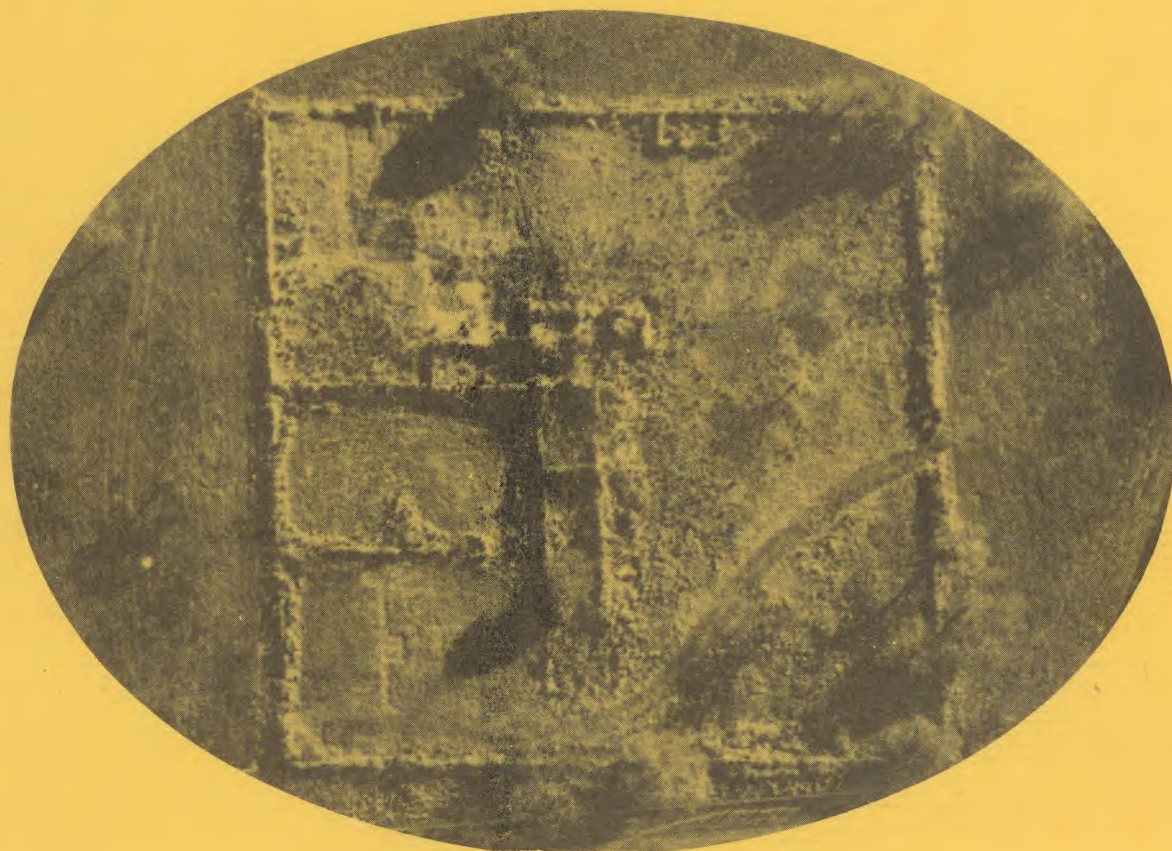


MISSION ROSARIO



ARCHEOLOGICAL INVESTIGATIONS 1974

TEXAS PARKS AND WILDLIFE DEPT.
PARKS DIVISION
HISTORIC SITES AND RESTORATION BRANCH
ARCHEOLOGICAL REPORT NUMBER 14, PART II



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MISSION ROSARIO
ARCHEOLOGICAL INVESTIGATIONS - 1974

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This report is a description of archeology conducted under Interagency Contract No. IAC(74-75)-1550. The Institute for Environmental Studies, North Texas State University, Denton, Texas, was the contractor. Dr. Kathleen Gilmore directed the project for the Institute. This publication is a reproduction of the original manuscript submitted by Dr. Gilmore to the Texas Parks and Wildlife Department.

MISSION ROSARIO
Archeological Investigations 1974

by

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by

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Archeological Report 14

Part 2

Texas Parks and Wildlife Department,
Parks Division
Historic Sites and Restoration Branch
Austin, Texas

[] 094

PREFACE

The following is the final report of the results of three archeological field seasons, 24 weeks, at Mission Rosario State Park, Goliad County, Texas. A report entitled "Mission Rosario, Archeological Investigations 1973" (Gilmore 1974) has been published by Texas Parks and Wildlife Department. That report contains a description of the 1973 field research and the history of the site from the date of founding in 1754 through the 1973 field season.

The first field season from May 8 to July 3, 1973 was a pilot season to determine problems which might be encountered from previous excavations, disturbances, and collections made at the site since its abandonment in 1807. Although extensive excavations were made in 1940-41 few records and notes were available, and to date only a few work order forms have been found in the National Park Service Archives. The apparent loss of these records and notes points out so clearly the importance of systematic record keeping and the necessity of proper storage of those records. Since an archeological site is definitely a nonrenewable resource and information is destroyed when it is excavated, the lack of records and inadequate description and analysis of excavations not only nullifies the information in the ground, but also makes it impossible to conceptualize what had been there.

The 1974 excavations from March 18 to May 5 and from October 15 to December 11 were based on an overall research design which was oriented toward the development of the park as a resource for the interpretation of Spanish colonial settlements.

Many people have helped to make this report possible. The crews of the 1974 seasons were diligent and thoughtful: Spring: Mike MacEachern, assistant, Maureen Cavanaugh, Diana Lowery, Ron Ralph, Phil Winnsborough (all full time), and Robert Burnett (part time); Fall: Mike MacEachern, assistant, Nancy Boice, Maureen Cavanaugh, Logan McNatt, George Nelson, Ron Ralph, and Tom Ray. Anne Fox, Pat Lynn, Alan Rogers, and Judy Gilmore volunteered their help. The Parks and Wildlife personnel at Goliad

State Park -- Lee Murphree, superintendent, Donald Baake, Wayne Ellisor, Star Hinton, Tommy Hicks, and Jane Urban -- were all helpful in solving perplexing problems, clearing brush, and arranging for and operating the backhoe and front-end loader.

Roland Beard, Raiford Stripling, and Lewis Pettus visited the site and their recollections of the 1940-41 excavations are appreciated. Beth White, Goliad, searched again for material in her father's (Judge White) papers. Steve Goines, deputy sheriff at Goliad, visited the site and brought Sam Johnson, born in Goliad 90 years ago, to share his memories of the site and the area.

Rev. Charles Polzer, S.J., Tucson, Arizona, shared his knowledge of Catholic traditions on a visit to the site, and Rev. W. H. Oberste's, O.F.M., visit on a very cold day was appreciated.

Jack Klatt, Magnolia Oil Company, lent his expertise on the geology of the area, and Mary Lou Klatt graciously arranged for interviews with local people. Les Ethertton of the Soil Conservation Service identified the plants growing about the site.

Dr. Dee Ann Story of the Texas Archeological Research Laboratory arranged for work space and tools and storage of the fallen wall segments. Don Hamilton's help on the restoration and conservation of the murals was invaluable. George Nelson made drawings of the murals, the elevations of the standing rock walls, and the conceptual restoration of the buttress. R. T. Campbell, Lynn Harris, and Gretchen Niendorff did drafting; R. T. Campbell and Lynn Harris made photographs. Don Smith of North Texas State University arranged for identification of the wood samples. Brandy Walker of North Texas State University has been a patient able assistant. Mary Herrmann typed the manuscript.

R. B. Gilmore has lent encouragement and help throughout the project.

The project was financed by the Texas Parks and Wildlife Department, and the report was written at the Institute of Applied Sciences, North Texas State University, under Contract No. IAC(74-75)-1550.

CONTENTS

PREFACE	v
INTRODUCTION	i
THE ORIGINAL WOODEN WALL (Feature 1)	13
Excavations	13
Discussion	15
THE CHURCHES	17
The Original Church	17
Excavations	17
Feature 2	17
Feature 5	19
Feature 7	21
Building Phases	23
Discussion	25
The Final Church	28
Excavations	28
Feature 13	28
Feature 14	30
Discussion	32
Documentary Integration	33
THE FLYING BUTTRESS (Feature 10)	45
Excavations	45
Discussion	46
LIVING AND ACTIVITY AREAS	47
Excavations	47
Feature 3	47
Feature 6	48
THE WELL (?) (Trench 190)	59
Excavations	59
Discussion	61
THE BACKHOE TRENCHES	63
MISCELLANEOUS EXCAVATIONS	67
SYNTHESIS	79
RECOMMENDATIONS	85
REFERENCES CITED	87
DOCUMENTS CITED	93

FIGURES

Fig. No.

1	Excavations Spring 1974	167
2	Excavations Fall 1974	169
3	Feature 1 Postholes and jacal walls	171
4	Feature 1 Postholes	173
5	Feature 2	175
6	Feature 2A	177
7	The Original Church Postulated Building Phase 1	179
8	The Original Church Postulated Building Phase 2	181
9	The Original Church Postulated Building Phase 3	183
10	The Original Church Postulated Building Phase 4	185
11	The Original Church Feature 2	187
12	Feature 2D Infant burial under north-south cross wall	189
13	Features 2A, 2B After removal of over-painting	191
14	Feature 7	193
15	Feature 7, Feature 13	195
16	Feature 13	197
17	The Final Church Features 13 and 14	199
18	Feature 14	201
19	Details of Flying Buttress	203
20	Conceptual Restoration of Flying Buttress	205
21	Buttress area	207
22	Feature 3	209
23	Feature 6	211
24	Feature 6 Area A	213
25	Feature 6 Area B	215
26	Feature 6 Area B	217
27	Sunken Area, Vicinity Trench South 190	219
28	Trench South 190	221
29	Backhoe Trenches 1, 2, 3	223
30	Backhoe Trenches 4, 5, 6	225
31	Wall Plaster with Scoring	227
32	Lithic Artifacts	229
33	Gunflints	231
34	Metal Artifacts	233
35	Ceramics	235
36	Skeletal anomalies	237
37	Archway mural	239
38	Elevations 1974 Standing rock walls	241

TABLES

Table No.

1	Chronology of Events	5
2	The Original Church: Relationship of Burials and Grave Pits to Building Phases	37
3	The Original Church: Relationship of Postholes to Building Phases	41
4	Population and Priests in Residence	73

APPENDIX

Lithic Analysis by Marsha Prior Robertson	99
Gunflints by Jay C. Blaine	107
European Derived Ceramics by Kathleen Gilmore	111
Indian Ceramics by Kathleen Gilmore	117
Metal Artifacts by Inus Marie and R. King Harris	121
Gun Parts and Related Items by Jay C. Blaine	129
Beads by Inus Marie and R. King Harris	131
Human Skeletal Material by Barbara H. Butler	133
Analysis of Two Segments of Fallen Wall Containing Murals by Diana Lowrey and Steve Zeman	139
Experimental Plaster Stabilization	151
Animal Bones by Barbara H. Butler and Billy Davidson	155

INTRODUCTION

The 1974 archeological excavations (Fig. 1, 2) were oriented toward the development of the Mission Rosario park site as a resource for educating the public on the workings of a Spanish Colonial mission and its inhabitants -- missionaries, soldiers, and Indians. In all, the excavations obtained only a small part of the information still in the ground, and during the Spring 1974 excavations, concepts began to be formulated for the proposal of an ongoing archeological project which might be viewed by visitors to the park and participated in by students under supervision of an archeologist. Details of such a proposal are in this report under Recommendations.

Throughout the excavations, the overall objective was to obtain information which would provide data for interpretation of the life style of the inhabitants preceding the mission's establishment in 1754 throughout its existence and period of abandonment until final abandonment in 1807. The research design was planned around that objective, but because time and financing were limited, it was evident that the entire design as follows could not be carried out:

- (1) Archival search for and translation of documents pertaining to the mission.
- (2) Establishment of the kinds of occupation which might have predated the mission.
- (3) Establishment of the plan and activities of the wooden building phase which was known to exist from documentary sources.
- (4) Establishment of the plan and activities in the mission compound area of the stone building and wall; that is, where was the church or churches, where were worship and other activities taking place; and where were the Indians at Rosario weaving or making pottery; where were the Indians, priests, and soldiers living?

- (5) Phases of building activity; for example, what was the function of the L-shaped blocks of rock at the southeast corner of the stone building complex; were the stone buildings all built at one time?
- (6) The relationship of all activities to a temporal framework.

The strategy to accomplish this design was based, in part, on the information obtained in the 1973 excavations. Although large scale disturbance had been noted in 1973, it was planned for all excavations to be made in cultural stratigraphic levels, but this was not always possible. Information on pre-mission occupation presumably lay below the first buildings built on the site. In 1973 it was noted that buildings had been put on top of a dark brown sand, and the presence of artifacts in this sand should suggest pre-mission activity.

Since large posthole molds were found outside the northwest corner of the rock compound wall, and evidence of multiple building phases were found toward the south inside the wall (Structure 1, Gilmore 1974), excavations in the area outside the wall were continued for information about the wooden building phase. Floors and fragments of painted plaster found in Feature 2 in 1973 indicated further excavation in that area would be informative for building phases and activities. A "catch basin" mentioned in "Report of Job 135," it was hoped, would provide data on the stratigraphic position of artifacts which would form the basis of a temporal framework. Another strategy was to clear already obviously disturbed areas -- "potholes" -- so that information could be obtained without additional disturbance, leaving as much undisturbed area as possible for preservation or future study.

Not all of the research design was accomplished, but a relative temporal framework has been worked out by the use of excavated and historical data (see Synthesis). One of the biggest disappointments was the lack of artifacts. Not only in sheer numbers, but, more importantly, so few were in unquestioned cultural stratigraphic position that use areas of the site rarely could be placed in relationship to other areas by artifactual content.

No attempt has been made to present the excavation procedure or methodology in detail. All field records and notes are on file at Texas Parks and Wildlife Department, Austin, and may be consulted. A narrative history of the

site has not been repeated; instead a Chronology of Events (Table 1) has been compiled.

The first sections of the report contain descriptions and interpretations of excavations. Following these are a Synthesis of excavations integrated with documentary information and Recommendations concerning the future of the site. Descriptions of artifacts and bones and other detailed descriptions are in the Appendix.

TABLE 1
 CHRONOLOGY OF EVENTS
 MISSION ROSARIO (41GD2)

<u>DATE</u>	<u>EVENT</u>	<u>REFERENCE</u>
1754 Nov.	Established by Fr. Juan de Dios Camberos	Camberos Report May 26, 1758*
1755 Jan. 15	The church and chapel finished in 2 months. Church was built "superior" to the ones at the Presidio and Mission Espiritu Santo. Nine soldiers and a corporal from the Presidio helped.	Piszina to the Viceroy*
1758 May 26	12 adults, 9 children had been baptized <u>in articulo mortis</u> ; 1 live baptism. An estimated 400 Cujanes, Copanes, and Gaupites (without the Karankawas, "who were numerous") could bear arms against the Spanish. They had 8 small houses, a large kettle to cook corn, 8 comales, 8 metates, 6 pots, and a set of carpenter's tools.	Camberos Report*
1762 May 2	A stockade had been built. 4 soldiers were stationed at Rosario. 137 Indians had been baptized.	Piszina to the Viceroy*
1767 July 27	Captain Piszina of Presidio La Bahia died. He named the mission "Our Lady of the Rosary" after the patroness of the church in his native town in Spain. His will provided that his body should be buried in the chapel of the mission."	Ramsdell nd.:37 Coopwood 1938:107

TABLE 1 - Chronology of Events

<u>DATE</u>	<u>EVENT</u>	<u>REFERENCE</u>
1768 March	<p>Fr. Gaspar José de Solís visit and inspection. About 200 had been baptized; 110 buried; 35 married (p.47).</p> <p>Few Indians present (p.40).</p> <p>Fr. Joseph Escovar, the minister, "gets them [the Indians] together, young and old, in the cemetery at the ringing of the bell before prayers at night . . ." (p.40).</p> <p>"The workshop [sic] and dwellings for the ministering Fathers as well as for the Indians, are good and adequate. Its stockade of strong stakes, which defends the mission from its enemies, is very good."</p> <p>"A very nice church made of logs lined with mud on the inside, whitewashed walls and roofed with good beams skillfully made, which seem like a carved panel very neat and clean;"</p> <p>"the adornments, sacred cups, neat ornaments, vessels for the pulpit, confessional and altars . . . is good and in its place . . ."</p> <p>"There is a baptismal font, with its silver shell and small vials for the holy oils also of silver." (p.39)</p> <p>Remarks: Castañeda (1936:V. 4:30), paraphrasing Solís states there were a pulpit, a confessional, 3 altars, and a baptismal font in the sacristy.</p>	Solís <u>in</u> Kress 1
1777 Dec. 12	New church dedicated at Mission Espiritu Santo.	Diario de Narvai 6

TABLE 1 - Chronology of Events

<u>DATE</u>	<u>EVENT</u>	<u>REFERENCE</u>
1779	The Indians "fled to the coast in 1779 because of the unreasonable and cruel punishments of the deceased Captain Cazorla and his Lieutenant, Don José Santoja, and also because the Father Ministers, now deceased, wanted to constrain and deprive the Indians of their liberty."	Reyes to the Viceroy May 1, 1790 <u>in</u> Leutenegger 1968: 592
	Remarks: Cazorla was captain of Presidio La Bahia from 1772 to 1778 and from 1784 to 1788; Santoja was in charge from 1781 to 1784. Both died in the epidemic of 1788 (Leutenegger 1968: fn 592).	
1781 July 12	"Comanche Indians fell upon Mission Rosario, and killed near the mission a servant, Pedro Becerra; and a little farther away, 2 more servants were killed and more than 90 sheep and some cattle."	Diario de Narvais: 10
1781 Aug. 17	"Indians killed a servant of Mission Rosario, who was on his way to the Presidio of La Bahia to bring the customary contribution."	Diario de Narvais: 11
1783 Feb. 12	"I [Fr. Vasconzelos] went to Mission Espiritu Santo to take charge of Mission Rosario."	Diario de Narvais: 12
1783 July 3	"I [Fr. Vasconzelos] left La Bahia for Mission San Antonio."	Diario de Narvais: 12
1785	Ornaments had been transferred to La Bahia. Some were "destroyed when the house fell in ruins."	Report of Lopez <u>in</u> Dabbs 1940:15
1789 Nov. 18	"Although with regard to the mission, it will not cost much to finish rebuilding it, since	Espadas to Pacheco

TABLE 1 - Chronology of Events

<u>DATE</u>	<u>EVENT</u>	<u>REFERENCE</u>
	the convent, sacristy, surrounding wall and two other rooms are good. Only the church has fallen."	
1789 Dec.	Fr. José Mariano Reyes arrived at Mission Rosario.	Leutenegger 1968: 585
1790 May 1	While Rosario was abandoned, "The Presidio was [has been] enclosed within walls and the wood the soldiers needed for fire they took from the rafters and doors and destroyed the living quarters of the friary and also the houses [of Rosario]. The settlers did the same and as the Apaches became friendly, they settled there and like barbarians wrought more destruction." (p.593)	Reyes to the Viceroy in Leutenegger 1968
	"What has been done to clothe the Indians partially, to build a small chapel, poorly made of grass and poles, . . . a small hut for myself." (p.595)	
1790 May 1	57 Indians, 8-10 Spanish present.	Reyes Census*
1790 May 1	". . . that you order said Commander to make a copy of the title of possession and of the boundaries of the property of this Mission, which are in the archives of your office, because the old papers were lost.	Reyes to the Viceroy in Leutenegger 1968: 597
	"These four nations [Copanes, Cojanos, Carancahuezes, Gaupites] are better able to learn Spanish than the many I have delt with in the interior; they learn easily what is taught them . . . They have clear and sharp minds, are alert, docile and tractable and are highly regarded by the Spaniards."	

TABLE 1 - Chronology of Events

<u>DATE</u>	<u>EVENT</u>	<u>REFERENCE</u>
1790 Aug. 20	". . . he [Fr. Reyes] has given no account of what the inventories revealed at the time of transfer, except to say by way of frivolous excuse that the records were lost, that some papers have become waterstained, and others the mice have eaten."	Rada to the Viceroy in Leutenegger 1968:598
1790 Oct. 8	Twenty of fifty-two Indians present. "With regard to the fabrication or the construction of the mission, the little wall that surrounds it is very deteriorated because it is old and no care has been taken of it. The house in which the Father Minister lives is without a roof, although its walls remain strong and without the least change. As for the church, there are not even ruins. The present priest used a small hut with a thatched roof [and it is] so small that the altar and confessional barely fit. The present dwelling of the father is a small house with a roof of sod [which is] very uncomfortable as is [the house] of the soldiers and some servants who attend him."	Lopez to Muñoz*
1791 Mar. 1	Fr. Jaudenes replaced Fr. Reyes. The mission received him with "no wall, a house, a church . . . a yoke of oxen and 53 Indians."	Jaudenes to Gordo June 4, 1792
1791 Mar. 26	"Mud walls of the outer wall had been restored." They had begun to cut ties for the roofs of the church and residence of the Missionaries.	Revillagigedo to Muñoz*
1791 April 7	Fr. Cardenas assisted with the work.	Jaudenes to Muñoz

TABLE 1 - Chronology of Events

<u>DATE</u>	<u>EVENT</u>	<u>REFERENCE</u>
	Gaps in the wall were closed. 60 beams had been cut and 30 more were being worked.	
	Remarks: Castañeda (1936:V. 5: 189) states: "The mission walls had been rebuilt, and sufficient lumber had been cut to reroof the church . . ."	
1791 July 20	The surrounding wall had been completed. "One room, a large hall, an office, a sacristy and half of the church" were completed.	Jaudenes to Muño
	85 Indians present	
1791 Oct. 13	List of supplies.	Jaudenes to Muño
1791 Nov. 9	The church was dedicated.	Jaudenes to Muño Oct. 13, 1791
1791 Nov. 30	114 Indians present; 5 families were new.	Jaudenes to Muño
1793 Feb. 4	Mission Nuestra Señora del Refugio established.	Diario de Narvai 22
1794	Fr. José Manuel Pedrajo temporary relief for Fr. Jaudenes.	Diario de Narvai 28
1795 Aug. 19	"Fr. Pedrajo arrived from Texas." [Written in Zacatecas]	Diario de Narvai 27
1796 June 18	"Fr. Jaudenes left for Texas to gather together the Indians of Mission Rosario and Refugio who had revolted . . ." [Written in Zacatecas]	Diario de Narvai 28
1797 Mar.	"Fr. Noreña is assigned to Mission Espada and Fr. Puelles to Mission Rosario."	Diario de Narvai 28

TABLE 1 - Chronology of Events

<u>DATE</u>	<u>EVENT</u>	<u>REFERENCE</u>
1797 June 5	97 Cocos and Karankawas present; the Cocos were to stay at Rosario, the Karankawas to go to Refugio.	Cardenas to Muñoz, San José Papers V. 3:486
1798 March	"Fr. Jaudenes arrived from Texas." [Written in Zacatecas]	Diario de Narvais: 29
1804 Aug. 26	". . . a part of the house and a section of the church in the portion by the door (have) fallen (because of) a rain that occurred the 20th and 24th of this month. Several sections of the wall also fell during (the rain)."	Huerta to Elquezábal*
1805 Nov. 15	Estimate for repairs to church, wall, dwelling, and water basins.	Report of Viana Nov. 15, 1805
1805	Fr. Huerta went with remaining Indians to Mission Refugio.	Habig 1973:124
	Remarks: Vallejo's letter implies some Indians were present in 1806 and Fr. Huerta may have been with them.	Vallejo to Cordero Dec. 13, 1806*
1807 Feb. 7	Formally combined with Mission Refugio.	Salcedo to Cordero*

* References translated by E. Nunley for the Mission Rosario Project.

THE ORIGINAL WOODEN WALL

(Feature 1)

Excavations

In the spring of 1973, excavations located trenches of 1940-41 and also postholes extending northward from the rock wall of the mission compound (see Gilmore 1974). As excavation of this area in 1973 exposed only this alignment, the plan in Spring 1974 was to re-expose these excavations and project from the known postholes to other possible alignments (Fig. 1).

Trenches 3 feet wide were initially laid out, but these were widened where necessary to follow alignments or possible wall trenches. The alignments and projections became easy to predict as many of the postholes were 1 vara (2.78 feet) or 2 varas (5.55 feet) apart.

The geological stratigraphy, which is generally the same over the entire site, contributed to the ease of identification of the postholes. In this area it is as follows:

- Surface soil: gray-brown with flecks of caliche, pebbles of sandstone, some charcoal; contains potsherds, flint flakes, much bone.
- Caliche lenses: discontinuous patches; few or no artifacts; may represent fragments of roofing material or caliche waste.
- Gray-brown soil: mottled with caliche flecks and orange-red clay; contains some pottery and flint flakes, much bone; back fill and spoil from former excavations.

Dark brown slightly sandy soil: contains few artifacts.

Orange-red to light yellowish tan clay with scattered caliche nodules; contained 1 flint flake.

Filled postholes exhibited two color patterns: (1) outside ring of predominately orange-red clay which was the original back fill around the post, and an interior of gray-brown mottled white clay -- fill of the hole after the post was pulled; (2) homogeneous dark brown slightly sandy clay. The latter color pattern indicates the orange-red clay was not penetrated when these holes were originally dug. Since this dark brown fill had no indications of being decayed wood, and some wood fragments were preserved in other areas of the site, it is extremely doubtful that these represent posts which were not pulled and decayed in place.

The large posthole molds more than 1.5 feet in diameter are considered as being part of the major structure or part of the "strong stockade" Solís (Kress 1931) mentioned (Fig. 3). Other postholes seem to be remains of jacal structures built outside the compound wall. Wall trenches were not found between all major posts, and it is possible these trenches were either not preserved or were subsequently destroyed, but this seems unlikely. Several posts were either set with 4 to 6 smaller supporting, encircling posts, or the smaller encircling posts were added later for support.

Three postholes were found under the stone wall near the northwest corner, suggesting that the stone wall was placed where the wooden wall had been (Fig. 4). This placement was also indicated in the 1973 excavations along the northern wall at grid point North 0 East 85.

The pattern of the postholes found around the northwestern corner indicates a structure existed there which was about 6 feet by 6 feet, or about 2 varas (5.55 feet) by 2 varas, inside dimension. No postholes were found around the northeastern corner (Feature 4, Fig. 1), nor in a 5-foot by 5-foot test at grid point North 43 East 127. The southeastern corner, however, was not excavated, and a bastion or room may have been placed at that corner.

Discussion

The northwestern corner of the compound was a logical place for protective measures because this corner was the closest to the river which was used as a traffic-way, and from a higher elevation, the river area could be viewed for a long distance. Whether this was actually a "bastion" for protective purposes or a "porter's room" or a receiving room near an entrance is unknown. The size of the posts, however, suggests something more than a simple room.

The jacal structure (Fig. 3) was probably built with some of the large posts of the wall incorporated into the structure. Most of the artifacts found in or near the jacal walls are Indian pottery, indicating this structure served as an Indian living area and probably was contemporary with the mission.

It is strange that the "bastion" was not rebuilt of stone at the same time the wall and other structures were. This implies that the room was not in service after the rock wall was built. Consequently, the stone wall, which was 3 varas or 8.34 feet high (Report of Viana Nov. 15, 1805) and about 1 vara or 2.78 feet wide, may have served as the lookout place.

THE CHURCHES

The Original Church (Features 2, 5, 7)

Excavations

Feature 2 (Fig. 1). This feature was named Structure 2 in the previous report (Gilmore 1974), and from the Spring 1973 tests in the area, it was surmised to be a single room measuring about 15 feet by 40 feet. Extensive excavation was not made during the Spring 1973 field season since that was a pilot season; and, furthermore, polychrome painted plaster had been found in abundance, and no provision had been made for its preservation nor for the stabilization of walls.

At the beginning of the Spring 1974 excavation, the plan was to clear this room and determine its exact size and function. That a floor existed in the room was determined in the previous season's excavations, and as a testing measure, three 3 feet by 3 feet squares were cleared to the floor working from the 1973 excavations (Fig. 1). The entire room was then cleared and the wall lines determined (Fig. 2). All features were designated alphabetically as found. The letters I and O were not used. Two structured piles of rocks (Features 2A, 2B; Fig. 6A, 6B), which appeared to be parts of the wall which had fallen, were left in place. These were later plaster jacketed and removed to the laboratory for cleaning and study (see Appendix for analysis).

During the process of clearing the floor, disturbed areas in the floor were noted, and one of these was sectioned (Feature 2E; Fig. 5B). This feature was eventually found to be a grave pit over which the tan caliche floor had sunk with compaction of the grave fill. The floor had not been cut through to dig the grave. The grave pit was dug through a dark brown sandy stratum which grades into sticky red clay. Consequently, the back fill of the pit consisted of a red and black mottled matrix. Directly overlying the pit was a lense of the dark brown sandy

stratum. The tan caliche floor, which was thickest over the pit, was overlain by the gray white floor which thickened over the pit to fill the sunken area caused by compaction. The burial was excavated, measured in situ, and the pit refilled (for analysis see Appendix).

The foregoing geological sequence was found to be present in the entire room but was not always as clear as it was for Feature 2E because most of the graves had been cut into by other pits.

Flooring material was not found in the eastern segment of the room. During clearing of this area, it appeared disturbed, and the definition of the eastern wall was difficult. It is probable this area had been leveled. The fact that there was so little disturbance in the remainder of the room is difficult to explain.

Near the western periphery of the area where the floor could not be defined, one grave pit (Feature 2F; Fig. 7) was apparent. A section of the pit was excavated and revealed the burial had been removed, with a metacarpel and a phalange being present in the pit fill. Judging from the shape of the pit, however, the head may have been placed toward the west. In this area of the room, the pit fill and the matrix into which it was dug are very similar, but the pit fill contained bits and pieces of the tan caliche floor. It also appeared the grave had been overlain by the gray white floor. Thus, the removal of the burial probably took place before the gray white floor was laid.

Eastward from this pit (Feature 2F), flooring material was not found; but a trench (Feature 2BBB), probably a setting trench, was found. This trench (Fig. 7), 1.6 feet wide, has a light brown relatively homogeneous sandy fill with small fragments of sandy, mortar-like material. No posthole molds were noted. It extends in a somewhat straight line across the room to within one foot of the northern wall where it curves toward the west. Fragments of the floor abutted the trench on the west.

In order to uncover burials which preceded the laying of the gray white floor, the floors were removed; but across each apparent grave pit or posthole, a balk was left for reference (Fig. 11). During this process, three burial pits (2DD, 2EE, 2HH; Fig. 12) were found to partly underlie the north-south cross wall, and two (2G, 2PP) were under the north wall. Two of these, 2DD, 2EE, were excavated (see Appendix for analysis). A total of twenty-six

burial pits and fifteen postholes were found in this room (Fig. 6, 7, 8, 9; Tables 2, 3).

Because it was now apparent that this room originally was larger and extended past the cross wall, excavation was undertaken on the western side of the wall.

Feature 5. This feature is on the west of the north-south cross wall from East 30 to East 42.5 and South 70 (Fig. 1). The objective in clearing this room was to establish the relationship of the area to that on the east of the north-south cross wall. The working hypothesis was that Feature 5 was part of the original church, and the north-south cross wall was a later addition.

A 5- by 5-foot square (southeast corner South 65 East 43) was initially excavated. When the position of the top-most floor was established, the room was cleared to within several inches of the floor and then excavated to the floor. The floors were then removed. A 1 foot balk was left for reference at the northern wall. The stratigraphic sequence in excavation unit South 70 East 40 is as follows:

<u>Depth</u>	<u>Description</u>	<u>Artifacts</u>
Surface to 0.25 foot	Light brown sand with irregular sandstone pebbles and cobbles	Indian pottery sherds, "mocha" ware
0.25 foot to 0.45 foot	Light tan clayey sand with irregular sandstone rocks; disturbed by tree roots	Indian pottery; majolica, lead glaze ware, basalt mano fragment, 1 piece brass, red burnished ware
0.45 foot to 1.00 foot	Yellow gray clayey sand with irregular small rocks	Painted plaster, red burnished ware, some flint

Floor level was reached at 1.2 feet to 1.5 feet below the surface.

The mixture of artifacts in the uppermost stratum suggests two processes of filling: (1) natural accretion of post mission abandonment and use, and (2) back fill of previous excavations.

With the extension of the excavations, it soon became apparent that the area was highly disturbed. The first floor to be encountered was a gray white caliche floor, which could be easily followed. It was not present over the entire room, however, with most of the disturbance appearing to be post mission. Under this floor was a tan gray floor. Both floors varied in thickness, the surface being undulating and apparently patched in many places. This was evident in the north profile of unit South 65 East 43 where 4 floors were present.

Excavating to and into the doorway, a rock footing to the westernmost wall was found which is about 0.5 foot to 0.83 foot in width. A check was made on the exterior (west) side of the wall and a footing, about 0.5 foot, was found there. These footings probably represent a previous stone wall.

The doorway was cleared to the presumed floor level since the floor was not present in the area. No threshold stone was found. Many threshold stones were removed during the 1940-41 excavations (Beard 1973), and this may have been one of those removed. An iron spur fragment of probably Spanish or Mexican origin was found near the doorway.

With the clearing of the room and the removal of the floors, 10 burial pits and 5 postholes were found. Two of the postholes (Table 3), Features 5G, and 5S, cut the gray white floor and are suggestive of post mission use. The post in posthole 5S slanted from north to south, that is, toward the northern stone wall. This post could have been a brace for the wall or in combination with post, Feature 5G, supports or braces for a roof of post mission vintage.

Grave pits were not all excavated (Table 2). Burial 5D had been excavated prior to this excavation by a 3-foot by 3-foot square, and the bones replaced in the pit. The bottom of the pit contained clean sand and a large rock. This may have been excavated in 1940-41 but, there is no record of such.

Grave pits 5B and 5L extend under the north-south cross wall (Fig. 9) but do not appear to be portions of burials from Feature 2 which extend under the wall. The floors are similar in Features 2 and 5, although the tan caliche floor of Feature 5 contains a greater amount of brown sandy material and the gray white floor in Feature 5 is consistently a darker gray than that of Feature 2.

This floor is also somewhat higher and is considerably more undulating than the floor in Feature 2. In the few places where it was present against the north-south cross wall, it did not appear to extend under the wall. This floor, therefore, was probably associated with the room after the north-south cross wall was built.

Feature 7 (Fig. 2). At the beginning of the Fall 1974 season, the limits of the original church had not been established on either side of the east-west trending walls. To establish rooms or structures which might have been on the south side of the church, a 2-foot wide trench was dug in 5-foot sections along grid line South 83 beginning at grid line East 60.

A thin (0.2-foot) layer of overburden, which thickened toward the wall to the west, covered the surface. Underlying the surface material is a matrix of mottled red clay and dark sand, which, in turn, is underlain by dark brown soft sand containing lithic artifacts. The substratum is red clay.

The only structural feature found was a posthole, 1.5 feet in diameter, located at South 83 East 50. This posthole originated at the top of the dark brown sand and extended into the red clay. Judging from the level of origin, the post may have been from the first building phase. Its relationship to other structures is unknown.

The excavations were continued on the west side of the wall (the north-south cross wall, Fig. 2) to investigate a structural gap in the wall and the presence of floor or cross walls. A fragment of a floor was present at South 83 East 41.5 (Fig. 14A). This floor was 0.25 foot in thickness, with small rocks about 2 inches in diameter laid directly on the dark brown sandy stratum and covered with a layer of caliche. This floor varies in elevation from 0.90 foot to 1.6 feet above the floor in Feature 5.

It was immediately apparent by the fill in the excavation that a trench had been previously dug out and also cut through. Continued excavation to the South 70 line further confirmed the formerly excavated trench, which was also part of the former excavation where Burial 5D had been found in the Spring 1974 excavations. This trench presumably was dug in 1940-41. An irregular former excavation (a "pot hole") had also been dug through the presumed 1940-41 excavation at the south end. Adding to the disturbance was an anaqua tree growing in the loose soil. Artifacts found in the fill of these excavations

were Goliad ware, Rockport ware, lead glaze ware, a flint core, painted plaster, and plastered mud daub. An aluminum artifact, perhaps an automobile part, and animal bones were also found. Unfortunately, the Spring 1974 test trench also contributed to the problems of interpretation, as it was not well understood at the time it was dug.

Nevertheless, some important information was gained from this disturbed area. A wall footing, representing a previous wall was found along the west side of the north-south cross wall, and several large rocks along the South 74 grid line appeared to be undisturbed, and a fragment of tan floor was found in place (Fig. 14A).

As several large rocks were evidently in place, the excavations were extended toward the west to establish the presence of a wall line or setting trench. The plan was to excavate in stratigraphic levels, but the strata were so complex a combination of arbitrary and stratigraphic levels had to be used.

In excavation unit South 73 East 35.5, a 3-foot by 3-foot square, a fragment of painted plaster was found lying with the painted surface downward on mixed red and brown clay (Fig. 14B). Directly overlying the plaster was a layer of medium tan clay containing white rocks and plaster; overlying this layer was a zone of red brown mixed clay, and overlying this was a tan to gray mixed layer which contained a large (5 inches in length) iron key. Other artifacts found here were two large unglazed "olive jar" sherds, flint flakes, and a few bone fragments.

The plaster was jacketed with plaster of paris on one side and turned over. A previously dug hole was found under the plaster fall (Fig. 14A), which was 2 feet in diameter with the west side having been cut with a straight edge. This hole pattern overlapped another one to the south. With excavations to the next level, the hole pattern with the straight side was not present, and the latter hole pattern was found to be 2.5 feet in diameter with two rings of fill, indicating it had been a posthole. The outer ring was composed of dark brown sand and red clay mixed, and the inner ring of a dark brown matrix with inclusions of rock, tan clay, some caliche, and red clay. Sixteen flint flakes were found in the fill. In this area also were fragments of daub, some of which were plastered and partly burned (see Fig. 14A).

A section of a setting trench (Fig. 14A), which appeared to be a trench for the stone wall, was found near the large posthole, but it could not be traced toward the

east. A small section of the trench, in which one of the large rocks had been placed, was present to the east near the wall.

It is uncertain whether this setting trench, and thereby the stone wall, actually continued across the area and disturbances had obliterated it, or whether this was a niche in the wall which contained the large post for some purpose such as part of a baptismal font or an altar. On the other hand, as the posthole had not been dug through a floor, as evidenced by the outer ring fill, it may have served as part of the original wooden church or as a structural feature in conjunction with the stone wall. Artifacts found in this unit are Goliad Plain ware, Rockport ware, green band Huejotzingo (majolica), flint flakes, and painted plaster. Some bone fragments were found.

The southern part of this unit is puzzling. Here a segment of what appeared to be floor material -- light gray caliche with small particles of red and tan clay and pieces of plaster -- sloped or dipped toward the north (Fig. 15A). The profile (Fig. 15C), however, showed two layers separated by 0.2 foot of dark brown clayey sand mottled with red clay. As previously noted, the in situ floor is as much as 1.5 feet higher (Fig. 14A) in the southern part of this area, and the caliche floor-like material may be the remains of a step or steps leading upward into the south room after disturbance by man and weathering. This may also be remains of fallen roofing material as roofs in many such buildings were reinforced by a layer of mud or caliche. The area where the two floors should have met is a highly disturbed area, but it is possible further excavation of the room could clarify the relationship. That two rooms existed, however, is undoubted.

Building Phases

The original church (Features 2, 5, 7 in part) seem to have had at least four building phases. Table 3 shows the analysis of the postholes and their related phases. Table 2 shows the same analysis for the burials.

Phase 1 (Fig. 7) is the early wooden structure which probably was wider toward the north, extending past the presently partially standing rock wall. This structure probably had a non-prepared or dirt floor when it was first built. Related to this phase are burial pits which contain no flooring material in the pit fill.

Phase 2 (Fig. 8) was initiated when a light tan caliche floor was laid, perhaps in the wooden structure. This structure may have had some stone support. Related to this phase are burials contained in pits which were dug through the floor, bits of the floor being contained in the pit fill. The floor was then patched with the same kind of flooring material.

Phase 3 (Fig. 9) is indicated by the laying of a gray white caliche floor which was associated with rock walls. During this phase, burials were interred in grave pits which were dug through both the gray white floor and the light tan caliche floor. Polychrome painted murals (Fig. 13) recovered on fragments of rock walls which fell into the room, decorated the walls. Phase 3A, repair of the church is indicated by overpainting of the murals and the possible addition of a buttressing column (Feature 2D).

Phase 4 (Fig. 10) was a major rebuilding phase when a stone wall was built across what appears to have been the entryway or narthex of the church. This wall extends southward about 30 feet to an archway. The eastern part of the church was probably abandoned and the church moved to the former friary (Feature 14) where a wall was removed, a doorway sealed, and a sacristy built. The flying buttress at the southeast corner of the stone complex probably was added during this phase.

Present evidence based on burial pit and posthole fill indicates that the stone church was built in the same location as the wooden church. There is, however, the possibility that the wooden church was larger than the stone church. Solís (Kress 1931:45) in 1768 described the church at Mission Espiritu Santo as being smaller than the one at Mission Rosario and the church at Rosario as being wooden, plastered inside with mud, and whitewashed with lime (Kress 1931:39). Piszina (to the Viceroy Jan. 15, 1755) noted that the church was built superior to the ones at the Presidio and Mission Espiritu Santo. Ramsdell (nd:51) states that by 1758 Espiritu Santo was built of stone and mortar. As the larger church at Espiritu Santo was dedicated December 12, 1777 (Diario de Narvais), it is possible that what is now known as the granary was the stone church in 1767. The interior dimensions of this structure as measured from drawings made in 1937 are 55 feet 6 1/2 inches by 17 feet 8 inches. If this was the church Solís was speaking of at Espiritu Santo, then the wooden church at Rosario was larger than the later stone church since the projected and estimated size of the original stone church at Rosario is 55 feet by about 14

feet. Postholes in the south stone wall may indicate that this was the south wall of the wooden structure, or these posts may have been used solely as a structural technique. As the wooden structure probably was larger, indications of the size may be in an unexcavated area to the north of the church wall. Excavation of a trench on the south side of the stone wall revealed no structural features except a posthole near the north-south cross wall.

Discussion

The church was oriented east-west with the sanctuary on the east and the entrance on the west with the cemetery (Campo Santo) extending west from the entrance. The 1940-41 excavations noted 26 burials (Gilmore 1974) in the area west of the doorway, and burials in the area were confirmed in both the 1974 field seasons. The sanctuary apparently extended from the trench (Feature 2BBB) to the eastern wall. The trench (Feature 2BBB) must have been where the communion rail was placed with a step-up into the sanctuary. The distance from this trench to the east wall is about 4 varas (11.11 feet). As no flooring material extended from the trench to the east wall, the area may have been raised and subsequently destroyed in leveling operations. It is entirely possible this area was leveled and the stones reused in another area during mission rebuilding (the wall built across the church in Phase 4?). The 1940-41 photos show no standing walls in this area. The exact shape of the sanctuary area is unknown as the walls surrounding it seemed to be displaced from their precise location.

Still another possibility is that the church was never completely built of stone, but this seems unlikely in view of the use of stone in the other structures, and the fallen stone wall segments containing murals (Features 2A and 2B), which would have extended to about 5 feet above the floor. Furthermore, the present quantity of stone at the site is no indicator of the amount originally used. Eyewitness accounts by local persons tell of many loads of stone being carried from the site, and loose material was removed in the 1940-41 excavations (Beard 1973).

Other furnishings of the church, according to Solís (Kress 1931:39) were a pulpit, a confessional, altars, and "a baptismal font with its silver shell and small vials for the holy oils also of silver." It is difficult to place these in the church with any assurance, but the postholes probably represent where some of these furnishings were located.

Posthole 2LL (Fig. 9) is 0.95 foot in diameter and was set at an angle from the northwest. There is the possibility that this post may have supported a pulpit. Pulpits were customarily placed or attached to a wall near the communion rail, but outside the sanctuary (Montgomery et al. 1949:195) on the left side (Gospel) facing the sanctuary of the church. Apparently the post was pulled and the hole was then filled with caliche and lime. This probably took place when the stone walls were built. Another posthole, Feature 2QQ, 1.5 feet in diameter and 2 feet deep, is partly under Feature 2D, a square of stones. Since this posthole had been covered by the light tan floor and the small stone structure (2D), it had contained a post before either of these features was constructed. Therefore, this post may have served the same purpose as the small stone structure (2D) which may have been to buttress the wall. Another possibility is that the post and the stones supported a statue, but it seems unlikely such a large post would be needed for this purpose.

Postholes 2RR and 2W are possible choir loft supports. Posthole 2RR is 1.2 feet in diameter and 0.55 foot deep and was covered by the light tan floor, making it part of the earliest building phase. Posthole 2W, however, was placed through both floors and, therefore, belonged to a later phase. Other larger postholes like Feature 2AAA could have functioned to hold up the choir loft.

Neither the wooden nor the (presumed) stone wall church (Phase 3) may have had separate rooms for the sacristy and baptistry (see Kubler 1972). Previous to the building of the north-south wall across the church, there were at least two other walls, one a wooden clay daubed wall and the other a stone wall indicated by excavations in Feature 5. The wooden wall seems to have been part of the original structure, although it may have been built when the mission was repaired and the north-south stone wall was built. Neither wall could be traced over a large posthole (2.5 feet in diameter), but the edge of a setting trench was found 0.2 foot west of the large posthole. Thus, this area seems to have been a niche and the large posthole may have been the base of a baptismal font. Fragments of painted plaster, some of which are curved, were found in this area. No floor was found near the large posthole. There is also the possibility the large post was part of a winding staircase similar to the one at Mission San Jose in San Antonio, which led to the choir loft. The final interpretation of this feature depends on further excavations to delineate the entrance to the original church.

A "pot hole" adjacent to the large posthole or "niche" lies under the caliche floor. Therefore, this hole was dug previous to the laying of that floor. Here also was found a fragment of tin glazed ware, Huejotzingo green on white, generally thought to date post 1780 (Barnes and May 1972). This may be the area Lopez wrote of in 1789 (Dabbs 1940) where some of the ornaments of the church were "destroyed when the house fell in ruins," and the "pot hole" was part of the salvage for those ornaments. If the church was repaired in 1790, the area was cleared and a new floor laid. If, however, the ruins of the original church were such that they could not be repaired, the church may have been moved at that time.

At this time the rock wall was probably built across the original church to take the place of the rooms used for the new church. In building the wall across the church, the south wall of the church was cut through as well as the floor to set the wall in a trench. The wooden daubed wall may have been built east-west across the area at this time to make two rooms, but this seems unlikely in view of the collapsed rock walls which must have been present. The wooden daubed wall is more likely to represent remnants of the wooden structure. Excavation of the unexcavated area in this room would clarify these relationships to the building phases. Nevertheless, the room must have been cleared of wall debris and the floor repaired so that the room could be useful. Otherside, the north-south cross wall need not have been built.

The room to the south (Fig. 2) where the floor is as much as one foot higher probably had a step up into it, although excavations did not indicate such. This information may be present under the adjacent unexcavated area to the west (Fig. 14A). Thick caliche material (1.4 feet) separated by a thin (0.2 foot) layer of brown soil may be from fallen roofing material. This room probably served originally as a sacristy and perhaps the priest's chapel. It led into a passageway or "hall" containing the stairway (to the choir loft? to the infirmary? to the bell tower?) and entrance to the priest's quarters, rooms which extended westward, and an "office," as mentioned by Jaudenes (Jaudenes to Muñoz July 20, 1791). The "office" had an apparently long and narrow window placed to light the "hall." This part of the building, which had two stories (Fig. 21A), was supported by a flying buttress. The floors of the "sacristy" and the priest's quarters were similar, both being made of small rocks 2 to 4 inches, set in caliche, and topped with the same material.

Several burials (Fig. 7) have been interpreted as belonging to the wooden structure phase, since the refilling of these pits contains neither caliche flooring material nor plaster, indicating the pits were dug before a floor was laid. The burial in grave 2F apparently was an important person as it was placed near the communion rail with no other persons placed near it. This grave has the possibility of being that of Manuel Ramirez Piszina, Captain at Presidio La Bahia, who named and helped finance Mission Rosario. He stated in his will his wish to be buried in the church at Rosario (Ramsdell nd:37). Piszina died in 1767 during the time when, as Solís states (Kress 1931), the church was built of wood. It is doubtful this was the grave of Fr. Camberos as he died at Mission San Jose in 1764 (Habig 1973:113). Grave pit 2F contained only a few small human bones, and it is believed the body was probably exhumed at one of the periods of abandonment. This is substantiated by the presence of two stages of refill of the pit, and the fact that the pit had been cut through the tan floor and was overlain by the gray white floor. The burial apparently was not taken out during the 1940-41 excavations (Stripling 1975).

The Final Church

This area was labeled "Chapel 1" in the 1973 excavations (Gilmore 1974), and a small test was made in the room at that time. Since then, photographs taken during the 1940-41 excavations have been furnished by Raiford Stripling. For convenience of reference, this room is labeled Room 1, the walled area west of it Room 2, and the walled area east of it Room 3 (Fig. 17).

The 1940-41 photos show Room 2 has been cleared to a lower level than Room 1, with the rise into Room 2 being between the north-south cross wall. Another rise was indicated near the eastern wall of Room 1. On this eastern wall was what appeared to be a stone structure, and on the south wall was another larger stone structure. It had been proposed (Beard 1973) that Room 1 was the church, but there was no supporting evidence.

Excavations

Feature 13. The three units (Fig. 2) in this feature were to establish the relationship of Room 2 to the larger Room 1. Because the walls of Room 2 did not appear as structurally sound as that of Room 1 and a wide doorway

existed between the two rooms, the working hypothesis was that the westernmost room (Room 2) was an open stone-fenced area.

Excavation of square South 111 West 57 found evidence of previous excavations. A not too clear photo made in 1940-41 indicates it probably was excavated at that time. The profile (Fig. 15B, 16B) shows rocks were placed on the dark brown sand; caliche brick in two courses were placed atop this base. The rock base did not seem to be tied into the wall on the east, and although it was not clear because of previous excavation, the caliche bricks did not seem to extend north along the north-south wall more than 1.5 feet. The caliche bricks are 0.3 to 0.4 foot in thickness and 1.1 feet in length.

As it was unknown if these bricks served a structural function, excavation was made at the juncture of the north-south wall with the east-west wall. Here the bricks were not as regular (Fig. 16C) and were not laid in two full courses. The use of bricks such as these was not uncommon at Mission Espiritu Santo, according to Roland Beard, who viewed them at Rosario during excavation. These bricks, then, must have been used as structural supports in lieu of stone, which was difficult and expensive to procure.

Investigation of the rise at the doorway, which is visible in the 1940-41 photographs, resulted in the delineation of two features, 13A and 13B (Fig. 16A), which may have been used to support a decorative facade. Each feature consists of rocks set in red clay. Below the red clay and rocks is dark brown sand. Similar features probably were present in the northern section of the doorway wall, but only an indication of these remains.

Excavation over the rise, presumed to be a step, encountered a red clay and gravel mixture to the west of the rise. It is not clear whether this layer was part of the building technique or part of the 1941 cover of the area. The "step," however, consisted on a mixture of gray soil and dark brown sand, bordered by white caliche floor-like material which contained a fragment of wood -- apparently a door sill. A small section of the sill was removed for analysis, and the remainder was treated with preservative. The wooden sill was laid in a dip in the white caliche floor. The opening of the doorway in 5.5 feet (2 varas).

The floor, which contained small (0.2 foot) sandstone pebbles, was cleared along the north-south wall to the southern east-west wall (Fig. 16A). Small fragments

of extremely fragile red and salmon painted plaster were adhering to the wall.

The doorway appeared to have been an important one, probably an important exterior doorway in view of the findings of the excavations. But the function of Room 2 was still unknown. As a result, to gain maximum information in a limited time, excavations were made on each side (east and west) of the western opening to Room 2. In this unit, South 101 West 74, there was no evidence of caliche bricks, and the rocks of the wall appeared to have been set on a surface of medium brown gray clayey matrix containing varying amounts of caliche. No floor was encountered.

A posthole impression, 1.3 feet in diameter, was found 0.4 to 0.5 foot east of the north-south wall, which had no apparent connection with the wall. The hole dug to insert the post was 1.2 feet in diameter, the post was 0.5 to 0.6 feet in diameter. The posthole itself widens at the surface, presumably the effect of pulling the post. This post may have been part of a gate across the opening, and, although further information is needed, Room 2 probably was an open stone-walled area.

Feature 14. Excavation in this area (Fig. 2) was begun by excavating a 5-foot square (South 105 West 15) over an obvious irregular shaped "pot hole" which was about 3 feet by 3 feet. Cleared of the "pot hole" disturbance, the undisturbed sequence along West 15 is as follows:

Overburden
 Floor, of mixed sand, rocks and caliche
 Mixed sand and clay
 Dark brown sand
 Red clay

The remaining section was complex, and to clarify the sequence, the western adjacent 5-foot square was excavated. Large rocks (Fig. 17A) in an area 3 to 4 feet wide on the southern edge of this unit appeared to be remnants of a stone wall directly associated with the stone structure adjoining the wall. The north profile (Fig. 17B) shows a rubble and clay filled area about the same width, presumably the extension of this former wall toward the north.

The area between the profiles mentioned above was disturbed and was eventually found to be a burial pit containing a skeleton with the head to the east (Fig. 18A).

The pit apparently had been dug through the rubble fill of the former wall, but as the mixed material was evident directly under the surface at the "pot hole," it is possible the burial had been uncovered previously, or that it was interred after the mission was abandoned. The burial pit had a 1 to 2 inch outer fill of sand and clay matrix, possibly suggesting it was interred before the rock wall was built, was uncovered later, and was then re-covered, but this is doubtful.

The stratigraphic section in the western part of this unit (Fig. 17A, 17B, 18B) is as follows:

Overburden	3-4 inches	
Floor	3-5 inches	light tan caliche
Gray ash and charcoal	1 1/2-2 inches	at places contains twigs and grass
Floor	2-3 inches	tan caliche with pebbles
Sand lenses	1-3 inches	discontinuous
Fragmentary floor (?)		
Dark brown sand	10-12 inches	
Red clay		

In the section east of the rubble wall fill, only one floor -- tan caliche -- was present. Farther toward the east, three floors were found (see below).

A north-south setting trench 1.7 feet wide underlying the lowest floor was found along West 22.5 from South 100 to South 105. The fill of the trench is dark brown sand mottled with red clay.

A stratigraphic peel was attempted at South 102 along West 15 so that the sequence might be studied in the laboratory and could be used for future display. The peel, which strips off one to several inches from the surface, was not entirely successful because rain and high humidity prevented solidification of the white glue used to penetrate the strata.

The postulated sequence in this area, which is subject to further information, is as follows:

1. North-south wooden wall built
2. North-south stone wall built adjacent to the east of the wooden wall

3. Floor laid
4. Abandoned
5. Floor laid, tan caliche over pebbles
6. Roof burned and collapsed
7. Stone wall removed
8. Burial pit dug
9. Floor laid

To check the change in level shown in the 1940-41 photos in the eastern part of the room, a 3-foot trench was excavated to the stone structure against the eastern wall (Fig. 2). A change in the stratigraphy was found at West 13 where the rise in the photos is indicated. No floor was found, however, and the fill of the area consists of (1) surface, light brown sand with fragments of plaster; (2) light tan sand and small to medium (8 to 10 inches) stone rubble, fragments of plaster; (3) reddish sand, plaster and small stone rubble.

Because of the lack of time, only a small area could be deepened to clarify the sequence. This was done at West 11 where three floors were found directly underlying the reddish sand, plaster, and rubble, and overlying dark brown sand. The topmost floor is thin (about 0.36 to 1.2 inches), undulating gray white caliche; underlying this is a tan caliche floor 2.4 inches in thickness; the lowermost floor is white caliche 1.2 inches in thickness.

The excavation of this trench indicated the 1940-41 excavations may have taken off the topmost floors from the area where Profiles A-A', B-B' (Fig. 17A, 17B) show only one floor on the eastern end, and that the "rise" shown in the photos was a rubble filled area which was not structural.

Excavations to the south of the stone structure on the eastern wall were taken to the topmost floor surface. Fragile plaster with a small amount of red paint adhering was found on the stone structure and the eastern wall.

The eastern part of Room 1 apparently had not been previously excavated to floor level, and this area has the possibility of containing valuable information about the room. Furthermore, it is expected that other burials are present.

Discussion

This area (Fig. 17) originally had at least three rooms which were about 21 to 26 feet (8 or 9 varas) east-west by 16.6 feet (6 varas) north-south. The presently

standing rocks on the south wall (Fig. 17) were part of the cross wall which was torn down to make one room of the two. The doorway on the east was sealed and a possible altar built.

Excavations indicate that before the stone wall was taken out, the westernmost room was burned, as a layer of ash and charcoal lies between two floors; whereas, the original room to the east contained no ash and charcoal layer. A continuous floor level was not found, but it is believed one could be established with further excavation based on the findings described above.

It is extremely difficult to determine when the burial was interred. Evidence points to two possibilities: (1) when the area was used as a church after the wall was taken out or (2) post abandonment. There is no indication it was placed prior to the construction of the wall. Because the head was placed on the east, it may have been an important person. Seldom were burials made during the use of a mission or church anywhere except in the church itself or the Campo Santo (sacred ground) (Polzer 1974), and it is the presence of this burial which helps substantiate the use of this room. Other supportive evidence is in a structure on the east wall of the room which probably was part of the sanctuary furniture, the room outside on the south wall (the sacristy) which enters the church near the "altar," and the wide doorway, which may have had a decorative facade, on the west, which is the traditional direction for the front door (Kubler 1972)

Documentary Integration

Archeological and historical evidence suggest the stone buildings at Mission Rosario were probably built in the 1770s. If Solís' information (Kress 1931) was correct, and there is little reason to doubt it, the church was made of wood and clay in 1768. The new church at Mission Espiritu Santo was dedicated December 12, 1777 (Diario de Narvais:6), and the stone buildings at Rosario may have been built either shortly before or soon after the buildings at Espiritu Santo. Could coercion to help with the buildings have been the reason for the mass desertion of Rosario by the Indians in 1779?

At the reopening of Mission Rosario in 1789, Captain Espadas (Espadas to Pacheco Nov. 18, 1789), of Presidio La Bahia, wrote to Raphael Pacheco, governor, that ". . . with regard to the mission, it will not cost

much to finish rebuilding it, since the convent, sacristy, surrounding wall and two other rooms are good, only the church has fallen."*

Fr. Reyes, writing May 1, 1790 (Leutenegger 1968: 593), however, had a somewhat different view of what had taken place during abandonment. "The Presidio was enclosed within walls and the wood the soldiers needed for fire they took from the rafters and doors and destroyed the living quarters of the friary, and also the houses. The settlers did the same, and as the Apaches became friendly, they settled there and like barbarians wrought more destruction." Fr. Reyes may have been presenting a biased view as he was extremely anxious to obtain money for the reopening of the mission.

When Fr. Jaudenes arrived on March 1, 1791, he wrote "there was no wall, a house, a church, 1 yoke of oxen and 53 Indians." Interestingly, there were no "kitchen plates and cups" (Jaudenes to Muñoz Oct. 21, 1791). By the 26th of March, 1791, the "mud [mortar?] walls of the outer wall" had been restored and "ties for the roofs of the church and residence of the missionaries" were being cut (Revillagigedo to Muñoz Mar. 26, 1791). By July 20, the "surrounding wall, one room, a large hall, an office, a sacristy and one-half the church had been completed (Jaudenes to Muñoz July 20, 1791). The church was dedicated November 9, 1791 (Jaudenes to Muñoz Oct. 13, 1791).

Fr. Jaudenes completed the work with the help of Fr. Cardenas, and sent a "detailed account of the expenditures incurred in the building and maintenance of the Indians . . . since the first of March 1791" to Muñoz (Jaudenes to Muñoz Oct. 21, 1791). Although the actual amount of stone used cannot be estimated from the information in the account of "6 peons, 2 days, carting stone," it hardly seems enough to build the entire surrounding wall, a two-story building, a church 55 feet by 14 feet, at least four connecting rooms, and perhaps a granary. At least some of the stone buildings were built before 1791.

Some of the burned lime mentioned in the account undoubtedly was used as wall plaster and some as mortar with a mixture of sand (see Appendix for analysis). Because the bannisters at the steps to the second story were repaired with lime mortar, as well as the buttresses on the east side holding the second story, and the flying

* This was mistakenly attributed to a comment about Mission Espiritu Santo in Mounger 1959.

buttress holding the southeast corner were mortared with lime, it is suggested these were repaired by Fr. Jaudenes, and the flying buttresses were built by the "master mason" at this time.

It is probable that the north-south cross wall was built across the original church at this time, perhaps making the "large hall" mentioned by Jaudenes, and that the church which was dedicated November 9, 1791 was the smaller made from the friary.

Fr. Lopez wrote on October 8, 1790 (Lopez to Muñoz) that the missionary's house was without a roof, "although its walls remain strong and without the least change. As for the church, there are not even ruins." This implies the church was beyond repair, and since the walls of the missionary's house were good, the house was remodeled to contain the church.

An alternate possibility is that the north-south wall was built across the original church and the smaller church also was built by Fr. Huerta about 1803. He wrote in 1804 (Huerta to Elquezabel, Aug. 26, 1804) that rains had caused "a part of the house and a section of the church in the portion by the door" to fall. An estimate for repairs was not made until more than a year later (Report of Viana Nov. 15, 1805).

Viana reported (Nov. 15, 1805) that "one wall [of the church] is completely fallen down and the rest are about to fall," and that nothing was usable except the stone. He requested beams which were enough to roof an area 58-60 feet in length if two beams were used at each end and spacing was 1.5 feet from the center of a beam to the center of the next beam. This spacing was usual in the smaller churches in New Mexico (see Kubler 19:43). Cost of "wood and labor and construction of the door" of the church were also estimated. Thus, the larger church seems to have been the one under consideration, the smaller church being about 10 feet shorter in length; but, on the other hand, the smaller church and the adjoining room to the east would also require about 40 beams. The church being referred to may not have been usable since August, 1804 when Fr. Huerta reported that it had fallen near the door.

Fr. Huerta apparently came to Rosario at the end of 1802 or the beginning of 1803. Accompanying a census report for "the end of the year 1802" are a series of "Notas" signed by Fr. Huerta on May 1, 1803. Presumably he compiled the census. The census lists 29 "Spaniards and people of other classes." This is the largest number

of non-Indians noted since November, 1791 when Fr. Jaudenes was repairing the mission. These people may have been present to help with repairs, and because the larger church may not have been usable in 1803, the smaller church may have been put into use at that time as a temporary measure. It does not seem reasonable, however, assuming the wall was built across the larger church at the same time that the smaller church was put into use, to continue to speak of repairing the larger church when a wall had been built across it. Therefore, Viana must have been writing about the smaller church. It is feasible, then, that the larger church was not rebuilt with the reoccupation in 1789. A factor lending support to this hypothesis is that the wall (the north-south cross wall) across the larger church, which extends toward the south to the room supporting the second story, was built in a single operation on the inside (west) of another stone wall, indicating major rebuilding. The analysis of the entire temporal sequence of the mission is, unfortunately, hampered by the lack of datable in situ artifacts.

TABLE 2

THE ORIGINAL CHURCH: RELATIONSHIP OF BURIALS AND GRAVE PITS TO BUILDING PHASES

Building Phase	Feature Number	Characteristics	Remarks
Phase I	2E	Under white and light tan floor	Excavated; skull and surrounding matrix screened for teeth; bones in poor condition
Phase I	2G	Under white and light tan floor; extends under north wall	
Phase I	2M	Under white and light tan floor; cut by 2E	
Phase I	2T	Under white and light tan floor; cut by 2K, 2R, 2U, and 2V	
Phase I	2EE	Goes into north-south cross wall; cut by 2FF and wall builders trench	
Phase I	2PP	Goes under north wall	
Phase I	5E	Under white floor	Excavated; bones found
Phase I	5J	Overlain by white patch, light tan floor and white floor; cut by 5C and 5B	
Phase I	5M	Overlain by yellow and gray floor, through white floor; cut by 5D; no flooring material in fill	

TABLE 2 - Burials and Grave Pits (continued)

Building Phase	Feature Number	Characteristics	Remarks
Phase II	2F	Cuts through light tan floor	One wrist bone and one metacarpal found; body previously removed
Phase II	2H	Below white floor, cuts light tan floor; cuts 2P	
Phase II	2J	Below white floor; cut by 2K	
Phase II	2K	Below white floor; cuts light tan floor; cuts 2J	
Phase II	2P	Below white floor; cut by 2H, 2K, and 2N	
Phase II	2Y	Cuts through light tan floor and has white floor dipping onto surface	Human bone directly under floor in 2B grave fill
Phase II	2DD	No trace of light tan floor; under north-south cross wall; may cut 2AA; cut by wall builders trench	Excavated; infant burial
Phase II	2FF	No light tan floor; cuts 2EE	
Phase II	2GG	Overlain by white plaster; cut by 2CC; cuts white plaster which extends over 2HH	
Phase II	2HH	Overlain by plaster	

TABLE 2 - Burials and Grave Pits (continued)

Building Phase	Feature Number	Characteristics	Remarks
Phase II	2KK		Infant burial, circular; in green cloth with pin; removed in block
Phase II	2AA	No light tan floor; capped by white floor; cuts dark brown sand	
Phase II	2BB	Overlain by 2B rock wall fall; cuts 2Z, 2DD, and possibly 2Y	Found one human molar
Phase II	5E	No white floor in fill; overlain by light tan floor	
Phase II	5K	Overlain by light tan floor; cuts 5A	
Phase III	2R	Cuts through light tan floor; cuts 2K	
Phase III	2U	Cuts both floors; cuts 2T	
Phase III	2V	Cuts both floors; cuts 2T	Fill contained human bone fragments
Phase III	2CC	Overlain by white plaster; cuts through 2GG; cut by 2V, 2W and wall builders trench	
Phase III	2MM	Cuts white and light tan floor; cuts 2H	

TABLE 2 - Burials and Grave Pits (continued)

Building Phase	Feature Number	Characteristics	Remarks
Phase III	2X	Cuts through light tan floor; fill has light tan floor and some white plaster	
Phase III	5B	Overlain by white floor; cuts light tan floor; extension of 2FF	
Phase III	5P	Overlain by thick white floor; cut by 5Q	
Phase III	5L	Overlain by white floor; cuts grayish floor; cuts 5C	
Phase III	5Q	Overlain by white floor	
Phase III	5A	Under gray and white floor; cuts 5C	
Unknown	5D	Previously excavated	Bones replaced

TABLE 3
 THE ORIGINAL CHURCH: RELATIONSHIP OF POSTHOLES TO BUILDING PHASES

Building Phase	Feature Number	Diameter	Characteristics
Phase I	2QQ		Beneath light tan floor and gray white floor; partly under Feature 2D
Phase I	2AA		Oval mottled area at east end of 2DD
Phase I	2RR	1.2'	Very close to north wall; under light tan floor (?)
Phase I	2SS	1.0'	Probable posthole; southwest corner of Feature 2, under 2B
Phase I	2TT	0.7'	Southwest corner of Feature 2
Phase I	2UU	0.6'	In south wall of Feature 2
Phase I	2VV	0.5'	In south wall of Feature 2
Phase I	2WW	0.7'	In south wall of Feature 2
Phase I	2XX	0.6'	In south wall of Feature 2
Phase I	2YY	0.8'	In south wall of Feature 2
Phase I	2L	2'x1'	? Below light tan floor and gray white floor
Phase I	2LL	1.5'	Slanted from west to east
Phase I	2W	1.0'	Pre light tan floor

TABLE 3 - Postholes (continued)

Building Phase	Feature Number	Diameter	Characteristics
Phase I	5H		No plaster or floor in fill; cuts 5G
Phase I	5F	1.0'	Black, red, light tan fill; covered with light tan floor
Phase II	2ZZ		Fragments of light tan floor in fill; dug into dark brown sand
Phase II	2S		Covered by white floor
Phase II	5N		Beneath white floor; cuts 5E
Phase II	5R		Beneath white floor; black, red, light tan fill
Post Mission	5G	1.2'	With post; cuts white floor; cuts 5H
Post Mission	5S	1.0'	Slanted from north to south

THE FLYING BUTTRESS

(Feature 10)

Excavation

At the southeastern corner of the presently standing rock walls are three large blocks of lime mortared stone (Fig. 19). It had been suggested these fragments had been part of a tower, perhaps a bell tower, which had fallen from the adjacent walls. Excavation around these fragments and the adjacent room was undertaken to establish the function of the stone blocks. If setting trenches were found, then the blocks were built where they are standing, and if buried walls were found connecting the blocks to other walls, then the blocks may have been part of a room.

Clearing and excavations (Fig. 2) revealed no buried walls and showed that the center block had fallen from the eastern block onto the corner of the building. A setting trench pattern was found on the north and east end of the eastern block. Former excavations, presumably of 1940-41, were also found within the area. These excavations probably obliterated additional evidence of setting trenches.

Scale drawings of the top, south side, west end, north end, and east side were made from measurements using transit, plumbob and steel tapes (Fig. 19). Drawing the center block in from where it had fallen (Fig. 20), along with excavated evidence, indicates an L-shaped flying buttress was built at this corner. The buttress is about 6.5 feet from the corner of the building, and when the inside arch is calculated, it strikes the building wall at about 6.5 to 7.5 feet above the ground, with the two wings of the buttress arch on the interior forming a possible vaulted seam on the underside of the buttress corner.

Discussion

Evidence from excavation and postulated reconstruction (Fig. 19) leaves little alternative to the theory that these blocks are the remains of a flying buttress built to support the southeastern corner of the building. The steps (Fig. 2) indicate this area was at least two-stories, and photos of 1940-41 excavations show second story walls (Fig. 21A).

Not only was the buttress mortared with lime, but the tops of the step bannisters and part of the northeasternmost buttress were repaired with lime mortar. All other mortar is clay. As lime mortar was brought into the area about 1790 (Beard 1974), and as Fr. Jaudenes may have used lime for mortar as well as to cover walls (Jaudenes to Muñoz, October 21, 1791), it is probable these repairs, including the buttressing of the building, were made during the reopening of the mission in 1790.

LIVING AND ACTIVITY AREAS

Excavations

Feature 3. Excavations in this unit were a continuation of the 1973 excavations (Fig. 1). Ten-foot squares were initially laid out which were excavated in arbitrary 3-inch levels. When postholes were found about 6 to 10 feet from the wall, a trench was extended south in line with the postholes for the possibility of finding more postholes to delineate house patterns. Artifacts were plotted in place so that activity patterns might be detected.

Two filled trenches, presumably dug in 1940-41, 2 feet wide were found extending westward from the wall at South 36.5 and South 51 (Fig. 22). Overburden on these trenches was about 0.8 foot in thickness. A definite living surface could not be detected.

A row of posts which apparently held up a roof was found near the stone wall. Another line of posts is 5.5 feet (2 varas) from the wall and about 9 feet westward from the wall is another line. As no evidence of walls was found, no definite rooms could be delineated. The center row of posts probably were interior roof supports because the distance to the wall (5.5 feet) is hardly large enough for a room. The outer posts, being almost 9 feet from the wall, are more reasonable as the exterior limit of the rooms. These posts may have limited the length as well, making a room 12 feet by 8.3 feet (3 varas). On the other hand, these could have been open structures. This seems doubtful, however, in view of the documentary statement that Indians were more likely to be present in the winter than in the summer months. Another possibility is that the walls were of mats or grass.

Two ashy areas (Fig. 22) with scattered burned rocks nearby were probably hearths or fireplaces. Scattered throughout the feature were numerous bones, some of which had been burned; fish scales; fresh water mussel shell; and snail shells, one of which is *Olivella*.

Not only were cattle and deer utilized for food, but also fish and fresh water clams were used.

Several glass sherds, 31 majolica sherds, 4 oriental ceramic sherds, 12 lead glazed sherds, 2 red burnished ware sherds, and 732 Indian-made sherds were in the feature. Two metal scraps and no gun parts were found.

Scattered throughout the feature were numerous flint chips and flakes. Of these, only 7 were tools -- 3 blades, 1 scraper, and three flakes with regular retouch (Appendix)

The diversity of material in the excavations argues for a living area where cooking, eating, and flint knapping were taking place. The predominance of Indian pottery (93 percent) and the abundance of flint argues for the Indian occupation of the area. Assuming Indians were living in this area, it follows that they were making use of material which the Spanish had brought to the mission, such as majolica and lead glazed wares, glass, and red burnished ware.

Feature 6. Feature 6 excavations were made in the Spring 1974 (Fig. 1) and in the Fall 1974 (Fig. 2). The archeological report on the 1940-41 excavations (see Gilmore 1974:21) noted the following:

"4. From information obtained from the test trenches an area consisting of an inner courtyard adjacent to the chapel was chosen as one of primary interest. Work was begun on cleaning this area of debris down to the original ground level. This level was the same as the final occupation level of the Mission. The level was used as a burial place but the period of this use is still undetermined.

Two graves have been opened in order to obtain more information as to the individuals, their mode of burial, etc. Twenty-eight graves have been located in six blocks.

Room fire pits and wall lines in and adjacent to the area have been plotted.

The area covers 12 blocks, each 25 feet square; work on this area is 95 percent complete."

Because this was all the information that could be found, it was necessary to re-excavate to determine where

these features were located to determine the nature of the wall lines and fire pits, and to establish the kinds of activity and period of use. From a careful look and analysis of the 1940-41 photographs (Fig. 23), it was suspected that remnants of the wall crossing the "inner courtyard" east-west may have been placed in that position after the 1940-41 excavations. Thus, the questions asked about this area were (1) how much of the area was used as Campo Santo, (2) were the fire pits and wall mentioned above in use when the Campo Santo was, (3) where were the fire pits and walls, and (4) what were they used for.

Excavations were made in four areas (Fig. 2) in the "inner courtyard," and are described and analyzed by those areas: Area A, from the Mission compound wall to South 22, from West 15 to the western "inner courtyard" wall; Area B, South 30 to South 60, extending in 5-foot units to the "inner courtyard" wall; Area C, two 5-foot squares near the eastern wall of the "inner courtyard"; Area D, one 5-foot square at South 39 East 2. Digging was done in 5-foot squares, and where stratigraphic or cultural levels could not be used, arbitrary levels were resorted to.

AREA A. This area, excavated in the Fall 1974 and composed of eight 5-foot squares, is located in the northwest corner of the "inner courtyard" (Fig. 2). From the 1940-41 previously quoted report and the 1940-41 photographs, it was known this area had been cleared of a level, but it was difficult to establish that level during excavation. Much claiche was present and with weathering, moisture, and re-drying, it becomes hardened and can be mistaken for flooring.

Whether this is the case in the two northernmost 5-foot squares is not known. Nevertheless, what appeared to be a good floor was found from 0.45 foot to 1 foot below the surface. Ash, charcoal and bone concentrations, and artifacts were found at this level. One visitor to the site, however, recalled camping overnight in this exact spot, and, incidentally, hearing ghostly sounds emanating from the rock walls. It is possible, then, these concentrations may have accumulated since 1940-41. The attempt to follow this occupation level in the two 5-foot squares to the south failed.

Three posts burned in cone shape and a fourth containing wood are present next to the north-south cross wall (Fig. 24). All posts were set in clay and surrounded by rocks mortared with red clay. A setting trench with post patterns, one of which contained wood, was present along South 8 (Fig. 24). White to yellow tan flooring was adjacent to the setting trench and extended south to about

South 17. To the west along West 19, the flooring material dipped downward about 0.2 foot and disappeared in another 0.4 foot. An ash and charcoal zone about 2 feet in diameter in roughly a circular pattern was present at South 11, 1.8 feet below the surface. The remainder of the unfloored area was brown tan sand. Near the western rock wall was a concentration of 48 small pieces of selenite, the largest of which is 1.5 by 2.5 inches.

At South 15 West 21.5, 0.5 foot below the surface were plaster covered rocks which were mortared with red clay. This feature was not intact but appeared to abut a rock and wood wall on the south and to extend near the edge of the floor on the east. It was plastered to 1.5 feet in depth on the north face, extending into the brown tan soil.

Along the South 18 grid line from West 15 extending to the north-south wall, postholes containing wood and charcoal were present.

It is believed the level of the 1940-41 excavations was at the dotted line shown on the profile drawing in Figure 24. At about the same level in the square adjacent to the east, the white to yellow tan flooring was found under a mound of pure caliche which contained no artifacts. It appears the excavations of 1940-41 may have been covered with excavated material, presumably from the same area. On the other hand, the mound of caliche may be the result of weathering from nearby walls subsequent to the 1940-41 excavations.

Excavated data point to a probable raised, hooded corner fireplace, perhaps similar to the one illustrated in Boyd (1974, Fig. 17). Quoting from Boyd (1974:10),

"The Spanish kitchen had a large, hooded fireplace, made with upright posts, a cross beam, peeled poles and mud plaster. The construction resembled Spanish cooking hearths of the 15th through the 19th centuries but those were built of stone or fired brick, hard plaster and, often, glazed tiles . . . The hood, of whatever size, hung over the small fire box, a built-in adobe and slab stone charcoal stone and the hearth . . . Provincial requirements changed the vertically sloping chimney hood into one that rose upwards only above the fire box while the rest of the length was reinforced by stronger upright posts and converted into a flat, plastered shelf."

Boyd (1958:222) notes additional details:

"The usual corner fireplace might have a flat, a rounded, or a bi-faced chimney, the form of the chimney governing the shape of the mantel and hearth. The later often was raised above floor-level, although some 'old' rooms -- probably a century or more in age -- have hearths sunk below the floor . . . The fireplace opening may be demi-ovoid or square, but the former shape was most common . . . Cooking was done over the fire and over hot ashes raked out on the hearth. Due to the scarcity of iron in the early days, spits and cranes for hanging pots did not exist, and so there was need for the large, hooded fireplaces except in salas used for entertainment and show. The stone, or later copper griddle or comal, and the iron trivet or tinamaiste were the principal hearth-side cooking devices. The latter name for the trivet is a regional modismo from the Aztec tenamaxtli -- the three stones used to level the pot or griddle on the ground or the hearth."

The estufa illustrated in Franciscan Awatovi (Montgomery, Smith and Brew 1949, Fig. 45), Montgomery describes as a "typical conventional cooking estufa" of a "multiple unit receptacle type for burning charcoal in braziers." The illustration shows a window above the stove. The stove at Rosario probably was not of this type, although charcoal may have been burned because the quantity of ash is small.

White painted plaster was found in the fireplace area, and it is probable the masses of caliche were part of the material used to build the stove and the chimney, which was then plastered and painted white on the exterior.

The presence of the selenite is difficult to explain. Selenite was widely used as a translucent material to let in light. Boyd (1974:5) notes:

"Windows . . . retained their indigenous, pre-Spanish form until the 19th century brought glass panes. They were set high in walls and were usually too small for a human being to crawl through. Some were unglazed and closed by heavy wooden shutters, while others had tiny panes of native selenite set between narrow strips of wood."

And writing of clerestory windows in churches (Boyd 1947):

"As window glass was unobtainable, the wooden grills were sealed with hand-shaped squares of native selenite, perhaps 10 by 10 centimeters, laid up like shingles between the dividing wooden grills."

At Awatovi (Montgomery, Smith and Brew 1949:61), occupied in the 17th century, selenite was found, but it is believed it was used to decorate stair risers. Other selenite found on the altar was assumed to be broken from reredos above the altar.

The selenite at Rosario may have been originally placed in a window high above where it was found. On the other hand, the 48 pieces of selenite laid side by side cover no larger an area than a 9-inch by 12-inch sheet of paper. A few pieces appear to have been smoothed on two sides to about 1/2-inch in thickness, but this is tenuous because selenite cleaves easily on crystal surfaces and bedding planes. The remainder of the fragments are lumpy and uneven. No other selenite was found in 1973-74 excavations, nor was it mentioned in the "Archaeological Report" of 1940-41. If selenite had been consistently used for windows at Rosario, more should have been found. It may not have been reported, however, from the 1940-41 excavations.

The position where the fragments were found is puzzling (Fig. 24). If the pieces had fallen from a window, it was during a time when there was no cover or hearth on the stove. As no caliche was found in the level where the selenite was found, indicating the hearth had not fallen into the fire pit, the selenite may have been waste or discarded fragments (from building the window above?). On the other hand, it is possible they may have been used in decoration of a fireplace which had no hearth.

The room 8.3 feet (3 varas) wide with the fireplace may have been a kitchen, but the size of the fire box, about 2 feet, hardly seems large enough to do much cooking. Rarely, however, were more than a single priest and perhaps a lay brother or a priest's servant present, and major cooking may have been done outside. Again, interpretation is hampered by not knowing where the artifacts found in 1940-41, such as chocolate pots and brass kettles, came from.

If this was the kitchen, then the small room, about 4 feet wide, north adjoining the compound wall may have been the kitchen store room. The many bones, found in this area (if they are in place) support this supposition.

In the room to the south of the room with the fireplace, patches of flooring material were found 0.5 foot below the surface. A step leading into this room may have been supported by the post at South 16 West 17.5, but this is uncertain. This may have been the dining room, but further excavation is needed for supporting evidence.

Area A structures were probably of the late building period since most of the majolica can be identified with late 18th century. Lister (1975:41; Fig. 19D) illustrates a plate decorated in two shades of blue and brown on white, which is similar to the design style on thin-walled cup fragments found in Area A. One of these sherds was found at the ash-charcoal level below the postulated 1940-41 excavations. The same style in blue only is on two small sherds of a small plate or bowl. Lister notes (1975:41) ". . . 19th century Mexican majolica specimens from the Metro identifiable with Puebla, mostly fragments of small cups and bowls, are very thin and finely, tastefully decorated." The presence of these sherds from delicate cups also lends credence to the occupation by the clergy -- soldiers rarely had enough money to stay out of debt.

AREA B. In many places in this area, the stratigraphy was complex and puzzling. No definite level of 1940-41 excavations could be recognized with confidence. Most of the area was overlain with mixed red clay which thinned toward the western wall. This is believed to be, at least in part, back dirt from the 1940-41 excavations. Some of it may be the result of the clearing of the mission compound in 1965. The Spring 1974 excavations (Fig. 1) were planned to establish the limits of the Campo Santo and reaffirm the presence of burials.

Rocks abutting the western wall of the area at more or less right angles, appeared to be remnants of a wall, but since careful examination of the 1940-41 photographs revealed slight evidence of a wall, excavations were begun in this area. No setting trench could be found for the possible stone wall, and as setting trenches were found both on the north and the south of the possible wall, the large rocks may have been part of one of these former walls.

In the units South 35 to 40 from West 15 to West 20 (Fig. 25), a scatter of rocks was found 0.5 foot below the surface. These seemed to be a rock floor or walkway, but further excavation indicated this may have been a fill level of the 1940-41 excavations. Confirmed postholes were found, but no indications of floors or setting trenches were found.

Excavations to the south in units South 45 to 50 from West 7 to 20 (Fig. 25) showed setting trenches with two large postholes, one placed at the northwest corner of a former structure. An apparent 1940-41 trench did not reach this depth. The setting trench, trending north-south, had two rocks lying on and near it, giving a tenuous indication of the use of rocks in the wall.

Excavations in the Fall 1974 (Fig. 2) were begun at the south of the spring excavations to outline the former structure indicated by the setting trenches. About 0.4 foot below the surface, a large (about 3 feet by 2 feet) irregular charcoal area was found. With deepening of the excavation 0.3 foot, a burned post, a connecting probable setting trench, and suspected grave outlines (Fig. 25) were found. This setting trench had not been found to the north. One foot south of the burned post was another post. Because the burned post and connecting setting trench indicated the burial beneath probably was undisturbed, it was decided to section the postholes and excavate the burial to obtain information on the sequence of events, perhaps by the presence of grave goods (see profile A-A', Fig. 25). The charcoal filled post was so shallow, it is doubtful it could have served a structural function, but it undoubtedly was placed after the burial was made, as was the posthole to the south. A section of the burned post was removed for analysis. The excavated burial under the burned post contained no artifacts. The head was in the western part of the pit; the burial was that of a young adult female (see Appendix).

Other possible postholes, which are 0.5 foot or less in diameter, seem to have no pattern on present evidence. This may be the result of post mission occupation, as three of the four possible posts are in grave outlines. On the other hand, they may be root molds since the 1940-41 photographs show many large trees growing near the wall.

The southernmost unit in this area, South 55 to South 60 from East 5 to West 10, contained irregular masses of caliche mixed with charcoal, ash, fired clay, bones and numerous artifacts, including fragments of painted plaster, polychrome majolica, Goliad and Rockport ware. The next level revealed grave outlines which appeared to have been excavated because a fragment of a human long bone was found in one and a crushed skull was found in another.

At about 1.5 feet to 1.7 feet below the surface, marks of heavy machinery were found in the in situ red clay. Because of these marks (Fig. 26), it is believed the irregular masses of caliche, charcoal and ash, which may be the

remains of burned structures or roofs, were not in place, having been displaced by heavy machinery.

Interpretation of this area is not clear. No grave pit outlines were found north of South 49, and the setting trench at South 43 may have contained a wall to confine the Campo Santo area. The former structure indicated by the setting trenches may have been constructed previous to or after the burials were made. A room enclosed by the setting trenches would have been about 8.33 feet (3 varas) east-west. If the confirmed post at South 55 West 11.5 was part of the same structure -- and there is no evidence it was except the center of the post is 3 varas south of the setting trench -- then this structure was made after the burial pits were dug. The north-south setting trench may have been obliterated to the south during previous excavations. This area of a former structure may be where the irregular masses of caliche, charcoal, and ash originally came from.

Admittedly flimsy evidence seems to indicate the structure built on the setting trenches was constructed after the burials had been made. Hopefully, further excavations will clarify.

AREA C. This area (Fig. 2) was excavated to determine the extent of the Campo Santo area and to investigate the articulation of the rock walls for evidence of building periods.

A probable 1940-41 trench was found trending north-south between East 23 and East 24.5. The trench cut two features 0.4 foot below the surface, but it was no longer apparent at the depth of 1 foot where the two features were recognizable as a burial pit and a posthole (Fig. 7). These are side by side with 0.1 foot between.

The burial, a young child with the head toward the east, contained green cloth, most of which was in the northern side of the pit. The topmost part of the burial may have been disturbed by the 1940-41 trench, and it is assumed the entire burial was wrapped in cloth. The cloth was woven in a simple over and under pattern with threads wrapped in copper strips about 0.25 mm wide woven in one direction. In weathering, the copper has produced salts which not only colored the threads green but also preserved them. This cloth is similar to cloth found at Mission Espiritu Santo on file at Balcones Research Center, except the threads which are not wound with copper strips are larger in the Espiritú Santo material. Fragments of such

cloth were found in a burial at the Longest Site, Jefferson County, Oklahoma, in the Spanish Fort area (Bell, Jelks and Newcomb 1967:83). These fragments, however, seem to have been from a belt or girdle (Harris 1975). Thin gold strips, presumably covering thread, were found in an infant burial at San Xavier Mission near Rockdale, Texas (see Gilmore 1969).

Investigation at the juncture of the north-south wall with the east-west wall found a setting trench and a footing about 0.5 foot extending from the wall. Red clay mortar was used in the north-south wall and tan clay in the east-west wall. This evidence indicates the north-south wall probably was constructed at a different time from the east-west wall. A posthole was found 2.8 feet from the rock wall at South 51.5 East 25. It is postulated that this posthole, since it is about 1 vara (2.78 feet) from the wall the east-west wall, and the wall and doorway to the south, were part of Building Phase 4 (Fig. 10), when the original church was abandoned and the western part of the church was converted to another use. Although tenuous, the burial and the nearby posthole may be related to Building Phase 2 (Fig. 8) as they were placed evenly and seemingly carefully. Neither of the two postholes was associated with a setting trench, and it is possible former excavations may have destroyed the evidence. It is more likely, however, that the posts were not set in a trench but supported a roof for an open porch-like area. Or, it is possible the post near the burial and the entrance of the church may have supported a part of the facade of the original church.

AREA D. Area D excavation, a 5-foot by 5-foot square (Fig. 2) at South 39 East 2 (southeast corner), was to establish the presence or absence of an east-west wall across the inner courtyard. Information from Feature 6 Area A indicated living rooms in the northwest corner of the inner courtyard, and it seemed unlikely that a living area would be adjacent to the Campo Santo unless the Campo Santo had been abandoned, or a wall separated the two areas.

Directly beneath the surface, 2 to 3 inches, rocks of varying sizes covered the square. These rocks were lying on dark brown sand in a matrix of gray brown soil, caliche, sandstone, red clay and flecks of charcoal. No setting trench was found.

Unfortunately, time did not allow complete exploration of this area, but within this square no rock wall was evident. The rocks, however, may represent a cobblestone

walk area. On the other hand, they may be scatter from former excavations.

Discussion

The area of Feature 3, along the east Mission compound wall, probably contained living quarters for the Indians of the mission. If this was during the first occupation, that is before 1790, then the Indians were living at the rear of the church. A stone wall, probably a screening wall (see Gilmore 1974) about 50 feet toward the west, would prevent anyone (such as Indians) from coming to the church grounds directly from the rear. Moreover, neither would the Indians have had easy access to the storage room in the northwest corner of the compound. Other areas within the compound were also probably allotted to the Indians.

Feature 6, the "inner courtyard," may not have been an "inner courtyard" during the first phases of the mission. The southern section was used as a cemetery (Campo Santo) during the first phases, but the exact location of the graves seems to have been forgotten, or the records were truly lost as Father Reyes stated (Reyes to the Viceroy in Leutenegger 1968:597) during the years of abandonment, because along the northern periphery buildings encroached on the cemetery area.

When the church was moved to the final location (Room 1 Feature 14), additional clerical living areas were built north of the cemetery area. The wall on the west may also have been built at this time creating an "inner courtyard" for security and meditation of the priests.

THE WELL (?)

(Trench 190)

Excavations

Report on Job 135 stated, "A test trench was made across a slightly sunken area inside the Mission Quadrangle. This trench revealed an apparent catch basin 30 feet across and approximately 15 feet deep. The basin was abandoned and gradually filled with refuse. The fill is well stratified and two of the strata are rich in cultural material." (Gilmore 1974:25) This sunken area showed in the 1940-41 photographs (Fig. 27A), and it appeared to be an excellent area to gain stratigraphic context for artifacts.

A 2.5-foot trench was laid out along South 190 from West 0 to West 100 (Fig. 2). Excavation was started at each end, east and west, in 5-foot sections. The western segment from West 100 to West 31 contained three strata as follows:

- | | |
|---------------------|--|
| Surface to 0.5 feet | Dark reddish brown sand with small fragments of mortar and sandstone; pinches out toward the east; contains artifacts and bone. |
| 0.5 to 1.5 feet | Dark brown sand, thins toward the east; contains small fragments of Spanish and Indian ceramics and bone, probably introduced by rodents, as was observed during excavation. |
| 1.5 feet | Red culturally sterile clay. |

No features were found in this segment.

Excavations from the east side were started by taking out stratigraphic levels, and almost immediately it was apparent the excavations were in a former trench line which was 2.5 to 3 feet in width. The fill was tan to gray with

caliche, sandstone pebbles, and some artifacts. This was assumed to be a 1940-41 trench, which later was demonstrated when plastic wrappers, a tobacco tin and a milled plank were found in the fill.

The excavations were widened on the south side to obtain information from the strata through which the 1940-41 trench had been dug in order that the original plan to find artifacts in a stratigraphic context could be followed. Artifacts were collected in 0.5-foot levels from the 1940-41 trench fill.

Taking out the 1940-41 fill became increasingly difficult with the depth of the excavation, and at a depth of 16 feet below the surface, it was decided to abandon further digging. Heavy rains during a weekend resulted in the collapse of a large block of 1940-41 fill which came from an excavation made at right angles (north-south) to the fill that had been previously removed, and a profile of the original fill could be obtained without danger in that area (Fig. 28). Stratigraphic peels of sections of strata undisturbed by 1940-41 excavations were planned previous to shoring of the sides of the trench, but this was abandoned as well as the shoring because of the dangerous situation.

The total depth (-16 feet) reached in the 1974 excavations, which was 4 feet below the 1940-41 excavations, was in a roughly circular hole which had been dug through a fossil shell bearing sand and filled with tan sand.

The disturbed strata through which the 1940-41 trenches were dug seem to be partly back fill of sediments, which were originally excavated along with possible surface material containing bone and charcoal. Unfortunately, so few artifacts were found in these strata that a stratigraphic sequence could not be derived. It is probable artifacts are contained within these strata and further excavation uncovering a large area from the surface should provide this information.

Back fill of the 1940-41 trench probably was from excavations or clearing over the site because artifacts, bones, charcoal, and daub were scattered throughout the fill. One piece of green cloth is suspect of coming from a burial.

The sedimentary strata into which this feature was originally dug resemble beds below the La Bahia beds of the Goliad formation (Sellards et al. 1958:750-766), the

Lagarto Creek Sand, and the Lapara Sand. The indurated sandstone beds of the La Bahia member were quarried for the building stone used at Presidio Loreto la Bahia, Mission Espiritu Santo, and also Mission Rosario. The Lagarto Creek beds are described (Sellards et al. 1958: 753) as 40 to 50 feet in thickness and "pinkish-brown and reddish mottled limy clay." Below the Lagarto Creek beds is the Lapara sand which consists of conglomerate, cross-bedded sand and limy clay with reworked material such as bone fragments and fossilized wood. Pending a check with the type section, the geological formations in the feature appear to be the basal part of the Lagarto Creek beds and the top of the Lapara sand. If this is so, then the La Bahia beds do not crop out in the nearby vicinity of Mission Rosario and the building stone would have come from a distance away, perhaps the same quarry used for Mission Espiritu Santo and Presidio Loreto la Bahia. This is also implied in Jaudenes (to Muñoz Oct. 21, 1791) bill for carting stone and by Viana's (Nov. 15, 1805) estimate for 25 carts of stone.

Discussion

This feature may have functioned as a well for the storage of water or as a basin to catch water. On the other hand, it may have been abandoned and back filled with trash when ground water was not obtained.

If water from an aquifer was being sought, it is probable it was not obtained. The elevation of the "hole" reached at the bottom of the 1974 excavations (about 153 feet above MSL) is 43 feet above the San Antonio River about 500 feet distant and the water table in mid-18th century should not have been too different than it is now, assuming it is about the level of the river. Springs are not recorded in Goliad County (Brune 1975), and it is probable that possible aquifers would be somewhat deeply buried, at least beyond the reach of a hand dug well. Furthermore, the "well" at Rosario did not penetrate impervious layers which would confine water within a porous sand stratum.

The absence of lining, such as fired bricks or stone, to prevent water from seeping out into the sand beds, argues for the possibility that water was not obtained and the "well" had limited use. However, the lowermost level to which it was originally dug was not reached in the 1974 excavations, and it is possible the bottom of the "well" may have had a liner of some sort. On the other hand, lining material may have been removed.

Topmost strata of the initial fill appear to have been washed or slumped into the hole, but the lowermost fill above the sand filled "hole" appears to have been dumped in. The paucity of artifacts and the presence of bone and charcoal in the fill material suggest the hole may have been used as a garbage disposal area during the earlier phases of the mission before artifacts had accumulated in quantity.

The "well" was dug by deepening from step-like levels on the east side to a vertical face on the west side. Report on Job 135 gives the dimensions as "30 feet across and 15 feet deep." The findings of 1974 indicate the dimensions of the "well" itself were 11 feet wide by 16+ feet in depth. It probably was circular, although there is no corroborating evidence.

When the "well" was dug is conjectural, but as the river water was easily available, it is likely the "well" may have been planned for emergency use in case of attack by hostile Indians, perhaps as a storage facility. Therefore, it probably was dug during the beginning phases of occupation. Artifacts from the original fill material would help clarify the chronological framework.

It is possible the original excavation may have had another purpose altogether. That it was a quarry for clay mortar seems unlikely as the beds are thin and the sand beds are massive. Furthermore, the clay could have been mined from the surface without digging so deep. The excavated sand, however, may have been utilized. That it was in an open area near the gate argues for the "well" hypothesis.

The only tenuous documentary clue to this feature is in the Report of Viana (Nov. 15, 1805) where he estimates the costs "for a water basin, 25 cartloads of stone, at 2 r [reals]s and 8 days of labor using the same people . . .," and "a water basin" for the "Dwelling" at the same estimate. This seems to imply new ones were necessary and that they would be constructed of stone. Perhaps, however, he was referring to surface structures of stone.

Roland Beard, during a visit to the site, observed that a similar feature was found at Presidio Loreto la Bahia which had been dug in steps, but that it was used there as a drainage basin. The Rosario feature with the vertical west face would not have drained the compound area. Moreover, it would have entailed a great deal of work which could have been accomplished by simpler methods.

THE BACKHOE TRENCHES

Six trenches (Fig. 2) about 20 feet long and separated by 20 feet were dug with the backhoe to culturally sterile red clay. These are located outside to the south of the mission compound wall. Five of these trenches extend north-south; the sixth was dug at right angles, east-west, to the compound wall.

The trenches were dug with several objectives as follows:

- 1) to obtain information on the depth of the cultural deposit outside the compound wall and in situ artifacts of premission occupation;
- 2) to obtain evidence of occupation such as structures, camping areas related to mission inhabitation;
- 3) to locate undisturbed trash pits for chronological control.

The trenches were cleared and profiles were drawn (Fig. 20, 30). The narrowness of the trenches, about 18 inches, specified by Parks and Wildlife Department, created a problem in accurately assessing strata which in many places seemed to blend and grade into each other. The strategy to delineate structures or trash pits was to clear over such a feature so that it could be excavated in a larger area from the surface. Three pits were found, but only one, in Trench 6, was excavated due to the lack of time.

The fill of all the trenches was generally loose, crumbly, and poorly consolidated to which numerous roots and rodent burrows contributed. Spanish and Indian ceramics, projectile points, scrapers, metal, green cloth (see Table 5), and a quantity of bones were found. This was the largest quantity and greatest variety of artifacts found in excavation of the site.

Backhoe Trench 1 (Fig. 29A). A trash pit in this trench appears to have been dug into the basal red clay and filled with trash consisting of ash, bone, charcoal, caliche, and artifacts. A concentration of bone and an ash layer seem to have been placed after the initial hole was filled, although the lenses have indistinct parameters.

Backhoe Trench 2 (Fig. 29B). This trench shows several horizontal zones as follows:

	Thickness	
1. Surface	0.5 to 1.0 feet	Dark sandy humus; contains bone, shell, sandstone, and some artifacts.
2.	1 to 2 feet	Discontinuous lenses of sand, rock, ash, and charcoal; contains bone and artifacts.
3.	0.1 to 0.2 feet	Loose fine-grained sand, grayish white on western end.
4.	1 to 1.5 feet	Dark brown sand; culturally sterile.

Bottom of excavation -- red culturally sterile clay.

No features were observed that seemed to merit testing. Since no artifacts were found below Zone 3 (above), this zone may represent the original occupational surface.

Backhoe Trench 3 (Fig. 29C). No artifacts were found in this trench below the upper 1.5 to 2 feet of gray, friable sand. The zones, however, grade into each other vertically, and the exact limits were difficult to discern. Artifacts and bone were scattered without any apparent pattern. High rodent activity may account for some of this mixture.

Backhoe Trench 4 (Fig. 30A). This trench has stratigraphic zones similar to Backhoe Trench 3 with lenses of ash, charcoal, and sand. The basal red clay had been cut through to form a pit, 5 feet in depth from the present surface, 11 feet in width, which was filled with red clayey sand banded with red clay nodules. The fill was devoid of cultural material. If this was a cultural feature, it would have been dug through culturally sterile soil zones and refilled promptly allowing no artifacts to collect. If it had been dug for a drainage ditch or as part of the attempt to bring water to the mission and left open, it is

reasonable to expect that some trash or artifacts would have collected in it. On the other hand, it has the possibility of being a natural, perhaps erosional, feature as it is at the highest area of the site. Further exploration of this feature is recommended.

Backhoe Trench 5 (Fig. 30B). This trench shows two "pits" or hiatuses in the red culturally sterile clay. Because the westernmost pit is overlain by light brown culturally sterile sand which is devoid of artifacts, it may be the result of geological processes.

The other "pit," however, which was dug into the clay about 1.5 feet deep and about 5 feet in width, seems to be an intentionally dug pit. Fill is composed of light brown sandy material with a mixture of small sandstone rocks and lenses of sandy clay and gray caliche with globs of red clay and contains artifacts and bones. Some of the caliche lenses have the consistency of flooring material similar to that found in the mission buildings, and this may represent, although tenuous, a trash pit used when the rebuilding of the mission was taking place.

Backhoe Trench 6 (Fig. 30C). This trench is north-south at right angles to the other trenches. Because the red clay was nearer the surface in this area, the trench was cut to 1.5 to 2 feet in depth. A pit, dug into red clay, contained bones and some artifacts in the upper levels. A 5-foot square was laid out on the surface toward the east to excavate the feature. Cow bones, skull, articulated tail bones and other bones, all perhaps from the same animal, had been placed in the pit. Varicolored caliche chunks, some burned, and burned rocks were both over and under the bones. No artifacts were contained within the pit itself, all being in the upper zone. Caliche, such as found in the pit, does not crop out in the immediate site area, and probably had some function in the building of the pit. This seems to have been a roasting pit but the precise structure and dating is elusive.

Discussion. It is not readily apparent how much disturbance has taken place outside the mission compound wall in this area of the backhoe trenches. The 1940-41 photos show large piles of back dirt and several trees in the area, and it is known the park property area was cleared of brush and some trees in 1965 (Barnhill 1973). Consequently, the artifacts in the upper levels, in all probability, are not in their original depositional position. Some debris, such as lenses containing charcoal, ash and bones, burned rock, and ceramics, conceivably

could have been the result of clearing of mission buildings and grounds for reoccupation in 1789-90 after 10 years of abandonment.

It is probable the pits in Backhoe Trenches 4 and 5 are mission related, but the pit in Backhoe Trench 6 could span the period from premission to recent. No structural indications were apparent in the trenches, although some ash and charcoal lenses may be the result of living areas. With the information gained from these trenches, it is now believed that most of the dark brown sand which is present over most of the site was below the premission occupational level. The "pit" in Backhoe Trench 5 may offer the example of a mission related trash pit to gain a chronological sequence for artifacts.

MISCELLANEOUS EXCAVATIONS

(Features 4, 8, 9, 11, 12)

Feature 4 (Fig. 1). This area was excavated in the Spring 1974 to investigate outside the northeastern corner of the compound wall for the following information:

- 1) had a room or bastion existed at the northeast corner similar to the one at the northwest corner,
- 2) had the stone wall been built inside or outside the wooden wall, and
- 3) how had the stone wall been constructed?

No postholes were found in the excavations. And with a working hypothesis that the wooden wall may have extended in a due east line from the northwest corner and had encompassed a larger area, a line was surveyed from the northwest corner at the wooden wall posthole impressions to where it met a line extending from the northeast corner of the compound wall. At this grid point, North 43 East 127, a 5-foot square was excavated. Artifacts were found, but no postholes.

From evidence of excavations in Feature 1 (see this report *The Original Wooden Wall*) and from excavations in 1973 (Gilmore 1974), in addition to those at Feature 4, it appears the stone wall was built very close to but on the outside of the wooden wall.

The stone wall was built by first digging a trench 1.5 feet into red clay. The trench was filled with rock rubble and stones and red clay. The rocks for the wall were laid on the surface extending 0.2 foot beyond the trench. Excess clay was piled against the wall.

A trash area containing large bones, deer and probably cow, was found on the exterior of the wall. Spanish and Indian ceramics were found in the upper deposits, and

it is believed this was a mission related "dump" probably of a short use period, possibly of one time, since the amount of debris and the lack of layering does not suggest long use.

Feature 8 (Fig. 2). This feature was excavated to establish the position of the wall and the south gateway. The wall was set in a trench filled with stone and red clay mortar as was expected from information gained at the northeast corner of the mission compound wall in Feature 4.

Excavation through the gap in the wall, presumed to be the gate, showed the absence of large rocks east of grid line West 5.5. A small posthole impression, 0.4 foot in diameter, with red clay fill was found on the interior 1.4 feet north of the wall. This hole may have had a function connected with a gate across the opening, but this cannot be assured until further excavation is done.

Artifacts in this unit (see Table 5) were varied -- Spanish and Indian ceramics, a lead mini-ball, a forged nail, and a Sprite bottle manufactured at Joshua Tree National Monument. Trash collects easily near a wall, and this accumulation may date from the mission occupation to recent time.

Feature 9 (Fig. 2). This feature was an obvious "pothole" located in the corner of what appeared to be a wall on the south with a standing wall on the west. As the hole had already been dug, clearing of the back fill would provide information on floors and sub floor features without further disturbance.

The filled-in-hole, an irregular circle, was 6 feet in diameter at the surface and broadly tapered in a cup shape to about 3 feet in diameter at the total depth of 5.9 feet from the surface. Red culturally sterile clay had been reached at 2.2 feet making almost 4 feet of difficult, useless digging by the "potholers." Interestingly, a "pothole" had been dug through the first "pothole." Thin layers of tan and reddish sand, apparent wash from the surface while the first hole was exposed to weathering, had been cut through by the second pot-holer. This hole does not show in the 1940-41 photographs.

Nevertheless, important information was gained from clearing this unexpectedly deep hole. A single whitish gray to light tan caliche floor had been laid directly on dark brown sand. The floor was made by laying rocks about 2 inches in diameter on the sand, and these were covered with puddled caliche. Overlying the floor was 1 to 1.5 feet of dark to light sandy loam.

Large rocks on the south side of the excavation below the surface had a nebulous setting trench, and a wall probably had been across the opening at one time.

It is assumed the "pothole" was back filled with the material dug from it, although this is not certain. Flint chips, flakes, and cores were found in the fill as well as Spanish ceramics. No Indian ceramics were found, lending credence to occupation of this room by the Spanish. The lithic material probably came from near the top of the dark brown sand. This is supported by the presence of a broken biface which was lying under a wedge-shaped antler fragment in undisturbed dark brown sand 0.5 foot from the apparent edge of the pothole. Other lithic debris also seemed to be in situ in the dark brown sand. The lithic material, then, represents hunters and flint knappers who probably visited the site before the mission was built.

Feature 11 (Fig. 2). Excavation at the filled-in door between Room 1 and Room 3 (see Fig. 17) was to obtain information about the sequence of building and repair in this area: when was the doorway filled in; were the stones of the door fill sitting directly on a floor; how was the plaster decorated in this room (Room 3); and how many floors and how many layers of paint were present?

The door opening, originally 3.1 feet in width, was in the north-south cross wall which does not articulate with the east-west wall on the northern end; it seems to articulate on the southern end, but the corner was not cleared and the joint could not be clearly examined.

Behind the overburden the plaster adhering to the wall showed fragments of red paint and scoring (Fig. 31A) similar to that at the archway (Fig. 31C). Photos taken in 1940-41 (Figs. 31B, 31D) show large amounts of plaster in both Room 3 and at the archway. Back fill of the 1940-41 excavations apparently preserved the small amount of paint now present.

A yellow tan caliche floor, 0.25 foot in thickness, was directly below the sandy overburden. In order to

protect the stability of the wall, the floor was taken off for excavation in a small unit, 1.5 by 1.5 feet. Below the yellow tan floor was a white gray caliche floor about 0.05 foot in thickness. This floor was not present within about 1 foot of the wall, and may have been cut through when a setting trench was dug for the north-south wall, or to provide a footing for the door plug. Plaster on the wall seemed to be under the yellow tan floor level, but this is not conclusive because the juncture of the wall and the floor is weathered and disturbed by roots.

Only faint traces of scoring and paint are left on the wall. Near the southern edge of the door plug, small fragments of plaster contain faint traces of red paint and scoring; two faint horizontal scored lines are near the floor and two slanting lines are above these. One patch of plaster in the same area is covered with white paint on which are some patches of red paint, and some of these are, in turn, covered with a flesh pink color. Thus, this area may have been painted several times or may have contained a multicolored mural.

Close examination of the 1940-41 photographs (Figs. 31B, 31D), along with the 1974 findings, show that this room was scored and painted similar to the archway area with a diamond checkerboard containing alternating red and white squares extending about 3.5 feet above the floor. At or near floor level and atop the dado were three horizontal lines. Room 3, however, probably had a row of half circles above the checkered dado, as one faintly shows in the 1940-41 photo. The pattern in the room was not as heavily scored as that in the archway area.

The sequence in the room seems to have been as follows:

- 1) East-west walls built
- 2) North-south cross wall built with doorway
- 3) Gray white caliche floor laid
- 4) Floor cut through to provide footing for door plug
- 5) Rocks laid in door opening
- 6) Walls plastered
- 7) Floor patched; this is supported by the presence of one floor in the center of the room (see Feature 12 below)
- 8) Walls scored and painted to match dado in archway area

The area near the plugged door appeared to be an excellent place for experimental tests on paint and plaster stabilization. Information on such experiments is at a minimum, and with permission of Parks and Wildlife Department, several methods were tried. The procedure is described in the Appendix.

Feature 12 (Fig. 2). This feature was the clearing of a "pothole" in the center of Room 3. Overburden consisted of 0.2 foot of light tan sand. Directly underlying the overburden was a floor of pebbles set in caliche. Either the floor had been weathered, removing the topmost caliche which would have formed a smooth floor, or it was removed in 1940-41 excavations. On the other hand, it may have been a cobblestone floor, but this is doubtful because the floor in Feature 9 (see above) was similar but had a puddled caliche topping as did the floor next to the wall in Room 3.

TABLE 4

MISSION ROSARIO
POPULATION AND PRIESTS IN RESIDENCE

YEAR	PRIEST	DATE OF RESIDENCE	REMARKS	REFERENCE	POPULATION	REFERENCE
1754	Fr. Juan de Dios María Camberos	1754 to 1762	Camberos died in 1764 at San José	Habig 1973: 113	200 baptized 110 buried 35 marriages	Solís in Kress 1931: 47
1755			9 soldiers and 1 corporal present			
	Fr. José María Escobar	1754 to 1771	In Zacatecas 1772. In charge of Espiritu Santo, 1777	Diario de Narvais:6		
1758 May 26					21 baptized <u>in articulo</u> <u>mortis</u>	Camberos Report, AGM Historia V. 287*
1762					4 soldiers present 137 Indians baptized	Piszina to the Viceroy, May 2, 1762 AGM Historia V. 95*

TABLE 4 - Population and Priests in Residence

YEAR	PRIEST	DATE OF RESIDENCE	REMARKS	REFERENCE	POPULATION	REFERENCE
1768	Fr. Ignacio Maria José Lanuza	1768-70(?)	Lanuza present at Solís visit; at San José 2 years later	Habig 1973: 126, Solís in Kress 1931: 38	From 1754-68 200 baptized 110 buried 35 marriages	Solís in Kress 1931: 47
1766-68					71 baptized 30 savages	LaFora in Kinnard 1958:178
1772-75	Fr. José Abad de Jesús María	1772-75(?)	At Espiritu Santo 1772; In Zacatecas 1775	Bolton 1914:328 Habig 1973: 109		
1779-81			Indians fled to coast	Reyes in Leutenneger 1968:394		
1782	Fr. José María García	Assigned but may not have gone	No Indians present	Leutenneger 1973:39		
1783	Fr. Mariano Antonio de Vasconzelos	2/12/83 to 7/3/83	Probably not in residence	Habig 1793: 153		
1785			Ornaments at La Bahía. Some destroyed "when the house fell in ruins."	Lopez 1940: 15		

TABLE 4 - Population and Priests in Residence

YEAR	PRIEST	DATE OF RESIDENCE	REMARKS	REFERENCE	POPULATION	REFERENCE
1790 May 1	Fr. José Mariano Reyes	Dec. 1789 to Mar. 1791			51 Indians	Census, Fr. Reyes Leutenegger 1968:594
1790 Aug. 20					52 persons	Reyes 1968:594
1791 Mar. 1	Fr. José Francisco Jaudenes	1791-1797			53 Indians	Jaudenes to Gorda 6-4-1792*
1791 July 20					85 Indians	Jaudenes to Muñoz*
1791 Nov. 30					81 total 53 Indians 28 Spaniards	Jaudenes to Muñoz BA
1792 June 4					114 Indians	Jaudenes to Gorda BA
1792 Oct. 19					79 Christians 2 Infidels	Census Fr. Jaudenes MSJSPL+
1793	Fr. Francisco Puelles	1793 (supernumerary)		Habig 1973:139		

TABLE 4 - Population and Priests in Residence

YEAR	PRIEST	DATE OF RESIDENCE	REMARKS	REFERENCE	POPULATION	REFERENCE
1794	Fr. José Manuel Pedrajo	1794	Temporary relief for Jaudenes	Habig 1973: 138	100 Christianized receiving instruction	Census, Fr. Jaudenes BA*
1794 Sept. 26					39	
1796 Oct. 23					107	Census, Fr. Jaudenes BA
1796 Dec.					146 (148*) Cujanes	Census, Fr. Jaudenes MSJSPL+
1797	Fr. José María de Jesus Puelles	1797-1802		Diario de Narvais:28		
1797			Only Cocos to at Rosario; Carancaguazes to go to Mission Refugio	Leutenegger 1973, V. 3: 486	97 Cocos and Carancaguazes	Cardenas to Muñoz June 5, 1797 MSJSPL+
1798 Dec. 18					212 (205*) Cujanes 49 receiving instruction	Census, Fr. Puelles MSJSPL+
1800 Dec. 19					70 Cujanes	Census, Fr. Puelles MSJSPL+

TABLE 4 - Population and Priests in Residence

YEAR	PRIEST	DATE OF RESIDENCE	REMARKS	REFERENCE	POPULATION	REFERENCE
1802	Fr. José María Sáenz	1802-1804	Three years of service is doubtful as Huerta signed the census end 1802	Oberste 1942:252	63 Indians 24 Spanish and other classes	Census, Fr. Huerta. MSJSPL+
1802 (end)	Fr. José María Huerta de Jesús	1802-1806		Oberste 1942:256	Pihuigues, Pamaguís, Mano de Perro, Copanes, Carancahuaces, Cocos present	Huerta MSJSPL+
1803 May 1					1 minister 61 Indians 8 Spaniards and others	Census, Vallejo, 1804 San José Papers V. 3: 503
1804 (end)					60 Cujanes 2 Gentiles	Census, Huerta MSJSPL+
1805 Oct. 1						

TABLE 4 - Population and Priest in Residence

YEAR	PRIEST	DATE OF RESIDENCE	REMARKS	REFERENCE	POPULATION	REFERENCE
1806 Dec. 13			Indians leaving to go to Mission Refugio	Vallejo to Cordero BA*		
1807 Feb. 7			Official approval of merger with Refugio	Salcedo to Cordero, BA*		

* References translated by E. Nunley for the Mission Rosario Project.

+ Mission San Jose State Park Library

(xxx*) Correction in addition.

SYNTHESIS

This synthesis brings into focus the documentary and archeological findings based on the research design presented in the Introduction. Table 1, the Chronological Chart summarizes documentary information, and Table 4 summarizes Population and Priests in Residence. Because much of the work remains to be done and questions are still unanswered, many of the conclusions are necessarily tentative. Recommendations for work in the future follow this section.

Archival Search

Archival search and translations have added considerably to the information about the mission. There is a notable lack of documents, however, from 1754 to 1790. Reyes (Table 1) in 1790 insisted that the old papers were lost and that the Viceroy should make a copy of the title of possession. This loss may be part of the problem in finding documents for that period, but it was unusual that only one copy was made, and other copies should be in existence.

Pre-mission Indian Occupation

Throughout excavations, evidence of Indian occupation was found in lithic debris left from flint knapping. Some finished tools were found in the fill of graves, under floors, and in surface material. Analysis of the lithic material from excavated levels of the site showed no technological differences in the lowest levels and no evidence of an Archaic occupation.

Flint chips and flakes and also a broken biface found in Feature 9 underneath the caliche floor in what appeared to be undisturbed dark brown sand argues for pre-mission occupation of the site by people who made flint tools by bifacial knapping. One such tool may have been shaped by or used in conjunction with an antler fragment.

Mission Occupation

Four major building phases have been postulated, but building and repairs probably were taking place continually. The first phase is arbitrarily designated as the time when the buildings were presumably wooden. If all buildings were wood and wood-daub from establishment in 1754 until 1768 at Solís visit, then the 14 years allows for considerable deterioration. Nevertheless, an occupation for that length of time should have left some evidence. Most of the conclusive evidence for this occupation was found in the northwest corner of the mission compound both inside and outside the wall. This evidence points to a room or bastion at the northwest corner which may have served as a lookout over the San Antonio River. The room was connected to a stockade of logs each of which was about 2 feet in diameter.

A building (Structure 1) with a probable dirt floor was in the northwest corner and within the building was a circular fireplace. During this period the fireplace could have served several functions; it may have been a forge since several small pieces of metal were in the charcoal area, but it also may have been a cooking area. It was later abandoned as a fireplace, and floor level stones were incorporated in a stone floor.

Other postholes were found in the northwest quarter of the compound, but disturbances and incomplete excavation precluded finding a pattern for these. It is possible this area served as a utility area for small stables or corrals or perhaps the "workshop" mentioned by Solís.

The eight small houses mentioned by Camberos (Table 1) could have been almost anywhere in the compound area. Evidence, however, from Feature 3 indicates the area against the east wall probably was an Indian living area and may have contained the 8 small houses. At present the time of occupation at Feature 3 cannot be determined. Other Indian living areas were probably near the bastion and outside the south compound wall.

The church described by Solís either was built on stone foundations or was built of stone at a later date. On the other hand, that church may have been elsewhere in the mission compound, but evidence from the excavations of Feature 2, although not conclusive, indicates it probably was not. The priests' living area at this time may have been in the enclosed area to the north of the church (Feature 2) but this is mere conjecture. The well(?) was probably dug during the beginning phases of the mission.

The third building phase when the stone wall and stone buildings were constructed was probably between 1768 and 1779. At this time the church was decorated with multi-colored murals. The minister's house and other rooms were in the area of Feature 14. Phase 3A, represented by over-painting of the murals and repair of the floor, also took place before 1779 when most of the Indians left. The new priest who came in 1771, Fr. José Abad de Jesús María, may have undertaken these repairs. By 1785, 14 years after Fr. Abad's arrival, the church was in ruins, the "ornaments" were at Mission Espiritu Santo, and the mission had been abandoned.

Fr. José Reyes reopened the mission in 1789. His "small chapel" made of "grass and poles" may have been in Feature 6 Area B where a shallow burned post was over a burial. This post was a legume probably acacia*, an unlikely material for a permanent structure. Since Fr. Reyes had no records, he may have built his chapel on known sacred ground but inadvertently on a burial. The chapel may have been burned to clear the area.

The fourth building phase is indicated by repair of the stone structures and the surrounding rock wall, abandonment of the original church, and the redesign of the "minister's house" (Feature 14) by taking out a wall, sealing a door, and building a scaristry on the south side. The first door of this church probably had a decorative facade and a walled courtyard in front. The door sill for the front door is the original white oak.* This church probably was in existence from 1791 until the front fell in 1804 -- 13 years. During this time the floor was repaired several times. Since the minister's house was taken to make the church, his house may have been moved to Feature 6 Area A. The inner courtyard area containing Feature 6 and including the Campo Santo may have been turned into an enclosed area for the clergy.

Repairs during the fourth building phase not only included major redesigning but also the construction of a flying buttress mortared with lime to support the two story area of the stone complex. The staircase and the northernmost simple buttress were also retopped with lime mortar. During this phase Indian living areas were probably located in the same areas as before.

There is not a great deal of specific archeological information at present on how time was used at the mission.

* Identification by U. S. Dept. of Agriculture, Forest Products Laboratory, Madison WI.

It is evident much time was spent in building and repairs in addition to regular routines of worship and prayers. The murals in the original church provide evidence of at least one aspect of activity. The murals as well as the checkered painting on the archway and Room 3 (Feature 14) have scored half circles or lunettes terminating the dado at the top. The lunettes were made precisely, probably with a compass because a small hole is in the center of each. The diagonal scorings on the archway and Room 3 (Feature 14) also seem to have been scored with the help of a straight edge. The design style of the murals is free flowing and probably freehand; each design of the two panels (Fig. 13) is different. Painting execution within the lunettes and checks was not precise -- paint is not confined within the scored lines and was carelessly dripped on the surface. The murals, then, seem to be the work of untrained persons, but persons who also exercised their imagination in drawing stylized pictures of plants, perhaps plants they knew.

These pictures have a vague similarity to the Agave or century plants so useful to the people of the Mexican plateau; could they have been drawn by neophyte Indians of Mexico -- the Tlaxcalans who so frequently accompanied missionaries to Texas? On the other hand, the drawings also have a vague similarity to the Spanish dagger or yucca which was also useful to the Indians. This plant was recorded by Joutel (1962) in 1685 near Lavaca Bay, 30 miles south of Mission Rosario within the Karankawa seasonal territory, and it seems more reasonable some of the Karankawa executed the paintings which presumably extended around the nave of the church. Whether one artist or several were working for one season or more is unknown.

Other activities include the production of lithic tools indicated by the amount of flakes and chips at the site. Some of this activity probably was taking place outside the south compound wall. Gunflints as well as projectile points, scrapers, and bifaces were made. Projectile points, however, were also being made of iron and glass. Gunflints and gun parts were probably used by the Spanish soldiers or other Spanish inhabitants of the site since Karankawa were expert bowmen and never made full use of the gun.

The Indian women may have been making pottery at the site, but no specific indication has been found. Asphalt decorated and asphalt lined Rockport ware sherds at the site are similar to the historically documented pottery the Karankawa were making 100 years later (Gatschet 1891). A few small pieces of asphalt were found outside the northwest corner of the compound wall, but no evidences of clay storage or pottery firing areas have been found.

Another activity which may have been of an experimental nature was the molding of metal containers such as bowls. Nine unused molds for this purpose were found in 1940-41. At least two of these are stored at Goliad State Park. Although the block number and distance from block lines are known, the location of the block is not known. Roland Beard on a visit to the site recalled they were probably found somewhere near the 1973-74 grid lines of West 30-40 South 10-20. No attempt was made to locate this area in 1973-74 excavations.

Part of each section of the research design as outlined in the Introduction has been accomplished, but the major part remains to be done. Recommendations to achieve this are in the next section.

RECOMMENDATIONS

Although 24 weeks were spent in archeological excavations at Mission Rosario, only a small part of the information possible was obtained. Noticably lacking is information both archeologically and archival on the early period of the mission, and large areas of the mission compound have not been investigated. Recommendations for further excavation within specific features have been made in the body of this report.

Because so much work needs to be done which can be combined with a unique innovative opportunity for public education, it is recommended that continuing study and excavation, which will be open for inspection by visitors, be made under supervision of a qualified archeologist, with the assistance of several students.

In this way visitors can become aware of the life at a Spanish Colonial mission as reflected at Mission Rosario. The influence of the Spanish background and life style was later felt in the Texas Republic and today in the state itself. In addition to recognizing the Spanish influence, visitors will become aware of proper archeological techniques -- how maximum information in excavation can be gained; furthermore, more will be known about acculturation and interaction of the Indian and Spanish at the mission itself increasing the knowledge about culture change during the Spanish Colonial period in Texas. Moreover, this knowledge can be applied to culture change in general. For further interpretation and education, diaramas made from documentary and archeological information depicting the life style during several phases of the mission can be housed in a museum at the site.

Systematic excavation can be carried out during peak visitor season; during the slower seasons the archeologist can analyze the data and prepare a report. Student assistants would not only obtain valuable training but also should share the responsibility for report preparation. In order to maintain processing of artifacts, including cataloging and conservation and preservation, a laboratory should be built on the site.

Within this framework the following can be achieved:

1. Continuing archival search for Spanish documents concerning the mission;
2. Continuing search for information of the 1940-41 excavations;
3. Archeological survey in the general area for evidence of (a) Indian camp sites, (b) stone quarries, (c) caliche quarries, (d) water ditches, (e) landing sites on the San Antonio, and (f) the ranch belonging to Mission Rosario (see Ramsdell n.d.);
4. Gradual excavation of the mission compound and likely areas outside the compound, with preservation of all walls and structures and those features which will give a substantive picture of as many phases of mission life as possible;
5. The construction of diaramas utilizing documentary and archeological data to give a conceptualized picture of as many phases, temporal and cultural, as possible. These should be housed in a museum at the site, along with other site data such as information on artifacts and documents.

REFERENCES CITED

- Anderson, J. E.
1963 *The human skeleton a manual for archaeologists.*
National Museum of Canada, Ottawa, Canada.
- Barnes, Mark R. and Ronald V. May
1972 *Mexican majolica in northern New Spain.*
Pacific Coast Archaeological Society, Occasional Paper No. 2.
- Barnhill, Bill
1973 Conversation with Kathleen Gilmore.
- Beard, Roland S.
1973 Conversation with Kathleen Gilmore.
- Bell, Robert E., Edward B. Jelks, and W. W. Newcomb, eds.
1967 *A pilot study of Wichita Indian archeology and ethnohistory.* Final report to the National Science Foundation.
- Blaine, Jay C.
1973 Gun parts, gunflints, ball and shot. In Bernard De La Harpe and the Nassonite Post by R. K. Harris, J. C. Blaine, and J. McVay. *Bulletin of the Texas Archeological Society*, Vol. 44.
- Boyd, E.
1958 Fireplaces and stoves in colonial New Mexico. *El Palacio*, Vol. 65, No. 6.

1974 *Popular arts of Spanish New Mexico.* Museum of New Mexico Press, Santa Fe.

- Brinkerhoff, Sidney B., and Pierce A. Chamberlain
1972 *Spanish military weapons in colonial America, 1700-1821*. The Stackpole Company, Harrisburg, PA.
- Brune, Gunnar
1975 *Major and historical springs of Texas*. Report 189, Texas Water Development Board, Austin.
- Calhoun, Cecil
1973 *Conversation with Kathleen Gilmore*.
- Campbell, T. N.
1961 *Origins of pottery types from the Coastal Bend region of Texas*. *Bulletin of the Texas Archeological Society* 32:331-336.
- Coopwood, Julie
1938 *History of the La Bahia settlements during the administration of Captain Manuel Ramirez de la Piscina, 1750-1767*. Unpublished M.A. thesis, University of Texas.
- Di Peso, Charles C.
1953 *The Sobaipuri Indians of the upper San Pedro River Valley, southeastern Arizona*. The Amerind Foundation, Inc., No. 6, Dragoon, AZ.
- Gatschet, Albert S.
1891 *The Karankawa Indians, the coast people of Texas*. *Archaeological and ethnological papers of the Peabody Museum, Vol. 1, No. 2*, Harvard University.
- Gilmore, Kathleen
1969 *The San Xavier Missions: a study in historical site identification*. State Building Commission Archeological Program Reports, No. 16, Austin.

1974 *Mission Rosario, archeological investigations 1973*. Archeological Report 14, Part 1. Texas Parks and Wildlife Department, Parks Division, Historic Sites and Restoration Branch, Austin.

Goggin, John

- 1968 *Spanish majolica in the new world*. Yale University Publications in Anthropology, No. 72.

Habig, Marion A.

- 1973 A biographical dictionary. In *The Zacatecan missionaries in Texas, 1716-1834*. Translated by Benedict Leutenegger. Texas Historical Survey Committee, Office of the State Archeologist Reports, No. 23, Austin.

Harris, R. King and Inus Marie Harris

- 1967 Trade beads, projectile points, and knives. In *A pilot study of Wichita Indian archeology and ethnohistory*, edited by Robert E. Bell, Edward Jelks, and W. W. Newcomb, Dallas.
- 1974 Glass beads. In *Mission Rosario, archeological investigations 1973*, by Kathleen Gilmore. Archeological Report 14, Part 1. Texas Parks and Wildlife Department, Parks Division, Historic Sites and Restoration Branch, Austin.
- 1974 Metal. In *Mission Rosario, archeological investigations 1973*, by Kathleen Gilmore. Texas Parks and Wildlife Department, Parks Division, Historic Sites and Restoration Branch, Austin.
- 1975 Personal observations.

Harris, R. K. and Curtis D. Tunnell

- 1966 Miscellaneous European goods. In *The Gilbert Site: a Norteño Focus site in northeastern Texas*, edited by Edward B. Jelks. *Bulletin of the Texas Archeological Society*, Vol. 37, Dallas.

Johnston, F. W.

- 1962 Growth of the long bones of infants and young children at Indian Knoll. *American Journal of Physical Anthropology*, 20:249-253.

Joutel, Henri

- 1962 *A journal of La Salle's last voyage, 1714*. Reprint. Corinth Books, New York.

- Kress, Margaret K., translator
 1931 Diary of a visit of inspection of the Texas missions made by Fr. Gasper José de Solís in the year 1767-1768. *Southwestern Historical Quarterly* LXXI, No. 4, Austin.
- Kubler, George
 1972 *The religious architecture of New Mexico*. University of New Mexico Press, Albuquerque.
- Lavin, James D.
 1965 *A history of Spanish firearms*. Arco Publishing Company, Inc., NY.
- Leutenegger, Benedict
 1968 New documents on Fr. Jose Mariano Reyes. *Southwestern Historical Quarterly* LXXI, No. 4, Austin.
 1973 *The Zacatecan missionaries in Texas, 1716-1834*. Texas Historical Survey Committee, Office of the State Archeologist Reports, No. 23, Austin.
- Lister, Robert H. and Florence C. Lister
 1975 Non-Indian ceramics from the Mexico City subway. *El Palacio*, Vol. 81, No. 2:25-48.
- Lopez, José Francisco
 1940 *The Texas missions in 1785* [sic, should be 1789]. Translated by J. Autry Dabbs. Preliminary studies Texas Catholic Historical Society, Vol. 3, No. 6.
- Montgomery, R. G., Watson Smith, and J. O. Brew
 1949 *Franciscan Awatovi*. Papers of the Peabody Museum, Vol. 36, No. 3, Harvard University.
- Mounger, Maria Allen
 1959 Mission Espiritu Santo of coastal Texas: an example of historic site archeology. Unpublished M.A. thesis, University of Texas.

- Oberste, William H.
 1942 *History of Refugio Mission*. Refugio, Texas:
 Refugio Timely Remarks.
- Olsen, Stanley J.
 1963 . Dating early plain buttons by their form.
American Antiquity, Vol. 28, No. 4.
- Peterson, Harold L.
 1961 Early bullet molds. *The American Rifleman*,
 10:45-57.
- Polzer, Charles, S. J.
 1974 Conversation with Kathleen Gilmore.
- Sellards, E. H., W. S. Adkins, and F. B. Plummer
 1958 *The geology of Texas; Vol. 1. Stratigraphy*.
 The University of Texas Bulletin No. 3232,
 1932 Reprint.
- Stone, Lyle M.
 1974 *Fort Michilimackinac 1715-1781*. The museum-
 Michigan State University anthropological
 series in cooperation with Mackinac Island
 State Park Commission, Vol. 2, Lansing, MI.
- Stripling, Raiford
 1975 Conversation with Kathleen Gilmore.
- Woodward, Arthur
 1953 Spanish metals. In *The Sobaipuri Indians
 of the upper San Pedro river valley, south-
 eastern Arizona*, by Charles C. Di Peso. The
 Amerind Foundation, Inc., No. 6, Dragood, AZ.

DOCUMENTS CITED

- Camberos
1758 Camberos' Report, May 26. Translated by E. Nunley. A.G.M., Historia, Vol. 287.
- Diario de Narvais
N.D. Diario de Narvais. Translated by Benedict Leutenegger. Unpublished manuscript, MSJSPL*.
- Espadas
1789 To Pacheco. Translated by E. Nunley.
- Huerta
1802 A census for Mission Rosario compiled by Huerta. Translated by Wayne Roberson.
1804 To Governor Elquezabl, August 26. Translated by E. Nunley.
1805 A census for Mission Rosario compiled by Huerta. Translated by Wayne Roberson.
- Jaudenes
1791 To Muñoz, April 7. Translated by Lynn Osborne.
1791 To Muñoz, July 20. Translated by Lynn Osborne.
1791 To Muñoz, October 13. Translated by E. Nunley.
1791 To Muñoz, October 21. Translated by Lynn Osborne and E. Nunley.
1791 To Muñoz, November 30. Translated by E. Nunley.

Jaudenes (continued)

- 1792 To Gorda, June 4. Translated by Lynn Osborne.
- 1792 A census for Mission Rosario compiled by Jaudenes, October 19. Translated by Wayne Roberson.
- 1794 A census for Mission Rosario compiled by Jaudenes, September 26. Translated by E. Nunley.
- 1796 A census for Mission Rosario compiled by Jaudenes, October 23. Translated by E. Nunley.
- 1796 A census for Mission Rosario compiled by Jaudenes, December. Translated by Wayne Roberson, OSMHRL.

Leutenegger, Benedict, translator

- N.D. Diario de Narvais. Unpublished manuscript, OSMHRL.

Lopez

- 1790 To Muñoz, October 8. Translated by E. Nunley.

Piszina

- 1755 To the Viceroy, January 15. A.G.M., Historia, Vol. 287.
- 1762 To the Viceroy, May 2. A.G.M., Historia, Vol. 95.

Puelles

- 1798 A census for Mission Rosario compiled by Puelles, December 18. Translated by Wayne Roberson.
- 1800 A census for Mission Rosario compiled by Pulles, December 19. Translated by Wayne Roberson.

Ramsdell, Charles, Jr.

- N.D. Spanish Goliad. Unpublished manuscript.

Reveillagigedo

1791 To Manuel Muñoz, March 26. Translated by
E. Nunley.

Reyes

1790 Census of 1790, May 1. Translated by E.
Nunley.

Salcedo

1807 To Antonio Cordero, February 7. Translated
by E. Nunley.

The San José Papers, Vol. 3

1973 Translated by Benedict Leutenegger O.F.M.
and Marion A. Habig O.F.M., OSMHRL.

Vallejo

1806 To Antonio Cordero, December 13. Translated
by E. Nunley.

Viana

1805 Report of Francisco Viana, La Bahia, November
15. Bexar Archives, Haggard Translations
Part II, p. 5.

Old Spanish Missions Historical Research Library, San
José State Park, San Antonio, Texas

* Mission San José State Park Library

APPENDIX

LITHIC ANALYSIS

(Fig. 32)

Marsha Prior Robertson

The lithic tools found include projectile points, blades, scrapers, retouch pieces, core tools, and ground stone tools. Since the Spring 1973 excavation units are probably mixed with disturbances from the 1940-41 investigations, the 1973 excavation units are considered separately from those excavated in 1974.

Spring 1973 Excavation

The tools found in this excavation include blades, scrapers, and retouched pieces.

Blades. Blades are defined as flake tools which have a length of at least two times the width. They may be flaked on one face (unifacial) or two (bifacial), on one side (unilateral) or two sides (bilateral). The analysis records the following: (1) the condition of the blade (finished -- if secondary retouch exists -- or unfinished, broken or complete); (2) the type of flake, primary -- cortex covering the entire dorsal side, secondary -- some cortex as well as some flaking on the dorsal side, or interior -- no cortex; (3) the type of material (chert, quartzite, petrified wood, etc.); (4) the measurements on complete specimens only (length, width, and thickness in millimeters, and the weight in grams).

In this collection there are five blades: one broken unifacial unilateral, one complete unifacial unilateral, two complete unifacial bilateral, and one complete bifacial bilateral. All specimens were unfinished.

Measurements

Length range:	43mm to 72mm
Mean length:	55mm

Width range:	22mm to 33mm
Mean width:	26mm
Thickness range:	8mm to 18mm
Mean thickness:	13mm
Weight range:	8gr to 32gr
Mean weight:	19gr

All blades are of a chert-like material.

Scrapers. These are defined as tools which have a width more than two times the length. The working edge of a scraper is normally between 45° and 90°, and they are unifacially worked. Recorded in the analysis is (1) the type of scraper, identified by the location of retouch (circumferential, bilateral, unilateral right, unilateral left, or end); (2) origin of retouch (inverse or obverse); (3) type of flake, type of material; and (4) the measurements (on complete specimens only).

There are three scrapers from this collection and two of them have inverse retouch rather than obverse, which is the norm. One of these inverse scrapers was broken. There is an end scraper with obverse retouch, a unilateral right scraper, and a scraper with retouch on the end and on the left side.

Measurements

Length range:	40mm to 67mm
Mean length:	50mm
Width range:	32mm to 54mm
Mean width:	40mm
Thickness range:	9mm to 17mm
Mean thickness:	13mm
Weight range:	12gr to 63gr
Mean weight:	32gr

All of the scrapers are of a chert-like material.

Retouched Pieces. These are flakes or chips which have some sort of retouch flaking along one or more edge. Two types of retouch are recognized, regular and irregular. Regular retouch is intentional and is patterned; irregular retouch is presumably unintentional and occurs when a flake

is picked up and used for cutting or scraping. The flakes taken off during the latter operation are spacially intermittent.

Observations were made for each piece as follows: (1) flake or chip; (2) the type of flake; platform type (cortex, faceted, unfaceted, or unknown); (3) origin of retouch (inverse or obverse); (4) type of retouch (regular or irregular); (5) material; (6) color; and (7) weight (flakes only).

There are 47 retouched pieces; five have regular retouch, and 42 have irregular retouch. The five regular retouch pieces are all of a chert-like material. Of the four flakes with unfaceted platforms, three have retouch on the right and the fourth has retouch on the right and the left side. Three of the pieces have inverse retouch, the other two have obverse. Since weight of these flakes ranges from 2.5gr to 17.5gr, the mean weight is 8gr.

The 42 irregular retouch pieces include 30 flakes and 12 chips. Except for one piece which is a quartzite, all the material is chert-like. The platform for all but two of the flakes is unfaceted; the other two have cortex platforms. There are eight pieces which have inverse retouch, five with bifacial retouch, three with inverse on one side and obverse on the other side, 24 with obverse retouch, and 2 unknowns. Weight ranges from 1gr to 18.5gr, but the mean is 5gr.

Conclusion. Since the area excavated has probably been disturbed by earlier investigations, it is difficult to make any comments, other than very general ones, on the nature of this material. The presence of blades, scrapers, and regular retouched pieces indicates there were cutting and scraping activities going on. Blades, scrapers, and retouched pieces were used for a variety of purposes including many activities that are done on a daily basis. Such multipurpose tools suggest that a wide range of activities were going on over an extended period of time.

Spring and Fall Excavations 1974

Tools that came from the 1974 excavation include projectile points, blades, scrapers, retouched pieces, ground stone tools, and core tools.

Chipped Stone Projectile Points. These projectile points are bilaterally, bifacially worked stone tools that come to a point at one end and have a stem or a notch for hafting at the other end.

There are eight complete points from this collection, three are identified as a variety of Fresno (Suhm, Krieger, Jelks 1954). Five were unidentified as to named type. They may very well be Fresno points, but they are not as triangular as the common Fresno. Also included in the collection are three distal end fragments and three proximal end fragments. The material used is chert-like.

Measurements

Length range:	27mm to 44.5mm
Mean length:	34.5mm
Width range:	11mm to 18mm
Mean width:	14mm
Thickness range:	3mm to 5.5mm
Mean thickness	4mm
Weight ranges:	1gr to 4gr
Mean weight:	2.3gr

Blades. There are 39 blades, including 16 complete and 23 broken specimens. Fourteen are bifacially bilaterally worked, five are bifacial unilaterals, twelve are unifacial bilaterals, and eight are unifacial unilaterals. Only two specimens are considered finished. All of the blades are made of a chert-like material.

Measurements

Length range:	33mm to 59mm
Mean length:	45mm
Width range:	16mm to 60mm
Mean width:	26mm
Thickness ranges:	4.5mm to 11mm
Mean thickness:	7mm
Weight range:	2gr to 46.5gr
Mean weight:	11gr

Scrapers. There is a total of eleven scrapers from this collection. Ten are of a chert-like material, and one is of a quartzite. There are four end scrapers, one unilateral right, three unilateral left, one circumferential, one with retouch on the left and the distal end, and one with retouch on the distal end and both sides.

Measurements

Length range:	24mm to 88mm
Mean length:	52mm
Width range:	26mm to 64mm
Mean width:	47mm
Thickness range:	9mm to 28mm
Mean thickness:	17.5mm
Weight range:	8.5gr to 14.5gr
Mean weight:	56gr

Retouched Pieces. Regular Retouched. There are 31 regular retouched pieces, 21 flakes, and 10 chips. Twenty-three have obverse retouch, three have inverse retouch, four are unknown, and one has inverse on one side and obverse on the other side. Chert is the most common material, with only one piece being of a quartzite material. The platform type for three flakes is cortex, one has a faceted platform, 16 have unfaceted platforms, and one is unknown. On the location of retouch on flakes, the left side is favored with 11 specimens, two have retouch located on the right side, four have retouch located on the distal end, one has retouch on the right side and distal end, one has retouch on the left side and distal end, and two have retouch located on the right and left sides, as well as the distal end. The weight of the flakes ranges from 1gr to 55.5gr. The mean is 6.8gr.

Irregular retouched. The total number of irregular retouched pieces is 215; 174 are flakes and 41 are chips. Thirty-seven pieces have retouch on the left, 32 have retouch on the right, 17 have retouch on the distal end, and the remaining 88 pieces have various combinations of right, left, distal, and proximal. Chert-like material is, again, the most common. Four pieces are of a quartzite, two of petrified wood, and three belong to another category. The remaining pieces are of a chert-like material. Obverse retouch is on 129 specimens; 23 have inverse retouch, and 28 have inverse on one side and obverse on the other. The remaining 35 are either bifacially retouched,

unknown, or are bifacial on one side and inverse or obverse on the other side. The platform type for 32 flakes is cortex, one has a faceted platform, 140 are unfaceted, and one is unknown.

Ground Stone Tools. This includes stone tools such as manos and metates which are associated with the grinding activities.

There are four metate fragments -- one of granite, two of basalt, and one of an unknown material. There is one complete mano of a granitic material, and one basalt pestle.

Core Tools. These are cobbles which have had flakes removed and the remaining piece is used as a tool associated with scraping, chopping, or hammering activities. The type, weight, and raw material were recorded.

There are three core-choppers, and all three are of a chert-like material. The weights are 74gr, 144gr, and 315gr.

Miscellaneous. There is one piece of broken antler which could have been used as a flaker since the distal end is rounded and worn. No measurements were recorded since it is a broken piece.

Conclusion. The 1974 units excavated contain a large number of retouched pieces, which suggests much activity. The number of projectile points and finished blades, however, is low. The Indians could have been trading points and bifacial blanks. The majority of the blades were unfinished so it is possible that cobbles were worked into blanks and were traded in an unfinished form. Many finished tools, however, may have been removed in the 1940-41 excavations, and are a favorite item for relic hunters.

The majority of the scrapers, blades, and projectile points came from the Backhoe Trenches so very little intra-site activity patterning could be established. It is possible, however, that this is where the tools were being manufactured. Backhoe trenches 1-4 are all similar. There is a large percent of irregular retouched pieces in all the backhoe trenches along with a smaller percent of other varying tools. The majority of the other tools come from trenches 1-4. Trenches 5 and 6 each have more than

80 percent irregular retouched pieces. The majority of the tool manufacturing seems to have taken place in the area of Trenches 1-4.

In Feature 4 there was found what was thought to be a core with associated flakes, but further observation showed that many of the flakes were not of the same material as the core, and none of the pieces could be fitted together.

Attention was paid to the various levels of excavation, but no major differences could be found. The site seems to have been occupied by no group earlier than Ne-American.

GUNFLINTS

Jay C. Blaine

Twelve of the flint artifacts from Mission Rosario are classed as gunflints on the basis of their form, size, and technology. As used here, the width of a gunflint refers to measurement along the striking edge which strikes the frizzen of the flintlock. The length refers to the measurement from the striking edge to the back edge of the gunflint.

Specimen 1 (Feature 3, Fig. 33A) is split lengthwise and is plano-convex in section. It appears to have been produced on a blade. Retouch is unifacial, major on the side and back edge and minor on the striking edge. The shape in plan would be square or rectangular. There is no actual evidence of use on this fragment. Material is opaque gray chert. Length, 23mm. Thickness, 9.5mm.

Specimen 2 (Feature 3, Fig. 33B) is bi-convex and roughly flaked into the familiar 'D' shape. There is no evidence of use. Material is opaque light brown chert with spotty tan inclusions. Width, 26mm. Length, 19mm. Thickness, 10mm.

Specimen 3 (Backhoe Trench 1, Fig. 33C) is bifacially flaked into a rough 'D' shape. The striking edge has been deliberately serrated. Material is a tan gray chert with cortex. Width, 32mm. Length, 27mm. Thickness, 8mm.

Specimen 4 (Backhoe Trench 1, Fig. 33D) is European in origin and "Dutch" in form (Witthoft 1966; Blaine 1973). This wedge-shaped flake gunflint is split across one front corner. This particular specimen has been produced from a larger flake which served as the core, after platform preparation. The striking edge shows use. Material is gray flint with light gray spotting. Length, 21mm. Thickness, 7mm. Back width, 26mm.

Specimen 5 (Backhoe Trench 1, Fig. 33E) is carefully flaked, bi-convex, and rectangular in shape. One long edge shows use. Material is chert and gray tan in color. Width, 25mm. Length, 16mm. Thickness, 6.5mm.

Specimen 6 (Backhoe Trench 1, Fig. 33F) is carefully flaked, bi-convex, and although now broken, originally was square to rectangular in shape. One long edge shows use. Material is tan gray chert. Width, 24mm. Thickness, 5mm.

Specimen 7 (Backhoe Trench 1, Fig. 33G) is bifacially worked from a blade and sub-square in shape. Two sides have shallow notches which may be the result of limited use with a fire steel. Material is gray chert with tan spotting. Width-length is 22mm x 22mm. Thickness, 6mm.

Specimen 8 (Backhoe Trench 2, Fig. 33H) is a bifacially worked flake of light brown chert. Two of the sides bear shallow notches possibly indicative of limited use with a fire steel. Width, 25mm. Length, 20mm. Thickness, 6mm.

Specimen 9 (Backhoe Trench 3, Fig. 33I) is bi-convex, rectangular, and flaked on all surfaces. One long edge shows use. Material is opaque chert, off-white in color. Width, 27mm. Length, 16mm. Thickness, 8mm.

Specimen 10 (Backhoe Trench 3, Fig. 33J) is bi-convex, rectangular, and roughly flaked. One long edge shows use. Material is a gray granular or quartzite stone which is somewhat translucent to light. Width, 30mm. Length, 18mm. Thickness, 10mm.

Specimen 11 (Backhoe Trench 3, Fig. 33K) is bi-convex and has been broken. Flaking is skillful on one smoothly convex face with the other showing rough thinning. The overall appearance suggests this specimen originally was a point or other form. The remnant of one long edge shows use. Material is a glossy tan chert. Length, 19mm. Thickness, 5mm.

Specimen 12 (Feature 6, Fig. 33L) is bi-convex, sub-rectangular, and roughly flaked. One long edge shows use. Material is a tannish gray chert which is translucent to light, showing dark banding within. Width, 30mm. Length, 19mm. Thickness, 8mm.

Only specimen no. 4 is clearly of European origin. The occurrence of wedge-shaped gunflints of "Dutch" form

is common in 18th century Texas Indian sites. I cannot identify a specific European lithic source for specimen 4.

Specimen no. 1 may be European in origin. The technology is suggestive of blade gunflint production, but the fragmentary condition prevents a positive conclusion and the material is not distinctive.

Specimens 9, 10 and 12 are more roughly formed than is common among native Indian made gunflints. Specimen 9 in particular may be entirely Spanish in origin. Lavin (1965:168) notes the crudely made white gunflints used on the Peninsula in contrast to finer, well formed gunflints available in England and France.

Specimen no. 3, with its carefully serrated striking edge, is unique to me. While clearly of native Indian technology, one cannot help speculating that the serrations were somehow suggested by the grooved-ridged frizzen faces common to Spanish miquelet gunlocks. Four of the teeth have been adumbrated by unidirectional use, as against a frizzen.

Specimens 5, 9, 10, and 12 would appear unsuitable, as used, for other than such as the Spanish miquelet gunlock. The designed large angle of the working or striking edge (65 degrees to 75 degrees) together with the length dimensions virtually preclude the normal use of these gunflints in non-Spanish gunlocks such as French and English versions. Both of the latter utilize a lighter and more glancing frizzen blow than the relatively direct 'Spanish system.' The Spanish system gunlocks can, of course, utilize gunflints with smaller or more acute angle working edges such as specimens 3, 4, 6, 7, 8 and 11, but service life would be comparatively short and breakage more common. Specimens 4, 6 and 11 all show signs of frizzen use and are broken. Specimens 7 and 8 are not broken, but also do not bear signs of any frizzen produced wear. The latter have been noted for notching wear suggestive of use with a fire steel. Such proposed usage is slight.

In conclusion, this assemblage contains only one clearly imported gunflint. Two additional gunflints may be non-local in origin. At least three-fourths of the assemblage appears locally produced. Mission Rosario apparently was not commonly supplied with its gunflints from the traditional French, English or low country sources. These comments are tentative since, regrettably, the full sample from Rosario is not available for study.

EUROPEAN DERIVED CERAMICS

Kathleen Gilmore

European Derived

Tin enameled. In the 1973 and 1974 excavations, 320 sherds of decorated majolica were found. This does not include small sherds of about 3/4 inch or less. Most of the 320 are small except a few found in the backhoe trenches. The 634 sherds of the 1940-41 excavations (Gilmore 1974) are generally much larger. Variation in sherd size biases the percent shown below, and these percentages should be taken as a generalized estimate of the popularity at the site.

All sherds of the recent excavations fit into the stylistic categories of the 1940-41 analysis (Gilmore 1974). These categories are briefly described below; reference should be made to Mission Rosario Part I (Gilmore 1974) for complete description.

<u>Style</u>	<u>1940-41 Excavation</u>	<u>1973-74 Excavations</u>	<u>Total</u>	<u>Percent</u>
Polychrome				
Style 1, Blue rim band enclosed by brown lines [San Elizario]				
Group A, Decoration flush with glaze	189	27	216	22.8
Group B, Decoration slight- ly raised	9	4	13	1.4
Group C, Decoration raised	14	6	20	2.1

<u>Style</u>	<u>1940-41 Excavation</u>	<u>1973-74 Excavations</u>	<u>Total</u>	<u>Percent</u>
Style 2, Overall decoration with dark accent lines [Puebla blue on white]	131	35	166	17.5
Style 3, Blue glaze with polychrome decoration [Tumacacari]	42	7	49	5.2
Style 4, Major use brown, minor use blue, thin (1mm)				
Group A, Brown stem and leaves, blue dots	14	26	40	4.2
Group B, Light brown lines, light blue dots	2	0	2	0.2
Group C, Large brown element, small blue dot	1	0	1	0.1
Style 5, Green, orange, brown, yellow, with blue dots [Aranama]				
Group A, Yellow and green triangular element	5	11	16	1.7
Group B, Yellow and green alternating elements with brown circle	6	0	6	0.6
Group C, Brown, green and yellow alternating panels	8	0	8	0.8

<u>Style</u>	<u>1940-41 Excavation</u>	<u>1973-74 Excavations</u>	<u>Total</u>	<u>Percent</u>
Style 6, Orange, green, brown, yellow (no blue)				
Group A, Large green flowing petals, yellow- tan stems (?) [Monterrey?]	17	4	21	2.2
Group B, Green and yellow petals, human figure [Aranama]	5	6	11	1.2
Style 7, Green flower pendant from orange rim band	7	0	7	0.7
Style 8, Design fields on base and rim	1	0	1	0.1
Duochrome (blue and white)				
Style 1, Blue painted surface				
Group A, Dark blue on lighter blue	14	5	19	2.0
Group B, Negative white design	2	9	11	1.2
Style 2, Blue on white				
Group A, Raised blue designs on chalk white glaze [San Augustin?]	20	33	53	5.6
Group B, Annular blue bands, pendant flowers, and overall design,				

<u>Style</u>	<u>1940-41 Excavation</u>	<u>1973-74 Excavations</u>	<u>Total</u>	<u>Percent</u>
no accent lines [Puebla blue on white]	67	96	163	17.0
Style 3, (Other Duochrome Style 2 in Gilmore 1974) light and dark blue floral sprays, thin (1mm) walls	8	30	38	4.0
Other Duochrome				
Style 1, scalloped or undulating rims (molded; no ring foot)				
Group A, Light blue on dark blue floral sprays	1 vessel	0	1	0.1
Group B, Gray blue design	6(1 vessel)	0	6	0.6
Group C, Royal blue design	11	0	11	1.2
Style 2, rim banded				
Group A, Blue bands				
Subgroup a, Horizontal	25	9	34	3.7
Subgroup b, Wavy	8	0	8	0.8
Subgroup c, Wavy with 2 straight bands	5	0	5	0.5
Group B, Green bands				

<u>Style</u>	<u>1940-41 Excavation</u>	<u>1973-74 Excavations</u>	<u>Total</u>	<u>Percent</u>
Subgroup a, Horizontal	1	0	1	0.1
Subgroup b, Wavy	6	2	8	0.8
Subgroup c, Wavy with blunt end	2	1	3	0.3
Group C, Wavy yellow bands	2	3	5	0.5
Unclassified 1973-74, 1 grass green, 1 dark gray blue on white, 1 dull green, 2 handles	—	<u>5</u>	<u>5</u>	<u>0.5</u>
TOTAL	629	319	948	99.8

Discussion. Goggin (1968) identified San Agustin Blue on White from Mission Espiritu Santo, and the style described in Style 2, Group A may be this type as sherds in this group have a whiter background glaze than other sherds, this being a distinguishing characteristic as noted by Goggin.

Lister (1975:41, Fig. 19d) notes that, "all crafts, including pottery making, declined at the end of the 18th century because of lack of training and growing competition of European factory produced vessels . . . Nevertheless, 19th century majolica specimens from the Metro identifiable with Puebla, most fragments of small cups and bowls are thin and finely, tastefully decorated."

In the Rosario collection are 40 sherds of similar thin-walled cups (Fig. 35C) and a fragment of a small bowl or saucer (Fig. 35D). Some are decorated in blue only (Duochrome, Style 3) and others with brown and blue (Polychrome, Style 4, Group A).

Other late 18th century and early 19th century styles are evident in the use of colors other than blue. Some of these with brick-red paste, such as wavy line green, may have been made in Mexico City. Other late molded styles are those with scalloped rims and no ring foot.

Polychrome, Style 2, and in part, Duochrome, Style 2, Group B, with overall designs are absent at the San Xavier Missions, 1746-1755 (Gilmore 1969), and at the first site of Presidio Loreto La Bahia, 1722-1726 (Gilmore 1973). Apparently, early 18th century supplies to Texas did not include this design style, it becoming popular after 1750.

Lead glaze wares. The 221 sherds from the 1973-1974 excavations, all small fragments, have been placed in categories as in the analysis by Fox of those from the 1940-41 excavations. For complete descriptions of the categories see Mission Rosario Part I (Gilmore 1974).

Group 1. Sandy paste utility wares

Yellow ware	24 sherds
Yellow with green rim	0
Olive green glaze	4
Miscellaneous, mold made	1
Hand molded	1

Group 2. Fine texture paste with mineral inclusions

Decorated orange	39
Green glaze	16
Yellow ware	17
Red-brown ware (many small)	110

Miscellaneous

Light cream paste, green glaze	4
Light gray to dark red paste, black glaze	5

TOTAL 221

It is interesting to note that during the building of Mission Refugio, there was much "wrangling with incompetent and dishonest workmen . . . the potter (alfarero) Mexía failed to pay Don Luis twelve pesos for a load of clay (greta) which he had brought from Boca de Leones at the order of the artisan" (Oberste 1942:179). The assumption is that pottery of non local material was being made at the site by a professional potter. Such pottery has the possibility of being lead glaze utility ware. Whether this was also done at other missions, including Mission Rosario, is unknown.

INDIAN CERAMICS

Kathleen Gilmore

Of the 6,120 sherds found in the 1973-74 excavations, 1,310 had asphalt coating on the interior or exterior, or had some kind of decoration in asphalt. Most of the decorations were straight or squiggly lines; a few had dots of asphalt on bowls and wide mouth bottles.

Most of the undecorated sherds seem to be representative of Goliad Plain as described by Mounger (1958) and Campbell (1962); no Goliad Red-on-buff was noted. Asphalt decorated pottery fits the descriptions for both Goliad Black-on-buff and Rockport Black-on-gray. The difference in the two types according to Campbell (1962:335) is surface color and the tendency of Goliad Black-on-buff to have thicker walls. Surface color on many sherds from Rosario ranges between buff and gray, and on several sherds buff and gray exist together, making it difficult to separate the sherds into the two types. Experiments should be carried out to determine how much firing temperature and paste characteristics influence surface color in this pottery.

Several vessel bases present are rounded and one is rounded but has been flattened (Fig. 35F) on the resting surface. Other bases are probably present but were not recognized. Only 10 sherds have incised decoration: 1 has a single incised line; 5 have rows of incised dots; 3 have combinations of incised dots and asphalt painted vertical lines (Fig. 35J); 1 has a row of dots with vertical incised lines on each side (Fig. 35E).

The following analysis by Maureen Cavanaugh and Brandy Walker shows the results of the separation of the sherds by (1) presence or absence of asphalt; (2) temper: bone, sand, shell, and grog; shell and grog were not present; (3) size of bone tempering material: fine, to 0.25mm; medium, 0.26 to 0.5mm; coarse, greater than 0.5mm. Because the bone particle size ranges throughout the categories, the size present in the greatest amount was recorded.

	PLAIN				WITH ASPHALT				Total
	Bone			Sandy	Bone			Sandy	
	Fine	Medium	Coarse		Fine	Medium	Coarse		
FEATURE 1									
Level 1	2	8	2	0	1	1	1	2	
Level 2	8	6	5	1	5	2	0	3	
Level 3	1	0	0	0	0	0	0	0	
Level 4	0	0	0	0	1	0	0	0	
Total	11	14	7	1	7	3	1	5	49
FEATURE 2									
Level 1	2	2	3	0	1	1	1	0	10
FEATURE 3									
Level 1	19	19	36	1	14	5	1	1	
Level 2	47	37	24	2	31	11	3	1	
Level 3	21	21	10	1	15	2	4	2	
Level 4	6	7	10	0	0	2	0	0	
Level 5	3	4	2	0	0	0	0	0	
Total	96	88	82	4	60	20	8	4	362
FEATURE 4									
Level 1	51	48	47	1	5	2	0	0	
Level 2	13	29	12	2	2	0	1	0	
Level 3	13	14	7	0	0	0	1	0	
Level 4	1	0	0	0	0	0	0	0	
Total	78	91	66	3	7	2	2	0	
FEATURE 5									
Level 1	50	64	69	0	6	3	2	0	
Level 2	5	13	6	0	16	0	0	0	
Level 3	0	1	0	0	0	0	0	0	
Level 4	2	0	0	0	0	0	0	0	
General	6	7	4	0	0	0	0	0	
Total	63	85	79	0	22	3	2	0	254
FEATURE 6									
Level 1	19	52	50	5	5	3	3	0	
Level 2	34	57	52	11	8	5	1	2	
Level 3	21	24	31	4	3	2	2	0	
Level 4	2	10	15	0	0	3	1	1	
Level 5	0	0	0	0	0	2	0	0	

	PLAIN				WITH ASPHALT				Total
	Bone			Sandy	Bone			Sandy	
	Fine	Medium	Coarse		Fine	Medium	Coarse		
Level 6	2	0	0	0	0	0	0	0	
Level 7	0	1	0	0	0	0	0	0	
Total	78	144	148	20	16	15	7	3	431
FEATURE 7									
Level 1	6	8	24	0	0	2	2	0	
Level 2	5	19	18	0	0	2	1	0	
Total	11	27	42	0	2	3	3	0	88
FEATURE 8									
Level 1	69	73	28	0	24	37	14	0	
Level 2	3	4	0	0	2	3	0	0	
Total	72	77	28	0	26	40	14	0	257
FEATURE 9	9	5	4	0	0	0	0	0	18
FEATURE 10									
Level 1	2	4	18	2	1	1	1	0	
Level 2	5	6	7	2	2	4	1	0	
Level 3	0	0	2	0	0	0	0	0	
Total	7	10	25	4	3	5	2	0	56
FEATURE 11	0	0	0	0	0	0	0	0	0
FEATURE 12									
Level 1	0	3	0	1	0	0	0	0	
Level 2	1	2	0	1	0	0	0	0	
Total	1	3	0	2	0	0	0	0	6
FEATURE 13									
Level 1	2	3	2	0	0	0	0	0	
Level 2	1	0	0	0	0	0	0	0	
Total	3	3	2	0	0	0	0	0	8
FEATURE 14	3	1	3	1	0	0	0	0	8
TRENCH 190									
Level 1	119	202	106	1	32	36	11	3	
Level 2	36	105	56	0	12	16	2	0	
Level 3	4	4	2	0	1	1	0	0	

	PLAIN				WITH ASPHALT				Total
	Bone			Sandy	Bone			Sandy	
	Fine	Medium	Coarse		Fine	Medium	Coarse		
Level 4	0	2	0	0	0	1	0	0	
Level 5	13	17	20	0	1	1	0	0	
Level 6	9	14	9	0	0	1	0	0	
Level 7-9	12	22	13	0	1	0	0	0	
Level 10-15	0	4	0	0	2	0	0	0	
Level 21-32	10	9	10	0	0	0	0	0	
Total	203	379	216	1	49	56	13	3	920
BACKHOE TRENCHES									
Trench #1	132	182	143	8	42	70	36	2	
Trench #2	128	225	179	9	89	89	54	4	
Trench #3	152	199	180	12	35	49	49	2	
Trench #4	146	262	251	10	93	92	69	3	
Trench #5	19	51	59	0	5	26	32	0	
Trench #6	29	34	24	1	5	14	21	0	
S-269 W-85									
Level 1	6	3	4	0	0	2	1	0	
Level 2	4	6	5	0	1	2	2	0	
Level 3	10	10	18	0	1	4	7	0	
Level 4	0	1	1	0	0	0	0	0	
Total	626	973	864	40	271	348	271	11	3,404
SITE TOTALS									
	1,263	1,902	1,569	76	464	496	324	26	6,120

Total Plain	4,810
Total with Asphalt	1,310
Total number Bone	6,018
Total number Sandy	102

The combination of the 1973-74 collection with the 6,093 sherds reported previously (Gilmore 1974) make a total of 12,213 sherds. This sizable collection should be studied in greater detail than is possible here and should include technological, comparative, and distributional studies.

METAL ARTIFACTS

R. King Harris and Inus Marie Harris

These artifacts are described in categories of building equipment, household and personal artifacts, and military and horse trappings. They were excavated in the 1973 and 1974 field seasons. The number following the artifact name is the number of specimens found; this is followed by where they were found.

Building Equipment

Hinges

Link hinges, 2: Structure 1, surface

Both link hinges are iron; some, however, were made from brass or copper (Woodward in Di Peso 1953:215). This type of hinge was very popular in most Spanish settlements and can be seen today in ruins of old buildings and homes in Mexico.

Brass hinges, 2 fragments: Backhoe Trench 2

These two fragments of a small brass hinge were probably from a small box or chest. The country of origin is unknown.

Pintle, 1: Feature 5

Iron pintles of this type occur along with link hinges in Spanish sites. They have also been found in French and English sites (Stone 1974:224).

Key, 1: Feature 7 (Fig. 34A)

This key, 5 3/8 inches by 1 5/8 inches, was cleaned to determine if it had been impressed with letters or numerals, but the results were negative. Keys of this type were common in both iron and brass in Mexico and can be purchased today in antique shops. This probably was one of the mission door keys.

Nails

Twenty-three iron nails were analyzed previously (Harris and Harris in Gilmore 1974:76), and ten nails were recovered during the 1973-1974 excavations. The nails are in bad condition and appear to be Spanish "seven" nails -- called "seven" because the shape of the head was forged off center to the shank. Nails of this type occur at Presidio Los Adaes near Robeline, Louisiana, and other Spanish settlements (Harris and Harris 1975). It is well known that nails became plentiful after 1757, and it seems off that only 33 nails have been found at Mission Rosario which was occupied after 1754. Clearing of the site in 1940-41 may account for this lack.

Tacks, 6: 2, east end Exploratory Trench 1; 2, surface; 1, Feature 1; 1, Backhoe Trench 2

All tacks are of the type which were used by Indians to drive into gun stocks or by the Spanish to make decorations on small wooden chests. The country of origin of these tacks is unknown.

Household and Personal

Bale Seal, 1: Backhoe Trench 4

This fragment of a lead bale seal came from a lead strap type bale seal and is the pull out section in the center of the lead disc. When the seal was clamped, a large "25" was left in the center of the round disc. A seal of this type is in the Jank Collection from Presidio Loreto La Bahia near Goliad. The country of origin of the seal is not known.

Container, 1 fragment: Trench 190

This fragment of the rim of an iron kettle is not large enough to determine the depth of the container, but it is probably part of a three leg cast iron kettle. These kettles were popular in the French and English trade during the third quarter of the 18th century, and many fragments are found on sites of the Norteño Focus dating from the 1750s through the 1820s to 1830s.

Knife, 1 fragment: Backhoe Trench 4 (Fig. 34F)

After this knife was cleaned, a small game cock was found stamped on the blade. This same stamp has been found by the writers on two other blades after cleaning: one, found by the writers at the Spanish Fort Site on Red River, Texas, and the other, cleaned by permission of Curtis Tunnell, State Archeologist, from Mission Espiritú Santo near Goliad, Texas.

This game cock appears to be the maker's mark of Pedro Fernandez who was trained in Madrid, Spain, as a gunsmith under Sebastian Santos. In 1762 Fernandez gave up gunsmithing in Madrid and transferred to the sword factory in Toledo, Spain where he died prior to 1795. According to Isidro Soler, Fernandez' countermark was a cock (Lavin 1965:141, 261). Soler, the last of the great Spanish gunsmiths, died in 1825, and he was probably correct in his statement concerning Fernandez. The time period from 1762 to 1795 fits with the occupation of Mission Rosario. The two knife blades from the Goliad area and one knife blade from Spanish Fort may indicate that Spanish Fort was obtaining Spanish material through the Goliad area.

Jew's Harp, 1: Exploratory Trench 1 (Fig. 34C)

This specimen is the frame of an iron Jew's harp. The Jew's harp is a small musical instrument consisting of two metal parts, a lyre-shaped frame and a slender iron vibrator (tongue) which is attached to the curve end of the frame head. The vibrator is not present

on this specimen. Jew's harps, some of which have the frame made of brass, have been found on many French, English, and Spanish sites.

Rings, 4, 2 of brass: Exploratory Trench 1; 2 of iron: Exploratory Trench 3, Feature 6

The two brass rings were European made. One fragment has most of the ring band missing, but the front of the ring is round with a truncated cone-shaped object in the center. The other fragment is part of the ring band. On one end of the ring band where the break occurred, there appeared to be some type of set.

The two complete native made rings apparently were made from iron wire.

Thimble, 1: Exploratory Trench 1 (Fig. 34D)

This fragment of a brass thimble has slightly tapering sides and a slightly convex top. All exterior surfaces are banded with small, round, or square impressions. Thimbles of this type have been found by the writers at Presidio Los Adaes and have been seen in collections from Norteño Focus sites. Similar thimbles were found in Spanish settlements in Arizona (Woodward in Di Peso 1953:205, 212), and at Fort Michilimackinac, Michigan (Stone 1974:162) where Stone called them English and assigned them a date between 1760 and 1780. At present it is not clear as to whether these thimbles originated in England or Spain.

Tinkler, 1: Structure 1

During the previous work at the Mission, two brass tinklers and one iron tinkler were in the collection or a total of four tinklers. The writers have observed that tightly rolled tinklers, such as these four, are usually found in sites dating after 1750. Tinklers were probably made by the Indians and were attached to clothing to make a pleasant noise when walking or dancing.

Military and Horse Trappings

The artifacts described under this category are: metal arrowpoint, buckle, buttons, and horse saddle trappings.

Metal Arrowpoint, 1: Exploratory Trench 2

This iron arrowpoint has the tip missing. Cleaning was not attempted because of the extremely rusty condition.

Buckle, 1: Backhoe Trench 6

This buckle has a figure eight shape and has no tongue. Buckles of this type occur at Presidio Los Adaes and other Spanish sites and is possibly Spanish military use.

Buttons, 4, 2 of white metal: Feature 3 and 9; 2 of brass: Trench 190 and Backhoe Trench 4

The two buttons of plain cast white metal are plain on the front with mold markings on the back. They are similar to Olsen's Type E button (Olsen 1963:552-553), which dates between 1750 and 1812. The fragmentary plain brass button has the eye broken off and cannot be typed. The front of a brass two-piece button is rounded and has an embossed six point design. The reverse side of the button is missing.

Horse Trappings

Several artifacts can be classified as horse trappings: bridle bit, chains, headstall plate, higos, and a spur fragment. All are made of iron and all are typical of the Spanish bridle and horse trappings.

Bridle Bit Chains, 7: 3, Backhoe Trench 2; 3, Backhoe Trench 4; 1, Trench 190

All of these fragments are in bad condition and no attempt was made to clean them. All seven specimens are typical of the Spanish "S"-shaped chain links. The writers have numerous examples of these type chains in their collections from Norteño Focus sites and such

Spanish sites as Los Adaes. One almost complete set of Spanish bridle bits is in the writers' collection from the Stone Site on the Brazos River in McLemman County, Texas. In this pair of bridle bits, the headstall plate was attached to the bridle bit frame with this type of chain.

Headstall Plate, 1: Feature 4 (Fig. 34G)

A very rusty iron crescent-shaped headstall plate was cleaned to see if any of the decorations were present. After cleaning, the impressions of three dots and three small humps were found on the inside curve, or top of the plate. The outside of the crescent, or bottom of the headstall plate, had the remains of eight holes which had higos or jinglers attached when it was in use. Some type of stamped design occurred around these holes, but the exact pattern could not be determined. The writers have several of these decorated headstall plates in their collections from Norteño sites.

Higos, 3: 2, Exploratory Trench 1; 1, unknown

The two complete and one fragmentary iron higos are in bad condition but were cleaned. One higo is teardrop-shaped and two are of the human hand type. The fist is closed and the thumb is placed between the index finger and the second finger from the thumb. The country of origin of the higos is Spain or Mexico (Harris and Tunnel in Bell, Jelks and Newcomb, eds., 1967: 107-109). Of the nine jinglers or higos found at Rosario, it is interesting to note that none of the higos is of the spoon type which occurs mostly after 1800.

Spur Fragment, 1: Feature 5

Because of the condition of this fragment of a heel plate and little possibility of any decoration being found, the piece was not cleaned. It appears to be similar to a heel plate found at Quiburi in Arizona (Woodward in Di Peso 1953:194-195). The country origin is probably Mexico or

Spain. The iron awl shown in Mission Rosario, Part I, Plate 27h (Harris and Harris in Gilmore 1974:77) is made from a Spanish spur heel plate.

Brass Handle, 1: Feature 6, Area A (Fig. 34E)

This handle is broken at one end. It was probably cast and was definitely filed to final shape. The configuration and other details suggest it is one of the handles from a box-top candle snuffer (wick trimmer). [This description made by Jay C. Blaine.]

Conclusions

Some of the artifacts described above are not datable, but some are definitely of the mission occupation period -- 1754 to 1807. Some are also of Spanish origin, being made in either Spain or New Spain (Mexico).

GUN PARTS AND RELATED ITEMS

Jay C. Blaine

Upper or intermediate ramrod guide fragment of brass;
Trench 190

This specimen is broken in the tubular portion with one pierced flange remaining and was formed from light sheet with no ribs or grooves. This guide is probably from a light fusil. Similar rampipes commonly occur on mid-18th century sites with gun parts and other items that exhibit French trade affiliations. Length, 1.9cm. Thickness, 0.3mm.

Gun screw, iron; Backhoe Trench 6

Top of head is rounded with beveled undersurface (countersinking). This particular kind of wood screw was used in securing butt plates to gun stocks during the 18th and the first half of the 19th centuries. Length, 3.9cm. Diameter of head, 1.13cm.

Gun trigger, iron; Trench 190

This trigger is severely oxidized and possibly incomplete in the upper portion. A trigger of this form would be more common to the 19th than to the 18th century.

Lead musket ball; Feature 9

The caliber is approximately .66 inches. Quite possibly this ball is of Spanish military origin. Musket balls of .665 caliber are listed among the military stores in Havana in 1771 (Brinckerhoff and Chamberlain 1972: p1. 19).

Lead sprue strip with two attached balls; Feature 2 (Fig. 34B)

The gang mold which produced this strip could cast at least seven balls at one time. Examination of the sprue suggests the mold contained at least one more ball cavity. Both balls (and probably the removed ones) are approximately .55 to .56 in caliber as determined by specific measurements (Blaine 1973:155). The gang (multiple) mold indicated suggests a military or other supplier type of source as opposed to an individual's need and personal equipment. The balls were individually removed from the sprue; there is no evidence of the multiple sprue cutter common by the late 18th century (Peterson 1961:47). Ball diameters of approximately 1.4cm (approximately .55 inches) are noted for sixteen of the twenty specimens cited by Woodward (1953:200, pl. 76) from the Quiburi site, Arizona. It is notable that only one ball over .55 caliber was found at Quiburi. This southwestern site of Spanish affiliation was abandoned by 1763 with some military oriented occupation to 1789 (Di Peso 1958:276). It appears probable that the principal firearms of soldier-guards at both Quiburi and Rosario would be the short "escopetas" favored by Spanish horsemen of the frontier posts (Brinckerhoff & Chamberlain 1972:26-27). Basically of civilian origin, many such weapons are smaller in caliber than regulation carbines and muskets. The inferred presence of a gang mold at Rosario, which cast .55-.56 caliber balls, together with the data from Quiburi, suggests these proposed "escopetas" were .58 or .60 in caliber (Blaine 1973:153, 158) and that "escopetas" of this caliber may have been preferred -- or furnished -- in significant numbers. Regretably, the survival rate of such Spanish guns actually used on the frontiers has been extremely low. More published results of documentary and archeological research are needed to secure better data in this field.

BEADS

R. King Harris and Inus Marie Harris

Glass Trade Beads. Nine glass trade beads were found in Spring 1973 and Spring 1974 excavations. Three small blue beads (Type 50) were found in the matrix underlying Feature 2A (wall fall). These beads can be placed into five types, as described on the "Harris Bead Charts" (Harris and Harris 1967:129-160, Fig. 52, 53).

Type	Number of Specimens	Provenience
46	2	Exploratory Trench 1 (Spring 1973)
48	1	Exploratory Trench 3 (Spring 1973)
50	3	Grave fill, Feature 2A
51	2	Feature 3; East end Exploratory Trench 1
95	1	Surface, access road to Highway 59

Types 46, 48, 50, and 51 were present in the collection analyzed previously (Harris and Harris in Gilmore 1974:69-71); Type 95 was not present. Description of the types taken from the "Harris Bead Charts" are as follows:

Type 46. Small, peacock blue, opaque, donut-shaped garter bead of simple construction. The glass of this bead has a vesicular appearance.

Type 48. Small, dark bluebird blue, translucent, donut-shaped garter bead of simple construction.

Type 50. Small, black, opaque, donut-shaped garter bead of simple construction. The glass is porcelain-like in texture.

Type 51. Small, red, opaque (outer layer), donut-shaped garter bead of compound construction. The outer layer of opaque glass is brick red, and the

inner layer is a translucent light green. This sort of bead is generally referred to as "Cornaline d'Aleppo."

Type 95. Large, olive green, translucent, donut-shaped, necklace bead of mandrel-wound simple construction.

Discussion

The number of glass trade beads in the Rosario collection is 281. Most of these are small seed beads and are not very definitive for dating. Type 51 does not occur after 1850, and Type 95 occurs between 1767 and 1820. Type 47 of the "Harris Bead Charts" is not present, but it does not occur after 1767. Thus, from the range of definitive bead types, the range of the occupation of the mission is indicated between 1767 and 1850.

Rosary Bead. A square, black jet rosary bead was found in Feature 6, Area A. It has two holes drilled through the middle for stringing, and the front face has four facets.

HUMAN SKELETAL MATERIAL

Barbara H. Butler

During the 1974 Field Season at the Mission, seven human skeletons were discovered. Of these, two were examined in the field and one was examined in the lab by the physical anthropologist and the resulting observations are presented in the following material.

The bones were lifted for examination during the field study, but generally the skeletons were carefully replaced and were covered afterward. Two factors contributed to the decision to handle these individuals in this way. The physical anthropologist was available to make the observations in the field. Secondly, since these two individuals represent a very small portion of the total number of people buried at the Mission, and since the entire question of the human remains from Rosario has not yet been formulated into a research problem, it seems irresponsible to remove these individuals from this location. The skeletal materials excavated during the 1940-41 excavations from this site are already located in numerous places, complicating attempts to study them.

The skeletons studied during the 1974 excavations were the remains of a young adult female (Feature 6, Area B), a child (Feature 6, Area C) about 2 years old at death, and an infant (Feature 2dd) between one and four months old at death. The age of the adult skeleton is based on the following characteristics: light wear patterns present on the teeth, the lack of fusion of the first and second sacral bodies, and the lack of fusion of the coronal suture. These were the only observations which could be made of characteristics used for age determination. The sex of the adult was determined by these characteristics: the general gracile nature of the remains, including delicate browridges and small mastoids; a sharp supraorbital area; and a wide sciatic notch (Anderson, 1963).

The age of the older child (Feature 6, Area C) is based on two criteria: the deciduous teeth were all

erupted except for the second mandibular molars (the maxillary molars were not present for study) and the anterior fontanelle was closed (Anderson 1963). The long bone size suggested the age of the infant (Johnston 1962).

Although the cranium and vertebrae had deteriorated to some extent following the excavation of the skeleton in that the bones had been excavated several weeks prior to the osteological analysis, the preservation of the adult skeleton was good. The preservation of both sub-adults was poor, the bones being fragile and only the child's teeth observable. No metrical observations of the adult cranium could be made, but a few measurements could be made of the infra-cranial elements. These, along with the non-metric observations of the adult female, are summarized below.

Characteristic	Side		Observation
	Right	Left	
Os Inca			absent
Sagittal Sinus Groove Curvature			left
Parietal Notches	x	x	present
Asterionic Bones	x	x	absent
Mastoid Foramina	x	x	single
Tympanic Plate: -dehiscence	x	x	absent
-exostoses	x	x	absent
-aperature orientation	x	x	vertical
Nasal Junction			round, no depression
Nasal Sill			sharp
Metopic Suture			absent
Frontal Grooves	x	x	absent
Supraorbital Area	x	x	groove notch
Frontal Foramen		x	present
Browridge Shape			delicate V
Marginal Tubercle	x	x	moderate
Zygomaxillary Foramen: -orbit	x	x	present, single
-face		x	present, single

The mandible was fragmentary at the time of analysis, but one observation was made. On the lingual aspect of the mandible just below the premolar area is a large fossa measuring about 2cms wide and 1cm high (Fig. 36A). The characteristic is expressed bilaterally. The only other mandibular observation which could be made on these fragmentary remains was the absence of gonial eversion.

The preservation of the teeth was good and all teeth were present except for the lower left first premolar which had been lost post-mortem. Dental health was good: no caries, no evidence of peridontal disease, and no abscesses were observed. However, there was a small amount of calculus observed near the gingival area on several of the teeth and pitting was observed on the mandibular left lateral incisor and canine about 2/3 above the cemento-enamel junction on the labial side. Except for the right lateral incisor which is almost barrel-shaped, the maxillary incisors are weakly shovel-shaped. Also, the maxillary lateral incisors are somewhat reduced; Carabelli's trait is absent from the maxillary molars; there is a pit in the groove between the protoconid and hypoconid of the second mandibular molar.

Although no observations were possible on the vertebral column, limited observations of the limbs could be made. The following table summarizes the metrical observations. Since the soft, cancellous bone on most of the long bones had deteriorated leaving only outlines and in situ relationships, the lengths of bones could not be accurately measured. All the areas of the post-cranial skeleton are represented, and none shows any evidence of pathological degeneration; however, a few non-metrical observations could be made. Although absent in the right, a septal aperture is present in the left humerus. The femora are delicate with no indication of either a third trochanter or an enlarged ridge. The facet of the left calcaneum is single with the left talar facet medial in position. Slightly distal to the mid-point of the shaft is a dark stain on the anterior surface of the left femur.

FEMUR (Left)	Post-Cranial Metrics		Index
	Measures		
Subtrochantric	A-P	25.0mm	Platymeric 79.4
	Lat	31.5mm	
Mid-shaft	A-P	28.5mm	Pilastric 116.3
	Lat	24.5mm	
Length		47 cm	

TIBIA (Left)

Mid-shaft	Lat	29.5mm	Platycnemic 66.1
	A-P	19.5mm	
Length		37.5cm	

FIBULA (Left)

Length		36.0cm
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The only observations possible of the fragmentary two year old skeleton were dental characteristics. The deciduous maxillary incisors are very weakly shovel-shaped, and the permanent teeth had not been fully formed in order to see this trait expressed in this dentition. Whereas, the hypoconid of the right mandibular deciduous second molar was split (Fig. 36), it was singular in the left deciduous second molar. No observations were possible on the poorly preserved infant.

The following chart outlines the osteological observations made by the archaeologists of the other four burials uncovered during their excavations. Generally, the osteological remains of these individuals were too fragmentary for detailed study.

<u>Feature Number</u>	<u>Age</u>	<u>Sex</u>	<u>Comments</u>
2E	Adult	?	Bone preservation poor, though the elements present represent a complete individual
2kk	Infant (less than one year)	?	Partial skeleton present
5	Young adult	F	Partial skeleton present -- skull and pelvis; skull later removed
14	Adult		Relatively complete skeleton represented; preservation good

Summary

The excavated remains of three individuals were studied by a physical anthropologist; two were analyzed and left in place at the Mission Rosario, one was removed for laboratory observation. A well preserved skeleton represented the remains of a young adult female, and the two very fragmentary skeletons represented the remains of a child about 2 years old at death and an infant between 1 and 4 months at death. More comparative data are needed from this burial area in order to determine whether the skeletons are of Indian or Spanish origin. The cause of death of all of these individuals is not apparent from the osteological remains.

ANALYSIS OF TWO SEGMENTS OF FALLEN STONE WALL
CONTAINING MURALS

Diana Lowery and Steve Zeman

In the Spring 1974 excavations (Fig. 1), two segments (Feature 2A, 2B) of stone wall which had fallen onto the floor were found in Feature 2. Most of the plaster on the segments seemed to be intact, but a few pieces were turned upright and several distinct colors were exposed. These segments were plaster jacketed, lifted, and taken to the Texas Archeological Research Laboratory, Balcones Research Center in Austin for cleaning and analysis. With the help of Don Hamilton, Texas Archeological Research Laboratory, the segments were removed from the plaster jackets, the painted plaster was repaired by mechanical means, and steps were taken to prevent further deterioration. The following describes the techniques employed in the removal, restoration, and conservation of the painted wall plaster. Following this is the mineralogical analysis of the paints and pigments by E. C. Jonas and Bill Hudson, Geology Department, The University of Texas at Austin.

Field Procedures

Dowman (1970:75) states: "When an object is not strong enough to be removed from the ground untreated or simply consolidated, it is sometimes necessary to provide a rigid support or encasement which will enable it to be lifted, transported, and stored until final treatment can be carried out. The purpose of this operation is obviously to ensure the safety of the object, and the materials used and the methods of their application and removal must be appropriate to this end. The strength of the material used will be relative to the size and weight of the object."

The "object" here are the two separate sections of fallen wall, Feature 2A (6 feet by 3 feet) and Feature 2B (6 feet by 2.5 feet). The segments were cleaned of rocks and mortar to within several inches of the suspected painted plaster. Plaster of paris mixed with water in a plastic (for easy cleaning) bucket was applied by dipping 2-inch strips of burlap into the mixture and laying the strips lengthwise and crosswise on the surface of the feature.

Two 2 by 4 boards were plastered into the jacket for additional stability.

After the plaster had dried and hardened overnight, the segments were pedestaled and cut under the floor through grave fill, dark brown sand and red clay. The inclusion of the floor acted as a protection for the painted plaster.

The segments were overturned and coated with plaster and burlap strips encasing the entire feature in a plaster jacket. Position and labeling were made directly on the jacket. The larger feature, 2A, weighed almost 1/2 ton and was removed with a wench.

The use of fungicides is extremely important when jacketing an object. Dowman (1970) recommends the use of chemical fungicides such as Dowicide 1 (orthophenyl phenol) or Dowicide A (sodium orthophenyl). The former is soluble in organic solvents (acetone, IMS, methanol, etc.) and the latter is soluble in water as well as in alcohol and acetone. Either is made up in very weak solutions, 1 percent normally being strong enough. Their main use is for the storage of damp organic material, but they can also be added to some consolidants during treatment of an object. They are not toxic to humans in weak concentrations. Dowicide A can be obtained at most nurseries. Formaldehyde, in a weak solution of less than 5 percent, can also be used. In this concentration, however, it may be toxic to humans. Formaldehyde can be added directly into the plaster of paris mixture, thus preventing bacterial growth on burlap, an organic medium of usually jute or hemp. Because of its accessibility, low toxicity, and water solubility, Dowicide A seems a good choice in fungicides.

The few pieces of painted plaster that were discovered face-up were wrapped in tissue paper, and as the paper was not treated with a fungicide, these few pieces were stained by mold growth because paper retains moisture and is a medium for bacterial growth.

As many artifacts have surfaces to which plaster cannot be directly applied, a layer of vaseline or, depending on the composition of the object, a layer of paper properly treated with a fungicide can be used to cover the surface before application of the jacket.

If plaster of paris is to be used on fragmented or damaged objects, the first layer can be colored with food coloring or bluing which will indicate nearness to the artifact. This layer can then be removed with greater care than the outer layers.

Laboratory Procedures

Removal of plaster jackets. Before the jackets were removed, photographs and drawings were made. Work on removing the jackets was begun from the side which was under the floor so that the painted plaster would be facing upward. The jacket on Feature 2B was removed in sections, but it was found that it could be removed in one section from Feature 2A.

Trowels, dental picks, toothbrushes, and paint brushes were used to excavate to the plaster level. Where artifacts were encountered, they were plotted in place. The matrix was wet screened. A blue bead, 5 teeth -- 2 in mandibular fragments -- and several stone flakes were found in the matrix of Feature 2B. A straight pin, green cloth, 3 beads, stone flakes and cuprous metal, possibly brass, were in the Feature 2A matrix. The metal shavings were proved not to be gold by an aqua regia test. Two partial grave outlines were recorded from Feature 2A.

Most of the bone was fragmented and fragile and it was treated with PVA₇ (polyvinyl acetate or gelva) before removal from the matrix. The PVA was mixed in 30 percent solution with acetone and applied with paint brush to the bone. PVA₇ was used in a 10 percent solution with acetone to treat all of the artifacts after their exposure to prevent further deterioration. The artifacts were submerged in the solution for 30 minutes, then placed on a piece of window screen directly above the vapors of consolidating solution to dry. This procedure prevents a gloss from forming on the surface of the artifacts. The process was repeated several times, allowing the artifacts to dry thoroughly before each treatment.

Two floors were under the matrix, one yellow tan and the other white. These were removed by small pneumatic drills or "chicago" scribes working in one direction. Care was taken because the surface of the painted plaster could have broken and buckled with the impact of the fall. Tests were made on Feature 2A to locate the surface of the plaster, and it was found a thin layer of dirt separated the floor from the plaster.

Cleaning. The exposed plaster was fragmented and care was taken to avoid brushing or vacuuming away the smaller pieces. These pieces, usually small, were consolidated immediately using a thick solution (30 percent) of PVA₇. Dirt and dust were also consolidated by this method, making final cleaning more difficult and tedious.

Work was begun on Feature 2B. A layer of whitewash coated most of the plaster, although a few colors were showing where the wash was thin. Where the whitewash was thick, flakes could be removed with a dental pick by gently lifting an edge. Dilute hydrochloric acid showed this was a lime wash.

Water and acetone, applied with paint brushes and tooth brushes to dissolve the whitewash, did not visibly alter the color of the underlying pigments. Small fragments were held in place with a dental pick while the acetone was applied. A problem arose using this method; when brushing on the acetone, dirt and dust located in the cracks between plaster fragments were pulled over the painted section, creating a film. Several, at least 4, applications of acetone removed this film, but this method could not be employed on soluble or "sensitive" surfaces.

Before removing the whitewash on Feature 2A, the cracks around the plaster were consolidated (20 percent solution PVA) in order to prevent a dirt glaze or film from forming when cleaning with acetone. After the consolidant was applied, the feature was vacuumed again. The whitewash was removed using dental picks, and tooth brushes, and paint brushes dipped in acetone. This method kept the contamination film down and cleaning was repeated only twice.

Consolidation. With the whitewash removed, the colors, although still dull, became visible. On Feature 2B, one coat of PVA₇, a moderate solution of 15 percent, was applied by paint brush, followed by two more coats. Two hours drying time was allowed between coat 1 and coat 2 while coat 3 was applied 24 hours later. The colors were much enhanced and the design became apparent. After the third coat, a glossy film which had formed on the surface was removed with acetone. If the surface of a painting is allowed to remain glossy, heat may cause eventual shrinkage or contraction, and the surface may become friable. A fourth coat of PVA was then applied, this being a dilute solution of about 5 percent. No gloss was apparent.

On Feature 2A, the mural colors and design were visible immediately after removal of the whitewash but were enhanced with the application of PVA. The colors in Feature 2B were dull compared to the vibrant reds, yellow, orange (possibly a combination of red/yellow), black, and white of Feature 2A.

Rather than using a 15 percent solution of gelva (PVA) on the surface of the plaster, a very weak solution of 5 percent was mixed in a large beaker, and this was poured over the plaster. The weak solution not only permeated the painted plaster but also penetrated the underlying jacket, creating greater stability. Several applications produced a slight gloss in spots, which was removed with acetone.

A major part of the work on the painted murals was concerned with restoration and conservation to restore and preserve the murals. In order to prevent deterioration, especially mold growth and to prevent possible physical loss of any fragments during moving or transportation, the choice of a consolidant was highly important. Don Hamilton of the Texas Archeological Research Laboratory recommended the use of polyvinyl acetate, also known as gelva and PVA, but suggested experimenting with other consolidants if they were available. Tests were conducted on several pieces of painted plaster and a segment of plaster that had been jacketed on the unpainted surface. Desirable properties in a consolidant Dowman (1970) lists as follows: (1) "reversibility is essential; therefore the use of epoxies, formaldehydes, polyesters, etc., is immediately eliminated; (2) lack of shrinkage is normally desirable but, as most of the thermoplastic resins set through loss of solvent, a certain amount of contraction is unavoidable; (3) degree of penetration; (4) strength; (5) compatibility of the solvent to the object must be considered, particularly when it is known that the resin will later be removed. The solvent must not have the power to remove part of the object, such as a layer of paint. (6) Practicability of use in certain circumstances will render advantages to some materials over others. The tendency of certain resins to gel at low temperatures may, apart from the inconvenience of having to keep them constantly over heat, prevent them from fulfilling their purpose in cold climates." Equally as important are the accessibility of the resin and the ability of the resin to resist mold growth, especially in a humid environment.

PVA₇, PVA₁₅, polyvinyl alcohol (PVAL) and butyl methacrylate were considered for experimentation. The later, however, has a tendency to cross-link (become irreversible) if exposed to strong light, and it has a low resistance to heat. Polyvinyl alcohol also has a tendency to cross-link when exposed to heat and light. A second disadvantage to using PVAL is that it is water soluble only and cannot be used effectively in a damp, humid environment. Consequently, the experiments were made with PVA₇ and PVA₁₅ -- the subscripts corresponding to the molecular weight. Lower

molecular weight is directly correlated with viscosity, giving deeper permeability, but may not give the strength desired. PVA, at higher molecular weight, has good stability to light, does not yellow when exposed to the elements, and does not cross-link. It has a variety of solvents "which include acetone and methyl ethyl ketone, lower alcohols, such as industrial methylated spirit (IMS) and methanol, members of the benzene series such as toluene and xylene, and esters such as amyl or ethyl acetate. It is convenient that acetone not only dilutes PVA, but also dissolves it, making the process reversible. PVA also is resistant to mold growth" (Dowman 1970).

Experiments were begun by submerging one-fourth of the isolated plaster pieces in PVA₇ and one-fourth in PVA₁₅. Those submerged in PVA₇ immediately began bubbling as penetration took place. The PVA₁₅ solution was more viscous and the bubbling action was slower. All pieces were removed when bubbling ceased and placed on a wire screen above the resin vapors. This helped to keep a surface film or gloss from forming. The process was repeated several times with ample drying time of 2 to 24 hours between saturations. After the last drying period, two pieces in each group were cut in half. The pieces in PVA₇ showed thorough saturation, and did not crumble when cut. The pieces in PVA₁₅ had a slightly lighter center, indicating incomplete penetration, but held together well when cut. The piece of untreated plaster cracked readily when cut.

As a result of the experiment, it was decided to use several coats of PVA₇ (at a 5 percent to 15 percent solution) on a small section other than Features 2A and 2B. As this was successful, PVA₇ was then applied to Features 2B and 2A. The solution was reduced from 15 percent to 5 percent to prevent surface gloss from forming which later could cause shrinkage.

It is worthwhile to note that some plastics dissolve in acetone, hence PVA. Polypropylene and polyethylene do not dissolve in acetone, but polycarbonate disintegrates readily. Natural bristles are not affected by acetone or PVA.

Chemical and physical tests. Answers to remaining questions could only be supplied by chemical and physical tests. Those questions were:

1. The whitewash: did it contain any gypsum suggestive of a gesso? A simple HCl test performed earlier indicated a high CaCO₃ content, but further chemical testing was needed.

2. The floors: what accounted for the differences in coloration and what are the major constituents?
3. The plaster: what is the particle size variation and does it indicate selectivity for a certain grain size?*
4. The pigments: are they organic or inorganic, and how many separate and distinct colors are present? Red, yellow and white were known, but the brown and orange colors may have been from overlapping of primary colors or possibly from fading. There was uncertainty about the black or blue. Was it carbon black, copper, or indigo blue? Indigo was known in Mexico at this date and used as a dyestuff, but it was expensive and not abundant

Dr. E. C. Jonas and graduate student Bill Hudson, Geology Department, The University of Texas at Austin, analyzed the material for answers to these questions, and their report follows this section. Briefly, some of their findings are as follows. The whitewash contained no gypsum. A second test performed at North Texas State University at Denton confirmed this result.

The white floor contained the following minerals in decreasing order of abundance: calcite, quartz, and montmorillonite. The yellow tan floor contained quartz, calcite, montmorillonite, kaolinite, and illite, also in decreasing order of abundance. The color difference in the floors is due to the clay mineralogy and the greater amount of calcite in the white floor.

The results of the pigment tests showed the dark color to be black, geothite being the main mineral constituent. Hudson commented that some charcoal was present, but not enough to consider the sample to be "carbon black."

The white pigment was calcite, probably lime white originally before reacting with the atmosphere. It is interesting to note calcium carbonate, when used as a pigment or extender, reduces the likelihood of mold growth. "It is not directly toxic but imparts a high degree of alkalinity to the paint film, an adverse condition for mold growth" (Dowman 1970). Early accounts of Mission Rosario state that the walls were continuously dripping due to the dampness or high humidity. The painted plaster showed no evidence of mold growth when exposed, possibly

* Textural analysis was made but not used at the request of E. C. Jonas.

due to the alkaline state of the whitewash. Most of the common pigments are inert to mold growth. Red or brown paints containing iron oxide, however, are usually severely attacked.

The Murals

The primary colors of white, black, red, and yellow were established. The red pigment was derived from a ferric oxide, commonly known as hematite; the yellow pigment is hydrated iron oxide or limonite. These oxides can be found in sedimentary rock, in some metamorphics and in metasomatic deposits. Mission Rosario is located in an area where two geologic formations, the Goliad and Willis, overlap. Since these are composed of shales, sandstones, and alluvial sand, the pigments could have come from the immediate area. The black pigment, geothite, may have been a trade item since there are no known deposits near Goliad.

The primary colors were painted over as brown, orange, and salmon. Yellow or black gives a green to bluish color. The best example of this overlapping is shown in Feature 2A floral patterns (Fig. 13 and cover). The pigments in Feature 2B are duller and lighter than those of Feature 2A, possibly due to fading.

Both murals contained similar elements of design. Both had "lunettes" or half circles scored with a compass point located at the center; these "lunettes" were situated above a horizontal red bar in both. The scored half circles were uniform, although the colors which were applied in them went out of the scored lines giving them an uneven look. One wonders why such care was taken when scoring and then the painting was carelessly done in spots -- large drips appear throughout the painting. The free form and colors in the mural may suggest the Indians painted it after it was scored. Nonetheless, the floral patterns are stunning, and one can only surmise how beautiful the whole room must have been.

Essentially, Feature 2A consists of floral designs separated by 2 vertical bars (each a different color) with a red horizontal stripe that runs above the bars and flowers. Scored "lunettes" are continuous across the top of the red stripe. The flower and bar pattern is repeated twice with fragments of a third showing. In Feature 2B, only the light red (salmon) horizontal stripe with scored "lunettes" again situated along the top are present. Where the "lunettes"

are continuous in Feature 2A, they are separated by a vase or floral design in Feature 2B. There was not enough of the design in Feature 2B to state that the pattern is repeated.

Latched wooden boxes were made for the murals, and they are stored at the Texas Archeological Research Laboratory, Balcones Research Center, Austin. The murals were not treated with fungicide and will be susceptible to bacterial growth unless they are treated with the proper one.

The writers wish to thank Dr. Dee Ann Story, Texas Archeological Research Laboratory, for providing space and equipment to work on the murals. Dr. Don Hamilton, Texas Archeological Research Laboratory, was most helpful in guiding us through the various stages of work. He explained detailed techniques with patience, furnished pertinent literature, and had enthusiasm that can only be described as infectious. We also would like to express our appreciation to Pete Farmer, photographer, Steve Rodgers, and Charles Lockey for answering our endless questions.

Mineralogical Analysis of Floors and Pigments

E. C. Jonas and Bill Hudson

Procedure for Mineralogical Analysis

Several techniques were employed in order to determine the mineralogy of the various samples. The first set of analyses were made by simply placing a piece of the whole sample (pigments on plaster) in the sample holder of the X-ray diffractometer and scanning from 10-70 degrees two theta, using $Cu K\alpha$ radiation (wavelength 1.54A). The whitewash and floor samples were ground to about 300 mesh, placed in aluminum sample holders, and scanned on the diffractometer in the same fashion.

This procedure, however, only produced conclusive qualitative analysis for the plaster and granular minerals on the floor samples. The concentration of the pigments was apparently not great enough to produce distinct peaks. Smear slides of the pigments were made in the following way:

1. Carefully scrape about 4 cm^2 of the pigment from the plaster.

2. Place the pigment in a mortar, grind with a pestle until the mixture is the consistency of talcum powder.
3. Add enough distilled water to produce a pasty solution, mix thoroughly, and smear onto a glass slide. Allow the slide to air dry.
4. Place the slide in the sample holder of the diffractometer and scan from 2-70 degrees two theta.

This technique was also used for the floor samples, and reasonable data were collected for the clay mineralogy of the floor samples. The pigments, however, were still apparently not in strong enough concentration, or the calcite and quartz peaks (of which there are many) were hiding the critical d-spacings of the pigments. Further concentration of the pigments was made by reacting the previously concentrated pigments with 1 percent HCl solution (by volume). This eliminated the CaCO_3 . CaCl_2 was removed by washing the samples with distilled water. Again, smear slides were made and diffraction was run from 2-70 degrees two theta.

With the data from the concentrated pigments, several verifications became necessary. The clay mineralogy of the floor samples contained montmorillonite, but varying expansion between the particles made it difficult to derive infallible conclusions. This problem was attacked by heating the floor smears to 300 degrees centigrade for an hour (in order to remove the molecular water that was causing the expansion) and diffracting while the slides were still warm.

The yellow pigment still had not produced distinctive peaks (which would be due to an amorphous substance), so it was heated to 500 degrees centigrade (again to remove H_2O) and then diffracted. Hematite was found in the heated yellow pigment which implies that it had been limonite, an amorphous hydrated iron oxide. This heating procedure was followed with all of the pigments which had not yet produced distinct peaks. Each of the orange-red, red, brown, and black pigments produced hematite before or after the heating.

To determine the percent CaCO_3 and others (including quartz, feldspar and all insoluble residue), the following wet chemical analysis was performed:

1. Carefully weigh out a dried, powdered quantity of the sample.

2. Place in a 200ml beaker and react with 2 percent HCl solution (by volume) until carbonate has all dispersed.
3. Wash with distilled water (centrifuging between each wash and decantation) until all CaCl_2 is removed (test with AgNO_3).
4. Calculate the weight percent CaCO_3 .

Mineralogical Analysis

Sample	Minerals, in decreasing order of abundance
Plaster	quartz, calcite, montmorillonite, kaolinite, orthoclase
whitewash	calcite...this was probably white lime which reacted with the atmosphere to form calcite
white pigment	calcite, montmorillonite, quartz...also probably originally white lime
white floor	calcite, quartz, montmorillonite
yellow floor	quartz, calcite, montmorillonite, kaolinite, illite
yellow pigment	limonite, possibly some other hydrated iron oxide*
brown pigment	hematite, quartz, calcite, montmorillonite, possibly some other iron oxide*
red pigment	hematite, quartz, calcite, kaolinite, chamosite? possibly some other iron oxide*
orange-red pigment	hematite?, quartz, calcite, kaolinite, chamosite? possibly some other iron oxide*
black pigment	goethite, quartz, calcite, montmorillonite, possibly some other iron oxide* illmenite?

* goethite	$\text{FeO}(\text{OH})$
maghemite	Fe_2O_3
wuestite	FeO
lepidocrocite	$\text{FeO}(\text{OH})$
magnetite	Fe_3O_4
hematite	Fe_2O_3

Adjusted Gross Chemical Analysis: (based on wet chemical and diffraction tests)

Sample	CaCO ₃	SiO ₂	Clay, Feldspar, etc.
yellow floor	31	40	29
white floor	60	30	10
whitewash	93	4	3
plaster	41	44	15

EXPERIMENTAL PLASTER AND WALL STABILIZATION

Because information on plaster and wall stabilization is limited, and effective stabilization depends on local conditions, permission was obtained from Historic Sites and Restoration Branch Texas Department of Parks and Wildlife to conduct experiments which would have long range applications.

Experiments on wall stabilization were done by Wayne Roberson, Historic Sites and Restoration Branch, and those on paint and plaster by George Nelson.

Wall Stabilization

Five Tests were made as follows:

Test 1. South 110 East 23, mup cap with stones laid Dec. 9, 1974; weather, cool, damp, no rain. About one foot of stones was added to the wall as a cap. They were laid with red sandy clay mixed with water. No temper was added. After 2 days the mortar had cracked, but it had not washed away with rain nor was it badly weathered.

Test 2. South 120 West 23, mud cap with stones laid Dec. 10, 1974; weather, drizzle, temperature about 45°F. About one foot of small and large stones were laid with mortar of red sandy clay; brown sandy loam was also used alone. Water was added to these two mediums but no temper. Yellow sand was thrown onto and mashed into the mortar after the stones were placed to give a more pleasing visual effect. Although the stones were laid in a slow rain, no appreciable damage was noted the following day, except some small cracks about 1/16 inch in diameter. On top of this course of stones another one was laid with a mortar mixed of one part hydrated lime to 6 parts yellow local sand with water. Sand was also thrown on this mortar.

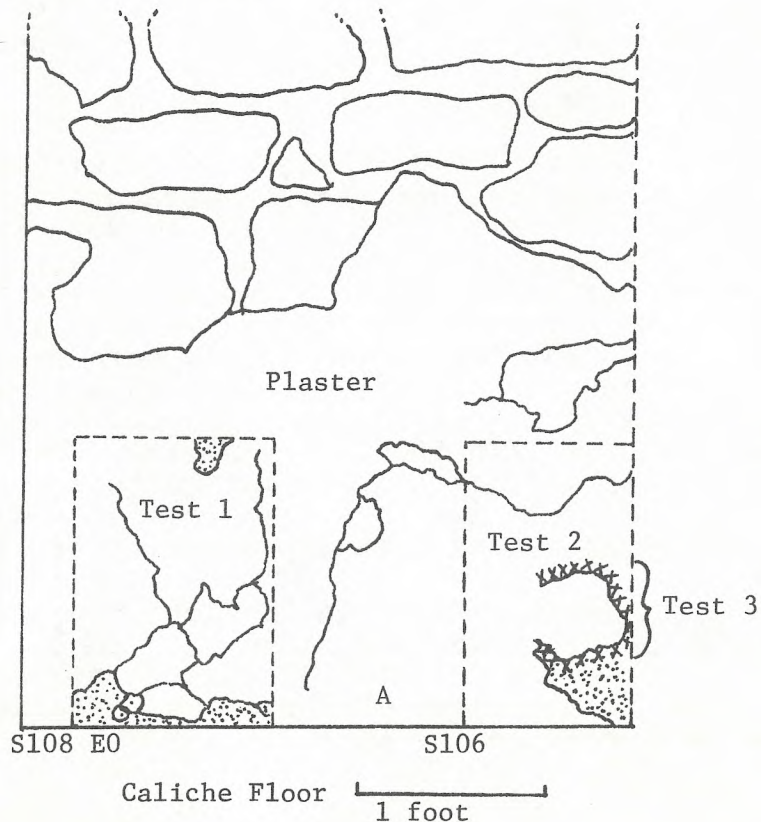
Test 3. South 94 West 66, caliche cap of 3 stones and chinking pebbles; weather, sunny and cool. These stones were laid with a mortar of caliche mixed with enough water to make it workable. Red clay was used as a base. No cracks were visible the next day.

Test 4. South 110 East 23 (same location as Test 2). Ten parts of red sandy clay were mixed with one part Liquitex plain acrylic medium and sufficient water to make a putty-like consistency. This was laid on with a 6-inch pointing trowel. The next day the mortar was cracked, possibly because no extra temper was added. Three small stones were laid with this mortar and some pointing was also done.

Test 5. South 101 West 01, Dec. 11, 1974; weather, cool, sunny. Putty-like mortar was made from a mixture of one part Liquitex plain acrylic medium with five parts red clay. No temper was added. Cracks were noticeable on the following day, but these were not as apparent or as many as at Test 2. Sand and soil were thrown onto the wet mortar for a more pleasing visual effect. After 24 hours the sand and soil were brushed to remove excess material.

Plaster Stabilization

Liquitex matte medium (acrylic polymer emulsion, flatted with collodial silica) made by Permanent Pigments, Cincinnati, Ohio, in varying concentrations was used in three places on fragments of plaster adhering to the wall in Room 3 near the plugged-in door. A nearby untreated fragment can be used as a control. Locations of these tests are on the sketch below.



Test 1. A section 1 foot wide, extending to 1.5 feet above the floor is mostly intact, but has many cracks, except about 0.2 feet above the floor where the plaster is absent. This section was painted with a mixture of 1/4 matte medium and 3/4 water. The cracks were painted with 100 percent matte medium to attempt to keep them in place.

Test 2. This section is about 0.75 foot in width and extends to 1.5 feet above the floor. The north edge is the plugged-in door. The area was painted with a mixture of 1.3 matte medium and 2/3 water.

Test 3. Matte medium full strength was put around three sides of a very loose piece of plaster.

Point A, above, plaster can be used as a control. The plaster is in good condition with no vertical cracks. A few flakes of red paint are adhering.

ANIMAL BONES

1973 Season - Billy Davidson

Unidentified fish 24 individuals

Fish bone comprises the third most common group of identifiable bone recovered from the site, being less than bovid and deer material as far as number of individuals is concerned. All of the individuals recovered during the 1973 field season weighed over 1 pound, but due to the lack of 1/16 inch screen samples this may be misleading. The material is usually complete; no specimens show any signs of cutting or gnawing.

Garfish Lepisosteus spp. 2 individuals

Gar are quite common in the San Antonio River today, and the presence of this fish is not surprising. Both individuals are large, one weighing 20(\pm 5) pounds, and the other 25(\pm 5) pounds. Gar material has been recovered from several other mission sites in Texas.

Blue catfish Ictalurus furcatus 4 individuals

Blue catfish inhabit large rivers from Minnesota and Ohio southward into Mexico (Eddy 1957). They are quite common in the San Antonio River today.

Flathead catfish Pilodictis oliveris 1 individual

Flathead catfish are found in large rivers from the Mississippi Valley into Mexico (Eddy 1957). They have been recorded from the San Antonio River in recent years, and the presence of this species is not surprising.

Alligator Alligator mississippiensis 2 individuals

Alligators can be found in the rivers and swamps of the low coastal region from North Carolina, throughout Florida, and westward to the Rio Grande in Texas (Ditmars 1936). Alligator material has been recovered from several other mission sites in Texas.

Snapping turtle Chelydra serpentina 1 individual

Snapping turtles are found from southern Canada, Nova Scotia, and the United States, to the Gulf of Mexico and westward to the Rocky Mountains. This species is quite common in the San Antonio River today, and has been recovered from mission sites in Texas.

Slider turtle Pseudemys spp. 6 individuals

Two species, Pseudemys scripta and P. concinna, are found in the area today, and Pseudemys material is quite common in several Texas mission sites.

Softshell turtle Trionyx spp. 4 individuals

Trionyx spinifer occurs in the area today and is quite common in the San Antonio River. Softshell turtles have been recovered from other Texas mission sites.

Unidentified ducks Anas spp. 6 individuals

Some of the material recovered from the site approaches domestic European ducks in size, but the material is too fragmentary for specific identification. Wild ducks are quite common in the area today.

Unidentified heron Ardea spp. 5 individuals

The numerous occurrences of heron bone in the site were somewhat surprising. There are no known records of herons being hunted as a food source, but the numerous occurrences tend to indicate this may be the case. Many of the specimens show signs of gnawing and cutting which could be indications of food preparation. Herons are common on the San Antonio River floodplain.

Chicken Gus spp. 11 individuals

The material is identical to recent material in the vertebrate collection of the Texas Archeological Research Laboratory, Austin.

Turkey Meleagris gallapavo 24 individuals

The material is too fragmentary to distinguish between domestic and wild birds. Wild birds are common on the floodplain of the San Antonio River.

Dog or Coyote Canis spp. 4 individuals

The material is too fragmentary to distinguish between domestic dog and coyote.

Domestic dog Canis familiaris 2 individuals

Domestic dog material is a common member of Texas mission faunas.

Mink Mustela vison 1 individual

Mink have been recorded from the San Antonio River Valley historically.

Black bear Ursus americanus 3 individuals

Black bears were numerous and widespread in Texas until recently expanded hunting pressure eliminated them from the area. The three individuals are all represented by foot elements; no long bones or teeth were recovered.

Raccoon Procyon lotor 1 individual

Raccoons are common on the wooded terraces of the San Antonio River today, and the presence of this species is not surprising.

Packrat Neotoma sp. 1 individual

Neotoma floridanus and N. micropus occur in the area today, and the presence of these rodents in the fauna is not surprising.

Beaver Castor canadensis 2 individuals

Beaver are widespread in the large Texas rivers, and their presence in the fauna of a mission site is not unusual.

Jackrabbit Lepus californicus 1 individual

Jackrabbits are very numerous in the area today.

Domestic pig Sus scrofa 1 individual

A jaw of a subadult pig is the only specimen of this species recovered during 1973.

Sheep Ovis spp. 3 individuals

One juvenile and two adult specimens representing domestic sheep were recovered during the 1973 field season. Both long bone specimens show cut marks indicating the individuals were butchered.

Domestic goat Capra spp. 16 individuals

Domestic goats are the fourth most common animals in the fauna. Specimens range from juvenile to old adults, with no concentration of bone of animals of any particular age.

Pronghorn Antilocapra americana 5 individuals

This is the second known record of the recovery of this species from mission sites along the San Antonio River (Gilmore 1974). The species today ranges well to the west of the area, but historic records indicate a few animals were present in the area in the early 1800's.

White-tailed deer Odocoileus virginianus 27 individuals

White-tailed deer are very common in the faunas of Texas mission sites and today range over the entire state. The high number of individuals tend to indicate a fairly heavy reliance on wild game to supplement the domestic livestock as food.

Cattle and ? Bison Unidentified bovid 124 individuals

Bovid bone comprises the bulk of the material from the 1973 field season. The material contains two distinct types: (1) numerous small; and (2) a rarer large form. No material which could be definitely assigned to bison was recovered during 1973. The small form was usually allowed to mature before slaughter, but the larger form is represented by subadult and juvenile animals. Most adult specimens of the larger form show signs of old age. Perhaps this larger form was either slaughtered before it reached an unmanageable size or kept as a draft animal.

Horse Equus caballus 12 individuals

Domestic horses are to be expected in the faunas of mission sites.

References Cited

- Ditmars, Raymond Lee
1936 The reptiles of North America. Doubleday-Doran,
Inc., Garden City, NY.
- Eddy, Samuel
1957 How to know fresh water fishes. W. C. Brown Co.,
Dubuque, Iowa.

ANIMAL BONES

1974 Season - Barbara H. Butler

The sample of non-human skeletal elements was increased by 10,169 elements during the 1974 field season. The preservation of the bone is excellent, however, most bones are broken. Some are recent breaks, resulting of post-excavation handling, and some are old breaks, resulting from butchering practices of the mission occupants, excavation disturbances by the 1940-41 excavations or by natural post-depositional forces.

Of the 10,169 elements excavated, 1,120 (11.0%) were identifiable. Only 2.7 percent (373/10,169) were burned and most of these were unidentifiable fragments of bones from large mammals. Many immature bones were recovered and these greatly influenced the number of bones which are identifiable in that it is tenuous at best and usually impossible to correctly identify the species of immature bones.

The general character of this sample is similar to those excavated during previous field seasons. Large domestic mammals dominate the sample. Cow (Bos taurus) is the most common and sheep/goat (Ovis/Capra) are second in frequency. In contrast with previous seasons few horse (Equus caballus) bones were recovered. Another similarity with the past excavations is the high frequency of immature individuals probably representing domestic forms. The wild mammals such as deer (Odocoileus sp.), pronghorn antelope (Antilocapra americana), rabbit (Sylvilagus sp.) are present in lower frequencies. Although the non-mammalian sample is small, all four of the other classes of vertebrates are represented. The following summarizes the number and percent of each represented here.

	Number of Fragments	Percent of Identified Sample
Mammal	721	64.4
Bird	187	16.7

Reptile	65	5.8
Amphibian	10	.9
Fish	137	12.2
TOTAL	<u>1,120</u>	

Of the total mammal sample, about 600 elements or 83.2 percent represent Bos. Based on the left calcaneum (which was the most frequent single element present), a minimum of 6 individuals are represented here. In contrast with the remains recovered during the previous excavations, only one Equus is represented by the elements recovered during the 1974 season.

Two age categories of Bos were distinguished: sub-adult and adult. Sub-adult elements are defined for these purposes as bones with incomplete fusion of epiphyses, but otherwise have approximate adult size and morphological characteristics. Adult bones are defined as those which have completely fused epiphyses and are of adult size. Also present are elements of immature individuals which are probably Bos. Immature bones are those which are porous, have indistinct morphology, and are small. Elements of immature individuals are difficult to identify for two reasons: their adult size is unknown and thus too easily confused with other species, and the distinctive morphology is not developed.

One notable characteristic of this Bos sample is the high proportion of sub-adult bones. Of the 600 elements, 168 (28.0%) could not be identified to age, but of the remaining 432, 182 (42.1%) are from sub-adults.

From the range of species represented in the 1974 sample plus those from previous excavations, it is obvious that both domestic and wild forms were being utilized by the inhabitants of the mission. The domestic forms, including cow, horse, sheep/goat, and pig, were far more common than were the wild forms including deer, pronghorn antelope, bear, rabbit, beaver, catfish, snapping turtles, and various birds. It is possible that this dichotomy of animal exploitation represents the differences in food preferences between the European (Spanish) palates and the native American tastes. If this sample is representative, a very stable, European dominated food procurement system is suggested.

An unexpected ratio of turtle shell to post-cranial elements is represented by this sample. Of the 55 pieces

of turtle fragments, only 22 of these are carapace/plastron elements. It is unusual for the post-cranial elements to be more frequent than the shell fragments, in archeological contexts. At least three turtles are represented by these remains: soft-shelled turtle (Trionyx sp.), snapping turtle (Chelydra serpentina), and cooter (Pseudemys sp.).

In contrast with evidence from aboriginal Indian sites, bone was not used frequently as a source for tools at this mission site. From the 1974 season, only one bone tool was identified; it is made on a rounded and polished bone splinter. A groove was incised along the length of the shaft; the tool is 58cm long. Also, there is little evidence for bone being worked into decorative items. One bird bone that had been worked and possibly used as a bead was recovered. One end of the bone is clearly cut and polished, but the other end was broken prior to this year's excavation. This piece is 29mm long.

For a more complete picture of the utilization of animal resources at this mission, this sample needs to be integrated with those of past years. With the complete sample answers to such questions regarding butchering techniques, relative proportions of species utilized for food resources, amount of usable meat represented by these osteological remains, significance of horizontal distributions, and other such interpretations can be attempted.

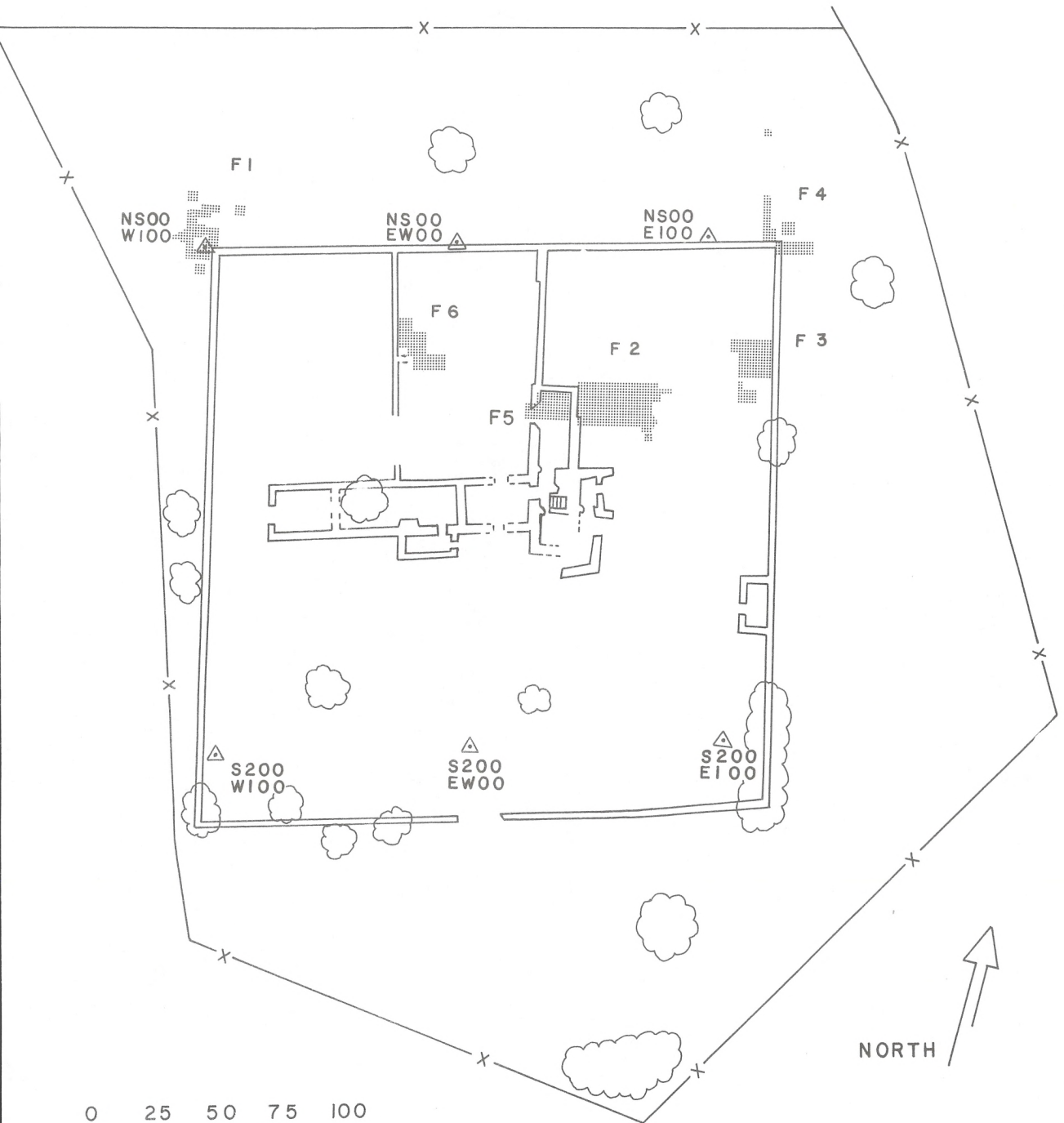
Appreciation is extended to Stephanie Howard and Nancy Reese without whose help this analysis could not have been completed.

NUMBER OF INDIVIDUALS

	1973	Spring 1974
BIRD		
Chicken (<u>Gus spp.</u>)	11	13
Duck (<u>Anas spp.</u>)	6	9
Hawk (<u>Bunto spp.</u>)		1
Heron (<u>Ardea spp.</u>)	5	3
Mockingbird (<u>Mimus polyglottos</u>)	1	2
Roadrunner (<u>Geococcyx californicus</u>)		1
Turkey (<u>Meleagris gallapavo</u>)	24	36
AQUATIC		
Catfish (<u>Ictalurus spp.</u>)		2
Blue (<u>Ictalurus furcatus</u>)	4	5
Flathead/yellow (<u>Pilodictis oliveris</u>)	1	4
Gar (<u>Lepisosteus spp.</u>)	2	5
Unidentified Fish	24	26
SMALL TERRESTRIAL AQUATIC		
Frog (<u>Rana sp.</u>)	1	1
Turtle		
Box (<u>Terrapene spp.</u>)	3	5
Slider (<u>Pseudemys spp.</u>)	6	20
Snapping (<u>Chelydra serpentina</u>)	1	1
Soft-shell (<u>Trionyx spp.</u>)	4	10
Unidentified Turtle	3	
LARGE TERRESTRIAL AQUATIC		
Alligator (<u>Alligator mississippiensis</u>)	2	3
SMALL TERRESTRIAL		
Armadillo (<u>Dasypus novemcinctus</u>)	2	5
Beaver (<u>Castor canadensis</u>)	2	7
Coyote or Dog (<u>Canis spp.</u>)	4	4
Dog (<u>Canis familiaris</u>)	2	2
Goat (<u>Capra spp.</u>)	16	31
Mink (<u>Mustela vison</u>)	1	1
Opossum (<u>Didelphis marsupialis</u>)		1
Packrat (<u>Neotoma spp.</u>)	1	1
Pig (<u>Sus scrofa</u>)	1	2
Rabbit		
Cottontail (<u>Sylvilagus floridanus</u>)	1	1
Jackrabbit (<u>Lepus californicus</u>)	1	4
Raccoon (<u>Procyon lotor</u>)	1	1
Sheep (<u>Ovis spp.</u>)	3	6
Striped Skunk (<u>Memphitis memphitis</u>)	1	1
LARGE TERRESTRIAL		
Black Bear (<u>Ursus americanus</u>)	3	5
Deer (<u>Odocoileus virginianus</u>)	27	52
Horse (<u>Equus caballus</u>)	12	17
Pronghorn (<u>Antilocapra americana</u>)	5	7
Unidentified Bovid	124	179

FIGURES

MISSION ROSARIO (41GD2)
SPRING 1974 EXCAVATION AREAS



0 25 50 75 100
SCALE IN FEET
F=FEATURE

NORTH

1915

Fig.1

MISSION ROSARIO (41GD2)
FALL 1974 EXCAVATION AREAS

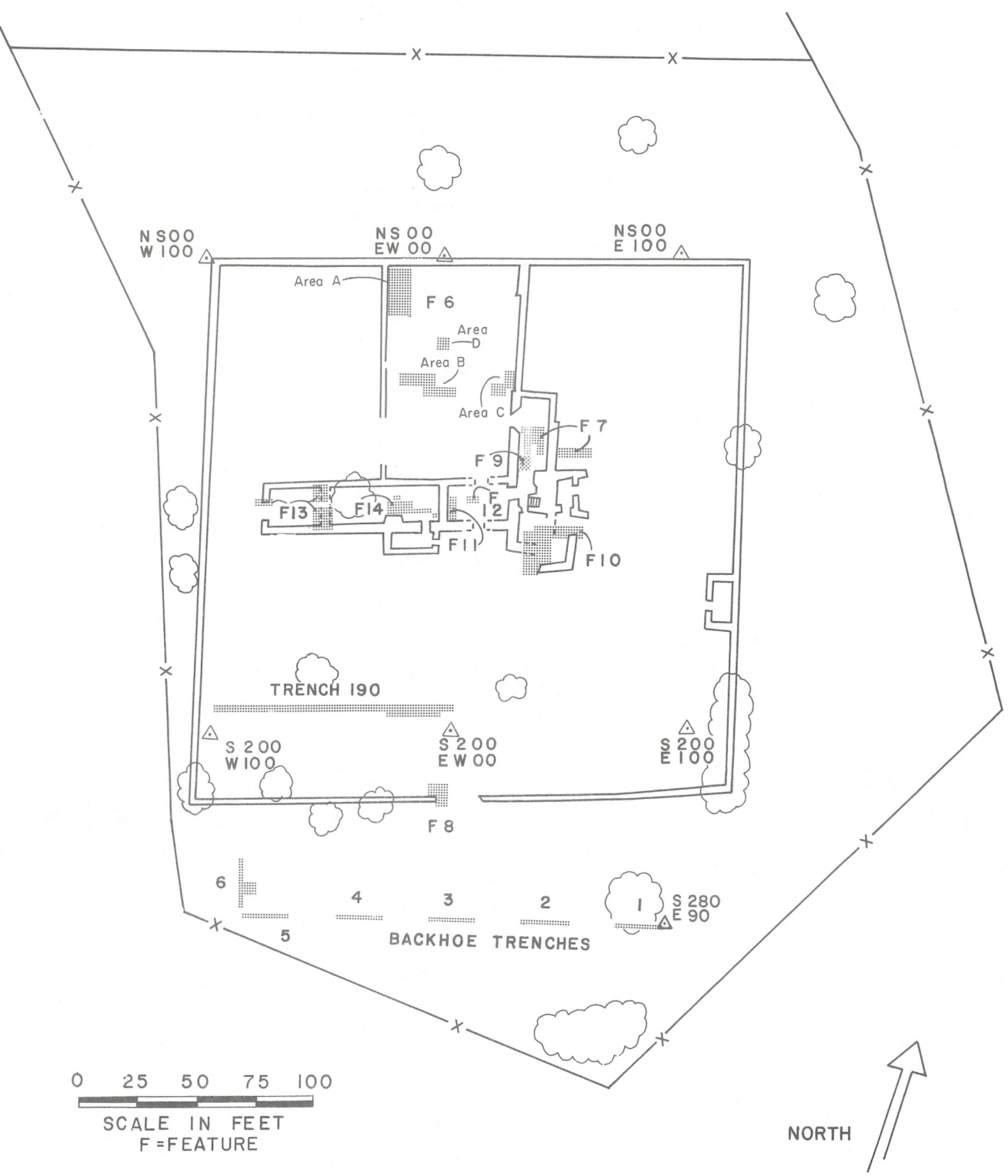


Fig.2

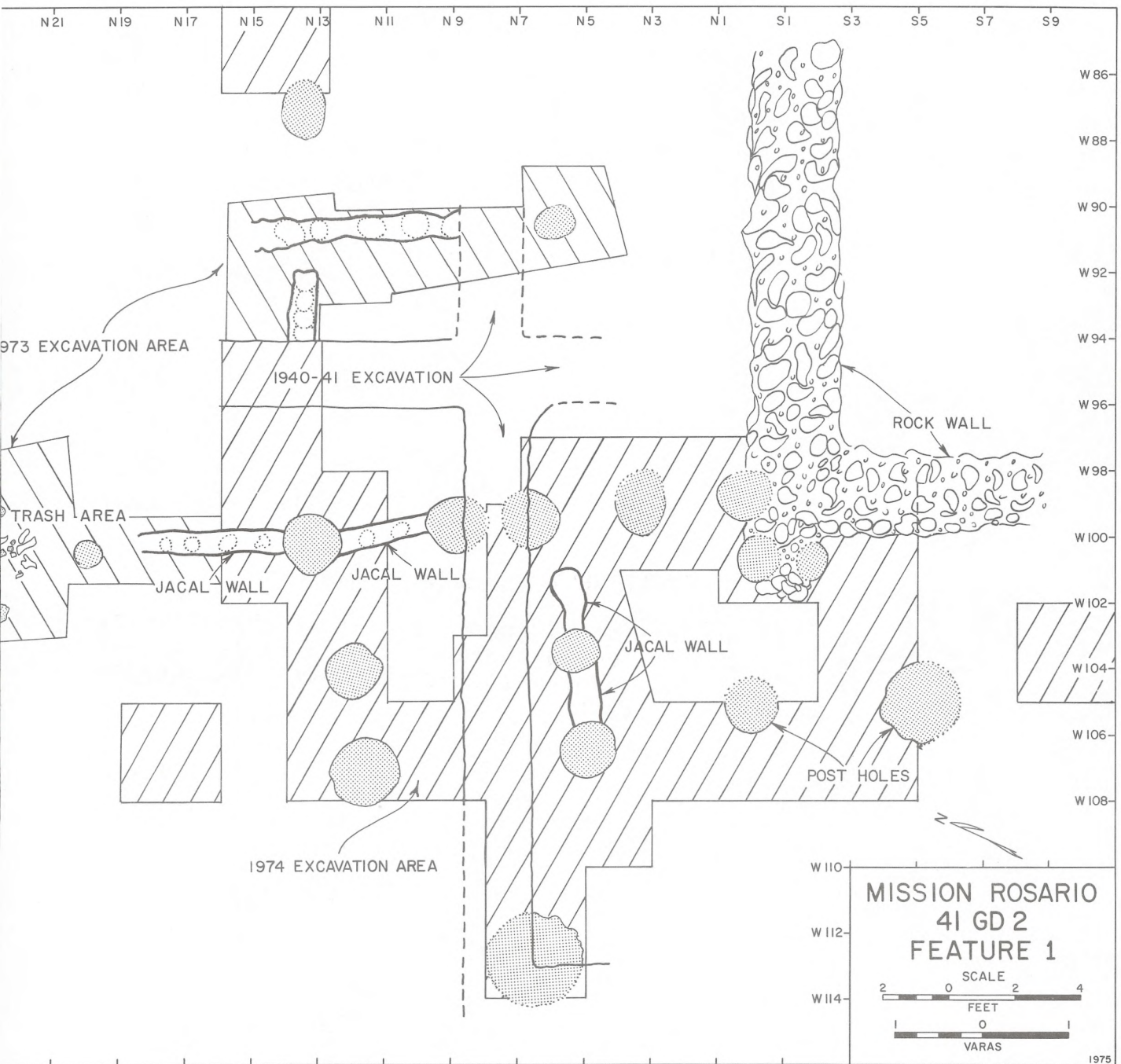


Fig. 3

Fig. 4. FEATURE 1 (scale in inches)

- A. Postholes under wall at northwest corner
- B. Filled posthole or rubble filled trench
under wall, South 5 West 99, looking
east



A



B

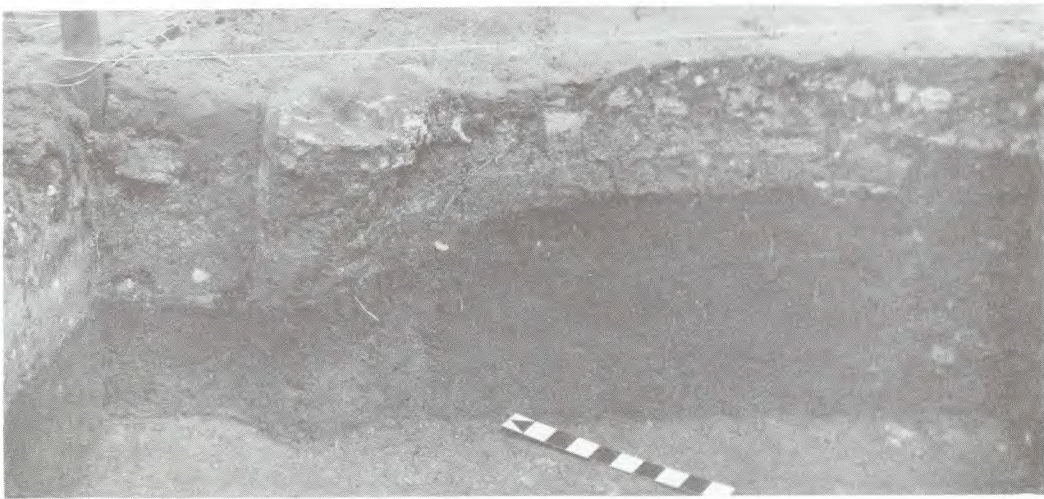
Fig. 4

Fig. 5. FEATURE 2 (scale in inches)

- A. Feature 2E, looking north, showing grave pit refill on right, and floors above
- B. Feature 2E, grave pit on left under floors; Feature 2U grave pit on right cutting two floors



A



B

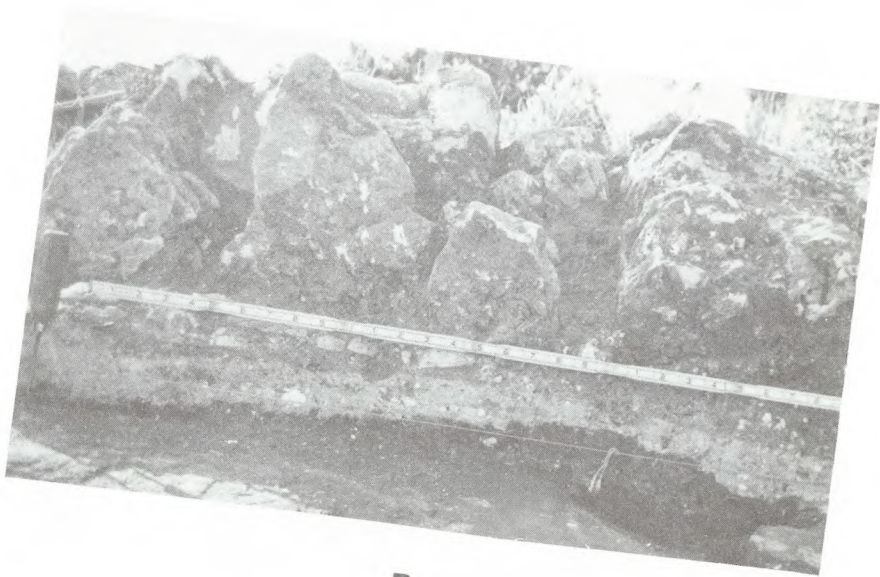
Fig. 5

Fig. 6. FEATURE 2A (scale in inches)

- A. Fragment of fallen wall with painted plaster
resting on the floor
- B. Close-up of 6A showing stratigraphy



A



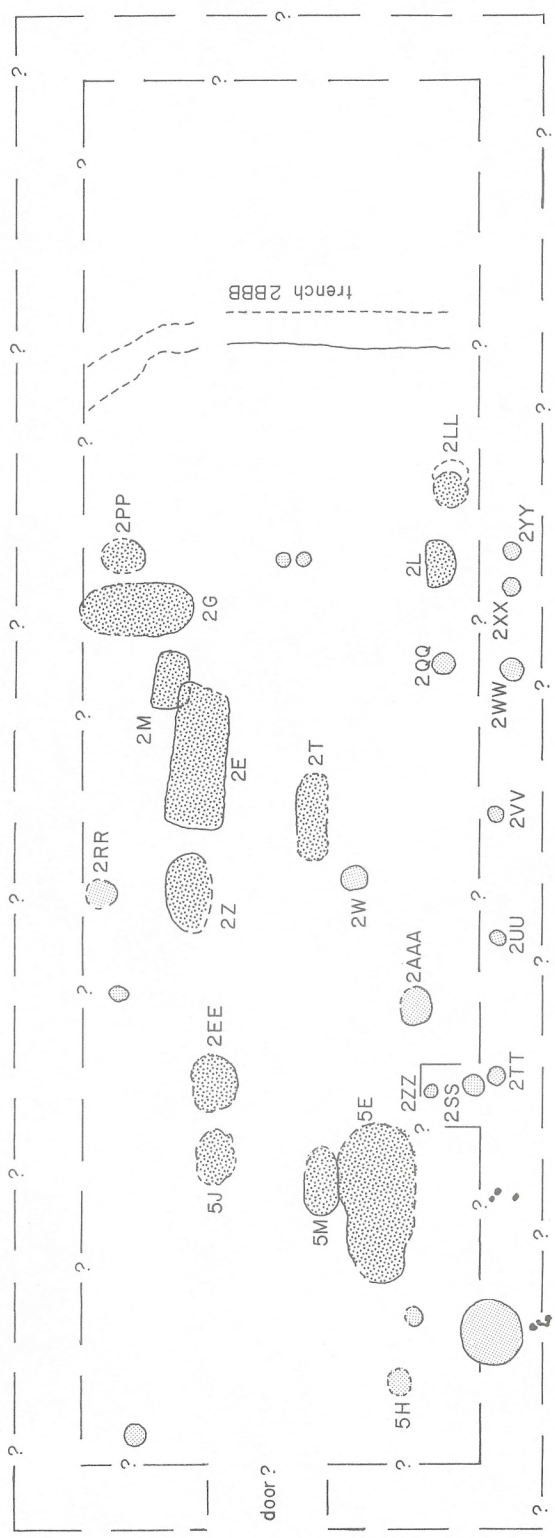
B

Fig. 6

MISSION ROSARIO 41GD2
THE ORIGINAL CHURCH
BUILDING PHASE I

+ S50
+ E85

+ S80
+ E30



+ S85
+ E85

burial

post hole

postulated walls — ? —

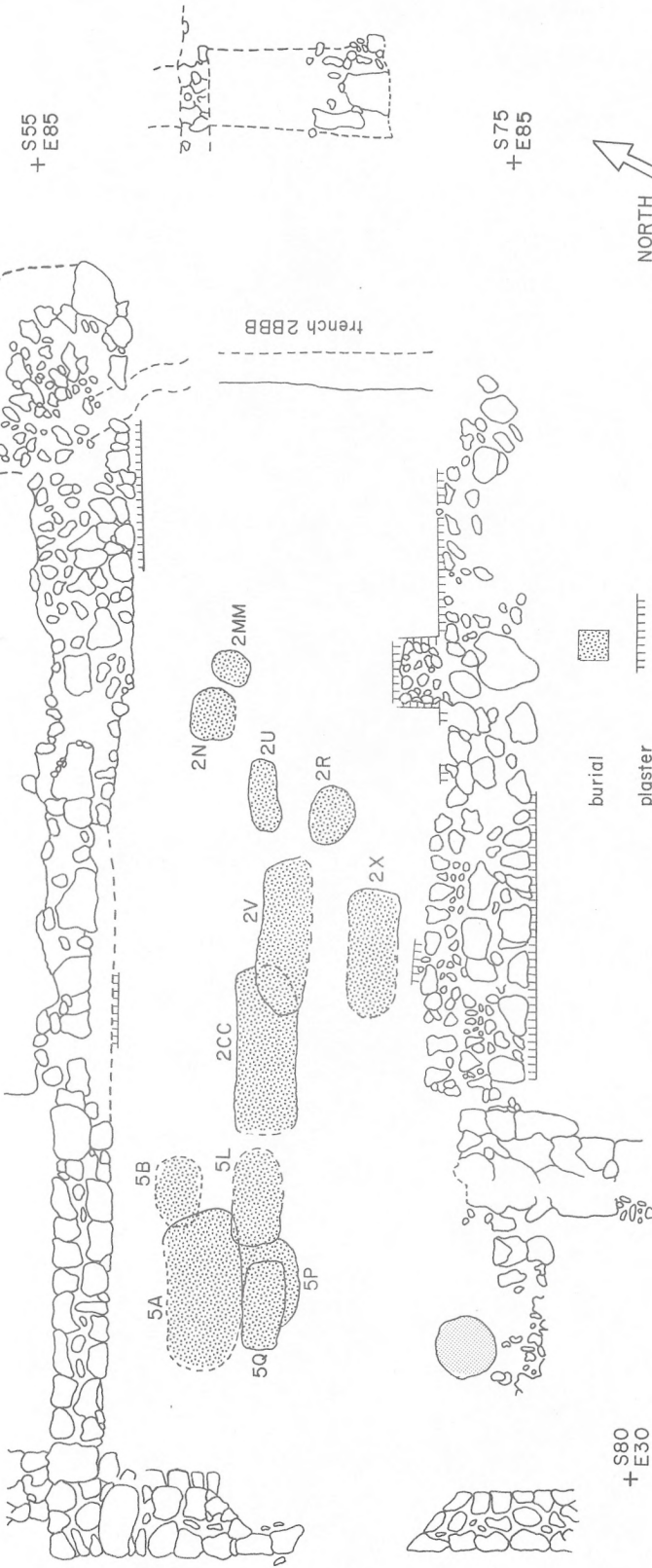
daub



Fig 7

MISSION ROSARIO 4IGD2
 THE ORIGINAL CHURCH
 BUILDING PHASE 3

+ S50
 + E30



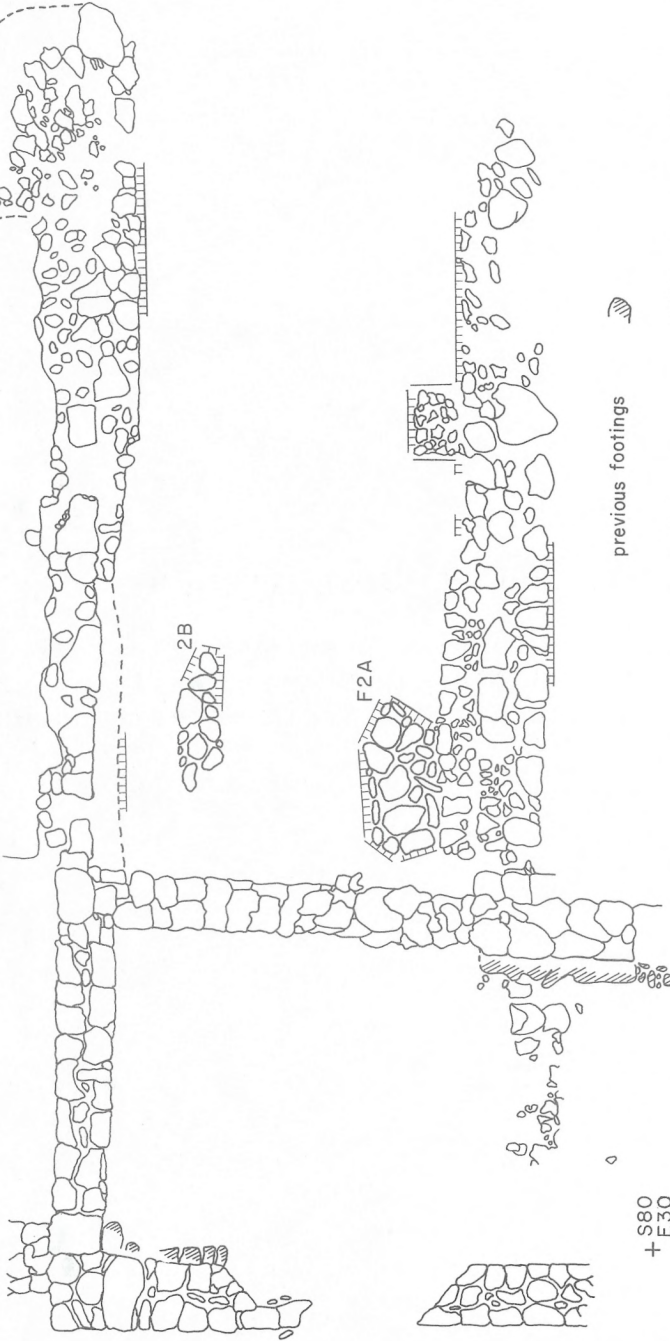
NORTH



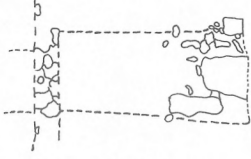
Fig. 9

MISSION ROSARIO 4IGD2
THE ORIGINAL CHURCH
BUILDING PHASE 4

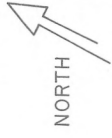
+ S50
+ E30



+ S55
+ E85



+ S75
+ E85



previous footings

plaster

posthole



Fig.10

Fig. 11. THE ORIGINAL CHURCH FEATURE 2

Overview showing balks left over pits;
north-south cross wall in background,
grave pit 2F in foreground under scale

(scales in feet and inches)



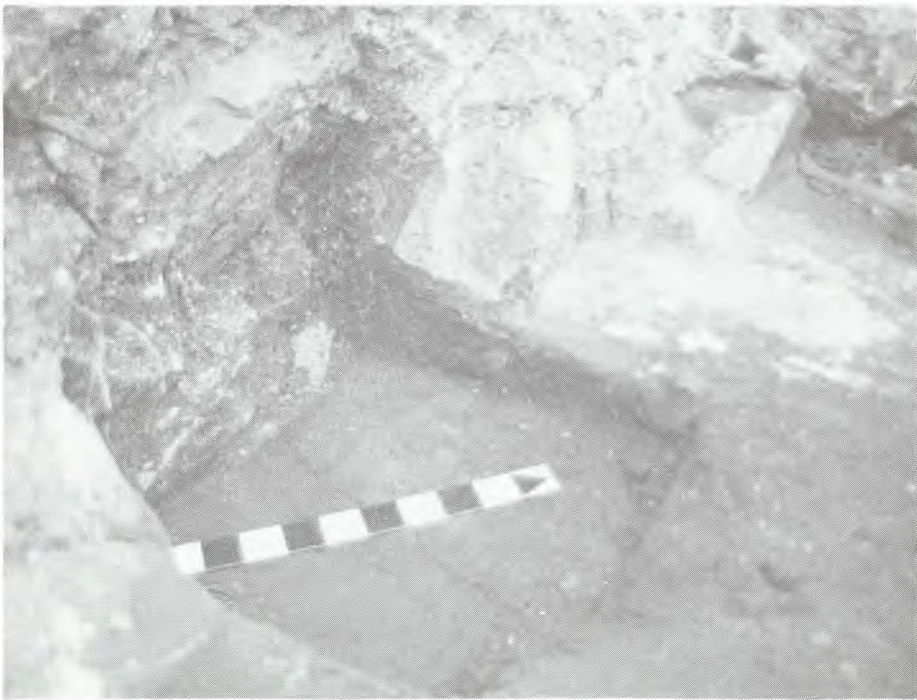
Fig. II

Fig. 12. FEATURE 2D

- A. Infant burial 2DD under north-south cross wall
- B. Grave pit 2FF at north-south cross wall



A



B

Fig.12

Drawing Fig. 13

MISSION ROSARIO (4IGD2)
WALL MURALS AFTER REMOVAL OF OVERPAINTING

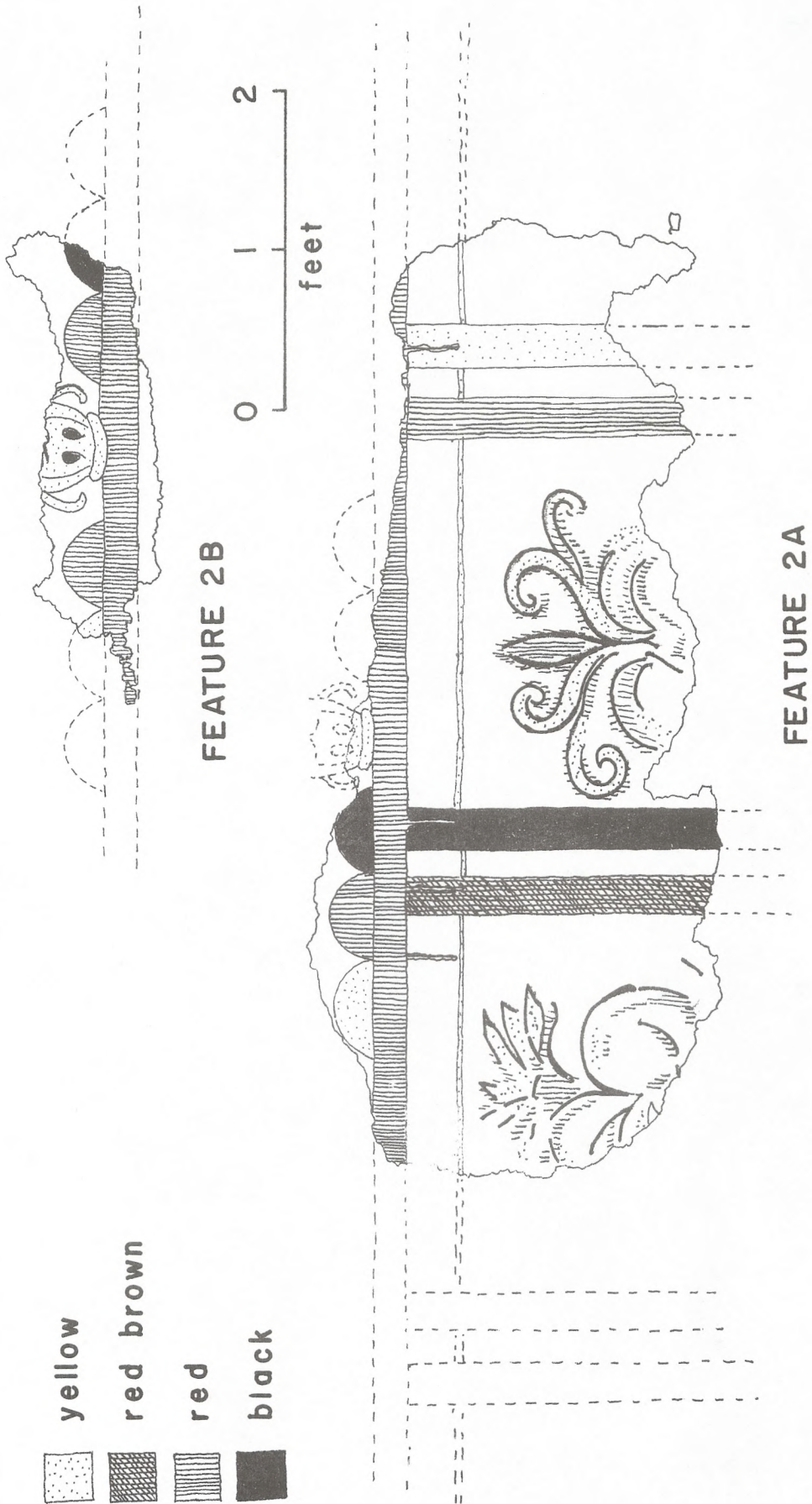


Fig. 13

MISSION ROSARIO (41GD2)

FEATURES 5 & 7
FLOOR PLAN WITH PLASTER FALL REMOVED

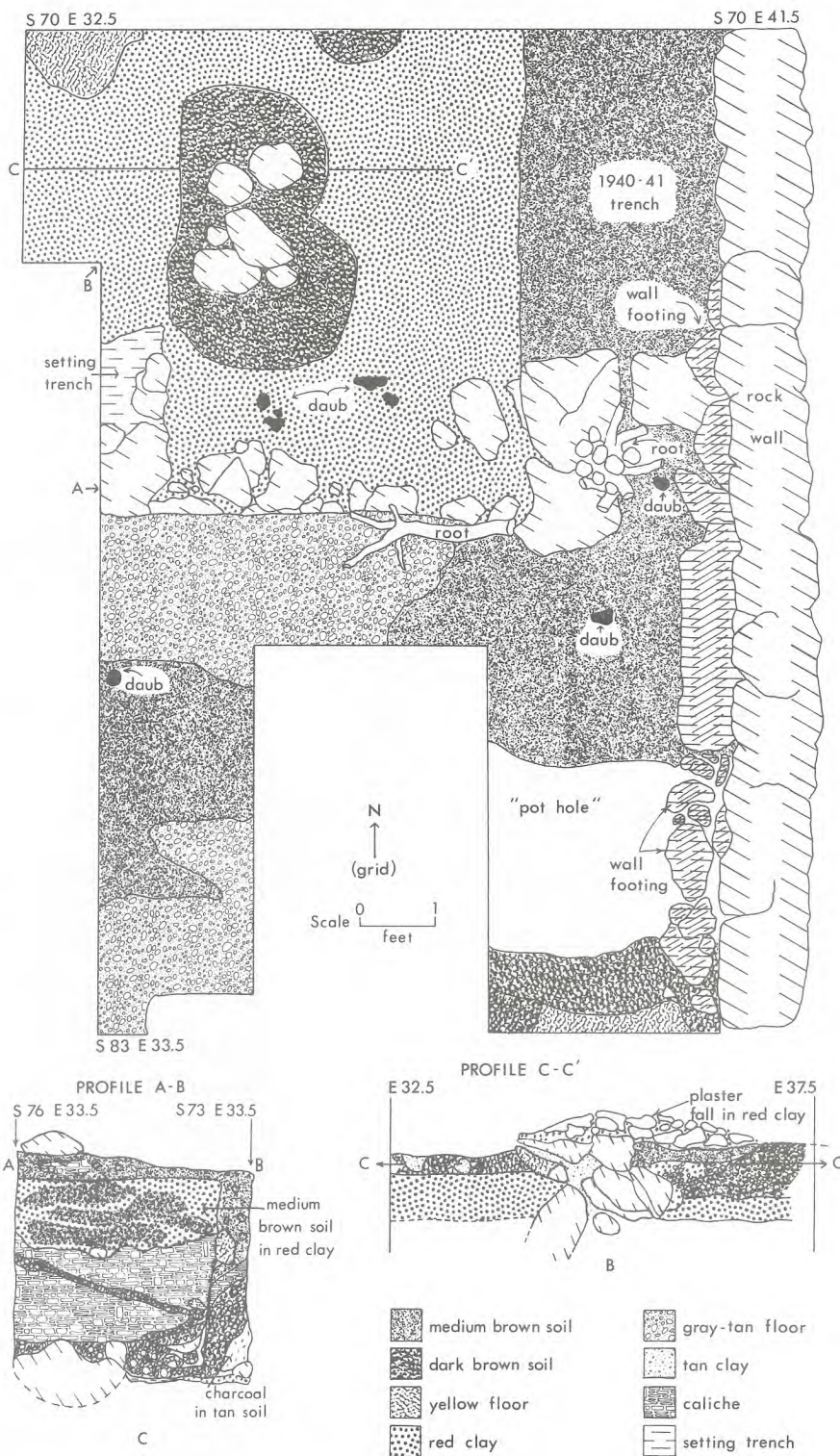


Fig. 14

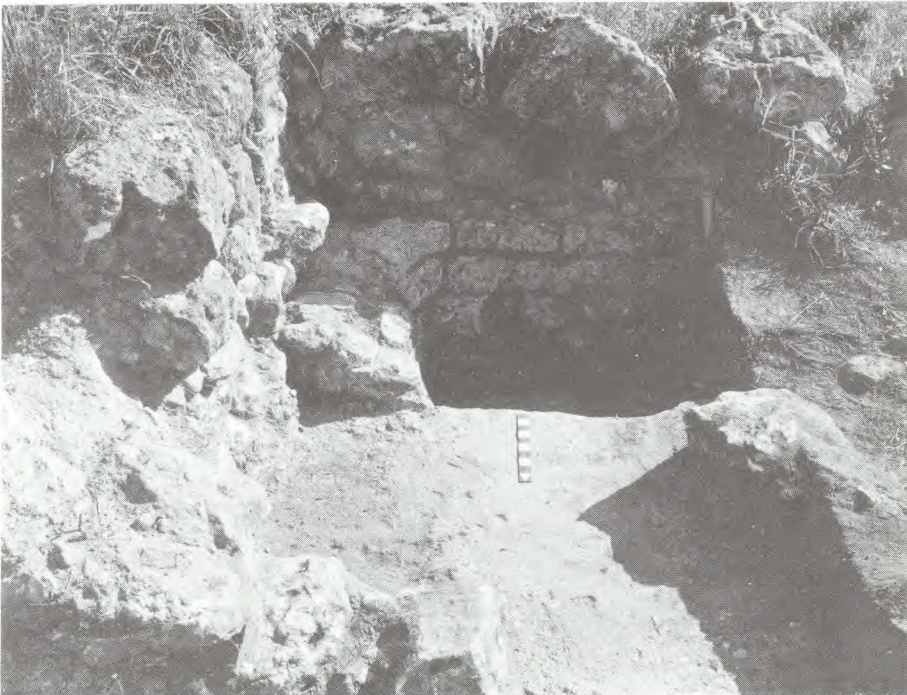
1306
1975

Fig. 15. FEATURE 7, FEATURE 13 (scale in inches)

- A. Feature 7, looking northward at plaster fall, "pothole" fill, and posthole; caliche with soil layer on left
- B. Feature 13, caliche brick under south wall



A



B

Fig. 15

MISSION ROSARIO (4IGD2)

FEATURE 13 THE FINAL CHURCH, SOUTH SECTION AT ENTRANCE

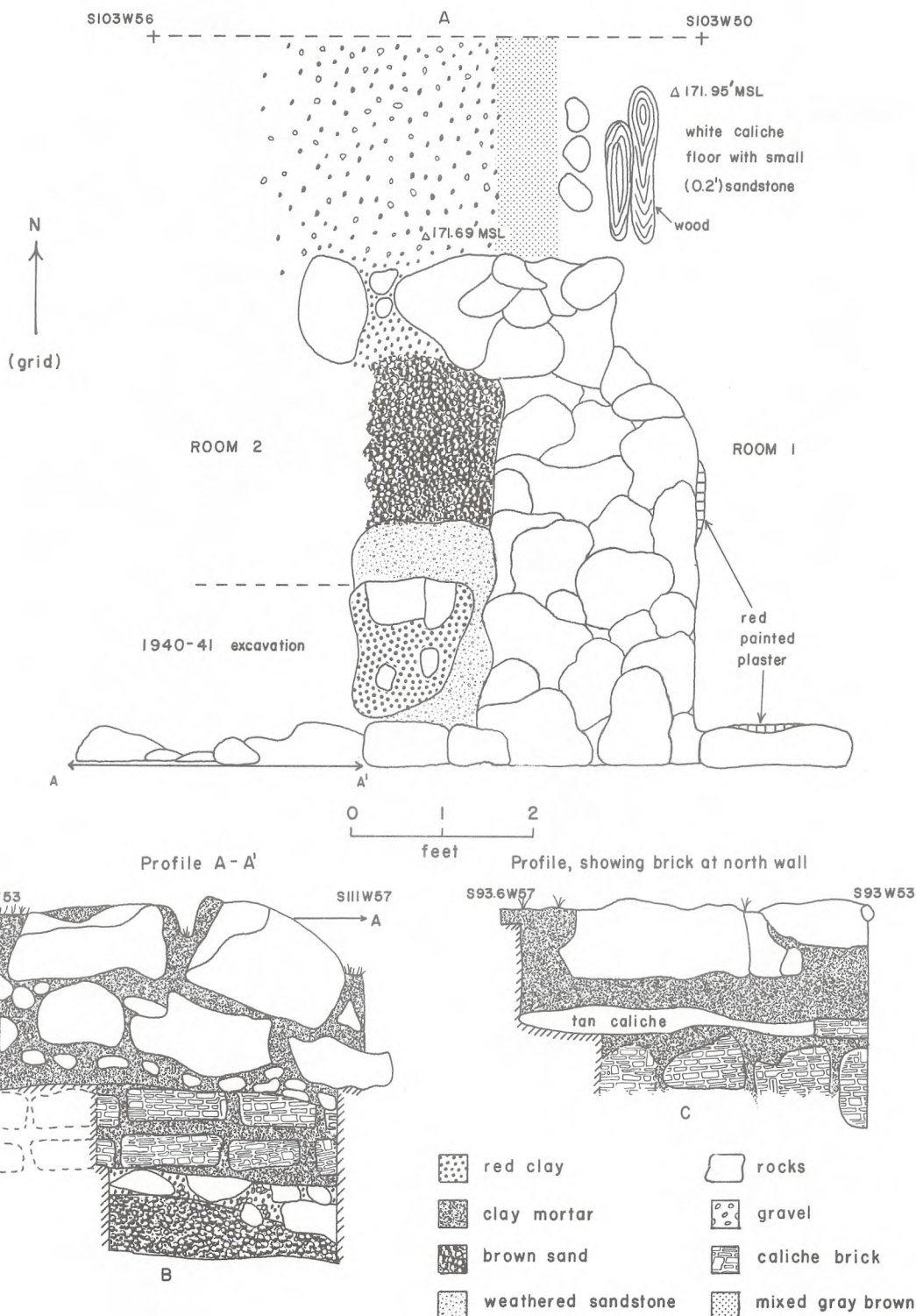


Fig. 16

GN
1975

MISSION ROSARIO (41GD2) THE FINAL CHURCH

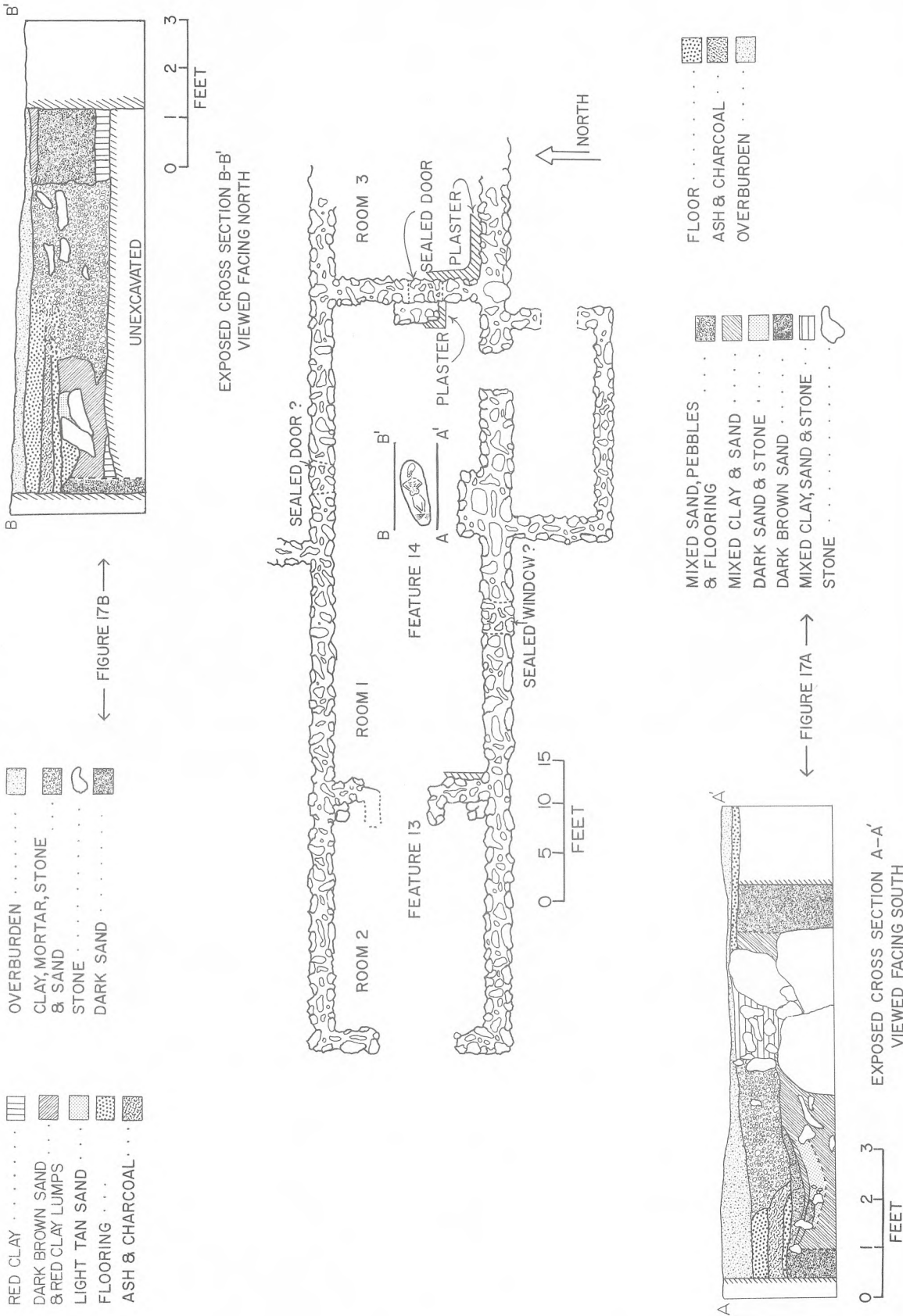


Fig. 17

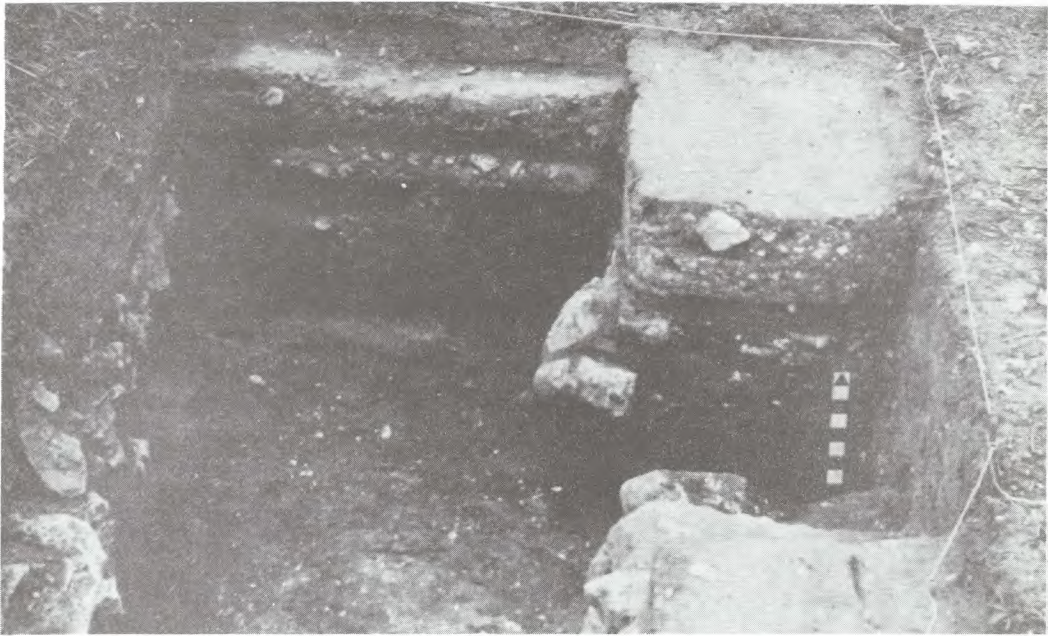
Fig. 18. FEATURE 14 (scale in inches)

A. Burial

B. Stratigraphy in western section at South 10
West 22, location of attempted peel at
arrow; burial under center foreground



A



B

Fig. 18

MISSION ROSARIO (41GD2)
DETAILS OF FLYING BUTTRESS

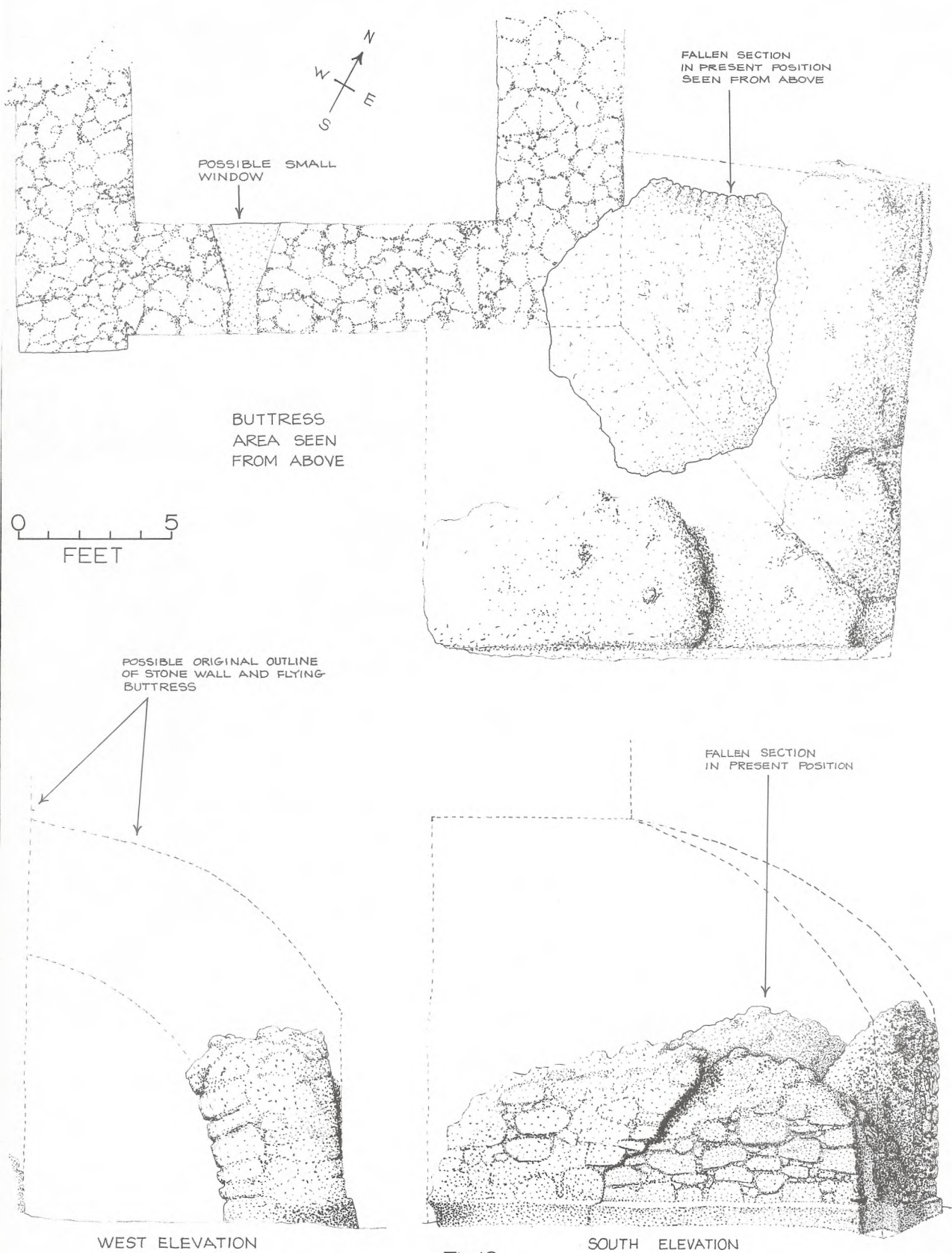
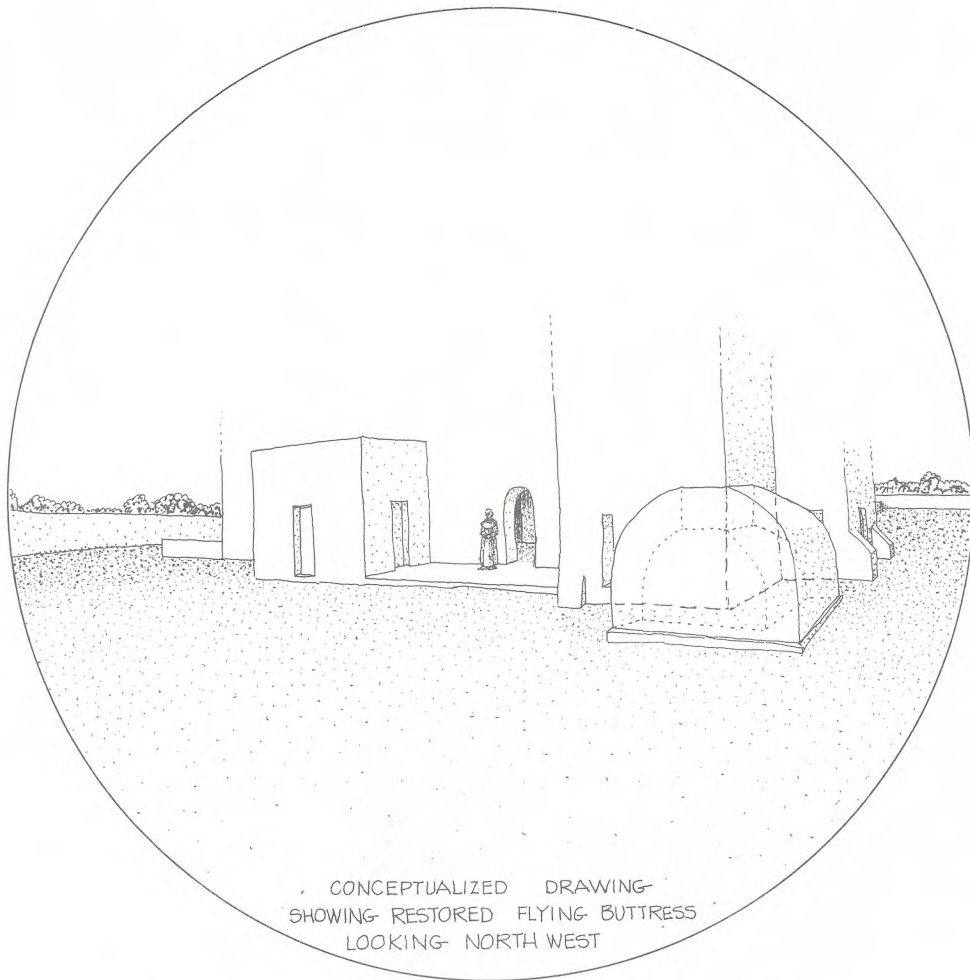


Fig.19

MISSION ROSARIO (41GD2)
CONCEPTUAL RESTORATION OF FLYING BUTTRESS



FALLEN SECTION DRAWN
IN ORIGINAL POSITION

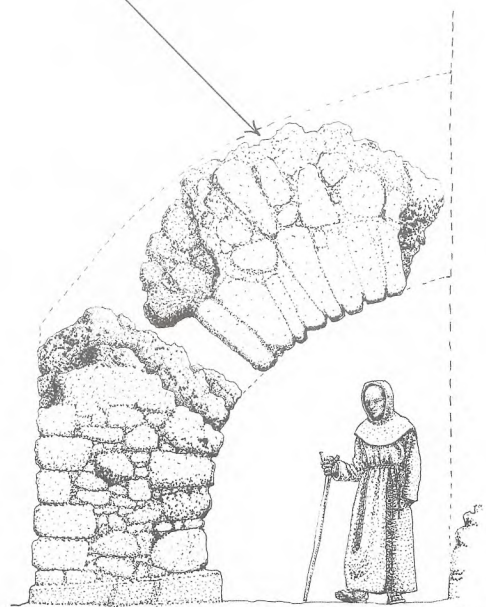
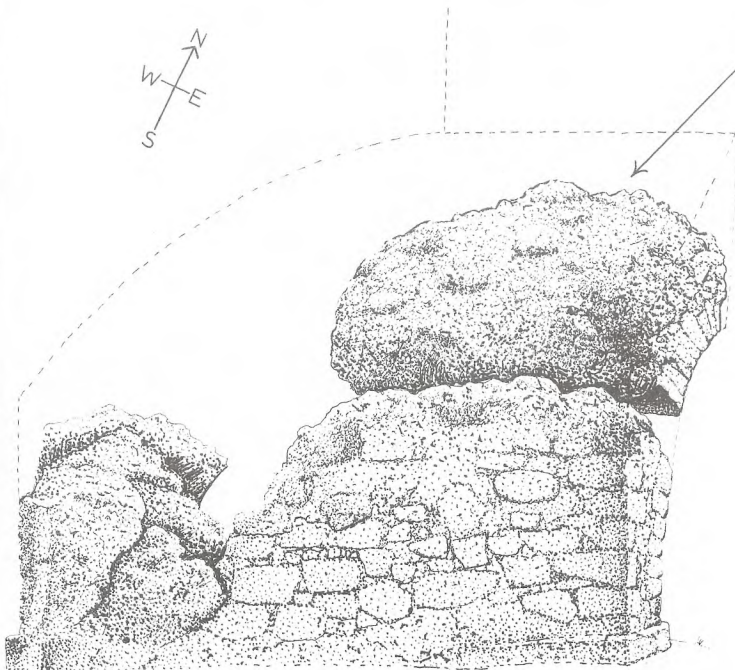


Fig. 20

Fig. 21. BUTTRESS AREA (facing Northward)

- A. 1940-41 photograph showing two stories and buttress
- B. Photograph taken near same spot as Fig. 21A, Fall 1974



A



B

Fig. 21

MISSION ROSARIO (41GD2)

FEATURE 3-POSTHOLES AND TRENCHES

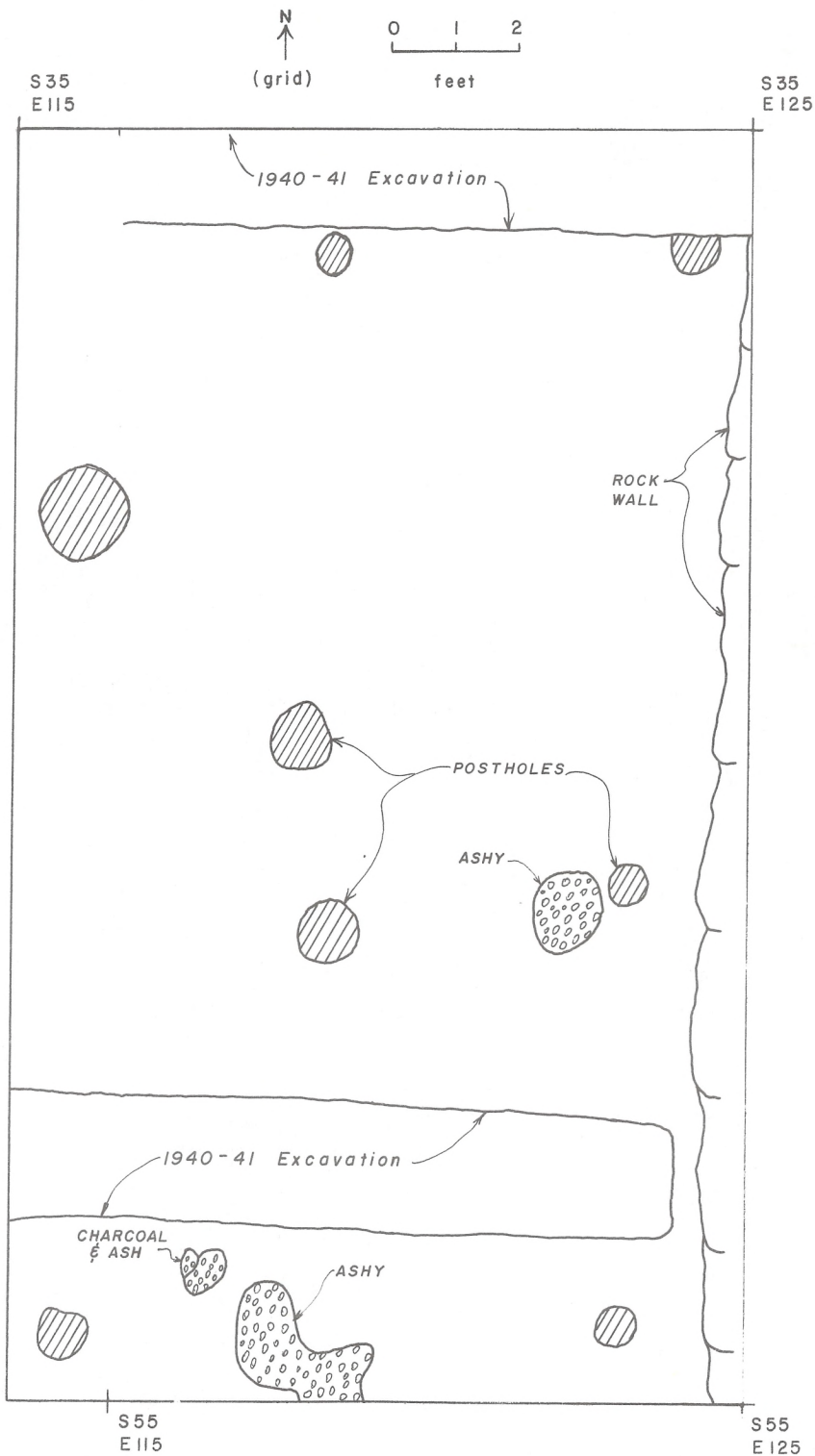


Fig. 22

GA
1975

Fig. 23. FEATURE 6 (facing Northward)

- A. Feature 6, 1940-41 photograph of inner courtyard with Room 3 in foreground
- B. Photograph taken near same spot as Fig. 23A, Fall 1974



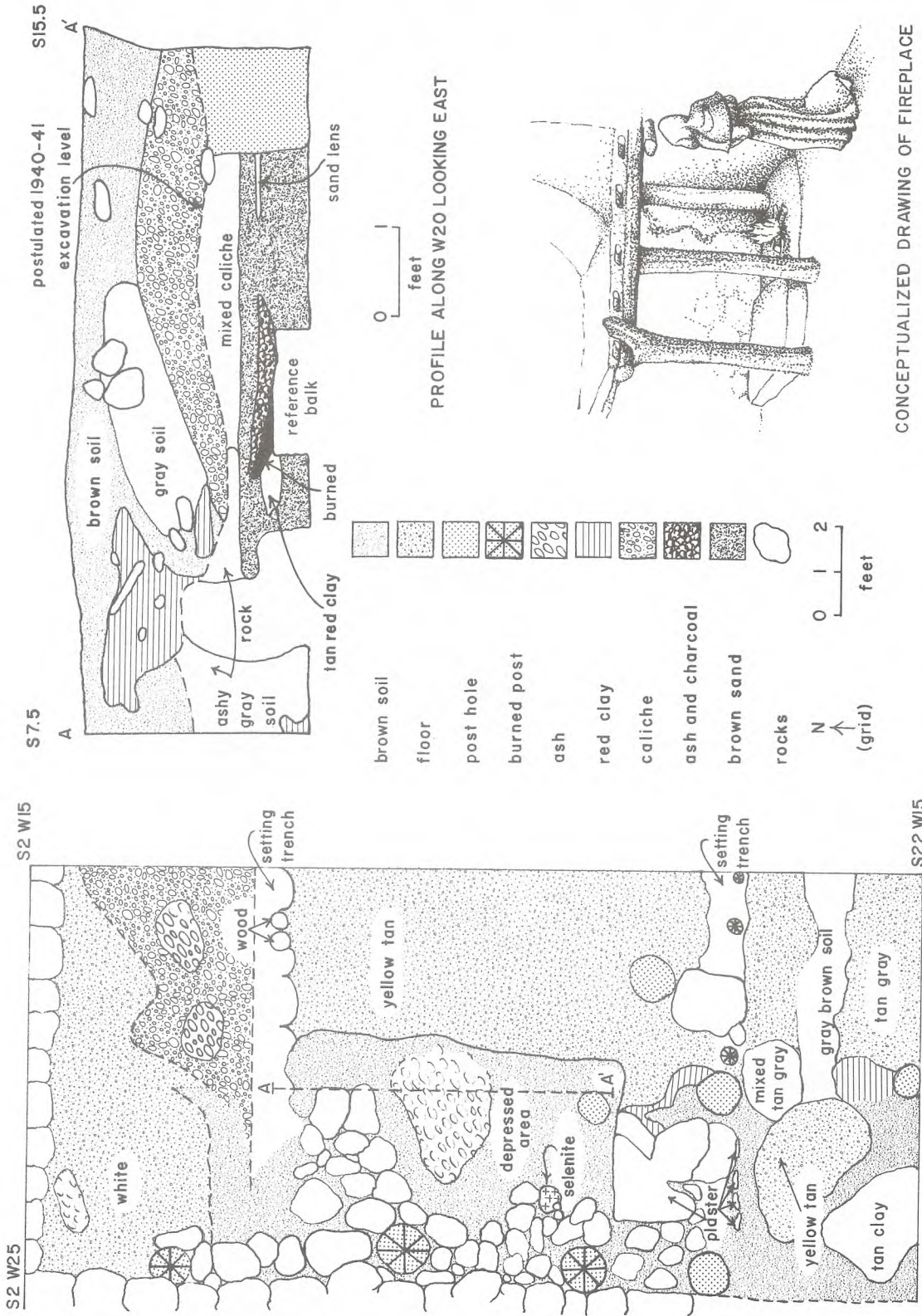
A



B

Fig.23

MISSION ROSARIO (4IGD2) FEATURE 6, AREA A



54
1975

Fig. 24

MISSION ROSARIO (41GD2)

FEATURE 6 AREA B

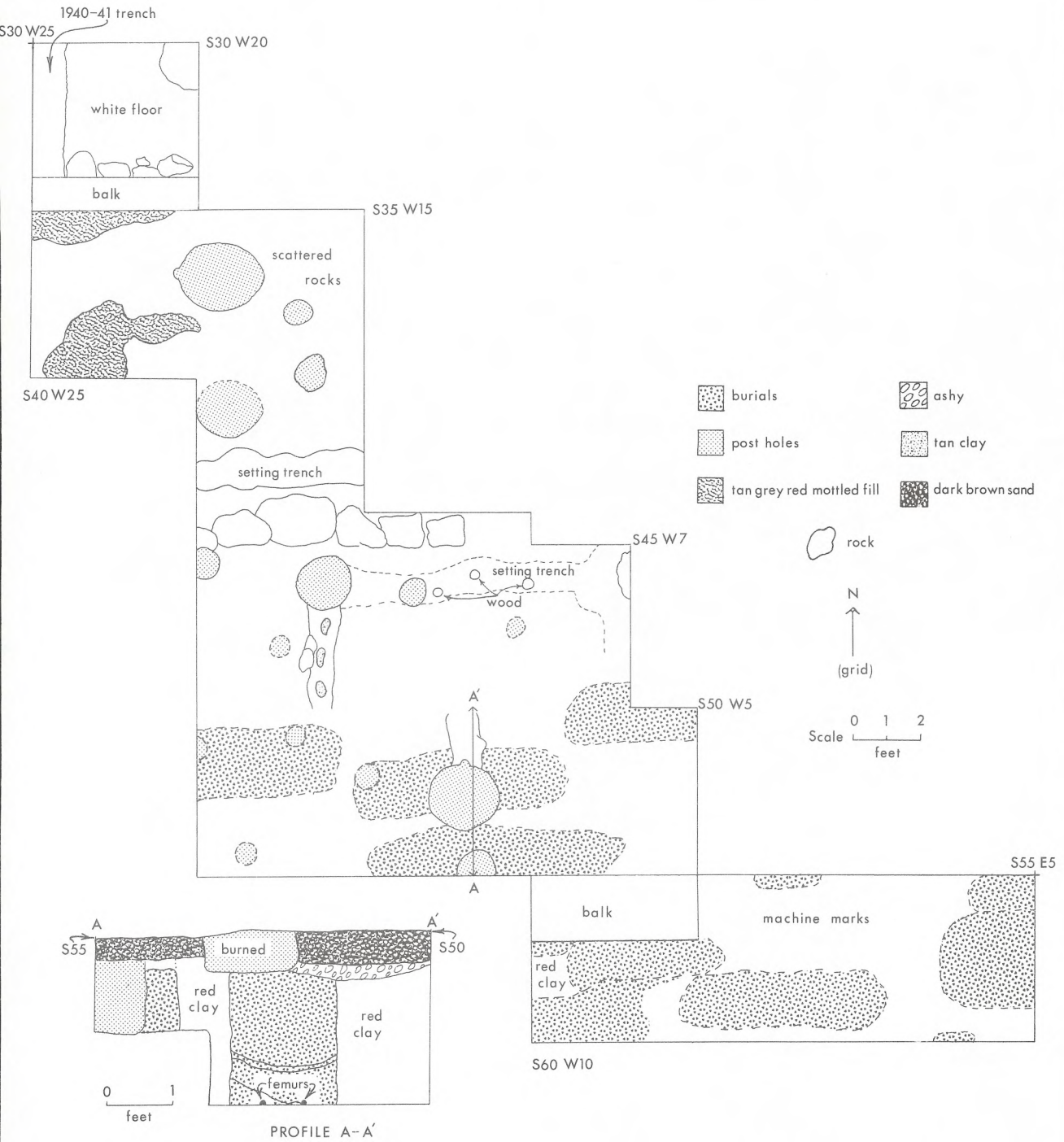


Fig. 25

PH

Fig. 26. FEATURE 6, AREA B

Showing machine marks



Fig. 26

- Fig. 27. SUNKEN AREA, VICINITY TRENCH SOUTH 190
- A. 1940-41 photograph showing sunken area
near gate left center
 - B. Photograph taken near same spot as Fig.
27A, Fall 1974



A



B

Fig. 27

TRENCH 190, THE WELL (?)
MISSION ROSARIO (41GD2)

S191
W30



S191
W5

GENERALIZED PROFILE LOOKING SOUTH

0 1 2 3 4 5
feet

- | | | | |
|--|------------------------------|--|---------------------------|
| | humus | | red sand |
| | mixed clay-sand-humus | | green clay |
| | mixed ash-charcoal-clay-sand | | charcoal |
| | sand-gravel | | yellow sand |
| | brown sand | | white sand |
| | red clay | | mixed 1940-41
backfill |
| | rock - R | | |

OK
1/25

Fig 28

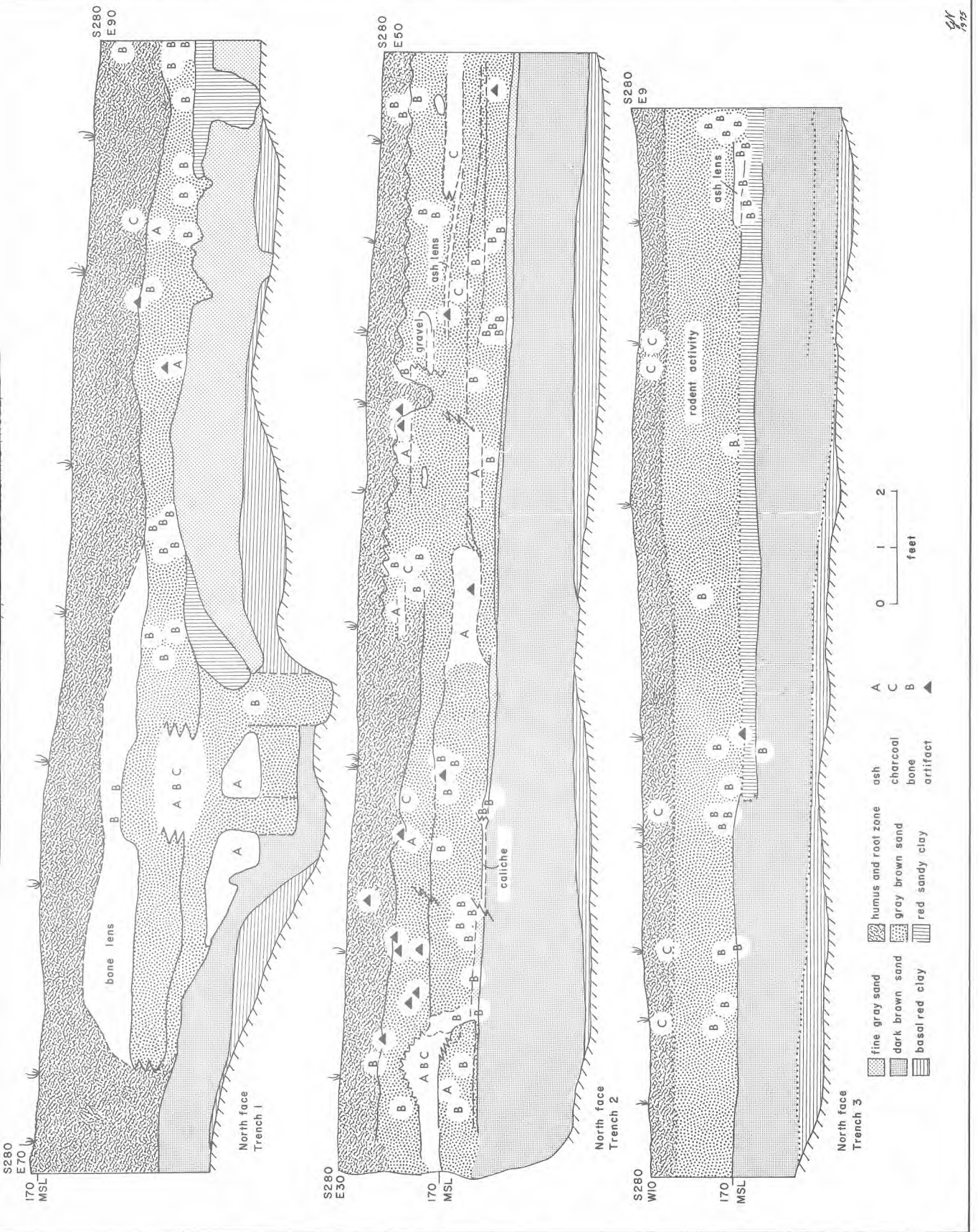


Fig 29

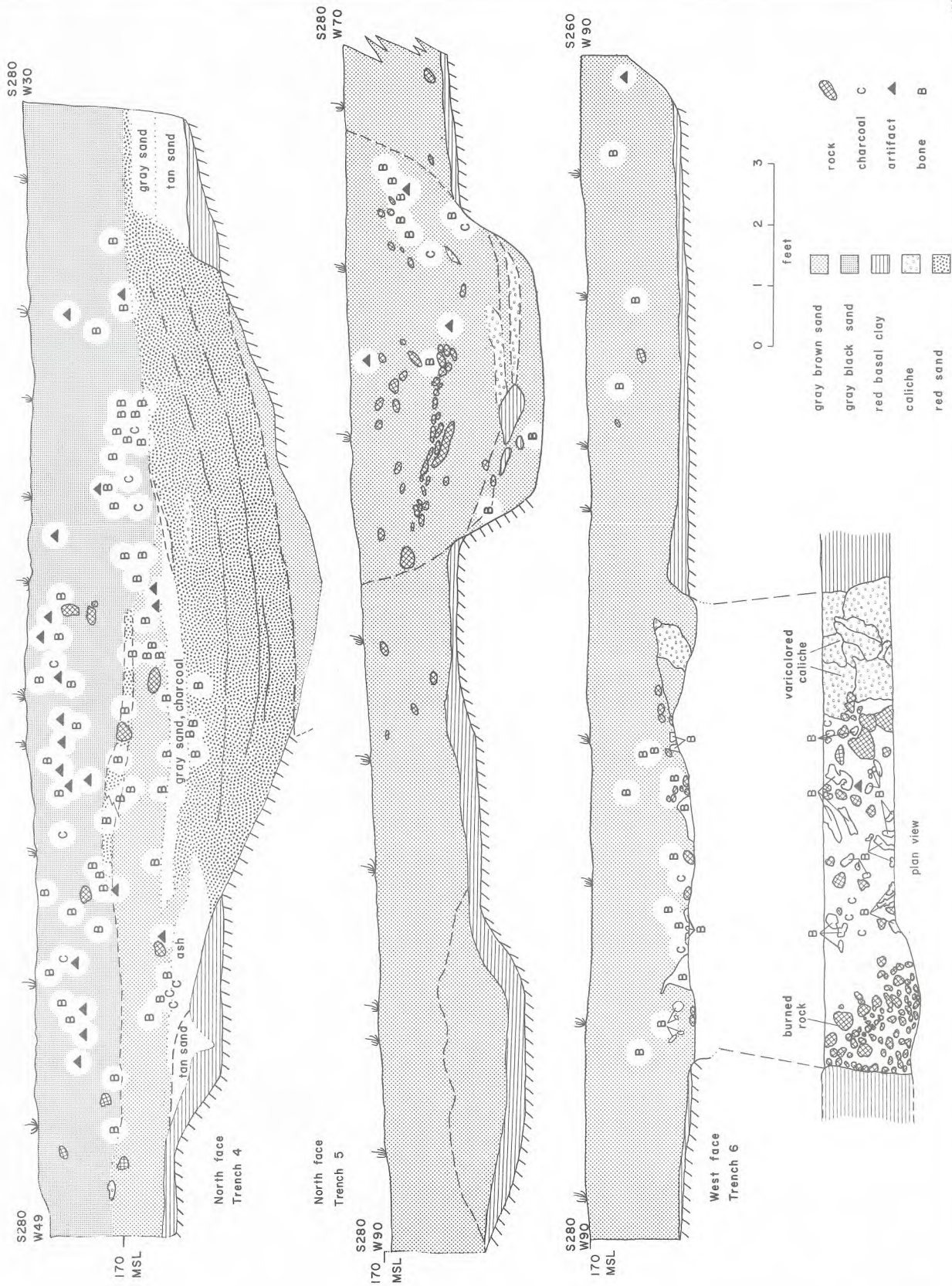
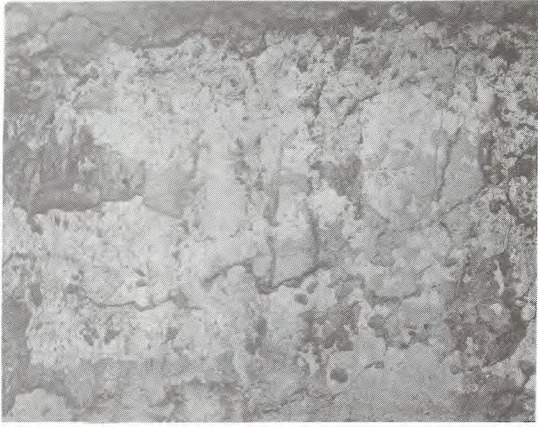


Fig 30

Fig. 31. WALL PLASTER WITH SCORING

- A. 1940-41 photograph of southwest corner Room 3; faint diamond scoring on plaster at left
- B. Same area as Fig. 31A, photograph taken Fall 1974
- C. 1940-41 photograph of archway showing diamond scoring on plaster
- D. Same area as Fig. 31C, photograph taken Fall 1974



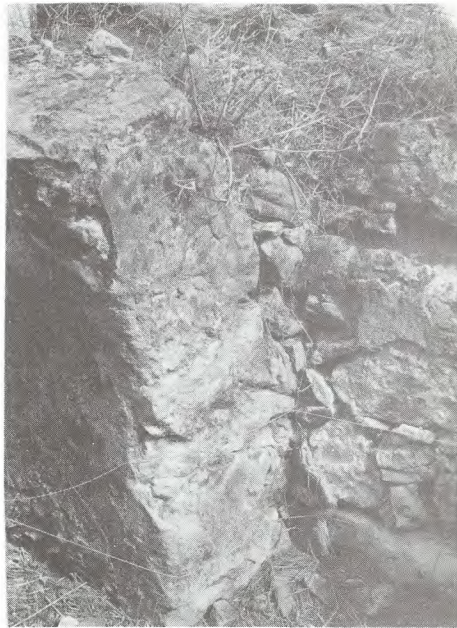
A



B



C



D

Fig. 3I

Fig. 32. LITHIC ARTIFACTS

- A. Unidentified point, Backhoe Trench 2
- B. Unidentified point, Backhoe Trench 2
- C. Unidentified point, Backhoe Trench 1
- D. Unidentified point, Trench 190
- E. Unidentified point, Feature 6
- F. Fresno point, Backhoe Trench 4
- G. Blade, unifacial unilateral, Feature 3
- H. Blade, bifacial bilateral, Feature 5
- I. Blade, unifacial bilateral, Wall Structure 1
- J. Blade, bifacial unilateral, Backhoe Trench 3
- K. Scraper, circumferential, Feature 8
- L. Blade, unilateral right, Backhoe Trench 1
- M. Scraper, unilateral left, Trench 190
- N. Core tool, Trench 190

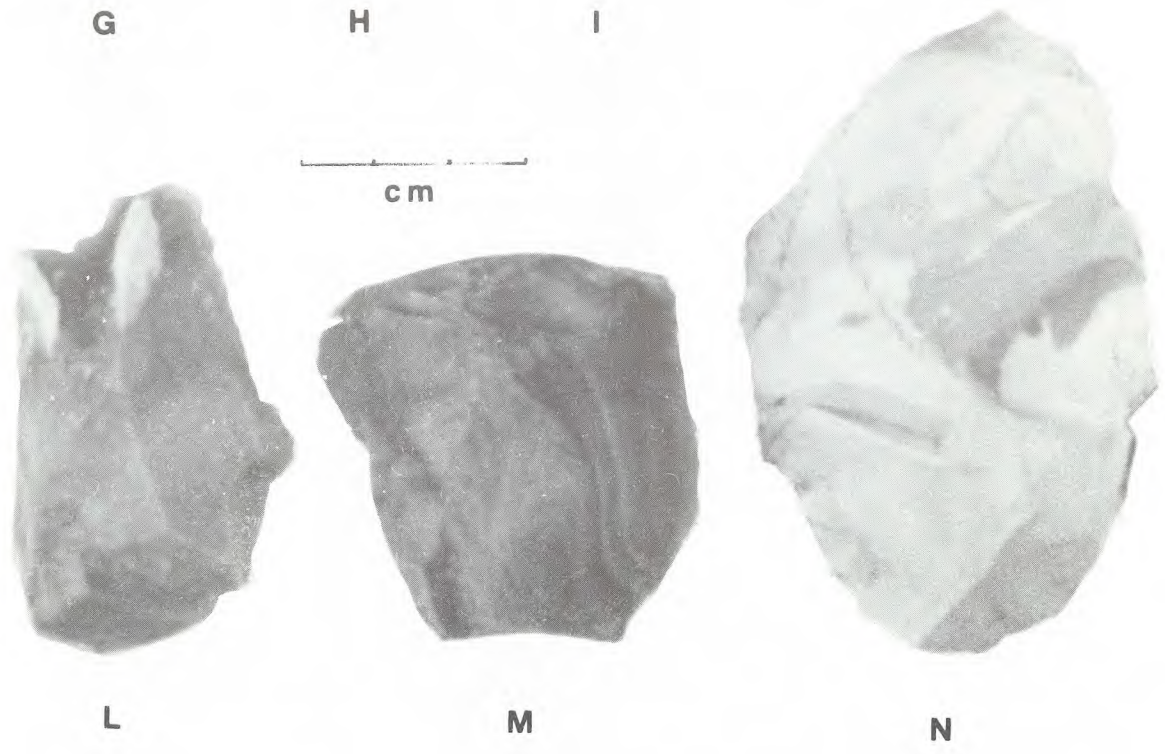
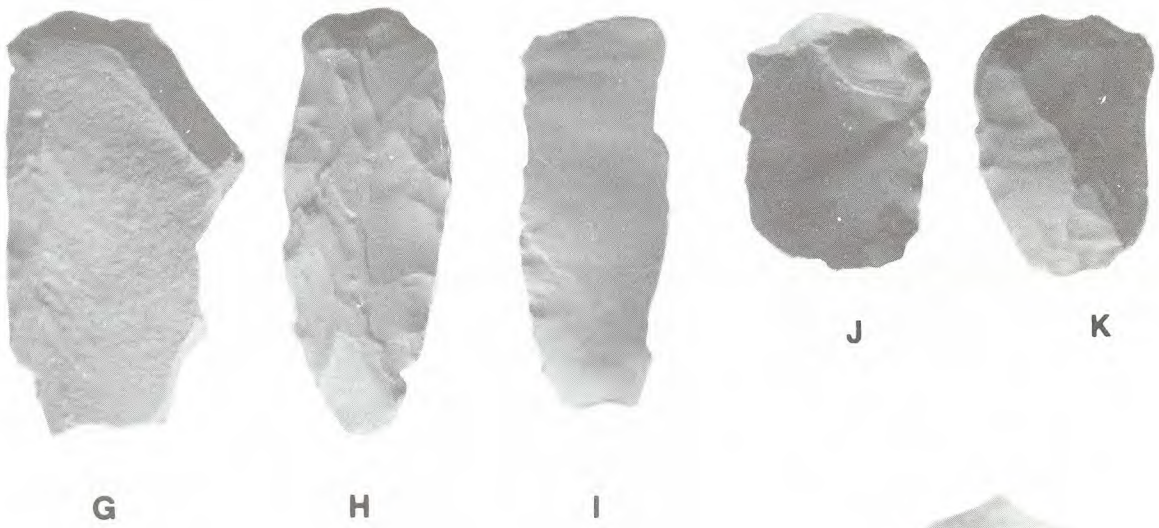
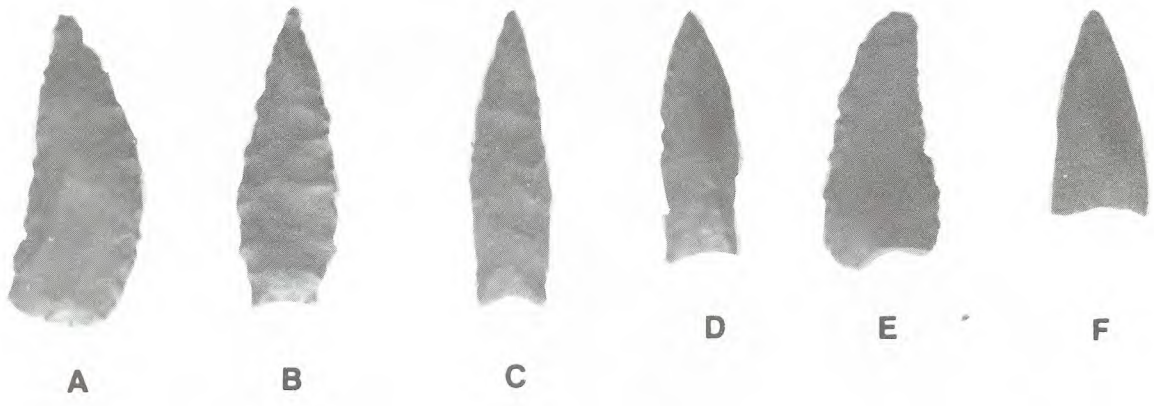


Fig. 32

Fig. 33. GUNFLINTS

- A. Feature 3
- B. Feature 3
- C. Backhoe Trench 1
- D. Backhoe Trench 1
- E. Backhoe Trench 1
- F. Backhoe Trench 1
- G. Backhoe Trench 1
- H. Backhoe Trench 2
- I. Backhoe Trench 3
- J. Backhoe Trench 3
- K. Backhoe Trench 3
- L. Feature 6



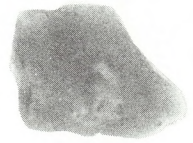
A



B



C



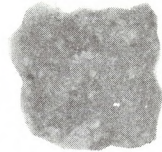
D



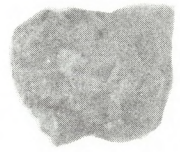
E



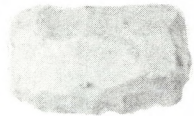
F



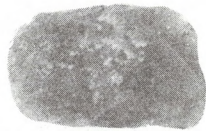
G



H



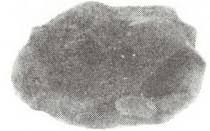
I



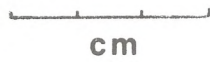
J



K



L



cm

Fig. 33

Fig. 34. METAL ARTIFACTS

- A. Key
- B. Lead sprue
- C. Jew's harp
- D. Brass thimble
- E. Brass handle, from candle snuffer (?)
- F. Knife blade
- G. Headstall plate

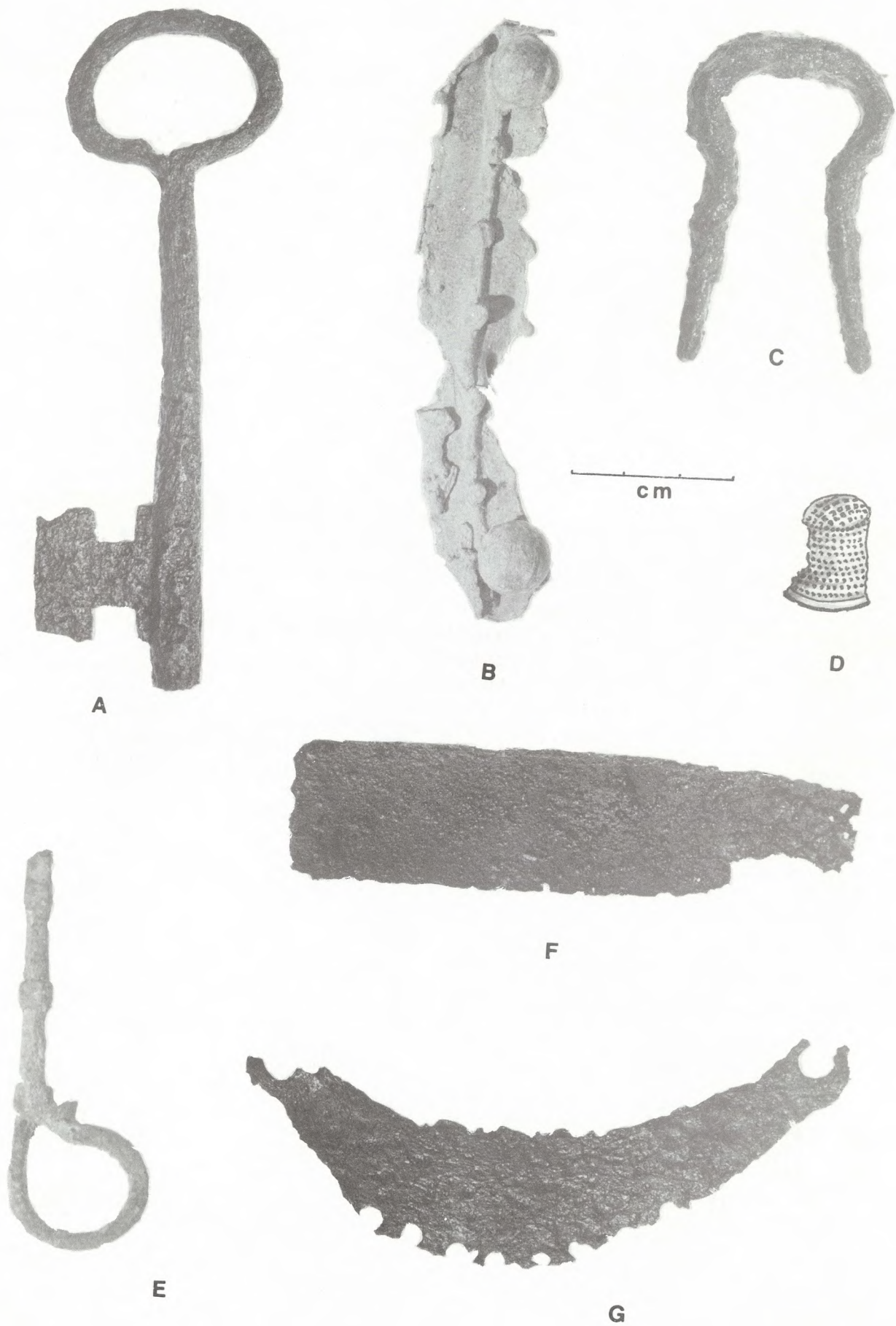
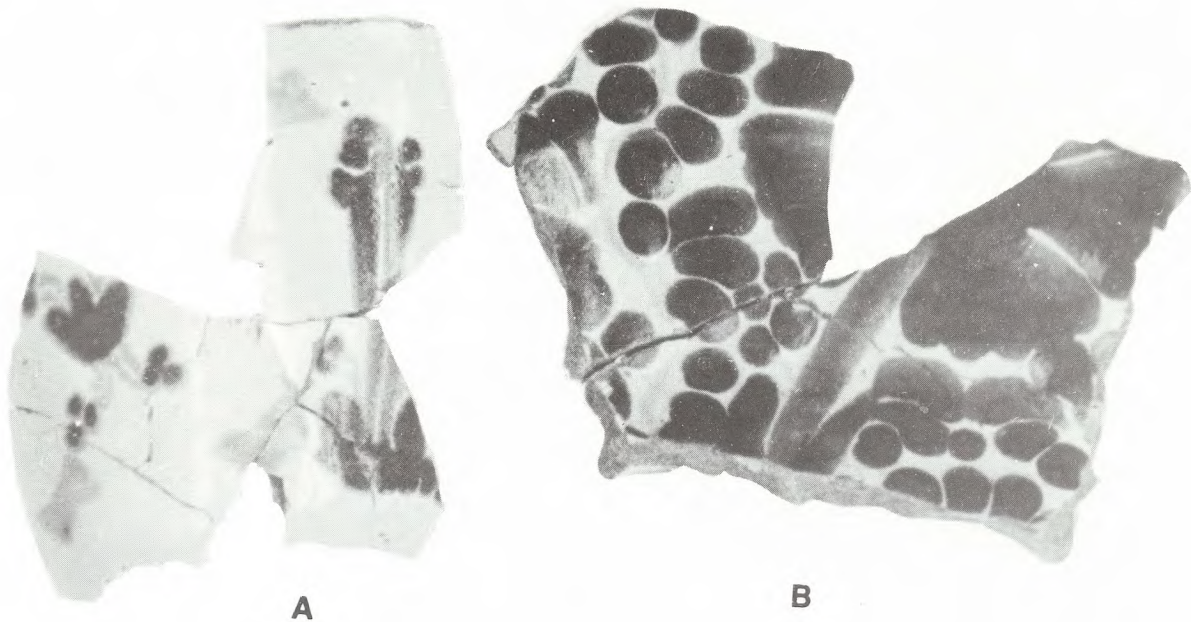


Fig. 34

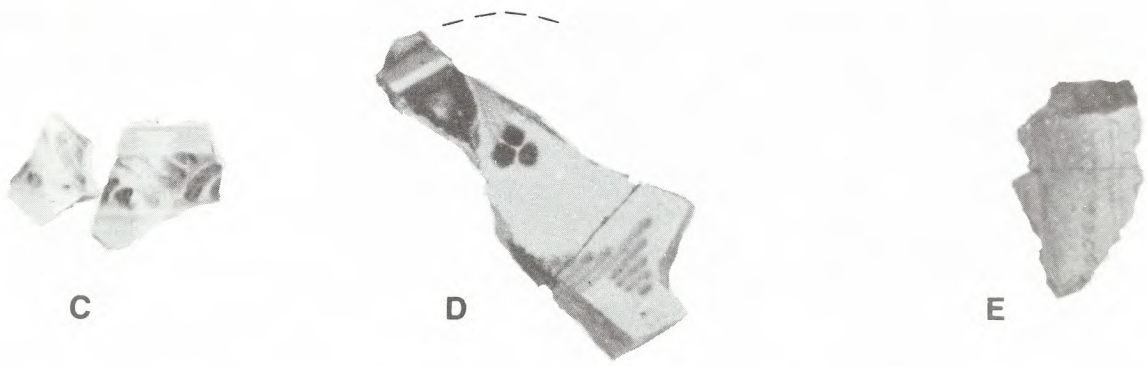
Fig. 35. CERAMIC ARTIFACTS

- A. Majolica
- B. Majolica, Duochrome, Style 2, Group A
San Augustine?
- C. Majolica, thin wall, black and white border
- D. Majolica, thin wall, saucer?
- E. Indian, asphalt interior and lip
- F. Indian, base fragment, rounded flattened
- G. Indian, asphalt interior and lip, vertical
dots and double asphalt line



A

B



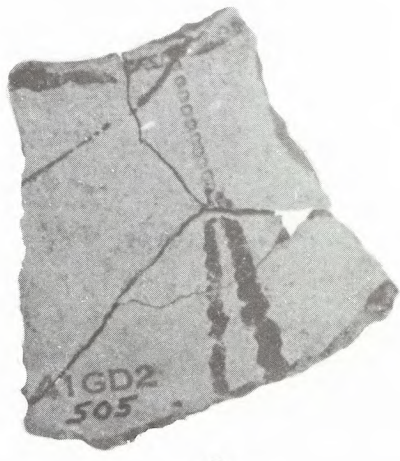
C

D

E



F

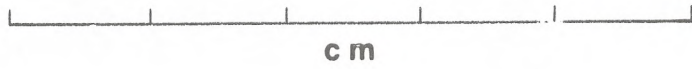
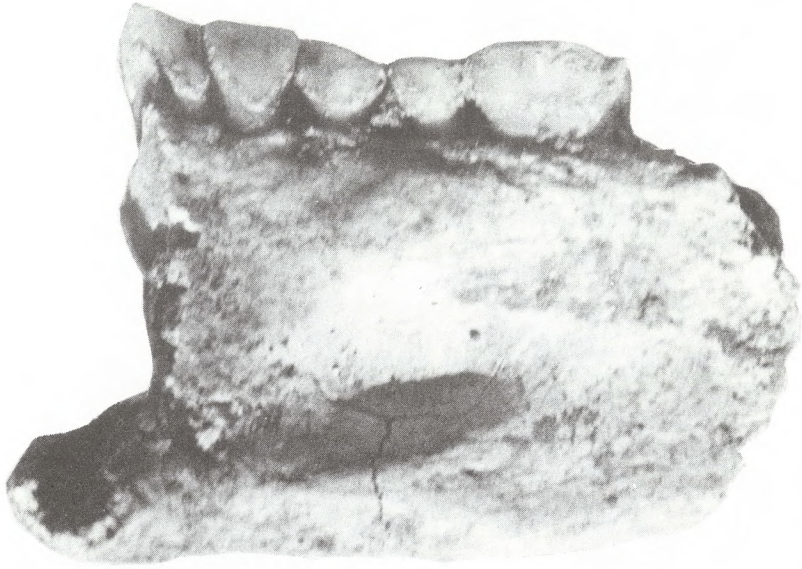


G

Fig. 35

Fig. 36. SKELETAL ANOMALIES

- A. Mandible, showing fossa below pre-molar
area
- B. Anomaly of deciduous molar



cm

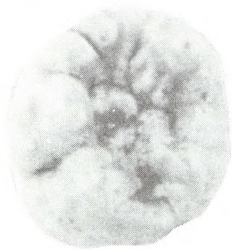


Fig. 36

MISSION ROSARIO
(41GD2)

PAINTED PLASTER FRAGMENTS INPLACE ON STAIRWAY

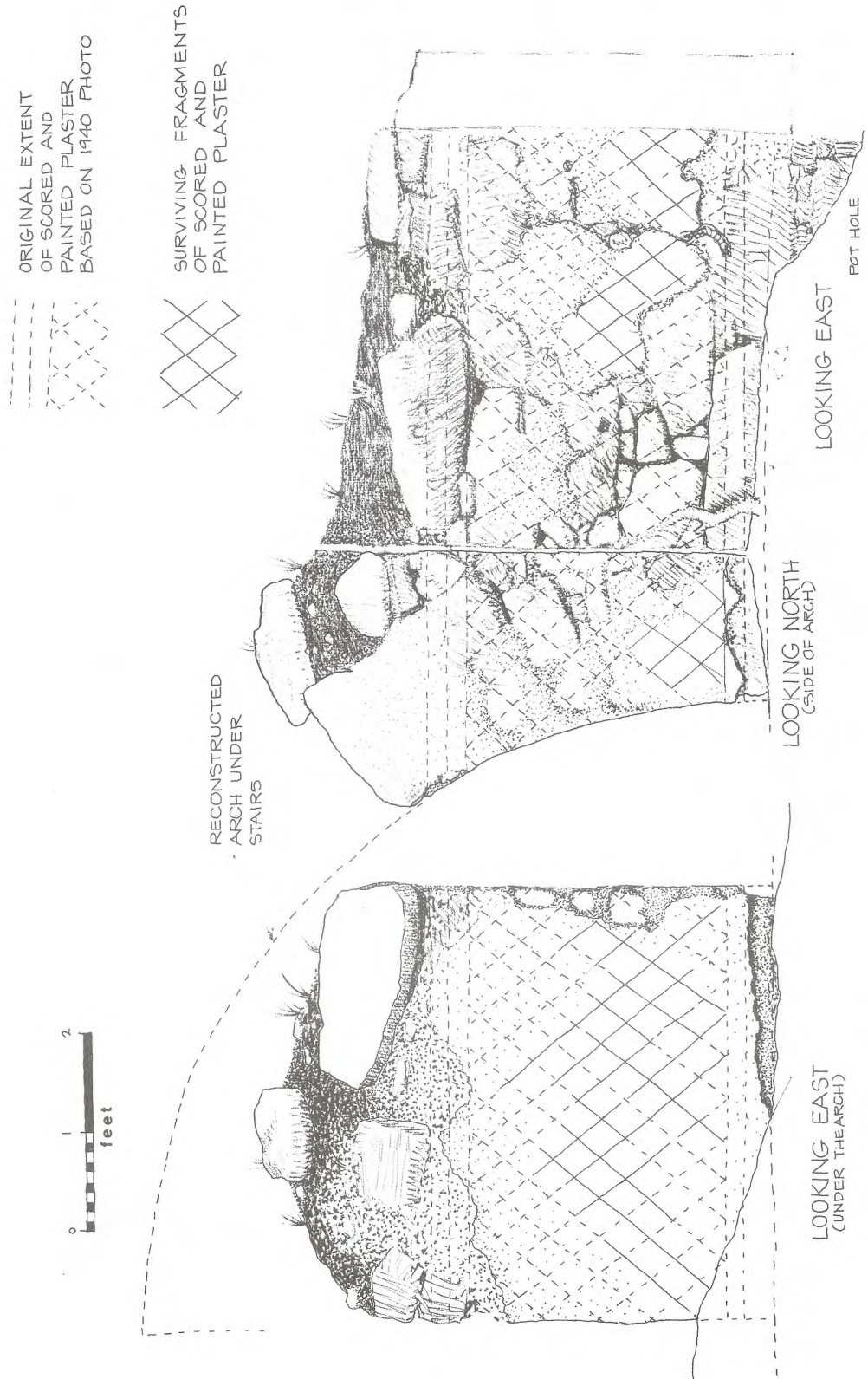


Fig. 37

MISSION ROSARIO (41GD2)
ELEVATIONS OF ROCK WALLS, 1974



Measurements by L. McNair and G. Nelson,
Dec. 1974.
Drawings by G. Nelson.

Height of stone walls shown in 1940
photograph.
Suggestion of original outline of stone walls.

TEXAS DOCUMENTS