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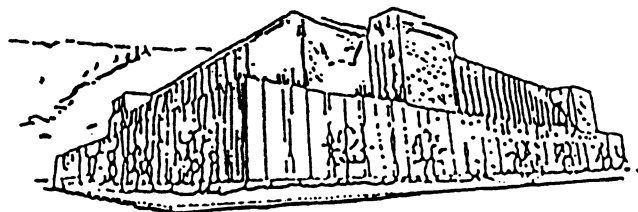
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THE DYNAMICS OF CULTURE CHANGE AND IT'S REFLECTION IN THE
ARCHAEOLOGICAL RECORD AT ESPÍRITU SANTO DE ZÚÑIGA, VICTORIA,
TEXAS (41VT11).

By

Tamra L. Walter

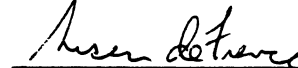
presented in partial fulfillment of the requirements for the

degree of Master of Arts

The University of Montana

1997

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Walter, Tamra L., Master of Arts, January 1997
Anthropology

The Dynamics of Culture Change and it's Reflection in the
Archaeological Record at Espiritu Santo de Zuñiga, Victoria,
Texas (41VT11).

Committee Chair: Susan deFrance *sd*

During the summer and fall of 1995 test excavations were completed at the presumed second location of the Espiritu Santo mission. This location along the Guadalupe river in present-day Victoria County, Texas was occupied from 1726 to 1749 by Franciscan missionaries and Aranama and Tamique Indians. The archaeological record of the mission offers a unique opportunity to examine the processes of change at work and their effects on both the mission Indians and the friars. Through the examination of the material and faunal remains, questions of the effects of contact and long term interaction are addressed. This research adds to our knowledge of the mission era in southeast Texas and contributes to the cultural history of Texas.

ACKNOWLEDGEMENTS

During the course of this research, numerous people volunteered their time and support. The property owners, John and Judy Clegg, made it possible for archaeologists to investigate and conduct test excavations at the mission. Without their support and interest in preserving the site, these archaeological investigations could not have been attempted. Dr. Thomas R. Hester and Dr. Susan deFrance lent their expertise, time, and intellectual support. E.H. "Smitty" Schmeidlin, Anne Fox, Cecil Calhoun, Jimmy Bluhm, Jack Eaton, Bill Birmingham, Jack Fisher, and my husband Don Badon donated their time and hard work and were essential to the investigation of the site. A special thanks to the "Mission Belles" Betty Inman, Jane Lakeman, Marilyn Shoberg, and Patsy Goebel who were invaluable crew members during both the summer and fall excavations. I am also grateful to the countless number of local volunteers and University of Texas students that participated in this project and without whose help this research could not have been accomplished.

TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS.....	iii
LIST OF FIGURES.....	vi
LIST OF TABLES.....	viii
CHAPTER 1: INTRODUCTION.....	1
Thesis Outline.....	4
Hypotheses.....	5
CHAPTER 2: HISTORY OF THE ESPÍRITU SANTO MISSION AND ITS INHABITANTS.....	12
European Expeditions.....	12
Espíritu Santo Mission.....	14
The Franciscan Missionaries.....	20
The Aranama and Tamique Indians.....	23
Conclusions.....	26
CHAPTER 3: ARCHAEOLOGICAL INVESTIGATIONS.....	28
Previous Investigations.....	30
Related Sites.....	32
Current Investigations.....	36
CHAPTER 4: RESULTS OF ANALYSIS.....	58
Lithics.....	58
Ceramics.....	74
Faunal Remains.....	90
Molluscan Remains.....	101

Metal.....	105
Glass Objects.....	109
CHAPTER 5: IMPLICATIONS OF ANALYSIS.....	112
CHAPTER 6: CONCLUSIONS.....	126
APPENDIX A.....	131
APPENDIX B.....	144
BIBLIOGRAPHY.....	153

LIST OF FIGURES

	Page
FIGURE 1: Locations of mission Espíritu Santo and Presidios.....	18
FIGURE 2: View of site.....	29
FIGURE 3: Site map.....	33
FIGURE 4: Profile of Test Unit 95-2, Area A.....	41
FIGURE 5: View of refuse midden (Feature 3).....	43
FIGURE 6: View of refuse midden (Feature 3).....	43
FIGURE 7: Feature 3 Excavation Block.....	44
FIGURE 8: Profile of Test Units 95-6 and 95-9, Area B...	46
FIGURE 9: Profile of Test Unit 95-8, Area C.....	48
FIGURE 10: Map of Structures I and II.....	49
FIGURE 11: Structure I ruins.....	50
FIGURE 12: Structure I ruins.....	50
FIGURE 13: Structure I dimensions and architectural units	52
FIGURE 14: Structure II dimensions and architectural units.....	53
FIGURE 15: Structure I wall dimensions.....	55
FIGURE 16: Lithic scrapers.....	60
FIGURE 17: Guerrero projectile points.....	63
FIGURE 18: Cuney and Perdiz projectile points.....	64
FIGURE 19: Darl projectile point.....	64
FIGURE 20: Hammerstones.....	67

	Page
FIGURE 21: Groundstone.....	67
FIGURE 22: Bone-tempered pottery.....	75
FIGURE 23: Bone-tempered pottery handles.....	75
FIGURES 24 and 25: Majolica.....	80
FIGURE 26: Non-associated ceramics and San Elizario Polychrome.....	82
FIGURE 27: Guadalajara Polychrome.....	82
FIGURE 28: Porcelain sherds.....	84
FIGURE 29: Coarse earthenware.....	84
FIGURE 30: Olive jar ware.....	86
FIGURE 31: Possible stone tool cut.....	94
FIGURE 32: Metal cut.....	94
FIGURE 33: Metal hack mark.....	96
FIGURE 34: Bone bead.....	96
FIGURE 35: Grooved and snapped mussel shell.....	103
FIGURE 36: Mussel shell ornaments.....	103
FIGURE 37: Oliva shell pendant.....	104
FIGURE 38: Shell beads.....	104
FIGURE 39: Broken belt buckle.....	107
FIGURE 40: Metal door hinge.....	107
FIGURE 41: Copper fragment.....	108
FIGURE 42: Glass beads.....	110

LIST OF TABLES

	Page
TABLE 1: Summary of Area A Test Units.....	40
TABLE 2: Summary of Area B Test Units.....	47
TABLE 3: Summary of Area C Test Units.....	51
TABLE 4: Attributes of Scrapers.....	61
TABLE 5: Attributes of Guerrero Projectile Points.....	62
TABLE 6: Attributes of Cuney, Darl, and Perdiz Points..	66
TABLE 7: Attributes of Hammerstones.....	66
TABLE 8: Attributes of Bifaces.....	68
TABLE 9: Attributes of Edge-Modified Flakes.....	69
TABLE 10: Attributes of Lithic Cores.....	70
TABLE 11: Attributes of Unifaces.....	71
TABLE 12: Comparison of Feature 3 to Areas A, B, C, and D.....	72
TABLE 13: Vertebrate Faunal Material from Feature 3, 1/8" mesh sample....	98
TABLE 14: Vertebrate Faunal Material from Feature 3, 1/16" mesh sample.....	99
TABLE 15: Quantification and Identification of Cut Marks.....	100

Chapter 1

INTRODUCTION

Mission studies throughout the Southwest, Texas and Florida help to expand our knowledge of Spanish and Native American interaction. Ideally, anthropological studies of culture contact in the context of missions can address questions of acculturation, assimilation, and change. The mission era in North America provides a unique opportunity to examine the effects of contact through religious conversion. Recent investigations of the Espiritu Santo de Zúñiga mission in south Texas supplied valuable data in confronting questions concerning contact and change and the effects on both the indigenous population and the Spaniards.

During the summer and fall of 1995 archaeological investigations were conducted at the presumed second location of the Espiritu Santo de Zuñiga mission on the Guadalupe River in present-day Victoria County, Texas. University of Texas students, local volunteers, and myself completed test excavations in and around the mission ruins under the direction of Dr. Thomas R. Hester.

The Espiritu Santo mission was first established by Franciscan missionaries in 1722 and was located along Garcitas creek about three-fourths of a league from the

Presidio La Bahía del Espíritu Santo near Espíritu Santo Bay on the central Texas coast on the site of Fort St. Louis (O'Conner 1966). The mission and presidio remained at this location until they were moved to Mission Valley, an area along the Guadalupe River, in 1726. This move was prompted by hostile environmental conditions and an aggressive native population, the Karankawa Indians, present at the Garcitas Creek location. At the second location of the mission, the Franciscan missionaries hoped to recruit and missionize the "friendlier" Aranama and Tamique Indians of the area. The mission was moved a final time in 1749 for defensive reasons to a site along the San Antonio River in present-day Goliad, Texas (Mounger 1959). The mission remained here until its secularization in the 1830's (Walter 1951).

The data obtained from the excavations at the second location of the mission provide an excellent opportunity to examine the material culture and lifeways of the mission's occupants. This thesis focuses primarily on examining the context of European contact at the mission using ethnohistoric and archaeological data. I address questions concerning the effects of contact on the Indians and the missionaries present at Espíritu Santo and how these are reflected in the archaeological record. Were the Aranama and Tamique Indians resisting missionization? If so, what

patterns would we expect to find in the archaeological record? Do the prehistoric technologies of the native population persist after contact? Were the Indians adopting any Spanish cultural traits and, if so, which ones? What effects did contact have on the missionaries and how is this reflected in the material remains? These issues are examined through the analysis of the artifacts recovered and historic and ethnographic information pertaining to the mission.

Due to the early establishment of the mission (1726), the Franciscans and the Aranama and Tamique Indians they recruited for missionization experienced a rare contact situation on the south Texas coastal plain. Despite previous European contact with both French and Spanish settlers and explorers, this was the first long-term interaction the Indians had with a missionary institution. In the following chapters I discuss the history of the mission and its inhabitants, the archaeological investigations conducted at the site, the data set and its analysis, and the results and conclusions of this research. Chapters 2-5 are outlined below followed by a discussion of the hypotheses I formulated for testing.

THESIS OUTLINE

Chapter 2 addresses the history of the mission and its native and Spanish occupants. With the aid of historical documents and ethnohistorical and archaeological information, I provide a chronology of the second location of Mission Espíritu Santo. In addition to a discussion of the mission, this chapter also examines the native populations living near the mission during the first half of the eighteenth century. Information regarding their customs, social organization, technologies, ideologies, and way of life are presented. Likewise, a review of the Spanish in Texas and the Franciscan missionaries also provides a summary of their customs, world views, and their economic, political, and social organization. This information allows for a better understanding of the contact situation and all the participants involved. Once this baseline is established, predictions are made about how this might be reflected in the archaeological record.

Chapter 3 outlines the archaeological investigations conducted at the mission. In addition to the work completed in 1995, previous investigations are also discussed. Archaeological work conducted at other sites associated with this mission is important and is, therefore, reviewed. The purpose of this chapter is not only to summarize the

archaeology of the mission, but also to explain the field procedures. In addition, a brief description of the structural and architectural remains is also included.

Chapter 4 focuses on the cultural implication of the artifact analysis. The results of the analyses are discussed and their implications are reviewed. Each hypothesis is individually considered. The results are summarized and conclusions are reached. Summary tables for those units that were focused upon for analysis are provided. A detailed inventory of all artifacts may be found in Appendix A.

Chapter 5 discusses the results of my research and their implications. In Chapter 6 I present final statements about the research conducted and its implications for our understanding of mission archaeology and the contact period in south Texas in particular. This chapter also provides a summary of the work completed at the mission and suggestions for future investigations.

HYPOTHESES

Before stating my hypotheses, a discussion of this paper's theoretical stance is necessary. Theoretically, this thesis is grounded in "acculturation" studies. The way

in which the term "acculturation" is applied in this study, however, needs to be defined. Many definitions of acculturation exist in the anthropological literature exemplifying the changing status of acculturation studies and their various implications. Robert Lowie (1934: 226) defined acculturation as "assimilation to an alien culture". The SSRC Seminar (1954) provided a broader concept for acculturation viewing it as culture change instigated by the conjunction of two or more distinct cultural groups. This definition implied two very significant things. First, acculturation was to be viewed as a *type* of culture change and, secondly, as an ongoing process that is distinct from innovation, invention, and discovery (Bee 1974). The way acculturation was to be examined also varied. Edward Spicer (1961), a proponent of acculturation studies, stresses the need to study the unique contexts of contact and understand the individual cultures involved when examining the processes of acculturation.

Despite the varied definitions of acculturation, there is one aspect that has been a constant problem plaguing studies of this type. The idea, whether implied or explicit, is that acculturation is a unilinear phenomenon. The original use of acculturation terms such as "donor" and "recipient" frequently suggests that one culture assumes

a dominant or donor role while the other culture occupies the subordinate, recipient position with no role reversals occurring between the two (Roseberry 1989). Inevitably, the recipient culture is almost always the indigenous population with European cultures donating their cultural traits and dominating the contact situation. This definition of acculturation does not allow for imbalances in cultural equations or variations in the types of exchanges that take place. In examining the history and archaeology of Mission Espíritu Santo, preliminary evidence suggests that a unilinear type of contact situation did not occur between the friars and the mission Indians. For this reason, a clarification in the definition and application of the concept of acculturation to this study is provided.

The dynamics of culture contact are not a unilinear process but, rather, a multifaceted phenomenon that affects all participants involved. It is important to remember that although there is often an imbalance in cultural exchanges, this imbalance does not always occur on only one side of the equation. Imbalances and shifts of influences in cultural exchanges and diffusion can and do shift between the cultures involved. In order to better comprehend the essence of culture contact and change and to understand how it works and why, we must dissect each contact situation

individually. First, it is necessary to examine the culture themselves. What are their social structures, ideologies, and political agendas? How did each group view themselves as well as the "other". Second, it is important to look at the nature (e.g., economic, religious, conquest) of the contact and what effects this has on the participating cultures. In the case of European contact with New World Indians there are several possibilities including military expedition, missionization, economic interests, and conquest. Once these social circumstances are defined, new questions can be asked about the results of contact and its effects on all the groups involved.

When two different groups of people with contrasting social organizations collide, full incorporation of one group into the other is a near impossibility. What does occur, however, is an exchange of cultural traits that affects both groups. The effects of these exchanges on the Franciscan missionaries and the Native Indians at Espiritu Santo is the focus of this study. Where does the imbalance of exchanges lie? Is there evidence of cultural fusion or resistance? What role did the introduction of European diseases play in the contact situation? Through the careful examination of the historical record, ethnographies, and historical documents, predictions are made about what

patterns the archaeological record may yield. These predictions form the basis of the following hypotheses outlined below.

1. The Indians of Espiritu Santo were resisting missionization and continued, to a certain degree, their traditional lifeways. The Indians were most resistant to those aspects of Spanish culture that affronted their core values. These core values included religious practices and indigenous social organization. Social organization and religious practices are best evidenced in the archaeological record through spatial patterns and artifact divisions in living areas. Archaeological evidence of this nature, if found at Espiritu Santo, would strongly indicate a pattern of resistance to missionization and a persistence of certain aspects of native, prehistoric lifeways.

2. The Aranama and Tamique readily adopted those Spanish traits which were less likely to contradict their own cultural values. Hypothetically, these traits were those which were most beneficial to the Indians and technologically superior to their own. Archaeologically this would be reflected in the recovery of some Spanish-introduced technologies in Indian occupation areas within

the site. This may be represented by metal objects, new shapes of pottery and lithics, and/or the recovery of the remains of Spanish domesticated animals.

3. Due to the missionaries' rigidity and their difficulty to adjust to a relatively new agricultural environment, it can be suggested that the friars were as affected by contact, if not more so, than the Indians. The missionaries were ill-equipped for the surroundings they faced and lacked many of the essentials needed for survival in such an environment. This may have forced the Franciscans to rely on the Indians for foodstuffs and other necessities. This, too, should be reflected in a lack of Spanish material goods and an abundance of native artifacts in areas such as the refuse midden located at the north end of the site which presumably was created by both the native and Spanish occupants of the mission.

In the remaining chapters, each of these hypotheses is addressed in greater detail. Historical documents and records are summarized and an overview of the history of the Franciscans and the Indians of the mission is presented. In addition to the history of the mission, the history of the archaeology conducted at this site and associated projects

are also discussed. The analysis of artifacts in combination with the history of the mission and its occupants forms the basis of my research and is geared towards answering questions concerning contact and change in southern Texas during the 18th century. Ideally, once these hypotheses have been tested, new questions will arise for future research into this topic.

Chapter 2

HISTORY OF THE ESPÍRITU SANTO MISSION AND ITS INHABITANTS

In order to fully address the hypotheses formulated in Chapter 1, it is necessary to examine the contact period of the South Texas Coastal Plain. First, a review of European expeditions in to this part of Texas is presented followed by a discussion of the Franciscan missionaries' motives and agendas. Lastly, the native inhabitants of the mission, the Aranama and Tamique, are discussed.

EUROPEAN EXPEDITIONS

The indigenous peoples in Texas, especially those along the coast, were no strangers to encounters with European explorers prior to the mission era. In 1519, Alvares de Piñeda explored the area from the Gulf of Mexico to Jamaica. Piñeda, it is assumed, is responsible for naming the bay where the first Espiritu Santo mission was located, "La Bahía del Espiritu Santo" (Mounger 1959). Today this bay is known as Matagorda Bay. Less than ten years later, Álvar Núñez Cabeza de Vaca arrived along the coast of Texas with Pánfilo Narváez after their ship wrecked. Cabeza de Vaca and his companions were the first explorers to experience and later speak or write about the interiors of Texas,

Florida, New Mexico, Arizona, and northern Mexico. The royal Spanish expedition was part of a campaign to conquer Florida; a conquista that failed miserably. After eight years of exploring the interior of North America, only four out of the original 300 men, including Cabeza de Vaca, managed to make their way back to "civilization" (Covey 1961: 7).

Of course, not all the European expeditions into the coastal region of Texas were led by the Spaniards. In 1684, one of the most significant voyages to the Texas coast was conducted under the command of René Cavalier La Salle. La Salle originally planned to set up a colony at the mouth of the Mississippi River but he miscalculated his voyage and accidentally landed at Matagorda Bay. La Salle established Fort Saint Louis and a small colony at the bay in 1685 (Figure 1), but he was later killed by one of his men during an expedition to East Texas and the remaining French colonist, with the exception of some children whose lives were spared, were slaughtered by the Karankawa Indians (Weddle 1973).

The settlement of the French in this area was a significant event that caught the attention of the Spaniards. The Spanish had claimed Texas as their own since the time of Cabeza de Vaca's expedition even though they

were quite powerless to colonize the area much less protect it (Weddle 1973). Sharing a common border, the Louisiana-Texas frontier, the French and the Spaniards competed for empire and commerce. Several indigenous groups of Indians lived within this region including the Karankawa, Aranama, Tamique, Caddo and others. A primary objective for both French and Spanish policy was the domination of these groups. Once control of these groups was established, the ultimate goal of territorial possession could be attained. For the French, trade with the Indians was the key to domination while the Spaniards relied on the missionaries to convert the Indians to the Christian faith (Bolton 1914). Thus, a fierce competition and distrust for one another arose.

ESPÍRITU SANTO MISSION

Several Spanish expeditions were conducted in order to locate Fort Saint Louis and the French colony. It was not until 1689, however, that the governor of the Province of Coahuila, Alonso De León, would lead a Spanish entrada past the Nueces river to find the remains of the French fort (Bolton 1914).

The French encroachment along the present-day Texas-Louisiana border caused a great deal of concern for Spanish

officials, prompting them to give greater attention to this area of Texas than they had previously. After De León's discovery of La Salle's fort, Mission San Francisco was established near Neches river in present-day Houston county. This mission, however, did not succeed. It was not until 1717 that another Spanish expedition into Texas was launched in order to prevent the French from gaining control in the area of Espiritu Santo Bay (Mounger 1959). A royal cedula was issued in July of 1718 ordering the establishment of a presidio at Espiritu Santo Bay near the location of La Salle's fort (Figure 1). It was 1722 before a mission was founded in conjunction with the presidio (Bolton 1914). The first location of the mission and presidio, however, did not survive. Karankawa aggressiveness toward the Spaniards, the failure of crops, and hostile environmental conditions proved intolerable for the Spanish settlers and, subsequently, arrangements were made to move the presidio and mission to a more desirable location (Almazán to the Viceroy, March 24, 1724).

The second location of the mission and presidio (Figure 1) were considered much more hospitable by the Spaniards since the Indians that lived in the area, the Tamique and the Aranama, were thought to be a much less hostile group of Indians than the Karankawas. The mission was to be located

ten leagues west of the first location along the Guadalupe River in an area that is now referred to as Mission Valley (O'Conner 1984). The locations of the presidio and the mission were described by Governor Almazán in a letter to the Viceroy of New Spain in Mexico City on July 4, 1726:

...it has the advantage of being on higher ground, away from the lagoons and swamps, has sweet soft water, an abundance of timber for all construction and at a distance of two leagues, an abundance of good rock for building and there is the hope of being able to find a quarry much nearer...another creek (west side) at a distance of three leagues having an abundance of water and with sufficient land for an ample mission, and to cultivate for the needs of the Presidio...

Almazán (1726) also reported that there were some 200 persons making up the population of both the presidio and the mission. The availability of water for raising livestock and crop was an important criteria for choosing a mission location (Fox 1991).

At the first location of the mission, Franciscans attempted but failed to missionize the local Karankawa Indians. It was hoped, however, that the "friendlier" Aranama Indians would be more conducive to mission life. It was reported that over 400 Aranama Indians were brought to this mission when it was first established (Ramsdell 1938). Unfortunately, little mention is made of the mission inhabitants or their daily lives in historical documents.

Letters and diaries of expeditions and military inspections comprise the majority of archival materials. These sources rarely speak of mission life or everyday conditions and primarily deal with military issues and the presidio. In 1749 the mission and presidio were moved a final time to a location (Figure 1) along the San Antonio River in what is now Goliad, Texas. This relocation was prompted by the colonization plan of Nuevo Santander who was commissioned by José de Escandón. The Spanish government, fearful of losing possession of the territory north of the Rio Grande, chose Escandón to explore the area and formulate a plan to stop the encroachments of the English and the French. His recommendation included the creation of a chain of forts from the Gulf of California to Espiritu Santo Bay. He was granted permission to move the fort and the mission from the Guadalupe River to the San Antonio River (O'Conner 1984).

At this location, missionaries attempted to gather together both the Aranama and the Karankawa Indians. This was not an easy task, and in 1755, a separate institution, Mission Rosario, was established for the Karankawa Indians. The Aranama and Tamique Indians continued to reside at Espiritu Santo where the mission's economy thrived on raising cattle. During the 1780's, however, their herds began to dwindle due to confiscations of unbranded cattle by

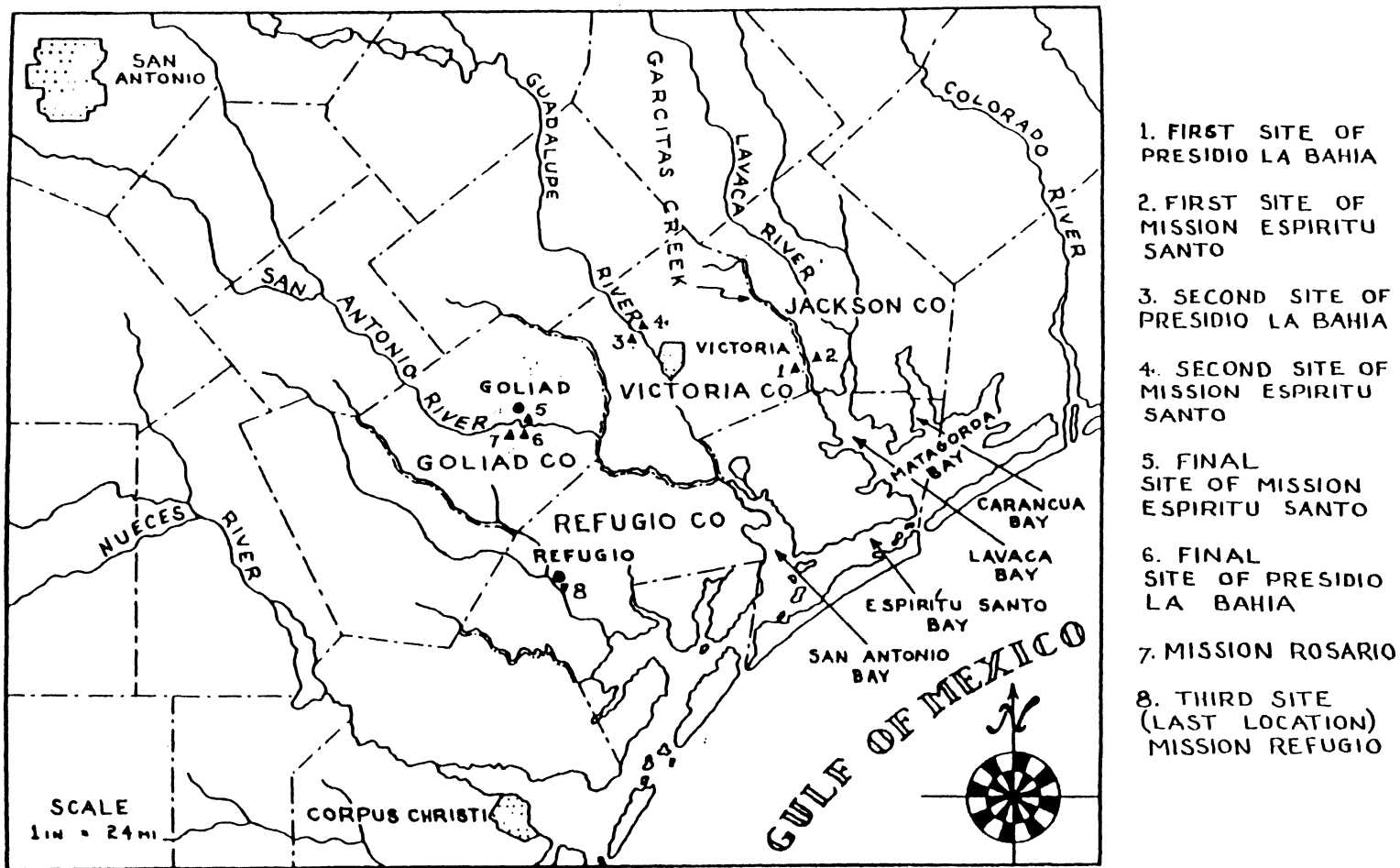


Figure 1: Locations of mission Espiritu Santo and Presidios

the Spanish government and other settlers thus, prompting its dissolution. The mission remained in operation until it was secularized in 1830. Mounger (1959: 53-54) relays the demise of Mission Espiritu Santo:

Vacillating Spanish policy on the frontier, unfavorable regulations in regards to the mission cattle herd, raids by unfriendly Indians, and lack of long-term success in Christianizing the mission Indians led to the eventual failure of the mission. By 1830 there was no longer any Indians at Espiritu Santo. The friars had tried to Christianize the Indians to change their culture to that of the Spanish European and, with the help of the Spanish soldiers, to protect the frontier for Spain. All three efforts failed.

The three locations of the mission discussed above have recently become a topic of controversy. The second location of the mission has been challenged by Kay Hinds. Hinds (1995) cites documentary evidence suggesting that the site along the Guadalupe River, where excavations were conducted this past year, is the third not the second location of the mission. An "interim" site built on Tonkawa Bluff is believed to be the second location of the mission before it was moved to Mission Valley (Hinds 1995: 8). Although it is important to note Hinds' findings, they are not a major concern for this research and have little effect on this study. Until more evidence comes to light supporting Hinds' contention I will continue to refer to the site in

Mission Valley near the Guadalupe River as the second location of the mission.

THE FRANCISCAN MISSIONARIES

The conversion of the Indians was a priority for the Spaniards yet they were also concerned with territorial possession. The competition for land between the French and the Spanish was a source of friction and anxiety for both groups. In order for Spain to gain possession and authority over territories in New Spain, especially those areas along the frontier between present-day Louisiana and Texas, it was necessary to establish an influence over the natives. Missions, backed by military force, were one way of attaining this influence (Bolton 1914).

The Spanish missionaries were part of an overarching colonial authority that looked to the New World for wealth and power. The Spanish missions served not only as Christian institutions, but also as symbols of Spain's claim to Texas. The Spaniards believed their actions were religiously justified and were so convinced of their objectives that the Spanish felt those who were subject to their rule would comprehend their conquest (Sylvest 1975). Through missionization, the Spanish viewed the Indians as

potential sources of labor and citizens of Spain. Sylvest (1974: 23) notes that "although there were other grounds for conquest and colonization, it is apparent that the religious impetus was central and that other interests were justified by, and ultimately related to, the missionary enterprise".

The missionaries that helped found Espiritu Santo were deployed from the College of Guadalupe near Zacatecas, Mexico (Ramsdell 1938). These missionaries, like other Franciscans in New Spain, viewed the Indians as perpetual children in need of protection and nurturing. The friars, however, were clearly concerned with the social and economic condition of the Indians (Sylvest 1975). Despite their obvious concern for the Indians' welfare, the missionaries superior attitude undoubtedly antagonized the mission Indians.

After the removal of the mission from Garcitas Creek to the Guadalupe River, Father Augustín Patrón, a devoted missionary at the first location of Espiritu Santo, asked to be reassigned due to illness and was replaced by Father Mariano de Anda y Altamirano in 1727. Father de Anda remained at the mission for ten years and was regarded as a zealous disciplinarian (Alcocer 1788). Oberste (1980) credits Father Anda with the construction and layout of the second mission:

Father de Anda followed during his administration the regimen as carried out by his Apostolic College for many years among the Coahuiltecan tribes across the Rio Grande. A building, however primitive, was immediately built as a house of worship, followed by a dwelling for the priests. Usually a number of small huts or jacals were erected to house the Indian converts and their families. There were then the auxiliary buildings simply constructed to serve as workshops for the teaching of carpentry, black smithin[g], tailoring, instruction in trades and crafts. Housing was also provided for the soldier guards and their families from the neighboring presidio. The entire mission compound was enclosed with a tall stockade of string logs to preven[t] the attacks by hostile Indians. There were also certain ranch lands assigned to the missions for the support of convert. (III-4)

The missionaries were expected to provide religious services for both the mission and the presidio. With the exception of the sick, all of the Indians were required to attend mass and religious instruction (Casteñeda 1936). Religious activities were conducted regularly. Whether or not all of the mission Indians attended these services, however, is not known (Oberste 1980).

Despite the importance of the missions to the expansion of New Spain, many were ill-equipped and under-supplied. Castañeda (1936) notes that the two missionaries present at Espiritu Santo were forced to use their own allowances to purchase corn, beans, and cattle from more prosperous missions. When the mission was established along the Guadlaupe River, the friars spent several years trying to

irrigate their fields. In 1736 the missionaries attempted dry farming with great success and efforts to irrigate crops were abandoned (Castañeda 1936).

Missions in Texas were more than religious centers for converting natives; they served as an essential part of the general penetration of civil administration into the province (O'Rourke 1974). Perhaps, as Corbin (1989) suggests for the East Texas missions, the purpose of these missions was more for defense rather than proselytizing. Corbin examined the location and terrain of various missions in east Texas, especially those in association with the Caddo Indians, and concluded that the Spaniards had a uniform topographic and spatial locality for their missions regardless of its appropriateness for supporting an Indian-based community. He attributes the partial failure of the missions in east Texas to the missionaries' "rigid and conservative ideology and their world view" which is partially reflected in the inflexibility of the architecture and construction of the mission to adapt to its surroundings (1989: 274). Perhaps the same can be said about Espiritu Santo.

THE ARANAMA AND THE TAMIQUE

Historical documentation of the Aranama and Tamique

Indians is limited. Most of the references made about the mission Indians in historical accounts are brief with little or no attention paid to their social organization or lifeways. Unfortunately, historical documentation of the Tamique Indians is almost non-existent and usually consists of a mention of their presence at the mission only. The mission Indians' origins are frequently in disagreement in much of the historical and archaeological literature. For this reason, a review of this literature and the historical documents pertaining to the Aranama and, to a lesser degree, the Tamique Indians is presented.

Linguistically, the Aranama have been linked to the Coahuiltecas (Rodnik 1940) and the Caddoans (Martin 1936). According to Ramsdell (1938), they had no agriculture other than what the missionaries had taught them. They have also been described as hunter-gatherers who resided on either side of the Guadalupe River. Additionally, it has been documented in the historical record and, possibly, in the archaeological record, that they hunted bison (Morfi 1767; Gilmore 1974). Foster (1995) identifies them as a Trans-Colorado River tribe that moved back and forth between the lower Guadalupe and the Colorado rivers. During Fray Gaspar de Solís's 1768 inspection tour of the Franciscan missions in the province of Texas, the Indians of Espiritu

Santo were described as having the same customs, inclinations, and habits as the Karankawa Indians (Morfi 1768). Rodnick (1940) also compares the Aranama with the Karankawa and describes at length the similarities between the two tribes despite their dislike of one another.

Frequently, the Aranama have been mistakenly identified as the same Indians that Cabeza de Vaca encountered in Texas, the Mariames. Campbell (1988: 23) attributes this confusion to the "presumed similarity in names and in the belief that both groups were associated with the same section of the Guadalupe River". O'Conner (1966) identifies the Aranama as a sub-tribe of the Tonkawas. Rivera's (1728) description of the Indians he encountered states that they were a nomadic people who practiced paganism and wore buffalo and deer skin. Later accounts of the Aranama at the mission in Goliad describe the Indians as a "civilized" and "temperate class of aborgionies" that painted their bodies and faces profusely (Linn 1883: 336).

At the Espíritu Santo mission located along the Guadalupe River, cattle played a major role in the lives of the mission Indians. The Indians were expected to tend to the cattle and, consequently, they became skilled ranchers and cowboys (Oberste 1980). Prior to dry farming, however, the missionaries were not always able to provide sufficient

food for the mission occupants. This often resulted in the desertion of the mission by the Indians who would return to hunter-gatherer subsistence strategies in order to survive (Castañeda 1914).

CONCLUSIONS

Whatever the origins of the mission Indians might have been, it is clear that few were successfully converted. Despite the baptism of many of the Aranama and Tamique Indians, the natives regularly deserted the mission and failed to adhere to Christian religious practices. The Indians used the mission for food and protection with no real incentives to honestly convert to Christianity (Mounger 1959). At best, they adopted some aspects of Christianity for short periods of time, but this level of interaction was not to be sustained. There can be no doubt that the mission era in Texas rapidly increased the rate of change for both the Indian and the missionary. The mission Indians likely suffered from European diseases that spread before the arrival of the Spanish (Bolton 1916). The decline in their population due to disease may have been another reason for their residence at the mission where food and protection was often promised. The mission, however, was unable to offer the Indians a steady supply of food and protection.

Why were the missionaries so unsuccessful in converting the Indians? One possibility could be attributed to the friars' world view that so drastically contrasted with that of the Indians. The missionaries were patronizing and conservative. The Indians attempted to manipulate the situation to their advantage by superficially accepting certain traits and participating in mission activities in order to obtain food and protection. This flexibility may have been a result of their hunter-gatherer way of life which depended on this type of organization. Such stark contrasts were likely to cause friction between the friars and the Indians. Additionally, the inconsistent residence of the Indians at the mission when crops and food were unreliable may also have been a factor in the Franciscans failure to fully missionize the Aranama and the Tamique. The friars were not able to insure a stable source of food or protection so there was little incentive for the Indians to remain at the mission. With such irregular attendance, it was difficult for the missionaries to instill Christian ideals and values. Undoubtedly, the missionaries' attempts to indoctrinate and enforce Christian values and ideals affronted the Indians' own cultural and ideological values making it increasingly difficult for the friars to convert them.

Chapter 3

ARCHAEOLOGICAL INVESTIGATIONS

Archaeological examinations at the mission have been limited thus far. In 1936 the mission was formally recognized when the Texas Centennial Commission erected a historical marker commemorating its existence (Oberste 1980). It was not until the 1960's that the site was revisited to investigate a possible burial uncovered by local pothunters. Archaeologists returned to the mission in 1975 and again in 1989 and completed limited subsurface shovel testing and surface collections. The mission is located on privately owned property (Figure 2) making it difficult for archaeologists to gain access to the site. The gap between visits from 1975 to 1989 can be attributed to an uncooperative landowner who prohibited admittance to his property during this time. The current landowners, John and Judy Clegg, have encouraged investigations of the site and allowed both the Office of the State Archaeologist, University of Texas students and myself to complete test excavations in and around the mission site in the spring, summer, and fall of 1995. These excavations represent the first in-depth look at this location of the Espiritu Santo mission.

In addition to the excavations completed at the



Figure 2: View of site

mission, investigations at related sites in the area have also been important to the study of this site and the history of the mission. A Mission Creek sandstone dam and acequia, a rock quarry used for building the mission structures, and the related presidio across the river have all been recorded and investigated to varying degrees. These investigations add to the body of knowledge accumulated in the research of Espiritu Santo and help to provide a fuller picture of mission life. For these reasons it is important to review both the previous investigations conducted at the mission and the related sites mentioned above.

PREVIOUS INVESTIGATIONS

In 1936 a granite marker was placed at the mission to commemorate the site. It was also at this time that a layer of cement was applied to the inside walls of the standing ruins in an attempt to preserve the structure. Also, potholes and other areas disturbed by looters and treasure hunters were backfilled. No other work was completed during this period. Pothunting and looting of the site, however, continued to occur and evidence of these activities is still noticeable today.

In 1965, Cecil Calhoun, a local avocational archaeologist, visited the site after a treasure hunter had

exposed a burial resting on the floor of the southernmost structure present at the site. Calhoun (1965) mapped and recorded what was left of the disturbed burial and recommended that attempts be made to conserve the mission ruins. The burial later proved to be too recent to be associated with the Spanish and Indian occupation of the mission. It was not until 1975 that archaeologists were able to return to the site.

E. H. Schmiedlin, Anne Fox, and C. K. Chandler completed a surface survey and collected a variety of artifacts in a visit to the site in 1975. Again, evidence of looting and disturbance by pothunters was noted within the mission ruins. Surface collections consisted of copper fragments, mission pottery, debitage, and iron and lead fragments. In 1989, Schmiedlin, a steward for the Office of the State Archaeologist (OSA), returned to the site and made several observations about its surroundings, the state of preservation, and its potential for archaeological research. Preliminary sketches and photographs of the site and the mission ruins were taken and a detailed report of his visit was submitted to Bob Mallouf at the OSA and Thomas R. Hester at the Texas Archeological Research Laboratory in Austin.

When the current landowners, John and Judy Clegg, acquired the land in 1994, the opportunity for an in-

depth study of the mission was made possible by their interest in preserving the site. The Office of the State Archaeologist was asked to investigate the remains of the mission and explore possibilities for its future. In the spring of 1995, the OSA conducted limited subsurface testing at the site to evaluate its potential for future research. Two 1 x 1 meter units were excavated and surface collections were made. Test Unit A was placed approximately 25 meters northeast of Structure I (Figure 3). Unit A yielded shell, debitage, faunal material, several pieces of painted wall plaster, ceramics, a wood fragment with red pigment, charcoal, perforated shell, and daub. An intact wall was discovered along the east wall of this unit. Test Unit B was placed along the outside of the east wall of Structure I (Figure 3). Mortar fragments, bone, debitage, a scraper, pottery, and shell were all recovered from Unit B. Surface collections included bone, pieces of majolica, and a shell button. All of the artifacts were cleaned and cataloged but no analysis has been completed. The OSA recommended that further testing be completed at the mission (Mercado-Allinger 1995).

RELATED SITES

Investigations at sites related to the mission

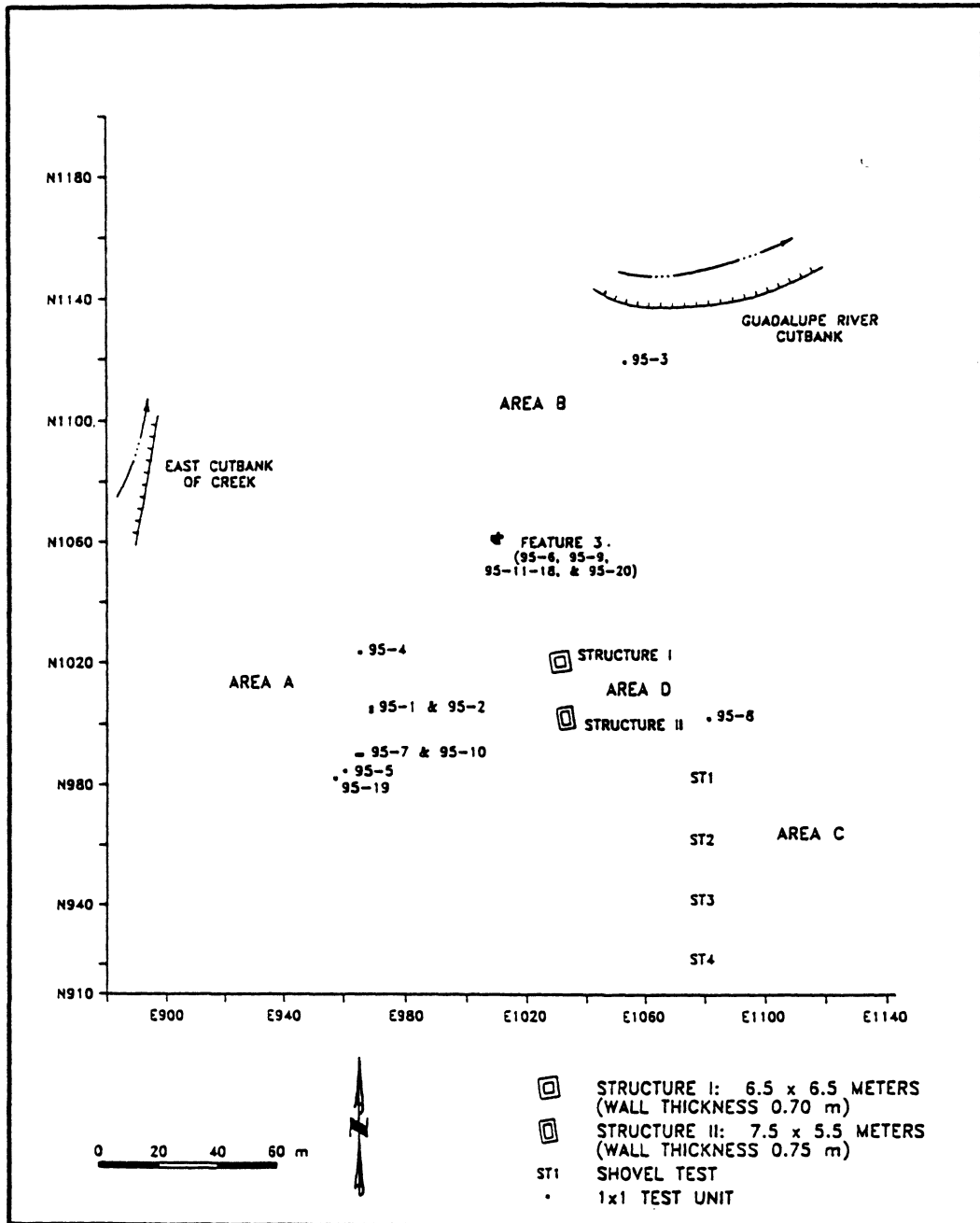


Figure 3: Site map (Courtesy Suzanne Luhr)

contribute valuable information to the study of mission Espiritu Santo. A mission dam site, the mission rock quarry, and the related Presidio across the river are intricately tied to the history of Espiritu Santo. Therefore, a review of the investigations and research of each site is provided.

The first dam site, 41VT13, is approximately eight miles northwest of Victoria on the left bank of Mission Creek located on private property (Calhoun 1966). Calhoun surveyed, mapped, profiled, and photographed the site. The site consists of the remains of a stone dam and acequia that dates to the early 18th century and is believed to be related to the second location of the mission. Calhoun suggests that the dam was built during the time the mission was occupied and was used to irrigate the fields. Portions of the dam are still intact today, although they are in poor condition.

Archaeological investigations at Presidio de Loreto, 41VT8, were first conducted by John Jarrett in the late 1960's. The presidio is on the left bank of the Guadalupe River southeast of the mission (Figure 1). Calhoun (1966) surveyed the site in 1966 and completed limited testing and surface collections. In 1968, the Texas Archeological Society (TAS) completed excavations at the site although a

report of their findings is yet to be published. During the TAS excavations, walls and a rock foundation were exposed and a burial was uncovered. The burial is not thought to be directly related to the presidio, however, it may be of Indian origin (Bill Birmingham personal communication). In 1980, five test units were excavated at the site under the supervision of Schmiedlin and Birmingham. Several metal objects, majolica fragments, and bone-tempered ware were recovered at this time (Schmiedlin 1980). No further work has been completed at the Presidio since 1980.

During the fall excavations at the mission, 41VT11, Schmiedlin found what appears to be a rock quarry approximately 1 km south of the mission ruins. The quarry was mapped and recorded in December of 1995 but no subsurface testing was completed. The quarry is described as a sandstone outcrop with a vertical face that shows evidence of chiseling. Approximately 10 meters of material has been removed from the outcrop. An inspection of the sandstone at the site strongly suggests that the stone material used for constructing the mission buildings originated from this quarry (Schmiedlin 1995). Schmiedlin (1995) also notes the existence of marked depressions that run parallel to the quarry face that may represent the remnants of a road once used as a haul road or the Presidio

road opened by Bustillo in ca. 1726.

CURRENT INVESTIGATIONS AT 41VT11

Archaeological investigations resumed on June 22 and continued until July 11 of 1995 when myself, Hester, University of Texas field school students, and local avocational archaeologists completed test excavations at the site. The goal of this phase of work was to investigate areas within the site that would yield the best information about the native occupants of the mission or were to be affected by construction activities. Test units were placed outside the mission ruins in areas believed to be occupied by the Aranama and Tamique Indians. Additional testing within the standing ruins contributed to our knowledge of the architecture of the structures and verified their Spanish origins.

In the fall of 1995, we returned to the site to complete additional testing in an area northwest of the mission ruins that was to be affected by construction of the Clegg's home. This area of the site contains a trash midden consisting of faunal remains and lithic artifacts, pottery sherds, and shell. For this reason, the fall excavations concentrated primarily on salvaging the midden from any destruction that might result from construction activities.

The site has been divided into four areas: the area west of the standing structures, the area north and northwest of the structures, the area east of the structures, and the area in and around the standing mission ruins. These areas have been labeled A, B, C and D, respectively (Figure 3). Archaeological investigations were completed in each of these areas although to varying degrees of intensity.

Initial surveys indicated mission Indian occupations to the east (Area C) and the west (Area A) of the mission structures, so test units were placed in these areas. In addition, artifacts and faunal material were found to the northwest (Area B) of the ruins in an area impacted by recent bulldozing that exposed a lens of well-preserved faunal material. Test units were also placed within this concentration of bone that was later designated Feature 3. Architectural units were placed within the mission ruins (Area D) in an attempt to define the extent and purpose of the structures.

In all, 19 1x1 m test units, one 50x50 cm unit, eight architectural units, and four shovel tests were excavated (Figure 3). The test units were labeled with the year (95) and a number (1-20) designated by the order in which the units were excavated. Elevations for the test units placed

in Feature 3 were taken from the surface where temporary datums were placed in the units' highest surface corners. For the remaining test units, a datum was placed in the southwest corner and all elevations were taken from below datum. Each unit and shovel test was removed in 10 cm arbitrary levels except for those units placed in Feature 3. Feature 3 test units were excavated as one cultural level and were terminated just below the midden deposits. All of the dirt removed from the units was screened through 1/8" wire mesh, except for fine screen samples that were screened through 1/16" mesh. A sample of terrestrial gastropods was collected from each level of every unit. These samples are useful as environmental indicators and can, potentially, help to date a site if needed. Finally, before the test units were backfilled, a detailed sketch of each unit's profile was drawn. The architectural units placed in the mission ruins were removed non-systematically and were not screened or profiled.

The following is a brief description of the summer and fall excavations organized by areas. More detailed descriptions of each unit with data tables for the artifacts and faunal materials recovered are in Appendix A.

Area A

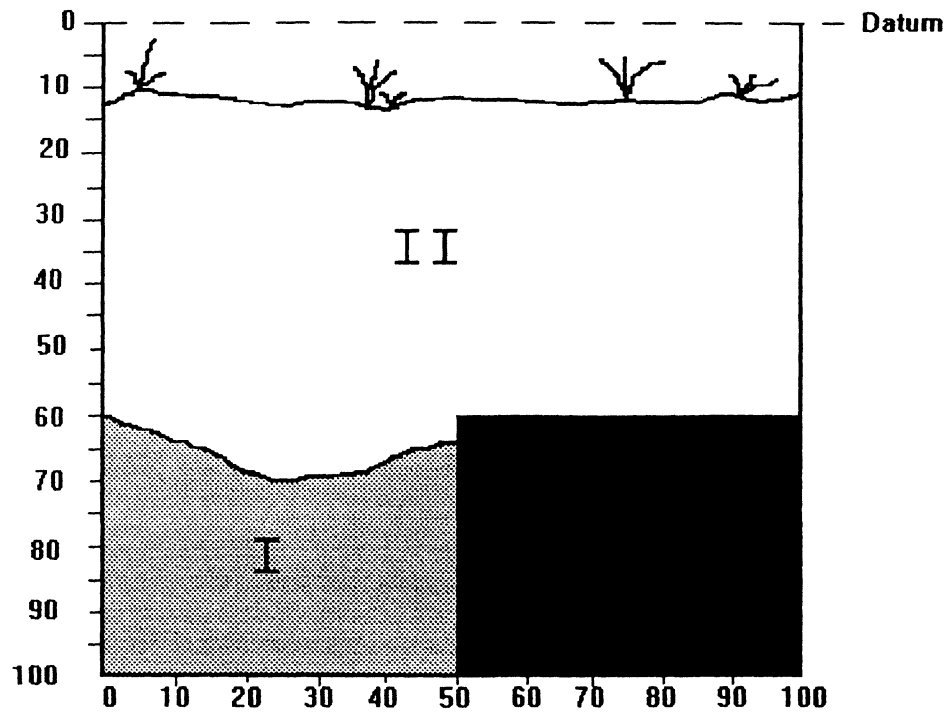
Area A (Figure 3) includes the area west and southwest of the mission structures that consists of an anaqua grove on a long, low ridge. Besides the location and close proximity of Area A to the mission ruins, the presence of the anaqua grove and the observation of numerous surface artifacts were primary factors for excavating in this area. Anaqua groves in south Texas are often associated with the presence of archaeological sites (Schmiedlin 1993). Test units' 95-1, 95-2, 95-4, 95-5, 95-7, 95-10, 95-19 and several surface collections were found within Area A (Figure 3). Table 1 provides a brief summary of the testing results from this area.

Unspecified amounts of fine screen materials were removed from units 95-1, 95-2, 95-4, 95-5, 95-7, and 95-10. Lithic debitage, ceramics, faunal remains, shell, metal and glass fragments were all recovered from the fine screen samples taken from Area A. Thorough descriptions of these artifacts are provided in Appendix A. The profile of test unit 95-2 represents the strata in Area A (Figure 4).

Table 1: Summary of Area A Test Units						
TEST UNIT	LITHICS	BONE	CERAMICS	SHELL	METAL	OTHER
95-1 (0-50 cmbs)	141 Flakes 1 Tool	278	52 Bone-Tempered 2 Other	52 Freshwater 1 Marine	0	0
95-2 (0-100 cmbs)	410 Flakes 1 Tool	273	114 Bone-Tempered 2 Other	55 Freshwater 2 Marine	2 Nails	1 Glass Bead
95-4 (0-50 cmbs)	473 Flakes 1 Tool	261	110 Bone-Tempered 7 Other	45 Freshwater	1 Copper Piece	1 Glass Bead
95-5 (0-40 cmbs)	180 Flakes 5 Tools	389	100 Bone-Tempered	98 Freshwater	0	1 Glass Bead 2 Glass Fragments
95-7 (0-45 cmbs)	792 Flakes 5 Tools	425	31 Bone-Tempered 2 Other	580 Freshwater	0	0
95-10 (0-40 cmbs)	958 Flakes 3 Tools	494	97 Bone-Tempered	456 Freshwater	31 Fragments	1 Glass Frag
95-19 (0-30 cmbs)	455 Flakes 1 Core	441	139 Bone-Tempered 1 Other	165 Freshwater	5 Fragments	1 Glass Frag

Two features were identified in Area A. Both of the features were encountered in unit 95-7. Feature 1, found in level 2 (20-30 cmbd), consisted of a large concentration of lithic debris. Its designation as a feature was based on a noticeable density of lithic materials within a discreet vertical and horizontal locality. The feature was comprised primarily of flakes and lithic shatter, possibly indicating a work station for lithic reduction. Feature 2, found in level 3 (30-40 cmbd), consisted of a dense concentration of mussel shell concentrated in a specific area within the unit. Feature 2 may have been the result of shell processing and consumption activities.

TEST UNIT 95-2 WEST WALL PROFILE



II Moderate to loosely compacted, dark grey, sandy clay loam.
10 YR 3/2

I Moderate to heavily compacted, light grey to grey, sandy loam.
10 YR 6/1-5/1

■ - Unexcavated area

Figure 4: Profile of Test Unit 95-2, Area A

Area B

Area B (Figure 3) encompasses an area north and northwest of the mission ruins that extends to the cutbank of the Guadalupe River. It includes an area where construction had impacted the site and exposed a concentration of faunal remains (Feature 3). Initial excavations within this area confirmed the existence of a refuse midden (Figures 5 and 6). The midden was designated Feature 3 and in the fall of 1995 we returned to the site to salvage the remaining portions of the feature before construction of the Clegg's home began. The majority of the test units located in Area B were placed within Feature 3 (95-6, 95-9, 95-11, 95-12, 95-13, 95-14, 95-15, 95-16, 95-17, 95-18, 95-20). Test unit 95-3 was the only unit in Area B not associated with the feature. Unit 95-3 (Figure 3) was placed on a knoll north of the mission ruins near the cutbank of the river.

Ten 1 x 1 meter units and one 50 x 50 cm unit were excavated within Feature 3 (Figure 7). Approximately 75% of the feature was removed. With the exception of units 95-6 and 95-9 (both units were excavated in the summer of 1995), a five-gallon bucket of dirt was removed from the southwest quadrant of each unit within the feature and fine screened through 1/16" wire mesh. Vertical measurements were taken

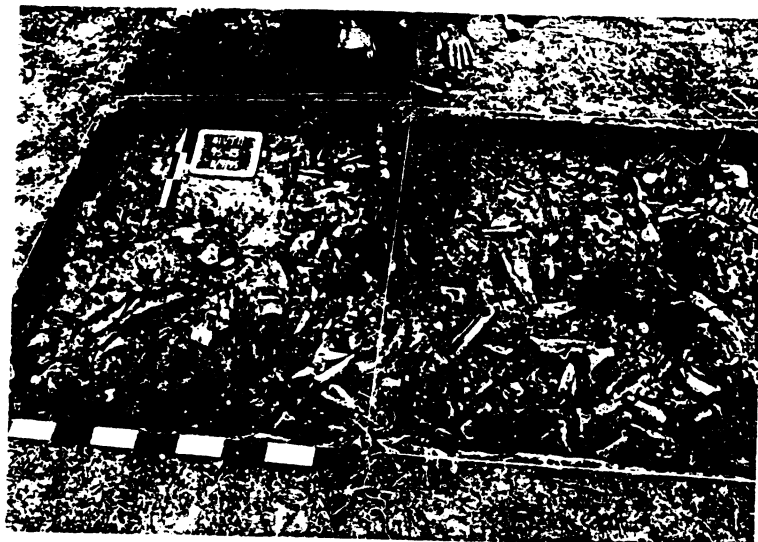


Figure 5: View of Feature 3 (95-14 and 95-15)



Figure 6: View of Feature 3 (95-6 and 95-9)

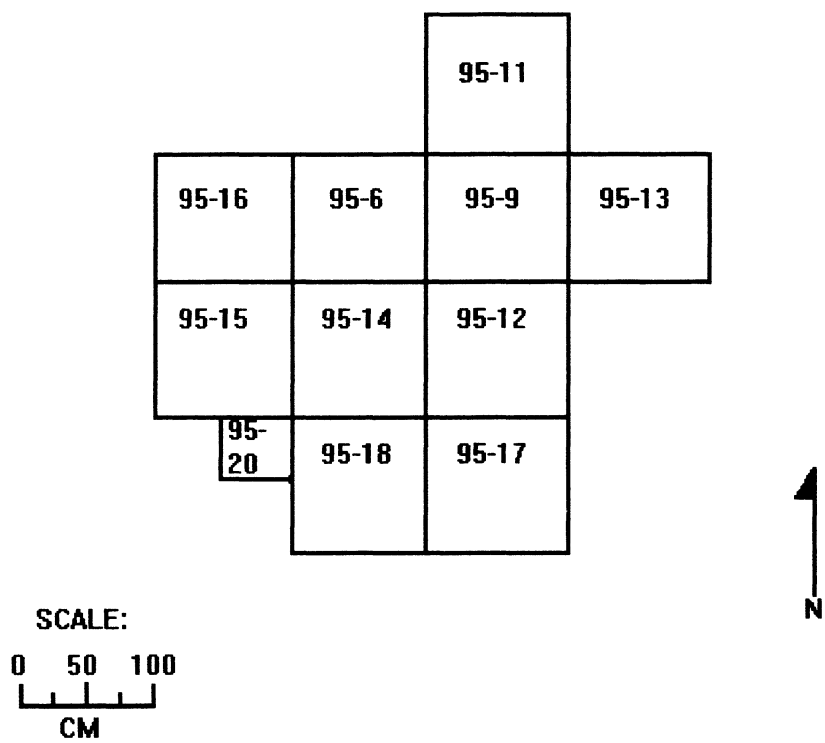


Figure 7: Feature 3 excavation block

from a datum placed at the highest corner of each unit (usually the southeastern corner) and every unit within the feature was excavated as one cultural level. Overburden on top of the midden ranged in thickness from 5 cm to 21 cm. The majority of the overburden was removed with shovels until the cultural level was encountered. The dirt removed was screened and faunal materials and artifacts were collected. All of the units were ended when sterile levels were reached below the cultural zone. The profile of both 95-6 and 95-9 (Figure 8) serves as an example of the strata present within the feature. The units excavated in the fall of 1995 (95-11, 95-12, 95-13, 95-14, 95-15, 95-16, 95-17, 95-18, and 95-20) were not mapped with the Total Data Station, however, they were integrated into the existing map created during the summer excavations (Figure 3). Table 2 summarizes the artifacts recovered from the excavations in Area B.

Area C

Area C (Figure 3) is located east and southeast of the mission ruins along a long flat terrace. Non-systematic surface collections conducted in Area C suggested that the site extends into this area. Test unit 95-8 and four shovel tests were excavated within Area C. Test unit 95-8 (Figure

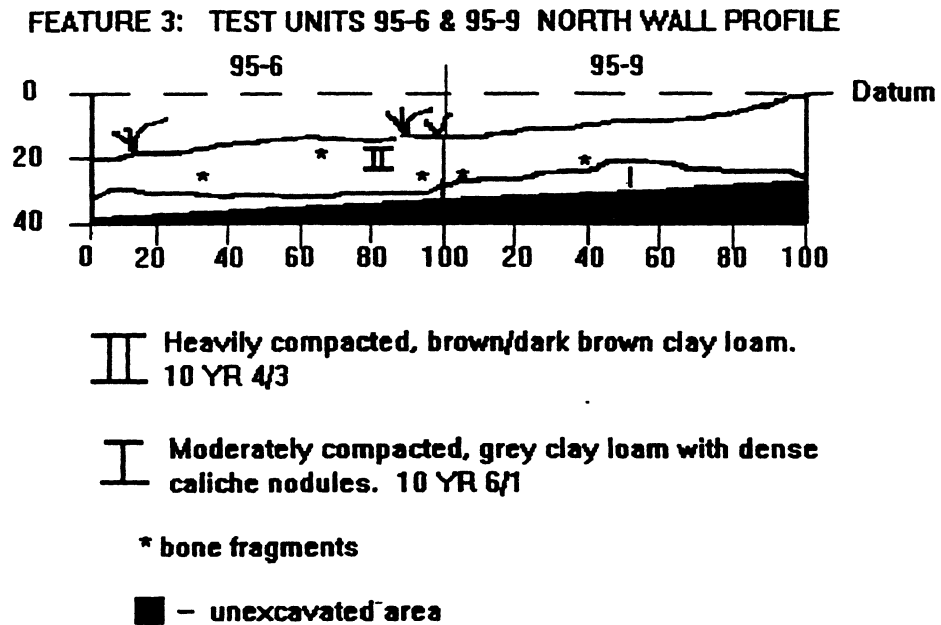


Figure 8: Profile of Test Units 95-6 and 95-9, Feature 3,
Area B

3) was placed approximately 35 meters southeast of Structure I. The profile of 95-8 represents the strata present in Area C (Figure 9). Four shovel tests were placed to the

Test Unit	Lithics	Bone	Ceramics	Shell	Metal	Other
95-3 (0-40 cmbd)	185 Flakes	16	6 Bone-Tempered	9 Freshwater	0	0
95-6 & 95-9 (0-27 cmbs)	353 Flakes 10 Tools	3029	413 Bone-Tempered 1 Other	29 Freshwater	1 Frag	1 Glass Bead
95-11 (0-28 cmbs)	138 Flakes 4 Tools	1850	149 Bone-Tempered 2 Other	8 Freshwater	0	0
95-12 (0-36 cmbs)	105 Flakes 1 Tool	1819	102 Bone-Tempered	18 Freshwater	0	0
95-13 (0-31 cmbs)	73 Flakes 4 Tools	965	154 Bone-Tempered 3 Other	21 Freshwater 1 Marine	5 Copper Pieces 1 Nail	0
95-14 (0-36 cmbs)	82 Flakes 5 Tools	1786	149 Bone-Tempered	8 Freshwater 1 Marine	1 Copper Piece	0
95-15 (0-22 cmbs)	54 Flakes 1 Tool	1371	48 Bone-Tempered 2 Other	16 Freshwater	0	0
95-16 (0-23 cmbs)	49 Flakes 2 Tools	697	32 Bone-Tempered	5 Freshwater	0	3 Nut Shells

east of the mission ruins just south of unit 95-8. The shovel tests were placed approximately 30 meters apart along a north-south alignment (Figure 3). Table 3 provides a summary of the artifacts recovered from Area C.

Area D

Area D includes the area in and around the mission structures (Figure 10). The mission ruins include an above-ground structure with three standing walls (Figures 11 and

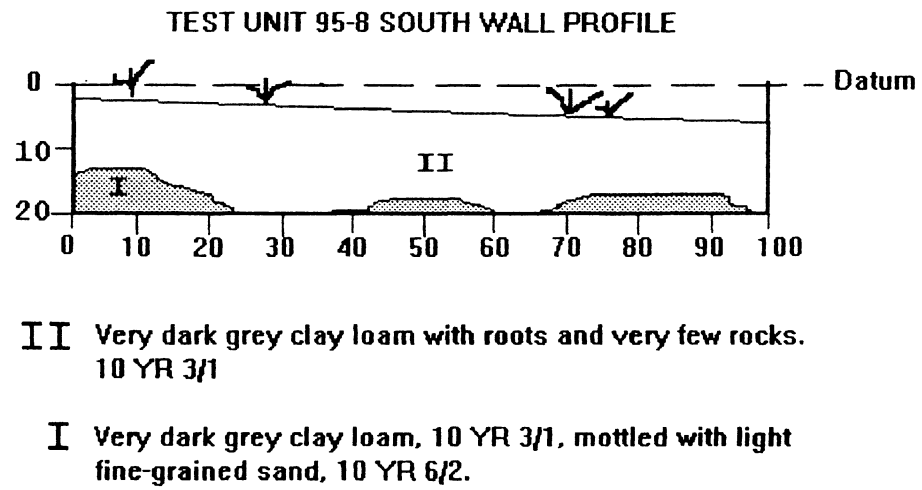


Figure 9: Profile of Test Unit 95-8, Area C

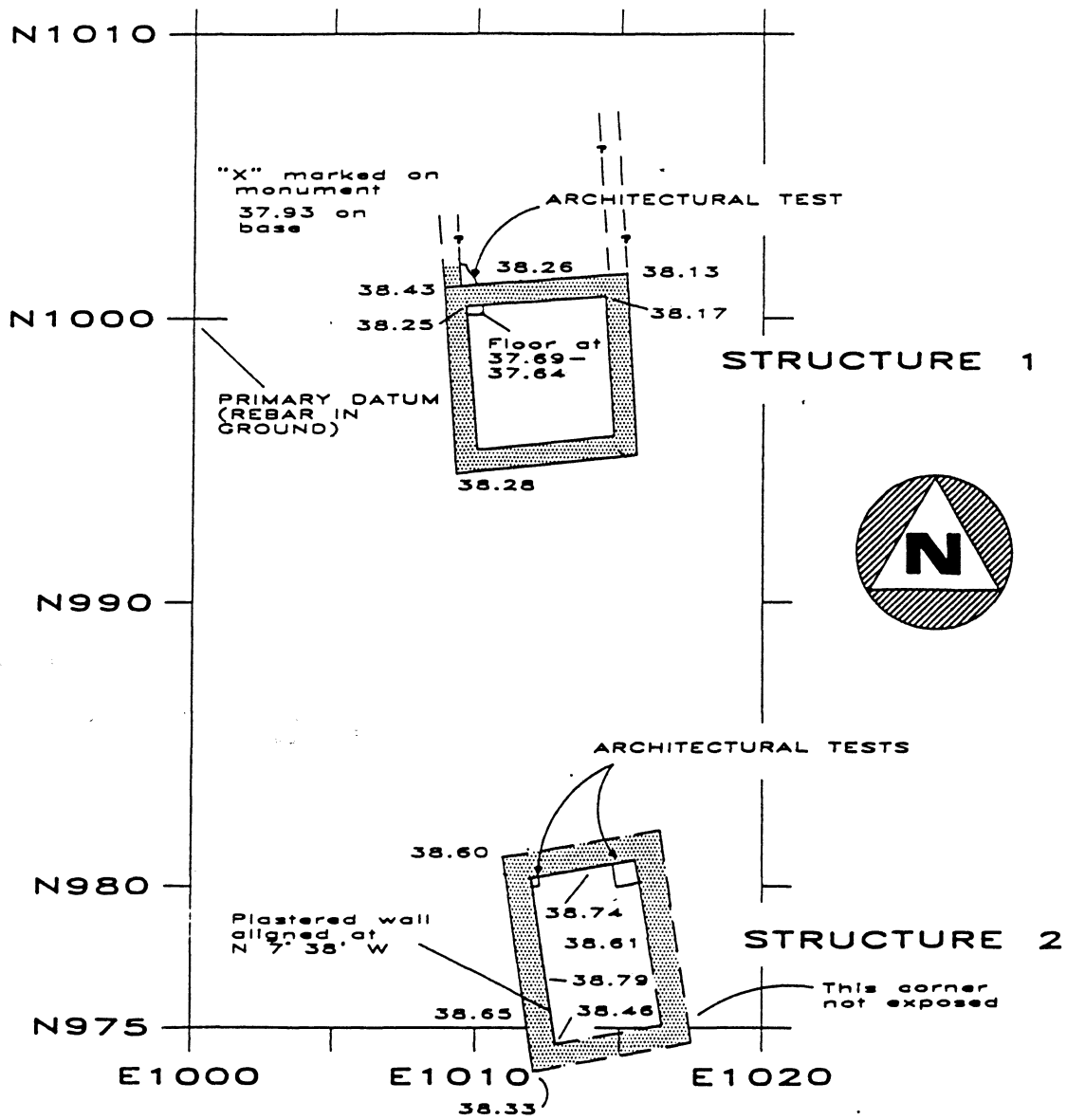


Figure 10: Map of Structures I and II
(Courtesy of Ken Brown)



Figure 11: View of ruins (Structure I) facing southeast



Figure 12: View of ruins (Structure I) facing west

12), designated Structure I, and an alignment of rock located on a mound south of Structure I, designated Structure II (Figure 10). An alignment of rock, although

Test Unit	Lithics	Bone	Ceramics	Shell	Metal	Other
95-8 (0-30 cmbd)	11 Flakes	55	6 Bone-Tempered 3 Other	2 Freshwater	1 Nail 1 Wire	0
Shovel Test 1 (0-20 cmbs)	1 Tool	43	10 Bone-Tempered	3 Freshwater	1 Frag	0
Shovel Test 2 (0-20 cmbs)	3 Flakes	34	1 Bone-Tempered 1 Other	0	1 Spring	0
Shovel Test 3 (0-20 cmbs)	12 Flakes	11	2 Bone-Tempered	1 Freshwater	1 Frag	0
Shovel Test 4 (0-40 cmbs)	1 Flake	17	1 Bone-Tempered	0	0	0

not noted on the site map, is approximately 10-20 meters north-northwest of Structure I and may be the remains of a chapel (Jack Eaton, personal communication). No subsurface testing was completed in this area, however, future investigations should address the identification of the rock alignment.

Eight architectural units of varying sizes were placed within the mission structures. Five units were placed within Structure I (Figure 13) and three units were excavated in Structure II (Figure 14). The purpose of these units was to define the dimensions of the structures and to verify their construction style as Spanish Colonial. Jack Eaton oversaw these excavations and recorded the findings.

STRUCTURE I

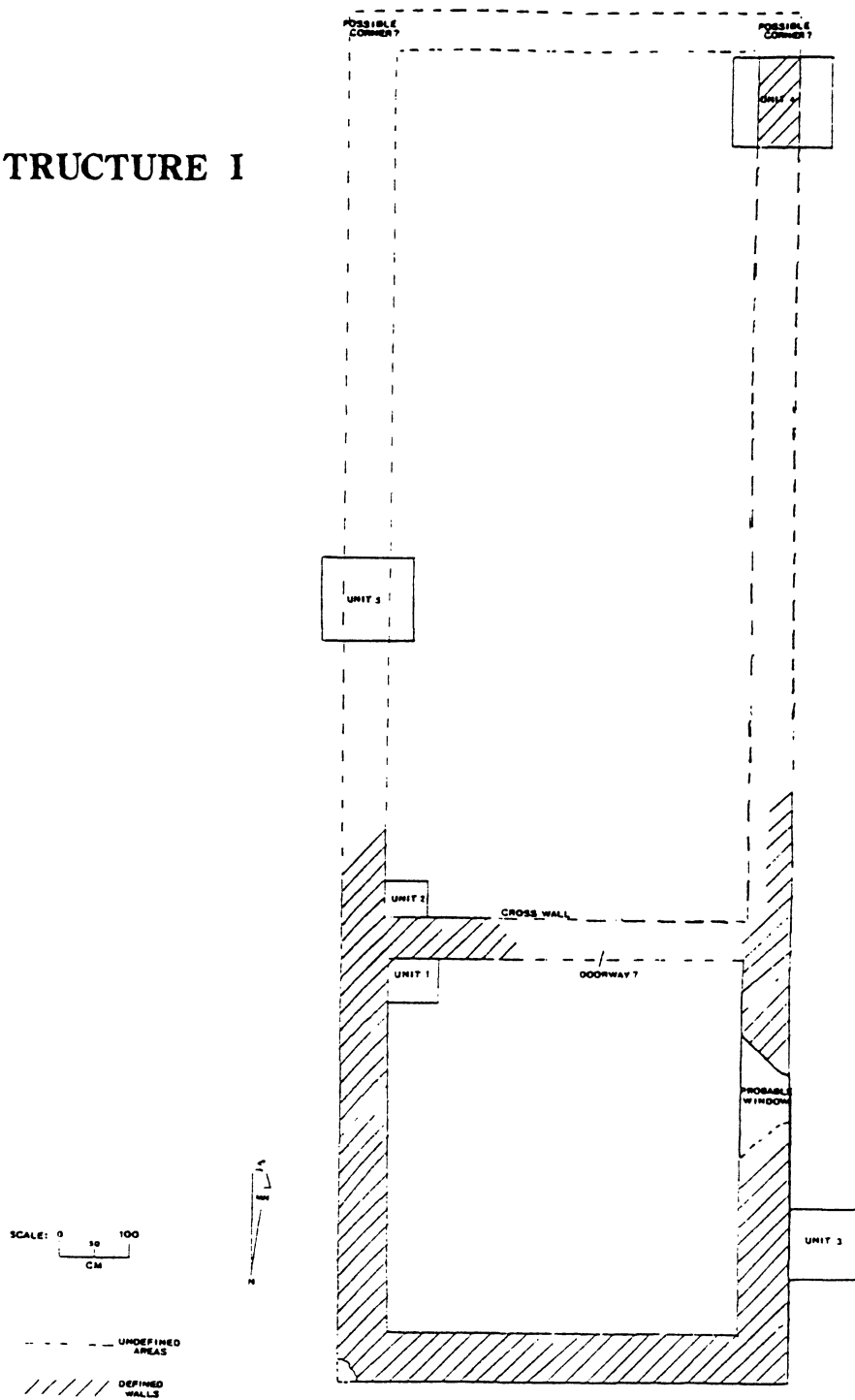


Figure 13: Structure I dimensions and architectural units

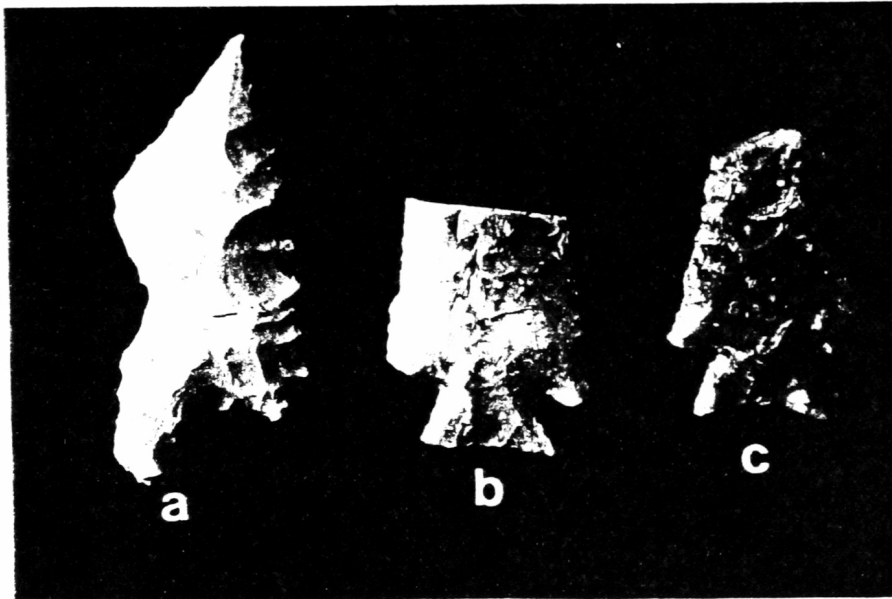


Figure 18: Perdiz (a) and Cuney (b and c)
projectile points

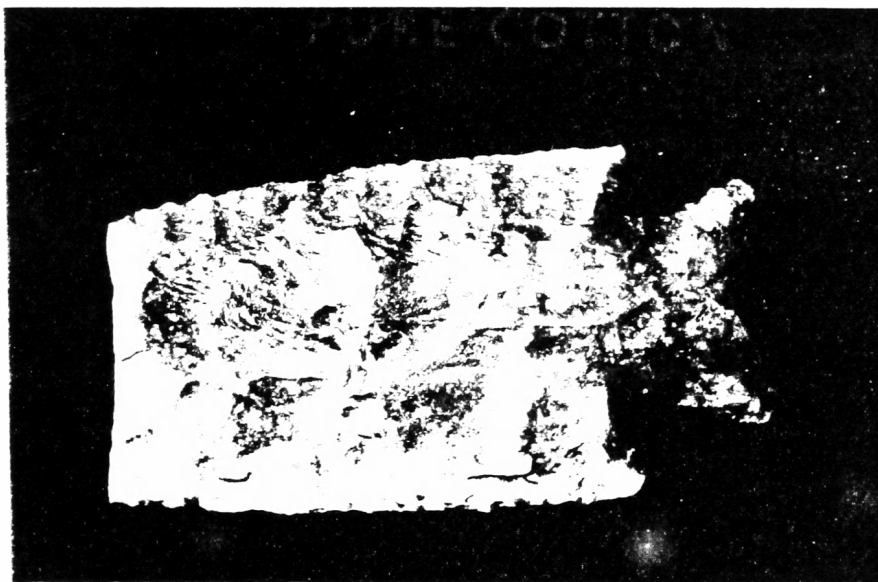


Figure 19: Darl projectile point

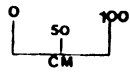
Dirt removed from these units was not screened but some artifacts were collected. Profiles of natural strata were not recorded for Area D.

Units 1 and 2 in Structure I produced bone (a human phalange and part of a rib), hammerstones, a core, one biface, several square nails, and a metal hinge. No artifacts were collected from units 3, 4, and 5.

Excavations in Structure I revealed what appears to be two connecting rooms (Figure 13). The dimensions of the northernmost room of this structure were not determined. Eaton describes this room as a long linear structure that is not clearly defined. The southern room of Structure I proved to be 6.3 x 6.02 meters in dimensions from the outside and there is a probable window in the east wall and a doorway in the north wall connecting the two rooms (Eaton, personal communication). This room was oriented 4 degrees west of magnetic north. The attached room to the north does not quite align with this orientation. The discrepancy in the alignment may indicate that these rooms were not constructed during the same period. The walls measured 70 cm in thickness. The highest point of the structure is the southern wall that measures 3.44 meters in height from the base of the present ground level and 3.75 meters from the base of the structure's footings (Figure 15).

STRUCTURE I

SCALE :



----- UNDEFINED
AREAS

////// DEFINED
WALLS

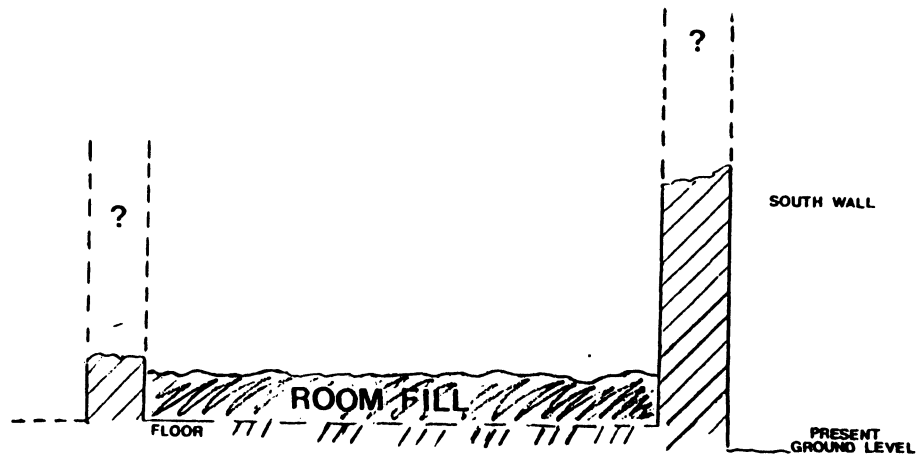


Figure 15: Structure I wall dimensions

Test excavations within Structure II defined the dimensions and layout of a one-room structure (Figure 14). Three units were placed within this structure. The room measures 6.1 x 3.95 meters from the inside walls and 6.85 x 4.7 meters from the outside. The walls are 75 cm in thickness and are oriented 6 degrees off magnetic north. A red plaster wall was exposed along the western portion of the structure. Cultural materials removed from unit 1 include lithic debitage, two pot sherds, and several pieces of wall plaster. Two identifiable bones and wall plaster fragments were collected from unit 2 in addition to the wall plaster fragments and mussel shell found in the back dirt piles. No cultural material was removed from unit 3.

Surface Collections

A number of surface collections were made throughout the site including an intensive collection of artifacts from the bulldozed area northwest of the mission ruins in Area B. These surface collections consisted of debitage, bifaces, scrapers, unifaces, Guerrero projectile points, cores, one hammerstone, metal fragments and assorted metal objects including a possible belt buckle and a metal door latch, bone, mussel shell, part of a snuff bottle, both bone-tempered and Mexican and European pottery, and a Darl

projectile point base.

After the completion of both the summer and fall excavations, photographs, both black and white and color slides, were taken of each unit's profiles. Ken Brown mapped in the test units excavated during the summer with the TDS. The units excavated in the fall were tied into the existing map created by Brown in the summer. All units were backfilled and nails were left in the southwest corner of each unit to mark their locations.

Chapter 4

RESULTS OF ANALYSIS

The 1995 summer and fall excavations were aimed at recovering information about the mission Indians and Franciscan missionaries. Research questions concerning the nature of interaction between the groups residing at the mission helped guide the locations of our excavations. It is with these research questions in mind that I focus on the analysis of the cultural and faunal remains recovered.

During the 1995 excavation, a wide range of cultural material was recovered. This collection of artifacts includes lithics, ceramics, faunal remains, shell, metal, beads, and glass. Each of these categories are carefully examined and described. Results of the analyses are summarized below.

LITHICS

Stone artifacts recovered at the site consist of scrapers, points, edge-modified flakes, bifaces, hammerstones, ground stones, choppers, and debitage. More than 5000 pieces of debitage were recovered. Debitage made up the majority of the lithic artifacts found. Scrapers

comprise 27% of the lithic tools found, projectile points 20%, hammerstones 13%, bifaces 12%, edge-modified flakes 11%, cores 8%, unifaces 4%, ground stone 3%, and other tools 3% of the collection.

Twenty-one scrapers (Figure 16), including end and side scrapers and blade scapers, were collected from various areas throughout the site and are described in Table 4. These scrapers are similar to scrapers found at many of the missions in the area (Mounger 1959, Gilmore 1974, Fox 1979).

The Guerrero projectile point was by far the most common point type recovered during our excavations. Guerrero projectile points are commonly found throughout present-day Texas and northern Mexico at Spanish Colonial missions such as San José (Schuetz 1970), San Juan Capistrano (Schuetz 1968), Concepcion (Fox 1979), San Bernardo and San Juan Bautista (Hester 1989), Rosario (Gilmore 1974), and Espíritu Santo in Goliad (Mounger 1959). The points range in shape from triangular to lanceolate points with occasional parallel-flaking (Turner and Hester 1993). Specimens may also display unifacial or bifacial chipping (Hester 1977). Twelve Guerrero points were recovered during the excavations (Figure 17). Each of these specimens is summarized in Table 5.

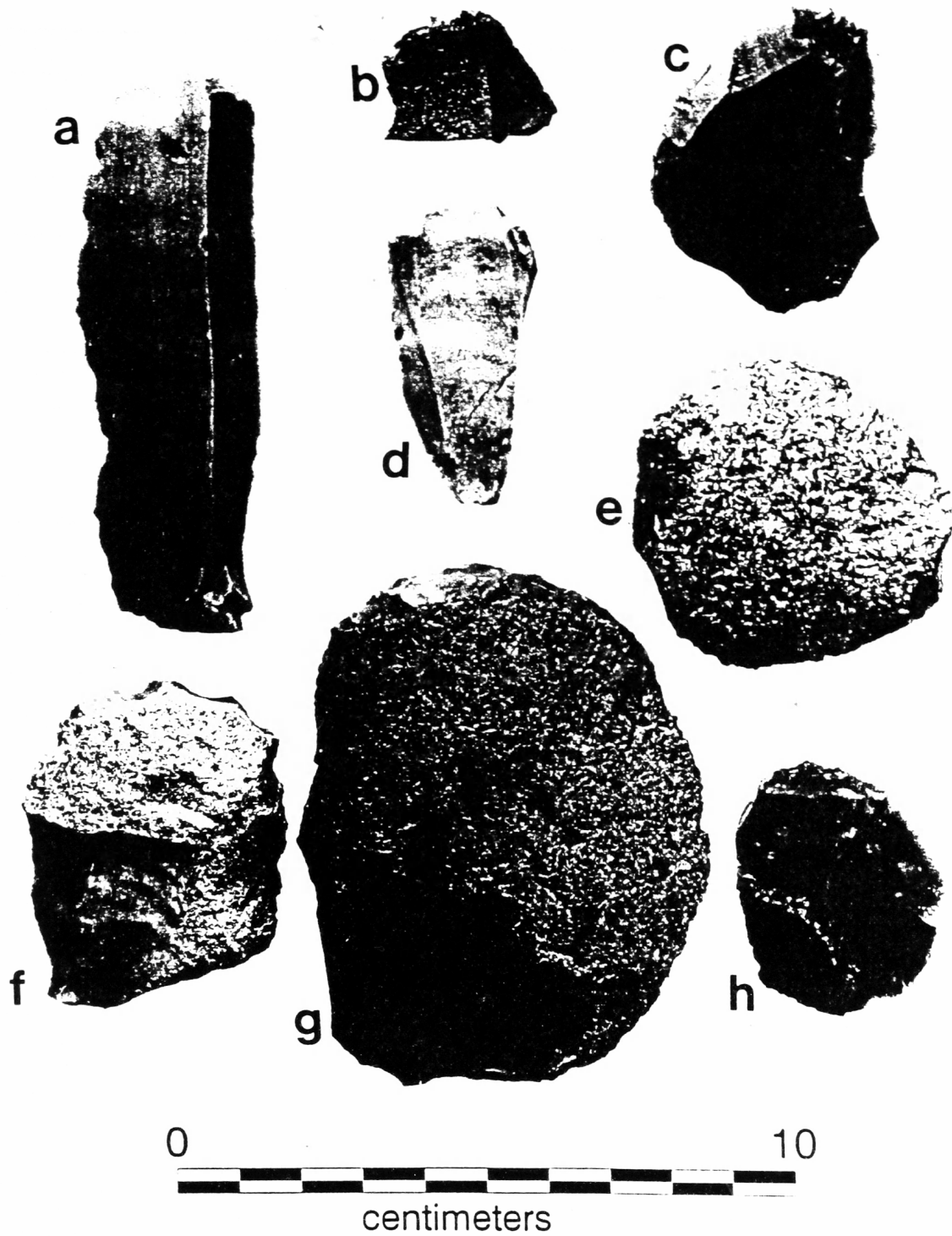


Figure 16: Scrapers (Photo courtesy of Bobby Inman)

Table 4: Attributes of Scrapers							
Specimen	Recovery Location	Material	Length	Width	Thickness	Weight	Description
A*	SC Area B	Brown Chert	91 mm	30 mm	10 mm	31 g	End Scraper on a Blade
B*	Test Unit 95-17 Area B (F3)	Orange Chert	21 mm	27 mm	5 mm	3.7 g	Broken End Scraper
C*	SC Area C	Brown Chert	47 mm	41 mm	14 mm	27.5 g	End & Side Scraper
D*	Test Unit 95-6 Area B (F3)	Yellow/Tan Chert	50 mm	24 mm	5 mm	7.5 g	End Scraper on a blade
E*	Test Unit 95-6 Area B (F3)	Orangish Brown Chert	48 mm	54 mm	11 mm	29 g	Side Scraper
F*	Test Unit 95-17 Area B (F3)	Brown Chert	56 mm	42 mm	18 mm	43 g	End & Side Scraper
G*	Test Unit 95-11 Area B (F3)	Orange Brown Chert	83 mm	65 mm	29 mm	138 g	End & Side Scraper
H*	Test Unit 95-11 Area B (F3)	Dark Brown Chert	41 mm	33 mm	9 mm	16.8 g	End & Side Scraper
I	Test Unit 95-7 Area A	Grey Brown Chert	55 mm	55 mm	19 mm	67 g	End Scraper
J	SC Area A	Brown Chert	41 mm	33 mm	14 mm	21.5 g	End Scraper
K	Test Unit 95-6 Area B (F3)	Brown Chert	32 mm	28 mm	5 mm	5.7 g	End & Side Scraper
L	Test Unit 95-6 Area B (F3)	Brown Chert	41 mm	32 mm	10 mm	14.7 g	End & Side Scraper
M	Test Unit 95-13 Area B (F3)	Dark Grey Chert	45 mm	41 mm	14 mm	32 g	End Scraper
N	Test Unit 95-14 Area B (F3)	Orange Brown Chert	57 mm	37 mm	13 mm	23 g	End Scraper
O	Test Unit 95-14 Area B (F3)	Brown Chert	45 mm	35 mm	12 mm	16 g	End Scraper
P	Test Unit 95-14 Area B (F3)	Brown/Tan Chert	29 mm	43 mm	10 mm	15 g	Broken End Scraper
Q	Test Unit 95-18 Area B (F3)	Brown/Grey Chert	65 mm	38 mm	11 mm	32 g	End Scraper
R	SC Area B	Light Tan Chert	54 mm	39 mm	13 mm	33.5 g	End Scraper
S	SC Area B	ST Pink-Grey Chert	55 mm	35 mm	6 mm	14 g	End & Side Scraper
T	SC Area B	Light Tan Chert	70 mm	48 mm	22 mm	66 g	End Scraper
U	SC Area Unknown	Grey/Brown Chert	43 mm	43 mm	6.5 mm	14 g	End & Side Scraper

ST= Semi-Translucent SC= Surface Collection F3= Feature 3

*See Figure 16

Table 5: Attributes of Guerrero Projectile Points							
Specimen	Recovery Location	Material	Length	Width	Thickness	Weight	Description
A*	SC Area Unknown	Pink/Red Chert	33 mm	11 mm	4 mm	1.7 g	Bifacial; Broken
E*	Test Unit 95-11 Area B (F3)	ST Tan Chert	21 mm	10 mm	3 mm	0.6 g	Unifacial; Distal End
C*	Test Unit 95-11 Area B (F3)	Brown Chert	25 mm	12.5 mm	3 mm	0.8 g	Bifacial; Broken Base
D*	Test Unit 95-9 Area B (F3)	Red/Brown Chert	26 mm	11 mm	3 mm	1 g	Bifacial; Mid-Section
E*	Test Unit 95-5 Area A	Red/Grey Chert	20 mm	13 mm	3.6 mm	1.3 g	Bifacial; Proximal End
F*	Test Unit 95-6 Area B (F3)	ST Light Tan Chert	30 mm	11.5 mm	3 mm	1.3 g	Bifacial
G*	Test Unit 95-16 Area B (F3)	Brown/Tan Chert	32 mm	15 mm	4 mm	2.5 g	Diagonal Parallel Flaking
H*	Test Unit 95-6 Area B (F3)	Grey/Brown Chert	40 mm	14 mm	4 mm	2.8 g	Unifacial
I*	SC Area B	Brown/Tan Chert	42.5 mm	15 mm	4 mm	3 g	Bifacial; Parallel Diagonal Flaking
J*	SC Area Unknown	Grey/Brown Chert	42 mm	11 mm	3 mm	1.8 g	Unifacial
K*	Test Unit 95-10 Area A	Brown Chert	43 mm	18 mm	5 mm	3.8 g	Bifacial
L	Test Unit 95-17 Area B (F3)	Brown Chert	13 mm	10 mm	3 mm	0.5 g	Bifacial; Distal End

F3= Feature 3 *See Figure 17

Three additional projectile point types were found at the site; Cuney, Perdiz, and a possible Darl (Figures 18 and 19). Cuney projectile points are characterized by notched bases with parallel-edged or slightly expanding bases and straight or recurved lateral edges and barbs that extend downwards or flare outwards. It dates from the Late Prehistoric to the Historic period and is found in the

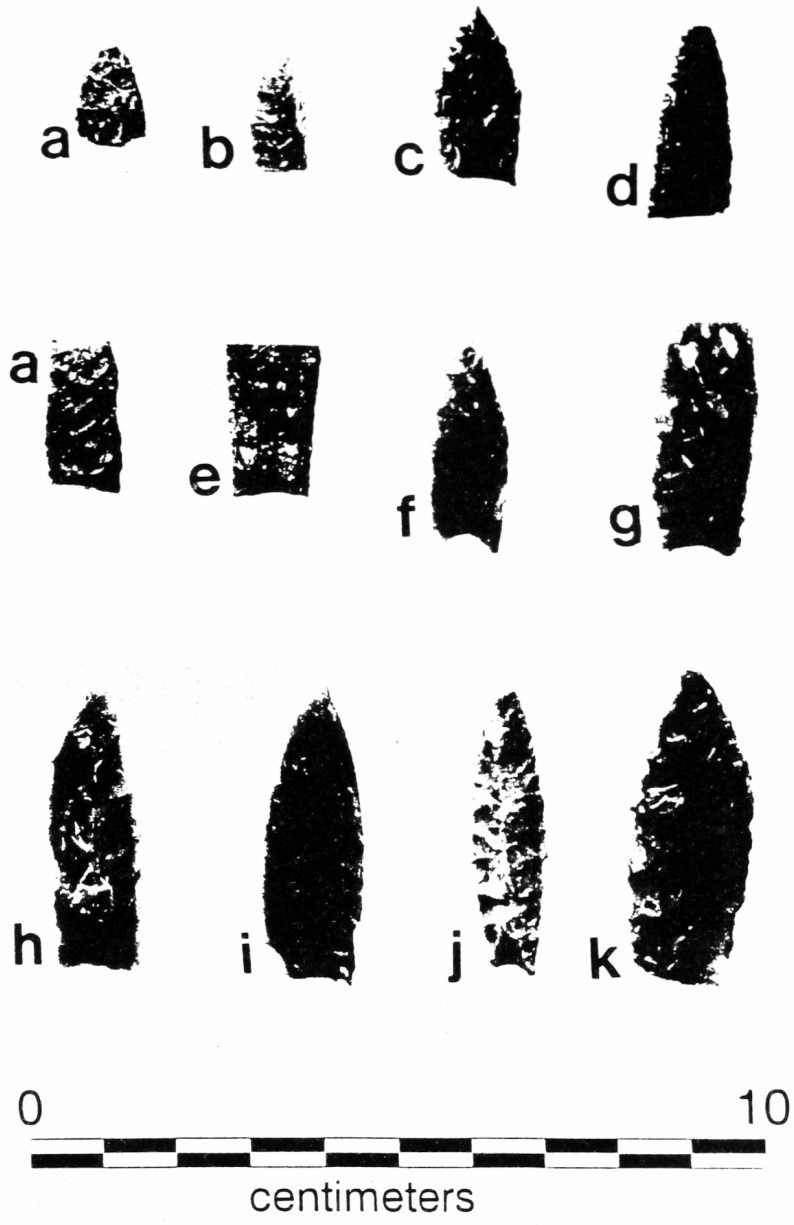


Figure 17: Guerrero projectile points
(Photo courtesy Bobby Inman)

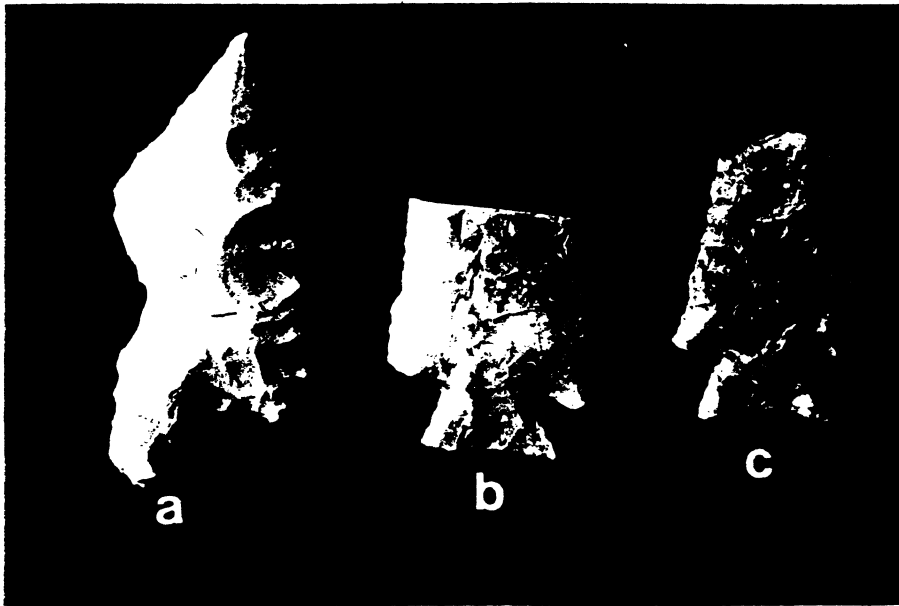


Figure 18: Perdiz (a) and Cuney (b and c)
projectile points



Figure 19: Darl projectile point

central part of east Texas and in central and south Texas (Turner and Hester 1993). Perdiz projectile points are triangular in shape with barbed shoulders and a contracted, sharply pointed stem. They are found throughout most of Texas and Louisiana and date from the Late Prehistoric period to ca. A.D. 1200 to A.D. 1500 (Turner and Hester 1993). A Darl projectile point is a long point with either an expanding or rectangular stem with lateral edges that are sometimes beveled. It has been found in central Texas, westward to the Lower Pecos and eastward onto the coastal plain and dates to the Transitional Archaic period, ca. A.D. 200 (Turner and Hester 1993). Both of the Cuney projectile points were missing their proximal ends. The Darl projectile point was also missing a proximal end and one shoulder of the Perdiz projectile point was broken off (Figure 19). Table 6 describes each of these projectile points.

There are 10 hammerstones in the artifact collection (Figure 20). Although hammerstones were found in each Area, the majority were recovered from Feature 3 in Area B. Table 7 provides descriptions for each of the 10 hammerstones recovered.

Specimen	Recovery Location	Material	Length	Width	Thickness	Weight	Description
Perdiz A	TU 95-10 Area A	Light Tan Chert	34 mm	17 mm	3 mm	10 g	Complete Except For Missing Barb
Cuney #1 B	TU 95-5 Area A	Tan Chert	18 mm	15 mm	2.5 mm	0.8 g	Proximal End
Cuney #2 C	TU 95-5 Area A	Brown Chert	20 mm	14 mm	2 mm	0.8 g	Proximal End
Darl	SC Area A	Grey Chert	48 mm	27 mm	6 mm	11 g	Proximal End; Distal Tip Missing

TU= Test Unit SC= Surface Collection

Specimen	Recovery Location	Material	Length	Width	Thickness	Weight
A*	Test Unit 95-9 Area B (Fea. 3)	Pink Quartzite	74 mm	51 mm	29 mm	166 g
B*	Test Unit 95-14 Area B (Fea. 3)	Unknown Grey/Brown Material	81 mm	58 mm	47 mm	326 g
C**	Test Unit 95-10 Area A	Grey/Pink Quartzite	55 mm	40 mm	40 mm	133 g
D	Test Unit 95-6 Area B (Fea. 3)	Reddish Pink Quartzite	65 mm	50 mm	31 mm	191 g
E	Test Unit 95-9 Area B (Fea. 3)	Unknown Yellow Material	55 mm	37 mm	15 mm	47 g
F**	Test Unit 95-18 Area B (Fea. 3)	Yellow/Green Chert	95 mm	58 mm	53 mm	381 g
G	Test Unit 95-18 Area B	Pinkish Grey Quartzite	55 mm	38 mm	26 mm	80 g
H**	Surface Collection Area C	Reddish Pink Quartzite	52 mm	52 mm	28 mm	93 g
I**	Structure I Area D	Reddish Pink Quartzite	67 mm	35 mm	41 mm	85 g
J	Structure I Area D	Light Pink Quartzite	41 mm	38 mm	28 mm	58 g

* See Figure 18 ** Denotes a broken specimen

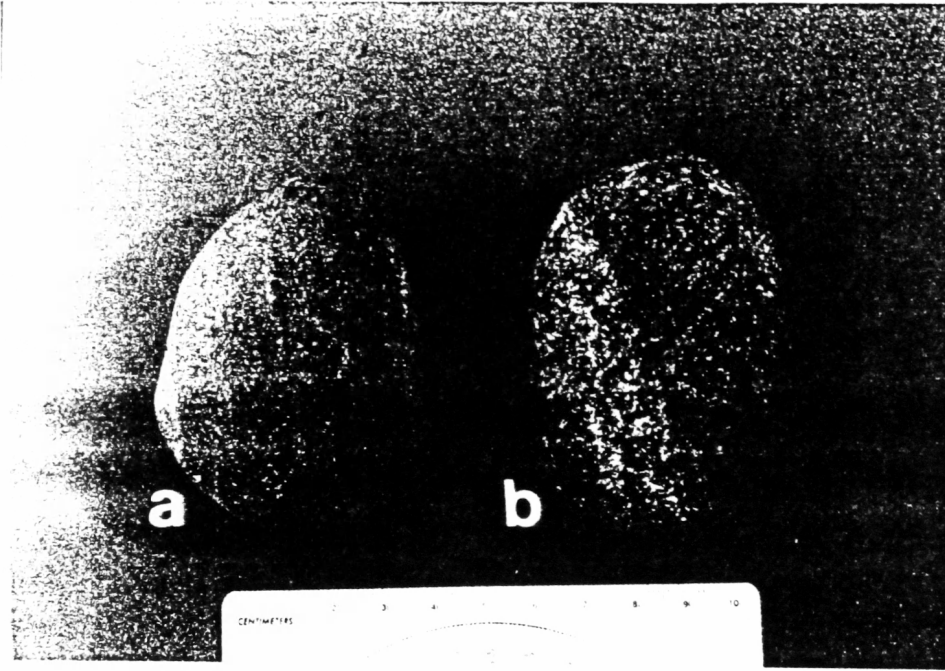


Figure 20: Hammerstones

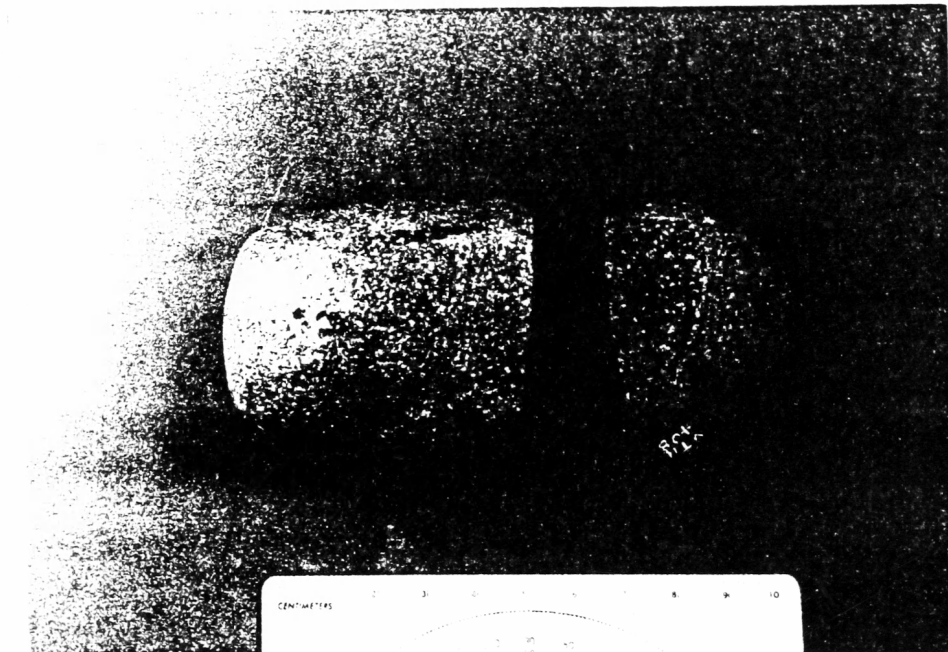


Figure 21: Groundstone

A total of nine bifaces were recovered. The term biface, as it is being used here, refers to those tools which are worked on both sides but cannot be categorized as projectile points. A more in-depth analysis of these tools may help to more clearly define their purpose (e.g., knives or preforms). Table 8 lists and describes the attributes of all the bifaces collected.

Table 8: Attributes of Bifaces						
Specimen	Recovery Location	Material	Length	Width	Thickness	Weight
A *	Test Unit 95-4 Area A	Brown Chert	19 mm	18 mm	10 mm	four g
B *	Test Unit 95-5 Area A	Grey/Tan Chert	27 mm	14 mm	7 mm	3 g
C *	Test Unit 95-5 Area A	Yellow/Brown Chert	30 mm	26 mm	5 mm	3.5 g
D	Test Unit 95-7 Area A	Tan/Grey Mottled Chert	93 mm	88 mm	16 mm	173 g
E	Test Unit 95-7 Area A	Dark Grey Chert	60 mm	50 mm	11 mm	45 g
F	Test Unit 95-14 Area B (F3)	Grey & White Banded Chert	52 mm	23 mm	10 mm	13 g
G *	SC Area B	Tan Chert	45 mm	57 mm	12 mm	28 g
H	SC Area B	Light Brown Chert	47 mm	24 mm	8 mm	8.5 g
I *	Structure I Area D	Yellow/White Chert	40 mm	36 mm	8 mm	15 g

* Denotes a broken Specimen SC= Surface Collection F3= Feature 3

A total of eight edge-modified flakes were found at the site. The term "edge-modified flake," as it is applied here, can be defined as those flakes that have some amount

of modification along their edges but cannot, at this point, be classified as scrapers and do not fit into any of the other categories listed here. Table 9 describes their attributes.

Table 9: Attributes of Edge Modified Flakes						
Specimen	Recovery Location	Material	Length	Width	Thickness	Weight
A	Test Unit 95-1 Subarea A	Light Brown Chert	55 mm	33 mm	18 mm	21 g
B	Test Unit 95-2 Subarea A	Red/Brown Chert	34 mm	37 mm	6 mm	8 g
C	Test Unit 95-7 Subarea A	Red/Yellow Banded Chert	57 mm	57 mm	13 mm	62 g
D	Test Unit 95-15 Subarea B (F3)	Brown Chert	60 mm	50 mm	18 mm	84 g
E	Test Unit 95-13 Subarea B (F3)	Light Tan Chert	34 mm	22 mm	6 mm	5 g
F	Test Unit 95-13 Subarea B (F3)	Red/Brown Chert	53 mm	42 mm	8 mm	16 g
G	Test Unit 95-12 Subarea B (F3)	Yellow/Brown Chert	38 mm	38 mm	11 mm	18 g
H	SC Subarea C	Green/Grey Chert	61 mm	49 mm	25 mm	102 g

SC= Surface Collection F3= Feature 3

A total of six cores were recovered during our excavations. Table 10 describes each core found.

There are three unifaces in the collection. Unifaces are defined in this study as those tools that are worked on one face but cannot be classified as projectile points or scrapers. Further examinations of the unifaces, such as use-wear pattern analyses, may help to more clearly define

their functions (e.g., preform, gouge). Table 11 describes each of these specimens.

Table 10: Attributes of Lithic Cores						
Specimen	Recovery Location	Material	Length	Width	Thickness	Weight
A	Surface Collection Area A	Green/Grey Chert	90 mm	53 mm	37 mm	290 g
B	Test Unit 95-19 Area A	Grey/Brown Chert	72 mm	50 mm	21 mm	82 g
C	Test Unit 95-7 Area A	Green/Brown Chert	60 mm	40 mm	40 mm	109 g
D	Surface Collection Area B	Green/Grey Chert	85 mm	57 mm	35 mm	126 g
E	Test Unit 95-17 Area B (Fea. 3)	Light Brown Chert	65 mm	50 mm	35 mm	126 g
F	Structure I Area D	Brown Chert	55 mm	35 mm	30 mm	70 g

Only two pieces of ground stone were recovered from the site (Figure 21). One broken ground stone, possibly a mano, consisting of two pieces, was found on the surface in Area B. It is made of quartzite and appears to have been heat-altered. The largest piece measured 57 mm in length, 54 mm in width, 36 mm in thickness and weighs 190 grams. The smaller piece measures 53 mm in length, 38 mm in width, 14 mm in thickness, and weighs 38 grams. An abrading stone, made of a dark yellow/grey sandstone, was found in Feature 3. It measures 40 mm in length, 35 mm in width, and 17 mm in thickness and weighs 34 grams.

Table 11: Attributes of Unifaces						
Specimen	Recovery Location	Material	Length	Width	Thickness	Weight
A	SC Area A	Brown Chert	50 mm	68 mm	17 mm	61 g
B	SC Area B	Brown Chert	41 mm	25 mm	6 mm	6 g
C	Shovel Test 1 Area C	Light Tan Chert	44 mm	30 mm	8 mm	12 g

SC= Surface Collection

Additional lithics include a flake chopper made of reddish brown chert and a preform made of a yellow/brown chert. Both items were found in Feature 3, Area B.

In comparing the lithics removed from the site, some interesting patterns emerge. Table 12 compares the lithic artifacts found in and around Feature 3 with the lithics recovered from the rest of the site. By far, the majority of Guerrero points, scrapers, and hammerstones are found in and around the midden. As mentioned earlier, the Guerrero projectile point is among the most common type of point found at Spanish Colonial missions in this part of Texas. Accordingly, the Guerrero point is also the most frequent type of projectile point found at Espiritu Santo. Furthermore, it is the only point type found in Feature 3.

The abundance of scrapers and hammerstones in the midden seems to reflect a specific type of activity that resulted in their deposition in the midden. The scrapers may have been used for preparing hides that were removed

from carcasses that were being butchered. Preliminary examinations of some of the endscrapers removed from Feature 3 conducted by Dale Hudler at the Texas Archaeological Research Laboratory indicate that these tools were being used to process animal materials (e.g., hideworking, defleshing, and scraping) (Hester et. al. 1996). The large number of hammerstones might be attributed to two possibilities. First, the smaller hammerstones may have been used for lithic reduction or for re-sharpening scrapers and other tools used in the butchering of animals and the preparation of hides. Second, the larger hammerstones might

Lithic Artifacts	Feature 3 & Associated Finds	Area A	Area B Non-Associated Finds	Area C	Area D
Projectile Points	7 Guerrero Pts	3 Guerrero Pts 2 Cuney Pts 1 Perdiz Pt 1 Darl Pt	0	0	0
Scrapers	17	2	0	1	0
Bifaces	3	5	0	0	1
Unifaces	1	1	0	1	0
Edge-Modified Flakes	4	3	0	1	0
Hammerstones	7	1	0	0	2
Groundstone	1 Mano (?) 1 Abrading Stone	0	0	0	0
Debitage	1747	3414	185	12	100
Other	1 Chopper 2 Cores 1 Preform	3 Cores	0	0	1 Core

have been used to crack open long bones to extract marrow. One or both of these possibilities may be responsible for the resulting high percentage of hammerstones recovered from the midden.

Area A, believed to be a primary living area for the mission Indians, yielded the largest amount of lithic debitage. It was the only area where projectile points other than the Guerrero type were recovered, although three Guerrero points were collected from the area. The large amount of debitage found in Area A might be attributed to Feature 1, a dense concentration of lithic debris in test unit 95-7, that is thought to have been the result of a lithic reduction work station. Additionally, the majority of cores, although not abundant, was also found in Area A. This may also indicate that lithic reduction was occurring more frequently in Area A than within Areas B, C, or D.

The Cuney, Perdiz, and Darl projectile points found in Area A may have been used by the mission Indians or it is possible that they are products from a previous occupation. If these projectile points were produced by a previous group of Indians, this might explain why they are not found in Feature 3. Feature 3 appears to be contemporaneous with the mission's occupation and shows no evidence of earlier deposits beneath it. Both the Cuney and the Perdiz points,

dating from the Late Prehistoric to the Historic period, are more likely to have been produced by the mission Indians than the Darl point. The Darl projectile point dates to the Transistional Archaic, a much early period. This does not mean, however, that the Indians could not have re-utilized these or any other projectile points left behind by previous occupants of the site.

Lithic artifacts are poorly represented by the excavations in both Areas C and D. The lack of lithic artifacts in these two areas is most likely due to less intensive investigations completed here. Future examinations may help to eliminate this bias.

CERAMICS

The vast majority of the ceramics recovered was comprised of aboriginal, bone-tempered ware. European and Mexican ceramics represent only a small percentage of the sample. A discussion of the analysis of both the native and European and Mexican wares is provided below.

Native Ceramics

Bone-tempered pottery (Figure 22) was found throughout the site in areas A, B, C, and D. This type of aboriginal

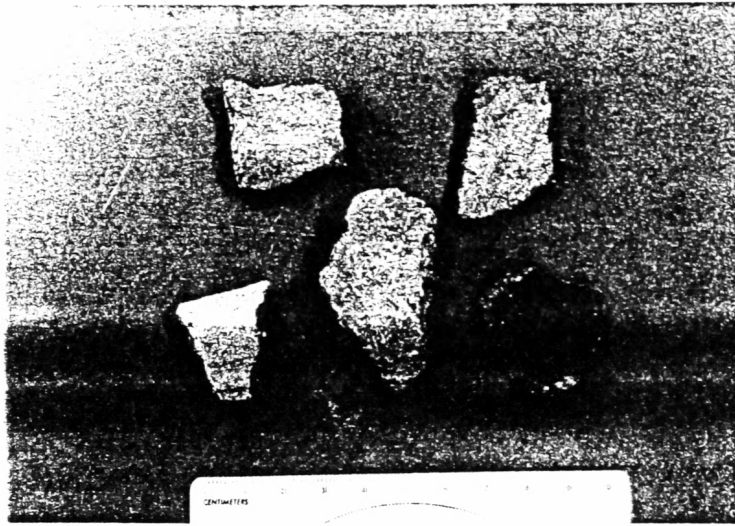


Figure 22: Bone-tempered pottery

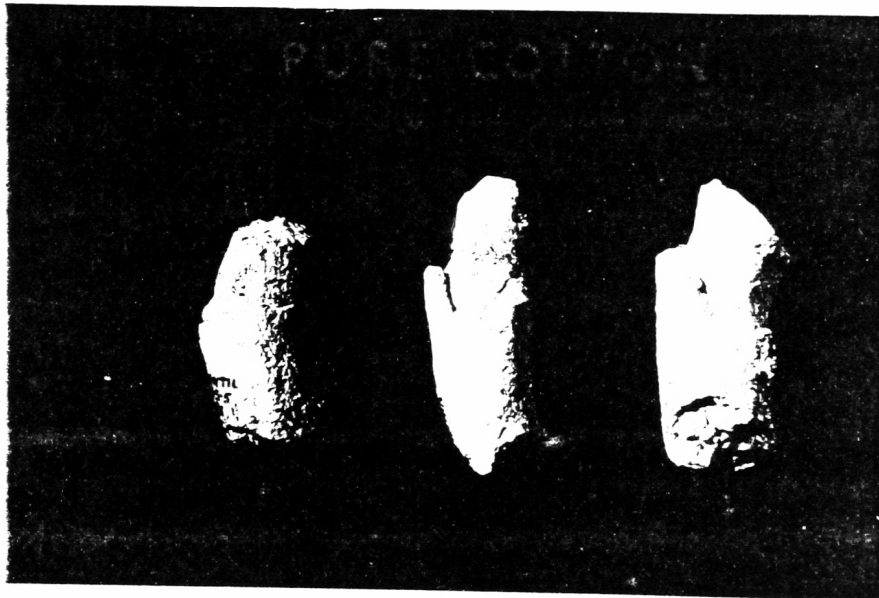


Figure 23: Bone-tempered pottery handles

ware is similar to bone-tempered ceramics from the Late Prehistoric period, known as *Leon Plain*. Leon Plain ware is common in south Texas Late Prehistoric sites. This Late Prehistoric bone-tempered pottery tradition became the primary utility ware of missions in southern Texas (Hester 1989). More than 1500 bone-tempered sherds were collected during the 1995 summer and fall excavations.

A detailed analysis of the bone-tempered ceramics was completed by University of Montana graduate students, Wanda Raschkow and Rodger Free (Rashkow and Free 1996). Two primary goals were established for the analysis. First, to develop a general description of the sherds, and second, to assess variation in vessel size and form. Wall thicknesses, rim diameters, surface finishes, color, paste textures, presence or absence of slips, and locations of slips were all examined in an attempt to address these goals.

Observations of both slips and pastes were made under low-powered, 10x magnification. Pastes varied from a fine-grained sandy composition with little to no visible bone-temper to a coarse and porous variety with large and numerous bone inclusions (Rashkow and Free 1996). It is important to note that a higher power of magnification may increase the percentage of sherds that exhibit bone inclusions.

The majority of sherds have a grey colored paste although some pastes were buff or reddish brown in color. Sherds that have slips range in color from buff to orange to dark orange and red. Many of the slipped pieces show evidence of burnishing. Unslipped sherds display surface colors that range from buff to orange and grey to black (Rashkow and Free 1996).

Results from measuring wall thicknesses indicate that there was a relative consistency in vessel thicknesses even when combined with other attributes such as surface finishes. These observations, however, provide little information on the original size and form of the vessels represented by the sherds in the collection. The measurements of wall thickness taken from 1242 sherds show a mean size of 5.32 mm with a standard deviation of 0.98 mm and a range of 2.8 mm to 9.7 mm (Rashkow and Free).

Unfortunately, many of the ceramic sherds were too small and fragmented to make definitive statements about vessel shape. However, the pottery handles and rim sherds within the collection do provide some insight to the possibilities of function and form. Twenty-four sherds were identified as either a handle or a section of a wall where a handle was attached. It appears that the handles were formed by rolling a piece of clay into a long round

cord that was placed through the wall of a vessel forming a type of plug and smoothed over on the interior side of the vessel body (Figure 23). Additionally, the majority of the handles exhibit an outer layer of clay that was probably wrapped around the original handle core after it was adhered to the vessel (Rashkow and Free 1996). Sixty-seven rim sherds were identified in the collection. Of the 67 rim pieces, 19 were large enough to determine rim diameters. Rim diameters ranged from 10 cm to 34 cm with a mean diameter of 21.9 cm. The degree of curvature present on the rim sherds was assessed whenever possible. Interestingly, five of the rim pieces exhibited arcs of curvature that resemble either a shallow bowl or plate shape.

European and Mexican Ceramics

Despite the low frequency of European and Mexican ceramics recovered, the sample represents a wide range of types. Forty-four ceramic sherds of Mexican or European origin were collected during the 1995 summer and fall excavations. Derek Beery, a graduate student at the University of Montana, completed the analysis of the non-native ceramics. The identifiable sherds were assigned classifications based upon Mounger's (1959) Master's thesis and Kathleen Deagan's *Artifacts of the Spanish Colonies of*

Florida and the Caribbean, 1500-1800 (1987). The ceramics were divided into four main categories that include tin-enameled ware, porcelains, coarse earthenwares, and non-associated sherds. Further subdivisions of the four categories include five varieties of majolica, three varieties of porcelains and semi-porcelains, one olive jar variant, five varieties of coarse earthenwares, and an unidentified earthenware category. The non-associated category refers to those sherds that post-date the occupation of the mission (Beery 1996).

Tin-enameled Ware

Twenty-three pieces of tin-enameled ware, or majolica, are present in the collection (Figures 24 and 25). Eight of the sherds are identified as undecorated with a predominately cream colored paste although two of the sherds have pink to buff colored pastes. The thickness of the sherds ranges from 2.75 mm to 6 mm with a mean thickness of 5 mm (Beery 1996). Undecorated majolica was made primarily in Puebla, Mexico throughout the 18th century (Lister and Lister, 1974).

Eight decorated majolica sherds were identified within the collection but only two could be typed with any degree of certainty. The first of these is a Puebla blue on white

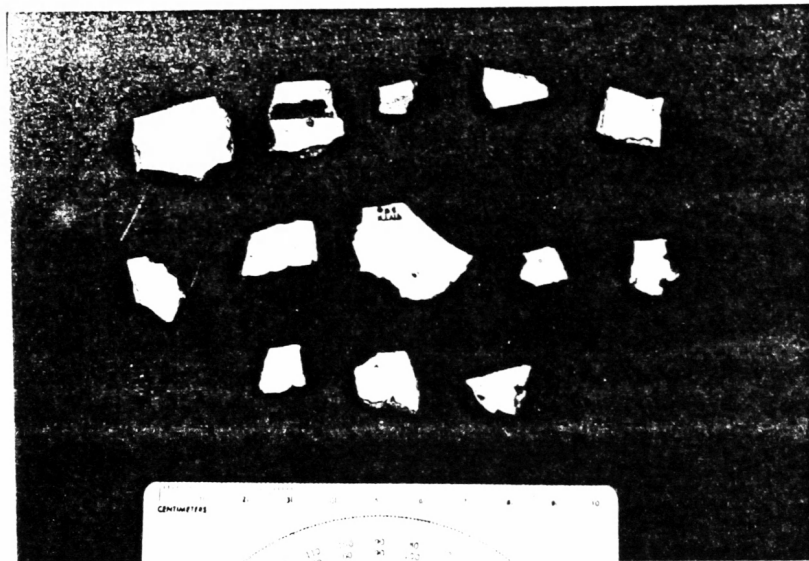


Figure 24: Majolica

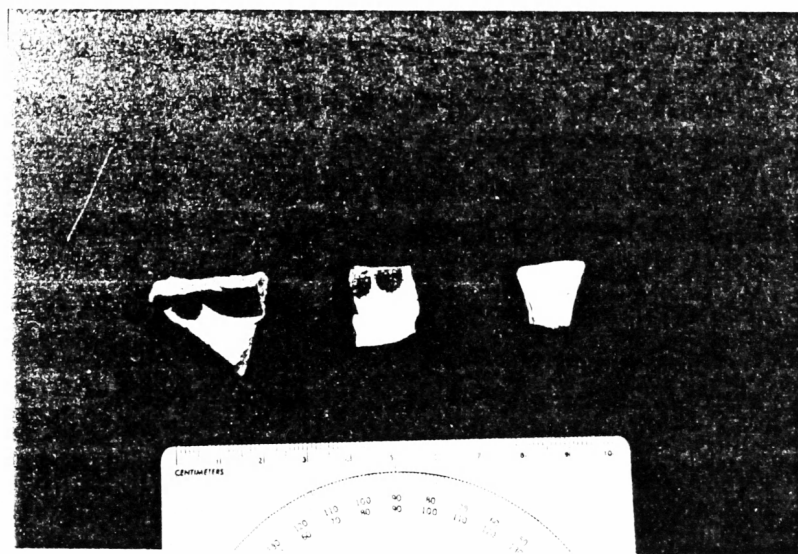


Figure 25: Majolica

sherd with a cream paste (Figure 25a). Deegan (1987) dates Puebla blue on white between 1700 and 1825. The sherd measures 7 mm in thickness and represents the basal portion of a small bowl or cup. It's raised rim suggests that the bowl had an original diameter of 12 cm (Beery 1996). Puebla blue on white majolica has been found at several missions and Spanish Colonial sites in Texas including Presidio de Loreto (Calhoun 1969), the San Xavier missions (Gilmore 1969), Mission San Lorenzo de la Santa Cruz (Tunnell 1969), Mission Rosario (Gilmore 1974), and San Juan Capistrano (Schuetz 1968).

The second sherd (Figure 26c) resembles a Puebla manufactured variety called San Elizario Polychrome. San Elizario Polychrome was popular from 1675 to 1830 and was manufactured in Puebla, Mexico (Deegan 1987). The sherd, 3.75 mm in thickness, is decorated with blue, brown, and black designs and has a cream colored paste. San Elizario Polychrome has been recovered from sites such as Ranchos de las Cabros in Wilson County (Fox and Ivey 1981) and Mission San José y San Miguel de Agauyo in San Antonio (Hard et al. 1995).

A piece of possible Guadalajara Polychrome, painted red and black, is also represented in the sample (Figure 27). Deegan (1987) notes that Guadalajara Polychrome was a

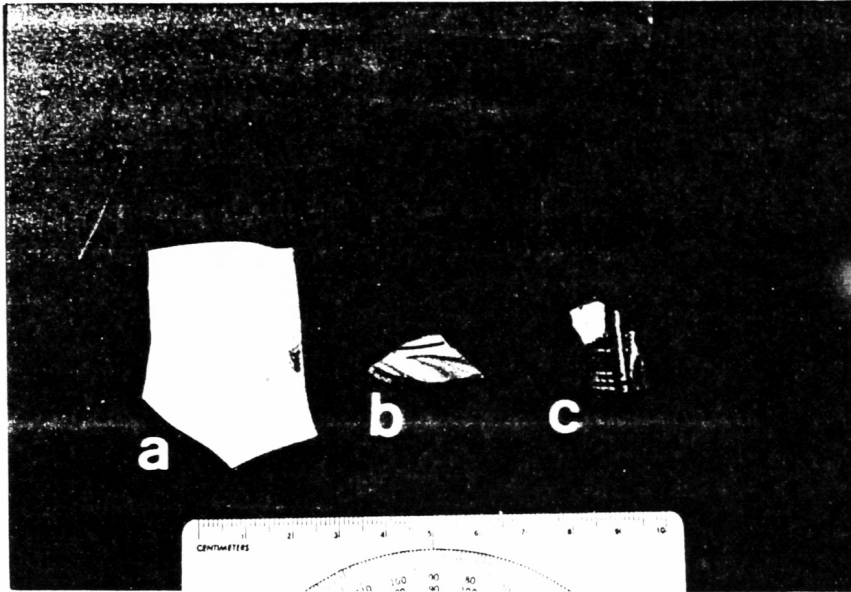


Figure 26: Non-associated sherds (a and b) and San Elizario polychrome (c)

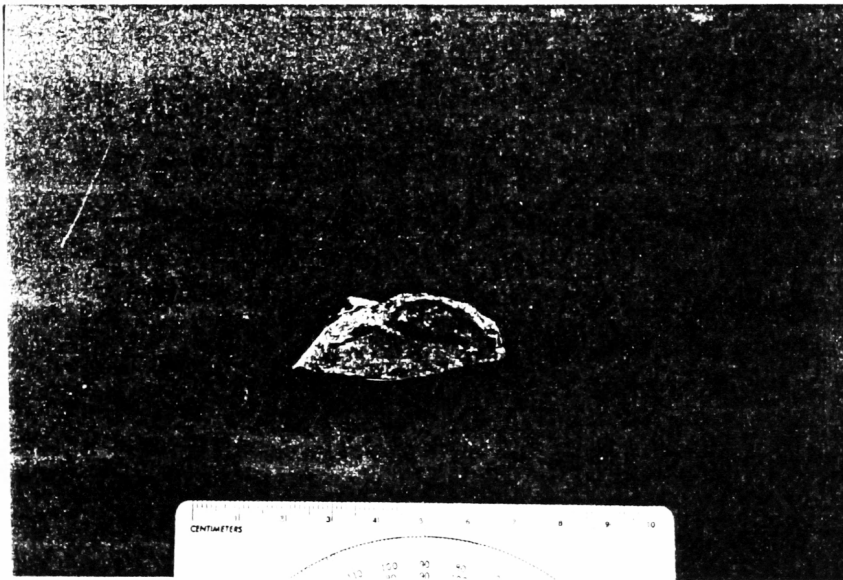


Figure 27: Possible Guadalajara polychrome sherd

favorite ceramic for Franciscans at mission sites and was produced from 1650 to 1800. Mounger (1959) also notes the presence of one Gaudalajara Polychrome sherd at Espiritu Santo in Goliad that represents part of a footed bowl or jar.

The remaining sherds are classified as unidentifiable. Their thicknesses range in size from 3 mm to 6.5 mm and all of the sherds are made of a cream colored paste. In addition, one of the sherds exhibits a yellow enamel that suggests a Polychrome variant (Beery 1996).

Porcelains

Two pieces of porcelain and one piece of semi-porcelain were found. The first of the two porcelain sherds is part of a foot ring from a cup with a diameter of 9 cm (Figure 28a). It is decorated with two shades of blue and appears to be of Oriental manufacture. Tentatively, the sherd best correlates with the Chi' Ling Dynasty that lasted from 1644 to 1912 (Deegan 1987). The second porcelain sherd is undecorated and is probably of European manufacture (Figure 28b). The semi-porcelain piece is a rim sherd that is undecorated but displays a discolored, light blue rim. Measurements taken from the rim sherd suggest a total vessel diameter of 10 cm (Beery 1996). Neither of these two sherds

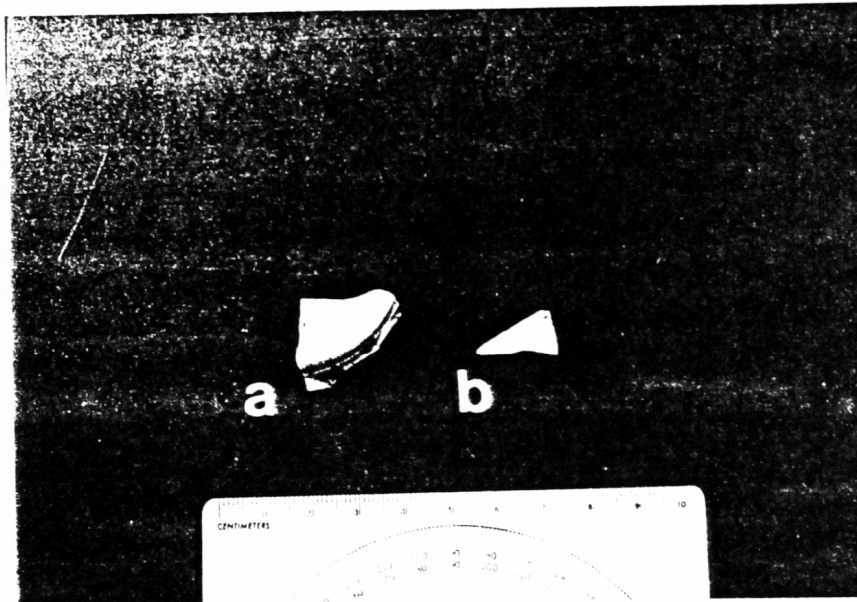


Figure 28: Porcelain sherds



Figure 29: Coarse earthenware sherds

could be positively dated. Porcelains are common at Texas Spanish Colonial sites such as Mission San José y San Miguel de Agauyo (Hard et al. 1995), Espiritu Santo in Goliad (Mounger 1959), and Rancho de las Cabras (Fox and Ivey 1981). Chinese porcelains were brought to Mexico on Spanish galleons and were later transported to the frontier among the personal belongings of Spanish citizens (Ivey and Fox 1981).

Coarse Earthenware

The coarse earthenware category consists of 18 sherds (Figure 29). The category was subdivided into olive jar ware, lebrillo, salt glazed ware, red ware, other lead glazed wares, and unidentifiable glazed, slipped, and unglazed ware subcategories (Beery 1996).

Three olive jar sherds are represented within the collection (Figure 30). Olive jar ware, used for shipping olive oil and other commodities, is common at Spanish Colonial sites in Florida (Goggin 1968) and in Texas (Hard et al. 1995, Fox and Ivey 1981, Mounger 1959). The sherds are characterized by a rough green glaze on the exterior and a white slip on the interior. Thicknesses range from 11 mm to 6.25 mm and all of the sherds exhibit a buff colored paste. The smallest of the three pieces shows black smudge

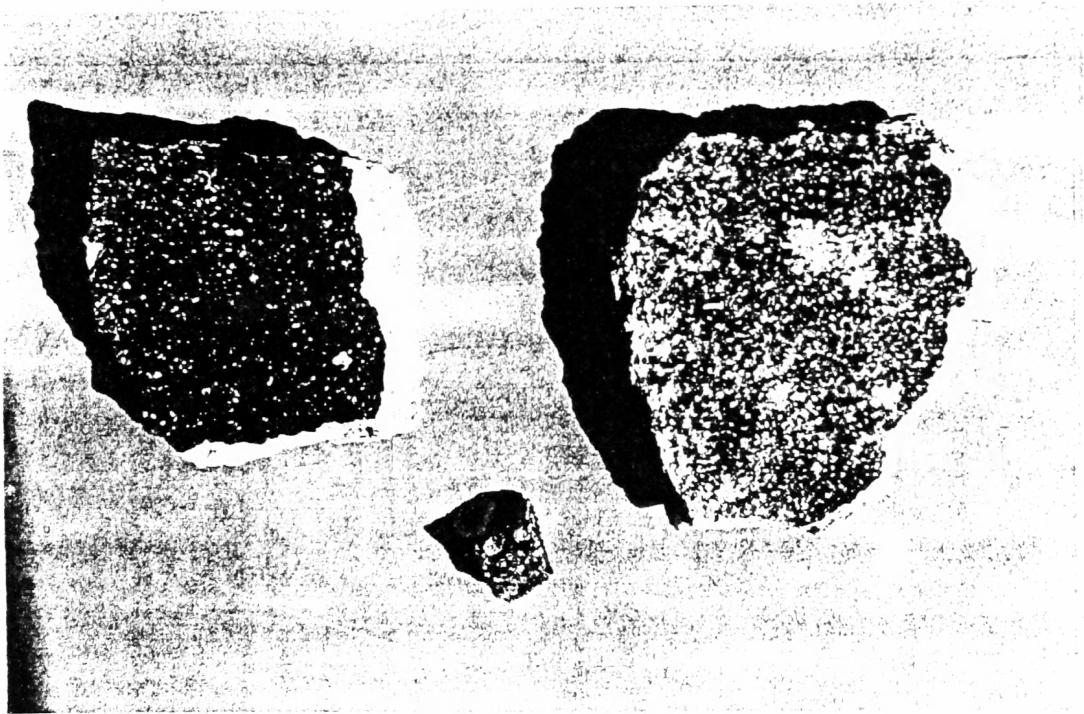


Figure 30: Olive jar ware

marks indicating burning. This variety of olive jar ware dates to the middle period of olive jar manufacture, 1560 to 1800 (Deegan 1987).

Two sherds of Mexican-made green lebrillos are also present. Both of the sherds have a cream colored paste and measure 6 mm in thickness. Their exterior surface exhibits a clear, dark green glaze and their interiors are burnished. Both of the sherds appear to have come from the same vessel (Beery 1996). Green Lebrillos ware was manufactured in Mexico and dispersed to overland colonial sites after 1750 (Deegan 1987).

Salt glazes were found on two of the sherds recovered. Both of the sherds have reddish-orange colored pastes and measure 6 mm in thickness. One sherd displays a green glaze while the other has a yellow brown glaze (Beery 1996). Although Mounger (1959) classifies salt glazed wares as thick stoneware, the sherds in this study were only half as thick as the sherds in Mounger's collection. For this reason these sherds have been classified as coarse earthenwares (Beery 1996).

Three Mexican red ware sherds were also identified. Two of the sherds show signs of burning and pastes that are reddish-brown in color. The sherds measure 5 mm and 5.25 mm in thickness. The third red ware piece is unburned and

measures 5 mm in thickness and has a reddish-brown paste and a red surface. Redwares date between 1500 and 1750 (Deegan 1987).

Other lead glaze wares include two pieces of Mexican red ware. Both sherds have a red to orange colored paste and measure 7 and 6.5 mm in thickness respectively (Beery 1996). Mounger (1959) notes the existence of Mexican red ware at Espiritu Santo in Goliad and dates its period of use from the 18th to 19th centuries. In Texas, vessels made of lead glazed ware are generally either bowls or ollas (Ivey and Fox 1981).

The remaining six sherds are classified as unidentifiable glazed, slipped, or unglazed coarse earthenwares. Two of the pieces have a clear glaze, one of which is part of a handle from a vessel. Another unidentifiable sherd has a white slip and is significantly burned and three sherds are unglazed with orange colored pastes (Beery 1996).

Non-Associated Sherds

Four non-associated sherds are represented in the sample. The largest of these is a piece of septic pipe that dates to the 20th century. Two of the smaller sherds likely date to the 19th century. The first of the two is a red

kitchen ware with an off-white colored paste and the second is a green and black on white painted ware (Figure 26b). The fourth sherd is semi-porcelain with a pink rose and a green leaf patterned on the center with a gold ring around its rim (Figure 26a). This piece probably dates to the late 19th or early 20th century (Beery 1996).

A spatial analysis of the Mexican and European ceramics yielded an insignificant amount of data to define specific patterns of occupation, utilization and/or access to goods. European and Mexican ceramics were recovered from both Areas A and B. Area A yielded European and semi-porcelain sherds, San Elizario Polychrome, three majolica sherds, one olive jar sherd, two salt glazed sherds, all of the red ware sherds, one lead glazed redware sherd, two unidentified glazed sherds, one unidentified slipped sherd, and one unidentified, unglazed sherd. Area B produced three blue on white majolica sherds and six undecorated majolica sherds, one unidentified unglazed sherd and a blue and white decorated porcelain sherd.

The majority of European and Mexican wares were found in areas believed to be primarily occupied by the native Indians in Areas A and B while Areas C and D produced only a small amount of imported ceramics. This can probably be attributed to a bias in our sample. The majority of test

units were placed in areas thought to have been occupied by the Indians or within Feature 3 in Area B. The midden is believed to have been created by both the missionaries and the Indians. Only limited testing was completed in and around the standing structures in Area D. The mission ruins are presumably the main occupation area for the missionaries. Ideally, expanded excavations at the mission will yield a better sample for addressing more specific questions about the distribution of native versus imported ceramics and the access to and utilization of these items.

FAUNAL REMAINS

Although faunal materials were recovered from every test unit excavated, the bone refuse removed from three units in Feature 3, 95-6, 95-9, and 95-14, was selected to serve as a sample for more intensive research. Dr. Susan deFrance identified all of the faunal remains from these three units. This analysis included the identification of bone modifications. These modifications include carnivore gnawing, conchoidal fractures, burning, and hack and cut marks.

In addition to the sample taken from Feature 3, I counted and roughly sorted all of the faunal materials

recovered from the site into diagnostic (distal and proximal ends of long bones, complete skeletal elements, and epiphyses) or unidentifiable (primarily mammal long bone shafts) categories and examined the remains for evidence of burning and/or butchering. A complete listing of these attributes can be found in Appendix B. A total of 16,309 bones are present. Of these remains, preliminary analysis showed that 11% are burned and less than 1% are butchered. Approximately 17% of the faunal remains are diagnostic and 83% are unidentifiable. The majority of the bone, 83%, was located in Feature 3 (Area B). Sixteen percent of the bone was found in Area A and less than 1% of the bone was found in Areas C and D.

From the Feature 3 sample, deFrance (1996) identified a minimum of 27 individuals from the 1/8" sample (Table 13) and 6 individuals from the fine screen (1/16") sample (Table 14). These include four cow/bison, three soft-shell turtle, three box and pond turtles, three white tail deer, two opossums, two rabbits, two sheep/goat, two unidentified birds, one gray fox, one black bear, one burro, one even-toed ungulate, one pig, one non-poisonous snake, one song bird, unidentified birds, and one bullhead catfish (deFrance 1996).

Distinguishing bison from cow remains was not possible.

However, the representative sample of body elements suggests that the faunal remains are likely those of cattle. In addition, historical records note the presence and importance of cattle at the mission. Espiritu Santo has been credited as the most important cattle ranch in Texas during the 18th century from which herds multiplied and spread out across the coastal plain (Ramsdell 1949). A significant portion of the bovid skeletal elements recovered consists of head, foot, and lower limb bones. This indicates that entire carcasses were present at the mission. It is probable that if bison were being hunted these less-meaty skeletal elements would have been left behind at the kill site to ease transportation of the remaining carcass. The lower limbs of white-tail deer, however, were lacking, which may suggest that only the meaty portions of the carcass were brought back to the mission after a hunting episode. The opossum, rabbit, and gray fox remains were presumably the result of hunting activities in the vicinity of the mission (deFrance 1996).

A total of 505 specimens from the sample examined by deFrance (test units 95-6, 95-9, and 95-14) showed evidence of bone modification. Two-hundred and ninety eight specimens were burned, 46 showed evidence of carnivore gnawing, 13 had conchodial fractures, 90 displayed metal

hack marks, and 58 were cut either by stone or metal implements. Root etching occurred on all of the faunal remains to varying degrees.

Once deFrance identified cut marks on 58 specimens, I conducted further analysis to distinguish stone cuts from metal cut marks. Table 10 lists the information derived from these observations. Stone tool marks are commonly characterized by multiple short, almost parallel striations that have a V or U-shaped cross section (Fisher 1995). Metal tools will produce marks that cut the bone surface at an angle that is not quite perpendicular to the bone. Likewise, metal cuts tend to be much smoother on the inside than cuts made by stone tools. Additionally, stone cuts taper at the ends and widen in the middle while metal cuts tend to be fairly uniform (Jack Fisher, personal communication).

Using the criteria above, cuts on the faunal remains from the Feature 3 sample were identified as the result of either stone or metal tools (Table 15). Cuts were viewed through a low-powered, dissection microscope (10x-70x). Figure 31 shows a cut mark on a specimen which *may* be the result of a stone tool. It has a very distinctive U-shaped cross-section and an uneven surface. Unfortunately, there were no marks, at this level of magnification, that could be



Figure 31: Mark resulting from a possible stone tool cut

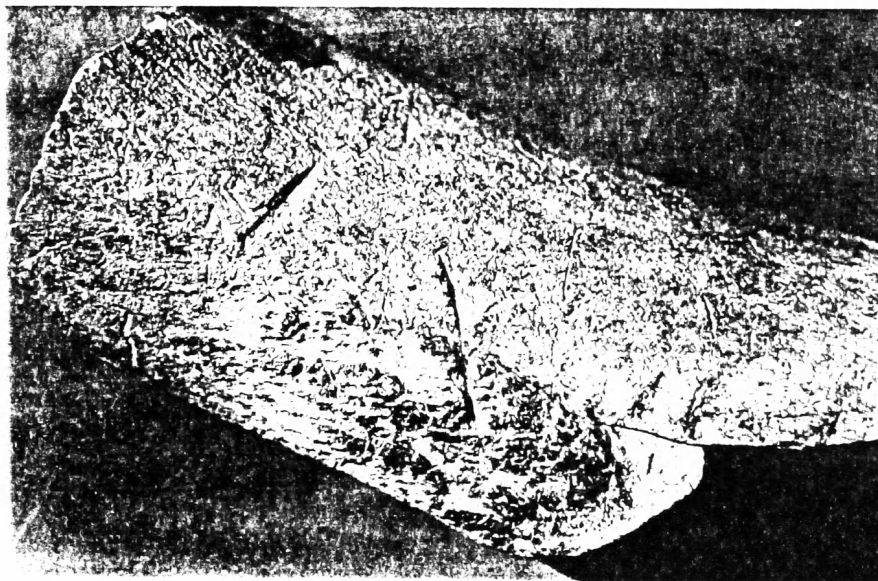


Figure 32: Metal tool cut marks

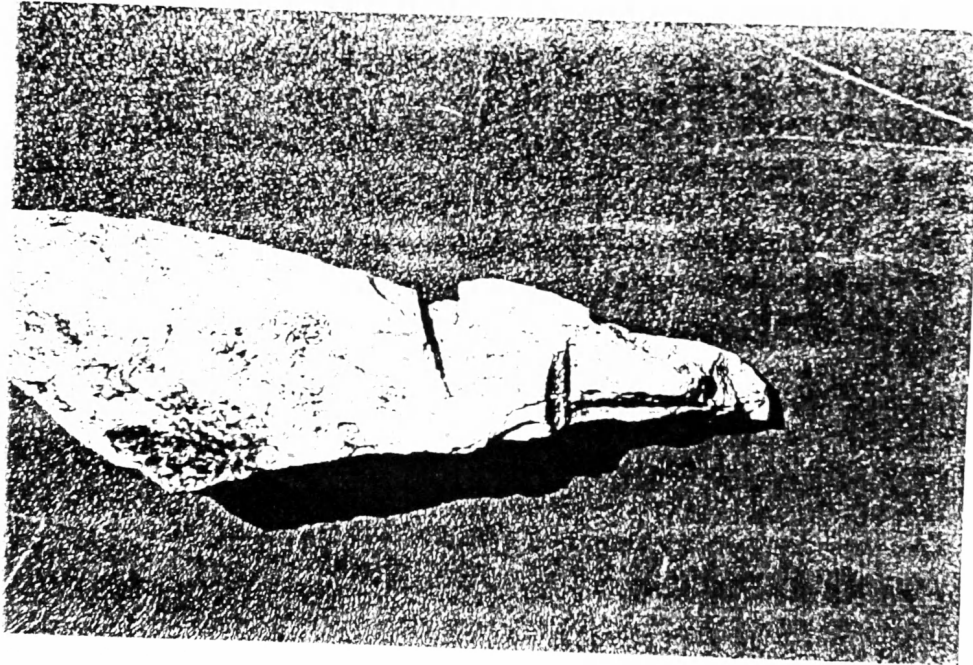


Figure 33: Metal hack marks

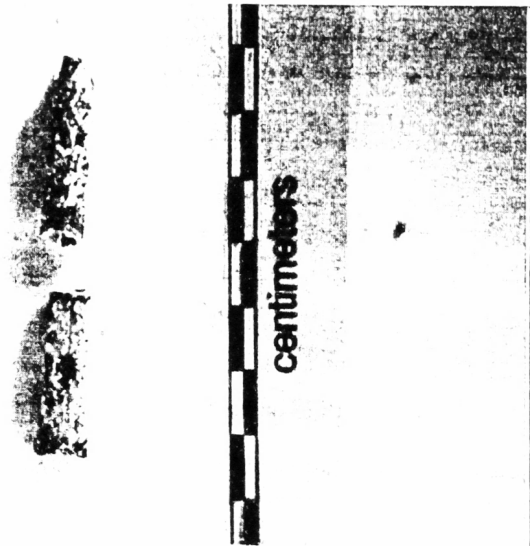


Figure 34: Tubular bone beads

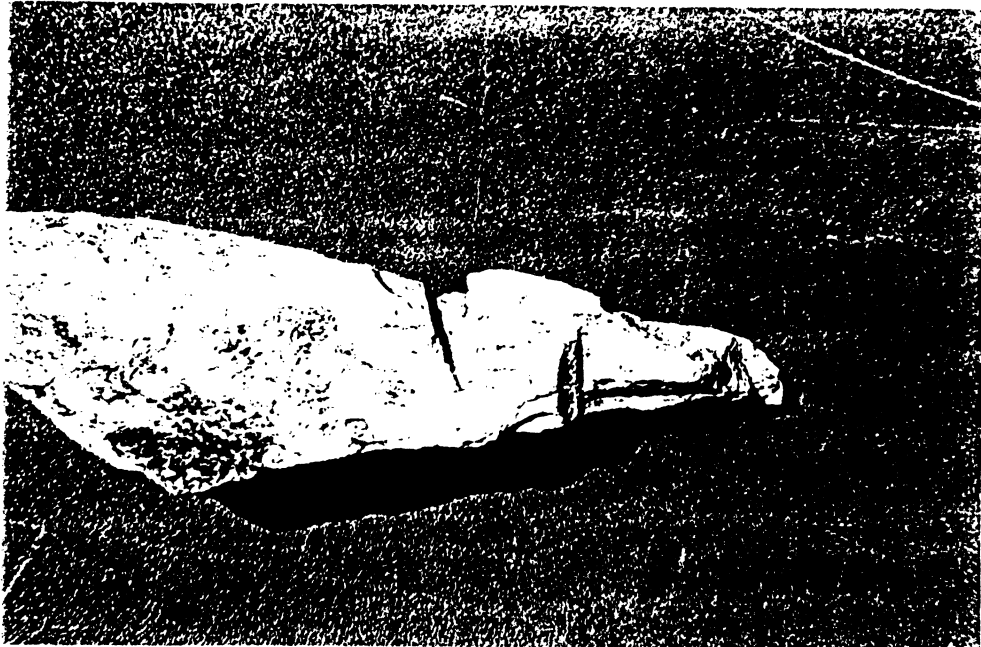


Figure 33: Metal hack marks

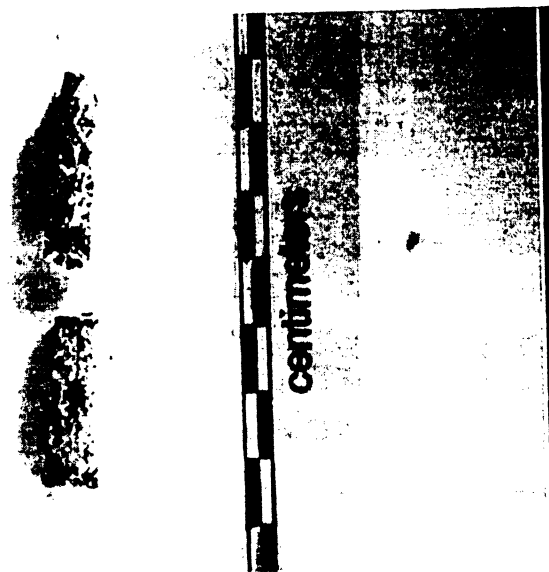


Figure 34: Tubular bone beads

non-human activities such as carnivore gnawing, rockfall and trampling (Fisher 1995). When a hammer and anvil are used to crush bone and extract marrow, percussion pits and striations will frequently occur on the surface distal to the hammer percussion. Although few of these marks were exhibited on the bones examined, this does not rule out cultural modifications. Pit marks and striations are often dependent on natural projections present on hammerstones. A much smoother hammerstone, however, might not create these type of features (Fisher 1995). Ten hammerstones were found at the site and seven were recovered from in and around the midden. This may suggest that some of the larger hammerstones were being used to break bones to allow marrow extraction. Future research into this topic may be the best way to decipher the cause of these fractures.

deFrance examined carnivore gnawing on 46 of the bone specimens from the sample. The gnawing marks occur primarily on the ends of long bones and are characterized by pits, striations, and ragged edges. No evidence of rodent gnawing was found. This may indicate that the deposits were rapidly buried (deFrance 1996). A rapid deposition rate may also explain the small percentage (less than 1% of the sample) of specimens that exhibit evidence of carnivore gnawing. Determining the species responsible for creating

Table 13 : Vertebrate Faunal Material From Feature 3, 1/8" mesh sample (deFrance 1996)

Taxon	Common Name	NISP	%	MNI	%
<i>Didelphis vitginianus</i>	opposum	20	0.42	2	7.41
<i>Sylvilagus</i> sp.	rabbit	3	0.06	2	7.41
<i>Urocyon cinereoargenteus</i>	gray fox	1	0.02	1	3.70
<i>Urus</i> cf. <i>americanus</i>	black bear	1	0.02	1	3.70
<i>Equus asinus</i>	burro	1	0.02	1	3.70
Artiodactyl uid	even-toed ungulates	1	0.02	1	3.70
cf. <i>Sus scrofa</i>	pig	1	0.02	1	3.70
<i>Odocoileus virginianus</i>	white-tailed deer	41	0.87	3	11.11
Caprinae (<i>Ovis/Capra</i>)	sheep/goat	11	0.23	2	7.41
Bovidae (<i>Bos/Bison</i>)	cow/bison	248	5.25	4	14.81
Mammal uid	unidentified mammal	2161	45.75	-	--
Total Mammal	--	2489	52.69	18	66.67
Aves uid	unidentified birds	13	0.28	2	7.41
<i>Apalone ferox</i>	soft-shelled turtle	33	0.70	3	11.11
Emydidae	box and pond turtles	52	1.10	3	11.11
Testudines	turtles	19	0.40	-	--
Total Reptiles	--	104	2.20	2	22.22
Ictaluridae	bullhead catfishes	1	0.02	1	3.70
Vertebrata uid (predominately mammals)	--	2117	44.81	-	--
Sample Total	--	4724	100.00	27	100.00

uid= unidentified

Table 14: Vertebrate Faunal Material from Feature 3, 1/16" Sample (deFrance 1996)					
Taxon	Common Name	NISP	%	MNI	SP
<i>Odocoileus virginianus</i>	white-tailed deer	1	1.82	1	16.67
Mammal uid	unidentified mammal	39	70.91	-	--
Total Mammal	--	40	72.73	1	16.67
Passeriformes	song birds	2	3.64	1	16.67
Aves uid	unidentified birds	3	5.54	1	16.67
Total Aves	--	5	9.18	2	33.34
Ictaluridae	bullhead catfishes	1	1.82	1	16.67
Osteichthyes uid	unidentified bony fishes	2	3.64	-	--
Total Osteichthyes	--	3	5.46	1	16.64
Colubridae	non-poisonous snakes	5	9.09	1	16.67
Testudines	turtles	2	3.64	1	16.67
Vertebrata uid (predominantly mammals)	--	no count	--	-	--
Sample Total	--	55	100.00	6	100.00

uid= unidentified

Table 15: Quantification and Identification of Cut Marks

Specimen	Metal Cut	Stone Cut	Und	Skeletal Element	Specimen	Metal Cut	Stone Cut	Und	Skeletal Element
<i>Equus asinus</i>	1	-	-	Long Bone	UID Mammal	1	-	-	Long Bone
<i>Odocoileus virginianus</i>	-	-	2	Metacarpal	UID Mammal	2	-	-	Long Bone
<i>Odocoileus virginianus</i>	-	-	1	Metacarpal	UID Mammal	2	-	-	Long Bone
<i>Odocoileus virginianus</i>	-	-	1	Metacarpal	UID Mammal	-	-	1	Long Bone
Caprinae	-	-	2	Long Bone	UID Mammal	1	-	-	Long Bone
Caprinae	-	-	1	Long Bone	UID Mammal	1	-	-	Fragment
Bovidae	-	-	2	Fragment	UID Mammal	10	-	-	Long Bone
Bovidae	-	-	3	Fragment	UID Mammal	-	-	1	Fragment
Bovidae	-	-	1	Fragment	UID Mammal	1	-	-	Fragment
Bovidae	1	-	-	Long Bone	UID Mammal	2	-	-	Long Bone
Bovidae	2	-	-	Long Bone	UID Mammal	3	-	-	Fragment
Bovidae	2	-	-	Metatarsal	UID Mammal	3	-	-	Fragment
Bovidae	2	-	-	Mandible	UID Mammal	2	-	-	Long Bone
Bovidae	1	-	-	Fragment	UID Mammal	-	2	-	Fragment
Bovidae	5	-	-	Fragment	UID Mammal	-	-	1	Fragment
Bovidae	2	-	-	Fragment	UID Mammal	3	-	-	Fragment
Bovidae	-	-	2	Fragment	UID Mammal	2	-	-	Fragment
Bovidae	-	-	2	Fragment	UID Mammal	1	-	-	Fragment
Bovidae	1	-	-	Fragment	UID Mammal	2	-	-	Long Bone
Bovidae	2	-	-	Fragment	UID Mammal	3	-	-	Fragment
Bovidae	2	-	-	Metatarsal	UID Mammal	-	-	1	Fragment
Bovidae	-	-	1	Mandible	UID Mammal	-	2	-	Fragment
Bovidae	1	-	-	Fragment	UID Mammal	-	-	1	Fragment
Bovidae	3	-	-	Astragalus	UID Mammal	-	-	3	Fragment
Bovidae	3	-	-	Fragment	UID Mammal	-	-	1	Fragment
UID Mammal	2	-	-	Fragment	UID Mammal	-	1	-	Fragment
UID Mammal	-	1	-	Long Bone	UID Mammal	-	-	1	Fragment
UID Mammal	3	-	-	Long Bone	UID Mammal	-	1	-	Fragment

Und= Undetermined UID= Unidentifiable

TOTALS: 71 7 29

the gnawing marks, if possible, would take a more intensive study of the modifications than is provided here.

Evidence of burning was noted on 298 specimens, or less than 10% of the total sample. Most of the burning occurs on unidentified mammal remains. The remaining burned specimens consist of cow/bison remains, turtle bone, and bird bone. Although the burning might have been the result of natural processes, the evidence strongly suggests the involvement of human activity. It is likely that the burned specimens were cooked or heated elsewhere and later discarded in the midden.

Worked bone was also recovered from the site. Tubular bone beads (Figure 34) made up the majority of worked specimens. Bone beads were found in areas B and D.

MOLLUSCAN REMAINS

Both freshwater and marine shell was recovered at the site. Mussel shell, or Unionidae, made up the majority of the shell found. Marine shell comprised only a small amount of the shell collection. The marine shell includes scallops (Pectinidae), oliva shell (Olividae) and one unidentified marine shell fragment. Two scallop fragments and an unidentifiable marine shell fragment were found in Area A. An oliva shell and a scallop fragment were also found in

Feature 3, Area B.

Most of the mussel shell was collected from Area A. In particular, Feature 2, (unit 95-7), contributed the largest number of mussel shells collected at the site. The feature consisted of a large concentration of mussel shells with a minimum of 102 individuals represented. In all, the site yielded a minimum number of 240 individuals.

Several pieces of worked shell are present in the collection. The majority of the worked shell can be classified as grooved and snapped (Figure 35) although three mussel shell ornaments, one oliva shell pendant, and two small shell beads were also found.

The mussel shell ornaments include a small disc-shaped ornament with a hole in its center (Figure 36a), a complete rectangular pendant with two small drilled holes at the top, (Figure 36b), and a broken pendant with one noticeable drilled hole near its broken edge (Figure 36c). Two of the pendants were found in Feature 3 and one was found in unit 95-2 in Area A. Similar rectangular shell ornaments were found at Mission Espiritu Santo in Goliad (Jackson 1933 and Mounger 1959) and at the Berger Bluff site (Brown 1983). Brown (1983) dates the shell ornament to approximately 1000 AD. If this date is correct, the presence of these ornaments at the mission indicates a continued use and/or

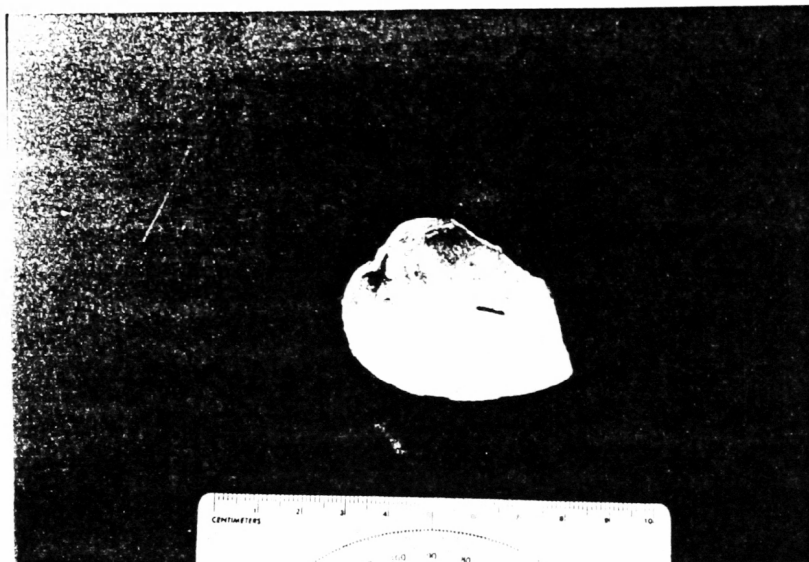


Figure 35: Grooved and snapped mussel shell

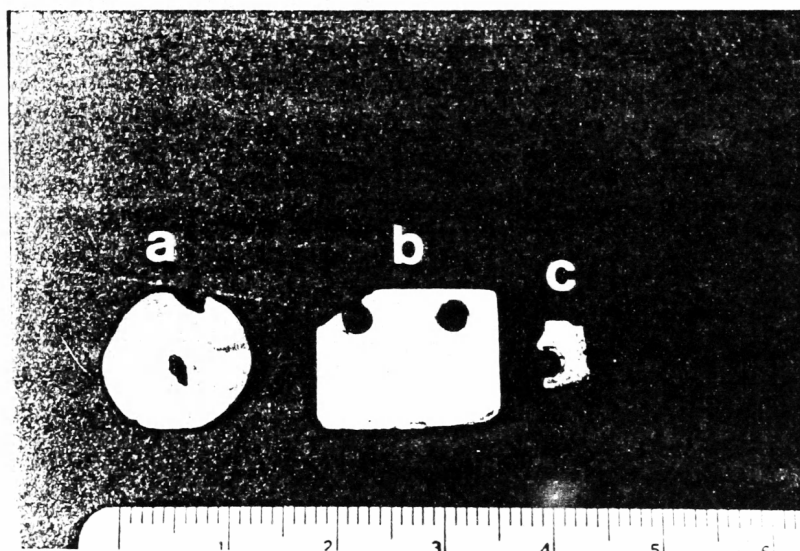


Figure 36: Mussel shell ornaments

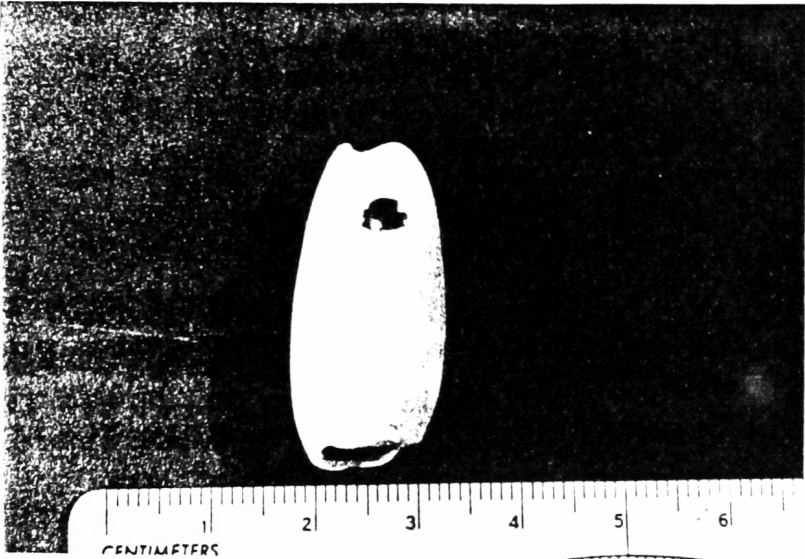


Figure 37: Oliva shell pendant

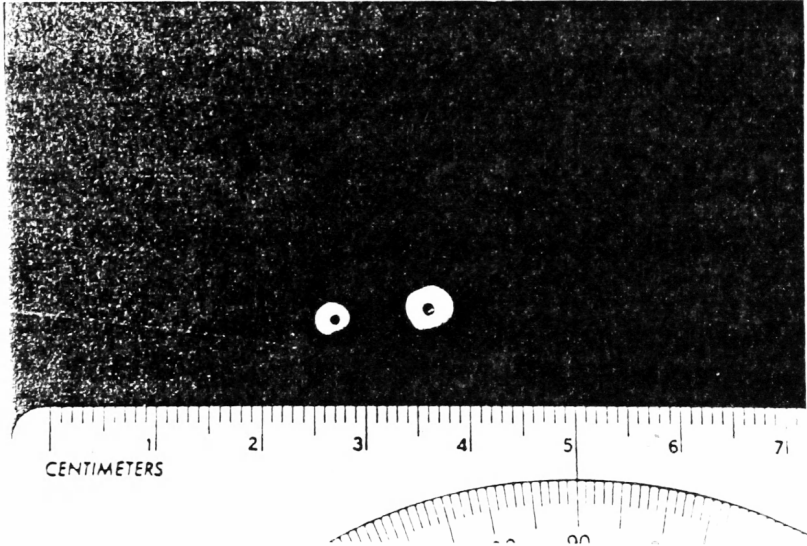


Figure 38: Shell beads

manufacture. Similar rectangular ornaments have been noted at sites on the Texas coast (Anderson 1932).

The oliva shell pendant (Figure 37) is similar to pendants found at Espiritu Santo in Goliad (Mounger 1959). Mounger (1959: 224) describes the pendants as "Ravenel beads or tinklers" with drilled holes near the apex for stringing. In addition, two rounded shell beads were recovered from fine screen samples taken from Feature 3 in Area B (Figure 38). Both of the beads are very similar to their glass counterparts. Presumably, these shell beads were produced locally by the mission Indians.

METAL

Only a small amount of metal was recovered during our excavations. This is not surprising given that metal objects reportedly are not abundant on 18th century sites in Texas (Ivey and Fox 1981). The overwhelming majority of metal artifacts found consisted of unidentifiable metal fragments. Nails were the next most common metal artifact and the rest of the metal collection was made up of miscellaneous items. These items include a piece of barbed wire, a spring, a broken buckle, a door hinge, a large unidentifiable metal item, and a few pieces of copper.

A total of nine nails were found during our

excavations. Six of the nails were found in the architectural units placed in Structure I (Area D). Two were recovered from units placed in Area A and one nail was found in Area C. Seven of the nails appear to be square cut. The nail found in Area C, however, is rounded and of more recent origin than the others. The largest of the square cut nails, found in Area A on the surface near 95-5, has a rounded head with a flattened end. All of the nails are badly corroded.

The barbed wire and the metal spring obviously post-date the mission occupation of the site. The broken buckle (Figure 39), found on the surface in Area A, is not characteristic of the time period during which the mission was in operation and may date to the Civil War period (Calhoun, personal communication 1995). The door hinge (Figure 40), however, does appear to be contemporaneous with the mission. The hinge was found on the surface just west of Structure I in Area D. It is very similar to hinges found during excavations at the Espiritu Santo mission in Goliad (Mounger 1959). A large, unidentifiable piece of metal, found on the surface in Area B, appears to be a part of a gate from a fence that probably post-dates the mission occupation.

Copper artifacts are common at many of the Spanish



Figure 39: Broken belt buckle

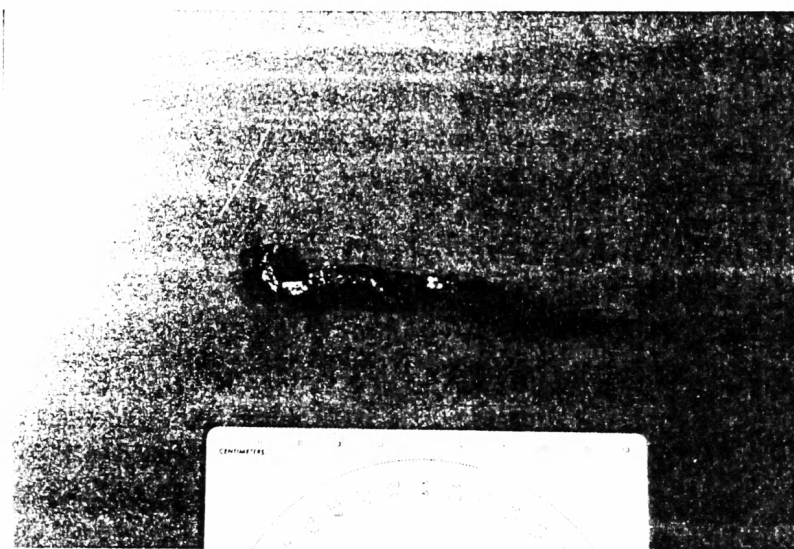


Figure 40: Metal door hinge



Figure 41: Copper fragments

settlements and missions throughout the area including Rancho de las Cabros (Ivey and Fox 1981), Mission Rosario (Gilmore 1974), Tonkawa Bluff (Fox 1979), Mission San José y San Miguel de Aguayo (Hard, 1995), and the Espiritu Santo Mission in Goliad (Mounger 1959). Only six pieces of copper (Figures 41 and 42) were found during our excavations at Espiritu Santo. Five badly corroded pieces were found in Feature 3, Area B and the sixth copper piece was collected from 95-4 in Area A.

GLASS OBJECTS

Four glass beads, similar to the shell beads discussed previously, are also present in the collection. Three of the beads were found in Area A in units 95-2, 95-4, and 95-5. A fourth bead was removed from the fine screen matrix of units 95-6 and 95-9 in Area B. The first specimen (Figure 43a) is a round light blue glass bead with little to no surface pitting. The second specimen (Figure 43b) is an angular black glass bead with a rounded hole. The third specimen (Figure 43c) is a rounded glass bead with blue iridescent enamel and a badly pitted surface. The last specimen (Figure 43d) is a small, round, green glass bead with a pitted, iridescent surface.

Similar glass beads were found at Espiritu Santo in

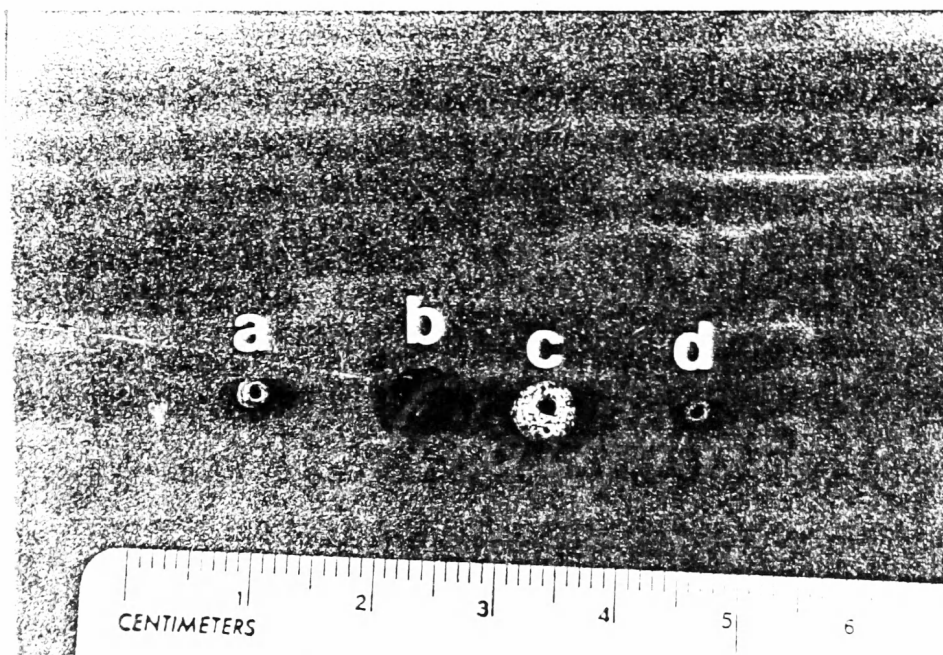


Figure 43: Glass beads

Goliad (Mounger 1959), Rancho de las Cabras (Ivey and Fox 1981), Mission Rosario (Gilmore 1974) and Mission San Juan Capistrano (Schuetz 1969). Although the origins of the beads from the mission are not known, Ivey and Fox (1981) note that glass beads from Venice, Italy are common at most Spanish sites. The beads were traded or given to the Indians who used them in burials or for decorating clothes or making necklaces (Ivey and Fox 1981; Mounger 1959).

In addition to the glass beads, four pieces of glass were found at the site that most likely represent post-mission occupations. All of the fragments were recovered from excavations and surface collections in Area A. One piece is a broken portion of a brown glass snuff bottle that was found on the surface near unit 95-5. Two of the fragments are made of clear glass and one is significantly patinated. The last specimen is a piece of small brown glass that is also extremely weathered.

Chapter 5

IMPLICATIONS OF ANALYSIS

Three hypotheses were established for the research conducted at the presumed second location of the Espiritu Santo mission. Each hypothesis is addressed through the investigation of the mission's history and the examination of the cultural materials collected from the site during the summer and fall excavations of 1995. The following is a discussion of these hypotheses and how the historical and archaeological investigations do or do not support them. Each of the three hypotheses is restated and the corresponding implications of analyses are reviewed.

Hypothesis number one states that the Indians of Espiritu Santo were resisting missionization and were continuing, to a certain degree, their traditional lifeways. It is hypothesized that the Indians were resisting those aspects of Spanish culture that affronted their core values. These core values would include religious practices, social and tribal organization, kin relationships, and division of labor. If resistance is indeed occurring we would expect to find a continuation of some of these aspects of their native culture and resistance to certain traits of Spanish culture. No evidence directly related to religious and social

organization was identified from the 1995 investigations or in the historical records. Future excavations, however, may reflect certain patterns in the archaeological record that indicate these aspects of Aranama and Tamique culture. Despite a lack of evidence to support the belief that Tamique and Aranama Indians were continuing traditional religious and social lifeways, the continuance of prehistoric technologies was evidenced in the archaeological data recovered.

The continuance of lithic and ceramic technologies can be observed at the site. The Late Prehistoric period in southern and southeastern Texas is characterized by a distinctive cultural entity known as the Toyah horizon (A.D. 1300 to A.D. 1600). Extensive faunal remains, especially of bison, Perdiz type projectile points, knives, end scrapers, bone tools, gravers, perforators, and bone-tempered pottery are characteristic of Toyah horizon sites. The persistence of prehistoric lifeways in south Texas, such as those of the Toyah horizon, is best examined through the archaeological investigations of Indian quarters in missions of the area (Hester 1989). Similarities in artifact collections from Late Prehistoric sites and Spanish Colonial sites such as Mission Espíritu Santo provide evidence of the continuation of Late Prehistoric traditions into the early Historic

period. Lithic artifacts, ceramics, and, to some extent, faunal remains provide the best forms of material cultural for assessing Late Prehistoric traditions that endure into the Mission period. Aboriginal material remains, taken from the context of early Spanish missions in south Texas, may also provide data concerning modifications and introductions of new technologies (Hester 1989). Lithic artifacts, faunal remains, and bone-tempered pottery collected from Espiritu Santo all provide evidence of a continuation of these Late Prehistoric traditions and technologies.

Stone tools, which include scrapers, Late Prehistoric projectile points, hammerstones, bifaces, unifaces, retouched flakes, and cores were collected from the site. The presence of these lithic artifacts strongly supports a continued reliance on certain Prehistoric lifeways. For example, despite the presence of metal, it appears that scrapers were still being used to process hides. In addition to the number of scrapers found in and around Feature 3, preliminary analysis of several scrapers also indicates patterns that may be attributed to the processing of animal remains (Hester 1996). Archaic (Darl) and Late Prehistoric to early Historic projectile points (Cuney and Perdiz) were also found at the site, although they were not

abundant. Several possibilities may account for their existence. First, the points may have been from a previous occupation of the site and the mission Indians may or may not have been re-utilizing them. Second, it is also possible that the Cuney and Perdiz points continued to be manufactured for hunting purposes. By far, the Guerrero projectile point, is the most abundant point type found at the site. Guerrero points are common at many Spanish Colonial sites in this region including Rancho de Las Cabras (Ivey and Fox 1981, Ivey 1983), Espiritu Santo in Goliad (Mounger 1959), mission Rosario (Gilmore 1974), and mission San José y San Miguel de Agauyo (Hard et al. 1995).

The continuance of Late Prehistoric lithic traditions may also be linked to a continued reliance on the hunting of certain indigenous animals. Evidence from the faunal remains found at the site suggests that the Aranama and Tamique continued to exploit local animal resources. The presence of deer, rabbit, opossum, fox, bear, birds, turtles, and catfish were all documented at the mission (deFrance 1996). Similar patterns of faunal remains were observed at mission Rosario (Gilmore 1974), Rancho de las Cabras (Fox and Ivey 1981) and mission San José y San Miguel de Agauyo (Hard et al. 1995).

The existence of both fresh water mussel and marine shell indicates that the mission Indians were also continuing to exploit these subsistence resources. The marine shell could have been acquired through trade or it may have been procured by the mission Indians themselves. Plant remains were not assessed during the analyses, therefore, it can not be determined at this time whether or not local plants were being consumed although they probably were making use of local flora. Future investigations should incorporate paleobotany studies to address detailed questions concerning the subsistence patterns of the mission occupants.

The presence of bone-tempered ware at sites dating to the Mission period may also suggest the persistence of a Late Prehistoric ceramic tradition. The vast majority of ceramics from Espiritu Santo consists of bone-tempered pottery. Likewise, similar percentages of unrefined, bone-tempered ceramics are observed at nearby Spanish Colonial sites (e.g., Gilmore 1974; Ivey and Fox 1981 and 1983; Schuetz 1969; Clark 1978; and Mounger 1959). Presumably, the bone-tempered pottery found at the mission was produced by the Aranama and Tamique and may be a continuation of the prehistoric Leon Plain ware tradition (Fox et al. 1976). The continued use of bone-tempered pottery during the

Mission period may have been encouraged by a lack of imported Spanish ceramics from Mexico (Hester 1989). Whether or not Late Prehistoric vessel shapes and functions continued at Espiritu Santo is not clear. Unfortunately, the fragmented condition of the majority of sherds limited the amount of information available on the functions and shapes of bone-tempered vessels. It seems plausible, however, that if the mission Indians were continuing to use prehistoric lithic, subsistence, and ceramic technologies, prehistoric vessel shapes and functions would also persist to some degree.

Despite evidence for the continuation of prehistoric technologies at Espiritu Santo, determining whether this persistence is a result of resistance or necessity, however, is difficult. The preliminary data suggests that necessity, more than resistance, may have been the primary reason for the continued use of prehistoric lithic and ceramic technologies. The missionaries had limited resources and limited access to metal and European and Mexican wares that may have resulted in a greater reliance on native ceramics and tools by both the friars and the mission Indians. These conditions would have encouraged the continued production of lithic tools and native pottery. A larger archaeological

sample, however, may suggest that mission Indian resistance also contributed to the persistence of these prehistoric technologies.

The second hypothesis states that despite the Aranama and Tamique Indians' resistance to certain aspects of Spanish culture, they were presumably adopting those Spanish traits which were most beneficial and technologically superior to their own. These Spanish-introduced traits may include metal tools and Spanish domesticated animals. The vessel shapes of bone-tempered ware may also have been influenced by the Franciscans. Hypothetically, these attributes would be less likely to affect native value systems and, thus, were more readily adopted by the mission Indians. The archaeological data strongly support this hypothesis.

Metal fragments were found throughout the site, although they were sparse. Scarcity of metal on 18th century Texas sites is common. Due to the lack of available metal, tools and vessels were used until they wore down and were then recycled by using the remaining scraps to patch other metal items (Ivey and Fox 1981). When the mission was moved to Goliad in 1749, it is likely that most of the metal tools were transported to the new location. Modern-day treasure hunters with metal detectors may have removed a

significant portion of metal artifacts as well, thus skewing the data. Despite the lack of metal artifacts recovered, cut marks on the faunal remains from the bone midden suggest the use of metal tools for butchering purposes. Metal tools may have proved superior to stone when used for processing meat and, therefore, were readily adopted. Although only a few of the marks were identified as stone-like, the amount of scrapers present within the feature may indicate that stone tools continued to be used in addition to metal to process meat and hides. As preliminary analysis suggests, scrapers were probably used primarily for hideworking, scraping and defleshing (Hester et. al. 1996) while metal tools were used for cutting and dismembering the carcass.

The possibility of Spanish-introduced vessel shapes and functions was examined in the analysis of the bone-tempered pottery present in the collection. Despite the fragmented condition of the sherds, an attempt was made to determine vessel shape and function of the more complete pottery pieces. Measurements taken from several rim sherds seem to indicate the existence of either very shallow bowls or plates. Both plates and shallow bowl-shaped vessels have been found at other Texas Spanish Colonial sites (Mounger 1959; Corbin 1989) Mounger (1959) notes the existence of

shallow bowls made from bone-tempered ware and suggests that they may have been copied from Spanish serving bowls. Native ceramics in the form of plates are noted at Mission Dolores in East Texas and their manufacture is attributed to either trade enhancement or commissioning by Europeans (Corbin 1989). This may also be the case at Espiritu Santo where the paucity of non-native ceramics indicates a strong reliance on indigenous pottery. However, evidence suggesting that the mission Indians were producing vessels similar in shape to European ceramics is, at best, inconclusive at this stage of analysis.

Determining the function of the bone-tempered ware was also inhibited by the condition of the sherds. Nevertheless, the main purpose of the native pottery might be attributed to water storage and other utilitarian needs (Hester 1989). Utilitarian ceramics were needed by the missionaries for every day life and were probably more obtainable from native inhabitants than from their homeland or from French traders (Corbin 1989).

Spanish domesticated animals are also present at the site. deFrance (1996) identified sheep/goat, probable cattle, a burro, and a possible pig in the faunal sample taken from Feature 3. The sample indicates that in addition to locally hunted animals, Spanish-introduced livestock was

added to the mission Indians' diet. The availability of domesticated animals would have provided an additional source of food for the Indians and probably played a significant role in convincing the Aranama and Tamique to settle at the mission.

Whether or not bison faunal remains are represented at the site is not known at this time. The skeletal elements examined from the sample strongly suggest that the bovid remains are from cattle rather than bison (deFrance 1996). However, this does not mean that bison remains are not represented at the site and future investigations may indicate their presence. The presence of bison remains would indicate a continued reliance on indigenous hunted animals by the mission Indians and, perhaps, the friars during times of need or lack of other food sources.

The final hypothesis addresses the effects of contact on the Franciscan missionaries. The friars at Espiritu Santo were poor and ill-equipped and were often forced to buy supplies for the mission using their own salaries (Oberste 1942). Hypothetically, this would result in a reliance on certain indigenous materials and subsistence items. In the archaeological record this would be reflected in a lack of Spanish material goods and an abundance of native artifacts in areas of the site such as the refuse

midden that is believed to have been created by both the Franciscans and the Aranama and Tamique Indians.

The artifact collection recovered from the site supports this hypothesis. Despite its diverse range, only a small percentage of Mexican and European wares were found during our excavations. Admittedly, this could have been due to a bias in our sampling procedures. Native occupation areas of the site were specifically targeted for excavation. However, the bone midden, Feature 3, presumably resulted from both missionary and Indian activities.

Excavations within the midden provide the best data for examining the effects of contact on the missionaries. In addition to the recovery of Spanish domesticated animals, locally hunted animals are also present within the midden. This suggests that the missionaries may have been supplementing their diet with native animal species in addition to food procured from their own livestock. Historical accounts have noted the failure of irrigated farming at the mission and the Indians' abandonment of the site when food shortages occurred forcing them to return to their former hunting and gathering subsistence (Castañeda 1936, Vol.II). It is interesting to note that a long bone from a burro found in the midden displayed a cut mark that indicates the animal was butchered and probably consumed.

It is likely that the missionaries were making the best use of all the available local and Spanish domesticated animals in order to survive. Plant remains were not examined during this phase of excavation, however, future investigations may indicate that both indigenous and Spanish-introduced plants were exploited. Determining the presence or absence of Spanish-introduced flora and examining the exploitation of both native and non-native plant resources should be a subject of future research.

The paucity of imported ceramics and the abundance of mission pottery in the archaeological record demonstrates a dependence on indigenous manufactured goods. Although evidence of the forms and functions of bone-tempered vessels remains questionable, the widespread distribution and large quantity of bone-tempered sherds found throughout the site signifies a strong reliance on this type of pottery by all the occupants of the mission. If the mission Indians were producing European-shaped plates or shallow bowls, they may have been commissioned by the missionaries to replace a lack of plates or bowls available in Spanish or Mexican wares. Additional evidence is needed to support this suggestion.

The archaeological investigations conducted at Espíritu Santo in the fall and summer of 1995 produced a wide range

of cultural material from which data were extracted. The primary goal of the artifact and faunal analyses was to obtain the maximum amount of information possible. General artifact and faunal descriptions and identifications, distributions of cultural materials, and comparative studies were all examined in our analyses. With this information collected, the hypotheses presented in Chapter 1 were addressed and their implications discussed. Although the archaeological data from these excavations could not be used to address questions concerning resistance and the continuation of native lifeways (e.g. social organization and religious practices), the information collected provided supportive evidence for much of what was postulated. First, the continuation of several prehistoric traditions including lithic and ceramic technologies and certain subsistence strategies was observed in the data. The persistence of these technologies, however, may have resulted more from necessity rather than resistance to change. Second, the mission Indians were probably adopting characteristics of Spanish culture that were not offensive to their value system and were beneficial or technologically superior to certain traits of their own culture. This hypothesis is supported by the findings of the remains of Spanish-introduced animals and the presence of metal cuts on bone

presumably butchered by the mission Indians. Lastly, the Franciscan missionaries are thought to have also adopted some properties of the native Indians' culture in response to the contact situation. The wide distribution of bone-tempered ware and the apparent lack of European or Mexican ceramics at the mission implies a dependence on aboriginal pottery by both the Indians and the missionaries. Also, the presence of indigenous animal remains in Feature 3 may indicate that the missionaries were also relying to some degree on native animals procured by the mission Indians.

Chapter 6

CONCLUSIONS

Excavations at the Espiritu Santo mission, 41VT11, in Victoria County, Texas were conducted during the summer and fall of 1995. The archaeological investigations were directed toward recovering data concerning the native and Spanish inhabitants of the site and how the effects of culture contact are reflected in the material record. Excavations were concentrated in areas thought to have been occupied by the mission Indians although a refuse midden northwest of the mission ruins believed to have been the result of both Indian and missionary activities was also investigated.

Through the examination of the material remains three specific hypotheses were tested. The first hypothesis stated that the mission Indians were resisting missionization and continued to practice traditional lifeways. The second hypothesis stated that despite their adherence to traditional culture, the Indians did adopt certain Spanish traits that were less likely to affront core values and were technologically superior to their own. The third hypothesis stated that the Franciscan missionaries were also affected by contact with the indigenous populations and evidence of this would be reflected in the

archaeological record.

The majority of excavation units were placed west and northwest of the mission ruins in Areas A and B. Additional excavations were completed to the east of the mission structures in Area C. Architectural units were placed in and around the two identified structures, designated Structure I and Structure II, in Area D, to determine the style of construction and the dimensions of the buildings. Most of the excavations concentrated on the refuse midden, Feature 3, northwest of the mission ruins in Area B. Faunal and material remains recovered from the site were analyzed and their implications were discussed.

The implications of analyses strongly support much of what was set forth in the hypotheses. Archaeological evidence supports the believe that the Aranama and Tamique Indians continued to produce and use stone tools, practice traditional prehistoric subsistence activities, and manufacture bone-tempered pottery reminiscent of Late Prehistoric ceramic traditions. The mission Indians may have continued to practice native religions and maintain traditional social organizations although this was not directly reflected in the archaeological investigations of 1995. Future investigations might focus on trying to recover indigenous artifacts and evidence of structures

indicative of religious and social practices that may provide answers to questions concerning the traditional cultural lifeways of the Aranama and Tamique.

In addition to continued prehistoric lifeways, the archaeological data also showed evidence of the adoption of those aspects of Spanish culture that did not offend the mission Indians' value system. The material remains indicate that the Indians adopted the use of metal tools when butchering animals. Furthermore, the remains of Spanish-introduced and indigenous animals in the midden implies a reliance on both sources of food by the mission Indians and the Franciscans. Clearly, the availability of Spanish domesticated animals as well as locally hunted game was advantageous to both the mission Indians and the missionaries since food sources were frequently scarce.

What emerges from the archaeological record is a pattern of resistance as well as interdependence between the Franciscan missionaries and the Aranama and Tamique Indians. The mission Indians were relying on the missionaries for food and protection and certain material goods. The Franciscans, poor and under-supplied, depended on the mission Indians for labor in the fields, material items such as pottery, and, possibly, locally hunted animals. Despite this reliance on one another, patterns of resistance still

occur. The Aranama and Tamique Indians continued to practice traditional ways of life although they did make use of certain Spanish attributes such as metal tools and domesticated animals which were beneficial to their survival.

These patterns may help to explain why the Franciscans' attempt to missionize the Aranama and Tamique Indians was largely unsuccessful. The Indians' primary reasons for living at the mission were food and protection. Like many other native groups in the area, European diseases had caused a decline in their populations and missions often times served as a refuge for effected groups. The missionaries' primary concern was to convert the native populations to Christianity. For both the missionary and the Indian these were two very different ideas of what constituted mission life. The archaeological record suggests that the Aranama and Tamique Indians adopted traits which were most beneficial to their survival. Unfortunately, evidence of the rejection of those aspects of Spanish culture that affronted the mission Indians' core values (e.g., religious practices and social organization) was not recovered during these investigations. For the mission Indians, conversion to Christianity was not necessary to their survival and, subsequently, may not have

been readily adopted. It would seem that these factors all greatly contributed to the Franciscans' failed missionization attempts.

There is still a great deal of work to be done at the mission before a more complete picture of mission life is assembled. There is great potential for future research at the site and there is still much to be learned about the mission itself, its architecture, physical layout, and spatial patterns. Paleobotany studies will undoubtedly provide increased knowledge of subsistence patterns and seasonal uses of local and Spanish-introduced flora. Questions concerning the Indians use of living space and what this says about their social organization could be more adequately addressed if a larger archaeological sample were taken from the Indian occupation area within the site. Most importantly, future investigations could increase our knowledge of the entire mission complex and the Spanish Colonial era in Texas.

APPENDIX A
Inventory of Cultural Materials

AREA A

Test Unit 95-1						
Level	Lithics	Bone	Ceramics	Shell	Metal	Other
1 (0-10)	29 Flakes FS: 8 Flakes	28	8 Bone-Tempered 2 Other	4 Freshwater MNI= 1	0	0
2 (10-20)	23 Flakes 1 EM Flake	176	23 Bone-Tempered 1 Other	15 Freshwater MNI= 3 1 Marine MNI= 1	0	0
3 (20-30)	19 Flakes	31	17 Bone-Tempered	10 Freshwater MNI= 2	0	0
4 (30-40)	21 Flakes	30	3 Bone-Tempered 1 Other	12 Freshwater MNI= 2	0	0
5 (40-50)	24 Flakes	7	1 Bone-Tempered	11 Freshwater MNI= 3	0	0
TOTALS:	125 Flakes 1 EM Flake FS: 16 Flakes (From Backdirt)	272 FS: 6	52 Bone-Tempered 4 Other	52 Freshwater MNI= 8 1 Marine MNI= 1	0	0

FS= Fine Screen Artifacts EM= Edge-modified MNI= Minimum Number of Individuals

Test Unit 95-2						
Level	Lithics	Bone	Ceramics	Shell	Metal	Other
1 (0-10)	3 Flakes	4	2 Bone-Tempered	0	0	0
2 (10-20)	43 Flakes	54	34 Bone-Tempered	7 Freshwater* MNI= 1	1 Nail	0
3 (20-30)	145 Flakes 1 EM Flake	196	71 Bone-Tempered 1 Other	13 Freshwater MNI= 1 1 Marine MNI= 1	1 Nail	1 GB
4 (30-40)	90 Flakes FS: 14 Flakes	15	6 Bone-Tempered 1 Other	13 Freshwater MNI= 2	0	0
5 (40-50)	49 Flakes	0	1 Bone-Tempered	18 Freshwater MNI= 2 1 Marine MNI= 1	0	0
6 (50-60)	40 Flakes	4	0	4 Freshwater MNI= 3	0	0
7 (60-70)	10 Flakes	0	0	0	0	0
8 (70-80)	12 Flakes	0	0	0	0	0
9 (80-90)	2 Flakes	0	0	0	0	0
10 (90-100)	2 Flakes	0	0	0	0	0
TOTALS:	396 Flakes 1 EM Flake FS: 14 Flakes	273	114 Bone-Tempered 2 Other	55 Freshwater MNI= 6 2 Marine MNI= 1	2 Nails	1 GB

FS= Fine Screen Artifacts EM= Edge-modified GB= Glass Bead

*Includes 3 worked specimens MNI= Minimum Number of Individuals

Test Unit 95-4						
Level	Lithics	Bone	Ceramics	Shell	Metal	Other
1 (0-10)	41 Flakes FS: 3 Flakes	45 FS:32	27 Bone-Tempered 2 Other	8 Freshwater MNI= 1	0	0
2 (10-20)	114 Flakes 1 Biface FS: 8 Flakes	150 FS:11	52 Bone-Tempered 3 Other	10 Freshwater MNI= 1	1 Copper Piece	1 GB
3 (20-30)	102 Flakes	21	25 Bone-Tempered 1 Other	4 Freshwater MNI= 1	0	0
4 (30-40)	57 Flakes	2	6 Bone-Tempered 1 Other	9 Freshwater MNI= 3	0	0
5 (40-50)	148 Flakes	0	0	14 Freshwater MNI= 2	0	0
TOTALS:	462 Flakes 1 Biface FS: 11 Flakes	218 FS:43	110 Bone-Tempered 7 Other	45 Freshwater MNI= 7	1 Copper Piece	1 GB

FS= Fine Screen Artifacts GB= Glass Bead MNI= Minimum Number of Individuals

Test Unit 95-5						
Level	Lithics	Bone	Ceramics	Shell	Metal	Other
1 (0-10)	10 Flakes 1 Biface	75	35 Bone-Tempered	0	0	2 GF
2 (10-20)	13 Flakes 1 Biface 1 Cuney Pt 1 Guerrero Pt	200	49 Bone-Tempered	51 Freshwater MNI= 6	0	0
3 (20-30)	61 Flakes 1 Cuney Pt	66	14 Bone-Tempered	47 Freshwater MNI= 12	0	0
Fine Screen 1-3 (0-40)	96 Flakes	48	2 Bone-Tempered	0	0	1 GB
TOTALS:	84 Flakes 2 Bifaces 2 Cuney Pts 1 Guerrero Pt FS: 96 Flakes	341 FS:48	98 Bone-Tempered FS:2 Bone-Tempered	98 Freshwater MNI= 17	0	2 GF 1 GB

GF= Glass Fragment GB= Glass Bead FS= Fine Screen Artifacts MNI= Minimum Number of Individuals

Test Unit 95-7						
Level	Lithics	Bone	Ceramics	Shell	Metal	Other
1 (0-20)	24 Flakes	33	2 Bone-Tempered 1 Non-Native	21 Freshwater MNI= 1	0	0
2 (20-30) Feature 1	306 Flakes 1 Biface, 1 Core 1 EM Flake 1 Scraper FS: 161 Flakes	131 FS: 74	29 Bone-Tempered 1 Non-Native	336 Freshwater MNI= 34 FS: 2 Freshwater MNI= 2	3 Frags FS: 1 Frag	0
3 (30-40) Feature 2	132 Flakes 1 Biface FS: 76 Flakes	59 FS: 56	0	130 Freshwater MNI= 43 FS: 6 Freshwater MNI= 2	0	0
4 (40-45)	36 Flakes FS: 57 Flakes	23 FS: 49	0	83 Freshwater MNI= 16 FS: 2 Freshwater MNI= 1	0	0
TOTALS:	498 Flakes 2 Bifaces 1 Core 1 EM Flake 1 Scraper FS: 294 Flakes	246 FS:179	31 Bone-Tempered 2 Non-Native	570 Freshwater FS:10 Freshwater MNI= 72	0	0

FS= Fine Screen Artifacts MNI= Minimum Number of Individuals EM= Edge-modified

Test Unit 95-10						
Level	Lithics	Bone	Ceramics	Shell	Metal	Other
1 (0-10)	6 Flakes FS: 20 Flakes	3 FS: 2	0 FS: 1 Bone-Tempered	7 Freshwater MNI= 1	1 Frag FS: 5 Frag	0 FS:1 GF
2 (10-20)	149 Flakes 1 Guerrero Pt FS: 159 Flakes	93 FS:140	49 Bone-Tempered FS:15 Bone-Tempered	55 Freshwater MNI= 7 FS: 4 Freshwater MNI= 3	10 Frags FS:12 Frag	0
3 (20-30)	180 Flakes 1 Perdiz Pt 1 Hammerstone FS: 193 Flakes	52 FS:131	17 Bone-Tempered FS:2 Bone-Tempered	366 Freshwater MNI= 62 FS:14 Freshwater MNI= 7	0 FS: 2 Frag	0
4 (30-40)	87 Flakes FS: 164 Flakes	15 FS: 58	13 Bone-Tempered FS: 0	0 FS:10 Freshwater MNI= 5	1 Frag FS: 0	0
TOTALS:	422 Flakes 1 Guerrero Pt 1 Perdiz Pt 1 Hammerstone FS: 536 Flakes	163 FS:331	79 Bone-Tempered FS:18 Bone-Tempered	428 Freshwater FS:28 Freshwater MNI= 102	12 Frag FS:19 Frag	0 FS:1 GF

GF= Glass Fragment FS= Fine Screen Artifacts MNI= Minimum Number of Individuals

Test Unit 95-19						
Level	Lithics	Bone	Ceramics	Shell	Metal	Other
1 (0-10)	28 Flakes	47	13 Bone-Tempered	0	4 Frags	2 GF
2 (10-20)	81 Flakes	172	51 Bone-Tempered	43 Freshwater MNI= 8	1 Frag	0
3 (20-30)	346 Flakes 1 Core	222	75 Bone-Tempered 1 Other	87 Freshwater MNI= 31	0	0
TOTALS:	455 Flakes 1 Core	441	139 Bone-Tempered 1 Other	130 Freshwater MNI= 35	5 Frags	2 GF

MNI= Minimum Number of Individuals GF= Glass Fragment

AREA B

Test Unit 95-3						
Level	Lithics	Bone	Ceramics	Shell	Metal	Other
1 (0-10)	2 Flakes	0	0	0	0	0
2 (10-20)	62 Flakes	8	1 Bone-Tempered	2 Freshwater MNI= 1	0	0
3 (20-30)	109 Flakes	6	3 Bone-Tempered	3 Freshwater MNI= 1	0	0
4 (30-40)	12 Flakes	2	2 Bone-Tempered	4 Freshwater MNI= 1	0	0
TOTALS:	185 Flakes	16	6 Bone-Tempered	9 Freshwater MNI= 2	0	0

Test Units 95-6 and 95-9						
Level	Lithics	Bone	Ceramics	Shell	Metal	Other
Cultural (0-27 cmbs)	117 Flakes 3 Guerrero Pts 4 Scrapers 3 Hammerstones	2979	261 Bone-Tempered 1 Other	29 Freshwater* MNI= 1 5 Marine MNI= 1	1 Frag	0
Fine Screen Artifacts (0-27 cmbs)	236 Flakes	50	152 Bone-Tempered	0	0	1 GB
TOTALS:	353 Flakes 3 Guerrero Pts 4 Scrapers 3 Hammerstones	3029	413 Bone-Tempered 1 Other	29 Freshwater MNI= 1 5 Marine MNI= 1	1 Frag	1 GB

* Includes 3 worked specimens MNI= Minimum Number of Individuals GB= Glass Bead

Test Unit 95-11						
Level	Lithics	Bone	Ceramics	Shell	Metal	Other
Cultural (0-28 cmbs)	67 Flakes 2 Scrapers	1074	98 Bone-Tempered 2 Other	0	0	0
Fine Screen Artifacts (0- 28 cmbs)	71 Flakes 2 Guerrero Pts	776	51 Bone-Tempered	8 Freshwater MNI= 1	0	0
TOTALS:	138 Flakes 2 Scrapers 2 Guerrero Pts	1850	149 Bone-Tempered 2 Other	8 Freshwater MNI= 1	0	0

MNI= Minimum Number of Individuals

Test Unit 95-12						
Level	Lithics	Bone	Ceramics	Shell	Metal	Other
Cultural (0-36 cmbs)	51 Flakes 1 EM Flake	1732	102 Bone-Tempered	16 Freshwater MNI= 2	0	0
Fine Screen Artifacts (0-36 cmbs)	54 Flakes	87	0	2 Freshwater MNI= 1	0	0
TOTALS:	105 Flakes 1 EM Flake	1819	102 Bone-Tempered	18 Freshwater MNI= 2	0	0

MNI= Minimum Number of Individuals EM= Edge-modified

Test Unit 95-13						
Level	Lithics	Bone	Ceramics	Shell	Metal	Other
Cultural (0-31 cmbs)	52 Flakes 2 EM Flakes 1 Abrading Stone 1 Scraper	769*	136 Bone-Tempered 3 Other	21 Freshwater MNI= 2 1 Marine* MNI= 1	5 Copper Pieces 1 Nail	0
Fine Screen Artifacts (0-31 cmbs)	21 Flakes	196	18 Bone-Tempered	0	0	0
TOTALS:	73 Flakes 2 EM Flakes 1 Abrading Stone 1 Scraper	965	154 Bone-Tempered 3 Other	21 Freshwater MNI= 2 1 Marine MNI= 1	5 Copper Pieces 1 Nail	0

MNI= Minimum Number of Individuals *Includes one worked specimen EM= Edge-modified

Test Unit 95-14						
Level	Lithics	Bone	Ceramics	Shell	Metal	Other
Cultural (0-36 cmbs)	69 Flakes 1 Biface 3 Scrapers 1 Hammerstone	1627	138 Bone-Tempered	8 Freshwater MNI= 2 1 Marine* MNI= 1	1 Copper Piece	0
Fine Screen Artifacts (0-36 cmbs)	13 Flakes	159	11 Bone-Tempered	0	0	0
TOTALS:	82 Flakes 1 Biface 3 Scrapers 1 Hammerstone	1786	149 Bone-Tempered	8 Freshwater MNI= 2 1 Marine* MNI= 1 MNI= 1	1 Copper Piece	0

MNI= Minimum Number of Individuals *Includes one worked specimen

Test Unit 95-15						
Level	Lithics	Bone	Ceramics	Shell	Metal	Other
Cultural (0-22 cmbs)	36 Flakes 1 EM Flake	1180*	42 Bone-Tempered 1 Other	15 Freshwater* MNI= 1	0	0
Fine Screen Artifacts (0-22 cmbs)	18 Flakes	191	6 Bone-Tempered 1 Other	1 Freshwater	0	0
TOTALS:	54 Flakes 1 EM Flake	1371	48 Bone-Tempered 2 Other	16 Freshwater MNI= 1	0	0

MNI= Minimum Number of Individuals *Includes worked specimens EM= Edge-modified

Test Unit 95-16						
Level	Lithics	Bone	Ceramics	Shell	Metal	Other
Cultural (0-23 cmbs)	36 Flakes 1 Guerrero Pt 1 Chopper	650*	31 Bone-Tempered	2 Freshwater MNI= 1	0	3 nut shells
Fine Screen Artifacts (0-23 cmbs)	13 Flakes	47	1 Bone-Tempered	3 Freshwater MNI= 1	0	0
TOTALS:	49 Flakes 1 Guerrero Pt 1 Chopper	697	32 Bone-Tempered	5 Freshwater MNI= 1	0	3 nut shells

MNI= Minimum Number of Individuals *Includes worked specimens

Test Unit 95-17						
Level	Lithics	Bone	Ceramics	Shell	Metal	Other
Cultural (0-37 cmbs)	129 Flakes 2 Scrapers 1 Core 1 Guerrero Pt	447	29 Bone-Tempered	20 Freshwater* MNI= 3	0	0
Fine Screen Artifacts (0-37 cmbs)	135 Flakes	142	13 Bone-Tempered	1 Shell Bead	0	0
TOTALS:	264 Flakes 2 Scrapers 1 Core 1 Guerrero Pt	589	42 Bone-Tempered	20 Freshwater* 1 Shell Bead MNI= 2	0	0

MNI= Minimum Number of Individuals *Includes 2 worked specimens

Test Unit 95-18						
Level	Lithics	Bone	Ceramics	Shell	Metal	Other
Cultural (0-36 cmbs)	183 Flakes 2 Hammerstones 1 Scraper	1065*	106 Bone-Tempered	2 Freshwater MNI= 1	0	2 Bone Beads
Fine Screen Artifacts (0-36 cmbs)	87 Flakes	61	18 Bone-Tempered	3 Freshwater* MNI= 1	0	0
TOTALS:	270 Flakes 2 Hammerstones 1 Scraper	1126	124 Bone-Tempered	5 Freshwater MNI= 2	0	2 Bone Beads

MNI= Minimum Number of Individuals *Includes worked specimens

Test Unit 95-20 (50x50 cm)						
Level	Lithics	Bone	Ceramics	Shell	Metal	Other
Cultural (0-35 cmbs)	16 Flakes	266	27 Bone-Tempered 1 Other	0	0	0
TOTALS:	16 Flakes	266	27 Bone-Tempered 1 Other	0	0	0

AREA C

Test Unit 95-8						
Level	Lithics	Bone	Ceramics	Shell	Metal	Other
1 (0-10)	4 Flakes	2	1 Bone-Tempered 2 Other	0	1 Nail	0
2 (10-20)	7 Flakes	53	5 Bone-Tempered 1 Other	2 Freshwater MNI= 1	1 Wire	0
TOTALS:	11 Flakes	55	6 Bone-Tempered 3 Other	2 Freshwater MNI= 1	1 Nail 1 Wire	0

MNI= Minimum Number of Individuals

Shovel Tests						
ST & Level	Lithics	Bone	Ceramics	Shell	Metal	Other
ST 1 1 (0-10)	1 Uniface	5	2 Bone-Tempered	0	0	0
ST 1 2 (10-20)	0	36	8 Bone-Tempered	3 Freshwater MNI= 2	1 Frag	0
ST 2 1 (0-10)	1 Flake	26	1 Bone-Tempered	0	1 Spring	0
ST 2 2 (10-20)	2 Flakes	6	1 Bone-Tempered 1 Other	0	0	0
ST 3 1 (0-10)	9 Flakes	4	1 Bone-Tempered	1 Freshwater MNI= 1	1 Frag	0
ST 3 2 (10-20)	3 Flakes	7	1 Bone-Tempered	0	0	0
ST 4 1 (0-10)	0	1	1 Bone-Tempered	0	0	0
ST 4 2 (10-20 cm)	1 Flake	1	0	0	0	0
ST 4 3 (20-30)	0	2	0	0	0	0
ST 4 4 (30-40 cm)	0	13	0	0	0	0
TOTALS:	16 Flakes 1 Uniface	105	15 Bone-Tempered 1 Other	4 Freshwater MNI= 2	2 Frags 1 Spring	0

ST= Shovel Test MNI= Minimum Number of Individuals

AREA D

Structures I and II						
Unit	Lithics	Bone	Ceramics	Shell	Metal	Other
Structure I Units 1 & 2	2 Hammerstones 1 Core 1 Biface	3	0	0	1 Hinge 6 Nails	0
Structure II Unit 1	100 Flakes	0	2 Other	0	0	8 Pieces of Wall Plaster
Structure II Unit 2	0	2	0	0	0	24 Pieces of Wall Plaster
Structure II Artifacts from Units' Back Dirt Pile	0	0	0	1 Freshwater MNI= 1	0	15 Pieces of Wall Plaster
TOTALS:	100 Flakes 2 Hammerstones 1 Core 1 Biface	5	2 Other	1 Freshwater MNI= 1	1 Hinge 6 Nails	47 Pieces of Wall Plaster

MNI= Minimum Number of Individuals

SURFACE FINDS FROM AREAS A, B, C, AND D

Surface Collections						
Location	Lithics	Bone	Ceramics	Shell	Metal	Other
Subarea A	5 Flakes 1 Darl Pt 1 Manuport 1 Scraper 1 Uniface 1 Core	23	26 Bone-Tempered	2 Freshwater MNI= 1	1 Buckle Frag	1 Snuff Bottle Frag
Subarea B	528 Flakes 1 Mano (?) 2 Bifaces 1 Core 4 Scrapers 1 Guerrero Pt 1 Uniface	9	116 Bone-Tempered 9 Other	0	1 Gate Latch(?)	1 Bone Bead
Subarea C	1 Flake 1 EM Flake 1 Scraper 1 Hammerstone	0	2 Other	0	2 Frags	0
Subarea D	0	0	2 Other	2 Snail Shells MNI= 2	1 Hinge	0
Unknown	9 Flakes 1 Scraper 2 Guerrero Pts	38	2 Other	0	0	0
TOTALS:	542 Flakes 7 Scrapers 2 Cores 2 Bifaces 2 Unifaces 1 Mano (?) 1 Darl Pt 3 Guerrero Pts 1 EM Flake 1 Manuport 1 Hammerstone	69	127 Bone-Tempered 15 Other	2 Freshwater 2 Snails MNI= 3	2 Frags 1 Nail 1 Buckle 1 Hinge 1 Gate Latch(?)	1 Snuff Bottle Frag

MNI= Minimum Number of Individuals EM= Edge-modified

APPENDIX B
Attributes of Faunal Remains

AREA A

Test Unit 95-1				
Level	Burned	Butchered	Diagnostic	Unidentifiable
1 (0-10)	0	1	11	17
2 (10-20)	6	0	25	151
3 (20-30)	1	0	9	22
4 (30-40)	2	0	11	19
5 (40-50)	0	0	1	6
TOTALS:	9	1	57	215 FS: 6

TOTAL BONE COUNT: 278

Test Unit 95-2				
Level	Burned	Butchered	Diagnostic	Unidentifiable
1 (0-10)	0	0	0	4
2 (10-20)	0	0	14	40
3 (20-30)	19	0	30	166
4 (30-40)	0	0	3	12
5 (40-50)	0	0	0	0
6 (50-60)	0	0	4	0
7 (60-70)	0	0	0	0
8 (70-80)	0	0	0	0
9 (80-90)	0	0	0	0
10 (90-100)	0	0	0	0
TOTALS:	19	0	51	222

TOTAL BONE COUNT: 273

Test Unit 95-4				
Level	Burned	Butchered	Diagnostic	Unidentifiable
1 (0-10)	3	0	4	41 FS: 32
2 (10-20)	6	0	36	114 FS: 11
3 (20-30)	3	0	5	16
4 (30-40)	0	0	1	1
5 (40-50)	0	0	0	0
TOTALS:	12	0	46	172 FS: 43

FS= Fine Screen

TOTAL BONE COUNT: 261

Test Unit 95-5				
Level	Burned	Butchered	Diagnostic	Unidentifiable
1 (0-10)	6	0	22	53
2 (10-20)	27	0	30	170
3 (20-30)	3	0	12	54
FS (0-30)	12	0	0	48
TOTALS:	48	0	64	325

FS: Fine Screen

TOTAL BONE COUNT: 389

Test Unit 95-7				
Level	Burned	Butchered	Diagnostic	Unidentifiable
1 (0-20)	0	0	9	24
2 (20-30)	13 FS: 13	0	53 FS: 18	78 FS: 56
3 (30-40)	2 FS: 7	0	2 FS: 3	57 FS: 53
4 (40-45)	0 FS: 6	0	2 FS: 6	21 FS: 43
TOTALS:	15 FS: 26	0	66 FS: 27	180 FS: 152

FS= Fine Screen

TOTAL BONE COUNT: 425

Test Unit 95-10				
Level	Burned	Butchered	Diagnostic	Unidentifiable
1 (0-10)	0 FS: 1	0	3 FS: 1	0 FS: 1
2 (10-20)	5 FS: 23	0	29 FS: 12	64 FS: 128
3 (20-30)	0 FS: 14	0	15 FS: 12	37 FS: 119
4 (30-40)	3 FS: 7	0	0	15 FS: 58
TOTALS:	8 FS: 45	0	47 FS: 25	116 FS: 306

FS: Fine Screen

TOTAL BONE COUNT: 494

Test Unit 95-19				
Level	Burned	Butchered	Diagnostic	Unidentifiable
1 (0-10)	9	1	7	40
2 (10-20)	56	0	33	139
3 (20-30)	75	0	51	171
TOTALS:	140	1	91	350

TOTAL BONE COUNT: 441

AREA B

Test Unit 95-3				
Level	Burned	Butchered	Diagnostic	Unidentifiable
1 (0-10)	0	0	0	0
2 (10-20)	1	0	2	6
3 (20-30)	1	0	0	6
4 (30-40)	1	0	0	2
TOTALS:	3	0	2	14

TOTAL BONE COUNT: 16

Test Unit 95-6 and 95-9				
Level	Burned	Butchered	Diagnostic	Unidentifiable
Cultural (0-27)	215	35	180	2799
FS (0-27)	13	0	11	39
	228	35	191	2838

TOTAL BONE COUNT: 3029

Test Unit 95-11				
Level	Burned	Butchered	Diagnostic	Unidentifiable
Cultural (0-28)	224	5	95	979
Fine Screen	433	0	72	704
TOTALS:	657	5	167	1683

TOTAL BONE COUNT: 1850

Test Unit 95-12				
Level	Burned	Butchered	Diagnostic	Unidentifiable
Cultural (0-36)	84	16	376	1356
Fine Screen	8	0	10	77
TOTALS:	92	16	486	1433

TOTAL BONE COUNT: 1819

Test Unit 95-13				
Level	Burned	Butchered	Diagnostic	Unidentifiable
Cultural (0-31)	111	3	193	576
Fine Screen	42	0	36	160
TOTALS:	153	3	229	736

TOTAL BONE COUNT: 965

Test Unit 95-14				
Level	Burned	Butchered	Diagnostic	Unidentifiable
Cultural (0-36)	40	17	148	1479
Fine Screen	30	0	5	154
TOTALS:	70	17	153	1633

TOTAL BONE COUNT: 1786

Test Unit 95-15				
Level	Burned	Butchered	Diagnostic	Unidentifiable
Cultural (0-22)	78	8	243	937
Fine Screen	10	0	29	162
TOTALS:	88	8	272	1099

TOTAL BONE COUNT: 1371

Test Unit 95-16				
Level	Burned	Butchered	Diagnostic	Unidentifiable
Cultural (0-23)	18	5	184	466
Fine Screen	3	0	12	35
TOTALS:	21	5	196	501

TOTAL BONE COUNT: 697

Test Unit 95-17				
Level	Burned	Butchered	Diagnostic	Unidentifiable
Cultural (0-37)	4	5	104	343
Fine Screen	37	0	22	120
TOTALS:	41	5	126	463

TOTAL BONE COUNT: 589

Test Unit 95-18				
Level	Burned	Butchered	Diagnostic	Unidentifiable
Cultural (0-36)	16	4	299	766
Fine Screen	13	0	12	49
TOTALS:	29	4	311	815

TOTAL BONE COUNT: 1126

Test Unit 95-20				
Level	Burned	Butchered	Diagnostic	Unidentifiable
Cultural (0-35)	21	3	60	206
TOTALS:	21	3	60	206

TOTAL BONE COUNT: 266

AREA C

Test Unit 95-8				
Level	Burned	Butchered	Diagnostic	Unidentifiable
1 (0-10)	0	0	0	2
2 (10-20)	0	0	10	43
TOTALS:	0	0	10	45

TOTAL BONE COUNT: 55

Shovel Tests				
ST & Level	Burned	Butchered	Diagnostic	Unidentifiable
ST 1 1 (0-10)	0	0	0	5
ST 1 2 (10-20)	0	0	0	38
ST 2 1 (0-10)	0	0	0	26
ST 2 2 (10-20)	0	0	0	8
ST 3 1 (0-10)	0	0	0	4
ST 3 2 (10-20)	0	0	0	7
ST 4 1 (0-10)	0	0	0	1
ST 4 2 (10-20)	0	0	0	1
ST 4 3 (20-30)	0	0	0	2
ST 4 4 (30-40)	0	1	6	7
TOTALS:	0	1	6	99

TOTAL BONE COUNT: 105

AREA D

Structures I and II				
Level	Burned	Butchered	Diagnostic	Unidentifiable
Structure I Units 1 & 2	0	0	2	1
Structure II Unit 1	0	0	0	0
Structure II Unit 2	0	0	2	0
TOTALS:	0	0	4	1

TOTAL BONE COUNT: 5

SURFACE COLLECTIONS

Surface Collections from Areas A, B, C, & D			
Burned	Butchered	Diagnostic	Unidentifiable
2	0	40	29

TOTAL BONE COUNT: 69

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