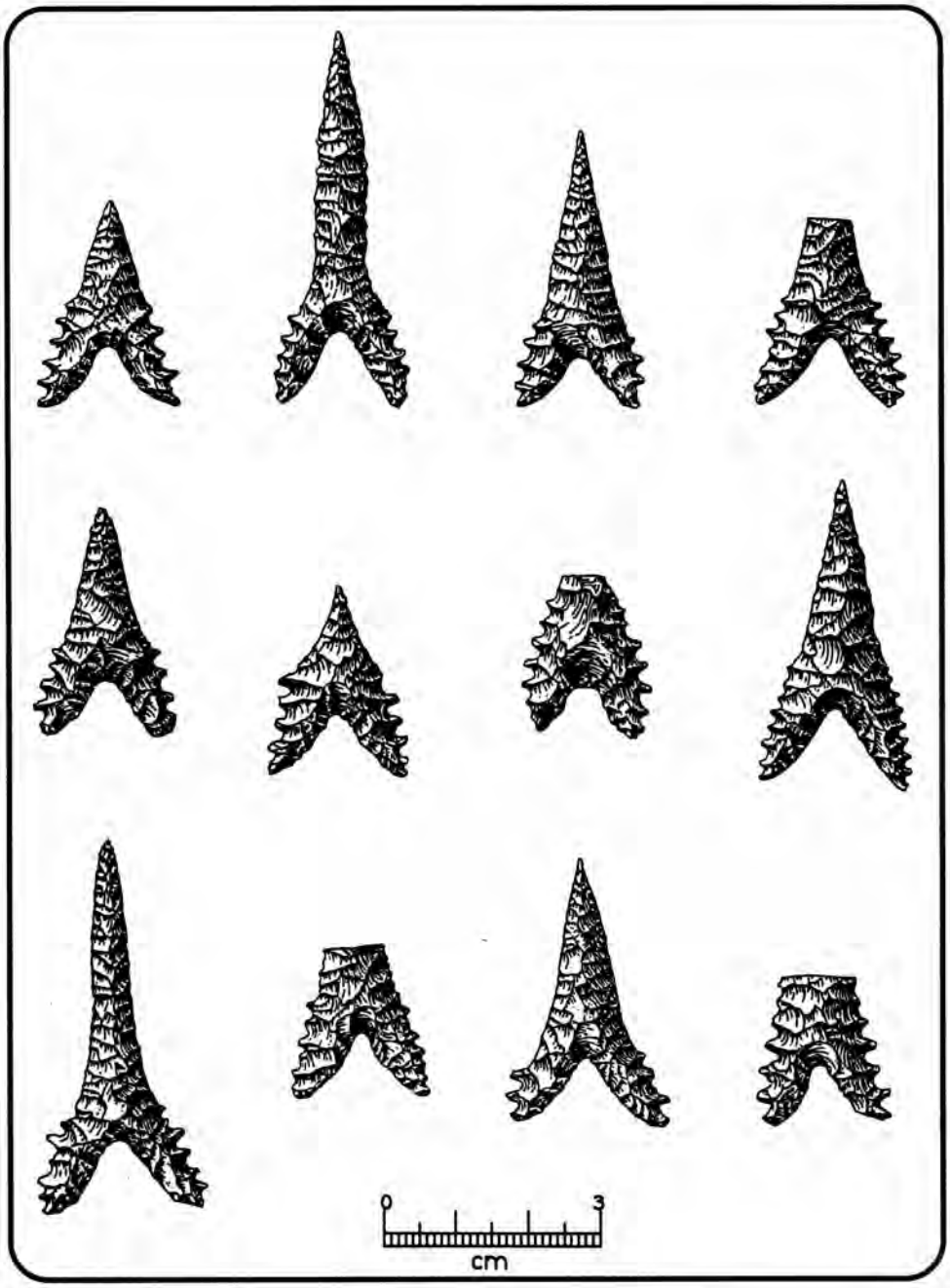
LA TIERRA



JOURNAL OF THE SOUTHERN TEXAS ARCHAEOLOGICAL ASSOCIATION

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LA TIERRA

QUARTERLY JOURNAL OF THE SOUTHERN TEXAS ARCHAEOLOGICAL ASSOCIATION

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Shirley and W. R. Van der Veer
Editors

About the Cover: Richard McReynolds has drawn a new point form, tentatively called "Form 4" (see article on page 33 by Don Kumpe, C. K. Chandler and Richard. Other drawings by Richard are on pages 35, 40, 41 & 42.

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

For membership information contact the Membership Chairman, Roy Banning, 11807 Broadwood, San Antonio, TX, 78249, 210-561-0244. Also see STAA internet address: http://www.soutxarchaeology.org . *La Tierra* is sent to all STAA members; copies may be purchased from the Internet site address or from P.O. Box 791032, Jimmy Mitchell (see above).

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LA TIERRA CHANGES for 2000!

It has become apparent to the editor(s) and producer(s) *of La Tierra* that some kind of schedule must be arranged for the production of the journal. Slippage of the printing time has caused a general feeling of "late all the time" among some of our members. There was a reason for this in the beginning—somewhat complicated and probably no longer necessary. Part of the problem was the tendency of members to renew very late, causing the first issue of the year to be mailed late, and subsequent issues followed on a 3-month schedule—regularly, but "late."

Consequently, the decision was recently made to change the designation of each issue from "No. 1, January 2000" to just "No. 1,2000," etc. On our new schedule each issue will be published at the end of each quarter, and will include what papers have been submitted within that time, up to the deadlines as shown below. As a consequence, issues may not be as large as some in the past. Our wish is to publish as many different authors as possible and as diversified subjects as we can.

We have both non-professional (avocational) and professional authors—all busy people who are taking time to get information into the Texas archaeological record. In the back of almost every *La Tierra* is the "Information for Contributors [or Authors]" page with guidelines for manuscripts. However, every effort will be made to assist new writers in constructing their papers. The emphasis is in getting the material into the record.

Please consider contributing to *La Tierra* with your documentation of artifacts and sites and other information that will be of interest to the archaeological community. You may be surprised to know how much *La Tierra* is referenced in the Texas archaeological literature. We have reason to be proud of our Journal, so let's keep it going at full speed.

Material will be accepted for consideration any time; however, deadlines for inclusion in 2000 issues are:

No. 2, May 13
No. 3, August 5
No. 4, October 28 (Printing for No. 4 should be right after the holidays).
No. 1, 2001, will be January 31, 2001.

Let us hear from you soon!

Shirley and Van Van der Veer
Editors/Producers, *La Tierra*

The ROBERT F. HEIZER Award

For OUTSTANDING CONTRIBUTIONS TO SOUTHERN TEXAS ARCHAEOLOGY

for 1999

Steve Black (left)receives the Heizer Award from Jimmy Mitchell at the January 2000 quarterly meeting. Photo by Charles Holt.

DR. STEVE BLACK

Everywhere you looked in 1999, Steve Black was there, working for increased public involvement in South Texas Archaeology — teaching and experimenting to expand our knowledge of South Texas pehistory. Public outreach programs, STAA Field School on the Stiver Ranch in Kimble County, Texas Archeological Research Laboratory (TARL) Archeological Fair, and more — and he is so motivated, is doing it all again this year!

The DEE ANN STORY ARCHAEOLOGICAL CONSERVATION Award

for 1999

The Dee Ann Story Conservation Award is presented to Bill Stiver (and to Julie Stiver, who could not be present) by Dr. Steve Black (right) at the STAA January 2000 Annual meeting. Photo by Charles Holt.

BILL and JULIE STIVER

Our hosts for the 1999 STAA Field School, Bill and Julie Stiver, gave us free reign of their 700-acre ranch near Junction in the rugged western Hill Country. The Stivers wanted to know more about the abundant traces of the human past that they had noticed all over the ranch. They also had in mind preserving their archaeological resources by finding ways that future visitors might enjoy learning and looking. Thus, they have demonstrated outstanding stewardship of the archaeological resources of their property and richly deserve the recognition of this award.

ARCHAEOLOGICAL PUBLIC SERVICE Award for 1999

THE THC TEXAS ARCHEOLOGICAL STEWARDS

The Texas Archeological Stewards volunteer literally thousands of hours each year to assist the Texas Historical Commission in public outreach programs; investigations of sites reported by local officials, landowners and others; responding to requests for assistance involving archaeological sites and materials; monitoring endangered sites; and many other activities.. They greatly extend the capability of the Texas Historical Commission to meet the challenges of archaeological stewardship around the state, and serve as an example to other states in terms of how to utilize volunteers effectively in furthering the cause of archaeology.Above left to right: presentor Jimmy Mitchell, and representing the many stewards, Smitty Schmiedlin, and Karen and Mike Fulghum.

OUTSTANDING ARCHAEOLOGIST OF THE YEAR for 1999

DAVID NICKELS

STAA Field Director for continuing work at the Biesenbach Site, Dave has spearheaded the Biesenbach Site work for all of last year, including recovery from major flood damage and rescue of the STAA field trailer from the tree to which it was chained. His continuing enthusiasm and dedication mark him as an exceptional individual who has made an outstanding contribution to the objectives and interests of the STAA during 1999.

ARCHAEOLOGICAL LIFETIME ACHIEVEMENT AWARDS for 1999

E. THOMAS MILLER

Tom has been involved in every major STAA project from the very first, and has made major contributions to the archaeological work not only of our organization, but to CAR, TARL, TAS, and other organizations as well.

JIMMY L. MITCHELL

Tom Hester and Paul Ward surprise Jim Mitchell with the award – for staying actively involved for over 26 years in so many ways we ran out of room to list them all!! For starters, he's our Webmaster, our Publications Chairman, and 2000 Vice-President. He's still active!

NOTES ON SOUTH TEXAS ARCHAEOLOGY 2000-1
The Broadray Creek Site: A Multiple Burned Rock Midden Locality in Bandera County, Texas

Thomas R. Hester and Glen L. Evans

In 1947, Glen L. Evans and Grayson Meade, then with the Texas Memorial Museum at The University of Texas, recorded and conducted a series of excavations at the Broadray Creek Site (41BN2) in northwest Bandera County, Texas (Figure 1). Evans and Meade were working extensively in the western Balcones Canyonlands (Decker et al. 2000), also carrying out excavations this same year at Montell Creek Rockshelter and at Kincaid Shelter.

The site is located on the west side of a small tributary of the North Prong (or fork) of the Medina River, and was at the time on the ranch of the late John F. Camp, Sr. Site deposits are situated on a low alluvial terrace 5-12 feet above the bed of the tributary, located in fields that were cleared and first cultivated some time between the 1860s-1890s.

In the late 1960s, when the senior author was doing analysis of the La Jita site excavations (41UV21; Hester 1971), I first learned about this site. Mr. and Mrs. John F. Camp, Sr. had donated the land on which the La Jita Girl Scout camp is located near Utopia, and either Mrs. Camp or Mr. Evans (and here the senior author's memory fails!) told me of these additional excavations at Mr. Camp's ranch in Bandera County to the north. The notes of Mr. Evans, along with sketches of artifacts, were on file at the Texas Archeological Research Laboratory (TARL) and the sketches were particularly useful as comparative material for the artifacts found at La Jita.

Given the activities of the Texas Archeological Society field school at Utopia in 1990 (two of the sites in Uvalde and Bandera Counties now published in the *Bulletin*, and three MA theses being readied for publication), and since then, other fieldwork and analyses of older fieldwork (e.g., Decker et al. 2000), this paper puts the Broadray Creek site on record. Because of the intense commercial looting in Bandera County (as seen on many Internet sites selling Texas artifacts) dozens (hundreds?) of sites like Broadray Creek are being eliminated or irreparably damaged.

THE SITE

A sketch map by Glen Evans (Figure 2) shows the relative location of four burned rock middens ("mounds") at the site. The total length of the site, running roughly north-south, was about 550 feet. Evans and Meade designated these features as Mounds 1-4, and the following descriptions are drawn from Evans' typescript on file at TARL.

Mound 3 was the largest, nearly circular in plan and 65 feet in diameter. Its maximum thickness was 50 inches. Mound 4 was slightly smaller than Mound 3, while Mounds 1 and 2 were quite small, about 40 feet in diameter and 2 feet or less in thickness. Evans notes that "the area between the mounds was evidently a continuous camp, as abundant worked flints are found along all parts of the terrace on which the mounds are situated."

Small test trenches were dug in Mounds l and 4, and a few artifacts were found. However, the major excavation, a trench 15 feet wide and 50 feet long, was dug in Mound 3 during a two-week period in September, 1947. Beginning at the east margin and proceeding toward the center of the mound, using a

Figure 1. Location of Bandera County, Texas.

"moving face" technique, they periodically cleaned the profiles and found no evidence of internal stratigraphy (which would likely have been recognized,by such expert geologists as Meade and Evans). The matrix consisted of fire-cracked burned rock, some described by Evans as "rather coarse limestone boulders" and with a "relatively small amount" of dark ashy earth. The excavations were done with small hand picks, trowels and whisk brooms "in order to find some artifacts in place." Additionally, the excavated deposits were screened through ¾ in. mesh. Views of Mound 3 and the excavations are seen in Figures 3 and 4, photographs given by Evans to the Texas Memorial Museum and on file at TARL.

THE ARTIFACTS

The observations on the cultural materials from 41BN2 come from outline sketches and notes. The collections were apparently given to Mr. Camp, and were at one time in an interpretative display at Camp La Jita.

There were 16 surface artifacts found in the fields between the middens, most of them dating to the Transitional Archaic (8 Frio, and 2 Ensor, 1 side notched with serrated lateral edges) and Late Archaic (fragments of 1 Castroville, 1 Montell, and 1 Marcos). Two bifaces were fragments and another cannot be typed using the existing sketch.

The bulk of the collection is from the trench cut into Mound 3. The sketched artifacts (selected examples in Figures 5 and 6) have been summarized below, with relevant data on their vertical provenience. There were, in addition, artifacts listed in the notes as side and end scrapers, several knives (doubtless these are preforms), a "shaft smoother (?)," a possible mano, and "one well-made fist axe" (a Late Archaic butted biface; see Turner and Hester 1999). Additionally, a fragment of a two-holed gorget was found, as well as a gorget fragment (possibly of schist, according to Evans' annotation) with one perforation and one incomplete attempt at drilling an adjacent hole (Figure 6).

Descriptions of Chipped Stone Artifacts from Mound 3

There were 92 artifacts sketched from the excavations into Mound 3, although the notes indicate that a somewhat larger number of artifacts were found. Each excavated artifact was cataloged using the mound number and a sequential unique number (e.g., specimen 3-12 in Figure 5). The notes record, but do not illustrate, bifaces cataloged up to 3-109, and the exact count is unknown.

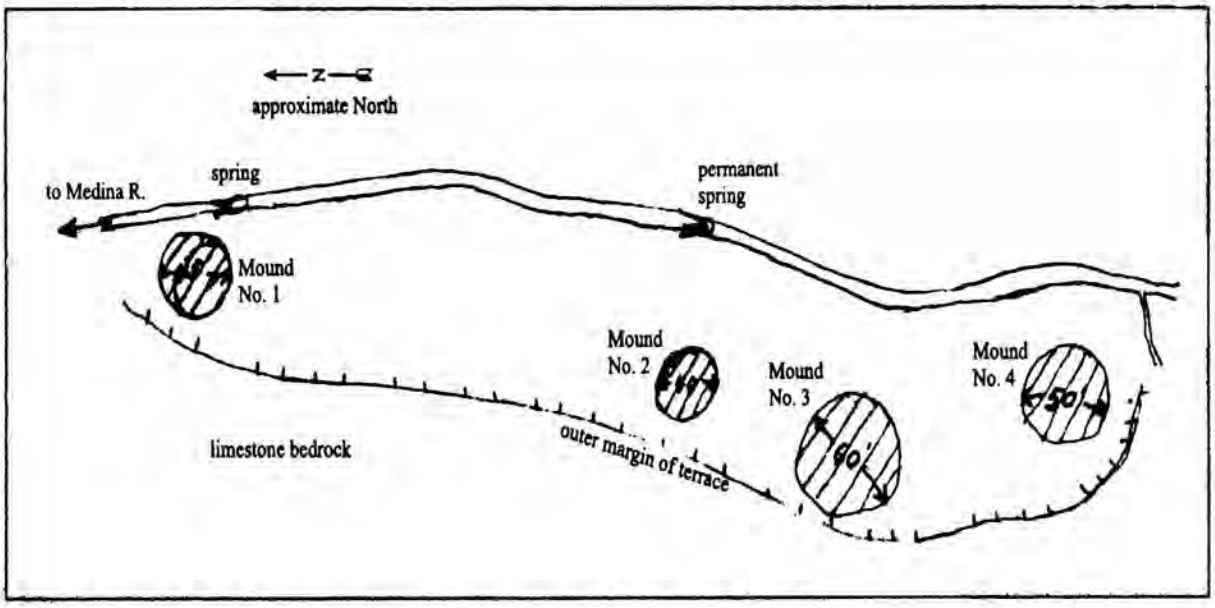

Figure 2. Sketch map of the Broadray Creek Site (41BN2), from the original field notes; lettering has been inserted. Meade and Evans designated the dome-shaped burned rock middens on the terrace as "mounds." Sketch is not to scale.

Figure 3. View of Mound 3 at 41BN2, during 1947 excavations.

Figure 4. Excavations underway in the Mound 3 trench, September 1947.

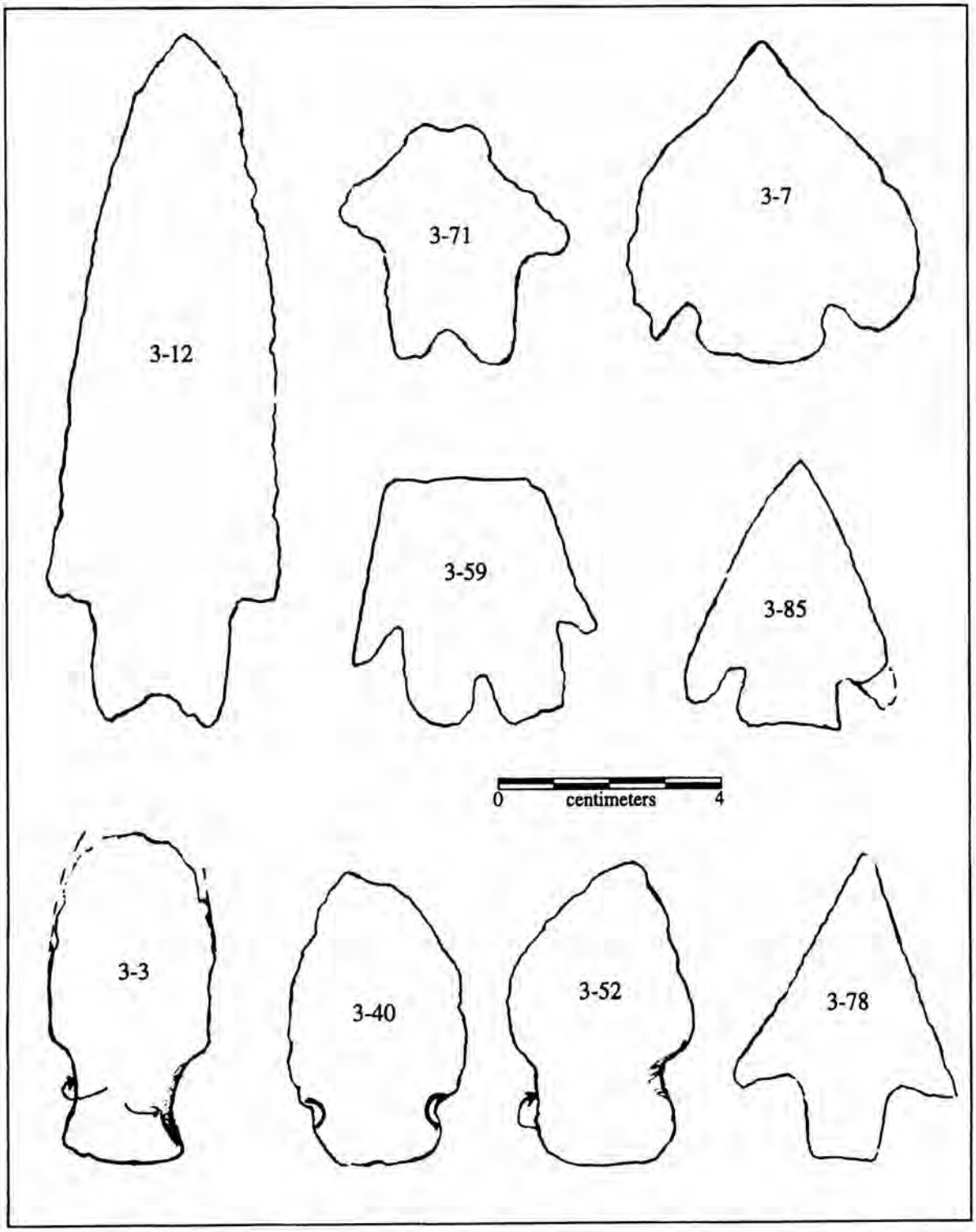

Figure 5. Sketches of Selected Artifacts from the 41BN2 Notes: 3-12, 3-71, Pedernales; 3-7, Marcos (perhaps unfinished); 3-59, Montell; 3-85, Marshall; 3-3, Nolan; 3-40, 3-52, La Jita; 3-78, Langtry.

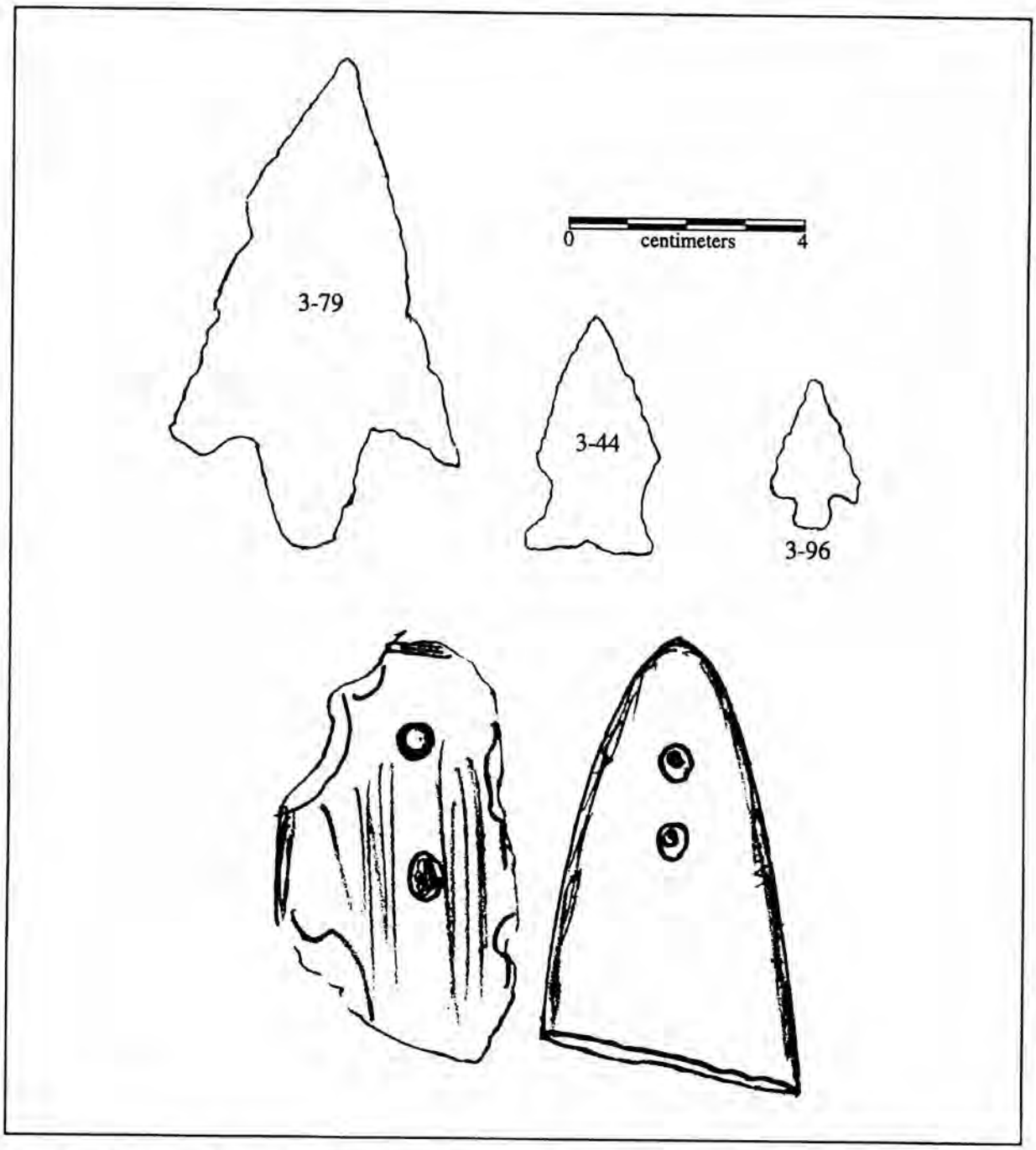

Figure 6.. Sketches of selected artifacts from the 41BN2 Notes: 3-79, Langtry; 3-44, Frio; 3-96, arrow point (Scallorn?); and at the bottom, two gorget fragments; the specimen on the left with one complete and one incomplete perforation.

Middle Archaic diagnostics were most common, especially Pedernales points (44 specimens). These included large complete specimens (6; Figure 5), numerous fragments (30), specimens that had been resharpened (or re-pointed; 7), and a fragmentary preform. Vertical provenience was recorded for 12 specimens. The range in depth at which Pedernales points were found was 9-32 in. below surface; however, six clustered at 20 -24in., and the deepest was at 32 in. One Marshall point (Figure 5) was found, but no data on its provenience are noted.

Late Archaic types (Figure 5) included 4 Castroville points, all fragments. No vertical provenience data are available. Sketches of 3 other expanded-stem dart points suggest the presence of Marcos and/or Lange points. Montell points numbered 6 specimens, 2 of which were found at 5 in., well above Pedernales.

The Transitional Archaic (Figure 6) is represented by 7 Frio points, with only one specimen having its depth recorded (18 in.; Figure 6:3-44).

Several diagnostic types variously attributed to the Middle and Early Archaic came from the lower parts of Mound 3. These are Bulverde (1; at 38 in.), Langtry (6; 1 from 30 in. and 1 from 36 in.) and La Jita. There were 3 La Jita points (Figure 5), one labeled as "40 in., base of midden " (Figure 5:3-40) and another as having been found at 30 in. Six Nolan points (Figure 5) were found and might be expected to have been found in lower midden contexts, but no vertical proveniences were reported. A Martindale fragment (depth not recorded) and what may be 4 Early Triangular points, were also excavated, two of the latter from 18 in. and 33 in.

There are 6 stemmed points that cannot be typed from the available sketches, as well as a large convex-based preform, found at a depth of 14 in., probably either Late or Middle Archaic. The sole Late Prehistoric arrow point found at the site is apparently Scallorn (Figure 6) although it has a slightly expanding rectangular stem and may be of the Sabinal type (the sketch does not indicate whether or not the barbs were broken). Its depth was not recorded.

CONCLUDING COMMENTS

The Broadray Creek site provides an example of a terrace occupation site on which four burned rock middens were formed. Extensive research by Stephen L. Black (Black et al., 1997; Decker et al. 2000) convincingly indicates that many of these rock and ash accumulations were related to earth oven cooking technology. If this technology was key to the formation process of Mound 3, it was not recognized by the excavators, Evans and Meade, well-known for their keen field observations.

In the western Balcones Canyonlands, some burned rock middens contain only rock and ashy soil, and very few artifacts (Hester 1971). In others, such as Mound 3, numerous projectile points and other lithics occur. In this regard, it is very similar to the Smith site burned rock midden (41UV132; Baker 1997). At that midden, most of the surface of the midden was exposed and numerous hand-excavated units formed north-south and east-west trenches through the midden, but these excavation approaches failed to reveal evidence of earth ovens.

Mound 3 at Broadray Creek resembles, in several aspects, the as yet unpublished burned rock midden at 41BN63, excavated under the supervision of the senior author in 1985. There were abundant Middle and Late Archaic diagnostics within the midden. More importantly, it also had Langtry and La Jita points at the base of, or below (in the case of the La Jita specimens) the burned rock midden, a situation duplicated at Mound 3 of the Broadray Creek site. But, it also had a large central earth oven! These brief comparisons are offered only to reinforce what excavators of burned rock middens know all too well—they reflect considerable variation, and more than one cooking technology or other activity(ies) may have been involved in the formation processes.

Houk and Lohse (1993) and Black et al. (1997) have clearly shown that burned rock middens continued well into Late Prehistoric times. However, it still appears that most, especially the thick dome-shaped middens like Mound 3, date largely to the Middle and Late Archaic. In the southwestern Edwards Plateau, at least, the La Jita type predates the burned rock midden phenomenon, probably around 2800 B. C. (41BN63; TX-7066; Dornheim, ms.).

ACKNOWLEDGMENTS

The illustrations come from the notes by Evans and Meade on their work at 41BN2, on file at TARL. Robin Benson of TARL has scanned these for the map and artifact sketches published here.

REFERENCES CITED

Baker, E. L.
1997 Archeological Excavations at the Smith Site, 41UV132, Uvalde County, Texas. Unpublished Master's Thesis, The University of Texas at Austin.

Black, S. L., L. W. Ellis, D. G. Creel, and G. T. Goode
1997 *Hot Rock Cooking on the Greater Edwards Plateau: Four Burned Rock Middens in West Central Texas.* 2 vols. Studies in Archeology 22, Texas Archeological Research Laboratory, The University of Texas at Austin, and Archeology Studies Program Report 2, Texas Department of Transportation, Environmental Affairs Division. Austin.

Decker, S., S. L. Black and T. Gustavson
2000 *The Woodrow Heard Site, 41UV88, A Holocene Terrace Site in the Western Balcones Canyonlands of Southwestern Texas.* Studies in Archeology 33, Texas Archeological Research Laboratory, The University of Texas at Austin, and Archeology Studies Program Report 14, Texas Department of Transportation, Environmental Affairs Division. Austin.

Dornheim, S.
ms. Archeology at 41BN63, A Burned Rock Midden-Terrace Complex in Bandera County, Texas. Masters thesis in preparation, The University of Texas at Austin.

Hester, T. R.
1971 Archeological Investigations at the La Jita Site, Uvalde County, Texas. *Bulletin of the Texas Archeological Society* 42:52-148.

Houk, B. and J. Lohse
1993 Archeological Investigations at the Mingo Site, Bandera County, Texas. *Bulletin of the Texas Archeological Society* 61: 193-247.

Turner, E. S. and T. R. Hester
1999 *A Field Guide to Stone Artifacts of Texas Indians.* Third Edition. Gulf Publishing Company, Houston.

THE CALLAHAN PETROGLYPH SITE: SOUTHWESTERN INFLUENCE IN THE TEXAS SOUTHERN PLAINS

Douglas K. Boyd

ABSTRACT

Petroglyphs at the Callahan Site, 41KT164, in Kent County, Texas include numerous Plains Biographic images along with two anthropomorphic figures in an unusual style that are similar to images found much further to the west or southwest. The site is located on a bluff line overlooking the Longhorn and Headstream sites, two protohistoric sites that produced large amounts of Puebloan-made pottery. No definitive determination of the cultural identities of the artists of the rock is made, but several tantalizing possibilities regarding Southwestern influence are offered.

INTRODUCTION

The Callahan Petroglyph Site is an unusual rock art site in the southern Plains of Texas. It is significant because it contains Native American rock art that represent not only Plains Biographic style common to the region, but also images that are probably of Southwestern origin or influence. The site is located along Grape Creek, a tributary of the Double Mountain Fork of the Brazos River, in the canyonland country east of the Llano Estacado (Figure 1). Located in Kent County and designated site 41KT164, the Callahan site is near the emergency spillway at Lake Alan Henry, a water reservoir built by the City of Lubbock, Texas between 1991 and 1994. It was found during the summer of 1993 by Granite Construction Company employee Bryan Callahan, his wife Jeanette, and his father Lee, while the dam and spillway were under construction. Bryan, operator of the pug mill near the emergency spillway, reported the site to Granite Construction Company's project manager, David Smith, who made sure that construction activities in the area avoided the site. It was reported to Freese and Nichols, Inc., the engineers who designed the reservoir. Prewitt and Associates, Inc. was subsequently notified of the new discovery, and the site was inspected and documented on August 17 and 18, 1993. Had it not been for its fortuitous discovery by the Callahans,the site might have been destroyed by construction activities and never documented. The site is named in their honor.

The site consists of a bluff-edge overhang that protects a series of Euro-American inscriptions (one historic and numerous modern) and six panels of Native American petroglyphs. The initial documentation of the site consisted of measured sketches of the shelter in plan and profile views, recording of the historic and modern Euro-American inscriptions and vandalism, and measured sketches of the Native American petroglyph panels. Numerous color slides and black-and-white photographs of the shelter and the rock art panels also were taken. Subsequent to the initial field recording, the site was recommended as eligible for listing on the National Register of Historic Places and for designation as a State Archeological Landmark. Additional documentation of the Native American petroglyphs also was recommended.

Representatives of the U. S. Army Corps of Engineers and the Texas Historical Commission concurred with the above assessment and recommendation. Additional documentation was done during a second visit to the site on October 21, 1993. This investigation consisted of producing full-size acetate tracings of the petroglyphs, taking additional color slides and black-and-white photographs, and making additional measured drawings and observations. The rock art line drawings in this article are reproduced from the acetate tracings.

SITE SETTING

Site 41KT164 is a prominent overhang shelter that is located along the bluff edge on the east canyon rim of Grape Creek, about 100 to 200 meters north of the Lake Alan Henry emergency spillway. At this point, the bluff edge trends northwest to southeast and the overhang faces southwest, overlooking a wide segment of the Grape Creek valley. The overhang (at 2260 ft msl [mean sea level]) is 27-33 meters(90-110 ft) above the floodplain (at 2150-2170 ft msl). It is approximately 27 meters in length

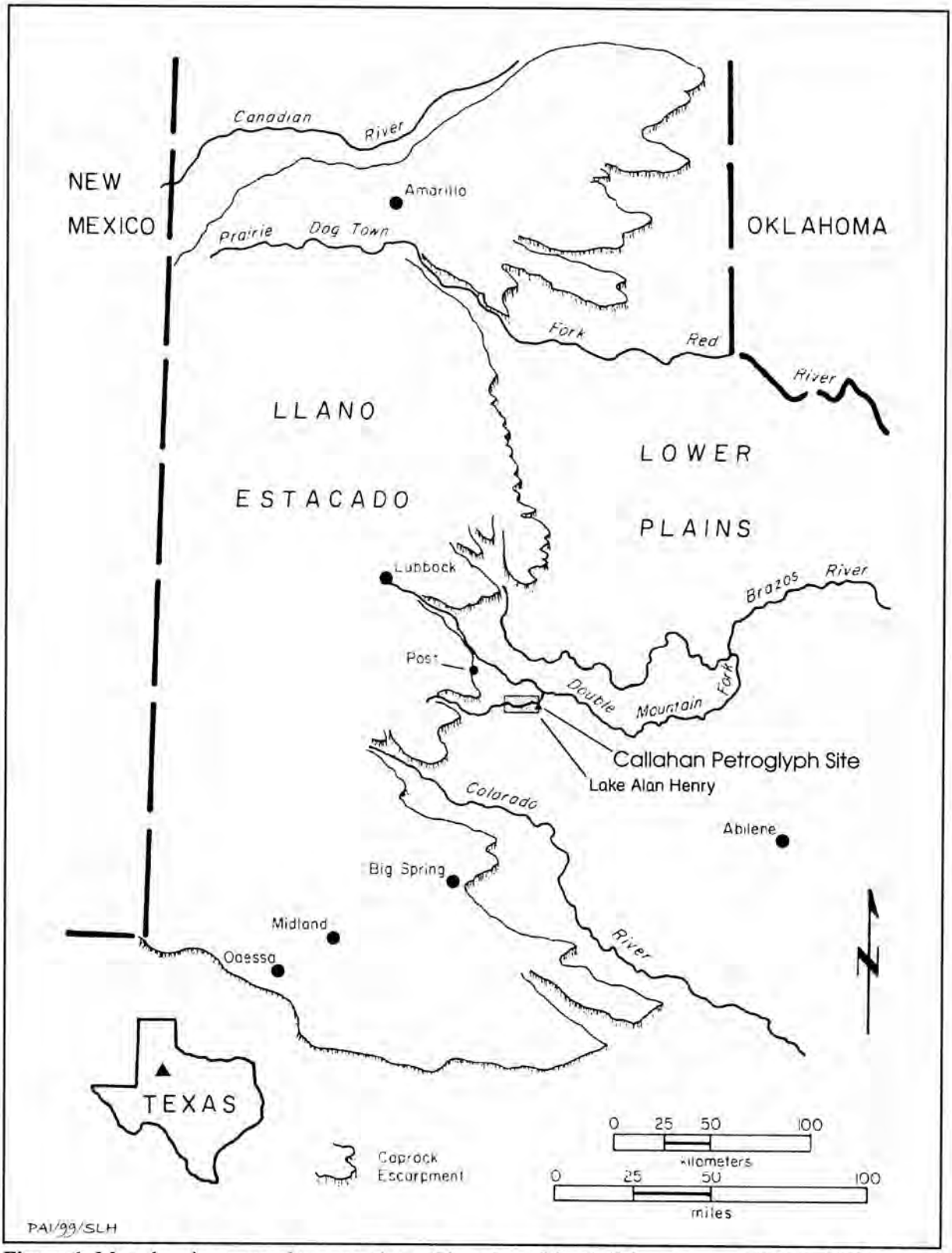

Figure 1. Map showing general topography and location of the Callahan Petroglyph Site, 41KT164.

and varies from 0-5 meters deep and from 0-4 meters in height (Figure 2). A small, 1 meter-high, wind-worn alcove just south of the overhang also contains a petroglyph and extends the site length to 35 meters (northwest to southeast).

The topography of the project area is the result of the variable erosion of alternating layers of Triassic-age Dockum Group sandstones and mudstones (McGowen et al. 1979). The overhanging ledge at the Callahan Site was formed when the friable sandstone stratum eroded out from underneath the harder ledge-forming sandstone stratum, probably because of spring sapping and seepage (Gustavson and Simpkins 1989). Shelter formation also may have been accelerated by eolian processes and various biological agents (e.g., vegetation growth along the bluff edges). As the underlying stratum eroded, the overlying hard sandstone fractured under its own weight, and some portions of the overhanging ledge have collapsed recently, probably within the last few hundred years. The floor of the overhang is alternately exposed bedrock or a thin veneer of sands derived from in situ weathering of the friable sandstone. Water channels, originating at driplines below cracks in the capping sandstone layer, converge in the central portion of the overhang. Consequently, most of the overhang has been scoured out to bedrock, and there is little potential for subsurface cultural deposits. It is doubtful that the overhang was ever occupied as a shelter.

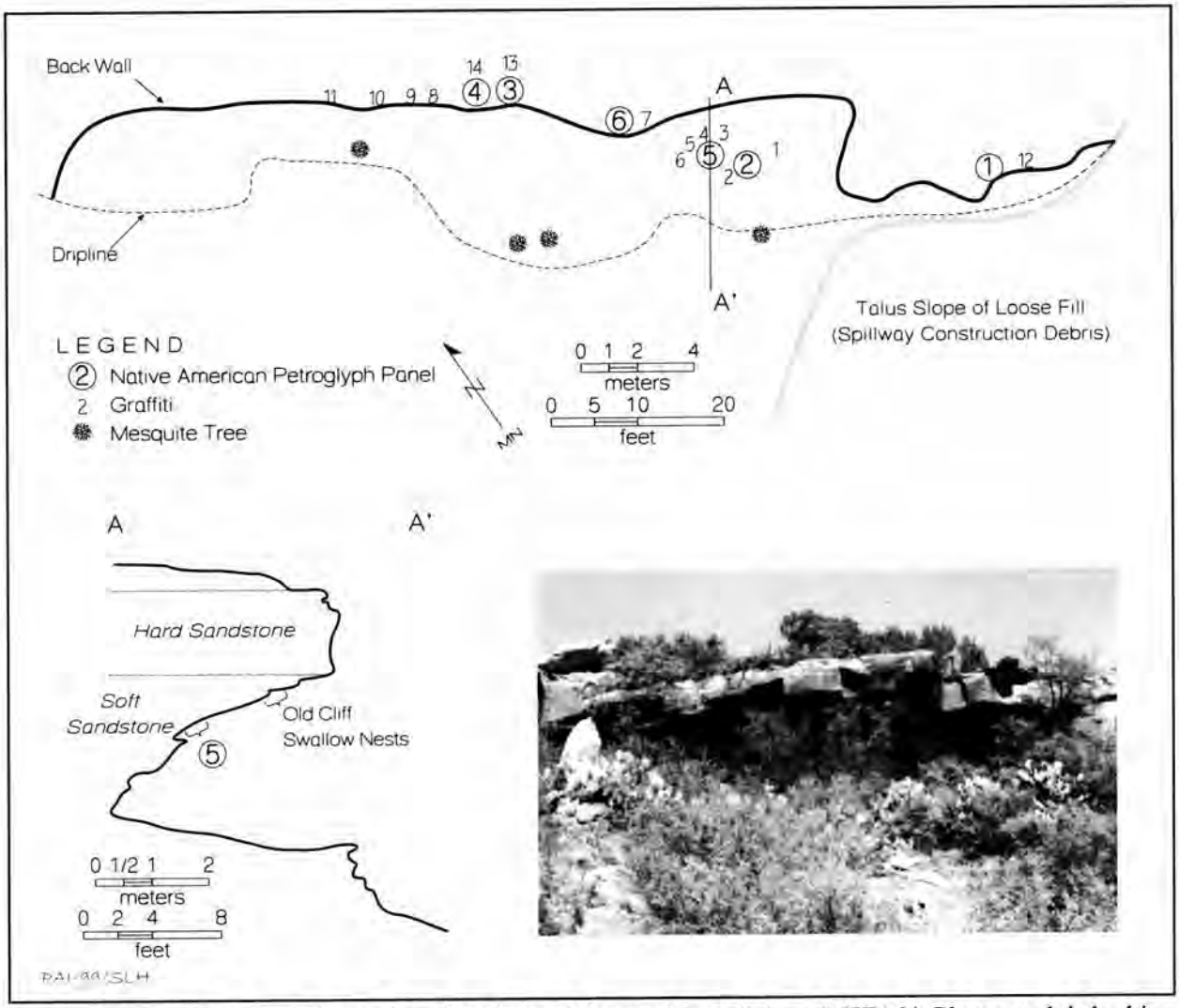

Figure 2. Photograph, and plan and profile views of the overhang shelter, 41KT164. Photograph is looking uphill to the northeast at the front of the overhang.

The overhang is immediately adjacent to the area where Granite Construction Company disposed of loose fill, excavated from the emergency spillway, by pushing it over the edge of the bluff. The result is a substantial talus accumulation of sand and sandstone (i.e., upland sandy sediments, unconsolidated sand derived from sandstone, and sandstone fragments). The northern edge of the debris talus butts up against the southern end of the overhang, and loose talus sediment has partially filled the southern alcove. The dumping of construction debris, however, has not seriously impacted the site.

DESCRIPTION OF PETROGLYPHS

Manmade images at the site consist of several occurrences of modern graffiti and vandal ism, one historic inscription, and six groups of Native American petroglyphs (see Figure 2 for locations within shelter). The latter are designated as Panels ① - ⑥, and individual glyphs within each panel are designated by consecutive decimal numbers from left to right (e.g., Glyphs 3.1, 3.2, and 3.3). Of the 14 occurrences of Euro-American glyphs, only one inscription, "BOWEN DANIEL 1927" (see Table 1), is definitely of historic age, but this person has not been identified. All of the other inscriptions appear to be of recent age, and five occurrences are dated 1990. One of the 1990 inscriptions has damaged the Panel ② petroglyphs, and the petroglyphs on Panels ③ and ④ also have been damaged or altered recently. Each of the panels containing Native American petroglyphs is described below.

Panel ① is in the southern alcove (see Figure 2) and contains a single small geometric design (Figure 3). The soft sandstone face is strongly concave but very smooth and covers over 1 square meter. The isolated glyph is centrally located within the alcove and consists of a 12 cm-diameter circle enclosing three horizontal and three vertical lines with two short segments extending beyond the circle (one vertical on top and one horizontal on the right). The glyph is composed of 4-6 mm-wide, 2-2.5 mm-deep, shallow, U-shaped grooves that are patinated equally with the surrounding rock face.

Table 1. Historic and Modern Euro-American Inscriptions and Vandalism at 41KT164.

Map Key	Location in Shelter	Inscription
1	ceiling	"RAUI"
2	ceiling	"ROSY 1990" superimposed on Panel ②
3	ceiling	"52 JWH"
4	ceiling	"BOWEN DANIEL 1927" immediately above Panel ⑤
5	ceiling	faint and illegible, could be "JAMES"
6	ceiling	"MIChaEL WAS HERE 1990"
7	back wall	head
8	back wall	"CH RW 1966"
9	back wall	"MICHaEL WAS HERE 1990"
10	back wall	indistinct initials and "1990"
11	back wall	"AMA 1990"
12	back wall of small alcove	"WM" and indistinct date, possible 194[?]
13	back wall	"TM 79"
14	back wall	alteration of Panel ③; Glyph 3.5
		indistinct "N" uperimposed on Panel ④

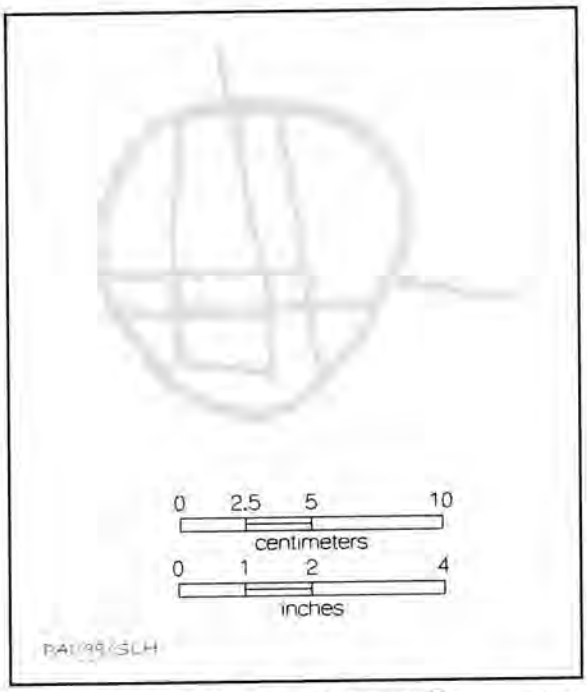

Figure 3. Line drawing of Panel ① petroglyph, 41KT164.

Panel ② is the most intriguing and contains two large stylized figures carved into the soft sandstone on the sloping ceiling, 1.8 meters above the floor in the southern part of the overhang (see Figure 2). Panel ② consists of a smooth, slightly convex face bracketed on all sides by spalling or cliff swallow nests. Spalling along the lower edge of the panel is particularly severe due to burrowing insects. Various species of burrowing wasps and bees actually dig small holes into the rocks and lay their eggs inside them, thereby weakening the rock face and greatly accelerating spalling (Raymond Neck, personal communication 1993). Burrowing insects have been noted as the culprits accounting for damage in many other rock art sites in Texas. In Garza County, for example, insect burrowing was noted as having caused spalling damage to rock art at the Ward Petroglyph Site (Boyd and Garvey 1990:215), and Bilbo (1986:9) mentions the severe spalling caused by "bee bores" all along the bottom of the large sandstone face at Cowhead Mesa. Turpin (1982:194) and Silver (1985: 21) also note "burrowing wasp" damage at Seminole Canyon rock art sites in Val Verde County. Panel ② also has been vandalized (i.e., "ROSY 1990" inscribed on the lower left side of the panel), but no critical parts of the glyphs have been destroyed. The original images are patinated to the same reddish color (i.e., 5YR 5/4 reddish brown to 5YR 6/6 reddish yellow) as the rest of the rock face, but the incised lines of the recent inscription are a light gray (2.5Y 7/2), the unweathered natural color of the sandstone.

The figures on Panel ② are presumably stylized human representations although they could represent some form of animal (Figure 4). The two figures are similar in that both have extended arms, bent and upturned at right angles, and extended legs, bent and down-turned at right angles. With one exception, the arms each have three or four fingers, and all of the feet have five toes. There is no evidence that either of these glyphs were painted, and they both appear to have been produced using a combination of wide shallow grooves, fine line grooves, and smoothing of broad areas.

Glyph 2.1 has a slender stick-figure body composed of a 23-26 mm-wide, 5 mm-deep groove with riblike appendages coming off one side. Its arms and legs have fingers and toes except for a small circle at the end of one arm, which may represent an object held in its hand. Its head consists of two prominent eyes (25 mm in diameter and 3-4 mm-deep depressions) on either side of a smoothed area and underneath two hornlike projections or eyebrows. A single antenna projects upward from the head. The lines comprising the arms, rib appendages, horn-like projections, and antenna are 7-11 mm-wide, 2-2.5 mm-deep, U-shaped grooves that are considerably smaller than that of the main body.

It is possible that Glyph 2.1 represents a female since there is a prominent, 45 mm-diameter circular depression in the crotch area. An insect burrow inside this depression makes the feature stand out, and its occurrence there probably is not a coincidence. Most of the other insect burrows are found along the margins of the surrounding rock face where the exposed rock face is softer. Since the patinated rock face tends to be harder and more compact, this circular depression probably provided a softer area into which the insect could burrow. The depression could have been a natural pebble cast that was incorporated into the glyph, but more likely it was an intentional modification that was part of the petroglyph. In either case, it may have been intended to represent female genitalia.

Glyph 2.2 is similar in that it has stick arms and legs (composed of 5-11 cm-wide, 1.5-2.5 mm-deep, U-shaped grooves) that are oriented the same as those of Glyph 2.1, but the head and body of Glyph

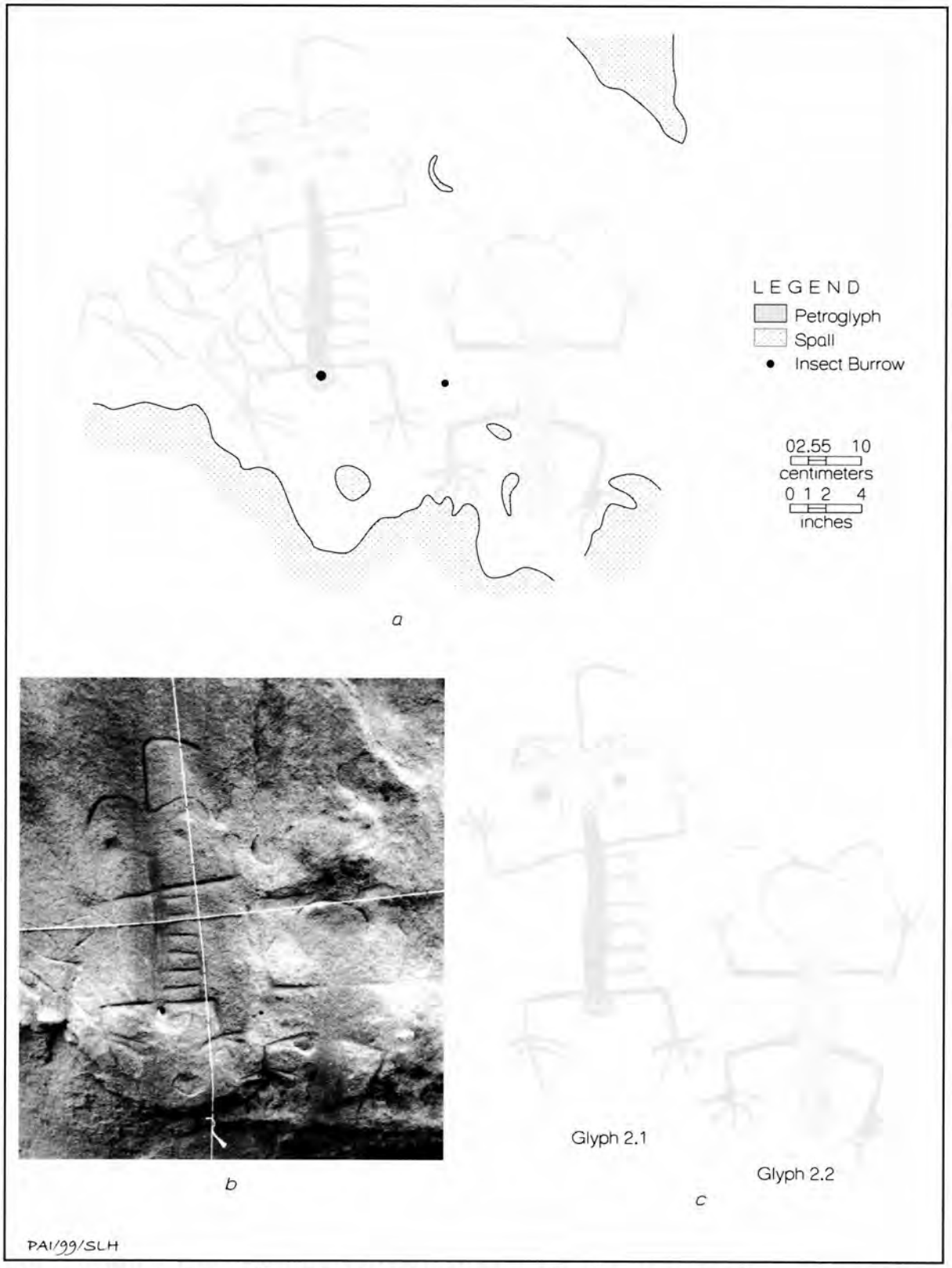

Figure 4. Petroglyph Panel ②, 41KT164. (a) line drawing of petroglyph panel showing recent vandalism and natural deterioration of the rock face; (b) photograph of panel; and (c) line drawing of petroglyphs with natural deterioration and recent alterations removed.

2.2 are different. Glyph 2.2 has a round head with no obvious facial features and two hanging antennae-like projections, one of which is rather faded and indistinct. Its body is depicted by a shallow (less than 1.0 mm deep), elongated rectangular (50-60 mm wide), smoothed area. The edges of the smoothed body area are not clearly definable, but it is patinated like the rest of the rock face. The lower end of the body clearly extends below the crotch, and although its termination is not distinct, it could be a phallic representation.

Panel ③ is on a hard sandstone layer, ca. 2 meters above the floor in the central portion of the overhang. It is immediately below a large hollow tree cast (a common occurrence in the Triassic sandstones) that extends back into the bedrock and currently houses an owl's nest. Panel ③ consists of six human figures and two simple geometric designs (Figure 5). While the owl's nest has not impacted the

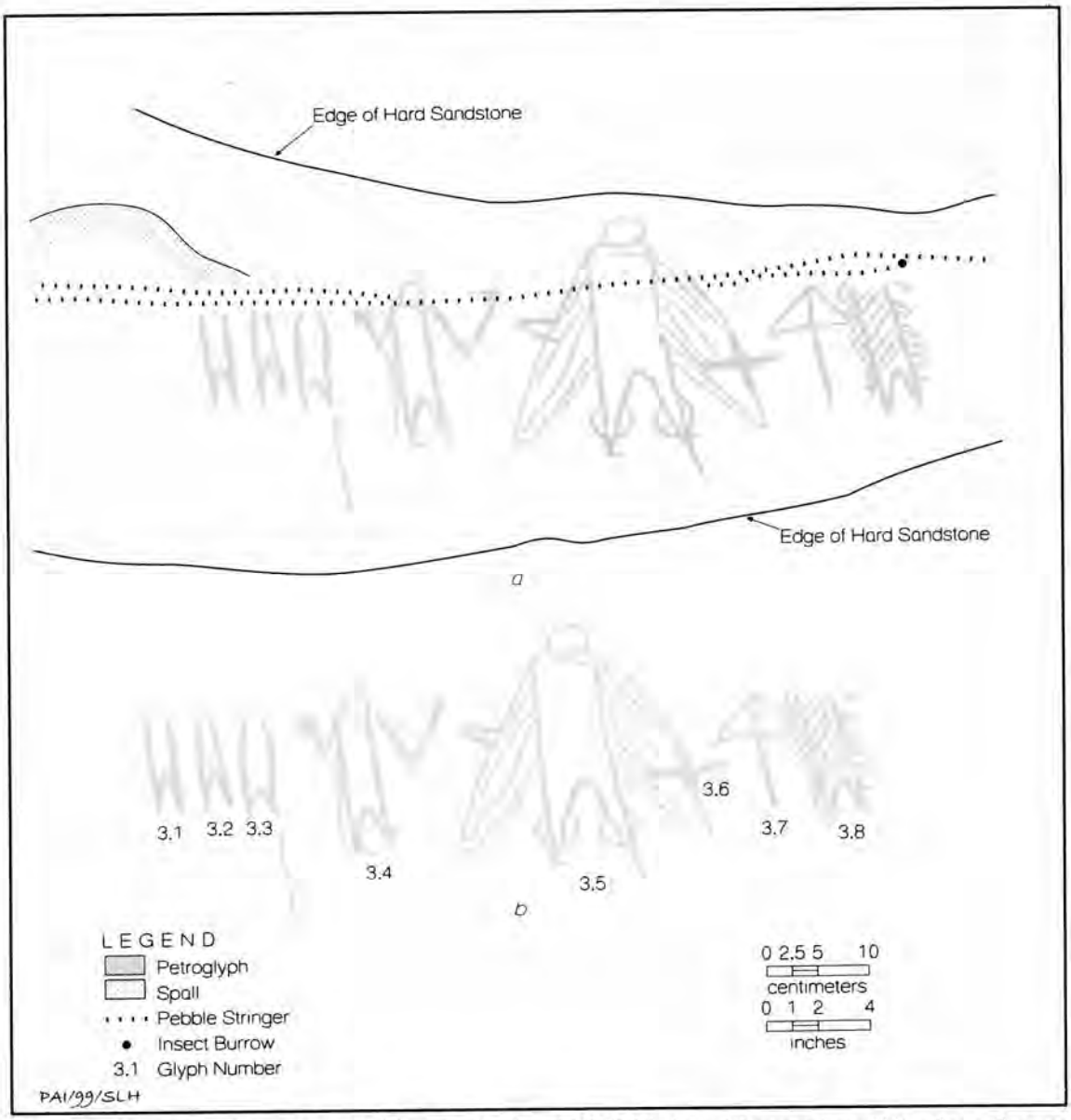

Figure 5. Line drawings of Panel ③ petroglyphs, 41KT164. (a) with recent modifications shown; (b) with recent modifications removed.

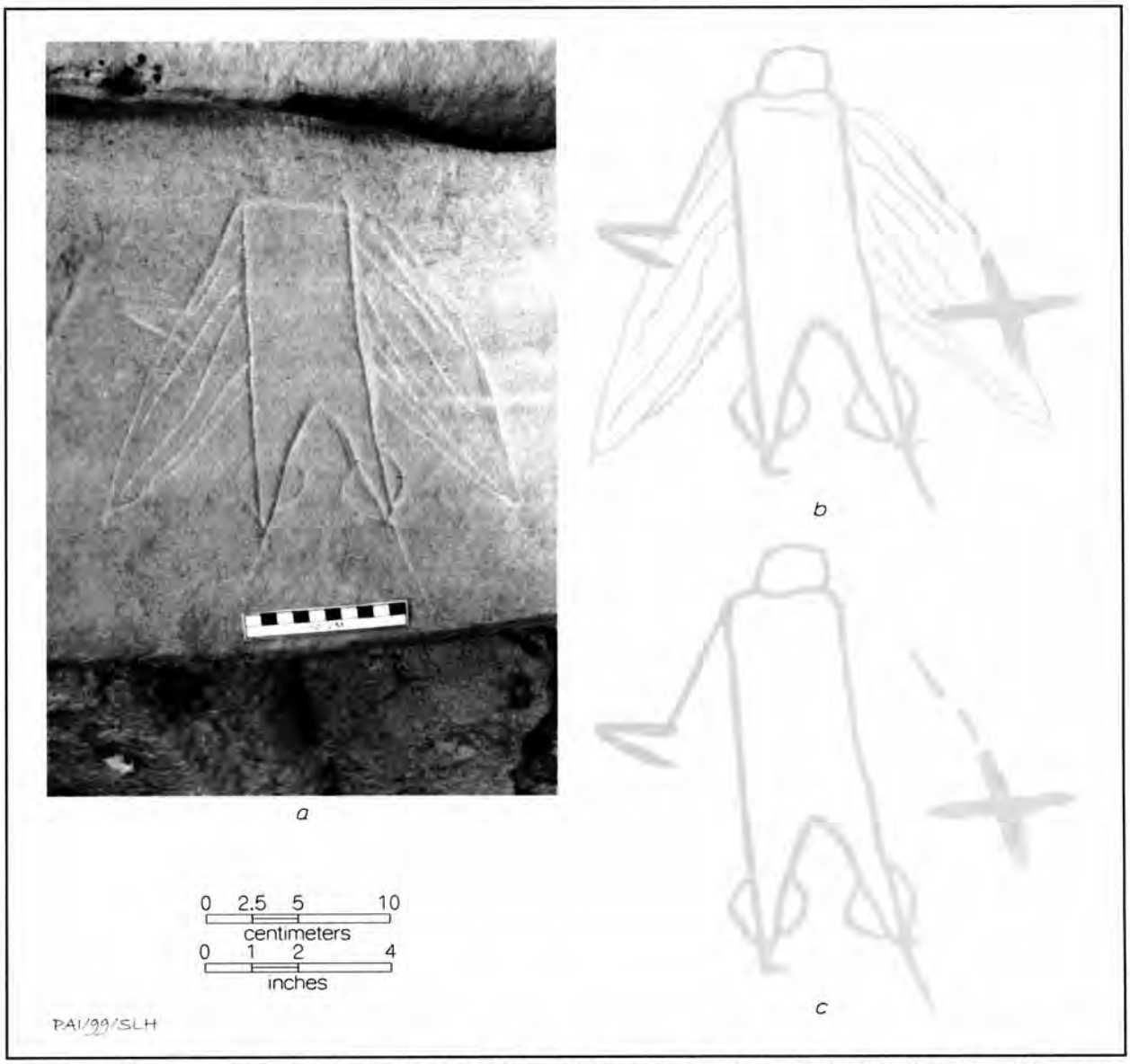

Figure 6. Close-up views of Glyph 3.5, 41KT164. (a) Photograph of glyph; (b) line drawing with recent modifications shown; (c) line drawing with recent modifications removed.

rock art panel, a pebble stringer (i.e., a horizontal line of small pebble casts along a thin conglomerate lense within the fine-grained sandstone) extending across the entire length of the panel obscures some of the glyphs. Three simple rectangular-bodied human figures (Glyphs 3.1-3.3) have upper bodies that have been truncated by spalling related to the pebble inclusions. A fourth human figure (Glyph 3.8) is similarly truncated but has parallel lines across its body and fringe hanging off it. A fifth rectangular-bodied human figure (Glyph 3.4) is complete and has a round head with up-turned arms that appear to be holding something. The sixth one (Glyph 3.5) is a larger rectangular-bodied human figure that has been altered recently. The two geometric glyphs are a simple "+" (Glyph 3.6) that may be related to the adjacent human figure (Glyph 3.5) and an upward-pointing arrow (Glyph 3.7). All of the human figures in Panel ③ are similar in style, being rectangular-bodied with triangular legs and having square shoulders with rounded heads.

While all of the glyphs are neatly executed in bold (5-7 mm-wide and 2 mm-deep) V-shaped grooves, Glyph 3.5 has been altered by the addition of elements executed in thin, fine line (1.0-1.5 mm-

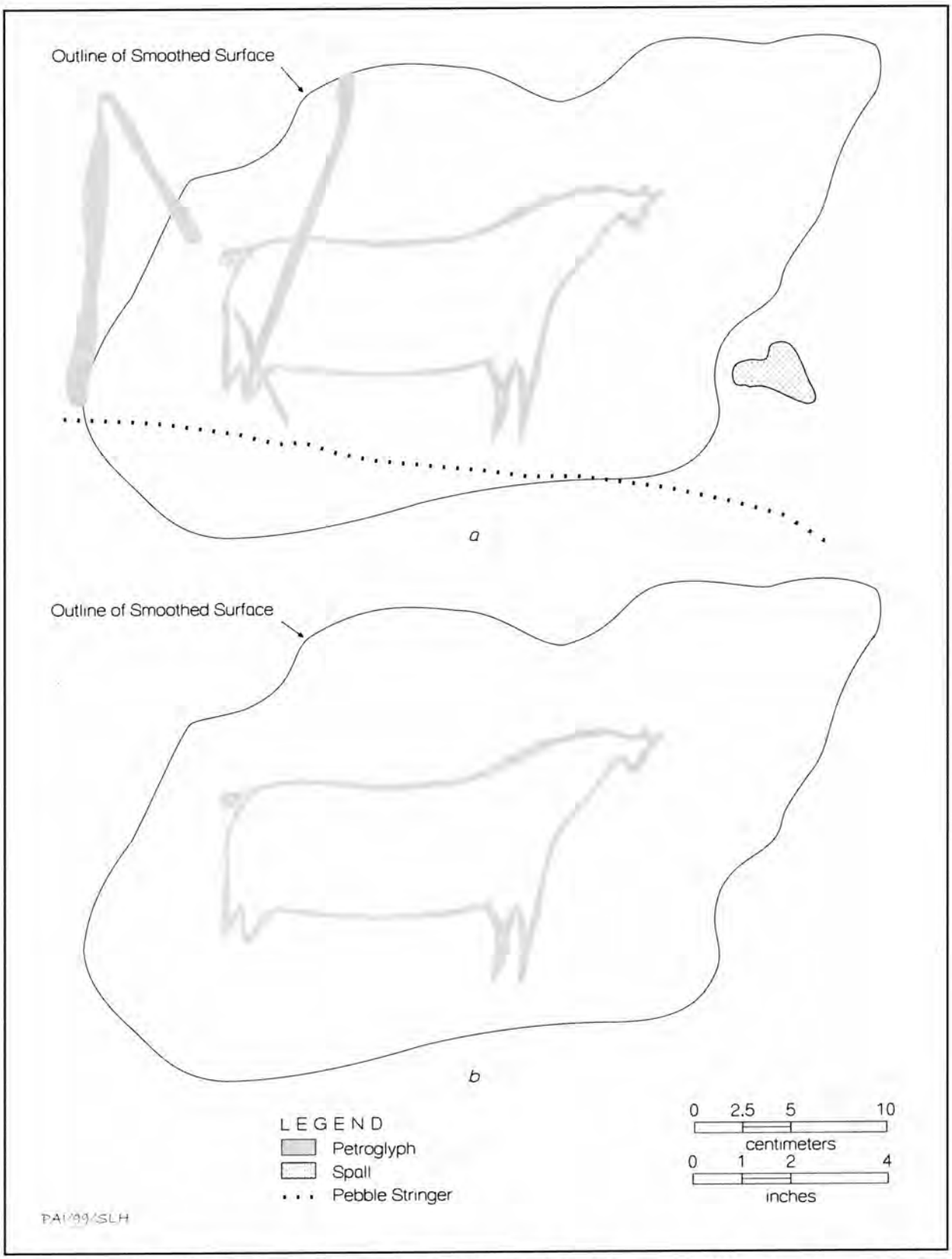

Figure 7. Line drawings of Panel ④ petroglyph, 41KT164. (a) with recent modification shown; (b) with recent modification removed.

wide and ca. 1 mm-deep) grooves that are of recent origin. It appears that the original glyph was subsequently altered by the addition of the wings (Figure 6). The only uncertainty is whether or not the original glyph had two arms or only one. The original arm on the left is obvious, but the arm on the right is problematic. It is possible that the figure did not have an arm on this side, but it is more likely that this arm extended from the shoulder downward to Glyph 3.6. While the arm on the left clearly has a recent incised line within the broader original groove, there are only subtle hints that a broader groove existed on the right side prior to the recent addition of the incised wing.

Panel ④ is a single glyph of a horse (Figure 7) [preceding page] located on the same hard sandstone layer as the Panel③ petroglyphs, 2 meters above the floor in the central portion of the overhang. The horse is a fairly simple image with short triangular legs, a short tail, and ears, but no facial features or mane are depicted. The horse glyph is composed of 4-6 mm-wide, 1.0-1.5 mm-deep, V-shaped grooves centered within a 25x40-cm smoothed area on the hard sandstone face. The natural surface of this rock is rough and undulating, and the smoothed area is an intentionally prepared flat surface. The horse is an obvious historic motif and suggests that most, if not all, of the petroglyphs in nearby Panel ③ (located 1 meter to the northwest of Panel ④) are of protohistoric or historic age. The horse glyph has been partially obscured by some recent scratchings that obviously crosscut the original glyph. The crude "N" that overlies the rear one-quarter of the horse glyph is composed of much wider (7-10 mm), U-shaped grooves of variable depths (0.5-2.0 mm) that are less patinated than the incised lines comprising the horse glyph.

Panel ⑤ is a group of six indistinct glyphs on the ceiling (Figure 8), 1.7 metersabove the floor in the central portion of the overhang shelter. The Panel ⑤ glyphs are immediately below the historic inscription "BOWEN DANIEL 1927" and include both angular and curvilinear images. They appear to be simple geometric designs, but none of the images can be identified with any degree of confidence. Because of spalling of the friable sandstone, no glyph line measurements were taken.

Panel ⑥ is a single glyph that apparently depicts the upper portion (torso and head only) of a human (Figure 9). It is located on a sloping surface inside a small cavity along on the back wall, 1.9 meters above the floor in the central portion of the overhang. This simple anthropomorphic figure has a rectangular

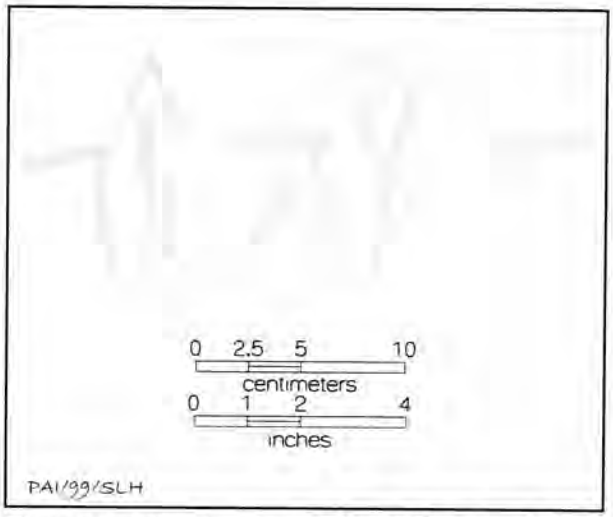

Figure 8. Line drawing of Panel ⑤ petroglyphs, 41KT164.

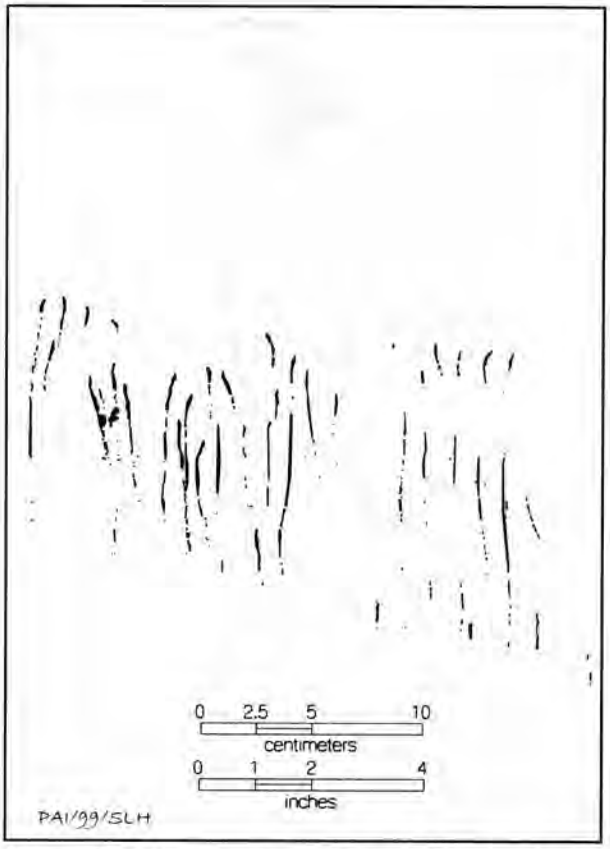

Figure 9. Line drawing of Panel ⑥ petroglyph, 41KT164.

body, square shoulders with no arms, an elongated neck, and an ovate head. It is composed of relatively thin (2-3 mm) and shallow (1.0-1.5 mm) grooves that are equally patinated as the surrounding rock face. Immediately below the glyph is a series of very faint, irregular scratches, most of which are vertical. These scratches were apparently made by birds sitting inside the small cavity that contains the glyph.

DISCUSSION

There appear to be two very different styles represented in the Native American petroglyphs at this site. The petroglyphs on Panels ① and ③ - ⑥ are rather typical of the rock art in the project area, and some or all of these glyphs may represent Plains Biographic Style imagery (Connor and Connor 1971; Keyser 1987). The Plains Biographic Style includes a wide variety of motifs produced by many different groups of protohistoric and historic Plains Indians as a means of relating personal or group biographies (e.g., personal coup recounting or depictions of significant historical events). Some variation of this rock art style is found all across the Great Plains, and it appears to be well represented in the Texas Panhandle-Plains (Boyd 1990). Unfortunately, the Plains Biographic Style in the Southern Plains is not as well documented and has not received as much attention as it has in the Northern Plains.

The Panel ① glyph is similar to simple circular petroglyphs at 41GR315, 41GR445, and 41KT68 (Boyd 1989:Figures 31c, 32f, and 39d; Boyd and Garvey 1990:Figure 59). Some similar images found in conjunction with human figures, such as the pictograph at 41GR390 (Boyd 1989: Figure 36a; Boyd and Garvey 1990:Figure 51a), are thought to represent shield-bearing warriors. Shield-bearing warriors, including pedestrian and mounted versions, are a common motif in Plains ceremonial and protohistoric art (Gebhard 1966:721; Keyser 1987:45-47), and shields are sometimes depicted alone (Gebhard 1966:723). Unfortunately, it is impossible to determine whether the isolated Panel ① glyph was intended to represent a shield. Likewise, since it is an isolated occurrence, the Panel ① glyph cannot be definitely associated, or considered contemporaneous, with any of the other petroglyphs at the site, although this could well be the case.

Panels ③ and ④ are in close proximity to each other and also are similar to other petroglyphs in the project area and elsewhere in the region. The horse glyph on Panel ④ is similar to horses at a number of sites throughout the region, although the most common horse form is open-faced and riders are quite common (Boyd 1990:Figure 11.5). Mike Bilbo (personal communication 1993) suggests that the Panel ④ horse might be a Comanche petroglyph and that it is stylistically different from Apache horse depictions. He also suggests that it may even depict a large draft horse and hence might be datable to the late 1800s when they were introduced to Texas. While intriguing, these interpretations are difficult to evaluate because there has been little systematic study of Southern Plains rock art and only recently have there been any serious attempts to define Comanche rock art (e.g., Pelon 1993).

The horse, one of the most common elements in the Plains Biographic Style (Keyser 1987:52-54), is the only glyph at the Callahan Site that definitely denotes historic influence, but stylistic attributes of the Panel ③ glyphs suggest that they also are historic. Panel ③ includes several rectangular-bodied human figures that show many similarities to the historic petroglyphs at the Ward Petroglyph Site (Boyd 1989:Figure 43; Boyd and Garvey 1990: Figure 49; Boyd 1992:Figure 5) and at the Verbena Site (Parsons 1987:Figure 11; Boyd 1992:Figure 3), both in Garza County. They also are similar to human figures at historic rock art sites in the Canadian River valley such as Mujares Creek, Brown's Camp, and Alibates Creek (Kirkland and Newcomb 1967:Plates 153, 155, and 158). Although no definite historic motifs are associated, human figures at another site in the project area, 41KT65 (Boyd and Garvey 1990:Figure 58d and e), are very similar to those at the Callahan Site, especially in the nature of the upturned arms, squared shoulders, and triangular legs.

One unusual stylistic feature in Panel ③, the parallel body lines and hanging fringe in Glyph 3.8, may be indicative of historic period petroglyphs. Rectangular-bodies with fringe on one side of the body and chevron lines in the chest area are depicted on standing and mounted figures at Mujares Creek in Oldham County and at Harrell Ranch Site A in Armstrong County (Kirkland and Newcomb 1967: Plates 153 and 157; Upshaw 1972:Plate III). These features are interpreted as representing historic Plains Indian feathered headdresses (i.e., war bonnets) and bone bead breastplates, respectively (Kirkland and Newcomb 1967:212; Upshaw 1972:59). Two stand-

ing figures in a historic petroglyph panel at Brown's Camp in Oldham County are even more similar in that they have fringe coming off both sides of their bodies (Kirkland and Newcomb 1967:Plate 155). In this case, the parallel fringe lines hanging off the figure probably represent some type of clothing. Based on these comparisons, it is suggested that the parallel body lines and hanging fringe seen in Glyph 3.8 at the Callahan Site represent clothing and that the image is of protohistoric or historic age. Bilbo (personal communication 1993) also suggests that Glyph 3.8 might be a "Comanche filiform element."

None of the Panel ⑤ images can be identified positively, but Glyph 5.2 appears similar to other simple human figures in the project area (e.g., Boyd 1989:Figure 35a). The human form in Panel ⑥ is consistent with the simple rectangular-bodied human petroglyphs that are common in the region. While the geometric glyphs in Panel ⑤ are not particularly distinctive, they are consistent with the wide range of geometric designs found throughout the project area (e.g., Boyd 1989:Figures 31-34).

The Panel ② petroglyphs, however, are quite different from all of the others at this site and elsewhere in the area. While the other petroglyphs were executed using only narrow V- or U-shaped grooves, the Panel ② glyphs also include deep wide grooves and broad areas of shallow smoothing. While the limbs, fingers, and toes are relatively narrow grooves, they are still generally wider than those in most of the petroglyphs throughout the region, and the main bodies and faces of these anthropomorphs are depicted by deep wide grooves or as smoothed areas. This combination of petroglyph techniques (i.e., variable line widths and smoothing) has not been observed at any sites in Garza County nor is it described for any other sites in the region. Although rubbing or smoothing of the interior of historic petroglyphs has been observed in some Texas Panhandle Plains sites (Boyd 1992:84), these images are outlined by incised lines, and the smoothing technique observed at the Callahan Site (with no incised lines outlining the smoothed area) appears to be unique.

The Panel ② glyphs not only are technically different but also are stylistically unusual and have a Southwestern look to them. Several rock art researchers agreed that these images probably represent some degree of Southwestern influence or might even be the work of some displaced Southwestern peoples. Polly Schaafsma (personal communication 1993) notes that this type of rectilinear stick figure is a common, perhaps diagnostic, attribute of Anasazi rock art between ca. A.D. 900 and 1300. The Panel ② figures exhibit stylistic attributes which, when taken individually, may not appear particularly diagnostic but when viewed in combination are rather suggestive of Anasazi influence. While no systematic review of all of the pertinent Southwestern rock art literature was attempted, a few important similarities warrant mention.

One of the more distinctive traits of the Panel ② figures is the orientation of their arms and legs (extended and bent at right angles), which is similar to that observed in animal and human representations found in rock art throughout much of New Mexico. This posture most commonly occurs with stick figure representations but also occurs with broad rectangular-bodied figures. Anasazi rock art in Northwestern New Mexico (generally pre-A.D. 1300) has many similar stick figures depicting animals (lizards are most common) and humans with arms and legs bent at right angles (e.g., Schaafsma 1980:Figures 97, 98, and 99, 1992:Figures 9, 11, 14, 20, and 24-26). These types of stick figures are particularly abundant at Chaco Canyon (e.g., Steed 1980:8, 31, 35, 40, 51, 78, 121). Although less frequent, a similar arm and leg orientation is seen in Anasazi rock art of north-central New Mexico (generally post-A.D. 1300) attributed to the Rio Grande Style (e.g., Boyd and Ferguson 1988:Figures 21b and 26d; Crotty 1990:Figure 12.11; Schaafsma 1980: Figure 201, 1992:Figures 163 and 167; Patterson-Rudolph 1993:Figures 31, 40, and 58). Many of these Southwestern stick figures clearly depict male and female personages, as may be the case in the Panel ② Callahan Site petroglyphs. Schaafsma (1992: 13) notes that Pueblo II and III period glyphs sometimes depict female stick figure anthropomorphs along with humpbacked and/or phallic fluteplayers in fertility scenes.

Another possible Anasazi attribute is the antennae-like projections depicted on the heads of the Panel ② figures, particularly Glyph 2.2. Antennae-like projections are present in Anasazi petroglyphs (e.g., Boyd and Ferguson 1988:Figures 21 and 22; Schaafsma 1992:Figure 20) and particularly in depictions of fluteplayers (e.g., Steed 1980:87-88; Patterson-Rudolph 1993:Chart 2).

Mike Bilbo (personal communication 1993)

suggests that, while the Panel ② glyphs look Anasazi and the up-raised arms suggest shamanic depictions, the face on Glyph 2.1 has a Jornada look to it. While there are no strong parallels, its face is highly stylized and is vaguely reminiscent of Jornada Style masks and anthropomorphs, especially the "google-eyed" figures which are highly variable but characteristically have large eyes as the dominating and sometimes exclusive facial feature (Crotty 1990:148-150; Schaafsma 1980:203, 1992:67). In the Jornada Style, however, these large-eyed faces generally occur with wide rectangular-bodied figures. Stick figures that are quite similar to these also are found in the Jornada Style, although less frequently than in Anasazi rock art. Such similarities should be expected, however, since Anasazi rock art (e.g., the Rio Grande Style) may have evolved directly out of the Jornada Style (Schaafsma 1992:116). Throughout the Jornada Mogollon area stick figures are found that exhibit the same posture (i.e., extended right-angle arms and legs) as the Panel② glyphs at the Callahan Site (e.g., Jackson 1938:Plate CCLLII-8; Steed 1976:Drawings 44 and 115, 1978:Drawing 98; Schaafsma 1980: Figure 155).

An alternative theory, suggested by Dr. Kay Sutherland (personal communication 1993), is that these images are not distinctively Anasazi nor Jornada Mogollon but that they could represent the work of protohistoric or historic Apaches. Sutherland feels that, along with the distinctive posture, the three- and four-fingered hands might also be a diagnostic Apachean attribute because of similarities with rock art at Hueco Tanks known to be of Mescalero Apache origin (e.g., Kirkland and Newcomb 1967:Plate 125 [site 2-C], Plate 128 [sites 6-C and 6-D], Plate 147 [site 26-A]). Since the Apaches came under a great deal of Anasazi influence, their rock art should be expected to show a strong Southwestern influence rather than a Plains influence, which seems to be the case (Kirkland and Newcomb 1967:189-190).

The possibility that some of the Callahan Site petroglyphs are Apachean is intriguing because two nearby archaeological sites, the Longhorn and Headstream sites (Boyd et al. 1993), contain evidence of protohistoric occupations. These sites, which yielded large amounts of late Puebloan pottery (e.g., primarily Rio Grande Glaze V and similar redwares, along with Tewa Polychrome), are located in the valley about 0.5 km south of, and clearly visible from, the Callahan Site. Both sites contain contemporaneous and similar materials, but the Longhorn produced evidence indicating that it was a tipi encampment. The occupations were primarily during the seventeenth century, a time when various Apachean groups are known to have been in the Southern Plains and actively participating in the Plains-Pueblo interactions (Boyd et al. 1993:241-284). While it is tempting to propose a connection between the Panel ② rock art, the nearby protohistoric camps, and seventeenth-century Apaches, there is no concrete evidence to support such a theory. It is notable that the two figures in Panel ② are situated so that they look downward into the Grape Creek valley, directly at the location of the Longhorn and Headstream sites.

There are always inherent problems connecting rock art, archaeological remains, and ethnic groups. The ethnicity of the occupants of the nearby sites cannot be proven since all of the evidence for an Apache affiliation is circumstantial (i.e., based solely on ethnographic accounts). Further, much more research is needed to demonstrate convincingly that the Panel ② glyphs at the Callahan Site were made by Apachean peoples as opposed to some displaced Anasazi or Mogollon individual or some Plains group that interacted with Anasazi or Mogollon peoples.

To further confuse matters, at least one of the stylistic conventions evident in Panel ② is unknown, or at least very rare, in the Southern Plains and in the Southwest. The rib-like appendages on one side of its body are an intriguing feature of Glyph 2.1, and they appear to represent some form of "x-ray" image or "skeletonization" found in many parts of the world, such as in Australian Aborigine rock art (Kirkland and Newcomb 1967:31) and in the Pecos River Style pictographs in Texas (Boyd 1993; Carolyn Boyd, personal communication 1993). Mike Bilbo (personal communication 1993), noting this attribute, suggests that Glyph 2.1 is simlar to the "rib cage" appendages in Mexican Huichol art (e.g., Furst 1986:220-221). In most cultures, skeletonization is considered to be a representation of an individual, frequently a shaman, in an altered state (i.e., trance) or someone who had made the journey to the spirit world (Boyd 1993). While intriguing, the possible cultural affiliation of symbolic significance of Glyph 2.1 is far from clear. At this point, it would be premature to invoke a shamanic trance-vision interpretation, such as that proposed for Huichol and Lower Pecos art (e.g., Kirkland and Newcomb 1967:79-80; Furst 1986:217-225; Boyd 1993), as an explanation for these isolated images in the Texas Plains.

CONCLUSIONS

A strong Southwestern influence is well represented in the Late Prehistoric and Protohistoric archaeology of the Texas Panhandle-Plains. Beginning with the appearance of non-local brownware ceramics (and possibly other traits such as pithouse styles) before A.D. 500, some form of Jornada Mogollon influence is present in the region until at least A.D. 1200-1400. Following the demise of the Jrnada Mogollon culture, the Southwestern influence in the Southern Plains seems to have shifted to the Anasazi as they entered into a long and intensive trade and raid relationship with various Plains groups that lasted from ca. A.D. 1200 until the nineteenth century (see Boyd et al. 1993). Imported objects found throughout the Southern Plains, such as Puebloan ceramics, shell beads from the Pacific coast, and New Mexican obsidian and turquoise, hint at the intensity of the exchange between the Plains peoples and the Southwestern cultures.

Southwestern influence in the Texas Panhandle-Plains also is present in the form of isolated rock art occurrences. Although their ages are unknown, Southwestern-style fluteplayer images (often generically called Kokopelli) include a red monochrome pictograph at the Giant Boulder Site in Randall County (Upshaw 1972:76, 85-89) and a petroglyph at the O.S. Ranch or Yellowhouse Crossing Mesa Site in Garza County (Riggs 1969). In one case, Puebloan Indians are known to have produced rock art at a Texas Panhandle site. While U.S. Army Lieutenant Whipple was encamped at a place called Rocky Dell (in Oldham County) during an 1853 surveying expedition, a group of Pueblo Indians visited the site and told him that their ancestors had, in Whipple's words, "recorded their thoughts and deeds upon the rocks" (Whipple et al. 1856:38). Among the pictographs that the Pueblo Indians attributed to their people is a 13-ft-long plumed serpent, "the great watersnake" of Pueblo mythology (Whipple et al. 1856:38; Kirkland and Newcomb 1967:203-208). The plumed serpent and the fluteplayer commonly are depicted in the rock art of the Southwest and often are associated with such themes as water, rainmaking, plant germination, and fertility of humans and animals (Schaafsma 1980: 136, 140-141, 238, 1992:19, 64, 67, 100, 111).

Clearly, the presence of Southwestern style images in Southern Plains rock art is of considerable interest to rock art scholars, archaeologists, and ethnographers studying the interaction between the Plains and Pueblo peoples. Even the general public finds the subject fascinating, as evidenced by a popular article entitled "In Search of Kokopell" in *Texas Parks and Wildlife* magazine (Flores 1992). Given the paucity of recorded rock art sites in the Texas Panhandle-Plains (see Boyd 1990:133-137), the small percentage of sites that contain motifs of possible Southwestern origin or influence is of great importance for understanding the nature of the Plains-Pueblo relationship.

The Callahan Site is an unusual Panhandle-Plains rock art site in that it contains both Plains and Southwestern style petroglyphs. The majority of the images appear to represent typical Plains iconograpy, and some correspond to the historic Plains Biographic Style, but the Panel ② glyphs have a decidedly Southwestern look to them. They do not fit clearly into any single Southwestern rock art style, however, and specific attributes of these glyphs might be considered representative of several different styles, while other attributes do not seem to fit any particular style. The inability to relate these images to a specific style may be due in part to the complexity and interrelatedness of much of the Southwestern rock art. It also is likely that Southwestern motifs found in peripheral Plains areas may not represent pure and unadulterated Southwestern iconography. Perhaps it is more realistic to expect that at least some of these images might be slightly, or even greatly, modified versions of Southwestern imagery. At this point, it would be purely speculative to suggest whether such images were produced by wandering or displaced Southwestern peoples or by Southwestern-influenced Plains peoples. Thus, it does not seem necessary or desirable to attempt to force these petroglyphs into a Southwestern rock art classification or attribute them to a specific ethnic group. The Callahan Site is certainly a significant addition to the regional data base, and it is hoped that continued research will enable a better understanding of the Southwestern images found there.

ACKNOWLEDGMENTS

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REFERENCES CITED

Bilbo, Michael

1986 Return to Cowhead Mesa: The Proposed Cowhead Mesa National Register Archeological District. *Transactions of the 21st Regional Archeological Symposium for Southeastern New Mexico and Western Texas* 21:1-23. El Paso Archeological Society, El Paso.

Boyd, Carolyn

1993 Pictographic Evidence of the Peyote Cult in the Lower Pecos Archaic. Paper presented at "Shamanism and Rock Art: Interpretations from Around the World," a public lecture series sponsored by Trinity University and the Witte Museum, San Antonio, Texas, February 26-27, 1993.

Boyd, Douglas K.

1989 Rock Art Resources. Chapter 10 in *Phase I Cultural Resources Investigations at Justiceburg Reservoir on the Double Mountain Fork of the Brazos River, Garza and Kent Counties, Texas*, by Douglas K. Boyd, Martha Doty Freeman, Michael D. Blum, Elton R. Prewitt, and J. Michael Quigg, pp. 157-194. Reports of Investigations No. 66. Prewitt and Associates, Inc., Austin.

1990 Aboriginal Rock Art of Justiceburg Reservoir: A Regional Perspective for the Texas Panhandle-Plains. Chapter 11 in *American Indian Rock Art* 16:123-145. Proceedings of the International Rock Art Conference and 16th Annual Meeting of the American Rock Art Association.

1992 Historic Native American Rock Art of Garza County, Texas. In *Guidebook to the Ethnohistory and Selected Protohistoric Sites of the Southern Plains*, edited by Eileen Johnson, pp. 69-89. Lubbock Lake Landmark Quaternary Research Center Series, No. 3. Museum of Texas Tech University, Lubbock.

Boyd, Douglas K., and Bobbie Ferguson

1988 *Tewa Rock Art in the Black Mesa Region: Cultural Resources Investigations, Velarde Community Ditch Project, Rio Arriba County, New Mexico*. U.S. Department of the Interior, Bureau of Reclamation, Southwest Region, Amarillo.

Boyd, Douglas K., and Colin M. Garvey

1990 Investigations at Rock Art Sites. Chapter 7 in *Phase II Investigations at Prehistoric and Rock Art Sites, Justiceburg Reservoir, Garza and Kent Counties, Texas*, by Douglas K. Boyd, James T. Abbott, William A. Bryan, Colin M. Garvey, Steve A. Tomka, and Ross C. Fields, pp. 209-234. Reports of Investigations, No. 71. Prewitt and Associates, Inc., Austin.

Boyd, Douglas K., Jay Peck, Steve A. Tomka, and Karl W. Kibler

1993 *Data Recovery at Justiceburg Reservoir (Lake Alan Henry), Garza and Kent Counties, Texas: Phase III, Season 2*. Reports of Investigations, No. 88. Prewitt and Associates, Inc., Austin.

Boyd, Douglas K., Jay Peck, Steve A. Tomka, Karl W. Kibler, and Martha Doty Freeman

1994 *Data Recovery at Lake Alan Henry (Justiceburg Reservoir), Garza and Kent Counties, Texas: Phase III, Season 3.* Reports of Investigations, No. 93. Prewitt and Associates, Inc., Austin.

Connor, Stuart W., and Betty Lu Connor

1971 *Rock Art of the Montana High Plains.* The Art Galleries, University of California, Santa Barbara.

Crotty, Helen K.

1990 Formal Qualities of the Jornada Style and Pueblo IV Anasazi Rock Art: A Comparison with Implications for the Origins of Pueblo Ceremonialism. Chapter 12 in *American Indian Rock Art* 16:147-166. Proceedings of the International Rock Art Conference and 16th Annual Meeting of the American Rock Art Association.

Flores, Dan

1992 In Search of Kokopelli: Vanishing Rock Art of the Texas High Plains. *Texas Parks and Wildlife* 50(1):28-35.

Furst, Peter T.

1986 Shamanism, the Ecstatic Experience, and Lower Pecos Art: Reflections on Some Transcultural Phenomena. Chapter 7 in *Ancient Texans: Rock Art and Lifeways Along the Lower Pecos* edited by Harry J. Shafer, pp. 210-225. Texas Monthly Press, Austin.

Gebhard, David

1966 The Shield Motif in Plains Rock Art. *American Antiquity* 31(5):721-732.

Gustavson, Thomas C., and William W. Simpkins

1989 *Geomorphic Processes and Rates of Retreat Affecting the Caprock Escarpment, Texas Panhandle.* Reports of Investigations No. 180. Bureau of Economic Geology, The University of Texas at Austin.

Jackson, A. T.

1938 *Picture-writing of Texas Indians.* Bureau of Research in the Social Studies, Study No. 37. University of Texas Publication No. 3809.

Keyser, James D.

1987 Lexicon for Historic Plains Indian Rock Art: Increasing the Interpretive Potential. *Plains Anthropologist* 32(115):43-71.

Kirkland, Forrest, and W. W. Newcomb, Jr.

1967 *The Rock Art of Texas Indians.* University of Texas Press, Austin.

McGowen, J. H., G. E. Granata, and S. J. Seni

1979 *Depositional Framework of the Lower Dockum Group (Triassic), Texas Panhandle.* Reports of Investigations No. 97. Bureau of Economic Geology, The University of Texas at Austin.

Parsons, Mark L.

1987 Plains Indian Portable Art as a Key to Two Texas Rock Art Sites. *Plains Anthropologist* 32(117):257-274.

Patterson-Rudolph, Carol

1993 *Petroglyphs and Pueblo Myths of the Rio Grande.* Avanyu Publishing, Inc., Albuquerque.

Pelon, Linda Nash

1993 An Attempt to Use Rock Art as an Independent Source in Ethnohistorical Research. Chapter 10 in *Issues in Penatuhkah Comanche Ethnohistory*, pp. 80-90. Unpublished Master's thesis in Anthropology, The University of Texas at Arlington.

Riggs, Aaron D., Jr.

1969 Yellowhouse Crossing Mesa Petroglyphs. *Transactions of the Fifth Regional Archeological Symposium for Southeastern New Mexico and Western Texas* 5:25-33. Llano Archeological Society, Portales.

Schaafsma, Polly

1980 *Indian Rock Art of the Southwest*. School of American Research, Southwest Indian Art Series. University of New Mexico Press, Albuquerque.

1992 *Rock Art in New Mexico*. University of New Mexico Press, Albuquerque.

Silver, Constance S.

1985 *The Rock Art of Seminole Canyon State Historical Park: Deterioration and Prospects for Conservation*. Publication No. PWD-BK-4503-082C-2/85. Texas Parks and Wildlife Department, Austin, Texas.

Steed, Paul P., Jr.

1976 Rock Art on Alamo Mountain, Otero County, N. M. *The Artifact* 14(4): entire volume.

1978 Rock Art on Alamo Mountain, Otero County, N. M.: Part II. *The Artifact* 17(3):entire volume.

1980 Rock Art In Chaco Canyon. *The Artifact* 18(3):entire volume.

Turpin, Solveig A.

1982 *Seminole Canyon: The Art and the Archeology*. Research Report No. 83. Texas Archeological Survey, The University of Texas at Austin.

Upshaw, Emily

1972 *Palo Duro Rock Art: Indian Petroglyphs and Pictographs*. Unpublished master's thesis, West Texas State University, Canyon.

Whipple, A. W., Thomas Eubank, and William W. Turner

1856 Report Upon the Indian Tribes. In *Reports of Explorations and Surveys to Ascertain the Most Practicable and Economical Route for a Railroad from the Mississippi River to the Pacific Ocean*. 33rd Congress, 2nd Session, Senate Executive Document No. 78. Government Printing Office, Washington, D.C.

USE OF CERAMICS IN RECONSTRUCTING EARLY SAN ANTONIO HISTORY

Anne A. Fox

ABSTRACT

Historical archaeology can often be used to enhance the recorded history of an area. The combination of archaeology with historical and archival research sometimes produces surprising information that could not be obtained from one discipline alone. This paper reports such a case where the blending of archaeological research with written history and archival records is beginning to fill a time gap in the story of life in San Antonio between the 1820s and the 1840s.

Historical archaeology often brings together the work of historians, archivists, and anthropologists in order to understand what is found in a site, and to then relate these findings to the general overall picture of life in the area of the site at the time it was occupied. This is particularly true of our work in San Antonio, where detailed discussions by historians attempt to reconstruct important historical events such as the battle of the Alamo, but little is known about the people who lived here at the time and what their lives were like. We have been privileged to excavate a large number of 18th and 19th century sites. It is now time to concentrate on the people who were here.

Archaeologists have been finding a large assortment of English ceramics in San Antonio sites since the first excavations in the late 1960s at the Spanish missions. Extensive excavations at Mission San Juan Capistrano (Schuetz 1968) provided the first opportunity to identify and study these ceramics in some detail. After secularization of the missions in the 1790s, mission Indian descendants and numerous Spanish citizens continued to live in the San Juan mission community until the mid-19th century, continuing the traditions of irrigated farming and cattle raising established by the Franciscans. These ceramics consisted almost entirely of pearlwares decorated in various ways. We speculated that the source of these ceramics was probably merchants in town, and since Anglo American merchants began to arrive in the area around 1840, it seemed logical that the ceramics dated to that time. This date also agreed with the rapid opening of Texas ports to ships from the United States and Europe in 1840 and 1841. As we read articles and site reports describing and discussing these ceramic patterns, it was apparent that at least some of them had been made a decade or more earlier than 1840, but it seemed possible that what the mission inhabitants had were the left-over stock which probably had been sold for bargain prices to the village inhabitants.

In 1985 excavations in the LaVillita section of San Antonio (Labadie 1986) turned up another large collection of nearly identical pearlware patterns. This particular collection was valuable in that many of the vessels could be nearly completely restored, giving us a better idea of whole patterns and vessel shapes. This time, we felt we had a better grasp of the date of the collection, since it was found on property that had belonged to Wilson Riddle, a merchant who had a store across the river near the main plaza of the town. Riddle had arrived in San Antonio in 1839 (Chabot 1937), so we felt the collection probably dated soon after that. We felt pretty secure in our dating, since it seemed to agree with our first estimates of the San Juan ceramics.

Our smug confidence came to an abrupt end when excavations were carried out on the plaza in front of the Alamo church in 1988 (Fox 1992). Excavating the defensive trench around the original mission entrance gate, we found that it had been backfilled with the contents of the trash pile of the mission and later inhabitants. Since we had an exact date for the trench-filling episode in 1836, there could be no doubt that the contents had to predate that time. What did we find in the fill? We found the same English ceramics that had been at LaVillita and Mission San Juan. Where did they come from and how did they get there?

Kathleen Deagan has remarked on "historical archaeology's unique capability of gaining simultaneous access to the past through multiple, independent categories of evidence" (Deagan 1988:8). It seemed time to pursue some of these multiple, independent categories.

We started with the historians. Amateur and professional historians have been writing about Texas history for over a hundred years, but apparently no one has taken a detailed, orderly interest in what was going on between San Antonio and the coast during the 1820s and 1830s. We began to create a chronology of historical facts about the coastal towns and ports of that period. A study of early 19th century Texas maps helped to focus our interest on an area southwest of Galveston Island at the mouth of the Colorado River. Called in early Spanish times San Bernard, this was more of a region than a port (Webb 1952:548) and consisted of an extensive bay protected by a barrier island, which today is Matagorda Bay. The region was opened to trade in 1809 with careful stipulations by General Bernardo Bonavía. Exports would be free, but only the products of Spain and her new world dominions could be imported. The sole exceptions were "instruments and implements corresponding to agriculture and the arts" and building materials. Importers were to pay 6% duty on Spanish goods and 33% on foreign goods (Faulk 1964:98-99).

Apparently from this time, and perhaps even before, Texas merchants used any convenient landing along the bay shore. Since the area was full of small inlets and bays and there were virtually no inhabitants in the region, the rules so carefully considered by General Bonavía were ignored. The nearest customs officer was the commandant at Velasco at the mouth of the Brazos. One can imagine that few if any merchants bothered to stop there on their way to San Bernard. Probably in an attempt to gain control of the illegal importation, in 1827 the Mexican government closed the port of Matagorda at the mouth of the Colorado River. However, the local objections were so strong that it was reopened within a year (Poyo and Hinojosa 1991:20). These actions were probably of little consequence to the ships' captains who had habitually used any quiet cove along the bay to off-load their cargo onto ox carts for the trip to San Antonio.

It became evident from the hints appearing in the various accounts that unsupervised shipping had been going on for quite a period of time throughout the region. Since there was no official inspection of these shipments, it seems entirely possible that they included ceramics as well as other goods originating in England, for by this time they were coming into New Orleans in quantity.

Who were these merchants and how and where were they operating? For answers to these questions, we turned to the Census of 1830 (White 1983) and made a list of San Antonians who were identified as merchants. An interesting list began to take shape. Nearly all of the major families of the town were represented. Present-day descendants of some of these families might be surprised at what we found as we continued our research. As we checked these individuals against a name guide to the Spanish archives (Benavides 1989), we found numerous accounts of seizure of goods by government officials. In each case, page after page of inventory listed goods of European origin, as well as products of Spain and Mexico. Some shipments were even identified as imported from the United States. If this many shipments were caught, one can only wonder how many quietly slipped through. English ceramics were certainly a part of this trade, although it may be difficult to pick them out of the inventories.

A very few lists of the inventories of local merchants who were operating after 1840 are presently available. Now all we have to do is to transcribe and translate these pages and pages of inventories, and we should have the first true picture of what was coming into San Antonio before 1840. It will be a tremendous chore, but well worth the effort. We will then have a true picture of how the inhabitants of San Antonio were living in the first quarter of the 19th century—what objects and materials they had available and from which countries these things were coming.

REFERENCES CITED

Benavides, Adan, Jr., compiler and editor
1989 *The Bexar Archives (1717-1836) A Name Guide*. University of Texas Press, Austin, for The University of Texas Institute of Texan Cultures at San Antonio.

Chabot, Frederick C.
1937 *With the Makers of San Antonio*. Privately published, San Antonio.

Deagan, Kathleen A.
1988 Neither History Nor Prehistory: the Questions that Count in Historical Archaeology. *Historical Archaeology* 22(1):7-12.

Faulk, Odie B.
1964 *The Last Years of Spanish Texas, 1778-1821*. Mouton & Company, London.

Fox, Anne A.
1992 *Archaeological Investigations in Alamo Plaza, San Antonio, Bexar County, Texas, 1988 and 1989*. Center for Archaeological Research, The University of Texas at San Antonio, Archaeological Survey Report 205.

Labadie, Joseph H., assembler
1986 *LaVillita Earthworks: Preliminary Report of Investigations of Mexican Siege Works from the Battle of the Alamo, San Antonio, Texas*. Center for Archaeological Research, The University of Texas at San Antonio, Archaeological Survey Report 159.

Poyo, Gerald E. and Gilberto M. Hinojosa, editors.
1991 *Tejano Origins in Eighteenth-Century San Antonio*. University of Texas Press, Austin.

Schuetz, Mardith K.
1968 *The History and Archeology of Mission San Juan Capistrano, San Antonio, Texas, Vol. I.* State Building Commission Archeological Program, Report 10, Austin.

Webb, Walter Prescott
1952 *The Handbook of Texas, Vol. I.* The Texas State Historical Association, Austin.

White, Gifford
1983 *1830 Citizens of Texas*. Eakin Press, Austin.

A HIGHLY SERRATED ARROW POINT FORM FROM FALCON RESERVOIR, ZAPATA COUNTY, TEXAS

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

ABSTRACT

An unidentified, highly serrated arrow point form from sites at Falcon Reservoir is presented. The characteristics of this form are discussed and comparisons are made with several of the established arrow point types that occur in the same sites. A second unidentified arrow point form that occurs in the same sites is described and the distributions of the two new arrow point forms are compared. Preliminary information on the geographic locations of apparent cultural boundaries at Falcon Reservoir was obtained in the course of this paper.

INTRODUCTION

"Northern" and "southern" portions of Falcon Reservoir are referred to in this paper. These terms, separating approximate geographic areas of the reservoir as well as perceived areas of cultural difference, are marked by the reduction or increase in the numbers of two arrow point types and by the presence or absence of two arrow point forms. Preliminary information (derived in the course of this paper from three shoreline collections) suggests that the Arroyo Clareño (Figure 1) marks a cultural and so (for purposes of this paper) the geographic division between northern and southern portions of the reservoir in Texas. Continued investigation could conceivably adjust the division slightly south.

In the senior author's records, the unidentified, serrated arrow point form presented here was initially called Revilla (for the Spanish colonial town on the Rio Salado), but it is most recently referred to as Form 4. The latter is believed to be suitable for this paper and will be used hereafter.

The first known Form 4 specimen (Figure 2 J) was found at 41ZP154 in 1971. By 1983, seven specimens had been found in two sites (41ZP154 and 41ZP83) only a third of a mile apart. During the mid 1980s, the senior author took several Form 4 specimens (for comments) to one of the Southern Coastal Corridor Palavers at Corpus Christi where it was apparent that they were completely unknown in other parts of the state. Later, Tom Hester (personal communication 1993) remarked on the possibility that there were Form 4 points in the Pat Riley Family Collection at TARL (the Riley Collection is largely from the Rio Alamo and Mier). However, C. K. Chandler examined the Riley Collection in 1994 and there were no Form 4 specimens. At this time, Richard McReynolds began drawing known examples specifically for this project.

Following subsequent drops in the levels of Falcon Lake, it was learned that Form 4 points had been found in other areas of the reservoir and Chandler (1995) published a request for information. Eventually, seven individuals loaned fifteen additional Form 4 points to the authors; they also provided valuable information on distribution. This made a total of twenty-two available specimens found by nine individuals while surface collecting in eroded sites; twenty-one are illustrated (Figure 2A-U).

South Texas county map showing counties referred to in text. Mier is in Tamaulipas, Mexico

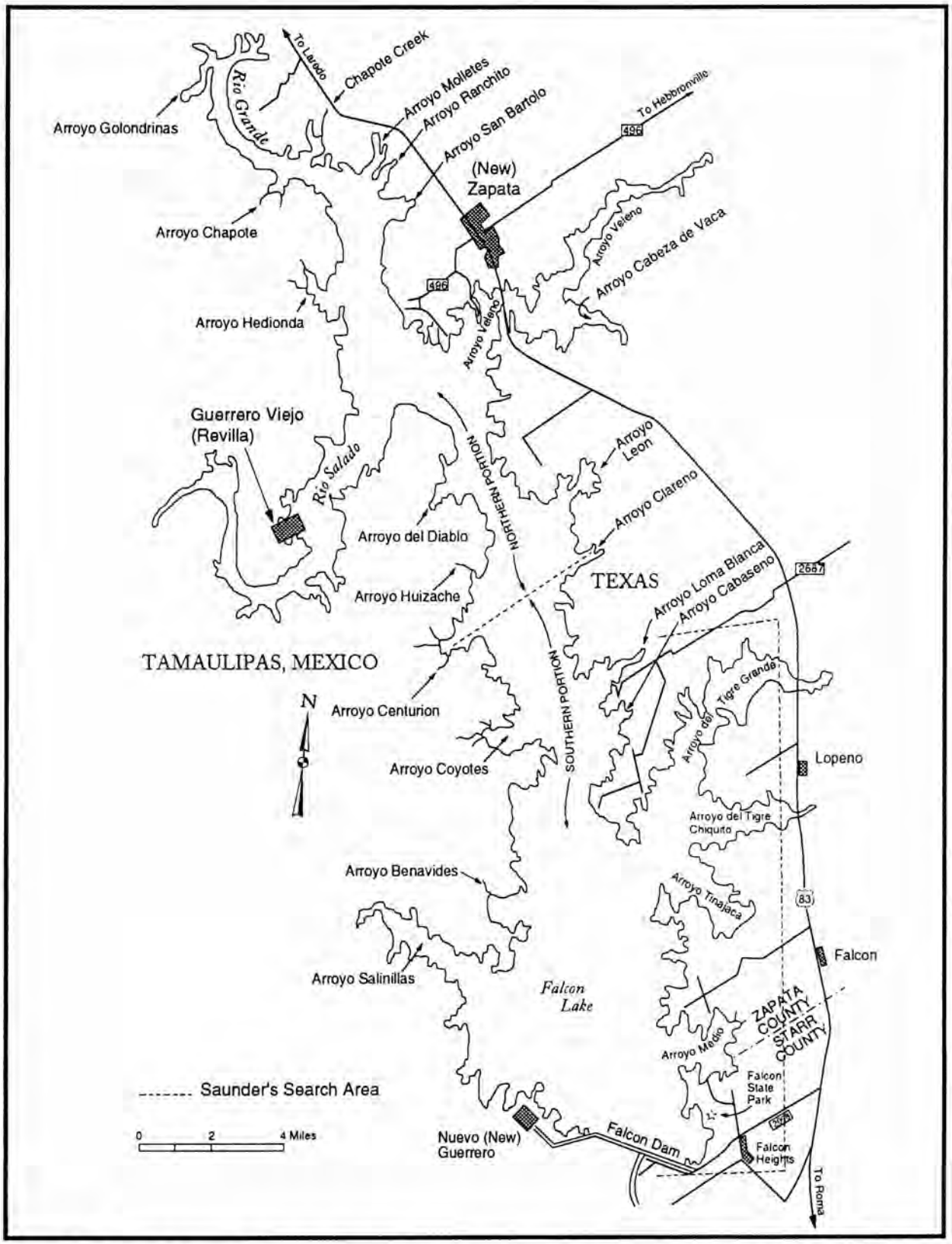

Figure 1. Map of Falcon Reservoir showing northern and southern portions of the lake, Saunder's Search Area (from Arroyo Loma Blanca to Falcon Dam), Guerrero Viejo (Revilla) on the Rio Salado, and the arroyos referred to in text.

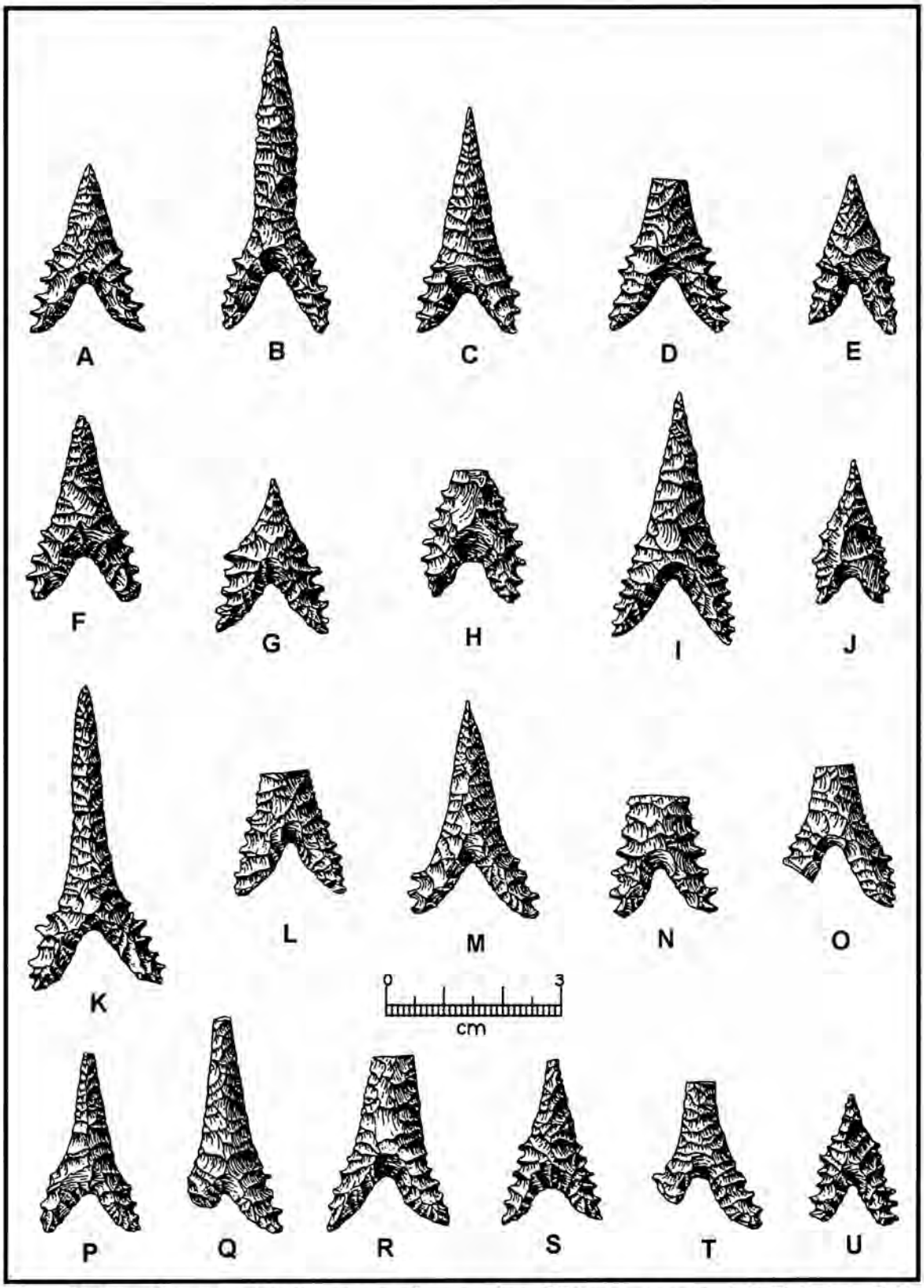

Figure 2. Form 4 arrow points from the northern portion of Falcon reservoir. A-B, E, H, J, L, P, R, and T, Zapata County. U is restored from two fragments.

DESCRIPTION

These are very thin and light, finely-made arrow points of excellent quality chert. They are generally triangular in outline. Bases are concave with a distinctively deep (at least 4mm) notch that has a rounded apex and convex lateral edges. Prominent serrations begin immediately at the basal corners and are typically few, usually 3 to 7 per side with an average of approximately 5 (4.9). Proximal (serrated) portions of the lateral edges are straight to convex. Distal portions of the lateral edges may be slightly recurved but are generally straight to concave. Data derived from 22 specimens (13 of which are complete or very nearly complete) is summarized in Table 1 (below).

DISTRIBUTION

In Texas, the geographic distribution of known Form 4 specimens is approximately 13 straight miles along the old channel of the Rio Grande between Chapote Creek and the Arroyo Clareño in Zapata County. All of the Texas specimens were found in sites within the normal conservation pool of Falcon Reservoir; none are reported from inland sites. Within the 13-mile-long distribution, only one area, approximately one-and-a-half miles in length (between Chapote Creek and Arroyo Molletes), has yielded multiple (7 or 8) specimens of Form 4. The distribution is extended to 13 miles by two additional specimens, one at 41ZP8 (near the Arroyo Veleño) and one at site No.MS (between Arroyo León and Arroyo Clareño).

In Tamaulipas, the distribution of Form 4 arrow points is approximately 17 straight miles along the old channel of the Rio Grande between Arroyo Golondrinas and Arroyo Centurion. Specimens are reported from inland sites in Tamaulipas, approximately two miles inland near Arroyo Golondrinas; however, these are from the narrowed, northern end of the reservoir and their distance from the old channel of the Rio Grande may not be significantly greater than that of specimens recorded farther south. Within the 17-mile-long distribution in Tamaulipas, multiple specimens have been recorded in three distinct areas. Centrally located, the first area is the lower reach of the Rio Salado. Form 4 specimens are reported the farthest inland (from the Rio Grande) on the Rio Salado, in close proximity to the Spanish colonial town of Revilla (now submerged and known as Guerrero Viejo). The second area to yield a record of multiple specimens is to the north of the Rio Salado near Arroyo Golondrinas. Approximately equidistant to the south of the Rio Salado, the third area is near Arroyo Centurion. Therefore, the geographic center of distribution of Form 4 arrow points appears to be the lower reach of the Rio Salado, which, while it may be fortuitous, is also the location of Mission San Francisco Solaño de Ampuero at Revilla. Salinas (1990:45-46,106,158-159) considers the mission to have been short-lived and unsuccessful, although he notes at least seven associated Indian groups as well as several other groups who were living along the Rio Grande near Revilla for various lengths of time during the years 1757-1818.

The distribution of Form 4 arrow points, in Zapata County and Tamaulipas, Mexico, appears to be diminutive and truly discrete. There are no reported examples of Form 4 points from Nuevo León, Coahuila, or any other Mexican state and it has been determined that there are no specimens from any other part of Texas.

THE SITES IN ZAPATA COUNTY

Four specific sites have yielded nine of the ten Form 4 specimens that are known to have been found in Zapata County. These sites are 41ZP83 (4), 41ZP154 (3), 41ZP8 (1), and site No. MS (1). The tenth Form 4 specimen (Figure 2 L) known to be from Zapata County has a non-specific site number (29 L), which refers to numerous shoreline sites (including 41ZP83 and 41ZP154) between Chapote Creek and Arroyo San Bartolo (see Figure 1). One of the three Form 4 specimens from 41ZP154 is missing one basal projection and the tip of the remaining projection; this specimen could only provide accurate measurement of thickness and is not illustrated.

Site 41ZP83 is Uribeño, the 1822 settlement established by Doña Ignacia Gutierrez (widow of Don Dionisio Uribe) and her two sons, Blas María Uribe and Juan José Uribe of Revilla (Guerrero Viejo), Tamaulipas. Also known as Uribeño Ranch, it is on the east side of the Rio Grande 8 miles south-southeast of the present town of San Ygnacio and 5 miles northwest of Old (submerged) Zapata (formerly Carrizo) (Lott and Martinez [1953:44,59] relate that the name was changed in 1897 because mail for Carrizo was in the habit of going to Carrizo Springs). Uribeño was originally located for its proximity to El Paso Chaveño, also known as Las

Table 1. Metric data, Form 4 arrow points

	Length (N=13)*	Width (N = 18)	Thickness (N=22)	Concavity (N=21)
Minimum	21.5	13	2	4
Maximum	51	23	3.5	10
Mean	33.24	18.15	2.73	7.3

* All measurements in millimeters

Table 2. Types and quantities of arrow points in 3 (of 4) Form 4 sites in Zapata County.

41ZP83	41ZP154	Site No. MS
21 - Perdiz	41 - Perdiz	41 - Starr
15 - Starr	23 - Starr	19 - Perdiz
13 - Caracara	17 - Caracara	10 - Caracara
4 - Form 4	7 - Toyah	10 - Form 1
3 - Fresno	5 - Form 1	6 - Toyah
2 - Toyah	4 - Fresno	2 - Fresno
1 - Form 1	3 - Form 4	1 - Form 4
0 - Scallorn	1 - Scallorn	1 - Scallorn
2 - unidentified	4 - unidentified*	5 - unidentified

* One is similar to the "Scallorn-Edwards" reported at 41 ZP98 by Kotter (1980:Figure 20d).

Table 3. Metric Data, Form 1 arrow points.

	Length (N=11)*	Width (N=38)	Thickness (N=40)	Concavity (N=38)	Base Width (N=37)	Width Diff. (N=37)
Minimum	22.2	13.7	2.5	1.0	10.0	1.1
Maximum	56.0	21.3	5.0	7.2	18.7	8.0
Mean	35.55	16.87	3.42	2.61	13.66	3.21

* All measurements in millimeters

Corrientes de Golandrinas. The settlement (before drowning in 1953) was noted for the charm of its old stone houses and in 1951 was included among the rural school districts of Old Zapata with a school home and one teacher who taught through fourth grade (George 1975:53; Lott and Martinez 1953: 65,89,98). Uribeño contains collapsed ruins and artifacts (including school slate fragments) from the Historic Period. Prehistoric cultural materials include burned rock, chert flakes, mussel shells, and *Rabdotus* land or tree snails. Four Form 4 points (Figure 2 A-B,E,R) were found here and the earliest artifact from 41ZP83 is an Andice point illustrated by Chandler and Kumpe (1993:Figure 1 L).

Site 41ZP154 (The Morell Site) is located near Arroyo Molletes in the northern portion of Falcon Reservoir. Three Form 4 points were found here only a third of a mile from 41ZP83 and two of the three are illustrated (Figure 2 J,T). This site contains large amounts of prehistoric cultural materials similar to those at 41ZP83, however, there are no settlement artifacts from the Historic Period. The earliest artifacts found here are a few Golondrina from the Paleo-Indian Period (Turner and Hester 1993:126).

Materials in both 41ZP83 and 41ZP154 have been mixed by rising and falling lake levels. Kotter (1980:Appendix,61) mentions the report of small flake debitage in a mounded debris line formed by waves at 41ZP98 and remarks that it was not examined. A similar mounded debris line, at the highest level of the lake above 41ZP154, was examined in 1977 by Terry Kumpe and the senior author. It contained a mixture of gravels, small flake debitage, glass shards, small mussel shells, *Rabdotus*, and numerous artifacts, including one Form 4 specimen (Figure 2 T). Other impacts noted in these sites include the borings of freshwater mussels, nesting turtles, and raccoons busily excavating turtle eggs. Between 1969 and 1989, cattle grazed 41ZP83 (when there was vegetation) and deeply churned the mud while drinking at the water's edge. Various Boy Scout troops camped at Uribeño and some of the boys included collecting artifacts among their activities. A cardboard shack fishing camp was located at Uribeño in 1982 and its occupants were avid artifact collectors for profit. Mexican fishermen were seen rowing across the lake to collect artifacts in 41ZP83, 41ZP154, and other nearby sites on the Texas shoreline. The artifacts collected, after being combined with artifacts found in sites on the Mexican side of the lake, were sold to U. S. collectors who apparently cared little for provenience. A substantial number of arrow points were surface-collected in 41ZP83 and 41ZP154 between 1969 and 1989 (Table 2). During the same period, these sites were heavily impacted by the surface-collecting activities of others and arrow points were removed that are no longer available for study (Kumpe 1993; 1998).

Site No. MS, located between Arroyo León and Arroyo Clareño, is the most southerly known site on the reservoir in Zapata County to yield a Form 4 specimen (Figure 2 H). The arrow points from site No. MS (Table 2) were borrowed for this study.

Site 41ZP8, Haynes Point, is located about a mile-and-a-quarter west-southwest of the present town of Zapata. Wilson and Hester (1996:12) remark that 41ZP8 and 41ZP7 (Beacon Harbor Lodge) appear to be one large site bisected by an arroyo. One Scottsbluff from 41ZP8/7 is illustrated by Boyd (1997a: Figure 2 B) and the only other Paleo-Indian artifact from this site is a Golondrina (James B. Boyd, personal communication 1998). He also remarked that one Form 4 (Figure 2 P), a few "Maud-like" (see Form 1 below), and one iron point were found in this site. The iron point (see Figure 6 A, A') found on the eroded surface of 41ZP8/7 appears to be the site's only recognized Early Historic Indian component. The specimen is 29 mm in length, 15 mm wide at the barbs, and 1.5 mm thick. It weighs 1.6 grams. The stem is 7.5 mm wide and 11.5 mm long.

A second iron point from the northern portion of Falcon Reservoir is illustrated (see Figure 6 B, B'); it was found about three quarters of a mile inland near Zacatosa Creek in Zapata County. This specimen is 48 mm in length, 18 mm wide at the shoulders, and 2.1 mm thick. It weighs 5.4 grams. The stem is 3.5 mm wide and 10.2 mm long. Several other metal points have been found in the northern portion of Falcon Reservoir (Dr. William B. Bieker, personal communication 1995; Connie Mohan, personal communication 1997; James B. Boyd, personal communication 2000). No metal points are reported from the southern portion of the reservoir.

THE ARROW POINT SERIES IN THE FORM 4 SITES

Few collectors use accurate provenience and fewer still keep broken artifacts, with the result that few collections provide useful data. An exception is the sizable collection of R. K. Saunders who re-

corded sites on the Texas side of Falcon Reservoir for several years and kept detailed notes (Saunders 1985:6-20; Neurenther et al. 1985). The Saunders Collection is housed at the Texas Archeological Research Laboratory (TARL) at the University of Texas at Austin. His records (Saunders n.d.), also at TARL, are derived from Texas sites in the southern portion of Falcon Reservoir (between Arroyo Loma Blanca and Falcon Dam) and provide useful comparisons with 41ZP83, 41ZP154, and site No. MS (Table 2), which are north of Saunders' Search Area (Figure 1). Information on arrow points in Hidalgo County is from the Armando Vela Collection described by Mallouf et al.(1977:Appendix,255-286). The senior author's collection provided information on the frequency of arrow points in Starr and Zapata counties and on the Lower Rio Grande Delta; the meticulously provenienced Mike Krzywonski Collection provided the bulk of information on the arrow points in Cameron County. Information on the arrow points in northern Tamaulipas opposite Starr County is from Galindo's (1998) analysis of the Riley Collection.

Perdiz (Table 2) is the most common arrow point type in the sizable, northerly Falcon Lake shoreline sites (such as 41ZP83 and 41ZP154) between Chapote Creek and Arroyo San Bartolo. Although still numerous, Perdiz has lost its dominance at site No. MS, which is south of the Arroyo Veleño (between Arroyo León and Arroyo Clareño). Perdiz is then quickly scarce in the shoreline sites that are only slightly farther south; the Saunders Collection, from sites south of the Arroyo Clareño, appears to contain only 3 Perdiz and one Perdiz preform (Saunders n.d.; Turner and Hester 1993:208). Farther southeast, Perdiz appears to be scarce in Starr County (senior author's personal field experience) and across the river from Starr County there are only 15 Perdiz in the immense Riley Collection at Mier, Tamaulipas (Galindo 1998:16). The Armando Vela Collection, from a transitional zone in eastern-central Hidalgo County, contains only 2 Perdiz (Mallouf et al.1977:Appendix,263) and Perdiz appears to be even rarer along the immediate Gulf coast, where the senior author's collection contains two Perdiz and the sizable Krzywonski Collection contains none.

Starr, at the northern end of the reservoir (where there are larger numbers of Perdiz), is numerically second in 41ZP83 and 41ZP154. However, Starr is the dominant arrow point type at site No. MS below the Arroyo Veleño (Table 2). It is also the most common arrow point in the Saunders Collection, which appears to contain 34 specimens (Saunders n.d.) from the southern portion of the reservoir (i.e., south of the Arroyo Clareño where Perdiz is shown to be scarce). Starr is the most common arrow point in Starr County (senior author's personal field experience) and it is the most common arrow point (495 specimens) in the Riley Collection at Mier (Galindo 1998:8), which is across the Rio Grande from Starr County. It is the most common arrow point (56 specimens) in the Armando Vela Collection from Hidalgo County (Mallouf et al. 1977:Appendix, 258) and it is well represented in the coastal collections. Therefore, it is the only arrow point type to occur in substantial numbers from the northern portion of Falcon Reservoir to Cameron County on the Gulf coast.

Caracara is well represented the length of Falcon reservoir. It is numerically 3rd in many of the sites between Chapote Creek and Arroyo San Bartolo and it retains that position at site No. MS (Table 2) between the Arroyo León and Arroyo Clareño where there are still substantial numbers of Perdiz. It is the 2nd most numerous arrow point in the Saunders Collection from south of the Arroyo Clareño (Saunders n.d.), in the Riley Collection across the river from Starr County (Galindo 1998:8), and in the senior author's collection from Starr County. It is absent in the Armando Vela Collection from eastern-central Hidalgo County and it is absent in the coastal collections.

Toyah occurs most frequently in sites in the northern portion of Falcon Reservoir (Table 2) and specimens may be highly serrated (see Figure 3 C-E). The Saunders Collection from the southern portion of the lake contains only a few (apparently 4) specimens (Saunders n.d.). Below Falcon Dam, it occurs sporadically in the senior author's collection from Starr County and only 16 Toyah are reported in the Riley Collection from Tamaulipas opposite Starr County (although Galindo [1998:Figures 7 and 8] may have included some Toyah among her Form 1 points and/or her Form 1 serrated points). Mallouf et al. (1977:Appendix, Figure 68e) illustrate the only Toyah from the Armando Vela Collection in Hidalgo

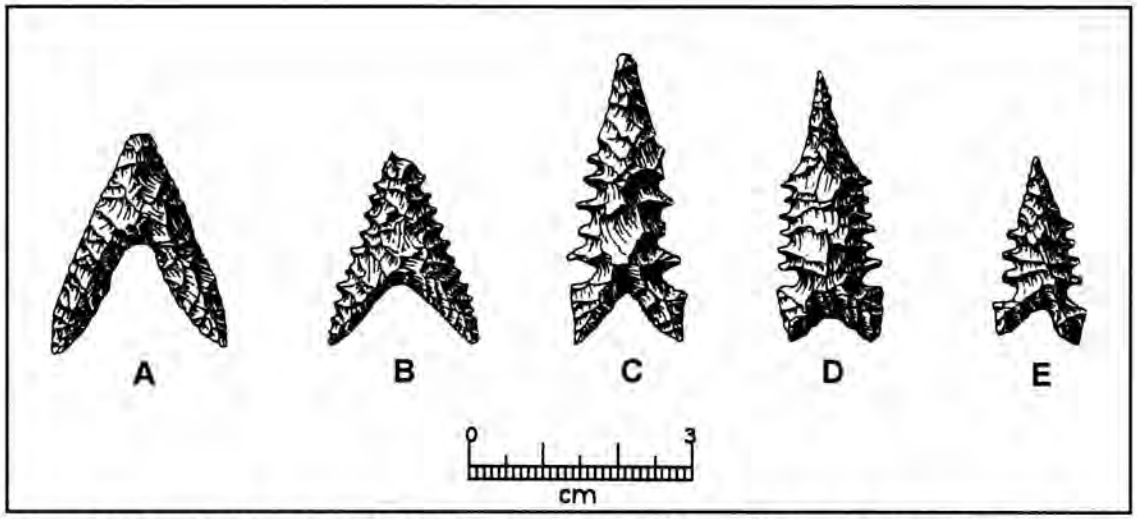

Figure 3. Starr (A-B) and Toyah (C-E) arrow points. A, from a few hundred yards below Falcon Dam; B, Arroyo Minita, Starr County; D, 41ZP54; C, E, two sites in the northern portion of Falcon Reservoir.

County (where it appears to be rare) and there are no Toyah in the coastal collections. It appears that Toyah specimens found in Starr County (and in Tamaulipas opposite Starr County) are seldom as prominently serrated as Toyah specimens (Figure 3 C-E) in the northern portion of Falcon Reservoir.

Fresno is poorly represented in the Form 4 sites (Table 2) and there appears to be only one Fresno in the Saunders Collection from southern portions of the lake (Saunders n.d.). There are only 22 Fresno in the Riley Collection at Mier (Galindo 1998:15) and it is remarked by Turner and Hester (1993:213) that some (inland) specimens may actually be preforms. Fresno is much more common along the coast, where it occurs in substantial numbers in the Krzywonski Collection. Turner and Hester (ibid.) remark that on the Texas coast carefully chipped specimens of Fresno appear to represent a typological group. Carefully chipped Fresno points appear to extend inland from the Gulf coast in substantial numbers at least as far as eastern-central Hidalgo County, where 21 Fresno (including well-thinned, finely-tipped specimens with excellent workmanship) are in the Armando Vela Collection (Mallouf et al.1977: Appendix, 260-262).

Scallorn is common in neighboring Webb County (Highley 1979:38), however, it occurs sporadically at Falcon Reservoir and is represented in only two of the Form 4 sites by one specimen each (Table 2). There are no Scallorn in the Saunders Collection from southern portions of the reservoir and there are none in the senior author's collection from Starr County. There are no Scallorn in the Riley Collection across the river from Starr County, there are none in the Armando Vela Collection from Hidalgo County, and there are none in the coastal collections from Cameron County.

The remaining arrow point to be discussed is an unidentified form previously published by Boyd (1997b:46, Fig.3,I), who illustrates one broken specimen and refers to it as "Maud-like." Boyd (ibid.) does not provide a description, but remarks that it was found in a site on the Rio Salado approximately 7.8 miles west-north-west of Guerrero Viejo, Tamaulipas; the other arrow points in the site were Caracara, Perdiz, Starr, Toyah, and one each of two "indeterminate types." In the senior author's records, this second unidentified arrow point form is referred to as Form 1 and that term will be used hereafter. Fifty-six arrow point specimens were subsequently examined and 16 were rejected as not typical of the majority. This left a total of 40 Form 1 specimens found by six individuals while surface-collecting in eroded sites; twenty-nine are illustrated.

Form 1 (Figures 4 and 5) is a triangular to lanceolate, stemless arrow point with slightly to markedly convex lateral edges near the base and convex to straight lateral edges above the widest measurement, which is usually near (but never at) the base. Bases are slightly to moderately concave (one specimen with a 7.2 mm deep basal concavity appears to be an exceptional rarity). Basal concavi-

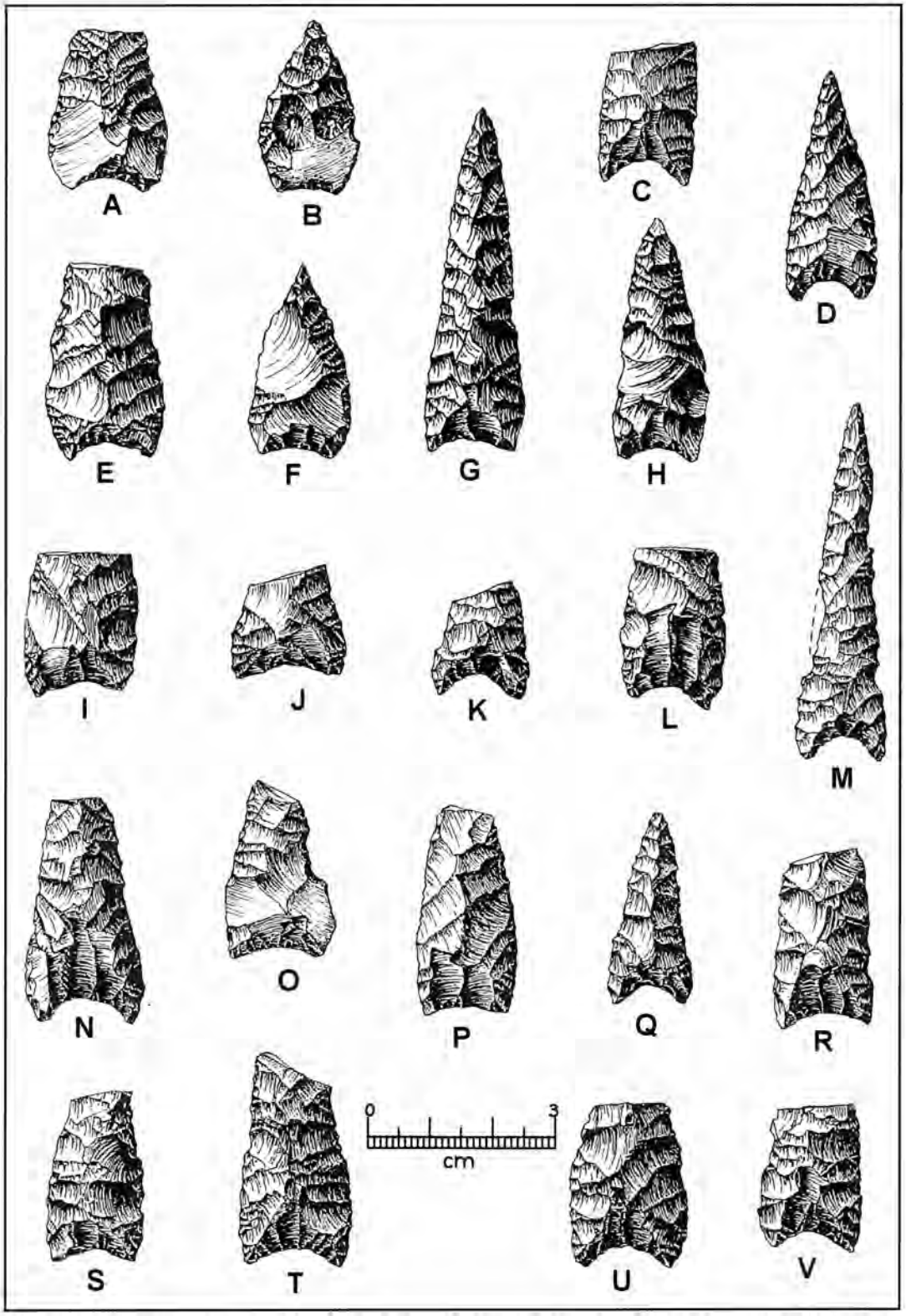

Figure 4. Form 1 arrow points from the northern portion of Falcon Reservoir. F-G, L, P, 41ZP154; H, 41ZP83; C, I, N, R, site No. MS, Zapata County. Also see Figure 5.

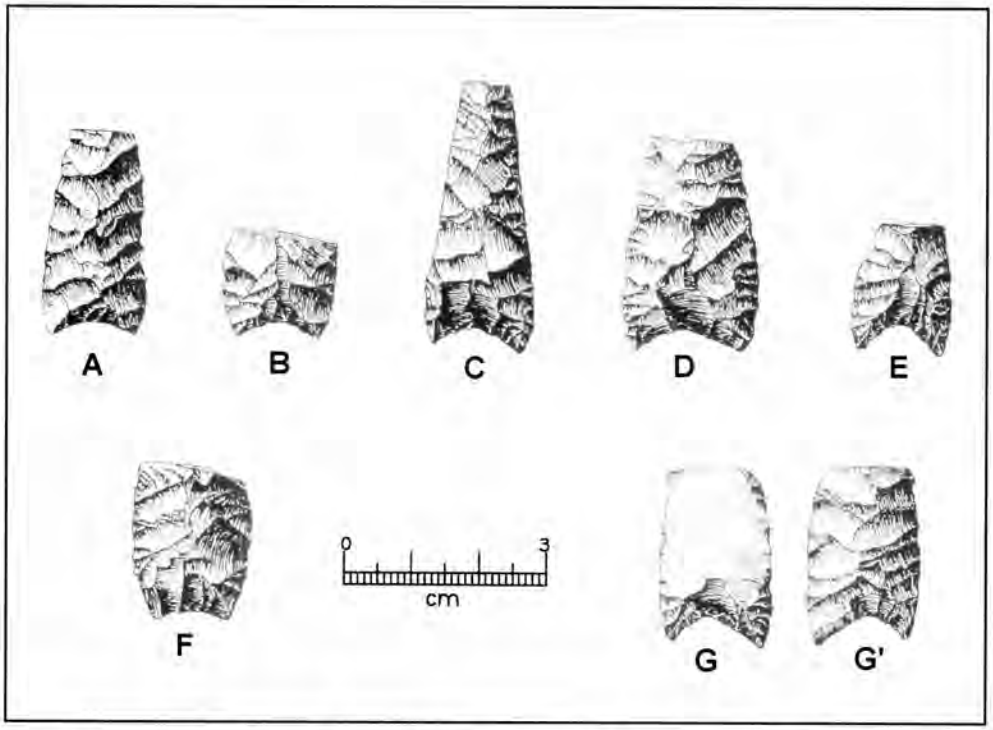

Figure 5. Form 1 arrow points from the northern portion of Falcon Reservoir. A - F, site No. MS, Zapata County; G, G': typical of many Form 1 arrow points, retains much of the original flake surface. C is partially restored from two fragments.

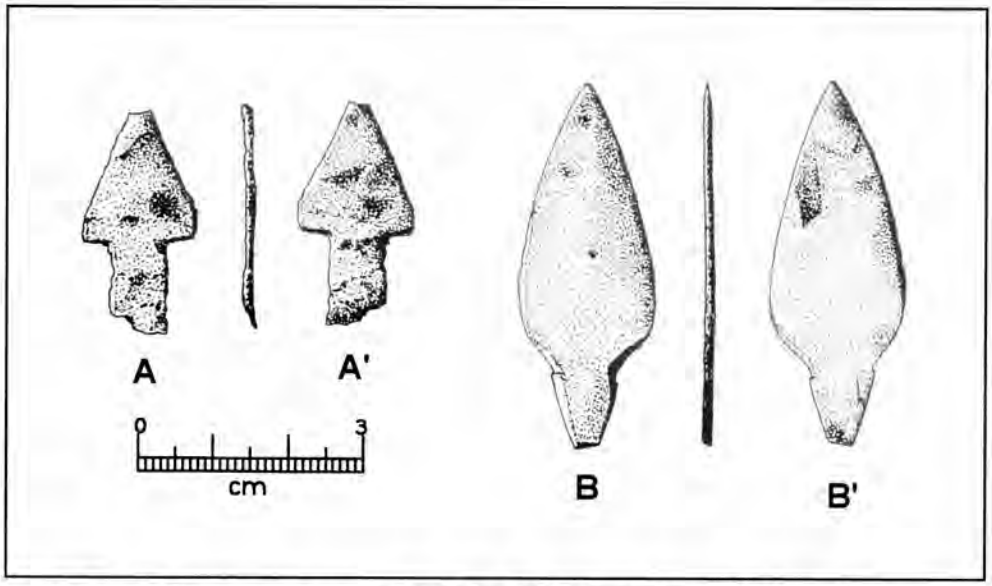

Figure 6. Iron arrow points from the northern portion of Falcon Reservoir, Zapata County. A, A', 41ZP 8/7 (a Form 4 site); B, B', Zacatosa Creek.

ties are often distinctively arc-shaped, as though part of the circumference of a circle (Figure 4 A-B,D-F,H,M-N). Form 1 points are usually made on thin flakes and many (like Figure 5 G,G') retain much of the original flake surface. Where distal tips survive they are finely pointed. Richard McReynolds (personal communication 1999) remarks that some specimens appear to have possibly been re-sharpened while hafted, thus altering their original form above the hafted area (Figure 4 B,F,H,J-K,O,Q). One specimen (Figure 4 T) was possibly broken during manufacture (Steve Tomka, personal communication to Richard McReynolds 1999). Metric data for Form 1 points is summarized in Table 3.

The quantity of broken Form 1 specimens could indicate the possibility that they may be preforms broken in manufacture. All ten of the Form 1 specimens at site No.MS (Table 2) are broken and only seven of 26 specimens in the senior author's collection are complete. However, the large number of broken specimens may originate with the thinness and length of some Form 1 points. Excellent workmanship, consistency of form, and indications that some have been resharpened while hafted suggest that they are finished arrow points rather than preforms. Local collectors (many of whom refer to Form 1 points as "Maud") seldom keep broken artifacts and typically have only a few complete specimens. Therefore, the frequency of Form 1 is greatly understated in most of the reservoir collections.

Form 1 occurs in substantial numbers in sites in the northern portion of Falcon Reservoir (see Table 2). They appear to be absent from the southern portion of the lake (there are no Form 1 points in the Saunders Collection from south of the Arroyo Clareño) and, in Zapata County, they are seldom found farther than a few hundred yards from the normal conservation pool of the lake. On the Rio Salado, at least one Form 1 has been recorded a few miles farther inland from the Rio Grande than any reported Form 4 specimen (Boyd 1997b), but this distributional variance seems insignificant. In Zapata County, the distribution of Form 4 arrow points appears to be virtually identical with the presently known distribution of Form 1. The limited distribution and relatively small numbers of Form 4 and Form 1 (within the study area as a whole) suggest that both forms may have been manufactured for a short period of time.

The examination of several collections (above) indicates that, on the Texas side of Falcon Reservoir, there is a dramatic change in the arrow point types between the northern and southern portions of the lake. The "dividing line" appears to be the Arroyo Clareño and no changes have been noticed in other types of artifacts. In the northern portion of Falcon Reservoir (i.e., north of the Arroyo Clareño) in Zapata County, there are found to be large numbers of Perdiz, Starr, and Caracara, substantial numbers of Toyah and Form 1, and a few Form 4. South of the Arroyo Clareño, Perdiz and Toyah are found to be comparatively scarce while Form 4 and Form 1 appear to be absent. From information supplied by others, a similar dividing line for arrow point types apparently occurs at (or very near) the Arroyo Centurion on the Mexican side of the reservoir (Figure 1).

Among illustrated Starr points that are similar to Form 4 (Figure 3 A-B; Saunders [1985,Figure 9b]; Galindo [1998,Figure 3b-c]), differences appear to exist in the curvature of the basal corners and in the lack of serrations/or in the type and pattern (or patterns) of serration on the Starr points. Further, the technology of manufacture of Form 4 has not been shown to be linked to Starr. Galindo (1998:8; Figure 3g) illustrates one heavily serrated Starr from Mier (similar to Figure 3 B) and (of 495 Starr points in the Riley Collection) remarks that, although serration of the lateral edges occurs, it is not a common characteristic of Starr. Therefore, it appears that Form 4 points are readily distinguishable from presently recognized variations of Starr.

The similarity of Form 4 serrations to the serrations on some specimens of Toyah (Figure 3 C-E) was noted on the first Form 4 point (Figure 2 J) encountered by the senior author, who initially hypothesized that this small, well-serrated specimen with its tapering needle tip was the salvaged distal fragment of a Toyah. However, the appearance of additional Form 4 specimens suggested other possibilities. Lacking side notches, Form 4 points appear to be distinctive from Toyah, the only other arrow point in the Form 4 sites that has prominent serrations.

SUMMARY

Form 4 serrated arrow points were found to be distinguishable from Starr points and, lacking side notches, they also appear distinctive from Toyah. Typically, Perdiz, Starr, Caracara, Toyah, and Form

1 arrow points occur in the Zapata County Form 4 sites. Of these, the established types of arrow points are shown to be more widely distributed throughout Starr and Zapata counties (and elsewhere by Turner and Hester [1993]). Form 4 and Form 1, however, are shown to be restricted to the northern portion of Falcon Reservoir where, at least in Zapata County, their distributions appear to be virtually identical. The distributional center of Form 4 arrow points appears to be the lower reach of the Rio Salado, which is also the location of a Spanish mission (at Revilla). Until they are found in a datable context, it does not appear possible to determine the age or cultural affiliations of either Form 4 or Form 1 arrow points.

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REFERENCES CITED

Boyd, James Bryan

1997a Scottsbluff Points From South Texas and Northeastern Mexico. *La Tierra* 24(3): 39-41.

1997b Arrow Points From the Rincon de los Indios on the Rio Salado, Tamaulipas, Mexico. *La Tierra* 24(4):44-48.

Chandler, C. K.

1995 Information Requested. In: *STAA Newsletter* 20(5):4. San Antonio.

Chandler, C. K. and Don Kumpe

1993 Stemmed Points With Massive Barbs from the Lower Rio Grande Valley. *La Tierra* 20(3):26-28.

Galindo, Mary Jo

1998 Analysis of the Riley Projectile Point Collection From Mier, Tamaulipas, Mexico. Draft Manuscript on file at TARL, Austin.

George, Eugene

1975 *Historic Architecture of Texas, the Falcon Reservoir*. Texas Historical Foundation, Austin.

Highley, Lynn

1979 A Note on Arrow Points Collected in Webb and Duval Counties. *La Tierra* 6(4):36-39.

Kotter, Steven M.

1980 *Archeological Assessments at Site 41ZP73, Falcon State Recreation Area, Zapata County, Texas*. Reports of Investigations Number 9. Prewitt and Associates, Inc., Austin.

Kumpe, Don

1993 Site form for 41ZP154 on record at TARL.

1998 Site form for 41ZP83 on record at TARL.

Lott, Virgil N. and Mercurio Martinez

1953 *The Kingdom of Zapata*. Eakin Press, Austin.

Mallouf, Robert J., Barbara J. Baskin, and Kay L. Killen

1977 *A Predictive Assessment of Cultural Resources in Hidalgo and Willacy Counties, Texas*. Archeological Survey Report 23. Office of the State Archeologist, Texas Historical Commission, Austin.

Neurenther, Rita, Janet F. Steele, and Helen M. Wegs
1985 Documentation of the R. K. Saunders Falcon Reservoir Collection. Paper written for University of Texas at San Antonio.

Salinas, Martin
1990 *Indians of the Rio Grande Delta*. University of Texas Press, Austin.

Saunders, R. K.
1985 Recovery of Drowned Rio Grande River Artifacts, Zapata and Starr Counties, South Texas. *La Tierra* 12(2):6-20.

n.d. Falcon Lake Artifact Outlines. Records on file with the authors.

Turner, Ellen Sue and Thomas R. Hester
1993 *A Field Guide To Stone Artifacts of Texas Indians*. Second Edition. Gulf Publishing, Houston, Texas.

Wilson, Diane E. and Thomas R. Hester
1996 *Salvage of Prehistoric Skeletal Remains From 41ZP7, The Beacon Harbor Lodge Site, Zapata County, Texas*. Technical Series 45. Texas Archeological Research Laboratory, The University of Texas at Austin.

COASTAL MARGIN POINT DISTRIBUTIONS IN SOUTHEAST TEXAS

Leland W. Patterson

ABSTRACT

The uneven distributions of stone projectile points along the coastal margin of Southeast Texas is discussed. Reasons for this situation are considered in regard to social boundaries and relationships between coastal margin and inland social groups.

INTRODUCTION

In previous studies, it has been noted that the geographic distributions of stone projectile points are not uniform along the coastal margin of Southeast Texas. This is true for both dart points of the Late Archaic (1500 BC-AD 100) and Early Ceramic (AD 100-600) periods (Patterson n.d.a, n.d.b, n.d.c),and arrow points of the Late Prehistoric (AD 600-1500) period (Patterson n.d.d). This article presents data on projectile point distributions of the western, central, and eastern zones of the coastal margin of Southeast Texas, and considers possible explanations for the non-uniform geographicdistributions of stone projectile points in these areas.

Data on the geographic distributions of projectile point types are from the 1998 update of the computerized data base for the coastal margin of Southeast Texas (Patterson 1989).

GEOGRAPHIC DISTRIBUTIONS OF PROJECTILE POINTS

The distributions of stone projectile points are given in Table 1 for the western, central, and eastern zones of the coastal margin of Southeast Texas. The coastal margin of Southeast Texas is a zone about 15 to 20 miles (24-32 km) wide, parallel to the coastal shoreline (Patterson 1993:14). As shown in Figure 1, the western zone of the coastal margin is in Brazoria County, the central zone is in Harris and Galveston Counties,and the eastern zone is in Chambers, Liberty, Jefferson, and Orange Counties.

As may be seen in Table 1, there are significantly greater numbers of both dart points and arrow points in the central zone of the coastal margin than in the western or eastern zones. Dart points were used on the coastal margin in the Late Archaic and Early Ceramic periods, and bifacial arrow points were used in the Late Prehistoric period in this area. The use of dart points terminated at the start of the Late Prehistoric period on the coastal margin of Southeast Texas, but dart points continued to be used concurrently with arrow points in the inland part of the region (Aten 1983:306).

POSSIBLE EXPLANATIONS

The low number of stone projectile points in the western zone of the coastal margin, compared to the central zone, can be explained by the relatively small number of sites that have been found so far in the western zone, as shown in Table 2.This explanation cannot be used, however, for the relatively small number of projectile points in the eastern zone of the coastal margin compared to the central zone. As shown in Table 2, more sites have been found in the eastern zone than in the central zone, mainly due to the large amount of research in Chambers County for the Wallisville Reservoir project. Because of the low number of projectile points in the western zone of the coastal margin, consideration here will concentrate on comparisons between the central and eastern zones of the coastal margin.

Differences in adaptive patterns for the various zones of the coastal margin cannot be used to explain differences in the numbers of projectile points in each zone. Artifact types at sites in all zones of the coastal margin of Southeast Texas are similar, showing the same adaptive pattern for all zones. Compared to inland sites, coastal margin sites are characterized by relatively large amounts of pottery, low numbers of lithic flakes, significant use of shell and bone tools, use of bone projectile points, and no sites with fired clay balls (Patterson 1993). Most coastal margin sites are shell middens.

Patterns for manufacturing of stone projectile points cannot be used to account for differences in numbers of points in the various zones of the coastal margin. There are only small amounts of lithic flakes at coastal margin sites that would represent lithic

manufacturing. There are only 304 flakes recorded for published sites in the western zone, 6055 flakes for all sites in the central zone, and 4903 flakes for all sites in the eastern zone. The numbers of flakes for each total zone are less than from many single sites of the inland part of southeast Texas.

There are not enough data available on bone projectile points to show evidence for preferential use of bone projectile points instead of stone projectile points in any zone of the coastal margin. Numbers of published bone projectile points include 5 in the western zone, 34 in the central zone, and 8 in the eastern zone. These low numbers of bone points may reflect poor preservation of this type of artifact. The use of bone projectile points on the coastal margin would have been important in this lithic-poor area.

More stone projectile points in the central zone of the coastal margin than in the eastern zone might reflect a closer relationship of social groups of the coastal margin with inland social groups in the central zone than in the eastern zone. Inland social groups could have provided lithic raw materials and finished projectile points to coastal margin groups. Not many data are available, however, to study trade between inland and coastal margin social groups in Southeast Texas. The lack of data might be due to coastal groups trading perishable materials or exchanging women to inland groups, which would leave little evidence in the archaeological record. Aten(1983:Table 5.2) shows that possible exports from the coastal margin would have been mainly perishable types of materials.

The main types of non-perishable items that would have been used for trade are lithic materials and ceramics. Some stone projectile points and other types of lithic items at sites on the coastal margin may be examples of trade with inland areas. Ceramic types are not good examples of possible trade, because the same types of pottery were used at both inland and coastal margin sites in Southeast Texas. The only type of pottery that is distinctive for the coastal margin is Baytown Plain, variety Phoenix Lake (Aten 1983:241) with ample sherd temper. This type of pottery is not known at inland sites, so that this type of artifact cannot be used as an example of trade.

Shark teeth at inland site 41HR315 (Patterson 1980:9) of the central zone of Southeast Texas indicate trade between the inland and coastal margin areas. There are few examples of this type, however. The only example of significant quantities of material from the coastal margin at inland sites is for Late Archaic mortuary sites of the western part of Southeast Texas, where marine shell artifacts, asphaltum, and shark teeth occur (Patterson et al. 1998). In this case, however, it has not been determined what proportion of these materials was obtained by trade or direct procurement (Patterson et al. 1998:12). In any event, the small number of sites found so far in the western zone of the coastal margin does not provide enough data to study reciprocal trade patterns between Indians of inland and coastal margin

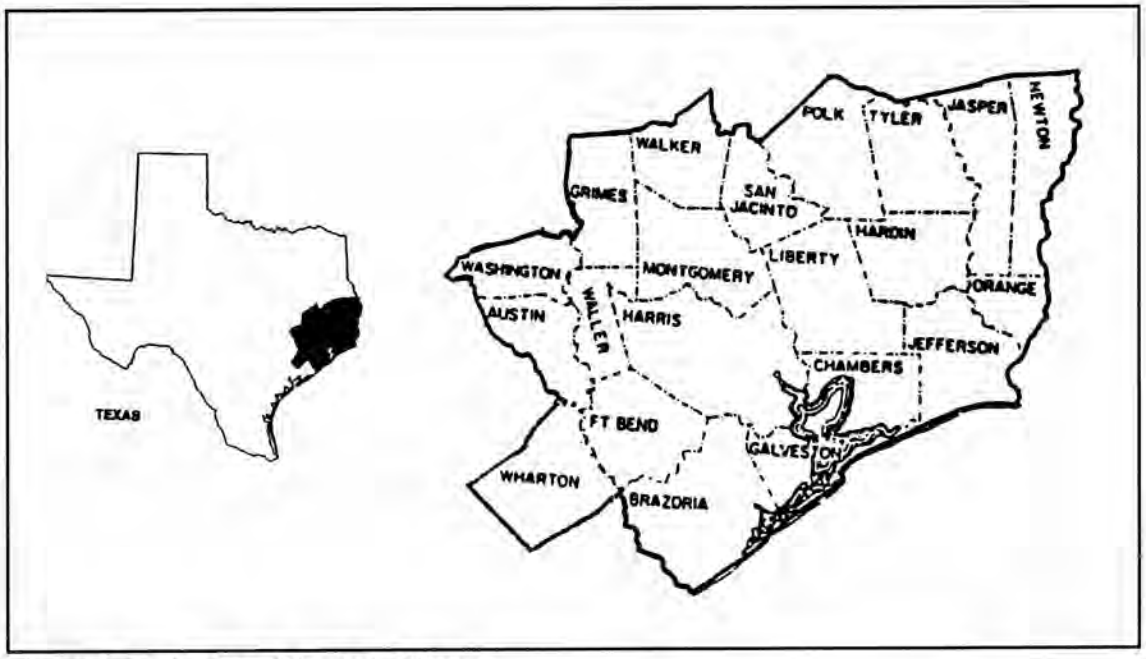

Figure 1. Study area of Southeast Texas.

Table 1. Distributions of Coastal Margin Projectile Points by Zone.

	Western		Central		Eastern	
Type	Sites	Points	Sites	Points	Sites	Points
Dart Points						
Gary	-	-	14	85	7	8
Kent	1	3	18	172	9	15
Ellis	-	-	4	8	-	-
Ensor	-	-	5	8	1	1
Palmillas	-	-	3	9	-	-
Darl	-	-	5	6	-	-
Yarbrough	1	2	5	12	-	-
Arrow Points						
Perdiz	3	7	20	267	21	58
Scallorn	3	7	3	5	1	1
Catahoula	-	-	6	7	3	3
Alba	-	-	8	27	3	5
Total Points						
Arrow		14		306		67
Dart		5		300		24

Table 2. Temporal Components of Coastal Margin Sites

	Number of Sites		
Period	Western	Central	Eastern
Late Archaic	1	18	18
Early Ceramic	2	25	44
Late Prehistoric	11	31	90

parts of the western zone of Southeast Texas.

It is concluded that relationships between inland and coastal margin Indians may not have been uniform for the entire length of the coastal margin in Southeast Texas. Some ethnic groups may have moved onto the coastal margin of Southeast Texas from the east at the time that pottery was introduced into Southeast Texas from Louisiana. This may have resulted in social differences of groups of the central and eastern zones of the coastal margin, which may have affected relationships with inland Indians differently in the central and eastern zones. There appears to have been a more defined social boundary between coastal margin and inland Indians in the eastern zone of Southeast Texas than in the central zone.

SUMMARY

This article has noted the non-uniform geographic distributions of various stone projectile point types along the coastal margin of Southeast Texas. It is suggested that this situation might be due to closer relationships of Indians of the central zone with their inland counterparts, than existed in other zones of Southeast Texas. More data on inland-coastal margin trade would be required to resolve this issue. Data on trade patterns are difficult to obtain because of the perishable nature of many types of materials that would have been traded.

REFERENCES CITED

Aten, L. E.
1983 *Indians of the Upper Texas Coast*. Academic Press.

Patterson, L. W.
1980 *The Owen Site, 41HR315: A Long Occupation Sequence in Harris County, Texas*. Houston Archeological Society, Report No. 3.

1989 *An Archeological Data Base for the Southeastern Texas Coastal Margin.* Houston Archeological Society, Special Publication.

1993 The Boundary Between Inland and Coastal Margin Settlement Patterns in Southeast Texas. *Houston Archeological Society Journal* 107:14-18.

n.d. a Gary and Kent Points in Southeast Texas. Ms submitted to Houston Archeological Society Journal.

n.d. b Ellis, Ensor, and Palmillas Points in Southeast Texas. Ms submitted to Houston Archeological Society Journal.

n.d. c Darl and Yarbrough Points in Southeast Texas. Ms submitted to Houston Archeological Society Journal.

n.d. d Major Arrow Point Types in Southeast Texas. Ms submitted to Houston Archeological Society Journal

Patterson, L. W., J. D. Hudgins, S. M. Kindall, W. L. McClure, M. Marek, T. Nuckols, and R. L. Gregg
1998 *Additional Excavations at the Bowser Site, 41FB3, Fort Bend County, Texas, Part 1: Archeology*. Houston Archeological Society, Report No. 14, Fort Bend Archeological Society, Report No. 7

BEDROCK MORTARS AT 41VV72, SEMINOLE WATERING HOLE, VAL VERDE COUNTY, TEXAS

James B. Boyd

ABSTRACT

Numerous bedrock mortars located in limestone ledges at a large rockshelter in Seminole Canyon State Historical Park are reported. Various types of mortars are described and illustrated. Additionally, the rockshelter and its setting is described, as are other features located there, including pictographs and Historic Period graffiti.

INTRODUCTION

41VV72 is a large rockshelter located in western Val Verde County, Texas, in Seminole Canyon State Historical Park (Figure 1). In 1997, the author made two visits to the site in order to visually inspect and photograph various mortars that had been reported there. While in the site, other features were also examined and photographed. These included numerous Red Monochrome pictographs located on the rear wall of the shelter, as well as a veritable array of Historic Period graffiti, scrawled on the manganese-stained rear wall.

Permission to visit the site was granted by the Superintendent of the park, Mr. Emmitt Brotherton. 41VV72 is located in a section of Seminole Canyon that is ordinarily closed to the public. Guided tours to the site are now given on a limited basis a few times per year.

THE SITE AND THE 1997 SURVEY

41VV72 is one of the largest rockshelters in the park. It is located in the northern section of the park, approximately .25 mile (0.4 km) south of U.S. Hwy. 90. The shelter is visible from the highway as one traverses the bridge across Seminole Canyon. 41VV72 is located on the west bank of the canyon, very low in the canyon wall (Figure 2).

The author conducted limited surveys of the rockshelter on September 26, 1997 and December 31, 1997. On these dates, much data was gathered and numerous photographs of the various features were taken. The main area of interest was the mortar features that are located in the bedrock limestone benches in and around the shelter.

Based on information gathered during the 1997 survey, the orientation of the rockshelter was determined to be 150°-330° with a tripod-mounted *BRUNTON* transit. The shelter is generally crescent-shaped, and the center of the cave faces bearing 75°. The width of the site (north to south) is 265ft.(80.8 meters), and the maximum depth of the overhang, measured from the dripline, is 79 ft. (24.1 meters), as determined with a *KESON* 200-ft. reel tape.

At the time of the survey, the floor of the cave varied from bare, exposed limestone bedrock to areas of thick, flood-deposited gravel benches. The rear floor of the cave was bare of gravel and appeared fairly level with an elevation differential of approximately 3.3 ft. (1 meter). This exposed area measured between 10-13 ft. (3-4 meters) in width. The exposed bedrock floor is heavily scarred by numerous deep, parallel grooves, possibly scouring marks created by large boulders being washed along the length of the cave during massive flooding events. Seminole Canyon is particularly subject to periodic flooding, such as the great flood of 1954. During these huge floods, boulders weighing many tons are known to have been transported or moved by the floodwaters (Turpin 1982: 107; 237; 241). Near the front of the shelter, and extending outward beyond the dripline, there is a large gravel berm approximately 10 ft. (3 meters) in height above the floor of the shelter. This gravel berm has accumulated during periodic flooding events.

Two clear pools of water were present in the shelter; a small pool at the south end and a larger pool at the north end. The amount of water in and around the cave is partially dependent on the amount of rainfall in the area at any given time, but there is usually an ample amount. As a matter of historical record, the site has been a regular stop for travelers seeking water for well over one hundred years, and more than likely during prehistoric times (Emmitt Brotherton, personal communication 1997). In historic times the site was named Seminole Watering Hole, and later Seminole Canyon was named after

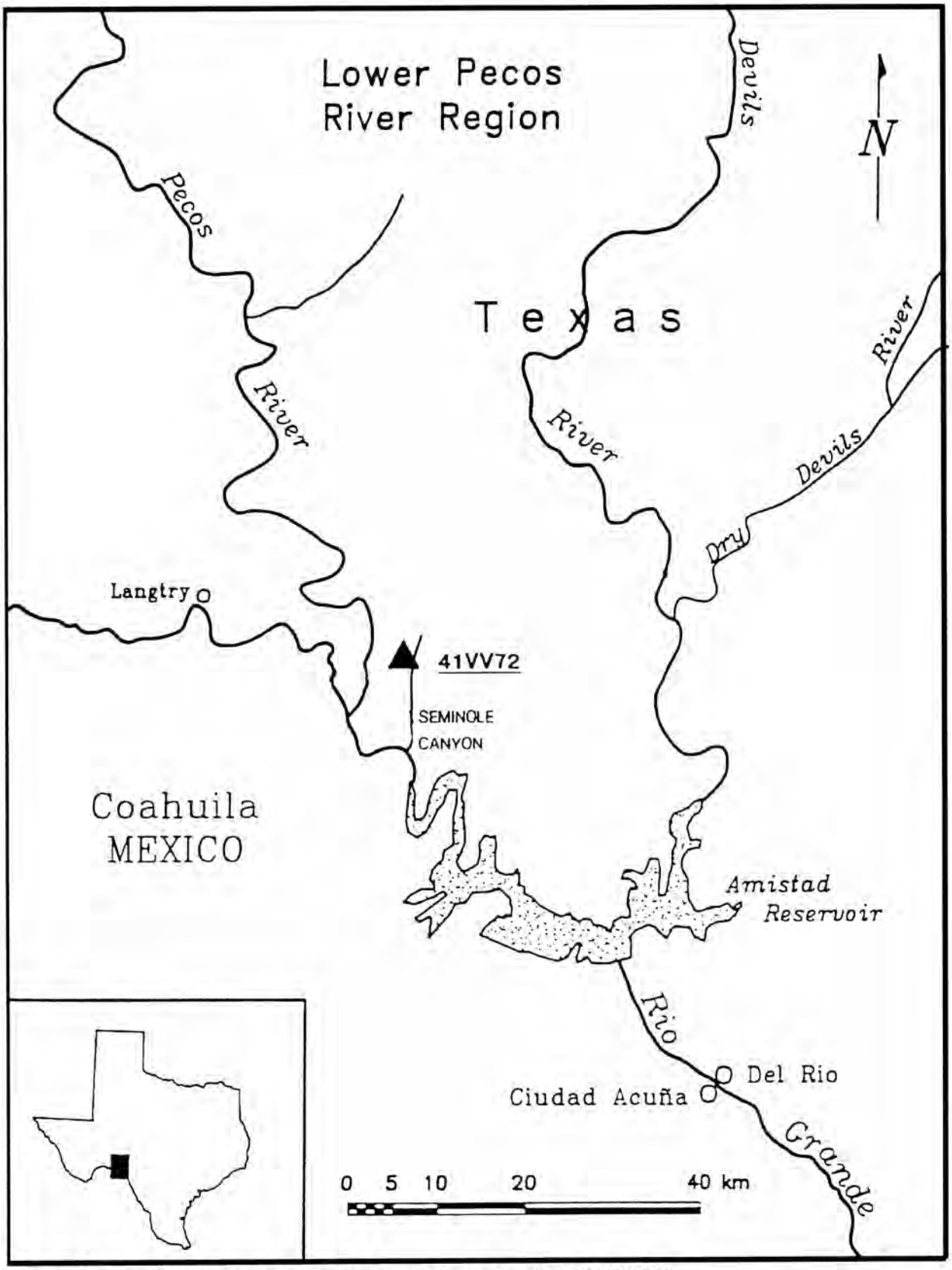

Figure 1. General area map, showing the approximate location of 41VV72.

this site (Emmitt Brotherton, personal communication 1997).

During the September 1997 survey, it was noted that the character of the site changed dramatically as the day progressed. When exposed to direct sunlight in the earlier part of the day, the large pool of water at the north end of the cave produced a spectacular pattern of scintillating, moving reflections that were projected onto the rear wall and ceiling of the cave. These patterns of reflected sunlight danced across the numerous faded red anthropomorphic pictographs along the rear wall of the shelter, producing a spectacular, if not magical, effect. This effect must certainly have had a profound effect on the prehistoric peoples who once inhabited the area. A similar effect was observed by the author at 41VV78, a large rockshelter located in nearby Painted Canyon that also contains a large panel of Red Monochrome pictographs like 41VV72. The fact that the only two large Red Monochrome pictograph panels in this region exhibit this similar characteristic is most intriguing.

The waters in the pools appeared to be rich in algae, and animal life appeared to be thriving. This included very large numbers of small frogs, aquatic insects, and blue dragonfly-like insects. Other animal life observed inside the rockshelter included a small snake, a canyon wren, and millipedes.

Several large limestone boulders are located near the south end of the shelter. A large boulder located at the extreme south end of the cave exhibits at least 5 mortars. Also, the characters "VV72," denoting the site number, were observed painted on a large boulder in this group. The rear wall of the shelter is dark gray in color, the result of manganese staining. There are thousands of small, circular patches of dead lichens, white in color, on the rear wall, especially prominent at the south end of the cave. The canyon rim above the site exhibits an abstract pattern of light tan and orange colored limestone streaked by bands of dark manganese-stains.

THE PICTOGRAPHS AND HISTORIC PERIOD GRAFFITI

Although bedrock mortars were the main focus of the survey, other features in the site were also observed and assessed. These other features include numerous pictographs and Historic period graffiti.

Pictographs.

A very large array of Red Monochrome pictographs adorns the rear wall of 41VV72. The primary motifs observed were large anthropomorphic figures, and some large abstract, geometric shapes were also present. The pictographs are very faded in appearance, and their red hue on the shelter's dark gray walls further reduces their contrast. They have also most likely faded even further due to being washed by numerous (periodic) major floods. During the 1997 survey, the author was able to identify 18-20 recognizable anthropomorphic figures. The anthropomorphs were all rendered in red paint, generally with raised hands, bent elbows, individual fingers depicted, and "spiked" heads (feathers?).

Much has been previously written of the pictographs at 41VV72 (e.g. Turpin 1982:56-61;Kirkland and Newcomb:1967:82-85, ref. Seminole Canyon Shelter 1), so little will be achieved by discussing them at any great length in this paper. It was particularly interesting, however, that lichen colonies had overgrown some of the pictograph panels, whereas in some other areas of the rear shelter wall, the pictographs had been *painted over* the crustose lichens. Turpin (1982:57-60) attributes this to the logical presumption that the pictographs were painted at a time when the lichen colonies were alive and thriving.

Historic Period graffiti.

During the survey, a concerted effort was made to record all readable graffiti located on the rear wall of the rockshelter (see Table 1). Most of the graffiti dates from the late 19th Century, and much of it dates from the Historic Period railroad era in this region, ca. 1881-1882 (Emmitt Brotherton, personal communication 1997).

Several railroad era archaeological sites are located in the area of Seminole Canyon State Historical Park where 41VV72 is located. Just across Seminole Canyon, a few hundred meters east-northeast of the site is 41VV375, a railroad camp dating from the 1880s (Turpin 1982:142-143; Turpin 1995:17). During the 1997 survey, a brief inspection of a portion of this site was made, and large amounts of Historic period debris was observed scattered across the surface of the site. Undoubtedly, some of the workers or visitors to this railroad site were responsible for some of the graffiti at 41VV72.

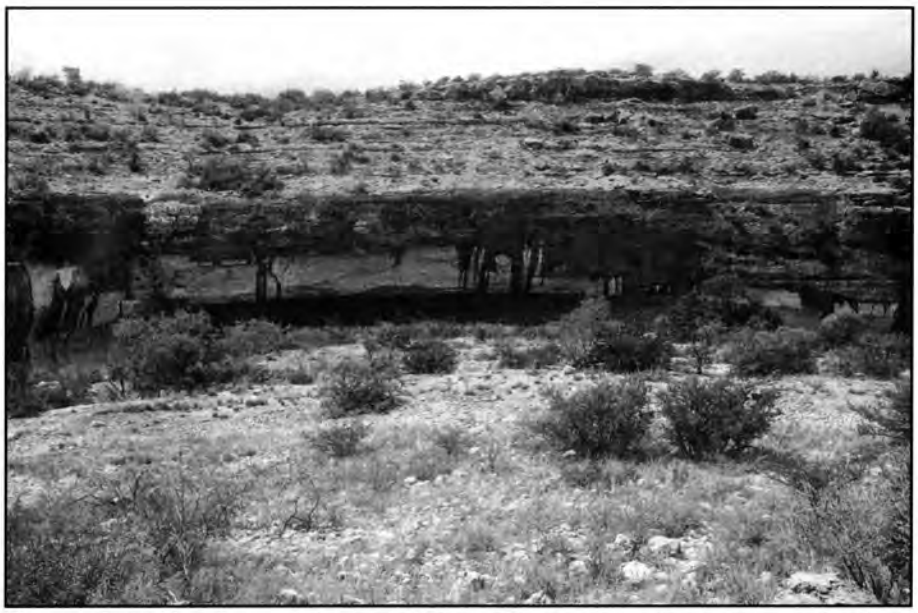

Figure 2. Wide view of the rockshelter. Photo taken from the east bank of Seminole Canyon. View west (bearing 260°). Author photo.

Figure 3. Historic period graffiti on the rear wall of the rockshelter. Note the characters "JJ CARR," "Big 4," "C.H. Frasier," "S.P.RR," "W.H. Taylor," "S.P. Bridgepor...". The "S.P. RR" represents "Southern Pacific Railroad."

Table 1. Historic Period Graffiti - 41VV72. (South to North).

P.C....	CD
W.H....	FUN
GUST	G
PIT	R. FraNciS of SP RR DENVER
PONY	COLO...
V.L. GrADY	W. LhaH
C. Silverthorn	H.J.
O..ge 26	A. OLANDER 1890
L.E.	TF LACEY
W. AHEN	H.A....
Jim J CARR	W. HL HAMBY 20-3-19
20814 20814	SgT...OPP...
CH	MC
JJCARR	JF Thirrey
Big 4	...NEY
C.H. Frasier S.P. RR	...ECIO
W.H. Taylor S.P. Bridgepor...	J.E. Thirrell
R.F....	Mi...
A.C. KWILL	Sifue...
TAYLOR	J. DALTON
JACK	B. McABE
H...O	

In some instances, the graffiti was scrawled over the prehistoric pictographs on the rear wall. The majority of the graffiti appeared as initials, names, and dates (Figure 3), as well as several abstract geometric patterns that represent Historic Period cattle brand designs (Emmitt Brotherton, personal communication 1997).

Most of the graffiti appeared as lighter areas on the dark cave wall. Remnant flecks of black paint were still evident on some of the characters. It appears that the majority of the graffiti had originally been painted (in black) on the wall, but most of the paint has spalled off, leaving the area once painted bleached due to an agent in the paint. A small amount of graffiti has been *scratched* onto the surface of the rear wall, apparently with a sharp instrument(s). Although the graffiti can be viewed as an unsightly defacement to much of the rear wall of the shelter, it may also be viewed as a partial register of the countless people who stopped at this site for rest or water during the Historic period.

THE MORTARS

The 41VV72 site has an abundance of mortar features. They are located in three distinct areas of the site; in limestone ledges in front of the shelter, in a limestone bench at the north end of the cave, and on a boulder at the south end of the cave. Several different types of mortars were recorded. The variation in the types of mortars may be suggestive of their different functions.

41VV72 probably has the greatest number of mortars of any site in Seminole Canyon, even though at present there is no indication that it was ever inhabited during prehistoric times. A large burned rock midden reported to have been in front of the shelter as late as 1958 (Turpin 1982:56) is no longer observable or has been washed away. If it is still present, it is possibly capped by the large gravel berm that was recorded in front of the rockshelter during the 1997 survey. During the author's visits to the shelter, a general survey of all observable mortars

was conducted. They were not mapped due to the number and complexity in distribution of the features, as well as the lack of proper equipment to perform the mapping. Mapping of these features in the future is recommended. Numerous photographs of some of the more apparent or unique mortars were obtained. Below, a discussion is given of each area of the site where mortars are located, and descriptions of the different types are also given.

Limestone ledges in front of shelter.

There are numerous mortars located on a step-like series of limestone ledges in the front (east) of the rockshelter (Figure 4). All of the features are located well beyond the dripline of the shelter, and have been completely exposed to the elements since their creation. Therefore many of the mortars are weathered to varying degrees. During very large floods in Seminole Canyon, these features would have also been submerged and probably exposed to abrasive processes by water-borne stones and sediment.

The exact number of mortars in this part of the site was not determined. There are probably over one hundred such features. In this area there are numerous "standard" type mortar features, consisting of a circular outline, conical shaped depression, varying somewhat in depth. These mortars appear to have been formed by the use of a pestle that was turned in a uniform, nose down, twisting motion on the limestone bedrock. This type of mortar is the most common in the Trans-Pecos region.

The most common type of mortar observed in this area of the site, however, were "basin" mortars (Figure 5). This type of mortar is similar to the standard type briefly discussed above. However, the features are located within naturally formed, generally circular-shaped depressions in the limestone. At the time of the survey, many of these natural depressions were partially filled with water, and some of the mortars were sediment-filled. The placement of mortars in these natural depressions would have helped facilitate the recovery of the material that was being ground in the feature. Dan Potter, archaeologist with the Texas Historical Commission, suggests that these basin mortars be more closely studied in the future to verify their function. Potter cautions that a natural process known as "kettle-holing" sometimes mimics such features in areas near streambeds. The process involves sediments or small rocks trapped in vortices near depressions or basins in swiftly moving water. The rocks or sediment are effectively ground into the constituent bedrock by these vortices, creating depressions that can be mistaken for mortar features.

During the December 31, 1997 visit to the cave, one of the mortars that was sediment–filled was cleaned out by Mike Davis of the Texas Historical Commission. The bowl of the mortar was noticeably stained red in color; similar in shade to the pigment used in the Red Monochrome pictographs located on the rear wall of the rockshelter. The suggestion that at least some of the mortars were used to grind the pigment used in the paint was discussed. Although at this time this is only conjecture, this particular feature and other possible similar features should be studied in detail, and samples of the pigment procured in order to determine its source. After the feature was examined, it was covered in order to protect it from the elements. Francisco (1976:61) asserts that some bedrock mortars at pictograph sites in California are probably paint mortars, whereas others may have been used by shamans for preparing medicines. This is certainly interesting, to say the least, given the circumstances present at 41VV72; namely that there are so many mortars at this site that, at least at the present, exhibits little or no signs that it was ever actually inhabited.

Limestone bench at north end of shelter.

The mortars in this area of the site occur on a relatively flat limestone bench that effectively forms the bedrock floor of the rockshelter (Figure 6). Much of the floor is gravel covered, but this portion of bedrock was exposed by erosional processes during the last few years after having been covered by stream-washed gravel for many years (Emmitt Brotherton, personal communication 1997).

Altogether, over 50 mortars were observed in this area. It is very probable that additional mortars are present, buried under adjacent beds of accumulated gravel. Two of the mortars were located near the rear wall of the rockshelter (north end). One of these was measured at 7.5 in. (19.0 cm) in diameter. The depth of the feature was undetermined, as the bottom contained tightly-packed sediment, but it was greater than 8.5 in. (21.6 cm). The depths of most of the deeper mortars were not measurable, as most contained tightly deposited accumulations of sand and gravel, and equipment was not available at the time of the survey for its removal. Four mortars were located outside the rockshelter, beyond the dripline.

Several types of mortars were recorded in this limestone bench. Most were of the "standard" variety (Figure 7). "Basin" mortars, like those in the limestone ledges facing the shelter, were also present, but

Figure 4. View of basin mortars on limestone bench in front of 41VV72. Note the north arrow. View west (bearing 260°). A portion of the shelter is visible in the background.

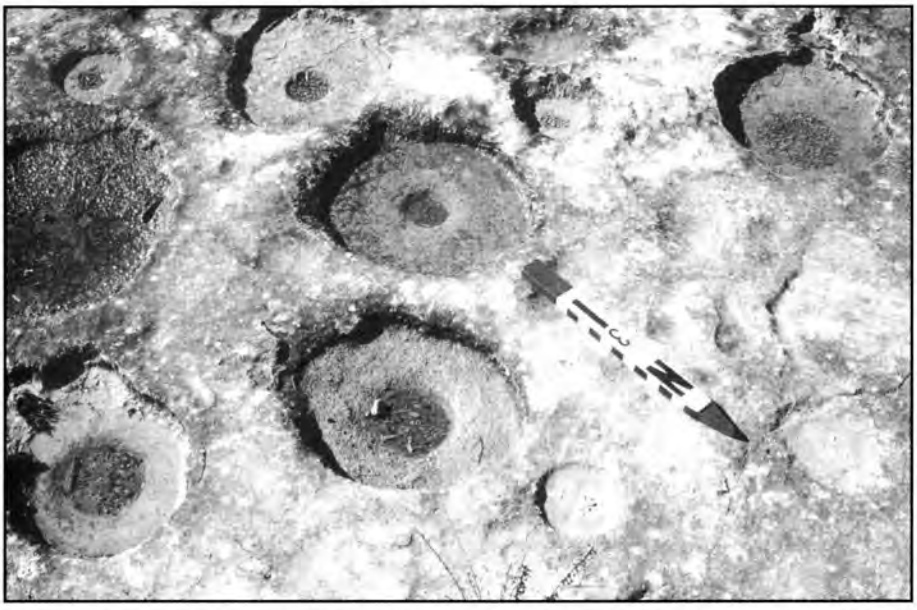

Figure 5. Detailed view of several basin mortars located in the limestone bench in front of the shelter. Note that the mortars are partially sediment-filled. View southwest (bearing 225°).

Figure 6. Wide-angle view of mortars in exposed limestone bench at the north end of the rockshelter. View north. Note the pool of water at upper left of photo.

Figure 7. Detailed view of four mortars near the north end of the shelter. Top three mortars are "standard" mortars; bottom mortar is a "basin" mortar. The basin measures 1 ft. 5 in. x 1 ft. (43.2 cm x 30.5 cm); the mortar itself is 7 in. (17.8 cm) in diameter. View east (bearing 90°).

in far fewer numbers (Figure 7). The basins in which these mortars occurred differed from those outside the cave in that the basins themselves appeared to be man-made, rather than natural depressions in the limestone. Three unusual mortars were noted that were similar to the "boat-shaped" mortars reported by Riemenschneider (1994:3-5) and Riemenschneider and Turpin (1998:36-41). The three at 41VV72 differed from those because only the upper area of the mortar depression was boat-shaped; the "bowl" itself was not boat-shaped, but rather oval in shape (Figure 8). It appears that some angular motion by the pestle that was used in conjunction with this type of mortar caused the unusual extended and elliptical shape to occur. Another mortar that was recorded had an unusual "hot-dog" (elliptical) shape (Figure 9). This mortar was probably formed when the rounded nose of the pestle was pushed away and pulled back toward the person(s) who worked it. In addition to the above types of mortars, several "starter" mortars were recorded (Figure 10). These "starter" mortars are apparently in their very early stages of use. The depth of these features measured as little as 1/8 in. (3 mm) or less.

The mortars near the north edge of the shelter appeared much better preserved, i.e., less weathered, than their counterparts on the ledges in front of the site. These mortars are less exposed to rainfall, but are still exposed to the ravages of massive floods through Seminole Canyon. It is possible that periodic covering of the features by large amounts of stream derived gravel might actually account for their better preservation.

Boulder at south end of shelter.

At least five mortars were observed on a large limestone boulder located at the extreme south end of the rockshelter. The mortars were of the "standard" variety. The best example in this group was measured at 6 in. (15.2 cm) in diameter, and 4 in. (10.2 cm) in depth. This boulder is one of a small group of similar boulders at the south end of the cave.

On one of the other limestone boulders in the group, the author tentatively identified 10 very small, conical shaped depressions that appeared obviously man-made (Figure 11). These small depressions are identified as "cupules" (Hixson 1997:58; letter to the author dated January 5, 1998 from Dan Potter, Texas Historical Commission). "Cupules" are thought to be associated with the processing of nuts, namely acorns in the area of the Trans-Pecos (Dan Potter, personal communication with the author 1998). These features are rarely found in sites in the Trans-Pecos, and more work is definitely needed in order to verify their function.

It is interesting to note that cupule features were also recorded by the author at 41VV78, the other large Red Monochrome site located in Painted Canyon, a few kilometers from Seminole Watering Hole. The similarity between the two sites seems to be suggestive of something more than mere coincidence. A small number of cupule features was also noted by the author at a small rockshelter (41VV123) located on the Pecos River at the White Shaman Reserve.

SUMMARY

41VV72, otherwise known as Seminole Watering Hole, has attracted the attention of numerous archaeologists over a long period of time. The primary area of interest in this site is the very large panel of Red Monochrome pictographs. Although faded in appearance, they are still vivid enough to evoke a sense of wonderment for those who once inhabited the adjacent canyons and conveyed their artistic, or perhaps spiritual, message that still persists today.

In 1997, the site was visited on two separate occasions by the author, and an effort was made to record data on the various features at the site. Although notes were made and photographs taken of the pictograph panels, the primary focus was on other features present at the site, including Historic period graffiti and bedrock mortars.

The Historic period graffiti apparently dates largely from the early railroad era in this region, i.e., the late 19th Century. Consisting mainly of names, initials, and dates, other forms of graffiti representing Historic Period cattle brands are also present. Although some of the graffiti is painted over the prehistoric pictograph panels, the incidences are few and the graffiti itself may be considered as a unique, though modern, art form.

The mortars at this site were the primary features of interest during the survey, They are present in three distinctive areas of the site, and occur in great numbers. Various types of mortars are present, probably indicative of differential functionality. Also present, and quite rare in the geographic region, are "cupules," possibly representing former nut-processing activities at this site. Another mortar with red staining in the bowl area might possibly indicate that at least some of the mortars in this site were used to grind the pigment for the Red Monochrome picto-

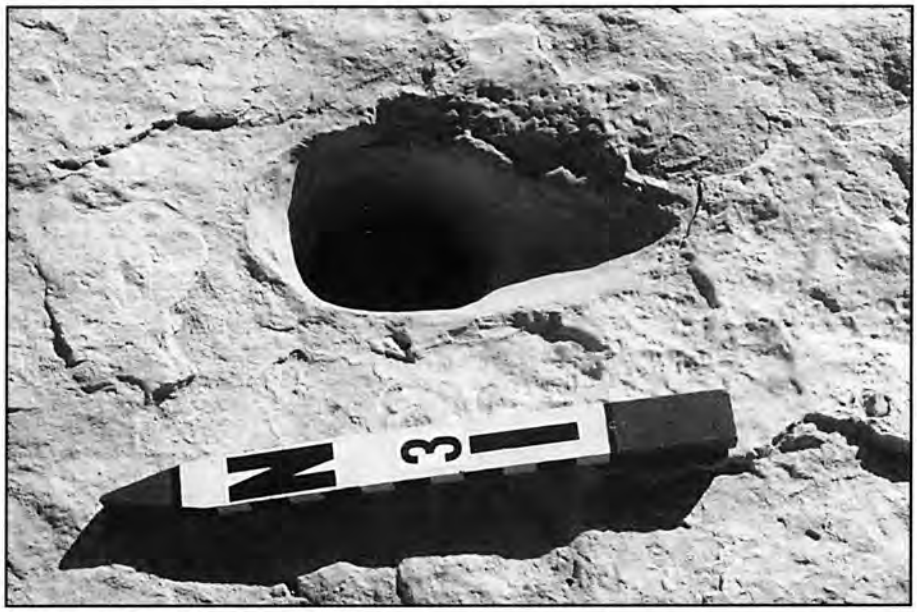

Figure 8. Detailed view of elliptically-shaped mortar near the north end of the shelter. The feature measures 1 ft. (30.5 cm) in length and 5 in. (12.7 cm) in width. The black line below the "3" on the north arrow measures 3 in. (7.6 cm) in length. View east.

Figure 9. "Hot-dog"-shaped mortar near the middle of the shelter. This feature measures 9.5 in. (25.1 cm) in length, 2.5 in. (6.4 cm) in width, and has a maximum depth of .67 in. (1.7 cm). View east.

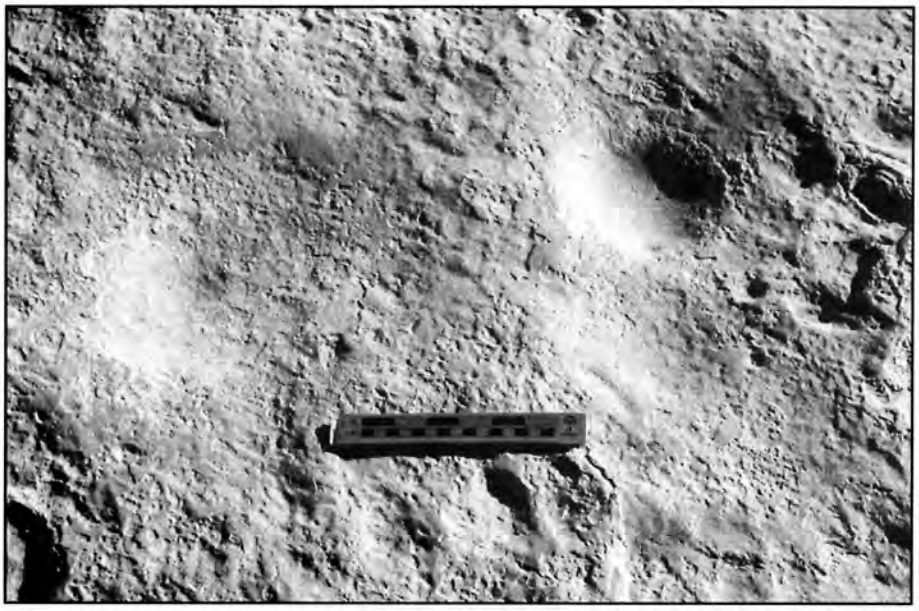

Figure 10. "Starter" mortars near the north end of the shelter. Mortar at left has a diameter of 10 in. (25.4 cm); slightly deeper mortar at upper right has a diameter of 6 in. (15.2 cm). Note other shallow "starter" mortar just to the upper right of scale. View east.

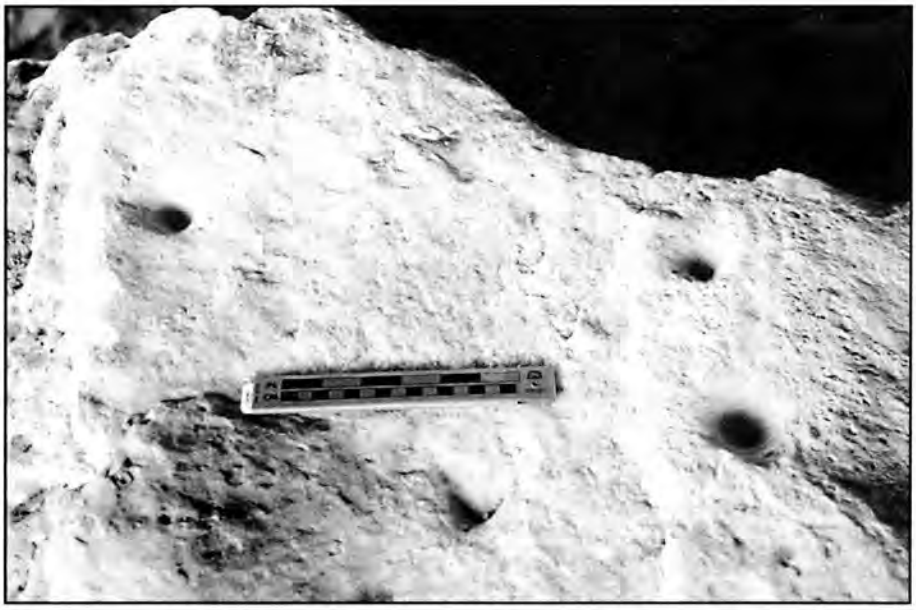

Figure 11. View of three "cupules" on boulder at south end of cave. There are 10 similar features on this boulder. Diameter of the features ranges from 1.5 in. (3.8 cm) to 2.0 in. (5.1 cm).

graphs.

In many ways, the setting of this very impressive site parallels that of nearby 41VV78, in Painted Canyon. Both rockshelters are located on the west bank of their respective canyons, both face generally east, both are low in the canyon wall, both contain nearly perennial pools of water that cast scintillating patterns of reflected sunlight on the rear walls, and most importantly, both sites contain very large panels of Red Monochrome pictographs. The similarities between the two sites may be more than sheer coincidence.

The 41VV72 site possesses many attributes that make it one of the most interesting rockshelters in Seminole Canyon State Historical Park. The natural beauty of the canyon bottom and the varied coloration of the adjacent canyon walls are accentuated bythe cultural features that have been left behind as a legacy by the untold numbers of visitors to Seminole Watering Hole over the centuries.

ACKNOWLEDGMENTS

Emmitt Brotherton, Superintendent of Seminole Canyon State Historical Park, was most hospitable to the author during visits to the park. Mr. Brotherton has been an invaluable resource in regards to the history and prehistory of sites in the Seminole Canyon area, including 41VV72. Dan Potter, archaeologist at the Texas Historical Commission, provided literature that was very helpful in the preparation of this report. Potter also encouraged the author to continue studying and publishing reports on mortar sites in the Trans-Pecos and other areas of Texas. Mike Davis, archaeologist at the Texas Historical Commission, assisted the author at the site during one of his visits. Davis was also instrumental in encouraging the author to report studies of mortar sites. Jeremy Boyd, the 9-year-old son (in 1997) of the author, accompanied him to 41VV72 on December 31, 1997, and was very helpful during the survey, as well as pleasant company.

REFERENCES CITED

Francisco, Alice B.
1976 The Distribution and Function of Bedrock Mortars in California. In *Experiment and Function: Four California Studies.* Contributions of the University of California Archaeological Research Facility. Number 33. Department of Anthropology, University of California, Berkeley.

Hixson, Charles A.
1997 41BC130: A Prehistoric Food-Processing Site in Blanco County, Central Texas. In *The Steward: Collected Papers on Texas Archeology.* Volume 4. Office of the State Archeologist, Texas Historical Commission, Austin.

Kirkland, Forrest and W.W. Newcomb, Jr.
1967 *The Rock Art of Texas Indians.* Reissued 1996. University of Texas Press,Austin.

Riemenschneider, Larry
1994 Boat-Shaped Mortars in Reagan County, Texas. *La Tierra* 21(3):3-5.

Riemenschneider, Larry and Solveig A. Turpin
1998 Boat-Shaped Mortars in Crockett County, Texas. *La Tierra* 25(1):36-41.

Turpin, Solveig A.
1982 *Seminole Canyon: The Art and the Archeology, Val Verde County, Texas.* Texas Archeological Survey Research Report No. 83. The University of Texas at Austin.

Turpin, Solveig A. with a contribution by Wilson E. Dolman
1995 *41VV540: A Railroad Era Industrial Site in Seminole Canyon State Historical Park, Val Verde County, Texas.* Texas Parks and Wildlife Department Cultural Resource Program Report 95-1. Austin, Texas.

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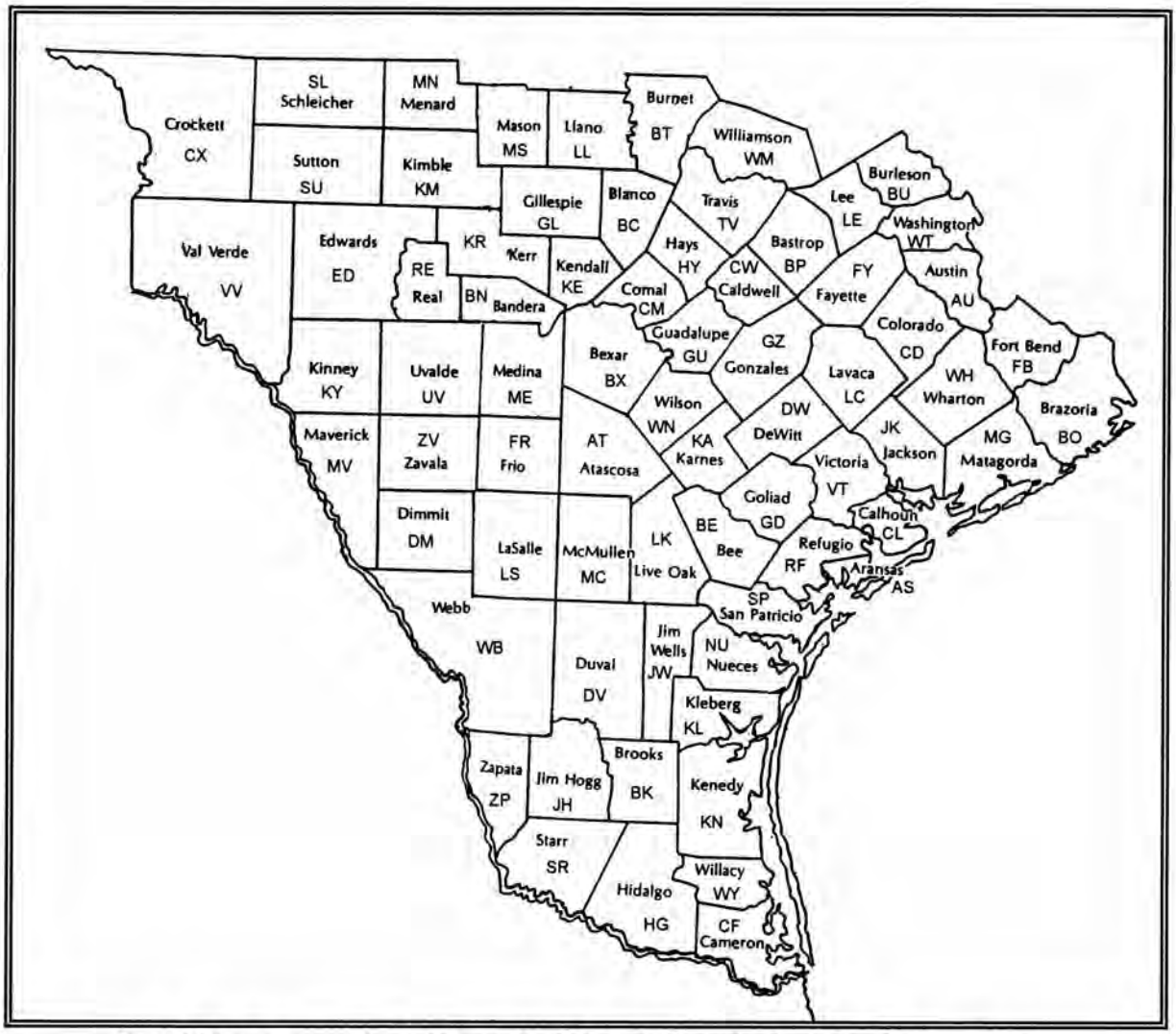
APPENDIX A



South Texas counties with symbols for archaeological site designations.

CONVERSION CHART

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

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 3 ½" disk, IBM or compatible, in ASCII form (if not in Word Perfect or Word), 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 requires special processing which adds to the cost of the issue. 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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