

by Fred Valdez, Jr., A. Joachim McGraw, Cheryl L. Highley, and Kim Richardson



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The Rio Rita Cistern Project (41BX483): The Excavation of a Nineteenth-Century Cistern in Downtown San Antonio, Bexar County, Texas

by

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Abstract:

In the fall of 1977, the Center for Archaeological Research (CAR) of The University of Texas at San Antonio (UTSA) was contracted by Ben Apfelbaum of Intercontinental Foods, Inc. to conduct archaeological investigations of a nineteenth-century brick cistern discovered during renovations of the MIC Building in downtown San Antonio. Dr. Thomas R. Hester served as Principal Investigator, and Fred Valdez Jr. served as Project Archaeologist.

The goal of the investigation was to excavate a portion of the cistern to determine its age and architecture and to analyze a sample of the artifacts within the structure. Two meters of fill from the southeast quadrant were excavated in arbitrary levels controlled by a datum located in the cistern. Over 2,000 artifacts including glass, metal, ceramics, optical materials, and faunal bone were recovered during excavations. Diagnostic items dating to the late 1800s and early 1900s suggest that the structure's use as a water source ceased in the mid-1800s at which time it was used as a trash dump.

Cynthia M. Munoz, May 2016

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Acknowledgements 1989:

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Thanks and appreciation are extended to Joan F. Valdez for the typing of the first draft of this report. The historical background was provided by Kim Richardson. The section on ceramic descriptions was written by C. L. Highley. Special thanks to Frances Meskill for final work on all of the illustrations for this report.

Acknowledgements 2016:

This report on the Rio Rita Cistern Project was a long time coming. As part of the CAR's internship program, UTSA Anthropology student Ian Bates began rehabbing the Rio Rita collection stored at the CAR. In searching for site information, multiple and varied drafts of this report were uncovered, but no final document was found. The report is referenced in several subsequent publications as Archaeological Survey Report (ASR) 57, and not coincidentally, that number was available. So, roughly 40 years after the fact, we give you the Rio Rita Cistern Report, ASR 57. We have attempted to maintain as much of the original document as possible. Thanks to CAR editor Kelly Harris, curator Cynthia Munoz, laboratory director Melissa Eiring, and intern Ian Bates for making this happen. In addition, thanks to Dr. Fred Valdez for not thinking of any reason why we should not publish this document. If the aphorism "better late than never" applies anywhere, it is here.

Raymond Mauldin, May 2016

Introduction

In the fall of 1977, during renovations in the basement of the MIC Building in downtown San Antonio, workers discovered a completely intact nineteenth-century brick cistern that had been buried and forgotten. The building renovation was being carried out for the installation of the San Antonio Fish Market and Bakery Restaurant. The old rainwater cistern was found as the workers dug a passageway through old fill in order to connect two rooms in the basement of the building.

Realizing the potential historic importance of the cistern and its contents, Ben Apfelbaum of Continental Foods, Inc., and owner and operator of the restaurant, contracted the Center for Archaeological Research (CAR), The University of Texas at San Antonio (UTSA), to conduct archaeological studies (letter dated September 30, 1977). Additionally, Mr. Apfelbaum requested that the investigations be termed the "Rio Rita Cistern Project."

The purpose of the archaeological study was to partially excavate the cistern to determine its age and construction and to analyze a sample of the historic artifacts that it contained. The cistern, which is cylindrical in form with a domed top, is over 3 m in diameter and probably 4 to 5 m in depth. When discovered, it was found to be filled with stone rubble, earth, and nineteenth-century refuse. Included in the refuse were a wide variety of bottles, miscellaneous hardware, ceramic sherds, and optical materials from a once-adjacent eyeglass shop.

The fieldwork was done by Fred Valdez, Jr., crew chief, assisted by A. Joachim McGraw, Augustine and Elizabeth Frkuska, Cristi Assad Hunter, Rebekah Halpern, Sample Lingstrom, and Janet Stock. All work was done under the general supervision of Thomas R. Hester, CAR director, and Jack D. Eaton, associate director. All field notes, photographs, and drawings pertaining to this project are on file at the CAR-UTSA.

Kim Richardson, employed by Mr. Apfelbaum, was responsible for research into the historical background of the building where the cistern was found. A brief outline of her research is provided herein. C. L. Highley aided the research by analyzing the ceramics.

Historical Background

The cistern is located in the basement of the MIC Building (the old Sullivan Bank Building) on the corner of St. Mary's Street and Commerce Street. The San Antonio River flows directly behind the building. Figure 1 shows the location of the old building in a view of San Antonio in the late nineteenth century. The location of the site in relation to other significant historical structures is indicated in Figure 2. The Alamo lies to the east, while San Fernando Cathedral, the Spanish Governor's Palace, and the Bexar County Courthouse are all located in a general southwesterly direction. It is because of its age and unique location within the growing city of San Antonio that a brief history of the building will be provided.



Figure 1. Bird's Eye View of San Antonio in 1873. The original building where the cistern is located at the corner of St. Mary's Street and Commerce Street is shown by an arrow. Taken from Koch (1873).



Figure 2. The location of the cistern site in downtown San Antonio: a) general location with respect to other nearby historic sites; b) exploded view showing the site location at the corner of St. Mary's Street and Commerce Street.

Although the cistern is believed to have been built in the late nineteenth or early twentieth century, the history of the adjacent building may also prove informative in explaining the origin of certain artifacts found within the cistern. A list of family names associated with the lots and various occupants of the building will be discussed. These will be presented in the following manner: 1) prominent family names of early San Antonio and other people associated with the cistern and building; 2) the Menger connection, treated separately, as they no doubt played an important role in the history of the area; and 3) a brief presentation of various business occupants of the building between 1903 and 1925.

The earliest recorded history of the site is dated from 1839 with an early description of the property. Families associated with the site during this time include that of José Mariá Salinas and other prominent Spanish families who came to be linked with the property through intermarriages. These family names include Arriola, Delgado, Flores, Meleano, and Menchaca. Other families associated with the land through the 1890s include Castro, Dwyer, Groos, Guilbeau, Navarro, O'Conner, and Sullivan. Most of the latter were connected to this property by means of leases, deeds, agreements, power of attorney, and partnerships. A more detailed account of former families associated with the cistern is beyond the scope of this report. However, one family, the Mengers will be briefly discussed.

The second floor of the building is believed to have once been used as a boardinghouse. Mrs. Mary Guenther (a widow) was running the boardinghouse in 1847 when William A. Menger, a German immigrant, came to San Antonio and resided as one of Mrs. Guenther's guests. In 1851, they were married and continued to operate the boardinghouse together. It was here, on April 11, 1852, that L. William Menger was born. The family remained at this location for a few years; in 1855, the Mengers moved their boardinghouse to Alamo Plaza. In 1859, the Menger Hotel was opened. In 1892, L. William Menger took charge of the newspaper, the *Southern Messenger*, and the paper grew into a publication of national interest. Such were the beginnings of one family that had an important role in San Antonio's history.

The names of various occupants of the building since 1903 were obtained from San Antonio telephone directories. The D. Sullivan & Company and J. C. Sullivan Bank had office space in the building from 1905 to at least 1925. Listed in several city directories (1903-1906) was the Leader-Millinery store, a shop selling fine hats. The Doyle-Bridger Optical Company occupied office space in the building sometime between 1912 and 1915. The Doyle-Bridger Company is believed to be the source for the optical artifacts excavated from the cistern. In either 1924 or 1925, this business became the Doyle Optical Company. The Independent Film Exchange made its appearance in the area around 1924 or 1925. A strip of 16-mm film found within the cistern possibly came from that business.

Cistern Architecture

The rainwater cistern, when first encountered, was covered by several meters of soil deposits. When the soil was removed by workers, approximately 2 m of the cistern was exposed, revealing the domed top and connecting tubing that led from the roof of the building and down the inside wall to the cistern. Within the structure was a space of approximately 1 m between the opening and the deposits contained within.

The cistern is built of red bricks set in a cement mortar (Figures 3 and 4). The bricks average 7 cm by 20 cm and are laid in even coursing. A limestone block wall protects the cistern on the south and east sides. The wall is approximately 40 cm away from the cistern. The top of the structure has a dome shape and when found had one pipe and two larger tubes extending out of it. The two tubes apparently were the fill (sheet metal) and overflow (ceramic) conductors, while the 3/4-inch iron pipe, which extends to near the bottom of the cistern, was the output that served occupants of the building. The diameter of the cistern is at the center top of the dome. It is circular with a diameter of 63 cm and when first found was covered with a sub-circular flat stone. The interior of the cistern is lined with cement plaster to improve water retention.



Figure 3. Side view of cistern.



Figure 4. Top view of the cistern. The placement of the cistern within enclosure walls, and the positions of the inflow, outflow, and service tubes are shown.

The deposits found within the structure consisted of loose, powdery dirt with inclusions of small stones and artifacts. Rubble stones had built up along the interior wall to near the spring of the dome, while the center area had a depression 40 to 80 cm deeper. The cistern interior was divided into four quadrants for control. Because of limited time and funds, all work was confined to the southeast quadrant (Figure 5).

A profile of the fill that once surrounded the cistern is presented in Figure 6. The profile shown is on the north side of the cistern and is over 2 m in depth.

Excavations

When the archaeologists arrived at the site to begin investigations, they found that the workers were in the process of removing the fill, which covered the cistern, in order to build a direct passage between basement rooms. The workers had entered the cistern through the top opening and had begun to remove the contents. Therefore, subsequent formal excavations of the interior fill began with the upper 50 to 100 cm already removed.

An arbitrary datum was established for vertical control of excavations. The datum was marked 90 cm below the cistern entrance on an iron pipe that extended deep into the cistern (Figure 5).

Removal of the dirt, rubble, and refuse from within the cistern was a difficult operation since all material had to be passed through the small opening in the top by use of buckets. Light was provided by an extension cord with a bulb attached. The occasional loss of light through faulty temporary connections and the extremely dusty working conditions added to the difficulties of this type of excavation.

After an initial examination of the cistern, which contained a huge volume of loose fill, it became apparent that total excavation was outside the framework of time and funding



Figure 5. Interior of the cistern. Top view showing layout.



Figure 6. North profile of exterior fill. Stratigraphy of materials comprising the fill that covered the cistern.

allowed for the project. It was decided that the interior would be divided into quadrants for selective sampling, and excavations would proceed in the southeast quadrant where the vertical pipe extending down through the fill could be of aid in vertical control. As excavations proceeded, the walls of the pit would occasionally cave in because of the loose, unstable character of the fill. This presented grave danger to the excavators, and the excavation of the pit was limited to approximately 2 m.

The fill was very loose brown-to-gray, dry powdery soil with inclusions of stones and a remarkable quantity of nineteenthcentury artifacts. The matrix was consistent, with no observable stratigraphy or changes. Therefore, excavations followed 20-cm arbitrary levels. All material removed from the cistern interior was passed through 1/4-inch mesh screen where artifacts were collected and placed in bags marked with provenience data. All bone was bagged separately. Artifacts too large to fit into bags were tagged. The collected materials were brought to the CAR laboratory at UTSA for processing. At the laboratory, they were cleaned, cataloged, and analyzed.

The Artifacts

During the initial analysis of the artifacts, all collected materials were placed into six distinct groups: 1) bottles and glass fragments; 2) ceramics; 3) metal objects; 4) optical materials; 5) subsistence-related materials; and 6) miscellaneous items.

As the artifacts were analyzed further, each group was divided into subcategories to aid in classification. The typological system employed in this study is partly descriptive in nature, although efforts have been made to separate various artifact groups into those having structural features that have related historical (chronological) significance. It should be noted that the present breakdown for artifact classification is a system of convenience directed at reducing repetitive description and standardizing comparisons. Therefore, major characteristics of a particular group are not necessarily related to major characteristics of another group. For a further discussion of the complexities involved in establishing such a typological system see Krieger (1944).

Bottle and Glass Fragments

Identifiable glass (Figures 7 and 8) recovered from the cistern consists of over 30 whole bottles and more than 90 fragments, ranging in estimated age from the 1880s into the

twentieth century. The majority of the bottles, which are identifiable by a particular maker's mark (see Figures 9 and 10), are dated from 1879 to 1907. Approximately 33 percent of the colored whole bottles recovered appear to share morphological similarities with those Hotchkiss and Cassidy (1974) identify as once containing wine, liquor, or beer. The remaining whole bottles in the collection are bitters bottles, "soda" water bottles (ginger ale), and ink bottles. Identifiable fragments are preserve jars and milk bottle head and neck fragments. For a more complete discussion and detailed description of these bottle types throughout the nineteenth century see Adams (1969) and Fletcher (1972).

To identify group frequencies and bottle types and to establish a brief chronological association, bottles and fragments were analyzed according to a tentative typology based on various characteristics that included color, neck forms, method of closure, and base variations. A sequence of identifiable makers' marks and lengths of mold seams was then analyzed to establish a general period for the cistern's use as a refuse container. A diagram of analytical procedure is presented in Figure 11.

In all, 125 bottles and fragments were analyzed according to commonly distinguishable features and individual attributes that can be generally associated with a particular time period. Bottles and fragments, as noted, were grouped as to color, neck form, closure method, base variation, length of mold seam, and maker's mark, if any (Toulouse 1971). While other unique features were noted, the former characteristics were considered the more revealing and applicable for this analysis. Figure 12 illustrates commonly used terms in this study, and the six categories are briefly discussed for a clearer perspective of the classification system and the collection.

Color

The bottles and fragments were divided into six color groups: light, medium, and dark amber; light and dark aqua; and uncolored (or "clear") glass. A total of 54 of 125 specimens (over 44 percent of the total sample) fell into this latter category (see Table 1).

Neck Forms

Neck forms were characterized by three distinctive types: 1) parallel sides; 2) rounded, tapered sides; and 3) gradually tapered sides. The number and percentages of each of these types among the whole bottles and head and neck fragments are given in Table 1.



Figure 7. Selected bottle types from the cistern.



Figure 8. Selected bottle types from the cistern.



Figure 9. Bottle makers' marks. Numbers refer to number of specimens in that particular color of glass.

Period	Frequency	%	Mark
1879 - 1909	5	41.65	\bigcirc
1880 - 1910	1	8.33	(wB)
since 1888	1	8.33	с. с. ник.
1904 - 1907	2	16.65	9
1905 - 1916	1	8.33	ABJO
1921 1928	1	8.33	<u>a</u>
1945 - 1960	1	8.33	õ
	-		-

Figure 10. Chronological distribution of makers' marks.



Figure 11. Bottle analysis procedure.



Figure 12. Bottle attributes.

		WHOLE BOTTLES	RELATIVE FREQ. %	HEAD/NECK FRAGMENTS	RELATIVE FREQ. %	BODIES	RELATIVE FREQ. %	DASES	RELATIVE FRECL %	TOTAL
	1. Light Amber	В	26			9	38	3	10	20
	2. Dark Amber							1	5	1
0B	3. Medium Amber	2	7	21	45	1	4	1	20	28
g	 Dark Aqua 	1	3	3	6	1	4	5	25	10
ă.	5. Light Aqua	1	3 .	8	13	2	8	э	10	12
	6. Clear	19	61	17	36	11	46	7	30	54
	SUBTOTAL:	31		47		24		23		126
35	1, Parallel	14	45	19	41					33
80	2. Rounded Typer	10	32	3	6					13
Ξ	3. Gradual Taper	3	10	19	40					22
EC EC	4. Unidentified	4	13	6	13					10
ai ai	SUBTOTAL:	31		47						78
	1. Wide, Parallel Lip	8	12	10	23					18
	2. Narrow, Flared Up	14	41	7	16					21
	3. Flared Lip			4	9					4
·	4. Wide Collar, Flat Lip	1	з	1	2					2
	5. Narrow, Rounded Collar			1	2					1
8	8. Protracting Lip, Rounded Coltar			<u> </u>	2					1
ž	7. Protruding Lip, Flared Coller	4	12	z	5					6
ш.	8. Large, Rounded Lip			6	14					6
SUF 8	9. Flared Lip, (from Bottom)			1	2					1
2	10. Faultet Lip, Double-Flaced			3	7					3
0	11. Rolled Lip and Coller	2	G	б	12					7
	12. Parallel Lip Flored (from Top) Coller			1	з					1
	13. Screw-Top (Outside)	5	15	1	3					6
	14. Precrucing Lip, Parallel, Wide Band	1	3							1
	15. Double-Flared Lip, Rounded Collar	i	3							1
	SUBTOTAL:	34		43						77
	≩ a. Shallow	24	78			10	-63	12	52	46
10	E S s y b. Medium	6	15			6	26	4	17	14
ASE	මිටී a. Deep	2	7 -			2	11.	7	31	11
1	d. Bounded (Convex)					2	10			2
2 Z	SUBTOTAL:	31				19		23		73
Ê	🚡 🔐 a. Embosed Pettern	1	3			1	48	3	13	ъ
EIA I	일월 b. Without	12	36			14	23 .	9	39	35
3	a One Symbol	3	9			4	19	4	17	11
e	ei d. Mutsi-Symbol	17	62			2	10	7	31	26
	SUBTOTAL:	33				21		23		77
	1. To Shoulder	4	14							4
8	2. To Neck	10	34	8	29					16
SEA	3. To Lip	3	10	11	- 82					14 (
96	4. Through Lip	10	34	4	19					14
No.	5. 3-Piece	1	4							1
ш	6. Ture-Mold	1	4							1
	SUBTOTAL:	20		21						60

Table 1. Bottle Variations from the Rio Rita Cistern

Closure Method

There were 15 different types of closures identified from the whole bottles and neck and head fragments. A narrow, flared lip without a collar was the most frequently observed type. Figure 13 shows the types of closures in this collection.

Base Variations

Base variations were subdivided into two groups dependent upon 1) the degree of base concavity (shallow, medium, deep, or rounded convex) and 2) the presence and type of scripting, numbers, or symbols on the base (single or multiple). Table 1 presents the statistical information for each of these base variations. body of a bottle. While these ages are only approximate, Adams suggest the following chronological associations based on techniques of glass manufacture in the nineteenth century (Figure 14).

- 1) before 1860: mold seam extends from base to shoulder;
- 2) 1860-1880: mold seam extends from base to neck;
- 3) 1880-1890: mold seam extends to lip;
- 4) after 1890: mold seam extends through lip.

Length of Mold Seam

Adams (1969) suggests a rough gauge of age can often be applied by observing the length of the mold seam along the Of the whole bottles with identifiable mold seams, about 34 percent of the seams extend to the neck, while another 43 percent pass through the lip. The remaining 23 percent have various other characteristics (Table 1). This would imply two temporally distinct periods of intensive refuse disposal into the cistern, but when bottle fragments containing mold seams are compared with the whole bottles, a different picture emerges. Of a total of 50 whole bottles and fragments, 16



Figure 13. Methods of bottle closures: a) cork-type, lip with wide, parallel sides; b) narrow lip with parallel sides; c) flared (from the top) lip; d) parallel lip, wide parallel collar; e) parallel lip, narrow and rounded collar; f) "crowntop," protruding lip, rounded collar; g) protruding lip, slightly flared (from the bottom) collar; h) blob tip, large, rounded lip; i) large flared lip, from the bottom; j) parallel-sided lip, double-flared collar; k) rolled lip, flared (from top) collar; l) parallel-sided lip, flared from the top collar; m) externally threaded screw top; n) narrow, rounded and protruding lip, parallel long neck; and o) double-flared lip, narrow and rounded collar:



Figure 14. Bottle age by mold seam.

(32 percent) maybe be associated with the years 1860-1880; 14 (28 percent) fall within the 1880-1890 period; and 14 (28 percent) are identified with the early twentieth century. It should be noted that for some reason the majority of the bottles during the periods of 1860-1880 and post-1900 were not broken, while most of the bottles associated with the 1880-1890 period were fragmented. No evidence exists to explain this observation, although types of deposition either inside or outside and around the cistern during different periods may have contributed to their fragmentation.

Age Gauge of Bottles and Cistern Usage by Makers' Marks

Bottle makers' marks were noted on 26 bases. The maker and approximate date of manufacture were identified on 12 of the bases. Makers' marks are illustrated in Figure 9, and the makers' marks with known chronological dates (Figure 10) are compared with mold seam age estimates in Figure 15. While over 80 percent of the sample dates between 1880 and 1916 (see Figure 10), makers' marks suggest over 40 percent of the identifiable sample was manufactured between 1880 and 1910 and presumably discarded during the same period.

Ceramics

The ceramics are divided into three main categories: 1) earthenware, 2) porcelain, and 3) stoneware. They are then further divided according to types of decoration. The earthenware sherds are divided into transfer-printed ware, hand-painted ware, spongeware, edged ware, banded ware, decalcomania, molded yelloware, English creamware,



Figure 15. Frequency and chronology of bottles based on mold seams and makers' marks.

Number	Турс	Descriptive Comments
LOT 1	Porcelain	
1	Rim and base sherd	Clear glaze; hand-painted floral design on interior and exterior; small bowl fragment (Fig. 17,a)
1	Rim sherd	Clear glaze exterior, blue glaze interior, gold trim along rim; cup or small bowl fragment
1	Base sherd	Clear glaze; purple trim along interior base; saveer fragment (Fig. 17.c)
1	Rim sherd	Clear glaze; decalcomania with pink, green, and gold floral design; gold true along rim; plate or saucer stagment (Fig. 17,5)
1	Base sherd	Over gives; gold trim along interior base; plate or saucer fragment
2	Handte sherds	Clear giaze
1	Base sherd	Clear glaze: two concentric green lines around rim; hotel ware; butter pat dish fragment (Fig. 17,d)
2	Cup fragments	The fragments fit together; clear glaze; green trim along caterior rim; hotel ware; maker's mark "MAYER/CHINA"
3	Rim and base sherds	Light tan glaze; brown and black hand-pointed design; hotel ware; saveer frequents (Fig. 17,c), one with "BCONO-R/TRADE MARK/PATENT PENDING"
42	Rim (16), body (13), base (13) sherds	Clear glaze; one with maker's mark "HOMER LAUGHLIN/HOTEL/ CHINA" (1879-1897; Barber 1904); plate, saucer, platter, and cup fragments; several large, heavy vessel fragments.
	Parthenware	
ú	Rim (1), body (3), base (2) sherds	Clear glaze; black transfer-printed scenic design, cup or small bowl fragment
4	Rim (1), body (3) sherds	Clear glaze; blue transfer-printed scenic design on interior and exterior; cup or small bowl (regress)
1	Base sherd	Over glaze: purple transfer-printed scenic design on interior; cup or small bowl fragment
6	Rim (2), rim and base (1), body (3) shords	Clear glaze; red, green, black, and blue hand-painted and ret sponge floral design; saucer, plate, and rup fragments
1	Base sherd	Clear glaze; green and real hand-painted floral design; plate fragment
4	Rim (1), body (1), base (2) sherds	Clear glaze; blue hand-painted floral design; cup or small bowl fragment
ĩ	Base sherd	Clear glaze; black hand-painted floral design on interior; cup fragment
3	Rim shorós	Clear glaze; red, green, and yellow out sponge design; red band along interior rim; cup fragment
6	Rim sherds	Clear glaze; four blue, two green edged ware
1	Rim sherd	Clear glase; green bands along exterior rim; tan, brown, and white banded or mocha ware
3	Rim (2) body (1) sherds	Yellow glaze, white bands; molded yellowine
1	Rim and base sherd	Possibly a mug or jar fragment; yelloware
1	Base sherd	Clear gloze; green tinge; English creamware
2	Base she ids	Fragments fit together; cream glaze; saucer fragment
	Stoneware	
I	Ink bottle	Sais glaze; height 11 cm; base diameter 4 cm; lip diameter 2.5 cm (Fig. 17,h)
3	Ink bottle body shords	Sait glaze
3	Rim (1), hody (1) sherds	Yellowish glaze; Meyer pottery

Table 2. Ceramics

Number	Туре	Descriptive Comments
1	Body shord	Salt glase exterior; Albany slip interior
7	Rim (2), body (4), base (1) aherds	Bristol glaze interior and exterior (Star pattery, Elmendorf kiln)
3	Body sherds	Bristol glaze exterior; Albany slip interior; 2 sherds have blue incised bands
2	Body sherds	Albany slip interior and exterior
1	Body sherd with handle	Gray green glaze, flaking, probably Elmendorf pottery (Georgeanna Greer, personal rommunication)
1	Body shent	Bristol glaze exterior with brown band; Albany slip interior
LOT 2	Earthonward	
1	Body sherd	Clear glaze; tan, white, and black handed ware
5	Rim (1); body (3), base (1) sherds	Clear glare; fragments
1	Pipe stem fragment	
LOT 3	Porcelain	
1	Rim and base fragment	Clear glane; saucer fragment with maker's mark "H & $C^{0.0}$ (Haviland China 1876; Knvel and Kovel 1971) 1.
	Bartheuware	
3	Rim (1), body (1), rim and base (1) sherds	Clear glaze; fragments
	Stoneware:	
1	Lid Ingmont	Ungleared
LOT 4	Porrelain	
1	Rim and base fragment	Clear glaze; saucer fragment
	Earthenware	
5	Rim (1), body (3), base (1) sheeds	Clear glaze; fragments
	Stoneware	
1	Lid fragment	Unglazed
1	Body sherd	Rockingham glaze; bottle fragment
LOT 7	Earthenware	
1	Lid	Concentric circles of yellow and tan; yelloware
	Stoneware	
1	Base sherd.	Bristol glaze interior and exterior
LOT 8	Earthenware	
9	Rim (3), body (4), base (2) shords	Clear glaze; fregments
	Stoneware	
1	Base sherd	Salt glaze exterior; Albany slip interior
1	Lid fragment .	Hrown glaze on one side only
2	Body sherds	Orange glaxe; gin jug fragments (mid-1800s; Schuetz 1969)

Table 2. Ceramics, continued....

undecorated glazed ware, and ironstone. The porcelain sherds are of two types: delicate china and a heavier hotel china. Most of the porcelain and earthenware sherds represent fragmentary cups, plates, saucers, and bowls. Several of the ironstone fragments are from large, heavy, unidentified vessels. The stoneware sherds represent fragmentary lids, churns, jugs, and bottles. The majority of the ceramic sherds date from the late nineteenth or early twentieth century. Table 2 gives the number of each type of ceramic recovered with some descriptive comments.

Earthenware

Transfer-Printed Ware (13 sherds)

Transfer-printed pottery is produced by applying decorations from engraved copper plates to pottery or porcelain by paper tissues (Schuetz 1969; Scurlock et al. 1976). Ceramics with transfer patterns of scenic or floral designs are in shades of black, blue, and purple (Figure 16,h-j). One flown-blue sherd was recovered (Figure 16,k). This blue design occurs when the pottery is fired in an atmosphere of volatile chlorides, and the underglazed blue pattern flows into the surrounding glaze (Hughes 1967). First manufactured in 1825, flownblue ceramics grew in popularity throughout the nineteenth century (Schuetz 1969; Scurlock et al. 1976).

Hand-Painted Ware (13 sherds)

The hand-painted sherds have floral designs in monochrome blue (Figure 16,1) and in polychrome using red, green, black, and blue. Six sherds have a hand-painted design combined with a cut-sponge design (Figure 16,m). According to Schuetz (1969), this type of ware was exported from England around 1878.

Cut-Sponge Ware (3 sherds)

Cut-sponge ware is produced by applying pigment with a sponge. This ware was very popular between the 1840s and the 1880s (Hughes 1967). The cut-sponge ware sherds have red, green, and yellow geometric designs (Figure 16,o-p).

Edged Ware (6 sherds)

Edged ware, also known as "shell edge" or "feather edge" pottery, is hand painted along a molded rim with one color (Scurlock et al. 1976). It was first produced at Staffordshire in the late eighteenth century and continued in popularity throughout the nineteenth century (Scurlock et al. 1976). Of the six sherds recovered, four are edged in blue, two in green (Figure 16,a-c).

Banded Ware (2 sherds)

Banded or mocha ware was produced in great quantity from 1789 to the mid-nineteenth century (Schuetz 1969). It is characterized by horizontal, parallel-colored bands and by

marbleized, peppered cats' eye, wormed, or dendritic patterns (Schuetz 1969; Scurlock et al. 1976). The decorations are applied over white or cream colored earthenware. One of the sherds recovered has green bands with tan, brown, and white decorations. Only tan, white, and black bands can be discerned on the other sherd.

Decalcomania (1 porcelain sherd, 1 earthenware sherd)

Decalcomania is the process of transferring a polychromatic design to ceramics. Invented in Germany in 1796, it was not until 1930 that it gained popularity (Scurlock et al. 1976). The one earthenware sherd with decalcomania has a polychrome floral design (Figure 16,g). The porcelain sherd is shown in Figure 17,b.

Molded Yelloware (3 sherds)

Mass produced in the late nineteenth and early twentieth century, molded yelloware took the form of storage containers, pitchers, mixing bowls, and other everyday dishes (Raycraft and Raycraft 1975). The three yelloware sherds fit together (Figure 16,f).

English Creamware (1 sherd)

English creamware is a type of earthenware manufactured after the mid-eighteenth century in England (Mankowitz and Haggar 1957). This sherd has a green tinge.

Porcelain

Undecorated White Pottery (87 sherds)

The majority of the undecorated sherds are porcelain fragments. A few rim sherds have impressed designs. One platter has the maker's mark "HOMER LAUGHLIN/HOTEL/CHINA." It was produced by Homer Laughlin in East Liverpool, Ohio, between 1879 and 1897 (Barber 1904).

Stoneware

Meyer Pottery (3 sherds)

The Meyer kiln at Atascosa was founded in 1887 by Franz Schultz and William Meyer (Schuetz 1969; Steinfeldt and Stover 1973). The kiln continued in operation until 1964. The clay used by the Meyer family came from Leon Hill, the present location of Kelly Air Force Base in San Antonio (Schuetz 1969). The most distinctive feature of Meyer pottery is its glaze. A red slip, called Leon slip, is used and results in unusual greens, yellows, and browns not seen in other slipglazed pottery (Schuetz 1969; Steinfeldt and Stover 1973). The rim sherd recovered exhibits the resulting yellow and brown glaze (Figure 17,i).



Figure 16. Earthenware pottery: a-c) edged ware; d, e) mocha ware; f) molded yelloware; g) decalcomania; h, i) transfer-printed scenic design; j) transfer-printed floral design; k) flownblue design; l) hand-painted blue floral design; m) hand-painted and cut sponge floral design; n) hand-painted "sprigged" design; and o, p) cut spongeware.



Figure 17. Porcelain and stoneware pottery: a) hand-painted blue floral design; b) decalcomania with pink, green, and gold floral design; c) clear glaze, purple trim along base; d) hotel ware, butter pat dish; e) brown and black hand-painted hotel ware; f) soap dish liner; g) Elmendorf Star pottery; h) ink bottle; and i) Meyer pottery.

Elmendorf Pottery (3 sherds)

The Elmendorf kiln was established in 1887 by Ernst Richter near San Antonio (Schuetz 1969; Steinfeldt and Stover 1973). An underglaze, cobalt-stenciled star with the number two within it is present on one of the sherds (Figure 17,g). It dates between 1887 and 1900 (Steinfeldt and Stover 1973).

Gin Jugs (2 sherds)

Gin jugs were produced in Germany and Holland and imported into the United Stated in the mid-nineteenth century. The jugs were used as ballast in the holds of ships carrying cotton and wheat (Schuetz 1969).

Bottles with Rockingham Glaze (10 sherds)

Several different bottles are represented by 10 stoneware bottle fragments with Rockingham glaze. This type of glaze was used after 1850 (Raycraft and Raycraft 1975). One body sherd has a "G" imprinted on it; another body sherd has "... JAPONAISE/...ANTOINE & FILS" stamped on it.

Metal Artifacts

Preservation of metal artifacts from the cistern was unusually poor, presumably due to occasional moist site conditions. Practically all metal artifacts were heavily corroded, and identification was often difficult. A list of identifiable artifacts is presented in Table 3.

Optical Materials

Optical materials collected include those items that were undoubtedly used in the correction of eyesight. The Doyle-Bridger Optical Company, mentioned previously, is believed to be the producer of the optical items found within the cistern since the company held office space in the same building.

J. Miller and P. H. Polk of the Dietz-McLean Optical Company, Inc., provided some insight on the recovered lenses. On larger, cruder specimens or blanks, the front base was usually flat and was often ground on the backside to produce a curve. The smaller lenses (with holes) were ready for mounting. These were usually on three-piece mountings: the ear-temple piece, the nose bridge, and the lens-holding (rim) section. This type of lens, in a finished state, had a three diopter reading. *Webster's Ninth New Collegiate Dictionary* (1988) defines a diopter as "a unit of measurement of the refractive power of lenses equal to the reciprocal of the focal length in meters."

The diversity of lens types uncovered allows one to see the making of eyeglasses through the various stages, from crude blanks to ready-to-wear lenses, as well as bifocal and lorgnette examples. Although more material of the wire frame might have presented a better reconstruction of some eyeglasses, the few fragments were sufficient to reconstruct one version of eyewear.

Seven general categories were established for analysis, but hundreds of small lens fragments could not be typologically placed within these categories.

Blanks (25 specimens)

Round (20 specimens)

Round specimens are rough and crude lens shapes to be ground as needed. Lenses of the round blank form can be seen in Figure 18,b-c. They vary from 1.5 mm to 6 mm in thickness. Three of the specimens are tinted like sunglasses. This may have been intentional on one of the pieces, but the other two may have tinted over time through chemical change in the glass.

Rectanguloid (5 specimens)

Figure 18,a displays an example of a rectanguloid blank type. The five pieces vary in thickness from 2 mm to 7 mm.

Ground Lenses (99 specimens)

Ground lenses are ready for mounting. The holes are placed in the lenses, which are then mounted on wire frames (J. Miller and P. H. Polk, personal communication). Two types have been established for this category.

Non-holed (40 specimens)

A non-holed ground lens is oval in shape. The specimens vary slightly in size. Specimens in this group vary in thickness from 1 mm to 2.5 mm and in length from 3.3 cm to 4.4 cm. A non-holed ground lens is shown in Figure 18,d.

Holed Lenses (59 specimens)

Holed lenses are oval in shape with holes at the long ends. An example of this form is provided in Figure 18,f. Curiously, these lenses all seem to be the same size: thickness 2 mm, length 4.1 cm, and width 2.9 cm. This is the final stage, or most refined form, before mounting.

Circular Lenses (2 specimens)

The circular lenses recovered have been ground to thin state but are not holed for mounting.

Bifocal Lens Plugs (6 specimens)

A bifocal lens plug is a small circular lens that is inset on another (larger) lens to produce bifocals. Figure 18,e shows

Artibel Type	Number	Descriptive Comments
ber	1	cust iron
boùr	3	
bolt, with nut	1	12 inch
hoitin cap	,	
hoitin sual	4	metal foll
braax angle iron	1	angle inte
tradut.	1	
buelde	1	
condie sontter	1	
cartridge case	1	.22 caliber
obleet	1	
container	Sec. 2. 1	Interio
dick	1	pierced
door cost hook	1	
dever himge	1	
door knocker	1	
door latch	L	
eyegiass frame	L	
feare post top	L	ocnamental
fork	2	
hamos mrga	ê.	
hames sinp	1	
hinges	2	
horseahne	1	
key	1	
knile blade	1	
nais	549	small, heavily corrocted
	138	square
pege	2	
pip#	1	8 inch
	2	on, 30 cm each.
pips filling	1	
pad hd	1	
rivete	3	
nod	1	
rod fragments	3	Lhick
screw	ī	
	1	flathered
spigot handle	1	
spiloes	8	loss
spoor	ĩ	large
strive leg	ĩ	
drip	1	inscribed "D Moslue Houston"
Capasoon.	1	and the provent the second
LOUX		
atem	1	minors
witt	1	inerialed
		na scaller arran
wheel file		TTO MARKET BITLS
Concernance and a		a chandrahder
P 4 h 1 Paris		BUT SAVE ALL .

Table 3. Metal Artifacts

a single plug. Of the six specimens recovered, one is set in a rectanguloid blank (Figure 18,a) and one in a round blank (Figure 18,b); two are loose and ready to be inset; and the other two had been inset but are too fragmented to determine blank type.

Lorgnettes (2 specimens)

Both lorgnette specimens are fragments and seem to be made of black plastic. Figure 18,j shows a lorgnette with the lens still intact. Figure 18,k is the other lorgnette, and although it does not have a lens, it does show the cord loop for attaching to one's shirt or to be worn around the neck.

Wire Frame (4 specimens)

The four wire frame fragments are from three-piece wire frame glasses. One fragment is the ear hook part of the frame (Figure 18,g). Two fragments are the wire rim for glasses. They are in very fragile condition as corrosion has set in, and the rims are ordinarily thin anyway. Figure 18,i shows one of the rim fragments. Figure 18,h shows a small part of the nose bridge section for wire frame glasses.

Miscellaneous Plate (1 specimen)

A rectangular plate believed to be associated with the lensmaking process was recovered. This artifact measures 2.5 cm



Figure 18. Optical materials and miscellaneous artifacts: a) rectanguloid lens blank; b, c) round lens blank; d) ground lens, no holes; e) bifocal lens plug; f) ground lens, with holes; g) ear hook; h) nose bridge section; i) lens rim; j, k) lorgnettes; l) metal compass; m, n) white ceramic insulators; o) clay smoking pipe bowl; p, q) wood pipe bowl and stem; r) calibrated metal syringe; s) tubular ceramic insulator; t) black plastic syringe; and u) bone toothbrush handle.

in width and 7 cm in length. The exact function of this piece is not currently known.

Subsistence-Related Materials

The recovered materials relating to food consumption were limited to bones of three animal species and one species of oyster. It is known that at least part of the building was at one time used as a boarding house. This may partially explain the occurrence of these materials within the cistern, since it was apparently used for a garbage disposal during later years.

The identification of the bone material was done by Cristi Assad Hunter. The information concerning sawed bones and the probable preparation of the meat were provided by O. C. Resendez and Fred J. Valdez, two local butchers.

Cut or sawed cow bones represent the majority. One breastbone of a chicken was found and is the only bone of the lot representing fowl. A bone of rabbit or juvenile goat was also recovered.

The cut bone represents approximately 99 percent of the total amount of bone recovered. Most of these cut bone fragments are from the shank and were used as soup bones (Resendez and Valdez, personal communication). The marrow was used in the food preparation of the shank fragments. Several T-bones were also found. The large quantity of cut shank bone seems to indicate a relatively greater use of soup bones over other items, suggesting that this was a popular boarding house dinner dish.

Except for oyster shells, little other food remains were found. The method of preparation of the oysters is uncertain, but eaten raw, in soups, or steamed is most likely.

Miscellaneous Artifacts

Sixteen artifact groups are placed in the miscellaneous category due to the small sample and the lack of conclusive information on individual pieces. A sample of selected artifacts is presented in Figure 18,1-u. Table 4 lists the artifacts, number of specimens, and a brief descriptive comment.

Artifact Type	Number	Descriptive Comments
Coal	37 -	Chunks of black coal mixed in throughout the everyation
Compass	1	Small, metal encased (Fig. 18.1)
Tiraser	1	Medium-sized pencil enaser
Film (16 mm)	1	Very small fragment, approximately 4 cm kong
Glass doubers.	4	Possible small medicine bottle daubers, approximately 4 cm long
Insolators (ceramic, white)	11	Three types: (1) small variety (Pig. 18.m); (2) large variety (Pig. 18.n); (5) a large, 0at base with markings "BRYANT 250W250V." Consists of Iragmonta
Insulators (ceramic, ruhular)	4	Long (10 cm to 14 cm) slander tabes; three have lips; one does not; one of the lipped specimens is glazed (Fig. 18,8).
Leather shoe sole	1	Decomposed sole (regment, approximate size 8
Light bulb fragment	1	Modern appearance; represented by metal base
Linoleam	1	Very small fragment, 8 x 12 cm
Marbles	2	One appears to be of clay, the other is a "cat's eye" glass
State pencils	2	Small fragments; one pointed end, one medial fragment
Smoking pipes	2	One clay 'head figure how?' pipe (Fig. 18,0) and one wood pipe with stem (Fig. 18,p,q)
Syringes	2	One calibrated metal syringe (Fig. 18,r) and one black plastic syringe (Fig. 18,t)
Tiles (fkior/wall)	5	Two types: (1) variegated fragments, red, and yellow; (2) white tile fragments 2 cm thick, and one graded fragment 1 cm thick
Toochbrush handle	1	Made of hone with markings on the handle: "CH LOOPER" and "MADE IN FRANCE/PARIS" (Fig. 18,0). This scenes to be a common toothbrush handle of the time (Anne A. Fox, personal communication).

Summary

During October 1977, a nineteenth-century rainwater cistern was excavated by archaeologists from the Center for Archaeological Research, The University of Texas at San Antonio. The cistern was found to be filled with rubble and refuse, which included ceramics, hardware, optical materials, bottles, subsistence debris, and other late nineteenth- and early twentieth-century artifacts. The construction of the brick structure is typical of the late nineteenth century. The excavations, complemented by historical research, identified the cistern as belonging to an original structure forming part of what is now known as the MIC Building in downtown San Antonio. During the late nineteenth and early twentieth century, the building was often used as a boardinghouse with an adjacent optical shop. This is reflected by the types and groups of artifacts recovered: hotel china, a collection of assorted bottles, and optical blanks and frames. A brief analysis of artifacts from the cistern suggests that it was used for dumping during the late nineteenth and early twentieth century. This assumption is supported by a broad collection of data, including bottle makers' marks, types of china, and the reconstruction of optical materials. Testing and limited excavation operations indicate the cistern's use as a dump occurred during a relatively brief time span. The frequency and variety of late nineteenth-century artifacts recovered reflect a colorful and often unrecorded picture of the domestic life and times of San Antonio in the nineteenth century. Although the cistern was not completely excavated, it is believed that the artifacts collected represent a significant sample of the total deposition, as several artifacts clearly date from the mid-nineteenth century. Earlier datable artifacts were not represented in the collection, and this may mean that the cistern was used as a water source until that time.

Recommendations

The excellent preservation of the cistern, along with the wide variety of diagnostic artifacts collected from within and around it reflects a part of the past of San Antonio in the late nineteenth and early twentieth century. Because of the enormous amount of work required to remove all of the fill, the current project did not reach the bottom of the cistern. However, if the cistern is to be cleaned out sometime in the future, it would be advisable to have an archaeologist on hand for the recording of artifacts. This would assure that important information, both in terms of artifacts and cistern construction and total capacity, would be properly recorded.

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