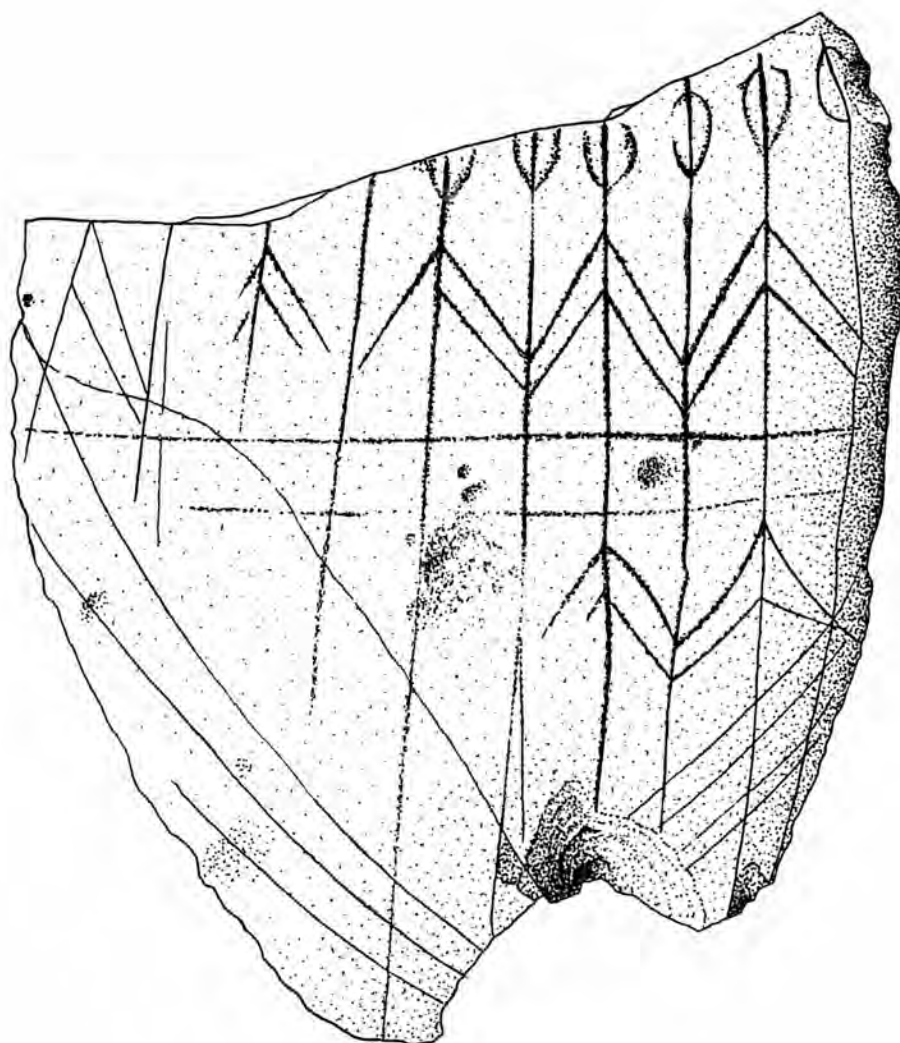


# LA TIERRA



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About the Cover: Richard McReynolds has drawn an incised stone from the Gault Site (see article on page 9 by C. K. Chandler). Other drawings by Richard are on pages 10, 21, 22, 23, and 24.

Manuscripts for the Journal should be sent to: Mrs. Shirley Van der Veer, Editor, *La Tierra*, 123 East Crestline, San Antonio, Texas, 78201-6613, email [shirleyvan@worldnet.att.net](mailto:shirleyvan@worldnet.att.net). Past issues of the Journal and Special Publications are available by requesting an order form from STAA (Jim Mitchell), P. O. Box 791032, San Antonio, Texas 78279, or from the STAA internet site (see below). Dr. T. R. Hester may be contacted at the Texas Archeological Research Laboratory, Pickle Research Center, Building 5, 10100 Burnet Rd, Austin, Texas, 78712.

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## STAA DOCUMENTATION & PUBLICATION POLICY

Late in 1999 the STAA Board directed that our policies be reviewed regarding the publication of archaeological information concerning the Texas borderlands along the Rio Grande and adjacent areas of Mexico. The concern was the possible implication that by publishing such information, STAA was in some way condoning what is currently an illegal activity, based on the Treaty of Cooperation of July 1970, between the U.S. and Mexico, which went into force March 24, 1971.

A special committee has reviewed our publication policy and concludes that:

▣ The publication of archaeological information concerning the Texas borderlands along the Rio Grande and adjacent areas of Mexico serves to document archaeological data and to preserve information which would otherwise be wholly lost to the science of archaeology, other researchers and to the public in general, in both the U.S. and Mexico. The STAA is well aware of irresponsible collecting and looting activities at Falcon Lake and many other areas along the borderlands, as has been repeatedly documented in the pages of its journal, *La Tierra*.

▣ It is not the responsibility of the *La Tierra* editor to render judgements on the "legality" of submitted manuscripts. Individual authors are solely responsible for their work and must answer for the "legality" of any activities they report; author may be directed by the Editor to include relevant clarifying information (dates of activity, excavation permits, etc.) when appropriate.

▣ The STAA and its publications take no position on the legality of any paper, but rather must judge it (at times through the peer review process) as to its scientific merit.

▣ The STAA remains steadfast in its overriding objective to acquire and document as much archaeological information as possible concerning southern Texas and adjacent regions. This is a substantial, significant and very important role that the STAA is uniquely qualified to perform for our region.

The STAA Board has reviewed and approved the committee's conclusions. Clearly, one of STAA's major objectives remains to document, through publication, as much information as possible to help further our scientific knowledge of the prehistoric and historic peoples of southern Texas and adjacent areas.

*The STAA Board*

**NOTES ON SOUTH TEXAS ARCHAEOLOGY 2000-2**  
**An Artifact Sequence from 41ZV263, Zavala County, Texas:**  
**The Lost Manuscript from the Lost Peacock Site**

**Thomas R. Hester**

**Lost Manuscripts**

The Lost Peacock site (41ZV263) on the Nueces River in Zavala County, was excavated in May 1981 by Eric C. Gibson, then with the Center for Archaeological Research, The University of Texas at San Antonio (CAR). A series of four test units was placed to evaluate the site, during a survey of the then-proposed Internorth Pipeline Project in Zavala and Dimmit Counties (Figure 1). The artifacts from the excavations, as well as the overall survey (mostly surface finds) were drawn by Kathy Bareiss (Roemer), then also with CAR. Gibson (1981) authored a comprehensive report, copies of which (under the terms of the contract with Internorth Pipeline) were provided to Dennis Lessig of Internorth (now Enron); reviews were done by the Federal Energy Regulatory Commission (FERC) and by the Advisory Council for Historic Places, and the Texas Historical Commission. At the time, the manuscript was not slated for publication, based on contractual agreements.

However, the data from 41ZV263 included a number of excavated artifacts, many of them time-diagnostic, and having the potential to shed badly-needed light on the chronological framework of southern Texas. Once pipeline route concerns were resolved, efforts were made in the late 1980s to get this manuscript into print. I was then serving as Director of CAR, and the manuscript had been extensively edited by Sharon Quirk. Gibson, then at Trinity University, borrowed the manuscript to make the changes suggested by the editor. A subsequent survey for Northern Natural Gas, for an expansion of the pipeline route, was done by Prewitt and Associates in June 1987 (Hannum 1987). Reviewing the manuscript and the bibliography, it is clear that Hannum had not seen the CAR manuscript and was apparently unaware of it.

In the mid-1990s, I began a search for a copy of the manuscript and found that a complete copy of this important manuscript could not be located, a situation that persists up to the present time. North-

ern Natural Gas (now Enron) says that it cannot (or will not) locate the manuscript and three copies provided to them in 1981. The Texas Historical Commission no longer has a copy; their copy (which may have been a draft) was discarded in the early 1990s, and CAR itself has no copy (and little in the way of project files) of the manuscript, albeit an extremely diligent search was done by Anne Fox and CAR staff members in 1995. The landowner, C. M. (Mac) Pryor, was sent a copy and up through the mid-1980s he had encouraged further research at the site. However, I have been unable to locate him despite much effort in recent years. More recently, I have asked the Advisory Council on Historic Preservation to search their archives, and a similar request has been submitted to FERC. The site was also of great interest to the late Col. Thomas C. Kelly, who examined the materials and files at CAR in the 1980s. However, no copies of any of the materials were in the papers kindly placed by his family at TARL.



**Figure 1.** Texas map showing sites discussed in this paper (UV, Uvalde County, ZV, Zavala County).



At the Texas Archeological Research Laboratory (TARL), there is no copy of the manuscript, and indeed, the 41ZV263 site file contains only a photocopy of the CAR site survey record, a topographic map section with the site plotted, and a photocopy of a plan map of the site made with a transit by Gibson and E. Bradley Day, on May 14, 1981. The latter is an important document, as noted later in this paper. Many of the readers of *La Tierra* were students or staff associated with CAR at the time this site was dug and the manuscript prepared. If a copy is known to exist, please contact Hester as soon as possible.

### Lost Peacock Artifact Sequence

The survey form for 41ZV263 on file at TARL describes the site as on a remnant terrace of the Nueces River, downstream from La Pryor, Texas. It appears from the topographic map that it is located on an old channel or oxbow of the Nueces. The site is 160 meters long (east-west) and 100 meters wide (north-south), but since much of it is buried, its exact boundaries are impossible to determine. Four test units, 1x2 meters in size, were excavated within the proposed route of the Internorth Pipeline. These are clustered in an area of about 13 x 14 meters. The surface of the terrace in this area is described as "fairly level" and indeed the opening elevations for the four units range from 100.05-99.80 ft. The testing found archaeological materials (flakes, burned rock, river mussels, charcoal, faunal remains, a hearth, and several formal tools) to a depth of 90 cm below the surface. At that point, the site matrix (a sandy alluvium) changes to a reddish clay. During the course of the investigations at the site, several shovel tests were dug and surface collections were made. Black and white photographs and color slides recorded the field work (this documentation is also missing; Anne Fox, personal communication), and approximately 30 field bags of material were placed at CAR.

The excavations in this fairly tightly clustered series of 1x2 meter units are described variously in the illustrations from the lost manuscript as consisting of "Test Pit 1," "Unit A," "Unit B" and so on. The field map shows the four 1x2 test pits, but their field designations were Test Pits 1-4; clarification of this inconsistency can be expected if a copy of the manuscript can be found.

Thus, for the sake of this summary, it has been assumed that the 10-cm levels in these units were essentially the same, from the standpoint of metric

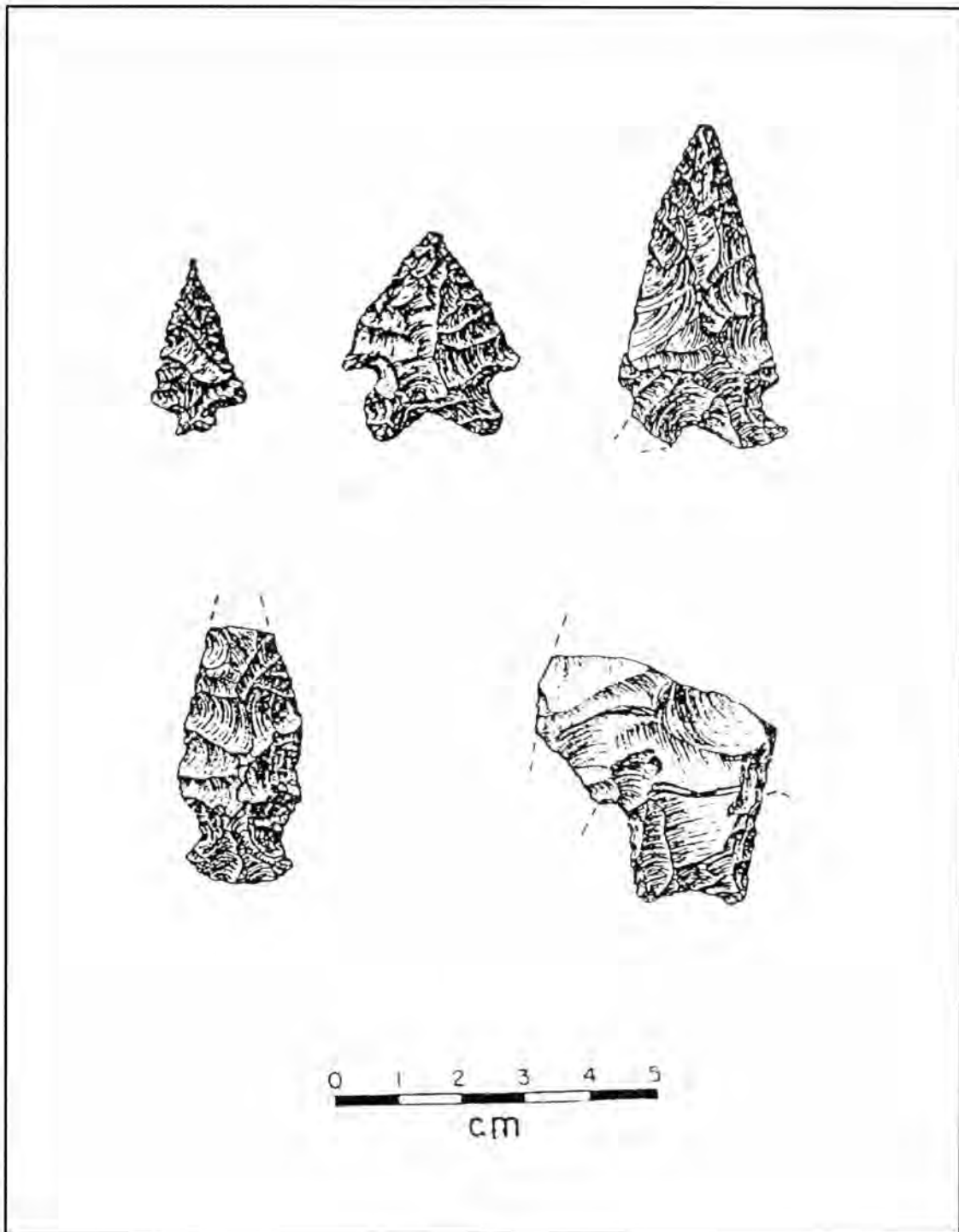
stratigraphy. This may prove not to be the case, but it is the present working assumption.

Surface artifacts included a Scallorn (?) arrow point, two Frio points, and a Zavala point (Figure 2). In the excavated units, one or all went as deep as Level 10, though the site survey form notes that the site deposits end at approximately 90 cm. Based on reconstructed notes from the illustrations, site survey form, and phone notes from conversations with Gibson on May 18, 1981, the following level-artifact associations were found at the Lost Peacock site (artifacts are shown in Figures 3 - 5):

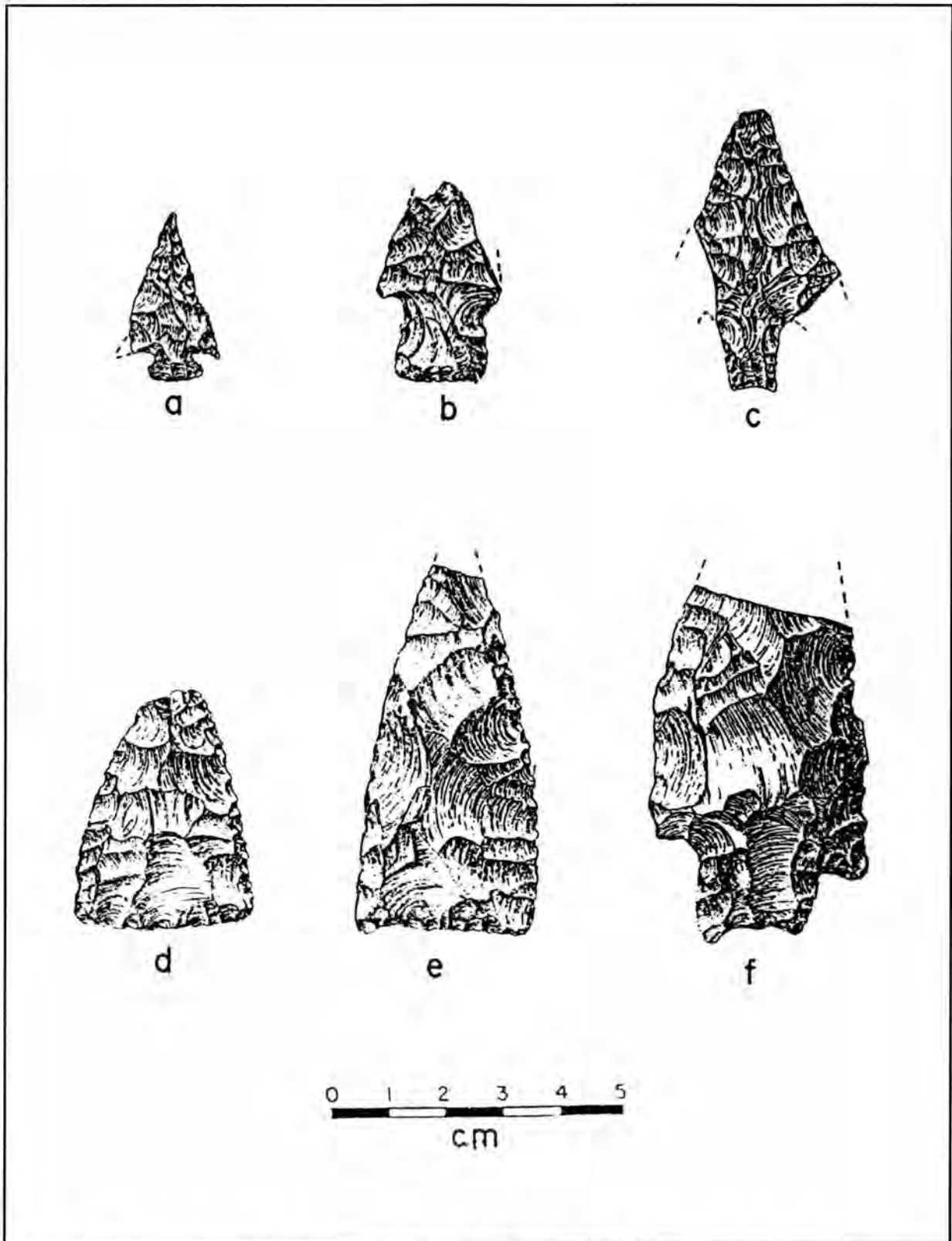
- Level 1: no diagnostics
- Level 2: Tortugas
- Level 3: no diagnostics
- Level 4: Scallorn, Tortugas, Pedernales (1 Pedernales was found at 40 cm in shovel test; Figure 2)
- Level 5: Langtry, reworked expanding stem (cannot be typed)
- Level 6: no diagnostics
- Level 7: Early Triangular, graver, pointed uniface
- Level 8: Lerma (?), reworked triangular point (cannot be typed)
- Level 9: no diagnostics; uniface with concave edge
- Level 10: Clear Fork (uniface?) with some cortex on dorsal surface

The upper 40 cm are apparently fairly mixed, a situation not uncommon in terrace sites in the immediate area (cf. Hester 1999:9). In the deeper deposits, the occurrence of the Early Triangular specimen is of note, as well as non-point lithics also found in Level 7. Level 8 contained a bipointed specimen that would be classified by some as Lerma, although an unpublished manuscript containing a statistical analysis of Lerma (Kelly 1989) rejects the 41ZV263 specimen as being of that type.

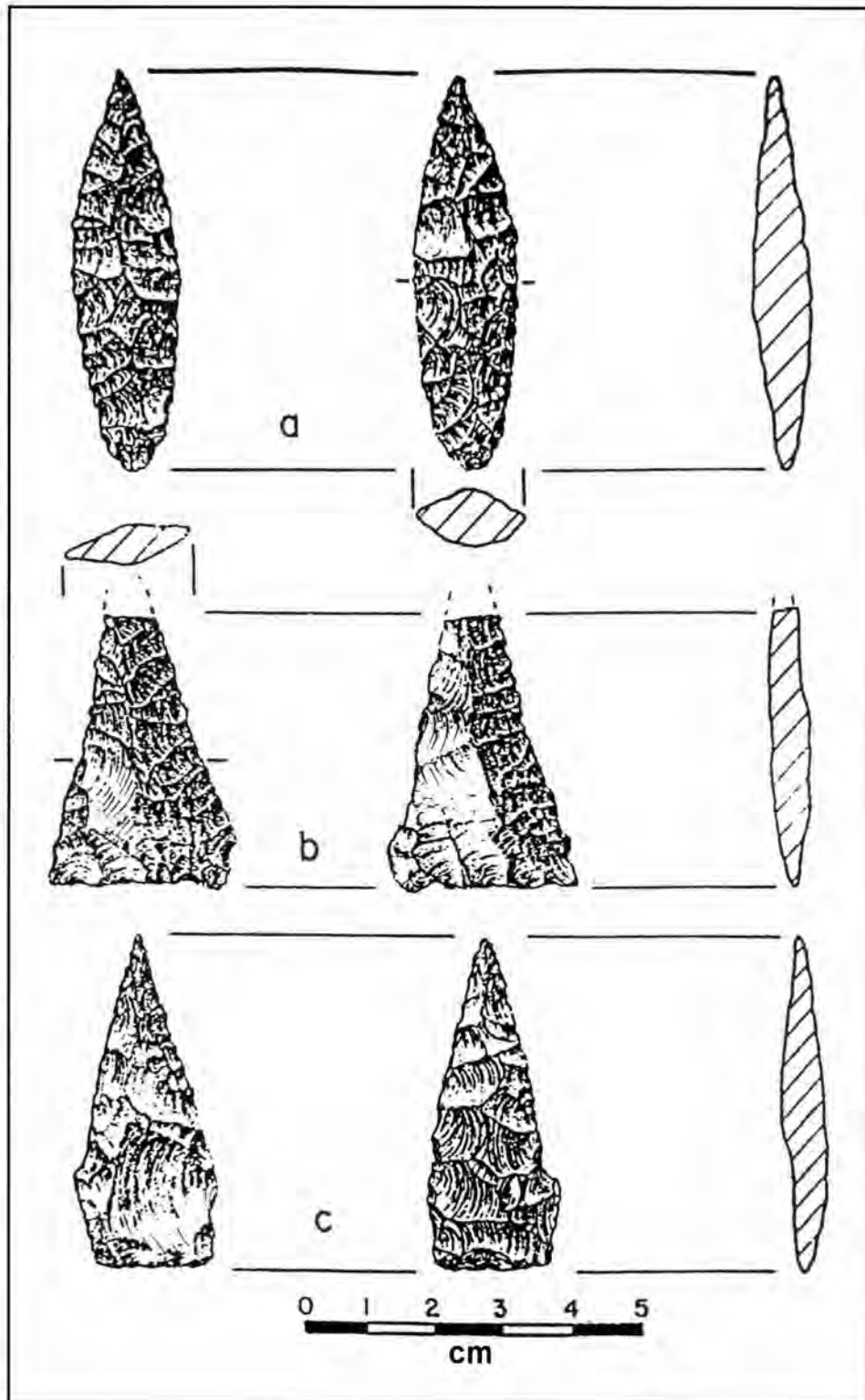
Though this specimen appears to be in an "early" context (whether Early Archaic or Paleoindian is unknown), its importance lies in its resemblance to a specimen excavated by Glen Evans at Montell Rockshelter (41UV3) in northwest Uvalde County. That specimen (804-8; Figure 6) was found at "72-78", well below the Late and Middle Archaic burned rock midden and deposits containing Gower, Early Triangular and Martindale points of the Early Archaic. It was not the deepest artifact in the Montell Rockshelter deposits; that was a distal fragment of



**Figure 2.** Surface and Shovel Test Artifacts from 41ZV263. Top row and second row left, all from surface (Scallorn?; Frio [2], and Zavala). Second row on right, Pedernales fragment from a depth of 40 cm, found in a shovel test.

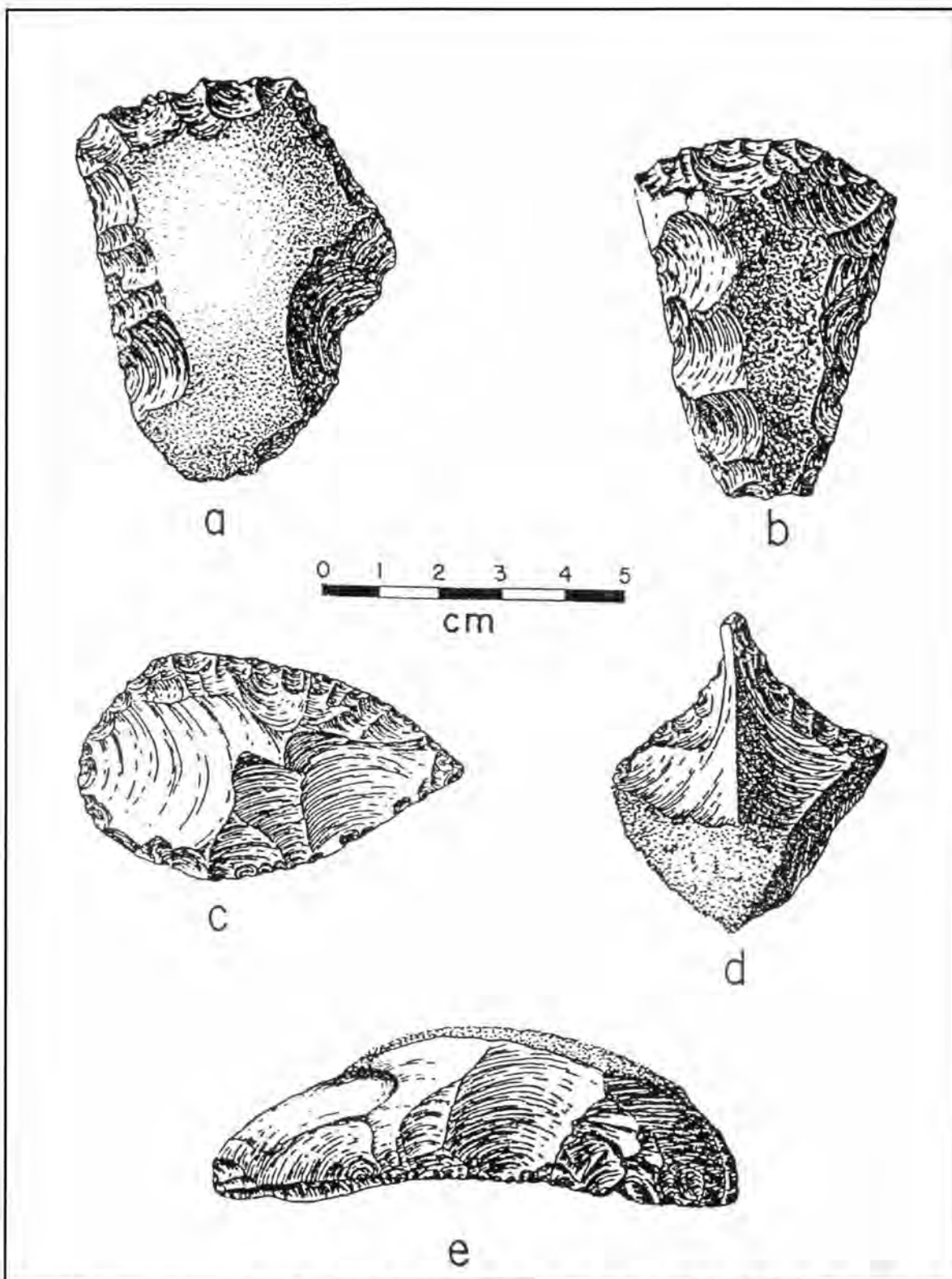


**Figure 3.** Excavated Artifacts from 41ZV263. a, Scallorn (Test Pit 2, Level 4); b, untyped reworked expanding stem dart point (Unit A [see text], Level 5); c, Langtry (Unit B, Level 5); d, e, Tortugas (d, Unit B, Level 4; e, Unit B, Level 2); f, Pedernales (Unit A, Level 4).

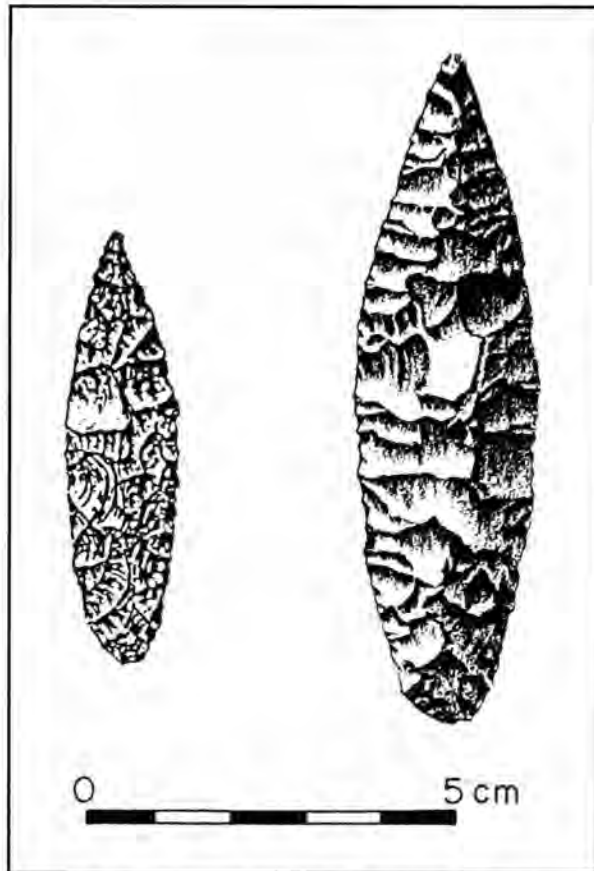


**Figure 4.** Excavated Artifacts from 41ZV263. a, bipointed specimen (“Lerma”; Test Pit 1, Level 8); b, Early Triangular (Test Pit 1, Level 7); c, untyped reworked point (Unit A, Level 8).





**Figure 5.** Excavated Artifacts from 41ZV263. a, uniface (Test Pit 1, Level 5); b, Clear Fork tool (Unit A, Level 10); c, pointed uniface (Test Pit 1, Level 7); d, graver (Unit B, Level 9); e, uniface with concave edge (Unit B, Level 9).



**Figure 6.** Comparisons of Bipointed Specimens from 41ZV263 and Montell Rockshelter. Left, 41ZV263. Right, 41UV3 (Montell Rockshelter; drawing by Hal M. Story).

what is clearly a large Paleoindian point at 14.5 feet below the surface of the rockshelter.

As seen in Figure 6, it is somewhat larger than the specimen from Lost Peacock, but the form and technology are quite similar. More crudely made artifacts, some of similar form, were excavated at La Calsada Rockshelter, Nuevo León, by Nance (1992), with radiocarbon dates interpreted by Nance as around 6000-7300 B.C.

#### Concluding Comments

Although much of this paper has had to focus on the disappearance of all known copies of the manuscript dealing with 41ZV263, the surviving materials on this site provide a glimpse of what is potentially an important set of archaeological data for southern Texas. It is hoped that publication of this paper will lead to the "discovery" of a copy of the lost Lost Peacock manuscript, so that the materials from 41ZV263, and from other sites recorded and surface-collected by the project can, at last, be fully published.

It appears that Early Archaic (and earlier?) occupations are buried in the terrace at 41ZV263 and that there are potential relationships with similar bipointed dart points such as the one found in Level 8. The latter could well have implications for a revised view of early occupations in South Texas and adjacent areas.

#### ACKNOWLEDGMENT

All drawings, except for a specimen in Figure 6, were done by Kathy B. Roemer.

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# ENGRAVED PEBBLES FROM ATASCOSA AND BELL COUNTIES, TEXAS

C. K. Chandler

## ABSTRACT

*Two engraved pebbles from widely separated areas in Texas are reported and illustrated.*

## INTRODUCTION

Incised and engraved rocks, most often of pebble size, have a fairly wide distribution in Central Texas and into northern Mexico (Chandler 1991, 1992, 1993a, 1993b, 1996a, 1996b; Hester, Collins, and Headrick 1992; Riemenschneider 1995; Saner 1996.)

## DESCRIPTION OF ARTIFACTS

Specimen A, Figure 1A is an engraved rock from the Gault Site (41BL323) in Bell County, Central Texas. It is a thin, flat limestone with prominent engravings on only one face. Both ends are broken. The remaining piece appears to be about two-thirds original size. Present dimensions are 122 mm in length, 120 mm in width and it weighs 240 grams. It is 13 mm thick in the center tapering to both knife-like edges. This specimen is from the Paleo area of the site where several engraved pebbles were recovered, some of which were associated with Clovis points (Hester, Collins and Headrick 1992; Collins and Hester 1998; Collins 1998).

Specimen B, Figure 1B illustrates a tiny oval-shaped pebble with four views. It is a mixture of tan and gray colors. There is no evidence of pecking or



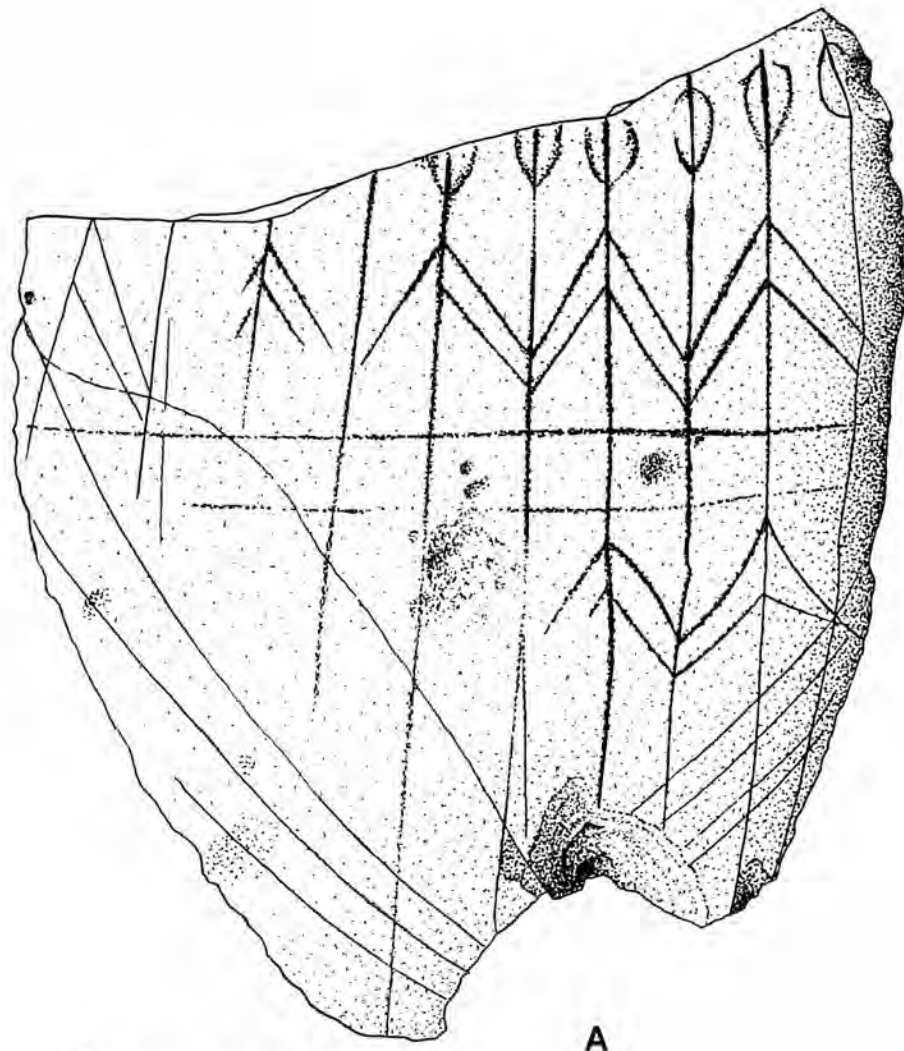
abrading to shape it. The decoration consists of deeply engraved lines on all surfaces, some of which completely encircle the artifact. Dimensions are 34 mm in length, 10 mm thick and 18 mm wide. Weight is only 9 grams. This specimen is a surface find by Tom Walker from the west side of San Miguel Creek near Cross Cemetery in Atascosa County.

## ACKNOWLEDGMENTS

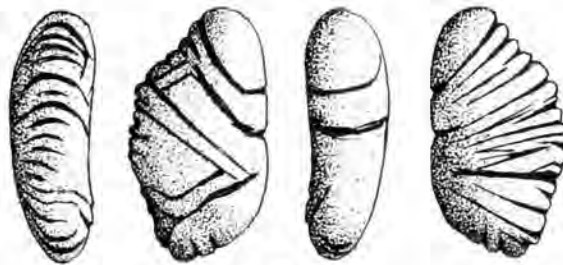
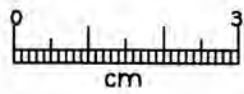
Illustrations are by Richard McReynolds. Sincere thanks are extended to him and to the collectors who loaned the artifacts for documentation and study.

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A



B

Figure 1. Two engraved pebbles. A, Gault Site, Bell County; B, Atascosa County.

C. K. Chandler

Engraved Pebbles from Atascosa and Bell Counties, Texas

Collins, Michael B. and Thomas R. Hester

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# THE MISSION INDIANS AND THE SAN ANTONIO COMMUNITY

Anne A. Fox

## ABSTRACT

*This paper is an edited version of a talk given by the author at a symposium given at the Institute of Texan Cultures in 1986. Although it may seem it would be out of date, the facts and opinions expressed are still quite valid. The intention is to relate as accurately as possible the role of the mission Indians in the formation of the San Antonio community. In order to do this, the life of the Indians before the Spanish came, their life in the missions, and what possible effect these influences had on the life of those Indians who moved from the missions into the San Antonio community are discussed.*

## INTRODUCTION

The role of the mission Indians in the formation of the 18th century San Antonio community has not received much attention from historians and other scholars. This is partly because there is relatively little documentary evidence upon which to base any sort of judgment. There are oblique references and incidental remarks included in documents on other subjects. The church records and census reports give us clues and allow a certain amount of generalization on demography. However the records are short on factual information about the Indian's role in the community.

The archaeologist is privileged to study documentary evidence that is not available to other scholars. This evidence consists of the actual traces of individual lives as represented in the things people left behind, buried in their camp sites, their home sites, and in the mission trash dumps. Through study of these forgotten bits of information, we can begin to picture the Indian's life as it was before the founding of the missions, and then life as it was lived in the missions. We can also use a combination of the documentary record and the archaeological evidence to make some observations about the effect of mission life and training upon the individual Indians. We can begin to understand which "cultural baggage" from their pre-mission past they chose to discard and which to retain, and we can speculate on

the reasons for their choices. Then finally through archaeological examination of early home sites in the town we can make some observations on the Indians' cultural influence that may have carried through from pre-mission life to become a part of the culture of the town as a whole.

## THE PRE-MISSION INDIANS

Pressures of other Indian groups moving into the area and decimation by European-introduced diseases were rapidly bringing about the extinction of the South Texas Indians by the beginning of the 18th century when the San Antonio missions were founded (Schuetz 1980:15). The Indians who entered the San Antonio missions were primarily remnants of groups from northern Mexico and South Texas, commonly called Coahuiltecan. These people were accustomed to a nomadic life of hunting and gathering in which they moved seasonally in search of food. What little shelter they had from the elements traditionally consisted of small, movable huts made by driving saplings into the ground and throwing animal skins or woven matting over them (Newcomb 1961:43).

The Coahuiltecan groups spoke a number of different languages, but apparently were able to communicate with each other when necessary through a rather sophisticated form of sign language. The individual groups or bands were primarily composed of family members, with one man as the leader and authority figure (Newcomb 1961:44). In their nomadic existence, groups joined other groups on a seasonal basis where a particular food resource was plentiful, only to separate and each go its own way when the harvest was completed. The various bands carried out intermittent, small-scale warfare with other bands (Newcomb 1961:46; Ruecking 1953:482).

We have archaeological evidence suggesting that all of these Indians used stone tools and hunted with the bow and arrow. Some if not all of them were also acquainted with the rudiments of netting and weaving and manufactured objects they needed from natural fibers harvested in the area in which they

lived (Newcomb 1961:43-44). It was thought for many years that these people did not know how to make pottery. However, archaeologists have found evidence that a number of these groups did indeed make and use ceramics. Archaeology on the Texas coast has established the fact that coastal Indians also made ceramic vessels (Hester and Hill 1971:195-203; Hester 1980:50).

The tasks of hunting game and gathering and processing of roots, nuts, and berries occupied a large part of the family's life. These people also participated in ceremonies called *mitotes* at which there was dancing, singing, and ingestion of hallucinogens such as peyote. Remains of ceramic whistles, rattles, and other instruments probably used in such ceremonies have been recovered from archaeological sites in coastal and south Texas.

### MISSIONIZATION

The Spanish established missions on the frontier not only to bring Christianity to the Indians but to teach them to become responsible Spanish citizens. In order to accomplish this, the mission had to function as a working community, providing training as well as sustenance to the neophytes. The intent was to teach the Indians to care for themselves as members of the Spanish community, then secularize the missions and turn them over to the Indians. The length of time required to complete the process varied depending on many factors, such as the stage of development of the Indian groups when they entered the mission, and the stability of the mission Indian population. In San Antonio, the missions were in operation for about 70 years before secularization finally took place.

A number of scholars have speculated on what it must have been like for an Indian to enter one of the missions. Adjustment to mission life must have been difficult at first. There were many new ideas and concepts to which the Indians were immediately exposed, such as the basic change from a nomadic existence to a fixed place of residence. A new language must be learned. New skills were needed in order to participate in the work of the mission. The concept of budgeting resources rather than immediately consuming whatever was acquired was strictly enforced at the mission. The products of the mission farm were stored in the granary and doled out to the Indians on a regular basis throughout the year. Cattle raised on the mission ranch were regularly slaughtered and the meat apportioned weekly to Indian

families (Habig 1968a:93).

While there were new ideas to be absorbed and new skills to be learned, many details of mission life merely required slight changes from the way these people had been accustomed to living. Food resources were more readily available, and the adjustment from wild to domesticated foods required some new methods of preparation. However, apparently the dishes prepared were not very different from traditional Indian recipes (Fox 1986:6). The household articles used were slightly different, with the issuance of metal *comales* for cooking, metal knives in place of stone tools, and volcanic stone *metates* in place of their traditional sandstone grinding slabs (Habig 1968b:93). The ceramic vessels used were still, for the most part, the same as had been used in their pre-mission campsites, with the addition of a few vessel shapes copied from the Spanish (Schuetz 1969:66-67). We also find that stone tools continued to be made and used despite the availability of metal tools to do the same tasks (Fox 1979:39).

Although the Spanish documents speak only of domesticated animals used for food, the archaeological record confirms that wild animals were still a part of the diet, suggesting that the old ways did not completely disappear. It seems, also, that a certain amount of wild food-gathering was also done by the women of the mission. A Franciscan stationed at Mission Concepción in the mid-18th century mentions that some of the Indian women would leave the mission toward evening to gather berries, nuts, and other fruits and roots from the fields (Leutenegger 1976:49).

Many of the tasks in the mission were extensions and refinements of skills the Indians had practiced for generations. Pottery making continued to be done in the traditional way with vessels being fired over open fires. Weaving was not a new concept, although the preparation of cotton and wool and the spinning of yarn probably was a new experience. Working with wood and stone was hardly a new skill for Indian men, although the introduction of metal tools and the concept of permanent structures must have required some adjustment in thinking and a period of apprenticeship.

Emphasis on religion and religious training throughout the daily routine of the mission would probably have required a bit of adjustment. Apparently the pressures of learning new ways of doing and thinking were not considered too much to pay for the privilege of having a steady food supply and guaranteed protection from one's enemies. When it



all became too much to bear, many of the Indians simply walked away and returned to their original way of life. Of these, some eventually returned to the missions, some never did. Emphasis on religion and religious training throughout the daily routine of the mission would probably have required a bit of adjustment. The gradual acceptance of Catholicism probably did more than any other thing to aid the Indians in their eventual integration into the local population.

Contact of the mission Indians with local citizens was encouraged in hope that this would help in the effort to Hispanicize them (Schuetz 1980:285). Local citizens served the mission in several specialized capacities, such as blacksmith, barber, saddle maker, tailor, candle maker, and shepherd. Indians were sent to the town to perform errands for the missionary, and were allowed to visit the other missions and the presidio with the missionary's permission (Leutenegger 1976:30-35). There was a general acknowledgment of the mutual dependency between the missions and the town and presidio. As the missions became more and more self-sufficient toward the end of the 18th century, their surplus corn, meat, horses and cattle were traded in the town for needed manufactured goods or sold to the presidios and missions in other parts of Texas (Schuetz 1980:240, 246; Leutenegger and Habig 1978:145, 184-185). In these various ways, the Indians became aware of the neighboring settlements and the opportunities offered by community life.

Despite wide fluctuations brought about by epidemics and occasional wholesale flight of the Indians and their gradual return, the general trend of the Indian population at the San Antonio missions had stabilized and begun to increase by the third quarter of the 18th century (Schuetz 1980:vi). Mission populations reached a peak in the late 1770s, then began to decline, possibly due in part to a virulent epidemic in 1783 (Habig 1968a:81).

The mission census reports indicate that local citizens were gradually moving into the missions as the Indian population dwindled in the last quarter of the century. By the time of secularization, each mission had only a handful of Indian citizens, and these were generally of the older generation (Schuetz 1980:181).

What happened to the mission Indians? Various views on this question have been offered, but the most logical one is that the ones that survived the epidemics and did not return to their original lives simply "graduated" from the mission and joined the

community. This process had probably been going on throughout the mission period, but it did not show up in the mission demographics because there was a constant flow of new Indians brought in by the missionaries' recruitment efforts. By the mid-18th century, the supply of Indians available for recruitment had dwindled to a few coastal groups. The first hint we see of this is when there was a disagreement between a missionary at San Antonio and one at La Bahía over a group of newly recruited Indians (Bolton 1970:305-307), suggesting that the supply was beginning to run low. If it was the custom by this time for young adult mission Indians to move to town and become local citizens, this would explain the situation in which the missions in effect succeeded by working themselves out of a job.

Unfortunately, the census reports for the town are not too helpful on this account, since their notations on individuals' backgrounds are not entirely clear. We have no way of determining what percentage of the San Antonio community by that time may have been thus intimately related to the missions.

### INDIANS IN THE COMMUNITY

What talents did these people bring to the community and what roles did they play in community life? The records are silent, for the most part. The census reports from 1793 to 1819 indicate that mission Indians were employed as day laborers, farmers, fieldworkers, masons, blacksmiths, fishermen, shoemakers, and servants in Spanish households (Schuetz 1980:316). These are all natural extensions of the talents they were taught at the mission and each contributed to the life of the town. The skills that helped the mission community to run smoothly were undoubtedly as badly needed in the town.

Another factor that helped the mission Indian to become an integral part of the local population was probably the religious training given at the mission. Whether or not the individual had totally accepted Catholicism, this common background undoubtedly helped in their social acceptance. In turn, the piety of many of the Indians who had been brought up "in the faith" may well have been an inspiration to townspeople who had been given a less strenuous religious education by the parish priest, who generally gave less time to his parishioners on a personal basis than did the missionaries (Leutenegger and Habig 1978: 88).

Archaeology in the heart of the first settlement of

San Antonio has revealed that certain distinctly Indian influences affected the daily life of the citizens of the town. One of the most interesting and unexpected discoveries has been the presence in early 18th century deposits on these sites of evidence that stone cutting and scraping tools were made and used at the villa. Excavations beneath San Fernando Cathedral (Fox, Clark and Scurlock 1977), the Spanish Governor's Palace (Fox 1977), and a small residential site on the south side of Main Plaza (Fox, Cox, Highley and Hafernik 1989) have all yielded chert tools, cores from which such tools were made, and the chert debris that resulted from tool manufacture. The choice of raw material and the methods of flaking as well as the appearance of the tools created are a direct reflection of the same activities as carried out in prehistoric campsites and later at the missions. The reasons for this continued use of stone tools when metal tools were available is open to conjecture. According to the documents, there was a serious shortage of metal in the settlement during the early 19th century (Hatcher 1935:69, 141). Periodic shortages of this kind occurring during the previous century could account for the continuing need for stone tools. Since the tools were apparently being made on the site, there must have been a general understanding of stone tool making technology within the population at that time.

From the first years of settlement throughout the 18th century, the artifactual record shows that Indian-made pots, jars, and bowls were not just occasionally present, but predominant in the kitchens of the community. At a time when more sophisticated vessels had to be brought by mule train from Mexico, this seems a practical solution. However, it immediately brings up the question of who actually made these articles. Did the mission Indians make them and sell them at the local market? Were they made, at least in later years, by mission Indian women who married into local families? Even after it became apparent that other unglazed wares were being made locally, this type continued to be popular. Does this represent a conservative attitude on the part of local housewives, or is it a reflection of the

continuing Indian influence in the community? Does the eventual phasing out of this ware around the end of the century parallel a similar decline in the recognition of the Indians as a separate group, or does it reflect a growing interest in Mexican ideas and products as the province entered the new century? Or does it merely indicate the availability of more durable vessels from a different source? As more archaeological studies are completed in the downtown area, we may acquire more exact dating on the decline in popularity of this particular type of pottery, but the reasons are still open to conjecture.

It is also a distinct possibility that ceramics, being imperishable, are merely representative of a larger assortment of such Indian-made articles commonly used by the population of the town. There are various accounts of the amount of weaving done at the missions, which included blankets and lengths of cloth that would have been much in demand in town (Leutenegger 1976:26, 43-45). Other equally perishable items such as matting and basketry may also have been taken in trade or purchased from the missions, or even made by Indians living in the town.

In effect, what we see happening in the villa of San Fernando at the end of the 18th century is a blending of the mission Indians into the local population, where they apparently have become part of the *mestizo* group. They served a purpose as members of the lower class in the social hierarchy, and provided needed services to the community because of the training they had received from their mission training.

And so we see that, through their presence in archaeological sites within the town, fragments of Indian ceramics have become in effect historical documents. They tell us, by inference, that at least some of the mission Indians blended into the population of the town. In addition, stone tools identical to those made and used by prehistoric Indians found in downtown 18th century sites confirm what the ceramics tell us about the influence of mission Indians on San Antonio during the 18th century.

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# GUADALUPE BIFACES FROM FRIO AND MEDINA COUNTIES, TEXAS

David Calame, Sr.

## ABSTRACT

*Guadalupe bifaces from sites in the drainages of the San Miguel and Hondo Creeks in Medina and Frio Counties, Texas are documented and illustrated.*

## DISTRIBUTION

The Guadalupe biface is an Early Archaic artifact found largely south of the Balcones Escarpment between the Rio Grande and Guadalupe Rivers (Turner and Hester 1985). Two possible Guadalupe bifaces were also reported farther north in Hamilton County (Turner and Schrank 1992).

The artifact was reported by Hester and Kohnitz (1975) at the Granberg II site in stratigraphic context with Early Archaic or Pre-Archaic occupations. A radiocarbon date of 3600-3400 B.C. was obtained.

All specimens in this report came from sites that are in a transition zone between the Balconian and Tamaulipan Biotic Provinces (Blair 1950).

## TOOL DESCRIPTION

The Guadalupe biface is a tool form unique to Central and South Texas. A thick, percussion-knapped artifact, its abruptly truncated distal end distinguishes it from other distally beveled stone tools. The Guadalupe bifaces' truncated bit angles from the dorsal rather than the ventral surface. Bit facet angles are generally steep, ranging in this report from 40-80 degrees. The proximal end is usually much more narrow than the distal end, many times almost to a point. In cross section, the tool usually has a very pronounced "humpbacked" appearance.

The function of the Guadalupe biface has yet to be determined. They are thought to be a wood-working tool, and a study by Brown (1985), suggests the damage to the distal bit end of most Guadalupe bifaces can best be explained as wear caused in working against a hard wood, such as mesquite (see Figure 1). Brown does point out that hinged flakes

on the distal bit may simply be resharpening attempts.

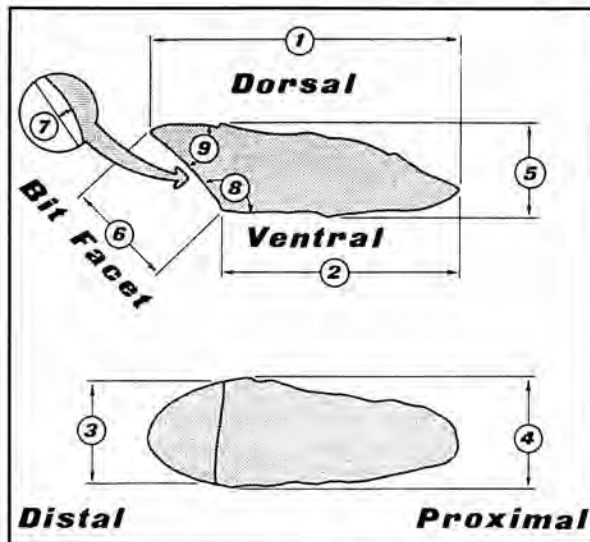
Sollberger and Carroll suggest that these tools were suited as defleshing instruments (Sollberger and Carroll 1985:21-22). The author, having "fleshed" many hides, can readily see how the Guadalupe biface would make a very effective "flesher," as illustrated by Sollberger and Carroll (1985), even without hafting (see Figure 2).

## STUDY AREA

Artifacts reported in this paper were surface-collected from sites in the drainages of Hondo and San Miguel creeks. The San Miguel Creek's headwaters, the Francisco and the Chacon Creeks, originate directly on the land form that divides the Medina River drainage from the Frio River drainage between Castroville and the small community of Quihi. Both tributaries and the San Miguel itself drain areas with enormous lithic resources. The San Miguel empties into the Frio River in McMullen County.

Hondo Creek drains directly off the Balcones Escarpment in northwest Medina County, originating near the town of Tarpley. While Hondo Creek is a much larger and deeper drainage than San Miguel Creek, high quality lithics are scant in Hondo Creek





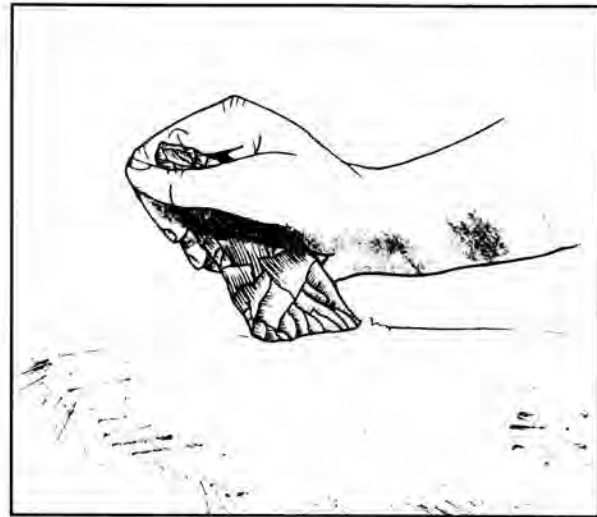
**Figure 1.** Landmarks and measurements on a Guadalupe tool. Numbered measurements correspond to those defined in Table 1. ① dorsal length; ② ventral length; ③ maximum bit width; ④ maximum tool width; ⑤ maximum tool thickness; ⑥ bit thickness (e.g. distance from bit apex to intersection with ventral face); ⑦ maximum depth of bit concavity (the maximum amount of “dishing” of the bit facet, usually just a millimeter or two); ⑧ bit facet/ventral angle; ⑨ bit spine-plane angle (working edge angle). (Used with permission of the Texas Archeological Society, from Brown 1985).

above the point where this creek cuts through the Midway Group Fault Block in central Medina County (Brown, 1985). The author personally knows of several lithic quarries where high grade materials are available within the drainage of Hondo Creek; however, very little of this material actually shows up in the gravels of Hondo Creek. Hondo Creek empties into the Frio River in northwest Frio County.

### DESCRIPTION OF SITES

**41FR34** - Upland site approximately one mile east of San Miguel Creek and approximately two miles south of the northern Frio County line. The site is on a high point for the area, at 610 ft. above sea level, while San Miguel Creek one mile due west is at 570 ft. above sea level. The site has a commanding view of the San Miguel Creek valley.

A variety of archaic and late prehistoric projectile points and stone tools have been surface-collect-



**Figure 2.** Author's suggested usage of the Guadalupe tool. Drawing by David Calame, Jr.

ed from the site including Andice/Calf Creek, Bulverde, Edwards, Frio, Montell, Palmillas, Pedernales, Perdiz, Scallorn, Tortugas, and one possible Midland points; in addition, one bison tooth and a mano as well as some fragments of an unidentified species of mussel shell have been found. Very little evidence of snail shells exists and burned rock is very sparse. However, very small, well-ground pieces of red ochre are common. The site is now in coastal pasture. Although 7 Guadalupe and 5 Guadalupe-like bifaces have been collected from this site, only 2 Clear Fork bifaces and 1 Nueces biface have been found at this site. Guadalupe biface Specimen (Sp.) Nos. are 360, 871, 872, 873, 875, 879, and 899.

It should be noted that 41FR34 is on the author's property and therefore, a much more thorough survey of the site has been made. In addition, the site is approximately 1 mile east of San Miguel Creek and at least 1.5 miles from the nearest farm-to-market road. It is believed the site was previously unknown and therefore collecting has been minimal at worst.

**41ME87** - Open campsite on the first terrace of Hondo Creek on the north side of the creek in south Medina County. This site has tremendous amounts of burned limestone clast in the site deposits. Great amounts of human energy were expended transporting this limestone from nearby Hondo Creek. This burned limestone is spread across much of the site, perhaps encompassing 25 acres, but a concentration exists at the highest point of the site. Interestingly, at

the high point, an area perhaps one hundred feet square retards the growth of vegetation and leaves all vegetation with a sickly yellow appearance. Four test holes were excavated at the site. One at the center of the site's high point, was sunk to a depth of 32 inches (ca. 80 cm) before a sterile layer was encountered. An Edwards point was found in screenings from the surface and a Montell point was found from screenings coming from an 18-inch level, 6 inches below the plow zone. Very nearly half the material excavated was burned limestone and a significant portion was chert chips and unidentified snail shells. Below the 18-inch level, the excavations encountered only a sterile zone containing a smaller species of snail. The soil excavated from the sterile zone was flood silt, and an earlier horizon very well could exist below this layer. Two backhoe test holes were excavated several hundred yards to the south of the first. The first of these encountered a hearth feature within the plow zone and both encountered large amounts of burned limestone and chert chips. A fourth test pit was excavated by use of a backhoe several hundred yards east of the site high point. Two prehistoric arrow points, a Scallorn and an Edwards, were encountered in the upper zone, and burned limestone and chert chips were excavated to nearly four feet. The fourth test pit was excavated in an area of the site that is believed to have never been cleared of brush. Artifacts collected include Abasolo, Baker, Bul-verde, Castroville, Catan, Edwards, Ensor, Fairland, Frio, Marcos, Martindale, Montell, Pedernales, Perdiz, Scallorn, and Tortugas points. One Guadalupe (Sp.916) and two Clear Fork bifaces were surface-collected during the initial site survey. Additional information on land owner collections was unavailable as of this report

**41ME97** - Open campsite on the southern tip of the first terrace out of the floodplain of Francisco Creek. Artifacts collected from this site include Edwards, Langtry, and Perdiz points, 1 Guadalupe biface (Sp. 372), 1 Clear Fork biface and various other untyped scraping or cutting tools.

**41ME102** - Open campsite on the first terrace out of the floodplain and in the floodplain of Francisco Creek in south central Medina County. Artifacts found at this site include Catan, Edwards, Pedernales, Perdiz, and Tortugas points, as well as some failed preform bifaces and some Leon Plain potsherds (Anne Fox, personal communication 2000). One Guadalupe biface (Sp. 697) and 1 Clear Fork

biface have been collected from this site.

**41ME102** - Open campsite on the first terrace above the floodplain and in the floodplain of Francisco Creek in south central Medina County. Artifacts found at this site include Catan, Edwards, Pedernales, Perdiz, and Tortugas points, as well as some failed preform bifaces and some Leon Plain potsherds (Anne Fox, personal communication 2000). One Guadalupe biface (Sp. 697) and 1 Clear Fork biface have been collected from this site.

**41ME103** - Open campsite in Francisco Creek floodplain on the west side of the creek in south Medina County. The site is protected to the north by a high bluff along the creek and sits in a wide floodplain totaling perhaps 25 acres. The north end of the site has produced the more recent artifacts, while the south end of the site, farthest away from the protective bluff, has produced mainly archaic artifacts. A portion of this site actually sits on the east side of the creek at the south end, where a ranch road now crosses the creek. A cattle trail coming out of the creek going east has created an erosional gully nearly three feet deep where many chert flakes are visible. Just to the south of this cattle trail, perhaps fifty feet, is an accumulation of chert debris and may be a knapping station. This feature is exposed by recent potholes. Artifacts collected include Castroville, Frio, Langtry, Matamoros, Pedernales, Perdiz, Scallorn, Tortugas, Uvalde, and Williams points, gravers, and some Leon Plain potsherds (Anne Fox, personal communication, 2000), 8 Clear Fork bifaces, and 1 Guadalupe biface (Sp. 671). This site has produced many unidentified scraping tools.

**Field Site # 008** - Open campsite on the first terrace of Francisco Creek on the west side of the creek in south Medina County. Very few snail shells were visible, but burned rock is plentiful. No test holes were excavated to determine deposit depths. Artifacts collected include Castroville, Carrizo, Fairland, Perdiz, Scallorn, Tortugas, and Uvalde points, 1 Clear Fork biface, and 1 Guadalupe biface (Sp. 766).

**Field Site # 024** - Open campsite on the first terrace of Francisco Creek on the west side of the creek in south Medina County. Very little burned rock was visible and the author did not notice any mussel or snail shells. Artifacts collected from the site include 1 Clearfork biface and 2 Guadalupe bifaces (Sp. 500, 159).



**Field Site # 041** - Guadalupe biface (Sp. 915) found in gravel bar of Hondo Creek in south Medina County. This location is several miles downstream from the Lindner Cache site (Brown 1985). This artifact was obviously redeposited and its site of origin is unknown.

**Field Site # 052** - Open campsite just out of Hondo Creek bottoms in Frio County. There is extensive evidence of burned rock which is visibly built up. No test holes were excavated to determine deposit depths, and no mussel or snail shells were visible. This site has been heavily collected. Artifacts collected include two Clearfork tools and one Guadalupe tool (Sp. 501). No projectile points have been collected from this site.

### THE ARTIFACTS

(See Table 1 for dimensions)

The artifacts described in this report were all surface-collected from eroding context at sites reported by the author. Specimens per site are as follows:

41FR34 - Sp. 360,871,872,873,875,879,899  
 41ME87 - Sp. 916  
 41ME97 - Sp. 372  
 41ME102 (Field Site #004) Sp. 697  
 41ME103 (Field Site #007) Sp. 671  
 Field Site # 008 - Sp. 766  
 Field Site # 024 - Sp. 500,159  
 Field Site # 041 - Sp. 915  
 Field Site #052 - Sp. 501

### DESCRIPTION OF THE ARTIFACTS

#### 41FR34

**Specimen 360 (Figure 3C)** - made from a medium grade, greyish-brown chert. The left lateral edge to the dorsal spine, when viewed from the dorsal proximal end, is heavily stained rust, or some reddish-orange coloring which is assumed to be from plow damage. This specimen has a very prominent dorsal spine and no cortex remaining on the tool. The bit facet has a "hollowed out" look with few, if any, resharpening flakes. The edges normally flaked back to resharpen the bit appear battered instead. The ventral surface is relatively flat, except towards the proximal end of the tool, where it curves dorsally. Half of the bit surface is also stained reddish

orange.

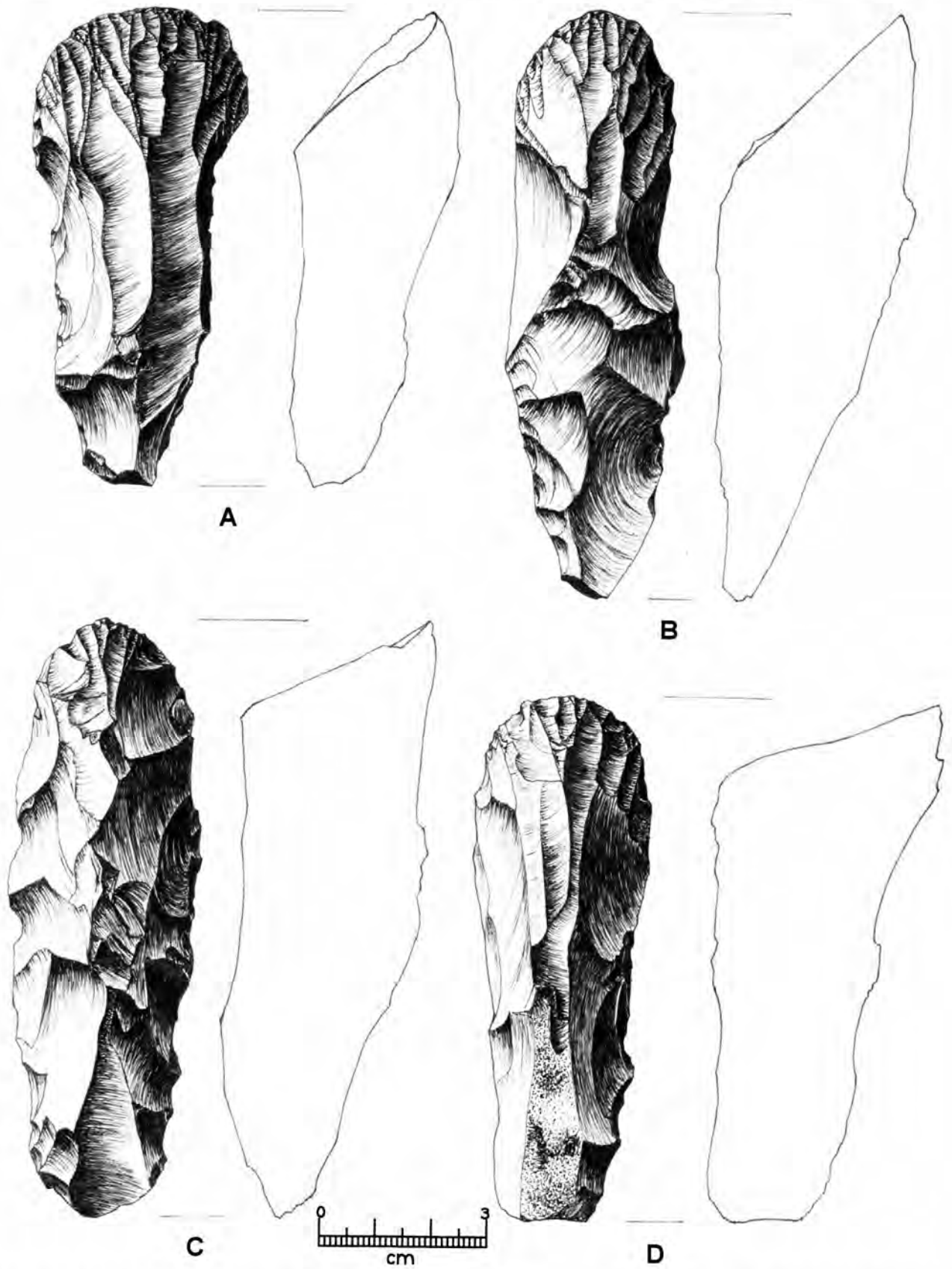
**Specimen 871 (Figure 5, A)** - Made of tan chert with greyish brown seams and inclusions. This tool shows extreme battering and is "lumpy" and uneven across the dorsal surface from flakes taken off the dorsal spine. The distal half is bulbous. The bit has been resharpened several times and resharpening flakes hinge at 1.1 cm. This specimen is so battered it is hardly recognizable as a Guadalupe tool at all, and is totally exhausted.

**Specimen 872 (Figure 4, C)** - Made of grey, fine-grained chert with small brown inclusions. The dorsal spine is flattened by a large resharpening flake that runs approximately two-thirds the length of the tool. The proximal end has remnants of a yellow cortex. Resharpening flakes hinge at 2.85 cm from the bit facet. Lateral edges show light to moderate battering. Some rust stains show evidence of plow damage. The bit was modified by the removal of one flake from the ventral distal surface creating a very pointed distal tip.

**Specimen 873 (Figure 6, A)** - Made of blue, fine-grained chert with coarser tan inclusions. It is rather small and appears to have been fully exhausted. The tan inclusions were very resistant to flaking and have left the tool with a lopsided appearance to the left when viewed from the dorsal proximal end. Bit resharpening flakes hinge at 1.5 cm on the distal dorsal spine. This specimen is totally exhausted.

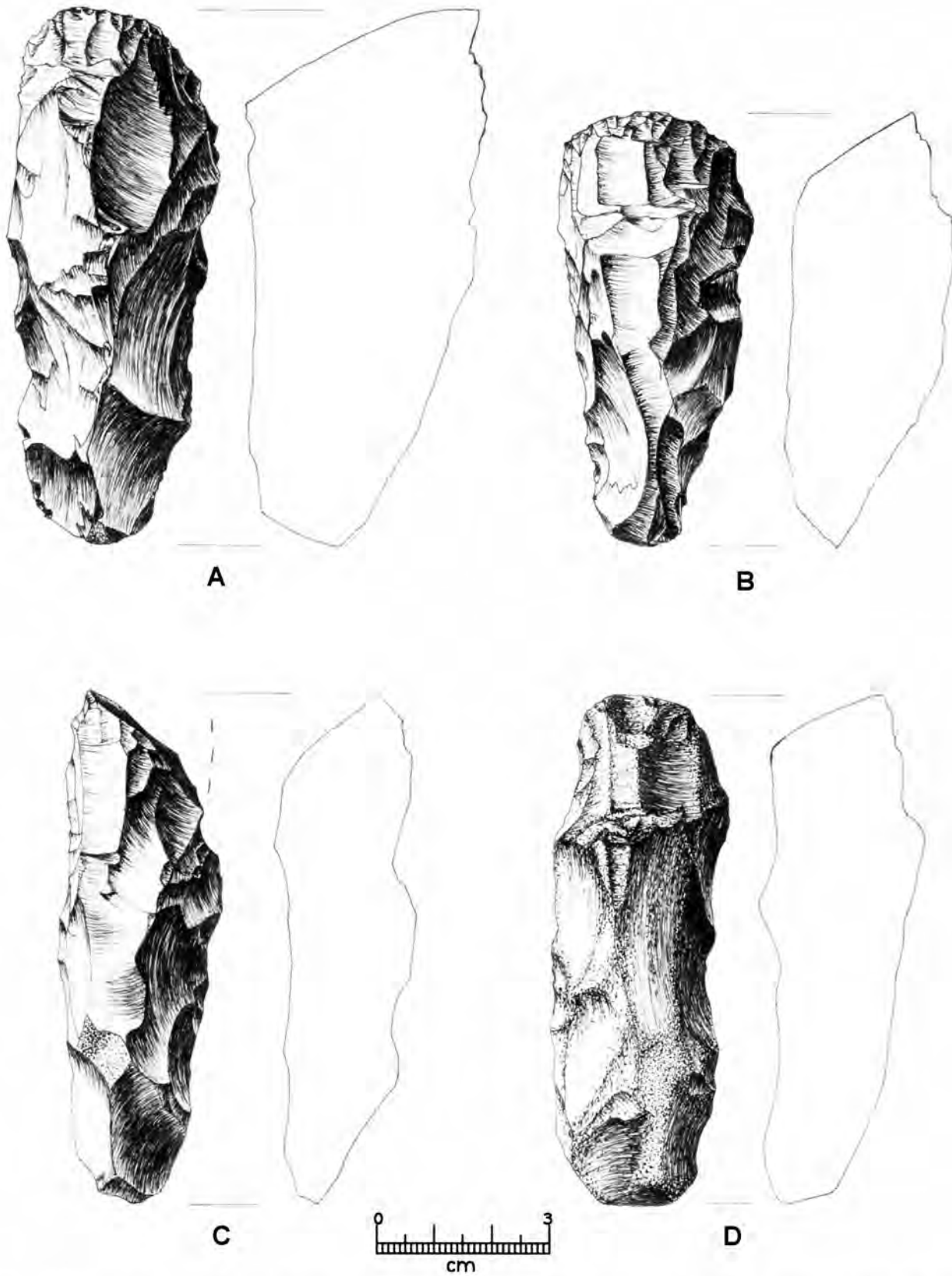
**Specimen 875 (Figure 6, D)** - Made of medium grade, brown chert. Little remains of the bit, having been flaked back dorsally. The dorsal surface is flattened by a large flake that abruptly terminated the proximal end with an overshoot. The ventral surface is rough and uneven and the lateral edges are extremely battered. The tool has a very blocky appearance and is completely exhausted.

**Specimen 879 (Figure 6, B)** - Made of high quality, rich brown, heat treated chert, covered with a light blueish-white patina. This tool has a slick, very waxy feel and appearance. The author has gathered many examples of chert of this same color and quality from central Medina and Uvalde Counties. The lateral edges are moderately battered. The tool was broken in the middle by a snap fracture. This tool appears to have endured more recent damage from plowing. The tool has a rounded appearance with

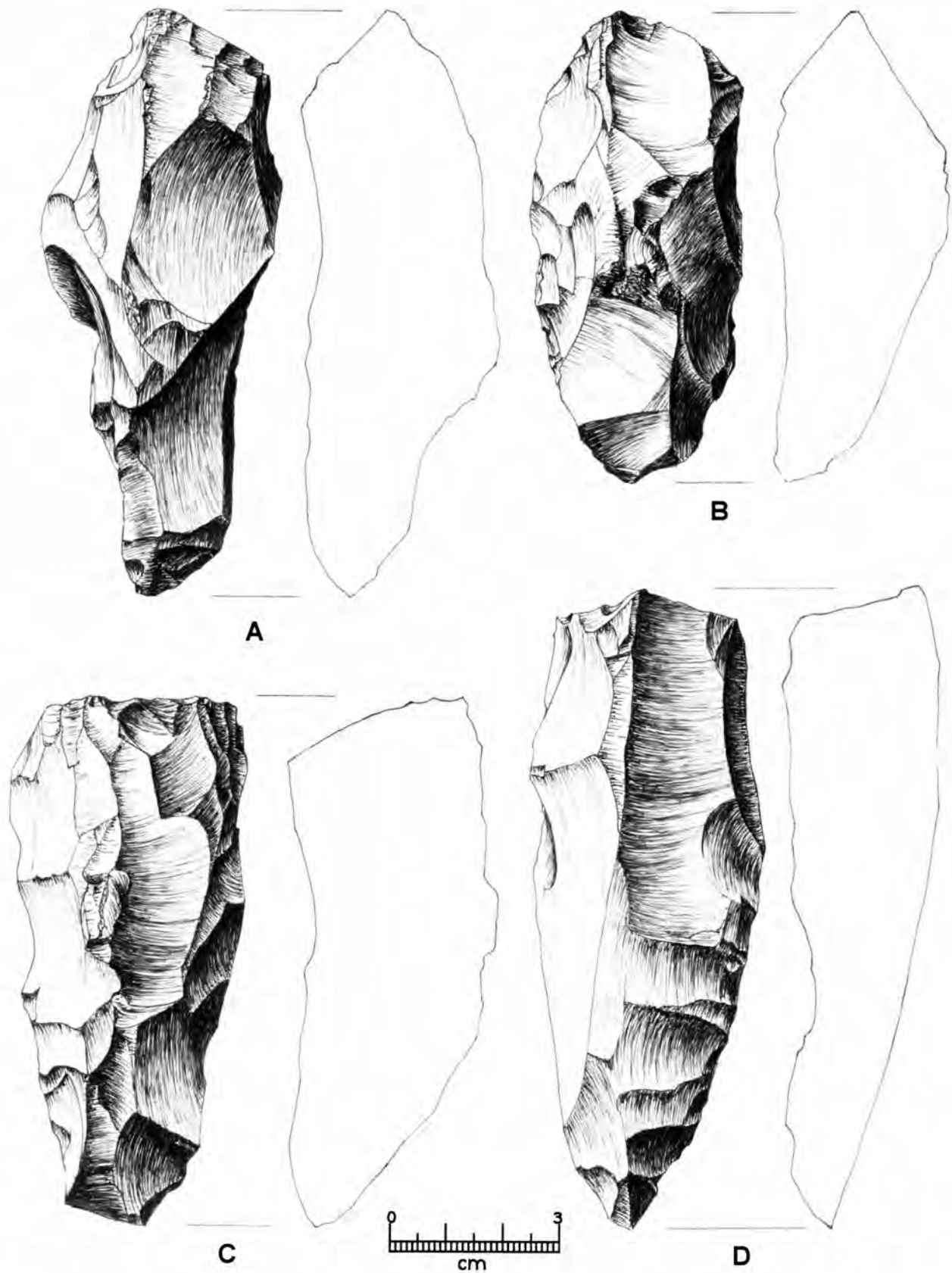


**Figure 3.** Guadalupe bifaces. A, Sp. 766 (FS #008, Medina County); B, Sp. 500 (FS #024, Medina County); C, Sp. 360 (41FR34); D, Sp. 899 (41FR34). Outlines are side views.

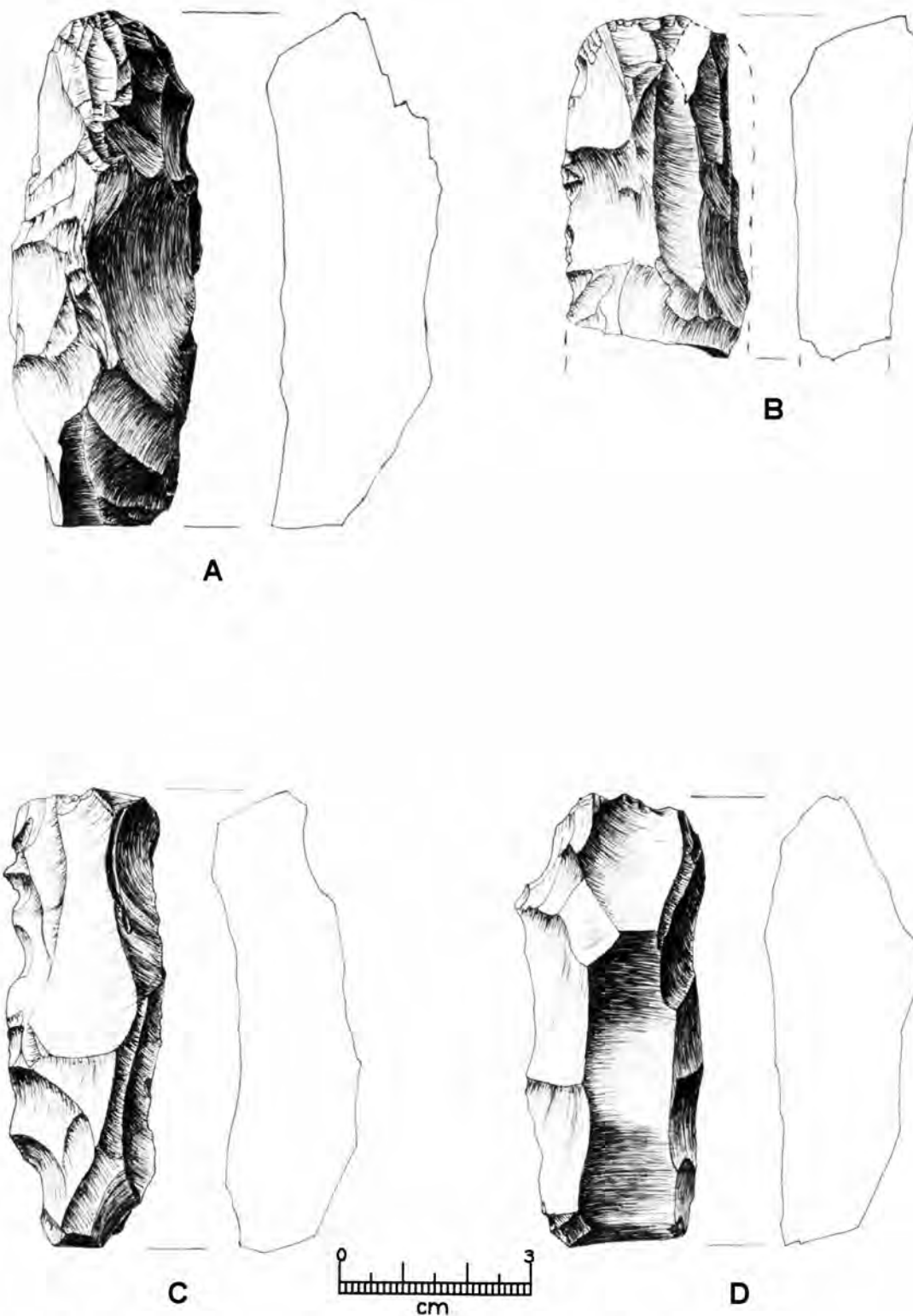




**Figure 4.** Guadalupe bifaces. A, Sp. 697 (41ME102); B, Sp. 916 (41ME87); C, Sp. 872 (41FR34); D, Sp. 915 (FS #041, Medina County). Outlines are sideviews.



**Figure 5.** Guadalupe bifaces. A, Sp. 871 (41FR34); B, Sp. 671 (41ME103); C, Sp. 501 (FS#052, Frio County); D, Sp. 372 (41ME97). Outlines are side views.



**Figure 6.** Guadalupe gouges. A, Sp. 873 (41FR34); B, Sp. 879 (41FR34); C, Sp. 159 (FS 024, Medina County); D, Sp. 875 (41FR34). Outlines are side views.

**Table 1.** Dimensions of Guadalupe tools found in Frio and Medina Counties.

Specimen	Dorsal length (mm)	Ventral length (mm)	Maximum bit width (mm)	Maximum tool width (mm)	Maximum thickness (mm)	Bit thickness (mm)	Maximum Depth of bit facet concavity (mm)	Facet/ventral angle (degrees)	Bit spine-plane angle (degrees)
159	7.1	6.5	2.2	2.25	1.95	1.1	0	120	80
360	10.65	8.5	2.85	3.3	3.3	4	0.2	120	50
372	11.2	10.5	3.2	4	2.75	2.4	0.15	105	75
500	10.7	7.95	2.85	3.1	3.35	3.7	0.15	130	40
501	9.4	7.8	3.85	3.9	3.45	3.35	0	110	60
671	8.15	7	3.2	3.4	3.2	2.3	0	130	75
697	9.6	7.7	3.5	3.5	4	4.3	0	120	60
766	8.45	6.2	3.8	3.3	2.75	3.45	0.15	125	50
871	10.15	8.7	2.9	4.1	3.3	2.15	0	125	70
872	8.9	7.2	2.5	2.7	2.2	2.5	0	125	50
873	7.95	7.2	1.95	2.95	2.45	1.75	0	120	70
875	7.1	6.2	2.2	3	2.4	1.1	0	130	75
879	5.45	4.75	2.4	2.9	2	1.5	0.05	120	60
899	9.6	7.8	2.85	3.15	3.7	4.15	0.1	100	55
915	8.75	7.85	2.35	2.35	2.6	1.9	0.05	120	65
916	7.6	6.6	3	3.45	2.7	1.75	0.05	125	55

①\*

②

③

④

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\* See Figure 1 for circled number correlation

little dorsal spine. One flake taken from the bit on the dorsal surface has removed some patina suggesting a possible later reuse of this tool. Another flake taken from the bit, when viewed from the dorsal proximal side, runs along the total lateral edge, removing patina and exposing "new" surface, resharpening flakes terminate at 8 mm .

**Specimen 899 (Figure 3, D)** - Made of light brown, fine-grained chert with white inclusions. The dorsal spine has yellow brown cortex extending 36 mm from the proximal end towards the distal end. The dorsal spine is prominent but irregular. The proximal end is snapped off at 90 degrees from the dorsal ridge. The ventral surface is rough and irregular with a slight twist to the right at the proximal end in relation to the bit facet when viewed from the ventral proximal end of the tool. Bit resharpening flakes hinge at 10 mm from the bit edge on the dorsal spine. The bit edge is very crushed all the way around.

**41ME87**

**Specimen 916 (Figure 4, B)** - Made of a high grade greyish-white chert. Some cortex remains on the proximal end of this tool. The tool is short and stub-

by and heavily battered. Resharpening flakes hinge and stack at 1.9 cm from the bit. The ventral surface is flat, except at the bit, where a flake to remove the bulb caused the tool to slant slightly.

**41ME97**

**Specimen 372 (5, D)** - This tool's chert coloring is indeterminate due to extreme patination, but appears to be blue-brown and is made of a coarse-grained chert. Although it is the largest tool reported, the bit end apparently broke off because of a flaw in the rock. This specimen may represent an unfinished tool or a failed attempt at forming a second bit facet from a longer tool. It is long enough, still, to have been reused, and it is not apparent why it was not. There is a slight battering along ventral lateral edges and a pronounced spine runs the dorsal length of the tool. The proximal tip may show some use wear.

**41ME102**

**Specimen 697 (Figure 4, A)** - Made of light brown, fine-grained chert. There is a slight amount of cortex remaining on the dorsal proximal tip. The final tip point is missing. The tool has a strong, very promi-



nent dorsal spine and shows much battering along the ventral later edges. This tool's bit surface is the largest of this report. Resharpener flakes hide at 1.2 cm.

#### 41ME103

**Specimen 671 (Figure 5, B)** - Made of a coarse, tannish-grey chert with grey inclusions. Cortex remains on the proximal tip and some on the dorsal spine. A large flake that removed one-third of the dorsal spine removed evidence of resharpening flakes. Lateral edges are heavily battered and iron stains from plow damage exist.

#### Field Site 008

**Specimen 766 (Figure 3, A)** - Made from a fine, high quality, brown chert. Very little dorsal spine exists and some cortex remains on the proximal end. This tool appears to be made of heat treated chert. Lateral edges are slightly battered. The bit has a rounded shape due to many successful resharpening flakes, most of which run out at 2 cm. A very light speckling of patina has accumulated on this tool, and a portion of the bulb of percussion remains.

#### Field Site 024

**Specimen 159 (Figure 6, C)** - Made of fine, high quality brown chert. Lateral edges are extremely battered. No cortex remains on this tool. The dorsal spine is prominent, but lopsided to the right when viewed from the dorsal proximal end—the result of a large resharpening flake that hinged past halfway to the proximal end. This tool is very small and heavily used to the point of total exhaustion.

**Specimen 500 (Figure 3, B)** - Made of blueish brown, fine-grained chert. Much of this tool's surface is covered with a white patina, as is common with Archaic artifacts in Medina and Frio Counties. The dorsal spine is flat and irregular and roundly pointed at the proximal end. No cortex remains on this tool, however, sub-cortex microfractures do

remain 3.3 cm from the bit edge, on the dorsal spine. The ventral surface is straight and rounded, giving the tool a "spike" appearance. The bit is oval and edge resharpening flakes terminate at 2.6 cm from the bit. The tool is very battered on its lateral edges.

#### Field Site No. 041

**Specimen 915 (Figure 4, D)** - Made of a very hard, coarse, tan chert. The dorsal spine is prominent and has remnants of a white cortex. The lateral edges are heavily battered. Resharpening flakes stack at 2.2 cm. This tool is stream-rolled and has a smooth feel despite the coarse nature of the material.

#### Field Site No. 052

**Specimen 501 (Figure 5, C)** - Made of yellowish grey brown, fine-grained chert with yellow brown inclusions. A slight blueish tint runs up the dorsal spine. No cortex remains on the dorsal spine, but the microfractures just under the cortex are present, giving the dorsal spine a lumpy, irregular look. The dorsal spine dips sharply to the ventral surface on the proximal end. The bit facet is broad and squarish and concave. This tool was possibly resharpened only once. Resharpening flakes hinge at 2.4 cm on the dorsal spine.

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# LATE ARCHAIC MORTUARY TRADITION OF SOUTHEAST TEXAS

*Leland W. Patterson*

## ABSTRACT

*Characteristics are given for 13 sites in the Late Archaic Mortuary Tradition of western inland Southeast Texas, and variations in traits are compared at different sites. Social aspects of this mortuary tradition are considered, including violence, long-distance trade, and social complexity. Possible relationships with other Late Archaic cemetery sites in South-Central and South Texas coastal are discussed.*

## INTRODUCTION

This paper describes the Late Archaic Mortuary Tradition (LAMT) of western inland Southeast Texas. Thirteen sites of this tradition have been identified in Austin, Fort Bend, and Wharton counties, (Table 1 and Figure 1). Story (1990:Table 54) has previously tabulated eight of these sites within a radius of about 35 km [22 miles](Story 1990:242). This tradition is characterized by use of cemeteries and many locally-made and exotic grave goods. Exotic grave goods indicate participation in long-distance trade with several geographic areas. I have referred to this as a tradition (Patterson 1995:247) because several of the sites were used as cemeteries over a period of many hundred years.

Details of individual sites in the LAMT are given here, and comparisons of burial practices at the various sites are made. Evidence of possible development of this mortuary tradition from earlier burial groups at two sites is considered. Social aspects that are associated with the LAMT, including violence, long-distance trade, and the development and decline of social complexity are then discussed. Possible relationships with other Late Archaic mortuary sites in South-Central and South Texas are considered.

Available radiocarbon dates (Table 2) indicate that the Late Archaic Mortuary Tradition of western inland Southeast Texas are concentrated in a time range of 800 to 60 B.C., the last half of the Late Archaic period, which began about 1500 B.C. in this region (Patterson 1996:9). There is also one later

calibrated date of A.D. 420 at the Ernest Witte site (Hall 1981:Table 2). As discussed below in more detail, earlier burial groups at the Ernest Witte and Bowser sites show the use of cemeteries in this geographic area in the last part of the Middle Archaic period and the early part of the Late Archaic period, in a radiocarbon-dated time interval of about 2800-1400 B.C. (Table 3). Currently available radiocarbon dates do not show continuous development of mortuary practices from the early part of the Late Archaic period into the LAMT of the later part of the Late Archaic period. The LAMT provides an example of mobile hunter-gatherers with complex social practices. This tradition also shows the diversity of hunter-gatherer behavior, with no other mortuary tradition found so far in adjacent parts of Southeast Texas during the Late Archaic period.

## THE SITES

There are wide variations in the size and characteristics of the various sites. The quantity and quality of data for each site are not uniform. There are enough data, however, for each site to be associated with this mortuary tradition, especially in regard to use of grave goods. Not enough radiocarbon dates are available to specifically define the time period at each site. Therefore, each undated site is simply considered to fit somewhere in the overall time range of 800 to 60 B.C. The Late Archaic mortuary component of most sites discussed here is part of a longer occupation sequence at each site, with most sites being campsites as well as having a Late Archaic mortuary component.

While only a few radiocarbon dates define the time range of the LAMT, there is little evidence that this tradition continued into the Early Ceramic period (A.D. 100-600). The Late Archaic period of Southeast Texas has been defined as having a time range of 1500 B.C. to A.D. 100, ending with the start of pottery (Patterson 1995:243). A single later date of A.D. 420 at the Ernest Witte site is not inconsistent, because the use of pottery started slightly later in the western part of Southeast Texas (Aten 1983:

**Table 1. Sites in Late Archaic Mortuary Tradition**

<u>Site Name</u>	<u>Site No.</u>	<u>No. of Burials</u>	<u>Reference</u>
Goebel	41AU1	ND	Duke 1981, 1982a, 1982b
Ernest Witte	41AU36	145	Hall 1981
Leonard K	41AU37	1+	Hall 1981
Brandes	41AU55	3	Highley et al. 1988
Big Creek	41FB2	75+	TARL archives
Bowser	41FB3	35+	Patterson et al. 1993a, 1998
Albert George	41FB13	15+	Walley 1955
Ferguson	41FB42	6	Patterson et al. 1993b
none	41FB95	ND	Patterson and Hudgins 1987
none	41FB250	ND	Patterson 1997a
Piekert	41WH14	11	Kindall 1980, Copas 1984
Crestmont	41WH39	31	Vernon 1989
none	41WH44	2	Black et al. 1992

ND - not determined

**Table 2. Radiocarbon Dates for Late Archaic Mortuary Tradition in Southeast Texas**

<u>Site</u>	<u>Lab No.</u>	<u>Radiocarbon date, B.P.</u>	<u>Calibrated date B.P. (A)</u>	
			<u>intercept</u>	<u>1 sigma range</u>
41AU36	TX-2452	1650 ± 70	1530	1460-1600
41AU36	TX-2451	2460 ± 70	2470	2400-2540
41FB3	GX-24575	2075 ± 115 (B)	2010	1895-2125
41FB3	GX-24613	2150 ± 120 (B)	2130	2010-2250
41FB3	GX-25537	2230 ± 160 (B)	2300	2140-2460
41FB3	GX-25330	2240 ± 120 (B)	2310	2190-2430
41FB3	GX-24500	2490 ± 75 (B)	2490	2415-2565
41FB3	I-16513	2580 ± 130	2740	2610-2870

A - Stuiver and Pearson 1993; Pearson and Stuiver 1993

B - <sup>13</sup>C adjusted age

297). An alternate interpretation is that this late date is a statistical outlier. It should be noted that there are only eight radiocarbon dates available to define the time range of the LAMT, two from Ernest Witte and six from Bowser. Radiocarbon dates for the LAMT are summarized in Table 2.

### THE GOEBEL SITE, 41AU1

The Goebel site has a long occupation sequence, from Late Paleoindian through Late Prehistoric periods (Duke 1982a:Figure 2). The LAMT component has a group of 42 burials. Grave goods include marine shell pendants and columella beads made of lightning whelk shell, sandstone abraders, bone tools (probably long-bone implements), and red ochre (Duke 1981:1, 1982b:5). Excavations at this site were done by members of the Houston Archeological Society in 1959-1960. Because of the long delay in publication of excavations at this site, not many other details are available.

### THE ERNEST WITTE SITE, 41AU36

Ernest Witte has an occupation sequence from the Middle Archaic through the Late Prehistoric periods. It is the type site for the LAMT discussed here, because it has the largest number of burials in this tradition (N=145), and the largest quantity of grave goods (Hall 1981). The LAMT at this site is

represented by Hall's (1981) Group 2 burials. Radiocarbon dates for Group 2 burials are given in Table 2.

Grave goods include red jasper pebbles, red ochre, dart points, two shark teeth, two stingray spines, 676 bone artifacts, 335 marine shell beads, 99 marine shell pendants, three mussel shell pendants, one oyster shell pendant, two large corner-tang bifaces, one stone gorget, seven boatstones, and a sandstone abradar (Hall 1981). A large marine shell artifact (Form 6) near the skull of Burial 111 (*ibid.*:Figure 20) is the same type as found fitted to skulls at the Bowser site. There were 48 % of Group 2 burials with grave goods (*ibid.*:284). Men, women, and children received grave goods.

Ernest Witte appears to have been used as a campsite and mortuary site. In addition to LAMT burials, this site has earlier burials (see discussion below) and later burials in the Early Ceramic and Late Prehistoric periods.

Burial head directions at Ernest Witte were predominantly to the north and northeast, with the largest number to the northeast (Hall 1981:Figure 53). There are a few burials outside of this range. Most burials (84%) were extended and supine, and a few burials were semi-flexed (12%) or flexed (0.5%). There were two bundle burials and three cremations (*ibid.*:272). A few burials were in prone (face down) position.

Radiocarbon dates for group 2 burials are given

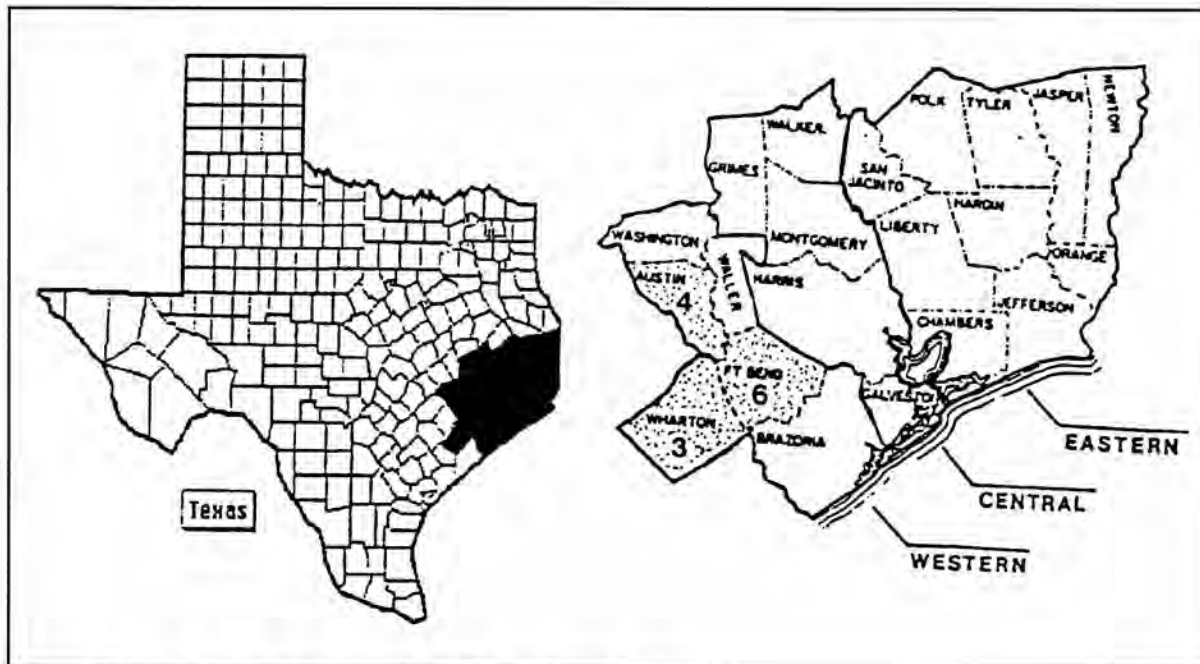


Figure 1. Late Archaic Mortuary Sites in Southeast Texas.





**Figure 2.** Marine Shell Head Ornament, 41FB3.



**Figure 3.** Bone Pins, 41FB3.



**Figure 4.** Long-Bone Implements, 41FB3.



**Figure 5.** Ground Slate Gorget, 41FB250.



**Figure 6.** Marine Shell Pendants, 41FB3.

in Table 2. This site has occupation components of the Middle Archaic (3000-1500 B.C.) through the Late Prehistoric (A.D. 600-1500) periods.

#### **THE LEONARD K SITE, 41AU37**

The Leonard K site has an occupation sequence from the Middle Archaic through the Late Prehistoric (Hall 1981:110). This site is another site in Hall's (ibid.) Allens Creek complex in Austin County. There were nine burials, of which only Burial 2 can be related directly to the LAMT. Burial 2 had a marine shell pendant, a bone projectile point, and two long-bone implements (ibid:Figure 30). A boatstone collected from the surface is possibly associated with the LAMT.

#### **THE BRANDES SITE, 41AU55**

The Brandes site has three burials in the LAMT (Highley et al. 1988). Grave goods consisted of a tubular marine shell bead, a marine shell pendant, two large stemmed bifaces, two long-bone implements, and two unique pointed lightning whelk columella tools, with holes in the basal ends. Five tubular stone beads were found here later in excavations by Texas A&M University (Bill Dickens and Harry Shafer, 1992 personal communications). Not many details are available for this site because the original excavations were done as a rapid salvage operation.

#### **THE BIG CREEK SITE, 41FB2**

Limited data on the Big Creek site are available in archives of the Texas Archeological Research Laboratory, The University of Texas at Austin. There are an estimated 75-100 burials, some perhaps related to the Late Archaic period. The site's possible relationships to the LAMT are a boatstone and a conch shell pendant found with the burials. This site was destroyed by drainage modifications before detailed research could be done.

#### **THE BOWSER SITE, 41FB3**

There have been two excavation efforts at the Bowser site in 1990-1991 (Patterson et al. 1993a) and 1997-1998 (Patterson et al. 1998). An Upper Burial Group has over 35 burials that can be associated with the LAMT. There are also six Lower Group burials from the early part of the Late Archaic

period. A large proportion of burials in the Upper Burial Group are extended, supine, with head directions to the north. There were a few semi-flexed and bundle burials.

Grave goods include red ochre, a red jasper pebble, 32 shark teeth, asphaltum lumps, five boatstones with pebbles, five sandstone tools, a copper pin or awl, a bone projectile point, 15 short bone artifacts, 21 bone pins, 39 long-bone implements, two bone beads, mussel shell, two bi-pointed lightning whelk columella artifacts, eight tubular shell beads, five Olivella shell beads, four shell head ornaments, 65 shell pendants, a corner-tang knife, and five Ellis dart points. Two large marine shell artifacts (Figure 2) were found fitted to skulls, another specimen had a skull bone fragment on the concave side, and a fourth specimen was near a skull. About 60 percent of the Upper Group burials had grave goods. Several burials had large numbers of grave goods. For example, Burial 10 had 35 grave goods, and Burial 5 had 19 grave goods. Men, women, and children received grave goods.

An interesting feature of burials at Bowser is that all bone pins and long-bone implements (Figures 3,4) were purposely broken. These types of artifacts were also purposefully broken for a burial at the Albert George site (Walley 1955:233). The Albert George site also had a purposefully broken boatstone (ibid.:220).

Radiocarbon dates for the Upper Burial Group are given in Table 2. Projectile point types in excavation strata of the Upper Burial Group include Gary, Kent, Morhiss, Ellis, Ensor, Pedernales, and Marshall.

#### **THE ALBERT GEORGE SITE, 41FB13**

The Albert George site in Fort Bend County is estimated to have 15 burials of the LAMT (Walley 1955). Grave goods include 26 long-bone implements, a boatstone, and two pointed lightning whelk columella pendants with holes in basal ends. Projectile points include Gary, Kent, Morhiss, and Ensor.

#### **THE FERGUSON SITE, 41FB42**

The Ferguson site is a multi-component site with occupations from the Late Paleoindian through the Late Prehistoric periods (Patterson et al. 1993b). There is a component in the LAMT with six burials. All intact burials are extended, supine, with head directions to the southeast. Only one burial had grave

goods, including 210 discoidal marine shell beads, 14 tubular stone beads, and 40 small worked *Neritina virginea* marine shells. The shell and stone beads were used for bracelets and anklets. A group of the discoidal shell beads was found with a braided pattern (ibid.:Figure 16).

#### SITE 41FB95

Site 41FB95 is only known from an artifact assemblage obtained by a collector (Patterson and Hudgins 1987). This site has significant occupations from the Late Paleoindian through the Late Archaic periods, and minor occupation in the Late Prehistoric period. Site 41FB95 is judged to have a component in the LAMT by the presence of an engraved long-bone implement, a short bone artifact, and human bone (McClure 1987).

#### SITE 41FB250

Artifacts from 41FB250 in Fort Bend County were collected many years ago from a highly eroded bank of the Brazos River (Patterson 1997a). This site has a component of the LAMT because of human bones and a collection of two large ground slate gorgets (one shown in Figure 5). Similar slate gorgets are common in southeastern Oklahoma and southwestern Arkansas (Lintz and Zahari 1983), and this area is the possible source of the site's slate gorgets. An Ensor dart point and two unclassified dart points were also found at this site.

#### THE PIEKERT SITE, 41WH14

The Piekert site in Wharton County has 11 LAMT burials. Burials are semi-flexed with varying head directions, especially west and south (Kindall 1980:Figures 3-5). One burial had five shell and bone beads, and another burial had a necklace of polished bone pendants (ibid.:7). Red ochre was used. Skeletal analysis has been done by Copas (1984).

#### THE CRESTMONT SITE, 41WH39

The Crestmont site has 31 burials of the LAMT, but not much other use (Vernon 1989). A high proportion of burials are extended, supine, with head directions varying from northeast to east. There were one flexed and one semi-flexed burials.

Quantities of grave goods are estimated from the

partial site inventory given by Vernon (1989:Appendix B) and a color slide set from Joe Hudgins. Estimated quantities of grave goods include red ochre, 19 marine shell pendants, 43 tubular shell beads, 75 lightning whelk columella beads, four bone pendants, 21 long-bone implements, one short bone artifact, one bone projectile point, eight dart points, and a large stemmed bifacial knife. The knife has an end stem, but is otherwise similar to the corner-tang knives from Ernest Witte and Bowser. Sixty-eight percent of burials had grave goods (ibid.:46).

#### SITE 41WH44

Site 41WH44 in Wharton County is a small site with two burials that can be associated with the LAMT (Black et al. 1992). One burial is fairly intact, and is semiflexed, supine, with head direction to the south. Grave goods include a decorated marine shell pendant, two tubular marine shell beads, and one discoidal marine shell bead.

A small surface collection of pottery, a Williams dart point, and a Perdiz arrow point indicate possible occupation events in the Late Archaic, the Early Ceramic and the Late Prehistoric periods.

### COMPARISON OF SITES

Comparisons can be made of the various sites in the LAMT of western inland Southeast Texas to examine the general characteristics and traits of this tradition. Details of burial practices in respect to body position, and head direction are provided in Table 4. The most common body position is extended, with some sites having small percentages of semi-flexed, flexed, and bundle burials. Vernon (1989:49) has suggested that there was a temporal trend from extended to flexed burial positions. A calibrated radiocarbon date of 2130±120 B.P. (GX-24613) for a flexed burial at Bowser is in the latter part of the temporal sequence for the LAMT. In any event, there is considerable variation in body position and head direction at different sites, suggesting that the belief system changed over time or did not have uniform practices among various participating social groups.

The predominant body orientation is supine. There is a wide variation in head direction at different sites. Hall (1981:282 and Figure 53) examined burial head directions at 41AU36 in respect to possible lunar and solar orientations as representing

**Table 3.** Radiocarbon Dates for Early Burial Groups

<u>Site</u>	<u>Lab No.</u>	<u>Radiocarbon date, B.P.</u>	<u>Calibrated date B.P. (A)</u>	
			<u>intercept</u>	<u>1 sigma range</u>
41AU36	TX-2453	4120 ± 100	4780	4680-4880
41AU36	TX-2127	3270 ± 70	3470	3400-3540
41FB3	I-18946	3160 ± 95	3370	3275-3465
41FB3	GX-24383	3220 ± 130 (B)	3450	3320-3580
41FB3	I-17333	3230 ± 170	3460	3290-3630

A - Stuiver and Pearson 1993; Pearson and Stuiver 1993

B - <sup>13</sup>C adjusted age

**Table 4.** Summary of Burial Practices, and Predominant Traits for each Site.

<u>Site</u>	<u>Body Position</u>	<u>Body Orientation</u>	<u>Head Direction</u>
Goebel	NA	NA	NA
Ernest Witte	extended	supine	northeast
Leonard K	semi-flexed	supine	NA
Brandes	semi-flexed	side	east, south
Big Creek	NA	NA	NA
Bowser	extended	supine	north
Albert George	extended	supine	NA
Ferguson	extended	supine	southeast
41FB95	NA	NA	NA
41FB250	NA	NA	NA
Piekert	semi-flexed	side	south, west
Crestmont	extended	supine	NE, east
41WH44	semi-flexed	supine	south

NA - not available



different seasons, but his study was not conclusive (ibid.:282). In general, burial head directions do not seem to have any relationship to lunar or solar orientation (see Table 4).

At Ernest Witte and Bowser, men, women, and children received grave goods. This is an indication of non-stratified social organization of the associated hunter-gatherer groups, because grave goods would be expected to be given mainly to male leaders in a stratified society. The large amounts of grave goods with some burials indicates that some individuals were given high esteem, perhaps as "big men" or shamans in the case of adults.

As noted in Table 1, there is wide variation in the number of burials at each site in the LAMT. There are also significant variations in the quantities and types of grave goods (Table 5) used at each site. Variations in exotic grave goods may reflect the sporadic nature of long-distance trade. Some types of grave goods are illustrated in Figures 2 to 10. Exotic types of grave goods shown are a slate gorget (Figure 5), boatstones (Figure 7), a corner-tang biface (Figure 9), and a copper pin or awl (Figure 10). Types of locally-made grave goods shown are a marine shell head ornament (Figure 2), bone pins (Figure 3), long-bone implements (Figure 4), marine shell pendants (Figure 6), and short bone artifacts (Figure 8).

Variations in types of grave goods are even greater than shown in Table 5, because there are variations within some types of artifacts. Shell pendants were made in a variety of shapes and sizes. There are three types of short bone artifacts at Bowser (see Figure 8). Boatstones from different sites have the same general shape, except that one boatstone at Bowser is shaped like a four-sided cowbell (Figure 7B). Bone pendants have different forms at Piekert and Crestmont. Long-bone implements have a variety of forms, (e.g., Hall 1981: 224-234).

Lightning whelk columella were used to produce a variety of artifact types. They were ground into smooth cylinders to make tubular beads, left rough with holes drilled in ends for beads, ground to a pointed end to make tools and pendants with a hole in the other blunt end, and they were ground to make bi-pointed artifacts.

#### OTHER RELATED SITES

This paper has summarized basic traits of a concentration of thirteen LAMT sites in Southeast

Texas. There are other Late Archaic cemetery sites in South-Central and South Texas (Hall 1995a). Many of these sites do not seem to have a close relationship with the LAMT sites discussed here. For example, Hall (1995b:644) does not see a close relationship of the large Loma Sandia cemetery site in Live Oak County with other Late Archaic cemetery sites to the east. There is a broad Late Archaic mortuary pattern in South-Central and South Texas, but it is not well defined because characteristics are the result of undefined belief systems.

The Morhiss and Texas West Indies Late Archaic cemetery sites in Victoria County seem to be related to LAMT sites in Southeast Texas, in terms of similar artifact assemblages. These sites are about 110 km (ca. 68 miles) southwest of the Crestmont site, which would be a feasible distance for direct contact or trade with social groups of the LAMT in Southeast Texas.

The Morhiss site, 41VT1, has never been completely published. It is a large campsite and burial site. Morhiss has an artifact assemblage similar to LAMT sites in Southeast Texas, including marine shell pendants, sandstone tools, tubular shell beads, columella beads, Olivella shell beads, corner-tang bifaces, asphaltum, incised long-bone implements, bone projectile points, and red ochre (Duffen n.d.). Dockall and Dockall (1996) have published the shell assemblage from Morhiss. There are 12 pendants made of lightning whelk shell that are similar to pendants at LAMT sites, and 36 tubular shell beads made of lightning whelk columella. This site has evidence of local manufacture of whelk shell artifacts (ibid. 221). There are 3045 *Marginella apicinia* shell beads at Morhiss (ibid.:Table 2). Only one *Marginella* bead is known from an LAMT site, at Ernest Witte (Hall 1981:211). The Morhiss site also has worked *Neritina virginea* shell like the Ferguson site.

There is an uncalibrated radiocarbon date of  $2320 \pm 50$  B.P. on human bone from Burial 159 at the Morhiss site (Dockall 1997), which is within the date range of the LAMT in Southeast Texas.

The Texas West Indies site, 41VT9, is a cemetery site with 14 individuals represented by seven burial features (Birmingham and Huebner 1991). Grave goods include seven incised long-bone implements, ten columella beads, and a discoidal marine shell pendant. Intact burials included two in extended, supine position, with head directions to north and west. There was one flexed burial and one semi-flexed burial with head directions to south. Birmingham

**Table 5.** Use of Grave Goods.

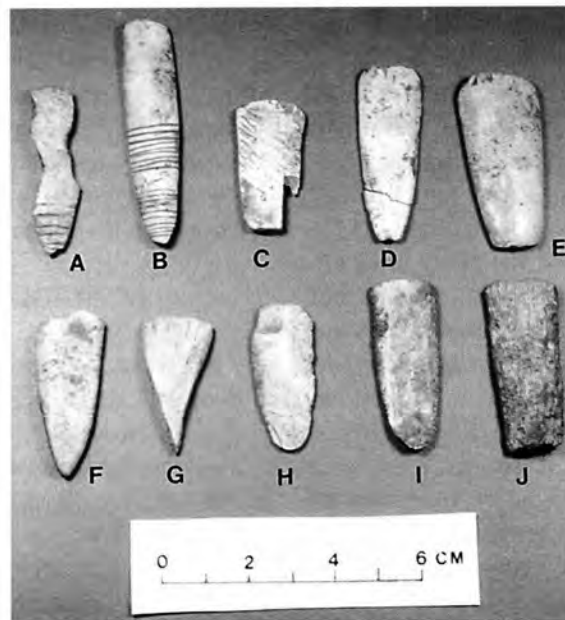
<u>Type</u>	<u>No. of Sites</u>	<u>Sites</u>
boatstones	5	41AU36, 41AU37, 41FB3, 41FB13, 41FB2
pebbles in boatstones	1	41FB3
stingray spines	2	41AU36, 41FB3 (B)
shark teeth	2	41AU36, 41FB3
sandstone tools	3	41AU36, 41FB3, 41AU1
shell pendants	7	41AU1, 41AU36, 41AU37, 41FB3, 41WH39, 41AU55, 41WH44
tubular shell beads	6	41AU36, 41FB3, 41AU55, 41WH14, 4WH39, 41WH44
discoidal shell beads	3	41AU36, 41FB42, 41WH44
columella beads	3	41AU1, 41AU36, 41WH39
pointed columella items	3	41AU55, 41FB3, 41FB13
shell head ornaments	2	41AU36, 41FB3
Olivella shell beads	2	41AU36, 41FB3
stone beads	2	41FB42, 41AU55
stone gorgets	2	41AU36, 41FB250
copper pin	1	41FB3
decorated shell	3	41AU36, 41WH44, 41AU55
corner-tang bifaces	3	41AU36, 41FB3, 41WH39 (A)
asphaltum	1	41FB3
long-bone implements	8	41AU1, 41AU36, 41AU37, 41AU55, 41FB13, 41FB3, 41FB42, 41WH39
short bone artifacts	3	41AU36, 41FB3, 41WH39
bone projectile points	3	41AU37, 41FB3, 41WH39
red jasper pebbles	2	41AU36, 41FB3
red ochre	5	41AU1, 41AU36, 41FB3, 41WH39, 41WH14
dart points	5	41AU1, 41AU36, 41FB3, 41FB13, 41WH39
bone beads	3	41FB3, 41WH14, 41AU36
bone pendants	2	41AU39, 41WH14
bone pins	2	41AU36, 41FB3

A - end stemmed

B - found after site report publication



**Figure 7.** Boatstones with Pebbles, 41FB3. A, C, boat-shaped; B, bell-shaped; C also has pieces of red ochre.



**Figure 8.** Short Bone Artifacts, 41FB3. C, E, J, Type 1; D, H, I, Type 2; A, B, F, G, Type 3.



**Figure 9.** Corner-Tang Biface, 41FB3.



**Figure 10.** Copper Pin or Awl, 41FB3.

ham and Huebner (1991:18) have proposed local manufacture of marine shell artifacts.

The Morhiss and Texas West Indies sites might be considered as outliers of the concentrated area of LAMT sites in Southeast Texas, with the sharing of a belief system, and the possibility of trade between social groups in Victoria County and Southeast Texas (Hall 1998:6). Morhiss dart points from the Bowser site (Patterson et al. 1998:Table 3) may indicate contact with people of the central Texas coastal plain, such as the Victoria County sites, because the Morhiss point is basically from the central Texas coastal plain (Turner and Hester 1993:158).

Hall (1995a:51) notes that the Green Lake site (41CL13) in Calhoun County may also be related to sites of the LAMT because of incised bone artifacts similar to specimens found at Albert George.

Hall (1995a:Figure 15) has shown the geographic distribution of 20 cemeteries in South-Central and South Texas. Seven of these sites are Late Prehistoric. This leaves 13 sites which are or may be from the Late Archaic, including six sites of the LAMT. Thus, only seven Late Archaic mortuary sites are shown outside of the LAMT area of three adjacent counties in Southeast Texas. These seven sites are widely spaced except for a small cluster of sites in Victoria and Calhoun Counties. The geographic concentration of 13 sites of the LAMT is unique for Late Archaic mortuary sites of South-Central and South Texas. There seems to be participation of more social groups in complex mortuary practices of the LAMT area than in other geographic areas of South-Central and South Texas.

### EARLY BURIALS AT LAMT SITES

It has been noted above that the LAMT of western inland Southeast Texas was concentrated in the last half of the Late Archaic period. There is evidence at Ernest Witte and Bowser sites for earlier use as cemeteries, but no continuity from early burials into the LAMT.

There are 61 burials in Group 1 at Ernest Witte (Hall 1981:54). Radiocarbon dates shown in Table 3 for Group 1 burials are in the Middle Archaic period (3000-1500 B.C.) and the early part of the Late Archaic period (1500 B.C.- A.D. 100). There are six burials in the Lower Burial Group at Bowser with three radiocarbon dates shown in Table 3 that are in the early part of the Late Archaic period. Group 1 burials at Ernest Witte have head directions predomi-

nantly to the southeast (ibid.:60) but the Lower Burial Group at Bowser has head directions to the east. All six Lower Group burials at Bowser are extended, and prone (face down), while most Group 1 burials at Ernest Witte are extended and supine. The significance of prone burials at Bowser is not clear. Only 12 percent of Group 1 burials at Ernest Witte had grave goods (ibid.:87), and none of the Lower Burial Group at Bowser had grave goods (Patterson et al. 1998).

### VIOLENCE

There is evidence of violence at Ernest Witte (Hall 1981:284), Crestmont (Vernon 1989:50), Ferguson (Patterson et al. 1993b:21), and Piekert (Copas 1984:5) in the form of dart points embedded in human bone. Hall (1981, 1988) has discussed violence in terms of inter-group conflict, while Patterson (1988) has considered intra-group conflict. There are not enough data to resolve this matter. It can be noted, however, that many sites in this mortuary tradition do not have obvious signs of violence.

### LONG-DISTANCE TRADE

Artifact types representing long-distance trade at sites of the LAMT include corner-tang bifaces, stone gorgets, boatstones, stone beads, and the copper pin or awl from the Bowser site. Distinguishing between exotic and locally-made types of grave goods is discussed below.

The copper pin or awl (Figure 10) from the Bowser site (Patterson et al. 1998) is a long-distance trade item. Sources of copper are the upper Great Lakes and the southern Appalachian Mountains, with prehistoric inhabitants of the Southeast using copper artifacts from both sources (Johnson 1994: 102).

The Late Archaic in Southeast Texas is contemporaneous with the Early Woodland period of the eastern Woodlands. During this period, the Adena culture of Ohio, West Virginia, and Kentucky (Webb 1974), and the Tchula culture of the middle Mississippi Valley (Morse and Morse 1983) had copper artifacts. At a slightly later time, in the Middle Woodland period, copper artifacts were found at the Jonas Short mound and the Coral Snake mound (Story 1990: Tables 65 and 66), both near the Texas-Louisiana border. There is some temporal overlap between the Late Archaic period of Southeast Texas and the Middle Woodland period farther to the east. The burial at Bowser with the copper pin has a



calibrated radiocarbon date of  $2010 \pm 115$  B.P. (GX-24575), at the temporal boundary between the Early and Middle Woodland periods of the eastern Woodlands. This date is somewhat earlier than the copper artifacts at the Jonas Short and Coral Snake mounds, which are in the Middle Woodland period of A.D. 0-400.

Corner-tang bifaces found at sites Ernest Witte and Bowser, and a large end-stemmed biface from Crestmont are long-distance trade items from Central Texas. Patterson (1936:Table 1) has shown Bell County and surrounding counties of Central Texas as the center for the geographical distribution of corner-tang knives. Hall (1981:Figure 55) shows a trade area for corner-tang bifaces, with Central Texas being the manufacturing area.

Boatstones found in Southeast Texas are an exotic type of artifact. Patterson (1937:Table 18) shows quantities of boatstones in Arkansas, Louisiana, Oklahoma, and Texas, with Arkansas having a high proportion of this artifact type. Hall (1981:Figure 55) shows Southwest Arkansas as the manufacturing area for boatstones, consistent with Patterson's (1937:Figure 1) geographic distribution of boatstones.

Two large slate gorgets (one illustrated in Figure 5) from site 41FB250 have a possible source in Southeast Oklahoma or Southwest Arkansas (Lintz and Zahari 1983). It is likely that stone gorgets were manufactured in the same general area as boatstones.

Stone beads from the Brandes and Ferguson sites are made of materials found in Southwest Arkansas (Patterson et al. 1993b:25). However, these stone beads could have been manufactured in Louisiana, at sites such as Cad Mound (Gibson 1968), using materials imported from Arkansas.

One possible method of identifying an artifact type as being obtained by long-distance trade is that an artifact type obtained in this manner should be present in low quantities at local sites. Renfrew and Bahn (1996:354) have noted that the quantity of a traded material usually declines as the distance from the source increases. This is true in western Southeast Texas for corner-tang bifaces, boatstones, stone gorgets, stone beads, and the copper artifact from Bowser. In contrast, artifact types made of bone and marine shell are present in large quantities at sites of the LAMT, such as Ernest Witte, Bowser and Crestmont, suggesting that these artifact types were probably made locally. The presence of sandstone tools may be another indication of the local manufacture of bone and marine shell artifacts.

Hall (1981:295, 1992) has suggested that whelk shell artifacts were imported to Ernest Witte from Alabama or Florida, mainly on the basis that trade networks existed, and no shell manufacturing workshops had been identified in Texas. Steele (1988:238) has supported Hall's position. As noted above, however, the large number of whelk shell artifacts at some LAMT sites does not fit the characteristics of long-distance trade. Randolph Widmer, an expert on Florida archaeology, states (personal communication 1999) that there is little evidence for the manufacture of marine shell ornaments in Florida during the Early Woodland period.

There is now evidence that marine shell ornaments were manufactured at inland sites in the area of the LAMT, rather than being imported in finished form from locations on the coastal margin. Lightning whelk (*Busycon perversum*) shell and other marine shell would have been obtained from the Gulf coastal margin by trade or direct procurement, for the manufacture of shell artifacts at inland locations. The Bowser site is located 104 km from the Gulf shoreline.

There is evidence for the manufacture of marine shell artifacts at Bowser (Patterson et al. 1998), including a cut lightning whelk shell, lightning whelk shell debris, and a chert drill bit with a wear pattern like that obtained from experimental drilling of holes in shell (Patterson 1996b).

Hudgins (n.d.) has surface collections from five inland sites that have evidence of marine shell artifact manufacture, including 41WH32, 41WH80, and 41WH83 in Wharton County, and 41MG50 and 41MG52 in Matagorda County. The various sites have specimens of worked lightning whelk (*Busycon perversum*), horse conch (*Pleuroploca gigantea*), and giant Atlantic cockle (*Dinocardium robustum*) shell. Specimen types include partially finished pendants, shell debris, body whorl pieces, a columella bead blank, and a finished columella bead. These are all multi-component sites with Archaic, Early Ceramic, and Late Prehistoric periods represented. It is likely that the evidence for manufacturing of marine shell pendants at these sites is from the Late Archaic, because marine shell pendants are not found in the western part of Southeast Texas after the Late Archaic period.

There is also evidence of manufacture of marine shell ornaments on the upper Texas coast at Smith Point in Chambers County (Patterson et al. 1999:4). A whelk columella artifact with pointed ends is like specimens from Burial 39 (Patterson et al. 1998:Fig-

ure 17) at the Bowser site. Large Lightning whelk shells are present at Smith Point.

As noted above, there is evidence of local manufacture of whelk shell artifacts at the Morhiss site (Dockall and Dockall 1996:221) on the central Texas coastal plain.

Other items at sites of the LAMT that are of marine origin may have been obtained by trade or direct procurement, such as shark teeth, stingray spines, *Olivella* shells, and asphaltum.

### SOCIAL COMPLEXITY

The LAMT discussed here represents an increase in social complexity by mobile hunter-gatherer groups, shown by use of cemeteries and long-distance trade. Hall (1998) has attributed this increase in social complexity to a resource-rich area with a resulting mortuary tradition used as a territorial marker. There are problems in explaining change in social complexity by a single factor, such as environment. Butzer's (1982:301) opinion is that there is no archaeological case for causally related technological or behavioral readjustments to environmental changes. Butzer (1982:293) has argued that "adaptive response, however environmentally conditioned and spatially rationalized, is explicitly the result of human perception and decision making." Johnson (1982:208) describes what I refer to as the LAMT as primarily a belief system. However, the details of a belief system cannot be defined from the archaeological record. Therefore, it is difficult to discuss a belief system in terms of cause and effect.

Brown and Price (1985:439) have observed that "increased social complexity appears in too many diverse and historically unconnected places to be the result of a single factor." Patterson (1996b:68) has noted that it is probably an over-simplification to attribute increase in social complexity only to an abundance of food resources.

A resource-rich environment is certainly an important factor in the development of the LAMT, but other factors should also be considered. For example, the many major sites with Late Archaic components in the adjacent western part of central Southeast Texas indicate ample natural resource availability where a mortuary tradition did not develop (Patterson 1980a, 1980b, 1985, 1994; Wheat 1953). As noted previously (Patterson 1995: 248) for western inland Southeast Texas, there was a high degree of mixing of technological and cultural

traditions of the Southern Plains (Central Texas) and the Southeast Woodlands. For example, mixing of technological traditions can be seen in the Late Archaic Upper Burial Group at Bowser, where Pedernales, Marshall, and Ensor point types represent traditions of Central Texas, and Gary and Kent point types represent traditions of the Southeast Woodlands (Patterson et al. 1998). Mixing of cultural traditions may have acted as a catalyst to start development of the LAMT in this area. The rapid rate of population increase in the Late Archaic period of Southeast Texas (Patterson 1995:Figure 3) may have caused greater contact between hunter-gatherer groups.

After the Late Archaic period, there were declines in size of burial groups and use of grave goods at sites in western inland Southeast Texas. At Ernest Witte, there were nine burials in Group 3, which may represent the Early Ceramic period, and 12 burials in Group 4 of the Late Prehistoric period. Group 3 had seven dart points associated with one burial, and Group 4 burials had no grave goods. In Wharton County, the Kolojaco Site (Patterson et al. 1996) had three Late Prehistoric burials with no grave goods, and site 41 WH19 (Patterson et al. 1987) had a single Late Prehistoric burial with no grave goods.

The end of the LAMT may represent a decline in social complexity. Soffer (1985:265) has observed that changes in social complexity were sporadic in Eurasia, and this seems to be also true for various hunter-gatherer cultures in North America. In the case of the LAMT, the end of this tradition occurred just before population levels peaked in the Early Ceramic period (A.D. 100-600) (Patterson 1995:Figure 3). There may have been more subsistence stress due to higher population density. A drier climate (Story 1990:244) may have also contributed to subsistence stress. Increased population density may have also contributed to more rapid spread of disease and increased inter- and intra-group conflict.

In any event, the explanation of change in social complexity is difficult for complex, non-linear systems that represent hunter-gatherer lifeways (Patterson 1997b). The diversity of hunter-gatherer behavior (Kelly 1995) and limitations of archaeological data preclude the use of simple models for change in social complexity. Possible factors for change in social complexity can be discussed, but the human decision-making process is not contained in the archaeological record.

## CONCLUSIONS

The Late Archaic Mortuary Tradition of western inland Southeast Texas is characterized by organized burial practices and much use of locally-made and exotic grave goods. The use of exotic grave goods represents participation in long-distance trade networks, possibly of down-the-line type. Thirteen sites in this tradition have been found in Austin, Fort Bend, and Wharton counties. This tradition is concentrated in a time interval of 800 to 60 B.C., and demonstrates continuity of occupation in this three-county area.

This mortuary tradition seems to be the product of a belief system of various hunter-gatherer groups. There are variations in burial position, direction of burial, number of burials, and types of grave goods at different sites. Data from sites in this mortuary tradition represent physical manifestations of the belief system, but cannot be used to define the abstract belief system itself. Therefore, attempts to explain causes for the increase in social complexity represented by this mortuary tradition remain speculative.

Earlier burial groups at Ernest Witte and Bowser do not seem to be precursors for the LAMT. These earlier burial groups had organized burial practices, but little use of grave goods.

The small quantities and different types of exotic grave goods found at different sites are probably due

to the sporadic nature of long-distance trade. The large quantities of marine shell and bone artifacts found at many sites seem to represent locally-made grave goods. There is evidence for local manufacture of marine shell artifacts in the inland area of this mortuary tradition. Except for projectile points, types of items used for grave goods are seldom found at campsites that do not have burials. It appears that most items used for grave goods were regarded as non-utilitarian in nature. For example, the clusters of pebbles found in each boatstone at the Bowser site seems to indicate that boatstones had a ceremonial use, rather than the explanation that boatstones had a functional use as atlatl weights (Patterson 1937:63).

The mortuary tradition discussed here illustrates that mobile hunter-gatherer groups are capable of developing complex social practices, without much evidence of social stratification. In this tradition, men, women, and children received grave goods. Information on this mortuary tradition is a good example of contributions by avocational archaeologists. Data on nine of the 13 sites in the LAMT are the result of work by avocationalists.

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# A PREHISTORIC CAIRN BURIAL FROM THE ARROYO CENTURION, FALCON RESERVOIR

James B. Boyd

## ABSTRACT

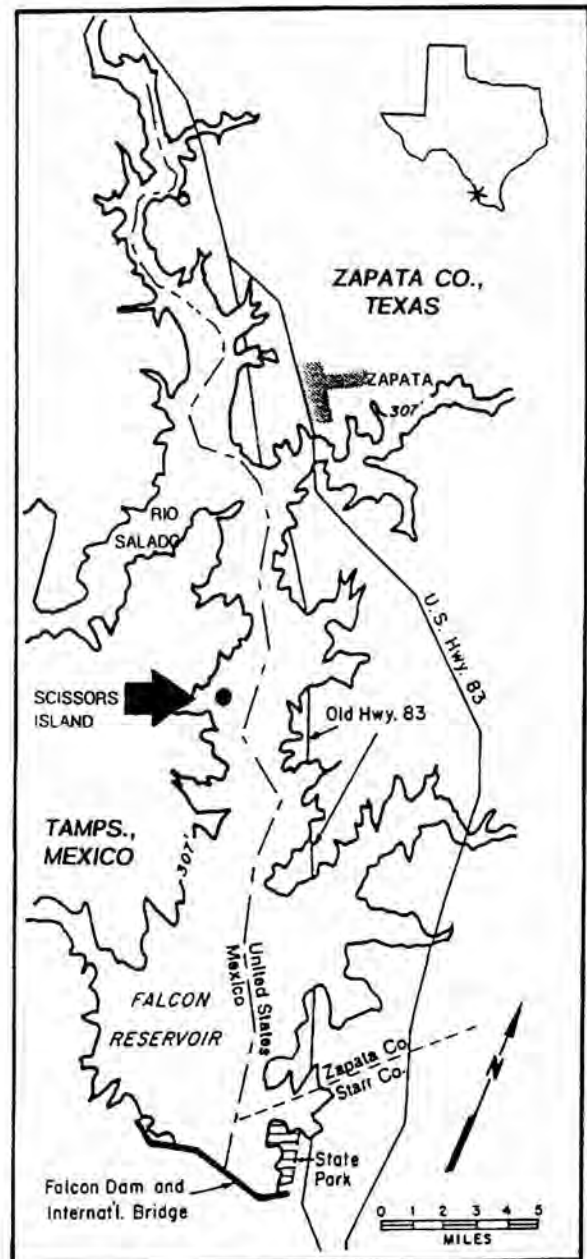
*A burial discovered at Falcon Reservoir in 1995 is reported. The burial is significant because it is the first definitively reported occurrence of a cairn burial in the area of Falcon Reservoir, located on the lower Rio Grande. Artifacts recovered with the burial, notably 82 perforated mussel shells, are described and illustrated. Other cairn burials that have been discovered in the area are referenced, and rock cairn features, possibly marking the locations of other burials, are also reported.*

## INTRODUCTION

On May 23, 1995 the author discovered a cairn burial while recording prehistoric archaeological sites within the drainage basin of the Arroyo Centurion, also locally known as the Arroyo Gonzaleño. This arroyo is located approximately 16 km south-southwest of Zapata, Texas, in Tamaulipas, Mexico (Figure 1).

The burial was inadvertently discovered as the author surveyed the shoreline of a site previously designated as Scissors Island. This site is usually inundated by the waters of Falcon Reservoir, but had been exposed by very low water levels. On the date the burial was found, the lake was 38 feet below the conservation elevation of 301.2 feet above mean sea level (amsl). The author previously reported another nearby burial as well as a brief description of the site (Boyd and Wilson 1998:11-14).

The Scissors Island site was visited several times in 1995. The site had previously been inundated in Falcon Reservoir since the construction of Falcon Dam and the formation of Falcon Reservoir in 1954. Only with the record, drought-induced low water levels experienced in 1995 did the site become exposed. This site is a large terrace located on the south bank of the Arroyo Centurion, approximately 600 meters west of the original riverbed of the Rio Grande. Artifacts recorded during several visits indicated that the site had been extensively utilized, primarily during the Archaic period, as evidenced by



**Figure 1.** Map of Falcon Reservoir, showing the approximate location of the Scissors Island site. The inlet in which the site is located is the Arroyo Centurion.

the large numbers and diversity of dart points dating from that period that were observed. Few arrow points were noted at the site.

### THE CAIRN BURIAL

A suspicious pile of medium-sized sandstone rocks was observed in the waters near the shoreline of Falcon Reservoir, near the southeastern end of the site. The pile of rocks, about 17 in number, was in a few inches of water, and was very apparent in the mostly muddy surroundings. It was obvious that the feature was not a hearth, but rather a deliberately stacked grouping of unaltered sandstone rocks. The constituent stones covered an area just over one square meter.

A strictly controlled approach and assessment of the feature was not possible due to several factors. First, the presence in the immediate area of a large number of artifact collectors actively engaged in looting sites (and burials) necessitated a prompt assessment of the feature. Another factor was that the feature, i.e., the cairn, was still immersed in several inches of water, and conditions surrounding it were extremely muddy.

When the cairn was first visually assessed, suspicions were aroused that it covered a burial, as the author had recently salvaged another cairn burial at a nearby site. Upon approach to the feature, it was difficult to maintain balance due to the extremely

soft mud. The cairn's constituent stones were carefully moved aside. The mud beneath the rocks was probed by hand, and bones determined to be human were recovered from approximately 20-30 cm below the surface. It was apparent that the bones were in fragile condition, and the degree of breakage was high. Nevertheless, as much of the skeletal remains as was practical were salvaged. Several cranial fragments were recovered from the south end of the feature, indicating that the skull might have been oriented toward the south.

During the salvage operation, it became clear that the original grave pit was clearly discernable, despite the muddy conditions. In an area roughly 1 meter in diameter, the mud, or grave fill, was much softer than the surrounding matrix. In fact, the area corresponding to grave fill had the consistency of a very thick, fluid chocolate milk. The surrounding matrix was consistent with the relatively thick and non-fluid river silt common in sites along the Falcon Reservoir shoreline. Since it was impossible to remove the grave fill due to its fluidity, only those skeletal remains that were evident by feel were recovered.

Other visits to the cairn burial were made in the weeks following the discovery. A small amount of additional skeletal remains was salvaged. The disturbed feature was photographed the day after the burial was found (Figure 2).

The salvaged skeletal remains, including frag-



**Figure 2.** View of the cairn (disturbed), looking northeast. The sandstone rocks were originally where the north arrow is located. This photo was taken the day after the skeletal remains were salvaged, and after the lake waters had receded.



ments of the cranium, mandible, long bones, and other specimens, were later cleaned and taken to the Texas Archeological Research Laboratory, The University of Texas at Austin. There they were examined by Diane Wilson of the Department of Anthropology. Wilson's analysis revealed that the fragmentary skeletal remains were those of a male. Little other information was revealed due to the poor state of preservation.

In addition to the skeletal remains, numerous associated perforated mussel shells were found with the burial, and a biface distal fragment was also recovered from the grave fill (Figure 3). The finding of the nondiagnostic distal fragment is believed to be incidental; i.e., not a deliberately placed mortuary offering.



**Figure 3.** Biface distal fragment found within the grave fill.

### THE ASSOCIATED MUSSEL SHELLS

During the recovery of the skeletal remains, a large number of obviously associated mussel shells were discovered in direct proximity to the burial feature, just under the surface. These mussel shells, like the skeletal remains, were found by feel, and were within the delineated burial pit. The mussel shells were located along the south edge of the burial feature and were arranged in a linear fashion, and were placed over one another, so that the internal portion of each shell was placed tightly over the external portion of the adjacent shell. The shells were placed in a line oriented generally east to west. The shells were so perfectly fitted over one another that they were at times difficult to separate. All of the mussel shells were perforated in the umbo area

(Figures 4-6), and the holes appeared to line up, as though the shells had been strung together when interred with the burial. A similar cache of mussel shells was found in the late 1980s in a site on the Rio Salado, west-southwest of Zapata, Texas (Boyd n.d.). The Rio Salado cache consisted of 54 perforated mussel shells of the Tampico Pearlymussel variety that were found in a surface context, with holes aligned as though the shells had been strung when lost or discarded. In this particular case, no burial was noted in proximity to the shells.

In total, 82 complete, or relatively complete, mussel shells were salvaged. The type of mussel was later determined to be Yellow Sandshell (*Lampsilis teres*), a species common in all major Texas river systems (Howells et al. 1996:69). The most common species of mussel found in the area of Falcon Reservoir, however, is the Tampico Pearlymussel (Boyd n.d.; see Howells et al. 1996:48-50). Howells et al. state that the Yellow Sandshell mussel was once in demand in the production of shell buttons, but usage in recent years has markedly declined (ibid.:70).

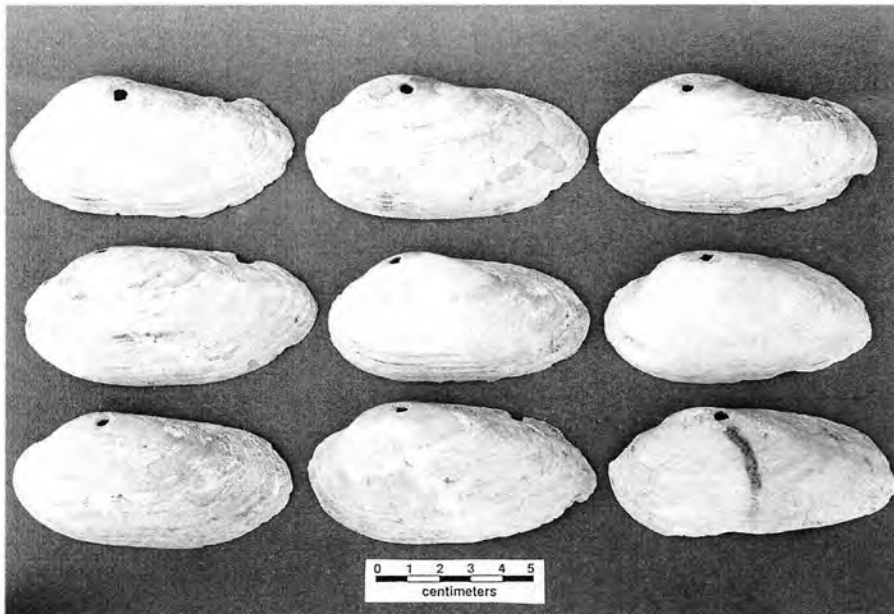
The shells recovered with the burial are in very good condition. Most are complete, although a few are fragmentary specimens. They include 51 left valves and 31 right valves. Length of the complete specimens averages approximately 7.62 cm, but the largest specimen measures 11.32 cm (Figure 5, top left). Howells et al. (1996) report that the largest specimen recovered in Texas measures 14.5 cm in length (ibid.:69).

### OTHER CAIRN BURIALS IN THE REGION

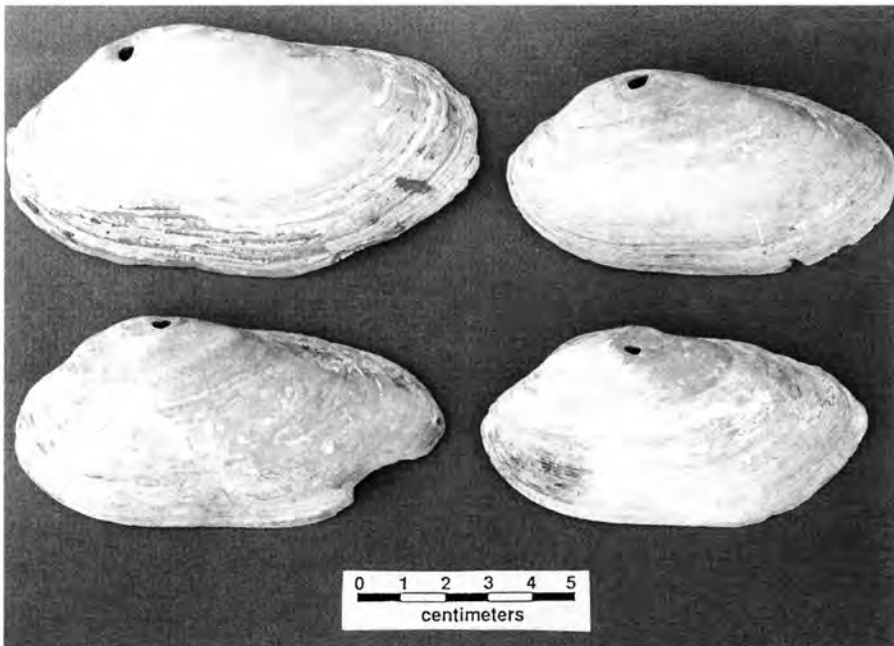
During nearly 20 years of exploration in hundreds of sites in South Texas and northeastern Mexico, the author has seen considerable numbers of prehistoric burials (e.g. Boyd et al. 1997:387-425). However, very few have been cairn burials, and no cairn burials have been previously published.

One cairn burial was discovered at a site on the Rio Salado about 24 km west-southwest of Zapata, Texas, in Tamaulipas, Mexico, in the early 1990s (Boyd n.d.). The burial was eroding from the side of a deep wash, and skeletal material was visible, jutting from the edge of the wash. Several large sandstone slabs covered the burial at the top of the wash, and a few of the slabs had slid down the side of the steep arroyo. The burial was not disturbed, and has not been inspected in recent years.

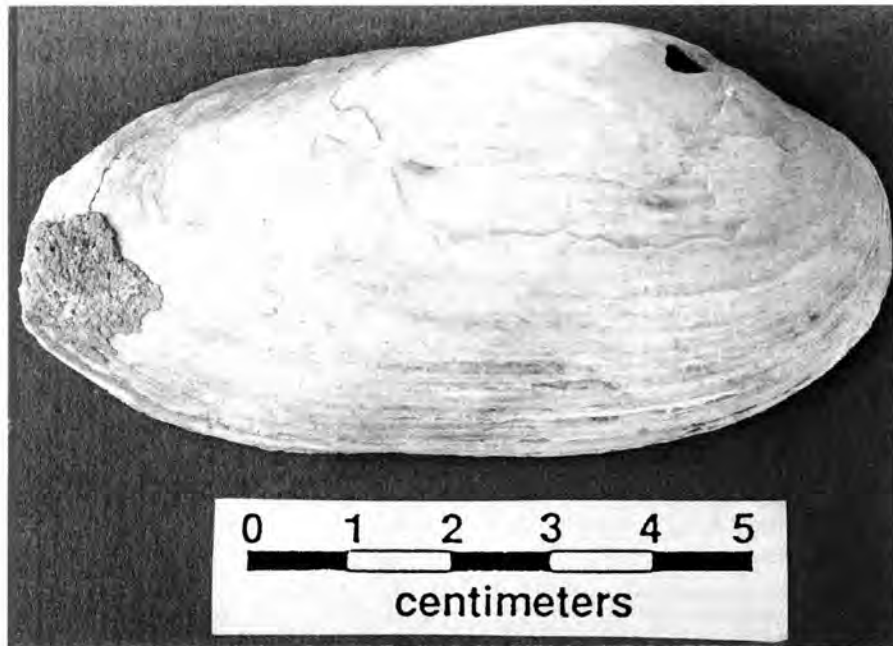
Another cairn burial was discovered in the early 1990s at a Mexican site in the northern portion of



**Figure 4.** Nine specimens of 82 Yellow Sandshell (*Lampsilis teres*) mussel shells salvaged with the burial. Note the perforations in the umbo areas of the shells.



**Figure 5.** Four of the larger Yellow Sandshell specimens salvaged with the burial. The specimen at top left is the largest recovered specimen (L=11.32 cm). Note the perforations.



**Figure 6.** Detailed view of Yellow Sandshell specimen salvaged with the burial.



**Figure 7.** Wide-angle view of large sandstone cairn approximately 45 meters south-southeast of the cairn burial. View east-northeast. Note north arrow at lower right. Falcon Reservoir and the U. S. shoreline is visible at the top of the photo.

Falcon Reservoir, approximately 1 km southwest of the original riverbed of the Rio Grande (Boyd n.d.). This burial is eroding from beneath a few large sandstone rocks. The skeletal remains visible at the surface were in extremely fragile condition, and the burial feature has been left undisturbed.

Another cairn burial was also discovered in 1995 at a Mexican shoreline site at Falcon Reservoir, a few km north of the one at Scissors Island (Boyd n.d.). Several large sandstone rocks also covered this cairn burial, and wave action from the reservoir had eroded skeletal remains buried beneath them. This burial also was not disturbed, other than the salvage of the visible remains at the surface.

#### **OTHER CAIRNS IN THE AREA (POSSIBLE BURIALS)**

Several cairns, where associated skeletal remains have not been observed, have been discovered in the area around Falcon Reservoir. It is possible that in at least some cases, these cairns cover burials that have yet to begin to erode out.

Two cairns are located on a hilltop site about 1 km southwest of the original riverbed of the Rio Grande in the northern portion of Falcon Reservoir, in Tamaulipas, Mexico (Boyd n.d.). These cairns are formed by numerous medium to large sized sandstone rocks common in the immediate area. The two features are located adjacent to one another, and to date no effort has been made to determine whether they cover burials. Another similar cairn, located near the crest of a high mesa approximately 3 km to the southwest, was discovered in the late 1980s. When again inspected in the early 1990s, the cairn had been destroyed by unknown person(s), probably in search of treasure. There is a local legend that a Spanish treasure is buried in a cave on the same hill where this cairn was located. It is now undeterminable whether the cairn once covered a burial due to this disturbance.

Another large cairn composed of approximately 50-75 sandstone rocks was recorded in 1995 at the Scissors Island site, where the burial being reported was salvaged (Boyd n.d.). This cairn, much larger than the others, is approximately 2-3 meters in diameter (Figure 7). The cairn is located approximately 45 meters south-southeast of the cairn burial being reported. Since the cairn was not disturbed, it is currently undetermined whether it covers one or

more burials.

Still another cairn was recorded in 1994 during a cultural resources survey of Falcon State Park, at the south end of the lake, in Starr County. This cairn, recorded as 41SR207, is composed of approximately 36 sandstone "boulders," tightly stacked and covering an area of approximately 1.3 x 0.8 meters (Davis 1994:27-30). Since this cairn was left undisturbed, it is also unknown whether it covers a burial.

Another suspicious linear arrangement of sandstone rocks, or rock alignment, was previously reported from a site on the Rio Salado in Tamaulipas, Mexico, approximately 26 km west-southwest of Zapata, Texas (Boyd 1997:32-36). The function of this aberrant feature is currently undetermined, though it was postulated that it might mark the location of a burial (ibid.:34-36).

#### **CONCLUSIONS**

The discovery, identification, and salvage of the cairn burial at the Scissors Island site is significant because it represents the first published cairn burial in the region of Falcon Reservoir. Although prehistoric burials in the area are common, cairn burials have been only infrequently noted.

The author has tentatively documented at least three other instances of cairn burials in the region, but additional research on these is needed. The additional studies recommended, however, will be severely hampered by several factors, including the remoteness and inaccessibility of one of the cairns, the fragility of another, and the fact that one is only infrequently accessible due to the cyclic fluctuations of the water level of Falcon Reservoir. Also, the referenced cairn burial that is affected by the fluctuating level of the reservoir is wholly at the mercies of hordes of artifact collectors that scour the shorelines of the lake on a regular basis.

The presence of several cairns of sandstone rocks in the region, where associated skeletal remains have not yet been identified, raises the possibility that even more cairn burials may be present. It is possible that with further study, these features might be determined to mark the locations of additional burials. If this is determined to be the case, then it may someday be revealed that cairn burials in the Falcon Reservoir area are not as rare as they are now thought to be.



### ACKNOWLEDGMENTS

Dr. Thomas R. Hester, Director of the Texas Archeological Research Laboratory, The University of Texas at Austin, and Mike Davis, Archeologist with the Archeology Division, Texas Historical Commission in Austin, are both thanked for provi-

ding some of the reference materials used in this report. Dr. Harold D. Murray, formerly of the Biology Department, Trinity University, is also thanked for his helpful comments and correspondence regarding the classification and identification of freshwater mussel species of the lower Rio Grande, including Falcon Reservoir.

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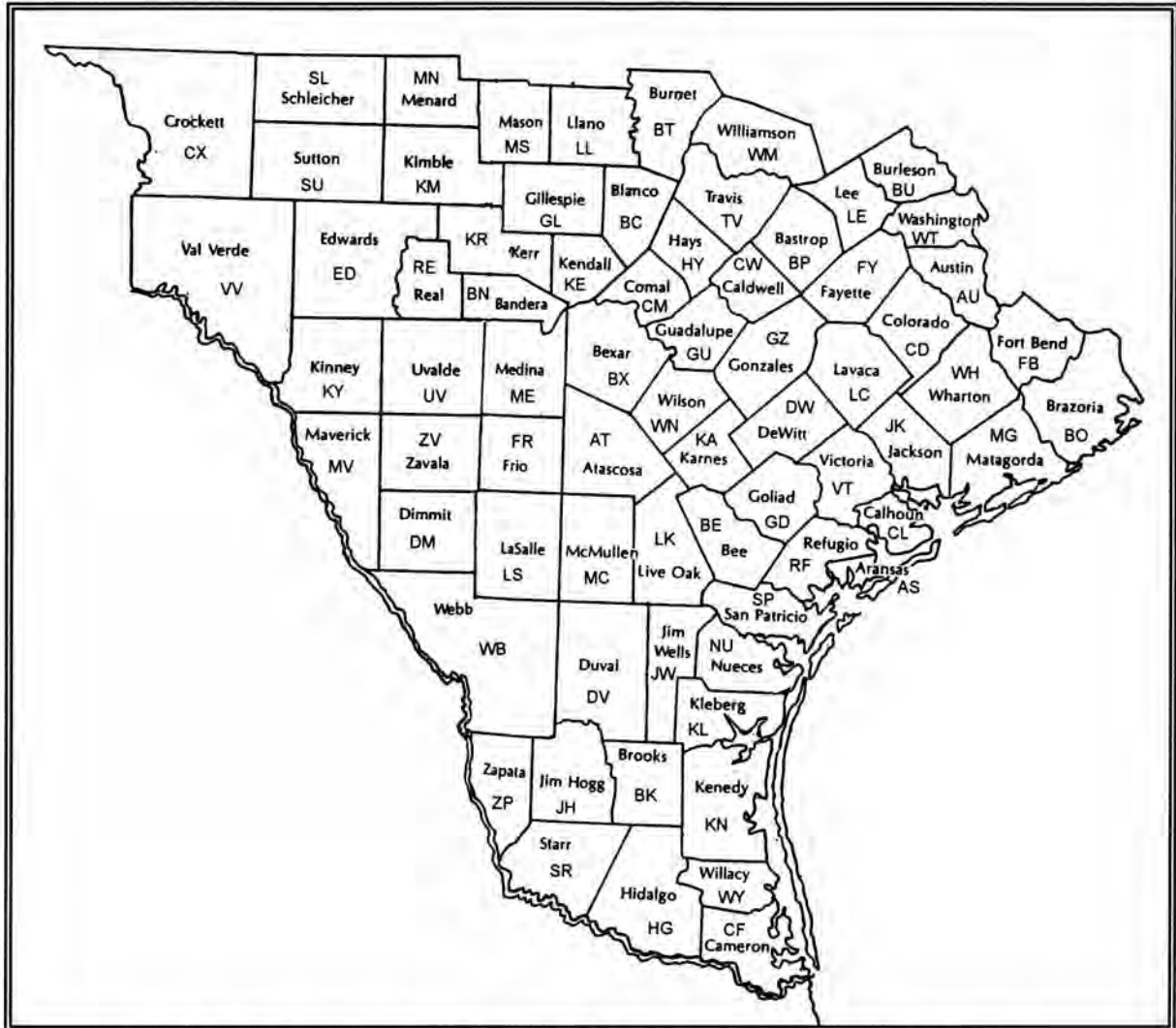
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## APPENDIX A



**South Texas counties with symbols for archaeological site designations.**

### CONVERSION CHART

<u>Multiply</u>	<u>By</u>	<u>To Get</u>	<u>Multiply</u>	<u>By</u>	<u>To Get</u>
millimeters (mm)	0.0394	inches	inches	25.4	millimeters
centimeters (cm)	0.394	inches	inches	2.54	centimeters
centimeters	0.0328	feet	feet	30.48	centimeters
meters (m)	3.281	feet	feet	0.3048	meters
meters	1.094	yards	yards	0.9144	meters
kilometers (km)	0.621	mile	mile	1.609	kilometers
hectares (ha)	2.471	acres	acres	0.4047	hectares



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Articles may be submitted in any form, although double-spaced typed copy is naturally preferred. However, we will review and work with material in any form to encourage those not comfortable with typewritten or other formal methods; **WE ARE MORE CONCERNED THAT YOU SUBMIT YOUR IDEAS AND DOCUMENT YOUR MATERIALS THAN WE ARE WITH THE FORM OF MATERIALS WITH WHICH WE HAVE TO WORK.** If you can supply a 3 1/2" disk, IBM or compatible, in ASCII form (if not in Word Perfect or Word), it will be very helpful.

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