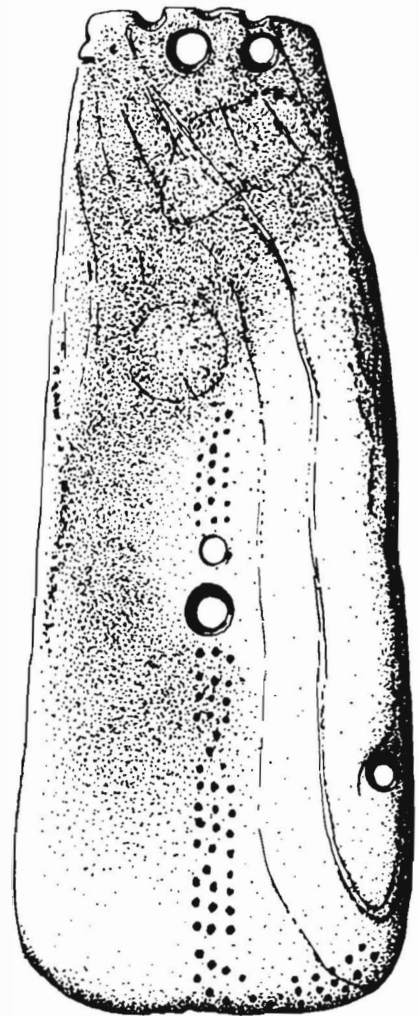
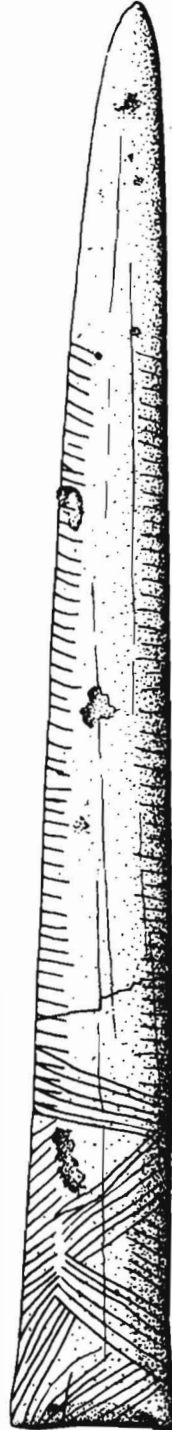
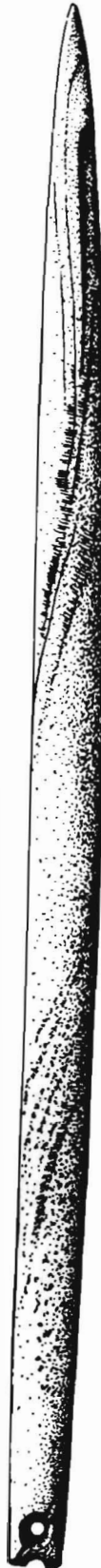


LA TIERRA



July 1988

Volume 15, Number 3

**JOURNAL OF THE
SOUTHERN TEXAS
ARCHAEOLOGICAL
ASSOCIATION**

LA TIERRA

Quarterly Journal of the Southern Texas Archaeological Association

Volume 15, Number 3
July, 1988

Evelyn Lewis
Editor

NOTES ON SOUTH TEXAS ARCHAEOLOGY: 1988-3

Arrow Shaft Straighteners in Southern Texas and Some California
Ethnographic Comparisons
(Thomas R. Hester) █

SALVAGE ARCHAEOLOGY AT THE BRANDES SITE (41 AU 55), AUSTIN COUNTY, TEXAS
(Cheryl Lynn Highley, Jeffery A. Huebner, Joseph H. Labadie,
Rochelle J. Leneave and Robert R. Harrison) 6

MINIATURE CORNER TANG ARTIFACTS FROM BEXAR COUNTY, TEXAS
(C. K. Chandler) 20

KENT-CRANE REVISITED
(Kim A. Cox and Herman A. Smith) 24

AUTHORS 39

About the Cover: Bone artifacts found at the Brandes Site (41 AU 55), Austin
County. See "Salvage Archaeology at the Brandes Site" paper starting on page 6
this issue. Drawings by Staff Artist, Richard McReynolds.

- - - - -

Manuscripts for the Journal should be sent to: Editor, **La Tierra**, Evelyn
Lewis, 9219 Lasater, San Antonio, Texas 78250. Copies of past issues of the
Journal and Special Publications are available from: Bette Street, 100 Kings
Crown E., San Antonio, Texas 78233.

For membership information contact the Membership Chairman: Liz Smith, 1607
West Huisache, San Antonio, Texas 78201.

For use of the STAA Lending Library, contact Lynn Highley or Anne Fox at the
Archaeology Laboratory, The University of Texas at San Antonio, San Antonio,
Texas 78285.

Library of Congress Catalog No. 76-649774.

All articles in **La Tierra** are now summarized in **Abstracts in Anthropology**
published by the Baywood Publishing Company.

All contributions to this Non-Profit organization are tax deductible.

Arrow Shaft Straighteners in Southern Texas and Some California
Ethnographic Comparisons

Thomas R. Hester, Fred H. Stross and Dorothy M. Brown

In a *La Tierra* paper last year, Brown and Leneave (1987) illustrated and described a grooved and incised stone from Edwards County. They noted that the breakage patterns on the specimen suggested that it had been used in conjunction with heat and they offered two hypotheses (p. 27) about function: (1) "...the stones are either shaft straighteners" or (2) "some sort of texturizing device designed to impart an artificial texture to some sort of hide or fabric." Turner and Hester (1985:246-247) illustrate several specimens and note that they are often made of limestone and have been discolored or fractured due to repeated heating. They suggest that the function of these incised and grooved stones were as arrow shaft straighteners. An earlier review of this artifact form for central and southern Texas had been done by Hill, House and Hester (1972).

We can offer in this short note some additional materials relating to the nature and function of these artifacts. In Figure 1, we illustrate a grooved stone of this category from a site in southwestern Dimmit County. Others have been found in that area, but this may be the southernmost occurrence yet recorded. It is made of tannish sandstone and was fractured in ancient times at the middle of the groove (cf. Brown and Leneave 1987:Figure 2). It has a groove 50 mm long, 15 mm wide and 11 mm deep. There are no indications of incised lines. Overall length of the artifact is 128 mm, it is 51 mm wide and 31-40 mm thick. It is from site 68 in the Dorothy M. Brown collection.

As noted by Turner and Hester (1985:246), there are similar artifacts in the American Southwest and in California and whose function is ethnographically known to have been arrow shaft straightening. Fred H. Stross has provided a translation (from German) of a portion of a paper by Paul Schumacher, who made many observations on the California Indians in the 1870s. The following excerpt is from *Archiv für Anthropologie*, Vol. 9, pp. 249-250, 1876 (we have attempted to reproduce an illustration of an arrow shaft straightener collected by Schumacher in Figure 2; in Figure 3, another such specimen, ethnographically documented, is also shown).

"XIII. Straightening of Arrow Shafts. By Paul Schumacher, in San Francisco.

In an earlier communication (Vol. VII, pp 263-265) I discussed the manufacture of stone weapons, specifically of arrow points; now I wish to describe the process of straightening the shafts to which they were fastened. By this process those dainty stone fragments, when shot from the bow of the Indian, become a dangerous weapon. In order to speed the arrow on its way with precision, and not to strain the capacity of the bow, it is necessary not only to fit it with feathers, but also to prevent any curvature of the arrow shaft or rod to occur. This is as important to the archer as a rifled barrel is to the rifleman in place of the smooth, or even rusty barrel. We therefore never find an Indian using a bent arrow shaft; he keenly values a good weapon, particularly since he is familiar with the method of bending wood by application of heat. Along this coast, twigs of the mountain willow (?) usually are chosen for arrow shafts; they are scraped and cut to a suitable length; they are about 5/16 inch in diameter and 2-1/2 feet long, as a rule.

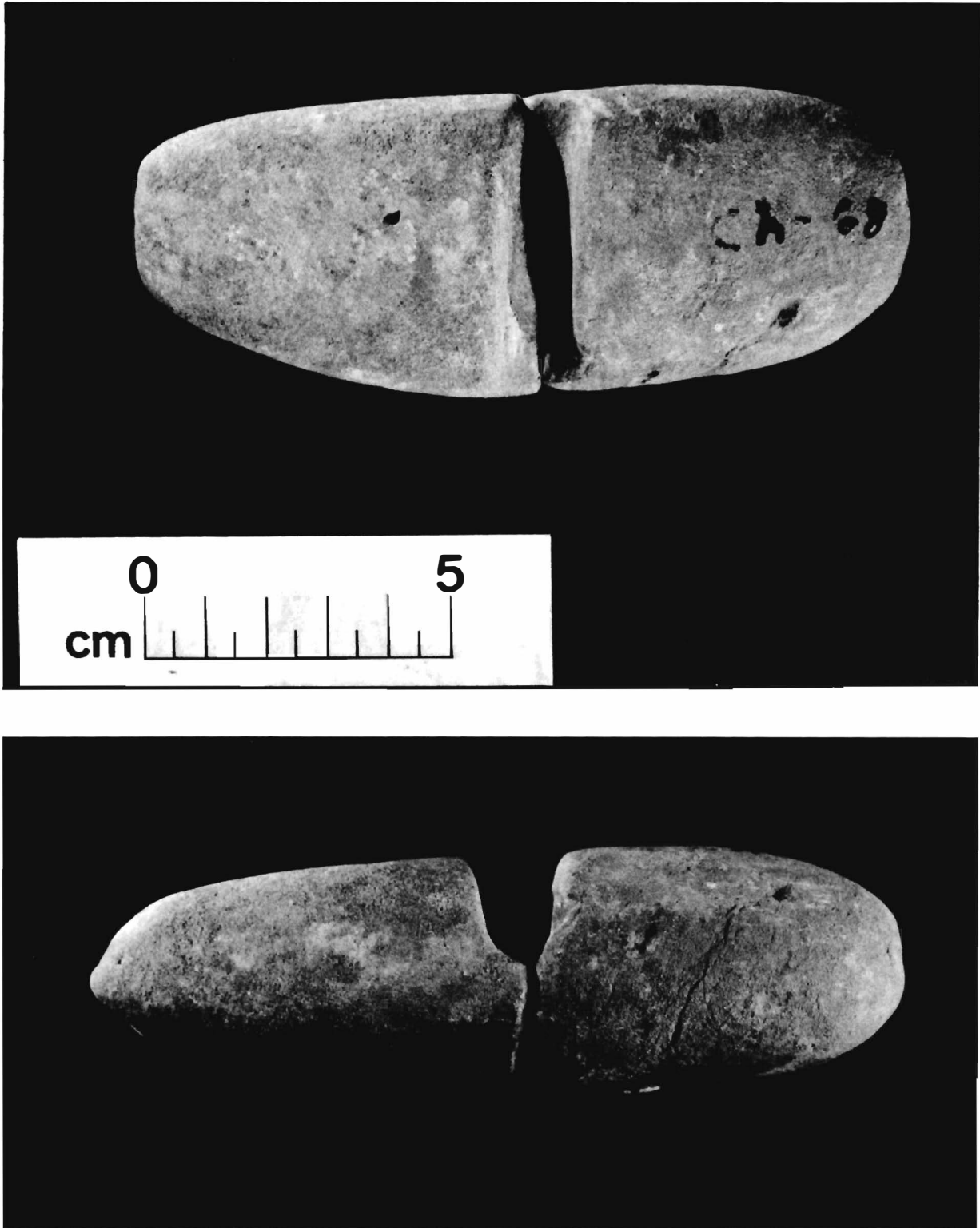


Figure 1. Grooved Stone Artifact from Dimmit County, Texas. Top and side views are shown; note scale in centimeters. Dorothy M. Brown Collection, site 68.

In order to straighten staves thus prepared, which is done with great precision, a stone tool is used, such as is shown in Figure 18¹ [Our Figure 2, bottom of page].

The raw material is serpentine, a stone which is easily worked, holds the heat well, and is not easily damaged on exposure to fire. The shape is oval, the upper surface semi-circular, the bottom flat. A groove of the size of the half-circle of the diameter of the arrowshaft, that is approximately $\frac{5}{16}$ inch at its widest part, so that the thickness of the shaft fits into it, runs straight through the middle of its oval length. (As a result of wear, to be sure, the groove becomes deeper, and also wider at the edges.) The size of the tool ranges from 3 to 5 inches in length, from 2 to 3- $\frac{1}{2}$ inches in width, in the middle, and from about 1- $\frac{1}{2}$ to 3 inches in height. The smaller tools have one groove, the larger ones two, and one specimen even was found to have three. They usually are shaped to have a symmetrical appearance, are polished, and often decorated with rectilinear ornamentation. Such a stone is heated in the fire, then the bent portion of the shaft is pressed into the groove, warmed in it, and bent straight; this is easily accomplished under these conditions, and stays straight on cooling. It is the same principle by which nowadays lumber is shaped on a large scale by heating or steaming, for instance during manufacture of bent-wood furniture.

¹The specialization of activities division of labor is well known among Indians, and dates as far back as one can gather from the remains in their graves and the ruins of ancient smoke chambers (?) (Raucherie). They had their weapon-makers, canoe-builders, fishhook-makers, physicians, etc.; we therefore but rarely find the tools of such specialized activities in the graves of a raucherie (?) in duplicate, and then only if such sites have been inhabited for an appreciable period of time. During my extensive excavations for the Smithsonian Institution, which so far have yielded about 6,000 skeletons, I have found only five such stones (as well as several fragments) for straightening arrow shafts."



Figure 2. California Arrow Shaft Straightener. From Schumacher (1876:Figure 18, p. 250). Size not given; ranges between 3 - 5 inches.

The specimen shown in Figure 3 comes from San Bernardino County,

The specimen shown in Figure 3 comes from San Bernardino County, California (Heizer and Elsasser 1980:149) and is made of soapstone. Heizer and Elsasser (*ibid.*) felt that use of soapstone for such artifacts -- shaft straighteners that were repeatedly heated -- kept them from fracturing during the heating process.

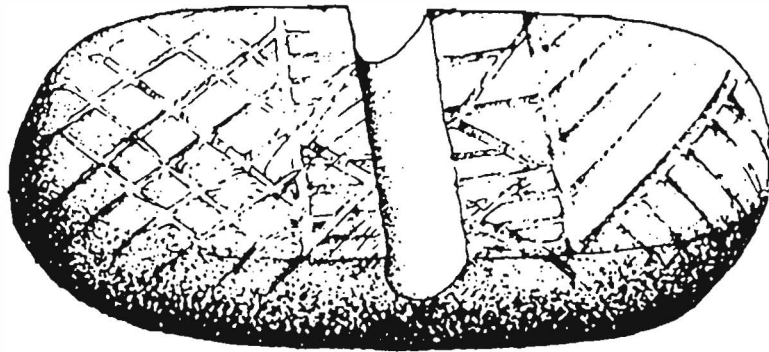


Figure 3. An Arrow Shaft Straightener from San Bernardino County, California. Made of steatite and about 3.5 inches long. Adapted from Heizer and Elsasser (1980:Figure 89).

There are, of course, many warnings in the archaeological literature over the dangers of "ethnographic analogy." However, in the case of the south and central Texas grooved stones, showing repeated heating and often fractured from heating, as well as their close physical resemblance to the California specimens, there seems to be little room for further doubt about their function as shaft straighteners. But were dart shafts being straightened or did these appear with the introduction of the bow and arrow? Here we have a continuing problem since most reported grooved stones are from surface or uncertain contexts. Black and Markey (1985:178-179) illustrate several incised specimens from the Panther Springs Creek site (41 BX 228); all were heat fractured or discolored by heat and came from upper levels in the site. Although it is difficult for us to tell from their report, the specimens may be associated with arrow points and transitional Archaic materials.

Finally, there is the morphological variation within this artifact form: some have grooves with no incised lines; others are grooved with perpendicular incised lines; and others have only incised lines and no grooves. Perhaps there is temporal or functional variation involved here. We suspect that those with only incised lines could have also been used as straighteners, with the group of lines serving as a "friction point" on which the wood shaft was in contact at the time it was being straightened.

Black, Stephen L. and Betty Markey

1985 Incised and Abraded Stone. In: The Panther Springs Creek Site, by S. L. Black and A. J. McGraw, pp. 175-180. **Center for Archaeological Research, The University of Texas at San Antonio, Archaeological Survey Report 100.**

Brown, Kenneth M. and Rochelle Leneave

1987 An Incised and Grooved Limestone Cobble from Edwards County. **La Tierra 14(3):24-27.**

Heizer, Robert F. and Albert B. Elsasser

1980 **The Natural World of the California Indians.** University of California Press, Berkeley.

Hill, T. C., Jr., J. W. House and Thomas R. Hester

1972 Notes on Incised and Grooved Stones from Southern and Western Texas. **Lower Plains Archeological Society Bulletin 3:1-10.**

Turner, Ellen S. and Thomas R. Hester

1985 **A Field Guide to Stone Artifacts of Texas Indians.** Texas Monthly Press, Austin.

* * * * *

NOTICE TO INTERESTED ARCHAEOLOGICAL SOCIETY MEMBERS

The National Park Service at the Amistad National Recreation Area in Del Rio, Texas is recruiting volunteers for their 1988 archeological Volunteer in the Park program (V.I.P.) this summer from June through September. Projects will include site documentation and conservation work of archaic Indian rock-shelters and some upland historic site surveys. Weekend and weekday work is available. Volunteers interested in participating in this program can contact the Park Archeologist, Joe Labadie, at the National Park Services Headquarters in Del Rio at 512-775-7491.

SALVAGE ARCHAEOLOGY AT THE BRANDES SITE (41 AU 55), AUSTIN COUNTY, TEXAS

Cheryl Lynn Highley, Jeffery A. Huebner,
Joseph H. Labadie, Rochelle J. Leneave
and Robert R. Harrison

ABSTRACT

In the spring of 1987 archaeologists from the Center for Archaeological Research, the University of Texas at San Antonio (CAR-UTSA), carried out salvage operations at a prehistoric cemetery located in Austin County. Preliminary assessments indicate that the cemetery was utilized during the Late and/or Transitional Archaic periods. Future work at the site will be carried out by Texas A&M University.

INTRODUCTION

In April, 1987, Mr. Charles Brandes contacted the Office of the State Archeologist and reported uncovering several prehistoric burials on his ranch near Sealy, Texas. He expressed an interest in having knowledgeable persons examine the remains and suggest ways in which to best handle the excavation of the cemetery and properly document the findings.

The Center for Archaeological Research was contacted by the State Archeologist's office on April 8, and on April 10 a volunteer crew consisting of Highley, Huebner, Labadie, and Leneave traveled to the site located in Austin County. A small rise near the Pecan Branch of Mill Creek had been trenched by a bulldozer to remove sand from along the creek. The resulting cut, approximately 20 feet long, eight feet wide, and four to five feet deep, had exposed three human burial pits in the trench walls. One burial (designated Burial 3) was located along the east wall while two others (designated Burials 1 and 2) were located along the west wall. Other human skeletal remains and artifacts were found in the backdirt. It was decided to remove the more complete burials, Burials 1 and 3. The pit designated Burial 2 contained very little skeletal material; the remains had evidently been removed by the bulldozer. The time factor did not permit total removal of the burials. On April 30 Highley, Labadie, and Leneave returned to the site along with Anne Fox, Michael Marchbanks, and Shirley Mock to complete the salvage operation. The site was recorded at the Texas Archeological Research Laboratory, the University of Texas at Austin and was designated 41 AU 55 (Figure 1).

ARCHAEOLOGICAL BACKGROUND

Prior to the discovery of 41 AU 55, several other cemetery sites in the lower reaches of the southeastern coastal region of Texas had been recorded (Figure 1). In order to present a frame of reference for the Brandes site, mortuary data from five of these sites are briefly reviewed here. For a more detailed review of these and other cemetery sites, the reader is directed to Hall (n.d.).

The Goebel Site (41 AU 1): This site is located in northern Austin County, Texas along Mill Creek, a tributary of the Brazos River (Figure 1). The site was discovered in October 1959 when it was bulldozed for fill dirt (Fleming and Fleming 1959). The site was excavated by the Houston Archeological Society in that same year. A total of 42 human burials were recovered in extended, flexed, and semi-flexed positions (Duke 1981). Artifacts in association with burials included conch columella beads and gorgets from the outer whorl of the conch shell, bone awls, and sandstone abraders. Blocks of sandstone were arranged around the head of each burial (ibid.).

Artifacts recovered from the "midden" portion of the Goebel site suggested a long period of occupation, spanning the Archaic to Late Prehistoric periods (Duke 1982 a,b). Based on the artifacts, the cemetery was placed in the Late Archaic period (ibid.).

The Ernest Witte Site (41 AU 36): This site, reported by Hall (1981), is the largest cemetery in southeast Texas. It is located in southeastern Austin County on a bluff overlooking the Brazos River floodplain (Figure 1). Four stratigraphically discrete burial groups were identified spanning from the Middle Archaic through the Late Prehistoric periods. The latest burial group, Group 4, contained 12 flexed interments oriented headward to the east and southeast. No artifacts were found with these burials, and Hall (1981:53) dated them as "...assuredly Late Prehistoric...probably deposited late in the sequence."

A total of 10 semi-flexed interments constituted Group 3 at 41 AU 36; their headward orientation was generally to the north-northwest (Hall 1981). Seven Godley points were found with Burial 154; no other artifacts were associated with this group. Based on these projectile points, Hall (ibid.) dated this group to the period ca. A.D. 550-A.D. 950.

The largest burial group at the Ernest Witte site was Group 2 with a total of 145 individuals. The majority of these were in an extended position oriented headward to the southwest. Other interment styles included a single flexed and 17 semi-flexed primary burials, two bundle burials, and three cremations (Hall 1981:85-86). Nearly half of the burials included grave goods in the form of conch beads and pendants, 11 forms of worked bone, boatstones, "corner-tang bifaces," deer antlers, ocher, and dart points. Two radiocarbon dates run on human bone from Group 2 yielded corrected dates of 520 B.C. and A.D. 360; the latter was felt to be the more representative of the two dates (Hall 1981:53).

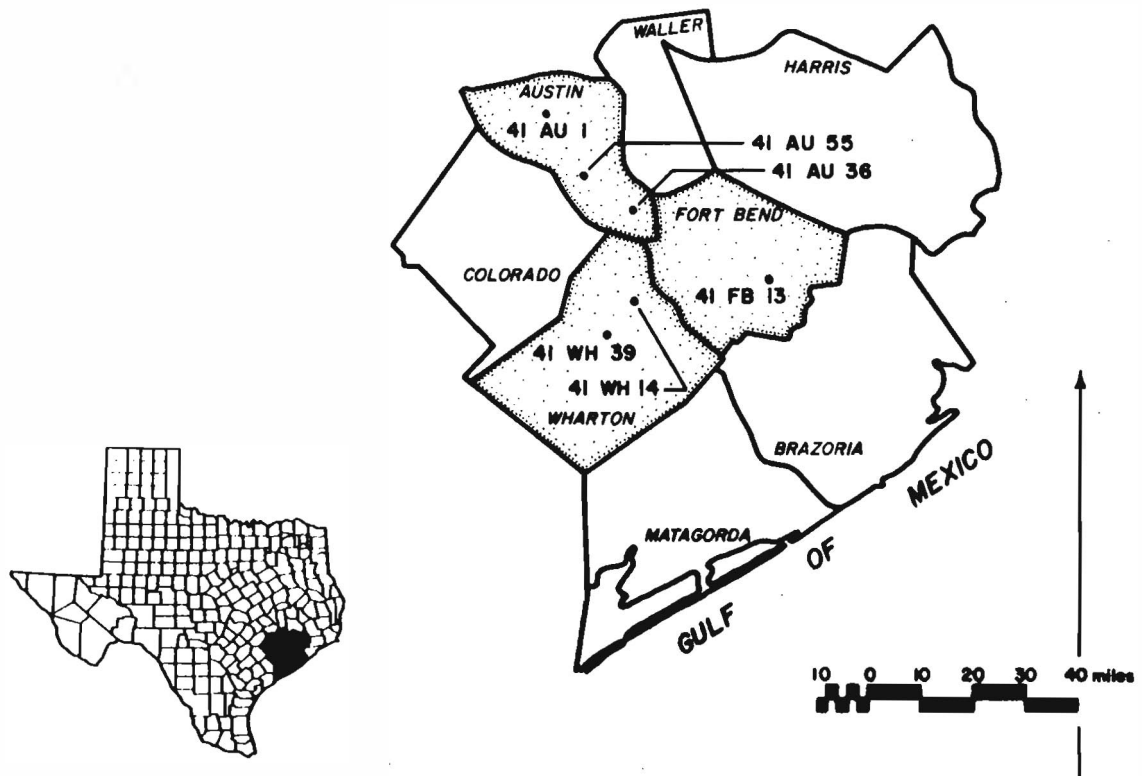


Figure 1. Location of the Brandes Site, 41 AU 55, and other cemetery sites in nearby counties. Small Texas map shows location of those counties (darkened area).

Burial Group 1, the oldest in the site, contained 61 burials. The majority were extended with headward orientation to the southeast. Flexed, semi-flexed, and cremations were also noted. Grave goods from this group included a single Pedernales dart point and several worked bone artifacts. Two radiocarbon dates on human bone yielded corrected dates of 1530 B.C. and 2610 B.C. (Hall 1981:53).

The Piekert Site (41 WH 14): This site is located at the confluence of Clarks Branch and the West Bernard River in Wharton County, five miles (8 km) west of Hungerford, Texas (Kindall 1980:5; Figure 1, this report). A total of 10 burials and a single isolated pelvis were recovered from the site. Headward orientation of the burials is predominantly southward and all are in a semi-flexed position, with the exception being a single tightly flexed burial. Two burials, a female and an infant, show evidence of violent death; a Yarbrough dart point was found in the ribs of the woman (Kindall 1980:7). Only two burials had grave goods--bone and shell beads occurred with Burial 8 and a necklace of bone pendants was with Burial 1. Red ocher was found with most of the burials. Hall (n.d.) dates this site as contemporary with the Crestmont site (41 WH 39), ca. 500 B.C. to A.D. 400.

The Crestmont Site (41 WH 39): This site is located on a low rise south of a remnant channel of Chaney Creek and northeast of the present-day Colorado River in central Wharton County (Vernon 1988; Figure 1, this report). A total of 31 burials was identified by Vernon (ibid.) in her skeletal analysis of the site. Headward orientation of the majority was east to northeast with three to the southwest. The most common burial position was extended. However, one flexed and one semi-flexed were also represented. Grave goods were included with 21 burials. These were found to contain lithospermum seed beads, incised bone pins and ornaments, conch columella beads and dangles, conch pendants and gorgets, one large-stemmed, unclassifiable biface, Palmillas dart points, antler tines, sandstone, and ocher. Vernon (1988) hypothesized that the Crestmont Site was used earlier in the Late Archaic period by the same group of people that buried their dead at the Ernest Witte site (Group 2).

The Albert George Site (41 FB 13): This site is located on the west bank of Big Creek, a tributary of the Brazos River in southern Fort Bend County, Texas (Figure 1). A preliminary report by Walley (1955) documents two periods of excavation in 1951 and 1954. While exact numbers are not given, 15 to 27 burials were excavated. Burial positions were given for only two individuals, one semi-flexed, the other extended with legs crossed. No orientation is noted. Grave goods included a large number of bone implements, many with incised designs and perforations at the proximal end. At least 26 of these incised bone tools came from a single cache in Plot VIII (Walley 1955:233). Other artifacts include six dart points with one burial, and a boatstone and two columella pendants found on either side of the skull of a female burial. These pendants are 7.0-7.5 cm in length, are perforated at one end, pointed at the other end, and incised around the 1.5 cm diameter.

SOIL PROFILE

1) The top horizon, consisting of dark brown (Munsell, 7.5 YR 3/2) sandy silt, was approximately 45 cm thick.

2) The second layer is a thin lense of white (7.5 YR 8/0) compact sandy silt. This lense separates the upper and lower soil horizons. It appears truncated in several places in both the east and west walls of the bulldozer cut. It is consistent with all burial pits and delineates the outline of each pit.

3) The lowest horizon is a grayish brown (10 YR 5/2) sandy silt. This soil is compact and mottled with brown patches and soft, friable pieces of sandstone are present in the profile.

All soils appear to be alluvial in origin except for the lense. This lense could be the level at which leached calcium carbonate settled as it was unable to penetrate the lower horizon. This aspect of the site certainly needs further study. Grave pits are dug into the lower horizon which should make their limits easy to define in further excavations. The grave fill is softer and easier to dig than the soils above and below the grave pits. No cultural materials were noted in the profiles other than the burials and associated grave inclusions.

THE EXCAVATIONS

Burial 1

Burial 1 was located in the west wall of the bulldozer trench. It was situated about three meters south of Burial 2 at about the same vertical elevation. The upper portion of the skeleton had been truncated by the bulldozer. The frontal portion of the skull and portions of the rib cage were missing.

The excavation of Burial 1 began with the establishment of a 50 cm by 80 cm unit adjacent to the west wall of the bulldozer trench. The unit was placed immediately above the upper torso portion of the skeleton, visible in the wall profile. An adjacent unit (50 cm by 85 cm) was later excavated to recover the lower extremities.

The upper humic layer was removed with a flat shovel and was not screened. At about 20 cm below ground surface the upper contact of the burial pit was stratigraphically recognized. Burial pit matrix consisted of a dark sandy loam (7.5 YR 3/2) intermixed with small quantities of chert flakes (many of which were thermally modified), small animal bones, mussel shell fragments, land snail fragments, and small pieces of charcoal.

Excavations revealed that the individual had been placed facing east, on his right side in a semi-flexed position. The skull was oriented toward the south while the lower extremities were to the north. Protruding from the chest area were two pointed conch columella tools; one was complete, the other had been broken by the bulldozer activities. Other artifacts included a small pointed bone tool excavated from the chest area and an incised, flat, pointed bone tool located beneath the skull and left humerus. One Ensor point (Figure 2, b) was found in the bulldozer cut just below the burial; it was lying in similar fill that surrounded the burial and is assumed to have fallen from the grave after the bulldozer cut through the site. A second Ensor point (Figure 2, c) was also recovered from this burial, although its location within the burial is unknown. A badly burned distal tip of a biface was recovered from among the lower extremities.

Burial 2

Burial 2 was located along the west wall of the trench. It was situated about three meters north of Burial 1 at about the same elevation. A probable burial pit outline was indicated by the presence of a somewhat bell-shaped lense of calcium carbonate. This feature measured about 80 cm (north/south) and was 54 cm below ground surface at the deepest point. Pit fill (small quantities of flakes, mussel shell, snail shell, and charcoal) was very similar to the other two burials. The bulldozer had removed nearly all skeletal material, leaving only a few freshly-fractured bones in the trench wall. Time did not allow for excavation of this feature.

Burial 3

The designation of Burial 3 was given to a concentration of human bones exposed in the east wall of the bulldozer cut. The bone mass was difficult to interpret in the field, given the degree of recent disturbance by the bulldozer, and the limited amount of time allowed for salvage-oriented excavation. The burial primarily consisted of long bones, most of which had been badly crushed by the weight of the bulldozer. The bulldozer apparently removed the upper portion of the skeleton(s). No skeletal elements above the pelvis were found during hand excavation.

Skeletal materials from Burial 3 were located within the topmost soil zone (7.5 YR 3/2). Underlying the bone, at about 50 cm depth, was a thin, white (7.5 YR 8/0) compact lense of calcium carbonate that appears to represent the burial pit outline. The pit was basin shaped and measured 105 cm, north to south. Burial fill was consistent with the other excavated burials, all consisting of a dark, sandy loam matrix intermixed with small quantities of flint flakes, mussel shell fragments, land snail fragments, and small bone fragments.

The upper portions of the bone mass consisted of badly crushed long bones. Underlying the broken bones were two fully articulated lower legs and feet which were heavily encrusted with calcium carbonate. Given the positioning, the complete skeleton would have been oriented to the south with the lower extremities to the north. Post-excavational analysis indicates the bone mass contained three sets of tibia and fibula, thus indicating the presence of an intrusive burial. Both burials were semi-flexed on their right sides, based on leg positions.

Artifacts excavated from this burial include an Ensor point fragment (Figure 2, a), a small core, and an antler tip. In addition to these specimens, two large bifaces, a conch shell pendant, and conch shall columella bead were reported by the landowners to have been recovered from disturbed soils lying on the trench floor immediately below Burial 3.

PRELIMINARY ANALYSIS: HUMAN SKELETAL REMAINS

The human skeletal remains recovered from 41 AU 55 are fragmented and incomplete. The elements of the upper and lower extremities are more frequently complete or less severely fragmented. Other postcranial elements are frequently absent or severely fragmented. Cranial elements are frequently absent or severely fragmented. Otherwise, general preservation ranges from poor to good. Some elements show signs of chemical erosion from the soil and from weathering. Bone fragmentation appears to have occurred both pre- and post-excavation.

Incompleteness and fragmentation of the skeletal assemblage precludes precise estimation of minimal number of individuals (MNI), stature at time of death, age at time of death, or gender. However, rough estimates are provided for several of the above criteria. MNI was arrived at by comparing numbers of right and left tibias, femurs, and humeri. Gender estimation was not attempted, although one individual was more gracile than the others and probably represents a female. Stature estimation was not attempted. Age at time of death was estimated to be early to mid-adulthood. This estimate was arrived at by the complete closure of the epiphysis and lack of evidence for moderate or advanced degenerative joint disease. No gross evidence of antemortum trauma or disease process was noted on any of the bones.

Minimum Number of Individuals Per Burial:

Burial 1: One individual based on a count of femora
 Burial 3: Two individuals based on a count of tibias and femora
 Backdirt: Three individuals based on a count of mandibles, tibias, and femora

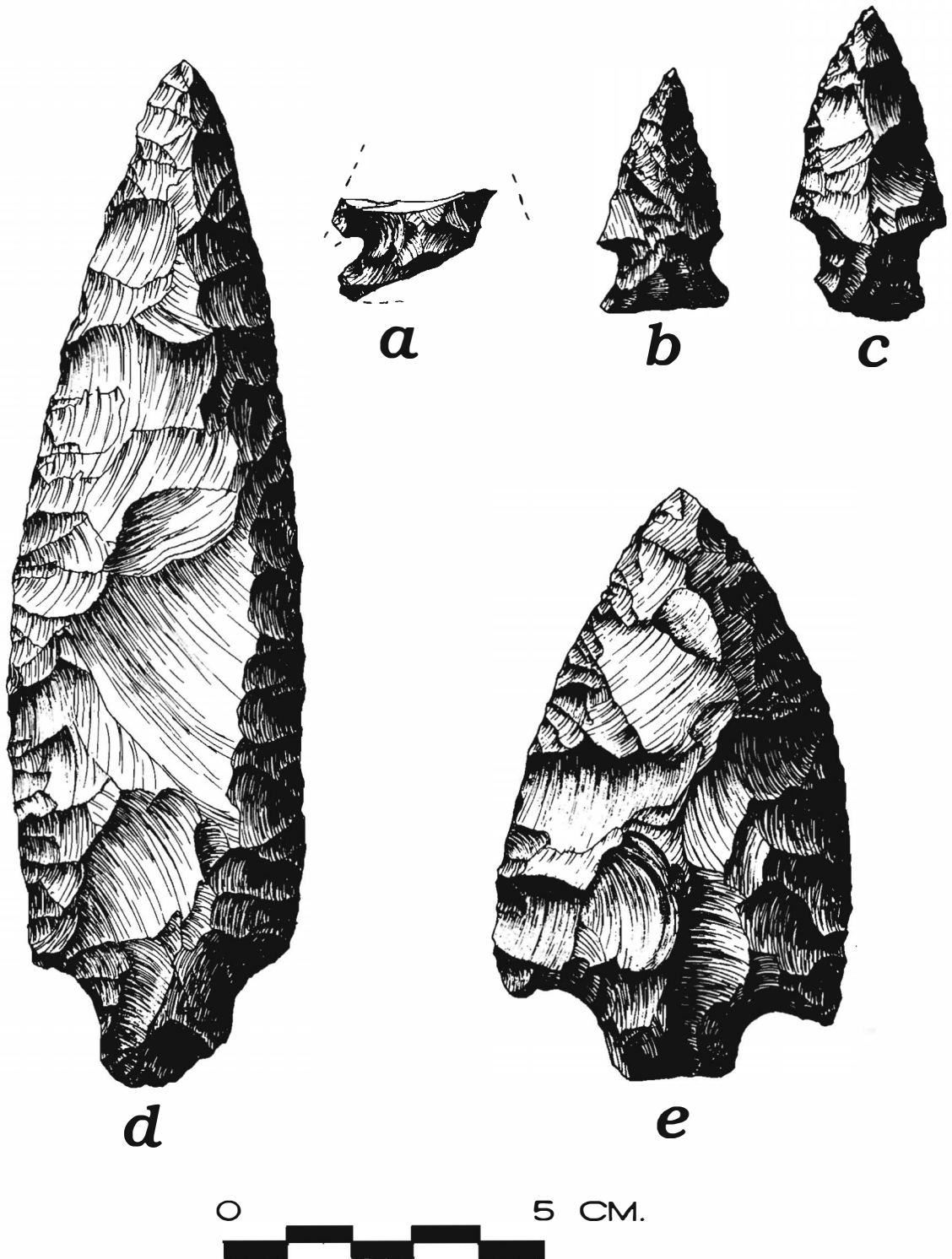


Figure 2. Chipped Stone Artifacts. a - c, Ensor dart points; d - e, large, stemmed bifaces.

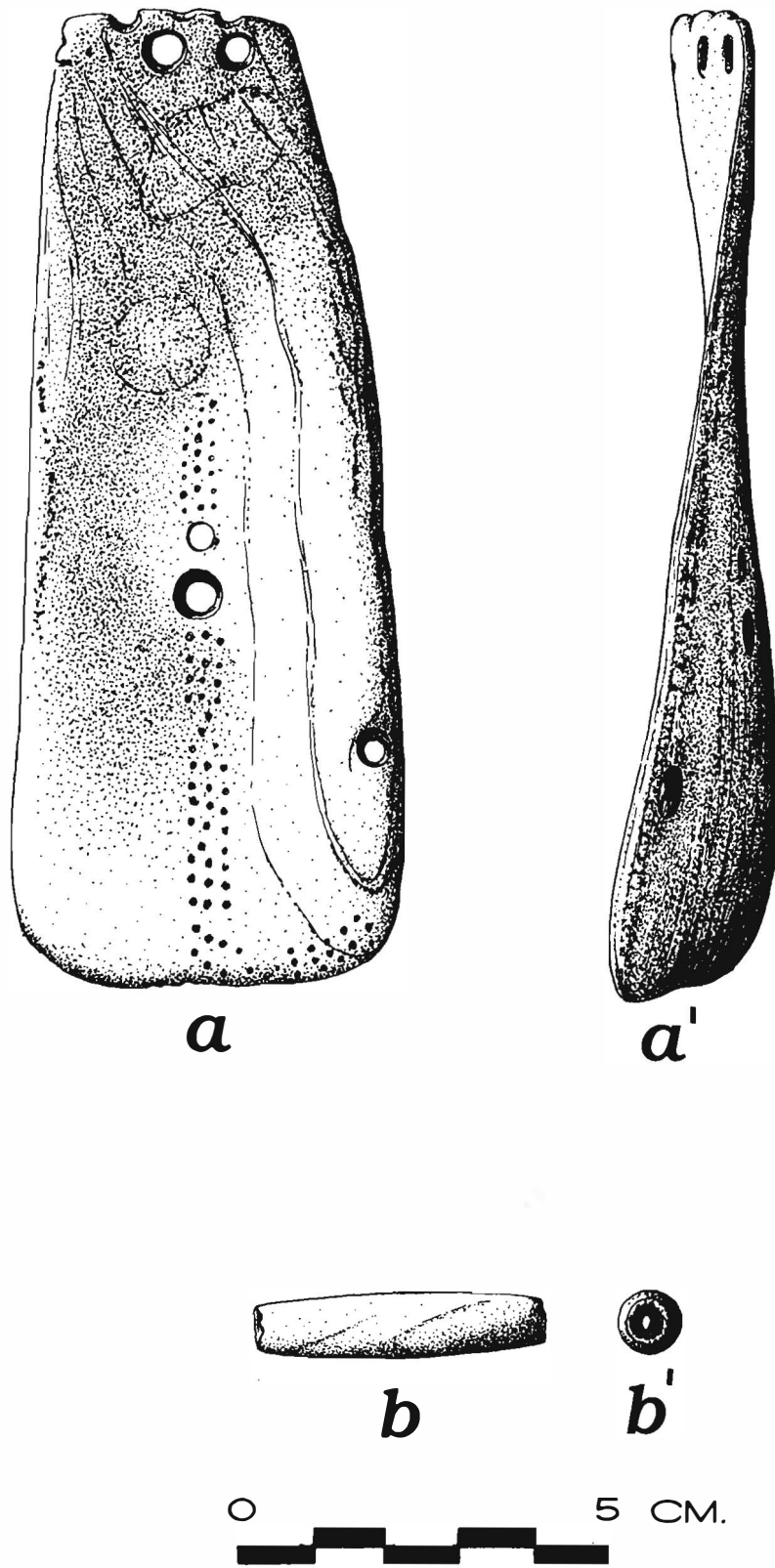


Figure 3. Conch Shell Artifacts. a - a', conch shell pendant; b, conch shell bead.

was broken by the bulldozer (Figure 4 c-d). The specimens were made from the center whorl of a conch shell. Both whorls swirl to the left. Each specimen has a biconically drilled hole at one end. Above the hole of each specimen is a notch-like indentation; each notch is actually the remains of a hole which had worn through, probably as a result of being suspended from a leather thong or fiber string. The opposite end of the tool has been shaped to a point, much like a knitting needle.

Provenience:	Burial 1, chest area	
Metric Data--Complete Specimen:		Length: 21.6 cm
		Width/Thickness: 1.0 cm
		Weight: 36.6 g
Metric Data--Broken Specimen:		Length: 17.7 cm*
		Width/Thickness: 0.8 cm
		Weight: 29.0 g*

Comments: The purpose of these tools is unknown. Although smaller, pointed conch columella tools, commonly termed awls, are reported from coastal sites (Campbell 1947), references for specimens of the size recovered from 41 AU 55 were not located.

Conch Shell Pendant: This long, narrow specimen has five perforations (Figure 3, a-a'). The more narrow end has two drilled holes (one is conical, one is biconical); this end originally had three holes that either broke along the edge during manufacture, or perhaps wore through due to abrasion against leather thongs or fiber strings. The two central holes occur just below the midpoint of the pendant (Figure 3a); one is conically drilled; the other is biconical. The fifth hole is adjacent to a lateral edge; it is biconically drilled. Various observers have suggested that something was suspended from the holes of this specimen; however, no wear is noted along the edges of the holes to indicate such an arrangement.

In addition to the drilled holes noted above, the concave face of the specimen has a double row of punctations extending down the center of the specimen (Figure 3, a); two rows of punctations also occur across the lower edge (Figure 3, a). The edges of the specimen are smoothed and rounded.

Provenience:	Probably associated with Burial 3
Metric Data:	Length: 13.2 cm
	Minimum Width: 3.3 cm
	Maximum Width: 5.0 cm
	Thickness: 0.6 cm
	Weight: 58.5 g

Comments: This specimen is similar to Group 1 conch pendants from the Ernest Witte Site (Hall 1981:194-196).

Bone Artifacts

Two pointed bone tools were recovered.

Pointed Bone Tool: The distal tip of an awl-like bone tool was recovered (Figure 4, b). The specimen is very smooth and worn, particularly near the distal tip. It was fashioned from a long, narrow piece of bone which is biconvex in cross section.

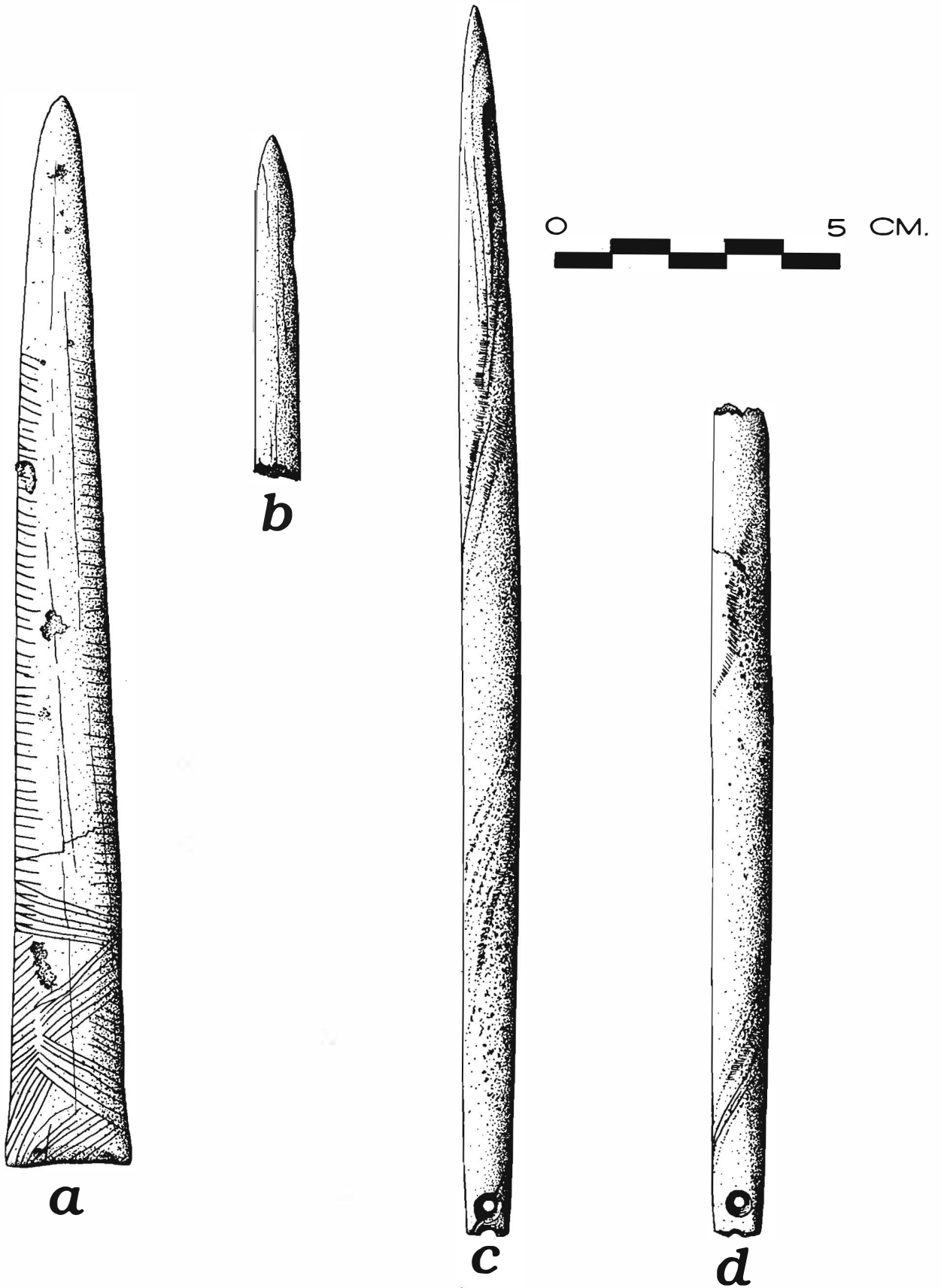


Figure 4. Bone and Shell Artifacts. a, incised bone tool; b, bone awl; c - d, pointed conch columella tools.

Provenience: Burial 1, chest area
 Metric Data: Length: 6.1 cm*
 Weight/Thickness: 0.8 cm
 Weight: 2.3 g*

Pointed Bone Tool: This long, flat specimen is made from a split long bone, probably the metatarsal of a deer. The proximal end of the tool has several groups of diagonal slashes or incised lines that almost intersect, or approach each other, at 90° angles (Figure 4, a). The incised lines extend 4.5 cm from the proximal end. In addition, the medial portion of the tool has a series of short, parallel lines extending down either side (49 incised lines along one edge, 50 incised lines along the other edge); they terminate 4.7 cm from the distal tip. The specimen is smoothed on all surfaces and edges.

Provenience: Burial 1, beneath skull
 Metric Data: Length: 19.0 cm
 Width: 2.2 cm
 Thickness: 0.4 cm
 Weight: 15.8 g

Comments: Similar bone artifacts have been found with burials, often beneath the skull of an individual (Mallouf and Zaveleta 1979; Day, Laurens-Day, and Prewitt 1981; Lukowski 1988); this has led to speculation that these items were used as hairpins (ibid.). Groups of similar bone artifacts were also found at Allens Creek, at various locations among skeletal remains (Hall 1981:227-230).

Antler Fragment

A single antler tip fragment was recovered. It is very weathered and, therefore, evidence of modification or use is not visible.

Provenience: Burial 3

PRELIMINARY ASSESSMENTS

Preliminary chronological placement of the Brandes Site is based on the artifacts recovered during the salvage operations. The Ensor dart points associated with Burials 1 and 3 are the only diagnostic projectile points recovered from the site. This point type, common in Central, south, and southeast Texas, is dated to ca. 200 B.C. to A.D. 600 (Turner and Hester 1985:94). Ensor dart points were associated with two burials in Burial Group 2 at the Ernest Witte Site, which was dated to 650 B.C. to A.D. 440 (Hall 1981:49). Based on the artifacts and their affinity to adjacent regions, Story (1985:51) places Burial Group 2 in the span of 300 B.C. to A.D. 450. These dates place the burials in the Late and/or Transitional Archaic periods (Hall 1981:271; Turner and Hester 1985:94).

The conch shell artifacts from the Brandes Site, while not considered temporally diagnostic, are similar to shell artifacts from Burial Group 2 at the Ernest Witte Site (Hall 1981:193). Because these types of artifacts were found only with Burial Group 2 burials, this can be seen as a further line of evidence for the contemporaneity of the Brandes Site with Burial Group 2 at the Ernest Witte Site.

CONCLUDING STATEMENTS

Dr. Harry J. Shafer and Dr. D. Gentry Steele of Texas A&M University have agreed to take primary responsibility for future work at the Brandes Site.

Personnel from the CAR, UTSA will continue to assist with excavations and analysis of the site. This collaborative effort will result in additional excavations to determine the size of the site, the number of burials, the representative artifacts, and the span of time the cemetery was in use. This data will then be used to further define cemetery patterns for this part of southeast Texas.

ACKNOWLEDGEMENTS

The authors extend a very special thanks to the landowners, Charles and Lil Brandes, for their hospitality and continued enthusiasm regarding future work at the site. Thanks also to Richard McReynolds for his wonderful drawings of the artifacts, and to David Hafernik for drafting the map in Figure 1.

References

- Campbell, T. N.
 1947 The Johnson Site: Type Site of the Aransas Focus of the Texas Coast. **Bulletin of the Texas Archeological and Paleontological Society** 18:40-75.
- Day, D. W., J. Laurens:Day, and E. R. Prewitt
 1981 Cultural Resources Survey and Assessment in Portions of Hidalgo and Willacy Counties, Texas. **Prewitt and Associates, Inc., Reports of Investigations** 15. Austin.
- Duke, A. R.
 1981 The Goebel Site (41 AU 1) An Archaic-Neo American Site in Austin County, Texas. **Houston Archeological Society Newsletter** 71:1-4.
 1982a The Goebel Site (41 AU 1) An Archaic-Neo American Site in Austin County, Texas. **Houston Archeological Society Newsletter** 72:5-7.
 1982b The Goebel Site (41 AU 1) An Archaic-Neo American Site in Austin County, Texas. **Houston Archeological Society Newsletter** 73:22-25.
- Fleming, C. B. and V. Fleming
 1959 An Austin County Burial Site. **Houston Archeological Society Newsletter** 1:2-3.
- Hall, G. D.
 n.d. A Perspective on Some Prehistoric Cemeteries in Texas: Loma Sandia in the Regional Setting. In: Archeological Investigations at the Loma Sandia Site (41 LK 28): A Prehistoric Cemetery and Campsite in Live Oak County, Texas, by Anna Jean Taylor-Oglesby and Cheryl Lynn Highley, Texas State Department of Highways and Public Transportation, Highway Design Division, Publications in Archeology.
 1981 Allens Creek: A Study in the Cultural Prehistory of the Lower Brazos River Valley, Texas. **Texas Archeological Survey, The University of Texas at Austin, Research Report** 61.
- Jensen, H. P., Jr.
 1968 Coral Snake Mound (X16SA48). **Bulletin of the Texas Archeological Society** 39:9-45.

- Johnson, M. L.
1986 Site 41 NU 190: Indications of Ceremonial Activity on the Coast. **La Tierra** 13(4):23-39.
- Kindall, S. M.
1988 The Peikert Site. **Houston Archeological Society Newsletter** 66:5-9.
- Lukowski, P.
1988 Archaeological Investigations Along the Leona River Watershed, Uvalde County, Texas. **Center for Archaeological Research, The University of Texas at San Antonio, Archaeological Survey Report** 126 (in press).
- Mallouf, R. J. and A. Zaveleta
1979 The Unland Site, A Prehistoric Group Burial from Laguna Atascosa National Wildlife Refuge, Cameron County, Texas. **Texas Historical Commission, Office of the State Archeologist, Special Report** 25.
- McLurkan, B. B., W. T. Field, and J. N. Woodall
1966 Excavations in Toledo Bend Reservoir, 1964-1965. **Papers of the Texas Archeological Salvage Project** 8.
- Story, D. A.
1985 Adaptive Strategies of Archaic Cultures of the West Gulf Coastal Plain. In: Ford, R. I. (editor), Prehistoric Food Production in North America. **Museum of Anthropology, University of Michigan, Anthropological Papers** 75. Ann Arbor, Michigan.
- Turner, E. S. and T. R. Hester
1985 **A Field Guide to Stone Artifacts of Texas Indians**. Texas Monthly Press, Austin.
- Vernon, C. R.
1988 The Prehistoric Skeletal Remains from the Crestmont Site, Wharton County, Texas. **Texas Archeological Research Laboratory, Occasional Papers, No. 3** (in press).
- Walley, R.
1955 A Preliminary Report on the Albert George Site in Fort Bend County. **Bulletin of the Texas Archeological Society** 26:218-234.

* * * * *

CORRECTION to **LA TIERRA**, Volume 15, No. 2

Unfortunately, during assembly, pages 28 and 29 were reversed and numbered wrong. Please change your page 29 to 28 and 28 to 29. Also, the printer inadvertently set up for 40 pages and the issue contains four blank pages at the end. Perhaps you can use them for notes. We apologize for the errors.

MINIATURE CORNER TANG ARTIFACTS FROM BEXAR COUNTY, TEXAS

C. K. Chandler

ABSTRACT

Four unusually small Corner Tang artifacts are documented, described and illustrated in this report. Wear analysis indicates their extensive use as tools that were used for a variety of functions.

INTRODUCTION

Several very small Corner Tang artifacts were recovered from a sand bar in the old channel of the San Antonio River south of Conception Park (Figure 1) prior to the river being rechannelized through the city of San Antonio. Leslie Schmidt, a young man at the time, reportedly found several of these small artifacts over a lengthy period previous to 1950 and gave four of them to Richard McReynolds. They are still in McReynolds' collection. A number of projectile points and thinned bifaces were also recovered from this same sand bar.

Corner Tang artifacts have long been of particular interest to archaeologists. Patterson (1936) made a distributional study of Corner Tangs and determined that while they do occur over a large geographical area, they comprise a very small percentage of the total artifact inventory in any area. Hall (1981) has recently updated distributional information of Corner Tang artifacts and noted five from Bexar County.

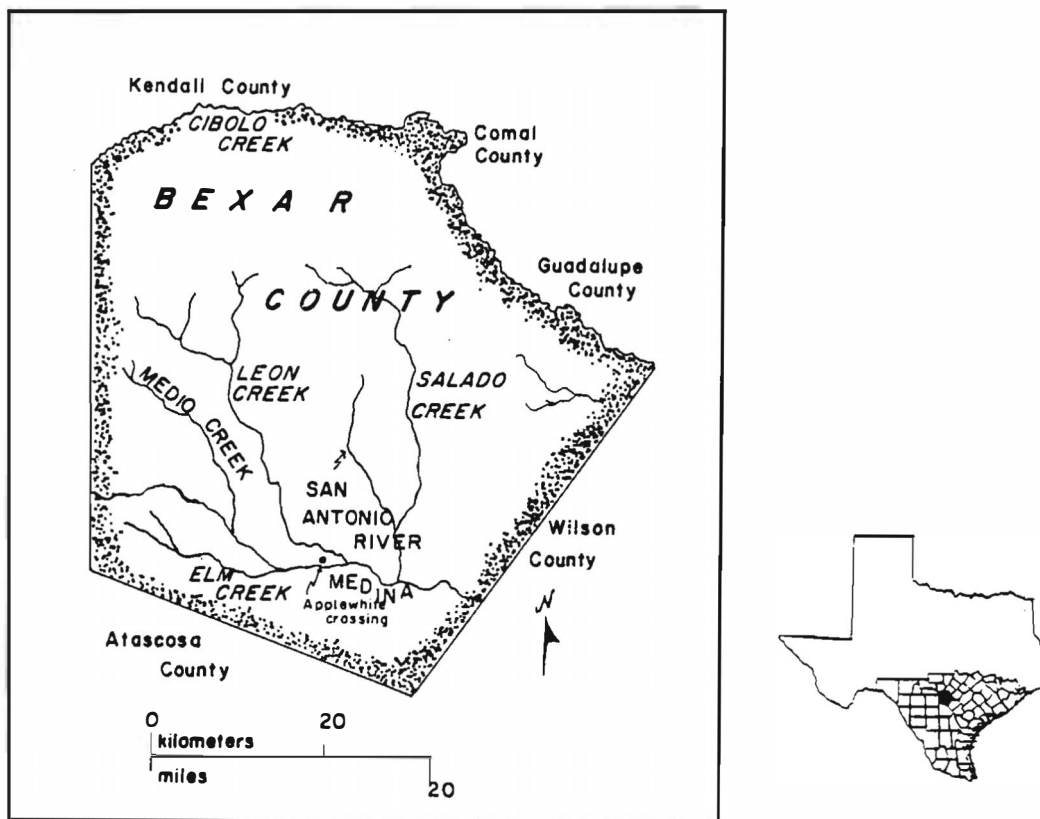


Figure 1. Map of Bexar County showing San Antonio River. Small inset of Texas shows location of Bexar County (darkened area).

Over a number of years this author has been actively recording private artifact collections and Corner Tangs are occasionally present in these collections. When possible I have recorded pertinent data on these specimens and have also microscopically examined them for wear evidence. Several specimens in institutional collections have also been examined. They have varied considerably in size, but manufacturing techniques, morphology and wear patterns have shown a great deal of consistency. Of the 33 specimens examined prior to the four reported here, size has varied from 5.1 to 28 centimeters in length. Width has varied from 3 to 7 centimeters. Average dimensions are 10.83 cm long and 4.05 cm wide. These figures are skewed somewhat by two unusually long specimens recovered by Hall (1981) in association with a burial during excavation at the Witte site in Austin County (41 AU 36). Further skewing of the dimensional data is probably due to inability to determine full length of nine specimens with lateral breaks and one broken in a manner to make proper width measurements impossible. There are also two specimens so fragmentary that no meaningful measurements could be made, yet some wear pattern study was possible.

Nine of the specimens (27 percent) had been reworked into drills or awls. This extensive reduction of original dimensions would make present measurements more or less useless.

In any case, the four specimens documented here are the smallest I have seen anywhere. They make a total of thirty-seven that I have examined for wear information.

THE ARTIFACTS

Specimen 1 (Figure 2) is a light tan color with the distal tip having a pale pink color that may be the result of thermal alteration. Both blade edges are faceted at the distal point for five millimeters back from the tip. These faceted areas appear to have been produced by grinding or by use. The same faceted areas are rounded, well polished and have striations. These striations on the top blade facet are at ninety degrees to the longitudinal axis of the blade and those on the bottom blade edge are at fifty-five degrees. All other blade edges are heavily rounded and polished but do not have discernible striations. The rounded stem edge and the butt or heel is also rounded and well polished. The greatest rounding and polish occurs on the blade opposite the stem for ten millimeters nearest the butt. The rest of this blade edge has been resharpened from one side and this resharpening has produced a light bevel. All flake ridges are well rounded and polished with the greatest rounding nearest the distal tip. All flake surfaces are well polished except in the deeper areas where flakes have terminated in step fractures. The distal tip is rounded and polished and the blade surface on one side has heavy striations from the tip back four to five millimeters on to the blade.

Specimen 2 (Figure 2) is a dull ivory to light tan color and is the thinnest and largest of these four artifacts. The distal tip is rounded and polished. Both blade edges have been lightly retouched from the same side for 75 percent of each edge producing a light beveling that extends 33 mm along the top edge and 35 mm along the bottom edge. Flake ridges on the unbeveled blade face are well rounded and polished for 75 percent of its length (35 mm) with light polish on flake surfaces. Only the more prominent ridges on the opposite side have rounding and polish. Polish on flake surfaces on this side is not discernible. Flake ridges and the rounded edges of the tang have light rounding and polish. The butt or heel is not rounded or polished.

Specimen 3 (Figure 2) is a uniformly pale grayish tan color. This specimen has a glossy finish and waxy feel indicative of heat treatment. The distal tip is rounded and polished. The remaining 25 percent (10 mm) of the lower blade on the heel end is heavily rounded and polished. The outer edge of the stem is well rounded and heavily polished, as is the heel edge. This artifact

has been resharpened along both blade edges for 75 percent of its length toward both sides. These edges are less rounded and polished than the rest. All flake ridges are lightly rounded and polished and all flake scars are well polished except for an occasional deep offset.

Specimen 4 (Figure 2) is a light tan color. The distal tip is rounded and polished. The bottom blade edge, the tang edge and the butt or heel edge are lightly rounded and polished. The top blade edge is rounded and polished to a greater extent than any of the other edges. The more prominent flake ridges are lightly rounded and polished and flake scars are well polished. The bottom blade has been resharpened over 70 percent (28 mm) of its total length. This resharpening probably removed evidence of previous edge rounding and polish. This artifact has a glossy surface and waxy feel indicative of heat treatment.

Artifact dimensions in millimeters are listed below.

	L	W	T
Specimen 1	46.8	20.4	5.8
Specimen 2	49.4	22.4	4.3
Specimen 3	39.9	21.0	5.2
Specimen 4	40.9	23.7	5.5
Average	44.25	21.87	5.2

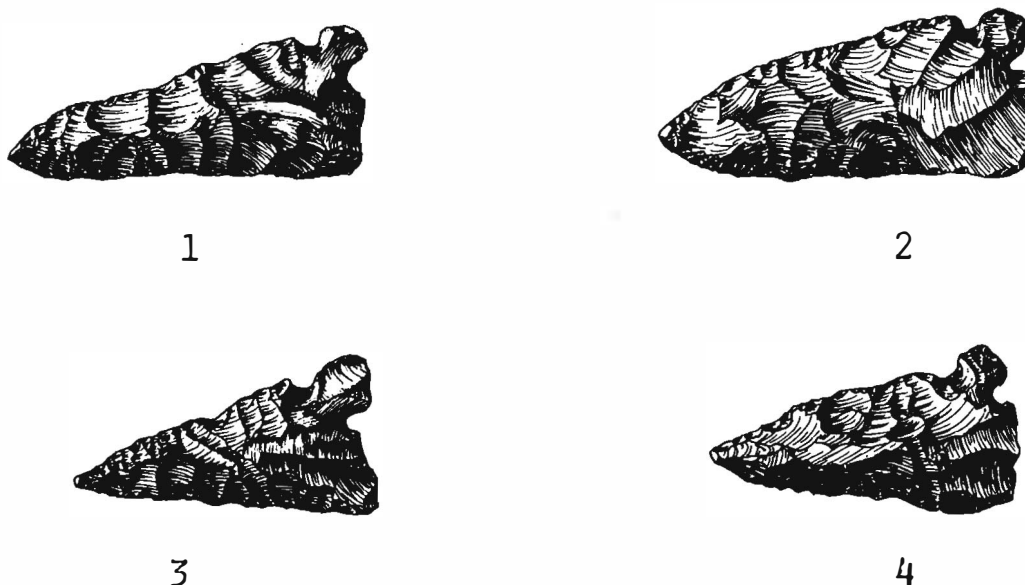


Figure 2. Four Miniature Corner Tang Knives from the San Antonio River Channel, Bexar County, Texas. Drawings by Staff Artist.

All four of these artifacts are made of a fairly good quality light tan chert. Three of them show some evidence of thermal alteration. They all show considerable evidence of use wear in the form of edge rounding and polish, flake ridge rounding and polish, and distal tip faceting with both polish and striations. They do not have the overall wear and polish normally produced by stream rolling. It appears that they had been in the stream channel for only a short time and may have eroded into the stream near the location where they were found.

Wear pattern analysis establishes these artifacts as finished tools that were used for a variety of purposes. The reduction of the distal tip on one specimen, and the rounding and polishing of the distal tips on all specimens, indicates their probable use as drills or perforators. The resharpener of some blade edges with subsequent rounding and polish indicates sufficient use as a cutting tool which would require this resharpener. The multiple use of a variety of lithic artifacts, including Corner Tang knives, has been previously documented (Mitchell et al. 1984). The top blade edge of Specimen 4 has much greater use wear rounding and polish than other areas. This top edge is not normally thought of as the cutting edge; however it is obvious that this edge does receive considerable use. This has been previously established on normalized Corner Tangs (Chandler et al. 1983).

DISCUSSION

The artifacts reported here are noticeably smaller than any of those previously examined, but they are not large specimens that have been extensively reduced in size by reworking. They follow the same form as larger specimens and display the same kinds of use wear and edge rejuvenation of many larger specimens. Their occurrence at one location, and the marked similarity in size and appearance, indicate they may have been made by the same workman. The documentation of these specimens does not expand the known distribution of this artifact form but does add significantly to their known size range and increases the number reported from Bexar County.

References

- Chandler, C. K., Florence Knolle and Mary Margaret Knolle
1983 Paleo-Indian Projectile Points from Jim Wells and Nueces Counties, Texas. *La Tierra* 10(2):23-27.
- Hall, Grant D.
1981 Allens Creek: A Study in the Cultural Prehistory of the Lower Brazos River Valley, Texas. *University of Texas at Austin, Texas Archeological Survey Research Report* 61.
- Mitchell, J. L., C. K. Chandler and T. C. Kelly
1984 The Rudy Haiduk Site (41 KA 23): A Late Archaic Burial in Karnes County, Texas. *La Tierra* 11(2):2-5.
- Patterson, J. T.
1936 The Corner Tang Flint Artifacts of Texas. *The University of Texas Bulletin, Number 3618; Anthropological Papers* 1(4), Austin, Texas.

KENT-CRANE REVISITED

Kim A. Cox and Herman A. Smith

ABSTRACT

Recent test excavations at the Kent-Crane Site in Aransas County, Texas, suggest the site was occupied seasonally by pre-Rockport Complex populations but in all seasons by Rockport Complex peoples. A single carbon date suggests the oldest component at the site is ca. 2210 B.P., and a major Late Prehistoric component is identified. Basketry impressions on asphalt nodules are discussed as is the appearance of pre-Rockport Complex pottery.

INTRODUCTION

The Kent-Crane site (41 AS 3) is a massive shell midden, 800 meters in length, that exists today as a long, eroding bluff on the southeast side of Copano Bay in Aransas County, Texas (see Figures 1 and 2). Since 1941, it has been the most widely known and most often cited Archaic site on the Texas Gulf Coast. Only one of many shell middens surrounding Copano Bay, Kent-Crane is set apart from the others by its size and its history.

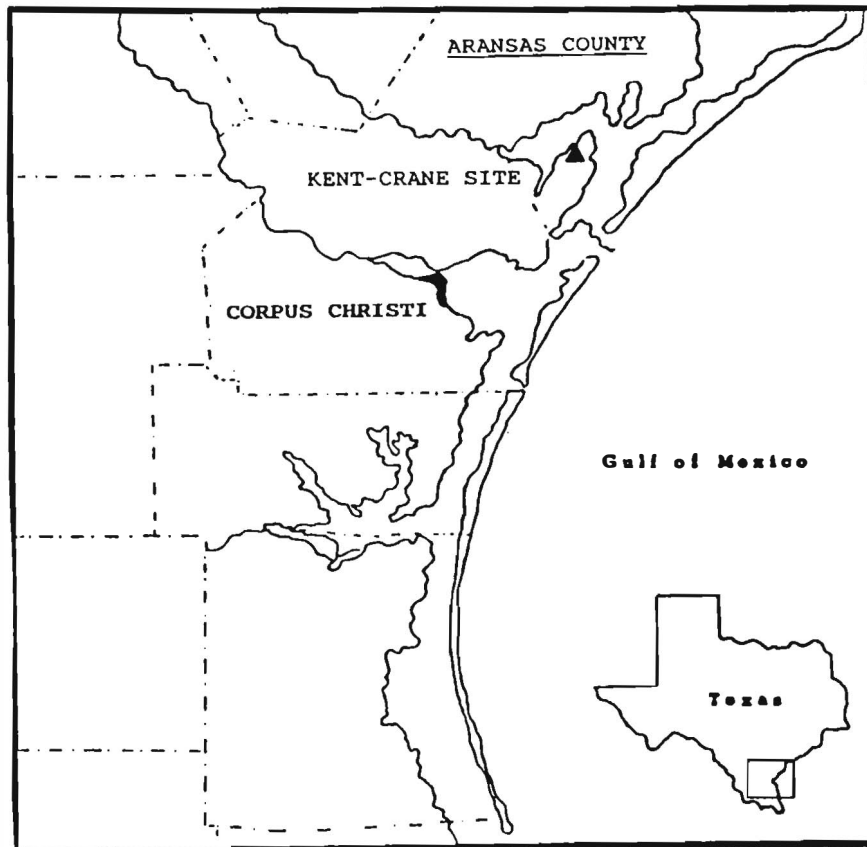


Figure 1. Map of Texas coast showing general location of the Kent-Crane site (41 AS 3).



Figure 2. Map of Live Oak Peninsula area showing sites noted in text.

Our interest in Kent-Crane began with the 1985 excavation of 41 NU 46, an Archaic site on the Oso Creek just south of Corpus Christi. That excavation recovered 27 burned clay nodules with basket imprints. Our analysis of these imprints led us to examine the asphalt nodules with basket/matting imprints and the other artifacts that were found at Kent-Crane (Campbell 1952). Following this examination and a perusal of the original field notes, questions were raised concerning the dates and cultural affiliations of artifacts from that site.

HISTORY

George C. Martin and Wendell H. Potter included Kent-Crane in their archaeological survey of Rockport, Live Oak Peninsula, and Copano Bay conducted from 1927 to 1929 (Martin, n.d., p.6, Site #46 on map). In 1930, these two avocational archaeologists excavated a five square meter test profile along Kent-Crane's eroding bluff. Later, the site came to the attention of the University of Texas, and for three months in 1941, the University, under the direction of William A. Duffen, and in conjunction with the Works Progress Administration, carried out an extensive excavation. In all, nearly 800 square meters were excavated in one large excavation area and two large test trenches. Only one identifiable artifact was reported for every one-and-a-half square meters excavated, one projectile point for every eight, and after three months of continuous digging only about four percent of the entire site had been excavated.

In response to a proposal to construct a Texas Highway 35 bypass through a portion of this site, the Texas Department of Highways and Transportation conducted a survey and wall test in 1982 but reported no new data. The same year, 1982, Kent-Crane was designated a State Archeological Landmark and listed on the National Register of Historic Places.

In July, 1986, Dr. Herman Smith of the Corpus Christi Museum requested permission from the Texas Antiquities Commission to carry out a limited excavation and to acquire organic material for radiocarbon dating. This report is written as a result of information obtained pursuant to a permit issued by the Texas Antiquities Commission on July 24, 1986.

DESCRIPTION OF SITE

This site was partially bulldozed by Aransas County in 1982 (Figure 3) to remove all trees because it is in an approach lane to the Aransas County airport. What was left of the large 1941 excavation area was almost completely covered. The rest of the main excavation area, perhaps as much as five meters in width, has fallen into Copano Bay. The clay base is presently being undercut at a rather alarming rate, leaving the wall profile protruding in places over the waves. In the middle of the site, a drainage ditch (noted by Martin n.d.) and a road leading to a drilling platform are evident, and in the 1960s a pipeline was buried lengthwise through the middle of the northern half of the site for approximately 200 meters. If a wall profile existed prior to the construction of the pipeline, it has been completely destroyed.

Today, the southern 500 meters of the site are covered mostly by tall grasses, small brush and cacti that have grown since the area was cleared in 1982. Also in 1982 the northern 300 meters of the site were bulldozed as part of the landscaping for the construction of a house. The area is mostly level and the entire site can now be seen from any point on the site.

Although not involved in the 1941 excavation, Dr. Thomas N. Campbell of the University of Texas reported on Kent-Crane in the Bulletin of the Texas Archeological and Paleontological Society (1952).

Using William A. Duffen's field notes, Campbell (1952) reported two strata excavated in three levels: "1(a)," "1(b)," and "2" (Figure 4). Stratum 1, the

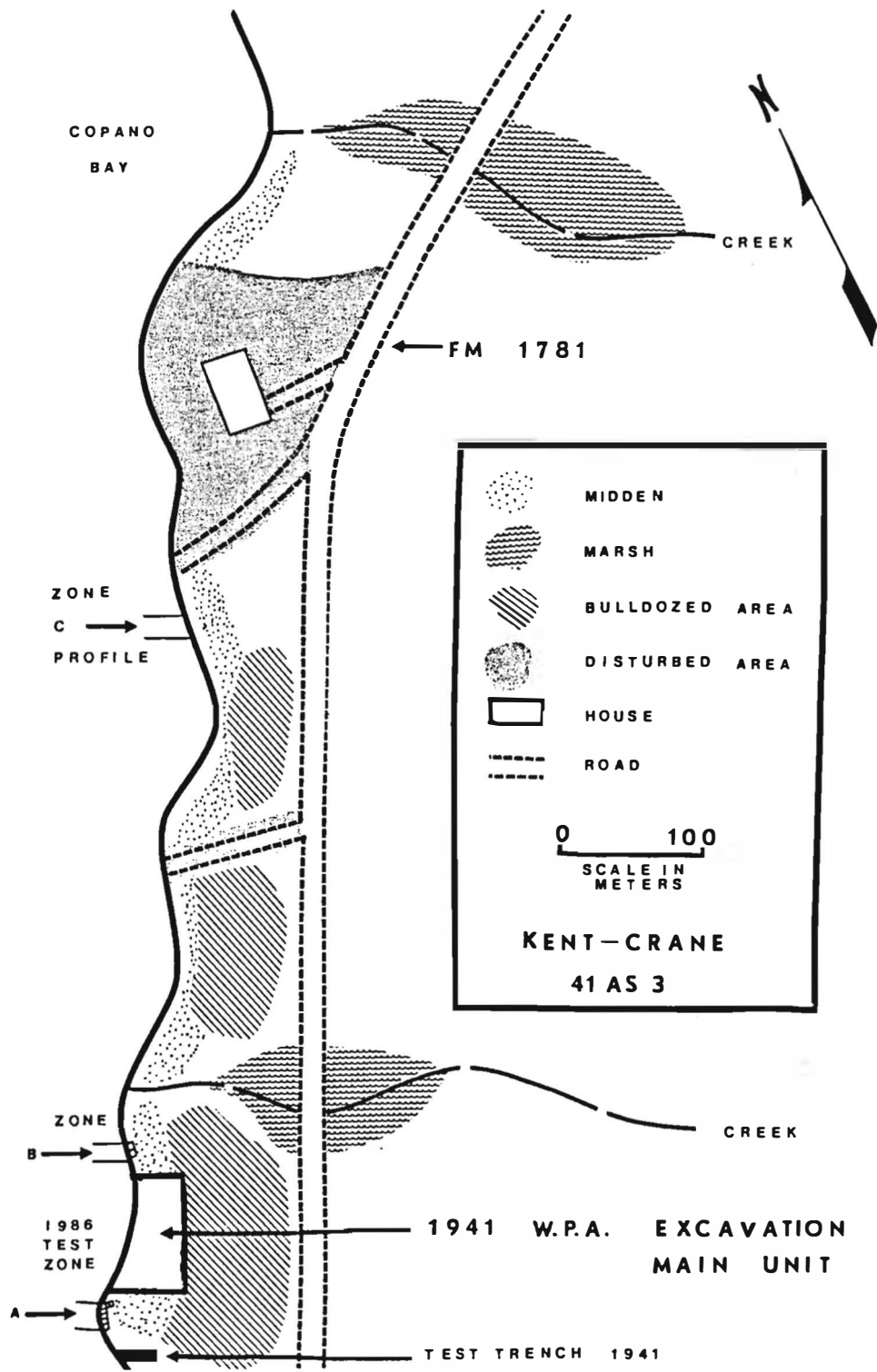


Figure 3. Map of the Kent-Crane site.

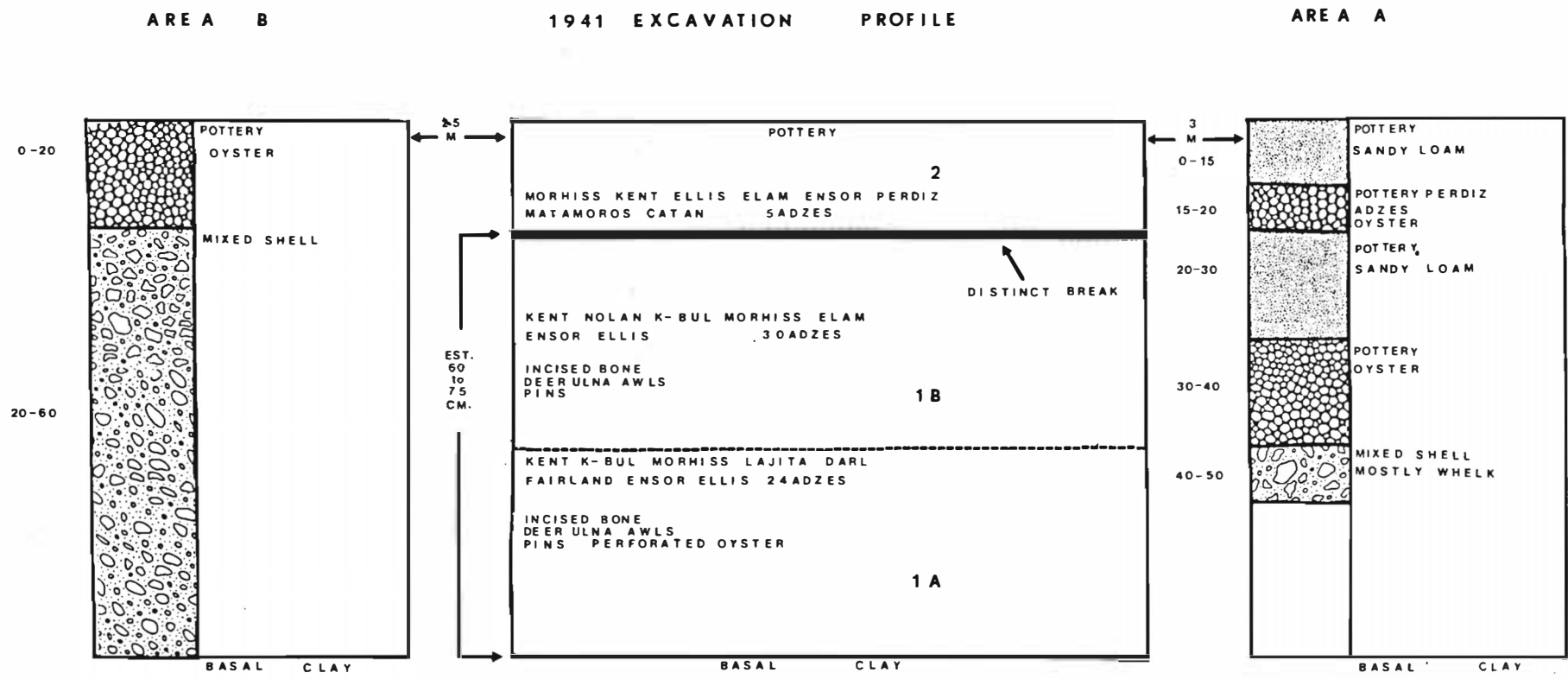


Figure 4. Stratigraphy and artifacts encountered in 1941 excavation and from Areas A and B of 1986 excavation, Kent-Crane site.

lower of the two, averaged between 60 and 75 cm in the central part of the excavation and was "black, ashy and rather compact." The stratum was arbitrarily halved into Level 1(a) and Level 1(b).

Stratum 2 varied from 30 to 45 cm and was "loose and quite brownish." In addition, Campbell (1952:43) added that there was no evidence of alternating shell and soil layers.

THE 1986 EXCAVATIONS

Our main purpose at Kent-Crane was to obtain materials for carbon dating and to find artifacts that could be associated with those dates. To this end, we identified two primary areas, based on wall profiles, from which to obtain materials. Both of these areas produced prehistoric artifacts. Due to the lack of material more suitable for carbon dating, quahog (*Mercenaria campechiensis*) shells were chosen from the very bottom of Area A in an attempt to obtain the oldest possible date from this site. Additionally, several pieces of charcoal were recovered from the bottom of Level 1 of Area A, the only level in which charcoal appeared.

All material was water-screened through 1/4-inch screen. Trowels were used to follow natural deposits. Artifacts appearing in those deposits were assigned to their respective levels.

Test Pits and Wall Profiles

Area A (Figure 4)

This area was chosen mainly due to its proximity to the main 1941 excavation. Our test pits and wall profiles in this area revealed five cultural strata. The first stratum (Level 1) was comprised mostly of compacted, sandy brown soil and was 15 cm thick. The top of this level had been graded by Aransas County, and the surface for our test pits was probably not the same as was encountered in 1941.

Level 2 of Area A was a dense layer of pure oyster (*Crassostrea virginica*) and was undisturbed. This level was 5-10 cm thick.

Below that, Level 3 was another layer of dark, compacted soil 5-10 cm in thickness.

The bottom two levels were densely compacted shells. Level 4 was all oyster, while Level 5 was mostly lightning whelk (*Busycon perversum*). In a wall profile five meters to the south, Level 5 also revealed small numbers of quahog (*Mercenaria campechiensis*), bay scallop (*Aequipecten irradians*), cross-barred Venus (*Chione cancellata*), sunray Venus (*Macrocallista nimbosa*), land snail (*Rabdotus rabdotus*), and moon snail (*Polinices duplicatus*). Interestingly, the lightning whelk in this area range from 3 to 6 cm in length, much smaller than at most other locations in the wall survey. The division between Levels 4 and 5 in our test pits was indistinct with a mixing of oyster and whelk at the interface.

No doubt Campbell (1952) accurately described the layers of shell that must have been encountered in the main 1941 pit. What he did not know is that those strata are, or appear to be, a very localized phenomenon, apparent for only about 75 meters at the very southern end of the 800-meter site. Even in this area the layers of shell separate at points and merge at points. In addition, there are spots where the layer of whelk disappears or turns into localized concentrations of sunray Venus or scallop. Land snails appear in much the same fashion--heavily localized concentrations as opposed to being evenly dispersed. Furthermore, the extreme southern end of the site, where one of the 1941 test pits was dug, consists of two distinct layers of oysters, with whelk disappearing almost entirely.

Area B (Figure 4)

At certain locations along the eroding bluff bulldozers have pushed dirt over the edge, effectively hiding the profile. Just past one of these spots, at 130 meters from the southern end of the site and 50 meters north of the main 1941 excavation unit, the deposit is a single layer of shells 60 cm in thickness. In the bottom 5 cm sunray Venus is more heavily concentrated than above that level. The next 25 cm is mostly oyster, with small concentrations of lightning whelk, quahog and sunray Venus, and very small percentages of bay scallop, moon snail, banded tulip (Fasciolaria liliium), and murex (Murex pomum). The top half of the shell layer is virtually all oyster, with only small numbers of quahog and sunray Venus included. This stratigraphy is fairly consistent for about 20 meters along the bluff before being covered again by bulldozed topsoil.

The Wall Survey

In addition to the test pits, wall profiles were done of all exposed sections of bluff.

At a spot 170 meters north of the southern end of the site, three thin strata appear in the basal clay. The bottom one of these, 20 cm below the top of the clay, consists mostly of oyster, but with a slight mixture of banded tulip, cross-barred Venus and scallop. The other two layers, at 10 cm and 5 cm below the top of the basal clay, are all oyster. Each layer is approximately 1-2 cm thick, consisting of a black matrix mixed with shell.

At about 200 meters from the southern end the bluff flattens into a low sloping shore that rises to a two-meter elevation about 10 meters from the shoreline. There is no good bluff stratigraphy for the next 275 meters. What was once there was destroyed by a pipeline running along the facing edge of the site. This area is highly disturbed.

At about 475 meters from the southern end the wall profile is visible again and continues north for another 50 meters. Our test profile at this point revealed a solid layer of shells 55 cm thick. Oyster, whelk and quahog were prevalent throughout, with heavy concentrations of bay scallop near the top, and with moon snail, Atlantic cockle (Laevicardium robustum), small lightning whelk, and banded tulip at the bottom. Modern artifacts were eroding from this wall and it was not known how much of the area was disturbed.

The wall profile north of this point was obliterated by major earth moving during the construction of a house in 1982.

One other item of note: although Nueces Bay, just to the south, is surrounded by vast rangia middens, there are no rangia at Kent-Crane. This is most likely attributable to the fact that Copano Bay has no major rivers emptying fresh water into it, and in prehistoric times was probably much more saline than Nueces Bay.

Results

In all, nine square meters were excavated to depths up to 60 cm in two different areas: Area A -- seven square meters; Area B -- two square meters.

Area A

Level 1 of Area A produced six pieces of pottery (two with applied asphalt). Also, a date of 90 B.P. \pm 70:1860 A.D. (TX 5605) was derived from charcoal obtained from the bottom of this level. The lower range in this date falls within the waning years of the Rockport Complex (Smith 1984). No datable materials were recovered from the middle three levels.

Level 2 produced five pieces of pottery (one with applied asphalt), one whole Perdiz point and what is believed to be a basketry imprint in asphalt. In addition, two conch shell adzes, similar to those described by Campbell (1952:47), were found in this layer.

Level 3 produced three pieces of pottery without asphalt.

Level 4 produced four pieces of pottery without asphalt, an asphalt nodule with an indistinct imprint on its surface, and two fish otoliths.

No diagnostic artifacts were found in Level 5, and no charcoal was present. However, quahog were collected from the very bottom of Level 5 in an attempt to obtain the oldest possible date for Kent-Crane. These quahog yielded a carbon date of 2210 B.P. \pm 60:260 B.C. (TX 5664).

Another conch shell adze, a grooved bone and a Perdiz point were found in erosion areas around Area A. Sixteen perforated oyster shells similar to those described by Campbell (1952:54) and additional pottery were found in a one by two meter area in the surf below Area A.

Area B

The top 15 cm (Level 1) produced four small pieces of pottery without asphalt and sixteen fish otoliths.

No pottery and no diagnostic artifacts were found in Level 2. However, it did produce seven fish otoliths and numerous fragments of small mammal bones, bird bones and crab claws.

A tiny asphalt nodule with a weaving imprint was recovered from Area B, but it was found in an erosion area and therefore has no stratigraphic provenience.

THE ARTIFACTS

Asphalt Nodules

Almost every Archaic shell midden on the Texas Gulf Coast has produced fragments of asphalt, and Kent-Crane is no exception. This naturally occurring tar-like substance, a kind of bitumen, comes from seeps on the ocean floor in the Campeche Bay region of the Mexican Gulf Coast, is carried northward by prevailing southeasterly winds, and frequently washes ashore where it can be collected in its liquid state. Asphalt was most likely acquired on the east side of the barrier islands and then transported to Copano Bay, where it does not naturally occur. At Kent-Crane it was used for hafting tools and projectile points, and probably for many other purposes. But the most perplexing evidence of asphalt use appears in Kent-Crane's asphalt nodules with weaving imprints, part of the extremely rare evidence of prehistoric basketry in Texas.

Campbell (1952:73) reported 23 of these asphalt nodules with imprints from Kent-Crane (there are actually 24 in the collection at the Texas Archeological Research Lab [TARL] in Austin) and noted that "no impression in any way suggested coiled basketry." However, there are two distinct types of weaving imprinted in these nodules.

Three nodules show clear imprints of fine weaving (Figure 5) and are very different from the other samples. The material shown on these nodules was closely woven with weft strands comprised of what appears to be a flexible material, perhaps straw. In this sample the asphalt contained air bubbles, the result of heating, whereas the other nodules did not.

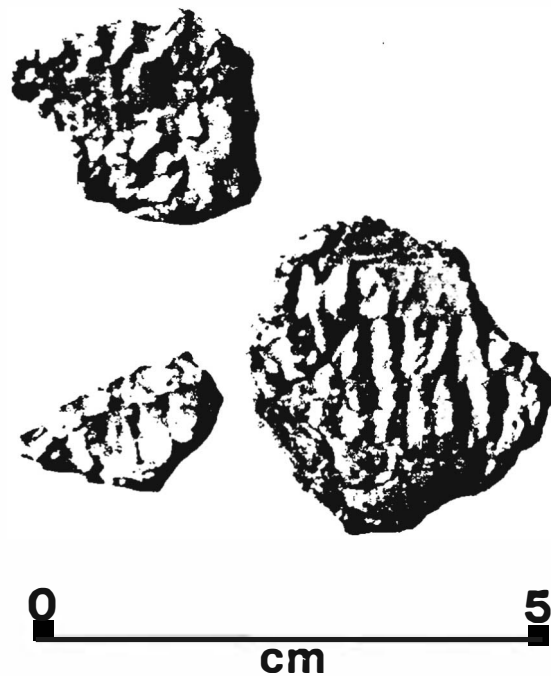


Figure 5. Tightly woven basketry impressions on asphaltum.

In the larger group, the weft strands appear to be small twigs that were crudely woven in what seems to be a coiled construction with relatively widely-spaced warp strands (Figure 6). In addition, eight pieces in this larger group show a strange rippling effect on the sides opposite the imprints. When examined under a microscope, this phenomenon appeared to be natural and not another imprint.



Figure 6. Widely-spaced warp and weft impressions on asphaltum.

Campbell (1958) also reported asphalt nodules at Live Oak Point, a primarily Late Prehistoric site a very short distance north of Kent-Crane (Figure 2). Only six of the 10 nodules reported from that site could be found in the collection at TARK, but those six all closely resembled the three finely-woven samples from Kent-Crane.

The problem with these nodules is that no specific stratigraphic provenience appears to have been recorded. Based on the data from Duffen's field notes, Campbell (1952:43) inferred that asphalt was "scattered rather uniformly throughout the midden deposits" at Kent-Crane, although it is our view that Duffen (1941) implies in his field notes that at least some of the asphalt imprints were found low in the excavation. Martin (n.d.:6) also notes the discovery of a lump "several pounds in weight" very low in the shell deposit.

Our test pit in Area A revealed the larger pieces of asphalt concentrated between 12 and 25 cm in the top shell layer while, with one exception, only tiny fragments were found below that level. We found two of the imprints--one of the twig-weft variety eroding from the wall in Area B, and the second (which is much less distinct but may be similar to the finely-woven samples) in the top shell layer in Area A. In addition, we found an asphalt nodule from Level 4 of Area A that did not have a distinct imprint but in all other respects resembled the twig-weft imprints. Five other small nodules were found, four in Level 2 of Area A and one in Level 1 of Area B, but they contained no imprints.

Unfortunately, our examination of local excavation material and surface collections has failed to turn up any more of these asphalt imprints--they seem to be unique to Kent-Crane and Live Oak Point. Asphalt lumps were noted at the Johnson Site (see Figure 2) nearby, but none of the nodules from this site in the collection at TARK revealed any sort of imprint.

It was Campbell's (1952, 1958) opinion that there is virtually no Archaic component at Live Oak Point and virtually no Late Prehistoric component at Kent-Crane in the 1941 excavated area, yet nine imprinted lumps of asphalt, three from Kent-Crane and six from Live Oak Point, are very similar. Based on this fact and our one nodule found in Level 2 of Area A at Kent-Crane, we believe that at least the finely-woven variety is evidence of Late Prehistoric, although not necessarily Rockport Complex, basketry or matting. However, we have no reason to believe, other than the unlikelihood of coincidence, that the twig-weft imprints belong to the same time period.

Campbell (1952:74) notes that all imprinted nodules range in thickness from .7 cm to 1.8 cm and suggests that the asphalt was applied as "a heavy coating for waterproofing purposes." However, there are many problems with this theory: (1) availability of preferable substitutes for lining baskets (e.g. skins), (2) lack of efficacy (the authors have found through experimentation that an asphalt coating does not prevent water from seeping [see Smith 1983a]), (3) lack of structural integrity (asphalt will tend to crack and disintegrate when dry and exposed to the sun), and (4) if they are Late Prehistoric, pottery existed at that time that would have served the same purpose more effectively.

The natural disintegration of several of the nodules in the collection at TARK is in thin layers, apparently the fashion in which they were constructed (as if one layer were allowed to dry prior to the application of another layer). There were no heat bubbles in the sample from this group.

This activity may reflect an attempt to sun-dry asphalt. In order to render liquid asphalt usable, the people at Kent-Crane had to extract its volatile substances. This could have been accomplished by placing thin layers in baskets or on mats to harden in the sun. The hardened asphalt could then be used for whatever purposes it had been collected. At this point, it would seem that more asphalt lumps in better controlled excavations are our only hope of knowing what they represent and when they were used.

Projectile Points

In the Kent-Crane collection at TARL are three principal generic types of points--the large-stemmed variety that received its name "Kent point" (Suhm and Jelks 1962; Turner and Hester 1985) from this site, the corner-notched or expanding-stem variety, and the triangular variety. Most points are whole and show heavy edge wear. Many of the large-stemmed variety also show traces of asphalt on their stems, whereas none of the corner-notched or triangular varieties have any signs of asphalt.

Our excavation failed to turn up any dart points but, surprisingly, we found two Perdiz points--one from Level 2 of Area A and another in an erosion area five meters to the south. The one from Area A is whole, 4 cm in length, bifacial, made of gray chert and has asphalt on its stem. The one from the erosion area has an oblique distal snap, but was probably 4 cm in length when whole. It is also bifacial and made of gray chert but has no traces of asphalt on its stem.

Campbell (1952) also reports a single Perdiz point which came from his Level 2. It is much shorter (2.5 cm), has a minor transverse distal snap and has no asphalt on its stem.

Discussion

One major difficulty with the original report on Kent-Crane is the vertical distribution of projectile points described in that report. Although there appears to be an increase in the number of side-notched points over time (Corbin 1974), the different types of points have a wide distribution throughout Levels 1(a), 1(b) and 2 (Campbell 1952:66-67). Points that have distinct cultural sequences in Central Texas (Prewitt 1981) appear at Kent-Crane (noted by Campbell 1952:75-76). However, the seemingly random vertical distribution of many of those point types (see Campbell 1952:66-67) makes the assignment of artifacts to any specific occupation level highly suspect. A resolution of this problem also awaits future excavations.

Pottery

Our excavations recovered a relatively large number of sherds in Area A--18 in seven square meters, no two of which can definitely be assigned to the same vessel. Our deepest sample came from a depth of 40 cm, far below the first layer of shells and only 5 cm above the basal clay. In all, seven pieces came from below 25 cm in Area A, three from Level 3 and four from Level 4. Area B produced four tiny pieces of pottery in the top 15 cm but none below that level. These pieces are so small and so worn it is difficult to make any definitive statements concerning their similarities to Rockport Complex pottery.

All pottery is sandy paste and, microscopically, is indistinguishable from the sandy paste basal clay.

Rockport Ware. N = 10 (Area A)

All pot sherds with applied asphalt have it on their exterior surfaces, and all were found in the top two levels of Area A. This pottery is dark brown to black in color and is indistinguishable from pottery described as Rockport ware (Suhm and Jelks 1962).

Pre-Rockport Ware. N = 7 (Area A)

The pottery appearing in Levels 3 and 4 of Area A did not have the consistency of color of the upper pottery. Level 3 pottery was black or gray,

and Level 4 pottery was tan or gray on the outside and black on the interior. The three pieces from Level 3 were all obviously coiled. Two of the three had been smoothed on both sides while the third had only been smoothed on one side with coils very much evident on the opposite side.

Discussion (see Figure 7)

Campbell (1952) reports all pottery found in the 1941 excavation, a mere 96 pieces from almost 800 square meters, as being typical Rockport Complex pottery. However, having examined the Kent-Crane collection at TARL and based on our own excavation, the authors do not believe that all of the pottery from Kent-Crane is Rockport ware.

First, it is of note that Duffen (1941) says in his field notes that all the pottery with asphalt was found near the surface while the other pottery was found in association with expanding-stem dart points. Considering the fact that the original excavation only produced two arrow points (one was a surface find) versus 101 dart points and, considering the depth at which we found pottery in Area A (adjacent to the southern end of the main 1941 excavation unit), it is reasonable to assume that the lower pottery from Area A is associated with dart points found in the 1941 excavation. If Perdiz points are a bench mark of the Rockport Complex (Corbin 1974, Story 1968), then this pottery is not Rockport ware by definition.

LOCATION	NUMBER OF PIECES	WITH SHELL TEMPER	ASPHALT	SANDY PASTE	COILS EVIDENT	TAN OUTSIDE BLACK INTERIOR
A 1	6	6	X	X		
A 2	5	5	X	X		
A 3	3	2		X	X	X
A 4	4	2		X		X
B 1	4	2		X		X
IN WATER	4	3		X		X

Figure 7. Pottery distribution by level.

Second, if Rockport Complex pottery was coiled (see Suhm and Jelks 1962), the coils were universally obliterated by the employment of the spatula and anvil technique in which a large object, sometimes a shell (Calhoun 1964), is placed inside the pot and all traces of coils are hammered out.

One pottery sherd from Level 3 of Area A, however, is distinctive in that the coils are still very evident on one side (another piece from what is probably the same vessel is in the Kent-Crane collection at TARL). Instead of the spatula and anvil technique, it appears the potters used their hands to lightly smooth over or slightly crimp the coils. The authors have not seen anything resembling this piece of pottery from Rockport Complex excavations or local surface collections. It more closely resembles pottery that has been labeled as "Duren Neck Banded" or "La Rue Neck Banded" (Suhm and Jelks 1962).

And third, most sherds found below Level 2 of Area A, and many pieces in the Kent-Crane collection at TARL, closely resemble Goose Creek ware (Aten 1979, 1983; Suhm and Jelks 1962) or pottery similar in appearance to that found at the Anaqua Site (Story 1968). The heavily contrasting color difference in cross-sections of this pottery (light tan on the outside, black in the interior) is rare in Rockport ware.

SEASONALITY

The neurocranium of a fish skull contains small concretions of calcium carbonate within the membranous labyrinth of the inner ear. These ear stones, or otoliths, are thought to be part of the anatomic system that controls equilibrium and hearing. Otoliths can be useful indicators of seasonality of fish catches and site occupations because they contain internal incremental growth rings (similar to tree rings) that reflect age as well as season of death (Smith 1983b).

The study of such otoliths along the South Texas Coast is consistently pointing to year-round occupation by Rockport Complex peoples but seasonal transhumance by at least some pre-Rockport Complex populations (Smith n.d.). Twenty-three otoliths were found at Area B. Of the sixteen from Level 1 at Area B, eight showed summer as being the time of death while the seven from Level 2 were exclusively late fall or winter kills. The two found at Area A, both from Level 4, were also winter kills. This fact suggests that the earlier populations at Kent-Crane did not occupy the site during summer months whereas the later populations visited it all year.

SUMMARY

Our 1987 reevaluation of Kent-Crane added additional items of information on the site and revealed several new insights about the original report:

1. The date 2210 B.P. \pm 60 was taken from quahog acquired from the bottom of Area A in an attempt to obtain the oldest possible date from the site;
2. There is probably a major Late Prehistoric occupation that has not been previously identified;
3. There were two types of asphalt nodules with weaving imprints at Kent-Crane. At least the type showing fine weaving is probably Late Prehistoric;
4. There is very little horizontal correlation between areas at Kent-Crane, a fact which means the identification of only two levels, and the assignment of artifacts to those levels, in the original report is not entirely reliable;

5. Pottery from the top levels resembles Rockport ware, but pottery found below the upper shell layer in Area A does not resemble Rockport ware and is probably attributable to pre-Rockport Complex populations; and

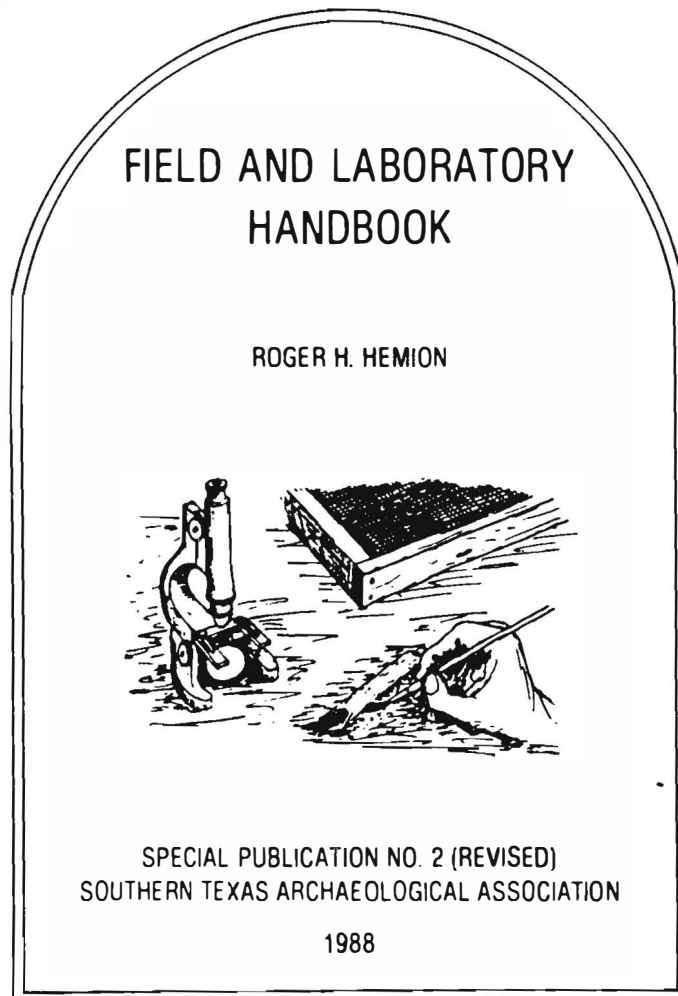
6. The study of fish otoliths indicates that the earlier peoples occupied Kent-Crane seasonally, during the winter, while the later Late Prehistoric occupants visited the site year-round.

References

- Aten, L.
 1979 Indians of the Upper Texas Coast: Ethnohistoric and Archeological Frameworks. Unpublished Ph.D. Dissertation, University of Texas at Austin.
 1983 **Indians of the Upper Texas Coast.** Academic Press, New York.
- Calhoun, C. A.
 1964 A Polychrome Vessel from the Texas Coastal Bend. **Bulletin of the Texas Archeological Society** 35:205-211.
- Campbell, T. N.
 1952 The Kent-Crane Site: A Shell Midden of the Texas Coast. **Bulletin of the Texas Archeological and Paleontological Society** 23:39-77.
 1958 Archeological Remains from the Live Oak Point Site, Aransas County, Texas. **Texas Journal of Science** 10(4):423-442.
- Corbin, J. E.
 1974 A Model for Cultural Succession for the Coastal Bend Area of Texas. **Bulletin of the Texas Archeological Society** 45:29-54.
- Duffen, W. A.
 1941 Field Notes on 41 AS 3. On file, Texas Archeological Research Laboratory, Austin, Texas.
- Martin, G. C.
 n.d. Preliminary archeological survey of a portion of the Texas Coast made by George C. Martin and Wendell H. Potter in 1927-1928-1929. Privately printed.
- Prewitt, E. R.
 1981 Cultural Chronology in Central Texas. **Bulletin of the Texas Archeological Society** 51:65-89.
- Smith, H. A.
 1983a Asphaltum-Decorated Rockport Pottery: Style Versus Function. **La Tierra** 9(4):39-41.
 1983b The Use of Fish Otoliths in Determination of Seasonality in Archeological Sites. **Journal of Field Archeology** 10:498-500.
 1984 Prehistoric Settlement and Subsistence Patterns of the Baffin Bay Area of the Lower Texas Coast. Ph.D. Dissertation, Southern Methodist University. Dallas, Texas.
 n.d. Seasonality Studies. Archeological Research Notes on file, Corpus Christi Museum. Corpus Christi, Texas.

- Story, D. A.
1968 Archeological Investigations at Two Central Gulf Coast Sites. **State Building Commission, Archeological Report 13.**
- Suhm, D. A. and E. B. Jelks
1962 Handbook of Texas Archeology: Type Descriptions. **Texas Archeological Society Special Publication 1 and Texas Memorial Museum Bulletin 4.**
- Turner, E. S. and T. R. Hester
1985 **A Field Guide to the Stone Artifacts of Texas Indians.** Texas Monthly Press. Austin.

* * * * *



Price of the Handbook is \$3.50 to STAA members, \$4.50 non-members. Order from: Mrs. Bette Street, 100 Kings Crown East, San Antonio, Texas, 78233. Please add \$1.00 first copy, \$.15 each additional copy for postage.

AUTHORS

DOROTHY M. BROWN is a recently retired physician who lives in rural Dimmit County near Caterina, Texas. She has a long-term interest in the prehistoric Indian artifacts of her area and has systematically catalogued and recorded her discoveries, thus developing a very comprehensive collection representative of prehistoric cultures of Dimmit County. She has previously published, with Dr. Hester, a paper entitled "A Cache of Bifaces from Southern Texas" (see **La Tierra** Vol. 12, No. 4).

CHARLES K. CHANDLER, Treasurer of the Texas Archeological Society, 1987-1988, is a retired railroad management official and engineering consultant with an insatiable interest in Texas archaeology. He is Past President of the Texas Archeological Society, a member of STAA, the Coastal Bend Archeological Society, and the Houston Archeological Society. C. K. was the 1985 Robert F. Heizer Award winner for his extensive work in Southern Texas archaeology (see Vol. 13, No. 1, Page 1). Also, in 1985, he recorded more archaeological sites with the Texas Archeological Research Laboratory than any other individual. C. K. is a valued contributor of manuscripts for **La Tierra** and the TAS Bulletin covering such varied subjects as metal points, rock art, and hearth field sites in Terrell County. The Chandlers reside in northern San Antonio.

KIM A. COX is an attorney in Corpus Christi, Texas, and is a member of the Coastal Bend Archeological Society. He has participated in field work and research in Texas, New Mexico and Belize. Mailing address: 915 Kinney, Corpus Christi, Texas 78401.

ROBERT R. HARRISON did his graduate work in Anthropology at the University of Texas at San Antonio. His primary interests are osteology and archaeology. A native of Kansas, Bob and his family now call San Antonio 'home' and he has become strongly committed to Texas archaeology. He has worked with Dr. David Glassman, a physical anthropologist at Southwest Texas State University in San Marcos, on an osteological study of skeletal materials from the Lower Pecos area at the Witte Museum.

CHERYL LYNN HIGHLEY received her Master's degree in archaeology from the University of Texas at San Antonio in 1985. She is a former chairman of the STAA and coauthor of many significant reports in **La Tierra**, the Bulletin of the Texas Archeological Society, and in the UTSA-CAR reports series. She has been most recently involved in the analysis of the lithics and bone tools from the Loma Sandia site in Live Oak County. Lynn and her family live in northwestern San Antonio near the UTSA campus.

AUTHORS (Continued)

JEFFERY A. HUEBNER was born in Pennsylvania and came to San Antonio with the U. S. Army. He developed a keen interest in Texas archaeology and in 1986 completed a B.A. in anthropology with UTSA. Presently, he is a graduate student working on a M.A. in archaeology, which he expects to finish in August 1988. He and his wife Elizabeth and their three cats will live in San Antonio until August when they move to Austin. In Austin, Jeff plans to work on his Ph.D. in anthropology, continuing his research on Bison in the Late Prehistoric period.

JOSEPH H. LABADIE, before coming to UTSA, served five years with the U. S. Air Force. After medical retirement he used his GI Bill and earned a B.A. in anthropology. Between his B.A. and M.A. degrees Joe made major contributions in the archaeological fields. His best known efforts center around his discovery of the La Villita Earthworks site in downtown San Antonio and excavation of an Alamo battle artillery emplacement. Other surveys include the Vista Verde South archaeological area of 31 city blocks in midtown San Antonio, and a study of a Highway Department burial site in Wilson County. Joe took a summer job assignment in 1987 with the National Park Service, surveying known, but plundered, caves and shelters. This job became permanent and he is now Park Archaeologist with the NPS headquarters in Del Rio.

ROCHELLE J. LENEAVE is originally from Pennsylvania. She lived in several parts of the country before settling, first in Houston, and finally in San Antonio. She became involved in archaeology and joined STAA four years ago. She has earned a B.A. in anthropology from UTSA and is currently working on an M.A. in archaeology. She is also a member of the staff of the Center for Archaeological Research. Rochelle has worked on a number of prehistoric and historic sites in Texas, and spent one season in Belize with the Colha project. She lives in San Antonio.

HERMAN A. SMITH is the Museum Archaeologist at the Corpus Christi Museum in Corpus Christi, Texas. He has conducted field work in Texas, Mexico, Honduras and Belize, focusing on coastal adaptation and maritime trade. Mailing address: 1900 N. Chaparral, Corpus Christi, Texas 78401.

FRED STROSS is a researcher at the Lawrence Berkeley Laboratory at the University of California, Berkeley. He received his Ph.D. from Berkeley in chemistry and was with Shell Development Company for more than 30 years. He has published widely in the field of trace element studies of obsidian, on research in Egypt, and in the application of chemistry and physics to archaeological problems.

THE SOUTHERN TEXAS ARCHAEOLOGICAL ASSOCIATION

The Southern Texas Archaeological Association brings together persons interested in the prehistory of south-central and southern Texas. The organization has several major objectives: To further communication among avocational and professional archaeologists working in the region; To develop a coordinated program of site survey and site documentation; To preserve the archaeological record of the region through a concerted effort to reach all persons interested in the prehistory of the region; To initiate problem-oriented research activities which will help us to better understand the prehistoric inhabitants of this area; To conduct emergency surveys or salvage archaeology where it is necessary because of imminent site destruction; To publish a quarterly journal, newsletters, and special publications to meet the needs of the membership; To assist those desiring to learn proper archaeological field and laboratory techniques; and To develop a library for members' use of all the published material dealing with southern Texas.

S T A A OFFICERS AND STAFF - 1988

CHAIRMAN	- Paul Ward (S.A.)	<u>Immediate Past Chairman</u> Tom Guderjan (San Antonio)
VICE CHAIRMAN	- Ray Smith (Uvalde)	
		COMMITTEE CHAIRPERSONS
SECRETARY	- Roger Hemion (S.A.)	<u>Discovery Committee</u> C. K. Chandler (San Antonio)
TREASURER	- Paul Cook (Randolph AFB)	<u>Documentation Committee</u> Kay Hinds (Charlotte)
LA TIERRA		<u>Educational Programs Committee</u> Frances Meskill (San Antonio)
Editor	- Evelyn Lewis (San Antonio)	<u>Hospitality Committee</u>
Staff Artist	- Richard McReynolds (S.A.)	<u>Mailing Committee</u> Roger Hemion
Columnist	- Thomas R. Hester (Austin)	<u>Membership Committee</u> Liz Smith (San Antonio)
Production	- Shirley Van der Veer (S.A.)	<u>Program Committee</u> Don Lewis (San Antonio)
NEWSLETTER		<u>Publicity Committee</u> Wilson McKinney (San Antonio)
Editors:	Kay & Herb Allison (San Antonio)	<u>Registration Committee</u> Frances Ward (San Antonio)
SPECIAL PUBLICATIONS		<u>Social Committee</u> Greg Helm (San Antonio)
Editor:	Jimmy Mitchell (Converse)	Mark Kuykendall (San Antonio)
<u>Area Consultants</u>		<u>Telephone Committee</u> Rita Neureuther (San Antonio)
Tom Beasley (Beeville)		<u>Field Directors</u> Anne Fox (San Antonio)
Bill Birmingham (Victoria)		Tom Kelly (San Antonio)
James Garber (San Marcos)		Joe Labadie (Comstock)
Rita Gunter (Corpus Christi)		Smitty Schmiedlin (Victoria)
T. C. Hill, Jr. (Crystal City)		Ray Smith (Uvalde)
Malcom Johnson (Fredericksburg)		Shirley Van der Veer (S.A.)
Tom Kelly (San Antonio)		
Ed Mokry (Corpus Christi)		<u>STAA Library</u>
Lee Patterson (Houston)		Housed in Archaeology Laboratory, UTSA campus (See Table of Contents)
Ray Smith (Uvalde)		