddish	Green	Green	None/Exterior (lead)	Body	J
Reddish	Green	Green	None/Exterior (lead)	Handle	D
Reddish	Brownish Green	Brownish Green	Interior/Exterior (salt)	Handle	J
Reddish	Light Green	Green	Interior/Exterior (lead)	Body	G
Reddish	Brown	Brown	Interior/Exterior (lead)	Base/Body Crock (13 sherds)	K
Reddish	Brown	Brown	Interior/Exterior (Albany)	Body	G
Cream	Whitish	Whitish	Interior/Exterior	Body	J
Cream	Whitish	Whitish	Interior/Exterior	Body	D
Cream	White	Light Brown	Interior/Exterior	Rim (gin jar)	E
Cream	None	Reddish Brown	None/Exterior	Partial Handle (gin jar)	B
Cream	Brown	White	Interior/Exterior (Albany)	Body	F

difficult to determine because these wares are still being made today. *Goliad* ware has been found throughout the San Antonio area, especially at the Alamo and other missions. Therefore, it is not surprising to find it here in this downtown site. *Goliad* ware probably represents a direct continuation of local prehistoric ceramic traditions in south and central Texas (Fox, Bass, and Hester 1976:67). The majority of the pottery appears to have been imported from England during the mid to late 19th century.

GLASS CONTAINERS (Jon Hageman)

A total of 647 glass fragments and containers (Table 4) was recovered from 41 BX 786. For purposes of this study, each was classified into one of the following categories:

1. Whole/Mostly Whole Containers: containers complete enough that their overall size and shape could be surmised.
2. Diagnostic Fragments: pieces of glass that provide some clue to construction or original use or origin.
3. Nondiagnostic Fragments: pieces of glass that could not provide clues to construction, use, or origin.

CONSTRUCTION, COLOR, AND SHAPE

The construction of whole bottles and diagnostic fragments found at 41 BX 786 falls into one of three categories: open mold, closed mold, and machine made.

Molds commonly used in the first half of the 19th century were called open molds (Kendrick 1966:33). In an open mold, only the body of the bottle would be formed in the mold, while the lip and neck would later be formed by hand. Such bottles are distinguished by mold seams that run up the side of the bottle and stop at a distance greater than one-quarter of an inch from the lip (Kendrick 1966:47). Bottles 1, 5, and 9-16 are of this type of construction.

Later, starting about 1880, the closed mold was utilized in bottle construction. In a closed mold, the entire bottle is shaped in the mold, including the neck and lip. Mold seams may end within one-quarter of an inch from the lip (Kendrick 1966:47). Bottle 7 is the only example of closed mold construction found at 41 BX 786.

The third major type of construction represented in the assemblage is machine made. The automatic bottle machine was patented in 1903, thus signaling the end of the era of hand-blown bottles. By 1922-1923, machine-blown bottles proliferated throughout the industry (Busch 1987:73). Mold seams on machine-made bottles run all the way to the top of the lip. Bottles 6, 8, and 17 are of this type of construction.

While construction is one component of bottle analysis, there are other analysis tools available. One of these is a bottle's color. Color is not necessarily indicative of use or time period, but Table 5 presents some generalities about color and types of containers with dates of use. These are just generalities, but 74% of the glass recovered during this project falls under the "All Time Periods" or "1865+" dates.

TABLE 4. GLASS CONTAINERS FROM 41 BX 786

Trenches	Clear			Black			Green			Brown			Aqua			Blue			White			Other			Total					
	W	D	U	W	D	U	W	D	U	W	D	U	W	D	U	W	D	U	W	D	U	W	D	U	W	D	U			
B			1						1																			-	-	2
D	1	3	137		4				16	6			1		11			1										2	3	175
E			7		1				5						5									1				-	-	19
F			1								1				2			2										-	-	6
G		2	103		24				46		16		1	2	82			10			7							1	4	288
H			8								3			2	13													2	2	24
J	4	5	10					3		1	9			6	23		1											12	7	45
K	2	2	35					1			1	1		2	1			1										4	6	36
TOTAL	7	12	302	-	-	29	-	1	71	1	1	36	12	7	136	1	1	13	-	-	7	-	-	1	20	22	595			

KEY: W = Whole/Mostly Whole Containers
 D = Diagnostic Fragments
 U = Nondiagnostic Fragments

TABLE 5. BOTTLE USE, COLOR, AND DATE

Color	Use/Contents	Dates of Use
Amber/Brown	General/Alcohol	1860+
Aqua	General	All Time Periods
Black	Alcohol/Mineral Water	To 1870
Blue/Cobalt	Medicines/Soda/Cosmetics	1890+
Clear	General/Wine/Mineral Water	1865+
Milk (White)	Medicines/Cosmetics/Toiletries/Food	1890+
Red	Extremely Rare Specialties	All Time Periods

Yet another aspect of bottle analysis is shape. A bottle's shape is generally indicative of its original contents and purpose. A soda pop bottle is shaped differently from a Bromo-Seltzer bottle, and its original contents were different as well.

Bottles found at 41 BX 786 fall into three categories according to their shape: medicinal/cosmetic, food/soda water, and utility. Medicinal/cosmetic bottles originally contained some sort of medicine or product used as a cosmetic. Food/soda water bottles contained some sort of food product or soft drink. Utility bottles are placed in a broad, catch-all category, including, in this case, inkwells or general purpose household items such as Three-in-One Oil.

Of the 20 whole containers found at 41 BX 786, nine are classified as medicinal/cosmetic. The predominant form of bottle found at 41 BX 786 was the medicinal bottle. Whole containers (Table 6) of this type total 48%. Food/soda water bottles make up 28% of the total assemblage, while utility bottles comprise the remaining 24%.

Bottles 5, 6, 8, 9, 11, and 16 were found where Trench J intersected with Trench H. One of these bottles contained approximately 100 cc of some sort of petroleum-derived oil. Six bottles fall under the category of food/soda water, with three food and three soda water bottles being present.

With the exception of Bottle 4, all other food/soda water bottles (Bottles 7, 10, 12, 13, and 14) were found in the trash pit in Trench J. This is something of a misnomer, as no "pit" per se was detected. The bottles were recovered from a narrow (1-15 cm thick) lens of dark gray, ashy soil with an undisturbed layer of caliche approximately 30 cm thick above it. This lens was within the confines of Vollrath's blacksmith shop, as well. Given this information, it would appear that these bottles were inside the shop at the time of the fire, or deposited there shortly thereafter.

Of the three bottles exhibiting fragmentation from breakage, Bottles 9 and 12 are missing necks, and Bottle 5 was broken by the backhoe during excavation. Among the bottles, numerous bits of rusted metal and rusted nails were found along with nickels dated 1903 and 1910 and a 1916 penny.

THE "DUERLER DILEMMA"

A man named Duerler opened a candy business in San Antonio in 1875. Duerler made all sorts of candies and confections; he also bottled mineral water and various types of sodas. His business lasted until the 1920s, but the containers for his products remain.

Recovered from 41 BX 786 were two different types of Duerler soda bottles. One type (Fig. 11,a) had an identifying bottle maker's mark on the base, the other (Fig. 11,b) did not. In fact, the Duerler logo on the second type was of a slightly different pattern than that on the first. To make matters even more complicated, a Duerler bottle from 41 BX 8B (Hindes 1984; Fig. 11,c) has the same logo as the first type of bottle, but no maker's mark on the base. To add even more fuel to the fire, a fragment of a slightly different Duerler bottle was found at the site of Vollrath's blacksmith shop; whether it was from a soda bottle could not be determined as the fragment is not large enough to tell. If it is indeed from a soda bottle, another problem exists: the fragment is of clear glass, while all of the other samples are aqua.

What does this mean? Bottles 12 and 13 were made for Duerler by the Streater Bottle and Glass Company of Streater, Illinois, between 1881 and 1905 (Toulouse 1971:461). The other two bottles have no maker's marks, but Bottle 14 does not look as well made as the others. Is it an earlier type? Or a later one? Or just used for a different purpose? Such questions cannot be answered in this study; a whole research project

TABLE 6. INVENTORY OF WHOLE BOTTLES

Bottle Type	Provenience	Color	Height (inches)	Width (inches)	Thickness (inches)	Diameter (inches)	Embossing	Date
1. Unidentified medicine bottle	Trench D	Clear	4.76	1.70	0.81	--	None	
2. Inkwell	Trench D	Aqua	2.33	3.21	2.23	--	No. 5 SANFORD/ PATENTED NOV. 17, 1891/AND NOV. 22, 1892 (on base)	
3. Inkwell, conical	Trench G	Aqua	2.44	--	--	2.46 @ base 0.98 @ lip	None	
4. Screw-top jar	Trench H	Aqua	6.88	--	--	3.71	1177 (in base)	
5. Medicine bottle (fragments)	Trench H/J	Aqua	?	?	?	--	ATLANTA GA. (on one side panel), B.B.B. (on another side panel)	1887-1935) (Fike 1987:153)
6. Medicinal jar (Vaseline screw top)	Trench H/J	Clear	6.45	--	--	4.88	TRADE MARK/ VASELINE/ CHEESEBROUGH/ NEW YORK	1908 + (Fike 1987:56)
7. Food jar (screw top)	Trench H/J	Clear	3.30	--	--	1.58	HORLICK'S/MALTED MILK (on side)	
8. Medicine bottle	Trench H/J	Clear	3.46	--	--	1.75	F/2 (on base)	
9. Medicine bottle (bitters)	Trench H/J	Brown	8.00	2.61	2.65	--	DR. J. HOSTETTER'S STOMACH BITTERS (on side), AGW (on base)	1865-1905 (Toulouse 1971:43)
10. Food bottle (pickles)	Trench H/J	Aqua	7.25	2.08	2.08	--	None	
11. Medicine bottle	Trench H/J	Aqua	7.75	2.75	1.48	--	DR. MILES/ RESTORATIVE NERVINE (on side), F (on base)	1881 + (Fike 1987:180)
12, 13. Soda water bottle	Trench H/J	Aqua	7.74	--	--	2.48 (12) 2.49 (13)	DUERLER/SAN ANTONIO/TEX (on front), SB&G CO. (on base)	1881-1905 (Toulouse 1971:461)
14. Soda water bottle	Trench H/J	Aqua	7.80	--	--	2.51	DUERLER/SAN ANTONIO/TEX. (on front)	
15. Utility bottle	Trench H/J	Aqua	3.25	1.53	0.75	--	THREE IN ONE (on one side), COLE CO. (on other side)	
16. Medicine bottle	Trench H/J	Cobalt blue	6.30	--	--	2.68	BROMO-SELTZER/ EMERSON/DRUG CO./BALTIMORE, MD. (on front)	1889-1907 (Fike 1987:111)

TABLE 6. (continued)

Bottle Type	Provenience	Color	Height (inches)	Width (inches)	Thickness (inches)	Diameter (inches)	Embossing	Date
17. Medicine bottle	Trench K	Clear	3.53	--	--	1.63	2 FLD. OZS. (on side)	
18. Medicine/ cosmetic (cologne?)	Trench K	Clear	2.27	--	--	0.68	None	
19. Inkwell, conical	Trench K	Aqua	2.45	--	--	2.38 @ base 1.18 @ lip	9 or 6 (on base)	
20. Inkwell, conical	Trench K	Aqua	2.60	--	--	2.38 @ base, 1.16 @ lip	None	

could be planned around the topic. By researching records and other site reports, a chronology of Duerler bottles could be made and an effective dating tool created for the San Antonio area.

The glassware assemblage from 41 BX 786 is fairly representative of medicines and other products available at the time. The predominance of medicinal/cosmetic bottles suggests that the back room of Vollrath's blacksmith shop could have contained some sort of medicine cabinet, or that someone wanted to dispose of some old bottles in a recently burned down building. At this point, it is difficult to tell. All that can be said is that the bottles found were the types that would have been expected in such a site.

COINS (Clinton McKenzie)

Five coins were present in the materials recovered. The coins, in relation to their provenience, help date the site along with the artifacts recovered in context with them.

Four of the five coins were found in Trench J. Of these, three were found in direct relation to the contents of Trench J. Of the four coins found, two are Lincoln Head Wheat pennies dated 1916 Denver, and the other two are Liberty Head "V" nickels dated 1903 and 1910; the 1920 Denver Lincoln Head Wheat penny was found in the backfill from Trench J.

The fifth coin found at the site is an 1897 Indian Head penny. This coin was found in the backfill from the trash pit in Trench D.

BUTTONS/FASTENERS (Clinton McKenzie)

Five buttons were found during the course of excavation at the site. Of the five buttons, two are shell, one is metal (Fig. 12,a), one is a composite bone button (Fig. 12,b), and one is pearlized chalk (Fig. 12,c). One metal snap fastener (Fig. 12,d) and one suspender clasp embossed with the word "Security" were also found.

One of the shell buttons, the pearlized chalk button, and the metal snap fastener were found in the trash pit of Trench D. The other shell button, the composite bone button, and the metal suspender clasp were found in the trash pit of Trench J.

Of particular interest is the composite bone button (Fig. 12,b) from the trash pit in Trench J. It is from an army-issued trench coat, ca. World War I time (Curtis Harrell, personal communication).

METAL

In considering the activities associated with the operation of the blacksmith shop, one must obviously first examine the metal objects recovered. But in the case of these excavations, there are complicating factors. First, the horse and mule shoes (Fig. 13,d,e), harness parts, files, and other tools are not exclusively indicative of a blacksmith shop. They are common artifacts found in almost every household depending upon draft animals as a primary means of transportation and power. The picture is further obscured by the disturbance of the site and the superimposition of similar activities by later construction in the area. The presence of early automobile parts (Fig. 13,b), Model T (Fig. 13,a) and



Figure 11. *Examples of Duerler Bottles.* a, Bottle 12, Trench H/J, 41 BX 786; b, Bottle 14, Trench H/J, 41 BX 786; c, 41 BX 8B.

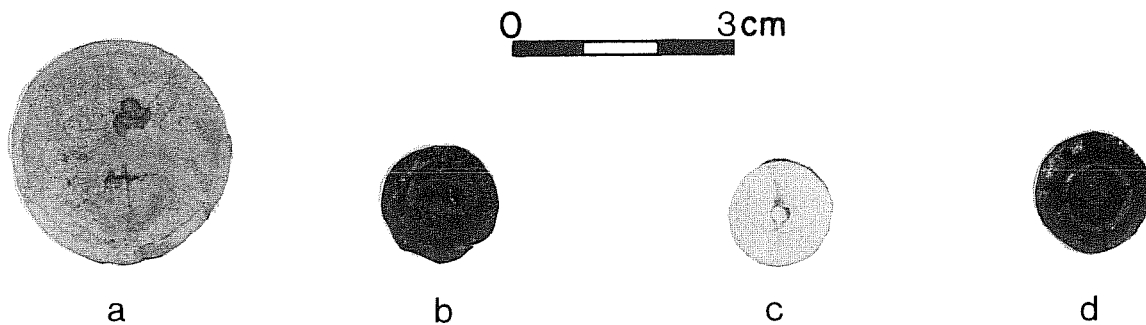


Figure 12. Buttons from 41 BX 786. a, metal button; b, composite bone button; c, pearlized chalk button; d, metal snap fastener.

Model A's, is not inconsistent with the blacksmith activities, since they were the logical inheritor of their repair. In fact, in many cases, the blacksmith adapted to become the first automobile repair facility. However, in the case of the Vollrath shop, other activities occupied the site for a few years. It was during the early 1920s that the area was occupied by automobile, tractor and farm machinery repair, and sales facilities, all of which deposited similar materials.

There are, however, three excavations where the concentration or provenience of the artifacts do seem to indicate that they were in direct association with the blacksmith activities (Table 7). Trench D, with a high concentration of both blacksmith- and automobile-related artifacts, was located parallel with the south wall of the structure. This would have placed it in the "wagonyard" where projects would have first been initiated and outside repairs accomplished. This would have also been the area where reusable metal would have accumulated and been stockpiled. Trench J was located along the west wall of the facility under the enclosed open rear of the shop, while the forges and anvils were located in the eastern portion. This area was probably utilized for projects requiring more time and protective cover. Finally, Trench M, one of the two excavations that could clearly be identified as an intact portion of the blacksmith floor, produced the only tool that could be confidently identified as being hand wrought, a bladelike object with a lapped socket for the attachment of a handle (Fig. 13,c). Therefore, the objects recovered in these areas indicate the expected blacksmithing activities, as well as indicating that during the post-1900 period the shop expanded into the automotive repair business to some extent.

NAILS (Clinton McKenzie)

As would be expected with the excavation of a blacksmith shop a great quantity of metal artifacts were found, in particular nails. Several types of nails were recovered. These include two inch and two and one-quarter inch horseshoe nails, plate cut nails, forged nails, and wire nails.

Of the horseshoe nails, the two and one-quarter inch were the predominant size recovered, all of which were forged. Smaller sized "tack" nails were also found, although not in as great abundance.

The two predominant sizes of plate cut nails were 8 and 12 penny weight. Post-1880 cut nails were produced from pretapered iron plates and have a slightly rhomboidal cross section (Fontana and Greenleaf 1962:53). Since Vollrath's blacksmith shop was established in the late 1870s, the occurrence of these nails was to be expected. Nails of this type were found in both larger and smaller penny weights but not in highly significant amounts. There were a few forged nails found which average about two and one-quarter to three and one-half inches in length. It is quite possible they were part of the structure of the building itself.

Wire nails did not see widespread use until late in the 1880s, but by the turn of the century wire nails became dominant with the exception of specialty trades (Fontana and Greenleaf 1962:50). The abundance of wire nails in the sample is indicative of this fact.

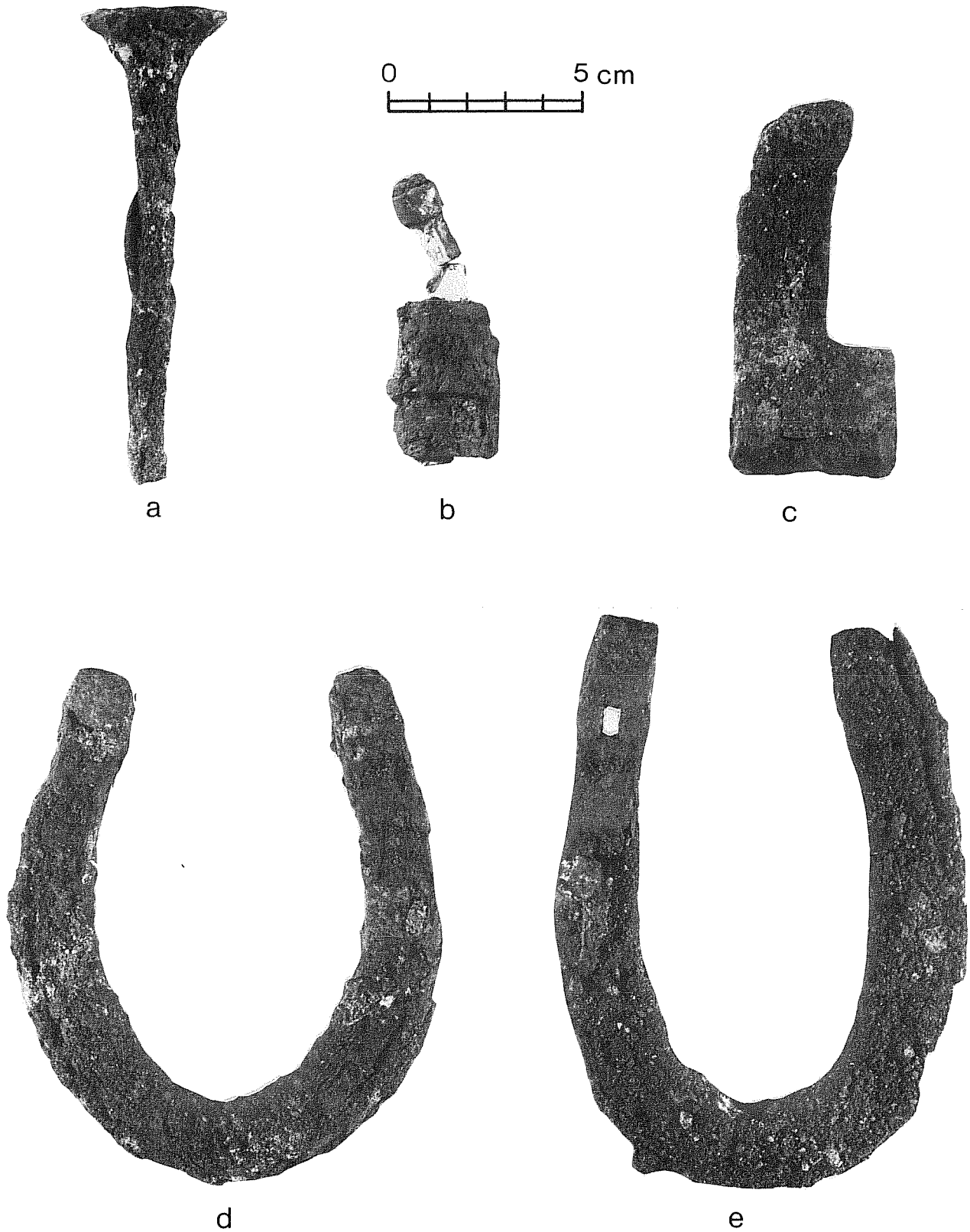


Figure 13. *Metal Artifacts*. a, valve stem for Model T Ford; b, spark plug; c, wrought tool; d, horse shoe; e, mule shoe.

TABLE 7. IDENTIFIABLE METAL

	TRENCHES										TOTAL
	B	C	D	E	F	G	H	J	M		
Horse/Mule Shoes	2	1	8		2	5		3	2		23
Metal Fasteners	1	1	4	4		4	2	8	2		26
Automotive Parts	1		2	1			3	11			18
Files		1	3				1				5
Tire Tool			1								1
Harness Parts			1								1
Machinery Parts			2								2
Blacksmith Tool									1		1
TOTAL	4	3	21	5	2	9	6	22	5		77

DISCUSSION AND CONCLUSIONS

Vollrath's blacksmith shop was an important element of the character of San Antonio for almost three decades, and reflected much of the early industry of the city. The research and excavation gave the CAR a unique opportunity to examine an industry that was vital to early San Antonio. The research revealed many major facets of the structure, its ownership, and basic configuration, while the archaeology contributed other physical facts omitted from the archival data.

The structure was originally constructed as a one-story ashler-dressed limestone building with outside dimensions of 25 feet x 40 feet, with a wooden one-story addition, 25 feet x 25 feet, appended to the rear (Fig. 5). This wooden addition was replaced by limestone of the same type as the basic structure, 25 feet x 25 feet, after 1888 (*Sanborn Map and Publishing Company, Ltd.* 1888, 1892, and excavations). The interior floor surface was of packed earth, a safety factor against fire. The exterior was plastered, and the forges, two in number, were located at the front of the building (Figs. 6 and 7). Unfortunately, this area was destroyed by utility construction and prevented what could have been valuable information on the actual operation of the smith area.

Due to the previous disturbance of the front portion of the structure, the most important area, the forge and work space, was unavailable for study. It was also difficult to identify specifically which artifacts were associated exclusively with the blacksmith shop operation due to extensive later modifications of the site. It was clear, however, from those identifiable with the period 1874 to 1921, that the transition from

blacksmithing to automobile repair could be established.

Since the structure has been developed by the construction of the Justice Center parking facility, the site does not appear to be eligible for State Archeological Landmark status or to be listed on the National Register of Historic Places.

Due to the complete destruction of the site, no further action is recommended. However, should additional expansion of the area be considered in the future, investigation to the south of the garage would be required. The lot immediately south once contained one of the oldest structures in the area, an "adobe" house probably dating to as early as 1849.

REFERENCES CITED

- Bealer, A. W.
1969 *The Art of Blacksmithing*. Funk and Wagnalds, New York.
- Bexar County, Texas
Deed Records (DR)
County Clerk's Office, Bexar County Courthouse, San Antonio.
- Land Grants and Sales (LGS)*
County Clerk's Office, Bexar County Courthouse, San Antonio.
- Mechanic and Builders Liens*
County Clerk's Office, Bexar County Courthouse, San Antonio.
- Probate Records*
County Clerk's Office and District Court Records, Bexar County Courthouse, San Antonio.
- San Fernando Baptismal and Burial Records (Translations)*
County Clerk's Office, Bexar County Courthouse, San Antonio.
- Spanish Wills*
Will of Vicente Travieso. County Clerk's Office, Bexar County Courthouse, San Antonio.
- Busch, J.
1987 The Second Time Around: A Look at Bottle Reuse. *Historical Archaeology* 21:67-80.
- Clark, J. W., Jr.
1974 Mission San Jose y San Miguel de Aguayo: Archeological Investigations, December 1974. *Office of the State Archeologist, Texas Historical Commission, Archeological Report* 29.
- Chabot, F. C.
1937 *With the Makers of San Antonio*. Private-ly published, San Antonio, Texas.
- City Directories
1877- Located in the San Antonio Main Library
1925 and the Daughters of the Republic of Texas Research Library, The Alamo, San Antonio. Microfilm located at the Center for Archaeological Research, The University of Texas at San Antonio.
- Dugas, V. L.
1955 Texas Industry, 1860-1880. *The South-western Historical Quarterly* LIX (2), Austin.
- Durrenberger, E. P.
1965 Anderson's Mill (41TV130): A Historic Site in Travis County, Texas. *Bulletin of the Texas Archeological Society* 36:1-69.
- Fike, R. E.
1987 *The Bottle Book*. Gibbs M. Smith, Inc., Salt Lake City, Utah.
- Fontana, B. L. and J. C. Greenleaf
1962 Johnny Ward's Ranch: A Study in Historic Archaeology. *The Kiva* 28 (1-2).
- Fox, A. A.
1986 Ceramics. In La Villita Earthworks (41 BX 677): San Antonio, Texas. A Preliminary Report of Investigations of Mexican Siege Works at the Battle of the Alamo, assembled by J. H. Labadie:107-127. *Center for Archaeological Research, The University of Texas at San Antonio, Archaeological Survey Report* 159.
- Fox, A. A., F. A. Bass, Jr., and T. R. Hester
1976 The Archaeology and History of Alamo Plaza. *Center for Archaeological Research, The University of Texas at San Antonio, Archaeological Survey Report* 16.
- Fox, D. E.
1983 *Traces of Texas History: Archeological Evidence of the Past 450 Years*. Corona Publishing Company, San Antonio, Texas.

- Gilmore, K.
1986 French-Indian Interaction at an 18th Century Frontier Post: The Roseborouough Lake Site, Bowie County, Texas. *Institute of Applied Sciences, North Texas State University, Contributions in Archaeology* 3.
- Godden, G. A.
1966 *Encyclopaedia of British Pottery and Porcelain Marks*. Bonanza Books, New York.
1975 *British Pottery: An Illustrated Guide*. Clarkson N. Potter, Inc., New York.
- Haslam, M.
1975 *Pottery*. Orbis Publishing, London.
- Hindes, K.
1984 A Preliminary Bottle Analysis from a Lateral of the Acequia Madre, Las Tien-das Del Rio. On file at the Center for Archaeological Research, The University of Texas at San Antonio.
- Ivey, J. E. and A. A. Fox
1982 Artifact Analysis. In Archaeological Investigations at Mission Concepción and Mission Parkway. Part I: Excavations at Mission Concepción. Center for Archaeological Research, The University of Texas at San Antonio, Archaeological Survey Report 114. Manuscript on file.
- Kendrick, G.
1966 *The Antique Bottle Collector*. Edwards Brothers, Inc., Ann Arbor.
- Ketchum, W. C., Jr.
1983 *The Knopf Collectors' Guide to American Antiques: Pottery and Porcelain*. Alfred A. Knopf, Inc., New York.
- King, E. and J. W. Champney
1874 *Texas: 1874, An Eyewitness Account of Conditions in Post-Reconstruction Texas*. Cordovan Press, Houston.
- Koch, A.
1873 *Bird's Eye View of the City of San Antonio, Bexar County, Texas, 1873*. From the collection of the San Antonio Museum Association. Published by R. H. Holland.
- Labadie, J. H.
1988 Mocha Ware Ceramic Artifacts From the La Villita Earthworks Site. *La Tierra* 15(4):19-28.
- Leutenegger, B. (translator and editor)
1977 Inventory of the Mission San Antonio de Valero: 1772. *Texas Historical Commission, Office of the State Archeologist, Special Report 23*, Austin.
- Lewis, G.
1985 *A Collector's History of English Pottery*. Antique Collector's Club, Suffolk, United Kingdom.
- McCabe, C.
1984 Collecting Yellow Ware. In *Early American Life Sampler*:2-8. Historical Times, Inc.
- Moir, R. W.
1987 Shell-Edge Wares Ceramic Tradition ca. 1775-1900. Chart presented at the 1987 Texas Archeological Society meeting, Southern Methodist University, Dallas.
- Nesmith, S.
1975 *The Belgian Texans*. The University of Texas Institute of Texan Cultures, San Antonio.
- Noël Hume, I.
1963 *Here Lies Virginia*. Alfred A. Knopf, Inc., New York.
1969 *A Guide to Artifacts of Colonial America*. Alfred A. Knopf, Inc., New York.
- Norman-Wilcox, G.
1936 Staffordshire Ware in a Nutshell. In *English Pottery and Porcelain: An Historical Survey*, edited by P. Atterbury:166-170. Universe Books, New York.
- Robacker, E. F. and A. F. Robacker
1978 *Spatterware and Sponge, Hardy Perennials of Ceramics*. A. S. Barnes and Company, New Jersey.

- San Antonio Express*
 1901 Burial Permits: Louis F. Vollrath, October 18.
- 1910 Obituaries: Fred H. Vollrath Dies, June 5.
- San Antonio Light*
 1962 Around the Plaza, August 27.
- Sanborn Map and Publishing Company, Ltd.*
 Map of San Antonio, Texas, 1888, 1892, 1904, 1952. New York.
- Schroeder, J. J., Jr. (editor)
 1971 *1908 Sears Roebuck Catalogue: A Treasured Replica from the Archives of History*. DBI Books, Inc., Northfield, Illinois.
- Simmons, M. and F. Turley
 1980 *Southwestern Colonial Ironwork: The Spanish Blacksmithing Tradition from Texas to California*. Museum of New Mexico Press, Santa Fe.
- Toulouse, J. H.
 1971 *Bottle Makers and Their Marks*. Thomas Nelson, Inc., New York.
- Tunnell, C.
 1966 A Description of Enameled Earthenware from an Archeological Excavation at Mission San Antonio de Valero (The Alamo). *State Building Commission Archeological Program, Report 2*.
- United States Department of the Interior, Office of the Census (USDI-OC)
 1850 *The Seventh Population Census, 1850*. Bexar County, Texas.
- 1870 *The Ninth Population Census, 1870*. Bexar County, Texas.
- 1880 *The Tenth Population Census, 1880*. Bexar County, Texas.
- 1900 *The Twelfth Population Census, 1900*. Bexar County, Texas.
- Van Rensselaer, S.
 1966 Banded Creamware. *Antiques* September.
- Watson, A. A.
 1968 *The Village Blacksmith*. Thomas Y. Crowell, New York.
- Webb, W. P. (editor)
 1952 *The Handbook of Texas*. Volume I. The Texas State Historical Association, Austin.
- Wedgwood, J. and T. H. Ormsbee
 1947 *Staffordshire Pottery*. Robert M. McBride, New York.
- White, G.
 1983 *1830 Citizens of Texas*. Eakin Press, Austin.

**LIST OF CITY DIRECTORIES
FOR ADVERTISEMENTS**

Appler, J. A.

1892 *General Directory of the City of San Antonio, 1892-1893.* San Antonio.

1895 *General Directory of the City of San Antonio, 1895-1896.* San Antonio.

1897 *General Directory of the City of San Antonio, 1897-1898.* San Antonio.

1899 *General Directory of the City of San Antonio, 1899-1900.* San Antonio.

1901 *General Directory of the City of San Antonio, 1901-1902.* San Antonio.

Moody and Morrison

1877 *Directory of the City of San Antonio for 1877-1878.* Galveston.

Morrison and Fourmy

1881 *General Directory of the City of San Antonio, 1881-1882.* Austin.

1883 *General Directory of the City of San Antonio, 1883-1884.* Galveston.

1885 *General Directory of the City of San Antonio, 1885-1886.* Galveston.

1887 *General Directory of the City of San Antonio, 1887-1888.* Galveston.

1889 *General Directory of the City of San Antonio, 1889-1890.* Galveston.

All directories listed on this page are available on microfilm at the laboratory of the Center for Archaeological Research, The University of Texas at San Antonio.

