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TEXAS ARCHEOLOGICAL SOCIETY

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Timothy K. Perttula, Editor
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Commemorating the Columbian Quincentenary

Reviews

The Columbian Quincentenary: Archeological and Historical Perspectives from Texas

Timothy K. Perttula

ABSTRACT

This issue of the *Bulletin of the Texas Archeological Society* presents a series of archeological and historical perspectives on the Columbian Quincentenary (1492–1992) in Texas.

The year 1992 is the 500th anniversary of the first of four voyages of Christopher Columbus, or Cristobal Colón (Taviani 1991), to the New World. Although these voyages have been frequently characterized as voyages of discovery, in truth they were voyages that initiated contacts and encounters among vastly divergent cultures and peoples of the same world (Milanich and Milbrath 1989; Viola and Margolis 1991). These encounters began the process of profound cultural, environmental, and technological changes that have since reverberated around the world. Garcilaso de la Vega, el Inca, himself the son of a Spanish conquistador and Incan royalty, wrote that "there is only one world, and although we speak of the Old World and the New, this is because the latter was lately discovered by us, and not because there are two" (Garcilaso de la Vega 1966, I:9).

To recognize the significance of these New World encounters and to shed light on the "social, demographic, ecological, ideological, and human repercussions of European-Native American encounters" (Thomas 1991:xv), the Texas Archeological Society decided to focus the 1992 Bulletin on the legacy of Columbus as seen in Texas. This is an opportunity, foremost, to delve into the complex and diverse historical and archeological records relating to the first encounters between the Europeans and the Indians in Texas after 1492. Also of importance is exploration of the role of the Native Americans in the history of Texas, as well as the examination of some of the main—although often neglected—consequences of these contacts (such as the introduction of disease and declines in population) for the indigenous peoples of the state. This focus on the archeological and historical implications of the Columbian Quincentenary in Texas can rightly help to reveal to a wide audience the many cultural achievements of the Native Americans and Europeans who lived and continue to live in the state of Texas, and of their encounters and exchanges through time. It is hoped that communication of this story will help "to educate the public about the remarkable archeological legacy left by Texas's original inhabitants" (Shafer 1986:6).

In these papers, the authors describe this process of encounters between Native Americans and Europeans in various regions of Texas. The initial entradas and

encounters, from the Panhandle region to the Gulf Coast—when the Spanish explorers first contacted such important Native American groups as the Caddo, the Karankawa, and the Jumano—are discussed by Diane Rhodes, Joseph P. Sanchez, James E. Bruseth, and Robert S. Weddle. Elizabeth A. H. John, together with Weddle and Sanchez, "excavates" further into historic documents and texts (e.g., Ramenofsky 1991) to illuminate later seventeenth and eighteenth century explorations by the Spanish and French in Texas. Their work clearly brings out the historical significance of European-Indian political and economic relationships that contributed to the success of both Spanish and French colonial pursuits and Native Indian lifeways (see also Castañeda 1936; John 1975; Weddle 1985, 1991 for excellent studies of European-Indian interrelationships from the sixteenth to the nineteenth centuries in Texas).

Archeological investigations conducted in Florida, the southeastern United States, and the Caribbean during the last ten years (Milanich and Milbrath 1989;

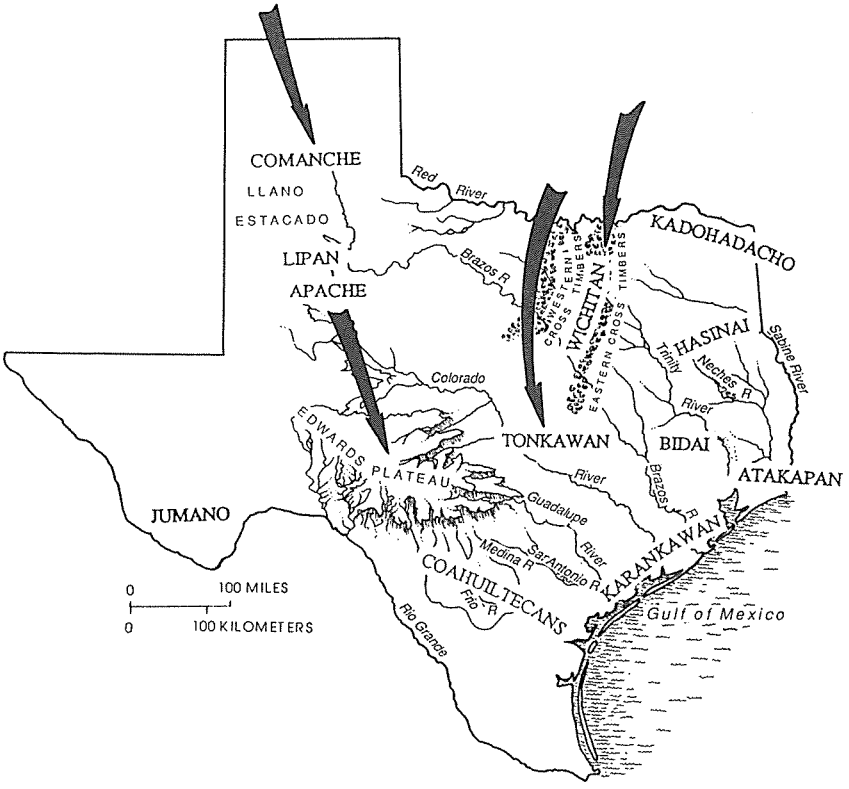

Figure 1. Map of Texas showing locations of Historic Indian Groups from about the sixteenth to mid-eighteenth centuries (adapted by Rick E. Jarnigan from a map drawn by Kathy Roemer).

Thomas 1990) have made it possible to understand well the material culture of the European explorers and colonists who ventured into Texas. Cathryn A. Hoyt, James E. Bruseth, and Diane Lee Rhodes review the record of material culture, discuss the types of artifacts to be expected on archeological sites in Texas that are associated with Spanish explorers such as Coronado and de Soto, and, in the case of Bruseth and Rhodes, use the available evidence to suggest the routes these explorers probably took across the state. The difficulty in tracing these routes seems to be due to the scarcity of sixteenth century European artifacts on Indian sites of that period, to the limited archeological investigations of Historic Indian sites, and to the effects of European diseases that contributed to massive population declines and group movements between the time of initial European contact and the earliest reliable Spanish and French documents (for the impacts of disease in the Spanish Borderlands, see many of the papers in Thomas 1989, 1990, and 1991 and Cook and Lovell 1991).

Jay C. Blaine, Kathleen Gilmore, Robert A. Ricklis, Nancy A. Kenmotsu, and James E. Bruseth use the archeological evidence uncovered from Wichitan, Caddo, and Karankawan sites dating to the contact period to examine European-Indian relationships in Texas. Their papers demonstrate the cultural diversity of the Native Americans who lived in Texas, the types of interactions these groups had with Europeans at different times, the material evidence of those interactions, and the nature of the changes in aboriginal cultures that resulted from colonization, disease, the introduction of missions, the development of the fur trade, and other processes (see also Hester 1989; Perttula 1991).

Hester (1991), Kniffen, Gregory, and Stokes (1987), Campbell (1988), Salinas (1990) and Smith (1992), as well as the references cited in the various articles in this volume, are only a selected sample of the recently published scholarly literature on the Indians of Texas. The study of this literature is a good way to begin to comprehend the history and archeology of the indigenous inhabitants of Texas since the "discovery" of the New World.

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I particularly thank the various authors who willingly volunteered to contribute to this volume and met the tight deadlines for production. I also appreciate the opportunity Jimmy L. Mitchell, Editor of the TAS *Bulletin*, provided me when he asked me to assemble these papers. Bonnie Yates and Beth Ogden Davis performed yeoman editing duties, and I gratefully acknowledge their assistance.

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Material Culture of the Spanish Explorers

Cathryn A. Hoyt

ABSTRACT

Very little material associated with the sixteenth century explorers has been identified from archeological excavations in Texas. Although the brief nature of the explorers' visits to Texas may, in part, explain this phenomenon, another explanation may lie in the dearth of information about sixteenth century material culture. The author has identified specific items of material culture such as clothes, weapons, pottery, and trade goods that were mentioned in the explorers' accounts and provides brief descriptions of what we should expect to find based on archeological data and museum collections.

INTRODUCTION

The Quincentenary anniversary of Christopher Columbus's first voyage across the Atlantic honors one man and one voyage, but the 1992 celebrations will, in reality, commemorate the Age of Exploration, a period in which European influence was felt around the world within a few decades.

In Texas, the Age of Exploration began in 1528—when Cabeza de Vaca and several companions were washed ashore near Galveston—and continued throughout the sixteenth century with the explorations of Coronado (1542), de Soto/Moscoso (1542), DoCampo (1546), Espejo (1582), and Sosa (1590). The routes traveled by these explorers through Texas are controversial, due in part to a lack of identifiable sixteenth century contact sites.

This outline of the material culture of the sixteenth century Spanish explorers is based on the published narratives of their expeditions and on archeological finds from throughout the southern United States. Because of the broad nature of the subject, special emphasis is placed here on specific material items that are mentioned in the narratives and on the durable diagnostic artifacts that may still be preserved in archeological sites.

EXPLORERS

Clothing

Spanish soldiers of the sixteenth century did not wear uniforms like those of their modern counterparts; instead, each individual soldier was stylishly outfitted in silks, brocades, velvet, and lace (Figure 1). An inventory of clothing taken from Spanish soldiers after the defeat of the Spanish Armada in 1588 included breeches made of cloth of gold, colored cloaks with gold lace, an embroidered jerkin overlaid

with gold lace, and a blue taffeta hat trimmed with a silver band and plume of feathers (Martin and Parker 1988:32). The finery, plumes, and bright colors were necessary because, according to a seventeenth century Spanish military expert, they "give spirit and strength to a soldier so that he can with furious resolution overcome any difficulty or accomplish any valorous exploit" (Martin and Parker 1988:33).

This extravagant dress, however, was not always thought appropriate or desirable. When de Soto called a muster before departing from San Lucar for the New World in 1538, he noted with some disgust that, whereas the Portuguese turned out in polished armor, the Castilians were dressed "very showily, in silk over silk, pinked and slashed" (Lewis 1984:139). He ordered another muster for the following

Figure 1. A Spanish musketeer of the sixteenth century (drawn by Hector Meza from a reconstruction by Ian Lowe in Martin and Parker 1988).

day but was again disappointed to find that the Castilians were dressed in "very sorry and rusty shirts of mail" and were armed with very poor lances.

The recovery of European textiles from archeological sites is very rare except under special conditions, such as the Spanish Armada wrecks of 1588, where, preserved under sand and silt, archeologists found silk tassels, gold buttons, and a cloak collar of silk and wool (Martin and Parker 1988; Crédit Communal 1985).

Found more frequently are brass fittings such as buckles and aglets. Aglets are small pieces of brass rolled around the ends of laces to facilitate threading the laces through eyelets in clothing. Brass aglets first appeared in the early fifteenth century, when they were used to fasten hose to short jackets or doublets (Boucher 1967:196); they were used until the seventeenth century in both functional and ornamental roles. Aglets are still in use today, particularly on the ends of shoe laces.

Aglets have been found in several sixteenth century archeological sites, including Nueva Cadiz, a Spanish New World site in Venezuela occupied between about 1509 and 1545 (Willis 1980:36), the Spanish ships wrecked on Padre Island, Texas, in 1554 (Arnold and Weddle 1978:291), the Spanish Armada vessels wrecked off the coast of Great Britain and Ireland in 1588 (Martin and Parker 1988:34), and a late-sixteenth-century shipwreck site in Bermuda (Bermuda Maritime Museum catalog no. 79:155–225). The aglets from these sites are made of brass rolled to form cones averaging 22 to 25 mm in length. Often, bits of fiber are preserved inside the aglets.

Armor

Armor, whether a three-quarter suit of plate armor or a padded jacket and coat of mail, was a vital part of an explorer's equipment. Baltasar de Obregón, author of *Crónica comentario ó relaciones de los descubrimientos antiguos y modernos de Nueva España y del Nuevo Mexico*, which was first published in 1584, stresses the importance of carrying good armor on expeditions. In addition to medium-mesh coats of mail, Obregón recommends "helmets having flaps of chain armor on the sides to protect the neck and the back of the head. One should wear breast plates and jackets of buckskin, and *escuaguipiles* [padded armor] outside of and beneath the armor as protection against flint-tipped arrows. It is important to have breeches of chain armor, leather shields, horse armor, and knotty woven blankets" (Hammond and Rey 1928:232).

Wearing such armor caused discomfort and worse among the explorers. Alvar Núñez Cabeza de Vaca (Covey 1984:38) notes that "many men developed raw wounds from the weight of their armor." In addition, European armor often proved ineffective against the stone-tipped arrows of the Native Americans. When an Apalachee archer demonstrated that he could shoot an arrow through two shirts of mail at a distance of 50 paces, many of de Soto's soldiers put aside their mail for quilted cloth doublets which, in addition to being more effective against arrows, were also more comfortable to wear (Ewen 1989:115–116).

By carefully studying the narratives of the explorers we can get some idea of the types of armor that were most frequently carried. For example, Cabeza de Vaca

(Covey 1984:43) tells us that a Spanish gentleman, or *hidalgo*, was shot through the neck "at the edge of his cuirass." The mention of the cuirass, a steel breastplate, indicates that the *hidalgo* was probably a member of the light cavalry. During the sixteenth century, the light cavalry wore armor consisting of a cuirass, short thigh guards known as tassets, shoulder guards (spaulders), gauntlets, an open helmet, and sometimes sleeves of mail (Blair 1958:119).

Perhaps the most common armor carried on the expeditions was mail. Made into shirts, gauntlets, collars, and even breeches, mail was worn by everyone from the commander to the expedition's dog. Obregón stresses the importance of carrying good coats-of-mail made of medium mesh,

> for if it is very fine it is destroyed by rust, and arrows pierce it more readily than if it is coarser. Thus the mesh should not be too small or too large but medium, because that resists the force of the arrow more effectively. It does not need to be cleaned, which is not the case with the fine mesh [Hammond and Rey 1928:232].

In general, mail of the sixteenth century was made by wrapping a wire around a mandrel and cutting it off into rings. The rings were then linked and the ends riveted to secure the ring in place (Wedel 1975:187) (Figure 2). In the early sixteenth century most mail was made from round wire (Wedel 1975; Burgess 1960).

Pieces of armor believed to date to the sixteenth century have been recovered from several sites in the southwestern United States. Mail is reported from sites in New Mexico (Ellis 1955), Kansas (Terry and Terry 1960; Wedel 1975), and Texas (Olds 1976:99–101). The mail fragments from Texas, recovered from a ship of the

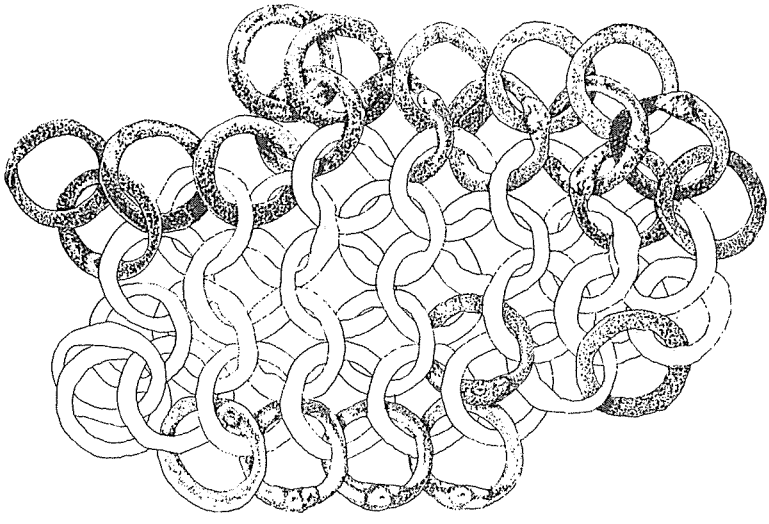

Figure 2. Chain mail made of round wire links fastened by rivets (drawn by Hector Meza from several sources).

1554 fleet, were made of brass, rather than the more common iron. Brass mail has also been noted from a sixteenth century site in Florida (Mitchem 1989:104).

Plate armor is less frequently found on archeological sites, although fragments of plate armor altered into beads have been recovered from aboriginal burial mounds in Florida (Mitchem 1989:104). A rare find consisting of a complete breastplate was recovered from a late sixteenth century shipwreck in Bermuda (Peterson 1967:8), but, unfortunately, due to the poor condition of the artifact and the lack of proper conservation procedures, the breastplate disintegrated soon after it was recovered.

Another unusual find was made in 1951 on the site of what is believed to be San Gabriel del Unque, Oñate's first settlement in New Mexico. José Abeyta, a resident of the area, unearthed a steel helmet that was later identified as a late fifteenth- or early-sixteenth-century *salade* (Lambert 1952). The *salade* was a type of open helmet worn by crossbowmen and arquebussiers (Peterson 1952).

Weapons

The weapons carried by the explorers fall into four main categories: (1) personal weapons such as swords and daggers, (2) staff weapons, (3) crossbows, and (4) firearms.

Sixteenth century illustrations (Figures 3, 4) indicate that most soldiers, whether part of the cavalry or the infantry, were armed with both swords and small parrying daggers. These parrying daggers, designed to be held in the left hand while the sword was held in the right, were introduced in the fifteenth century when the style of sword play changed from a cutting to a thrusting action. During the fifteenth and early sixteenth centuries, the daggers had disk-shaped guards and cylindrical pommels (Stone 1934:199). By 1550, however, swords and parrying daggers were made with matching hilts (Norman and Wilson 1982:25).

A well-preserved sword of this period was recovered by archeologists from a site in northwestern Georgia that is believed to have been visited by de Soto in the summer of 1540. Other evidence of Spanish swords from the same site was found in a mass grave where one of every five Native American skeletons bore slash marks made by European, rather than aboriginal, weapons (Blakely 1989:30).

Staff weapons are the weapons most frequently mentioned in the explorer's accounts. Although the general term *lance* is most commonly used, contemporary illustrations indicate that several different types of staff weapons were used.

True lances were carried by the cavalry. The lance was 10 to 14 feet long with a leaf-shaped iron blade at the end. The heavy infantry carried a somewhat similar weapon known as a pike. The pike was slightly longer than a lance, ranging in length from 16 to 20 feet, but had a similar leaf-shaped blade at the end. Between the mid-fifteenth and mid-seventeenth centuries, the pike was a very popular defense against the cavalry. The long pikes held the cavalry at bay while the musqueteers and crossbowmen reloaded their weapons.

Other iron staff weapons used during the sixteenth century and illustrated in contemporary drawings were the partizan—an Italian weapon introduced in the

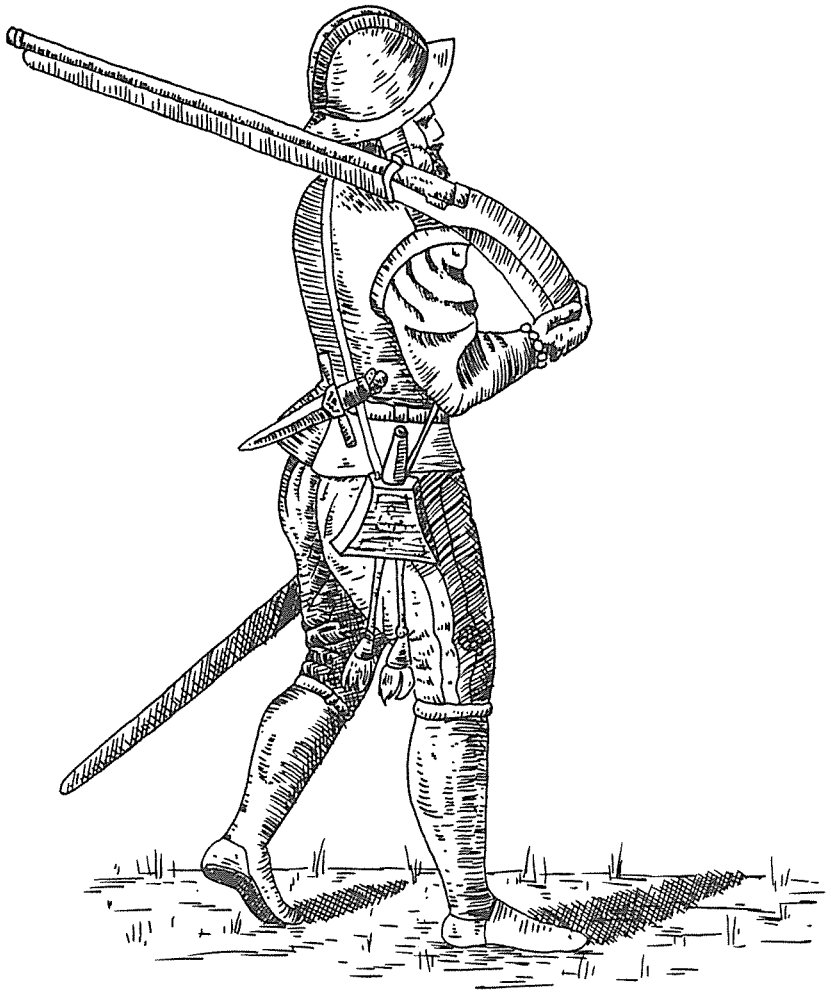

Figure 3. A sixteenth century musketeer armed with a musket, dagger, and sword (drawn by Rick E. Jarnigan from Darrick, *"Images of Ireland," 1585*, in Martin and Parker 1988, page 48).

fifteenth century—the pollaxe—a popular weapon of the fifteenth and sixteenth centuries—and the halberd—a long-handled axe that was used throughout Europe during the sixteenth century (Stone 1934; Norman and Wilson 1982).

Another weapon mentioned with some frequency is the crossbow. Crossbows were one of the principal weapons carried on all of the early expeditions, but by the

Figure 4. A sixteenth century infantryman armed with a pike, sword, and dagger (drawn by Rick E. Jarnigan from Darrick, *"Images of Ireland," 1585*, in Martin and Parker 1988, page 48).

last quarter of the sixteenth century they had been replaced by firearms as the military weapons of choice. Several nearly complete examples were recovered from the wrecks of the 1554 fleet (Olds 1976; Arnold and Weddle 1978), but crossbows or crossbow fragments are very rare from terrestrial sites. However, evidence for their use is found in the recovery of steel and copper tips from crossbow quarrels.

Crossbow quarrels—the shafts shot from crossbows—were much shorter and heavier than the arrows used with long bows. Points for crossbow quarrels had solid, pyramid-shaped tips and constricted necks that fit over the quarrel shafts (Figure 5). Several quarrel points made of copper were recovered from the early excavations of Pecos Pueblo and "Bandelier's Puaray" in New Mexico (Ellis 1957:209). Iron points have also been excavated from a Florida site believed to be Hernando de Soto's winter camp of 1539–1540 (Ewen 1989:116). All of these points, both copper and iron, are 4 to 5 cm (1.5 to 2.0 in.) long.

Two types of military firearms—the matchlock arquebus and the musket—were carried on sixteenth century exploreering expeditions. In the early sixteenth century the arquebus or hacabuche, was a firearm more than 5 feet long, often weighing as much as 35 pounds. By the mid-sixteenth century, however, the term

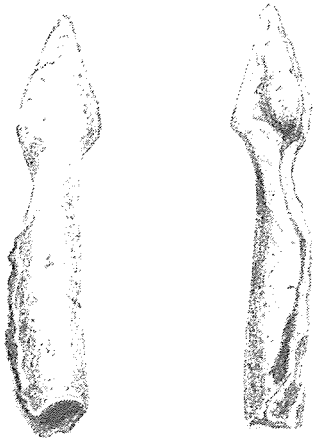

Figure 5. Crossbow quarrels (4.5 inches long) (drawn by Hector Meza from Ellis 1957, p. 210).

musket was used to describe these heavier weapons, and the term *arquebus* referred to a smaller firearm that weighed 14 to 18 pounds (Lavin 1965; Kist et al. 1974). Because of the great weight and size of the military muskets, forked rests were needed to prop the guns up while they were being fired.

In archeological contexts we are most likely to recover pieces of the ignition mechanism, such as lockplates or serpentines, from these types of weapons, or fragments of the wrought iron barrels. Although other ignition systems such as the wheel-lock, snaphance, and flintlock, were developed during the sixteenth century, the simple matchlock was preferred for exploration expeditions. As late as 1596, Pedro Ponce de León requested 500 arquebuses and 100 muskets for a voyage to the Indies. These were presumably matchlock weapons, as the scribe noted that Ponce de León "understood that they used wheel locks in the Indies and now he knows that although they are available it is not suitable to take them on this discovery" (Lavin 1965:47).

The preference for matchlocks lay in the simplicity of the firing mechanism. Obregón, in his equipment list for expeditions, warns that "most [of the firearms] should be operated by fuse because it often happens that the damp powder makes the firing of the flintlocks difficult. Moreover the harquebuses with fuses are easier to handle. The ones with flintlocks often need a mechanic to make repairs and to replace the pieces that get out of order" (Hammond and Rey 1928:232).

The origin of a sixteenth century firearm can often be determined from the shape of the stock. The Spanish preferred to rest the butts of their guns against their shoulders, so their stocks had flared ends. French guns had sharply curved stocks because the French held their guns against their chests to shoot, whereas the Germans preferred straight, narrow stocks because they held their guns to their

cheeks and rested the stocks on their shoulders. By the early seventeenth century, most nations had adopted the Spanish-style gun.

In addition to the private weapons and small arms carried by the Spanish soldiers, Coronado took four bronze cannons on his expedition. Traveling with cannons through the southwestern desert must have taken a toll on both men and cannons, because eventually the guns, described as being in poor condition, were left at the village of Chia (Winship 1922:62).

ANIMALS

In addition to the remains of sixteenth century weapons, other indicators of contact period sites can be found in faunal assemblages. The earliest explorers rode horseback and were accompanied by dogs. Several Indian tribes encountered by the explorers had dogs; horses, after becoming extinct in North America during the Pleistocene, were reintroduced to the New World by the Spanish in the sixteenth century. Horses were taken on all of the exploring expeditions and were believed to be "the most necessary things in the new country, because they frighten the enemy most, and after God to them belongs the victory" (Abbass 1986:22).

However, the use of horses was both a blessing and a curse. The increased mobility that horses gave the Spanish was tempered by the fact that the cavalry was effective only in open terrain. Finding fodder for the horses was a problem in the dry Southwest, and many horses died while crossing mountains, fording rivers, and wading through the swamps of the Southeast. The de Soto expedition departed Havana with about 250 horses and returned with less than 30 (Swanton 1985:89–90).

Finding food and dealing with the environment were major problems, but other factors also took their toll. Obregón warned that

> large quantities of iron for horseshoes and the largest possible amount of nails should be brought. If the iron gives out during the expedition it causes great inconvenience and makes it impossible to go any farther, as happened on our expedition. Because the horseshoe nails gave out we were forced to turn back, leaving many horses behind [Hammond and Rey 1928:233].

Wrought iron nails, believed to be from the de Soto expedition, and horseshoes, believed to date to the expedition of Tristán de Luna (1559–1561), have been recovered from archeological sites in Florida and Alabama (Hudson et al. 1989:131).

DAILY LIFE

The chronicles of the expeditions give very little information about the day-to-day lifestyle of the explorers. However, from a passing reference to a hailstorm that "broke all the crockery of the army" (Winship 1922:69) and from the archeological record, particularly in Florida, we know that various types of utilitarian and

tableware ceramics were carried by the explorers. Because of the large body of literature concerning Spanish ceramics and the wide variety of ceramics in use during the sixteenth century, this discussion touches only on pottery that has been associated with sixteenth century exploring expeditions (see Deagan [1987], Goggin [1964, 1968], and Lister and Lister [1974, 1976, 1982] for more detailed information about sixteenth century ceramics).

The utilitarian ware most frequently encountered on early Spanish sites is probably the coarse earthenware Olive Jar (Figure 6). These amphora-shaped jars with constricted necks were the cardboard boxes of their day and were used to transport and store many types of goods, such as olive oil, olives in brine, wine, beans, chick peas, lard, and tar (Goggin 1964:256).

Although Olive Jars were in use from about 1490 through the late eighteenth century, the type most frequently encountered on early contact sites is Goggin's *Early Style Olive Jar*. These jars are characterized by their globular form, flaring, everted mouth, two strap handles set high on the shoulders of the jar, and interiors often with a bright emerald to muddy brown lead glaze; the outsides characteristically have a thin white slip. Vessel walls range in thickness from 4 mm to 12 mm

Figure 6. Early Style Olive Jar (drawn by Hector Meza from Deagan 1987, Figure 4.3a).

(Goggin 1964). Early Style Olive Jars are most frequently found on Spanish sites dating to the first three-quarters of the sixteenth century. By around 1570, the Early Style jars were being replaced with the handleless Middle Style jars with their distinctive ring-shaped necks and egg-shaped bodies (Goggin 1964; Deagan 1987).

Other coarse earthenwares recovered from sites associated with sixteenth century explorers include Green Bacín ware (Mitchem 1989:104), a sixteenth century utilitarian earthenware distinguished by the emerald green lead glaze on the interior of the vessel (Deagan 1987). Although Green Bacín ware does not appear in sites after about 1600, care should be exercised when working with collections from the American Southwest, where very similar wares were imported from Mexico in the eighteenth century (Barnes 1980).

Archeologists have also recovered fine earthenwares from a site associated with the winter camp of the de Soto expedition in Florida (Ewen 1989:114). Two types of tin-glazed earthenware and an unglazed bisque ware known as Bizcocho ware have been identified. Bizcocho ware is made of a fine paste that was molded into ornate shapes and decorated with incised lines and appliquéd figures. Bizcocho ware has been found on Spanish sites throughout the Caribbean in contexts that date before 1550 (Deagan 1987:43).

The tin-glazed earthenware recovered from the de Soto site in Florida includes Columbia Plain ware and Caparra Blue ware. Columbia Plain ware is the most frequently encountered tin-glazed earthenware found in the New World and dates from initial contact through the early seventeenth century. The vessels are made of a fine, cream colored paste covered with an off-white, cream, or greyish tin enamel. The vessel forms most often found are broad-rimmed plates (*platos*) or bowls (*escudillas*) (Deagan 1987:56) (Figure 7). Caparra Blue is another distinctive early sixteenth century tin glazed earthenware. According to Kathleen Deagan (1987:63), the only vessel form known for this ware is the *albarelo*, or Spanish drug jar (Figure 8). These jars, found on Spanish sites in pre-1550 contexts, have white or off-white glaze on the interiors and solid blue glaze on the exteriors.

TRADE GOODS

Although armed to the teeth and quick to use their weapons, the Spanish exploring expeditions followed their official policy of conquering with goodwill rather than brute force. To this end, the exploring parties carried large quantities of trade goods for distribution to the native populations. de Soto's trade goods included bolts of cloth, iron tools, glass trinkets and mirrors, and beads and bells (Swanton 1985:55). The importance of these trade goods to the explorers is illustrated by the fact that Cabeza de Vaca, after surviving six weeks at sea and a shipwreck, was still able to give beads and bells to the Indians he encountered shortly after his landfall near Galveston (Covey 1984:56).

Beads

Since many excellent publications have dealt with the identification of early trade beads (e.g., Smith and Good 1982; Deagan 1987; Smith 1983), only the most

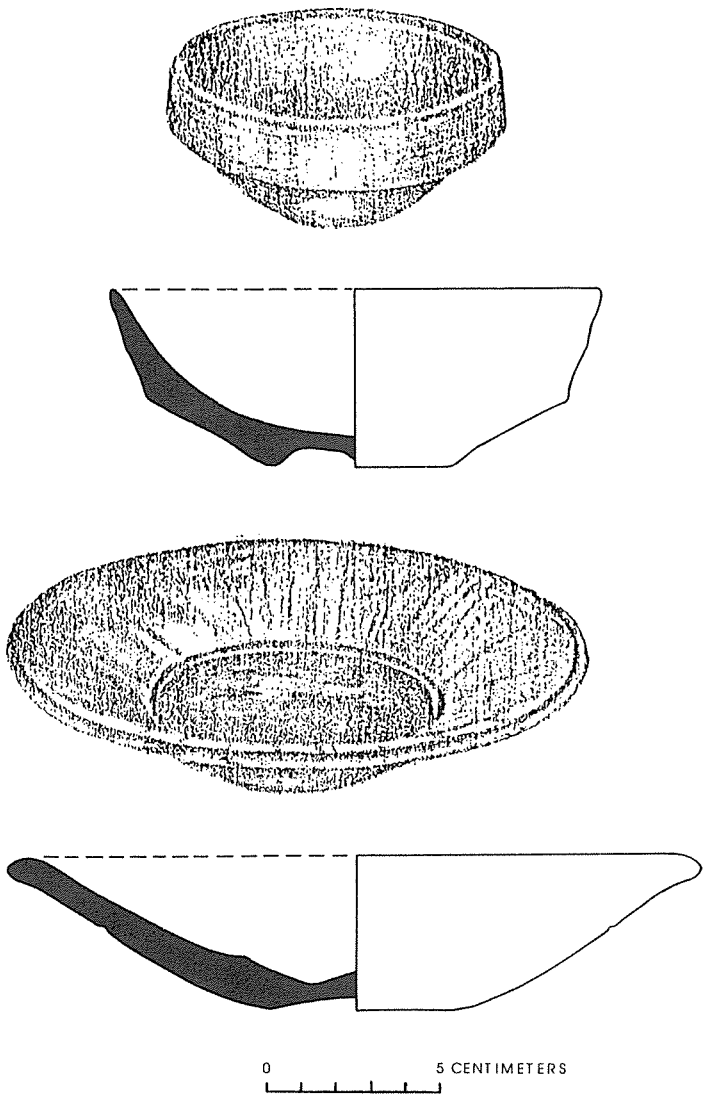

Figure 7. Forms of pre-1550 Columbia Plain ware (drawn by Rick E. Jarnigan from Goggin 1968, p. 120).

distinctive of the sixteenth century trade beads are discussed here.

One of the best indicators of the early sixteenth century are the large, square-sectioned, drawn-glass Nueva Cadiz Plain beads (Figure 9), which are always found

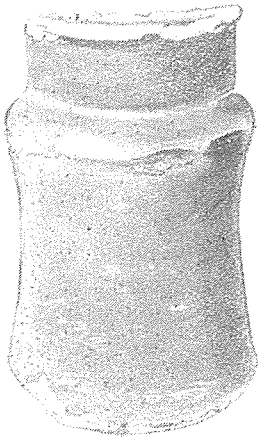

Figure 8. Caparra Blue abarelo, 16.8 cm high (drawn by Hector Meza from Deagan 1987, Figure 4.30).

in contexts predating 1550 and have been found in sites in Florida, Georgia, and Alabama that are associated with the de Soto expedition and other early explorers (Mitchem and Leader 1988; Milanich and Milbrath 1989). These beads are made of clear, turquoise, navy, light blue, or opaque glass in one to three layers (Deagan 1987:163). (The variety of three color combinations is well illustrated in the bead collection from Tatham Mound in Florida [Mitchem and Leader 1988]). The color combinations include cobalt blue and thin white with a translucent medium blue core; turquoise blue and thin white with a navy blue core, cobalt blue and thin white with a translucent light blue core, translucent navy blue and thin white with a translucent navy blue core, and turquoise blue and thin white with a translucent purple core. Single-colored Nueva Cadiz beads of translucent dark navy blue, translucent cobalt blue, and transparent cobalt blue were also recovered.

Another distinctive sixteenth century bead type is the Chevron or Rosette bead (Figure 10), made of multilayered red, white, and blue glass that forms a star when viewed from the end. The sixteenth century Chevron beads are usually faceted and made up of seven distinct layers, but by the seventeenth century, Chevron beads had only five layers and were usually tumbled (Deagan 1987:164–165). Chevron beads have been recovered from several sites in Florida associated with the de Soto expedition (Mitchem and Leader 1988; Mitchem 1989:107).

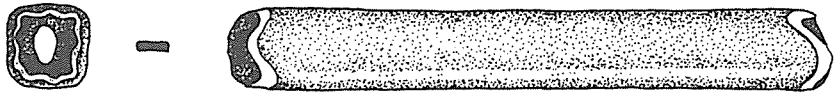

Figure 9 Nueva Cadiz Plain bead. (Drawn by Rick E. Jarnigan from several sources.)

Figure 10. Chevron bead (drawn by Rick E. Jarnigan from several sources.)

Although they are the most distinctive, Nueva Cadiz and Chevron beads are not the only types of beads used for trade during the sixteenth century, for shipping records of the period mention green, yellow, clear, "colored", blue, black, and white beads made of glass, coral, jet, metal, bone, and stone (Deagan 1987). The wide variety of beads manufactured during the sixteenth century has been well illustrated (See Smith and Good 1982).

Bells

Small brass bells, often called hawk's bells, were another important item in the explorer's trading kit. The bell most often associated with sixteenth century Spanish sites is known as the Clarksdale bell (Figure 11). According to Mitchem and McEwan (1988:39—40),

> a Clarksdale bell is characterized by a wide (ca. 5 mm) attachment loop which was secured by pushing the ends through a hole in the top and soldering the separate ends to the interior, a square flange around the "equator" where the two hemispheres were crimped together, an undecorated surface, and two holes connected by a narrow slit in the lower hemisphere.

These bells have been recovered from early contact period sites throughout the Southeast (Mitchem and McEwan 1988:44).

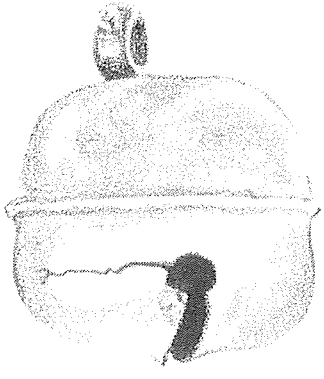

Figure 11. Clarksdale bell (drawn by Hector Meza from Milanich and Milbrath 1989, p. 102).

A second type of bell known as the Flushloop bell is also found on contact period sites (Figure 12). Flushloop bells are distinguished from Clarksdale bells by the method of joining the two hemispheres of the bell and attaching the loop. The attachment loops for Flushloop bells are much thinner than those of Clarksdale bells and were secured by pushing the loops through holes in the bells and spreading the ends apart on the interior. The two hemispheres of the bell were not crimped together as in Clarksdale bells, but instead were soldered flush together (Mitchem and McEwan 1988:40). Studies have shown that Flushloop bells are most often associated with British or French contact period sites dating to the seventeenth century and later (Mitchem and McEwan 1988).

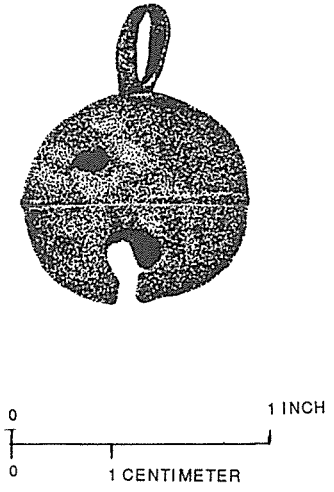

Figure 12. Flushloop bell (drawn by Rick E. Jarnigan from Mitchem and McEwan 1988, Figure 3).

Tools

Although not as well documented as beads and bells, iron tools were also carried as trade or gift items by the late sixteenth century. At least 61 chisels, 77 wedges, 72 hatchets, 30 knives, and one adze were given to the chiefs and other important men encountered by Juan Pardo during his exploring expedition of 1566–1568 in the southeast (DePratter and Smith 1980:70–71). Whether the earlier exploring expeditions carried iron tools is uncertain; the members of the Narváez expedition found themselves without tools when they considered building a boat to leave Florida (Covey 1984:45).

Tools are one of the most difficult artifacts to date accurately. They changed very little through time and, because of the rarity of sixteenth and seventeenth century examples, adequate typologies have not yet been developed. However,

well-preserved tools from sixteenth century contexts are being recovered from both land and underwater sites (e.g., Milanich and Milbrath 1989; Crédit Communal 1985; Rule 1982; Hoyt 1985; DePratter and Smith 1980), greatly increasing the potential for learning about the development of early historic tools.

CONCLUSIONS

The trail of the Spanish explorers has been closely followed by researchers throughout the Southeast, into the Plains area, and among the pueblos of New Mexico. However, very little sixteenth century material has actually been identified in Texas. There are many reasons for this, including the difficulty of identifying sixteenth century artifacts, as well as the nature of the explorer's visits to Texas.

Unfortunately, most explorers who ventured into Texas were just passing through. We do not have the winter camps or other sites that represent long-term Spanish occupation during the sixteenth century. Even the overnight campsites, as Moscoso's group found, were quickly stripped of artifacts by the Indians who "were accustomed to come and search the camp for whatever of value might have been left within it" (Vega 1988:526).

However, the ethereal nature of the explorers' contact with Texas should not discourage attempts to expand our knowledge of this fascinating period in Texas history. The Quincentenary observations in 1992 provide the perfect impetus for renewal of interest in this period by studying privately owned and museum collections, thereby contributing to the story of the sixteenth century explorers in Texas and in North America as a whole.

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Coronado's American Legacy: An Overview of Possible Entrada Artifacts and Site Types, and a Discussion of Texas Sites

Diane Lee Rhodes

ABSTRACT

Archeological research done in conjunction with the National Park Service's 1990–1991 Coronado Trail study, supports an in-depth analysis of site features and artifacts that might be considered characteristic of a "Coronado" archeological site. No Coronado sites have been definitively identified for Texas, but this brief overview of Texas Panhandle Protohistoric period sites highlights the need for additional site-specific research. Further analyses of artifacts held in area repositories are needed to determine their age, provenience, and cultural associations.

INTRODUCTION

In 1988 Congress authorized the National Park Service to conduct a study of Coronado's 1540 entrada through the states of Arizona, New Mexico, Texas, Oklahoma, and Kansas to evaluate the route for possible inclusion in the National Trails System. The legislation directed researchers to (a) review all original Spanish documentation on the entrada route, (b) continue the search for new primary documentation, and (c) examine all information on the archeological sites along the "trail" (National Park Service 1991).

ARCHEOLOGICAL RESEARCH

Beginning in the spring of 1990, the author carried out research in archeological records seeking information on sites that may be related to Coronado's 1540s entrada. Archeological research was focused on (1) the sites that show a Spanish presence during the sixteenth century, (2) American Indian sites that may have been occupied during Coronado's entrada, and (3) abandoned sites such as Chichilticalli that were mentioned in the Spanish accounts. Research was limited to the routes Coronado himself would have traversed.

It was assumed that Coronado's expedition was led by Indian guides who probably followed pre-existing trails. Although many of the indigenous plants, animals, and peoples of the area may have changed since Coronado's time, it was assumed that the general topography has not changed significantly.

The Study Area

At first glance, the search for archeological sites seemed fairly straightforward. However, for a variety of reasons, definition of the study area was difficult. The entrada was a one-time event that left behind no clearly defined trail; rather, much of the entrada followed a series of intersecting routes that were traveled by different members of the expedition at different times, as they explored the country from key points along the way. The vague and contradictory Spanish accounts of the expedition have led to a great deal of speculation, and scholars have not been able to reach agreement on a route, instead, proposing various routes as many as 200 miles apart.

To help refine the geographical area of study, the primary documents—the entrada letters, journals, and accounts—were researched, and a matrix was developed that included the time of travel, place, distance, direction, and composition of the group the Spanish writer was accompanying. The composition of the group was important, for it influenced the rate of travel, the route, and the type of archeological sites left behind. Ethnohistoric accounts were also collected and analyzed to see if correlations could be made between the expedition and American Indian oral history, or between cultural attributes and descriptions of native peoples given in the narratives.

Next, the major historical and archeological studies of the route were collected and analyzed. Many contemporary archeologists, cultural geographers, and historians were consulted, and their research efforts were factored into the analysis. The proposed routes that appeared to be the most historically feasible and accurate were transcribed onto topographic maps of the states to outline a broad study corridor.

Types of Coronado Sites

The next step in the process was to define some of the characteristics expected in a hypothetical Coronado entrada site, and list and describe artifacts that might be representative and/or diagnostic of this entrada. Information was collected on what a Spanish site of this time might look like, who the explorers were, and what they would have brought along or lost along the way. Studies of Spanish material culture and sites of the period were examined to help with the identification of salient clues to the route. Reports on the de Soto sites and those excavated at Santa Elena (the colonial capital of Spanish Florida from 1566 to 1587, located on Parris Island, South Carolina), as well as sixteenth century Spanish shipwreck sites off the coast of Texas, were particularly useful. Experts on fifteenth- and sixteenth century archeological sites were also consulted.

Problems with Site Definition

There are, however, some basic differences between the Coronado expedition and other Spanish entradas. Coronado never made connections with his supply ships; his expedition was a long journey overland, often through desolate terrain.

After an initial foray in Mexico, Coronado's army traveled light, apparently planning to live off the land (except for domestic livestock brought along for food). Except for the food and arms, which they carried on their backs, each member of the advance group took only a few necessary items that weighed no more than a pound (Coronado 1940:163), so the types of artifacts associated with architecture and special activities found at other sixteenth century sites would not be expected in Coronado expedition sites.

Other sixteenth- and early seventeenth century Spanish explorations and colonization efforts surely left behind many of the same types of artifacts, still further obscuring the diagnostic nature of the archeological remains from Coronado's entrada. In addition, most of the archeological work in the West has not focused on the Coronado period, but rather on prehistoric sites or on sites of the later Spanish Colonial period.

Several other factors make it difficult to identify potential Coronado sites. A large contingent of Indians from what is now Mexico, and Indian guides from the various Pueblo and Plains groups, accompanied the expedition and brought their own equipment and supplies. Food (presumably stored in native pottery vessels), clothing, and other subsistence goods were also procured along the route from various Mexican and American Indian groups, so the physical remains from the Coronado expedition could include native pottery, weaponry, and personal items, as well as game animals, fire hearths, and other items—an assemblage of features and artifacts virtually identical to thousands of prehistoric sites across the Southwest. Camping areas for each of the groups accompanying the expedition might contain diagnostic artifacts and features, but subtle differences between the Spaniards and their Indian guides in distributions of artifacts and arrangement of campsites probably would not be easy to detect.

The narratives describe Coronado's group as an army. To twentieth century America, the term *army* implies a hierarchical organization whose equipment, personal gear, and camping patterns are fairly well prescribed and uniform. Coronado's group included soldiers, priests, women, and dilettantes, each with his own baggage. These individuals and various small groups were privately funded, came from varying backgrounds, and used different weaponry and equipment. Because the frontier of New Spain was a long way from the European continent and from Spanish supply bases, equipment was often antique or makeshift. For these reasons the Coronado expedition would not be expected to leave behind the orderly, stereotypical pattern of archeological features that would characterize a modern army.

Location of sixteenth century Spanish artifacts at a site also does not necessarily mean that Coronado was in the area. American Indian groups occasionally obtained Spanish equipment and weaponry, which they may then have transported hundreds of miles, especially on the plains. Because of its rarity, the weaponry or equipment, probably obsolete in European terms, may have been treated as heirlooms to be passed down in families. Perhaps a century or more later, these treasured objects would become part of the grave goods interred with the owner in

areas far removed from the place of acquisition, or reworked into practicable weapons and tools such as metal arrowpoints.[1]

Probable Characteristics of Coronado Campsites

Because the geography of the area probably influenced the location of campsites, the Spanish narratives describing landscape features can be used to focus upon potential site locations. For example, the flat, trackless region described by the Spaniards is almost certainly the Llano Estacado of the Southern Plains, and the barrancas seen by the expedition bear a strong resemblance to those cut by the major river systems in the Texas Panhandle—perhaps the Canadian or, most likely, the Palo Duro river system.

The Spanish narratives also specifically mention both salt and fresh water sources along the route. Salt water playa lakes appear to be generally south of the border between Parmer and Bailey counties, so if we assume that the playa lakes have changed little over the past four centuries, this line can provide additional information regarding possible locations of sites that, presumably, would be near water.

Additionally, the narratives describe a mound of bison bone piled along the shores of one of the playa lakes. There are many reports of bison bone deposits—and many playa lakes—in the Texas Panhandle, but one of the largest deposits of prehistoric bone is at Silver Lake in the far northeast corner of Cochran County. Some historians suggest that this may have been one of the sites visited by the army on its return to Cicuye (Kiser 1978).

On a more specific level, it is expected that campsites would probably be on fairly level ground near the water and forage necessary for the livestock. Sites associated with the army would probably cover a relatively large area (because of the size of the group), but it is expected that artifacts and traces of the camp would be scattered and shallow (excepting the winter encampment). Unfortunately, in the Texas Panhandle where soil formation is slow, it may be difficult to differentiate between a prehistoric site created by repeated visits to an area by small groups of Indians, and a single short visit by Coronado's group to a large temporary Indian encampment. It is clear, however, that many hearths would be needed to provide food for this large group, so radiocarbon dating, thermoluminescence dating, or obsidian hydration dating of samples from a large site could help date components in the site.

At a large campsite there could be some clustering of different camping patterns and artifacts throughout the area, because each of the different ethnic and class groups would probably tend to camp together. Again, careful analysis of the features and assemblages on large sites could prove productive. This site clustering was apparently true of the winter encampment along the Rio Grande where it is thought

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[1]In their manuscript on Comanchero activities in the Texas Panhandle, Frances Levine and Martha Freeman (1982) describe several historic Indian burials that contain both native and Euro-American artifacts.

that Coronado and his men occupied one of the pueblos, while the herders, Indian guides, and the rank and file of the army camped nearby.

Vierra (1989:3) suggests that the Coronado winter campsite is New Mexico site LA54147, and "represents a series of contemporaneous campsites associated in some way with the occupation of the pueblo [Santiago Pueblo (LA326)]." The campsites at LA54147 consisted of a series of shallow dugouts about 10 cm deep and ranging from 2 to 5 meters in diameter with both interior and exterior hearths (Vierra 1989:223). Distance between the dugouts ranged between about 1 and 5 meters (Vierra 1989:Figure 11). The dugouts, which were surrounded by a surface scatter of artifacts, may have been covered by brush shelters and/or tents; postholes were found around one of the dugouts, suggesting some sort of superstructure.

Shortly after their abandonment, the dugouts were filled with soil mixed with burned corn, beans, wild plants, and bones (i.e., game species, birds, and domesticated sheep), potsherds, bits of charcoal, ground stone, burned adobe, and metal artifacts including nails, clothing attachments, and armor[2]. Radiocarbon dating of corn samples from the site gave a mean date of A.D. 1527 (Vierra 1989:225).

Most of the lithic debitage found at LA54147 was from activities related to core reduction and was of local raw materials. However, the artifact assemblage included a Mesoamerican blade fragment of Pachuca obsidian from the Valley of Mexico. Other nonlocal materials include *comal* (griddle) fragments, which "appear to be made of a thin tabular sandstone exposed in the Placitas area" a few miles northeast of the site (Vierra 1989:223).

The ceramic assemblage at this site was dominated by Rio Grande Glaze E pottery. No majolica, Glaze D, Glaze F, or European vessel forms were identified. This suggests that the "ceramic assemblage is precolonial, dating to ca. A.D. 1525–1625" (Vierra 1989:72). Almost all of the utility wares were of local manufacture; the glaze wares came primarily from the Pajarito Plateau, the upper and middle Rio Grande, and the Galisteo Basin. The few intrusive trade wares appeared to be typical of area pueblo sites for this time period. The ratio of bowls to jars is 1:1, which is in contrast to a bowl:jar ratio of 4:6 from the nearby Santiago Pueblo (Vierra 1989:223).

Although the winter encampment site—because of its relatively long occupancy during the winter months—probably would not be typical of the remains left behind by Coronado's group on much of the entrada, full examination of site data for LA54147 provides some insights into site patterning and material culture of a possible Spanish expeditionary site. In summary, this site includes both Indian and Euro-American artifacts, game and domesticated animal bone, an atypical distribution of vessel types, and obsidian imported from Mexico. Glaze E pottery can be considered a hallmark of this time period in New Mexico, and the absence of other glazed pottery suggests an event of a fairly short, discrete time span. The distribution

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[2]During the 1930s, crossbow boltheads were recovered from Santiago Pueblo, which is adjacent to LA54147. One of the boltheads was recovered from the body of an individual who had apparently died of his wounds.

and type of features within the site—especially the dugouts—do not appear to be characteristic of either the indigenous Pueblo groups nor of the Plains traders who may have visited the site.

Campsites left by scouting parties and the advance guard would probably be much more difficult to identify, since they would be small and ephemeral. However, the narratives suggest that cairns and other markers were left behind by the scouts to identify the route for the more slowly moving army. The Spaniards left other markers behind as well. Wooden crosses set into piles of stone were placed at strategic areas along the route to claim the land for Spain and as part of the expedition's missionary efforts (Niza 1940:79). Wooden stakes were driven into the ground for tethering the horses (Mendoza 1940:157) and temporary corrals or stock-containment features of stone or wood may have been left along the route as the expedition moved towards Quivira; other traces might be remains of the bridge across the Cicuye River and graffiti carved into rocks.

The narratives indicate that the Spaniards encountered two different Indian groups—the Teyas and the Querechos—on their trek across the Plains. Sites of the late Prehistoric and Protohistoric period in the Texas Panhandle include those associated with the Tierra Blanca and Garza complexes (see Hughes 1991). These complexes may be the remains of the Indian groups Coronado encountered en route to Quivira from the Rio Grande. Delineation of a common boundary or contact zone between these two groups could help focus research activities upon specific areas and sites.

It is clear from the narratives that Coronado's group followed their Indian guides along pre-existing trails for much of the route. Some prehistoric trails were documented by early explorers; indeed, occasional traces of prehistoric routes are still visible on the Plains, and, because prehistoric trails probably led through the gentlest topography and along water sources, later historic trails may have followed the same routes across the landscape. It has been suggested by Blakeslee (personal communication, May 1991) that Comanchero trails that are visible today, or have been documented historically, followed earlier prehistoric routes across the Texas Panhandle. If so, these identifiable trails may provide clues to the route followed by Coronado's party. On the other hand, Coronado's letter to the King suggests that the army was for a time lost on the vast Llano Estacado, lacking any sort of landmark or identifiable trail (Coronado 1990:201).

Considering all these factors, some possible indicators of the Coronado expedition would be traces of campfires, crude rock walls or other temporary corrals for livestock, cairns, crosses, bridges, and graffiti. These would be expected in areas where wood or buffalo chips, water, and forage were available.

ARTIFACTS OF THE CORONADO EXPEDITION

Lists have been compiled from the Spanish narratives of the specific items that were brought along by Coronado's expedition. Other specialty items—although

they were not mentioned—may have been taken on the expedition by clerics and craftsmen (see also Hoyt and Bruseth, both in this volume).

Spanish or Mexican ceramics may have been brought along to serve for storage or tableware. For example, on his journey to Hawaikuh, Estevan took a variety of trade items and "green plates" (Alarcón 1990:141). The origin of these plates is unknown, but it is possible that they were of green lead-glazed coarse earthenware similar to those found at Santa Elena (Skowronek et al. 1988:253–258). The Santa Elena green lead-glazed earthenwares have a pinkish paste, and are found in several forms, including a *pie-plate* variety. This ware may be representative of the sixteenth century French ceramic tradition (Skowronek et al. 1988:258). The green plates also may have been a variety of green-glazed *Lebrillo* ware, a cream-tan earthenware with noticeable mineral inclusions that was produced predominantly from A.D. 1490 to 1600 (Deagan 1987:48–50).

Coronado's men—particularly the officers—probably carried some ceramic items in their mess kits, and several authors describe the Old and New World majolicas, porcelains, and coarse earthenwares available to the Spanish conquistadors (see Deagan 1987; Lister and Lister 1987; Olds 1976; South et al. 1988).

The ubiquitous olive jars common in the Spanish empire during this period could have been used to transport some of the foodstuffs—including wine, raisins, sugar, and oil (Coronado 1940:176). Olive jars were amphora-shaped ceramic vessels with restricted necks, stoppered with cork and often sealed with pitch (Deagan 1987:31). These ceramic jars were used primarily to store and transport goods, especially liquids, overland. Some of the storage vessels found at Santa Elena were of a majolica-like buff paste with lead glaze on both surfaces, and some were decorated with incised marks (Skowronek et al. 1988:283).

It is also likely that some of the ceramics used to transport the subsistence items carried by Coronado's group were made by indigenous Indian groups. The narratives report that by the time Coronado and the advance guard reached the Zuni area, the men and horses were in "such great need of food that I thought we should all die of hunger . . . [for] altogether we did not have two bushels of maize" (Coronado 1940:167). This passage from Coronado's letter to Mendoza could suggest that since the storage containers brought with the small group from Mexico had been discarded as the grain was used, we would not expect to find them in Texas. Food procured from the Zuni pueblos might have been carried eastward in native ceramic vessels of Zuni origin.

During the winter of 1540 to 1541, the Spaniards seized grain from local Pueblo groups along the Rio Grande, and almost certainly these foodstuffs were acquired, transported, and stored in jars of local manufacture. The excavations at campsite LA54147 yielded an atypically high frequency of glazeware jars (Marshall 1989:93), which can be explained in several ways. Almost certainly some of the high proportion of storage vessel sherds result from Spanish consumption of stored foodstuffs during the winter of 1541, followed by on-site disposal of the jars. However, if the Spaniards used metal cooking pots rather than ceramic vessels to

prepare their meals, the proportion of cooking to storage vessels would also be skewed.[3]

Mobility may be another factor causing a high ratio of service wares, i.e., ceramic samples from along Chacoan roads "reveal a configuration similar to that of LA54147" (Marshall 1989:93). Marshall also suggests that differences in dietary and cooking habits may have influenced the comparative data for LA54147; groups who rely on roasted or baked foodstuffs require fewer cooking vessels than do groups who boil their food.

Castañeda (1940:238) noted that pottery and gourds used for cooking and food storage were broken by a hailstorm that caught the Spaniards in a steep-sided canyon. This may have been one of the canyons of the Canadian River system, or more likely, the Palo Duro system somewhere in the north central part of the Texas Panhandle. This verifies that when the army left Tiguex (and/or Pecos) in search of Quivira, they were transporting ceramics with them, and it is likely that these ceramics were made by native potters. However, the narratives fail to mention the source of the Spaniards' supplies as they left for Quivira. Supplies may have been acquired from the pueblos along the Rio Grande. However, it is possible that the food stored by the residents of Tiguex was virtually exhausted by the spring of 1541, forcing the Spaniards to seek subsistence goods from other areas such as Taos, Pecos, or the pueblos of the Galisteo Basin.

There is also another question; were these locally made wares the Glaze E wares of the time or were they the anomalous "bean pot" wares common to the pueblos (Waldo Wedel, personal communication, February 1992)? It is possible too that some containers or ceramics brought from Mexico, including Sonoran burnished wares, were also lost in the Plains hailstorm.

The Spaniards took dogs with them on the entrada, together with goats, mules, sheep, horses, and cows. Castañeda (1896:542) remarked that the army's livestock on the Plains east of Pecos consisted of 1,000 horses, 500 cattle, and 5,000 sheep.[4] In addition, there were many pack-mules carrying extra supplies and a few pieces of artillery (Winship 1896:379). Coronado (1940:43) took pigs along on his 1539 expedition to Topira, but there is no mention of these animals in the narratives of

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[3]Few of the sherds found at LA54147 have the blackening of the exterior surface that would be expected if the vessels had been used for cooking. Yet "it is clear that culinary activities were frequently conducted in the site area" (Marshall 1989:93).

[4]These numbers have been questioned by some authorities who suggest that Castañeda exaggerated or perhaps estimated the number of livestock leaving Culiacan, rather than the size of the herd taken onto the Plains. It is evident, however, that at least some of the animals survived the journey, for sheep, mules, and a horse were given to Father Padilla on his departure for Quivira in the fall of 1541 (Jaramillo 1990:212). Also, Castañeda notes that some sheep were left with Fray Luis at Cicuye in the spring of 1542 (Castañeda 1940:271). Of the seven sixteenth century Spanish entradas into New Mexico, it appears that only Coronado and Oñate brought domesticated animals into the Rio Grande Valley (Vierra 1989:226).

the 1540–1542 expedition. Several of the horses, together with their saddles and equipment, were lost in a buffalo stampede on the Plains. So it is clear that in the appropriate context (as at LA54147), the finding of bone from domestic animals in good association with sixteenth century American Indian sites could be an important clue in establishing the route of Coronado's entrada.

Items taken by Coronado for trade with the Indians included pearls, glassware, paternosters, jingle bells, and cloaks and other items of clothing (Castañeda 1940:217)[5], but it is not clear just what sort of glassware Castañeda was referring to. Glass sherds found in the sixteenth century deposits at Santa Elena were from fancy decorated Venetian glass containers (South et al. 1988). Since these items probably were too bulky and fragile to survive Coronado's long journey overland, the glassware items taken for trade may have been smaller and of heavier glass.

It is not clear what Castañeda meant by paternosters taken to give to the Indians, but these items were probably either special beads in rosaries used to say the Pater Noster, or the rosaries themselves (Oxford English Dictionary 1971:551). Paternosters are beads of Venetian drawn glass that are individually finished and decorated (Francis 1979:13).

In addition to wine and oil carried in some sort of containers, the friars accompanying the expedition might have carried kits containing all of the items needed for the celebration of mass and the other sacraments. These kits may have included items such as a crucifix, chalice, a palette containing a holy relic, a book of prayers or orders, and some vestments.

Selected trade beads, like the paternosters and Nueva Cadiz beads, provide potentially diagnostic artifacts that can be dated to the Coronado time period. Nueva Cadiz beads are

> cane beads of square cross-section, with or without a twist; most commonly they are in various shades of blue... these square cross-section cane beads have only been found in the New World, in Spanish contact sites [Liu and Harris 1982:1–6].

Nueva Cadiz beads are thought to have been produced and traded between 1500 and 1550, and had probably gone out of fashion by about 1560. The shorter varieties of the Nueva Cadiz beads may also have been used in association with spherical beads until the latter part of the century (Smith and Good 1982:10–11).

These beads evidently were introduced to the New World as trade items shortly after Pizarro conquered Peru in 1532–1533. The author did not find any specific references to early sixteenth century trade beads in the Texas Panhandle, but Spanish trade beads in sites in Oklahoma and Kansas suggests contact between native peoples and early Spanish explorers elsewhere on the High Plains. For

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[5]Kessell (1979:7) suggests that these were "artificial pearls." However, it appears that Fray Marcos—and perhaps Coronado after him—took samples of real pearls to show the Indians what the Spaniards were looking for (Niza 1940:64).

example, a single glass trade bead found at the Goodwin-Baker site in western Oklahoma (34RM14) has been identified as an example of the Nueva Cadiz Plain type (Sudbury 1984:32). This small, square glass bead has a thin exterior glass layer of translucent Independence Blue and a thicker inner core of transparent turquoise glass. Both layers have drawn air bubbles "suggestive of manufacture by the hollow cane technique" (Sudbury 1984:31). The inner and outer layers of this 4.9-by-6.2-mm bead are separated by a thin white layer. Similar beads found in the southeastern United States are thought to date to the period of initial Spanish exploration (see Hoyt and Bruseth, both in this volume).

Bells were common trade items during this period in parts of the southeastern United States. For example, bells were documented for Indian trade in the 1528 Narváez expedition, and were "well known from sixteenth century contexts, particularly the De Soto expedition" (South et al. 1988:142). The "jingle bells" may have been the small Clarksdale variety (Figure 1) commonly known for their use on horse harnesses, or they may have been small and bell-shaped, designed for use on clothing like priests' robes.

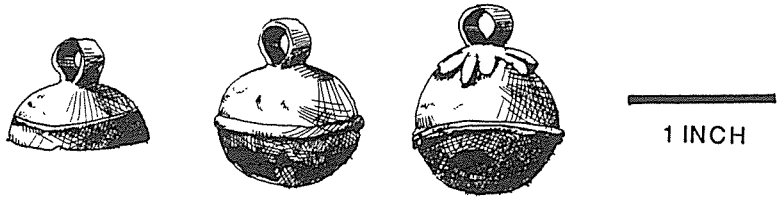

Figure 1. Clarksdale Bells (adapted from South et al. 1988:143, 144).

Because parts of clothing fasteners and decorations—large and small wire hooks and eyes, brass and iron buckles, bordado trim, metal stars, and aglets—have been recovered from several mid-sixteenth-century Spanish sites, a possible Coronado site might contain such artifacts. Since the wire hooks and eyes and the buckles from this period so closely resemble modern fasteners, readers are referred to South et al. (1988:121–142) and Vierra (1989:134–137) for further information on these types of artifacts.

We have no details on the type of clothing worn by Coronado's group, but, judging from the inventory and the speed with which troops were mustered, it is unlikely that the force had uniforms (Byron A. Johnson, personal communication, July 27, 1992). Ball buttons were, however, used by both soldiers and the upper classes in sixteenth century New Spain (South et al. 1988:132–135). Because the most common fasteners found in the excavations at Santa Elena were metal ball buttons (Figure 2), it is possible that this sort of artifact would be found in a Coronado site. The small round ball buttons found at Santa Elena and Fort San Felipe averaged about 10 mm in diameter, excluding the heavy extended loops used for attachment. These buttons were made of plain brass or a gray alloy and came in two styles—atauxia or acero buttons. The term atauxia refers to gilded or painted

buttons generally used on Spanish cloth; the plain ungilded acero buttons—commonly but misleadingly known as *damascene* buttons—were used on English cloth (South et al. 1988:132–135).

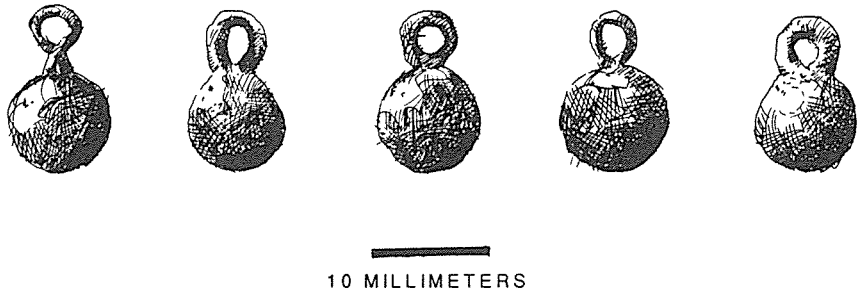

Figure 2. Metal ball buttons (adapted from South et al. 1988:134).

Bordado trim generally consists of coiled copper or gold wire or embroidered strands of string used as an ornamental braid on clothing of the upper classes. Small metal bordado stars, usually copper or silver, were used as decorations on horse gear and clothing (South et al. 1988:147). These handmade stars varied in their general configuration and in size, style, and number of points (Figure 3).

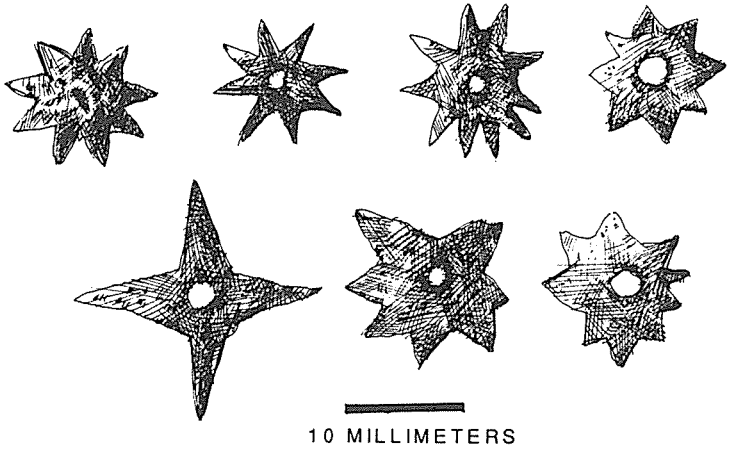

Figure 3. Metal stars (adapted from South et al. 1988:146, 147).

Aglets, also known as aiglet or aiguillette, or copper lacing tips, were commonly attached to leather thongs or ribbons used to fasten parts of clothing or half-armor together (Figure 4). These small tips were about an inch long, with "a seam from folding sheet copper into a slightly tapered tube" (South et al. 1988:135). Sometimes gold aglets used by the wealthy were decorated with pearls or other jewels.

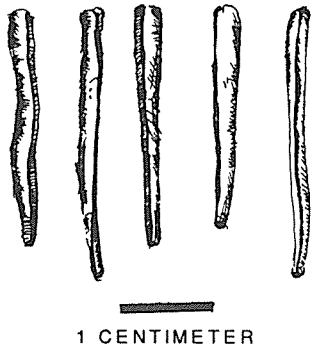

Figure 4. Copper aglets (lace tips) (after South et al. 1988:138).

No doubt additional supplies and equipment were taken by the expedition's tailor, doctor, and priests. Metal artifacts from Santa Elena and from the New Mexico Expeditionary site include thimbles, pins, and scissors—all of surprisingly modern looking design (Vierra 1989:134–137; South et al. 1988:151–155).

Crude medical instruments and small vials or containers for medicinal potions may well have been taken by the "incompetent newsmonger" who went along to "watch over the health of the army and tend its wounds" (Hammond and Rey 1940:8). Commonly, medicinal vials of this period were "tall and cylindrical with slightly restricted necks and either bulbous or everted rims" (Deagan 1987:137).

A variety of tools would have been needed for various tasks such as wood cutting, harness repair, or blacksmithing. For example, early Spanish tools found in New Mexico include knife blades, an axe, and sheep shears (Vierra 1989:147–149). A bugle was certainly taken along by the army bugler (Hammond and Rey 1940:13), and, because some women accompanied the army, feminine clothing fasteners, decorations, and jewelry might also be expected among the archeological remains.

Horses were critical to the success of the expedition, so supplies brought with the army surely must have included equipment for shoeing the horses, together with a supply of iron and nails. It is also assumed that items of horse gear including stirrups, spurs, and bits may have been lost along the way; archeologists have found a cinch ring, a bit, a horseshoe, and a variety of nails at early Spanish sites along the Rio Grande. Horseshoe nails and nails used in small wooden boxes or saddles might also be expected in a Coronado site (Vierra 1989:131–134).

The expedition's muster roll suggests that a wide variety of weaponry was taken along on the journey, including armor of Castille and *arma de la tierra*. Aiton (1939:11) translates this phrase as *arms of the country*, but Hammond and Rey (1940:88) read this as native arms or native weapons. The ethnocentric Spaniards may have been making a distinction between arms produced by Old World craftsmen and weapons made in Mexico or other parts of the New World that were thought to be poorer in quality (Byron A. Johnson, personal communication, July 1992). Alternatively, *arma de la tierra* may have been used to describe American

Indian weaponry such as the bow and arrow, which some Spaniards had by this time adopted for their own use.

The muster roll for the expedition lists weapons such as crossbows, arquebuses, one- and two-handed swords, daggers, lances, and other odd pieces. Types of armor taken by the expedition include horse armor, coat of mail, appurtines, head armor, heavy hide or mail breeches *(zaragüelles)*, plate armor, mail loin guards, gorget armor for the throat, head armor of the country, gauntlet, corselet (armor for the upper body), helmet or *casco*, casque with chin piece, a form of helmet known as a sallet with beaver, and an army helmet to cover the head (Figure 5).Coronado's personal armor was gilded and included a "fine helmet ornamented with plumes" (Hammond and Rey 1940:8).

Several types of helmets were in use during Coronado's time, including an *escofia* (a metal skullcap favored by archers), a *borgofiota* (a helmet derived from the French, known in Spain before 1520), a *morrión* (a boat-shaped open-faced helmet generally popular in the latter part of the sixteenth century), and a "war hat," or *capiello de fierro*, which was the predecessor to the *morrión* but with a turned-down brim. *Casco* or *celada* was a generic term used for several types of helmets that either fully or nearly fully enclosed the face and head (Byron A. Johnson, personal communication, July 27, 1992).

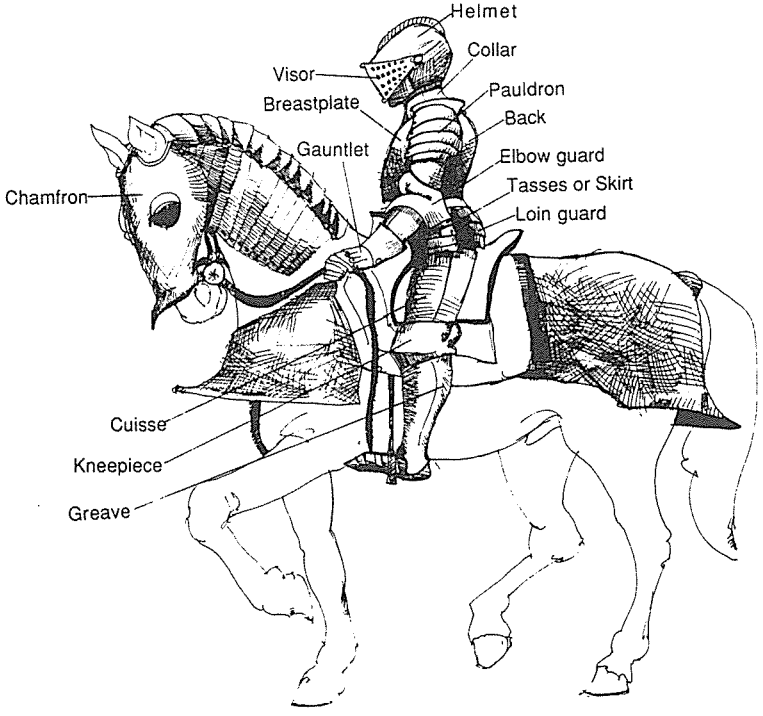

Figure 5. Composite drawing with names of parts of armor.

The expedition also had six or seven bronze pedreros, or stone mortars. By the time the Spanish reached Tiguex, the mortars were in poor condition, and four of them were left at Zia Pueblo for safekeeping (Hammond and Rey 1940:8; Castañeda 1940:233). The fate of the other pedreros is unknown.

It is unclear just how many of the items listed in the muster roll were actually brought as far as Quivira. Some unnecessary items apparently were discarded before the expedition reached what is now Arizona. Johnson (1988:8) suggests that heavy armor was too "ungainly and too confining for long or rapid marches," so armor may have been primarily chain mail, padded vests, or other chest and arm protection, plus some sort of helmet. Jack plates—small rectilinear brass or iron plates from flexible armor (Figure 6)—were found at both Santa Elena and along the Rio Grande (South et al. 1988:115; Vierra 1989:135). The irregularity and hammered appearance of these metal plates suggests local manufacture in the New World. Generally, the jack plates were fastened in an overlapping pattern by rivets between two folds of coarse canvas to create "the conquistador's version of a modern-day policeman's 'flak jacket'" (Vierra 1989:135). Other metal artifacts found on Expeditionary sites include buckles and hinges of various types that may have been used with armor for both men and horses. Bits of chain mail have been found along the Rio Grande, as well as in sites in Kansas, Texas, and Arizona. However, at present no determination has been made of the exact date or source of this chain mail, so none of it can be linked with any certainty to the Coronado expedition.

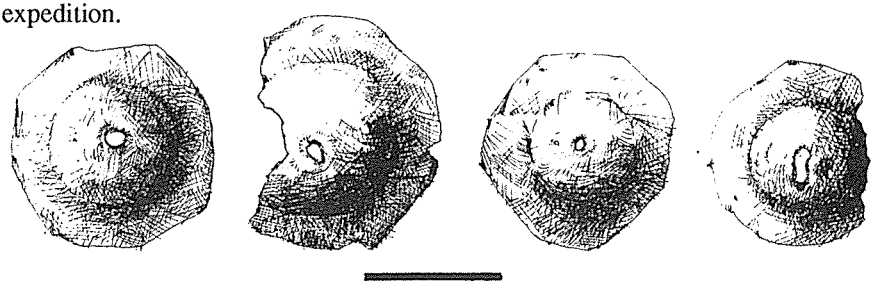

Figure 6. Jack plates from armor (adapted from South et al. 1988:116 and Vierra 1989:135).

The narratives also document the presence of the *ballestas* or crossbows, and *arcabuces* on the journey. The Spanish used three types of crossbows—the *ballesta de gafa*, the *ballesta de armatoste*, and the *ballesta de cranequin* (Johnson 1988:9). These types were differentiated by the way the bow was armed. The most common military crossbow, the *ballesta de gafa*, utilized a detachable "goat's foot" lever to arm the bow (Johnson 1988; Figure 7).

Crossbow bolt points (quarrels) varied in shape, size, and material (iron or copper), depending upon their specific function and place of manufacture (Figure 8, a). Crossbow bolt points found along the Rio Grande and at the Spanish colonial capital of Santa Elena, at Pecos, and at Hawikuh, generally resemble metal pen points between 3.5 and 5.0 cm long (Ellis 1957:209; Vierra 1989:145; South et al.

1988:103–108). To make the bolt tips, flat pieces of metal were rolled and hammered into shape, which annealed the tips and left the bases open for inserting the bolts (Figure 8, b).

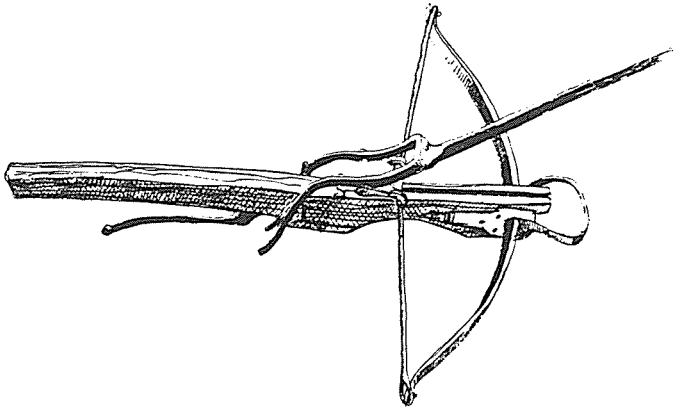

Figure 7. Drawing of a typical crossbow, showing the goat's foot lever (adapted from South et al. 1988:104).

Some authors believe crossbow parts and bolts may be diagnostic of the Coronado expedition (Vierra 1989:227). Crossbows were used at one of the Zuni towns, at Pecos, and at pueblos along the Rio Grande. Possibly some of the crossbow bolts were made of a ferrous material, but the majority of those found along the Rio Grande were made of copper by native craftsmen. By the time of the next Spanish entrada, the arquebus had begun to replace the crossbow. In this frontier region, however, use of the crossbow may have persisted well into the seventeenth century (Williams 1991:2).

Unfortunately, crossbow bolts were not always correctly identified by early archeologists. Moreover, past archeological excavations often lacked good stratigraphic controls or in-depth reports that would have allowed researchers to distinguish the remains of the Coronado expedition from those of later entradas.

It is possible that parts such as triggers, serpentines, or matchcord guide tubes could have been lost from the *arcabuces* taken along by Coronado's group. The Spaniards were the acknowledged experts in the use of the arquebus—a matchlock weapon developed by the Spanish during the fifteenth century—and a surprisingly accurate weapon. South, Skowronek, and Johnson (1988:96) suggest that the "Spaniards were the acknowledged experts, replacing English bowmen as the most feared infantry in Europe." Coronado's men may have carried the light *caliver* type of arquebus rather than the longer musket, but in either case, it is quite likely that lead shot from this weapon could be found in Coronado-era archeological sites, especially on those where hunting or a battle had taken place.

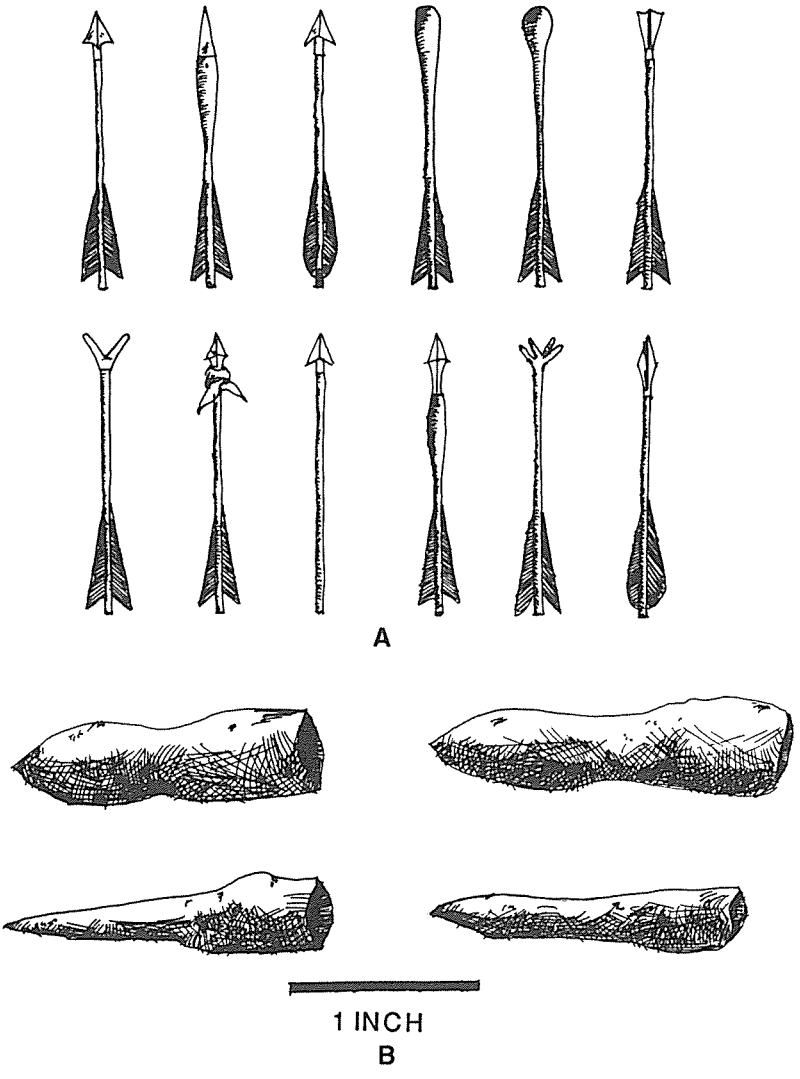

Figure 8. Several types of crossbow bolts, a (adapted from South et al. 1988:106, 108, and Ellis 1957:209), and crossbow bolt tips, b (adapted from South et al. 1988:106, 108, and Ellis 1957:209).

The weapons and armor carried by Coronado and his men appear to be similar to those described in early Spanish manuals that discuss ways to outfit an expedition. The manuals cover such details as health and medicines, recruitment of priests, and types of weapons and armor to bring along. For example, the Milicia y Descripcion de las Indias (Vargas Machuca 1892) states that

> in the Indies, Spaniards principally used cross-bows, chain mail, plate armor (breast plates), small muskets, rodelas (oval or heart-shaped leather shields)... after much experience the best and most advantageous were muskets, quilted cotton vests, broad swords, cotton helments [sic] (head-gear) and visors, rodelas, partial horse armor, leather jackets, and mail coats.[6]

In summary, artifacts that might have been left by the Coronado expedition include horse gear (horseshoe nails and pieces of bridles and stirrups), metal tools for fitting horseshoes and repairing leather goods and clothing, clothing parts (rolled copper aglets, and fasteners like hooks and ball buttons), personal and religious items (ceramic mess kits, jet Rosary beads, and simple lead and brass crosses), domestic animal bone (horse, sheep, and cattle) and other food refuse, pottery, gourds, and other storage and cooking vessels, trade goods (beads, small bells, glass dishes, metal knives, and pearls), and weapons, particularly crossbow bolts and lead shot.

OVERVIEW OF SOME TEXAS PANHANDLE SITES

Several factors limited the scope of this paper and contributed to some unintentional biases. For example, the research, which focused on site forms and published reports, was completed about two years ago, so data presented here do not include more recent findings. Also, the terminology used on site forms to describe artifacts varied widely, for example, Puebloan ware, Glazeware, Rio Grande ware, Glaze IV, Glaze E, black pueblo pottery, and on virtually all site forms, temporal assignments such as Late Prehistoric or Protohistoric lacked specific dates.

Coronado's Entry into Texas

It is very likely that geographical factors had a strong influence on the route chosen by Coronado's guides in their eastward march from Pecos. Jaramillo (1896:588) wrote that the expedition forces had been traveling in a generally northeast direction along "those streams which are among the cows [bison]" for eight or 10 days. This suggests that the early part of their route paralleled a major drainage, possibly the Canadian River. However, within a short time after reaching the first Querecho camp, the group apparently left the drainage and struck out across plains that are believed by most authors to be the Llano Estacado.

Although the imposing facade of the Llano Estacado presents a physical barrier to travel, there are several places on the south side of the Canadian River where Coronado's group could have ascended the caprock with relative ease

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[6]Translation of the original Spanish contained in a letter from Byron A. Johnson, of the Albuquerque Museum, to the author. Typescript in National Park Service files at the Denver Service Center.

(Jack Hughes, personal communication, Spring 1990; Waldo Wedel, personal communication, February 1992). The explorers could have followed the Canadian River drainage for a short distance into Texas, possibly ascending onto the Llano Estacado somewhere near Alamosa Creek. Another access point could have been along the old east-west route from Santa Fe that ascended the scarp on the Bridwell Ranch near Sand Point, due west of Simms, Texas (Speer 1981). The Apache Canyon route, which approximates New Mexico Highway 80, also provides feasible access. Further south, the drainages of Tierra Blanca Creek, Frio Draw, and Running Water Draw not only provide water and grazing, but also a natural pathway eastward through gentle slopes onto the vast plains of the Llano Estacado (Figure 9).

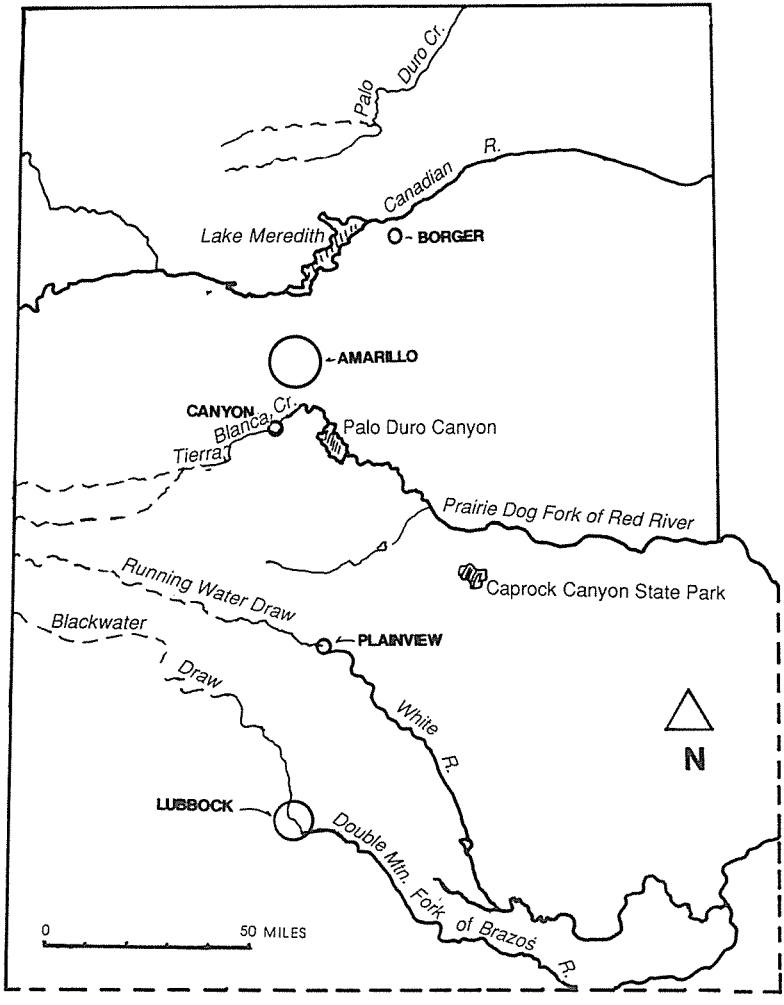

Figure 9. Map of the Texas Panhandle, showing the Llano Estacado and the Canadian River.

We would expect to find at least some of the archeological sites left behind by the Querecho and Teya bison hunters who were visited by the Spaniards. Descriptions of the Indian camps suggest too that they should contain evidence of many hearths, traces of activities associated with lithic procurement, manufacture, and use, tipi rings, and signs of procurement and processing of food, especially bison. These Plains hunters probably were using such items as small end scrapers, triangular arrowpoints, alternately beveled four-edged knives, and oval basin metates (Hughes 1991).

Several small side-notched and triangular arrowpoints, including Garza, Washita, Harrell, Fresno, and Lott types, were commonly used by Plains groups during the Protohistoric period. Manufacture of these arrowpoints generally began after about A.D. 1000, and continued to around A.D. 1600 or, for Fresno points, A.D. 1800 (Bell 1958; Suhm and Jelks 1962).

Coarse-tempered and micaceous ceramics are also thought to be associated with these Protohistoric peoples. The Coronado narratives make it clear that these Plains groups traded with the Puebloan groups along the Rio Grande, so Glazeware ceramics (especially Glaze E wares), Puebloan utility wares, obsidian, and other nonlocal materials might also be found in their encampments.

No early Spanish sites are reported for the northern Texas Panhandle, but many Late Prehistoric and Protohistoric sites fitting this general profile of the Querecho and Teya encampments are known from along the Canadian River in the northwestern Panhandle. For example, research of site files for the western parts of Oldham and Hartley counties indicates that there are some Apachean or Late Prehistoric (after about A.D. 1400) sites on bluffs or ridges overlooking the Canadian River. Site 41OL225, south of the river near its confluence with Horse Creek, has buried hearths and probable tipi rings[7]. Other such campsites north of the Canadian River are 41OL157, with its slab-lined hearths and possible Mogollon ceramics, and site 41OL150 in the Punta de Agua Creek drainage. Southwestern obsidian, cord-marked pottery, and mano and metate fragments have been found at the latter site, together with a stone gorget and micaceous plain sherds.

Some scrap metal, reportedly the residue of manufacture of historic metal arrowpoints, was found at site 41HT1, a multicomponent campsite along Punta de Agua Creek. Other sites along this same drainage (41HT3 and 41HT4) have extensive evidence of quarrying, hearths, and many artifacts, including a brownware sherd with a possible exterior slip.

Sites 41HF8 and 41HF86, in the vicinity of Palo Duro Reservoir near Spearman, have components that date to the Protohistoric period (Christopher Lintz, personal communication, April 22, 1992). Radiocarbon dates for these sites generally range

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[7]The site numbers preceded by A are from Panhandle-Plains Historical Museum site records. Numbers beginning with D are from the Gila Pueblo system used by E. B. Sayles to catalog sites. The numbers beginning with 41 are the trinomials used by the Texas Archeological Research Laboratory in Austin.

between 320±25 years and 460±75 years B.P. In these two sites there were metal artifacts, Olivella shell beads, and possible Apachean ceramics.

Many Protohistoric period sites are documented for the Lake Meredith area (Figure 9). For example, a metal arrowpoint was found at 41PT114, Puebloan ceramics were found at 41MO96, and possible tipi rings and Apachean wares were found at 41MO21, 41MO55, and 41PT73. According to files at the Texas Archeological Research Laboratory, a metal breastplate was reportedly found in 1947 in Carson County, but its exact description and location were not recorded. Another unauthenticated find includes glass trade beads and metal cone danglers from near Red Deer Creek.

A polished, burnished ceramic ware, tentatively identified as Mogollon, was found at a large site (41OL200) on Agua de Piedra Creek in Oldham County. However, because burnished ceramic wares were also known from Protohistoric Sonoran sites, these ceramics may merit further examination. Farther away from the Canadian River on Agua de Piedra Creek, the Rocky Dell site (41OL4) has remains of mortar holes, tipi rings, and ceramics. Prehistoric and historic pictographs and petroglyphs at this site depict Puebloan characteristics, as well as horses, a church, and tipis. These drawings are often superimposed over earlier styles of rock art, suggesting a long continuum of use.

Several sites in the headwater canyons of the Alamosa drainage appear to postdate the Panhandle aspect (after about A.D. 1500), based on the presence of micaceous or pyrite-tempered brownwares. These include sites A1146 and 41OL24, as well as 41OL36 where brownware is found in association with large hearths. These three sites are close to a possible entry point onto the Llano Estacado—an upper canyon of Middle Alamosa Creek northeast of Landergin.

Many tipi ring sites have been reported along the Tierra Blanca drainage from east of Hereford to the vicinity of Buffalo Lake. Site A1140 is a possible Late Prehistoric, Apachean, or Comanche, structure of caliche slabs. Site A1139 nearby, where the pottery includes black micaceous and redware sherds, is a possible Apachean village of slab houses or tipi rings. Other concentrations of tipi rings are at Texas D:4:1 and D:4:2, east of Hereford. The nearby Tierra Blanca site (41DF3) appears to be a Plains hunter-gatherer base camp whose artifacts include obsidian, bison bones, and Puebloan ceramics (primarily Glaze D wares dating to about A.D. 1500).

Obsidian flakes, Rio Grande Glaze Polychrome, rock features, and a great deal of burned rock were found at the Ivy Ranch site, A264/41DF12, along Tierra Blanca Creek, and, in the vicinity of Buffalo Lake, site 41RD35 appears to be a multicomponent site containing possible pit houses, Mogollon brown ware, and Washita points. Northwest of the lake a contact period site (41RD24) contains abundant burned rock, Rio Grande Glaze ware, and a blank for an iron point.

Several Floyd County campsites have Apachean and Puebloan pottery, glass trade beads, and metal artifacts. One of the better-known sites, the Floydada Country Club site (41FL1), has a mixture of prehistoric and historic materials, including Eastern Pueblo, utility, polychrome, and micaceous ceramics, turquoise,

metal projectile points, glass beads, and Olivella beads (Word 1991). Fresno, Perdiz, Harrell, Lott, and Washita arrowpoints and metal tinklers are also reported from this site.

Rock art with a Spanish motif is found along the Double Mountain Fork of the Brazos at site 41GR414, and Southwestern style rock art is found at 41GR57. Southeast of Lubbock in the Justiceburg Reservoir area, sites 41KT53 and 41KT51 have majolica wares, features resembling tipi rings, possible lead sprue and other metal fragments, a horse tooth, and a Longhorn horn core (Douglas Boyd, personal communication, April 22, 1992). Both Southwestern and Plains ceramics are represented in these sites, together with trade goods such as turquoise, Olivella, and glass beads. Radiocarbon dates for these sites suggest an occupation period between the late 1400s and 1600s.

Unfortunately, the site data were not sufficiently specific to make it possible to pinpoint Coronado sites in Texas. Site forms for contact period sites might carry the notation *metal point* or *glass beads* or *Pueblo pottery*, but almost always they have no further description of the type of material, the morphology of the artifact, its age, or its technology. Most of these artifacts were collected by local landowners, many of whom are no longer living.

Additional research is clearly needed to verify the present locations of these artifacts and to identify them properly. Virtually all of the Spanish artifacts found throughout the Southwest and in the Plains lack specific proveniences, and many of the items held by collectors or exhibited in museums are identified only by the ranch or county where they were found. For these reasons, sites and collections in Texas hold great promise—but equally great challenges—for future investigation of Coronado's trek to Quivira.

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keen zest for life and integrity made the research on Coronado's route such an exciting venture.

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From El Paso to Eagle Pass: Spanish Entradas along the Lower Rio Grande in the Sixteenth and Seventeenth Centuries

Joseph P. Sánchez

ABSTRACT

In the sixteenth century, the search for Quivira inspired early Spanish explorers to move northward along the Mesa Central of Mexico toward and beyond the Rio Grande. Later, Franciscan missionaries, Hispanic settlers, and military personnel established missions, settlements, and forts south of and along a rugged frontier that stretched from El Paso to Eagle Pass and beyond. In spite of its importance to Spanish Colonial expansion, the history of that area is little known. Yet that region saw much activity in the period from 1580 to 1700, and its history is intriguing partly because it pointed the way to the eventual founding of Texas.

The history of the area between El Paso and Eagle Pass is linked to that of New Mexico, Chihuahua, Coahuila, Nuevo León, and Tamaulipas. The period from 1524, when Panuco was established, to the 1570s, when the Santa Barbara and the Saltillo mining frontiers opened up, was one of expansionism beyond the Gran Chichimeca frontier that had stalled the northward movement of the Spanish for several decades. Between 1580 and 1680, slavers, explorers, prospectors, settlers, and missionaries criss-crossed the area with relative frequency. They, too, represented the many expansion projects by Spain to occupy new frontiers along the lower Rio Grande. Renewed interest in the part of Texas east and north of the Rio Grande took place after 1680, when El Paso was founded as a result of the Pueblo Revolt in New Mexico. Indeed, early missionary activity into that area after 1692 originated from both the New Mexico missions and those in Chihuahua, Coahuila, and Nuevo León.

Spanish interest in the Rio Grande first resulted from maritime explorations along the Gulf Coast as early as 1519, when Alonso de Pineda, sailing for Francisco Garay, a rival of Hernán Cortes, discovered "a large river" with many Indian villages along its banks (Navarrette 1837–1880:147–148). Having spent 40 days there, Pineda mapped the area and called the large river Rio de las Palmas. Impressed by the report, Garay made plans to settle the Rio Grande and sent Diego de Camargo with three ships and 150 men to colonize the area. However, because of hostility of the natives, the Camargo expedition abandoned its weakly held outpost, losing several men and one ship in the process. Garay, undaunted, attempted again to settle the Rio Grande, this time armed with a charter to the land known as Amichal. But that, too, would come to naught. The importance is that one end of the Rio Grande had become the object of Spanish interest.

Sixteen years later, four men, castaways from the ill-fated Panfilo de Narváez expedition that had been wrecked on the Texas coast, made their way across southern Texas, hoping to reach any of the few but scattered Spanish outposts north of Mexico City. It was 1535 when Alvar Nuñez, better known as Cabeza de Vaca, and three companions criss-crossed southern Texas, reaching different points along the Rio Grande (Pacheco et al. 1864–1865:269). One of these points is believed to be in the vicinity of Del Rio, another at Santa Elena Canyon in the Big Bend, and a third in or near present El Paso (Bishop 1933:137). They were the first Europeans to see what lay beyond the Rio Grande and to realize the extent of the river from its mouth to a point somewhere in the interior. Vaca's *Relación* did not escape the interest of later explorers, who were aware of its contents.

In 1540, the expedition of Francisco Vazquez de Coronado wended its way from Culiacan, in western Mexico, through Sonora and eastern Arizona before reaching Zuni, in western New Mexico (Bolton 1949:ii; Hammond and Rey 1940:15–17). From there, Vazquez de Coronado sent an advance guard westward. Led by Hernando de Alvarado, the detachment passed Acoma and, a few days later, reached a large river that he named Rio de Nuestra Señora (Hammond and Rey 1940:183; Pacheco et al. 1864–1865:304–317, 511–513). Along it there were many Indian villages, and Alvarado and his men were even more impressed with the length of the river when they traveled as far north as Taos Pueblo on its east. They must have learned that the river originated in the mountains far to the northwest, in present southern Colorado. With Vazquez de Coronado, then, more was learned about the Rio Grande.

Beginning with the expedition of Francisco Sánchez de Chamuscado (Hammond and Rey 1940:67–150), the exploration of New Mexico would be reoriented from the route taken by Vazquez de Coronado. For nearly four decades after the Cibola expedition, Spanish prospectors and slavers had ventured beyond the last outposts in present Chihuahua, Coahuila, and Nuevo León. By the late 1570s, mining towns had been established at Santa Barbara in Chihuahua and Saltillo in Nuevo León. Through these unknown explorers, much knowledge about the land beyond these towns was gathered, although the Rio Grande and what lay beyond it was known only to the few who had dared to cross it.

The expedition of Francisco Sánchez Chamuscado was the first legal expedition to cross the Rio Grande from the direction of Santa Barbara and to report on what lay beyond. Yet more significant than the information he gathered was the route he took, for it later became part of the famous Camino Real de Tierra Adentro, which ultimately ran from Mexico City to Santa Fe in New Mexico. Motivated by Franciscans hopeful of expanding their missionary field, the expedition set out in June 1580.

The trail blazed by Sánchez and his Indian guides ran north from Santa Barbara along the Rio San Gregorio, one of the upper branches of the Rio Conchos, to its confluence with the Florido and beyond to the Rio Conchos (Hammond and Rey 1940:68). From there they continued northward along the often traveled route to the Rio Grande. After going a short distance past the Rio Florido, they met several

Indian tribes to whom they gave the name Conchos. These Indians presented them with pumpkins, mesquite beans, and corn. Approaching the Rio Grande, they encountered other tribes whom they called the Raya—later known as the Rayados—who spoke a language similar to that of the Conchos (Hammond and Rey 1940:69–70). Hernán Gallegos, one of the chroniclers of the expedition and former slave runner who knew the country well, described these groups by writing in unabashed colonial terms: "They go about naked like savages. They are lazy, capable of little work, and dirty. They sustain themselves with quantities of calabashes, ground mesquite, mushrooms, prickly pears and fish from the river" (Hammond and Rey 1940:70).

Five leagues beyond the country of the Rayas, the expedition came upon another tribe of Indians they called the Cabris or the Pazaguantes. They, too, inhabited the area near the junction of the Conchos and the Rio Grande, but they spoke a different language from the tribes previously met. More complimentary about them, Gallegos wrote, "The Cabris are a very handsome, very spirited, very active, and more intelligent than the people previously met. They are of large stature and their face, arms and bodies are striped with pleasing lines" (Hammond and Rey 1940:70–71). Later, the Cabris would be associated with the much larger tribe that lived north of the Rio Grande, the Jumanos. The Cabris, like most of the tribes they met along the route, were friendly. They cultivated small patches of land seasonally, and they appeared to be more industrious than those tribes they had met farther south (Hammond and Rey 1940:71).

Moving beyond the Cabris, the expedition reached La Junta de Los Rios, near present Presidio, where the Conchos enters the Rio Grande. There, they found many Indians and erected several crosses among them. Gallegos called the new tribe Amotomanco, later known as the Otomoaco. Of them, he wrote, "The men are very handsome and the women beautiful" (Hammond and Rey 1940:73). Typical of the natives in the area, the Amotomanco wore stripes on their faces; they lived in houses made of sticks and brush plastered with mud. They raised corn and stored an abundance of pumpkins and beans. The Amotomanco were part of the Jumano nation who ranged in a wide area north and east of the Rio Grande in the Southern Plains where they hunted buffalo (Hammond and Rey 1940:73).

Once at La Junta, it appears that they continued along the west bank of the Rio Grande, although it is not possible to determine with certainty whether they crossed the river at this point to continue their march. If they crossed it, they did so momentarily, that is, for a short reconnaissance of the other side, before resuming their march on the west bank. However, before reaching the Rio Grande, Gallegos reported that "to reach this river, the largest to be found in the Indies, we left the Conchos on our right, with our backs to the south" (Hammond and Rey 1940:75). It is known that Fray Agustin Rodriquez and some of his companions crossed the river, spent a day or two a short distance from La Junta, but rejoined the expedition on the west side because it was easier to travel (Hammond and Rey 1940:75).

Moving up the Rio Grande for a distance of 5 or 6 leagues above its junction with the Conchos, they encountered another tribe of Jumanos who had copper and

turquoise pendants that they had obtained through trade (Hammond and Rey 1940:76). The Jumanos told them that if they continued upstream for 13 days, they would encounter many clothed people who cultivated much corn, calabashes, beans, and much cotton, which they wove and made into blankets and clothes. Gallegos wrote (Hammond and Rey 1940:77) that the Spaniards asked them

> if any men like us had passed that way, and they replied that long ago four Christians had passed through there. By the description they gave us we say plainly and clearly that it must have been Alvar Nuñez Cabeza de Vaca, because according to his account he had come by way of these people.

The expedition was one month out of Santa Barbara. Still on the west bank, they continued their march up the Rio Grande where they met other Jumanos who also recalled Cabeza de Vaca. Finally, they reached the last of the Jumano settlements, a group they called Magdalena (Hammond and Rey 1940:78), south of the present ruins of Fort Quitman in Texas. Three days from there, they reached the marshlands that extend from the Guadalupe to El Paso (Hammond and Rey 1940:80). Encountering fewer and fewer tribes, they traveled 15 more days. Sometime during this part of the journey, they crossed the river to the east side, for their next stop was the most southerly Piro Pueblo of New Mexico, which they called San Felipe (Hammond and Rey 1940:81). They found the Pueblo deserted but well stocked with supplies. The expedition continued northward until they reached Puaray, in the valley of present Albuquerque, and from there they explored as far north as Taos Pueblo, as far east as the Canadian and Pecos rivers, southeast to the saline lakes beyond the Manzano mountain range, and west to Zuni Pueblo before returning to Santa Barbara (Hammond and Rey 1940:12–14).

The sequel to the Sánchez Chamuscado expedition was that of Antonio de Espejo (Hammond and Rey 1940:153–237). Encouraged by the Franciscans, who reported that some of their brethren had been left in the pueblos of the Rio Grande, Antonio de Espejo agreed to lead the next expedition north to rescue them. In November 1582, the new expedition left Santa Barbara and assembled at San Bartolome, a mining outpost nine leagues north of Santa Barbara, on the San Gregorio River. Fray Bernardino Beltran was technically in command, but as military commander, Antonio de Espejo was the recognized leader of the expedition. Moving down the San Gregorio to the Conchos, as the previous expedition had done, they met the Conchos, the Pazaguantes, and other tribes of the Jumanos (Hammond and Rey 1940:155–158). Espejo and his men adopted a studied eye concerning the various tribes. They observed that the tribes adjoining

> the Pazaguantes on the Conchos and extending for some distance up the Rio Grande were known as the Patarabueyes or the Otomoacas; those living at the junction of the rivers and south of it were called Abriades; and those who lived across the Rio Grande and roamed the plains in pursuit of buffalo were known as the Jumanos proper (Mecham 1926:122).

By December 9, they reached the Rio Grande at La Junta, which Sánchez Chamuscado named Rio del Norte for the first time. Resting for eight days, they camped a short distance from an Indian settlement they called San Bernardino. They traded with the natives for maize, beans, mescal, dried pumpkins, gourd vessels, buffalo skins, and bows and arrows. At La Junta, they visited another Indian village, which they called Santo Tomás. There they found a cross that had been raised the year before by Fray Rodriguez and his companions (Hammond and Rey 1940:163).

From Santo Tomás they crossed over the Rio Grande into Texas. Apparently, this is the first recorded crossing into Texas. Of the event, Diego Perez de Luxan wrote,

> We went on this day (December 10, 1582) as previously stated, half a league farther (from Santo Tomás) to a pueblo situated on the opposite bank of the river which Chamuscado's men called Del Norte (sic). The pueblo was on a high ridge with many flat-roofed houses; below were many other houses forming a sort of suburb. Its cacique was called Casica Mayo. In this pueblo they kissed the hand of the Father and brought presents as in the others. They named this pueblo San Juan Evangelista. Here they found another cross which the said Gaspar de Luxan and his companions had erected; this they had in a neatly kept plaza.... They slept there that night and the next morning they went to another pueblo.... In this pueblo and in all the others they told us how Cabeza de Vaca and his two companions and a negro had been there. The Indians of this pueblo are all farmers, as the river is very appropriate for it [Hammond and Rey 1929:59].

The Spaniards named the second town on the east side of the Rio Grande, opposite the mouth of the Conchos, Santiago. They spent eight days there among the Jumanos and they visited nearly all the settlements in the vicinity of La Junta de los Rios on both sides of the Rio Grande (Hammond and Rey 1929:163). On December 17, continuing their march north, they crossed back to the west side of the Rio Grande. Forty-five days after they had left La Junta, they arrived in the southernmost pueblos of the Piros in New Mexico.

Like Sánchez Chamuscado, the expedition explored in all directions from the Rio Grande Valley. Espejo and his men visited the Rio Grande pueblos, explored westward to the Verde River in Arizona, and eastward to the Great Plains. Finally, on July 5, 1583, the party reached the Pecos River and followed it as closely as possible in the hope of finding a new way back to La Junta de los Rios (Hammond and Rey 1929:121). By August 6, after traveling for a month down river, they encountered Jumanos who were hunting. Lúxán wrote that through their interpreter, Pedro, a Patarabuey Indian, they learned that the Pecos "came out very far down from the Conchos River; that they would take us by good roads to the junction of the Rio del Norte and the Conchos rivers, which is among the Pataragueyes" (Hammond and Rey 1929:124).

Espejo and his men were the first Europeans to explore the Pecos River, but more importantly, they were the first white men to travel the land between the Pecos and La Junta de los Rios. Basically, they followed a route from present-day Pecos, Texas, past Toya Creek, below Toya Lake, then across to present Toyahvale in the vicinity of Balmorhea, where they encountered more Jumanos (Castañeda 1936:178–180). Following a route from Balmorhea, they passed through the vicinity of Fort Davis and headed southward through present Marfa. On August 14, they continued marching over plains and camped in "a very large valley, where there were some pools of rain water" (Hammond and Rey 1929:125). They rested there four days and traveled six leagues more "over bad roads through a very rough sierra" before they reached the Rio Grande "nine leagues from the pueblo which seems to be San Bernaldino of the Patarabueyes" (Hammond and Rey 1929:125). They were north of La Junta de los Rios, probably in the vicinity of present Ruidosa or Candelaria.

When they arrived on the Rio Grande, they were once again among the Jumanos, particularly the Patarabueyes, whom they had seen on the way north several months previously. "All the rancherias there gave us a grand reception," wrote Lúxán, "according to their custom and gave us quantities of ears of green corn, cooked and raw calabashes, and catfish. They put on great dances and other rejoicings as a sign of peace" (Hammond and Rey 1929:125–126). Espejo and his men remained there two days. On August 20, they marched down the Rio Grande and reached San Bernardo at La Junta a day later. There they crossed the Rio Grande and visited the pueblo of Santo Tomás on the north bank of the Conchos. Because of high water on the Conchos, they remained there three days, resting and trading. Finally, on August 26, Espejo and his companions began the last lap of their journey back to Santa Barbara. They had been gone 10 months; they had explored more than 350 miles of the Pecos River and, after abandoning the river, were the first to journey cross-country to the Rio Grande near its confluence with the Rio Conchos (Castañeda 1936:179–180).

The reports of the expedition aroused widespread interest and desire among Spanish officials to occupy the lands that were visited. They reported on the land, possible routes, the disposition of natives, the climate and natural resources, as well as its possible mineral wealth. But in the end, it would be the religious motivation, namely the desire to establish missions in the area, that would inspire the next legal expeditions northward to occupy the land along the Rio Grande drainage.

Meanwhile, on the faraway frontier of Saltillo, Nuevo León, another dramatic story unfolded that would add new information about what lay beyond La Junta de los Rios and the mouth of the Rio Grande. In 1590 the ambitious and daring Gaspar Castaño de Sosa, governor of Nuevo León, set out to settle New Mexico, albeit illegally, since he had not received official permission to do so (Shroeder and Matson 1974:9). Castaño de Sosa recruited colonists from Almaden near present-day Monclova, for they had been accustomed to crossing the Rio Grande, and appeared to have knowledge of the Pecos River. With promises of a great silver find in New Mexico, he persuaded nearly 200 men, women, and children to go to New

Mexico in search of rich mines. On July 27, 1590, Castaño de Sosa and a wagon train of settlers left Almaden (Shroeder and Matson 1974:29).

Following a northern course, they camped on the Nadadores River in the first week of August. Then they continued their journey until they reached the Rio Salinas, probably present Rio Aura in Coahuila, then crossed the Rio Sabinas and what appears to have been the Rio San Diego a few miles below present Villa Acuña. Finally, on September 9, 44 days out of Almaden, they reached the Rio Grande, some distance below the mouth of the Pecos River, probably near present Del Rio, Texas (Shroeder and Matson 1974:32).

They camped for three weeks, hopeful that a messenger with instructions from the viceroy would validate their expedition. But none was forthcoming. Meantime, several scouting expeditions were sent out to find a passable route for the *carretas* (wagons). In the end, Castaño de Sosa decided to follow the original plan to find the Pecos River and ascend it to New Mexico. Just below the Rio Laxa, or present Devils River, the expedition crossed the Rio Grande because that location offered them the best possible place to ford (Shroeder and Matson 1974:34). Once safely across, they camped, while scouts moved northwestward to find the best route to the Pecos River. Because of the rugged terrain and the dense thickets, the scouts were unable to find a passable route for the wagons. Finally on October 24, a suitable route was found and two days later they reached the Pecos, where they camped for two days (Shroeder and Matson 1974:49–50).

By the end of October, the expedition was on its way north following the Pecos River to their destination in New Mexico where they settled among the Rio Grande Pueblos for more than a year. The significance of the expedition, however, is the route they blazed to the Rio Grande and the Pecos River. New knowledge of the lower Rio Grande was furnished by the expedition, but, alas, Castaño de Sosa, its latest explorer, was arrested and found guilty of illegally trespassing on the King's land (Shroeder and Matson 1974:8–10).

Another illegal entry into New Mexico took place in 1594. The information regarding the expedition led by Francisco Leiva Bonilla and Antonio Gutierrez de Humaña is scant and somewhat fragmented (Hammond and Rey 1940:323–326). It is known that as a result of tracking rebel Indians in northeastern Nueva Vizcaya—present Chihuahua—that Leiva and Gutierrez decided to cross the Rio Grande. They proceeded northward in violation of their authority toward the pueblos of Puaray, Taos, and Pecos. From Pecos, they traveled to the Great Plains, where the expedition was wiped out by an Indian attack (Hammond and Rey 1940:323). Meanwhile, the governor of Nueva Vizcaya sent Pedro de Cazorla to overtake them, but by that time, Leiva and Gutierrez were beyond the reach of the law. Still, the two expeditions added to the growing frequency of Spanish entradas to the Rio Grande and beyond.

In 1598, the Spanish crown authorized Juan de Oñate to lead an expedition to establish a settlement in New Mexico. After many delays, it left the valley of San Bartolomé in the Bolson de Mapimí bound for San Geronimo on the Conchos River. Four hundred men, of whom 130 had their families, took up the march. The baggage

train consisted of 83 wagons and carts, as well as 7,000 head of stock. Although the route to La Junta de los Rios was well known, Oñate did not follow the tortuous course of the Conchos River, but cut across directly to the ford at present El Paso (Hammond and Rey 1953:16).

For months on end, the air of northern Chihuahua resounded with the sharp cracks made by the whips of drivers as they pushed the caravan farther toward the Rio Grande, which they reached at the end of April 1598. On the occasion of reaching the river, one settler wrote,

> On April 30, 1598, day of the Ascension of our Lord, at the Rio del Norte, Governor don Juan de Oñate took possession of all the kingdoms and provinces of New Mexico, in the name of King Felipe II, our lord, in the presence of Juan Perez de Donis, royal notary and secretary of the jurisdiction and expedition. There was a sermon, a great ecclesiastical and secular celebration, a great salute and rejoicing, and in the afternoon, a comedy. The royal standard was blessed and placed in charge of Francisco de Sosa Peñalosa, the royal ensign [Hammond and Rey 1953:314–315].

Although the expedition continued northward to New Mexico and certain fame, the significance of the moment was that the ford at El Paso had been established and became part of the Camino Real that was used as the point of entry beyond the Rio Grande. The Oñate expedition had followed the river to a point where the mountains came down to form "the pass of the river and the ford" (Hammond and Rey 1953:315). The crossing was named "Los Puertos", although later it would be known as El Paso del Norte. The warm spring sun of May 4 witnessed the activity as Oñate's army and 40 Indians, on that desolate place on the earth, moved their cargo, carts, and livestock across the river. It was near there that they met the first Indians from New Mexico (Hammond and Rey 1953:315).

Little by little, knowledge of the Rio Grande was gathered so that by 1598, Spanish frontiersmen had considerable information about its length. In 1601 Enrico Martínez, a cosmographer, drew a map of New Mexico (Hammond and Rey 1953:955) for Juan de Oñate showing the course of the river from Taos Pueblo in the north to its mouth near present Brownsville, Texas, in the south. In the interim, knowledge of the Rio Grande was hard earned, and the route to New Mexico provided part of the solution to the puzzle. The relatively heavily traveled Camino Real continued to usher in a pageantry of settlers, missionaries, politicians, and Indians from different parts of the Empire. Once a base of operations was established in New Mexico, Spanish frontiersmen explored in all directions—west to the Colorado River of Arizona; north to Taos; east to the Great Plains; and southeast toward the Nueces River. Perhaps the explorations southeast to the Nueces River were rooted in missionary efforts to convert the Jumanos. Certainly, the miraculous visitations of the Venerable Mother María de Agreda were influential in motivating missionaries such as Fray Juan de Salas in 1629 to visit the Jumanos and some Apachean groups in southwestern Texas—about 300 miles east-southeast of Isleta Pueblo in New Mexico (Forrestal and Lynch 1954:57n, 121).

In 1632, Father Salas made a second expedition to the Jumanos (Thomas 1982). This time he traveled along the Colorado River as far as the Concho River near present San Angelo, Texas. Moving southward, Salas and his companions reached the Rio de las Nueces. There, Fray Juan de Ortega stayed for six months ministering to the Jumanos.

The initial ventures southeast of New Mexico were intriguing to Spanish officials. Yet it would be another 15 years before a military expedition would be sent in that direction from New Mexico. In 1650, General Hernándo de la Concha ordered Captains Hernán Martín and Diego del Castillo to explore the "Nueces" River (the present Concho River in Texas) and the surrounding country with a group of soldiers and a number of Christian Indians (Thomas 1982:26–28). They set out from Santa Fe and, crossing through southwestern Texas, reached the Concho River. They had marched nearly 600 miles to visit the Jumanos (Thomas 1982:5). In the six months of their visit, they explored for pearls, which they claimed they found, though they were of poor quality, and they gathered much information about the land and its people.

Pursuant to their instructions, the two captains traveled down the present Concho towards "the east and inclining to the south through the lands of the Cuitoas, Escanjaques and Aijados" (Thomas 1982:27). Eventually, they came to the nation called Tejas and Friar Alonso de Posada described the lands they occupied:

> This nation of the Tejas runs from south to north, the distance that lies from the Rio del Norte to the Rio de las Nueces, which must be about one hundred leagues. In width it must be as many leagues from east to west. From the far limits of this nation to the coast and Gulf of Mexico there must be about fifty more leagues to the east, and the said fifty leagues are occupied by disorganized Indian tribes who neither sow nor reap, because according to the information of the country bordering the coast, this is filled with many sandy stretches and sand dunes. On its northern boundary, the country of the Tejas adjoins that of the Quiviras. . . . They plant and gather their crops of corn; their lands are fertile; they have abundant irrigation from the streams that flow from the north; and they utilize the wild cows called cibolas and the wild fruits found on the Nueces on which they border. The nations of the Tejas, from whose limits Captains Hernán Martín and Diego del Castillo returned by the same route to Santa Fe, is in 28 degrees of latitude [Thomas 1982:28].

Two more Spanish expeditions entered the Nueces River drainage—one in 1654 led by Diego Guadalajara from Santa Fe (Thomas 1982:29); and the other in 1683 under Juan Dominguez de Mendoza from El Paso (Thomas 1982:6). The significance of the last two expeditions is that they were military in character and resulted in knowledge of the Jumano country and of the Tejas Indians and their neighbors. The latter expedition resulted in a set of recommendations pointing to the development of the area from El Paso to the Bahía del Espíritu Santo on the Texas

coast. All of the information became useful to subsequent efforts of missionaries in the next century.

Although Spanish entradas from New Mexico had been preceded by earlier efforts to explore beyond La Junta de los Rios, the Spanish advances east of the confluence of the Rio Pecos and the Rio Grande had been undertaken for a longer period. Eagle Pass had long been the focus of Spanish attention, for it was one of the early gateways to the Texas frontier. West of there, Del Rio had served the interests of Castaño de Sosa, who, historically, represented part of the Spanish efforts in the development of that area. Both Del Rio and Eagle Pass would, in the long haul of Texas history, stand as natural monuments to the pioneering efforts of Hispanic frontiersmen to establish a foothold in Texas.

The earliest of these pioneers was Alvar Nuñez Cabeza de Vaca and his three companions who as castaways of the ill-fated 1528 Florida expedition of Panfilo de Narváez desperately made their escape from tribes who had held them in bondage in south Texas. By 1535, they had made their escape westward to the Balcones Escarpment, thence southwest to the Rio Grande in the vicinity of the Devils River near Del Rio. From there they reached the outskirts of the Chisos Mountains and, once in the area, they approached Santa Elena Canyon in the present Big Bend National Park. Proceeding eastward, they reached the Pecos River and were led by natives across 50 leagues "of desert, over rough mountains, which being dry were without game" (Hodge 1907:99). These were evidently the Davis Mountains. Not far from there, Cabeza de Vaca and his companions reached another point along the Rio Grande, possibly within sight of present Presidio, Texas. It is possible that they were led by natives up the Rio Grande to present El Paso and north of there, probably as far north as present Las Cruces. Soon after, they left the Rio Grande and crossed southwestward toward Sonora, where they were ultimately rescued.

By the 1600s much was known about the Rio Grande. However, renewed interest in the river east of Eagle Pass resulted from news that the Dutch had entered the Gulf Coast and threatened the Spanish claim to Texas. In 1638, the governor of Nuevo León received confusing rumors from Indians that a landing had been made on the northeastern Texas coast by men different from Spaniards "with blond beards and hair, who wore red socks, steel plate corselets and hats, and who carried longer arquebuses" than those of the Spaniards. Fearing that the Dutch had made an entry along the Rio de las Palmas, or Rio Grande, the governor of Nuevo León decided to notify the viceroy of an expedition he had mounted against the intruders. Led by the Sargento Mayor Jacinto García de Sepúlveda, a detachment of 40 men were sent to investigate the rumors (García 1909:151–155). On August 16, 1638, García de Sepúlveda left Cerralvo and 4 days later reached the Rio Grande far to the south of Mier and proceeded down-river possibly as far as present Brownsville. The rumor was false, for no signs of an intrusion could be found. Still, Spanish officials kept a wary eye on all points of the Rio Grande. In 1663, Alonso de León, el viejo, explored the Rio Grande about its mouth to reconfirm past knowledge concerning the mouth of the river still called Rio de las Palmas (García 1909:203–206).

But in the interior of the Rio Grande Valley a real threat existed. After 1600, Indians from the north and beyond the Rio Grande increased their hostilities against Spanish outposts at Saltillo, Monterrey, and Cerralvo and carried out depredations as far west as Chihuahua and Casas Grandes. Outraged, Spanish authorities carried out punitive expeditions against the warring tribes (García 1909:221–223). In October 1663, after decades of hostile Indian activity, a company of more than 100 men from Saltillo and Monterrey under the command of Juan de la Garza departed for the Rio Grande. Traveling northward from Monterrey, they encountered the warring tribes of the Cacaxtles in the vicinity of present Eagle Pass (García 1909:221–223; Bolton 1912). The Cacaxtles were prepared for the Spaniards, and a hard fight ensued. Apparently the expedition was a success for the Spanish, for the raiding abated for a short while. De la Garza and his men had crossed the Rio Grande in pursuit of their enemy.

Spanish activity continued in the area of Eagle Pass the following year when the Cacaxtles were again attacked at nearly the same place as the year before (Castañeda 1936:9). Again in 1665, another expedition, this time led by Fernando de Azcue, the alcalde mayor of Saltillo, attacked the Cacaxtles after crossing the Rio Grande near Eagle Pass (García 1909:228–229). The expedition was large, more than 400 men, including 300 Bobole Indians, and was led by Azcue, Juan Cavazos, and Ambrosio Cepeda.

Although the expeditions of de la Garza and Azcue were punitive, they added new knowledge about the Rio Grande and Eagle Pass. They are also significant because they established another element in the written history of the area. The expeditions demonstrate the intense Spanish persistence in the pacification of that part of the river.

Slowly, the frontiers of Chihuahua, Coahuila, Nuevo León, and Tamaulipas were moving towards the Rio Grande. It was only a question of time before Franciscan missionaries would advance the mission frontier beyond the river. Already the Franciscans were eyeing the "Great Kingdom of Texas." Indeed, in 1676, when the Bishop of Guadalajara, Manuel Fernandez de Santa Cruz, visited Coahuila, he was ready to promote the evangelization of the Tejas, north of the Rio Grande (Bolton 1912:26). Already by 1675, the expedition of Fernando del Bosque had assisted missionaries beyond the Rio Grande. Since 1673, Fray Juan Larios and his companions had spent three years working among the natives in the area between Eagle Pass and Del Rio and had gone as far north as the Nueces River near present Uvalde (Bolton 1908:284).

Meanwhile, a new era in Texas history was dawning. The Spanish push beyond the Rio Grande had been preceded by the pioneering efforts of those who had daringly crossed the Rio Grande between Del Rio and Eagle Pass. In the 1680s, Spanish fears of a foreign invasion were realized when shocking news reached them of the establishment of a French fort along the Texas coast. Led by Rene Robert Cavalier, Sieur de La Salle, the French had indeed landed on the Texas coast at Matagorda Bay in 1685 (Bannon 1963:95; see also Weddle, this volume).

In the course of establishing his fort, La Salle undertook two expeditions into the interior of Texas, one of which reached the Rio Grande. The La Salle expedition to the Rio Grande was undertaken in the winter of 1685 and spring of 1686 (Castañeda 1936:292–293). La Salle claimed that he had reached a large river and that the only reason he had not invaded Nueva Vizcaya was because of the poor condition of his men and his lack of confidence in his Indian allies (Castañeda 1936:292–293). On that expedition, La Salle reached the Rio Grande somewhere between Del Rio and Eagle Pass.

Fearing a French invasion, the Spanish spent considerable time, resources, and men searching for La Salle's fort (Castañeda 1936:301–340). They later found it, destroyed by Indians, and with a few survivors living among various tribes in East Texas. Between the missionary drive across the Rio Grande and the supposed French invasion, East Texas soon became a focal point of Spanish activity.

One of the French manhunters was Alonso de León. After two previous fruitless attempts to find the French fort, he was pulled back to help establish a Spanish villa and presidio in Coahuila. Simultaneously, he was named governor of the province (Portillo 1984:145–146). While putting down a revolt of the Tobosos in Coahuila he learned of a Frenchman who had become an Indian chief (Portillo 1984:175). León then organized an expedition to find the French renegade. Relying on information from Indians regarding the location of the Frenchman, León departed from present Monclova, crossed the Rio Grande in the vicinity of Eagle Pass, and proceeded to a point near Brackettville, Texas. On May 18, 1688, after several days' march from the Rio Grande, León found the Frenchman, Jean Gery, and took him back to Coahuila (Portillo 1984:178). There, he interrogated him, learning that La Salle's fort had been destroyed. Gery was willing to take him there and show him the French outpost. Finally, León would see the destroyed French settlement in Texas, for in 1689, Gery led him to the place. The French menace led by La Salle was over.

Two years later, in 1691, Domingo Terán de los Rios was named governor of the Provincia de los Tejas, making him the first governor of Texas (Bancroft 1884:402). He was instructed to set out as soon as practicable and establish eight missions among the Tejas and neighboring tribes. Although he was to find practical routes to East Texas, he was to understand that his chief role was to help the missionaries accomplish their goals under Father Damian Massanet. Therefore, on May 16, 1691, the expedition set out from Monclova northward toward the Rio Grande, which was crossed at Eagle Pass, and continued to the Nueces and on to East Texas. History was made on that entrada, for it was the founding expedition of Texas proper (Bancroft 1884:402). And indeed, it was the last major seventeenth century expedition to pass through Eagle Pass. The road for the establishment of San Antonio had been blazed for many decades before Governor Martín Alarcon formally established the villa in 1716, and the early explorers who had traversed the Rio Grande from El Paso del Norte and Eagle Pass had played an extraordinary role in its history.

Spanish advances along the Rio Grande, forming the northern boundaries of present Chihuahua, Coahuila, Nuevo León, and Tamaulipas, resulted from early exploration of that region, as well as later efforts of Franciscan missionaries from Queretaro who advocated maintaining that area solely as a mission field, especially after the expeditions of Fernando Bosque and Alonso de León in the 1670s and 1680s. The first missionary attempt of the East Texas frontier by Father Massanet ended in failure with its abandonment in 1693. Finally, by 1698, Massanet's proposal to establish a base of operations for his missionary activities by founding a Spanish settlement on the lower Rio Grande to support his efforts was realized, for that year a mission—Nuestra Señora de los Dolores at Punta de Lampazos—was established on the extreme northern end of Nuevo León. In 1699 another mission, San Juan Bautista del Rio Grande, was founded. After two attempts to found San Juan Bautista, the mission was finally established at Eagle Pass. There a fort, the Presidio of the Rio Grande, was established in 1700, then the easternmost interior fortification on Spain's northern frontier in North America. Later, two other military posts were established in the same area, one at San Bernabe, the other at San Francisco Solano. Northeast of there, Franciscan missionaries worked to establish a permanent foothold on the Texas frontier at San Antonio. The Rio Grande between El Paso and Eagle Pass in the sixteenth and seventeenth centuries was the anvil upon which future Spanish colonial development would be hammered out for the frontier areas of Chihuahua, Coahuila, Nuevo León, Tamaulipas, and Texas.

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Artifacts of the de Soto Expedition: The Evidence from Texas

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ABSTRACT

Several artifacts found over the past several decades are attributed to the de Soto expedition of 1542 as it wandered through Texas, but it is unlikely that any of these, except for a spur from near Corsicana, Texas, were left by the expedition. The Corsicana spur is of the style worn by the conquistadors, but this type of spur was also used by later Spaniards, particularly along the northern borders of New Spain (Mexico). Other kinds of evidence, such as iron objects from arms and armor and bioarcheological data on European disease-induced epidemics—similar to what is found at European archeological sites of the sixteenth century in the Southeast—are more likely candidates for Texas and should be sought from archeological sites.

INTRODUCTION

Over the past 50 years, several artifacts from North and East Texas have been attributed to the 1542 de Soto expedition's travel through Texas in search of New Spain—today's Mexico. Some of these artifacts have been reported in issues of the Dallas Archeological Society's *Record* (Crook 1988; Hanna 1940; Harris 1951), but others have not been described in publications and remain in private collections. In this paper the author examines these objects to the extent possible—some are no longer available for observation—and attempts to determine their authenticity as artifacts of the de Soto expedition.

The Columbus Quincentenary is a propitious time to examine these artifacts, for this year's celebration of Columbus's discovery of the New World in 1492 has stimulated scholars throughout the world to reexamine narratives and other historical documentation relating to early European exploration of the Americas. New information has come to light on many of these explorations as a result of this revived interest (cf. Milanich and Milbrath 1989; Thomas 1990).

Especially important are the major advancements that have been made in identifying the archeological residue of the expedition. Only 20 years ago, our knowledge of the archeological record from the early sixteenth century Spanish occupation was very limited (Mitchem 1989:99), but it has been established that the presence of several specific artifact types can verify the passage of the de Soto expedition. This new information comes in large part from studies of artifacts found at archeological sites in the Southeast and the Caribbean that show evidence of European contact (Smith 1987; Deagan 1987). The Martin site, reported to be the

1539 to 1540 winter encampment of the de Soto expedition (Ewen 1989, 1990), is of particular significance. Recent excavations at the site have identified several artifacts left by de Soto's army, including coins, Spanish ceramics, glass beads, metal objects, and pieces of chain mail armor.

The Route

For centuries scholars have debated the route of the de Soto expedition through the United States; the most extensive and thorough research was undertaken by the De Soto Commission in 1935. Under the chairmanship of John R. Swanton, the Commission examined a wide range of information including archives in the United States and Spain, early maps, possible artifacts from the expedition, and historical narratives. The result was a monumental volume by Swanton (1939) entitled *The Final Report of the United States De Soto Commission.*

Since the De Soto Commission study, other researchers have further examined de Soto's route, adding significant new detail and accuracy from archeological and historical information to the Commission's findings (e.g., Hudson et al. 1984, 1989, 1990; Brain et al. 1974; Schambach 1989; Morse and Morse 1983; Kenmotsu et al. 1990; Bruseth and Kenmotsu 1991). Undoubtedly, the delineation of the expedition's route is far more accurate today than it was in 1939 when Swanton's report appeared.

This is not to say that all aspects of the route have been worked out with equal accuracy and detail. Disagreement on major segments remains, particularly for the part of the army's travel west of the Mississippi River. This is in part a result of the untimely termination of the most valuable narrative by de Soto's secretary, Rodrigo Ranjel, whose day-by-day account ends abruptly while the expedition is camped at the Mississippi River (Bourne 1904). Without this important source, the reconstruction of the route through southern Arkansas, Texas, and Louisiana is all the more problematical. The discontinuation of the narrative also confirms the paramount importance of archeology in verifying the expedition's western route.

Recent analysis by Hudson, DePratter, and Smith (1989), makes it clear that the expedition landed in Florida at Tampa Bay and traveled through the northern part of the state until winter (Figure 1). They spent the winter of 1539 to 1540 in present day Tallahassee, and for the next two and a half years they wandered through the Southeastern United States. During this time, they traversed today's states of Georgia, South Carolina, North Carolina, Tennessee, Alabama, Mississippi, and Arkansas.

In the summer of 1542, they entered Texas. De Soto had died of illness in Arkansas, and command of the expedition had been assumed by Luis de Moscoso. Several routes have been proposed for the expedition in Texas; the most recent is the one offered by Bruseth and Kenmotsu (1991). According to this analysis, which combines archeological, linguistic, and geographic data with historical narratives, the expedition's most likely route was south from the Red River along Trammell's Trace towards Nacogdoches (Figure 2). From here, they followed the Old San Antonio Road to the Guadalupe River, at which point they abandoned hope of

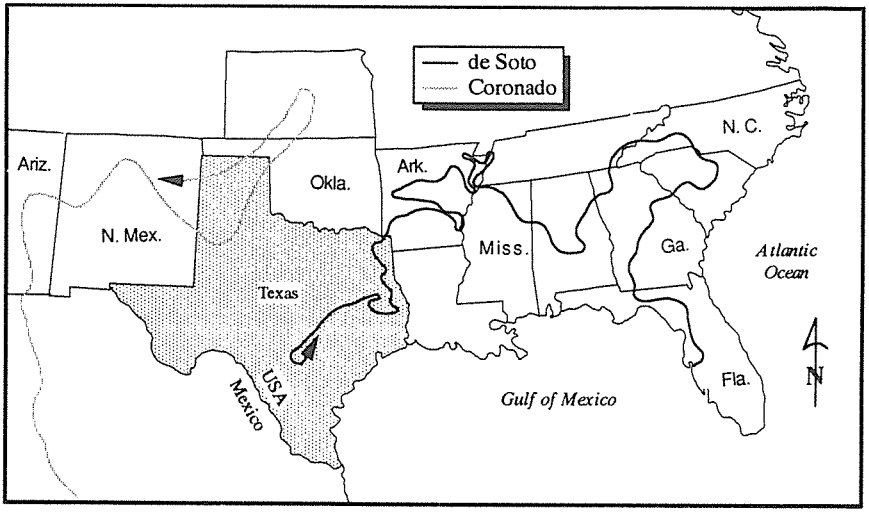

Figure 1. Map showing the routes of de Soto (based on Hudson, DePratter, and Smith 1989 and Bruseth and Kenmotsu 1991 for the part through Texas) and Coronado (based on National Park Service 1991).

reaching New Spain by an overland route. They then retraced their steps to the Mississippi River, built several large barges, and sailed back to New Spain.

Arms and Supplies

Understanding the types of materials carried by the expedition is critical to the assessment of possible de Soto artifacts found in Texas. The narratives provide the main source of information, although they provide surprisingly few notations about the army's supplies. A detailed account by an anonymous member of the expedition, referred to as a *Gentleman of Elvas,* was translated from the original Portuguese by Buckingham Smith in 1866 (Bourne 1904), and a brief narrative by Luys Hernandez de Biedma, also a member of the expedition, is useful but omits parts of the expedition (Bourne 1904). A major treatise on the expedition produced by Garcilaso de la Vega, known as *the Inca* (Varner and Varner 1951), is a romanticized version of the expedition that was written years later. It is based on two now-lost written accounts by members of the army, and on stories told to the Inca by a member of the expedition. A careful comparison of the Inca and Elvas narratives shows that Garcilaso also relied upon the Elvas narrative. Other roughly contemporary historical documents, such as *Obregón's History of 16th Century Exploration in Western America* (Hammond and Rey 1928), provide additional information.

There are contradictions among the accounts, such as discrepancies in the number of men who landed; the Ranjel account notes that 570 men landed, Elvas cites 600 men, and Biedma mentions 620 men (Swanton 1939:87). The most discrepant source is by Garcilaso, who suggests that more than a thousand men

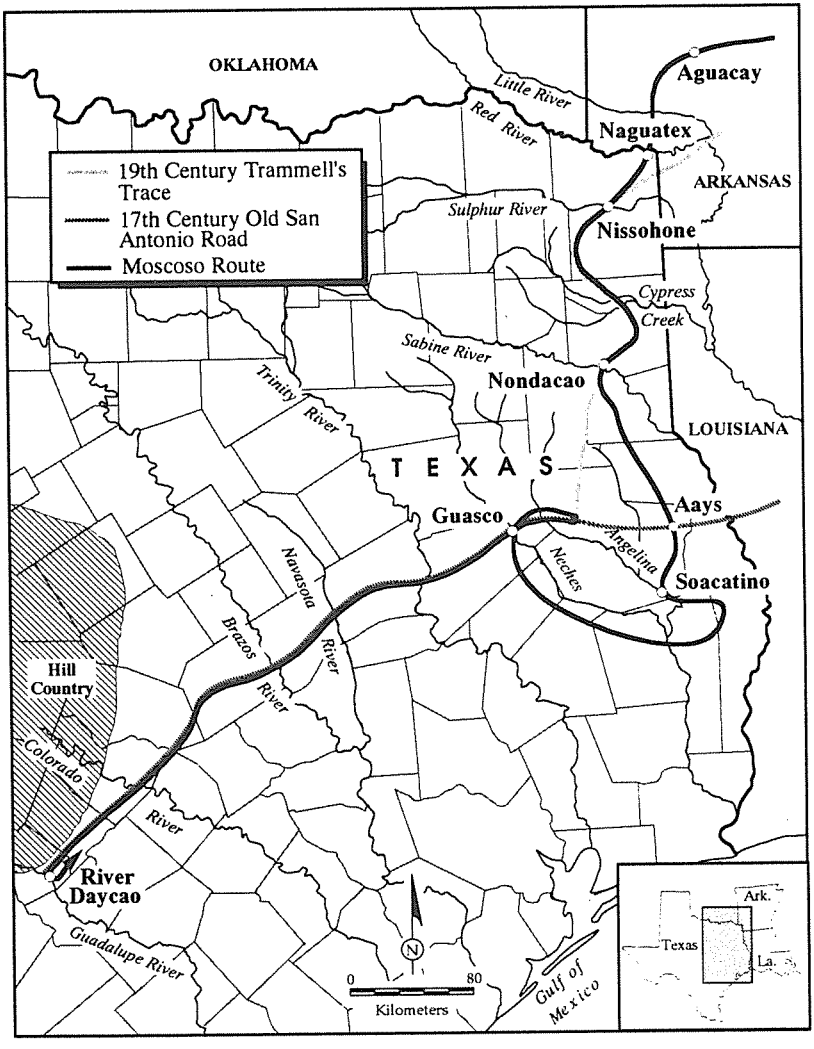

Figure 2. Map showing the route of de Soto as proposed by Bruseth and Kenmotsu 1991.

landed, but his estimates are generally not considered accurate (Swanton 1939:87).

The expedition comprised individuals from several different vocations. Aside from those with military backgrounds, there were two shoemakers, a sword cutler, several tailors, a carpenter, and clergymen (Swanton 1939:81). Between 223 and 243 horses, a large number of hogs, and dogs were also brought ashore to accompany the army (Swanton 1939:89).

The narratives suggest that the men had traditional European arms and armor. The *rodeleros*, or swordsmen on foot, would have carried steel swords and shields

known as targets (Peterson 1956:115), and de Soto had a private guard of *halberdiers* (Swanton 1939:86). A halberd was a weapon developed in thirteenth century Switzerland consisting of a staff-mounted iron head with a lance for thrusting, an axe for chopping, and a hook for dragging mounted soldiers from their horses (Johnson 1988:126). The narratives also mention lances used by the army. These probably were pikes with polearms—flattened and pointed iron heads on long wooden shafts. We know from the accounts—particularly the Elvas narrative—that the expedition also had *ballasteros*, men with crossbows, and *arcabuceros*, or individuals using guns. The guns were probably wheellock or matchlock arquebuses (Peterson 1956:12–13).

Many of the soldiers had armor. Chain mail is mentioned in the accounts, and full plate armor probably was also worn by members of the expedition (Peterson 1956:116). Another type of armor consisted of heavy quilted cloth. The horses had armor as well, which could have been chain mail, plate, or the nonmetallic quilted cotton cloth. Horses were one of the Spaniards' major advantages over the Indians (Swanton 1939:89), and they would have been carefully protected and guarded.

In addition to material related to fighting and self-protection, the expedition brought items to trade to the Indians. Although the narratives do not provide much detail about these materials, glass beads, mirrors, iron knives, and clothing were traded or given as presents (Swanton 1939:55). Quite interestingly, at the province of Cofitachequi in present day South Carolina, the de Soto expedition encountered Indians with glass beads, rosaries with crosses, and iron axes—all of European origin (Bourne 1904:100). Even at this early date, trade materials from previous Spanish intrusions were making their way to interior Indian settlements.

Artifacts from the Southeastern United States

Detailed analysis of early European materials from the Americas during the past three decades has identified several artifacts that are known to date to the sixteenth century (Brain 1985a, 1985b; Smith 1987; Smith and Good 1982; Deagan 1987; Ewen 1989; Mitchem 1989, 1990). Excavations at the Martin site, identified as de Soto's winter camp at the Apalachee town of Anhaica, has provided one of the best inventories of items that might be expected in the archeological record from the expedition. The site, in downtown Tallahassee, was discovered in 1987 by B. Calvin Jones while he was looking for a seventeenth century Spanish mission (Ewen 1989, 1990).

A detailed analysis of artifacts from the site has yet to be published, but the assemblage is known to include some distinctive items (Ewen 1990:88). The Spanish ceramics include an early style of Spanish olive jar, types of majolica, and an unnamed variety of lead-glazed earthenware with a soft, red, sandy paste. Several glass beads were found, including gooseberry, blown glass, faceted amber, Nueva Cadiz, and faceted Chevron types. Metal items included wrought iron nails and tacks, a crossbow quarrel (tip), iron links of chain mail, and five coins. Two of the coins have been dated between 1505 and 1517; the remaining three can be temporally placed only in the sixteenth century or earlier (Ewen 1990:89).

Similar artifacts have been found elsewhere in the southeastern United States and, although they do not necessarily indicate direct contact with the army, do provide evidence of the passage of the expedition (Brain 1985a:99). In particular, glass beads have been determined to be one of the best indicators of early Spanish exploration (Ewen 1989:114). Two types of beads are particularly important and have been found at several sites. The first is called Nueva Cadiz, named for an archeological site with remains of a Spanish port town located off the coast of Venezuela (Smith and Good 1982:10). The bead is usually multilayered and multicolored, with the exterior color usually mostly blue or turquoise over interior clear or white glass (Deagan 1987:162–163) (Figure 3). The Nueva Cadiz type has been dated to the first half of the sixteenth century (Deagan 1987:163; Smith and Good 1982:11; Mitchem 1989). These beads have been found at several sites from Florida westward to Oklahoma (Figure 4). The Oklahoma example is unique in that it is one of the only two Nueva Cadiz bead found west of the Mississippi River, and it is a logical candidate for association with the Coronado expedition (Sudbury 1984:33). It is puzzling that more examples of these beads have not been found, particularly in the Southwest. The beads are known from circum-Caribbean, South American, and Mexican contexts where early Spanish exploration and colonization took place. It is likely that some such specimens have been overlooked in Southwestern collections. This certainly could be a productive area for future research in the identification of Coronado's route, particularly through Texas, Oklahoma, and Kansas where the route is less certain.

An equally distinctive bead that was traded by early Spanish explorers, including de Soto, was the Chevron type—a multilayered bead with as many as seven layers of red, white, blue, and sometimes green, glass (Deagan 1987:164–165). The exteriors are usually blue, and the ends on many have been faceted to expose the underlying colors (Figure 3). When viewed from the end, the facets cutting through the glass layers form a star. Chevron beads date from the sixteenth century through the beginning of the seventeenth century (Deagan 1987:165), so they are not indicators only of de Soto and contemporary explorations, but of later intrusions as well.

Chevron beads are widely distributed in the southern United States (Figure 4). They have been found at the Parkin site in Arkansas (Klinger 1977; P. Morse 1981:71) and most likely reflect the movement of de Soto shortly after he crossed the Mississippi into Arkansas. These beads have also been found at Hawikuh, New Mexico (Smith and Good 1982:51). A star chevron bead, as well as other unidentified types, has been noted from central Kansas, and these beads probably mark the presence of Coronado in the Southwest (Wedel 1959:500; Sudbury 1984).

Metal artifacts of types identified with de Soto have been found throughout much of the Southeastern United States. Most are iron objects whose original forms can be identified, but without doubt many more iron artifacts have rusted beyond identification or were sufficiently modified by Native Americans that they can no longer be recognized as Spanish in origin. Wrought iron chisels—thought to be items given out by the de Soto expedition—have been found at some early European

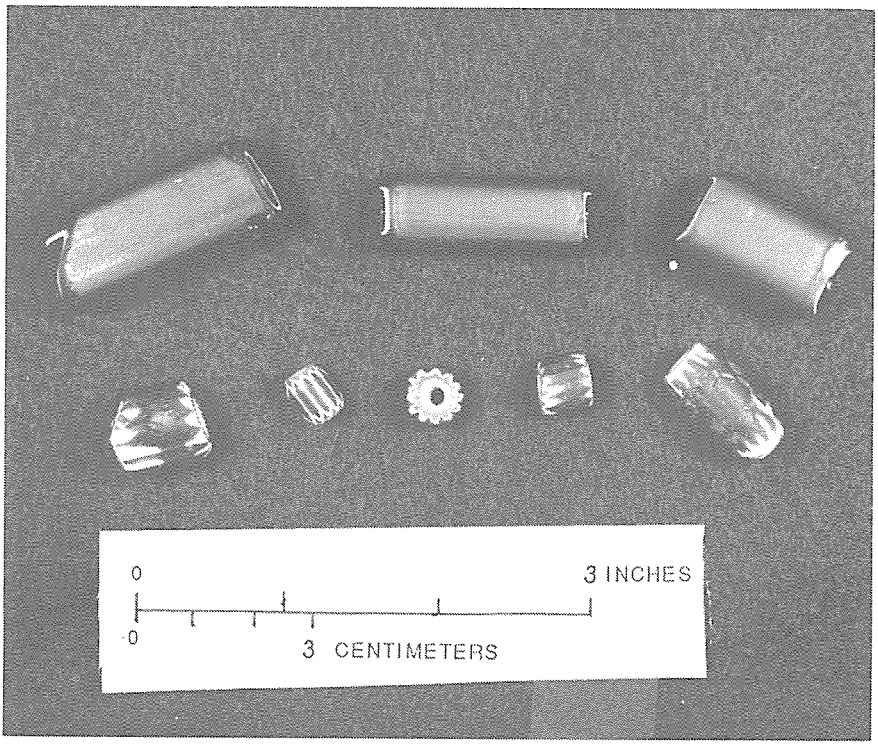

Figure 3. Beads that are indicators of the presence of early Spanish explorers. Top row, Nueva Cadiz glass beads; bottom row, faceted Chevron beads from the eighteenth and nineteenth centuries; beads from the sixteenth century typically would have seven layers of glass.

contact sites; other metal artifacts of interest are a piece of plate armor from a burial in the Tatham Mound in Florida (Mitchem 1990:56) and a sixteenth century two-edged hilt sword from the King site in Georgia (Hally 1988:56).

Halberds have been found from several sites in the central southeastern United States (Figure 5), all but one from Arkansas or Mississippi. The significance of this restricted distribution is not known but may simply reflect better reporting from Arkansas and Mississippi. As noted earlier, de Soto had a guard of halberdiers (Swanton 1939:86) and mention is made in the narratives of the loss of halberds on at least two occasions (Dickinson 1987); other losses probably went unreported.

Chain mail, usually consisting of rusted iron links and, less often, of brass links, has been found at Southeastern sites. Overall, though, the occurrence of chain mail is rare. Chain mail armor apparently lost popularity during subsequent centuries and was increasingly replaced by iron plate armor (Johnson 1988; Peterson 1956).

Another explanation for the dearth of chain mail found in archeological contexts may be that much of it was discarded along the way. At the province of

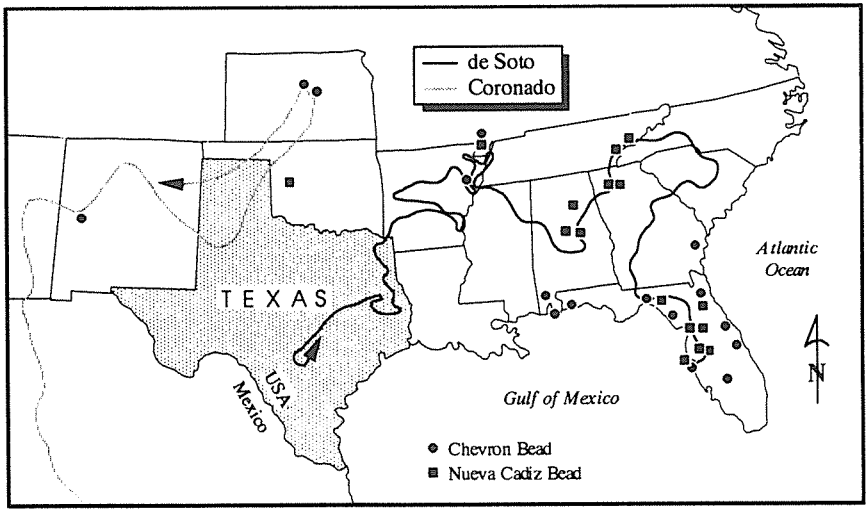

Figure 4. Map showing locations of Nueva Cadiz and Chevron beads in the southern United States (based on Smith and Good 1982, and Sudbury 1984).

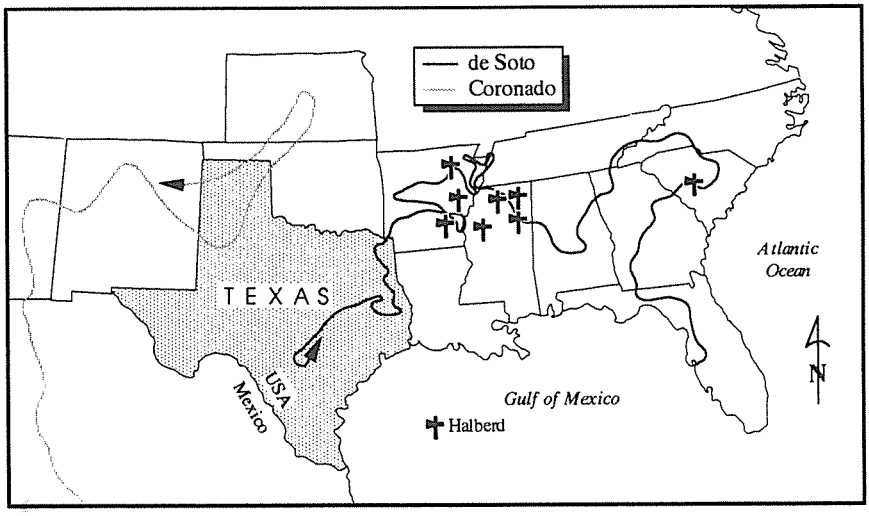

Figure 5. Map showing locations of Halberds in the southern United States (based on Dickinson 1987).

Apalachee, Garcilaso describes a test the Spaniard tried on their coats of mail (Varner and Varner 1951:235–236). They had an Indian shoot an arrow through one of their best mail coats placed over a basket. To their surprise, the arrow completely penetrated the mail. They tried the experiment again, this time with two coats of mail, and the arrow again penetrated the armor. The Spaniards then began using quilted cloth "three or four fingers thick," which was found to offer greater

protection from native arrows. According to Garcilaso, the coats of mail were then discarded (Varner and Varner 1951:236), although we know from the narratives that not all mail was abandoned, since reference is made to its use later in the expedition (Varner and Varner 1951:523).

Clarksdale bells have been found at several southeastern sites (Figure 6) from Florida to Arkansas. These distinctive brass bells derive their name from the town in Mississippi where a large number have been recovered (Brain 1985a:105). The bells, made from sheet brass, have been found in sixteenth century Spanish contact sites, not only in the Southeast, but also in the Caribbean (Mitchem 1989). A Clarksdale bell found at the Carden Bottoms site in western Arkansas (Brain 1985a:Figure 5-3) is the authentic de Soto artifact found to date closest to Texas.

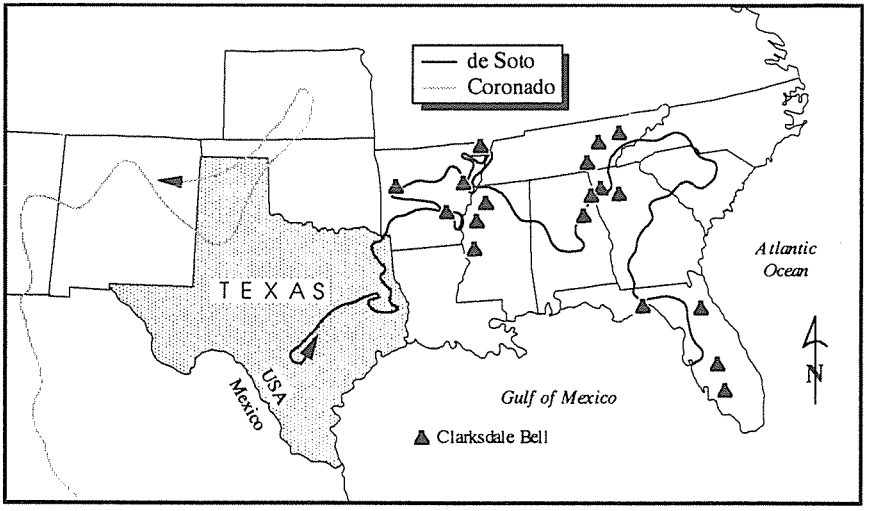

Figure 6. Map showing the locations of Clarksdale bells in the southern United States (adapted from Mitchem and McEwan 1988).

ARTIFACTS FROM TEXAS

Over a period of 50 years, several artifacts of supposed de Soto origin have been reported from Texas (Figure 7). An effort was made to locate these items and to reexamine them in the light of what we know today about materials used by the expedition. Some artifacts could be located, but others have disappeared and could be seen only in photographs or through written descriptions.

To assist in this examination, several authorities in the identification of early European artifacts were consulted. The individuals who have graciously agreed to provide their expertise for this paper are: Dr. Helmut Nickel, former Curator of the Department of Arms and Armor at the Metropolitan Museum of Art in New York City; Dr. Jeffrey Mitchem, Station Archeologist at the Parkin Archeological State Park in Arkansas; and Mr. Jay C. Blaine, an avocational archeologist considered the

leading Texas authority on early French and Spanish artifacts. The opinions of the authorities are not always in agreement. Consequently, their positions are presented as accurately as possible, and the author's conclusions follow the discussion of each artifact.

Chain Mail Gauntlet

In the late 1950s, Wilson W. Crook, Jr., a member of the Dallas Archeological Society, was contacted by a young man who had found a chain mail gauntlet, or glove, at the Elm Fork of the Trinity River near Dallas (Crook 1988) (Figure 8). Crook visited the site where the glove was found and was told by the young man that it had come from a gully about a meter (3 feet) deep in the alluvium of the Elm Fork (Wilson W. Crook. Jr., 1990 personal communication). The author has examined the gauntlet, which is part of the R. K. Harris Collection at the Smithsonian Institution, and took several photographs (Figure 8).

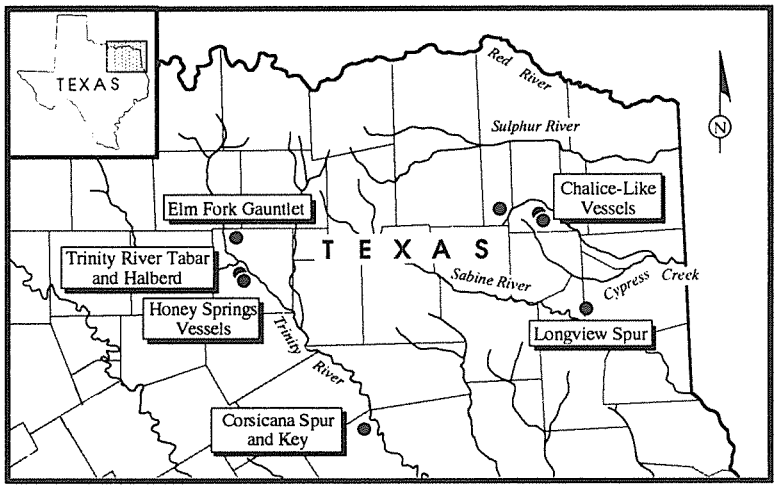

Figure 7. Map showing the locations of possible early Spanish artifacts in Texas.

In an article on this and other possible de Soto artifacts from the Dallas area, Crook (1988) stated that the gauntlet was sent for identification to the Department of Arms and Armor at New York's Metropolitan Museum of Art. The result was that "it was identified as a cheap 16th century gauntlet commonly used by poor soldiers of the Mediterranean Latin Nations, originally on a leather gauntlet beneath the light chain mail" (Crook 1988:109). A careful search for this letter was made by the author in records of the Harris Collection at the Smithsonian Institution, but the correspondence apparently has been lost.

The glove, which is only partially intact, covering only the thumb and two adjoining fingers, is made of small metal rings, about 0.5 cm in diameter, butted

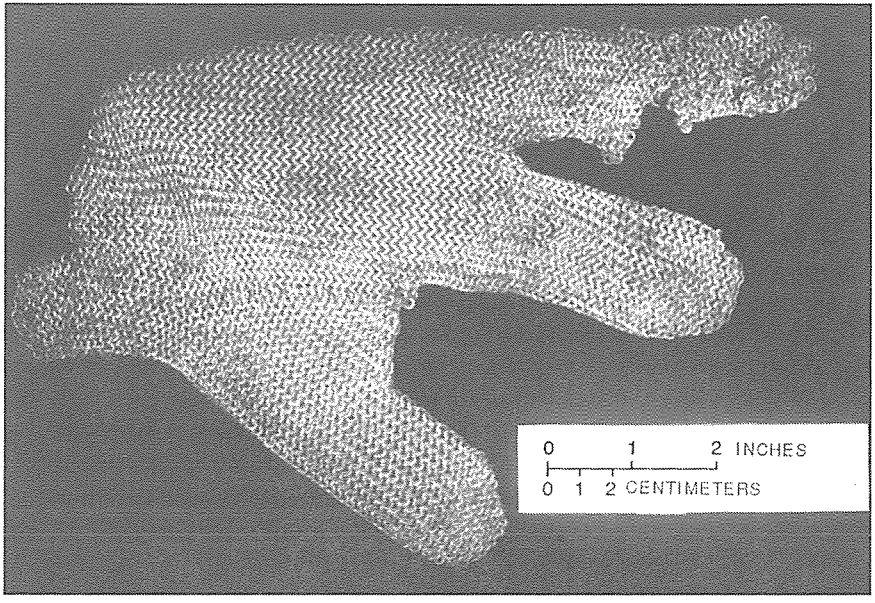

Figure 8. Chain mail gauntlet from alluvium in the Elm Fork of the Trinity River near Dallas.

together; the part of the glove that covered the last two fingers is missing. The gauntlet is made of a nonferrous metal, and despite some apparent oil or grease staining, shows no evidence of rust or tarnish.

Dr. Nickel was asked to view slides of the gauntlet, and provided the following comments:

> The mail gauntlet fragment, as far as I can see from your close-up slide, is made up from butted rings, and not from rings riveted closed, as would have been the unshakable rule in the 16th century. I think that this fragment was part of a fencing gauntlet for the left hand. In a pinch, it would enable a fencer to grab his opponent's blade and immobilize it, while he could thrust home. This was not exactly cricket, of course, and therefore the mail would be covered by innocent-looking leather. Again, the date for this mail could be anytime after 1600 [Nickel 1991].

Dr. Mitchem observed the same slides of the gauntlet, and noted that he has

> seen quite a bit of mail from sixteenth-century contexts, including the Martin site (the supposed de Soto campsite) in Tallahassee, and a number of Caribbean sites. I've also examined examples in museums and collections in Spain. Real mail made for bodily protection is made of iron rings, not silver or other metals. Its original purpose was to diffuse and deflect

> blows by slashing weapons, so a tough metal was necessary. I also note by careful examination of the close-up slide that the individual rings are made by bending wire until the ends abut. Utilitarian mail is always constructed of rings which are made by riveting the overlapping ends to make them very strong [Mitchem 1991].

The same slides were sent to Blaine who observed that

> the mail gauntlet of Harris may well be the third of the same kind from Texas. Crook (1988) writes of one "quite like ours" found near Vernon, Texas. Another, also closely matching the Dallas specimen in several details, was found on the North rim of Blanco Canyon some 8.5 miles [13 km] S.E. of Floydada. Apparently there may be significant occurrence of similar mail gauntlets in Texas. The Dallas gauntlet's rings are in a standard pattern but apparently not fastened together at their individual ends. Current data indicates this cheaper kind of construction saw very little use in Europe until quite late times. Such mail was much more common in the East. In the U.S., archeological examples probably dating to the latter 16th century do usually have overlapping and riveted ring ends as original construction [Blaine 1991].

Blaine brings up the existence of other gauntlets from Texas sites. Through the help of Ms. Nancy Marble, Chairman of the Floyd County Historical Commission, who was instrumental in the acquisition of the Floydada gauntlet by the museum, the author obtained information on the gauntlet from the Floydada area that bears not only on the Floydada glove, but also on the Dallas County specimen. As part of this effort, Ms. Marble sent copies of newspaper clippings and correspondence relating to the glove, and copies of this material were sent to the Texas Historical Commission. Two of the letters are of particular interest; the first is a letter dated February 17, 1966 by Dr. W. W. Newcomb, then Director of the Texas Memorial Museum. Newcomb, who had been asked to examine the glove, responded,

> This acknowledges receipt of the chain mail gauntlet. It is "International mail," that is the pattern of five interlocking links, the ends of each round link being pressed together rather than being riveted as was the case of earlier European mail. This type of mail was cheaper and was used mostly in Spain, France, and Italy. It apparently dates from the middle of the 16th century into the 17th. I'm not satisfied about the metal used; it appears to be zinc coated bronze, but this is a wild guess.

Blaine (1991) is correct in observing the similarities between the Dallas County and Floyd County gloves. From Newcomb's description and a newspaper photo supplied by Ms. Marble, it can be seen that the two are quite similar, down to the pattern of the tear and the missing fingers. Attempts to locate the gauntlet from the Vernon area failed because no local informant who knew of its existence could be

found. The author suspects that the glove Crook (1988) refers to as the Vernon gauntlet may in fact be the Floyd County gauntlet.

A second letter on the Floyd County gauntlet written by Dr. Newcomb on March 14, 1966 quotes from correspondence by R. K. Harris, of Dallas. Harris had been asked to look at the gauntlet, and he responded to Newcomb as follows:

> I do have a chain mail gauntlet from the Dallas area. It was found in the Trinity River bottoms near Dallas [Crook (personal communication, 1990) has indicated that the glove was instead found along the Elm Fork, a tributary of the Trinity River] after a large overflow of the river. It is the same material and construction as the one sent to you. We sent ours to Mexico City and they told us it was a chain mail gauntlet and probably dated from the 16th or 17th century. Ours even has only three fingers remaining like yours.... Three or four iron rings were found with ours but the young man that found them said [they] were so rusty that they fell to pieces.

This letter is also missing from the Harris Collection at the Smithsonian Institution, and we cannot determine who in Mexico City made the identification mentioned by Harris of the gauntlet from Dallas County.

What can be said about the Dallas County gauntlet today? As Nickel points out, it does not fit the type of mail commonly used in the sixteenth century, and, as Mitchem also observes, it is not similar to archeological specimens found in the Southeast and elsewhere. However, it is worth noting that Obregón remarked that the Coronado muster roll included swordsmen who carried armored gauntlets (Hammond and Rey 1928:78–108). That the Dallas County gauntlet could have served such a function—similar to Nickel's suggestion—is a possibility, but it appears that if the glove was made in the sixteenth century, it would most likely be made of iron and have riveted links. The evidence seems to rule out the gauntlet as a de Soto artifact.

Trinity River Tabar

An East Indian tabar found along the Trinity River during the early 1950s is mentioned in two publications. The first is the September-October 1951 issue of the Dallas Archeological Society's *Record,* in which R. K. Harris reports on the discovery of an "axe or mace looking implement." According to the article, two boys playing along the banks of the Trinity River near Dallas discovered a rusty piece of iron protruding from the bank, and, after they unearthed it and removed the rust, they brought the piece to Harris, who was the local authority on such items at the time, for identification. Harris photographed and drew the object (Figure 9) and sent a photograph to the Metropolitan Museum of Art for identification.

The letter from the Metropolitan Museum on the identification of the tabar was located by the author during a search of the Harris Collection at the Smithsonian Institution. Dr. Stephen V. Grancsay, then curator of the Department of Arms and

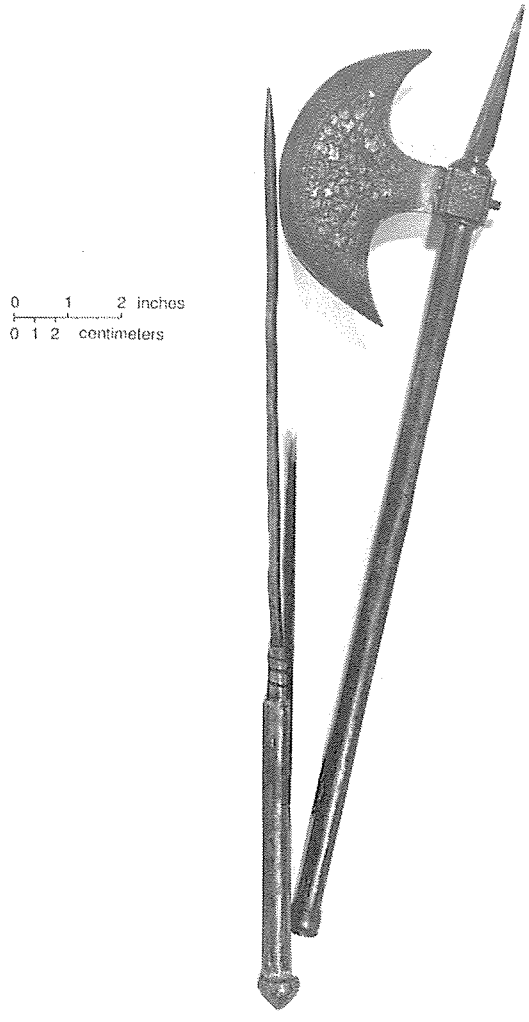

Figure 9. Photograph of an East Indian tabar from the Trinity River in Dallas County.

Armor for the Metropolitan, examined Harris's drawing and responded on September 28, 1951, "The weapon of which you sent a drawing is an East Indian battle axe (tabar). There are in this Museum several examples of this general type of weapon, including the knife which fits into the haft."

The tabar is a fighting axe used by East Indian soldiers that has a curved cutting head, and sometimes, a square hammerhead or a sharpened pick on the opposite side (Byam 1988:32–35), although this part is missing from the Trinity River example. A hollow handle conceals a dagger, providing another weapon. The surface of the weapon may be inlaid with silver and gilt (Byam 1988:34–35), as seems to be the case with the Trinity River specimen.

The comments on this artifact by the authorities contacted for this article were largely in agreement. According to Dr. Nickel,

> The battle axe found at the Trinity River is an East Indian tabar, as one of my predecessors at the Metropolitan Museum must have told Mr. Crook, some forty years ago. However, as to the dating of this tabar, I would prefer not to call it "15/16 century" [as Crook (1988) suggests]. Though the general shape of East Indian weapons has changed very little over the centuries, it has to be kept in mind that great numbers of these traditional arms were manufactured practically to the present day, not so much for tribal warfare . . . but for sale as tourist souvenirs in the local bazaars [Nickel 1991].

Nickel goes on to comment that the photograph shows the specimen to be in very good condition, and notes that its "unrusted" quality makes it doubtful that the artifact had been in the ground since the time of the expedition. Although Harris (1951) describes the tabar as being rusted when found by the boys, it is doubtful that they could have cleaned it to its present "newlike" state; rather, the artifact probably never was very rusted.

A photograph of the tabar was also viewed by Dr. Mitchem, who commented,

> I can't tell you much about the "tabar," except that is certainly isn't typical of weapons known to be associated with sixteenth-century expeditions. It sure is fancy, and I have to defer to the Metropolitan people on its identification. Battle axes of about this size and configuration were still used as late as the first half of the sixteenth century, though they were no longer part of the standard weaponry [Mitchem 1991].

And Blaine adds that while the tabar could date to the sixteenth century,

> like Dr. Nickel I find the excellent condition begs for explanation where the context supposedly is grounding for hundreds of years. Unless cached in some very unusual way the pristine appearance of the surfaces, thin edges and decorative detail is, to say the least, highly improbable for the climate and soil conditions in the Dallas area [Blaine 1991].

Taken together, the evidence suggests that the tabar is an unlikely candidate for the de Soto expedition. Such weapons, when found in sixteenth century contexts in the Southeast, are typically of iron and rusted.

Trinity River Halberd

In his article on de Soto artifacts from the Dallas area, Crook (1988) briefly mentions a "Medieval halberd" from the Trinity River, a metal object brought for examination in the 1960s to R. K. Harris by a young couple who found it while picnicking along the Trinity River. Crook (1988:109) describes the halberd as being "similar to those used by the Tower of London beefeaters." Apparently Harris tried

to acquire the piece, and although the couple would not part with it, they did permit him to photograph it. However, the author's thorough search of the Harris Collection records at the Smithsonian failed to locate the photograph.

Without more information on this object—particularly a photograph or a drawing—little can be said about its relationship to the de Soto expedition. As noted earlier, halberds found in sites of the southeastern United States appear to relate to the Spanish army. They were popular from the fourteenth through the seventeenth centuries, and during this time they changed from simple forms resembling bills (axelike) to more elaborate types used for pageantry (Brett 1894:112). Since halberds were made for many years after the time of de Soto, the Trinity halberd cannot be dated without more specific data.

Corsicana Spur and Key

In 1990, two early European artifacts were brought to the attention of the author by Mr. William L. Young, an avocational archeologist from Corsicana. One, a 25-cm-long spur, has a downward-curving shank, and has notably long spikes (7.5 cm) forming the rowel (Figure 10). The specimen is very rusted, and one of the arms of the heel band is missing. The other artifact is a 12-cm-long key and is also very rusted. Both artifacts were found near the confluence of the Trinity River with Richland or Tehuacana Creeks (Bill Young, 1991 personal communication).

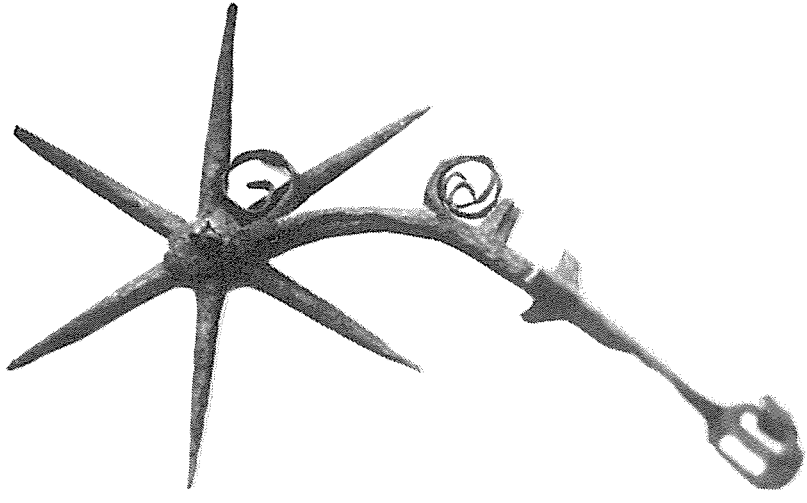

Figure 10. Photograph of a spur found near Corsicana *(courtesy of Bill Young).*

Dr. Nickel (1991) suggests, in part based on the spur's decorative curls, that it and the key could date to the first part of the eighteenth century. Dr. Mitchem, however, based on observations of archeological examples of spurs from the Southeast and circum-Caribbean, believes

> the best candidate for a genuine sixteenth-century Spanish artifact is the iron spur from Corsicana. It is a classic example of the typical type of spur used by the conquistadors. The attached iron "scrolls," along with other features, identify it as from this time period. I've seen both pictures and archeological examples of very similar examples from sixteenth-century contexts in the Caribbean and elsewhere [Mitchem 1991].

Dr. Mitchem referred the author to the discussion by Simmons and Turley (1980:110–113) of Spanish Colonial spurs and other iron objects. According to these authorities, the Corsicana specimen is a "conquistador spur," and they illustrate a similar example from the Pecos Pueblo of New Mexico (Simmons and Turley 1980:Plate 21). This type of spur was used by European knights in the late Middle Ages and was brought into the New World by the conquistadors, hence its name.

J. C. Blaine's observations on the Corsicana spur parallel those of Dr. Mitchem.

> I have come to believe this spur clearly reflects a 16th century Spanish style origin. How early in that century this form came into significant use is not presently secured. The style is generally accepted as that used by the Conquistadors, although perhaps mainly because we can't precisely isolate an earlier Spanish style in the Americas. . . . In contrast to Dr. Nickel's observation of this particular spur . . . I presently find no reason to support a "likely" date as late as the early 18th century. I've seen no evidence for that so far from Texas and New Mexico sites of the 18th century where some spur styles from the 17th century do persist into as late as the early 18th century. However, that spurs styled like the [Corsicana] specimen could still be produced that late is regrettably true. Even though this spur may be of New World origin, this would not necessarily prevent an early production. Hispanic smiths are known to have been active by the 1520s in our hemisphere [Blaine 1991].

What can be concluded about the Corsicana spur? Although the experts do not agree, the experience of Blaine, who has examined thousands of European artifacts from Texas and surrounding states, must be given priority. Moreover, his remarks parallel Mitchem's, and both lead to the conclusion that the Corsicana spur is probably an old artifact; how old is difficult to say. Simmons and Turley (1980:111) note that the conquistadors used these spurs, but they also indicate that they were used later in borderland areas such as Texas, New Mexico, and California. The site where this specimen was found needs archeological testing to obtain more information before we can make further progress on this issue.

Little information was obtained about the Corsicana key. Mitchem (1991) observes that they have been found at Puerto Real, Haiti, but is not able to offer more specific information. Blaine (1991) notes that the key has the "flavor" of frontier blacksmithing, and was probably repaired or was made of poor quality stock.

Longview Spur

During a visit to Longview in 1990, Dr. Norman Black told the author about a possible de Soto spur from the area in the possession of Mr. Bill Fisher, proprietor of a local hardware store. The author contacted Mr. Fisher, and, with his assistance, was able to examine it. According to Mr. Fisher's best recollection, the spur was found in the 1920s in a field 8 to 10 km (5 to 6 miles) northeast of Longview, but no more specific site information is available.

The artifact is 22 cm long, and has a rowel length of 7 cm (Figure 11). The shank is straight, and the spur is made of a nonferrous, silver-colored metal. The surface of the arms of the heel band and the shank are engraved with either parallel lines or small leaf-shaped designs.

Concerning the Longview spur, Nickel observes that

> it still preserves stylistic elements of the late 15th century in its straight shank, and the thickness of the arch-shaped branches encircling the heel. However, the length of the spikes of the rowel—while typical for the Spanish spurs of the 17th and 18th century—might be excessive for a period before the last quarter of the 16th century. Before 1600, footwear, shoes and boots alike, was practically heelless, and these overlong spikes would have made it most difficult to take even a few steps before

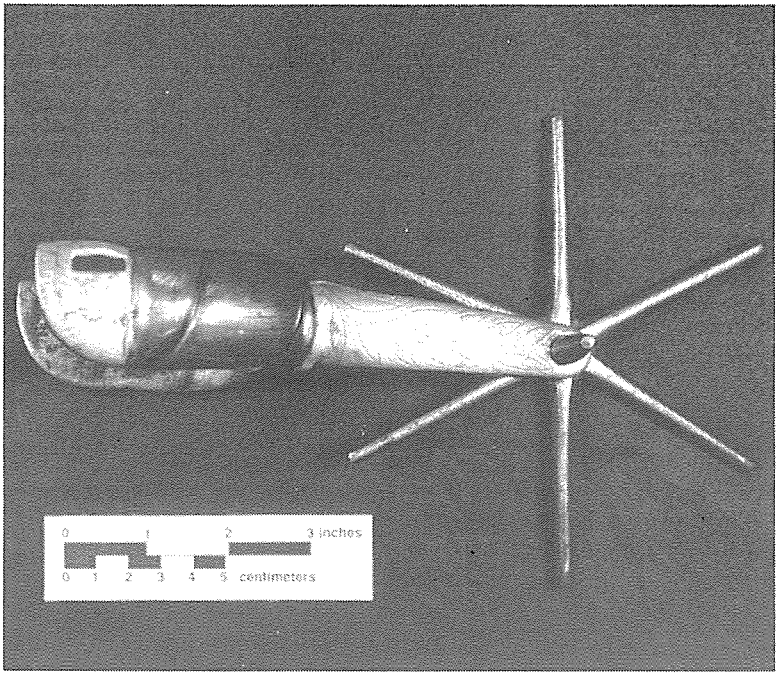

Figure 11. Photograph of a spur found near Longview *(courtesy of Mr. Bill Fisher)*.

> mounting. For this reason, even taking in account the conservatism of Spanish fashion, it seems to be safest to date this spur to some period after 1600 [Nickel 1991].

Mitchem notes that he is

> a bit suspicious of the Longview spur. It is so fancy and heavy that I would think it more likely is 18th–19th century. Simmons and Turley [1980] note that heavy, richly-ornamented spurs were typically used by Mexicans during this period. The slide makes it look like it's made of some alloy of gold, possibly *tumbaga* (sometimes called *guanin*), an alloy of gold and copper. If it is made of silver, it has definitely been cleaned or it would be black with tarnish [Mitchem 1991].

Blaine comments

> I have never encountered a spur quite like the one from near Longview. Except for the large rowel, it certainly resembles what a greatly shortened version of the 15th–16th century tilting spur would look like. The Longview spur also lacks adequate strapping capability for early and hard usage and would require such as a fully developed boot for adequately mounting. In no way does it reflect early Hispanic practices in this respect and I believe this is the more critical attribute here .... Overall the Longview spur adds up a bit too modern to me. My guess is a 19th century origin parade kind of spur but I lack some confidence here, especially judging from slides only [Blaine 1991].

All of the authorities agree that the Longview spur is not an early sixteenth century object, so it can be concluded that it is an unlikely candidate for a de Soto artifact.

Chalicelike Ceramic Vessels from Camp and Franklin Counties

In a report on the prehistoric Tuck Carpenter site in Camp County, Turner (1978:98–103) describes the results of excavation of a Late Caddoan Period Titus phase site with several middens and a cemetery containing 44 graves. One of the graves contained a *chalicelike* vessel—a small bowl with a pedestal base of a form similar to a communion chalice.

Since only one grave contained a vessel of this type, Turner researched surrounding sites and contacted workers in Arkansas and Oklahoma about the occurrence of other chalicelike vessels. He located two other examples, one from the Johns site and one from the Gandy site, both within 20 miles of the Carpenter site (Figure 12). No vessels of this type were reported by the contacts from outside of Texas.

Turner (1978:103) suggests that the shape of the vessels was influenced by the de Soto expedition. The evidence for this, beyond the obvious similarity in form, is an uncorrected radiocarbon date for the Tuck Carpenter site of A.D. 1590±60

Figure 12. Photograph of the chalicelike vessel from the Gandy site (41FK 4) (photograph taken with the permission of the Texas Archeological Research Laboratory, where the artifact is curated).

obtained on charred logs from a grave. The absence of other European artifacts indicates that the site was occupied prior to major French and Spanish contact with the Caddo that occurred in the region after about 1700.

Although Turner's observations are intriguing, if the chalicelike vessel is a result of DeSoto's presence, we would expect to find other types of material showing the army's presence to be found, particularly in the graves. At sites in the Southeast that show definite contact with de Soto, many items traded or left by the

expedition made their way into mortuary contexts (e.g., Mitchem 1991; P. Morse 1981:69; Langford and Smith 1990). It could be argued, however, that at this point in the expedition, the army was largely depleted of its supplies, and there was little to be left for the Titus phase people.

Perttula (1989:100) notes the similarity of these vessels to stemmed glassware examples used during the sixteenth century Spanish occupation in the circum-Caribbean. He notes that the Tuck Carpenter site is in the general area included in his plotting of the expedition's route through eastern Texas. Thurmond (1990:233) also notes the occurrence of these vessel forms and examines the possible connection of the de Soto expedition with the Titus phase. These artifacts seem to be gaining acceptance as far as reflecting contact with the army, but some problems remain. According to Elvas (Bourne 1904:97) during the battle of Mauilla, many of the army's supplies were burned, including "the ornaments for saying mass." Consequently, it is difficult to know what articles the Spaniards would have had with them to be copied. Perhaps the chalicelike vessels reflect native manufacture of a form described by members of the expedition. If so, why are these objects not found in sites in other areas visited by the expedition?

Mississippian Vessels from the Honey Springs Site

In the October 1940 issue of the Dallas Archeological Society's *Record*, was an article written by Henry Hanna Jr. entitled "Most Interesting Dallas County Campsite." The article describes the Honey Springs site (actually 41DL68 and 41DL71) located on terraces along the south side of the Trinity River in Dallas County. The site gets its name from the presence of several springs in the vicinity and the occurrence of honey bee hives in area trees (Hanna 1940:2). In addition to the artifacts, Hanna states that "some Indian skeletons" were found along a creek after a hard rain, evidently being washed out by the creek. A grooved axe was found near the skeletons.

Of particular interest for the present paper is Hanna's (1940:9) reporting of several vessels and other artifacts found on a sandy slope of the site. The context and the conditions of discovery of the vessels are difficult to discern. Hanna (1940:9) states that "thus far six whole specimens have been unearthed while large parts of five others have been found—all within a space of ground three by six feet. The depth at which this pottery was found was approximately two and one-half feet."

He goes on to note that "the surface of this sandy slope has yielded many interesting specimens." Three effigy heads made of pottery were found, which had, no doubt, been broken from pottery vessels.

It is not clear from the article whether Hanna was involved in the discovery and collection of the vessels and other associated artifacts or if he is reporting their earlier unearthing. The answer to this question comes from the site form completed by Forrest Kirkland in December 1940. Kirkland notes that Mr. Perry Overton owned the land and states that the landowner dug up the vessels in 1934, some six years before their reporting by Hanna.

Kirkland's site form suggests that the vessels are Caddoan; Hanna made no comments on their cultural affiliation, but simply observed that they were unusual for Dallas County. The true significance of the vessels came years later when the Dallas Archeological Society sent photographs for examination to the Ceramic Repository at the University of Michigan. The result of this showed that the vessels were "St. Francis Ware . . . known from the region of St. Francis County, Arkansas" (Crook 1988:90).

Since the St. Francis River of northeastern Arkansas is one of the areas where de Soto is thought to have traveled through the province of Casqui, even staying at its principal town—the Parkin archeological site (Morse and Morse 1990:202)—the vessels were of great interest to the author. With the help of Wilson Crook, Jr. and Daniel Prikryl, the latter an archeologist with the Texas Historical Commission, the vessels and associated artifacts were found in the possession of Mrs. Henry Hanna, the widow of Henry Hanna. We visited Mrs. Hanna at her home in Dallas, and she kindly allowed the author to observe and photograph the artifacts.

All of the vessels are small, ranging from 30 cm to nearly 70 cm in diameter, and are of several forms. Three are bowls, two are jars, and one is a bottle. All except the bottle are decorated with either nodes (Figure 13, A, B, D), strap handles (Figure 13, D, E), or animal effigy appliqué (Figure 13, C); in this case the effigy is a frog. Other artifacts in the Hanna Collection are two effigy

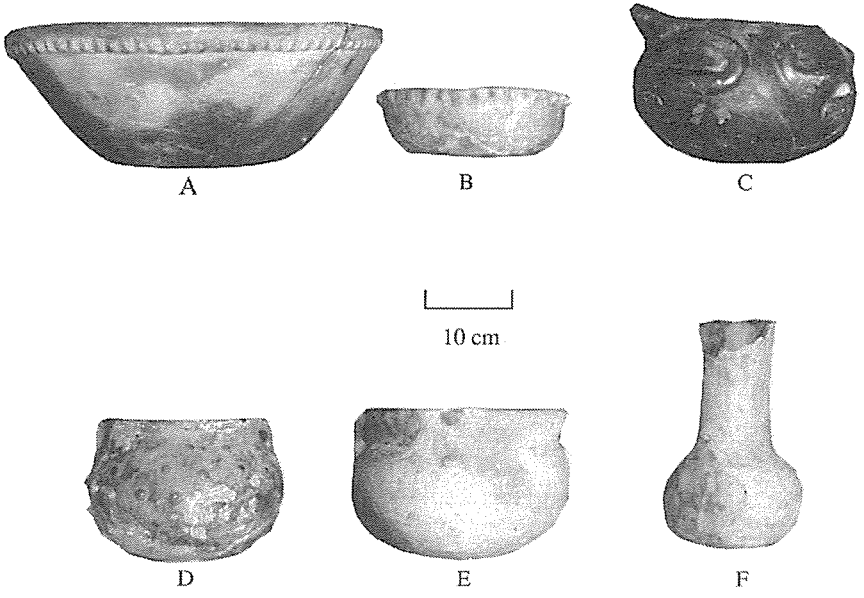

Figure 13. Ceramic vessels from the Honey Springs site (41DL68 and 41DL71); A and B are bowls; C is a frog effigy bowl; D and E are jars, and F is a bottle.

appendages broken from vessels, a strap handle, a long basalt celt, and two stone discoidals.

To identify the artifacts in the light of current Mississippi period ceramic typology, photographs of the vessels were sent to Dr. Dan Morse, of the Arkansas Archeological Survey. According to Morse,

> with the exception of one jar handle sherd . . . and an unknown object . . . the artifacts could date within the period of AD 1400–1650. The handle sherd is evidently Manly Punctate and should date circa late 13th and 14th century. The pottery and discoidals are fairly typical of this region. The long basalt celt is rare but has been found here, although the shape is atypical. There was a specialized basalt industry centered in the Blytheville, Arkansas, region after AD 1400. The basalt was mined in the volcanic cones in the Missouri St. Francis Mountains. . . . The impression I get from your pottery is that the vessels probably are from a site located in northeast Arkansas near the Mississippi River and as a group date essentially pre-De Soto (1450–1550) rather than post-De Soto (1550–1650). They could represent the Nodena Phase (thought to be the province of Pacacha) or possible phases further south, all visited by the expedition before De Soto died. The reason I say the Mississippi River rather than the St. Francis River is based on the presence of the bowls with notched appliqué rim strips, which are more characteristic of the "Memphis" sub-region. . . . However, I do not think these artifacts represent an assemblage obtained by the De Soto Expedition. Broken and rather crude items are represented. Missing are more typical artifacts in use, including pottery, about 1541 [Morse 1991].

Although the army had an entourage of hundreds of Indian slaves, many of them women, who would have accompanied the expedition into Texas, it seems doubtful that they would carry such an unusual assortment of vessels and other objects. Morse (1991) notes that one miniature vessel must have been a toy, and two other vessels are too small to have been cooking jars; they may have been used for condiments. The frog effigy jar is the type of vessel used as burial furniture for children. It seems doubtful that in Texas the expedition—desperately hoping to find its way back to New Spain—would be carrying nonutilitarian vessels. Moreover, why would they have two ceramic effigy heads, a clay strap handle sherd, stone discoidals—presumably gaming stones—and a large basalt celt? The stone artifacts in particular would add unnecessary weight during the march.

Although the evidence is insufficient to support a final conclusion, it seems unlikely that the artifacts are from the de Soto expedition. They are more likely to be artifacts from Arkansas, collected by a member of the Overton family or by someone else and given to the family. Moreover, they seem to be from both grave and nongrave contexts.

SUMMARY AND CONCLUSION

Nearly all scholars agree that the de Soto expedition passed through Texas, and, with this consensus, it is only logical to expect that some archeological evidence of the expedition will be found. None of the possible de Soto artifacts recovered in Texas over the years can be unequivocally related to that army. The Corsicana spur is probably the best candidate, but as noted previously, this type of spur was used in later times, particularly in the borderland areas of New Spain. The chalicelike vessels from northeastern Texas, although of native manufacture, may reflect contact with the army. All of the other artifacts have sufficient temporal or typological problems to rule them out as de Soto artifacts.

Since the army spent several months in Texas, why is there not more evidence? To answer this we need to bear in mind some facts about the expedition. When the soldiers reached Texas, they had been traveling for three years in the southeastern United States. There is no mention in the narratives about handing out gifts or trading with the Texas Indians, and quite possibly most—if not all—trade items such as bells, beads, and iron chisels had been given out. In fact, the soldiers were not only short of items for trade, but they did not have enough iron with them to make horseshoes, so their horses went unshod (Swanton 1939:89). We also need to keep in mind the fact that the soldiers in Arkansas, before deciding to head westward into Texas, had lost their leader de Soto and their main interpreter Juan Ortiz, both of whom died. With the death of Ortiz, they had difficulty communicating with the Indians; for what used to be understood in "four words, it became necessary to have the whole day" (Bourne 1904:147). Moreover, the expedition was down to about 300 fighting men and 40 serviceable horses (Swanton 1939:87). Therefore, on entering Texas the expedition was probably left with only minimal military gear, essential horse trappings, and personal items.

This is not to say that finding a campsite from the de Soto expedition, or identifying a Native American archeological site with evidence of contact with the army, is impossible. Both types of settlements existed in Texas, and both should have left some archeological evidence. However, the search for these sites will require very careful examination of the material evidence.

Probably the most likely artifact to expect from such a Texas site would be an iron object. Much of the chain mail armor may have been left in Apalachee after it was found to be ineffective against native arrows, but plate armor would have been of considerable advantage against Indian weapons and would have been kept. Remaining military weapons, such as halberds, crossbows, swords, and shields also would have been important. Although these weapons were being carefully conserved because they could not be resupplied (Brain 1985a:103), some were undoubtedly lost, as the narratives indicate; one only needs to look at sites in the Southeast where weapons have been found (Smith 1987; Dickinson 1987; Hally 1988; Mitchem 1989, 1990).

Any metal items from the expedition would undoubtedly be in poor condition, and might have been modified by Indians (e.g., Mitchem 1989:105). We may also

find objects of European type made out of local materials. For instance, Coronado employed Native Americans to manufacture crossbow bolt heads out of indigenous copper (Ellis 1957). We might expect the crossbow's iron nuts, which served as a release mechanism, to have been manufactured out of bone and be preserved in an archeological context (Ellis 1957:211). Halberds, like the specimens from Arkansas, could also be present and identifiable as relating to the expedition.

We should be looking for other types of evidence as well. We know that a large drove of swine accompanied the expedition. Upon de Soto's death, the army auctioned off his personal property, which included 700 hogs, to other members of the expedition (Swanton 1939:90–91). The expedition also gave hogs to Indian chiefs along the way (Swanton 1939:90–91), and the remains of these animals should be present as rare elements in lists of archeological fauna.

The expedition started with 223 to 243 horses, and upon return to the Mississippi River to build barges for sailing to New Spain, they had about 30 left (Swanton 1939:89). Some of these horses undoubtedly died in Texas, and could show up as a minor representation in the faunal assemblage of an otherwise prehistoric site.

And finally, our best evidence of the expedition might come from bioarcheological analysis of human skeletal remains. Early European expeditions and attempts at colonization in the Americas introduced new diseases—measles, smallpox, and influenza—the effects of which were devastating (Dobyns 1983; Smith 1987). Ramenofsky (1987:69) calls the sixteenth century the disease century of the Southeast, and notes that it was a time of dramatic population decline and settlement relocation. These same diseases would have been carried or spread into Texas and should be manifested in the archeological record.

Although it is difficult to identify specific disease-related skeletal pathologies (Hutchinson 1990:64; Smith 1987:60), there are other ways to look for evidence of epidemics. Efforts have been made to look at major shifts in settlement in Texas during the sixteenth century (Perttula 1989; Thurmond 1990). Other types of evidence, such as the increased incidence of mass burials or the large-scale use of cemeteries during limited periods (cf. Smith 1987:60–68), need to be fully exploited. Perhaps the short term use during the Titus phase of large cemeteries, interpreted by Perttula (1989:158) to be community graveyards, actually reflects passage of the army. These cemeteries seem to have originated during the sixteenth century and could reflect increased mortality from European diseases. Detailed skeletal studies might help resolve this issue.

Evidence for traumatic death in skeletal remains should also be sought. Although members of the expedition may have been short of supplies, they seemingly had no limitation in their willingness to fight the native populations, and the expedition had at least two major battles with Indians during the journey through Texas. The first was at Naguatex along the Red River, and the other was during an encounter with the Aays near San Augustine. Other encounters are likely but were simply not reported in the narratives. Hudson, DePratter, and Smith (1988:130) observe that incidents that became commonplace were less often recorded, and

small-scale battles are likely to have fallen into this category by the time the expedition was west of the Mississippi River.

Recent work with skeletal remains in the Southeast at such sites as King in Georgia (Blakely 1988), Tatham Mound in Florida (Mitchem 1990:56), and Parkin in Arkansas (Murray 1989) has produced evidence of skeletons with wounds from metal-edged weapons. Similar evidence of trauma should be found in cemeteries of native groups in Texas.

In summary, although the possible de Soto artifacts from Texas are not conclusive indicators of the expedition, other types of more definitive evidence should be present in the archeological record, and efforts need to be made to search for them. Our best clues of what to expect will come from sites in the southeastern United States that have been shown to relate to the expedition. The expectations we form for a Texas site, however, need to be tempered by the reality that by the time the army reached the state its supplies of European manufacture had diminished. Nonetheless, some evidence of the expedition should be present. Garcilaso notes that the Indians scavenged the army's abandoned camps, and any distinctively European objects could have been carried away from de Soto expedition camp sites and ended up in native sites in the area. Such items will be rare, and probably of poorly preserved iron.

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Spanish Exploration of the Texas Coast, 1519–1800

Robert S. Weddle

ABSTRACT

Spanish exploration of the Texas coast began with the voyage of Alonso Alvarez de Pineda in 1519. In the early stages, it was sporadic, often accidental, and frequently tragic. The purposeful exploration began in 1685 with news that a French colony had been established in Spanish territory. Eventually found on Garcitas Creek above Lavaca Bay, the colony had been destroyed by the Karankawas. Fear of foreign intrusion remained the primary motivation for Spanish exploration of the Texas coast throughout most of the Colonial period. The Karankawan tribes, who held the barrier islands along the middle Texas coast until their strength was eroded by the Comanches and encroaching Europeans, were the greatest deterrent to Spanish control. Despite the many reconnaissance expeditions recounted herein, no Spanish port worthy of the name ever was developed on the Texas coast.

Modern research, aided by wider accessibility of sources, is chipping away at some of the myths and misconceptions that have muddled the historiography of Texas's earliest episodes of discovery and exploration. The idea that Alonso Alvarez de Pineda sailed up the Río Grande in 1519, for example, is gradually being put to rest. Similarly, the claims that he named this river the Río de las Palmas and that Francisco de Garay attempted a settlement at its mouth are being abandoned by more-knowledgeable historians.

The basis for such revision is found in the works of sixteenth century writers such as Bernal Díaz del Castillo (1955, Vol. 2:104) and Peter Martyr (Martír de Anglería 1944:523–527, 569–583), as well as a few scattered documents of the period. These sources make it clear that the name Río de las Palmas first designated the Río Soto la Marina and that the river ascended by Alvarez de Pineda actually was the Pánuco.

The myth that Cabeza de Vaca traversed the heart of Texas on his trek westward is being surrendered more grudgingly; it has become increasingly clear that he actually crossed the lower Río Grande and traveled through northern Mexico (Chipman 1987:127–148). Other new interpretations associated with the Narváez expedition are being offered also: that Cabeza de Vaca's initial landing was not on Galveston Island but at Follett's Island (now a peninsula) just to the west; that Narváez himself, instead of being lost at the mouth of the Mississippi, disappeared into the Gulf after anchoring at Matagorda Bay.

Hernando de Soto's men, seeking the Río Pánuco by sea in 1543 as Narváez had done 15 years previously, narrowly escaped a similar disaster—being tossed on to the Texas shore by heavy seas. After caulking their crude *bergantines* with tar like that which still wshes up on Texas beaches from natural seeps, Soto's men entered

two Texas bays "six leagues" apart. They therefore appear to have been the first Europeans to explore Matagorda and Corpus Christi bays (Smith 1968:189). Modern scholarship brings out the fact that the Soto expedition was not quite the dead end that earlier writers assumed it to be. It had considerable influence on later *entradas* in the Southeast, especially that of Tristán de Luna y Arellano, and led indirectly to further exploration of the Texas coast.

Perhaps the greatest confusion of all surrounded the wreck of three Spanish merchant ships in 1554. Due largely to Agustín Dávila Padilla (1596:273), a Dominican friar who wrote in the sixteenth century, the disaster was long presumed to have occurred on the Florida peninsula in 1553. The ultimate proof to the contrary developed in the the 1960s when treasure hunters discovered the remains of one of the ships off Padre Island, near Port Mansfield. Subsequent archeological and historical research by the Texas Antiquities Committee resulted in discovery of the wreckage of the other two ships and established proof of their identity (Arnold and Weddle 1978).

The shipwrecks, combined with reports of the Soto entrada, influenced Tristán de Luna y Arellano's attempt to form a settlement at Pensacola Bay (Ranjel 1557). To find the most appropriate site, Viceroy Luis de Velasco sent Guido de Lavazares to explore the coast from the Río de las Palmas (Soto la Marina River) to the Florida peninsula. On the Texas coast, in latitude 28°30', Lavazares discovered a large bay, which he named San Francisco, and went ashore to take possession for the Spanish Crown (Lavazares 1558). This appears to have been Matagorda Bay, which he found to be shallow and uninviting—an assessment that La Salle was to prove more than a century later.

The shipwrecks of 1554 also provided the excuse for Luis de Carvajal y de la Cueva to enter Texas in 1572 from Nuevo León, to punish the coastal Indians for their "many murders, robberies, and other crimes on ships that have wrecked there" by taking them captive and selling them into slavery (Weddle 1985:337). This, from all accounts, was the first Spanish expedition to cross the lower Río Grande into the present state of Texas. Carvajal, who held a concession to all previously unclaimed territory 200 leagues north and west of Tampico, made slave raiding his main business, and he probably entered Texas on several occasions to take slaves. The enmity he created among the coastal Indians erected a barrier that few dared penetrate for more than a century and a half. In consequence, the approach to Texas, after considerable delay, would be made by way of a long overland trail through Coahuila.

Instances of sixteenth century European contact with the Texas coast were sporadic, often accidental, and usually associated with tragedy. They helped to flesh out the New World map, but they contributed little toward eventual settlement. The more purposeful explorations began in 1685 with reports that La Salle had planted a French colony on the Gulf Coast somewhere between Apalachee Bay and Tampico. Thenceforth, to the end of the Colonial period, Spanish attention to the coast was most often motivated by fear of foreign intrusion (Faulk 1964:113). Such motivation even entered into the humanitarian concern for rescuing shipwreck

victims from the reputedly cannibalistic Karankawan tribes, for the castaways often were foreigners. At the same time, thorough coastal exploration, and hence effective settlement and development, was held in check by those same Indians, who reigned supreme on the barrier islands between Galveston and Corpus Christi bays.

Just how little had been learned of the northern Gulf coast by La Salle's time is demonstrated by the bewilderment with which Spanish officials approached the task of finding the intruders, and French knowledge was certainly no better than Spanish. As ably demonstrated by Peter Wood (1984:294–323), it was just such a lack of knowledge—and not secret design or navigational error—that caused La Salle's misplaced landing on the Texas coast rather than at the mouth of the Mississippi River.

The Spanish search for La Salle comprised six expeditions by land and five by sea and lasted more than three years. As officials in Mexico City began planning the effort, they confronted their own ignorance. Information that La Salle had reached the Gulf of Mexico from Canada via a river called "Michipipi" served only to confuse; the name meant nothing to the Spaniards. It was surmised that this river was the same as the one shown on maps since Alvarez de Pineda's time as the Río del Espíritu Santo, but no one could be found who had visited it (Weddle 1973:24–25; 1991:42).

In January 1686, Juan Enríquez Barroto and Antonio Romero, both senior captains and pilots of the Armada de Barlovento, sailed from Havana to seek the Río del Espíritu Santo, supposing it to be the place of La Salle's landing. Reaching the mouth of the Mississippi, they failed to find any clue to the Frenchmen's whereabouts. On their recommendation, two shallow-draft *piraguas*, suitable for entering shallow bays and inlets, were built for the next voyage, which left Veracruz on Christmas Day, 1686. In the interim, the *sargento mayor* Alonso de León had led two overland expeditions from Cadereyta in Nuevo León, first to the mouth of the Río Grande, then across southern Texas to Baffin Bay. Both marches bore negative results (León et al. 1961:194–203).

With captains Martín de Rivas and Pedro de Iriarte in command of the two piraguas, Enríquez and Romero sailed as pilots. Enríquez, as chief pilot on the command vessel, kept the expedition diary. This document, which details a complete circumnavigation of the Gulf of Mexico, has a special significance for Texas. It relates not only the finding of the wreckage of La Salle's ships, but also the exploration of the principal Texas bays and river mouths, of which there had been no previous account. The origin of many of the names for Texas coastal landmarks that appeared on maps for the next century (Figure 1)—some even to the present—are found in this diary (Enríquez Barroto 1687:149–206 [see Weddle 1987]).

The diary reveals that the voyagers sounded the mouth of the Río Grande on March 14, 1687, while naked natives with bows strung menaced from the beach. Reaching Aransas Pass, they sounded the bar and gave the name Río de San Joséph to the lagoon behind the barrier islands. A shore party exchanged gifts—tobacco and beads for fish—with bald and tattooed natives whom Enríquez identified as

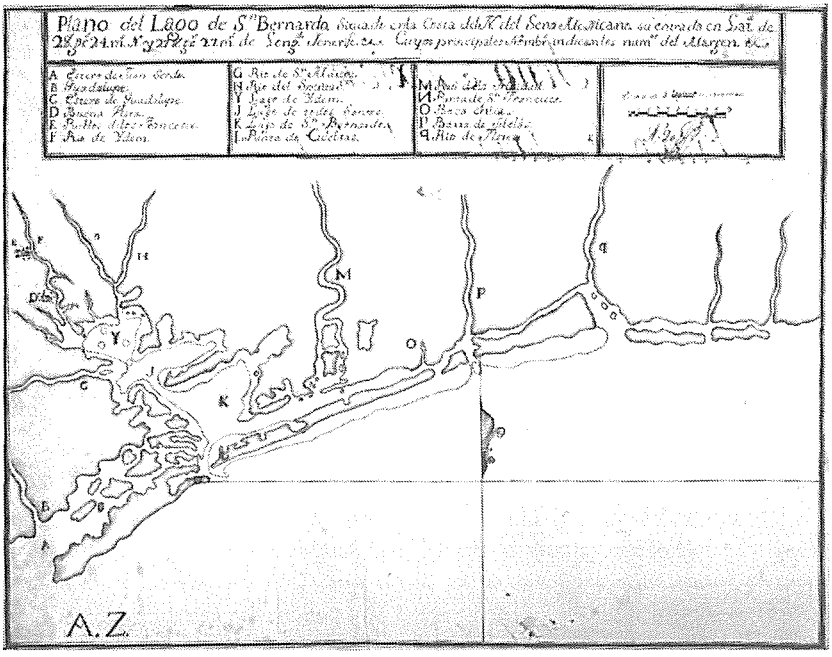


Figure 1. Plano del lago de San Bernardo. This map uses Enríquez Barroto's names for Texas Coastal features correctly, with the exception of Río de Flores. In some respects it resembles the work of Manuel de Cárdenas, who mapped the Matagorda Bay complex in 1690, but neither author nor date has been established (from the Museo Naval, Madrid). The key along the top of the map reads as follows: A. Estero de Juan Sordo; B. Guadalupe; C. Estero de Guadalupe; D.Buena Vista; E. Pueblos de los Franceses; F. Rio de Idem; G. Rio de Sn. Marcos; H. Rio del Spiritu Sto.; I. Lago de Idem; J. Lago de todos Santos; K. Lago de Sn. Bernardo; L. Punta de Culebras; M. Rio de la Trinidad; N. Punta de Sn. Francisco; O. Boca Chica; P. Barra de Sibolas; Q. Rio de Flores.

Pelones. The Indians offered arrows with the tips removed as peace tokens, but the Tamaholipa interpreters brought from Tampico could not converse with them.

March 30 was Easter Sunday—the Pasqua Florida or Pasqua de Flores. As the two small vessels passed between barrier islands to anchor in a "large bay," Enríquez Barroto named the passage Río de Flores. It is identifiable today as Cedar Bayou, which divides San José and Matagorda islands, where La Salle had first put his soldiers ashore more than two years previously. It was here that the voyagers found the first sign of the invading Frenchmen—ship fittings recovered from an abandoned Indian canoe.

On April 3, the piraguas anchored off Decros Point, Matagorda Peninsula's western tip, at 28°23'N. Close at hand, Pass Cavallo opened into Matagorda Bay,

which Lavazares in 1558 had named Bahía de San Francisco. It now was named Río de San Bernardo, for the feast day of Saint Bernard. The leeward point, southwest of the entrance to the bay, was named San Francisco; the opposite point was called Punta de Culebras for its many snakes.

Three leagues up the peninsula, the explorers found the wreckage of La Salle's bark *Belle* and salvaged usable items of rigging and ordnance. Guided by a captured English pirate called Juan Poule, who had been there previously, the ships explored most of the bay and probably passed Sand Point to enter Lavaca Bay. But signs of La Salle's fort, abandoned the previous January to a feeble contingent of maimed and misfits, eluded them.

Along the west bayshore, the explorers encountered Indians "of large stature and very robust of limb," who refused an invitation to board the vessel (Enríquez Barroto 1687:174). When the Spaniards sought to use forcible persuasion, one of the Karankawas attacked with a knife and gave shouts that brought a shower of arrows from his companions. Spanish musket fire soon put the Indians to flight.

All in all, the Rivas-Iriarte expedition found Matagorda Bay much the same as Lavazares had: shallow and uninviting, little more than two fathoms deep anywhere. Surely any Frenchmen who had attempted to land here had met with disaster.

The searchers sailed east on April 10, giving coastal features the names by which they were to be identified on various European maps for years to come: Caney Creek was called Boca Chica; the San Bernard River, Río de Zívoras (Cíbolas); San Luis Pass, Río de Santa Suzana. Indians seen along the way were friendly and had no fear of firearms, indicating that they had never before encountered Europeans.

Discouraged by the shoals surrounding the mouth of Galveston Bay, the mariners named it Río Bajo ("Shoal River") and sailed on. So far, the diarist observed, the Texas coast had exhibited

> only saltwater lagoons and barren sand dunes along a treacherous coast offering no ports and no prospect for shipwreck victims but torture and death at the hands of barbarous Indians [Enríquez Barroto 1687:178].

The Sabine River, discharging a current of fresh water, was named Río Dulce. Judging it too shallow to have interested La Salle, the voyagers gave it scant attention. Among the Atakapa Indians on the Calcasieu River they found two castaways from a Spanish privateer galley and through them heard news that caused them to turn back and explore further.

The castaways were a Mexican youth named Nicolás de Vargas and an Apalachino Indian from San Luis de Apalache in Florida. They had deserted the galley after the captain died and the surviving remnant of the crew ate the corpses of their shipmates. The Indians supplied what was taken as a possible sequel to the tale: they had seen on a river to the west a wrecked ship, which the natives of that vicinity had burned to get nails for tipping their arrows. The men from the ship, they said, had acquired horses from the Indians; the Atakapa had seen them hunting buffalo on horseback with firearms, but the mariners had since gone inland. Such

news might have pertained to the missing Spanish galley or to La Salle's colonists. In either case, it had to be investigated.

Returning to Sabine Pass, the piraguas entered in six fathoms but found the channel pinched in by oyster banks half a league upstream. They inched forward another quarter league through a narrow passage of three fathoms toward the lee shore before the channel played out altogether. Within sight of Sabine Lake, they maneuvered with oars to a mud-bottomed anchorage of twelve spans. Not even the canoes could go farther.

Indians who had come on foot from the Calcasieu then appeared to advise them that this was the wrong river; they had meant the next river to the west. With one of the Indians as guide, the Spaniards proceeded to make the first recorded exploration of Galveston Bay. The guide directed them to a wooded promontory two leagues from the bay mouth, where he claimed to have seen the white buffalo hunters encamped. Ensign Francisco Aldama followed the Indian two leagues inland to a cluster of dome-shaped native huts, long since abandoned. The explorers at last concluded that the guide was lying; it appeared that the natives of this region had destroyed both the ship and the starving remnant of the crew. As for La Salle, his ships must have been lost in a storm; his colonists had surely perished from starvation (Enríquez Barroto 1687:195,196).

The Rivas-Pez voyage, making a complete circumnavigation of the Gulf of Mexico, was overdue by the time it returned to Veracruz. Two frigates, commanded by captains Francisco López de Gamarra and Andrés de Pez, had been sent to look for the piraguas. Although the reconnaissance was repeated, the size of the ships precluded the minute coastal examination made by the smaller vessels (Gómez Raposo 1944:149).

In August 1688, the two piraguas, captained by Rivas and Pez, made another voyage to the Texas shore. The captains sent canoes exploring up the Río Grande for five days, then proceeded to Matagorda Bay, where they found the derelict *Belle* virtually destroyed by the elements. They coasted the entire bay, went ashore to kill a buffalo, and bartered with the Karankawas for fish but received no news of the French colonists playing out the tragic drama of Fort Saint-Louis's final days (Fernández Carrasco 1688).

La Salle's ruined settlement, victim of a recent massacre, was found by Alonso de León on his overland march from Coahuila on April 22, 1689. Only half a dozen children who were living among the Karankawas and a handful of colonists who had accompanied La Salle on his fatal march to the Hasinai Caddo of eastern Texas remained alive. The captured French children, whose parents were Lucien and Isabelle Talon, were taken to Mexico City to be reared as servants in the viceroy's household. It was they who eventually gave the only eyewitness account of the massacre and the fate of the Barbier infant, the first white child born on the Texas coast; after the mother was slain, a Karankawa warrior seized the baby by the heels and bashed its head against a tree (Talon 1698:237). Two of the Talon brothers, repatriated and returning to America with the Sieur d'Iberville, were yet to have a part in exploring the Texas coast.

León, reaching La Salle's colony, assumed that he had found the Bahía del Espíritu Santo, where La Salle was supposed to have settled. He therefore gave that name to the Matagorda Bay complex. Thenceforth, the bay complex had two names: Espíritu Santo and San Bernardo, the name given to it by the Rivas-Iriarte expedition. Today, the lagoon between Matagorda Island and the mainland is called Espíritu Santo Bay.

La Salle's incursion gave rise to Spain's defensive posture on the northern frontier and resulted in the founding of the first Franciscan missions in eastern Texas in 1690. Later the same year, Captain Francisco de Llanos commanded a voyage to map Matagorda Bay, with Manuel Joséph Cárdenas y Magaña as mapmaker (Llanos 1690). Cárdenas's map of the bay complex (Weddle 1973:Plate 11) was a landmark.

Carlos de Sigüenza y Góngora, meanwhile, had taken León's field notes and Enríquez Barroto's coastal chart and produced a map of León's route from Coahuila and the coast from the Río Bravo to East Matagorda Bay. He gave currency to the place names assigned by León and Enríquez. Although present-day cartophiles tend to discount the Spanish contribution to mapping the New World, the influence of Sigüenza and especially Enríquez Barroto on French maps of the Gulf coast is indisputable. Guillaume Delisle, the renowned mapmaker, owed them a great debt (Jackson et al. 1990).

The primary focus of Spanish exploration and mapping of the Texas coast so far had been Matagorda Bay, somewhat apart from the area chosen for settlement. Reports of French penetration of Caddoan territory from the east caused the Spaniards to believe that the immediate threat lay in that direction. Additionally, the Hasinai seemed infinitely more promising as prospects for conversion than the hostile Karankawan tribes. For such reasons Spanish missions were founded in the pine-forested region of present-day Houston County in 1690 (see Corbin 1991).

Following the abortive expedition of Domingo Terán de los Ríos, the first man titled governor of Texas, in 1691–1692, to reinforce and extend the East Texas missions, the enterprise was abandoned. The exposed Texas coast was forgotten—until a new French threat appeared. Events farther east, meanwhile, set the stage for renewed Spanish-French confrontation in Texas. The Spaniards held Pensacola, while the French became entrenched at Mobile. With Philip of Anjou--the French king Louis XIV's grandson—on the Spanish throne, the Spanish colonials were checkmated in their desire to push the Frenchmen out. France and Spain joined forces against England in the War of the Spanish Succession. Then, in 1714, the French trader Louis Juchereau de Saint-Denis appeared out of the Texas wilderness at the Spanish post of San Juan Bautista de Río Grande, guided by two of the Talon brothers. The time had come, Spanish officials decided, to reassert their claim to eastern Texas. While they did so in 1716, the French set up shop at Natchitoches. Saint-Denis, playing his own game, had maneuvered both nations like chess men to attain his goal of having French and Spanish settlements close enough to each other for trade (Weddle 1991:196).

The death in 1715 of Louis XIV terminated the Family Compact by which France and Spain were bound to each other. The two nations were restored to

their traditional posture as colonial adversaries. The establishment of New Orleans by the French in 1718 was matched by the Spaniards' founding of San Antonio. There followed Texas Governor Martín de Alarcón's inspection of his jurisdiction, including the area around Matagorda Bay. Reaffirming the Spanish claim, he visited the Fort Saint-Louis site and "took lawful possession (in King Philip's name) of all the bays, lakes, and neighboring lands in the manner required" (Céliz 1935:66–67).

All this was with a view to occupying the bay, to which the French still laid claim on the basis of La Salle's intrusion. The War of the Quadruple Alliance, erupting in 1719, again focused French attention on Matagorda Bay, but two expeditions sent to explore it failed to find it. Captain Jean Béranger sailed past it in 1720 to explore Aransas Bay instead. The following year, Béranger as ship captain took Jean-Baptiste Bénard, Sieur de La Harpe, to occupy La Salle's old site but landed instead at Galveston Bay (Weddle 1991:216–223). In the meantime, the Marqués de San Miguel de Aguayo, Alarcón's successor, sent troops to begin the founding in 1721 of Presidio de Nuestra Señora de Loreto de la Bahía on the Fort Saint-Louis site. Mission Nuestra Señora del Espíritu Santo de Zúñiga was founded nearby the following year. Aguayo, on his visit in 1722, sketched a crude map of the bay (captioned *Mar Ancho del Seno Mexicano*), showing the relative locations of the presidio and the mission (Weddle 1973:Plate 12).

The specific role of Presidio de la Bahía was to guard the coastal region against foreign invasion, while supporting the nearby mission for the Karankawan tribes. Yet the garrison acquired little knowledge of the coast beyond its immediate environs. The lack of vigor in exploring the territory is exemplified by the commandant Juan Antonio Bustillo y Ceballos, who in 1725 was ordered to seek a more suitable site for the mission and presidio. Instead of making a reconnaissance, he chose a convenient spot on the Guadalupe River near the San Juan Bautista road (above present-day Victoria) and borrowed from the faulty Aguayo map for his report. Halving the distance from the old site to the new, he placed the new location only three or four leagues farther from the mouth of Espíritu Santo Bay and claimed the bay could be reached by descending the Guadalupe (Bustillo y Ceballos 1726).

More-accurate information was soon to be compiled, only to be lost in the maze of official files. In November 1727, Pedro de Rivera arrived at La Bahía on his presidial inspection tour aimed at economizing and correcting abuses. Rivera's own report (1945:116) notwithstanding, the most significant coastal data came from a map by his young military engineer, Francisco Alvarez Barreiro. From La Bahía, Rivera sent Alvarez Barreiro with twenty soldiers of that post and San Antonio de Béxar "to explore the coast, ports, bays, lagoons, and land between this presidio and the Neches River" (Rivera 1945:123). The engineer spent 35 days and logged 363 miles in making the most comprehensive exploration of the upper Texas coast to that time.

The extent of Alvarez Barreiro's reconnaissance is shown on his map, *Plano corographico e hidrographico* (Weddle 1991:242–243), which gives many of the river courses and locations of Indian villages and mission settlements. It depicts the

entire Texas coast, including the barrier islands, with relative accuracy, representing a significant milestone in coastal cartography.

Alvarez Barreiro's errors were to be repeated, even after the map itself was superseded. The map of José Antonio de Alzate y Ramírez (Martin and Martin 1982), published in Madrid in 1768, leans heavily upon the *Plano*, repeating conceptions outdated by twenty years. In the interim, Joaquín Orobio Basterra, as commandant of La Bahía on the Guadalupe, explored the coast in both directions. In July 1745, in response to rumors of a French landing near the mouth of the Trinity, he was ordered to reconnoiter the coast east of La Bahía, a sector of which he seems to have known little or nothing—Alvarez Barreiro's reconnaissance notwithstanding. Setting out in October to explore the Matagorda Bay area, he turned back because of flooded coastal marshes. He then sent a detail down the Guadalupe to see if it could be navigated to its mouth, which he believed to be in Matagorda Bay, that he might proceed thence along the coast in dugout canoes. In less than a day's travel, the soldiers found the river too choked with drifts to proceed.

Orobio, with soldiers from San Antonio de Béxar and San Juan Bautista, set out up the Camino Real in January 1746. At the Trinity River crossing, at least 140 miles from the river's mouth, the local Indians advised against following the river downstream as he had intended. He traveled on to Nacogdoches and Los Adaes. Along the way, his fears of foreign invaders were exacerbated by reports that actually pertained to the French ship *Superbe*, wrecked at the mouth of Matagorda Bay the previous May. While Orobio chased rumors, two-thirds of *Superbe's* castaways, walking toward Tampico, were slain by Indians (Weddle 1991:253).

From Los Adaes, near present-day Robeline, Louisiana, Orobio marched southwest for almost a month to reach several Bidai *rancherías*. It was among the Bidai that he learned of the French disaster and of a search party from New Orleans that had withdrawn out of fear of the Karankawan tribes. He learned also that French traders were making inroads among the Akokisa via the Trinity, Neches, and Brazos rivers. The Spaniards traveled "west by southwest" among the Akokisa habitations, supposedly on the San Jacinto River, seeking further sign of the elusive foreigners. Finding little, they returned to La Bahía along a more direct route (Orobio Basterra 1746).

In 1747, Orobio Basterra was called upon to lead a Texas troop in José de Escandón's multipronged exploration of the region that was to make up the colony of Nuevo Santander. With 50 soldiers from La Bahía and Los Adaes, he spent two weeks in January exploring along the San Antonio River, seeking a new site for Presidio de la Bahía and Mission Espíritu Santo, which Escandón hoped would be the northern anchor for the new colony. He chose the site on the San Antonio, at present-day Goliad, called Santa Dorotea. This river, he reported, flowed into Espíritu Santo Bay (actually San Antonio Bay), "six leagues" away—another example of faulty understanding of the immediate territory—where a good anchorage offered the means of supplying the settlement and guarding the coast. Then, on February 16, the explorers struck south to traverse the proposed Nuevo Santander region itself.

Reaching the Nueces River, believed until this time to join the Río Grande, they followed it to its mouth to find that it entered a large bay, which was given the name San Miguel Arcángel (Escandón 1747). With its mouth concealed within Corpus Christi Bay, this was the river shown on maps since the 1520s as Río Escondido ("Hidden River"). More than two centuries had been required to reveal it.

As Orobio traveled south through dry country scarcely seen by Europeans since Cabeza de Vaca, he named the prominent features: La Purísima Concepción (Agua Dulce Creek), Lago de la Santísima Trinidad (Baffin Bay), and the salt lakes in Willacy and Hidalgo counties (Sal Vieja and Sal del Rey), which he called San Francisco Xavier. From the salt lakes, he turned southwest along a trail occasionally used by Nuevo León settlers to reach the salines. At the Río Grande crossing called Paso del Cántaro, above present-day Roma, Orobio received Escandón's order to return to his post.

Orobio, in response to an Akokisa petition for missions, embarked in May 1748 on a new exploration of the upper coast. It was a step toward the eventual founding of Mission Nuestra Señora de la Luz del Orcoquisac (Akokisa) and Presidio de San Agustín de Ahumada. Traveling northeast on a course paralleling the coast some 40 miles inland, he was met at the Trinity by an Akokisa band coming up the river in canoes. Thence he explored downstream, visiting the natives' small irrigated fields of corn and vegetables and noting arable lands, abundant timber, and facility of irrigation from the Trinity. Starting out to explore east from Trinity Bay, he shortly found himself in an extensive timbered swamp with dense undergrowth--unsuitable country for a mission site. He turned back to reconnoiter Trinity Bay, the river, and its tributaries. After choosing a site for the proposed mission on a stream called Arroyo de Nombre de Dios, he took up the march for his presidio on June 29, still avoiding the coast between the Trinity and Guadalupe rivers (Orobio Basterra 1748). The Akokisa (or Orcoquisac) mission, however, must await a direct foreign threat.

In the meantime, the information from Orobio's reconnaissance was put to use by Jacinto de Barrios y Jáuregui, who took office as governor of Texas in 1751. The data served Barrios's contraband trade operation, especially when it was threatened by French interlopers. In 1754, a French trader from Louisiana, Joséph Blancpain, established a trading post near the mouth of the Trinity. Barrios sent Lieutenant Marcos Ruiz to arrest Blancpain and his companions, who were sent as prisoners to Mexico City (Ruiz 1754). The episode touched off a flurry of exploration, followed by establishment in May or June 1756 of Presidio de San Agustín.

The post was placed temporarily on the site of Blancpain's trading post, some two leagues east of the mouth of the Trinity River, while the Trinity and San Jacinto river drainages were explored for a more suitable site. This reconnaissance was carried on by Domingo del Río, Bernardo de Miranda, and Barrios himself. Some 10 leagues west of the San Jacinto and 20 leagues from the coast, Miranda discovered the springs of Santa María del Alcazar and later took to Mexico City the governor's recommendation for removal of the post to that location. In the capital, Miranda sought to inform the viceroy on the lower Trinity by sketching a crude map

(Weddle 1991:299) on which the Mississippi River is made one with the Red; the San Jacinto is made to flow directly into the Gulf instead of Galveston Bay; and both the Neches and its tributary, the Angelina, are shown as entering the Gulf, the Angelina east of the Neches instead of west--evidence that the exploration to date was far from complete.

Barrios, meanwhile, changed his mind; the presidio stayed where it was until the hurricane of 1766 forced a short move. Soldiers of the post continued to play a role in coastal exploration; a road was opened to La Bahía. But the littoral between the Trinity and the Guadalupe, so long a concern for the viceroy, remained unexplored and most of it in the firm grasp of the Karankawan tribes (Weddle 1991:295–301).

At the close of the Seven Years' War in 1763, France was eliminated from colonial rivalry. The English, owning all the former Spanish and French territory east of the Mississippi but the "Isle of Orleans," quickly filled the void as the chief thorn-in-side for the jealous Spaniards. As rumors of foreign invaders so often moved the Spaniards to action, it was rumors of an English threat that brought forth the 1766 exploration of Padre Island.

In 1765, Malaguita Indians from the Padre Island vicinity brought to Mission San Juan Bautista on the Río Grande reports that white invaders were settling on the "Islas Blancas" near the mouth of the Nueces River. The New Spain viceroy, Marqués de Cruillas, called upon José de Escandón, the colonizer of Nuevo Santander, to report on the Texas barrier islands. To explore these isles of shell sand, the viceroy called on Diego Ortiz Parrilla, commandant of the Coahuila presidio of Santa Rosa del Sacramento.

Escandón sent Captain Blas María de la Garza Falcón of Camargo and his son José Antonio to reconnoiter the coast between the Río Grande and Garza Falcón's ranch outpost, Estancia de Santa Petronila, "five leagues" south of Corpus Christi Bay. The Garza Falcóns also made a preliminary reconnaissance of Padre Island. Escandón received information from a coastal fisherman, who described the "large pastureland surrounded by lagoons," extending along the coast from the Río Grande to the Nueces River. Only with storm surge, he said, was this area separated from the mainland; therefore it could not properly be called an island. From the mouth of the Nueces to the Bahía del Espíritu Santo (Matagorda Bay), he described a series of sandbanks that were completely inundated in times of high water (Escandón 1766).

Ortiz Parrilla's Coahuila force, joined by 25 Nuevo Santander soldiers led by the younger Garza Falcón, set up camp on September 7, 1766, on the beach referred to as "Playa de la Bahía de Corpus Christi," or "Playa de Corpus Christi." There the company waited out six days of drenching rain and high wind triggered by the hurricane that ravaged the presidio and mission on the lower Trinity River (Ortiz Parrilla 1766). Garza Falcón and the Nuevo Santander soldiers then reconnoitered the island, crossing the shallow lagoon "two leagues" wide. From Old Corpus Christi Pass to Brazos Santiago, they trekked over a stoneless strip of barren sand supporting only small clumps of stunted laurels and willows and a coarse, red grass.

On Brazos Island, amid bits of rigging from ships of all sizes, lay the broken hulk of a 20-gun English frigate, but no other trace of Europeans (Garza Falcón et al. 1766). The only Indian signs were abandoned rancherías at the lower end of the island, where Ortiz Parrilla's map (1767b) indicates habitations of the Manos de Perro, Patrines, Piguisas, Pasnaaus, and Malaguitas.

A navigator in the company who had often sailed along the Tamaulipas coast was surprised to find the area explored not connected to the mainland; this "Isla de San Carlos de los Malaguitas," as the explorers now called it, was continuous except for three storm passes, which in times of high water made it appear to be four (Garza Falcón et al. 1766).

The floods resulting from the hurricane forced Ortiz Parrilla to take a roundabout route to La Bahía. Arriving at that post with his troop from Coahuila, he was informed by soldiers just arrived from the devastated Presidio de San Agustín that all the coastal lowlands were flooded. Further exploration was well-nigh impossible. The soldiers gave depositions on the coast from the Nueces to Galveston Bay, which were submitted with Ortiz Parrilla's own report (1766, 1767a) and Ortiz Parrilla's map of the entire coast. The map represents Padre Island fairly accurately, although Baffin Bay is notably absent, and what appears to be Corpus Christi Bay is separated from the Nueces River. At the lower end, Brazos Island is in its proper place. Arroyo Colorado, entering the Gulf in southeastern Willacy County, is called Arroyo de San Miguel. The upper end of the island, divided by a storm pass, evidently represents Mustang Island. On its northern tip are shown habitations of the Carancaguases (Karankawas), Copanes (Copanos), and Piguacasas (Piguiques) (Ortiz Parrilla 1767b). Above Corpus Christi Bay, Copano Bay appears as Bahía de Santo Domingo, fronted by a small island of the same name. Beyond the coastal bend, the coastline is presented less accurately, and place names assigned previously are wrongly applied. Ortiz Parrilla contributed to advancement of coastal knowledge, but only for the sector that he had actually visited.

Presidio de San Agustín was abandoned early in 1771, just ahead of the frontier reorganization plan that ruled it no longer necessary. English traders took advantage by opening trade with the Akokisa and their neighbors. With such news in July 1772, the Texas governor, Barón de Ripperdá, ordered out Captain Luis Cazorla, who only the previous month had assumed command of Presidio de la Bahía, located since 1749 on the San Antonio River at present-day Goliad.

Cazorla, with 40 men from San Antonio de Béxar, followed the "Orcoquisac" road toward the abandoned settlement on the Trinity. Among Indian rancherías of diverse tribal elements—Karankawa, Coco, Bidai, and Aranam(e)—he observed much evidence of trade with Europeans. Cazorla was prevented from reaching the mouth of the Trinity by a swamp but got close enough to determine that the river flowed through Trinity and San Jacinto bays to reach the Gulf (Pichardo 1931, Volume 1:393–397). On the return trip, he followed the San Jacinto River to its mouth in Galveston Bay, thus disproving the map concept of both Miranda and Ortiz Parrilla.

At the Brazos, the explorers groped their way down the left bank to the river's entry into the Gulf, near present-day Freeport. About three leagues from the Gulf, they found the stream divided into two channels half a league apart. A maze of lagoons, knee-deep on the horses at ebb tide, lay within the fork, spreading out in an impenetrable thicket. On the beach, the soldiers found a ship's boat embedded in the sand and a rotted sea chest containing some rosaries and jewelry and 15 pesos in Spanish coin: mute testimony to the fate of some luckless ship whose crew had been swallowed up by the "Cannibal Coast."

Having been the first to explore the mouths of the San Jacinto and Brazos rivers by land, Cazorla on a 1776 expedition broadened knowledge of the mysterious barriers while investigating the wreck on Matagorda Island of a ship whose crew had been murdered by Karankawas. Near the former La Bahía site on the Guadalupe River, Cazorla learned from captured natives both the location of the wreck ("Toboso Island") and the identity of the culprits. He found the latter encamped at the mouth of the Guadalupe, where he surrounded them and seized their canoes.

Sending the horses around the bay, Cazorla embarked in the canoes. The two groups rendezvoused at the paraje del *bergantín*, a wharf near the mouth of San Antonio Bay. Thence, the captain and 21 men crossed the league-wide lagoon on horseback to reach Matagorda, or Toboso, Island, which Cazorla says had not been visited by Spaniards since 1749. The ship, a deep-draft English commercial frigate, lay on the beach, having broken up and released her cargo for the natives to plunder. Amid the wreckage the soldiers found the decomposed body of one English sailor. Cazorla (1776a), noting the remnants of many ships that littered the beach, deplored

> the pitiful misfortunes of the countless ships lost on this coast [where] the poor sailors fortunate enough to escape the shipwreck fall into the hands of the heathen Indians . . . and are victims of their cruelty.

Trying to explain the coastal topography, the captain wrote that Culebra Island began at "the port called Matagorda" and "according to what they tell me, runs eastward almost to New Orleans." Toboso Island, extending west from Matagorda Bay, he said, continued to the mouth of the Nueces River. Citing the difficulty of reaching the islands by land, he warned that foreigners might penetrate the territory by ascending the rivers. He proposed clearing the "heathen nations" from the islands and erecting a fort equipped with a shallow-draft vessel to patrol the coast (Cazorla 1776b). The plan went unheeded.

The Karankawa, having been admonished by Cazorla, informed him when a French ship was driven by storm upon the Texas coast the following winter. La Bahía's rescue force saved the castaways. But the natives continued their depredations, and others besides Cazorla were advocating their extinction. One of these was Athanase de Mézières, veteran French soldier and trader at Natchitoches, who had entered Spanish service in 1769. Mézières served both Texas and Louisiana as Indian agent, diplomat, and explorer. Paying scant heed to political nuances, he sought to solve the problem of the Karankawa tribes' barrier-island stronghold by involving Louisiana in exploring the lagoon between islands and mainland and

opening a port on the Texas coast. Louisiana Governor Luis de Unzaga y Amezaga responded favorably to the Mézières plan, and Teodoro de Croix, as commandant-general of the new Provincias Internas jurisdiction, cleared the way for this rare instance of cooperation between provinces. The joint expedition sailed from New Orleans on December 13, 1777, after Bernardo de Gálvez had succeeded Unzaga as Louisiana governor.

Gálvez assigned Luis Antonio Andry, an engineer and captain of the royal schooner *El Señor de la Yedra,* to explore and map the coast as far as San Bernardo (Matagorda) Bay. Andry was accompanied by his young son (a cadet), Isidro Millet (second officer and pilot), and 11 other sailors. Among the latter were Tomás de la Cruz, a Christianized Maya Indian, and a former La Bahía soldier, Cristóbal Gómez, who claimed knowledge of the Texas coast and its Indians. The vessel was long overdue in New Orleans and given up for lost before its actual fate was known. When at last news came, it was from an unexpected quarter: the Maya Cruz had turned up as a Karankawa slave (Cabello 1779).

As Cruz told it, *Yedra* entered Matagorda Bay in March 1778, the exploration and mapping essentially complete and provisions exhausted. When Indians appeared on shore, Gómez, who knew many of the Indians in this vicinity, volunteered to lead the shore party; he and four companions expected to obtain food from the natives for their walk to La Bahía, where they would get provisions for the ship.

Days passed without word. When the captain fired a signal gun, two Indians appeared, claiming to be soldiers from La Bahía. Unsuspecting, Andry brought on board the apostate Karankawas Joséph María and Mateo, brothers whose trademark was treachery and murder. They won the mariners' confidence, and the captain sent three more men ashore with them to look for the missing men. The two Indians soon returned without the sailors. Instead, several companions of Joséph María and Mateo suddenly appeared, and the massacre began. Five of the remaining six sailors were slain (Cabello 1779).

Some four months later, in July 1778, the Indians of Mission Rosario, including the aged mother of Joséph María and Mateo, took flight under the influence of the two renegades. As they made their way toward their barrier-island refuge, the old woman could not keep up. Joséph María shot her through with an arrow and left her body on the trail (Cabello 1779).

Many of the fugitives, pardoned by Governor Ripperdá, soon returned to the missions, but Joséph María, Mateo, and a few others remained in the wilds. In February 1779, Fray Joaquín de Escobar, minister of Mission Rosario, went to urge them to come back and found Tomás de la Cruz, held by Joséph María as his slave. The renegade surrendered his captive upon the priest's demand. Cruz recounted the massacre first to La Bahía Captain José Santoja, then to the new Texas governor, Domingo Cabello.

Proposals for further exploration of the Texas coast, and for subjugation of the troublesome Karankawas, passed back and forth between Cabello in San Antonio, Croix in Chihuahua, and Gálvez in New Orleans. Mézières offered what may have been the most feasible plan: a union of the Spanish horse soldiers from the Texas

presidios and the Louisiana boat crews, each element to function in its accustomed sphere (Bolton 1914, Volume 2:299–302). But Spain's entry into the war with England on the side of the American colonies in May 1779 put the matter on hold.

The Andry affair, however, was by no means forgotten by Bernardo de Gálvez. Following his successes against the English in West Florida, Gálvez was elevated to captain-general of Cuba, Louisiana, and the Floridas. In that capacity, he ordered José de Evia to survey and map the Gulf coast from the Florida peninsula to Bahía de San Bernardo.

Evia, having begun his reconnaissance on the east, exchanged his schooners at the Atakapas post on Bayou Teche for smaller craft before proceeding to Texas with two verchas and two pirogues. In apprehension of the hostile Karankawa groups, the boats carried 20 well-armed militiamen from the Opelousas post besides Evia's regular crew of 36 (Holmes 1968:93). On reaching the Sabine, July 10, 1785, the captain put his crew on guard against surprise Indian attack and proceeded down the coast under oar and sail. Buffeted by heavy swells, as Narváez's and Moscoso's boats had been, his craft stood in constant danger of being driven on to the lee shore.

Reaching Galveston Bay, Evia perceived its potential as a deep-water port and postponed his reconnaissance for his return voyage. The boats entered the lagoon between Galveston Island and the mainland and advanced westward with oar and sail in four- and five-foot water. They exited through San Luis Pass on the next day and coasted west in the open sea to San Bernardo Bay.

Aware of the bloody history of Spanish and French encounters with the Karankawan tribes at this location, Evia doubled his defensive stratagems. An entrenchment was made around his camp, guarded by the swivel guns. The Indians, however, appear to have caused no problem.

On July 20, while Domingo de Lemos sounded the bar with the pirogues, Evia took the other two boats and began mapping the bay. After working around the point of Matagorda Island (Enríquez Barroto's Punta de San Francisco), where La Salle had made his first camp in 1685, he sailed up the west side of the bay to sketch the shoreline and trace the inner margin of Matagorda Island. A diminishing larder and lack of potable water caused the expedition to withdraw on July 22. Next day, they began mapping Galveston Bay (Figure 2). Finding "good depth", the bar sufficient for ships drawing 15 to 16 feet, Evia gave it the name it still carries, honoring the governor and captain-general, Bernardo de Gálvez, who had by this time been made viceroy of New Spain to succeed his late father (Holmes 1968:102).

After the larder was replenished by a deer hunt, the boats sailed on eastward on the twenty-sixth in search of fresh water. At the Sabine, the water in the mouth was brackish; only by difficult rowing through Sabine Lake was fresh water finally found in the mouth of the Neches River. The Texas reconnaissance ended abruptly as a heavy thunderstorm forced the boats to get underway at two o'clock in the morning.

Evia, however, was not yet finished with Texas. In Mexico the following March to report to Viceroy Gálvez, he received new orders: to reconnoiter the coast from Tampico to San Bernardo Bay, with particular attention to the Río

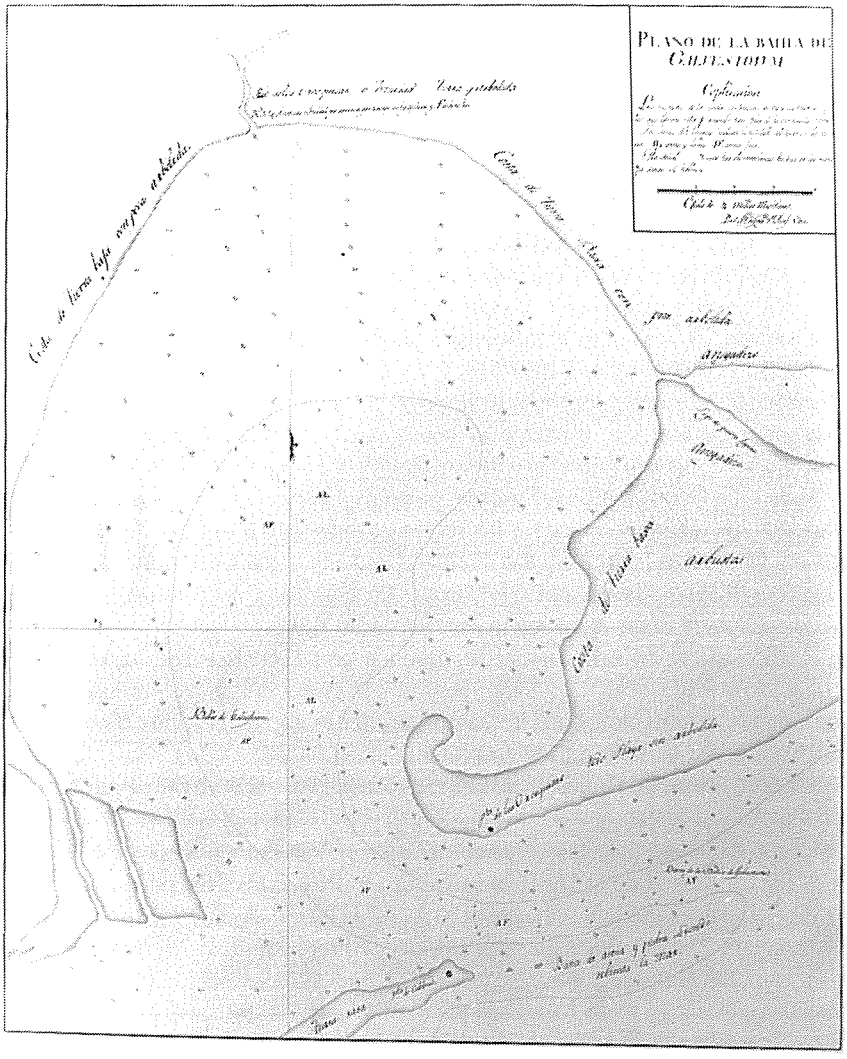


Figure 2. Plano de la Bahía de Galveston, by José de Evia, 1785. Holmes (1968) has a different Evia map of the bay with a different cartouche but identical configuration. Why Evia chose the particular English form for the name is a puzzle (Museo Naval, Madrid).

Bravo (Río Grande), because its course extended from the Interior Provinces. He sailed from Veracruz on June 5, 1786, with two vessels carrying, besides the crew, 50 infantrymen of the Zamora and Corona regiments, commanded by Captain Elías de Castro--the protection Evia felt was necessary against the coastal Indians. Gathering additional support as he ascended the coast to Tampico, he

had a schooner, a coastal vessel (*barco de la costa*), a launch, and four canoes (alternately called piraguas).

At Altamira, Castro recruited 20 mounted men to follow the expedition along the beach. The canoes sailed close to shore to sound the coast and sketch its outline; the larger vessels stayed farther out. Nearing the mouth of the Río Grande, the explorers were met by 25 cavalrymen from the upriver settlements of Reynosa and Camargo, who were to be their escort on the Texas coast. The boatmen sounded 7 to 10 feet of water over the bar, four fathoms within; the river was 120 varas (330 feet) wide at the mouth and at seven leagues upstream. After registering the Barra de Santiago (Brazos Santiago), the boats proceeded northward along Padre Island. Among fragments of ships wrecked here or brought by the current, Evia recognized part of the *Dragón*, on which he had once sailed; the vessel had been wrecked on Bajo Nuevo in the Bay of Campeche more than three years previously.

In observed latitude 28°10'N on August 11, the piraguas entered a bay that, according to the natives, was called Corpus Christi. The coastal pilots of Nuevo Santander informed the captain that the Nueces River emptied into the bay. Evia identified the pass as "the one they call Caballos," resembling that of Bahía de San Bernardo (Holmes 1968:183). To the northwest was Lago (Río) de San José, so named by Enríquez Barroto in 1686. Thence, the boats sailed northeastward along the barrier island to the point where they had turned back the previous year; there, the boats turned back toward the Río Grande.

The time alloted for Evia's voyage was much too short to permit a complete survey, so his efforts were directed at the bays that offered possibilities for navigation. The reconnaissance nevertheless was a milestone. Evia's map data were useful to others, including Juan de Lángara on his well-known map of the Louisiana-Texas coast, which came in for considerable attention from 1804 to 1821 in the attempt to unravel the Louisiana boundary question (Holmes 1968:26).

Even before Spain's retrocession of Louisiana to France and France's sale of the territory to the United States, the matter of the boundary between Louisiana and Texas focused attention on the Gulf Coast. In 1789, the commandant at Natchitoches, Luis Carlos de Blanc, proposed extending his jurisdiction to the Sabine River. The matter was dragged through official channels until 1791, when the viceroy, the second Conde de Revillagigedo, issued orders for exploring Texas and its coasts with a view to opening commerce between the two provinces and redrawing the boundary. The reconnaissance was to begin at "Espíritu Santo Bay" and proceed to

> the coast of that of San Bernardo and the adjacent small islands where live the Indios Carancaguases [Karankawas] and other roving bands who locate their rancherías on them, as well as on the mainland.

And so on to the Trinity River and "the port to which the pilot José Ant. Evia gave the name of Galveston" (Revillagigedo 1791).

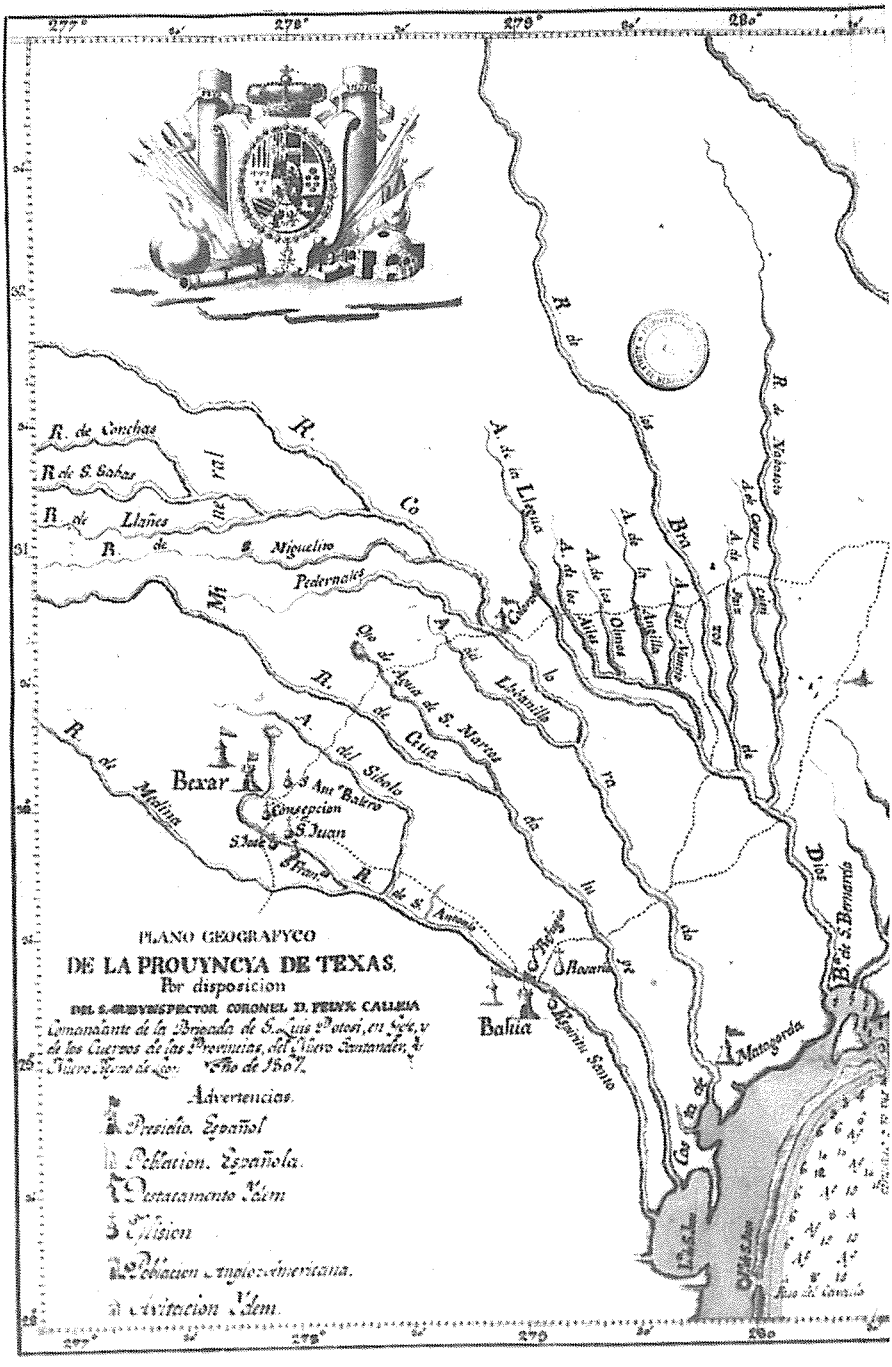
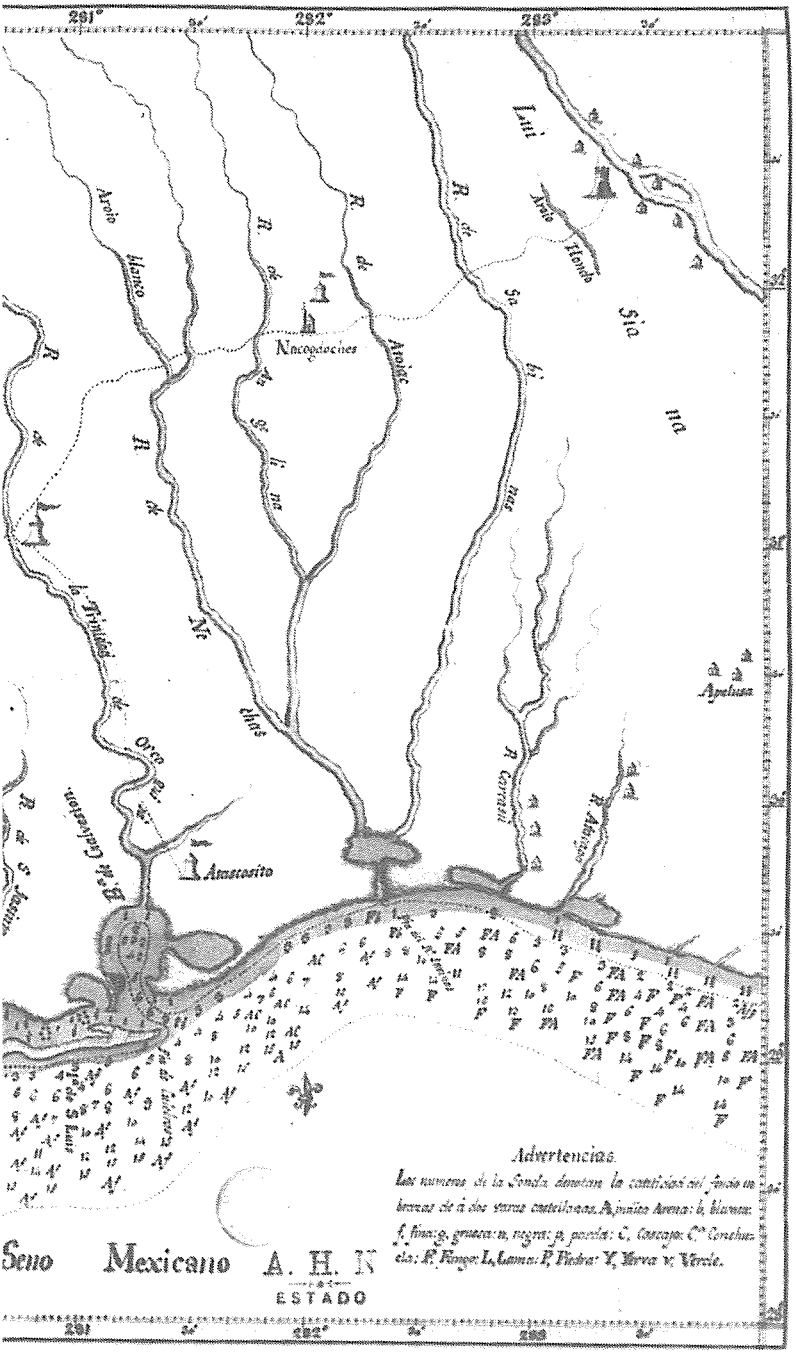


Figure 3. Plano Geografyco de la Prouyncya de Texas, "by disposition of Subinspector Colonel" Félix Calleja, 1807. Calleja became New Spain's viceroy (1813–1816). The map,



which reflects little knowledge of previous explorations, creates more confusion than it dispels (Archivo Histórico Nacional, Madrid).

The plan had many worthy objectives: the opening of a Texas port, fortifying San Bernardo Bay to curb the ravages of the Karankawas, detailed mapping of the region, and much more, including consideration of the boundary change. A 1793 Crown decision against shifting the provincial boundary seems to have ended the matter. Already, the Mission Nuestra Señora del Refugio had been founded for the Karankawans and Aranames near the mouth of San Antonio Bay. The site had been chosen following Fray José Francisco Garza's reconnaissance of the coast from Lavaca Bay to the mouth of the Nueces River. In July 1793, Juan Cortés, the La Bahía commandant, inspected the new mission's environs with special attention to the Indians' retreat on Toboso Island from San Antonio Bay to the "Port of Matagorda." He found Matagorda Bay to be too shallow to accommodate even packet boats or smacks. The island—"more appropriately called Purgatory"—was without potable water or forage and swarming with blood-sucking mosquitoes (Cortés 1793). Two years later, the mission moved inland, to present-day Refugio, Texas, where it functioned until 1828.

Mission Refugio, combining its efforts with those of missions Rosario and Espíritu Santo, was not an unqualified success at solving the problem of the coastal tribes. Neither was it an outright failure. By 1804, "very few runaway families" remained of those who traditionally inhabited the barrier islands and blocked Spanish efforts to control the Texas coast. The trouble caused by these apostates had virtually ceased (John 1991:174). To Spanish coastal exploration, the Karankawans had provided one of the principal motivations (surpassed only by that of preventing foreign intrusion) and also the greatest obstacle.

No port worthy of the name was ever developed on the Texas coast during Spain's tenure. The Spaniards, in fact, were ambivalent about the developmnent of ports and settlement of the coast, which would have facilitated contraband trade and helped to spread knowledge of Spanish possessions abroad. The jealousy with which the Spaniards sought to keep knowledge of their territories from other nations may also have kept it from their own; information on earlier explorations seems seldom to have been on tap when it was needed (Figure 3).

With the fading of the native menace, the expeditions of the Spaniards most often made coastal reconnaissance in response to rumors of foreign intrusion—sometimes groundless, sometimes not. The knowledge that came from such efforts fell short of giving them mastery of the coast. Invaders—Napoleonic exiles, freebooters, filibusters, and revolutionaries—persisted to the end.

ACKNOWLEDGMENT

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Abbreviations

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AGN	Archivo General y Público de la Nación
BTHC	Barker Texas History Center, University of Texas at Austin
PI	Provincias Internas, in AGN

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French, Spanish, and Indian Interaction in Colonial Texas

Kathleen Gilmore

ABSTRACT

Efforts by Spain and France to control the native peoples in Colonial Texas, and to advance and hold their territorial borders near the present Texas-Louisiana border, were approached differently by the two powers. Spain used the mission-presidio system, viewing the Indians as ignorant children to be taught and saved. France used trading, with the trader becoming the Indian's friend. Archeological manifestations of these different forms of interaction include the mission and presidio ruins and the presence of French trade goods such as faience and gun parts in sites across Texas.

What is now Texas was the scene of a virtual "cold war" between France and Spain in the first half of the eighteenth century. Spanish claims to the area were based on Cabeza de Vaca's long and tough trek across it in the 1520s and 1530s. France based her rights on La Salle's trip down the Mississippi River in 1682, when he claimed for France the Mississippi River and all the land drained by it and its tributaries.

La Salle's plan was to control his claim by placing a settlement at the mouth of the Mississippi River, but in 1685 he unintentionally sailed on past the Mississippi and landed instead at Matagorda Bay.

Spain had neglected the exploration and settlement of Texas until after La Salle's expedition, when Spain suddenly realized that La Salle's settlement on Garcitas Creek near Matagorda Bay (Figure 1) might give France an excuse to claim the territory crossed by Cabeza de Vaca some 150 years earlier.

La Salle hid his little colony from the Spaniards, but not from the Indians. After a long search it was finally located, three years after it was founded, by Alonso de León in 1689; most of the inhabitants had been killed, and the village had been sacked. Even the tough Spanish soldiers seemed to have been touched by the fate of the colony, for one soldier wrote a poem of lament (Weddle 1973:187).

The next year de León returned to the village site, burned it, and proceeded eastward to establish missions among the Caddoan-speaking Tejas or Hasinai, who were friends of the French, on New Spain's eastern border (Bolton 1963:145). In this way the Spanish in Texas began their pattern of advancing and holding the frontier with the mission-presidio system. These missions, however, were abandoned in 1693 because of the lack of supplies and lack of interest among the Tejas.

France now began to place colonies on the Gulf Coast, acting to hold the claims made by La Salle on the Lower Mississippi River. Frenchmen also were exploring

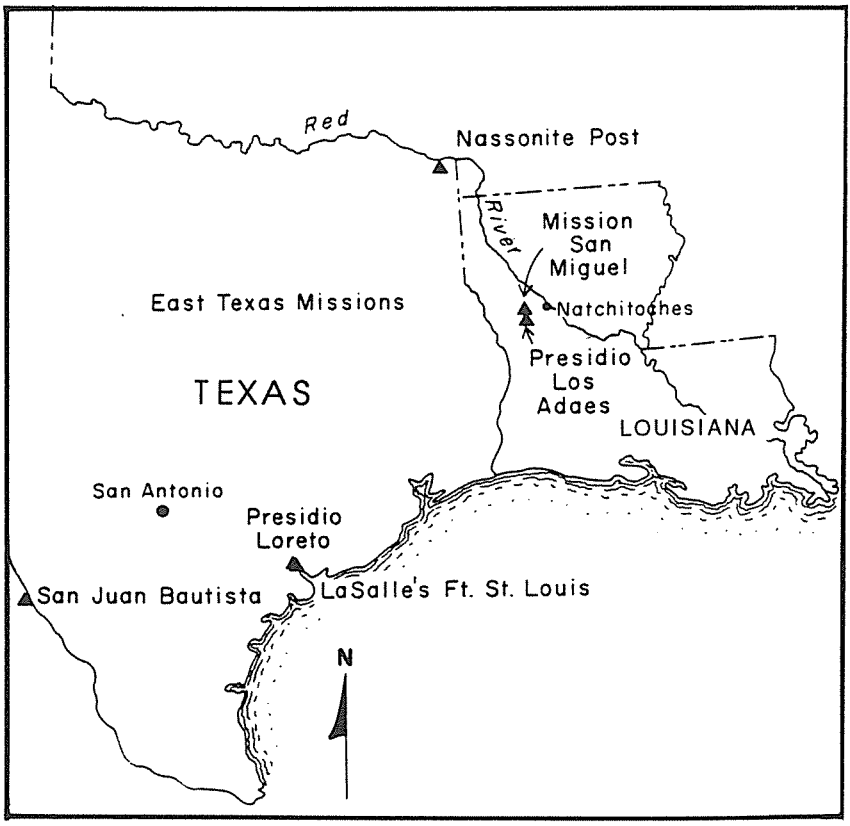

Figure 1. Map of Louisiana and part of Texas showing settlements and missions along the Spanish-French border in the early eighteenth century.

the rivers and making friends with the Indians. In 1714, the colorful Louis Juchereau de St. Denis founded a trading post on the Red River among the Natchitoches Indians, only a few miles from New Spain's eastern border. St. Denis promptly loaded his pack mules with merchandise and set out for San Juan Bautista, the Spanish presidio on the Rio Grande. This trip, Weddle (1973:265) remarks, was a blatant commercial venture, spurred by Cadillac, the French governor of Louisiana, and abetted by the Spanish padre Hidalgo, who wanted to return to the missions of East Texas. It was the beginning of the full-fledged French trading in Texas.

The Spanish response to the threat of a French settlement practically on their border was to send Domingo Ramon to East Texas in 1716, guided by none other than the wily St. Denis, who in the meantime had married the Spanish commander's granddaughter. The entrada established six missions and a presidio. One of the missions, San Miguel de Linares, was in present-day Robeline, Louisiana, about 20 km (12 miles) from the French village of Natchitoches. Although the French menace was ever present, St. Denis did not seem to be a part of this threat; he

willingly helped Spain secure the border, but at the same time he created a nearby black market for his goods. As one author (Weddle 1973:265) put it, this plot was "nothing more or less than the bartering of Texas to the Spaniards to establish illicit trade—surely one of the biggest real estate giveaways in history."

Spain and France went to war in Europe in the summer of 1719, and, because of inadequate military support, the lack of Indian cooperation, and panic after a mild show of aggression from Natchitoches, the Spaniards again abandoned the mission establishments of East Texas, this time until the summer of 1721. Meanwhile, in the spring of 1719 the Frenchman, Bénard de la Harpe, ascended the Red River past the Great Bend (near present-day Texarkana) to establish a trading post among the Nassonite Caddo group. This village, one of the Kadohadacho villages, had been visited by some of the survivors of the La Salle colony in 1687 and by the Spaniard, Terán de los Rios in 1691.

La Harpe was ordered to do his "utmost in order to succeed at entering into trade with the Spaniards of the province of Texas, the Kingdom of León and New Mexico" (Smith 1959:75). To further this aim he wrote a polite letter to Father Marsillo (which is probably French for Margil), suggesting that the opening of commerce with Natchitoches and the Nassonite Post, where European goods would be available at reasonable prices, could benefit the conversion of pagans. La Harpe further suggested that Father Marsillo contact his friends in New Mexico, Paral, and New León, and that, furthermore, the padre would receive five percent of the total sales (Smith 1959:257). Father Marsillo wrote back, probably from Mission Dolores at present San Augustine, that he would indeed write to his friends, but since it was not appropriate for a friar to participate in commerce, the correspondence should be kept secret (Smith 1959:373). But the war broke out between France and Spain, and la Harpe, instead of trading toward the south, explored the country to the north of the Red River.

With the East Texas establishments abandoned, Spain feared that France could take over Texas. Moreover, Frenchmen, St. Denis included, continued to be friendly with the Indians and were trading them guns for furs. To hold the frontier that had been abandoned in 1719, the largest expedition yet, led by Marquis de Aguayo, started across Texas in the spring of 1721. This expedition must have created a spectacle (and a lot of dust), for it had 500 men, almost 3,000 horses, 600 head of cattle, 900 sheep, and almost 800 mules, 600 of which carried loads of clothing, arms, munitions, and supplies (Forrestal 1934). The war had ended the fall before, but Aguayo was under orders to continue with the plan to restore the missions. His orders noted that no more than a defensive war should be waged, and then only if the French encroached on Spanish territory (Forrestal 1934:6). The expedition restored the six East Texas missions, founded a presidio at Los Adaes near Mission San Miguel on the easternmost border, reestablished both the presidio for the protection of Mission Concepción, and another one west of there near the Tejas and the Neches rivers (Forrestal 1934:58).

When the expedition returned to the San Antonio River, where a presidio and two missions had already been built, part of the expedition was sent to Garcitas

Creek near Matagorda Bay to establish a mission; across the creek they built a presidio (employing the dominance principle) squarely atop the site of the former French village. The diary of the expedition reported that French artifacts were found in trenches dug for foundations of the fort (Forrestal 1934:63). Archeological research has also confirmed French artifacts dating to the period of the French colony at the Garcitas Creek site (Gilmore 1986a:61).

By 1722 Spain held the eastern border of Texas with two presidios, the coast with one presidio, and the interior with one, all with associated missions. In contrast, France held the border adjacent to Texas with two military posts, one with a fort, and one with a small garrison. Several unofficial traders' villages may have been along the border. These contrasting approaches to the frontier were founded in different viewpoints about the native peoples.

Clearly for a country to hold and control a province or colony, the native residents must be controlled. In Spain's mission-presidio system Spain established control by collecting the Indians into permanent settlements at the mission. There the padres taught them agricultural and industrial skills and instructed them in the Catholic faith and the Spanish language, thereby making them useful Spanish subjects. Yet many nonsedentary Indians of Texas remained in the missions only as long as they were cold or hungry; even the sedentary Indians of East Texas preferred their dispersed settlements to living in large groups in the missions. The Spanish method, according to Newcomb (Tunnell and Newcomb 1969:41), "was, in fact, a broad gauged attempt to destroy every facet of native culture and replace it with the civilization of the Spaniards."

Some scholars argue that the conversion of the Indians to Christianity was a byproduct of the political issue of holding the frontier, and the late Father Engelhardt (Bolton 1962:9) believed that the Spanish monarchy cared not one whit for the success of religion except where it promoted political schemes. The historian, Herbert E. Bolton (1962:10), argues, however, that the monarchy was sincere enough, but it was so hard up that it could not finance religious projects unless they served political ends as well.

Comparing the attitudes of Spain, France, and England toward the Indians, John TePaske (1971:35) suggested that to Spain and her padres the Indian was a noble savage whose only defects were his false religion and idleness. The English, he noted, had little concern for the soul of the Indian and maintained the perspective that "the only good Indian was a dead Indian."

The French attitude differed from both the Spanish and English. Missionizing had been practiced in New France (Canada), but it was less important in Louisiana. Bienville, writing in 1725, recognized the value of missionaries for the Indians, not only for their missionary efforts, but also for their later-known roles as "Indian agents." Bienville suggested that the missionaries report what was happening among the Indians to the post commanders, that they prevent quarrels between the traders and the Indians, and that they should see to it that the traders' prices were not too high (Rowland and Sanders 1932:515). Trading practices and spying seem to have taken precedence over saving souls.

The French trader became the Indian's friend or he lost his job, or perhaps he lost his head, so the relationship became somewhat symbiotic, that is, of mutual benefit. The natives furnished what the trader wanted—hides, tallow, or slaves—in return for what the Indian wanted—guns, brandy, and beads. Many of the traders lived with or married Indian women; the traders became almost Indians themselves, but the Indian women changed little (Rowland and Sanders 1929:207). Some of the soldiers also married native women. At least three of the six French soldiers stationed at the Caddo Nassonite Post on the Red River had native or metís wives (Gilmore 1986b). On the other hand, the Spanish soldiers, who were not above taking mistresses, seldom married natives; in fact many brought their Spanish wives with them to the presidios. The French policy of condoning intermarriage, according to TePaske (1971:78), built "a cultural bridge which led the natives to trust the French and give them their affection."

Are these different approaches and attitudes manifested archeologically? A pattern left in the ground by a mission or presidio with surrounding compound walls would differ from the less formal plan left by a village, although a trading village might also have a fortification wall. A trading village like the Deer Creek site in Oklahoma would yield a wide variety of trade goods (Wedel 1981). Clearly, documentary research should be carried out before sites are excavated to provide working concepts of the sites' functions.

The Spanish settlements built of wood on the eastern border of Texas have long since disappeared, and only the sites of Mission Dolores de los Ais near San Augustine and, east of it, Presidio le los Adaes, have been systematically tested by archeologists. But when other sites are found, patterns of walls left in the ground like those at Mission Dolores (Figure 2) and San Xavier (Figure 3) should be found (see Corbin et al. 1980; Gilmore 1969).

Other manifestations of European-Indian interaction are found in the artifacts themselves. French gun parts are distinguishable from Spanish, and the tin-glazed ceramic wares, called faience when made in France (Figure 4) and majolica when made in Mexico (Figure 5) can be separated by country of origin. So when artifacts of French origin are found in sites of known Spanish affiliation, they indicate some form of French trade. We know the French post at the Nasoni Caddo (Gilmore 1986b) was a metís village because most of the wives there were Indian or of mixed Indian-French heritage. Archeological test excavations at the site were limited, and few French luxury items were found, but although French gun parts were found, nearly all the ceramics were native-made, lending support to the observation that Indian women who married Frenchmen remained much the same and did not become acculturated to French behavior.

French faience made up almost 44 percent of the tin-glazed wares found at the Spanish presidio of Los Adaes (Gregory 1973:Tables 14 and 15), and French gun parts and a French coin were also found in the excavations. This post—the Spanish capital of Texas for fifty years—was more than 350 miles from its legal supply point at San Antonio, so illicit trade was operating by necessity, but probably also by desire, through the French post of Natchitoches only 20 km (12 miles) to the east.

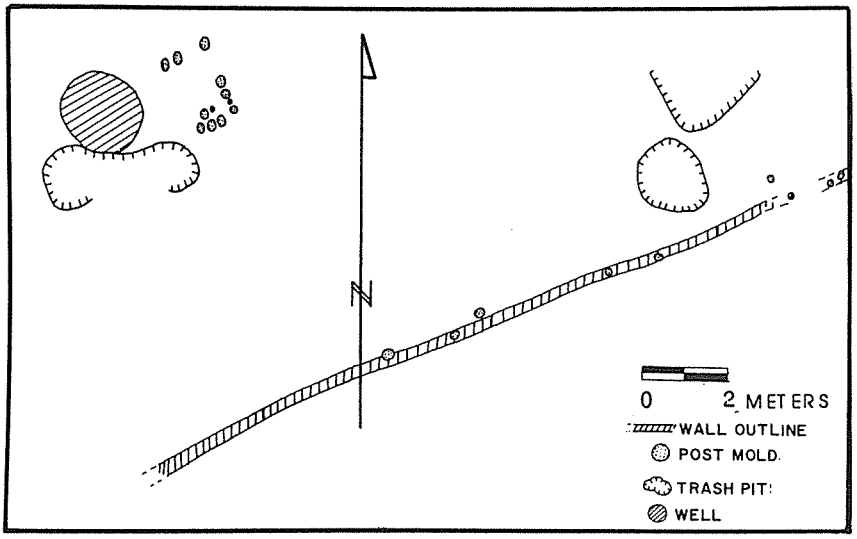

Figure 2. Plan showing the excavation of the palisade wall at Mission Dolores (from Corbin et al. 1980:Figure 6).

At Mission Dolores de los Ais, French faience made up 78 percent of the tin-glazed wares (Corbin et al. 1980:215). However, since most of this faience was recovered outside the mission compound wall, the excavators suggest the possibility that a French trader was in residence, illegally, of course.

Later Spanish colonial sites also yield strong evidence of French trade. At Presidio Ahumada, near the eastern border of Texas on Galveston Bay, 46 percent of the tin-glazed wares were of French faience (Tunnell and Ambler 1967). Following the dominance principle again, this presidio was built by the Spaniards at the 1750s trading post belonging to the Frenchmen Blancplain (Weddle 1991:293–294), which may account, at least in part, for the high percentage of faience. Sherds of faience were also found at Mission Concepcion in San Antonio (Scurlock and Fox 1977:57), Mission Rosario near Goliad (Gilmore 1974:Plate 14), at Mission San Lorenzo in Real County (Tunnell and Newcomb 1969), and at Rancho de las Cabras near Floresville (Taylor and Fox 1985:31). Whether these small finds across Texas reflect the presence of a French trader is unknown, but they do attest to the widespread distribution in colonial Texas of goods manufactured in France. The trade that la Harpe and Father Marsillo were unsuccessful in establishing in 1719 surely must have been successfully established not long afterward.

SUMMARY

Can each of these contrasting approaches be evaluated in terms of its effectiveness in holding and advancing the frontier in Texas and in dealing with the native peoples? This is difficult to do since the borders were held by the

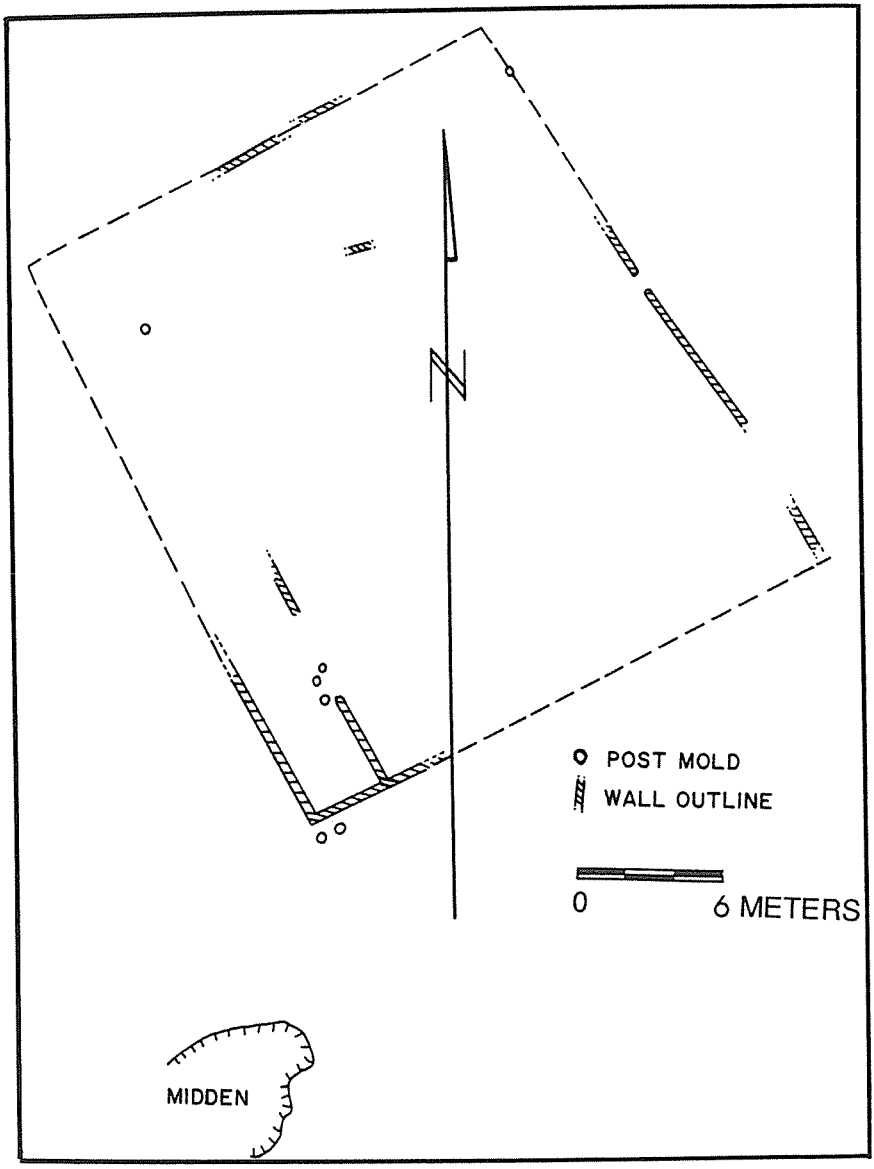

Figure 3. Plan showing the wall trenches at Mission San Xavier (from Gilmore 1969: Figure 6).

respective countries until 1763, when Louisiana was ceded to Spain. After almost 80 years of being paranoid about French aggression, Spain acquired French Louisiana with little effort. The tattered "Pine Tree Curtain" on their common border was no more.

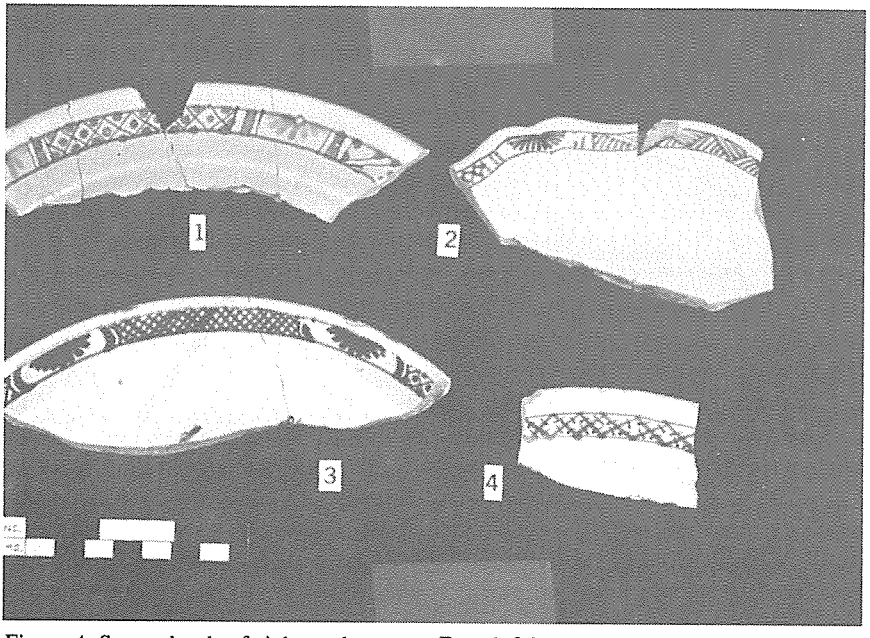

Figure 4. Some sherds of eighteenth century French faience ware.

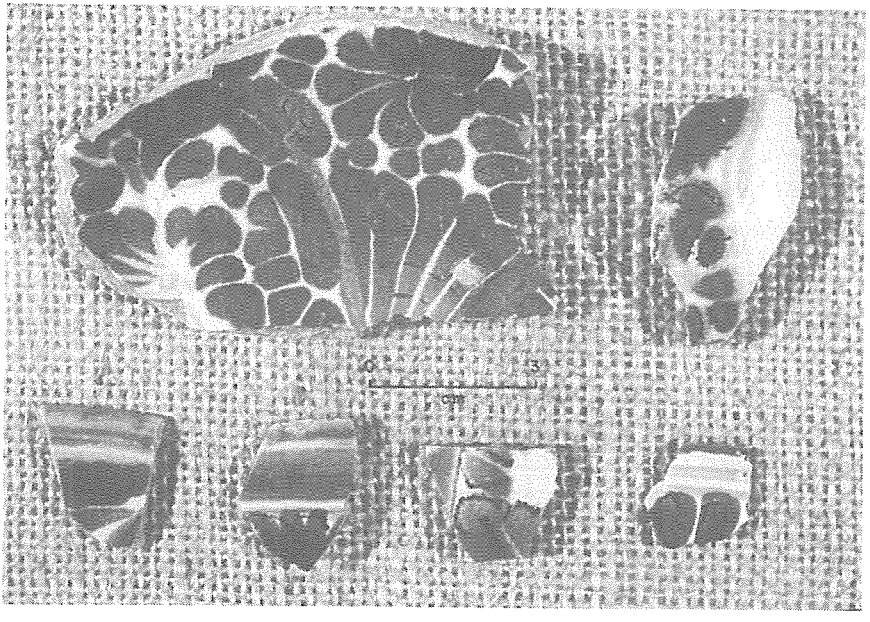

Figure 5. Some sherds of eighteenth century Mexican majolica ware.

As for Indian policies, it would be helpful to have some first-hand evaluations by the Indians, but none can be found. However, French policies concerning trade and making friends with the Indians proved advantageous to the Spaniards in at least one instance. In 1753, an Indian uprising against the East Texas missions and Presidio Los Adaes was narrowly averted when the French trading post called Le Dout (possibly in present Wood County) was ordered off Texas soil by the Spanish authorities, but the force of 500 uprising Indians was placated by their French friends, and the order to move the post was ignored (Perttula and Gilmore 1988:93). The fact that Spain continued the French trading system after her takeover of Louisiana argues for the success of the system.

Regardless, both Spanish padres and French traders acted as Indian agents; the padres viewing the Indians as children to be taught and disciplined, and the traders viewing them as equals to be exploited. But to archeologists and ethnohistorians, the Spanish padres are better appreciated than the French traders because the padres, well educated and observant—albeit culturally biased—left records about the natives and the country. There is no doubt that the padres were sincere in saving the souls of the Indians, but unfortunately, most of the French traders could not write, so few records of their exploits were made; it is the artifacts of French origin that authenticate their widespread activities.

Although the mission system in East Texas was a virtual failure (three missions were moved to San Antonio in 1731), the mission-presidio establishments managed to hold Texas against the French aggression that prompted Spain to take action. Thus, France provided Spain with the impetus for the initial settlement of Texas.

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The Mayhew Site: A Possible Hasinai Farmstead, Nacogdoches County, Texas

Nancy Adele Kenmotsu

ABSTRACT

Prewitt's excavations of the Mayhew site, 41NA21, in 1975 yielded an artifact assemblage that seemed to represent a single component dating to the Allen focus. Recent analysis of the data has basically supported this hypothesis and also strongly suggests that the site was an eighteenth century Hasinai Caddo farmstead.

INTRODUCTION

The Mayhew site, 41NA21, identified in 1972, was named for Thomas Mayhew, a knowledgeable avocational archeologist from Nacogdoches who has recorded several sites in the vicinity of Bayou Loco (Prewitt et al. 1972). In April 1975, the Texas Archeological Salvage Project (TASP), known today as the Texas Archeological Research Laboratory-Sponsored Projects, carried out archeological excavations at the site. These excavations were under the direction of Elton R. Prewitt and were undertaken in anticipation of the construction of Lake Nacogdoches, a water supply reservoir for the City of Nacogdoches.

Evidence is explored here in the hope of proving the hypothesis that the Mayhew site represents the remains of an Hasinai Caddo farmstead; the hypothesis was developed after a suggestion by Dee Ann Story that this site might provide an opportunity to study a single-component site. In a review of the artifact assemblage, several aspects of the collection suggested that it was a farmstead. First, the major part of the assemblage consists of small plain and brushed sherds that strongly suggest a domestic occupation. Because of their uniformity in paste, temper, and surface treatment, the sherds seemed to represent a single component. Second, the remainder of the assemblage includes both aboriginal and early European artifacts, all of which seemed consistent with a domestic function for the site. Third, the nearby Deshazo site has been interpreted (Good 1982; Story and Creel 1982) as a historic Caddoan hamlet. Spanish priests (Casañas 1968) described the historic Caddoan settlement system as one of small hamlets surrounded by isolated farmsteads. It seemed probable, then, that farmsteads would be found near the Deshazo site. Finally, the excavation undertaken at the site was extensive; according to Prewitt (1975), 21 percent of the site was excavated in a large block. These aspects of the site favored an analysis that centered on whether the site had indeed been a Caddoan farmstead.

The importance of such a study has been noted by Story (1990:334–336), who pointed out that the basic unit of Caddoan settlement systems is the household. However,

> Caddoan habitation loci . . . have not been adequately investigated. . . . Most excavations have been too limited to permit accurate characterization of the settlement size and structure. . . . As a result, the most fundamental building blocks of the Caddoan settlement system—the household and community—are poorly understood [Story 1990:336].

ENVIRONMENTAL SETTING

Now inundated by Lake Nacogdoches, the Mayhew site was on the west bank of Bayou Loco in central Nacogdoches County, in the Piney Woods of East Texas (Figure 1). Nacogdoches County is characterized by a warm, temperate climate that is typical of the southeastern United States. Summers are long with hot, humid temperatures; winters are cool and relatively short (Creel 1982a:14; Bomar 1983). Annual rainfall in the county averages 127 cm (50 inches) (Dolezel 1980:2). Snow is not common in the region, but frosts are frequent during the late fall and winter when most low vegetation dies back to ground level.

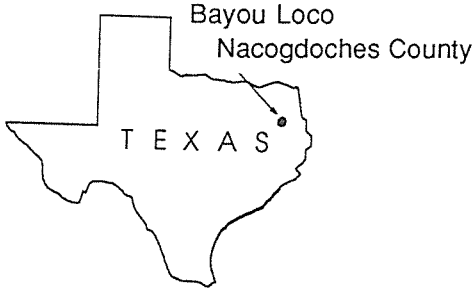

Figure 1. Map of Texas showing the location of Bayou Loco and the Mayhew site.

Soils formed in this humid environment under forest vegetation tend to be acidic clay, or sandy loams more than acidic clays and clay loams (Dolezel 1980:3). At the Mayhew site, the soils are a shallow, orangish tan sandy loam over a red-orange sterile clay. According to the soil survey for Nacogdoches County, soils at the site are of the Tuscosso-Hannahatchee association, which are loamy bottomland soils. Because of flooding, "these soils have low potential for cultivated crops" (Dolezel 1980:11), and are used almost exclusively for pasture land. Hardwoods dominate the vegetative cover.

The Nacogdoches area consists of rolling hills dissected by many perennial streams, one of which is Bayou Loco, which flows roughly southward from the Mayhew site to a place some 20 km (12 miles) distant, its confluence with the

Angelina River. In the vicinity of the Mayhew site the stream is well entrenched, with many meander loops in a wide, flat floodplain. Since the floodplain has only a slight elevation gradient in this area, Bayou Loco is sluggish and overflows its banks frequently during heavy rains (Prewitt et al. 1972:2; Creel 1982a:17). The low elevation gradient also causes the small tributaries of Bayou Loco to fan out quickly at the margins of the floodplain and drop their sediment and water loads in the floodplain rather than in the channel itself. The resulting alluvial fans probably were quite fertile and suitable for aboriginal agriculture (Creel 1982a:17).

Situated on the west side of Bayou Loco, the Mayhew site was contained on a small knoll about 30 meters in diameter (Figure 2). The site was bounded on the southeast and east by a marshy area in the Bayou Loco floodplain, on the west and southwest by a seeplike boggy area, and on the north by an erosional gully that separated it from another sandy knoll just north of the gully (Prewitt 1975). The floodplain intersected the valley wall northwest of the site, and the land rose steeply to the uplands just west of the site. Creel (1982a:15) notes that the three microenvironments (riparian, bottomland, and upland) around sites in the reservoir contained many floral and faunal species that could have been readily exploited by prehistoric and early historic aboriginal populations. These include various species of fish, white-tailed deer, turkey, duck, rabbit, pecans, acorns, herbs, berries, and other edible foods (Creel 1982a:15). Early historic accounts indicate that the modern environmental setting has been essentially unchanged since A.D. 1700 (Espinosa in Swanton 1942:274; Casañas 1968:44).

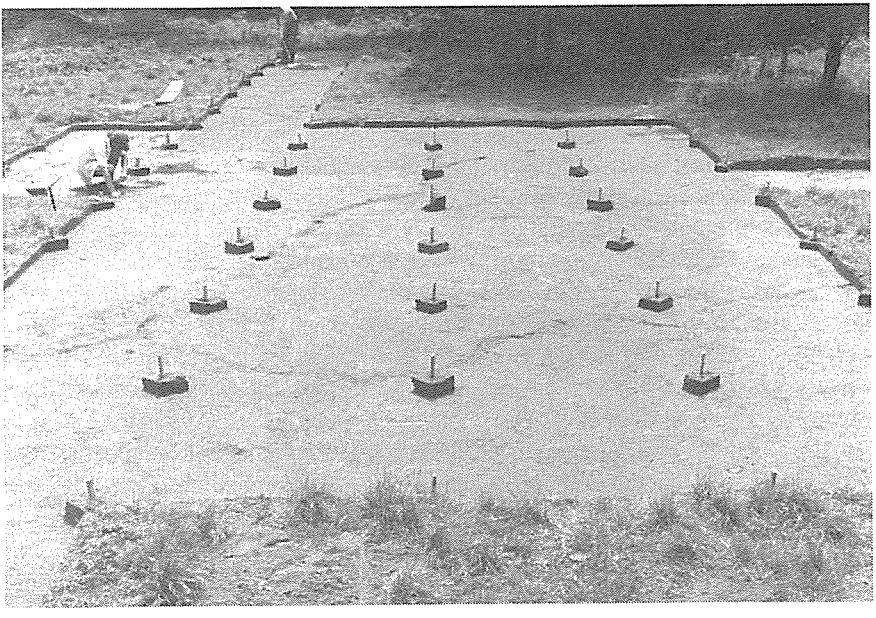

Figure 2. Photograph showing excavation in progress at the Mayhew site, April 1975.

CONDITION OF THE SITE

The history of land use at site 41NA21 and its immediate surroundings is not entirely clear, but there is some evidence (Kenmotsu n.d.) that postdepositional disturbances have been minimal. This is important because of the high percentage (about 34 percent) of small, thumbnail-sized plain and brushed body sherds recovered at the site. Most other sherds measure from 2 to 3 cm in diameter. One possible explanation for the quantity of small sherds is that they are a result of plowing, but Prewitt (1975; Personal communication 1987) has argued strongly that the site has never been plowed. The lessee of the pasture where the Mayhew site is located told Prewitt he had never plowed the pasture and, moreover, that the boggy areas surrounding the site argue against the feasibility of plowing; the floors of the excavation units and the profiles show no evidence of plow scars. Finally, Prewitt does not consider the small size of sherds evidence of plowing, because other sites in the reservoir area that have been plowed do not have the number of small thumbnail sized sherds found at Mayhew (e.g., 41NA13/27 [Deshazo] and 41NA22). Therefore, it is assumed here that the site was not plowed.

ARCHEOLOGICAL AND ETHNOHISTORIC BACKGROUND

The dominant component at 41NA21 is the Allen phase, but an Early Ceramic period component comprising 22 sandy paste sherds, three Gary dart points, a polished stone, and four pitted manos is also found at the site (Kenmotsu n.d.). The small inventory and lack of features associated with the Early Ceramic component indicate that it was adequately separated from the Allen phase material.

The Allen phase dates from A.D. 1600 to 1800 (Suhm et al. 1954:221; Story and Creel 1982:36). It was during this time (e.g., 1690), that Spanish missions were first established in East Texas. Although they were abandoned in 1693, another series of missions was established in 1716 in or near the various divisions of the Hasinai—the southern Caddo. Mission Concepción was on the Angelina River, somewhere near present-day Douglas (Corbin 1991, personal communication), a modern community about 5 km (3 miles) northwest of the Mayhew site. Mission Guadalupe was established among the Nazadachotzi Hasinai (Casañas 1968:47) at the present-day city of Nacogdoches, some 16 km (10 miles) east of the Mayhew site (Corbin 1991, personal communication). The Spanish remained in the southern part of East Texas until 1772, although Mission Concepción, together with several others, was permanently withdrawn from East Texas in 1731. Mission Guadalupe, however, remained until 1772.

In 1714, Saint-Denis established a French trading post at Natchitoches, and France began to maintain regular contact with native populations (Cox 1906:10); previous French contact had been infrequent. Once established, the French post at Natchitoches endured, and in time became a thriving commercial center. The focus of French trade was directed primarily at the Caddo on the upper Red River (Wedel 1981:37), although clandestine French trade with other East Texas native groups continued throughout the eighteenth century (Bolton 1915:35; Gregory 1973:239).

The Spanish priests who came to East Texas brought a limited supply of trading goods, and these quickly dwindled. In letters to their superiors in Mexico they pleaded for more and better goods to entice potential converts:

> If only I . . . [had] had, in this year and three months that I have been with them, some hawkbells, knives, strings of glass beads, and a blue cloth which they greatly appreciate, and some blankets and other presents to give them, I could have had a convent made of the best materials that you could have made of the things that there are here [Casañas 1968:65].

These and similar pleas indicate that there was a general paucity of Spanish goods in East Texas during those years, and suggest that most European goods in Allen phase sites were acquired from the French.

When the Spanish and French first traveled to the general region of Houston, Anderson, Cherokee, Rusk, and Nacogdoches counties in the late seventeenth century, the region was occupied by Native Americans variously called the Hasinai, Asinai, Assoni, Assnay, and Cenis (Casañas 1968:43; Swanton 1942:7–38). Casañas (1968:47–48) described the Hasinai (as they will be called herein) as agriculturally based groups where individual families within each group lived at some distance from other families in small clearings where they grew their crops. Espinosa (in Swanton 1942:274) confirmed Casañas's account of the Hasinai by stating that

> these natives do not live in congregations reduced to a Pueblo, but rather each parciality of the four principle groups, live on ranches, dispersed from each other, the primary motive being that each family seeks a small parcel competent for their harvest and that has enough water for their needs.

The Allen phase was defined first as the Allen focus (Story and Creel 1982:36), based on cemetery sites in Anderson and Cherokee counties that were partially excavated in the 1930s by the University of Texas (Suhm et al. 1954:221). In addition to the cemetery sites in Anderson and Cherokee counties, Allen phase sites have also been recorded in Houston, Rusk, and Nacogdoches counties. The ceramic part of the artifact assemblage consists of several recognized types, including Patton Engraved, Hume Engraved, Poyner Engraved, Killough Pinched, Maydelle Incised, and plain and brushed utilitarian wares, together with occasional late trade pottery from other native groups, together with Spanish majolica and occasional other European ceramics (Suhm et al. 1954:219–221). Other parts of the artifact assemblage consist of lithic, bone, shell, and glass and metal European artifacts. The lithic assemblage includes small triangular and contracting-stem arrowpoints (notably Cuney, Turney, Talco, Fresno, and rarely, Perdiz [Suhm et al. 1954:220]), Jowell and Anderson knives, which appear to be restricted to burials (Cole 1975:175), small snub-nosed scrapers, and battered stone. The lithic material found in Allen phase sites is generally of nonlocal origin (Cole 1975:163–174; Girard n.d.:135), and the shell used for beads and pins was from the Gulf Coast. European artifacts recovered from sites of the Allen phase include glass beads, iron axes, adzes, chisels and other heavy iron tools, brass and iron pots, case knives, gunflints, and metal gun parts.

Allen phase cemeteries were fairly well patterned, contained extended interments, and were often near midden debris (Cole 1975; Good 1982). Males were buried with more material goods, such as arrowpoints and ceramic bottles; female graves contained more European and exotic goods (Cole 1975:359). All Allen phase structures that have been excavated are round, probably used for habitation, and ranged in diameter from 9 to 12.2 meters (Good 1982). Good (1982:61) hypothesized that storage facilities "are surely represented by the numerous darkly stained disturbances found within and around the structures," and that storage racks could be inferred from the rectangular configurations of postholes.

The Allen phase shares several traits with the Frankston focus, which is defined for the preceding period (A.D. 1500 to 1600). Frankston focus sites have been recorded in the same general area, and are believed to be ancestral to the Allen phase (Suhm et al. 1954:221). Ceramic assemblages are similar, although there is more Poyner Engraved than Patton Engraved in the Frankston focus (Kleinschmidt 1982:226). The primary difference between the Frankston focus and the Allen phase, however, is the absence of early European historic material in Frankston focus sites.

THE MODEL

It is proposed that the Mayhew site represents a small Hasinai Caddo farmstead as described by Father Casañas in 1691 (Casañas 1968:49). The initial impression that Mayhew might be a farmstead was based on its small size, lack of a cemetery, lack of mounds, large number of ceramic sherds, and the general utilitarian character of the artifact assemblage. One of the most striking aspects of the artifact assemblage at the Mayhew site is the near absence of sherds more than 3 cm in diameter. Too, the greater number of the sherds have plain or brushed exteriors, hinting at a domestic function for the site. The small size of the knoll on which the site is situated and the frequency of flooding of the surrounding land suggest that all occupation would have been confined to the knoll itself. Although there are other knolls in the floodplain, the nearest is about 40 meters to the north, and in their surface inspection, Prewitt's crews failed to see any artifacts there. These factors, combined with evidence from the artifacts, suggest that the Mayhew site was indeed a Hasinai farmstead.

Unfortunately, the strongest evidence for a farmstead—architectural remains—is absent at Mayhew. There are three possible reasons for their absence: 1) there was a house, but it was not detected during the excavations; 2) there was never a house at the site; or 3) there was a house, but it was outside of the excavated area. The first possibility was discussed with Elton Prewitt (1987, Personal communication), and it was his conclusion that the excavators had not missed any postmolds. The units had been carefully troweled twice, and no postmolds, except for a single possible postmold in the north-central part of the site, were detected. The second possibility—that there never had been a house at the site—would mean that the site had been used for another purpose, which seems unlikely, for, as noted above, if the Mayhew

site had been a dumping ground for an occupation in another area, that would mean that the material dumped would have been transported some 40 meters across land that was sometimes boggy. Therefore, the author again returned to the hypothesis that the Mayhew site was a Hasinai farmstead. In the absence of architectural remains, the hypothesis was tested by establishing expectations of what remains would be yielded by a farmstead of the Hasinai. Five expectations were developed, each of which is discussed below in some detail and is based on models of Hasinai Caddo settlement systems that have been suggested by Wyckoff and Baugh (1980) and Story and Creel (1982). These models are derived from secondary accounts of mission priests and other eighteenth century European residents and visitors to East Texas who described aspects of the Hasinai settlement pattern. Those European accounts consistently describe dispersed farmsteads where individual Hasinai families resided in quasi-isolation from other families. Therefore, the expectations of the model are as follows.

1. *The Mayhew site consists of the general refuse scatter in a habitation area rather than of refuse from a trash midden created by the use of the knoll exclusively for disposal.*

Activities of both large and small groups produce refuse, and some ethnoarcheological investigations have been directed specifically toward the study of refuse (e.g., Binford 1978; 1980; Yellen 1977; Hayden and Cannon 1983), based primarily on the assumption that human behavior is patterned. The patterns of discard of refuse, however, vary from group to group. According to O'Connell (1987:75), "the relationship between behavior and its reflection in the archeological record is apparently more complex than many have imagined. Nevertheless, clear-cut patterns in refuse distribution are evident."

One of the facts verified by ethnoarcheological studies is that there are two types of refuse. One type comes from locations deliberately established for disposal of trash; the other type is the scatters of refuse found in primary living or activity areas. Here, the former is termed *trash midden* and the latter is termed *living-surface residue*. O'Connell (1987) suggests that there are differences between these two types of refuse,

> A strong pattern of size sorting is apparent [in Alyawara settlements]. Large items (more than 5 cm in length) are generally tossed onto the nearest part of the [trash] midden at time of discard. Small items are more often dropped in the activity area at or near their location of last use. Some of these small items are subsequently swept to the edge of the [trash midden].... Despite the sweeping, many small refuse items remain in the activity area [O'Connell 1987:82].

Similar disposal patterns were noted by Binford (1980) at Nunamiut residential base camps. !Kung sites do not contain areas of deliberate trash disposal (Yellen 1977:115), but O'Connell (1987:100) concludes that the lack of trash in their sites was due to the temporary occupation (e.g., 5 to 10 days) of sites by the !Kung. "One

would predict that in !Kung camps occupied for longer periods of time, secondary disposal would be more common" (O'Connell 1987:100). The archeological record from some sites in East Texas reflects this general pattern. It was anticipated that a comparison of the material remains from the Mayhew site with sites containing trash middens and/or living- surface refuse would result in data to confirm or refute expectation number 1.

2. *Evidence that daily tasks (cooking, food storage, tool making, etc.) were carried out by small nuclear or extended families will be manifested by small concentrations of artifacts.*

In his study of the structure of Alyawara sites, O'Connell (1987) examined the creation of the archeological record in a camp composed of households and activity areas. Despite complexity in the formation processes of the camp, his data make it clear that it is possible to identify one or more household areas, adjacent special activity areas, and trash middens (O'Connell 1987:105). He also notes (1987:91) that these patterns are clearest on the fringes of large sites or where they are not compromised by superimposed occupations.

Computer-generated maps showing densities of artifacts and features at several archeological investigations in East Texas (e.g., Bruseth and Perttula 1981:55) or on the margins of East Texas (McGregor et al. 1987:50–52) have assisted in the identification of activity areas. The basic assumption behind the maps is that clusters of artifacts and features "identify the loci of human activity" (Bruseth and Perttula 1981:55). Contours on these maps represent levels of density of artifacts. Density maps developed for the Richland Creek project were also useful in the interpretations of intrasite patterning when limited investigations at a site "provided only a partial picture of how site occupations were structured spatially" (McGregor et al. 1987:49).

Since previous efforts had successfully used the patterning of artifacts to interpret archeological sites, and since only one possible feature (a posthole) was encountered during excavations at the site, it was anticipated that maps of artifact densities might emphasize concentrations of artifacts of the same or similar classes in the site. Such concentrations, if indeed there should be any, might be clues to the types of activities that had been carried out at those loci. Moreover, it was anticipated that the concentrations would make it clear that a variety of activities had been carried out at the site.

3. *The ceramics will be utilitarian.*

Most often, pottery is manufactured to serve as containers in day-to-day activities. This purpose can be accomplished with simple, undecorated vessels formed in shapes and sizes to accommodate specific needs. Decorative elements on pottery are an "embellishment beyond the procedures used in forming the . . . final vessel shape and finishing its overall surface" (Rice 1987:144). Such decorative elements can be minor or they can be very elaborate, requiring considerable effort. Pottery used in routine daily activities would tend to have

fewer elaborate decorative elements, since such pottery would have a shorter use-life (Longacre 1985).

It was anticipated that, as a farmstead, the Mayhew site would yield ceramic sherds with few decorated elements, and the site would have little to no elaborately decorated pottery. However, it is difficult to identify *elaborate* pottery at Caddoan sites. Legged vessels have been assumed to have ritual or ceremonial uses. Anderson, Gilmore, McCormick, and Morenon (1974), and Cole (1975:319) noted that animal effigy bowls appear to be associated with individuals of high status. Most Caddoan ceramics, however, regardless of surface treatment, appear to have served utilitarian purposes. For example, Stokes and Woodring (1981:236) comment that "the early Caddoan [ceramic] assemblage at Davis represents a community-wide . . . ceramic tradition." In the Benson's Crossing site, the "vessels in the [trash] midden were almost certainly cooking and eating vessels that had been in everyday use up until they were broken and thrown away" (Driggers 1985:92). Many of these sherds had decorative elements. Similarly, the trash midden at Deshazo contained vessels with a wide range of surface treatments (Fields n.d.:444).

Analyses of vessels from Allen phase burial sites tend to underscore the generally utilitarian nature of most ceramic types in these sites. In her analysis of eight Allen phase burial sites, Cole (1975:219) noted that the ceramic vessels in Allen phase burials were quite similar from one grave to another, indicating that the various styles present, including Patton Engraved, Hume Engraved, Darco Engraved, etc., were not manufactured for any one group among the eight burial sites. In addition, the

> ceramics coming from the burials . . . show signs of usage (nicks, worn spots, reworked vessels, etc.) which would preclude their being specially produced burial wares. I have considered the ceramic offerings to be everyday ware [Cole 1975:211].

In his analysis of the whole vessels from the Deshazo burials, Fields (n.d.:413) reached a similar conclusion:

> All five major surface treatment techniques identified in the sherd collection are represented on the whole vessels. [In addition] more than half . . . of the motif and element categories of the incised or engraved sherds are represented in the vessel collection. These facts point up the fairly high degree of similarity between the sherd [collection from non-burial context] and vessel collections [from the cemetery].

The collection from Mayhew then, should have pottery types similar to those at the eight Allen phase burial sites and at Deshazo. In addition, the site should have few or no effigy or legged vessels.

Finally, the proportion of decorated to nondecorated ware at Mayhew should differ from special activity sites such as the A. C. Saunders site, which has been interpreted as a ceremonial center (Kleinschmidt 1982). In his vessel-batch analysis, Kleinschmidt (1982:240) identified surface decorations other than brushing on

more than 82 percent of 1264 vessels. At Deshazo, 51 percent of the whole vessels from the burials and 51 percent of the body sherds had surface treatments other than brushing (Fields n.d.:402–413, 431). It is expected that the Mayhew sample will have a percentage closer to Deshazo than the percentage identified at A. C. Saunders, supporting the third expectation in the model.

4. *The artifact assemblage at the Mayhew site will reflect a range of utilitarian activities rather than specialized use of the site.*

In her analysis of eight Allen phase burial sites, Cole (1975:327–331), identified several mortuary offerings that appear to indicate the acquired status of selected individuals. The special offerings include animal effigy vessels, Anderson knives, Jowell knives, metal knives, hawk bells, marine shell beads, blue-gray schist, and glass beads. Similar goods in the burials at Deshazo (Good 1982:88) were interpreted as status items. These include stone tools (two flint scrapers and a white sandstone abrader), metal knives, a possible rattle, a clay pipe, and a copper bell. If these artifacts are status items, it is unlikely that they would be in the living surface residue from small farmsteads.

Analysis of the material remains at the A. C. Saunders site led to the inference—based on several unique aspects of the site and its collections—that the site had functioned as a ceremonial center (Kleinschmidt 1982:240). First, the ash mound and midden mound features are unique. "Of the 668 sites known in the six county region, only 5 other mound sites are identified, none of which closely resembles this site" (Kleinschmidt 1982:238). The sheer numbers of vessels from the midden (N=1264) dwarf other collections (Kleinschmidt 1982:234). Moreover, the prominence of engraved vessels (45.5 percent) is unusual. It is known that the Mayhew site did not have the special features of Saunders, but it is expected to have smaller proportions of both vessels and engraved vessels. Finally, artifacts at Mayhew should represent daily family activities, such as cooking, sleeping, manufacture of clothing, and procurement of food.

5. *The artifact assemblage will be consistent with a site with a population of four to seven people.*

The estimated size of Hasinai families is not well documented. Joutel (1851:102) described dwellings in Hasinai hamlets that housed as many as eight families, so they would certainly have populations of much more than seven individuals. However, he also noted that there were both medium-sized and small houses (Joutel 1851:102). Further, upon entering the region occupied by the Hasinai, he remarked on the random nature of the settlement pattern, since he often encountered "on the trail cabins at a distance from each other" (1851:102). Writing several years later, Fray Espinosa (in Swanton 1942:274) describes isolated farmsteads with individual families. None of these early accounts, however, refers to the size of individual families. Indirect evidence, however, suggests that families may have been small. Both the early French and early Spanish accounts of marriage customs mention the frequency of divorce among the Hasinai and the women's insistence on monogamy

(Casañas 1968:51; Espinosa in Swanton 1942:274; Joutel 1851:102,104). Casañas (1968: 51) states that

> the thing I approve is that they have only one wife at a time. If a man wants to take a new wife, he makes a difference between them, never living with them both at the same time. If the first wife finds that he has another wife in view, she makes it a point of honor . . . to leave him at once.

These descriptions of male-female relations suggest that farmsteads would have been occupied by only one woman of child-bearing age together with her children, or older women. Considering these data, it is here assumed that a Hasinai farmstead would have been occupied by male and female heads of household, two or more children, and, at times, grandparents who may or may not have occupied a second dwelling.

Analyses of vessel batches at the Mayhew site, based on work by Cook (1972), Arnold (1985), Driggers (1985), and Longacre (1985), have been used to estimate site population. Pottery vessels break from time to time, so various researchers have studied modern populations to determine the average number of vessels broken per family per year (Cook 1972; Arnold 1985; Longacre 1985), and it is assumed (Cook 1972) that prehistoric groups broke similar numbers of vessels per family per year. If this is true, one can infer populations at Caddoan sites—from data gathered from sherd counts—on the basis of the number of vessels broken per year (Keller 1974:188; Driggers 1985:90). Both Keller and Driggers began by utilizing the analysis by Cook (1972). However, both ultimately reached their own conclusions about the quantities of vessels broken each year. Keller established a base line of five per family per year; Driggers used four and a half pots broken per family per year. In a recent ethnoarcheological study, Longacre (1985:339) found fewer pots broken per family per year (e.g., 1.2) than had been estimated by Keller or Driggers. However, Longacre (1985:345) notes an influx of plastic bottles replacing ceramic vessels, so the number of broken pots in modern sites is concluded to be fewer than would be found in the pre-plastic-bottle era (Longacre 1985:345). Therefore, the estimates of Driggers and Keller are assumed to be more applicable than those of Cook, Arnold, and Longacre to the Mayhew site.

To make an estimate of population, the percentage of the site that has been excavated must be established (Driggers 1985:91), and it is also helpful to know how long the site was occupied.

EXCAVATIONS AND THE MATERIAL REMAINS

The Texas Archeological Salvage Program conducted the final investigations at Mayhew in 1975, when, in all, 15 crew-days were spent at the site. The primary source for the descriptions of the excavations is the daily log kept by Elton Prewitt during that 1975 fieldwork. Maps, photographs, and other materials on file at the Texas Archeological Research Laboratory (TARL) were also used to clarify or enhance those field notes. However, since this author did not participate in the

excavations, the description is, to some extent, an interpretation of the field notes, maps, and photographs.

In all, 55 contiguous, 2-by-2-meter units were excavated by hand (See Figure 2), and all soil was screened through quarter-inch hardware cloth. At first, units were excavated in 5 cm levels to the red-orange basal clay, but eventually this method was discontinued in favor of excavation of the area as a single unit after Prewitt (1975) concluded that "41NA21 is a single component site occupied only after historic contact times." Two anomalies were noted at the site during the excavations: one was a large irregular area where the red-orange, basal clay was seen at about 10 cm below ground surface in several contiguous units. The other anomaly was a possible posthole described as a shallow stain 5 cm in diameter and 10 to 15 cm deep. No other anomalies were found, and only the artifactual evidence is used in interpretation of the site.

Domestic Artifacts

Domestic artifacts (Table 1) comprise all of those artifacts concluded to have been used in relatively regular, routine, and daily activities associated with household duties. This category includes artifacts that were used in food storage or preparation (ceramics, ground stone), and/or typical household chores (bone tools, glass, metal, and some lithic artifacts). Pipes are also incorporated into the domestic artifacts, since some evidence suggests that they were used on a daily basis in Late Prehistoric and Historic period Caddoan houses (Napoleon n.d.:364).

Ceramic sherds are the largest artifact class at the site. Except for the seven fragments of pipes, all of the ceramics are fragments of broken vessels. More than half of the sherds had evidence of brushing (Kenmotsu n.d.), a surface treatment technique that is found in the Neches and Angelina drainages with increasing frequency after A.D. 1300, and especially at Allen phase sites (Kleinschmidt 1982:238). Only 2981 sherds of the total ceramic inventory had surface decoration other than brushing. As noted previously, although total numbers of sherds are high, the sherds themselves are quite small (Figure 3). More than half are less than 3 cm in diameter, and several thousand are less than 1 cm in diameter. Only 13 sherds in the entire collection measure more than 5 cm in diameter.

The dominant tempering agent is bone, found in at least 80 percent of all sherds. Bone temper is commonly found in Allen phase sites and, to a lesser extent, in Frankston focus sites (Fields n.d.:443; Kleinschmidt 1982). Nineteen design motifs other than brushing were identified on the body sherds; more than half of the decorated body sherds (N=1595) are Patton Engraved. In addition to Patton Engraved, decorated body sherds are engraved, punctated, or incised, often with brushing; most are small.

The frequency of surface treatments on rim sherds contrasts markedly with that of the body sherds. Most rim sherds have some form of decoration other than brushing. Another distinction between the body sherds and rim sherds is the percentage of Patton Engraved, which, although it dominates the design motifs of

Table 1. Domestic Artifacts from the Mayhew Site, 41NA21.

Class	Type/Subclass	Quantity
Vessel ceramics	Plain and brushed body sherds	18,238
	Base sherds	52
	Patton Engraved body sherds	1595
	Other decorated body sherds	938
	Natchitoches Engraved (rim and body sherds)	69
	Emory Punctated-Incised rims	11
	Patton Engraved rim sherds	101
	Plain and brushed rim sherds	322
	Other decorated rim sherds	193
	Vessel appendages	5
Pipe ceramics	Pipe fragments	7
Battered and other stone		4
Ground stone		11
Bone tool	Antler tine	1
Glass		5
Brass kettles	Rim fragments	4
Nails		6
Chisel		1
Other metal		17
Nonweaponry lithics	Debris	33
	Exhausted cores	10
	Lithic tools	39

the body sherds, could be identified on only 101 rim sherds; most rim sherds are less than 1 cm in diameter.

Vessel batches were established for the rim sherds from the Mayhew site (Kenmotsu n.d.: Appendix I). Minimum vessel counts (or vessel batches) are not new, for Krieger (1949:217) was an early proponent of such analysis; he reasoned that total sherd counts were not useful in determining accurate estimates of specific pottery types. Following Krieger's suggestion, Thurmond and Kleinschmidt (1979) made a vessel batch analysis and identified 134 vessels in a pit east of Mound C at the George C. Davis site. Thirty more vessels were identified in a nearby feature (Stokes 1981:375) using the same analytical technique. In both efforts, researchers believed the vessel batch analyses provided more realistic information about the frequency of pottery types discarded in the features than could have been derived from raw sherd counts.

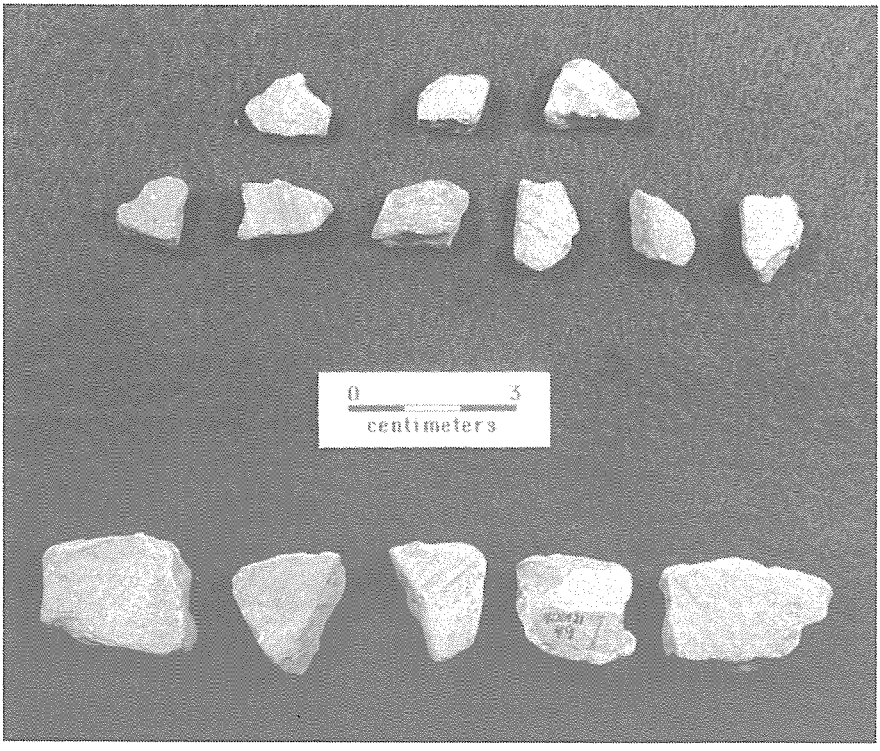

Figure 3. Body sherds from the Mayhew site: Above, brushed body sherds measuring less than 1.9 cm; Below, brushed body sherds measuring more than 1.9 cm.

A similar study was carried out by Driggers (1985:62) on ceramics from the Benson's Crossing site (41TT110) now under Lake Bob Sandlin, and minimum vessel counts were also made for the A. C. Saunders site (Kleinschmidt 1982). By using vessel batches, Driggers (1985:40) was able to identify at least 209 vessels at the site and concluded that the effort had yielded a much more detailed description of the ceramic assemblage, had resulted in estimates of the duration of occupancy and population, and had made more precise examination of vessel shape and size possible (Kleinschmidt 1982:97–99). Kleinschmidt's (1982:97) analysis of the ceramic assemblage from the midden at the A. C. Saunders site was completed in a similar manner; there, 1264 vessels were identified (Kleinschmidt 1982:191).

The vessel batch analysis made on the Mayhew collection (Kenmotsu n.d.:Appendix I) included only rim sherds. Considering the small size of many sherds from the Mayhew site and the many plain and brushed body sherds, it was

believed that to include the body sherds would introduce too much subjectivity into the analysis. The exception to this is vessel 46, a possible Natchitoches Engraved vessel whose 69 sherds include both rim and body fragments. In all other cases only rim sherds were counted, since use of body sherds would risk duplication of vessel counts. Sixty-one vessel batches were recognized from rim sherds, so total counts of vessels are in marked contrast to those at the A. C. Saunders site, which has many more vessel batches. Too, there is much less variety in design motifs on the vessels at Mayhew than on those at Saunders (Figure 4).

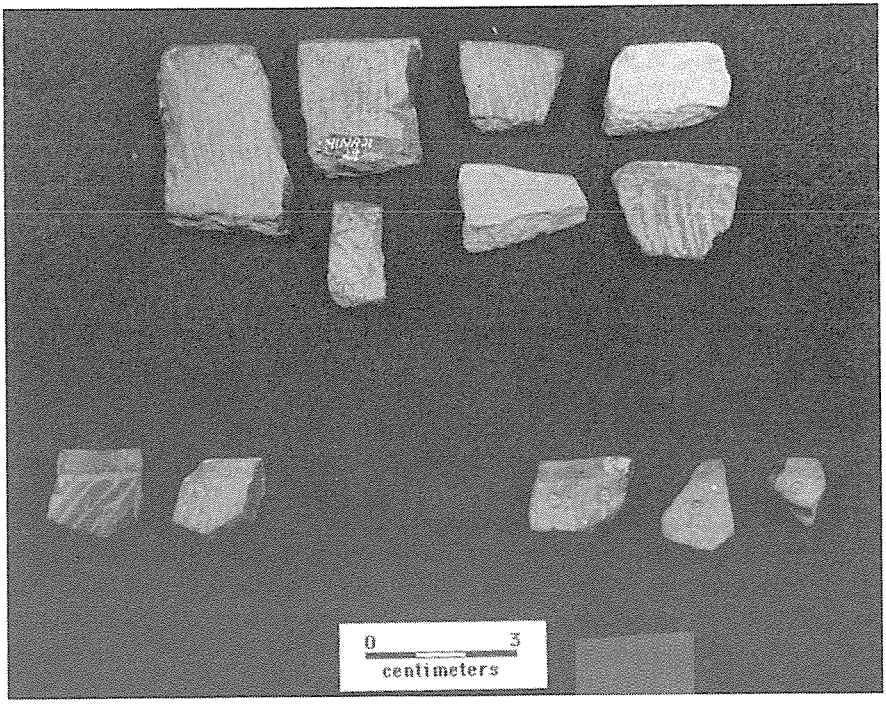

Figure 4. Photograph of three vessel batches: Top, Batch 34, Brushed rim sherds; Left, Batch 43, Incised rim sherds with diagonal motif bordered by horizontal line; Right, Batch 15, Punctated rim sherds.

The next largest class of artifacts is lithics, with 82 specimens; in all the remaining artifact classes there are fewer than 20 specimens. Fifteen diverse specimens of battered and ground stone comprise five identifiable classes of artifacts: battered stones, abraders, milling stones, unpitted manos, and pitted stones. One bone antler tine was recovered from 41NA21 together with five small fragments of clear and green glass too small (less than 2 cm in diameter) to

determine their age. The brass kettle fragments are also small (less than 2 cm) and may all be from the same kettle. The nails are rectangular in cross section and of varying lengths, and like the other ferrous metal artifacts, all are heavily corroded and quite fragile.

The 82 chipped stone artifacts from the Mayhew site are here assumed to represent non-weapon-related specimens. However, the 33 pieces of debris and the 10 exhausted cores could be the end results of either weapons or domestic tool production. In the absence of better information, all are included under domestic artifacts, but the debris is interesting in two ways. First, the stone is not from local sources; many specimens are of a gray-blue chert. Second, some of the debris is apparently the result of bipolar reduction, a reduction strategy often used when raw material consists of small cobbles or pebbles. In the analysis, an effort was made to identify source material from comparative material at TARL by comparing Mayhew specimens to those in the well-analyzed and reported Deshazo collection (Girard n.d.), which contains evidence of bipolar reduction and nonlocal material. The lithics include both manufacturing debris (cores, reduction flakes, etc.), and tools. The non-weapon-related stone tools from Mayhew include seven unifaces, two bifaces, three perforators, two probable gravers, one strike-a-light, and 24 utilized flakes.

In summary, the inventory of ceramic and glass sherds, lithic material, brass kettle fragments, nails, and the bone tool that are the bulk of the Mayhew collection appears to be consistent with domestic activities. Ceramic sherds dominate all artifacts with 21,491 specimens; these sherds are similar to those in the collections from Deshazo in surface treatment, high percentage of brushed body sherds, and low percentage of engraved or incised sherds.

Wearing Apparel

Beads are the only wearing apparel represented in the Mayhew collection; thirty-four glass beads and one chunk of glass beads, partially melted and fused, were recovered from the site. Only 19 of the individual beads and the chunk of fused beads are still in the collection; the others were lost or stolen in 1978 (Elton Prewitt, personal communication, 1987). The 19 specimens are white, blue, and black; one is white with thin blue stripes (Kenmotsu n.d.). All but one of the beads were made by the simple drawn method (Harris and Harris 1967:135–137; Deagan 1987:170–172). The exception is a single bead from Mayhew that is a fragment of a bead made by the wire method (i.e., wrapping a thin wirelike ribbon of glass around a cylinder) with thin stripes of another color applied to it. Like drawn beads, wound beads were also relatively easy and inexpensive to manufacture, and they are also believed to have become more popular than drawn beads in the New World during the eighteenth century (Deagan 1987:160).

Only seven of the beads in the collection—the colored beads and the complex bead—have been dated by comparison with beads from well-dated Spanish colonial contexts (Deagan 1987:172). The seven dates range between A.D. 1550 and 1800. The blue seed beads in the lump of fused beads have the longest time range (i.e.,

1550 to 1800). If the latest date is removed, their range is between A.D. 1575 and A.D. 1750. Under the Harris and Harris classification (1967), 14 of the 19 beads from 41NA21 are types usually associated with the early eighteenth century. Two (types 76 and 27) were introduced into the New World between A.D. 1740 and 1767, and at least 10 are types that do not appear as trade items after 1767 (Harris and Harris 1967:156–157). No types that Harris believed were introduced after 1767 were found in the collection. Tentatively, then, it appears that most of the beads are from the period between A.D. 1575 and 1750, which places them well within the Allen phase.

Weaponry

Weapons and weapons-related artifacts at the Mayhew site are of both native and European manufacture. The native-made weapons consist of bifacially chipped arrowpoints and four native-made gunflints; the European weapons are gun furniture and gunflints.

The bifacially chipped weapons are all arrowpoints (Figure 5): one Perdiz, eight Fresno, one Maud, and four too fragmentary to classify. These arrowpoint styles tend to be associated with the Allen phase, although Perdiz has a much greater time span and is more closely associated with the preceding Frankston focus (Suhm et al. 1954:185). Based on their similarity to the nonlocal chert identified by Girard (n.d.) at Deshazo, all of the arrowpoints apparently are of nonlocal material.

Fresno arrowpoints are generally associated with historic Indian groups (Story 1990:251), especially in Central, North, and East Texas. Whereas the triangular Cuney arrowpoints are more closely associated with Allen phase burial sites (Suhm et al. 1954:293; Cole 1975:177–178), Fresnos have also been recovered in small numbers from several Allen phase burials (Cole 1975:177–178), and there were two among Deshazo's Triangular Bifaces (Girard n.d.: 84). On the other hand, they have been recovered in substantial quantities from the Gilbert (Allen et al. 1967:194) and Roseborough Lake (Miroir et al. 1973:123) sites.

The Maud arrowpoint (Suhm et al. 1962:281) is of white-tan chert with slightly recurved shoulders, a concave base, and some serrations visible on its opposing margins. No Maud points were identified at Deshazo (Girard n.d.), the eight Allen phase burial sites (Cole 1975:177), or Mission Dolores (Corbin et al. 1990:121). One was recovered from Gilbert (Allen et al. 1967:135) and four from the Roseborough Lake site (Miroir et al. 1973:123).

Six gunflints (Figure 6) were recovered from investigations at the Mayhew site. Two are honey colored and of French manufacture; the other four are of native manufacture. All are within the size range of gunflints for flintlock rifles. The two French gunflints, easily identified by their translucent honey-yellow color, are roughly wedgelike or chisellike in transverse section and were manufactured by spall technology rather than from blades (Hamilton and Fry 1975). The heels of both tend to conform to the curved D shape of French gunspalls, but the narrower of the two appears to have undergone rejuvenation, so its sides are slightly rounded.

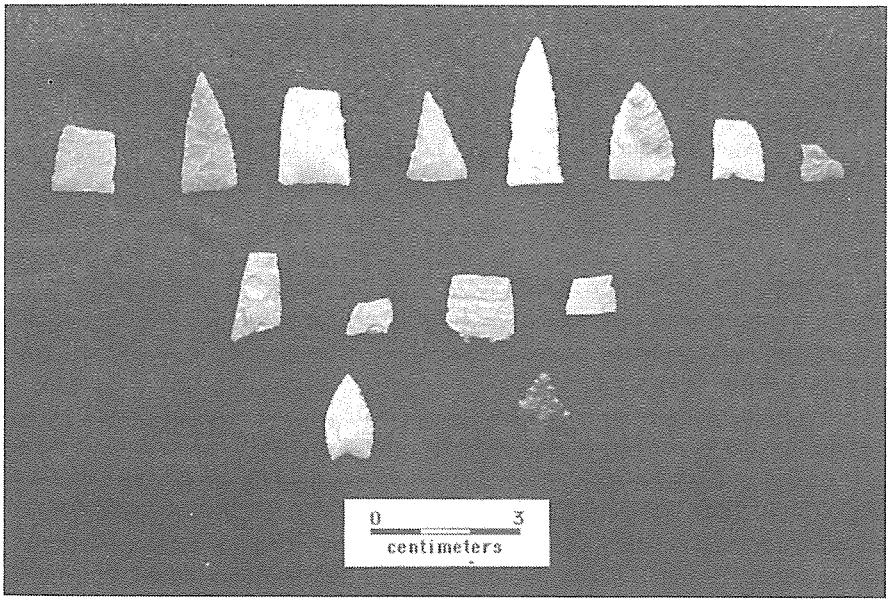

Figure 5. Arrowpoints from the Mayhew site. Top row, Fresno; Middle row, Unidentified; Bottom left, Maud; Bottom right, Perdiz.

Despite their physical dissimilarities, wear patterns on all six specimens are remarkably similar. Based on other gunflint studies (Kenmotsu 1990:111; Hamilton 1960), the wear patterns include extensive step flaking along working edges, and some small areas also show evidence of crushing. Several have more than one working edge—a pattern of rejuvenation that has been noted on other gunflints from East Texas (Kenmotsu 1990).

Both the rejuvenation of gunflints and their manufacturing technique have important implications for the dating of the Mayhew site. French gunflints dominated the market until about A.D. 1790 (de Lotbiniere 1984:vii–viii). From about A.D. 1650 to 1750 French production was dominated by gunspalls in contrast to a blade technology that was not perfected until about A.D. 1750 (Blanchette 1975; Hamilton and Fry 1975:111–113). The presence of two French gunspalls suggests a date before A.D. 1750, and the presence of aboriginally manufactured gunflints also hints at an early eighteenth century date. Native manufacture of gunflints typically "continued until an accepted and reliable source of European gunflints was available" (Kenmotsu 1990:97). Since it is known that by A.D. 1700 French bills of lading document thousands of gunflints sent to French colonies (Hamilton 1979:210), and the French were trading in the Bayou Loco region by A.D. 1714, the Mayhew gunflints suggest a date between A.D.

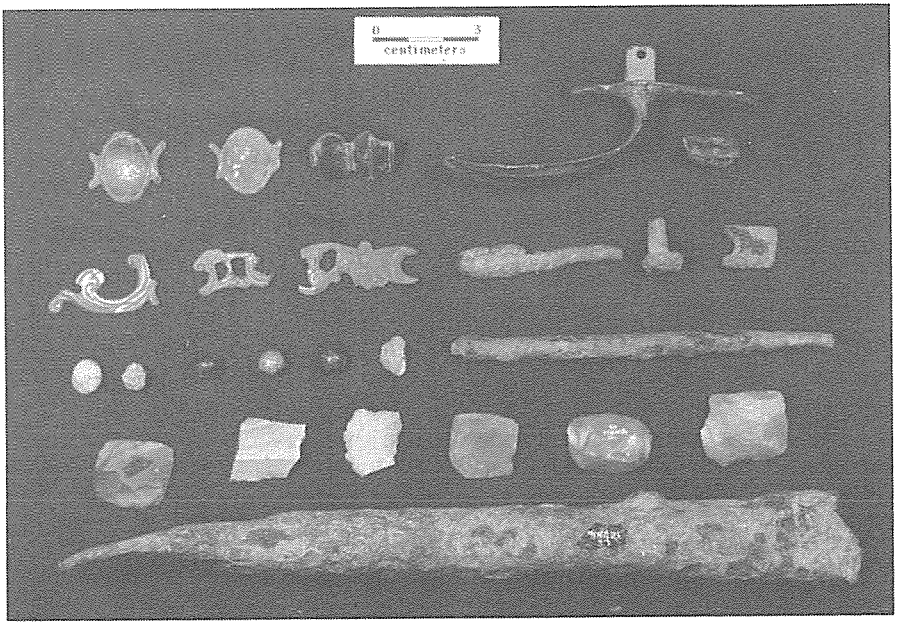

Figure 6. Gun-related artifacts from the Mayhew site. Top row, L to R; Three butt plate fragments (two probable), Two trigger guard fragments. Next to top row, L to R; Three side plate fragments with dragon head/lacy pattern, Possible frizzen spring, Side plate screw, Cock fragment. Middle row, L to R; Six lead balls and a ramrod fragment. Next to bottom row, L to R; Four native-made gunflints, Two French gunflints. Bottom row; Gun barrel with battered end.

1700 and 1750. This date corresponds well with the dates of the beads and of the metal gun furniture from the site.

Gun parts at Mayhew include an incomplete gun barrel, two fragments of trigger guards, 11 side plate fragments, four pieces of butt plates, two side plate screws, one flintlock cock, two iron ramrod fragments, and six lead balls (Figure 6) (Kenmotsu n.d.). The gun barrel is basically intact, and has been rejuvenated into a different tool by beveling both ends. Although little gun-related material was recovered from the Deshazo site, and none from the eight Allen Phase burial sites (Cole 1975:199), other East Texas sites have also contained gun barrels with beveled ends. The Gilbert site (41RA13) in Rains County had 23 fragments of gun barrels, most of which were battered or flattened (Blaine and Harris 1967:59). One gun barrel from the Pearson site (41RA5) is also flattened "as if it had been used as a scraper or gouge" (Duffield and Jelks 1961:54). Several beveled fragments were also recovered from the Roseborough Lake site (Miroir et al. 1973:143). Hamilton (1960:126), working with material remains from Seneca and Osage sites, also found

a high incidence of beveling of gun barrels and concludes that the Osage used them as fleshers and scrapers for removing flesh and fat from hides.

A sufficient amount of the design can be detected on the two trigger guards to make suggestions as to their identification possible. They are quite similar to artifact B217 from the Tunica site material. The Tunica trigger guard, which is classified as Type C, dating from A.D. 1685 to 1730—is a type of inferior quality commonly traded by the French to native groups (Hamilton 1979:212). Since they are so similar, a manufacturing date of A.D. 1685 to 1730 has been assigned to these specimens, and it is here concluded that they came from a French flintlock rifle.

Fragments of at least three side plates were recovered from Mayhew, and four appear to be parts of a single brass side plate of a flintlock gun. All four are characterized by a lacy, open pattern that is distinct from the patterns of the solid side plates manufactured in France after about A.D. 1715 and in England after A.D. 1750 (Blaine and Harris 1967:67). Three of the fragments are nondiagnostic curved fragments with curvilinear engraved designs. The fourth specimen has a dragon's head and half of the rear screw hole that was used to attach the side plate to the wooden flintlock stock. The designs are considered representative of guns of second quality that were produced in France from A.D. 1680 to 1730 in sizable quantities for trade (Hamilton 1968:3–7). Since the French are known to have been trading in the general Mayhew area by the early 1700s, it is here concluded that these four fragments are from a single side plate from an early eighteenth century (about A.D. 1700–1730) French trade gun. Five fragments of what appear to be two other side plates are also in the Mayhew collection. These heavily corroded fragments are of a solid flat form that became popular in France after 1715 and in England after 1750 (Blaine and Harris 1967:71).

The four fragments of brass butt plates are believed to be the remains of two butt plates; one is a flat, cast piece of brass with no identifying characteristics, and the other three fragments appear to be from a single butt plate of Hamilton's Type C, dating between 1685 and 1730 (Hamilton 1979:212).

The additional gun parts are fairly fragmentary, and those that are of cast iron are corroded and in poor condition. Based on the present evidence, there is sufficient material for one, and possibly two probable broken or damaged and subsequently discarded flintlock rifles. Despite the fragmentary condition of many of the parts, some are sufficiently complete to make it possible to suggest a manufacturing date. The side plates and trigger guard indicate a date of A.D. 1685 to 1730, and appear to be from a French Type C trade gun (Hamilton 1968).

The dating of the Mayhew site is based primarily upon the known dates for the European artifacts recovered from the site. To a lesser extent, the native-made artifacts from the site were used in determining the approximate dates of its occupation. Some of these artifacts (gunflints) suggest that the Mayhew site was not occupied before A.D. 1700, and others (gun parts) suggest that abandonment was no later than A.D. 1750. Several of the gun parts (trigger guards, butt plates, and side plates) are from French trade guns manufactured between A.D. 1685 and 1730. Possible fragments of another flintlock rifle were manufactured in France beginning

about A. D. 1715. It can be further inferred that the guns date to the period between A.D. 1700 and 1750, since there was only limited French activity in the southern areas west of the Mississippi before A.D. 1700, and Natchitoches was not established until A.D. 1714. The beads recovered at Mayhew also generally date to the first half of the eighteenth century. None of the types introduced after A.D. 1767 were identified in the collection, and there was only one in the collection of the types that were introduced after A.D. 1740. One of the bead types has a long time span (i.e., A.D. 1550 to 1800); the remainder have been recovered from Spanish Colonial sites dating between A.D. 1575 and 1750.

The similarity of the material remains at Mayhew to those from Deshazo also suggests that the Mayhew site may date to about the same time period as Deshazo. Two archeomagnetic dates are available for Deshazo: A.D. 1715±30 and A.D. 1710±34 (Good 1982:78). The Deshazo artifact assemblage has many classes and/or recognized types, and the Mayhew site has fewer recognized types or classes; those that have been identified at Mayhew tend to have equivalents at Deshazo. Mayhew resembles Deshazo in its proportion of brushed to plain ceramics. By weight, brushed body sherds at Mayhew outnumber plain body sherds three to one, a ratio nearly identical to the proportion of brushed to plain body sherds at Deshazo. This is in contrast to the earlier A. C. Saunders site, where only 50 percent of the sherds are brushed. The popularity of brushing at Mayhew strengthens its similarity to Deshazo. Fields (n.d.:443) noted the increase and tentatively concluded that brushing was more popular in the Allen phase as a surface technique than in the preceding Frankston focus. These data suggest that Deshazo and Mayhew share a common time span.

INTERPRETATION

The dominant component at Mayhew is the historic Indian component that has been assigned to the Allen phase. This component is represented by more than 21,000 ceramic artifacts, contracting stem and triangular arrowpoints, other lithic artifacts, and European-manufactured artifacts such as gun parts, gunflints, brass kettle fragments, beads, and nails. This artifact assemblage conforms to those at other Allen phase sites (Cole 1975; Creel 1982c; Good 1982).

In order to determine whether the Allen phase component at Mayhew is the remains of a Hasinai farmstead, it was necessary to determine that the Allen focus collection at 41NA21 represents a single occupation rather than a series of occupations. Since the site has no features, its interpretation must rely on the artifact assemblage.

As already noted, all of the dates of the European goods tend to coincide, suggesting that they come from a single occupation. Too, there are some indications that the European goods are primarily of French origin, which conforms well with the fact that the French were the dominant source of trade goods in East Texas in the early eighteenth century. Although several Spanish missions were established in East Texas between 1690 and 1722, letters from the priests

(Casañas 1968; Hidalgo in Swanton 1942:242) to their superiors in New Spain indicate that at that time they generally lacked both staples and trade goods. Too, a single source for the European goods also supports a single occupation, since sequent occupations could result in a greater variety of material at the site from a greater variety of sources. The native-made artifacts also tend to support a single occupation, for the ceramic collection is relatively uniform in surface treatment, paste, temper, and colors. There is greater diversity in the source material of the lithics from the site, but a considerable number of the lithics appear to be from the same gray-blue chert source. In sum, the material remains from Mayhew are fairly homogeneous, suggesting that they reflect one occupation rather than sequent occupations.

1. The Mayhew site consists of general refuse scatter in a habitation area rather than refuse from a trash midden resulting from the use of the knoll exclusively for disposal.

Ethnoarcheological studies (cf. O'Connell 1987; Binford 1980; Yellen 1977) have noted that some small groups have discard-areas set aside for deliberate disposal, where the artifacts are larger (e.g., more than 5 cm) than those in the general living area. These areas are trash middens, and are distinct from the areas of living-surface residue that have small fragments of refuse scattered throughout.

Trash middens have been identified in Hasinai and prehistoric Caddoan sites in East Texas, and are known at Deshazo (Good 1982:53), Benson's Crossing (Driggers 1985:34), and the ash mound midden at the A. C. Saunders site (Kleinschmidt 1982:41). In all three sites the middens are believed to be areas of deliberate trash disposal. In all three sites the middens are distinguished by their distinctly dark soil color and their many large artifacts. The most prominent trash midden at Deshazo was associated with structure 7 (Good 1982:55); located south of the structure, it "yielded very high artifact densities and a good sample of faunal remains. It represents the most concentrated trash or midden deposit at the site" (Creel 1982b:41). Although there were some postmolds in the midden, Good (1982:55) suggests that these were from supports for outdoor structures. Moreover, Creel (1982b:40) noted that "midden-stain was not ubiquitous across the site," and that the darker stain in this midden was readily visible. In his analysis of the Deshazo ceramics, Fields (n.d.:418) states that "the high density in [the midden] makes sense because this unit appears to sample a midden . . . based on high artifact frequency, relatively abundant faunal remains, and scarcity of cultural features." The ceramic density in the midden was 453 sherds per cubic meter (Fields n.d.:418), whereas sherd density in areas of structures averaged about 100 sherds per cubic meter. Moreover, sherd size in the Deshazo trash midden was considerably greater than at Mayhew. Lithic material in the midden also exceeded the totals in the other units at the site (Girard n.d.:143).

At Benson's Crossing site, the trash midden is described (Driggers 1985:105) as

> an extensive midden deposit roughly circular in plan and somewhat lens-shaped in section; characterized by dark organic staining; 12 to 13 m in diameter and approximately 15–20 cm in depth; associated artifacts include numerous sherds, lithic debitage, lithic tools, and burned clay; also associated with this feature were mussel shells, and bones of several white-tail deer, nutshells, and seeds.

In all, more than 20,000 sherds and 4800 pieces of lithic debris and tools were recovered from this midden (Driggers 1985:36). About half of the sherds measured more than 2 cm (Driggers 1985:53). Two other aspects of this trash midden merit mention; first, Driggers concludes that the "stylistic and technical uniformity" (1985:86) of the sherds from the feature is so consistent that the trash midden was the result of occupation by a single group of people, and, second, he concludes that the trash resulted from an occupation of two or more extended families for about 30 years (Driggers 1985:93).

Kleinschmidt describes the trash midden at the A. C. Saunders site (Feature 2) (Kleinschmidt 1982:41) as "roughly circular" and measuring 19.7 meters north to south, 16.4 meters east to west, and about 78.7 cm high. It had a "recognizably distinct soil" that was a black-red color and contained red sand, clay, ashes, charcoal, and artifacts (Ibid.). The midden has been tentatively called a discard area for a ceremonial center (Kleinschmidt 1982:238–240). In all, this part of the site yielded 6730 sherds, together with other artifacts (Ibid.:84). Total density of sherds per cubic meter is about 33, less than at Deshazo, but the number of sherds and other artifacts from the midden is probably understated. Excavated in the 1930s when "the goals were primarily to collect . . . Caddoan artifacts, especially whole vessels" (Kleinschmidt 1982:18), photographs on file at TARL show large piles of sherds, bone, and other remains that were discarded in the trash midden. Only the finest specimens were returned to Austin. The photographs attest to the many large sherds (e.g., more than 5 cm in diameter) and also to the many large bones that were not collected.

The descriptions of these three trash middens are at odds in several respects with the material recovered from Mayhew. First, Mayhew did not have a noticeably darker soil color. During the excavations at the site, Prewitt's field notes include a perplexed comment wondering why the site has "no more midden stain than it does" (Prewitt 1975), and during the 1987 interview, he repeated that comment. Color photographs of site excavations show that the soil was brownish orange: the absence of darker soil color suggests that the Mayhew deposit is not a trash disposal area. Second, the average sherd size in the middens at Deshazo, Benson's Crossing, and the A. C. Saunders site was considerably larger than the average sherd size at Mayhew. This is in keeping with the findings of O'Connell (1987:95) at Alyawara sites. At Alyawara sites artifacts in trash middens are generally larger than those in the living areas. Moreover, the average sherd size in the Mayhew site agrees well with experimental studies of the effects of foot trampling (Nielsen 1991). The dominant damage to sherds from foot trampling is a general breakdown in sherd size

until a unimodal size distribution with a mode of 30 mm or less is achieved (Ibid.:495–596). The mode at Mayhew is less than 30 mm. The small sherds at Mayhew are also in keeping with archeological evidence from other contexts. The Juntunen site in the Great Lakes had a high proportion of very small sherds in areas that were concluded to have seen heavy traffic (McPherron 1967:288–289). Similarly, sheet trash at historic sites is of noticeably smaller size in pathways, areas adjacent to porch steps, entryways, and in other areas of heavy foot traffic (Moir 1987). The sherd densities at Mayhew may be the result of trampling.

It should be noted that there are many more sherds at the site than in the three trash middens. Densities in most of the site exceed 650 sherds per cubic meter. However, the densities at the Mayhew site are related to the smaller average sherd size and do not appear to reflect the breakage of more vessels there. Vessel batches from Benson's Crossing and A. C. Saunders indicate that there were many more vessels at these sites than at Mayhew. At Benson's Crossing, 209 vessels were inferred from 10,369 sherds (Driggers 1985:47), and at Saunders, 1264 vessels were inferred from 1465 rim sherds and 47 body sherds (Kleinschmidt 1982:97). In contrast, only 61 vessels could be inferred from the rim sherds at Mayhew, so the large number of sherds at Mayhew apparently reflects the effects of foot trampling.

Another difference between the trash middens at Deshazo, Benson's Crossing, and A. C. Saunders and those at the Mayhew site is their faunal inventory. There were significantly higher quantities of faunal remains in the trash middens at Deshazo, Benson's Crossing and the A. C. Saunders site than at Mayhew. According to Henderson (1982:133), "most of the faunal debris [at Deshazo] was obtained from the [trash] midden in Area D, which yielded numerous diagnostic artifacts of the Allen phase." The total bone count from Mayhew was 45, compared to 852 identifiable vertebrates from Deshazo. The bone counts underscore the distinction between the Mayhew deposit and the trash middens at the other three sites.

In summary, this expectation is tentatively confirmed. There is some archeological evidence that the remains at Mayhew are residue from an occupation rather than from a trash disposal area. The ceramics from Benson's Crossing—a site with a trash midden—include a high percentage of small sherds, but the remainder tend to be more than 30 mm in diameter, larger than the sherds at Mayhew. In addition, the middens at the Deshazo and A. C. Saunders sites contained a higher percentage of large sherds than small sherds. Moreover, the dark staining at the other three sites was not seen at Mayhew, suggesting that the Mayhew site reflects a function other than trash disposal. Finally, lithic and bone densities at the Deshazo and A. C. Saunders sites are considerably higher than at Mayhew, further suggesting that Mayhew was not a trash midden.

2. *Evidence that daily tasks (cooking, food storage, tool making, etc.) were carried out by small nuclear or extended families will be manifested by small concentrations of artifacts.*

Ethnoarcheological studies (O'Connell 1987) have indicated that activity areas can be identified in some archeological sites. Several recent investigation in or near

East Texas (Bruseth and Perttula 1981; McGregor et al. 1987) have used computer-generated maps to identify activity patterns at prehistoric sites. Since the Mayhew site lacks evidence of features, it was hoped that artifact concentrations might be revealed by maps illustrating concentrations of the material remains, and it was assumed that these concentrations probably would be the remnants of the activities carried out at the site.

In view of the small quantities of all artifacts other than ceramics, the distributions of ceramics, beads, battered and ground stone, and weaponry recovered from Mayhew were plotted by hand, and drafted on a computer (Figures 7, 8, 9, 10). However, contrary to the expectation, no clear, obvious, and definable concentrations can be seen on these diagrams, although there may be some tentative trends. First, if the ceramic totals (Figure 7) in any unit reflect the intensity of trampling in that part of the site, then the area of heaviest foot traffic was northeast of the site datum, with a smaller concentration north of the datum and a lighter concentration east of the datum. Most of the beads (Figure 8) are in the area north and east of the datum, but the largest cluster of beads is directly southwest of the datum, well removed from the ceramic concentrations. A smaller concentration of beads is in the northeast corner of the block excavation, and coincides with one of the ceramic concentrations. The battered and ground stone (Figure 9) has one of the lightest scatters; its only cluster lies between two of the ceramic concentrations. Finally, as with beads and ceramics, there is a concentration of weaponry-related artifacts in the northeast part of the block excavations (Figure 10), and a slightly smaller concentration near the datum coincides with the heaviest concentration of beads, but there was no ground stone in these units, and ceramics are less concentrated in this part of the site.

In summary, no clear artifact concentrations could be identified in the site. Since an estimated 21 percent of the site was excavated, any concentrations should have been detected. There are, however, some trends in the patterning of some of the artifacts. Some areas of the excavations had noticeably heavier concentrations of sherds, possibly indicating areas of heavier foot traffic, and, within or near these concentrations were slightly denser concentrations of beads, battered and ground stone, and weaponry-associated artifacts.

It may be that trends are all that can be expected in farmsteads; the site investigated by O'Connell (1987:105) was fairly large and complex. Because of the frequency of relocation and abandonment of households at the site, household clusters could be sorted out through artifact patterning, but individual clusters displayed "little internal structure, except as a function of size sorting" (Ibid.). In addition, the small artifacts in living area refuse are often scattered across the site:

> Razor blades and tobacco tabs are not used together . . . nor is either functionally connected with pull tabs from soft drink cans. Yet all have very similar distribution patterns, largely because they are similar in size [O'Connell 1987:95].

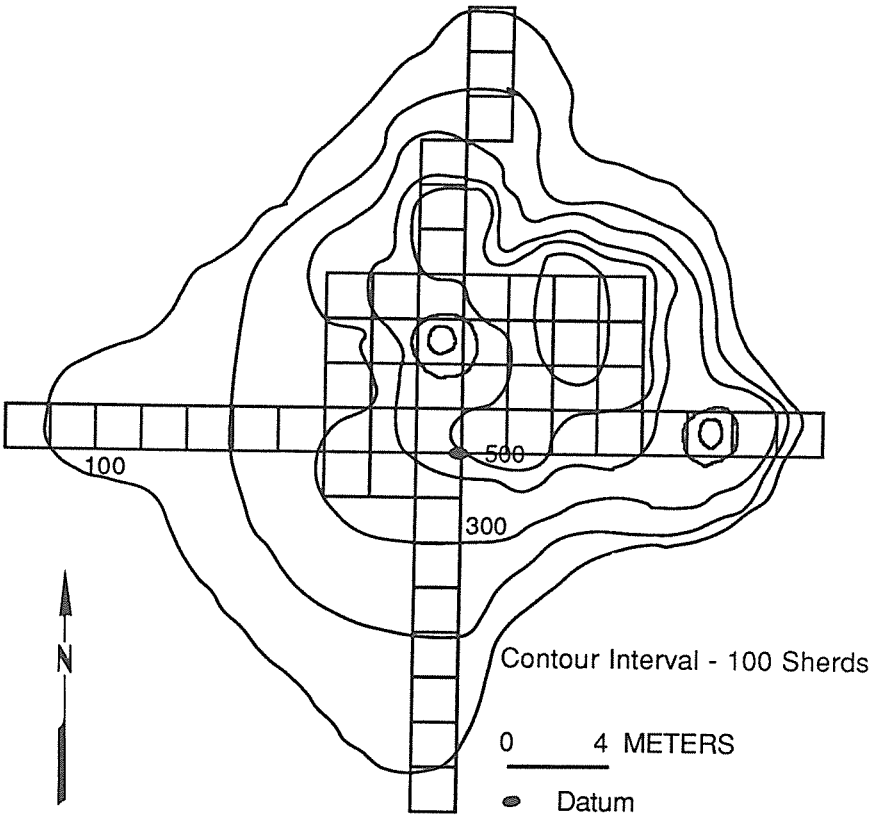

Figure 7. Contoured diagram showing distribution of ceramics laid over a plan of the grid system at the Mayhew site (41NA21).

O'Connell's study suggests that the internal site structure may have been obliterated by relocations of activities to accommodate changes in weather, personal preference, etc. If that is true, the search for trends rather than concentrations in artifact patterning may be a more appropriate goal for sites like Mayhew. Regardless, the data are certainly minimal, and the trends are sufficiently limited that confirmation of the expectation has not been achieved.

3. The ceramics will be utilitarian.

In their analyses of other Allen phase sites, Cole (1975:211) and Fields (n.d.:413) highlight the fact that most pottery types from this time were manufactured for utilitarian purposes, so it was anticipated that the collection from Mayhew would have pottery types similar to those at the eight Allen phase burial sites and at Deshazo. In addition, the site should have few or no effigy or legged vessels.

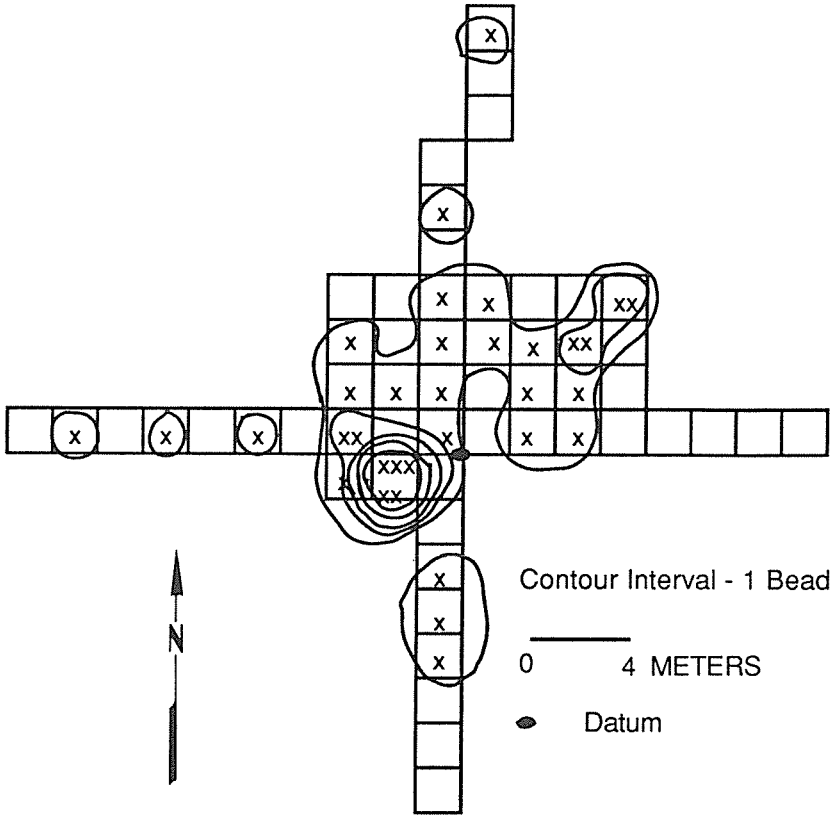

Figure 8. Contoured diagram showing distribution of beads laid over a plan of the grid system at the Mayhew site (41NA21).

Cole's (1975:319) analysis of Allen phase burial site collections indicated that animal effigy vessels are rare and are associated with burials of individuals of high status. Finally, it was also anticipated that the proportion of decorated to nondecorated ware at Mayhew would differ from the proportions at cemeteries or special activity sites such as A. C. Saunders.

To some extent, this expectation was borne out. Plain and brushed sherds, with 18,238 sherds, dominate the collection of 21,491 ceramic sherds from the site. However, the vessel batches based on rim sherds do not demonstrate the same dominance of plain and brushed vessels. In the 61 vessel batches, there are six plain and three brushed vessels; all of the remaining 52 batches have decorative elements, including neck-bands, punctations, incisions, or engraved lines (Table 2), so surface treatment is evidently more frequent than was anticipated. Some authors (Cole 1975:211; Fields n.d.:449) suggest that decorated vessels—except for animal effigy

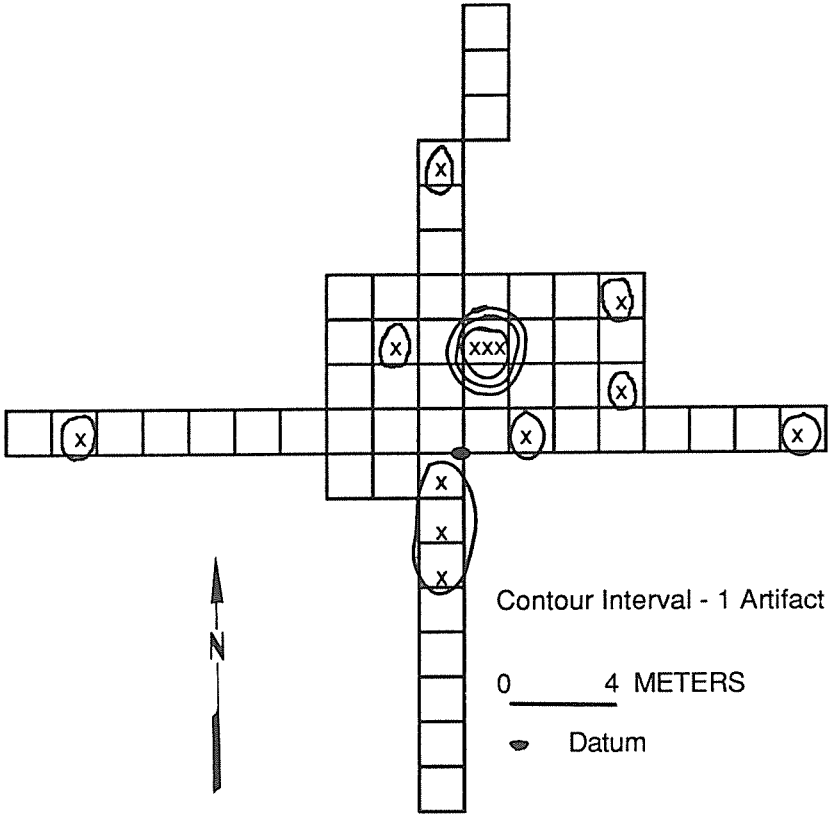

Figure 9. Contoured diagram showing distribution of battered and ground stone artifacts laid over a plan of the grid system at the Mayhew site (41NA21).

vessels—were used for utilitarian tasks, and a fairly high proportion (85 percent) of Mayhew vessels have some form of surface treatment. Although these numbers fail to support the expectation, the vessel batches at Mayhew are distinct from those at Saunders in their proportion of engraved wares. At A. C. Saunders, 45.5 percent of the batches are engraved; at Mayhew only 10 percent are engraved. A similar distinction with engraved pottery is found in Allen phase cemeteries, where pottery in graves tends to be engraved rather than punctated, brushed, or plain (Cole 1975:347). However, although engraved pottery is found among utilitarian wares, engraved wares seem to be preferred for pottery used in nonutilitarian contexts. These differences suggest that at Mayhew there is indeed a higher concentration of utilitarian pottery than is found at special activity sites.

In sum, this expectation is tentatively affirmed. Neither animal effigy vessels nor legged vessels were identified in the collection. The absence of these wares,

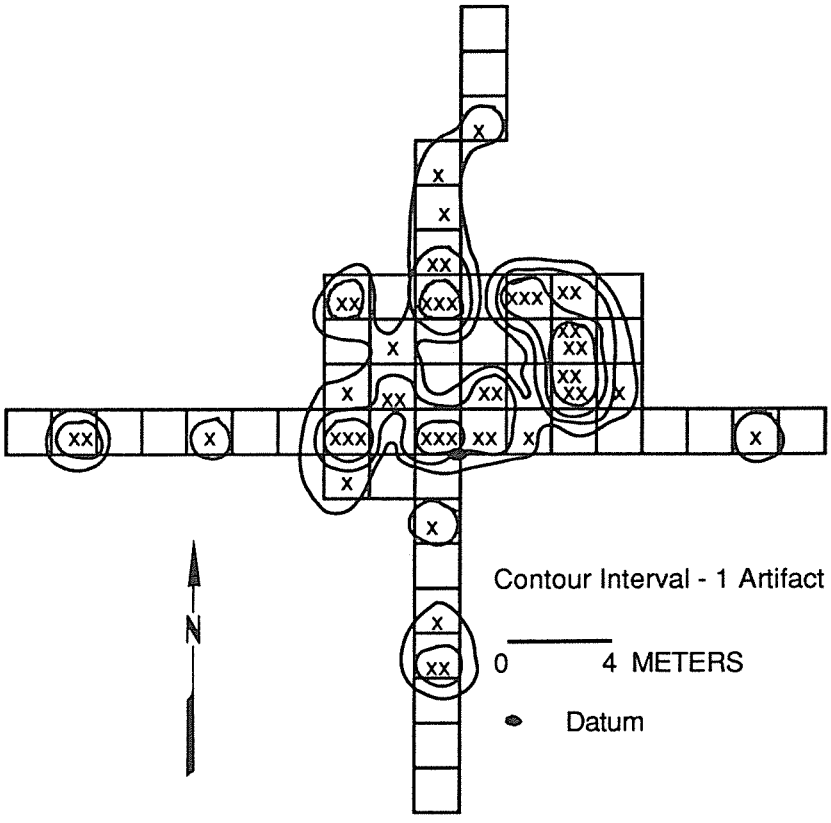

Figure 10. Contoured diagram showing distribution of weapon-related artifacts laid over a plan of the grid system at the Mayhew site (41NA21).

together with the evidence that there are fairly high percentages of engraved ware in ceremonial or cemetery areas, supports the expectation that the pottery from Mayhew is utilitarian in function.

4. The artifact assemblage at the Mayhew site will reflect a range of utilitarian activities rather than specialized use of the site.

As a whole, the Mayhew artifact assemblage confirms this expectation, for the artifacts are dominated by utilitarian ceramics, with engraved wares comprising only 10 percent of the ceramics. Among the other artifacts in the collection, only the 34 beads could be considered nonutilitarian. On the other hand, although beads are sometimes recovered from Allen phase burials (Cole 1975:175), they are not found exclusively in burials, and Good (1982:88) did not include beads among the special mortuary offerings at Deshazo, even though there were many in the collection.

Table 2. Vessel Batches By Surface Treatment.

Surface Treatment	Average Number of Sherds per Batch	Number of Vesset Batches
Plain	26	6
Brushed	16	3
Neck-Banded	5	4
Brushed/Punctated	3	6
Punctated	7	12
Patton Engraved	11	8
Natchitoches Engraved	69	1
Emory Punctated-Incised	7	1
Parallel Vertical Incised	8	2
Pinched-Appliqued	3	1
Diagonal Incised	1	3
Notched/Nicked Rim	1	2
Horizontal Incised, Unticked	20	3
Incised w/ Diagonal Motif bordered by Horizontal Incised Line	4	6
Diagonal Incised	1	3

Espinosa (in Swanton 1942:288) notes that women often incorporated beads into their costumes. The other artifacts from Mayhew, which—based on the evidence from the battered and ground stone—are for battering, food and/or pigment grinding, cracking and chopping hard foods (such as nuts), hammering, and smoothing—all utilitarian activities. The weaponry at the site consists of arrowpoints, gun flints, gun furniture, and lead shot, which would serve the needs of a farmstead to acquire meat and fur pelts. In addition, the pipes in the collection would have been typical of households in the Allen phase (Napolean n.d.), and the nails, chisel, bone tool, metal kettle, and glass are consistent with activities associated with daily needs rather than special functions. Finally, in the chipped stone artifact collection from the site are perforators, a graver, one knife probably used for cutting, two bifaces, one strike-a-light, and six unifaces that apparently were used for scraping (Kenmotsu n.d.). These artifacts and their use-wear patterns reflect activities that would be expected as part of the day-to-day routine of a farmstead.

The reuse of several artifacts at the site strengthens the interpretation that the material remains reflect utilitarian activities. The gun barrel recovered from Mayhew had been rejuvenated into another tool, perhaps a scraper or gouge; the gunflints also have been resharpened and rejuvenated.

Finally, the expectation was confirmed by the absence of metal knives, Anderson knives, Jowell knives, hawk bells, marine shells, and blue-gray schist. These artifacts have been known (Cole 1975) to be associated with the grave goods of individuals of high status, and since the accounts of early Spanish priests have indicated that individuals of high status did not live in isolated farmsteads, the absence of these goods at Mayhew supports the expectation.

5. The artifact assemblage will be consistent with a population of four to seven people at the site.

Rim sherds were separated from other Mayhew sherds in order to make a minimum vessel count. Minimum vessel counts have several advantages over raw sherd counts, for they provide a more complete approach to the frequency of vessels used and broken at a site, a better estimate of the frequency of vessel surface treatments, range and frequency of the vessel forms used at the site, population estimates (Driggers 1985:40), and, since they, by identifying vessel form, have been used to suggest site function (Arnold 1985:11).

The results of the minimum vessel counts have not been as productive as hoped, largely because of the small sherd size. Some data concerning vessel surface treatment and population estimates could be inferred, but the small sherd size precluded any evaluation of vessel form, so the range and frequency of vessel forms at Mayhew could not be determined, and without vessel form, site function could not be inferred. However, the study is not considered useless; some information relating to population size and length of occupation was gained from the minimum vessel counts..

In all, 61 vessel batches were identified from the 690 rim sherds (Kenmotsu n.d.:Appendix I). Although 116 rim sherds could not be grouped into vessel batches due to their small size, the remainder apparently represent distinct vessels. The numbers of sherds in the batches vary from one to 69, and many of the batches have less than six sherds. However, the distinctive characteristics of lip treatment, rim form, thickness, and decorative elements are sufficiently different that in some cases separate vessels can be inferred from single sherds. Temper in 60 of the vessels is bone, but many also have grog temper. Slightly more than half of the batches have everted rims (n=32); the remaining rims are straight or direct.

Seven sherds were identified as Emory Punctated-Incised, a style that has not been well typed, but which appears to be associated with the historic Allen phase in the Neches and Angelina drainages (Fields n.d.:400). Emory Punctated-Incised is represented in the Deshazo collection, the ceramic sherds from Mission Dolores (41SA25) in San Augustine (Corbin et al. 1990: 105–107), and in the collections from Los Adaes (Gregory 1973:338–348). Natchitoches Engraved (Vessel Batch 46) is represented by 69 sherds (Figure 6); the crosshatching within a curved engraved line appears to conform to this type. Natchitoches Engraved is typically found in Late Caddoan period and Historic Caddoan period sites northeast and east of Bayou Loco (Fields n.d.:395; Gregory 1973:356–358).

To make an estimate of population, it is necessary to know how much of the site was excavated, and, if possible, the approximate duration of occupation (Driggers 1985:91). At Mayhew, Prewitt estimated that about 21 percent of the site was excavated, but duration of occupation is not certain. If 61 vessel batches represent 21 percent of the vessels broken at the site, then 290 vessel batches would represent 100 percent of the vessels broken at the site. If five vessels were broken each year by each family, then the Mayhew site would have been occupied for 58 years by one household, or 29 years by two households, probably consisting of one house with male, female, and children, and one house with grandparents, since site size is too small to have held more than one or two structures as big as those at Deshazo. These figures are consistent with a site population of four to seven individuals. Interestingly, a time span of 29 to 58 years is consistent with the dates of manufacture for the European goods recovered (e.g., A.D. 1700–1750). In sum, the vessel batch analysis supports the expectation.

SUMMARY

Does the Mayhew site (41NA21) in fact represent a Hasinai farmstead? The artifact assemblage from the site is dominated by more than 20,000 ceramic sherds, most of which are very small plain or brushed body sherds. Their uniformity in temper (e.g., bone with some grog), color, and surface finishing techniques, together with the presence of Patton Engraved sherds, indicates that they represent a historic Indian component of the Hasinai Caddo. Early European trade goods at the site dating to the early eighteenth century lend support to an affirmative conclusion. In the light of this evidence, five expectations were set forth to test the hypothesis that Mayhew was a Hasinai farmstead.

In general, the expectations are supported; the first expectation is concerned with the evidence of whether the site represented a trash midden or living area residue. Unlike the trash middens at Deshazo, Benson's Crossing, and A. C. Saunders, the Mayhew deposit lacks the dark organic staining of trash middens, appreciable quantities of faunal remains, and sizable quantities of lithics or large sherds. These facts confirm the first expectation that the site was a living area. The second expectation seeks to identify activity areas in the site by means of artifact densities. Although there are some possible trends of variability in artifact density across the site, the trends are tentative, and the expectation is not so well supported. The third and fourth expectations deal with the presence or absence of utilitarian artifacts at the site. No animal effigy or legged vessels were identified in the collection, there is less engraved ware at Mayhew than in graves or in ceremonial sites, and the remainder of the artifacts strongly suggest utilitarian purposes. In the light of these results, the third and fourth expectations appear to be confirmed. The final expectation is concerned with deriving a population estimate for the site. The estimate rests on a vessel batch analysis and the total area of the site. Sixty-one vessel batches were assembled, using the rim sherds in the collection, and, based on these vessels, it is projected that 290 vessels were broken at the site, and that the site

was occupied for 29 to 58 years by a maximum of one or two families. These figures are consistent with a population of four to seven individuals at Mayhew, confirming the final expectation. In summary, it appears that the Mayhew site in Bayou Loco Reservoir was the farmstead of a single or extended family of the Hasinai Caddo, occupied between A.D. 1700 and 1750.

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A Summary and Discussion of Additional Findings at the Gilbert Site, an Eighteenth-Century Norteño Occupation in Rains County, Texas

Jay C. Blaine

ABSTRACT

The Gilbert site, characterized in the 1967 *Bulletin of the Texas Archeological Society* as an eighteenth century component of the Norteño focus, was thought to be a village of the Tawakoni, Kichai, or Yscani Indians. A large sample of trade goods at the site was thought to be French, and its analysis constituted a major contribution to knowledge of those artifacts. Subsequent investigations offer alternatives to some conclusions and add new dimensions to the site's interpretation.

INTRODUCTION

A formal investigation of the Gilbert site (41RA13) was initiated in the summer of 1962 by the Texas Archeological Society (TAS). The first group dig organized by the TAS, this project was the immediate predecessor of what has become the annual TAS Field School. The published results of this work comprise Volume 37 of the *Bulletin of the Texas Archeological Society* (Jelks 1967), and readers of this article are urged to familiarize themselves with that important study.

Preliminary testing had yielded metal artifacts, possibly dating to the eighteenth or early nineteenth centuries, which were associated with native-made pottery and lithics. Once the probable extent of the nonnative artifact recovery was realized, one primary goal was to identify the time period involved. Other early goals were to attempt specific identifications and the most likely sources of these nonnative goods. The earlier testing had revealed some remnants of flintlock firearms that could have been made at any point in a long time span. Examination by specialists of a very similar but limited sample of flintlock firearms and other artifacts presumed to be trade goods from the Pearson site (41RA5) had not clarified the problem of sources or isolated a very useful time span for that site (Duffield and Jelks 1961:77–79). The Pearson site, also in Rains County, was assigned to the Norteño focus.

The Norteño focus was proposed to link several different sites apparently occupied during some part of the eighteenth or early nineteenth centuries by groups of "Southern" Wichita-speaking peoples. The scope of the archeological evidence indicated that the Gilbert site also could be assigned to the Norteño focus.

The shared language, Wichita, is one of the four languages of the Caddoan peoples (the others are Caddo proper, Pawnee, and Arikara); the associated tribes are the Taovaya, the Tawakoni, the Yscani, the Waco, and the Wichita proper. The

Kichai are also included in the Norteño focus although they spoke a separate Caddoan tongue and were less well known (Newcomb 1961:250). The collective term, *Norteños* (Nations or peoples of the North), was a label created by the eighteenth century Spanish authorities mainly for lumping together the contrary Texas Wichita-speaking groups and their affiliates. The label generally included varied tribes who were known to the Spanish in provincial Texas but who lived to the north of San Antonio, beyond effective Spanish control. Story (1985:85–86) has now confined use of the term *Norteño* to a descriptive role for isolating the body of archeological evidence attributed to the southern Wichita peoples themselves.

The Gilbert site, it is now realized, was to offer an unusually rich opportunity for archeological observation of a group of Native Americans during a period when both their own traditional tools and livelihood strategies, and those then available through European contacts, were flourishing. Because the time span appeared to be reasonably well limited and the site was mostly intact, the process of acculturation in particular, surely would be happening here and should be clearly visible. However, it is probable that we failed to realize the full potential of this opportunity. Now, some 29 years later, no comparable Texas contact period site has been studied. In addition, some major questions arising from the study of the site still remain unanswered and require further consideration.

EARLY PROCEDURES AND FINDINGS

The Gilbert site has yielded the premier artifact sample presently known and studied from among the Texas sites assigned to the Norteño focus. However probable it might appear, a Norteño affiliation in the ethnohistorical sense is less secure. Under "Conclusions" in the Gilbert site report, the probable tribal identification of the occupants is identified as Tawakoni, Kichai, or Yscani (Jelks 1967:244); subsequent authors have also suggested either Kichai again (Rohrbaugh 1982:54), or Caddoan (Skiles et al. 1980:9–10).

The Historic occupation of the site was estimated at between about 1730 and 1770, based on analysis of time-sensitive remains of firearms and glass beads. The eventual recovery of a 1749 French coin, drilled for use as a pendant but essentially unworn, helped emphasize the probable mid-eighteenth century context. Proposals that the bountiful European goods found at the Gilbert site were primarily derived from the French trade also were to prove valid.

Although there was to be a five-year delay before the excavation results would be published, TAS members continued work at the site, and the additional artifact sample was incorporated into the final report. In addition, the Harrises and the Blaines used pertinent data gained from investigations at Gilbert to help clarify the analysis of the Historic period artifacts from the Womack site, also assigned to the Norteño focus. (The Womack site would see earlier publication [Harris et al. 1965:287–363]).

With permission from the Gilberts, R. K. Harris and the author continued testing at the Gilbert site on an intermittent basis after 1967. A detailed examination

of 19 more French trade hatchets recovered by Blaine from the site after 1966 has been published (Blaine 1988:111–117), as have more summaries of the findings at the Gilbert site (Richmond et al. 1985:128–129; Fox 1983:42–45).

Feature 8

Feature 8, the most prominently mounded feature on the site (Figure 1) was not tested by the TAS, probably because of three large potholes there. In March 1965, a slumping of one lower face in the most central pothole slightly exposed what proved to be the end of a flintlock gunlock. A 3-foot (0.92 m) test square excavated down to the gunlock exposed two more gunlocks nested atop the first. The uppermost gunlock was at the contact between an overlying red clay deposit, some 26 cm thick at this point, and a dark brown sandy deposit that contained this cache. The red clay zone was capped with a sandy loam layer 5 to 8 cm thick; the maximum thickness of the red clay cap in the test square was 39 cm.

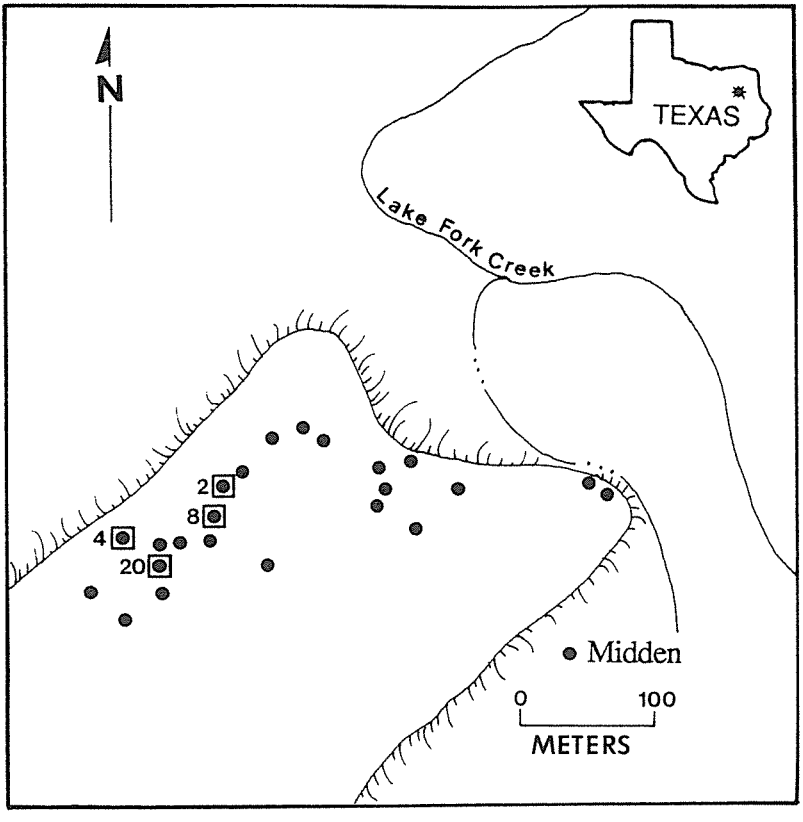

Figure 1. Plan of the Gilbert site, Upper Sabine River drainage, northeastern Texas.

The fill excavated above the gunlocks had very few artifacts, but the dark brown zone contained several broken deer bones, one broken end scraper, and a fragment of smoothed sandstone. Despite the ordinary nature of this part of the feature, the three gunlocks themselves may justify extra consideration for Feature 8 in the future (Blaine and Harris 1967:47–52).

Only the most easily removed parts (the upper cock jaws and their screws) were missing from two of these gunlocks; the jaw screw was missing from the third gunlock, but the upper jaw was present (see flintlock musket diagrams in Jelks 1967:Figures 26 and 27), although it had been moved to the inside of the gunlock and hung loosely over the sear arm. This particular placement indicated that the gunlock had been laid in place with some care and not simply tossed to the ground. This gunlock also has no frizzen. The close association and placement of these three gunlocks also argue against their random disposal onto a trash midden.

These gunlocks were the only relatively complex firearms components in the site that had not been completely disassembled. Several other gunlocks here are traceable only by their often widely separated parts, so this cached group may have special significance in the function of this feature, perhaps reflecting a version of the "killed" offerings that are sometimes associated with burial rituals.

Feature 20

Soon after the Gilbert report was submitted for publication, testing at Feature 20 revealed the only unmistakable storage pit found there. Unlike the two pit features of undetermined function found during the TAS investigations (Jelks 1967:14–15), this was a classic bell-shaped pit (Figure 2). The pit's bottom was 101 cm below the surface; the lower half had been excavated 52 cm into the basal red clay. Virtually all of the bone found was in the lower 29 cm of pit fill; all were deer bones except for a few pieces of box turtle shell. Although the pit fill had a very high ash content, including some small pieces of charcoal and four fragments of burned bone, there was no evidence of any general burning of either the artifacts in the fill or the pit walls and floor. At the very bottom of the pit was one slightly damaged clay elbow pipe with a slight spur at the heel, typical of those found elsewhere in the site (Jelks 1967:Figure 66).

The lowest 29 cm of pit fill also had such Historic period artifacts as one Cornaline d'Aleppo glass bead in bugle form, a fragment of probable mirror glass, several small fragments of disintegrated iron, and a fragment of a European spall gunflint. This same sample of fill also contained nine pieces of unmodified stone, two stones altered by abrasion or pecking, 67 small chert flakes and chips (four of Florence chert from northern Oklahoma), six small end scrapers, two distal tips of arrowpoints and one reworked Fresno point of Florence chert, three sherds (one probably Womack Engraved), and a few small pieces of bark.

Except perhaps for the bone component, the pit fill seems characteristic of the refuse to be expected from a series of housekeeping efforts in a limited area of the site. Prior testing in Feature 20 itself did not indicate anything suggesting a floor level. From surface to clay, the deep sand matrix had a clean, almost sugary,

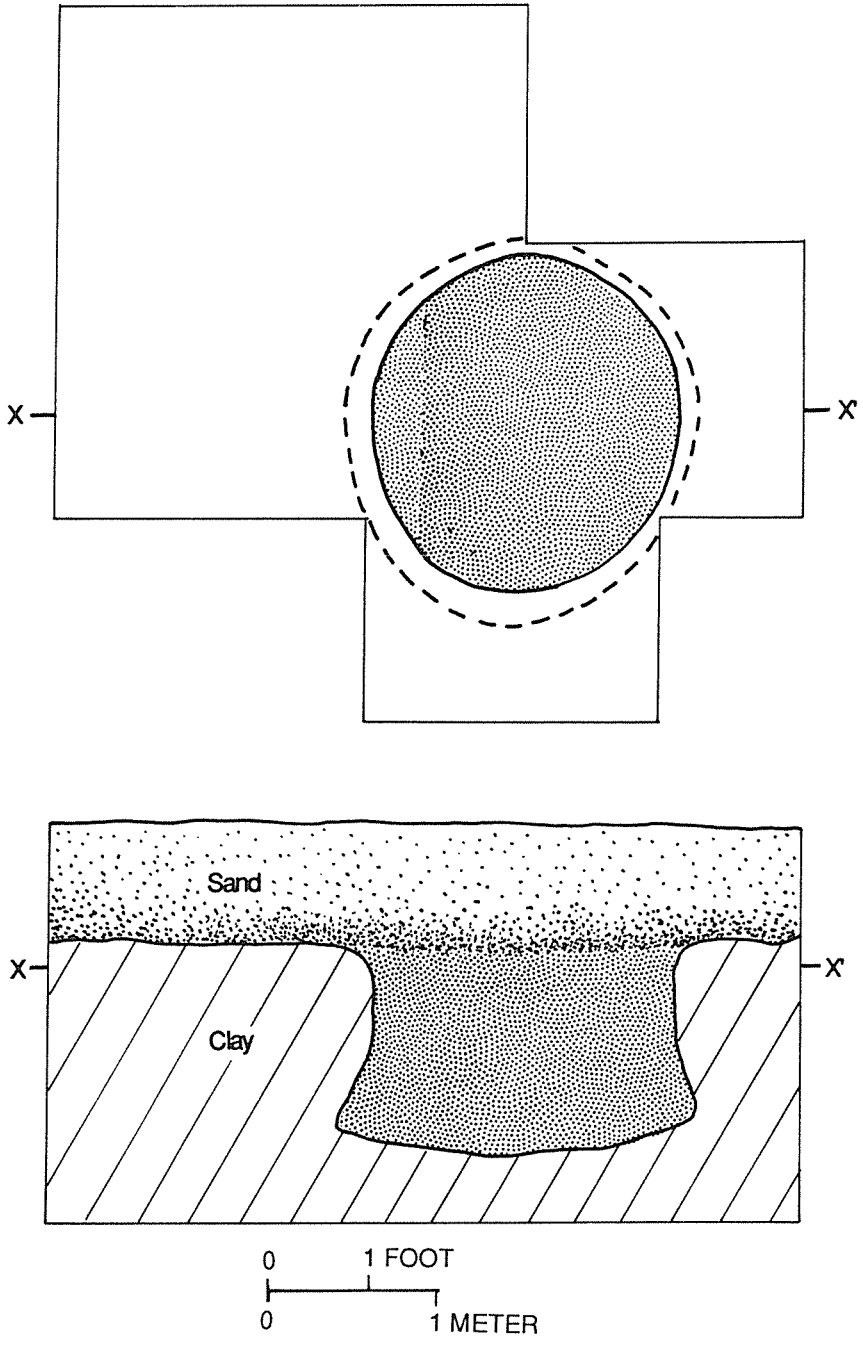

Figure 2. Plan and profile of the bell-shaped pit in Feature 20 at the Gilbert site.

composition without midden staining or apparent lensing. This sand zone averaged 39 cm in depth and, except for one firearm part, the upper 21 cm of sand contained no artifacts. The remaining 18 cm down to the clay contained the balance of the artifacts in these sands. Since as many as three small Gary points were also found, it appears probable that the excavations in the feature area also sampled prehistoric deposits.

LATER PROCEDURES

The Blaines worked at the Gilbert site until the 1980s, when the appearance of survey markers for the Lake Fork Reservoir that was to be constructed by the Sabine River Authority terminated the investigations.

In the earlier post-TAS dig phase, all of the excavations were confined to the areas around the known features. However, several excavation units were still open and soon attracted attention from non-TAS members. The site was especially vulnerable to the public; it had several different owners who had long allowed access to fishermen. On one memorable day, Harris and Blaine underwent hours of very close scrutiny by a series of nonfishermen who approached, one by one, from the river bottoms. These folk, it developed, were lookouts for a very large game of chance that was taking place nearby. We were both pleased to have been judged although obviously eccentric, apparently not a threat.

Early use of a metal detector at the site merely resulted in locating the TAS's kitchen trash pit, according to R. King Harris, and a few years were to pass before increasing signs of such use by others became obvious again. Fortunately, by that time at least most of the more easily detected metal artifacts had been located, mapped, removed, and conserved by Blaine. Two of the later collections made by others who used metal detectors eventually became available for examination and recording. In each of these samples, a fragment was found to cross-fit one collected by Blaine. Regrettably, no specific recording of locations, context, or any other associations had been done by these collectors. The scope of their combined samples, apparently collected over a very limited number of visits, highlights the impact that skilled metal detector operators can have on a Historic period site. This was especially notable in the bias towards the recovery of the copper alloy artifacts in comparison with those in the controlled collection. These nonferrous artifacts are preferred by collectors because they are judged as initially more attractive, can be polished up, and do not soon fall apart in collection displays. The more experienced operators commonly can tell the difference between these brass and iron metals without excavation and usually will ignore the least desired iron objects, passing over iron objects comparable in size to a small nail.

One of these outside collections contained seven pieces of brass round stock in three different diameters; one at 3.7 mm, three at 5.3 mm, and three at 6.3 mm. The longest piece was 50 mm and the shortest 14 mm long. All are, then, characteristic of remnants left over from forming *C* bracelets from stock. A single such bracelet was found in the TAS excavations (Jelks 1967:Figure 46a). Only this outside

collection provided evidence that wire of at least three different diameters was being supplied to the site as stock and that bracelets were made at the site. This emphasizes how scant and vulnerable the evidence of some functions can be in the archeological record. It seems probable that the evidence of this particular workshop was found in one very small area and that the workshop was the product of one individual.

Once it became evident that sporadic disturbance of the site was continuing from year to year, a form of salvage investigations was initiated. This procedure was undertaken with serious misgivings, however, because it had to involve extensive use of the metal detector, and any degree of justification for its use was again based on the need to salvage information from the site before it became totally disturbed.

Since the use of the metal detector is vulnerable to abuses if no proper controls are maintained on the findings, care was taken to maintain satisfactory controls at this level. Up to this time, attempts to maintain the customary controls during the post-TAS excavations themselves were frequently thwarted. In cases where a test pit could not be excavated, recorded, backfilled, *and concealed* in one visit, it became all too common to find that these excavations had been thoroughly shoveled through by others before they were completed. Sometimes there was no evidence of screening; possibly the goal in these instances had been worms for fishing. Here also, as is often the case, weekend excavations were soon trampled by pastured cattle.

A set of improvised controls was created in an attempt to reduce the regrettable impact on the site resulting from the location and removal of metal artifacts through detector use. Once an object was located as precisely as possible, very minimal disturbance of the matrix was done to reach it. In this site the vast majority of such artifacts detected were less than 13 cm deep and were excavated by trowel. Commonly the artifacts were small enough that an area no more than 8 or 10 cm in diameter was disturbed, and the nature of matrix in this area was recorded, as was the position of the artifact if it was not parallel to the general ground surface. The depth below surface was recorded, and any other objects from the area of disturbance were assigned lot designations. All earth excavated from the standard tests was sifted through quarter-inch screen and, at the maximum, in the absence of recognized soil zoning or cultural levels, troweled or shoveled in 6-inch (about 15 cm) levels.

For mapping, each artifact location was plotted by using a prismatic compass and a tape measure, then recorded on a master site map (this map is on file with the author and is available to appropriate persons). The entire historic archeological area of the Gilbert site was remapped for consistency and to include the newer locations. A partly arbitrary diameter of twenty feet (6.1 m) was assigned for each midden excavated by the TAS, and any findings outside these 20-foot circles that were in apparently undisturbed areas were recorded and mapped individually (Figure 1).

After factoring out the metal objects of recent age, about 580 artifacts recovered throughout the site by use of the metal detector were mapped. More than nine percent of the artifacts from the limited area that had been opened for retrieval of

the metal were accompanied by other artifacts, such as animal bones and/or potsherds or lithics. It is certain that there were some other potentially useful associations, but they were not obvious because of the severely restricted size of each retrieval excavation.

However, there were other indications of hidden features. Mapping of the metal signals revealed cluster patterns that indicated specific subareas with possible features. The mapping of metal artifacts also revealed that the eighteenth century area of the Gilbert site is about a third larger than had been previously known (Figure 1); the added territory and the main part of the site appear to be essentially homogenous. There are seven new cases of cross-fitting broken brass firearms parts from separate parts of the site. Features 2 and 4 of the TAS excavations were linked in this way to matching pieces found deep in the extended site area; the pieces of the Feature 2 match were 190 meters apart.

The 580 metal artifacts found in the more recent investigations at the Gilbert site represent a diversity of tools. The full range of the 240 firearms specimens include butt plates, trigger guards, side plates, barrels, gunlocks, rampipes, sears, and screws, and a single escutcheon (see below). Small fragments of kettle brass and iron account for more than 216 more artifacts (including six brass kettle lugs), followed by 48 folding- and case-knife fragments, four of which were complete knives. Iron axes or hatchets are represented by 19 pieces (see Blaine 1988), and there are 16 bridle bit pieces, including rings, mouth and cheek bars, bridges, two "figure 8" links, and one port. There are eight iron hoes in the metal detector sample, seven possible Spanish sword fragments (2 blades, 4 guards, and 1 pommel), and seven iron scrapers manufactured from larger pieces of metal. Rounding out on the metal assemblage are five awls, three pairs of scissors, three iron projectile points (two are arrow sized and the third is a spear), and a single skewer.

The two most outlying metal clusters tested proved to be midden concentrations with no obvious surface indications; the areas involved had never been in cultivation, and neither midden had been capped with clay. These features were designated F-B3 and F-B4, and their contents, although fewer in numbers, generally matched well with those from features excavated by the TAS. Again, however, there was no evidence of postmolds, floor surfaces or suitable depressed sections, fireplaces, or other structural features noted in the excavated areas. A few clay lumps were identified, but not enough to assume the existence of wattle and daub houses; the occasional daub impressions were small, probably from grasses or very slender twigs. The bits of daub found in at least six other features at this site were, as was customary, presumed to be from clay-plastered houses (Davis et al. 1967:14–15). More recently, however, the assumption that such daub always indicates houses or huts in the Caddoan-speaking area has been seriously questioned (Gilmore 1986:23–24).

It seems clear now that any future attempts to clarify details of site usage should focus on the intermidden areas rather than on the middens themselves, for larger areas need to be exposed to make it possible to recognize possible postmold alignments and to evaluate activity areas. For example, of the later sample of 19

more French trade hatchets reported at the Gilbert site, only three were closely associated with midden concentrations (Blaine 1988:111–117).

At least two noteworthy categories are now added to the Gilbert site artifact inventory: hoes and swords. Five French trade hoes and parts of at least three sword hilts, all from the same type of sword, have been identified in this later sample. Two of the hoes (Figure 3) were found nested or cached together with a box turtle carapace in Feature F-B3, but neither hoe shows any signs of use or damage, perhaps indicating that this midden may have been among the last to have been used; or the absence of wear might indicate that no tasks required hoes. These hoes are of different types; both are among the eighteenth century forms reported from the Trudeau site in Louisiana, another site strongly oriented to supplies from French sources (Brain 1979:144–148). In the sample from Gilbert, since one of these hoes bears the same stamped *C B* mark that is found on one of the French trade hatchets, we know that both types originated from the same manufacturer. Regrettably, there is nothing else these marks can tell us at this time beyond indicating that the hoes, together with many other items used in the French trade, probably were supplied from production intended for the domestic French market.

The sword remains include parts of three or more individual sword guards and one pommel, as well as two possible blade fragments (Figure 4). These swords were of the regulation Spanish cavalry broadsword type commonly in use by 1750 (Brinckerhoff and Chamberlain 1972:79–80).

The metal artifact sample from the site assemblage is now severely skewed, but real benefits have been gained from the sample. Enough additional firearms remains have been added to the original sample that both personal and French trade types can be isolated at the site, as can those of probable military origin. Among the French trade guns themselves, even the different grades of quality indicated in lists of supplies for French Louisiana can be demonstrated, so the high quality of the fusil hardware at Gilbert, some of which have thoroughly professional hand engraving and design, is very evident (Figure 5). The decorative escutcheon is the only example known from the site, and the sideplate is the only complete version from Gilbert. The formidable depth and validity of the overall French trade gun sample from the Gilbert site has been clearly established.

The count for firearms pieces from recent investigations was 240; in addition, 32 more have been verified in other collections, so the total is now 440 firearms pieces from the Gilbert site. However, this figure is somewhat misleading because the larger parts—the barrels in particular—have invariably been reduced to several pieces. Their thinner-walled sections can be flattened with relative ease and often tend to split into halves that make convenient stock for tools such as projectile points and scrapers.

Taking various combinations into consideration, it can be estimated that at least 20 individual firearms were discarded and reduced to parts and fragments here. Why were they discarded? Springs are elements of these flintlocks that are especially susceptible to breakage, and the mainsprings are the most frequently broken; five of at least nine found so far are broken. That leaves four such

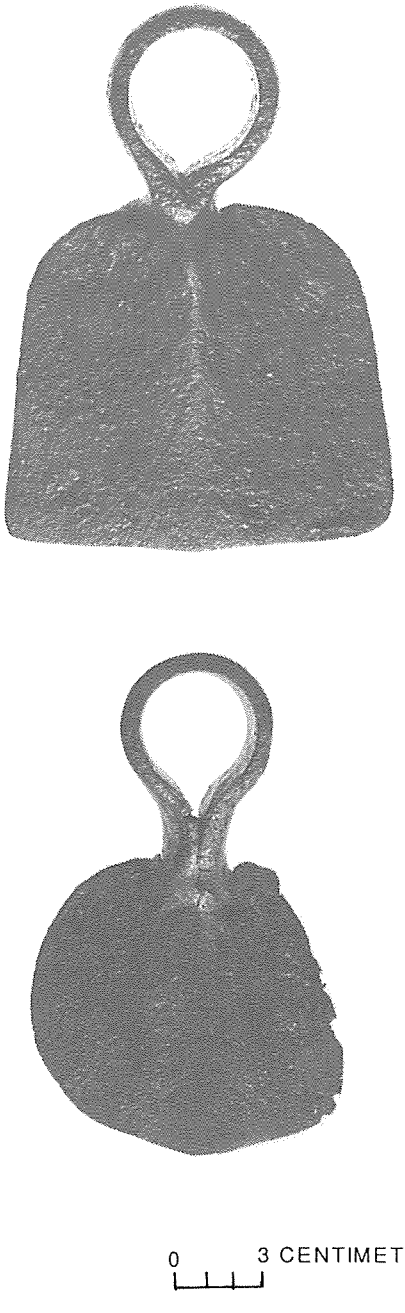

Figure 3. Photograph illustrating the two different types of trade hoes cached in Feature F-B3 at the Gilbert site.

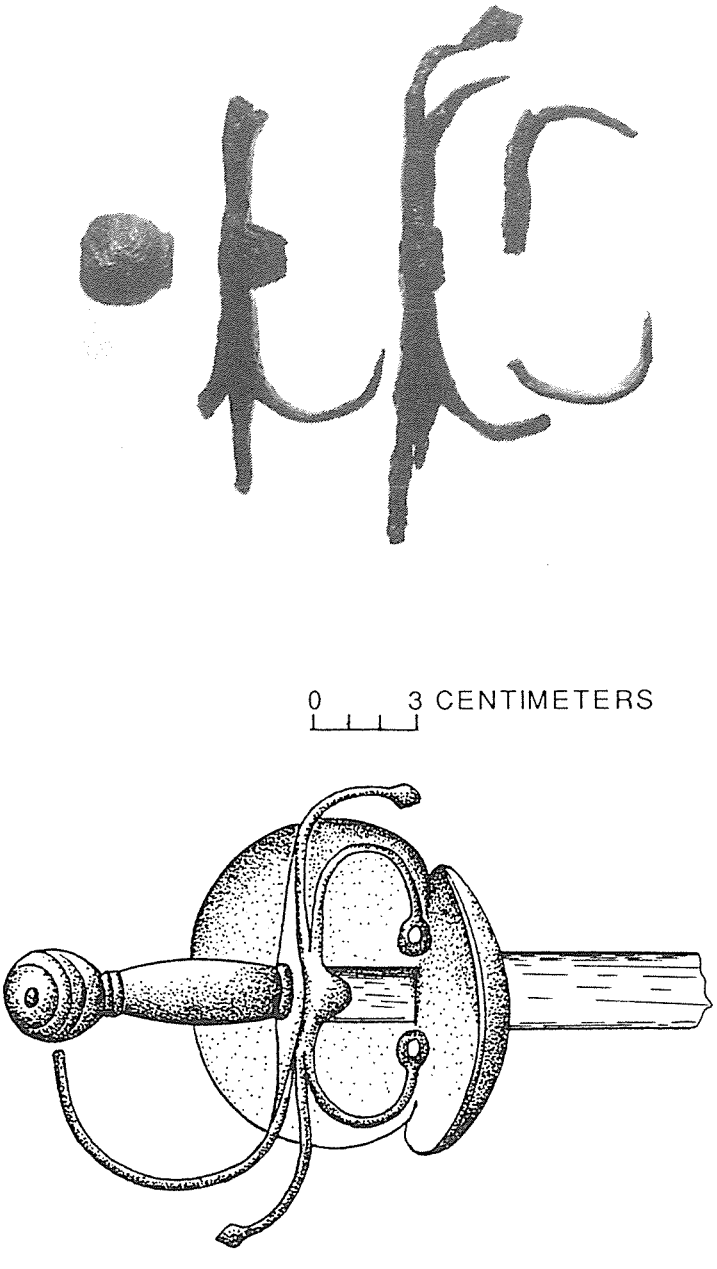

Figure 4. Photograph of parts of a Spanish sword hilt and a drawing incorporating a bilobate shell guard (adapted from Brinckerhoff and Chamberlain 1972:80–82).

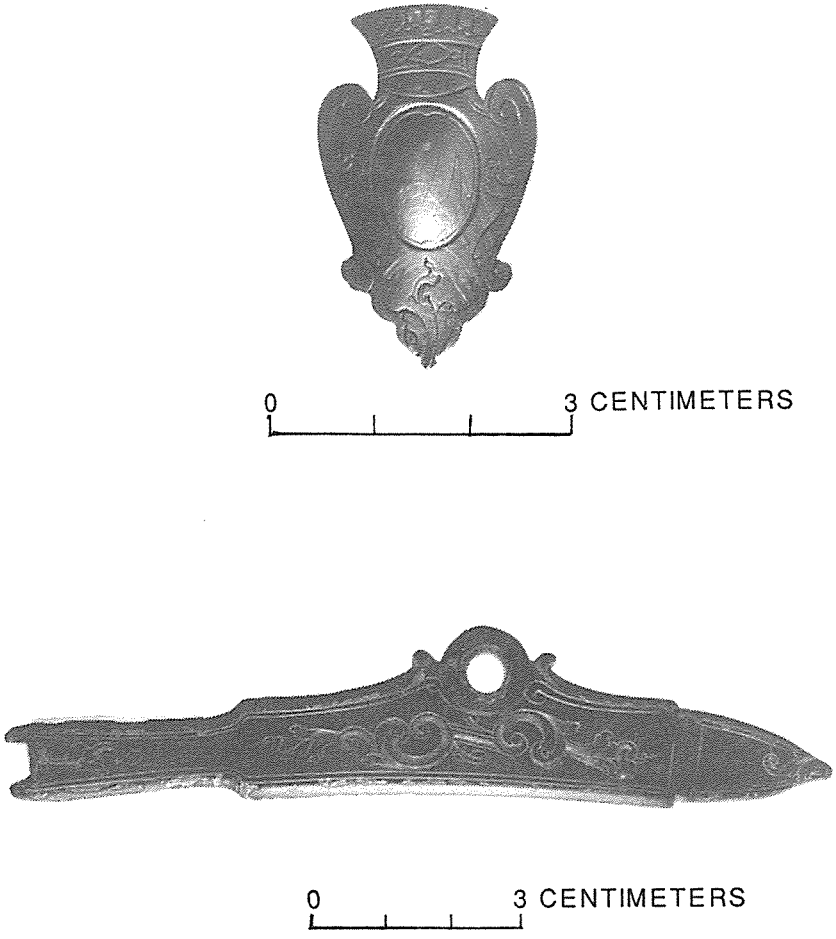

Figure 5. Photographs of an engraved silver(?) escutcheon, above, and a brass sideplate for fusils, below, both from the Gilbert site.

weapons that apparently were discarded for other reasons. There has been only one obvious barrel failure—a ruptured muzzle—typical to this day of the damage resulting from firing similar guns when they are plugged with mud or snow. Too, an eventual wearing of the frizzen face from repeated abrasion by the gunflint can remove the necessary case-hardened surface and result in sparking failure, but this fault probably will not be traceable on archeological specimens. In several cases from other sites, the threaded parts of side screws and cock jaw screws have been moderately flattened; since these threads were almost worn away, the flattening probably was a logical field expedient for tightening the

mechanism in the absence of replacement parts or threading tools. The long service lives of at least some of these shoulder guns from Gilbert are demonstrated by the fact that some of the engraved decorations have almost disappeared from the brass furnishings as a result of polishing alone.

A list of supplies for the Colony of Louisiana in 1733 includes parts for gunlocks for trade guns (Brain 1979:300-301), including cocks, frizzens, and unspecified springs.

The Nature of the Occupation

Considering the size of the Gilbert site and the affluence reflected by the sheer quantity and nature of the European goods found there, it seems almost proven that this was a sedentary village, but a village usually needs to be a year-round occupation site for a substantial part of its population. Villages commonly have structures for shelter, which can be expected to leave construction signs in the ground. The need to shelter and feed most of the population at a given time, especially during long winter months, calls for extensive use of fire hearths and storage pits. The demographics of a village population probably will result in a relatively significant death rate, often manifested by burials and even cemeteries. Identification of pottery-making sites and task-specific work by women are also excellent indicators of permanent villages.

A broad menu of seasonality factors in the archeological record, including construction of substantial shelters, winter-oriented procurement of food, and the presence of agricultural tools, provides markers that indicate a relatively permanent village, as contrasted with the more limited attributes of shorter-term occupations. The data on the Gilbert site, by these criteria and at the present stage of investigation, apparently do not demonstrate an occupation at the village level. Without question, however, there was an occupation at a very intensive level and probably of a special nature.

When definite seasonal preferences can be traced in the occupation of sites, they can be used to help distinguish between the relatively permanent villages and significantly shorter-term usage of sites. Lorrain (1967:234), studying the estimates of age at death for 11 of the white-tailed deer at the Gilbert site, and assuming that the fawns were born in May or June (Lorrain 1967:231), concluded that they were taken throughout the year. However, Gregory (1973:245) points out that these data are based on Florida deer and that they may not apply to northeastern Texas where the climate and vegetation environments are different. In support, Gregory (1973) offers examples of fawn births in seasons other than May or June for Louisiana.

More recent data using deer teeth for this purpose support an estimate of a late winter or early spring kill season for the remains of three out of four white-tailed deer from one trash pit at the mid-eighteenth century Trudeau site in the Lower Mississippi Valley. Here a different seasonal estimation technique was used, which depended on the local ecology and, most especially, on the average dates of the first and last killing frosts (Spiess 1988:418–419). In both examples, only a very limited selection of the deer teeth was suitable for these estimates; therefore, for these and

the above reasons, a larger data base with emphasis upon more environmental factors seems warranted.

R. K. Harris reported finding plum pits in at least one midden at the Gilbert site (Gregory 1973:246). The Blaines also found plum pits in two more features. Gregory (1973) notes that this fruit ripens only in late summer in Texas.

The Blaines found pieces of box turtle shell in the Feature 20 pit and many pieces in F-B3 and F-B4; at least eight of the other features contained similar remains. These terrestrial turtles are not active and available except in late spring, summer, and early fall, as are their kin on the site to this day.

Although limited, these floral and faunal data also lend stronger support for a general spring-to-fall season of occupation than for an occupation that continued through the winter months. In Gregory's (1973:240–245) discussion of his original model for an eighteenth century Caddoan hunting camp, this summer period meshes quite well with the two stages of a seasonal round lived in encampments that were located away from the major village base and its agricultural resources and demands. Still, there is no reason to deny the possibility that some episodes of occupation could have taken place in winter months, especially in view of the bell-shaped pit in Feature 20, and that some deer could have been taken then as needed.

Gregory (1973:238–240), after examining the Gilbert site report, proposed that its interpretation as a village site did not fully utilize other important data. For Gregory, the findings suggested not a permanent village, but rather some type of hunting camp with emphasis on gathering deer hides, and with one or two seasonality phases that centered on the summertime.

In the analysis of animal remains, Lorrain (1967:225–229) counted the remains of at least 127 white-tailed deer from only four of the middens. Half or more of these deer carcasses were complete when they were brought into the site, but the general absence of caudal vertebrae indicated that most hides were removed from the site, and it was suggested that these were traded for European goods. Gregory (1973:239) states that the proposed occupation period for the site (about 1730 to 1770) coincides well with the time of the maximum Louisiana trade for deer hides by the French. It is worth noting here that the sheer size (418) of the original sample of end scrapers also lends extra support to a fully implemented deer hide operation on a commercial scale.

Gregory's proposed Caddoan hunting camp model for the mid-eighteenth century provides a valuable outline for comparing the attributes found at Gilbert with those characteristic of a relatively permanent village occupation. However, some details of a basic hunting camp model probably are too limited to accommodate the needs and composition of a workforce engaged in commercial hide procurement as seems to be the case at Gilbert. For example, it appears probable that a higher degree of task sharing might be called for under these special circumstances, and so there could be more female (or family?) participation there than would be expected in the customarily male-dominated activity levels suggested by Gregory (1973).

If future investigations fail to find house patterns at Gilbert, it should not be assumed that there was no effective form of shelter there. Gregory (1973:239–240), lacking adequate documentation on this aspect of seasonal Caddoan hunting practices, used pertinent shelter data from the Pawnee—their kinsmen to the north. For shelter in the summer encampments of their seasonal rounds, the Pawnee used generally oval frameworks of small saplings covered with skins. A description of the use of small field tents of deer skins by a Petit Caddo chief is quoted by Gregory (1973:248), and elsewhere, the Caddo have been known to use temporary shelters when hunting; their use of skin tents near Natchitoches, Louisiana, is also suggested in French archival records (Kniffen et al. 1987:115).

The direct archeological evidence for such shelters under most conditions, would be easily missed. With this forewarning, however, and with some emphasis now on the areas between middens, more very careful work at Gilbert could still provide answers needed for the fullest understanding of the types of activities that took place there.

Evidence of agriculture that would be expected at a village, such as milling stones or metates, manos, mortars for plant processing, and tools for cultivation such as hoes, has not materialized so far at the Gilbert site. One bison scapula hoe and one mano comprise the total of native tools that could have direct agricultural applications. Even so, this mano, or muller, could be prehistoric, since it was found in the same square and level in Feature 20 as a Gary projectile point. That leaves only the five complete iron trade hoes, four of which show no evidence of use on their sharp working edges; the fifth apparently was broken up for its metal. These tools probably were brought directly to the site by a trader with a somewhat generalized inventory. Another possibility is the diversion by theft—not uncommon in those times—of a load of goods intended and more suitable for trade elsewhere. In any case, the abandonment of apparently unused tools in the site remains puzzling.

There is no obvious sign of any loss of knapping skills among the makers of the lithic artifacts found at the site; the Fresno arrowpoints and native-made gunflints, for example, are finely crafted. The metal points also appear to be native-made, but they are comparatively few in number. Some kinds of cherts are still being imported from distant sources, and lithic scrapers far outnumber iron scrapers.

Despite the remarkable concentration and array of European goods at the Gilbert site, the material evidence of other cultural adaptations has not been easy to understand. Perhaps the best clues to these adaptations can be found in the alteration of metal artifacts. Blaine (1988:116), in examining the trade hatchets from Gilbert, noted from their condition that they were used primarily used for working metal rather than wood. At Gilbert, there is a very strong pattern of experimentation with metals; virtually everything of metal that could be cut and/or broken into smaller pieces has been reduced, but as yet there is no readily discernible pattern of selective removal from the site or of on-site use of many of the metal artifacts that may have been produced.

The two trigger guards of brass from Feature F-B4 (Figure 6) seem to illustrate this treatment of metal; these guards have been broken into smaller parts, and,

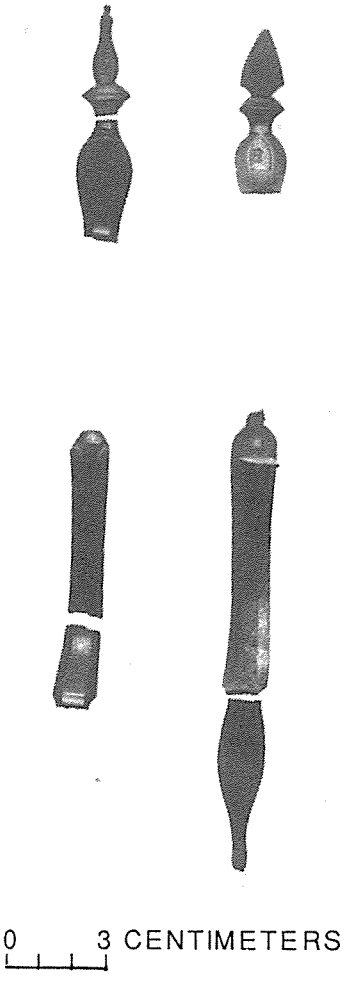

Figure 6. Photographs of two broken, but almost complete, brass fusil trigger guards from Feature F-B4, Gilbert site.

except for one rear finial, the only missing parts are the guard bows. Many virtually identical segments of bows and finials broken from the same kinds of brass trigger guards were scattered around the site, but they have not been modified further. This situation may be analogous to cracking open a cobble of unfamiliar stone to see if something of use is revealed by or because of the reduction process. In the absence of a proper metal-working tool kit, the experimental hacking and breaking of large units of metal into more useful smaller ones may simply be an application of an old

technology to a new medium, but the thoroughness and repetition of this particular activity seems to reflect behavior more than simple curiosity.

Story's team examined the pottery from Gilbert and drew several very important inferences (Story et al. 1967:186–187). Among these are the suggestions that "a single integrated socio-cultural group" accounted for the historic Native American ceramics. Most of the decorated pottery was Caddoan in tradition, and some types can be identified with the Historic Caddoan peoples in Texas. However, the great diversity of the ceramics precludes a strictly local origin for the pottery assemblage, and the fact that many vessels had been repaired or otherwise modified, suggests that local pottery making, if any, was rather limited, and that acculturation was possibly causing their replacement with European vessels.

Story and her colleagues (Story et al. 1967:187) also believe that the Gilbert sample of plain pottery with bone and shell tempering was not typical of Late Caddoan or Historic Caddoan ceramics. However, data now available indicate a probable flux in Caddoan ceramic traditions at this particular period.

Gregory (1973) compared the native Caddoan pottery from Los Adaes with pottery from other sites in northwestern Louisiana that were at least in part contemporary with Gilbert. He found bone to be the major tempering agent, with shell combinations following in frequency. In addition, Gregory found that the major use of bone tempering was most evident after about 1740. Since he also found that bone tempering was less common in the contemporary Caddo sites to the east, he proposed that this trait originated among the more westward Caddoan groups; this proposal is supported by more recent data from East Texas (H. F. Gregory, personal communication, 1991).

All European containers found at Gilbert, except for a few bottle fragments, were kettles (cooking vessels) of copper alloy. Examination of the reported sample of bail ears from these thin metal vessels indicates that there were at least five kettles, and at least four more can be isolated from the newer sample. All nine or more of these containers are broken, and a few of the pieces were used as raw material for ornaments, chiefly tinkler cones. From the evidences of wear, including some repairs of the bail holes, it is obvious that these kettles saw much service before they failed.

Oddly, it seems that there is no evidence of cast iron kettles at Gilbert, although they were available through trade by this time. Judging from both the repaired native-made pottery and the copper alloy metal kettles, some factors (including mobility?) were causing considerable attrition among both of these classes of containers. The sturdier iron kettles appear to have been especially desirable because of their durability, but did their increased weight make them liabilities in extended special-purpose encampments, so were the sturdy iron vessels left behind in the more permanent village?

When the Gilbert site was occupied, that part of Texas had been well within Spanish borders for many decades, but this was a mere technicality and did not involve any real Spanish presence or influence. The amount of physical evidence from Gilbert that can be identified as probably of Spanish origin is virtually

submerged in a sea of French trade material. With the exception of the horse gear, only one firearms part, five parts of sword hilts (Figure 4), pieces of handle plate from a belt knife or short sword, and four case-knife blades with spike tangs are the sum of Spanish evidence at Gilbert. The latter two types of artifacts were linked to Spanish origins since publication of the Gilbert site report in 1967 (e.g., Blaine 1982:123–125). The blades from the swords that are represented only by their hilts probably underwent the conversion into metal spears and lance blades that has been commonly documented as a practice of Native Americans in the Historic period.

Each of two brass parts of firearms pictured in the 1967 report was stamped with a slightly different *Crown R* mark (Blaine and Harris 1967:Figure 37), and two more pieces with *Crown R* marks, also brass gun furniture, have been excavated from Feature F-B4. In this case, the two marks are apparently identical; all four parts are broken but still do not appear to be stout enough to have come from military firearms. Where enough of the shape has survived, the parts are consistent with French civilian or trade shoulder gun styles. Although there apparently is no logical connection or proof of any direct linkage, it must be noted that a *Crown R* mark was required on military swords and guns produced for the Spanish crown by Royal Ordinance beginning in 1728 (Brinckerhoff and Chamberlain 1972:30).

During the occupation of the Gilbert site by Native Americans, the policy of the Spanish government still prohibited the supplying of firearms to the Indians of this province (Bolton 1914, Vol. I:40). Just how efficiently the French traders circumvented this policy is dramatically underscored by the firearms sample from Gilbert. Among the large array of French fusils tracked so far, there is only one example each of English and Spanish firearms. The latter is represented by a single part—a miquelet frizzen. One such frizzen, apparently modified into a scraper, has come from the Spanish Fort locale in Montague County, Texas, and it is possible that the Gilbert frizzen arrived on the site as a single part that was intended for similar modification.

The seemingly casual discarding of so many useful metal objects, including several undamaged knives at Gilbert, implies a remarkable degree of affluence, and this generous example of waste is repeated in other categories of artifacts. The indicated lack of interest in husbanding some of these resources suggests that the possibility of shortages in supplies was not being seriously considered; this in turn could imply that suppliers of such goods were actually on the site. The traders may have been there for the sole purpose of bartering for hides, and perhaps even to participate directly in the hunting and processing of the hides. However, the descriptions of the living habits of French traders and/or *woods runners* of this period lend no support to the possibility that their presence can be recognized solely through archeology.

CONCLUSIONS

Although we have gained extra insight into their behavior and activities, the tribal identity of the Native Americans who left all these clues at Gilbert remains

uncertain. The data now best support two most promising lines of inquiry; one leads through the southern Wichita to the Tawakoni, Kichai, or Yscani, as originally suggested by Jelks (1967), and is supported by the general Norteño character of the archeological evidence. The other line of inquiry leads through the Caddoan groups. The nature and frequency of the affiliations with Caddoan pottery traditions seem especially telling at Gilbert, and even in quantity alone, the difference between the amount of pottery used at Gilbert and in the more westerly, roughly contemporaneous (about 1750) and plains-oriented Norteño sites at the Spanish Fort locale is startling. Although native ceramic pipes are well represented in both places, evidence for pottery among the Norteños to the west is quite scarce in comparison with the sample from the Gilbert site. Mobility alone should not have been a significant factor, since both groups had horses and/or mules.

It is possible that what now appear to be definite Caddoan influences at Gilbert may yet reflect the participation of an ethnological Norteño sponsor; this would be the Kichai, who are normally associated with the southern Wichita under the same Norteño umbrella, but are the least well known with that designation.

Rohrbaugh (1982:51–61) examined the possible origin of the Kichai with emphasis on the native ceramics in the Arkansas River basin and hypothesized that both the Gilbert and Womack sites might be identified with the Kichai. He quotes Swanton (1942:54), who observed that the Kichai as a group habitually attached themselves to the Wichita or their affiliates, or to the Caddo. Apparently the language differences were not a real barrier, and these peoples apparently were unusually mobile and adaptable. If this is a true characterization of the Kichai, it follows that Kichai material culture might, at any given time, strongly reflect influences from either or both southern Wichita or Caddo sources. At Gilbert, then, it is also possible that we are seeing the results of one of these Caddo-Kichai collaborations.

At present, one approach seems most likely to help clarify problems like the one at Gilbert. Such an approach would require a timely effort to further seek out, identify, and analyze Caddoan habitation sites of the eighteenth century; any additional emphasis should focus on the sites closer to the western fringes of the Caddoan heartland. These habitation sites are unusually vulnerable to destruction because of their high metal content and the uncontrolled use of metal detectors by pothunters.

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Blaine. Although not always as eager about archeology as some of us, Jerrylee has always worked generously, intelligently, and effectively to give direct support to those of us who are more eager.

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A Case Study in the Interdependence of Archeology and History: The Spanish Fort Sites on the Red River.

Elizabeth A. H. John

ABSTRACT

Astride the Red River in Montague County, Texas, and Jefferson County, Oklahoma, just west of the Cross Timbers, a complicated cluster of sites manifests prehistoric activity as well as historically significant villages of the Taovayas, Wichita, and kindred groups. In 1967, anthropologists of both states collaborated in sampling the archeological and archival evidence. Although their results fully confirmed the potential usefulness of comprehensive excavation and analysis, such an attack has yet to be mounted. Meanwhile, newly discovered Spanish documents underscore the urgency of uncovering all that these sites can tell about the formative encounter of Indian and European cultures that these sites exemplify.

Late in the nineteenth century, Anglo-American settlers on the Red River rim of Montague County, Texas, guessed that the collapsed walls of an apparent fort witnessed a shadowy Spanish past. How could they not have named the place Spanish Fort? Every season's plowing along both sides of that distinctive bend between the ninety-eighth meridian and the Cross Timbers turned up a fresh evidential harvest of European and aboriginal artifacts.

Unfortunately, most of the material that surfaced was lost until local rancher Joe Benton announced in the 1920s that he would pay for such finds. Subsequently, the collection of artifacts that Benton had begun in boyhood swelled into a voluminous array for which he eventually built a museum beside his home on the outskirts of Nocona.[1] To support his collection, the dedicated Benton also acquired all the pertinent literature he could locate, and generously invited scholars to examine his materials.

Fortunately for Benton's purposes, the phenomenon had also engaged the interest of archeologists and historians. In 1914 and 1915, historian Herbert Eugene Bolton published clarifying evidence from Spanish documents. The fort had been Indian rather than Spanish, built in the 1750s by the long-forgotten Wichitan band called Taovayas, whose strategic site on an international boundary had given them singular importance (Bolton 1914, Vol. II:185; 1915:90). Bolton meant to have the story of the Taovayas developed by one of his many graduate students at the University of California, but a paucity of accessible documents made it such an

[1] The private museum is faithfully maintained by Benton's heirs, who welcome visitors upon suitable advance arrangement.

impractical research problem that none of his candidates was ever foolhardy enough to pursue it.

In contrast to the paucity of documentary evidence, the physical evidence presented archeologists with an embarrassment of riches. Not only was there a bewildering accumulation of artifacts, with little record of provenience, but there was also a complicated cluster of sites that indicated both prehistoric occupations and historic Wichitan activity. The extent and complexity of these manifestations demanded a more comprehensive attack than the funding of archeologists in either Texas or Oklahoma could support. It was not until the mid-1960s that a federal grant from the National Science Foundation permitted anthropologists in the two states to collaborate in a systematic sampling of the archeological and archival data. Their results provided more than adequate justification for extensive excavation and analysis of Montague County's Wichitan sites and their counterpart in Jefferson County, Oklahoma (Bell et al. 1967). But a quarter of a century later, a comprehensive study of these vitally important sites is still awaited by concerned scholars, buffs, and, perhaps most importantly, by the Wichita tribe, whose ancestral experience these sites embody.

Perhaps the inquiry can be revitalized now, in keeping with the Quincentenary emphasis on the encounter of Indian and European cultures that these sites exemplify. Coincidentally, the construction of a long-needed highway bridge across the Red River, just downstream from Spanish Fort, is sparking a new flurry of public interest in the historical significance of the place, which some local citizenry view as a potential magnet for tourists. However mixed the motives, it is surely time to find out what these intriguing sites can tell.

Not the least of the challenges is to mesh the documentary evidence with that which has been found on the ground. A cautionary example is the matter of the location of the Taovayas fort, which was long thought to be obvious. After all, the place name *Spanish Fort* commemorates the visible remains of a fort on the right bank, or Texas side, of the Red River in the late nineteenth century. Spanish visitors reported the Taovayas village on the right bank of the river in 1778, and historians found no reason to question the apparent agreement of physical and documentary evidence.

But the official reportage of the first Spanish encounter with the Taovayas fort in 1759 does contain ambiguities that render the exact location—left bank or right bank—uncertain. An Oklahoma anthropologist proposed the left bank, or Oklahoma side, as an alternative in 1965 (Duffield 1965), to the considerable skepticism of most scholars familiar with the pertinent documents. But three decades later, we find that the language of the 1759 reports also left contemporary authorities in Mexico City uncertain about the exact location of the fort.

For Spanish officialdom, the question was resolved in 1763 by a crude map that caught my eye in Seville in 1983 (Figure 1). That map and its accompanying affidavit constitute the earliest testimony that Spaniards obtained from a witness well acquainted with the physical structure of the fort of the Taovayas and its environs.

Early in 1763, the commandant of Presidio San Sabá learned that the well-behaved Frenchman who had recently enlisted in his company was actually a deserter from the old French fort on the Arkansas River. Since his departure from the Arkansas Post, Pedro Tamamint had visited all the villages of the Taovayas, Tawakonis, Yscanis, and their allies, and had been many times in the fort of the Taovayas. Naturally, the commandant seized this providential opportunity for first-hand news of Indians who had continued to plague the San Sabá enterprise ever since destroying its infant mission in March 1758.

On January 15, 1763, Commandant Felipe de Rábago y Terán summoned soldier Pedro Tamamint and ordered him to make a map with its base point at New Orleans, showing the locations of all the Indian villages in relation to the presidios of San Sabá, Los Adaes, and San Antonio de Béxar.[2] In addition, he should provide a sworn declaration of all the distances between settlements, describe the mode of living of each of the Indian nations, and give his view of the means of bringing them to justice.

That was too much to demand of a thirty-two-year-old soldier who did not know how to write. But within five days Tamamint produced a primitive map that gives the essential relationships in the region and clearly shows the fortified Taovayas village on the left bank of the Red River. On January 20, he reported back to Commandant Rábago, who interrogated him before two witnesses and, having no official scribe available, recorded the answers himself. Presumably Rábago also wrote on the map the labels identifying the symbols that Tamamint had drawn. The Frenchman swore to the accuracy of the map and to the truth of his answers to Rábago's questions.

As for distances, Tamamint's own experience was that from the houses of French hunters near the Cadohadachos, it was a four-day journey up the Red River to the contiguous pueblos of the Yscanis and the Taovayas. Having once been sent to Natchitoches during his service at the Arkansas Post, he estimated the distance from the Taovayas to Natchitoches to be a little more than a hundred leagues (about 260 miles). After deserting the Arkansas Post, Tamamint had gone to the fort of the Taovayas, but it had been a year since he last saw it.

Tamamint's map shows the villages of the Yscanis and the Taovayas on the left bank of the Red River (Río de Natchitoches), the former, downstream and the latter, upstream, on opposite sides of an apparent tributary flowing into the Red River (Figure 1). A small circular village symbol denotes the Yscanis; a larger rectangle denotes the Taovayas fort, with many tiny circles inside and out, perhaps representing houses within and without the enclosure.

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[2] The map (Figure 1) is filed in the Archivo General de Indies (AGI), Mapas y Planos, México, #527, as "Presidio de San Sabá hasta Adaes, 1763." A copy is in the Texas State Archive's Inglis Collection of photographs of manuscript maps from the AGI, entitled "Fuerte de los tahuallas," 1983/18–30, map #2784. The supporting documents are in AGI, México, 1933-A; a microfilm copy is available at the Bancroft Library, University of California at Berkeley.

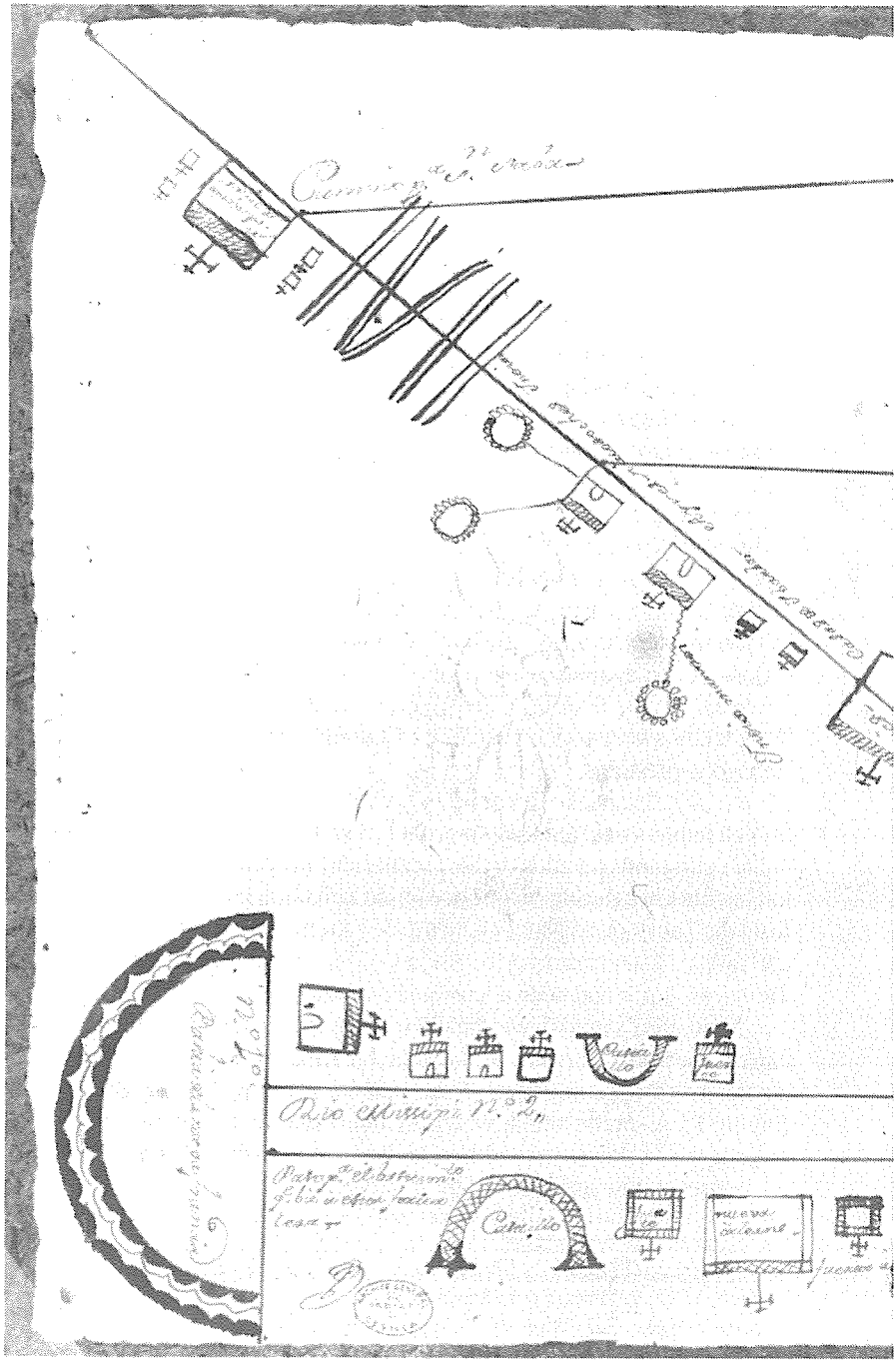
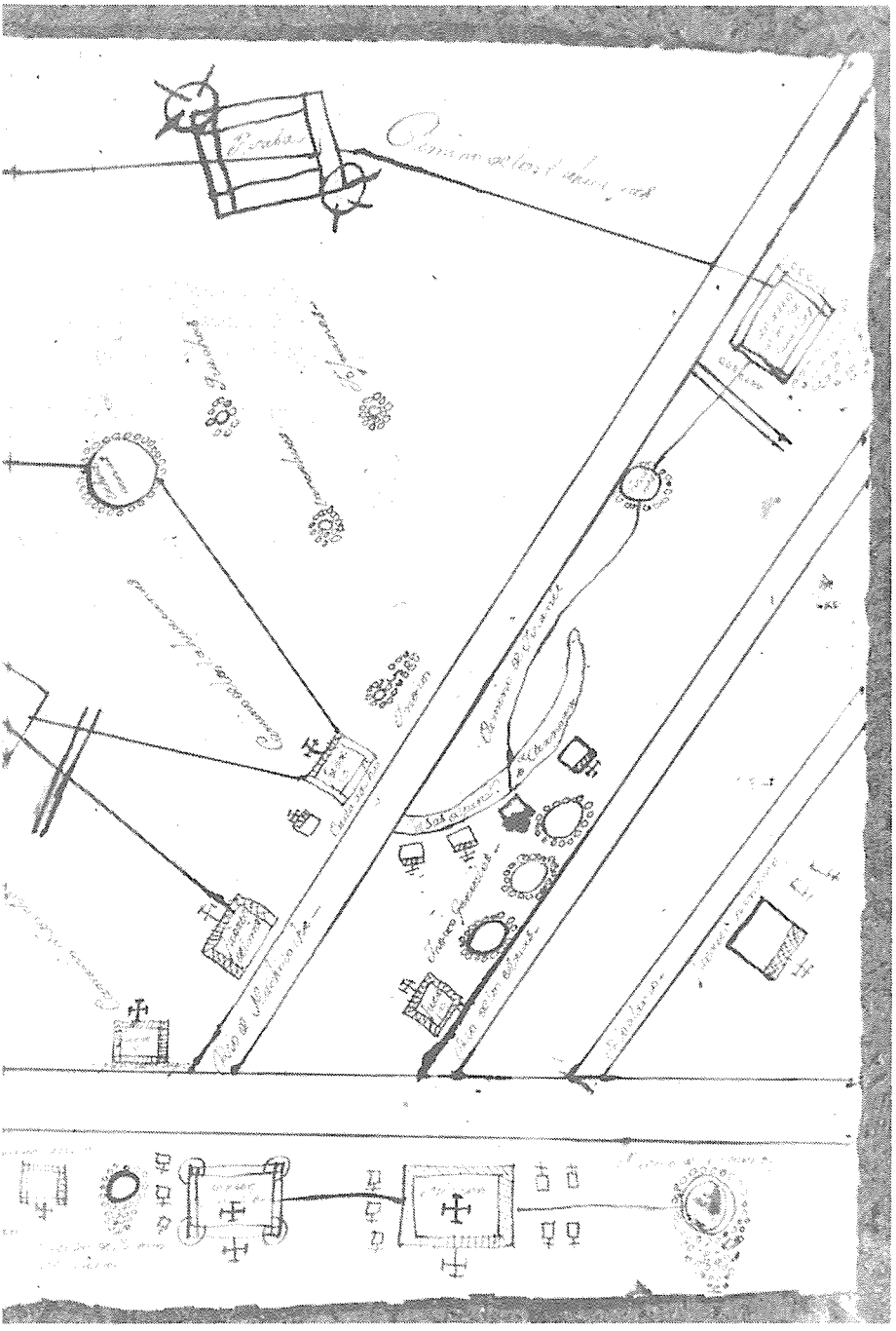


Figure 1. Presidio de San Sabá hasta Adaes, 1763. This diagrammatic map shows New Orleans at the lower left, and the Mississippi River along the lower margin, with its



tributaries branching off to the northeast. (Map reproduced by courtesy of the Texas State Archives.)

Other circular symbols locate the Cadohadachos, Tawakonis, Kichais, Tonkawas, and Yojuanes, within an arena bounded by the Spanish presidios of San Antonio de Béxar, San Sabá, and los Adaes, and the French posts of Natchitoches and Cadohadachos. Just east of the road from Béxar to Los Adaes, Tamamint shows the villages of the Ais and the Nacogdoches connected to one mission and, rather puzzling, a village of "Yndios mansos" connected to another mission. Nearest Los Adaes, on the road to Béxar, are two "casas de Ybarbos," the only private dwellings shown, indicating Tamamint's awareness of that family's prominence in the Texas-Louisiana marchlands. His depiction of French and Indian establishments from New Orleans to the Illinois country, together with his grasp of Texas geography, suggests how widely Tamamint had ranged before turning up at San Sabá.

Asked by Commandant Rábago to describe the construction of the Taovayas fort, Tamamint explained that it was built of thick posts stuck in the ground in the manner of scissors, with their closed points well joined, standing more than four varas (roughly twelve feet) above ground. Between every two pairs was a small aperture through which the Indians could operate their weapons from inside the said scissors, which made a passageway. On the inside, as on the outside, the stakes were embedded in earth more than two varas high (roughly six feet). The enclosure was as large as that of Presidio San Sabá,[3] and a spring in the middle provided a pool of easily accessible drinking water. Moreover, the villagers had shown Tamamint an abundance of foodstuffs—corn, dried meat, beans, etc.—that they kept well hidden within the fort. Unquestionably, these people were well prepared against a siege.

As to Indian populations, Tamamint ventured no separate counts of villages, but he guessed that the Taovayas, Yscanis, and other pueblos could muster more than 3,000 men, all armed with guns. Many of them had as many as four or five good firearms, as well as plenty of arrows, small hatchets, and all sorts of Indian weapons. They also had many axes, hoes, and bars—all of French manufacture—acquired during their years of trade with the French. But a year earlier (1762), the governor at New Orleans had banned that trade on pain of death. It was probably no coincidence that Tamamint had last visited the Taovayas fort a year ago: the French trade interdiction may well have driven him to seek alternative subsistence on a Spanish payroll in Texas.

Commandant Rábago hoped this new intelligence would help him win permission for another punitive expedition against the Taovayas. However, authorities in Mexico City drew quite another conclusion. Since Tamamint's map proved that the villages and fort were on the left bank of the Red River, they were indisputably in

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[3] The copy says "el tamaño de esse Presidio"—i.e., that presidio—but the context indicates that this should be "este presidio"—i.e., this presidio, meaning San Sabá, which was the site of the interrogation and the only presidio that has meaning in this context. This is one of several instances of carelessness on the part of a copyist: e.g., both witnesses are named Antonio at the beginning of the document; at the end, one is Rafael. The declarant's name is written as Tamint as well as Tamamint.

the territory of Louisiana—close enough to the Arkansas and Cadohadacho posts to be subdued and managed through those French jurisdictions rather than at great expense to the treasury of New Spain.

Of course, the Taovayas could not guess that all likelihood of another Spanish expedition against them had vanished, and they knew all too well the relentless menace of their Osage enemies. Hence they continued to expend prodigious labor on their defenses. In the summer of 1765, two and a half years after Tamamint's report, another eyewitness reported substantial elaborations of the Taovayas fortifications.

Soldier Antonio Treviño, lately returned from a cordial six months' sojourn as the honored captive of the principal chief of the Taovayas, reported that the fort's interior circumference was now occupied by four very large subterranean houses, capacious enough to hold all the people who could not participate in defending the village against invaders. The exterior defenses had also been amplified: Treviño described an earthen rampart all around the outside, mounded to a height of more than a vara and a third (about four feet), which served the defenders as a cover against enemy fire. About four paces from it, a very deep ditch ran from east to west in order that nobody could come near it on horseback. Moreover, there was now a third village—that of the small band called Wichitas—contiguous to the Taovayas on the north, while that of the Yscanis was at the same distance to the south. Treviño estimated that all three villages together could muster about 500 men-at-arms. They enjoyed a thriving trade with the French, especially with a beloved man they called Antonio, who had been established for many years on the Red River, perhaps 40 leagues (about 104 miles) downstream from the villages.[4]

However elaborate the defenses of the Taovayas were, they proved inadequate against the Osages who had driven them southward from the Arkansas River basin in the 1750s. By 1772, less than two decades after that migration, Osage marauders forced them out of their Red River villages. The Taovayas took refuge in broken country much farther upstream, while the Wichitas fled to an arid treeless plain far up the Brazos; the Yscanis may have taken refuge with the Tawakonis much farther downstream on the Brazos. Presumably the triumphant Osage destroyed not only the three Red River villages but also the great fort, for there are no subsequent reports of such a structure on the left bank. The demolition was so thorough as to leave no obvious traces. Not until 1967, at the end of the National Science Foundation Pilot Project, were archeologists able to discern at the Longest site (34Jf1) in Jefferson County, Oklahoma, outlines of a structure that possibly marks the long-sought mid-eighteenth-century fortification (Bell et al. 1967).

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[4] Declaration of Antonio Treviño, August 13, 1765, in certified copy of proceedings concerning return of Treviño by the Taovayas Indiana, March 20–August 16, 1765. Béxar Archives (BA), Barker Texas History Center, The University of Texas at Austin. As noted in Newcomb and Field (1967:270), Treviño's testimony also confirms the left bank location of the Taovayas fort.

By 1778, the Taovayas and Wichitas returned to their strategic Red River locale on the western margin of the Cross Timbers, encouraged by promises of protection and prosperity within a system of Spanish alliances. But this time the Taovayas planted their village of 123 houses on the right bank; only the little Wichita band ventured back to the left bank to build their 37 houses.[5]

So began a nearly continous 30-year occupancy, with the dominant Taovayas presence making the right bank of the Red River the principal hub of activity. Unhappily, the Osage menace continued, fluctuating only in greater or lesser degree, depending on circumstances in the Osage world. Spanish authorities were rarely able to fulfill their promises of aid and trade, much less to respond to the repeated pleas of the Taovayas to send them soldiers, missionaries, and even settlers, to bolster the Wichitan hold on the Red River site that crown envoy Athanase de Mézières had deemed in 1778 the "master key of the north." Indeed, by 1786, the situation on the Red River was so discouraging, and the desire for closer involvement with the new Spanish-Comanche axis so great, that the Taovayas and Wichitas moved briefly to the Pedernales River, an ill-advised experiment in which they persisted only half a year before retreating to their Red River site.[6]

Two maps, drawn by men who visited the villages in 1787 and 1788, confirm the return of the Taovayas, Wichitas, and Yscanis to the Red River's distinctive bend between the ninety-eighth meridian and the Cross Timbers. Pedro Vial's map shows three villages there in 1787: the "taviache" and "ouichita" [Taovayas and Wichitas] on the right bank, and the "Yachequariches" [variation on Yscanis?] on the left bank. In July 1788, when Vial paid a return visit with the New Mexican officer Francisco Xavier Fragoso, the latter drew a map (Figure 2) showing at that

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[5] The story of the Wichitan bands is a principal thread of John (1975), and is easily discerned from the index by researchers not concerned with the larger context addressed in that book.

[6] It is puzzling that Newcomb and Field (1967:281) warn that the "Rio de los Pedernales" of the 1786 move should not be confused with the modern stream; official Spanish reportage from Béxar consistently refers to the Rio Pedernales in a context agreeing with the modern usage.

[7] "Mapa et tierra qe. yos. pedro Vial taingo transzitau en St. Tafee este dia 18 de octubre de Lann. 1787." The whereabouts of the original Vial map are unknown, so it can be studied only through photographic copies, one of which is reproduced in Carl I. Wheat (1957:facing p. 126). Appearing on the reverse, facing p. 127, is "Mapa del Territorio Comprendido entre la Provincia de Nuevo Mexico y el Fuerte de Natchitoches y Texas, 1789," drawn by Fragoso, which shows the route he and Vial traveled from Santa Fe to Nachitoches, 1788–1789. The original is in Mapas y Planos, A.G.I. Seville; a photograph can be seen in the Inglis Collection, Spanish Map #2781, at the Texas State Archives, through whose courtesy both the Fragoso and Tamamint maps are reproduced in this article. A manuscript copy of the Fragoso map can be seen in the J. P. Bryan Collection, Barker History Center, The University of Texas at Austin.

Wheat's (1957:238–239) discussions of the two maps reflect the paucity of knowledge about the context of these maps in 1957.

bend "pueblos de los Jumaes," a slight garbling of the term "Jumanos," under which New Mexicans ordinarily lumped the Wichitan groups.[7]

In order to ensure adequate reportage of the 1788 expedition, the governor of New Mexico sent two literate Spanish officers with the laconic Frenchman Vial. Still, little description of the Red River villages emerged. Fragoso's diary noted that two of the villages were on one bank of the river and one on the other, in a setting of extraordinary beauty. Santiago Fernández remarked in his diary that there were 17 houses in the first of the Jumanos villages reached by his escort party, and roughly the same number in each of the two other villages, which were within half a league (about a mile and a third) of the first. All three had fields of maize, beans, watermelons, and squashes.[8] Perhaps more intriguing is the description of terrain, especially by Fragoso, emphasizing the hills which figured on the Vial and Fragoso maps and became well-known guideposts for later travelers to these villages.

Conspicuously absent in Spanish documents, either on the maps or in the various reports of visitors to the area after the 1760s, is mention of a fort at the Wichitan villages on the Red River. That seems odd, considering the proven skill of the Wichitas in the construction of forts and the perennial need for protection from Osage marauders. Moreover, some fortification would have been eminently desirable to protect on that exposed frontier the lively trade—Indian, European, and, ultimately, Anglo-American— that the Wichitan villagers always invited and often enjoyed.

That the Wichitan bands on the Red River actually did continue to build fortifications is indicated by the 1808 diary of Anthony Glass, an Anglo-American trader who visited the Taovayas and Wichita villages on the right bank during his sojourn of several weeks in the left bank village that he understood to be called "Huick" (John 1982-3:422). Glass observed that "their forts are of a very slender construction made of mud which they retire to when attacked by an enemy."[9]

This first—and perhaps sole—description from an Anglo-American visitor meshes with a conjecture that late eighteenth century Spanish and French visitors considered some fortification of Wichitan villages such a routine feature that it did

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[8]The descriptions of the villages by Fragoso and Fernández can be most conveniently—albeit cautiously—examined in the translation of their diaries published in Noel M. Loomis and Abraham P. Nasatir (1967:322–339).

[9]*Huick* may be the first documentary occurrence of the name Anglo-Texans would later render as *Waco*. The term *Huico*—given as a name for one of the Tawakoni villages—occurs in a Spanish trader's report of the 1811 dispersal of the Wichitan villagers from the Red River, when some of them moved south to settle near the Tawakonis (Bernardo Montero to Manuel María de Salcedo, Nacogdoches, January 3, 1812, BA). Contemporary Wichitas say that the correct pronounciation is Wee-ko rather than Way-ko. Governor Cordero noted that the left bank villages were known at San Antonio as Yascarros (Antonio Cordero to Nemesio Salcedo, Béxar, July 30, 1808, BA); the name more often occurs in Béxar documents as Yscanis.

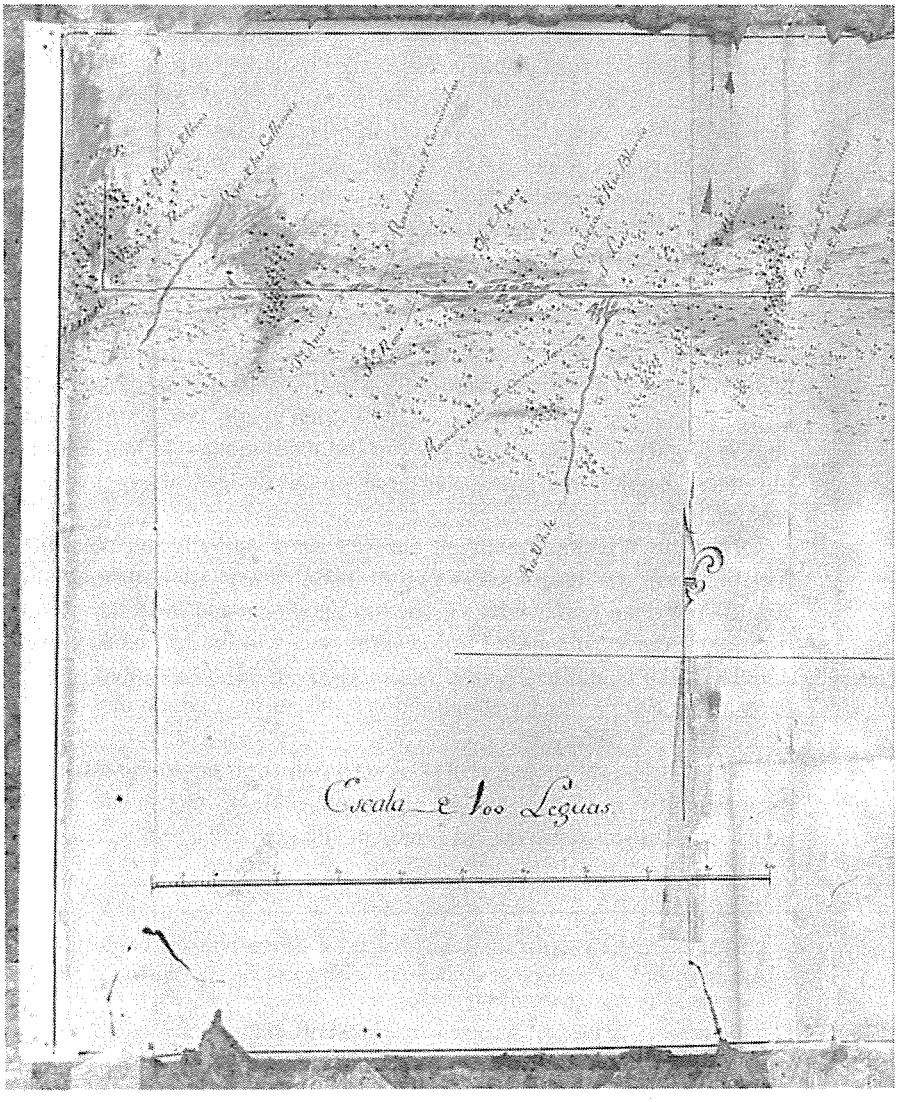

Figure 2. The map drawn by Francisco Xavier Fragoso (reproduced by courtesy of the

Texas State Archives).

not warrant mention in their usually meager reports. This is not to suggest that the Wichitan bands ever again built a fort as substantial as their first one on the Red River in the 1750s and 1760s, but it does indicate that archeologists can reasonably expect to find fortifications on the right bank as well as the left.

Another intriguing possibility for archeological discovery would be evidence of the earliest blacksmithing on the northern Texas frontier. Frenchman Pedro Vial, known among Indians as Manitou, plied his trade as a blacksmith while living illegally with the Taovayas in the early 1780s, before he found his more famous niche in the Spanish service as an explorer and emissary to Indians. Antonio Gil Ybarbo reported a decade later that "monsieur Manitou" had maintained a forge by the spring from which the Taovayas drew water. Unfortunately, that clue is less specific than it may seem, because Gil Ybarbo lumped the pueblos on both sides of Red River under the name Taovayas.[10]

After Vial had left, Spanish authorities heard worrisome reports of other smiths operating illegally at the Taovayas villages on the Red River, repairing guns and making knives and lances. By the 1790s, a blacksmith named La Lima had established a forge in the middle of the Taovayas pueblo whose leader the Spaniards knew as el Flechazo. As lieutenant governor at Nacogdoches, Ybarbo ordered La Lima and his wife hauled back to Natchitoches, whence they came, leaving most of his equipment with the Indians. Had any villagers learned enough from Vial and his successors to make some use of that forge?

Here arises yet another challenge to mesh what the documents tell us with what the ground reveals. An extraordinary number of metal objects—including many quite baffling fragments—has been a major factor in attracting attention to these sites ever since news of the unusual incidence of artifacts began to circulate. A partial, but hardly sufficient, explanation survives in accounts of trade and gift goods. Does a further explanation lie in metal-smithing, and can the site(s) of the eighteenth century forges be found?

While archeologists await their long-overdue opportunity to tackle these tantalizing sites, historians remain alert for further archival evidence. My own most recent and quite unexpected discovery in Seville in 1983, the Tamamint map, illustrates the serendipity factor in a quest that began for me in 1949, when, for an undergraduate history thesis, I sought an explanation for the many European and Indian artifacts that farmers had been turning up for decades in the remote southeastern corner of Jefferson County, my home county in Oklahoma. No tyro could have wished better luck. My first venture in primary research led to the twin villages of the kindred Taovayas and Wichita bands, where various Indian, Spanish, French, and Anglo-American forces met from about 1757 to 1813, an important story that had never been told.

The ramifications were virtually unlimited. Moreover, the evidence lay prin-

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[10]Manuel Muñoz to Antonio Gil Ybarbo and Gil Ybarbo to Muñoz, San Antonio de Béxar, April 27, 1794, BA.

cipally in the rich store of Spanish documents that I have been exploring at every opportunity ever since, while becoming nearly as fascinated with Hispanic as with Indian cultures. Better still, the effort to understand—as opposed to merely documenting—the Indian experience took me into cultural anthropology and ethnology. In effect, the momentum of the inquiry that began with those Wichitan sites on the Red River led directly into the rather controversial subdiscipline of ethnohistory, a hybrid that was just beginning to emerge in the 1950s. It was the beginning of a lifework in which archeologists' generous sharing of information has been indispensable.

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Aboriginal Karankawan Adaptation and Colonial Period Acculturation: Archeological and Ethnohistorical Evidence

Robert A. Ricklis

ABSTRACT

Contrary to popular belief, the Karankawans of the central coast of Texas did not consistently reject Euroamerican cultural influences up to the time of their extinction in the nineteenth century as an identifiable population. A synthesis of archeological and ethnohistorical data suggests that the Karankawans achieved peaceful interaction with the Spanish on the colonial frontier. Archeological data indicate that the aboriginal adaptive strategy took advantage of a broad ecotonal environment that encompassed both the coastal estuaries and the adjacent prairie-riverine environment. Seasonally oscillating patterns of settlement and subsistence emphasized procurement of estuarine resources in the fall and winter, and terrestrial game during the spring and summer, a pattern that persisted through colonial times. As various pressures for interaction with the Spaniards intensified in the late 1700s, the Karankawans established ongoing relations, apparently facilitated by integrating the institution of the mission into their traditional adaptive system at the level of a basic ecological resource. This synthesis of long-established cultural patterns with the foreign institution of the mission helped to lay a foundation for the incipient acculturation that took place during the early nineteenth century among Karankawan groups.

INTRODUCTION

According to popular wisdom, the Karankawan Indians of the Texas coast were a fierce and unfriendly people who led an extremely primitive existence and remained intractably resistant to Euroamerican cultural influence until their final demise in the mid-nineteenth century. In the perception of many Colonial Spanish missionaries and military personnel, they were at best an intractable folk, and at worst, vile and treacherous savages. Most later Anglo-Americans held them in similar low esteem, viewing them as a dangerous impediment to progressive settlement of the coastal prairies. These perceptions, repeated and magnified through time in popular folklore, ultimately became the basis for a generally negative judgment of Karankawan culture (e.g., Kilman 1959).

With anthropological hindsight, such condemnations of entire cultures are now seen as highly suspect. In the New World, insights provided by historical distance and decades of scholarly research, have provided less biased assessments of Native American peoples and their cultures. It is now clear that the Precolumbian New World was not a sparsely populated wilderness, but a settled place, inhabited by

many native groups who had expert knowledge of their environments, rich mythologies and folklore, and, in many cases, highly complex and aesthetically sophisticated societies. With an awareness of earlier ethnocentric biases, modern researchers have extended less-perjorative attention to the Karankawans. The notion that these coastal people represented a nadir in human societal development has been brought into question (Gilmore 1984), and ulterior motives have been recognized in the early denigration of this native people (Newcomb 1983). Nonetheless, some basic facets of Karankawan culture and history have remained obscure.

The recent archeological and historical research summarized here offers some degree of insight into native lifeways before the Euroamerican intrusion and begins to trace the basis for some of the processes of change that operated during the Historic era. Archeological data point to a settlement and subsistence strategy that took advantage of seasonal peaks in the availabilities of key resources. The aboriginal lifeways of the Karankawans included seasonally oscillating use of coastal, estuarine, and terrestrial resources of the prairie-riverine environment. Historical data show that, contrary to long-held assumptions, the Karankawans (Figure 1) experienced a significant degree of peaceful acculturation to Spanish cultural patterns during the latter part of the Colonial era. Furthermore, there is evidence that there was a significant linkage between aboriginal adpative patterns and late Colonial period acculturation, and that real change was related to the Karankawan's ability to integrate the foreign institution of the mission strategically into their long-established and highly traditional cultural-ecological patterns.

THE ABORIGINAL KARANKAWAN ECOSYSTEM: ENVIRONMENT AND ARCHEOLOGY

Environmental Resource Zones: Key Spatial and Seasonal Patterns

The Karankawan homeland of the central Texas coast is a broad ecotone, situated between the marine environment of the Gulf of Mexico and the inland coastal plain. The area is marked by five major, nearly contiguous estuarine bay systems, protected from the high energy wave action of the open Gulf by a long chain of barrier islands (Figure 1). Streams of varying sizes discharge fresh water into the bays, and the bay/lagoon estuaries are connected to the open Gulf by a series of narrow tidal passes.

The outer mainland shoreline, parallel to the modern barrier islands, consists geologically of the Ingleside unit of the Beaumont Formation, a sandy clay stratum several kilometers wide that represents a Pleistocene barrier island or strandplain (Brown et al. 1976; McGowen et al. 1976). Here, sandy soils and stable sand dunes of the Ingleside support extensive and often dense stands of oak, predominantly live oak and blackjack oak (Jones 1983). Just inland are the extensive Beaumont and Lissie Formations, consisting of fluvial deltaic sediments believed to have been deposited by extensive Pleistocene riverine distributary systems (Brown et al. 1976). The nearly flat surfaces of the Beaumont and Lissie formations were once

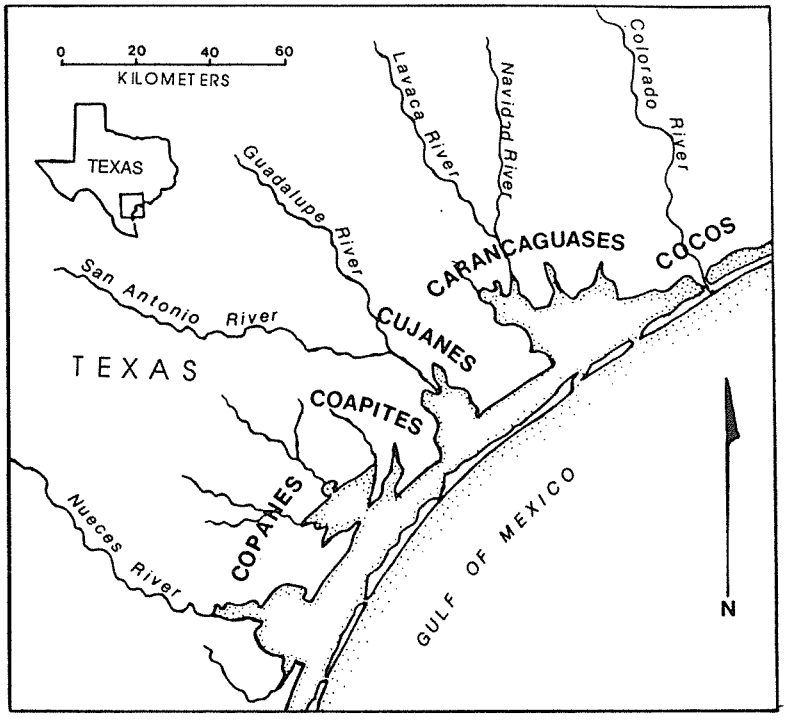

Figure 1. Map of the central Texas coast, showing major rivers and approximate locations of the five major Karankawan groups.

covered with grass prairies, and, in places, oak savannas, both of which have largely given way to varying densities of thornbrush.

Many subparallel perennial streams flow through the Coastal Plain. Today, floodplains of the larger streams support dense arboreal vegetation, as they doubtless did in prehistoric times. This includes species of hackberry, elm, cottonwood, oak, and mesquite, as well as the economically useful pecan.

The shallow protected bays and lagoons lying behind the barrier islands provided a rich variety of exploitable resources. High photosynthesis rates in shallow waters, combined with nutrients entering the bays through riverine discharge, were the basis of a complex food chain including planktons, shellfish, and fish. Bay-lagoon shellfish resources of economic potential include moderate-salinity bivalves such as oyster *(Crassostrea virginica)*, bay scallop *(Argopectin irradians)*, southern quahog *(Mercenaria campechensis)*, and various high-salinity gastropods, most notably lightning whelk *(Busycon perversum)*. In general, there is a north-south trend of increasing salinity along the Texas estauries, due to increasingly xeric climate and concomitant reduction of freshwater discharge. As a result, low-to-moderate salinity oysters predominate to the north, and higher salinity bivalves and gastropods become increasingly abundant toward Corpus Christi Bay

(see Steele 1988). Baffin Bay supports none of the larger, economically useful shellfish species, due to its hypersalinity (see Hester 1980). Found in rivers that are heavily influenced by secondary and tertiary bay areas, and often in dense beds along estuarine zones of rivers, is the common rangia, *Rangia cuneata* (La Salle and De la Cruz 1985).

The bays and lagoons of the Texas coast abound in fish. Economically useful species include black drum *(Pogonias cromis)*, redfish *(Sciaenops ocellata)*, speckled sea trout *(Cynoscion nebulosus)*, and Atlantic croaker *(Micropogon undulatus)*. Black drum and redfish are the largest species, the adults weighing several kilograms (Beckman et al. 1988; Beckman, Wilson and Stanley 1988). These species spawn during the winter-to-early spring and fall, respectively (Simmons and Breuer 1962), when they aggregate in large numbers.

A rich and varied terrestrial fauna complements the estuarine species of the Karankawan homeland. In spite of a wide range of avian and mammalian species, archeological data indicate that by far the most economically significant terrestrial faunal species in aboriginal times were the white-tailed deer *(Odocoileus virginianus)* and bison *(Bison bison)* (Ricklis 1990). Deer are, and doubtless were, abundant on the coastal prairies, river floodplains, and marshy areas; the density is now about one animal in four hectares (extrapolated from data in Schmidly 1983). Bison are abundantly documented for early historic times (e.g., West 1905:207, 216; Folmer 1940:216, 219; Carroll 1983:21), and the archeological data available from the area, and from southern Texas in general (e.g., Hester 1975; Huebner 1991; Ricklis 1990), indicate their presence after about A.D. 1250 to 1300, in accord with Dillehay's (1974) postulation of a significant Late Prehistoric influx of bison into Texas.

Archeological Indications of Precontact Karankawan Lifeways

A recently completed program of archeological survey, testing, and excavation, mainly in Nueces and San Patricio counties, has provided empirical data for a reconstruction of basic spatial and seasonal patterns of the human ecosystem before there was ongoing contact with Euroamericans. The pertinent information, which is summarized here, comes from site components of the Late Prehistoric Rockport phase, estimated to have begun about A.D. 1250/1300 (Story 1968; Ricklis 1990, 1992). Occasional finds of early historic European material in Rockport phase contexts indicates that it persisted into early historic times, implying a direct linkage with the region's historically documented Karankawan peoples (Suhm et al. 1954; Campbell 1960; Newcomb 1983).

A recurrent artifact assemblage identifies sites of the Rockport phase. Lithic artifacts (Figure 2) consist predeminantly of Perdiz arrowpoints (see Turner and Hester 1985:187), unifacial end scrapers, thin bifacial knives (sometimes alternately beveled), small chert drills, and a blade-core technology (see Hester and Shafer 1975). Ceramic finds are dominated by several types of Rockport pottery (Suhm and Jelks 1962; Ricklis 1990), a sandy paste ware often coated and/or

decorated with natural asphaltum (Figure 3). Most of the lithic material has counterparts in Late Prehistoric assemblages in the larger Texas region, but the highly distinctive ceramics are restricted to a narrow zone along the coast, from the Matagorda Bay-Colorado River area on the north (Fritz 1975) to the northern shores of Baffin Bay on the south (Hester 1969). Considering the stylistic redundancy of ceramics in this area and the environmental correlate of the area's five nearly contiguous major bay systems, it is clear that the geographical extent of Rockport pottery delineates a region of heightened internal interaction and information exchange within a distinct environmental zone. This area is about the same as that occupied during early historic times by the several Karankawan groups, leaving little doubt that Rockport pottery is largely, if not exlusively, of Karankawan manufacture.

Rockport Phase Archeological Sites as Nodal Points of the Use of Seasonal Resources

Many Late Prehistoric sites are documented in this area; some (Figure 4) have yielded key classes of data. A preliminary assessment of data from 26 Rockport phase sites suggested a fundamental dichotomy, with two distinct kinds of sites found largely in one or another of two kinds of environmental contexts (Ricklis 1988). Additional investigations (Ricklis 1990) have further supported this distinction. Group 1 sites are consistently large (several thousand square meters in area), yield relatively large quantities of artifacts, and are characterized by large quantities of fish and shellfish debris. Invariably, these sites are found in shoreline locations on margins of bays or lagoons.

Group 2 sites (Ricklis 1988) present a marked contrast; they cover small areas (usually only a few hundred square meters), yield only sparse cultural material, and have faunal assemblages dominated mainly by bones of large game (bison, deer), with few fish or shellfish remains. Most recorded Group 2 sites are on upland prairie margins overlooking stream floodplains, though some are adjacent to the prairie environment on inland bayshores (Figure 4).

Group 1 Sites

The author has carried out subsurface testing at four Group 1 sites (Ricklis 1990): 41SP120 and 41SP43 on the northeastern shore of Corpus Christi Bay, the Kirchmeyer site (41NU11) on Oso Bay, and the Mustang Lake site (41CL3) on San Antonio Bay (Figure 4). All are large sites, with high artifact yields and abundant evidence for estuarine resource procurement.

At the Mustang Lake site, which covers at least 5,000 square meters, testing revealed a dense shell (mostly oyster) midden more than 60 cm thick. Many fish bones and otoliths were found throughout the deposit, which also contained scattered deer bone fragments, a few fragments of bird long bones, canid bone, a turtle carapace fragment, a cottontail mandible, black drum, marine catfish, redfish, and speckled sea trout. The Rockport phase component, indicated by many

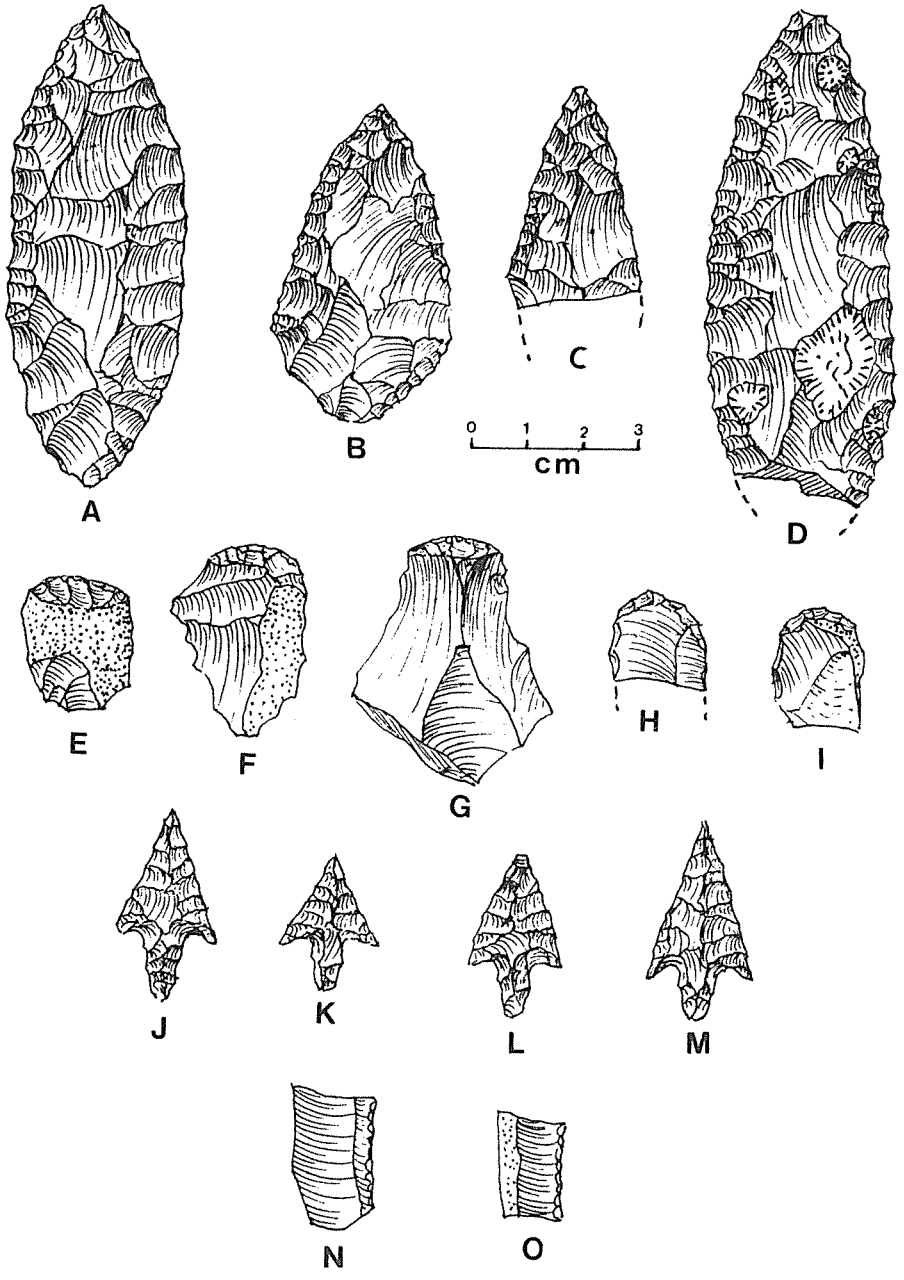

Figure 2. Drawings: lithic artifacts of the Rockport phase: A–D, bifacial knives (A–C are alternately beveled); E–I, unifacial end scrapers; J–M, Perdiz arrowpoints; N and O, trimmed prismatic blades. Proveniences: A, 41NU1; B, 41NU193; C and G, 41SP167; D, E, F, H, I, and J–O, 41SP120.

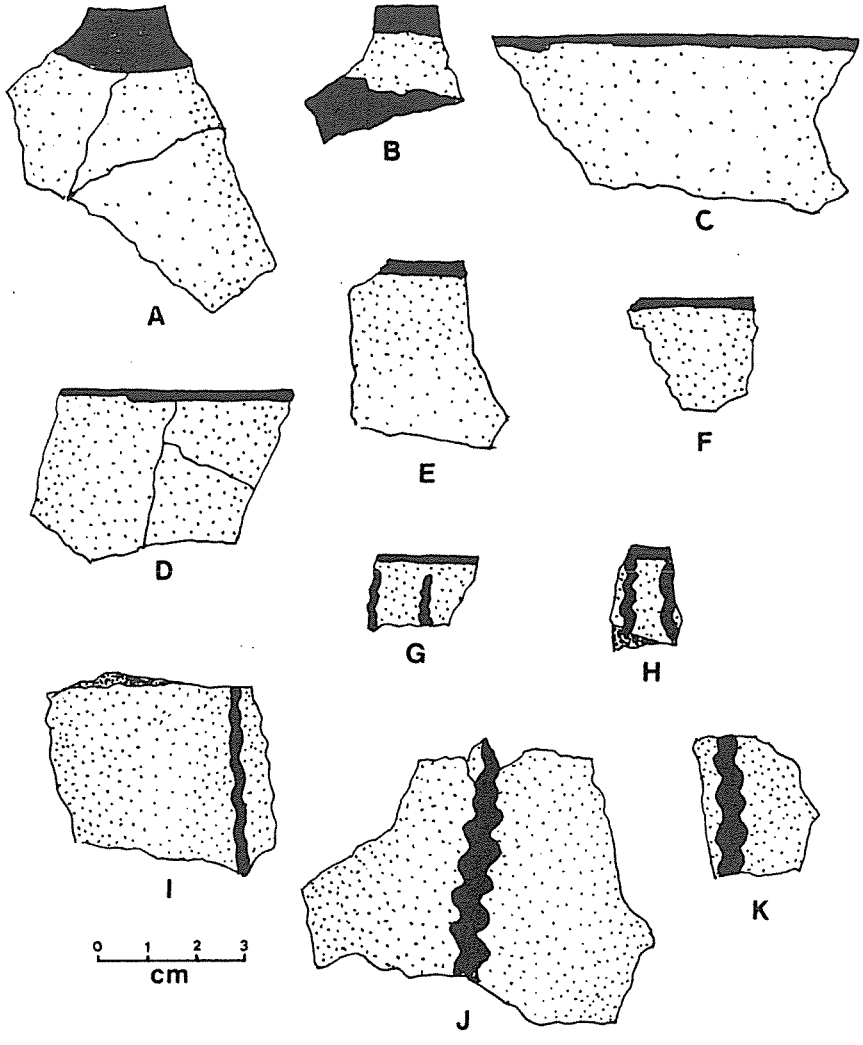

Figure 3. Asphaltum-painted Rockport Black-on-Gray potsherds. Proveniences: A and B, 41SP159; J, 41SP167; all others, 41SP120.

Rockport ware sherds, was restricted to the upper 15 cm of the deposit. Seasonality analyses of fish otoliths, *Rangia cuneata*, and oysters from the Rockport level at Mustang Lake yielded mutually supportive results that point to a predominantly fall-through-late-winter to early spring occupation (see Ricklis 1990 for discussion of methods of seasonality analysis).

At 41SP120 on Corpus Christi Bay, more extensive excavations yielded large samples of artifacts and associated faunal remains. The findings indicate heavy

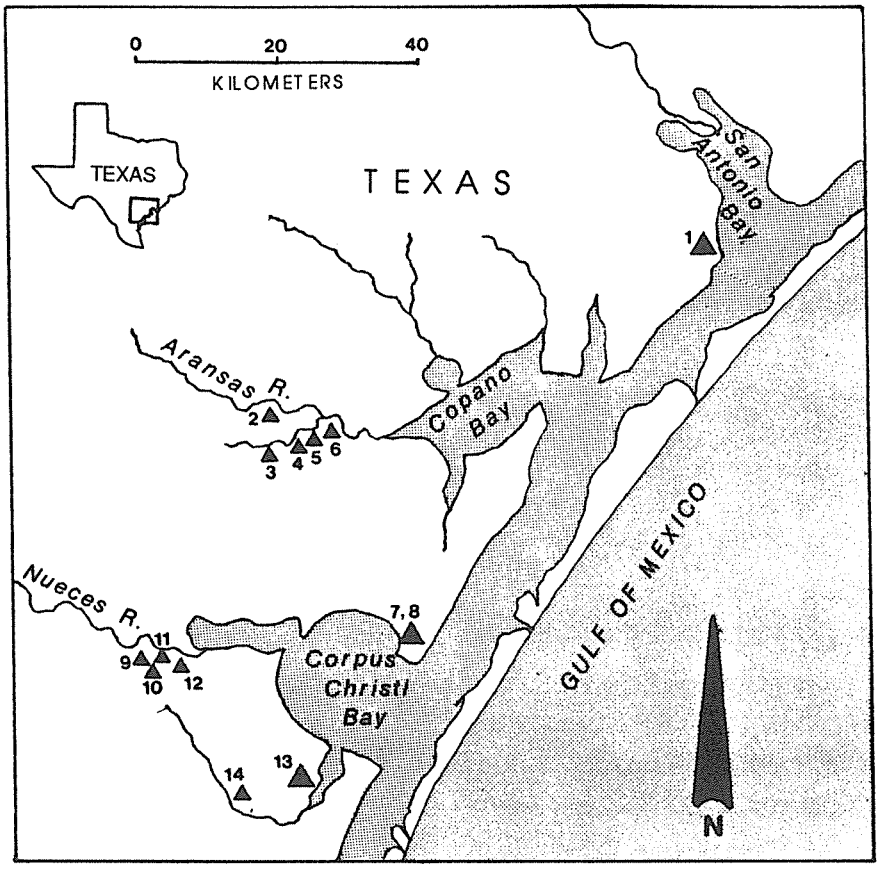

Figure 4. Map of the central Texas coast. Key to sites: 1. 41CL3 (Mustang Lake); 2. 41SP170; 3. 41SP167; 4. 41SP160; 5. 41SP159; 6. 41SP161; 7 and 8. 41SP43 and 41SP120; 9. 41NU193; 10. 41NU240; 11. 41NU221; 12. 41NU255; 13. 41NU11 (Kirchmeyer); 14. 41NU46.

emphasis on exploitation of estuarine resources and predominantly fall-winter seasonality. The Rockport phase component at this site consists of an extensive midden 20 to 50 cm thick, which has produced many Perdiz arrowpoints, unifacial end scrapers, small chert drills, bifacial knives, shell and bone tools and ornaments, and several thousand Rockport ware sherds.

A profusion of fish bones and shell fragments was found at 41SP120; for example, one excavation block of 8 square meters yielded 1,023 otoliths and 3,031 bivalve umbos and gastropod columellae, mostly in association with arrowpoints and Rockport pottery. The important fish species, in order of estimated meat-weight represented, were black drum, redfish, speckled sea trout, Atlantic croaker, and marine catfish. Scattered fragments of deer and bison bone, as well as specimens of bobcat, cottontail, and bird bone were also found. Analyses for minimum numbers

of individuals (MNI) indicate that fish were the primary source of meat weight consumed at the site, followed by white-tailed deer and shellfish, in that order (Ricklis 1990:198–218).

Analysis of seasonality of fish otoliths produced results similar to those from Mustang Lake. A sample of 79 specimens broke down into seasonal categories: 19 percent fall, 63 percent winter, 5 percent spring, and 13 percent summer, indicating a winter or fall-winter emphasis on fishing at the site.

Excavations at nearby 41SP43 (the Ingleside Cove site), which had been tested by Dee Ann Story (1968), yielded similar results for use and seasonality of resources. Excavations in 1987 recovered several hundred Rockport potsherds in association with Perdiz arrowpoints, as well as profuse fish and shellfish remains. The most common fish species are black drum, redfish, speckled sea trout, and Atlantic croaker. MNI analyses indicate that fish (mainly drum, redfish, and trout) and white-tailed deer were of major economic significance and that the procurement of shellfish played a supplemental role. Analysis of otolith seasonality indicates a distinct fall-winter emphasis on fishing; the sample breaks down into seasonal categories as follows: 25 percent fall, 60 percent winter, 4 percent spring, and 10 percent summer.

Intensive surface inspection and subsurface testing were carried out during the summer of 1987 at the Kirchmeyer site (41NU11), on a clay dune on the western shore of Oso Bay—a secondary bay connected to Corpus Christi Bay. This large site (some 10,000 square meters) has been a source of surface-collected Rockport phase materials since the early decades of this century, and a large sample of lithic, ceramic, and shell artifacts from the site is housed at the Texas Archeological Research Laboratory (TARL; see Headrick 1991). Particularly abundant are Perdiz and triangular arrowpoints, small unifacial end scrapers, and sherds of Rockport ware. Thomas R. Hester and James E. Corbin conducted subsurface testing at Kirchmeyer in 1969, which revealed localized concentrations of cultural debris that included fish, shellfish, and mammalian remains (field notes on file at TARL).

Workers at Kirchmeyer in 1987 recovered Rockport ware sherds, chert debitage, shell fragments (oyster, scallop, and whelk), deer bone, and fish bones and otoliths. The otoliths consisted of 27 drum, three croaker, two redfish, and two speckled sea trout. Though only 11 specimens were large enough for reliable seasonality readings, a distinct winter emphasis on fishing is strongly suggested. The seasonality breakdown is 9 percent fall, 82 percent winter, and 9 percent spring.

Group 2 sites

Artifacts and faunal and seasonality samples have been analyzed for 11 Rockport phase components from twenty-nine Group 2 sites that have been identified in the Corpus Christi and Copano Bay areas (Ricklis 1988, 1990). These sites are treated as a group here, since there are close similarities in their salient charactersitics (see Ricklis 1988, 1990).

As already noted, most Group 2 sites are on upland margins along stream floodplains (Figure 4). Relative to Group 1 sites, the areas covered by these sites are

small, on the order of a few hundred square meters. Subsurface excavations at several sites (41NU46, 41NU221, 41NU255, 41SP159, 41SP160, 41SP161, 41SP167, and 41SP170) confirm impressions gained during surface survey that cultural debris is sparse and vertically restricted to narrow zones, usually somewhere between 10 and 25 cm below ground surface. Lithic and ceramic artifacts are of the Rockport phase, and the overall assemblages of Group 2 and Group 1 sites are essentially identical. Particularly significant is the persistent presence of the technologically and stylistically unique Rockport pottery, which permits a confident distinction between Group 2 Rockport phase sites and sites referrable to the contemporaneous Toyah phase or horizon of the coastal prairie. In fact, the geographical distribution of sites yielding predominantly Rockport ware, as opposed to the bone-tempered plainware of the Toyah phase or horizon, makes it possible to define a boundary between the two contemporaneous archeological cultures at about 40 km from the outer mainland shoreline (Ricklis 1990:358–425).

Faunal samples from Group 2 sites are dominated by bones of bison and white-tailed deer, with occasional smaller animals such as turtle and rabbit. In contrast to Group 1 sites, estuarine resources are only scantily represented and consist mainly of the occasional fish bone or otolith and, usually, a light scatter of *Rangia cuneata* clamshells. MNI analysis of relatively complete faunal samples from 41NU221 and 41SP167 indicate that, based on meat weight, bison and deer comprised, respectively, about 85 to 90 percent and 8 to 12 percent of the meat diet; fish and *rangia* clams combined constituted less than 2 percent of the useable meat at each site (Ricklis 1990:Table 17). The proportions of taxa represented at other Group 2 sites are basically the same, clearly indicating that ungulate game, most notably bison, was the primary source of meat for residents of these sites.

Seasonality at Group 2 has a consistent spring-summer pattern. Analyses of *Rangia cuneata* samples from all 11 sites on the Nueces and Aransas rivers produced seasonality histograms (see Aten 1981) that point to clam gathering during these seasons. In the light of a recent assessment of the accuracy of *rangia* seasonality (Carlson 1988), these can be expressed as ranges, with a margin of error of ±1.5 months. When so expressed, the seasonality ranges for the various Group 2 sites fall between March and August.

Importantly, the seasonality of the combined sample of fish otoliths from Group 2 sites is in accordance with the aforementioned results of the *rangia* analyses. The composite sample of 25 readable otoliths from several Group 2 sites (41NU46, 41NU255, 41SP167, and 41SP170) breaks down into seasonal categories as follows: 8 percent fall, 0 percent winter, 20 percent spring and 72 percent summer. Since this is exactly the reverse of the otolith seasonality at Group 1 sites (Figure 5), it supports the theory that Group 2 sites do reflect actual spring-summer occupations, rather than a merely seasonal emphasis on *rangia* clam-gathering.

Discussion

Though all sites were found within 40 km of the mainland shoreline, and all pertain to the Rockport phase, Group 1 and Group 2 sites contrast basically in size,

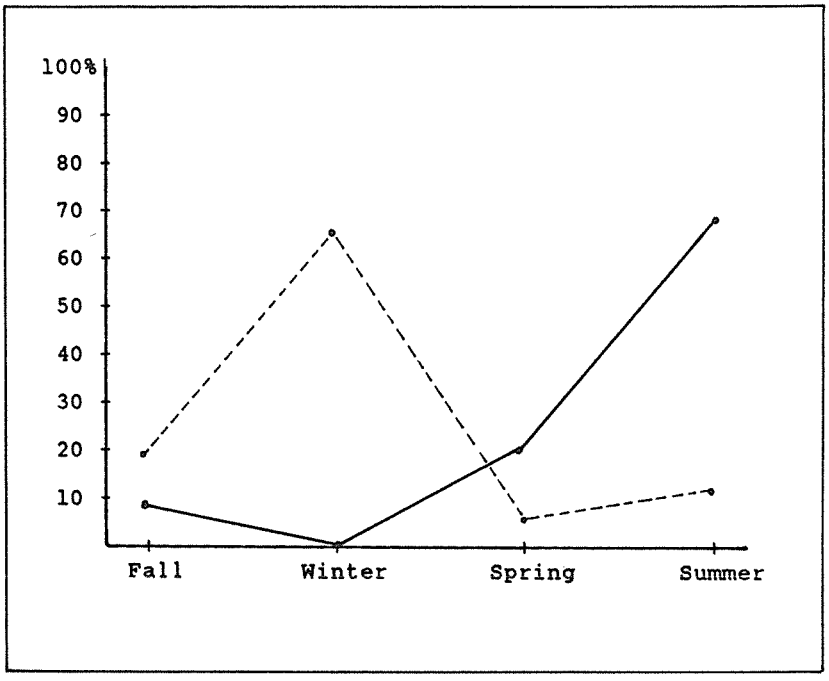

Figure 5. Graph showing seasonality ranges of composite fish otolith samples from Group 1 (dashed line; N=123) and Group 2 (solid line; N=25) Rockport phase sites.

density of cultural debris, kinds of faunal remains, and season of occupation. Group 1 sites are large, yield much cultural material and large quantities of estuarine fish and shellfish remains. Group 2 sites are much smaller, have thin and sparse deposits of cultural material, and yield primarily bison and deer bone, with few fish or shellfish remains. Group 1 sites show predominantly fall-winter seasonality; Group 2 sites consistently show spring-summer seasonality (Figure 6).

Significantly, the two groups of sites can be contrasted in terms of their environmental locations. All Group 1 sites are on bay/lagoon shorelines, in keeping with their major focus on estuarine resource procurement, whereas Group 2 sites are mostly in the upland prairie environment near stream floodplains. Such locations would have been well suited to wide-ranging procurement of deer and bison and to the collection of a wide range of prairie and floodplain plant foods (e.g., greens, mesquite pods, and prickly pear pads and tunas).

The data therefore point to a seasonally oscillating pattern of resource use and residence. During the fall and winter months, subsistence was focused primarily on the region's abundant estuarine fish resources. Also readily available at this time of year was an abundance of acorns from the dense oak motts growing on the sandy soils developed on the Ingleside strandplain. Acorns, a documented food resource of the historic Karankawans (see Carroll 1983:22) would have provided a high

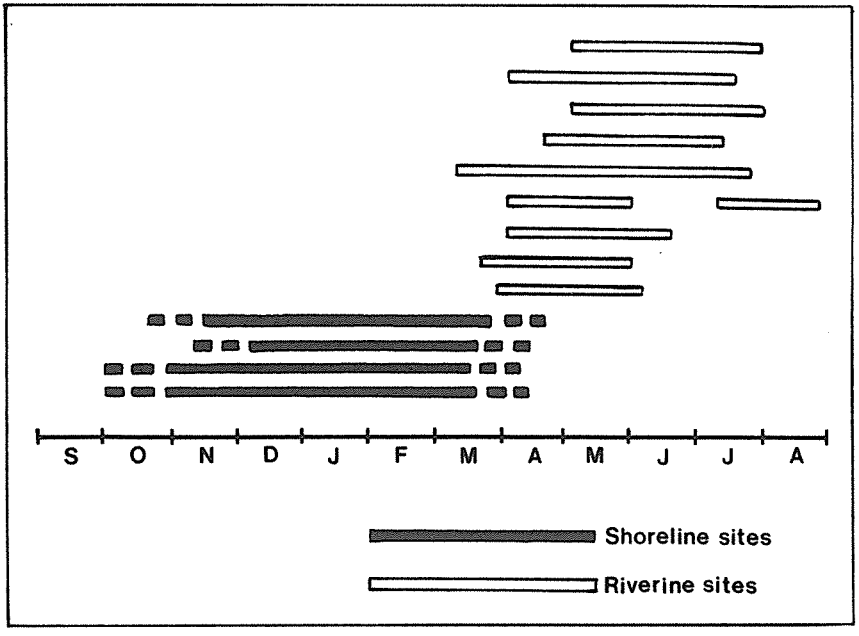

Figure 6. Graph showing estimated seasonality ranges of Group 1 and Group 2 Rockport phase sites, based variously on analyses of fish otoliths, *Rangia cuneata* clamshells, and oyster shells.

carbohydrate supplement to the protein-rich fish and shellfish diet at shoreline sites. On the other hand, the seasonality data strongly suggest that by spring, the focus on estuarine resources gave way to an emphasis on hunting large terrestrial game and the shoreline camps were largely abandoned in favor of the prairie-riverine Group 2 sites.

Though they are difficult to quantify, the patterns of relative site size and abundance indicate that the seasonal shift in subsistence and residential location involved an attendant cycle of population aggregation and dispersal. Group 1 sites are large but relatively few in number compared with Group 2 sites. In the Corpus Christi Bay area, six Group 1 sites have been documented, whereas along the bay's feeder streams—the Nueces River and Oso Creek—22 Group 2 sites have been identified (Ricklis 1988, 1990). Since the Group 2 sites have low archeological visibility, they are probably even more when abundant relative to Group 1 sites.

These differences in site size and abundance by group suggest that Group 1 sites saw seasonally recurrent occupation by relatively large numbers of people, and that Group 2 sites were occupied by more but smaller groups. Recurrent occupation of Group 1 sites is also suggested by their relatively thick, dense midden deposits; the thin debris scatters at Group 2 sites point to short-term, dispersed occupations within the riverine-prairie zone. A seasonal pattern of groups coming together on

the shoreline during the fall to winter months and often dispersing during the spring to summer months is apparent (Figure 7).

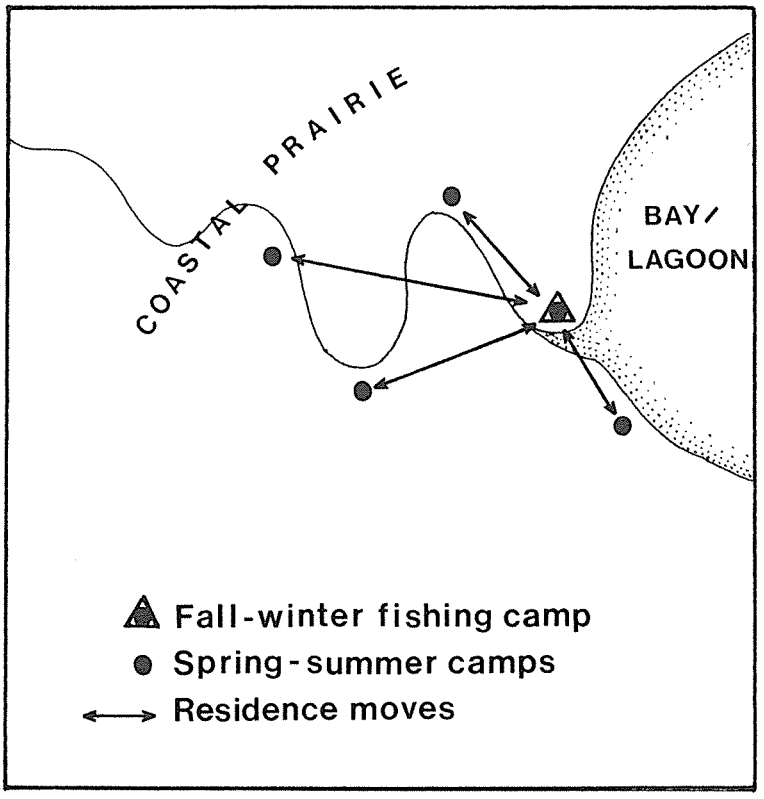

Figure 7. Schematic diagram of Rockport phase settlement pattern. Large shoreline sites (Group 1) represents fall-winter population aggregation supported by focus on fishing. Smaller and more numerous prairie-riverine sites (Group 2) represent spring-summer population dispersal and primary reliance on terrestrial resources.

This adaptive strategy made good ecological sense in view of the spatial and seasonal patterns of resource availabilities in the region. The largest economically useful fish—black drum and redfish—are most predictably available in large concentrations in the bays and lagoons during their respective fall and winter-early spring spawning seasons (Simmons and Breuer 1962; Parker et al. 1988; Wilson et al. 1988; Texas Parks and Wildlife Department n.d.). At these times of the year, a predictable and concentrated supply of fish could have supported relatively large human groups at optimal shoreline locations with minimal risk of subsistence failure.

In the spring, after the breakup of the spawning-related aggregations of the largest fish species, groups tended to respond with dispersal of population. This

strategy of dispersal would have had distinct advantages in the hunting of dispersed and/or highly mobile game animals such as deer and bison, many of which would have become particularly desirable during the spring, when abundant food supplies increased their body weight and fat content. Small, dispersed socioeconomic groups probably were advantageous at this time of year; it would have been difficult in other seasons to count on enough game at any one location to support large populations. At the same time, a wide range of greens and, by summer, fruits, was available on both floodplains and prairie uplands; these would have been readily obtainable from camps along the upland prairie margins.

Such patterns of seasonal hunter-gatherer aggregation and dispersal, according to the predictability and spatial concentration/dispersal of key resources, are both documented ethnographically and strongly indicated archeologically (e.g., Birdsell 1953; Lee and De Vore 1968; Harpending and Davis 1977; Hassan 1981; Butzer 1982). Indeed, periodic population aggregates were necessary for maintenance of mating networks and as contexts for socially integrative ritual and information exchange (e.g., Wobst 1974; Hassan 1981:180-186).

The spatial and seasonal patterns of the Rockport phase ecosystem modeled here probably should not be viewed in rigid terms. Although the seasonality data strongly suggest that much, if not most, of the population abandoned shoreline locations during the spring, small numbers of spring or summer otoliths found on Group 1 sites may reflect limited or occasional use of these locations during the spring and summer months. Also, small Rockport phase sites such as 41SP103 on Corpus Christi Bay (Ricklis 1988) and the Swan Lake site (41AS16) on Copano Bay are on the shoreline (Prewitt and Paine 1988). These may be essentially Group 2 sites, despite their locations, since they are adjacent to prairie environments and have yielded bison bone and relatively few fish or shellfish. On the other hand, they could just as well have been hunting camps that functioned to supply red meat to large populations at Group 1 fishing sites. Ongoing research is needed for better definition of such details of Rockport phase settlement and subsistence patterns. However, the consistency in the evidence reviewed here does point to a pattern of seasonal residence and subsistence, in which resources were used according to the sequential phases of greatest seasonal abundance.

CONTINUITY AND CHANGE DURING COLONIAL TIMES: THE ETHNOHISTORICAL RECORD

Documentary Evidence for Native Settlement Patterns

Eyewitness accounts of Karankawan camp locations and group sizes agree with the settlement and subsitence patterns previously inferred from archeological findings (only actual eyewitness accounts of residential locations are deemed reliable here, due to the Spaniards' imprecise knowledge of coastal geography during early historic times; see Ricklis 1990:482-483). The earliest first-hand account was made by Cabeza de Vaca in the early sixteenth century. Though it is uncertain that the coastal group among whom he spent a year was Karankawan,

Cabeza de Vaca described a seasonal pattern of use of resources and location of camps that is remarkably close to that inferred archeologically for the Rockport phase:

> From October through February every year, which is the season these Indians live on the Island, they subsist on the roots I have mentioned, which the women get from under the water in November and December. Only in these two months, too, do they take fish in the cane wiers. When the fish is consumed, the roots furnish the staple. At the end of February, the islanders go to other parts to seek sustenance, for the root is beginning to grow and is not edible [Covey 1983:61].

Cabeza de Vaca was clearly describing a fall to winter emphasis on shoreline fishing, supplemented by the gathering of roots that probably supplied a high-starch complement to the protein-rich fish diet. He also noted that his islanders moved to the mainland during the spring, where they consumed a mix of shellfish and terrestrial fauna and flora. The fall to winter island camp probably involved a sizeable number of people, since the Indians were able to field more than 100 warriors at short notice (Newcomb 1983). Applying a ratio of four persons per adult male (as indicated by historic data for the Karankawa; see Ricklis 1990:504), a total of about 400 people is suggested for Cabeza de Vaca's islanders.

Later first-hand observations agree with those of Cabeza de Vaca, inasmuch as all of the largest groups were in bay/lagoon shoreline locations during the fall or winter. In Febraury 1685, the French expedition led by René-Robert Cavelier, Sieur de La Salle, saw a large shoreline Karankawan encampment near Matagorda Bay at the north end of Matagorda Island, where at least 400 persons occupied some 50 *cabanes* (Joutel 1713:77; Minet 1987:109). French navigator Jean Beranger made a similar observation at Aransas pass near Corpus Christi Bay in late October 1720, noting, "I was surprised, since I least expected to see in a moment a large market town built of these kinds of houses [hide-covered huts] and five hundred persons, at least, well sheltered" (Carroll 1983:22). Beranger stated that the dietary staples at this camp were fish, oysters, and a breadlike food made from crushed acorns; red meat was eaten, but "not plentiful" (ibid).

The next observation of shoreline occupation dates to 1768, when an Indian "spy" for the Spaniards at Presidio La Bahía noted that "very numerous" Karankawans were camped at the north end of Matagorda Island, apparently in March (Tovar 1768). Later, in late October 1791, Fray Juan Garza and Captain Juan Cortes visited a group of 111 Karankawans at a place referred to as Las Conchitas (Silva 1792, cited in Oberste 1942:36-37). The place name suggests a shoreline location, and Las Conchitas's position 9 or 10 leagues (36–40 km) east of the mouth of the Guadalupe River places the camp on or near the southeast shore of Matagorda Bay.

Available documentation indicates that there were other large Karankawan camps on the shore of Guadalupe Bay, an arm of San Antonio Bay. Fray Juan Garza reported a group of 186 Karankawans camped here in December 1791 (Garza 1791a), and a year later, in January 1793, Garza again reported a sizeable group of

161 Karankawans at the same location, occupying two closely spaced camps (Garza 1793). Garza also noted that just before he arrived at the camp, there had been as many as 208 occupants, but that a group of 47 people had splintered off and left the camp. Though, in Garza's perception, these groups had congregated in anticipation of the founding of Refugio Mission, the fact that the site was chosen by the Karankawans themselves suggests that it was a favored locale; this is further indicated by a large and apparently intensively occupied Rockport phase site, 41CL2, in this same area (see Weinstein 1992).

In marked contrast to the evidence for fall-winter occupation of bay/lagoon shorelines by large groups are documentary indications of much smaller camps during the spring-summer, mostly at riverine campsites. The earliest observation comes from the De León expedition to Matagorda Bay in 1689 (West 1905). De León noted scattered rancherias of apparently coastal Indians along Garcitas Creek in mid-April. These presumably were small encampments, since several were scattered along the creek, and since De León made no mention of the numbers of occupants, as he had with the large camps in the interior. It is also significant that, in exploring nearly the entire southern shoreline of Matagorda Bay, De León explicitly mentioned the complete absence of Indians, suggesting that by mid-April the shoreline zone was abandoned. A similar observation had been made tin April 1687 by Enrique Barroto during six days of reconnoitering of the Matagorda Bay shoreline (Barroto 1987).

Later eighteenth century observations also place small spring-summer camps in riverine areas, or in back-bay areas adjacent to the coastal prairie environment. Fr. Manuel de Silva noted a group of 86 Karankawans on the lower Lavaca River in April 1791, and he was told of another rancheria of related people farther upstream (Silva 1791). Later in the month, a rancheria of 69 people was visited on the inland shore of Copano Bay (ibid; see also discussion of the location in Ricklis 1990:487). In mid-June 1791, Fr. Garza reported visiting a group of 41 Karankawans who, under the "chief" Frasada Pinta, were camped on San Miguel Creek, which empties into Lavaca Bay (Oberste 1942:32). It is particularly noteworthy that by the following October, Frasada Pinta and his people were camped on or near the shoreline of Matagorda Bay at the place called Las Conchitas, mentioned above, and that the number of people involved had increased to 111 (Silva 1792, cited in Oberste 1942:36-37), suggesting that there was a fall aggregation of smaller groups, the kind of seasonal pattern inferred from the archeological record.

Another source of relevant information is the record left by Simars De Bellisle, a Frenchman marooned on the Texas coast from 1719 to 1720. Though De Bellisle's observations probably pertain to Akokisan or Atakapan peoples farther up the coast in the Galveston Bay area, they illustrate a pattern of seasonal settlement and subsistence remarkably similar to the one indicated for the central coast. De Bellisle's native people spent the summer on the coastal prairies hunting and gathering plants, then joined with a related group on the bay shore during the winter.

> I passed the entire summer with them in this country with them going everywhere in search of food because they possess no cabins or fields. That is why they travel in this manner the entire summer. The men kill a few deer and a few buffaloes and the women search for wild potatoes. When the beginning of winter came we all left to join a band of their people who were waiting for us at the end of the bay [Folmer 1940:216-217].

These bits of historical information (Table 1) document a basic pattern of seasonal subsistence and mobility that agrees essentially with the archeological evidence. The time span represented—from initial contact with Europeans to the end of the eighteenth century—suggests that there was a significant degree of continuity in basic adpative patterns that were deeply rooted in prehistory, despite the various pressures of European contact and colonization.

Table 1. Historically Documented Karankawan Encampments with Size of Resident Group, Environmental Context, and Season.

Size of Group	Environment		Season		Source (See text)
	Shore	Riverine	Fall–Winter	Spring–Summer	
400	X		X		Cabeza de Vaca
400-500	X		X		Joutel/Minet
500	X		X		Beranger
"Numerous"	X		X		Tovar
186	X		X		Garza
111	X		X		Oberst/Silva
Small Rancherias		X		X	De León
86		X		X	Silva
69	X			X	Silva
41		X		X	Oberst/Garza

The Effects of European Contact and Colonization

More or less ongoing contact between Europeans and the Karankawans began in 1685 with the French exploration and settlement in the Matagorda Bay area led

by La Salle. Subsequently, there were sporadic contacts with Europeans, and the first Spanish mission on the coastal prairie, Nuestra Señora del Espíritu Santo, together with Presido La Bahía, was established in 1722 on the site of the old French settlement. Archeological and documentary evidence places this location a few kilometers inland from Matagorda Bay, on Garcitas Creek (Gilmore 1986).

At first, the Karankawans showed interest in the mission, but relations with the Spaniards deteriorated, and Captain Diego Ramón, impatient with the Indians, ordered his soldiers to ambush them. In the ensuing fray, Ramón was fatally wounded, two Indians were killed, and the Karankawans fled the site (Bolton 1906:117; Castañeda 1936, Volume II:182). This event initiated decades of reciprocal hostilities, as Fray Santa Ana wrote to the Viceroy of New Spain some years later that

> near the Bahía del Espíritu Santo there have been some Indians called Cujanes [the mid-eighteenth century generic term for the Karankawans], those same who used to be associated with the mission of La Bahía. The past twenty years they have been living in heathendom and with mortal hostilities between the Indians and the soldiers.
>
> The Cujanes were reputed to be irreducible for some thirty years, and this came to be (according to reports filed with the secretary of the government) the primary hindrance to the Presidio of La Bahía, preventing further goals [Fray Santa Ana 1751, *author's translation*].

In 1726, the mission and presidio were moved inland to the lower Guadalupe River, and missionary attention was shifted to inland native groups such as the Tamiques and Jaranames. The mission and presidio were moved to their final locations on the San Antonio River at modern Goliad in 1749.

In the 1750s, the Spaniards made a fresh attempt to establish workable relations with the Karankawans. In the spring of 1751, a group of Cujanes had approached La Bahía, showing considerable interest in entering the mission of Espíritu Santo (Piszina 1751). However, the situation again did not work out amicably, and, by the fall, all of the Indians had abandoned the mission, having found "strong new reasons for their old war" (Altamira 1752, *author's translation*).

Nontheless, the new mission of Nuestra Señora del Rosario was established in 1754, specifically for conversion of the coastal Indians (see Bolton 1906; Gilmore 1984). At the end of four years, however, only 21 souls had been baptized at Rosario, and these were in *articulo mortis*. Over the next three decades, the Karankawans maintained only a tenuous and discontinous link with Rosario and the Spanish colony at La Bahía, and, by 1785, Rosario was completely abandoned (see Bolton 1906, 1915; Gilmore 1984).

By the 1780s, hostilities between Karankawans and Spaniards had become chronic. Perhaps due in part to displacement of the native bison by introduced cattle (Ricklis 1990:540-545), the Karankawans repeatedly raided the mission herds. The situation was probably not unlike that described by Campbell for the northeastern frontier of New Spain in general:

> They [the Spaniards] brought livestock that competed with wild grazing and browsing animals. Game animals were thinned or driven away by Spanish hunters with firearms. The Indians turned to livestock as a substitute for game animals, and loss of livestock brought punitive action by Spaniards [Campbell 1988:42].

The Spaniards' perception of the Karankawans during this period is apparently represented by an assessment made by Fr. Agustin Morfi, who wrote that the "Carancaguases or Carancagues nation [was] vile, cowardly, treacherous and very cruel.... Many of them speak Spanish with great fluency, being, in many instances, apostates from our missions" (Morfi 1935:79-80).

Exasperation with the situation is reflected in a letter of 1788, written by Don Luis Cazorla, commander at La Bahía, in which he writes,

> I am of the opinion—modifying the opinion of our commandant [but] without acting contrary to it in any manner whatsoever—that [we] could receive them [the Indians] in peace and put them in missions, sending them all the corresponding guarantees for this purpose. In this way, since at any time they will create provocations, at the first which is committed [we] could make a reprisal and expel them once and for all. With this, without violating our treaties with them (for which I can see no justification in humanity, hospitality or natural law), we would achieve their extermination. And though some would remain in the woods, their surrender would be less difficult [to achieve].
>
> This is the view which I have developed of the aforesaid coastal Indians—with no other purpose than that of serving God and the King and the public interest—based on experience which I have [in the matter] [Cazorla 1788].

The End of Hostilities and Acculturative Change

Cazorla's fatalism was to prove unwarranted. In October 1789, the Karankawans expressed the desire for a treaty of peace. For their part, the Spaniards, at the insistence of the provincial governor at San Antonio de Bejar, followed the Crown's policy, with its demand for "gentleness and encouragement that they [the Indians] should give up their heathen life" [Muñoz 1793, *author's translation).* Despite some tensions and sporadic instances of conflict, the overall trend during the 1790s was toward peaceful interaction, and the groundwork was laid for a significant degree of Karankawan acculturation to Spanish colonial cultural patterns. A new mission, Nuestra Señora del Refugio, was founded at the request of the Karankawa themselves (Oberste 1942:29). This mission enjoyed a limited degree of success in converting and acculturating Karankawans. By 1797, Juan Bautista Elquezabal, interim commander at La Bahía, was able to write an assessment of Karankawan character that was in marked contrast to that of earlier statements.

> From what I have seen of their manners and ways of doing things, there does not appear to be any bad intention, or anything that one could find suspicious, or any artfulness in their thinking [Elquezabal 1797, *author's translation*].

By 1806, Manuel Antonio Cordero, Governor of the Province of Tejas, was able to state that

> west of the Colorado River, roving along the coast, southward as far as the San Antonio River, were the Karankawa. These fierce tribes had been cannabalistic, but they are now civilized and report regularly to the commander at La Bahía and the missionary at Refugio everything that occurs on the coast [Cordero 1806].

In his reminiscences, John Linn, an early Anglo-American settler, wrote that

> Father Diaz, who was the last of the missionaries, gave me quite a history of the different Texas missions. He stated that in the year 1808 the mission of Refugio possessed fully five thousand head of livestock of various kinds; the "flat" in front of the church was their cultivated field. Up to this period they had all the necessaries . . . and were making rapid progress in the path of civilization, when the war of Mexican Independence came and destroyed . . . the work and fruits of many years of arduous toils . . . The Carankua women, too, learned the use of the spinning wheel, and manufactured a very good article of cotton cloth, and also blankets of superior quality [Linn 1883:334].

Despite the setback resulting from the Mexican War of Independence, the lasting effect of the acculturative processes described by Fray Díaz is indicated by the first-hand observations made by Jean Berlandier in the late 1820s.

> The Carancahuases of today are less ferocious than those of the past century. They can be considered as mission Indians, half-tamed. Transformed into mariners on the bays, they lead an *itiophage* [fishing] life, hunting and more often fishing for their needs. Before the wars of independence, when Mexico was flourishing, almost all the Carancahuases lived at their mission. Now living most of the time on the coast, they come only occasionally to visit the presidio, where the authorities sometimes give them small presents. Following the example of other indigines, they have some horses, although their travels are much more frequently over the bays than over the land. . . . Although vagabonds, all call themselves Christians. Some wear a cross hung around their neck, and all their newborn are carried with ceremony to the Franciscan father who leads them, in order to receive the waters of baptism from him. I have questioned several of them on the religion of their ancestors, but they never wished to answer [Berlandier 1980:381-382].

The Role of Traditional Human Ecology in Adaptive Change

These passages indicate that rapid change in intercultural relations and Karankawan attitudes took place after 1790. Peaceful relations, some degree of Christianization, and even the practice of cottage industries such as weaving and spinning, were underway by about 1800 or shortly thereafter. These new patterns contrasted so with earlier relations that they were readily apparent to contemporary non-Indian observers.

The immediate causes for change are difficult to identify precisely. The Karankawans may have been weary of decades of conflict, and may have been reluctant to engage in hostilities on two fronts, between both the Spaniards and the intrusive Comanches, who were perceived as enemies and a serious threat by the late eighteenth century (e.g., Elquezabal 1797; Berlandier 1980).

Also, by 1790 most of the interior native groups had been displaced or drastically reduced in numbers by disease, and many of the survivors had entered missions (Campbell 1988). In this context, the Karankawans may have felt that important buffer groups had been removed and that it was in their best interests to come to an understanding with the Spaniards.

Whatever the precise motivations for change, the fact that it did take place by the end of the century should not be seen as the final option available to a desperate or defeated people. Karankawan population had been more or less stable at around 2,500 since about 1750 (Ricklis 1990:499–522), and in 1790 it was at least twice that of the combined Indian and Spanish population at La Bahía (cf. Ricklis 1990; Tjarks 1974). Traditional economic patterns, and even patterns of group organization, were still intact, though the latter probably persisted in modified form (Ricklis 1990:522–531). When threatened, the Karankawans could still lose themselves in the maze of marshes and lagoons of the coastline, in accordance with their traditional defensive strategy (Kress and Hatcher 1931:44; Elquezabal 1797; Garavito 1798a). It is unlikely, therefore, that they were attracted to the missions as a place of last refuge, as was the case with many interior groups, who in effect had no other place to go when they were threatened by marauding Apaches and Comanches (Campbell 1988:43). In the light of these factors, the change in attitudes toward the Spaniards probably should be viewed as an adaptive strategy on the part of a people who were adjusting to the pressures of fundamental changes in their world.

Considering that this period of peaceful acculturation followed decades of hostilities and conflict, it is rather remarkable that change took place so rapidly. In view of their previously volatile relations with the Spaniards and their adherence to traditional socioeconomic patterns, it is natural to ask how the Karankawans were able to effect viable change within only a single decade.

Part of the answer appears to be that the Karankawans did not, at least initially, passively conform to Spanish colonial culture as embodied in the mission, but rather brought the mission-presido complex into the behavioral sphere of their own traditional lifeway. As already discussed, the native adaptive

system included a seasonally shifting emphasis in resource use and settlement pattern, with aggregations of large groups at optimal shoreline fishing stations in the fall-winter, and dispersal of smaller groups during the spring-summer, when subsistence shifted to an increased reliance on terrestrial resources. It is not likely that it was mere coincidence, therefore, that the time of year when the Karankawans most often showed interest in the missions was between March and May, just the time when both archeology and ethnohistory point to a seasonal shift in settlement and subsistence.

Documentary research has yielded a total of 16 recorded dates when Karankawans came to the missions (Table 2). The greater part of these—11, or 69 percent—fall in the spring season. The dates of Karankawan mission arrivals tend to cluster, therefore, at that time of year estimated on archeological grounds to represent the initial occupation of the Group 2 sites of the prairie-riverine environmental zone (Figure 8). The apparently strong Karankawan interest in the missions during the spring suggests that the mission was, in effect, perceived as a potential ecological resource, in the sense that it could fulfill the subsistence needs traditionally met by procuring the native foods of the coastal prairies.

The mission provided subsistence items that were quite analogous to those traditionally procured during the spring and summer months. Cattle, the mainstay of the mission diet (e.g., Oberste 1942), would have substituted readily for the bison that had been traditionally hunted on the coastal prairies during the spring and summer (as repeatedly indicated by findings at Group 2 sites). Maize, a necessary high-starch dietary supplement to the protein provided by beef, doubtless had traditional counterparts in the plant foods available in the prairie-riverine environment (e.g., mesquite beans, or tubers such as the "wild potatoes" described by De Bellisle [Folmer 1940:216]).

It is interesting to note, too, that whereas most of the instances of Karankawans coming to the mission were in the spring, the next most frequent time of the year was the fall (four, or 25 percent of the cases). According to the model of settlement/subsistence mobility presented here, this was the time when groups would have been returning to favored shoreline fishing stations from summers spent in the prairie-riverine environment. The fall season, therefore, would have required decisions concerning seasonal residential locations, as did the spring, and some groups may have opted occasionally for spending the winter at the mission. As noted earlier, a group of 47 people split off from the large winter camp on Guadalupe Bay in January 1793, suggesting that shoreline locations did not invariably support all of the population that might otherwise have congregated at a given fishing camp. Some groups, perhaps anticipating this kind of situation—or possibly perceiving other, less tangible problems such as social tensions—may have seen the mission as an acceptable winter residence.

The Karankawan mission arrivals involved (a) leading individuals who came to determine whether provisions were adequate to support their people, (b) family groups, or (c) bands of as many as several dozen people. When provisions were plentiful, the Indians entered the mission and stayed for indefinite periods of time.

Table 2. Data Pertaining to Documented Instances of Karankawans Coming to Coastal Prairie Missions.

Year	Arrival Time	Number of People and Circumstances	Source
1722	About May 4	Several Coco families come to new site of Espíritu Santo, leave soon after due to lack of food.	Castañeda 1936, Vol. II:167.
1722	Late May	Chiefs of Coco and Cujane nations come to new Espíritu Santo mission with their families, again leave due to inadequate provisions.	Ibid.
1722	March 16	Many coastal Indians had arrived at Espíritu Santo with their families, stayed for indefinite period.	Ibid.:168
1751	End of March	Group of 54 Cujanes arrive at Mission Espíritu Santo, stay about 10 weeks.	Piszina 1751
1789	Oct./Nov.	Karankawans come to Rosario Mission for indifinite stay.	Espada 1789
1791	April 7	Chief Frasada Pinta arrives at Rosario with some of his people.	Silva 1792
1791	April 20	Chief Manuel Allegre and family come to Rosario Mission.	Silva 1791
1791	November	Five families come to Rosario Mission.	Jaudenes 1791
1793	March	Chief Frasada Pinta arrives at Refugio Mission with eight Coco men, representing 55 people. They leave because of inadequate provisions.	Garza 1793
1793	April	Frasada Pinta returns to Refugio; again leaves because of low provisions.	Ibid.
1793	Feb. 10	Frasada Pinta and five of his men arrive at Refugio Mission, promise to bring their people "when weather improves."	Oberste 1942:67
1794	April 28	Frasada Pinta and his people arrive at Refugio Mission to receive meat and maize.	Muñoz 1794
1795	September	Frasada Pinta arrives at Refugio Mission.	Silva 1795
1796	April 5	Combined group of Cocos and Carancaguases arrive at Rosario.	Castañeda 1942, Vol V:191
1797	Late March	Combined groups of Cocos and Carancaguases arrive at Rosario	Cortez 1797
1798–1799	Nov.–Jan.	Indians who had left Refugio in March because of lack of provisions return to Mission.	Moral 1798, 1799

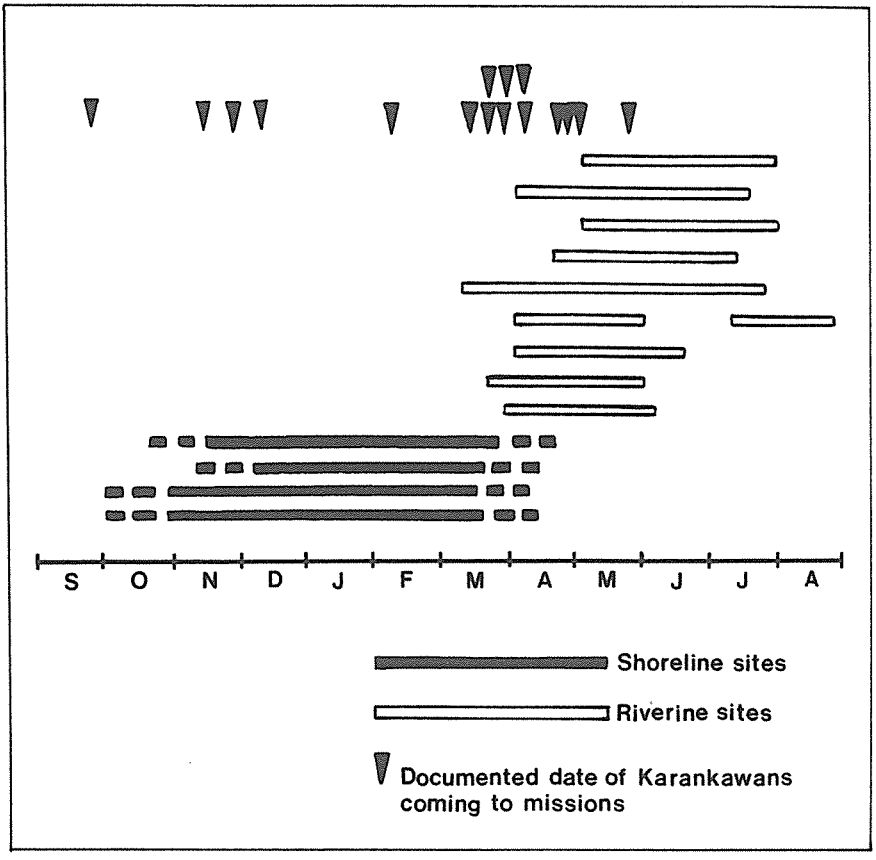

Figure 8. Diagram showing documented dates of Karankawan arrivals at missions and their relation to estimated seasonality of Group 1 and Group 2 Rockport phase sites.

When provisions ran out, they left to seek sustenance in their traditional manner (e.g., Elquezabal 1798; Garavito 1798b).

In effect, the mission, when well stocked, would have served well as a substitute for the traditional spring-summer hunting/plant-gathering camps. This was probably particularly true in the case of Refugio Mission, which the Karankawans themselves indicated should be established within their traditional territory if it was to succeed (Garza 1791b, cited in Oberste, 1942:29). At the request of the Indians, Refugio was thus originally located near the head of Guadalupe Bay, near the mouth of the Guadalupe River. Though it was moved to the Mission River in 1795, the new location was only 38 km from the mainland shoreline, still within the bounds of the traditional operational area of the Karankawan groups as suggested by archeological and historical data (Ricklis 1990). The Karankawans apparently were agreeable to establishment of Refugio Mission only if it would be readily accessible, and

susceptible to integration within the framework of long-established adaptive strategies.

The incorporation of the mission into the spatial and seasonal parameters of the traditional human ecosystem facilitated its acceptance within the context of known and accepted ways of doing things. With a relationship toward the mission that was nondisruptive to traditional native culture, the stage was set for peaceful interaction, and a context emerged that was conducive to the acculturation that followed in the early nineteenth century.

CONCLUSIONS

The information reviewed here counters the long-held, popular assumption that the Karankawans were a people incorrigibly resistant to change and lacking in the adaptive flexibility necessary for sustained interaction with Euro-American culture. Quite the contrary, they appear to have ultimately made a workable adjustment to late Spanish colonial frontier culture, one that was proably based in large part upon a synthesis of traditional behavioral patterns and foreign cultural elements. Once the Karankawans clearly perceived the need for change in sociopolitical relations, peaceful interaction and incipient acculturation quickly followed. Change, though rapid, was not culturally disruptive, since foreign cultural patterns were to some extent synthesized with traditional lifeways in a way that complemented, rather than disrupted, established and long-accepted modes of behavior.

The Karankawan ability to reformulate the nature of intercultural relations was doubtless also facilitated by the general Spanish colonial policy of acculturation and religious conversion of aboriginal peoples, which contrasted markedly with an Anglo-American predilection for expulsion of native groups (Butzer 1991). On the one hand, the Karankawans appear to have synthesized tradition and novelty; on the other, the Spanish colonial policy was sufficiently flexible to permit such a synthesis to take place. Indeed, the late Colonial period of Karankawan-Euroamerican relations should be clearly separated from the period of initial Anglo-American occupation of the coastal praries that began in the 1820s. Whereas New Spain sought to maintain its northeastern frontier by gradually bringing native groups into the sphere of colonial culture, the later Anglo-Americans were bent on permanent settlement. Interaction with native groups was not on the agenda, and within three decades of initial Anglo-American settlement, the Karankawans were either killed off or forced to flee their traditional homeland, probably to merge with native peoples living to the south in northeastern Mexico. Additional archival research in Texas and Mexico may further elucidate and amplify the complex details of these cultural-historical processes.

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Reviews

First Encounters: Spanish Exploration in the Caribbean and the United States, 1492–1570, edited by Jerald T. Milanich and Susan Milbrath. Ripley P. Bullen Monographs in Anthropology and History, Number 9. Florida Museum of Natural History. University of Florida Press, Gainesville. 1989. 222 pp., figures and plates.

Reviewed by Maynard B. Cliff, Geo-Marine, Inc.

The year of the Columbian Quincentenary, while bringing with it mixed reactions in the area of popular culture, has had at least one beneficial effect. This is a renewed interest, both popular and academic, in the importance of the role of Spain in the discovery and early settlement of the New World. In reaction to this popular interest, the Florida Museum of Natural History has put together a traveling exhibit whose subject is the discovery and first century of exploration and settlement in the Caribbean and the southeastern United States.

The volume under review here was written to accompany that exhibit, but it is much more than simply a museum catalog. Instead, Milanich and Milbrath have assembled a group of essays, both original and reprinted, dealing with many aspects of this period in the history of the Caribbean and that part of the mainland of North America known to the Spaniards as "La Florida" and to us today as the southeastern United States. For this reason, although it is intended to supplement the exhibit, it stands as a scholarly contribution on its own merits.

Following an introductory and summary essay by the editors, the articles in this volume can be grouped into three general sections: the first dealing with Columbus's voyage of exploration in 1492 and Spain's initial efforts to colonize the Caribbean; the second dealing with Spain's subsequent attempts to explore and colonize the mainland of La Florida (specifically, the de Soto entrada and what followed); and the third dealing with the final attempts to colonize La Florida that resulted in the founding of St. Augustine in 1565.

The introductory article in this volume (*Another World*, by Milanich and Milbrath) lays the historical foundation for the articles that follow and acts as a summary for the entire volume. In this initial essay, the authors touch on all the major historical events of the first century of Spanish activity in the Caribbean and La Florida, and introduce readers to each of the subsequent articles.

The next four articles concern various aspects of Columbus's early voyages of exploration and discovery, and Spain's early attempts to plant colonies in the New World (i.e., *Columbus's 1492 Voyage and the Search for his Landfall*, by William Keegan, adapted from an earlier article; *The Search for La Navidad, Columbus's 1492 Settlement*, by Kathleen A. Deagan; *Niña, Ship of Discovery*, by Eugene Lyon; and *Puerto Real: Archaeology of an Early Spanish Town*, by Charles R. Ewen and Maurice W. Williams). Certainly, among the more exciting areas of recent research on the early Spanish presence in the New World are

identification of the locations of Columbus's first landfalls in the Caribbean, and excavation at the first of Spain's colonies. Keegan reviews earlier ideas regarding the site of Columbus's first landfall and then presents convincing arguments in favor of San Salvador (or Watling Island), in contrast to the recent findings of a National Geographic Society team. Keegan makes admirable use of historical documents, physical data relating to winds and tides, and archeological evidence regarding the location of Protohistoric and Early Historic sites in the Bahamas to support his conclusions. Lyon's article on the Niña is an interesting companion to Keegan's, dealing as it does with this most durable of Columbus's ships—the only one to make three trips to the New World.

The other two articles in this first group deal more with archeology than history, although history obviously plays an important role. Deagan's article is concerned with the search for, and apparent location of, Columbus's first settlement in the New World, the site of La Navidad on the island of Hispaniola (the modern location of Haiti and the Dominican Republic), where he left a contingent of men when he returned to Spain after his first voyage. Unfortunately, the settlement had been destroyed by the time he returned in 1493, and its location has long been unknown. A careful search for the site by Dr. William Hodges, a Haitian resident, located a likely candidate for the settlement on the northern coast of Haiti at the archeological site of En Bas Saline. Excavation at the site has shown it to be a late Táino village; it has yielded a small amount of material of postcontact origin, including the remains of European pig and rat and late fifteenth century Spanish pottery, glass, and metal fragments. Although Deagan concludes with the *caveat* that the site of En Bas Saline cannot be *proved* to be that of La Navidad, it does remain the strongest contender for the honor.

The same search that identified La Navidad also led Dr. Hodges to the location of another early Spanish site in Haiti, that of the settlement of Puerto Real founded on the northern coast of Hispaniola in 1504 by Rodrigo de Mexía. Unlike La Navidad, Puerto Real became a relatively successful center for economic exploitation of the surrounding areas, but by 1578 the centers of Spanish settlement in the New World had moved to the mainland, and the town was abandoned. Excavations at the site within the last decade have revealed the remains of the sixteenth century Spanish town, complete with cathedral, cemetery, town plaza, possible warehouses, and high-status residences. The data recovered from the site demonstrates that within the space of a single generation, Spain had begun the successful colonization of the New World.

The next section contains several articles that deal with the initial period of Spanish contact and exploration in La Florida itself (i.e., *Hernando de Soto's Expedition Through the Southern United States*, by Charles Hudson, Chester B. DePratter, and Marvin T. Smith; *Artifacts of Exploration: Archaeological Evidence from Florida*, by Jeffrey M. Mitchem; *Anhaica: Discovery of Hernando de Soto's 1539-1540 Winter Camp*, by Charles R. Ewen; *The Tristán de Luna Expedition, 1559-1561*, by Charles Hudson, Marvin T. Smith, Chester B. DePratter, and Emilia Kelley; and *Indian Responses to European Contact: The*

Coosa Example, by Marvin T. Smith). The articles by Hudson and his colleagues give excellent overviews of their reconstruction of the de Soto entrada's route through the southeastern United States and into Texas. Although their reconstruction is still the subject of some controversy among professionals, their evidence is well presented and convincing, especially for the eastern part of the route. In this connection, Hudson's (1990) study of the Juan Pardo expedition from the Georgia coast, and the work of Hudson and his colleagues with the documents of the Tristán de Luna expedition (summarized in this volume), demonstrate in an excellent fashion the potential conjunction of multiple historical sources in resolving problems of ethnohistoric tribal location and reconstruction of early European routes of exploration.

One of the more interesting aspects of this series of articles relates to the archeological evidence apparently left behind by the early Spanish entradas. In this connection, Smith conducted an extensive study of the distribution of both early European glass beads and early iron artifacts in the southeastern United States, whereas Mitchem's and Ewen's articles specifically present the artifactual evidence for the de Soto route from Florida. Interestingly, the evidence from these material remains, in general, differs somewhat from the evidence such as chain mail, medieval weapons, and Spanish riding accouterments that has been used to support claims for the de Soto route in Texas (James Bruseth [this volume] has recently written an excellent summary of the artifactual evidence of the de Soto entrada in Texas). It could be argued that the expedition's supply of trade items, such as brass hawk-bells and glass beads, might have been exhausted by the time the expedition reached Texas; it seems more likely that heavy mail also would have been abandoned before the expedition reached Texas. Certainly, it is clear that Texas could greatly benefit from artifactual studies similar to those made by Smith in the Southeast.

Finally, in the last article in this section, Smith again discusses the evidence for the de Soto entrada in Georgia, Alabama, and Tennessee, this time in regard to how it affected one aboriginal political entity—the Chiefdom of Coosa in Alabama and northwestern Georgia. Once again, in the light of recent suggestions regarding the abandonment of parts of East Texas (specifically, the area of the Titus phase), Smith's work is extremely intriguing. He musters strong evidence for both a demographic and sociopolitical collapse at Coosa in the years between the de Soto contact (1540) and the de Luna expedition (in 1560), suggesting that the introduction of European diseases may have been at the heart of this process. He is wise enough not to suggest that any single disease, such as smallpox (for which there is, interestingly, no mention in the de Soto chronicles) was at fault, but instead suggests that a combination of diseases may have been at work. Such a rapid collapse (only 20 years) tends to support this view, although single-disease epidemics have been known to produce this effect under special circumstances (the introduction of malaria to coastal Oregon in the 1830s apparently brought with it an extraordinary 90 percent mortality rate, resulting in the complete extinction of the coastal tribes within one generation). Whatever

the ultimate cause, Smith does document the demise of the chiefdom level of political organization at Coosa (and presumably elsewhere in the southeast) and its replacement with the system of confederacies familiar to us from the later historical accounts. Once again, this work has serious implications for Texas archeology in regard to the use of ethnographic models of Caddoan political organization during the late seventeenth and early eighteenth centuries for reconstruction of Precolumbian patterns, especially when it is coupled with a hypothesized model of demographic collapse. In this regard, Timothy K. Perttula, in a paper presented at a 1990 symposium on the de Soto entrada at the University of Arkansas, argued strongly for the introduction of European diseases into the Caddoan area during the early sixteenth century, perhaps as early as 1520, and it is possible that the survivors of the Narváez expedition, including Cabeza de Vaca, introduced malaria and other European diseases to the Texas Gulf Coast by 1528.

The final section of this volume consists of two articles dealing with the Spanish efforts to establish permanent settlements in La Florida, efforts that resulted in the founding of the first, permanently occupied European settlement in North America—St. Augustine (*Pedro Menéndez's Plan for settling La Florida*, by Eugene Lyon, and *St, Augustine and the La Florida Colony: New Life-Styles in a New Land*, by Edward Chaney and Kathleen A. Deagan). In his article, Eugene Lyon presents the historical background of the most concerted effort the Spanish put forward to settle La Florida. Acting under a Royal commission from Philip II, which made him adelantado of La Florida, Pedro Menéndez de Avilés acted quickly in 1565, first, to establish a permanent settlement at St. Augustine, and then, to dispel the French, who had settled on the St. John's River in 1564, from the Florida peninsula. From then until his death in 1574, Menéndez devoted himself to the success and expansion of his colonization efforts. He explored much of the Florida peninsula and founded settlements in south Florida, among the Calusa, and among other aboriginal groups. Later, he sailed up the south Atlantic coast and founded the settlement at Santa Elena in present-day South Carolina. However, despite his best efforts, most of Menéndez's endeavors failed and, except for St. Augustine itself, disappeared from the map of the southeastern United States.

The factors that allowed the Spanish at St. Augustine to adapt successfully to life in the New World are the subject of the essay by Chaney and Deagan. They summarize the historical background of the colony, then discuss the archeological remains of the settlement, based on excavations that have been going on since the 1950s. On the basis of this work, a fascinating view of Old World adaptation to the New has begun to emerge. For instance, the ceramic assemblage in the settlement went from less than half local Indian-made wares in the early period to more than half aboriginal ceramics in the late period. Furthermore, most of these later aboriginal ceramics were nonlocal imported wares, apparently from Indian groups living along the Georgia coast. This pattern reflects an increasing level of interaction between Spaniard and Indian, involving

trade and tribute with increasingly distant groups. The importance of aboriginal pottery to the settlement may be taken as just one aspect of the *mestization* of the community: i.e., the intermarriage of Spanish men and Indian women, a process that apparently began as soon as the settlement was founded. The archeological evidence also indicates radical changes in the diet of the Spaniards, including the replacement of major Old World food crops with indigenous maize, beans, and squash. These are only a few of the adaptations that allowed the Spaniards to adapt successfully to their new environment.

In the final essay in this volume Susan Milbrath (*Old World Meets New: Views across the Atlantic*) discusses the effect of the "discovery" of the New World on the art of the Old. Concentrating largely on graphic art, Milbrath points out that the first attempts to illustrate the new lands and peoples found by the first European voyages of discovery involved their incorporation into an existing *Eurocentric* model that showed remote parts of the world as inhabited by monstrous nonhuman races, by primitive peoples similar to those of Europe's past, or by savages living in a state of primitive innocence (resembling sixteenth-century depictions of Adam and Eve). The depiction of the Americas in terms of monstrous races ended quickly, but the image of New World inhabitants as savage cannibals lingered much longer, probably under the impetus of economics, since only cannibals and apostates could be legally enslaved by the Spanish settlers. Milbrath notes that the earliest depictions of New World inhabitants were invariably ethnographically inaccurate but that, after 1515, depictions of aborigines were drawn increasingly from life, although probably from South American models. Milbrath also discusses early European depictions of America as allegorical images and how Mexican and South American jewelry affected the Spanish and European jewelers of the sixteenth century.

Finally, the book itself is attractively designed and well illustrated, and, although the reviewer wished there could have been more illustrations of artifacts from the exhibit, he cannot dispute the use of excavation photographs and other high-quality graphics that were used; the book was not intended to be a catalog of artifacts (and indeed, there are already many catalogs and special studies of early Spanish artifacts). This volume is written in a popular format and is intended to serve a wide audience, and it succeeds in doing so without sacrificing either scholarship or accuracy. In sum, *First Encounters: Spanish Explorations in the Caribbean and the United States, 1492–1570* makes a valuable contribution to the study of early Spanish history and archeology in the Caribbean and the southeastern United States.

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Documentary Evidence for the Spanish Missions of Texas (No. 22), edited by ARTHUR R. GÓMEZ, 1991, xxxi + 470 pp. Garland Publishing, Inc., New York and London

Reviewed by Timothy K. Perttula, Texas Historical Commission

In 1990, Garland Publishing, Inc., under the general editorship of David Hurst Thomas, began the publication of a thirty-volume set entitled *Spanish Borderlands Sourcebooks*. The volumes are edited compendiums of published articles and source materials designed to document cultural interactions between Native Americans and Europeans in the Spanish Borderlands of the Americas. Three of the volumes deal with Texas themes, and other volumes in the series address Native American demography; Native American-Hispanic interaction in the Southeast, the Caribbean, the Southwest, and California; the de Soto expedition; the missions of California, Florida, the Southwest, and northern Mexico; Spanish St. Augustine; Hispanic urban planning in North America; and the idea of the Spanish Borderlands.

All of the Texas volumes are arranged identically, beginning with a list of sources, then an introductory essay by the editor, followed by the reprinted articles. In some cases, particularly in the *Archaeology of the Spanish Missions of Texas*, only sections are reprinted from lengthy monographs or technical reports. Consequently, the references from the reprinted sources had to be added to the edited volume. Because these are reprinted publications, many of the illustrations (especially the photographs) are poorly reproduced, so readers will need to refer to the original publication to make full use of them (which, unfortunately, defeats one of the purposes of the sourcebooks).

The introductions by Hester, Fox, and Gómez summarize the contents of the volumes rather succinctly, but they do provide sufficient historical and archeological background to enable readers to (a) understand how the edited selections contribute to our current understanding of the Spanish Borderlands in Texas, and (b) illustrate the diversity of the published literature. For archeologists and ethnohistorians who are interested in the contact period in Texas, the volume edited by Gómez is by far the most useful as a sourcebook because it contains several 1930s publications of the Texas Catholic Historical Society on seventeenth and eighteenth century Spanish expeditions in Texas that are not readily accessible. On the other hand, many of the articles or monograph selections used as sources in the volumes edited by Hester and Fox are already in this reviewer's library. Nevertheless, it is likely that readers, depending upon their interests, will find something of value in each of the volumes.

As with any compendium of edited selections on diverse archeological and historical topics, readers can question or quibble about the choices of articles and monographs included in the three volumes, but, in the end, if each reader were to compile such a volume, he would probably produce a similarly diverse selection of articles. Certainly, there could be questions about why many of the articles in *Columbian Consequences, Vol. 1* that deal with Texas (Thomas 1989:191-299) are not included in the volume edited by Fox. This issue is secondary, however, to the broader purpose of these sourcebooks, to provide to students of the Spanish Borderlands in handy volumes a useful set of archeological, historical, ethnological, and archival documents that serve to encourage research into Native American-European interaction and Hispanic colonization in Spanish Texas. This the three volumes certainly provide.

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Columbian Consequences. Volume 2, Archaeological and Historical Perspectives on the Spanish Borderlands East. Edited by DAVID HURST THOMAS, 1990. Smithsonian Institution Press, Washington, D.C., xv + 586 pp., 36 figures.

Reviewed by Timothy K. Perttula, Texas Historical Commission

The second of three volumes on the consequences of Native American-Hispanic interaction in the Americas, this excellent edited volume focuses on the American Southeast and the Caribbean, referred to as the Spanish Borderlands East. In Volume 1 of the series are discussions of the Spanish Borderlands West (from Texas to the Pacific Ocean) (Thomas 1989), and in Volume 3, discussions of the Spanish Borderlands from a Pan-American perspective (Thomas 1991).

The volume's 35 chapters—by archeologists, borderlands historians, ethnohistorians, and a Franciscan friar—are organized into three parts centered on common themes: the Spanish entrada into the American Southeast, the impacts of Hispanic colonization on the Southeast and Caribbean, and the missions of *La Florida*. These thematic sections are introduced in separate chapters (by Jerald T. Milanich, Kathleen Deagan, and David Hurst Thomas) that provide the contextual perspective for the articles that follow, discuss the current state of archeological and historical knowledge in the Spanish Borderlands East, and review the main research tenets guiding ongoing work in the region. These overviews serve, of course, to focus the diverse contributions, but they also stand on their own as lucid statements

on the consequences of European-Native American interaction in the sixteenth and seventeenth centuries over a broad area of the Americas. To the reviewer, these three chapters are the strongest aspects of the volume, and probably the most enduring, because of their thematic perspective.

Milanich's paper introducing Part 1 of the volume, entitled "The European Entrada into La Florida: An Overview," sets the stage for the volume as a whole, since he develops the geographical and cultural setting at the time of initial contacts between Hispanic explorers and the Native Americans in the Southeast. He very carefully and effectively brings out both the extraordinary nature of the Mississippian and Gulf Coastal societies who were living in La Florida in about 1540 and the Spanish perception of them. From this, he discusses the current archeological and historical evidence of initial Native American-European interaction, principally including the Narváez, de Soto, and Pardo expeditions in the sixteenth century. In this section, papers by Jeffrey M. Mitchem on West Florida, Charles R. Ewen on the Apalachee, John F. Scarry on Choctawhatchee Bay, and Rochelle A. Marrinan, John F. Scarry, and Rhonda L. Majors on the Narváez expedition, summarize the more exciting recent research efforts on sixteenth century Native American sites in the Spanish Borderlands East. The excavations by Mitchem at the Tatham Mound, and Ewen at the Martin site (the location of the 1539 to 1540 winter camp of the de Soto expedition, now in downtown Tallahassee, Florida), should be especially interesting to students of the sixteenth century because of the recovery in well-excavated contexts of substantial amounts of Spanish trade goods and artifacts in direct association with Native American architectural and mortuary remains.

Also of research interest are the effects of the introduction of European acute diseases (such as smallpox and measles) on the Native Americans in the region. Although they are explored in more detail in Volume 3 of the series (Thomas 1991:501–586), papers by Ann F. Ramenofsky and Dale L. Hutchinson review the archeological and biological consequences of European-introduced epidemics in *La Florida*. They appear to have been generally devastating to Native Americans, with population losses of 50 to 70 percent or more, within one or two generations of contact. Although much of the evidence for the impacts of disease comes from indirect archeological measures (of settlement numbers, cessation of mound-building, mass burials, and so on), since most epidemic diseases leave little tell-tale biological evidence in skeletal remains, Hutchinson also summarizes other types of mortuary site evidence—such as injury by metal weapons, and significant demographic pattern changes—that dramatically highlight the severity of Hispanic contact.

The rest of the papers in Part 1 deal with various aspects of the route of the 1539 to 1543 de Soto expedition across the Southeast and into Texas. All agree that the investigation of the de Soto route is of more interest than simply documenting times and places where the journey ventured. Rather, the reconstruction of the route, once linked with archeological information, can help to "build a picture of the social geography of a significant part of the sixteenth-century southeastern United States. This social geography will . . . make it possible to

begin making detailed comparisons of native societies, caught in an instant of historical time, from Tampa Bay to east Texas" (Hudson et al., p. 115).

Charles Hudson, John E. Worth, and Chester DePratter follow the route through Georgia and South Carolina; David J. Hally, Marvin T. Smith, and James F. Langford discuss the Coosa province in eastern Tennessee, western Georgia, and eastern Alabama. Janet E. Levy, J. Alan May, and David G. Moore summarize the archeology of the Catawba valley (North Carolina) at the time of de Soto's entrada; Keith J. Little and Caleb Curren examine de Soto's forays through Alabama, and Dan F. Morse and Phyllis A. Morse take de Soto (and Moscoso, the entrada's leader after de Soto died in 1542) through Arkansas and East Texas.

Morse and Morse rather quickly allude to the expedition into East Texas among the Caddoan peoples there. Their discussion of the route (as well as its cultural implications) in this part of the Caddo country would have benefited from information about the recent investigations conducted by Texas archeologists into the route of the entrada and the locations of the various sixteenth century Caddo provinces along the Red River and in East Texas (see Bruseth's article in this issue of the *Bulletin*). Morse and Morse suggest that "the less-developed Caddo" were better able to readjust to the Spanish explorer's policies and actions than were the complex chiefdoms along the Mississippi River. That may well be, but other examinations of the consequences of European contact among the Caddo strongly suggest that the effects of introduced disease were pervasive, that they included a rapid decline in socio-political complexity, and that the readjustment was both varied and episodic (Perttula 1992).

The last paper in Part 1 is a provocative contribution on sixteenth century Native American warfare in the Southeast at the time of the de Soto expedition. According to David Dye, warfare was based on regional power struggles between chiefdoms, who used a variety of aggressive and nonaggressive tactics to assert hegemony. The Spanish military presence swept these power struggles aside in its brutality, although it was able to use these local political power relationships to subdue recalcitrant polities as it moved along on its route of plunder.

Kathleen Deagan's paper on "Sixteenth-Century Spanish-American Colonization in the Southeastern United States and the Caribbean" introduces Part 2 of the volume. Important topics she and others discuss in this part are: the nature of the Spanish presence in the New World; colonial strategies of settlements and resource exploitation; the earliest encounters between Native Americans and Hispanics; the Native peoples (such as the Táino, Arawak, Guale, and Timucua) of the region; the first colonies and their expansion; the consequences of colonization; the archeology of resource depletion; and the emergence of a unique Euro-American society in the New World.

The papers by José Maria Cruxent, Charles R. Ewen, and Manuel García-Arevalo examine the colonial presence in the Caribbean through discussions of the archeology of La Isabela (established by Columbus in 1493 on Haiti), Puerto Real (1504–1578), and a variety of Spanish and Táino communities on Hispaniola.

Although many of the earliest Hispanic colonial efforts ended in tragic failure, those that succeeded contributed to the long-term transformation and evolution of Native American societies through cultural and biological assimilation, conquest and subjugation, and through the lack of freedom of expression in religion, arts, and iconography.

In the Southeast, the process and impact of Spanish colonization is discussed first by Eugene Lyon. He concludes that the steps of early colonization in Spanish Florida were much like that seen in the Spanish Indies because of its entrepreneurial nature and "its aims of settlement and prosperity for Spaniards, and obedience and Christianity for Native Americans." By the late 1570s, cultural interaction between Native Americans and the Spanish, due in part to the isolation of the colony and the developing economic symbiosis, contributed to some degree of mutual acculturation. Deagan's other paper in Part 2 of the volume examines the issues of acculturation, accommodation, and resistance, using the historical and archeological data available from the city of St. Augustine, first settled in 1565. Under her direction, there has been an ongoing program of archeological, historical, and ethnobiological research at St. Augustine to explore "the emergence and development of new world Euro-American society." That research has enabled her to show clearly that the Spanish colonial strategies in the New World resulted through time in the formation of a multicultural society composed of Hispanic, Native American, and Black African groups in La Florida.

Papers by Stanley South on Santa Elena (the first capital of Spanish Florida, 1566–1587), and by C. Margaret Scarry and Elizabeth J. Reitz on sixteenth century Spanish subsistence strategies, look in more detail at key aspects of the colonization process. South is concerned with exploring world cultural systems, evolutionary energy theory, and the archeological record to investigate the relationship between access to energy resources (plant, animal, mineral, and human) and status differences in colonial Hispanic society. He propounds a Status Artifact Index Model to help understand changing social processes in a colonial setting. Scarry and Reitz's paper highlights the changes the Spaniards made to their diet to survive in *La Florida*, principally the adoption for use of indigenous crops together with a selection of Old World cultigens and domesticated animals. Their main source of protein came from fish, shellfish, and local game, much as in the subsistence strategies of the nearby Native Americans.

One of the more interesting papers in Part 2 is Jane Lander's historical study of the role played by African-Americans in Spain's colonization of the Caribbean and Southeastern Borderlands. Often overlooked, the African presence in the New World in the sixteenth to eighteenth centuries is marked by a diversity of slave-freedmen lifeways. Many of the slaves brought to the New World by England for its Carolina colony ended up as runaways—or from slave raids—in St. Augustine, where the slave militia helped repulse English raids on the town. In 1738 the first free black town in the United States—Gracia Real de Santa Teresa de Mose (1738–1763)—was established just north of St. Augustine. The site of Mose is being investigated by Kathleen Deagan.

Part 3 of this volume concerns the missions of *La Florida*, especially those maintained by the Spaniards among the Guale, Timucua, and Apalachee in present-day Georgia and Florida. David Hurst Thomas's overview describes the Native American context, as well as the history of Spain's involvement in the missionization of the region, and the means used by the missionaries to convert the Native American populations. Papers by John W. Griffin, David J. Weber, Michael V. Gannon, Conrad Harkins, O.F.M., and Amy Turner Bushnell, discuss these issues principally from a historical perspective. Weber's essay, in particular, dissects the viewpoint of the missionized versus unmissionized Indians in *La Florida* to conclude that the Hispanic missionary program in the sixteenth and seventeenth centuries was a frontier failure because "in large part . . . Indians did not wish it to succeed."

Thomas also discussed the Hispanic designs for the missions of *La Florida* as well as what the missions actually looked like. Unlike the missions in the Spanish Borderlands West, where many still stand as architectural gems, the knowledge concerning the physical appearance and layout of the Southeast missions comes primarily from documentary evidence and more recently from archeological investigations. B. Calvin Jones and Gary N. Shapiro, Gary N. Shapiro and John H. Hann, and Rebecca Saunders summarize this archeological and documentary data recently acquired from mission sites throughout the Southeast, but again particularly from Apalachee, Timucua, and Guale mission provinces.

Finally, three papers in Part 3 discuss the economic and biological realities of Hispanic colonization in the Florida mission system. The outstanding essay by Clark Spencer Larsen and associates on the biological adaptations of the Native American populations as seen in human skeletal remains clearly demonstrates (1) the decline and eventual extinction of many groups from European-introduced diseases and increased warfare, followed by (2) further systemic decreases in the quality of life with the development of the mission system. This is seen most notably in the increased workloads of the Native Americans in the missions, as well as in reduced dietary diversity. This type of biocultural change study is lacking for the skeletal samples from the mission sites in Texas, but is virtually a prerequisite to a broad understanding of cultural contact and Native American-European interaction in the Texas mission system.

In separate papers, Elizabeth J. Reitz and Donna L. Ruhl examine the zooarcheological and paleoethnobotanical evidence from *La Florida* missions to assess aboriginal and Spanish cultural change in the colonial period, as well as the nature of their economic interactions through the mission system. Reitz's contribution notes that both Spanish and Indian subsistence strategies changed through contact, resulting in new and variable systems of subsistence that incorporated a mixture of domestic animal use and locally available animal resources, typically either deer or sharks or rays or fish. Ruhl's analysis indicates a similar complexity in the mutual use of local and exotic cultigens, with Old World crops becoming important only in the seventeenth-century archeological record. Corn

was the mainstay for the Spanish settlers, military, and missionaries, but was rather differentially cultivated by the Native Americans of *La Florida*.

In summary, *Columbian Consequences, Volume 2* is a comprehensive, insightful, and expansive treatment of the consequences of Hispanic-Native American interaction in *La Florida*. It contains the most current archeological and historical information on the sixteenth-century Southeast and Caribbean (in conjunction with Milanich and Milbrath [1989]), presented in a readable and accessible style, and examines many of the theoretical and philosophical perspectives scholars today are using to explain the past and bring it to light.

Although there is little mention of Texas as such in this volume, as Texas and Northern Mexico was discussed in Volume 1 of the series (Thomas 1989:191–299), this reviewer still highly recommends the volume to all readers who are interested in the study of Native American-European culture contact in the Spanish Borderlands. Most of the issues and research problems currently being addressed in the Spanish Borderlands East pertain directly to Texas, and with a sharing of perspectives as a redoubling of effort it is not unreasonable to conclude that an improved understanding of the archeology and history of Texas after 1492 will be one of the results.

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INFORMATION FOR CONTRIBUTORS

The *Bulletin of the Texas Archeological Society* (ISSN 0082-2930) publishes original papers in the field of American archeology. Emphasis is placed on Texas and adjoining areas in the United States and Mexico; papers on other areas also are considered. Articles concerning archeological technique, method, or theory are accepted. Preference is given to members of the Society.

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From a reconstruction by Ian Lowe, in *The Spanish Armada*, by Colin Martin and Geoffrey Parker. W. W. Norton, New York.