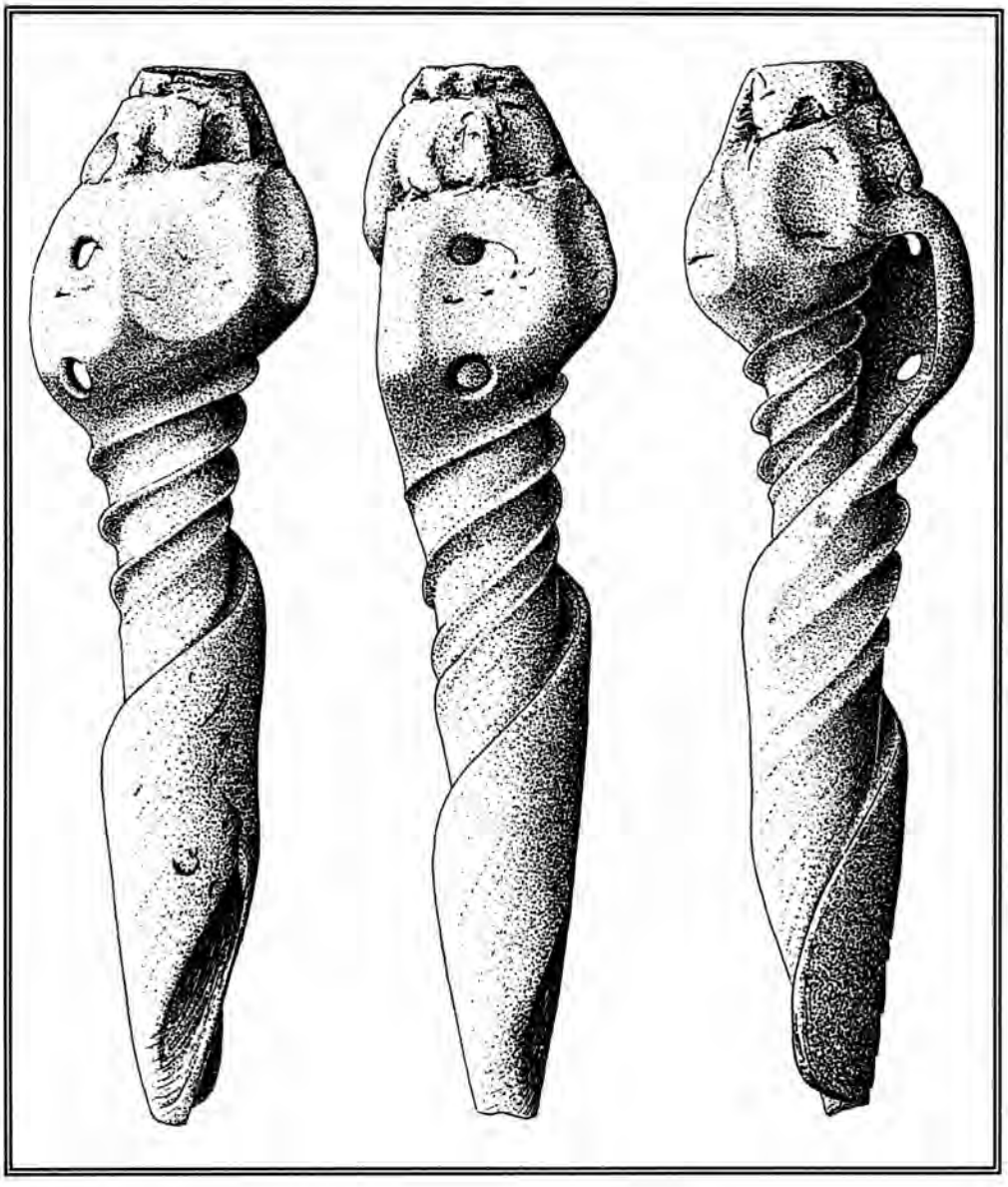
LA TIERRA



JOURNAL OF THE
SOUTHERN TEXAS
ARCHAEOLOGICAL
ASSOCIATION

VOLUME 25, No. 1
JANUARY, 1998

LA TIERRA

QUARTERLY JOURNAL OF THE SOUTHERN TEXAS ARCHAEOLOGICAL ASSOCIATION

Volume 25, No.1
January, 1998

Shirley Van der Veer
Editor

About the Cover: Three views of a shell pendant from South Texas. See page 42 for report by C. K. Chandler and Lynn Highley. Drawings by Richard McReynolds are found on pages 30, 43 and 44 as well as the cover.

Manuscripts for the Journal should be sent to: Mrs. Shirley Van der Veer, Editor, *La Tierra*, 123 East Crestline, San Antonio, Texas, 78201-6613. Past issues of the Journal and Special Publications available by requesting an order form from STAA (Jim Mitchell), P. O. Box 791032, San Antonio, Texas 78279. Dr. T. R. Hester may be contacted at the Texas Archeological Research Laboratory, Pickle Research Center, Building 5, 10100 Burnet Rd, Austin, Texas, 78712-1100.

For membership information contact the Membership Chairman, Lenora Metting, P. O. Box 951, Lakehills, TX, 78063. (1-830-751-2971).

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For use of the STAA Lending Library, contact Anne Fox at the Archaeology Laboratory, The University of Texas at San Antonio, San Antonio, Texas 78249.

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

La Tierra is now printed on acid-free paper.

Library of Congress Catalog No. 76-649774.

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

Printed by LEBCO GRAPHICS INC., Boerne, Texas

EDITORIAL

With the new year, *La Tierra* will lose the services of Evelyn Lewis as Editor. Evelyn has been Editor for ten years during which time *La Tierra* has earned a reputation for fine, comprehensive and timely articles enlarging the knowledge of South Texas archaeology. Many authors have contributed to this body of knowledge, some of whom were writing for the first time with some apprehension as to their writing ability. Not to worry, Evelyn was there to give advice and assistance, so that the publication has acquired more writers of all ages and backgrounds to bring to light many interesting sites and artifacts in our South Texas history. Otherwise, information about these sites and artifacts could have been lost forever. STAA is indebted to Evelyn for her work with authors to bring about this reputation that *La Tierra* has achieved.

Evelyn's "production manager," Shirley Van der Veer, has consented (with some trepidation) to replace her, at least for 1998. Her husband, Van, has been recruited for his continuing assistance in production, and Evelyn has also been recruited for final proofing and general help as needed.

There are a few differences this year, the main one being the decision to have "peer review" for some of the more specialized papers that are sent in. An effort has been made during the years of publication to keep *La Tierra* from becoming too formal in nature. We have walked a fine line between the professional and avocational papers, and to our delight, have had many contributions from both that are of interest and pleasure to our readers. The fact remains, however, that from time to time we receive papers that need oversight by someone more knowledgeable about the particular subjects. This issue has seen such reviews by Dr. Tom Hester, Anne Fox, Steve Black and Ken Brown and their help has been much appreciated.

Also in this issue is the first Book Review in some years. This is a feature incorporated into *La Tierra* in the early years (24 years ago!) and gradually eliminated as more articles filled the issues. With Ken Brown's review on *A Field Guide to Common South Texas Shrubs* it is hoped to reestablish the Book Review on a regular basis.

In the hope that more personal (and faster) communication with authors and prospective authors can be attained, E-Mail is now in use by your Editor (shirleyvan@worldnet.att.net) and it is hoped that any authors with E-Mail capability will include their E-Mail address with any such communication. When sending in hard copy and disks, the E-Mail address should be sent also. This request can also be found on the "Information for Authors" page, usually found on the last page of each issue when possible.

Evelyn Lewis has made *La Tierra* a fine publication, and the new regime has great hopes of keeping up the tradition. Please help by making *La Tierra* your publication when you have something to report on the history and prehistory of South Texas. We must keep the length of each report somewhat small (two to twenty-five pages) in order to give as many different authors as we can a chance to publish. Write or E-Mail the Editor if you have questions, and thanks, in advance, for your interest and participation.

Shirley Van der Veer
Editor

The ROBERT F. HEIZER Award

FOR OUTSTANDING CONTRIBUTIONS TO SOUTHERN TEXAS ARCHAEOLOGY

1997

Chairman I. Waynne Cox (left) presents the Heizer Award to Mike Davis

MIKE DAVIS

Everywhere you looked this last year, Mike was there - talking to landowners and archaeology groups about preservation such as at the STAA quarterly meeting in Fredericksburg; working on the Roeder property in Gillespie County; surveying endangered sites along the Rio Grande; his outstanding work at the Texas Archeological Society field school at Mission Espíritu Santo de Zuñiga (41VT11) near Victoria, and his recent field work at the site of La Salle's fort. Mike is extraordinarily effective at working with the Office of the State Archeologist stewards and other local people in identifying, documenting, and protecting the cultural resources of southern Texas. His energy and professionalism sets an example for us all.

LIFETIME ARCHAEOLOGICAL ACHIEVEMENT AWARD

E. Thomas Miller of Kerrville accepts the award from Chairman Waynne Cox

Tom was presented with the Lifetime Archaeological Achievement Award for his many years of exceptional field work at the Dan Baker site excavations, Texas Archeological Society field school work in all parts of the state, and his particularly conscientious field work in support of archaeological research by the Center for Archaeological Research of the University of Texas at San Antonio.

The DEE ANN STORY ARCHAEOLOGICAL CONSERVATION Award

for 1997

The GILLESPIE COUNTY HISTORICAL SOCIETY

Paul H. Camfield (left) accepts the award for the Gillespie County Historical Society

For their outstanding preservation and documentation efforts in the historic square in Fredericksburg, Texas, and archaeological survey and conservation efforts at the Roeder sites of Gillespie County during 1997.

OUTSTANDING AVOCATIONAL ARCHAEOLOGIST OF THE YEAR 1997

Ray Smith (left) accepts award from 1998 STAA Chairman (Curt Harrell)

H. RAY SMITH

For his outstanding contributions to southern Texas archaeology during the last year including being an STAA local arrangements committee and a key actor in setting up and running the TAS Field School in Victoria, and other actiavities, such as an archaeological steward with the office of the state archaeologist, a field investigator, concerned citizen, and as a member of the STAA field school committee. Ray sets a pace most of us would find hard to follow....

OUTSTANDING AUTHOR Award 1997

James Boyd (right) accepts award from Waynne Cox, 1997 Chairman, 1997

JAMES BRYAN BOYD

James B. Boyd of Del Rio, Texas, is recognized for outstanding authorship of several important reports of sites and artifacts along the Rio Grande which significantly add to our understanding of the archaeology of this region.

ARCHAEOLOGICAL PUBLIC SERVICE AWARDS

THE TEXAS HISTORICAL COMMISSION

Curtis Tunnell, Executive Director

Mike Davis accepts the Public Service Award for Curtis Tunnell

For exceptional Texas Historical Commission (THC) **public outreach programs** including the outstanding *La Belle* website, the THC home page, the Texas Archeological Stewards program, Archeology Awareness Month activities, staff presentations to local and regional societies, THC publications and research projects, and a variety of other activities which have combined new technology with more traditional public presentation to significantly increase the public's awareness and understanding of archaeology in the state of Texas.

TEXANA MACHINERY, INCORPORATED

Kirby Carpenter (right) of Texana Machinery accepts award from Waynne Cox

For their loan of earth-moving equipment on a timely basis to support archaeological research at the newly rediscovered ***Mission Santa Cruz de San Sabá*** near Menard, Texas, thus permitting recovery of critical archaeological information which would have otherwise been lost to history. Working with Dr. Grant Hall of Texas Tech and Kay Hindes of Charlotte in a very short timeframe, this equipment proved extremely valuable in helping researchers explore areas most likely to contain cultural information relatively undisturbed by plowing and agricultural activities.

NOTES ON SOUTH TEXAS ARCHAEOLOGY 1998-1
From Dalton to Perdiz: A Tale of Urban Looting in Travis County, Texas

Thomas R. Hester
with the collaboration of Frank Asaro, Fred H. Stross and Robert Giauque

The destruction of archaeological sites has become commonplace as Texas cities have expanded over recent decades. Some sites in the way of urban sprawl have been excavated and well documented (e.g. Black and McGraw 1985). Others have been swallowed up by housing subdivisions and related developments, and others damaged or wholly destroyed by unscientific excavation. Potter and Black (1995:17-19) note that destruction of more than 40 sites in the Walker Ranch area of northern San Antonio has resulted from development, vandalism, and years of unchecked looting, including, in an unusual twist when it comes to such things, the selling of looted artifacts in order to purchase drugs (ibid.:19).

In 1993, the Austin Police Department (APD) contacted a local resident to advise him that they had seized Indian artifacts dug up on a parcel of his property. The artifacts had been recovered during an arrest of a person for possession of cocaine and the suspect had a substantial collection of points and other materials. Upon questioning, the suspect revealed where the artifacts had been obtained. The landowner was notified by APD, and he then contacted the Texas Archeological Research Laboratory (TARL), and I arranged with him to visit the site, in the company of Robert Draper, who was then working on an article on site-looting for *Texas Monthly*.

The site, 41TV1614, is located in south Austin, just off Interstate 35. It is (or was) buried in a thickly wooded terrace overlooking a creek that is a tributary to the Colorado River. One can literally park on the frontage road and walk a few meters through thick brush to the site. When we arrived there, no one was excavating, but the evidence of wholesale looting was everywhere (Figure 1). Like so many looted sites, the landscape resembled the proverbial World War I battlefield, with potholes, uprooted trees and piles of discarded flakes and broken artifacts. The landowner had been aware of some earlier digging at the site, and had posted "No Trespassing" signs. But with the ease of access and the dense brush cover, the looting went on unhindered and had greatly increased in the months prior to our visit.

It was impossible to plan any sort of "salvage" operation at the site, as there was absolutely no way the site could be protected. Any excavation units would have been destroyed by the looters and students or volunteers could have well been in danger, based on accounts given the police by the person they had arrested. The people digging this site were not your "minor collectors" or weekend pothunters; it was a serious, money-making business.

We next turned to the seized collection, loaned to TARL by the landowner. It was documented and photographed and returned to him. However, examination of the artifacts from 41TV1614 provided an indication of the kinds of data that had been lost. For example, a classic Dalton point (Figure 2) was present, an early Paleoindian type (ca. 8500 B.C. or earlier) rare in the Central Texas area (Turner and Hester 1993:99-100). There was also a wide range of typical Central Texas Archaic artifacts, including such dart point types as Lange, Montell, Castroville, Wells (or possibly reworked Andice; Figure 3,a), Bulverde, Andice, Pedernales, Kinney, Nolan, Fairland, and Ensor (Figure 3; Figure 4,a). A number of untyped specimens, perforators made on dart points and preforms were also present. The Late Prehistoric was represented by Scallorn and Perdiz arrow points (Figure 4,b,c), as well as arrow point preforms. There was also an assortment of faunal materials, indicative of excellent bone preservation in the site deposits.

There was also a thinning flake of obsidian. The specimen is 8.5 mm long, 6.5 mm wide, 2.0 mm thick, and it weighs 1.1 g. It is semi-translucent, and gray to gray-blue in color. Non-destructive precise X-ray fluorescence analysis of the specimen at the Lawrence Berkeley Laboratory (letter to Hester from Asaro and Stross, October 1993) clearly placed it within the Malad, Idaho source. This obsidian source

Figure 1. Views of Looting at 41TV1614. Extensive potholes, backdirt, and (at left) undermined and uprooted trees.

Figure 2. Dalton Point from 41TV1614. Both sides are shown.

Table 1. Comparison of Element Abundances in TOP 155, 158, 616, 162, and 163 with the Malad, Idaho Geological Source. Abundances and Errors given in Parts per Million (ppm).

El	Mean ± σ 5 samples PXRF	Reference (Malad)[b] PXRF	(Mean - Ref) / Ref (%)
Elements well-measured[c]			
K(%)	3.92 ± 0.14	3.94 ± 0.18	-0.5
Ca(%)	0.588 ± 0.074	0.615 ± 0.035	-4.3
Mn	217 ± 23	223 ± 17	-2.7
Fe(%)	0.684 ± 0.027	0.693 ± 0.015	-1.3
Ga	22 ± 1	23 ± 1	-4.3
Rb	126 ± 2	127 ± 1	-0.8
Sr	73.4 ± 0.8	74.0 ± 1.2	-0.8
Y	30.2 ± 0.3	31.6 ± 1.5	-4.4
Zr	89.2 ± 1.3	90.4 ± 0.6	-1.3
Ba	1532 ± 83	1590 ± 35	-3.6
		Average deviation =	2.4%

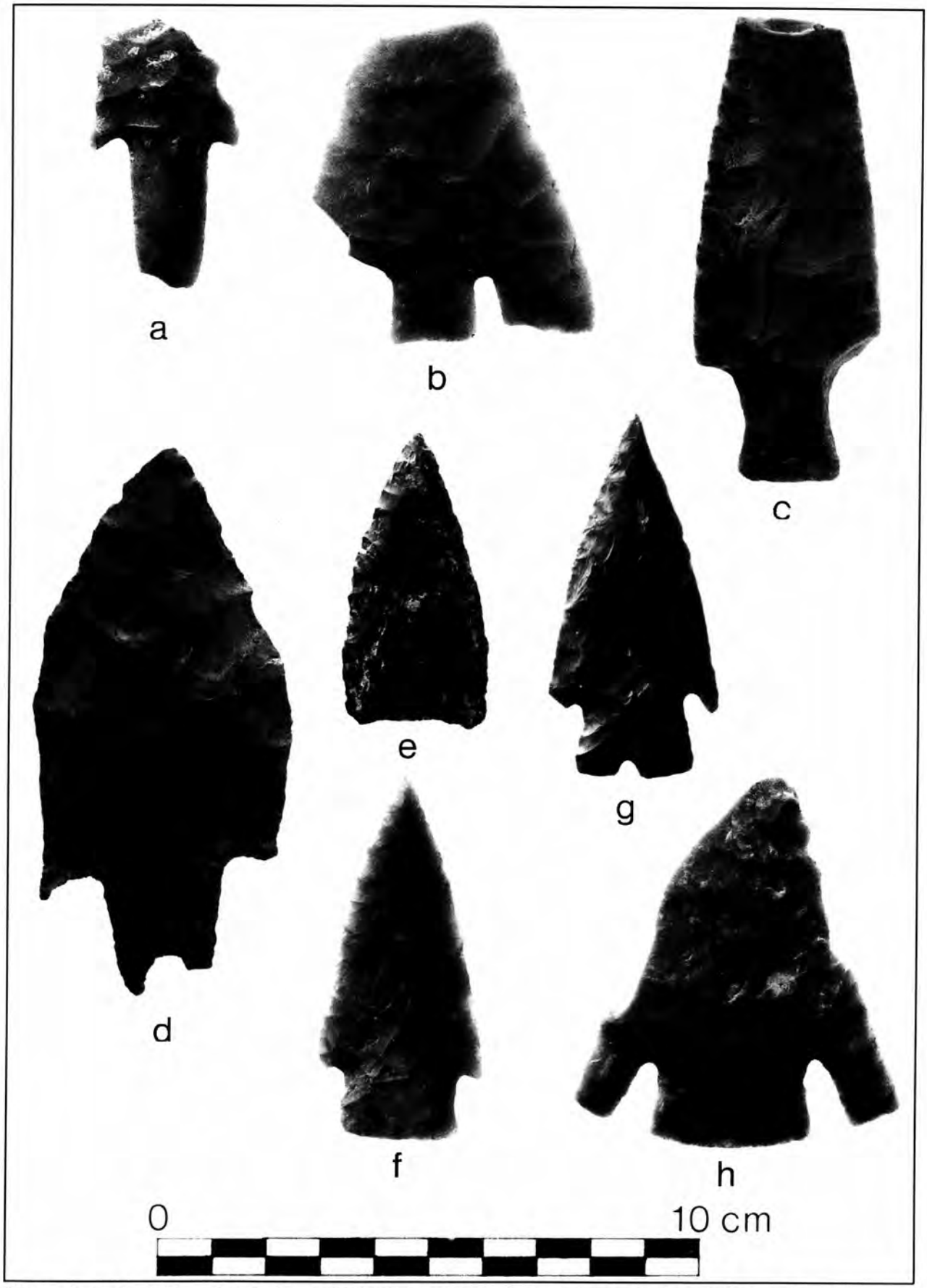

Figure 3. Archaic Dart Points from 41TV1614. a, Wells ?; b, Andice; c, Nolan; d, Pedernales; e, Kinney; f, Lange; g, Montell; h, Castroville.

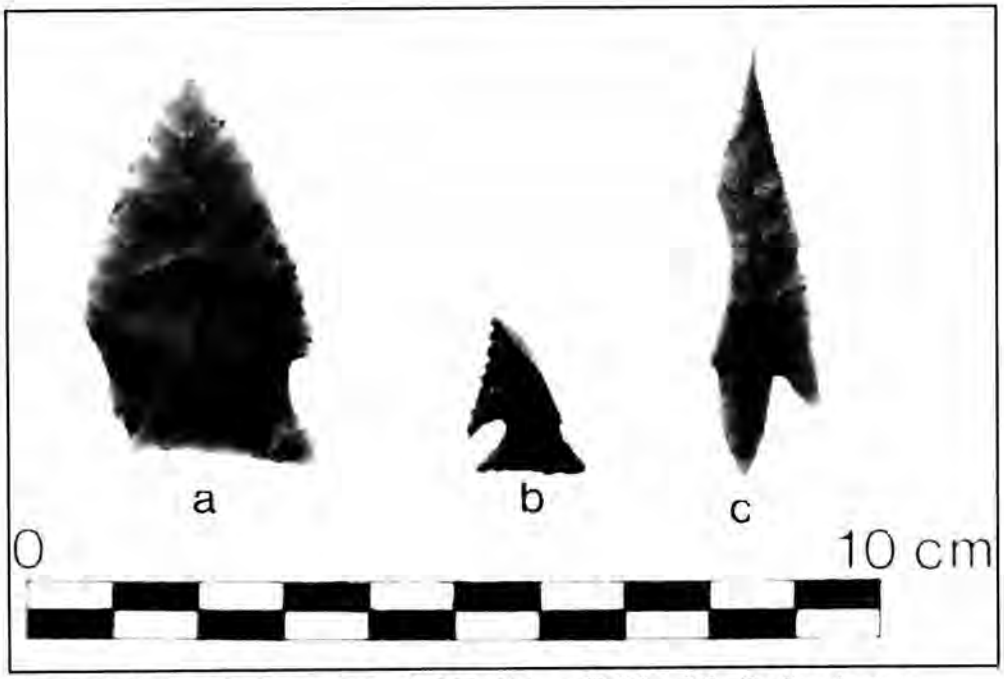

Figure 4. Projectile Points from 41TV1614. a, Fairland; b, Scallon base; c, Perdiz.

is represented by a number of artifacts from Travis and Williamson Counties, as well as other parts of the state (cf. Hester et al. 1991). Quite often, the Malad materials appear to date to Late Prehistoric times; this specimen is of unknown temporal or cultural affiliation. The raw data for this specimen (TOP 158) is presented in Table 1, combined with four other Malad artifacts from Texas (Bell, Williamson and Garza Counties).

We were able to glean some information from 41TV1614, including indications of its antiquity, temporal span, and the presence of a long-distance trade item. However, the site is, overall, another casualty of artifact-looting, this time in an urban setting, and another tale of invaluable archaeological contextual data forever lost.

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A PREHISTORIC BURIAL FROM THE SCISSORS ISLAND SITE, FALCON RESERVOIR

James Bryan Boyd and Diane Wilson

ABSTRACT

A prehistoric burial discovered eroding from a major occupation site on the shoreline of Falcon Reservoir is discussed. The site is on the Mexican side of the lake, in the drainage basin of a large tributary known as the Arroyo Centurion. The circumstances of the salvage of the skeletal remains are discussed, and two lithic artifacts recovered from the grave fill are described and illustrated. Two other burials recorded in the site are briefly referenced.

THE SITE

The site where the burial was discovered is located within the conservation pool area of Falcon Reservoir in the state of Tamaulipas, Mexico. The conservation pool elevation of Falcon Reservoir is 301.2 feet above mean sea level [amsl] (IBWC 1975). The site lies primarily between the elevations of approximately 255-264 feet amsl (Boyd n.d. a). Thus the lake must be at least 37 feet low for the site to begin to become exposed.

The site was initially visited by the author when the elevation of the reservoir was 263.06 amsl (IBWC personal communication 1995). The site was named Scissors Island. It is located on the south bank of a tributary of the Rio Grande known as the Arroyo Centurion. The arroyo is also known locally (among Mexican fishermen) as the Arroyo Gonzaleño (Sr. David Bautista, personal communication 1995). This drainage system is approximately 16 kilometers south-southwest of Zapata, Texas (see Figure 1). The site is approximately 600 meters west of the original riverbed of the Rio Grande. which is submerged in the reservoir.

The Scissors Island site was visited several times by the author. A varietal assemblage of artifacts was recorded on the surface of the site. Artifact types include projectile points, stone tools (including a drill and three sandstone mano stones), and a shell pendant. Projectile point types recovered include Abasolo, Almagre, Bell, Catan, Desmuke, Ellis-like, Gary- like, Langtry, Matamoros, Pandora, Shumla, and Tortugas (Boyd n.d. a). The site was heavily looted by large numbers of commercial artifact collectors from the U.S., as well as by Mexican fishermen (who sold artifacts to the U.S. collectors) during 1995 and 1996 (Boyd n.d. a). These indiscriminate activities, conducted on a daily basis by the looters, caused incalculable damage to the site.

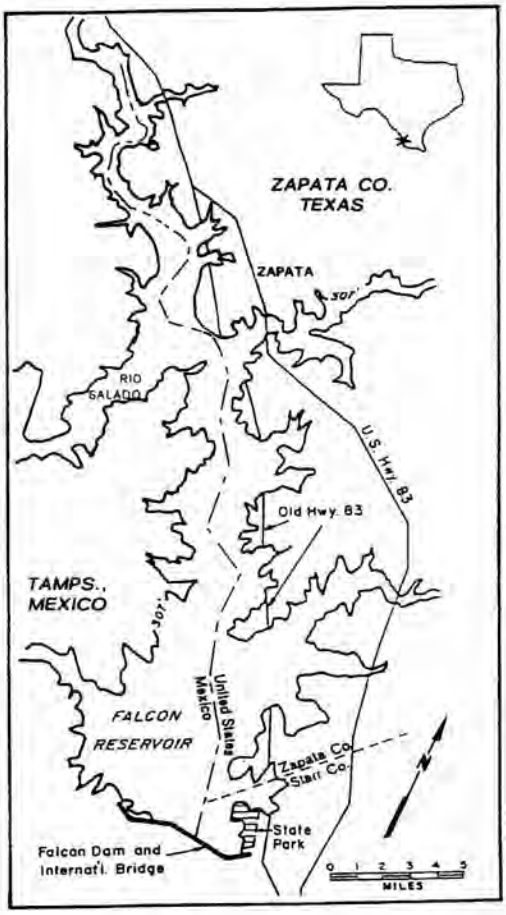

Figure 1. Map of Falcon Reservoir. See text for general area of Burial #1 at Scissors Island. Inset shows location of area in the state.

A Historic period component was evident at Scissors Island in the form of numerous artifacts strewn over the surface. These artifacts consisted of ceramic and glass sherds, various metal artifacts, and undetermined types of animal bones. One large rock pile probably represents the ruins of a small stone building or pen.

THE BURIAL

The burial was discovered near the eastern edge of the site on the initial visit. It was still in approximately 2 inches of water and about 3 feet offshore when discovered (see Figure 2), and was being actively eroded by wave action.

The burial was a primary inhumation, placed on its back with the head oriented to the south. The cranium was absent, as were the lower leg bones and the lower portion of the femurs. Otherwise the skeleton was mostly complete. The left arm of the burial was in situ, placed over the pelvic area (see Figure 2). The vertebral column was in situ, and the right femoral head was still inserted in the acetabulum of the right innominate. The left femoral head (and short segment of femur) was observed approximately eight inches northwest of the left innominate, where it had presumably been washed by wave action. Two medium-sized sandstone rocks were observed on the surface in direct proximity to the skeletal remains, and numerous snail shells were present strewn over the surface in the area of the burial (see Figure 2). There was no apparent association of these objects with the burial.

SALVAGE OF THE SKELETAL REMAINS

Upon discovery of the burial feature, and after a quick visual assessment and photography of the remains, it was decided to salvage all visible skeletal material. This decision was made on the basis of two factors: (1) The burial feature was being actively eroded by wave action at the time of its discovery, and further destruction of the burial by this process was a possibility, and (2) The water level of the reservoir was receding rapidly, and full exposure of the burial feature was imminent. This would have exposed the burial feature fully to the hoards of artifact collectors and looters who were at that time frequenting the site on a regular basis.

No screening materials were available at the time

Figure 2. Photograph of burial feature washing out near the shoreline, Falcon Reservoir. South is to the right. Note large number of snail shells (*Rabdotus*) near the burial, as well as the sandstone rocks. Water is approximately 2 inches deep at the burial feature.

of salvage, but every effort was made to carefully recover all skeletal remains from the surface, and from just under the surface, by hand. During the initial salvage operation, a fragmentary arrow point was recovered. This artifact was not observed during the pre-salvage visual inspection of the burial feature, and was apparently buried just under the surface. It was found in the rib cage area of the skeletal remains.

On the following date, the burial site, now well above the waterline, was screened through perforated stainless steel. This operation resulted in the recovery of a small amount of additional skeletal remains as well as a small bifacial lithic artifact.

THE ARTIFACTS

It is unknown whether either, or both, of the artifacts documented during the salvage of the skeletal remains was associated with the burial. Both artifacts were found in direct proximity to the remains, but were not noted on the surface prior to salvage operations. It is possible that the artifacts eroded into the feature by wave action from the reservoir, or were contained within the matrix of the original grave fill and were not deliberate mortuary inclusions. It is also possible that the artifacts were mortuary inclusions. Circumstantial evidence in favor of this last possibility is that one of the artifacts is an arrow point, whereas nearly all of the projectile points recorded in the surrounding site conformed to the dart point category (Boyd n.d. a). The artifacts are described below.

Arrow Point: One arrow point, generally triangular in form, was recovered (see Figure 3). The specimen is made from a tan-colored chert, and the edges are finely serrated. One proximal corner or "foot" is broken, but in general form the specimen resembles the Starr arrow point type (Turner and Hester 1993: 231). The particular style or workmanship demonstrated in the recovered specimen is at variance with Starr arrow points usually found in the area of Falcon Reservoir (Boyd n.d. a). Other variant type arrow points are occasionally found in the area (e.g., Boyd n.d. b), but are dissimilar to the one being

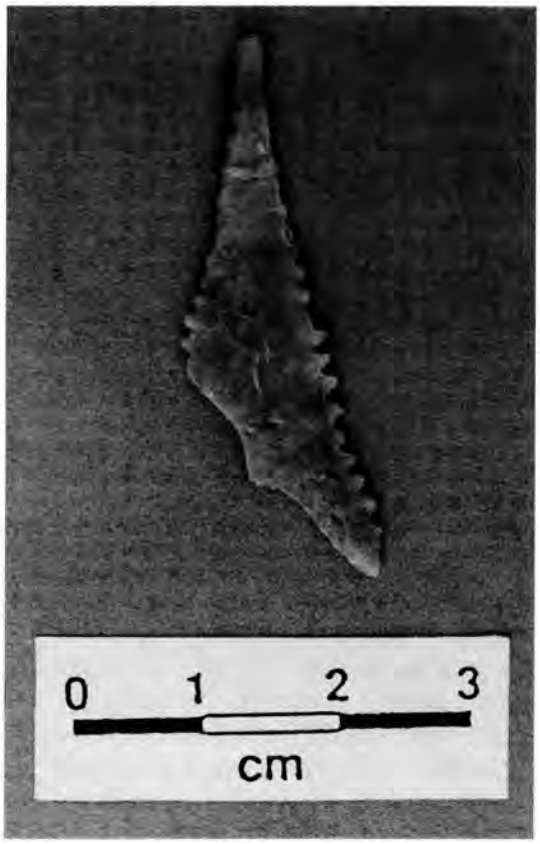

Figure 3. Arrow point from grave fill. Note broken proximal corner. Photo by author.

Figure 4. Small biface recorded from grave fill. Photo by the author.

discussed. The length of the specimen is 1.544 inches (39.22 mm) and it has a maximum thickness of 0.0915 inches (2.33 mm).

Biface. One biface, generally oval in shape, was recovered (see Figure 4). The specimen is made from a light brown-colored chert, and is crudely flaked. The lateral edges exhibit slight evidence of use. The proximal edge is convex in shape. The artifact is 1.967 inches (49.97 mm) in length, and has a maximum thickness of 0.546 inches (13.86 mm). Similar artifacts are commonly found in many prehistoric sites in the region (Boyd n.d. a).

OSTEOLOGICAL ANALYSIS

The salvaged skeletal remains were taken to the Texas Archeological Research Laboratory (TARL), The University of Texas at Austin where they were examined by Diane Wilson in the Department of Anthropology. An analysis revealed that the skeletal remains were fragmentary but in a good state of preservation. No pathologies were noted. The individual was a female aged 25-34. Her age was determined by auricular surface morphology and her sex by femoral head diameter and discriminate functions on the calcaneus (Boyd, n.d. a).

OTHER BURIALS FROM THE SCISSORS ISLAND SITE

Two other burials were recorded in the Scissors Island site. The burial being reported was designated Burial #1; the other two were designated Burials #2 and #3. Burial #2 was discovered on the same date as Burial #1. Burial #2 was a cairn burial, and was covered by numerous sandstone rocks (Boyd n.d. c). Cairn burials are infrequent occurrences in the Falcon Reservoir area (Boyd n.d. a). Burial #2 was accompanied by a mortuary cache of 82 perforated freshwater mussel shells, which were perforated in the shells' umbo area(s). The shell species is identified as Yellow sandshell [*Lampsilis teres*] (see Howells et al. 1996:69-71). The shells had been carefully placed in a linear arrangement, stacked end over end, and appeared to have possibly been strung together when placed with the interment (Boyd n.d. a).

Burial #3 was discovered in the spring of 1996 after it had already been plundered by looters. Contact with the looters indicated that no associated artifacts were found with the burial. The skeletal remains from Burials #2 and #3 were salvaged and were later taken to TARL where they were examined by Wilson.

All three burials were located on the east facing landform of the Scissors Island site. This portion of the landform is on a moderate slope, which dips toward the original Rio Grande riverbed which lies several hundred meters to the east of the site and is submerged in the reservoir. The spatial distribution of the three burials was roughly in a line from north to south, within a distance of approximately 200 meters. Burial #3 was the northernmost, Burial #1 was in the middle, and Burial #2 was the southernmost.

CONCLUSIONS

Information gleaned from Burial #1 at Scissors Island is significant for a number of reasons. When initially discovered, the burial feature had not been disturbed by looters, though it had been partially displaced by wave action from Falcon Reservoir. Thus it was possible to record information such as the orientation and position of the skeletal remains.

Salvage of the skeletal remains allowed for additional invaluable osteological research to be conducted. As the database of information on burials in the Falcon Reservoir area increases, the addition of information gathered from each distinctive burial is pertinent in a comprehensive assessment of prehistoric burial practices in the region as a whole.

The inclusion of the two lithic artifacts within the matrix of the grave fill is pertinent only if they are deliberately placed mortuary inclusions, but this cannot be positively confirmed. The inclusion of the arrow point specimen is interesting in that other projectile points recorded in the site were dart points. The type of arrow point salvaged is interesting in that it is a variant example from the types commonly found in the area.

In general, the Scissors Island site is very important for a number of reasons, including the fact that to date it has yielded at least three distinctive prehistoric burials. Other burials may be revealed, and the possibility that the site may be a cemetery will have to be seriously evaluated. With five other tentatively identified prehistoric cemetery sites already identified within the conservation pool area of Falcon

Reservoir (Boyd n.d. d), it may be that future research will identify the Scissors Island site as the sixth.

ACKNOWLEDGMENTS

Diane Wilson, a doctoral student at the Texas Archeological Research Laboratory (TARL), The University of Texas at Austin, performed the expert osteological analysis of the recovered skeletal remains. Wilson has also assisted in the analysis of numerous other burials salvaged in the Falcon Reservoir in recent years. Dr. Thomas R. Hester, Director of TARL, provided additional suggestions regarding archaeological resources exposed by fluctuating water levels at Falcon Reservoir.

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ERRATA — La Tierra Vol. 24, No. 4 (October, 1997)

Pages 46-47, Toyah paragraph missing lines below.

... one is complete. Several local variations of the type are apparent in the grouping. Some of the specimens more closely resemble the Sierra Madera style as described by Taylor (1966:84 [Figure 27]) and later by Heartfield (1975:143-144). Two of the specimens were found in direct proximity to the atelier feature. One is made from a black chert which is common in the confluence area of the Rio Salado and the Rio Sabinas (Boyd n.d. a), an area approximately 10 kilometers to the west-northwest of Rincón de los Indios. Another

...

Once again, our profound apologies to Mr. Boyd.

Editor

A POSSIBLE ADDITION TO 41TV130, THE ANDERSON MILL SITE, TRAVIS COUNTY, TEXAS

Andrew F. Malof

ABSTRACT

On the east bank of Cypress Creek, the last major left bank tributary of the Colorado River prior to Mansfield Dam, is an intermittently exposed feature consisting of dressed limestone blocks forming an open rectilinear outline. It is believed this feature is a previously undocumented component of Anderson's Mill, which was constructed in the early 1860s. Records indicate that Thomas Anderson built a small homestead, and then constructed the mill. Once the mill was in operation, he built a permanent house for his family. The mill site and homesite have been relocated. Artifactual remains and areal relationships support a synchronic association between the features.

INTRODUCTION

Mills were once common across the Colorado River valley of Central Texas. They provided a means for farmers to process their grains locally, and helped cement relationships within remote communities (Smithwick 1983:173). Although little is left of Anderson's Mill, others, such as Smithwick's Mill (Lower Colorado River Authority [LCRA] site files) and McKinney's Mill (McEachern and Ralph 1981:5-63), have impressive remains.

Site 41TV130 was excavated by Paul Durrenberger in the early 1960s. He located two main areas: the mill, which was across the creek to the northwest of the present study area, and the house and tank site, which was across the unnamed tributary and to the northeast (Figure 1). His studies were primarily focused on artifactual remains (Texas Archeological Research Laboratory [TARL] files). The house remains were destroyed by construction of a state road in the mid-1960s, and the mill was removed prior to the impoundment of Lake Travis in the early 1940s (Durrenberger 1965:2).

Durrenberger noted the log cabin, or homestead, based on Anderson (ca. 1959) was located to the east of the mill, as was the later house. He initially labeled a nearby limestone accumulation as the cabin location, but later determined it was a portion of the house site. Of interest is that the house was well to the northeast of the mill while the study area of this report is to the southeast, and contains a possible foundation (Figure 2). A 1936 map of Cypress Creek, compiled for the LCRA prior to the construction of Mansfield Dam, shows the mill and a house, both where Durrenberger had relocated them. No other structures are seen in the area (LCRA files).

BACKGROUND

Frank Brown compiled a history of Travis County (Brown ca. 1900). From his records something of a settlement sequence can be discerned, although some information might better be relegated to "hearsay" (Dan Utley personal communication). According to Brown, personages such as Thomas Anderson, Wilford Barton, Pleas Stewart, John Harrel, William King, A. J. Standford, and a man named Toungate all settled in the Cypress Creek valley. Anderson was something of an engineer; not only was he capable of building a grist mill which doubled as a gunpowder mill and cotton gin, he designed a water system which provided pressurized water to his house and gardens (Anderson ca. 1959). By 1867, the valley was mostly settled, with farms as well as the mill in operation. Austin was receiving a bountiful supply of produce from the area, particularly from the Anderson farm (Brown ca. 1900 [17]: 31-34). He produced such crops as peaches, apples, beans, cabbage,

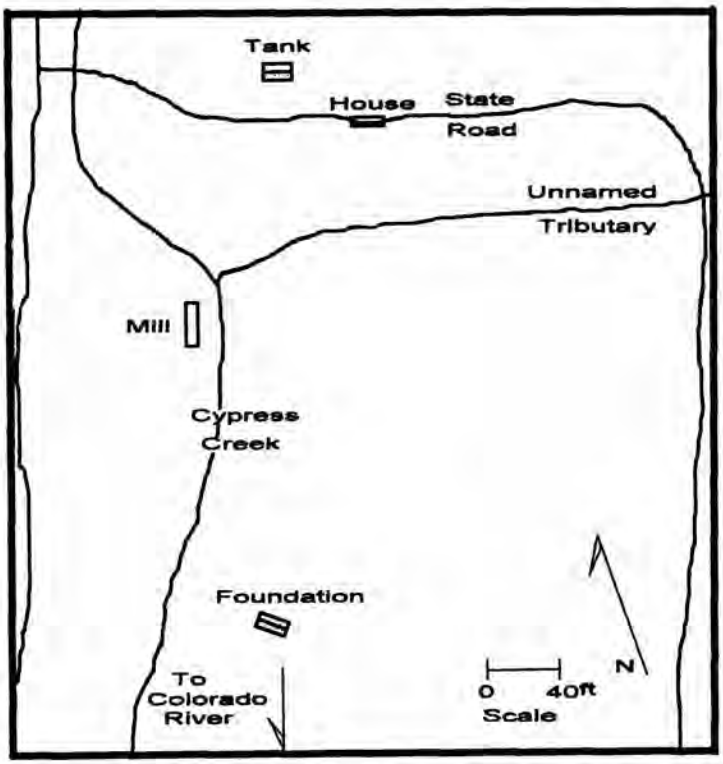

Figure 1. General plan map of area discussed in text.

tomatoes, sweet potatoes, bell peppers, eggplant and cucumber (Anderson ca. 1959). Apples seem to have been a delicacy, and were highly prized (Brown ca. 1900 [1]:8). Brown was apparently enchanted with the area, describing it as romantic and attractive" (Brown ca. 1900 [17]:31). Anderson (ca. 1959) noted that the area was widely used for picnics, and was utilized by hundreds of people, probably in the early part of the twentieth century. He also referred to an "Indian Village" on adjacent lands, based on large numbers of projectile points exposed during cultivation.

FOUNDATION

At times of low water (less than 660 ft. above mean sea level [amsl]) a feature consisting of dressed limestone blocks and cobbles can be seen along the east bank of Cypress Creek [Malof 1996] (Figure 2). Still evident is a north/south oriented linear concentration of stone, with a dense concentration in the southwest corner (possibly a chimney). The remains of a possible north/ south wall are found to the south, while an east/west possible house wall is seen immediately to the south of the foundation. Another limestone scatter is seen to the east. This may have been the east wall. A seemingly random scatter of limestone is to the north. It is thought this may represent a limestone processing area. Limestone ledges extrude as bedrock along the creek banks, and would have provided ready access to quarrying materials. An LCRA/ Travis County park area to the north of the feature may have been utilized, as evidenced by possible tool marks visible on limestone outcroppings.

ARTIFACTS

Historic artifacts from the foundation area were collected in 1991 (Malof 1996). This collection has been in storage, but was accessed for a preliminary analysis. These materials were all found in the immediate vicinity of the foundation, and consisted of glass, various earthenware (whiteware, transferware, decalware), crockery, assorted metal, (primarily square nails), five buttons and assorted other materials (Table 1).

Other artifacts were noted at the time of a later survey, including horseshoes and additional glassware, earthenware, crockery and metal (Malof 1996).

Table 1. Summary of Historic Artifacts, Anderson Mill site.

							Totals
Glass							
	Base	Rim	Patterned	Melted	Stoppers	Shards	
Green	2	4	6	3	0	21	36
Purple	1	5	8	0	1	12	27
Brown/Black	5	2	0	0	0	43	50
Window/Flat						48	48
Bottle (whole)							1
Total Glass							162
Stoneware							
	Edge	Bottom	Interior	Mfg Marks			
	34	19	116	10			179
Decorativeware							
Primary Color	Blue	Red	Green	Other			
	12	3	3	1			19
Crockery							
	Handle	Rim				Sherds	
	4	2				21	27
Metal							
Nails	>2"	<2"					
	19	39					58
Bolts							2
Washer							1
Clasp							1
Caster							1
Rifle Shells							3
Belt Buckle							1
Misc							13
Total Metal							80
Buttons							
	Mother-of-Pearl		Metal				
	1			4			5
Clay Pipe Stem							1
Fiber or Leather Washers							4
Burned Bone							2
Clothes Iron							1

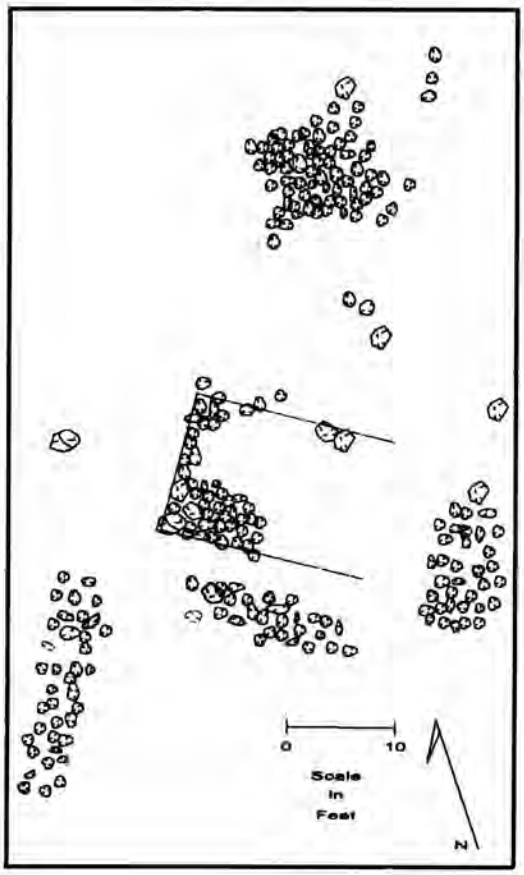

Figure 2. Possible foundation in the study area.

These artifacts compare favorably to the photo file from 41TV130, the Anderson Mill Site, on file at TARL, and a light scatter still evidenced at the mill site itself.

Diagnostic artifacts include purple glass, indicating manufacture before 1914. Purple glass is the result of manganese, a clearing agent used to counteract the irons incipient in glass making materials. After exposure to ultraviolet rays, the glass takes on a purple hue. Although used for hundreds of years, it was most prevalent from 1880-1914, when the advent of World War I isolated Germany, the main supplier of manganese (Kendrick 1966:57). An applied rim bottle neck of dark brown glass is typical of the mid-nineteenth century. It exhibits a faint seam up to the lip, which is uneven and shows cut marks. The crude lip indicates manufacture from 1830-1860, while the possible seam would date from 1860-1880 (Kendrick 1966:48). The bottle top appears to be somewhat of a hybrid. Also collected was a substantial amount of flat glass, most probably used for window panes. This reinforces the hypothesis that the feature supported a habitation at one time.

Ceramics, typically described as whiteware, are also indicative of the 1860s, however, these are often lumped with ironstone, a much harder, less porous ceramic which became common in the latter part of the 1800s. The differences are subtle, and additional work is needed on diagnosing the collection. Durrenberger relied on a somewhat subjective "tongue test" to distinguish between the two (Durrenberger 1965:16). Replication of this method, in which the more porous whiteware will stick to the tongue, while the ironstone will not, was found to be inconclusive, as the amount of paste exposed seemed to be as great a factor as differences between pieces. A single fragment may exhibit a range of "stickiness" depending on the angle of break. Price (1982), concedes that differences are so fine, and characteristics overlap to such an extent that it may be more realistic to combine the two forms into a whiteware/ironstone class, in effect, making whiteware a subcategory of ironstone (Price 1982:11-12). This is unfortunate, as whiteware was popular from 1810-1880, and ironstone was prevalent from 1850-1920 (Rosenberg and Kvietok 1981:56).

Decorative aspects of the recovered ceramics still require additional analysis. Three major styles are summarized. Transferware, first employed in 1752, which developed into polychrome transfers, widely available by 1848, was used commonly on "whiteware," and is identifiable by an inconsistent "stippled" appearance. Decalcomania, or decalware, was not introduced until around 1860. It will exhibit a raised surface when viewed in cross section, and may be above or below the glaze. This became popular after 1885 (Rosenberg and Kvietok 1981:65). Both of these are seen within the collection. Also seen are molded relief pieces, which date after the 1850s. Featheredge, wherein a molded edge is colored blue or green, and Willow Pattern, an English export to China (Hume 1970:130) with a blue and white composition usually incorporating a bridged river, and dating after 1780 (Sutton and Arkush 1996: 201), are also seen. Makers marks are found on the bases of a few of the artifacts. The majority are of the somewhat ubiquitous lion and unicorn over a crown and shield. These range from before 1837

until the twentieth century. Those in the collection most closely resemble mid-nineteenth century marks, as evidenced by sideways facing figures and a quartered shield or coat of arms. The illusion of English origin was clarified by 1891, when "England" was required to be included if the item was indeed imported (Rosenberg and Kvietok 1981: 58-61). Two of the ceramics are marked "Wedgwood & Co."; one is impressed and the other a decal or transfer. Although these were not able to be traced specifically, the Wedgwood trademark indicates a British ware (Kovel and Kovel 1953: 141-142). Other partial marks included "Clementson Bro..." and "E. A & S.R F...". These could not be identified.

The occupation of Anderson's Mill was placed from the "mid-1800s to sometime after 1914" (Durrenberger 1965:65). This date can now be fine-tuned somewhat. Among the artifacts Durrenberger recovered at the site were four baking powder lids. One was from the KC Baking Powder Company and was embossed with "KC Baking Powder Same Pr... Today As 45 Years Ago" (Durrenberger 1965:55). These lids are dateable to within two to three years. The KC Company was founded in 1890, and received a patent in 1911. Beginning in 1925, the lid was embossed with the inscription "Same Price Today As ... Years Ago." The year stated is added to 1890, dating within a year or two can production—the number was not always changed yearly, but always within three years (Ward et al. 1977: 240). The can in question was produced in 1935 or 1936. This is an interesting date, placing occupation of the house within six years of site inundation. The mill was falling down by this time, as evidenced by photos of the period (Austin History Center photographic files).

No similar metal artifacts were found at the foundation. Collected were various brackets and apparent furniture frame pieces, as well as what first appeared to be a spur, but was later diagnosed as a caster typical of sewing machines of the period (Milton Bell, personal communication). The majority of the metal artifacts were square nail remnants. These appear to be of the cut variety, as opposed to wrought (earlier), and wire (later). Dating of these is more ambiguous than might be hoped, as they are still in production today for specialized purposes such as flooring. Production figures do produce some clues, however. Based on these amounts, it can be discerned that before 1830 wrought nails were the predominate type in use, even though the cut nail was introduced in 1790. From 1830 to 1890 cut nails were more common, but between 1890 and 1895 cut and wire nails were in equal use. By 1900 only 25% of nails were cut, and after 1900 the percentage of cut nails decreased further (Sutton and Arkush 1996:163). No wire nails were found at the foundational feature, indicating construction between 1830 and 1890.

Three rifle shells were recovered. One is a .22 caliber single rimfire with a "U" headstamp. This may be Union Metallic Cartridge Co., ca. 1867-1902 (Rosenberg and Kvietok 1981:83), or Utah Ordnance Plant, no date (Sutton and Arkush 1996:173). A raised "H" headstamp on a large caliber double rimfire shell indicates Winchester Repeating Arms Co. and may be a .44 Henry Flat, produced between 1860 and 1934 (Rosenberg and Kvietok 1981:79, 83). The last specimen has no visible headstamp, and is a rimmed external centerfire cartridge probably of .44 or .45 caliber. The external centerfire was an advance over the rimfire, and became common by 1870 (Rosenberg and Kvietok 1981:80).

Other household goods were represented by buttons: one of shell, two of metal, and a jeans rivet. A mouth, or Jew's harp was found, and a short clay pipestem. These items all indicate a domestic use of the area.

CONCLUSION

Thomas Anderson was part of a wave of immigrants from the Virginia/Tennessee area who began immigrating as Texas was becoming established as a state. He arrived with a relative wealth of household goods, or else was able to acquire them in later years. It is possible he enjoyed a certain level of "aristocracy," a result of the miller's important place in rural economies (Smithwick 1983:173). With the help of his sons he constructed a successful farming and milling operation which provided resources for Austin during the lean Civil War years. It is still unknown exactly when he ceased milling activities, but it seems the house was occupied until shortly prior to the impoundment of Lake Travis. This long-lived and significant presence places him within an important part of early Central Texas history. Although no documentation has surfaced definitely linking the foundation to the mill and house sites, it is felt there is a strong temporal connection, and further research may be able to confirm this foundation as part of the Anderson Mill complex.

ACKNOWLEDGMENTS

The author wishes to thank Bruce Nightengale of the Lower Colorado River Authority for access to many of the sources cited in this report. Also to be thanked are Dr. James Neely and Dr. Thomas R. Hester, both of the University of Texas at Autin, for their encouragement and help during the preparation of two separate undergraduate papers, in which the idea and some of the material in the above report was formulated.

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OCCURRENCES OF RANGIA CUNEATA *IN CAMERON COUNTY, TEXAS AND NORTHEASTERN TAMAULIPAS, MEXICO*

Don Kumpe, C. K. Chandler, and Richard McReynolds

ABSTRACT

This report provides preliminary information on the occurrence of Rangia cuneata *(Gray) (common rangia) on the Lower Rio Grande Delta and on the use of this brackish-water shell species by the prehistoric inhabitants of the delta in Cameron County, Texas and northeastern coastal Tamaulipas, Mexico. Live common rangia were recently discovered in the Arroyo Colorado in Cameron County; information on the location and on the live population is provided.*

INTRODUCTION

Rangia cuneata occupy low-salinity habitats in estuaries, bays, tidal rivers, and coastal lakes from Delaware to as far south as Alvarado, Veracruz, Mexico (Andrews 1977:220). They are most abundant in the zone where salinity varies between 1 and 15 ppt (parts per thousand) because eggs, embryos, and early larvae survive only in salinities between 2 and 10 ppt; adults will not spawn unless stimulated by a rise or drop in salinity of from 1 to 5 ppt (Hopkins 1973:5, 12). A generally accepted growth curve by Wolfe and Petteway (1968:101) shows that one-year-old common rangia are 16 mm in length, two-year-old clams are 28.4 mm long, and ten-year-old clams are about 70 mm long.

In Texas, common rangia occurs in Indian shell middens along much of the coast and was a significant food resource; the shells were also used by Indians for tools, net weights, and other utilitarian needs (Steele 1988:227-233).

Common rangia shells are useful tools for archaeologists. Reliable radiocarbon dates can be derived from estuarine shell species such as common rangia (Ricklis 1995:269-270) and because of their abundance and their obvious growth rings, common rangia shells have been used in seasonality studies (Carlson 1988).

White et al. (1986:Appendix C) record dead *Rangia cuneata* in Cameron County, but the species has never before been archaeologically documented south of Corpus Christi Bay (Steele 1988:227). However, the senior author has encountered dead common rangia in more than a hundred natural locations and archaeological sites on the Lower Rio Grande Delta. To record some of these and to provide preliminary information on the use of common rangia by the Indians in this area, the authors conducted a brief survey in October, 1992 and report the results in this paper. An archaeological site in Cameron County containing relatively large numbers of common rangia came to our attention in 1996 and is also reported. In Tamaulipas, historical sites containing common rangia were found and are described.

Pattillo et al. (1997:33) remark that, within their study area (the U. S. Gulf coast), live *Rangia cuneata* occur from the Corpus Christi Bay area to southwestern Florida, however, in late 1996, living specimens were found in Cameron County; preliminary information on the location and on the live population is provided in this paper.

Outline of Texas indicating counties referred to in text.

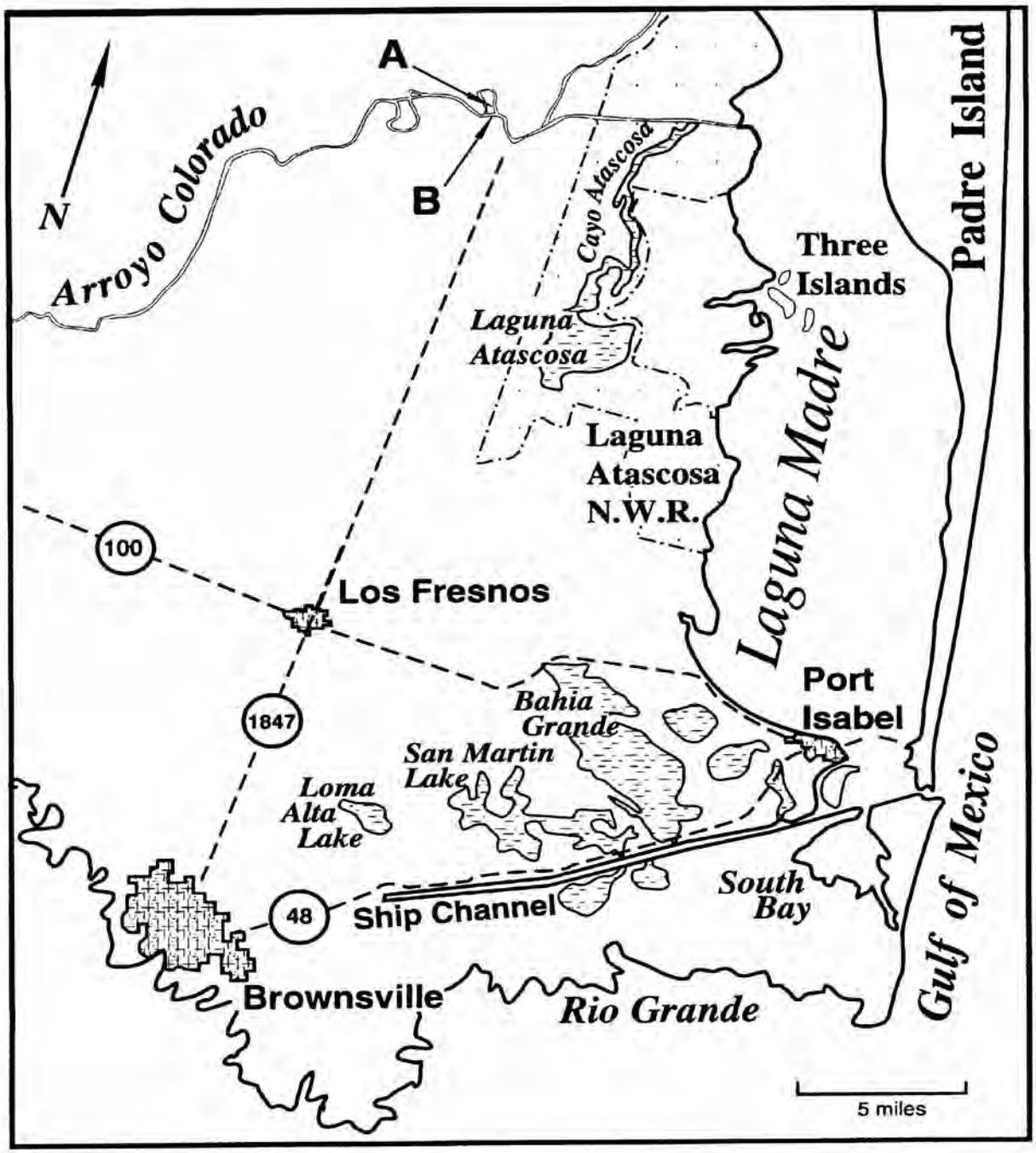

Figure 1. General map of Cameron County (extending to Willacy County north of the Arroyo Colorado) showing the areas referred to in text. Live *Rangia cuneata* were gathered at two Cameron County locations (A and B) in the Arroyo Colorado.

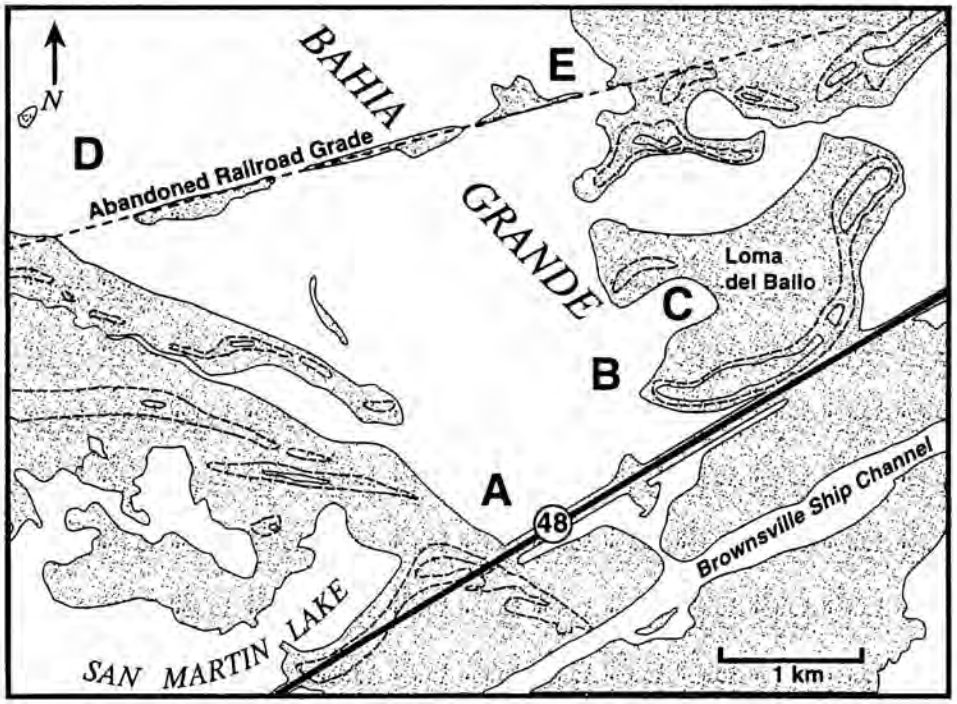

Figure 2. Map showing the areas (A-E) surveyed on the floor of the Bahia Grande in Cameron County.

THE SURVEY AREA

The area surveyed (Figure 1) is on the coastal Rio Grande Deltaic Plain of Holocene (18,000 to 4,500 B. P.) and Modern (since 4500 B. P.) origins. Permanent vegetated clay dunes (locally called "lomas") derived from eolian weathering of dry lake beds and wind-tidal flats, dominate the otherwise flat topography in the coastal area. Distributary channels are provided by abandoned Rio Grande River meander segments and oxbows (called "resacas") created through the Holocene and into contemporary times (Brown et al. 1980:13-14, 92).

The climate of Cameron County (and northeastern coastal Tamaulipas) is described as subtropical and semiarid. Average annual rainfall at Harlingen, Texas from 1931-1969 was 25.85 inches. Average yearly lake evaporation in Cameron County exceeds precipitation by 32-36 inches, the higher value being in the area surveyed near the coast. The highest average monthly rainfall, excluding the hurricane-influenced month of September, occurs in late May and early June. Temperatures average about 73° F (Orton 1977:87-88).

THE SURVEY AND SUBSEQUENT FINDS

Natural Locations in Cameron County

Areas on or near the Bahia Grande and San Martin Lake (Figures 1 and 2) were surveyed. Both were semi-permanent water bodies, generally less than two feet deep, in flood basins between former river courses. The Bahia Grande and San Martin Lake were once narrowly connected; however, a levee and road bed now prohibits the exchange of waters. The approximately 6,800 acres of the Bahia Grande is also a wind-tidal flat that was inundated primarily by wind-generated tides but also by runoff from rainfall. About a mile-and-a-half to just over two miles north-

west of State Highway 48, the floor of the Bahia Grande is dissected by the abandoned railroad grade of the Rio Grande Railroad Company. The railroad grade limited saltwater flooding north of the grade and restricted water circulation between the northern and southern compartments that were formed by the grade. Today, while San Martin Lake remains a productive wetland, human impacts have reduced the alternately submerged and exposed Bahia Grande to supporting only algae (Morton 1991:3-10; Ferguson 1976: 206).

Five locations (Figure 2, Areas A to E) were surveyed on the floor of the Bahia Grande. South of the railroad grade (Figure 2, Areas A, B, and C), there are articulated valve pairs of common rangia in natural position, anterior end down and posterior end protruding from the surface, apparently in situ since death. A smaller number of single valves are parallel to the substrate. In areas A and B, the common rangia occur in narrow bands, approximately parallel to the shorelines, in southeast to northwest orientations. The common rangia in Area C are discretely located within the cove off the southwest end of Loma del Ballo. North of the railroad grade (Figure 2, Areas D and E), beginning approximately 75 yards from each bank, there are large numbers of articulated valve pairs of common rangia. The common rangia at Areas D and E extend in a broad scatter toward the center of the Bahia Grande and appear to be a single large feature extending nearly the full width of the lake bed.

Thousands of articulated valve pairs of common rangia were found in situ on the floor of the Bahia Grande and specimens were collected from several areas. The individuals sampled ranged between 54 and 77 mm in anterior-posterior length, indicating that many exceeded ten years of age. The many sizable clams on the floor of Bahia Grande are in marked contrast to the few and usually smaller clams in the nearby prehistoric sites (see below). But this survey did not show that these or any other common rangia lived in the Bahia Grande during prehistoric times, although that now seems possible. Nearby, there are other brackish-water habitats that may have supported common rangia. White et al. (1986:82) describe a small, brackish-water marsh south of the Brownsville Ship Channel near its connection with the Bahia Grande and brackish-water marshes around the upper lobe of San Martin Lake and north of Loma Alta Lake. Additional brackish-water habitats may have existed in this area during prehistoric times.

There were other shell species in most of the areas that were surveyed on the floor of Bahia Grande. Articulated valve pairs of *Cyrtopleura costata* (Angel wing) are scattered among the common rangia at Area E. At Area B, the common rangia are mixed among the shells of an extinct oyster reef (*Crassostrea virginica*) (Eastern oyster). Former salinities in the Bahia Grande are unknown but may have been as high as the present salinities in nearby South Bay which Hockaday et al. (1989: 1837) give as from 35 to 42 ppt unless there are heavy rains. Andrews (1977:Appendix E, 318) gives the usual conditions for reef building for oysters a salinity range between 10 and 30 ppt and so it may seem unlikely that there were oysters in Bahia Grande. However, the oysters found here spawn and grow quickly in salinities greater than 40 ppt (Breuer 1962: 170) and Buroker (1983) found the Brownsville oysters to be genetically distinct from other Texas, Gulf, and Atlantic coast oyster populations. The oyster population of South Bay and a recently discovered population north of Port Isabel are the only sizable oyster populations south of Corpus Christi (Hockaday et al. 1989:1837-1838). The new population was discovered about one-half mile south of Three Islands in 1987 and is harvested during the summer months (Manuel Reyes and Arturo G. Zamora, oystermen, personal communication 1992).

No other natural locations were surveyed in Cameron County in 1992, however, in October 1996, Jimmy Watson gave the senior author five live-gathered *Rangia cuneata* from the Cameron County side of an old Arroyo Colorado channel near Arroyo City (the Cameron/Willacy county line here is in the center of the old Arroyo Colorado channel). The following day, Watson and the senior author collected 20 living specimens from the same location (Figure 1, A) on the west side of the old channel about one-fourth of a mile from its mouth at red buoy 22. The clams were approximately 7 to 30 feet from the bank in water 25 to 30 inches deep and were on a firm bottom; none were found in the soft, silted center of the channel. A second location (Figure 1, B), near the south bank of the main channel about 300 yards upstream from red buoy 22, was also investigated and one live specimen was quickly collected. In the Arroyo Colorado, live common rangia extend upstream (from red buoy 22) to the Port of Harlingen and downstream to within a mile of the mouth of the Arroyo Colorado Cutoff (Jimmy Watson, personal

communication 1997).

Twenty-five live-gathered and five dead shells from the Arroyo Colorado were subsequently examined and found to range between 60 and 86 mm in anterior-posterior length. Seven measured 80 mm or more and 13 were between 75 and 79 mm in length. At the old channel location, 8 to 12 smaller clams were found but not collected; clams between 60 and 75 mm were therefore not sampled reliably. The Arroyo Colorado clams appeared large, however, 32 generally larger common rangia (68 to 90 mm) were found July 16, 1996 in the Nueces River upstream from US 37 at Nueces River Park (Robert Howells, personal communication 1996). Hopkins (1973:7) remarks that 86-mm-long common rangia (found in Louisiana and in North Carolina) may be as much as 20 years old, but few live longer and 15 years could be considered the normal life span.

Prehistoric Sites in Cameron County

One site (41CF144) was surveyed at the Laguna Atascosa National Wildlife Refuge which borders the Laguna Madre (Figure 1). The refuge is generally composed of salt flats, marshes, and coastal prairies with lomas near the Laguna Madre and resacas in low-lying areas inland (Mallouf and Zavaleta 1979:3). Our agreement with the refuge stipulated that if artifacts were encountered they were to remain in situ. Dave Siegal (personal communication 1992) requested, in the interest of resource protection, that the location of the prehistoric site at the refuge not be disclosed and only Texas Archeological Research Laboratory (TARL) numbers of archaeological sites are provided in this report.

Site 41CF144, at the Laguna Atascosa National Wildlife Refuge, is along a shoreline lightly scattered with prehistoric cultural debris, but there were two concentrations. The first contained two common rangia valves and the second concentration had at least 15 valves. The shells ranged between 32 and 50 mm in anterior to posterior length. The cultural debris also included fragments of oyster, *Dosinia discus* (Disk dosinia), *Callista nimbosa* (Sunray venus), *Laevicardium robustum* (Giant Atlantic cockle), *Busycon perversum* (Lightning whelk/ conch), *Noetia ponderosa* (Ponderous ark), and *Mercenaria* (unidentified quahog). There were also otoliths of *Sciaenops ocellatus* (red drum). Three artifacts were seen and left in situ: a large conch whorl blank (possibly for an adze or pendant), an intact *Dosinia* scraper, and a *Noetia* bead or pendant.

The few common rangia in the prehistoric site at the refuge were some ten miles north of the Bahia Grande and could have been carried into the site from that distance. However, a nearer gathering point is also possible. White et al. (1986:84-86) list nearby brackish-water marshes such as Resaca de la Gringa and Resaca de los Cuates as well as the Laguna Atascosa and areas along the main channel and the delta plain of the Arroyo Colorado which have brackish-water conditions. Live common rangia have been recently discovered in the Arroyo Colorado (see above).

Site 41CF137 is the first of nine sites surveyed in the vicinity of the previously described Bahia Grande and San Martin Lake (Figures 1 and 2). The site is along the eroded sides of a ranch road between two narrowly separated lakes. Cultural debris included fragments of conch, sunray, cockle, *Dosinia*, and one common rangia valve. The artifacts from here are one Abasolo (Turner and Hester 1993: 68) and a *Dosinia* scraper.

Site 41CF139 is off the southeast end of a loma. Occupational debris here included fragments of conch, cockle, *Dosinia*, and two common rangia valves. The only artifact from this site is a small triangular projectile point which could not be placed in existing point categories. A similar projectile point was found at 41CF136 (below) and both points are similar in size and morphological characteristics to the Matamoros at the Unland Site (41CF111) which was classed from Suhm and Jelks (1962: 215) by Mallouf and Zavaleta (1979:19) on the basis of beveling and the defined size range of Matamoros at the time. Mallouf and Zavaleta (ibid.) also remark that, on the basis of size and morphological characteristics, this point could also be classed as Fresno.

Site 41CF141 is along an eroded bluff on the side of a loma littered with recent historical debris from target shooting and trash dumping. Prehistoric occupational debris included *Dosinia*, sunray, conch, cockle, and oyster. There were also six or seven common rangia valves and most had broken margins. No artifacts were found here.

Site 41CF142 is on the opposite side of the loma from 41CF141. It is a narrow, lengthy site with a continuous light scatter of cultural debris and occasional concentrations. One concentration contained four common rangia valves and fragments of cockle, conch, and *Dosinia*. No artifacts were found here.

Site 41CF146 is lengthy; it parallels the bank of a semi-permanent water body and continues along the side of a drainage tributary. The site contains a large quantity of glass shards and other bits of historical debris that appear to result from fishing, drinking, and target shooting. At a concentration of prehistoric cultural debris there were 12 common rangia valves, many with broken margins. There were also fragments of cockle, conch, *Dosinia*, and sunray. No artifacts were found here.

Site 41CF138 is along the edge and floor of a semi-permanent water body. Cultural debris eroding onto the floor of the laguna included conch, cockle, *Dosinia*, and a comparatively large number of common rangia. However, this site appeared susceptible to the intrusion of common rangia (from the floor of the Bahia Grande) during hurricane storm surge (Morton [1991:9] remarks on cobble size pieces of concrete riprap strewn northward onto the Bahia Grande floor from State Highway 48 by recent hurricanes with currents capable of strongly scouring the lake bottom). The artifacts from 41CF138 are one lithic end scraper, two shell disks, and a greatly reduced Historic Period gunflint (Turner and Hester 1993:261); a similar gunflint was found at 41CF136 (below). Both gunflints are manufactured of yellow or honey-colored chert and are similar to specimens that were identified as French gunflints by Curtis Tunnell and Bob Mallouf (personal communication 1979). They also remarked that the Anderson Collection contains a large number of French gunflints.

Site 41CF140 is ephemeral. It is along the edge of the same water body as 41CF138. This site contained a few fragments of cockle and conch and a few small, heavily weathered common rangia valves. This site also appeared susceptible to the intrusion of common rangia during storm surge. The artifacts from here are a length of smoothed columella and the distal portion of a thick biface.

Site 41CF136 is along the opposite edge of the same water body as 41CF138 and 41CF140. Artifacts that appear to be railroad construction campsite debris from early in this century are scattered throughout the site. Prehistoric cultural debris included cockle, conch, *Dosinia*, and sunray. Oyster was also seen but there were indications that the oyster may have been on the menu of the historic construction campsite. There was also a relatively large number of common rangia, but this site, like 41CF138 and 41CF140, appeared susceptible to the intrusion of common rangia from the floor of the Bahia Grande during hurricane storm surge. The artifacts from here are one Matamoros point (Turner and Hester 1993:153), a small triangular projectile point similar to one at 41CF139 (see above), several distal portions of thick bifaces, three waste flakes, one utilized flake, a French gunflint (see 41CF138 above), a large conch whorl blank, two conch whorl adzes, a columella gouge, a *Dosinia* scraper, and a sunray scraper.

One site (41CF135 below), surveyed near the Bahia Grande, is on the spoil banks which consist of sediments dredged to create and maintain the 17-mile-long Brownsville Ship Channel (Figures 1 and 2). The channel was dredged to a depth of 26 feet by opening day, May 16, 1936 (Ferguson 1976:264-267), and in stages reached a depth of 36 feet. Dredging to a planned depth of 42 feet began in 1992 (Gene Cockrill, personal communication 1992).

Site 41CF135 (on the spoil mounds) contains thousands of almost exclusively disarticulated common rangia, including multiple year classes and concentrations of one- to two-year-old (16 to 28.3 mm) clams. The artifacts include a thick, bifacially flaked perforator, two Matamoros points, one Abasolo point, and several waste flakes. There was no indication that the common rangia were associated with the cultural materials. The artifacts from 41CF135 are believed to have been deeply buried in an older site before they were dredged and dumped on the spoil mounds. A. E. Anderson noted five older, deeply buried sites in Cameron County and his small inventory from those five sites included two Tortugas points and one Abasolo point (MacNeish 1958:177). The artifacts from Anderson's deeply buried sites in Cameron County and from 41CF135 appear to be from the Archaic Period (Turner and Hester 1993: 68, 188, 270). However, because of a lack of excavated sites, there are no defined and recognized Archaic cultural complexes in Cameron County, although that does not mean there were no Archaic populations in the area (Mallouf et al. 1977: 69).

The prehistoric lithic and shell artifacts from all but one (41CF135) of the sites surveyed in Cameron County appear to be attributable to the Late Prehistoric Brownsville Complex (MacNeish 1958: Table 29, 187-188). It is noted, however, that many, including Mallouf and Zavaleta (1979:28), believe that the Brownsville Complex is in need of refinement.

No other sites were surveyed in 1992 in Cameron County. But it was learned that near the Brownsville Fishing Harbor (and also near San Martin Lake and

the Bahia Grande), a site (41CF159) containing hundreds of common rangia eroding from an earlier road cut, was again altered by the widening of State Highway 48 in August or September, 1996 (Mike Krzywonski, personal communication 1996). Fortunately, photos of the site (Figures 3 and 4) were made in December, 1995. Shortly after the shells eroding from the roadcut face of the site were largely obliterated by grading (and after the heavy rains of Tropical Depression #10), the senior author was able to recover 23 intact common rangia valves. Nineteen were found in the graded area and four were mixed among cultural debris (well removed from the roadside) on the still intact backside of the rise that comprises this feature. The 23 common rangia ranged between 30 mm (3) and 38 mm (1) in anterior-posterior length and the average length was 33.17 mm. Judging from the photos (and excepting the land snail *Rabdotus*), common rangia was the most numerous mollusk in the site. Marine shells in the site were sunray, cockle, conch, *Dosinia elegans* (Elegant *Dosinia*) (see below), and *Dosinia*. Faunal remains were otoliths of the red drum and *Pogonias cromis* (black drum). The artifacts from this site, which appears to be a rangia midden, are two lithic bifaces (one medial fragment and one distal fragment with a utilized break edge), two sunray scrapers, a large conch whorl blank, a scraping tool on the siphonal end of a large conch, and nine plain potsherds. This site has only been partially destroyed and numbers of common rangia possibly remain buried in situ.

Occurring largely south of Big Shell on Padre Island, *Dosinia elegans* (noted as site debris in 41CF159 above) is similar in size to *Dosinia discus* but is distinguishable by its fewer and heavier concentric ribs (Andrews 1977:243). The authors have not seen the species specifically mentioned in the archaeological literature on the Lower Rio Grande Delta, although it may have been included with *Dosinia discus*. The Mike Krzywonski Collection contains one nearly completely restored *Dosinia elegans* scraper from a Cameron County site south of Port Isabel. Local Indians apparently found the scarce *Dosinia elegans* suitable for chipping and occasionally utilized it for the manufacture of tools in the same manner as *Dosinia discus*.

There were few common rangia in the archaeological sites that were surveyed in Cameron County and Mallouf et al. (1977:83) list previous investigators who have remarked on the scarcity of cultural debris in Cameron County sites. The midden site 41CF159 reported here is an exception that contains (or contained) an appreciable number of common rangia. Prewitt (1974: 60) has reported an exception (41CF8) that contains a considerable quantity of oyster and remarks that the shell fragments in most Cameron County sites are from shells that were used to make tools and ornaments. Despite the discovery of *Rangia cuneata* on the Lower Rio Grande Delta, its relatively small numbers in most Cameron County sites suggests that shellfish gathering was a minor subsistence activity. There are indications that seasonal fishing may have provided the bulk of the food. Many prehistoric delta sites contain large numbers of otoliths, most commonly black drum (senior author's personal field experience) which aggregate during migrations from late February to April (Tinsley 1988:137).

During the survey, common rangia valves with broken margins were seen in two archaeological sites (41CF141 and 41CF146) and the senior author earlier recovered a fragment of chipped common rangia margin (Figure 5, B) within inches of two valves with broken margins at 41CF143. It appears that some common rangia with broken margins may have once had chipped margins. Later, the Mike Krzywonski Collection was found to contain three common rangia valves with chipped margins from three sites in Cameron County. One of these artifacts (Specimen 190.0) was manufactured on a smaller valve (38 mm in length) and is from a site near the Bahia Grande and San Martin Lake. The two remaining larger artifacts were manufactured on older shells with thick, rounded margins (apparently from weathering and/or rolling). One (Specimen 112.0) is from a site on the Laguna Madre north of Port Isabel and is illustrated (Figure 5, A). Chipping, on all three of the artifacts, begins at the posterior end of the valve and extends for less than half of the length of the ventral margin. On the Lower Rio Grande Delta this pattern of chipping appears to be characteristic of this type of artifact. A common rangia valve with a chipped margin from northeastern coastal Tamaulipas was also examined and the pattern of chipping was the same as on the Cameron County artifacts. Three of the intact common rangia artifacts (including the specimen illustrated in Figure 5, A) were manufactured on left valves; one was manufactured on a right valve (Andrews 1977: 63).

Other types of common rangia artifacts may occur in archaeological sites on the Lower Rio Grande

Figure 3. *Rangia cuneata* eroding from the road cut face of 41CF159. View is to the southeast alongside State Highway 48. Photo by Mike Krzywonski.

Figure 4. Close-up of the *Rangia cuneata* in Figure 3. Photo by Mike Krzywonski.

Delta. Following our survey, a local collector loaned the authors a collection of 74 common rangia valves from several prehistoric sites in the delta. The individual suggested that the margins of the 74 specimens may have been modified and McGuff (1978: Table 13, 209) reports variously modified common rangia shells (with nicked, jagged, notched, crushed, ground, cut, and smoothed edges) from excavations at Palmetto Bend Reservoir in Jackson County. While McGuff's (ibid.) specimens had been excavated, the 74 delta specimens were surface collected and all but a few were heavily weathered. They may also have been vulnerable to wheeled traffic and hoofed animals. The margins of the 74 specimens were compared to the weathered posterior margins on shells from the Bahia Grande and to fully weathered margins on valves from other natural locations. Most of the 74 valves examined did not appear to have been modified. Thirteen valves appeared to have been possibly modified, however, weathering certainly remained a factor on the margins of these. Overall, it was difficult to draw conclusions from surface collected, weathered, and possibly impacted specimens. Common rangia that may be excavated from delta sites in the future could be examined for modified margins. Hamilton (1988:118-119) remarks that, for the lack of lithic tools at Shy Pond in Brazoria County, unaltered and broken common rangia valves probably served as scraping and cutting tools. The same is probably true of common rangia valves in the delta sites on the Lower Rio Grande where there are also few lithic tools and those few are generally diminutive.

A Prehistoric Site in Tamaulipas

In Tamaulipas (Figure 6), south of Cameron County, the survey took place within 13 miles of the Rio Grande and 10 to 16 miles or more inland of the Gulf. The survey was largely conducted by driving down a dirt road and simply looking out through the windows of the vehicle. The dirt road passes within view of the 14 common rangia concentrations to be described later, descends to the shell-covered floor of the small Laguna las Conchas, and disects a prehistoric site (T63). This is in an area dominated by saline flats covered in low, salt-tolerant succulents. The flats are punctuated by lomas that often border normally dry lagunas or lakes. Zavaleta (1989) remarks that there has been no geological interpretation of northeastern Tamaulipas but resacas, once part of the Rio Grande River, occur as far south as 30 miles into Mexico.

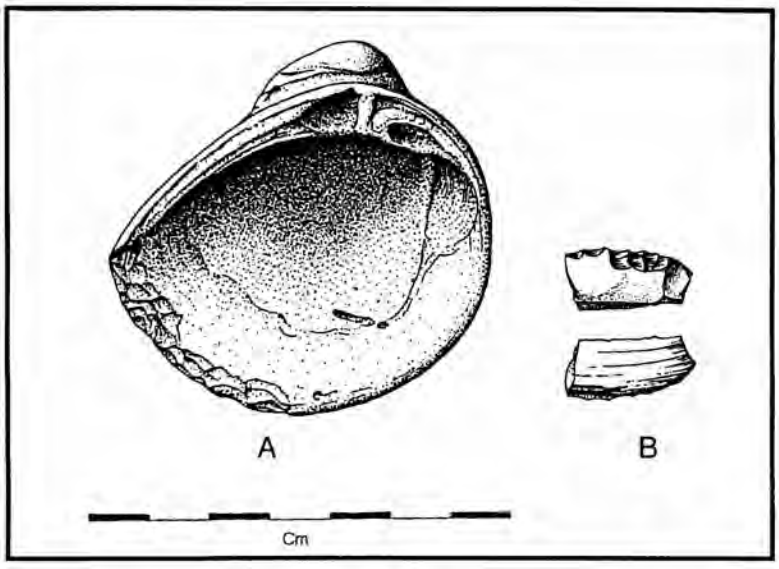

Figure 5. A, Common rangia valve with a chipped margin from a Cameron County site north of Port Isabel; B, Obverse and reverse of a chipped common rangia margin fragment from41CF143. Drawing by Richard McReynolds.

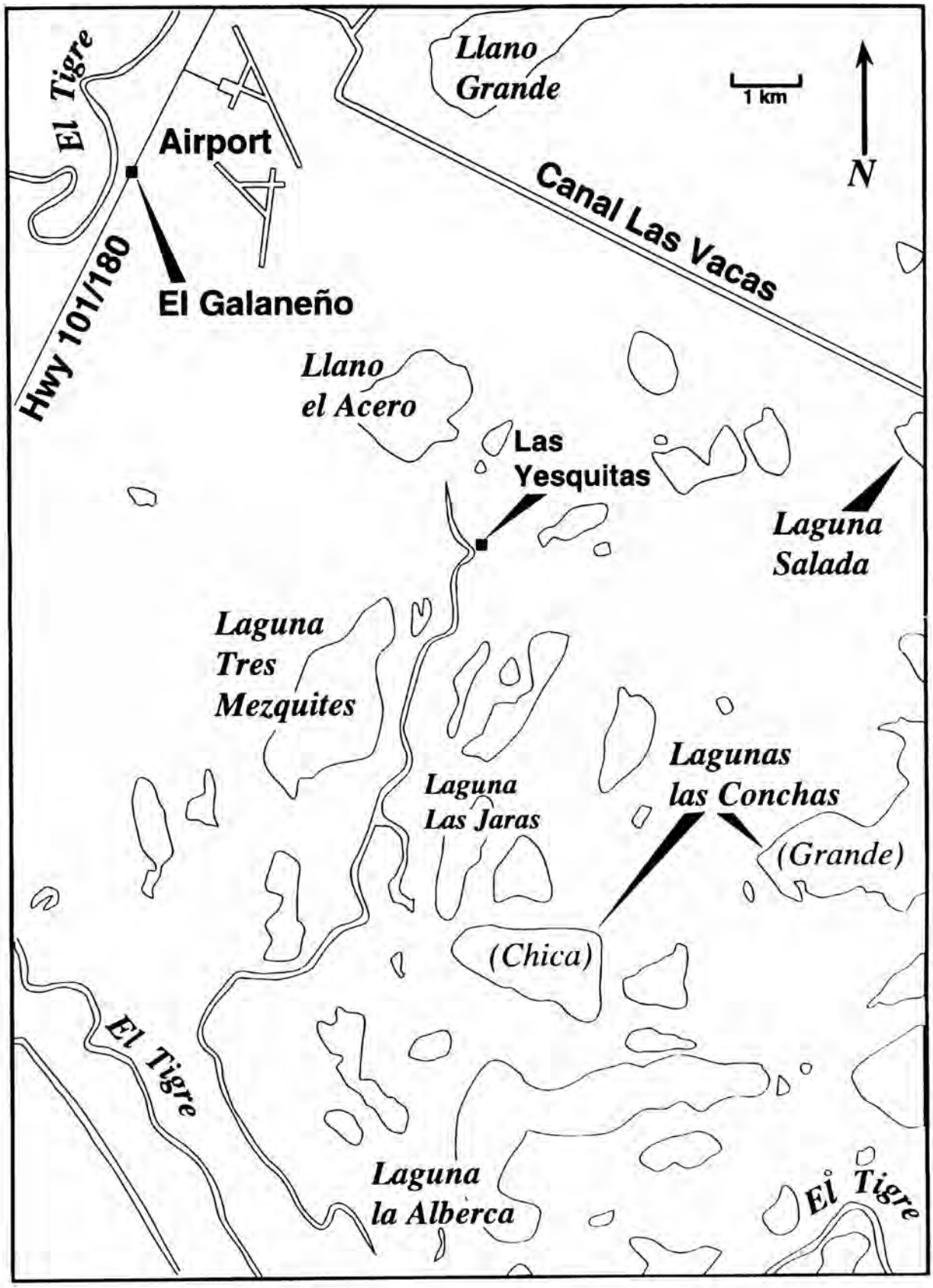

Figure 6. General map of northeastern coastal Tamaulipas (southeast of Matamoros) showing the areas referred to in text. Tens of thousands of dead *Rangia cuneata* cover the floor of the smaller (chica) Laguna las Conchas. Historic period homesites containing *Rangia cuneata* (apparently consumed) were found near Laguna Tres Mezquites.

Only one site (T63) was surveyed. The site is southeast of the Matamoros airport and at least 13 to 15 miles inland of the Gulf; it extends approximately one-half mile along a loma bordering a large, usually dry laguna. Mollusks in the site include cockle, *Dosinia*, conch, unidentifiable freshwater mussel shell fragments, and well over 100 common rangia valves. *Rangia cuneata* was a significant portion of the cultural debris and, excepting *Rabdotus*, appeared to be the most numerous mollusk in the site. They may have been gathered in the laguna immediately below the site where there is an apparently natural concentration of common rangia (described below). However, Arroyo del Tigre (also nearby) is another possible source. The Tigre has a temporary point of debouchment on the Gulf during hurricane flooding and may have brackish water conditions that are suitable for common rangia.

Natural Locations in Tamaulipas

At one end of a laguna below the prehistoric site (T63) that was surveyed (above), there is a sizable common rangia feature that is well removed from the archaeological site. The feature, consisting of a discrete concentration of common rangia valves estimated to number in the hundreds, is at a much lower elevation than the site and at a slightly higher elevation than the lake bed. The concentration lies among low, salt-tolerant succulents (vegetation typical of the surrounding saline flat) and there is a gradual, similarly vegetated slope between the common rangia concentration and the barren lake bed.

A few miles northwest of the first concentration, areas were surveyed along the dirt road between the agrarian community of Las Yesquitas and the smallest of two lagunas in this area that are named Las Conchas (Figure 6). Here, the dirt road cuts through a large area of saline flats encircled by arroyos (El Tigre, En Medio, and La Resaca), dotted with over 20 lagunas (including Las Jaras, La Grulla, La Alberca, and the two Las Conchas) and uncounted ponds and depressions (SPP Las Blancas 1980b). It is in this area and extending to the Gulf that common rangia could be termed ubiquitous, appearing in prehistoric and historic sites and in many natural locations.

Thirteen varyingly similar common rangia concentrations were located between Yesquitas and the smaller Laguna las Conchas. All but one of the 13 concentrations were comprised, like the first, of almost exclusively disarticulated common rangia lying in low, salt-tolerant vegetation; however, they differed variously in the numbers of shells and in the numbers and ages of year classes that were present. One of the 13 concentrations was located near the smaller Laguna las Conchas and included a number of articulated common rangia. On the floor of the small Las Conchas there are beds of articulated and disarticulated common rangia numbering in the tens of thousands. Apparently, landlocked Laguna las Conchas (some 16 miles inland of the Gulf) once supported a sizable population of common rangia and thousands of dead common rangia have been observed by the senior author in other nearby lagunas, including the large Las Conchas, La Leona, and La Alberca.

The concentrations of common rangia that were surveyed appeared to be located in areas that would be inundated by the expansion of nearby lagunas during periods of unusually heavy rainfall, such as the torrential rains that often accompany hurricanes. Unfortunately, no conclusions on the origins of the common rangia concentrations were possible. As mentioned, there has been no geological study of the area and none of the common rangia features, in the lagunas or in the concentrations, have been dated. It also could not be readily seen how common rangia larvae may have arrived at the many inland lagunas. At a resaca 22 miles west of the Gulf in Cameron County, Neck (1985: 13) suggests the muddy feet of water fowl or high water subaqueous transport to explain the origin of a fossil *Cyrenoida floridana* (Florida marsh clam) population. However, in the considerable literature on *Rangia cuneata*, the authors could find no record of the species living in landlocked, temporary water bodies as far inland as the clams in Tamaulipas appear to have accomplished.

Historic Sites in Tamaulipas

Over a period of years, Mike Krzywonski and the senior author have located seven rural northeastern coastal Tamaulipas homesites by their surface scatters of bone fragments, charcoal, locally manufactured brick fragments, and various glass, majolica, ceramic, and metal artifacts. The seven homesites have common rangia valves mixed among the artifacts and the clams appear to have been consumed. Hopkins (1973:6-7) remarks that many people of various races eat common rangia today along the Gulf

Coast, although the only established market for the clam as food is in North Carolina. The homesites are probably the remains of jacales (that may have included broken brick fill in the walls) or inexpensive wooden structures (Graham 1978:38-41) that may have had brick chimneys or fireplaces. The homesites were recorded with photos of their artifact scatters and by marking their locations on Mexican topographic maps. Two of the homesites, southeast of the Matamoros airport near Laguna Tres Mesquites (SPP Las Blancas 1980b), contain artifacts (including glass and porcelain sherds) that appear to date in the mid-20th century. At one of the two homesites (RH2), 47 common rangia (valves and umbos) were counted on the surface and left in situ; the 18 complete valves seen here ranged between 26 and 43 mm in anterior-posterior length. A third homesite (RH4), between La Lomita and Las Flores on the Mexican Laguna Madre (SPP Guajardo 1980a), contains discarded common rangia valves in association with sherds of transfer printed ware and the neck fragment of a stoneware pottery ginger beer bottle. Both types of sherds are datable to the 19th century (Fox 1983: 140-141, 225) and (with the 20th century shards at RH2) suggest that live common rangia were at least occasionally available in this area of Tamaulipas throughout much of the historic period.

SUMMARY

In Cameron County, three (41CF136, 41CF138, and 41CF140) of the eleven sites surveyed may have contained common rangia that arrived intrusively during hurricane storm surge. The common rangia shells in a fourth site (41CF135) on the spoil mounds did not appear to be associated with the cultural materials. The small number of common rangia valves, from one to 17, in each of the seven remaining sites that were surveyed is believed to be typical of most of the Cameron County sites that contain this species, although these numbers are totally derived from surface counts (when MacNeish [1958: 173-174] dug some of Anderson's best sites in Cameron County he found that the effort was unproductive and that artifacts came from a thin occupational level). Following the survey, an additional site (41CF159) was examined and found to be exceptional in Cameron County for its appreciable number of shells (common rangia) that were consumed. This site's only known counterpart is 41CF8 which is reported to contain a quantity of oyster (Prewitt 1974). Steele (1988:227) remarks that the pattern for common rangia in prehistoric sites along the Texas coast, from Trinity Bay to Corpus Christi Bay, is one of decreasing frequency from north to south. That pattern appears to continue to Cameron County on the southernmost Texas coast.

CONCLUSION

This survey establishes the occurrence of *Rangia cuneata* below Corpus Christi Bay on the Lower Rio Grande Delta in Cameron County and in northeastern coastal Tamaulipas, where the species has not been previously documented (Steele 1988). However, this report leaves many unanswered questions about common rangia on the Lower Rio Grande Delta.

ACKNOWLEDGMENTS

The authors would like to thank Mr. and Mrs. Billy Thomas of Raymondville, Melvin Maxwell of Laguna Atascosa National Wildlife Refuge, Lou Powell of Buena Vista Ranch, Wally Reed, Jr. of the Escalera Ranch, Gustavo Barrera, Donny Harris, Mr. D. Harris, and Jesus (Chuey) Rodriguez for their aid in accessing the areas surveyed in Cameron County. Don Hockaday of the University of Texas-Pan American Coastal Studies Laboratory at South Padre Island provided editorial comments and useful criticism; he also produced the maps used for Figures 1, 2, and 6. Mike Krzywonski brought 41CF159 to our attention, provided photographs, loaned important artifacts for documentation and drawing, and generously shared his knowledge of the archaeology of the Lower Rio Grande Delta. Our thanks also to Lily Kumpe who contributed her time and computer skills to the preparation of our final draft and we would like to give special thanks to Jimmy Watson of Arroyo City for sharing his discovery of live *Rangia cuneata* in the Arroyo Colorado.

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BOAT-SHAPED MORTARS IN CROCKETT COUNTY, TEXAS

Larry Riemenschneider and Solveig A. Turpin

ABSTRACT

Two sites with boat-shaped mortars were recorded in a recent survey on University Lands, just east of the Pecos River in Crockett County, Texas. At 41CX802, an open campsite with burned rock mounds and abundant lithic material, five boat-shaped mortars had been cut into limestone bedrock at the head of a deeply entrenched tributary to Cedar Canyon. One other example was found in a large block of roof spall under the dripline of a rock shelter, 41CX814, only 300 meters from 41CX802. These findings extend the known range of this mortar type south of their western Central Texas heartland.

INTRODUCTION

Previously, in *La Tierra*, Riemenschneider (1994) reported three boat-shaped bedrock mortars found during a survey of University Lands around Big Lake, in Reagan County, making them the southernmost examples known at that time. Subsequently, two more were found in southwest Reagan County at 41RG3, Grierson's Springs (Riemenschneider and Turpin, in press). Now, additional survey on University Lands in Crockett County, south of Rankin and east of the Pecos River, has added two more locations with a total of six ovate mortars and expanded the range of this feature type even farther south of the Central Texas core illustrated by Forrester (1989:Figure 2) and Sayles (1935: Map B).

SITE DESCRIPTIONS

Archaeological survey of Block 13, University Lands, was initiated in anticipation of the need to identify cultural resources so they could be protected during the course of oil exploration. Five boat-shaped mortars were recorded at 41CX802, one of the many upland campsites with burned rock mounds and abundant lithic material that line the slopes above the major drainage (Figure 1). The site contains two large burned rock mounds and produced four Late Archaic dart points. However, projectile points and other tools ranging in age from Late Paleo-Indian to Late Prehistoric and covering the entire range of local prehistory were recorded in the immediate vicinity so no firm age estimate can be made. In addition, 41CX802 is rather arbitrarily separated from other large sites with similar features by gullies that are natural rather than cultural boundaries.

All of the 41CX802 mortars were contained within a series of contiguous limestone slabs that outcrop in a grove of scrub cedar and mesquite at the head of a minor tributary canyon (Figure 2,a). All are oriented NNE (see Figure 1); four are of roughly similar size; and the bottoms are broken through on four out of the five.

Mortar 1 is at the head of the limestone outcrop, slightly higher than its companions. At the surface, it is 22 by 32 cm with a depth of 28 cm. The hole at the bottom is also ovate, measuring 12 by 22 cm, and exposes the dark silty soil under the slab. Mortar 2 is the smallest of the five, with a 10 by 16 cm opening and a depth of 8 cm, and the only one that has not broken through its slab. The surface dimensions of Mortar 3 are 24 by 30 cm, with a depth of 38 cm. The oval break in the bottom is 14 by 24 cm and it too exposes the dark silt. Mortar 4 is 21 by 27 cm at the surface and 37 cm deep with an 11 by 17 cm oval hole in the bottom (Figure 2b). The fifth and last mortar has a 17 by 27 cm opening at the top, a 7 by 16 cm hole in the bottom, and is 36 cm deep.

Yet another boat-shaped mortar was recorded only 300 meters away but in a totally different set-

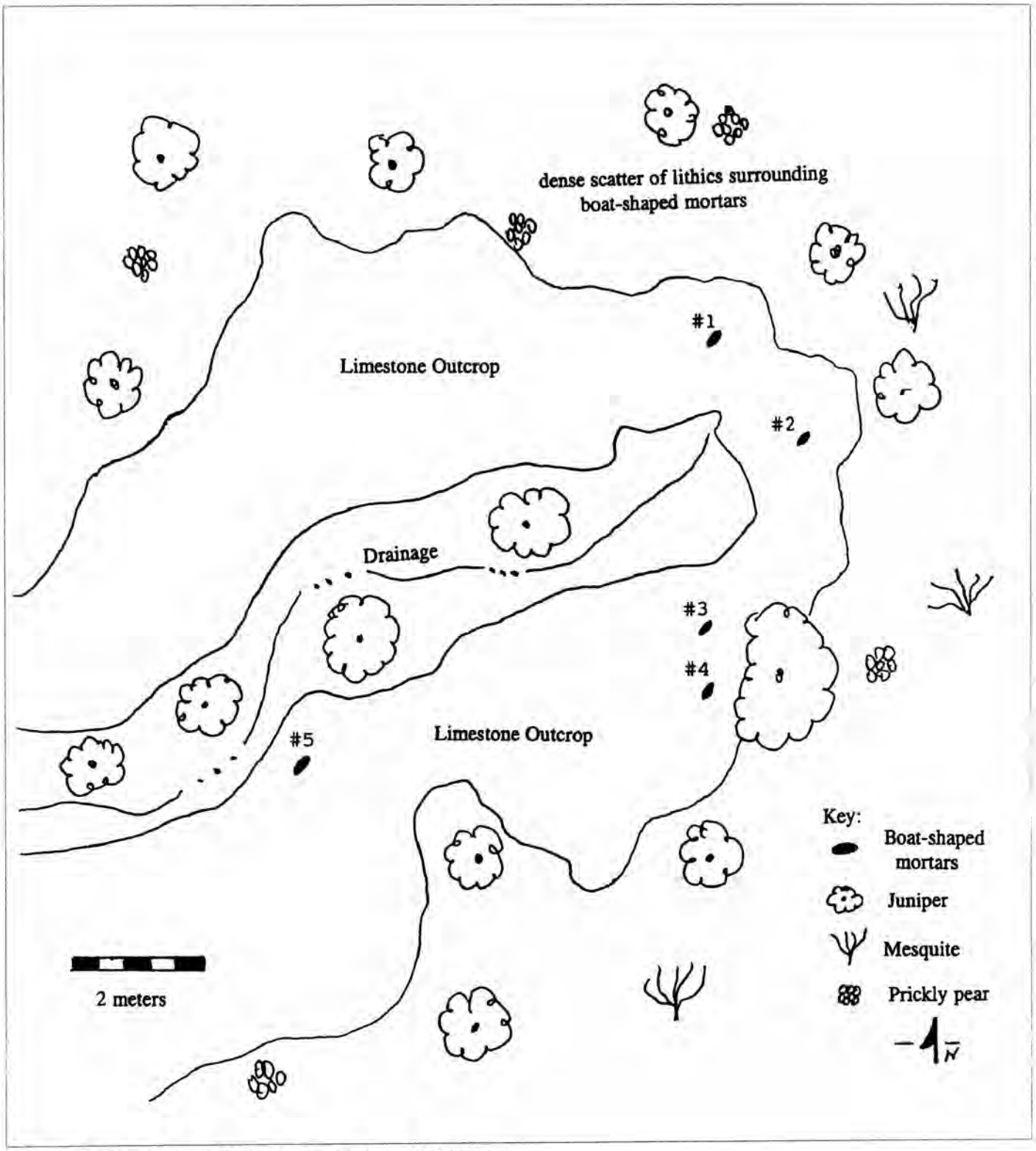

Figure 1. Map of Boat-Shaped Mortars at 41CX802.

Figure 2, a. Photograph of limestone outcrop, 41CX802.

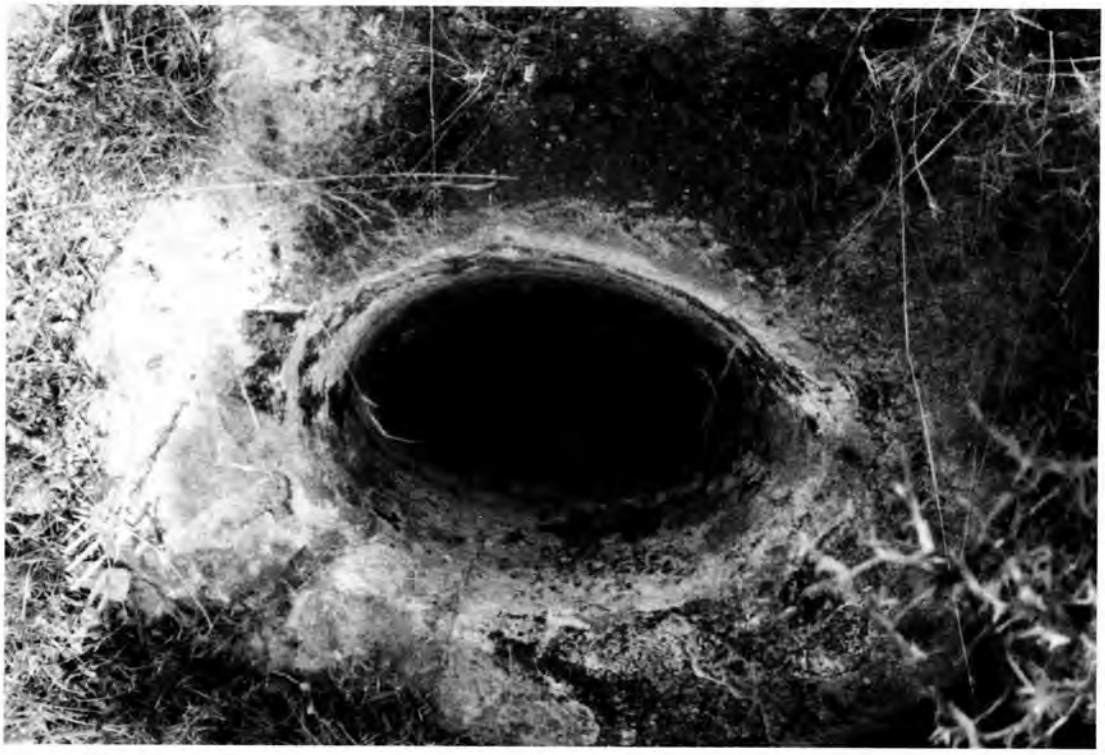

Figure 2, b. Close-up of Mortar 4 after it had been cleared of dirt and vegetation.

Figure 3 a. Heavily travertined boulder under dripline at 41CX814.

Figure 3 b. The boat-shaped mortar in the boulder.

ting. An isolated block of travertine-coated roof fall under the dripline of a small rockshelter, 41CX814, contained one mortar and several cut marks (Figure 3a). This example was 30 cm long, 19 cm wide, and 37 cm deep and placed where it would fill with rainwater cascading down the drip line so its interior is also smoothed by travertine (Figure 3b). Other than the modifications to this one boulder, cultural evidence in the shelter was limited to a possible hearth and a handful of burned rocks and flakes on the talus.

DISCUSSION OF THE BOAT-SHAPED MORTARS

The distribution of boat-shaped mortars is generally restricted to the western part of the Central Texas cultural area (Forrester 1989; Fox 1939; Kirkpatrick 1978; Ray 1930; Shawn 1971). The newly reported examples from Reagan (Riemenschneider 1994) and Crockett counties expand their range onto the Eldorado Divide and into the Eastern Trans-Pecos cultural area, south of the main cluster of known sites (Figure 4). Forrester (1989) suggested that this mortar type was associated with Zephyr projectile points which were in fashion between 200 and 700 A.D. Shawn (1971) found Late Archaic and Late Prehistoric projectile points at Morgan Creek Mortar Camp in Mitchell County although no direct connection between the two could be made. These age estimates are not incongruent with the Late Archaic dart points found on 41CX802 although none of them could be classified as Zephyrs.

Fox (1939) ran the gamut of possible explanations for the unusual configuration of the boat-shaped mortars, even calling into question the applicability of the misnomer "mortar" because of the impracticality of grinding and extracting typical food stuffs, such as seeds, dried roots, or berries, in these extremely narrow, deep, and sometimes bottomless pits. He also noted that the bottoms had broken through the parent material in about half of his inventory, a finding also mentioned but not quantified by Kirkpatrick (1978). In the case of the Reagan and Crockett sample, seven out of nine or 78% penetrate their limestone slabs. In keeping with Fox's observations, the holes are not jagged rough breaks but rather finely smoothed and oval, indicating that "a bottom was not a necessary part of a boat-shaped mortar hole" (Fox 1939:3).

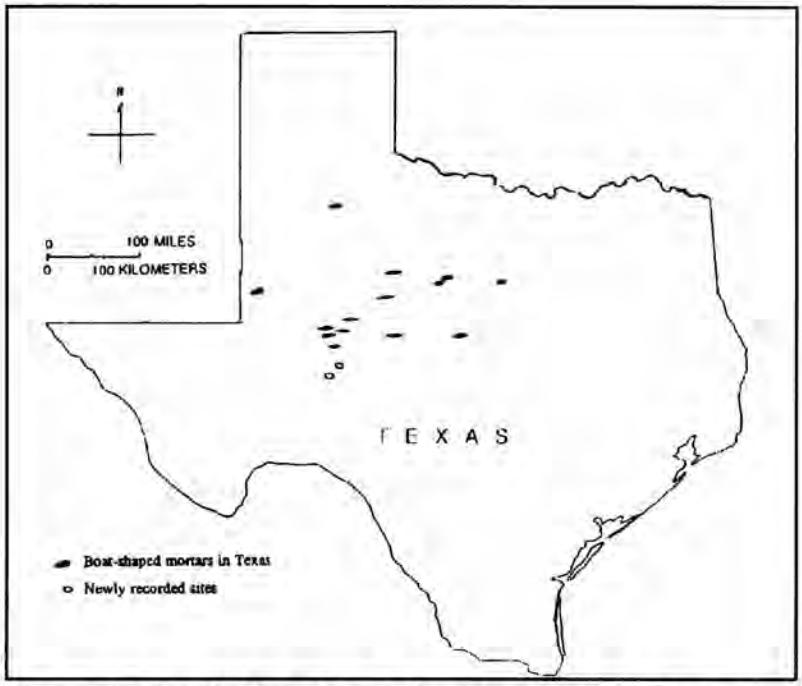

Figure 4. Distribution of boat-shaped mortars in Texas (map adapted from Forrester 1989 and Sayles 1935).

The Crockett County boat-shaped mortars continue the relationship with water that Riemenschneider (1994) thought might hold clues to their peculiar configuration. The rockshelter example is in a heavily travertined boulder where it catches and retains rainfall. The five on open campsite 41CX802 are cut into limestone slabs at a tributary header that may once have been the location of a seep spring. The density of occupation surrounding this site is incompatible with the modern distance to potable water and the limestone outcrop may well have been one source during wetter periods in prehistory. It appears, however, that considerable speculation goes into any discussion of the function of boat-shaped mortars and none of the explanations offered to date are intuitively appealing.

ACKNOWLEDGMENTS

The survey of Block 13 was carried out under the authority of Antiquities Permit 1414 issued to Solveig A. Turpin on behalf of University Lands. We especially appreciate the support of Steve Hartmann, director of West Texas Operations for the University, and his field staff, Tommy Gray, Sid Sullenger, and Ken Moore. Julie Beever was the first to notice the boat-shaped mortars at 41CX802. This paper also benefitted from the contributions of Lisa Middleton, Jeff Turpin, and Herb Eling.

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MARINE SHELL PENDANTS FROM SOUTH AND SOUTH-CENTRAL TEXAS

C. K. Chandler and Cheryl Lynn Highley

ABSTRACT

Two marine shell pendants from inland counties in South and south-central Texas are documented and illustrated. One is a large conch columella pendant from Wilson County near La Vernia in south-central Texas. The other is a disk-shaped marine shell ornament from Gillespie County. Marine shell ornaments are not previously reported from either of these two counties.

THE ARTIFACTS

Figure 1 illustrates a large conch shell pendant with three views. It is from Wilson County near La Vernia in south-central Texas. It is 173 mm long with a maximum diameter of 48 mm at the posterior end where the two suspension holes are drilled. These two holes are 5.4 mm in diameter and are located 35 and 54 mm from the posterior end. This side of the artifact is coated full length with calcareous *Bryozoa* and has a light brown color and rough feel. The opposite side is smooth and well worn, apparently from long wear in contact with a human body. It weighs 164.5 grams.

This conch shell pendant has been identified as a specimen of Florida Horse Conch [*Pleuroploca gigantea*] (Dr. H. Murray personal communication 1996) which is the largest shell found on the Texas coast. It is found living on the jetty at Port Aransas (Andrews 1992:54).

Figure 2 illustrates a disk-shaped marine shell pendant made from the outer whorl of a conch shell. This shell ornament is a surface find by Charlie Ferguson during the dustbowl days of the early 1930s in a peanut field along the Pedernales River near Stonewall in Gillespie County. This field was very sandy and artifacts were exposed on the surface by nearly constant winds. No other shell artifacts were recovered in this field and to this date no other marine shell artifacts have been reported from Gillespie County (Dreiss 1995; Hall 1981).

This shell pendant is 81 to 88 mm in diameter, 3.7 mm thick and weighs 48.5 grams. It is made of the outer whorl of a large conch shell. The outer surface has been extensively abraded to thin and smooth it. The inner surface has two thinly engraved concentric circles about 11 mm apart. There is an engraved cross in the inner circle. Near one edge are two biconically drilled suspension holes 3.5 to 4 mm in diameter. These holes exhibit minimal wear, apparently from some form of string to suspend it.

DISTRIBUTION OF MARINE SHELL ARTIFACTS

Conch shell pendants, made from body whorl and/or columella segments, have been reported from several inland Archaic period cemetery sites: the Morhiss site (Campbell 1976:81-85), the Allens Creek sites in Austin County (Hall 1981), 41BX1 (Lukowski 1988), the Brandes Site (Highley et al. 1988), the Bering Sinkhole, 41KR241 (Bement 1991) and the Loma Sandia Site (Dreiss 1995). While marine shell artifacts, primarily of an ornamental nature, have been found at numerous inland Archaic and Late Prehistoric sites (see Dreiss 1995, Hall 1981 and Highley 1986 for distributional studies), such items have not been previously recorded from Wilson County or Gillespie County.

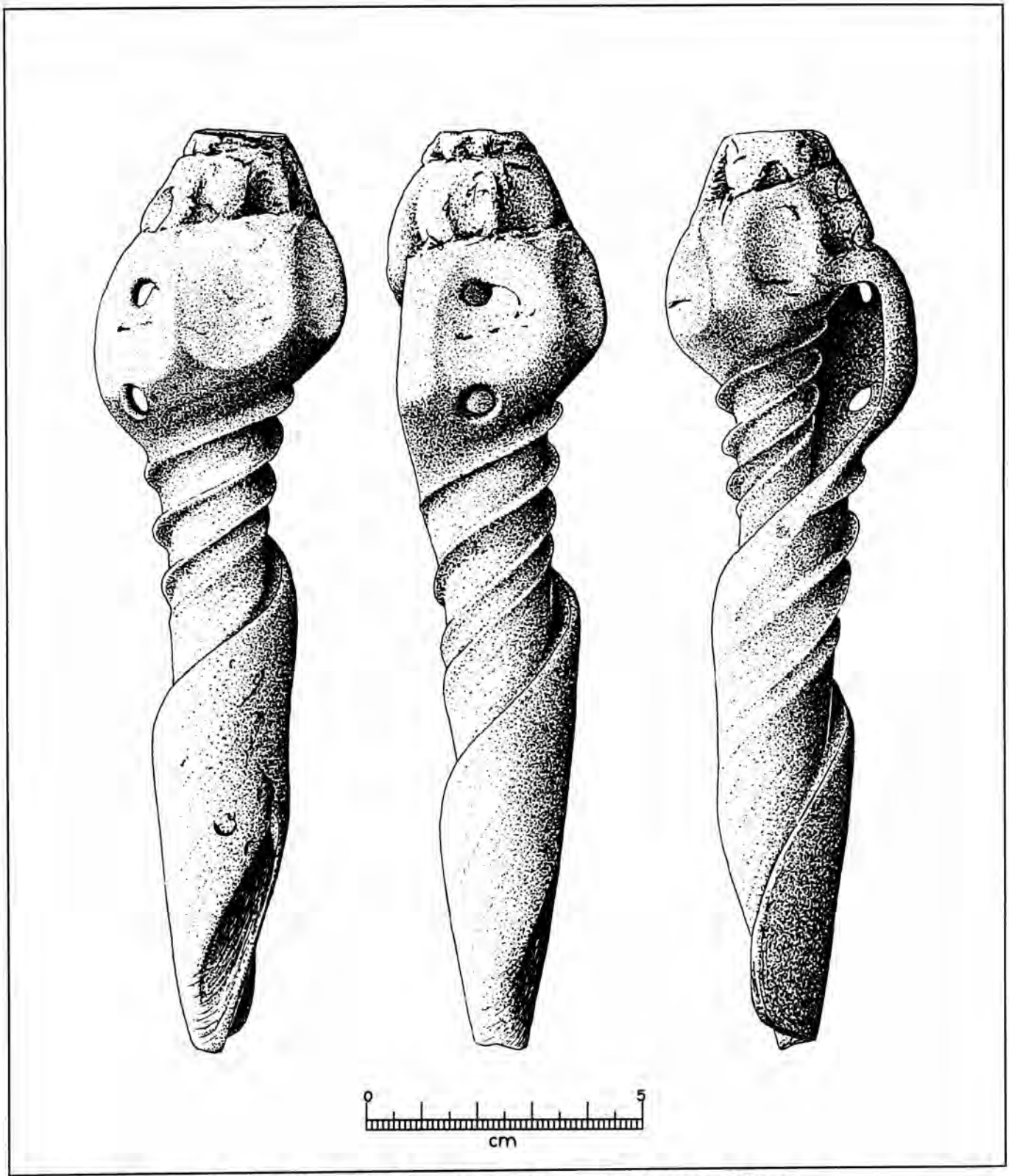

Figure 1. A large conch columella pendant from Wilson County, South-Central Texas.

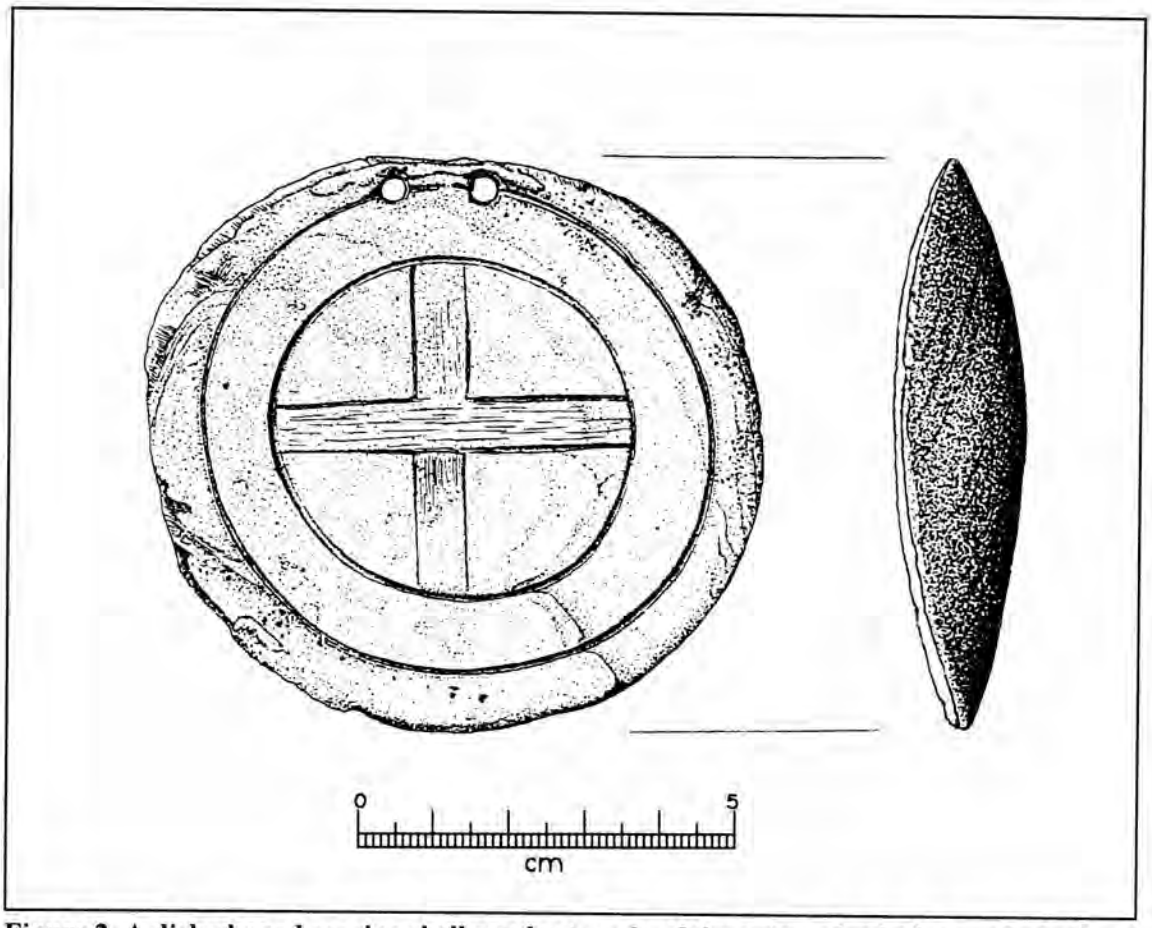

Figure 2. A disk-shaped marine shell pendant made of the outer whorl of a conch shell.

The widespread distribution of marine shell artifacts inland from the coast is indicative of trade, although the extent and nature of trade networks during Archaic times has yet to be determined. Many researchers believe that the marine shell was traded inland for high quality chert (Bement 1991; Hester 1980; Steele 1987 and Story 1985).

While numerous inland sites contain marine shell, the quantity at individual sites is often limited to a single occurrence. At 41BX1 small quantities of marine shell were recovered in comparison to the number of burials (Lukowski 1988). At Loma Sandia a total of 18 modified marine shell items were found with the approximately 200 burials (Dreiss 1995; Taylor and Highley 1995). The limited number of marine shell ornaments associated with the burials suggests that the ownership of shell was restricted within the group based on status and wealth (Taylor and Highley 1995). It should also be noted that marine shell artifacts at Loma Sandia were found with both male and female burials and with both children and adults (Taylor and Highley 1995).

ACKNOWLEDGMENTS

The conch shell pendant from Gillespie County is now in the collection of "Rusty" Vereen and we thank him for the opportunity to get it on record. The large columella specimen is part of a larger collection and the owner (finder) of this artifact does not wish to be identified, but we thank him for the opportunity to study and get it on record. The illustrations are by Richard McReynolds and we extend our sincere appreciation to him.

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OXIDIZABLE CARBON RATIO DATING

Leland W. Patterson

ABSTRACT

The use of the Oxidizable Carbon Ratio (OCR) dating method is discussed. Examples are given for OCR dates obtained at archeological sites in Southeast Texas.

INTRODUCTION

The Oxidizable Carbon Ratio (OCR) method of soil dating is a fairly new method for obtaining dates at archeological sites (Frink 1994). This is a chemical test for OCR, which is then factored into an environmentally based contextual formula to obtain an estimate of age. Environmental factors used are mean temperature and mean rainfall. Contextual factors used are soil texture, pH, and depth of sample below surface. Frink (1994:Figure 1) has shown a good correlation between OCR dates and radiocarbon dates. Kindall (1997) has given a discussion on the OCR dating method.

The OCR dating method has several advantages. OCR dating uses the natural carbon content of soils, and therefore can be applied to a wide variety of archeological contexts, especially where suitable samples of charcoal or carbon containing materials are not available for radiocarbon dating. The OCR dating method at $50 per sample is much less expensive than radiocarbon dating. Conventional radiocarbon dates cost about $230 per sample, and AMS radiocarbon dating of small carbon samples costs at least $600 per sample. Aside from absolute dating, a series of OCR dates can be used to check on possible stratigraphic disturbance or colluvial deposition at archeological sites.

This article gives examples of good results obtained by OCR dating at some sites in Southeast Texas. A discussion is also given on the interpretation of anomalous dates obtained by the OCR method, which can aid in site interpretation.

OCR DATES FROM SOUTHEAST TEXAS

OCR dates obtained for archeological sites in Southeast Texas are summarized in Table 1. For OCR dates given as years BP, the present date is AD 1950, as is used for radiocarbon dates. There are ten dates that are considered reasonable, compared to artifact type sequences, and three dates that are considered anomalous. The anomalous dates are discussed below in a separate section. The OCR dating method is especially good for use in Southeast Texas, because suitable materials for radiocarbon dating are not often available at sites in the inland subregion. Satisfactory results have been obtained by this dating method for a wide range of dates.

Site 41WH24 has an occupation sequence covering the Early Archaic (5000-3000 B.C.), Middle Archaic (3000- 1500 B.C.), Late Archaic (1500 B.C.-AD 100), Early Ceramic (AD 100-600), and Late Prehistoric (AD 600-1500) time periods. Three OCR dates obtained for this site give good correspondence with the stratigraphic sequence of artifact types for the Middle Archaic, Late Archaic, and Early Ceramic periods (Patterson et al. 1995). The OCR date sequence also shows that there has not been stratigraphic disturbance to this fairly stable landform.

At site 41WH38, a series of four OCR dates was obtained which falls within the Late Paleo-Indian time period (8000- 5000 B.C.). The OCR dates have a range of 5559-7099 B.C., and there is a good match of OCR dates with the stratigraphic sequence of artifact types (Patterson et al. 1994a, 1996). In Southeast Texas, during the Late Paleo-Indian period (10,000-7,000 BP) there is a temporal trend from Early Side-Notched to Early Corner-Notched projectile points, with Angostura lanceolate points often occurring in the latter part of this time period. This same stratigraphic sequence of projectile point types is found at site 41WH38 for an excavation depth interval of 50 to 30 cm.

At site 41FB245, OCR dates are consistent with the Late Prehistoric nature of artifact types at all excavated levels (Patterson et al. 1997), including bone-tempered pottery. At site 41FB3, an OCR date of 2077 B.C. appears to be reasonable for the soil sample depth compared to the stratigraphic sequence of artifact types. This date falls into the Middle Archaic period (3000-1500 B.C.). OCR dates for

Table 1. OCR Dates from Southeast Texas

Site	Years, B.P.		BC/AD		Depth, cm	Reference
41FB3	4027		2077	BC	50	Unpublished
41FB3	10115	(A)	8165	BC	65	Unpublished
41FB245	1177		773	AD	25-30	Patterson et al. 1997
41FB245	1415		535	AD	30-35	Patterson et al. 1997
41FB223	12735	(A)	10785	BC	160-170	Patterson n.d.
41FB223	14331	(A)	12381	BC	170-180	Patterson n.d.
41WH38	7509		5559	BC	25-30	Patterson et al. 1996
41WH38	8090		6140	BC	30-35	Patterson et al. 1996
41WH38	8770		6820	BC	35-40	Patterson et al. 1996
41WH38	9049		7099	BC	40-45	Patterson et al. 1996
41WH24	1825		125	AD	20	Patterson et al. 1995
41WH24	2598		648	BC	25	Patterson et al. 1995
41WH24	3832		1882	BC	33	Patterson et al. 1995

A = anomalous date

41FB3 are part of new data being obtained by additional excavations at this site, which will be published when work is completed here.

INTERPRETATION OF ANOMALOUS DATES

Three OCR dates have been obtained that can be considered anomalous, compared to occupation sequences involved. In each case, an anomalous date can be explained by contextual consideration of soil deposition processes.

At site 41FB223, OCR dates of 10785 and 12381 B.C. are obviously too old to match the Early Archaic occupation sequence for the excavation levels involved (Patterson et al. 1994b). Soil buildup at this site appears to be by colluvial deposition from higher levels of this large natural sand mound. The OCR dates represent the time of formation of the sand mound rather than the dating of cultural remains in the stratigraphic sequence (Patterson n.d.). The estimate of the time of formation of the sand mound from OCR dates might be too young, if contemporary vegetation on the surface contributed some Early Archaic-aged carbon at the time of colluvial deposition.

There is an OCR date of 8165 B.C. obtained at site 41FB3 which is probably too old for the sample depth involved. There is a good explanation for this anomalous date. The soil sample for OCR dating was taken from above a burial which is in a group that has a radiocarbon date on bone of 1280 B.C. (Patterson et al. 1993). While the soil date from the burial level should be older than the bone date, because the burial level is deeper than the occupation level, an OCR date of 8165 B.C. seems to be too old compared to an OCR date of 2077 B.C. for a depth that is only 15 cm less. The explanation for this anomalous date is that Indians excavated a burial pit to a lower depth than the soil sample and then used older soil as backfill above the burial.

OBTAINING OCR DATES

OCR dates are done by OCR Carbon Dating, Inc. at the following address:

OCR Carbon Dating, Inc.
57 River Road, Suite 1020
Essex, VT 05452
Telephone (802) 879-2017

Soil samples should weigh at least 100 grams, and samples should be air-dried before shipment. As noted above, the cost of OCR dating is $50 per sample. An additional $5 will be charged for samples received in moist or wet condition.

SUMMARY

The use of OCR dating for archeological sites has been discussed, with examples given for results obtained at sites in Southeast Texas. OCR dating has proven to be very useful for inland Southeast Texas, where materials suitable for radiocarbon dating are not often available. This soil dating method can be used for dating occupation sequences at archeological sites, and to detect stratigraphic disturbance. The low cost of OCR dating is especially attractive where research funding is limited.

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Book Review

Taylor, Richard B., Jimmy Rutledge, and Joe G. Herrera
1997 *A Field Guide to Common South Texas Shrubs*. Texas Parks and Wildlife Press, distributed by University of Texas Press. 21 cm x 15 cm, 116 pages, including bibliography, glossary, and index.
ISBN 1-885-696-14-0. $19.95 (paperback)

Reviewed by Kenneth M. Brown, Texas Archeological Research Laboratory
The University of Texas at Austin

For many years, *Trees, Shrubs, and Woody Plants of the Southwest* (Vines 1960) was the only widely available woody plant guide that covered South Texas. It was a valuable reference, but had only black-and-white line drawings and very generalized range data. Fortunately, the last few years have seen the publication of several well-written field guides specific to South or southwest Texas, all with good quality color plates. This one will go on the shelf next to Everitt and Draw (1993), Richardson (1995), and Powell (1988).

This slim book is divided into two sets of accounts: thorned plants (20 taxa) and unthorned plants (24 taxa), and as anyone who has carried out archeological surveys in the endless snivelbrush can attest, South Texas certainly has plenty of the former. Most of the taxa listed are woody plants, although prickly pear, tasajillo, Spanish dagger, vine ephedra, and lantana are also included, and some taxa (live oak, cedar elm, and sugar hackberry) that might normally be considered trees rather than shrubs are included. This book is less comprehensive than Everitt and Draw (1993), but a wider range of plant parts is illustrated.

Each species account lists preferred common name, scientific name, and common synonyms; a brief description with limited habitat preference data and "values" (for example, as wildlife forage). Archeologists will be especially interested to see that crude protein values are listed for each taxon, where known; these are most commonly for leaves, but in some cases are for fruits or beans. A 4.5-page table in the back gives more detailed data on nutritional value, keyed to the bibliography. Even more valuable, however, are the color photos (from one to three per taxon) shown for every listing. These show the overall growth habit, with closeups of leaves, flowers, or fruits, and are a prime resource for those of us who are not skilled with taxonomic keys (indeed, there is, thankfully, no key in this publication). These will be as good or better as identification aids for most readers than the brief descriptions. As a final footnote, readers will be interested to see that the map, "Ecoregions of South Texas," was produced by Texas Parks and Wildlife Department archeologist Cynthia Banks.

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AUTHORS

JAMES BRYAN BOYD is a police officer and is a Regional Steward assisting the Office of the State Archeologist along the borderlands area of Texas. His interest in archaeology extends into the states of Tamaulipas, Nuevo León, and Coahuila, Mexico. The region in which he is most interested is the area around Falcon Reservoir, where he is currently recording numerous sites with the Texas Archeological Research Laboratory (TARL) at Austin. Mr. Boyd has several ongoing projects with TARL, and has made over 600 expeditions into the field.

C. K. CHANDLER, Documentation Chairman of STAA, is a charter member of STAA and a Past President of the Texas Archeological Society (TAS) and also of the Houston Archeological Society. He was the 1985 Robert F. Heizer Award winner for his extensive work in South Texas archaeology. C. K. is a valued contributor of manuscripts to *La Tierra* and the *Bulletin of the Texas Archeological Society*, He has been honored by being named a TAS Fellow, and is an archeological steward for the Office of the State Archeologist (OSA).

THOMAS R. HESTER is Professor of Anthropology and Director, Texas Archeological Research Laboratory (TARL) at the University of Texas at Austin. Dr. Hester taught at the University of Texas at San Antonio from the time the University opened in 1973. He has done field work in Texas, the western United States, Belize and Egypt, and is the author of numerous books and papers on archaeology including *Digging Into South Texas Prehistory* (1980) and *A Field Guide to Stone Artifacts of Texas Indians* (with Ellen Sue Turner, 1985 and Second Edition, 1993). As Professor in the department of Anthropology he teaches both undergraduate and graduate courses, and works with students in the archaeology Ph.D. program.

CHERYL LYNN HIGHLEY is a long-time member of STAA and served as its Chairman. She has published data on the Archaic and Late Prehistoric periods of southern Texas as well as information on historic sites in and around San Antonio. She has published in *La Tierra* several times and is a dedicated researcher.

DON KUMPE is a lifelong native of the Lower Rio Grande Valley. He and his wife, Mary, own and operate a jewelry store on South Padre Island. Don is a member of STAA. As a teenager he began collecting artifacts while on camping trips in Starr County. This led to his 30 years of continuous interest in the archaeology of the Lower Rio Grande River. His collaboration with C. K. Chandler on several articles in *La Tierra* has led to some very interesting documentation of artifacts. He is the 1996 recipient of the Outstanding Avocational Archaeologist of the Year.

ANDREW MALOF graduated from The University of Texas at Austin with a B.A. degree in Anthropology/Archaeology in the Fall of 1996. He has been employed at the Lower Colorado River Authority as an assistant to Staff Archaeologist Bruce Nightengale since June of 1996. This has allowed him to pursue a life-long interest in archaeology, with an emphasis on the Central Texas region where he has lived for the last 36 years.

RICHARD McREYNOLDS, *La Tierra*'s fine illustrator, began his interest in Indian artifacts at an early age. His family moved from Massachusetts to a farm in Arkansas, where he was born. When he was five they moved to South Texas. Richard has done archaeological work in the Pecos River area and South Texas in general. He has been in Belize in 1990, '91 and '93 for the purpose of illustrating the artifacts. Richard is a Civil Service employee at Kelly Air Force Base. He, his wife Carolyn, and their two grown daughters reside in San Antonio.

LELAND W. PATTERSON is a retired chemical engineer and an active avocational archaeologist. His current research interests include the prehistory of southeast Texas, lithic technology, and the early peopling of the New World. Patterson has authored or coauthored over 346 publications in archaeology. Some of his publications have been in *American Antiquity, Journal of Field Archaeology, Lithic Technology*, the *Bulletin of the Texas Archeological Society*, and *Current Research in the Pleistocene*. He is author or senior author of several major archaeological site reports, and has recently published a detailed synthesis of Southeast Texas archaeology.

LARRY RIEMENSCHNEIDER is a farmer, teacher, and steward for the Office of the State Archeologist in the San Angelo area. He has coordinated archaeological projects in Reagan, Irion, Tom Green, Sterling, and Runnels counties. He is currently researching military history during the Fort Concho era.

SOLVEIG A TURPIN is an archaeologist at the University of Texas at Austin where she is responsible for identifying cultural resources on University Lands in West Texas. She is currently working on the survey and analysis of Block 13, the subject of this paper.

DIANE WILSON is a doctoral student at the Texas Archeological Research Laboratory (TARL), the University of Texas at Austin. She also works in human osteology at TARL and her research interests include bioarchaeology, and gender studies in archaeology. She has assisted in the analysis of numerous other burials salvaged in the Falcon Reservoir in recent years.

INFORMATION FOR CONTRIBUTORS

La Tierra publishes original papers and selected reprints of articles involving the historic and prehistoric archaeology of southern Texas and adjacent regions. Original manuscripts are preferred. Articles involving archaeological techniques, methods, and theories are also considered.

The main objective of this quarterly journal is to provide a way for STAA members and others interested in the archaeology of southern Texas to share the information they have with others. We encourage your full participation through submission of your information for publication; we are particularly interested in receiving manuscripts from those in the less well-known counties of our region, to document even surface finds and old collections. Only through such total member participation can we, as a group, build up a comprehensive picture of the archaeology of our area!

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 5 1/4" or 3 ½" disk, IBM or compatible, in ASCII form (if not in Word Perfect), it will be very helpful.

We are now incorporating a small Texas map with the county represented down in the lower right-hand corner of Page 1. This is not "Figure 1" and it may be all that you want in your paper. However, if you are being more precise as to your area of Texas, please submit a map showing the general region with rivers, streams, etc. This would be Figure 1. We are trying not to be too precise with locations of sites—unfortunately there are those who take advantage of this information to locate and ravage archaeological sites. Those sites already in the published material are sometimes shown again, however. Also, you MUST have the landowner's permission before entering his property. This small consideration can avoid misunderstanding and ill feeling toward archaeological research.

Other figures can be line drawings or photographs; line drawings are preferred if they are good quality—every photograph used costs an extra $50-$60 for processing and set-up charges. Sharp Black and White photos are preferred but color can be used. If you need assistance with illustrations, please let us know—there are several STAA members who have volunteered to help with illustrations. For examples of good artifact and map illustrations, see those by Richard McReynolds and Ken Brown in previous issues.

When drawings or sketches of artifacts are included in your manuscript, please give the name of the artist responsible for the illustration(s). All figures should contain an appropriate caption and, where necessary, identification of each specimen (a, b, etc. or 1, 2, etc.) to aid referencing individual specimens in the text. The suggested procedure is to photocopy your original drawing and write in captions and identification letters on the photocopy. This saves the original for our use in final preparation of camera-ready copy.

PLEASE include a proper scale on all maps, diagrams, artifacts, etc. When any figure must be reduced, the scale must be in the original figure so that reduction will not change any proportions. Most of our artifact figures are drawn "actual size" but this is not proper publishing terminology. A scale is necessary, and may be reset in the picture through "cut and paste"—just so it is there. Remember that photocopied material is very often slightly enlarged, and care must be taken that there is no change in the scale if done separately. For area (regional) maps, a small "rake scale" will help in our final copy—just so it is the proper dimension. Any site excavation map MUST have a good scale with it, again, IN the map so that reduction will not change the proportions.

Citations of references should be embodied in the text, giving the author, date, and page (e.g., Hester 1980:33). All references cited should be included in a References list using normal archaeological form (see articles in this issue for examples). The Reference list should not include publications not referred to in the text. Personal communications are cited in the text (e.g., Anne Fox, personal communication 1977) but need not be included in the Reference list.

Be sure to include a short (4-6 lines) biography for EACH author of the paper. The principal author and one co-author will receive two additional copies of *La Tierra*. Additional coauthors will receive one extra copy each. We will need each author's address for mailing purposes.

NUMBER YOUR PAGES AND MAKE A PHOTOCOPY OF THE SUBMITTED MATERIAL FOR YOUR RECORDS BEFORE MAILING TO THE EDITOR. HAVE DUPLICATE PHOTOS TO BE SAFE.

Manuscripts and/or hard copy of disk, if used, or other information may be submitted to: Shirley Van der Veer, Editor, *La Tierra*, 123 E. Crestline, San Antonio, Texas 78201-6613. With your cooperation, much time may be saved in correspondence to clear up matters before *La Tierra* can go to press. E-mail makes for easy clear-up. Shirley's is shirleyvan@worldnet.att.net. Include your email address when contacting her.

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.

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