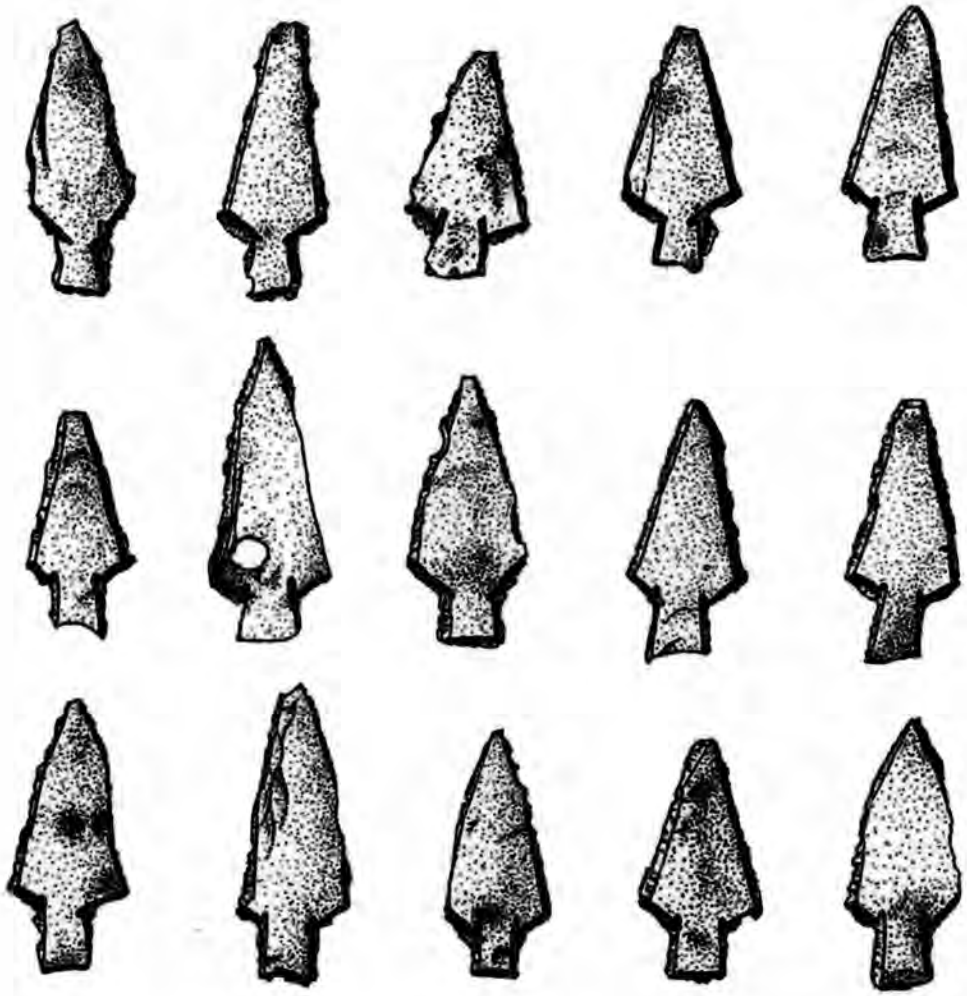
La Tierra



Volume 35
No. 1 & 2
2008

Journal of the
Southern Texas
Archaeological
Association

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About the cover: Drawings by Richard McReynolds from *Metal Points Made from a Cast Metal Pot*

ISSN No. 0163-0695

Printed in 2009 in the United States of America by Morgan Printing in Austin, Texas

Contents

A Surface-Collected Assemblage From Berger Bluff, Goliad County

Kenneth M. Brown

ABSTRACT

A small assemblage of stone tools collected from the surface at Berger Bluff (41GD30) is described here for the first time. The most interesting items are two Victoria points and a Clear Fork tool. The other items are Middle or Late Archaic projectile points, thinned bifaces, a biface reject, and a metapodial awl. A Victoria point collected at 41GD31, a short distance downstream from Berger Bluff, is also described and illustrated here. It has been previously published (as an Angostura point), but is described in detail here for the first time and is compared to the two examples from Berger Bluff. Only the Victoria points represent new additions to the Berger Bluff artifact inventory, but they help substantiate Late Paleoindian or Early Archaic occupation of the area. I also suggest there may be some value in distinguishing these points from the weakly shouldered Early Stemmed Lanceolate variety.

INTRODUCTION

The Berger Bluff site (41GD30) was recorded by UTSA-CAR in 1975 (Fox and Hester 1976) and tested in 1977 (Fox, Black and James 1979). In June, 1979, a large block excavation was dug on the blufftop in Area A by David Brown (1983). I tested the lower, or bench deposits in November and December, 1979 with a CAR crew and sporadically from January to April, 1980 with volunteer labor (Brown 2006). In the summer of 1983 further work was done at Area B and at another site downstream (41GD31) to assess the impact of the planned construction of Flume #3 for the cooling reservoir (Brown 1986). Despite all this excavation, the inventory of known artifact types from the site is rather short, and much of what is known about the artifact inventory (and hence, the age of the occupations) comes from private artifact collections. Some of the artifacts described in this report were found in about 1980 by the late Mark D. Hudgeons, of Goliad, and were found at the base of the bluff in Area A, eroded from the overlying deposits. Others (Specimens 834-838 inclusive) were found by George Myers, of Victoria, and were obtained from him by Hudgeons. All were reportedly found at Berger Bluff. The range of time periods represented suggests artifacts were eroding from several different levels of the bluff. In 1987, Hudgeons lent the collection to the CAR for study; his catalog numbers are retained here to identify the artifacts. The Clear Fork tool reported here was recovered by Sonny Timme, of Victoria, who found it embedded in the creek bank. These specimens were all examined with an Olympus stereozoom binocular microscope at low magnifications, usually 20X. All of the artifacts in this report were opaqued for photography except the Clear Fork tool, the metapodial awl, and the two asphaltum-coated Morhiss points (specimens 836 and 850).

VICTORIA POINTS: CONFUSION, CLASSIFICATION AND DISTRIBUTION

Victoria points are a variety of the Texas Angostura family of projectile points, with a strong morphological resemblance to Hell Gap points from the northern and central Plains. Tom Kelly (1983:20) originally defined Victoria points as:

> ...contracting stem Paleo-Indian points with deeply concave basal edges like BRM29. "Victoria" is suggested for this type,

as a number have been found in that county from the Johnson (*sic*)-Heller Site (Birmingham and Hester 1976:Figure 4) and from the J-2 Ranch (Fox, *et al.* 1978:Figure 4h).

Let us examine Kelly's one-sentence definition. The only diagnostic attribute he lists is a concave base. The example he illustrates, BRM 29, is a proximal fragment and it is impossible to tell what the complete point looked like. Likewise, the J-2 Ranch example is heavily reworked into a broken drill and it is impossible to tell what the original point looked like. Only the examples from the Johnston-Heller site (Birmingham and Hester 1976:Figure 4 and Bourbon 1997:Fig. 4.2) are complete, and these include both weakly shouldered specimens (Birmingham and Hester 1976:Figure 4, a, b, c) and unshouldered specimens with incurvate stem edges (Birmingham and Hester 1976:Figure 4, d). More recently, Turner and Hester (1993:107) separate (and rightly so, I think) the weakly shouldered variety as Early Stemmed Lanceolate points.

It is apparent from the Texas archeological literature that there are at least three distinct stem treatments for these various kinds of Angostura-like points: A) weakly shouldered (*Early Stemmed Lanceolate*); B) slightly incurvate stem edges (I suggest restricting the name *"Victoria"* to this variety), and C) straight or slightly convex stem edges (*Texas Angostura*). See Figure 1 for idealized outlines (also Thoms 1993:Fig. 1).

Kelly's definition, then, seems to conflate both the weakly shouldered and the unshouldered varieties, and a survey of the subsequent literature shows that most authors have also followed this practice. Table 1 lists a few examples and shows that both varieties are frequently found at the same site. In practice, the term "Victoria point" has more often been applied to what Turner and Hester would call Early Stemmed Lanceolate points (cf. Prewitt 1995:Fig. 48). It is also apparent that not all examples have concave bases—some have straight or slightly convex bases.

Flaigg (1995) analyzed the J-2 Ranch collections in much more detail and discusses the classification of Early Stemmed Lanceolate and Victoria points at some length (Flaigg 1995:2-28, 42). His definition of Victoria points is as follows:

> For the purposes of this report, Victoria points are considered to be a medium to large lanceolate point with convex edges, a contracting haft area, basal concavities ranging from slight to moderate, and an interesting array of stem treatments. Shoulders, usually present, tend to be very weak and ill-defined. Stem edges are usually ground from the shoulders to the base. The flaking pattern is generally random, and the basal treatment is usually accomplished with numerous small short flakes, resulting in a beveled or short wedge-shaped base (Flaigg 1995:42).

All of the J-2 Ranch examples that he illustrates (Flaigg 1995:Fig. 7a, items E-G; Fig. 7b, items e-g) are of the unshouldered variety.

More recently, Dial, Kerr, and Collins (1998:322-324, Fig. 13-5; see also Bousman, Baker and Kerr 2004:23, 26; Fig. 2.13) apparently conflate both the shouldered and unshouldered varieties in their Thrall type. It is suggested that Angostura points most likely date about 8000-9000 radiocarbon years before present (Bousman, Baker and Kerr [2004:60-61; see also

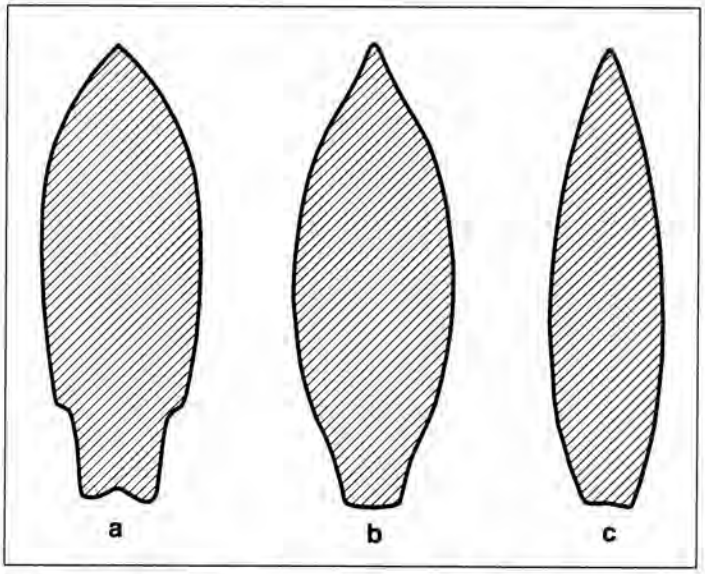

Figure 1. Idealized Outlines for Suggested Types in the Texas Angostura Family. A, Early Stemmed Lanceolate; B, "Victoria;" C, Texas Angostura.

Table 1: Victoria and Related Points

County	Number	Reference
A. **Weakly Shouldered Points (Early Stemmed Lanceolate)**		
Bee	1	Nash (2001:38-42, Fig. 6)
Bexar	1	Chandler (1994:13, Fig. 2, A, A')
Kendall	1	Chandler (1989:Fig. 2, A, A')
San Patricio	1	Saunders (1988:28, 29; Fig. 2)*
Victoria	1	Bourbon (1997:44-49, Fig. 4.2, A, C, D)
Walker	1	Moore (2001)
B. **Points With Incurvate Stems** (I suggest "Victoria" for these)		
Bexar	1	Chandler (1994:13, Fig. 2, D, D')
Bexar	1	Black and McGraw (1985:124, Fig. 22, v)
Crockett	1	Crawford (1973:Fig. 16, B)
Kendall	3	Chandler (1989:33, Fig. 3, A, A', B, B', C, C')
Kendall	1	Neureuther (1985:Fig. 6, top)
Live Oak	2?	Dodt-Ellis, Highley, and Wright (1995:Fig. 318, C, D)
San Patricio	2	Chandler (1982:27, 29, Fig. 2, c, e)
Val Verde	1	Johnson (1964:52, Fig. 15, K)
Val Verde	1	Schuetz (1956:Plate 18, G)
Victoria	3	Flaigg (1995:42; Fig. 7a, items E-G; Fig. 7b, items e-g)
Victoria	1	Bourbon (1997:44-49, Fig. 4.2, B)
Williamson	1	Schuetz (1957:Fig. 33, C)
"Orchard" (resharpened Angostura?)		
Fort Bend	1	Duke (1985:19, 22, A)
Harris	1	Bailey *et al.* (1988:145, Fig. 47, c)
Harris	1	McClure (1980:18, Fig. 46, A)
LaSalle	1	Mitchell (1976)
Thrall		
Williamson	19	Dial, Kerr, and Collins (1998:322-324, Fig. 13-5)

* The text on pages 28 and 29 is reversed.

Kerr and Dial (1998:487)] with Thrall points stratified somewhat above Angostura at Wilson Leonard. At the Woodrow Heard site in Uvalde County, a series of specimens that may resemble the Victoria points from Berger Bluff have radiocarbon assays on wood charcoal ranging from 8010 ± 50 to 8380 ± 50 radiocarbon years before present (corrected for fractionation, but not calibrated; Decker, Black and Gustavson 2000:Table 6).

Leaving aside the specimens that are simply called "Angostura" or "Texas Angostura," is there any value in distinguishing between these two somewhat distinct stem treatments, A and B? In reality, there is a great deal of overlap between them, and there are many specimens that cannot be unambiguously assigned to either group. We know that both kinds often appear at the same site, but we don't know if these two varieties have different chronological, cultural, or

functional meanings. Most of the published examples are surface finds, and both varieties seem to be widespread across Texas. At Loma Sandia, at least two specimens (Dodt-Ellis, Highley, and Wright 1995:Fig. 318, C, D) resembling form B, one resembling form A (Dodt-Ellis, Highley, and Wright 1995:Fig. 318, B), and four more that are either heavily resharpened or have snapped-off stems, and could represent either form, were all found in the same cache.

Is it possible that Early Stemmed Lanceolate points are simply specimens with reworked stems, perhaps for refitting to a narrower shaft? A remarkably large proportion of the points in the Texas Angostura family (and I include here Early Stemmed Lanceolate and Victoria points) have been broken, reworked to a foreshortened tip, reworked to a needle tip, or reworked into drills. The points from the Woodrow Heard site are good examples—all either had the distal ends snapped off or were reworked to a shorter point (Decker, Black and Gustavson 2000:Fig. 172). In many cases, the original configuration of the point is not at all clear. In cases where complete specimens can be examined, it seems that form A often seems to have rather straight blade edges, while form B has strongly convex blade edges. This suggests these two forms are really distinct shapes, not simply alternate stem treatments.

Considering that so little is known about the age, distribution, and cultural affiliations of these points, I think there is some value in distinguishing between these stem configurations, at least until it can be proven that there is no cultural or chronological disparity between them (although the Loma Sandia cache does seem to cast doubt on the distinctiveness of the two forms). I favor retaining the term Early Stemmed Lanceolate for the shouldered variety (A) as proposed by Turner and Hester, and I propose restricting the term "Victoria" to unshouldered points with incurvate stem edges (B, and Figs. 2-3 in this paper). A definition of the Victoria type might look something like this:

Victoria points are Hell Gap-like lanceolate points, without a clearly demarcated stem element, but with slightly incurved edges on the proximal half of the body. In some examples, the edges may expand again at the base, giving the point a slightly waisted or bulbous-stemmed appearance (Chandler 1989:Fig. 3, A, A'). Bases may be straight (Chandler 1982:Fig. 2, c), slightly concave (Flaigg 1995:Fig7b, items e-f; Davis 1991:177, bottom right example), or slightly convex (especially on the bulbous-stemmed examples).

These points also have obvious morphological affinities to Hell Gap points from the Casper and Hell Gap sites and elsewhere (Frison and Stanford 1982:Figs. 2.54, A, B, item a; Fig. 2.56, A, B, item t; Fig. 2.57, A, B, items o, p; Agogino 1985). Points classified as Hell Gap are occasionally found in Oklahoma (Thurmond 1990:Fig. 20, a) and Texas (Prewitt 1995:Fig. 24), but it seems unlikely there is any direct genetic connection with any of the Texas Angostura point varieties. On the northern Plains, Hell Gap points are perhaps a millennium older, despite the obvious morphological similarity. Perhaps a more relevant relationship might be found with Lovell Constricted points from the Intermountain West; these date to about 8300 radiocarbon years before present (Pitblado 2003:100, Figs. 5.13, 5.14) and may be contemporaneous with Victoria points.

The term "lanceolate" has a meaning that goes beyond shape. Early Stemmed Lanceolate points are identical in morphology (if not material and flaking technique) to Eskimo lanceheads that Bockstoce suggests were used to spear swimming caribou from kayaks (Bockstoce 1977:Fig. 23, A, B). The barbless shape of all these variants suggests these are points for thrusting weapons, designed to be repeatedly inserted and withdrawn from the prey in face-to-face encounter hunting, perhaps with the aid of dogs to harry and distract the prey (cf. Churchill 1993:16-17). They are likely not dart points, used in ambush hunting. In the Eskimo examples, the shaft diameters are about 2.3-2.5 cm and the shaft length is about 1.8-2.0 m (for use in a kayak, perhaps slightly shorter than lances used by pedestrian hunters).

DESCRIPTION OF THE COLLECTIONS

Projectile Points

Victoria (Fig. 2, A; Specimen 853)

This specimen reportedly was found on the Lissie terrace scarp, south of 41GD30A on the Dietzel property, in a mott of blackjack oak trees. It is therefore outside the mapped limits of Berger Bluff, in an area where only very light scatters of

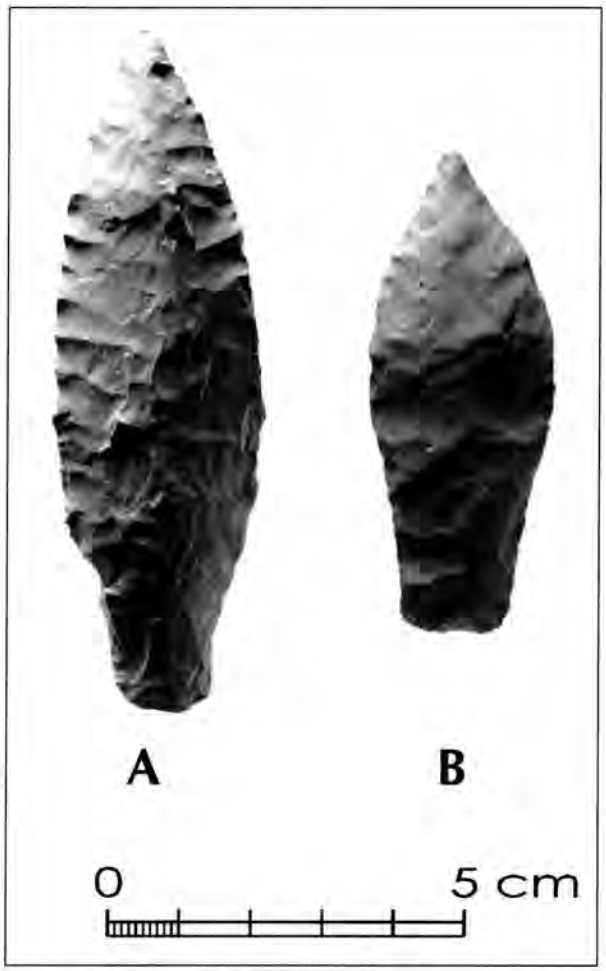

Figure 2. Victoria Points Collected at Berger Bluff. A, Specimen 853 (found on the surface of the Dietzel property, outside the mapped limits of 41GD30A); B, Specimen 849.

Figure 3. Victoria Point From 41GD31. This specimen was found on the surface about 250 m downstream from Berger Bluff at a nearby site designated 41GD31. It has been previously published (Brown 1986:Fig 3, l). Made of semitranslucent chalcedony, here it has been opaqued for photography.

chipping debris have been seen, and is not directly associated with post-Beaumont alluvium. It is made of fine-grained light, yellow-brown chert with a slightly dull luster. The craftsmanship is much better than Specimen 849, probably because the raw material is better. Both stem edges and the base are ground; grinding extends 30.4 mm and 23.2 mm from the base. When viewed from the tip looking towards the basal end, the point has a decided twist (in the same direction as Specimen 839, which is also twisted). The base is somewhat rounded. Flaking is generally parallel-collateral, except on the stem. Flake scars extend to or occasionally beyond the midline. Primary thinning scars are about 5.1 to 16.5 mm long and 2.3 to 8.1 mm wide on one face, and are 2.3 to 16.0 mm long and 2.5 to 8.0 mm wide on the other. There is almost no evidence of pressure trimming on this point (a few minute scars along lateral edges could have been produced either by pressure flaking or abrader scrubbing). The stem lacks basal thinning. This point resembles the one from 41GD31 (Fig. 3), discussed in another section to follow.

At 20X, edges show light to moderate edge rounding on projections, mostly toward the distal end. The tip shows moderate rounding, and light polishing of scar ridges is present on the distal 2 mm of both faces.

maximum length: 9.40 cm
maximum width: 2.94 cm
stem width at base: 1.35 cm
maximum thickness: 1.01 cm
weight: 24.93 g

Victoria (Fig. 2, B; Specimen 849)

This specimen is made of light tan-gray, grainy chert with a matte luster. Neither the stem edges nor the base are ground. This point has a less constricted stem than Specimen 853. Most of each face is covered by large, fairly wide, shallow, soft-hammer percussion scars that extend to the midline. These are subovate to expanding in shape, oriented at a right angle to the long axis of the point; the largest of these scars is 15.2 mm long, expanding in shape, and 11.9 mm wide at its distal end. One edge of the point has been trimmed and thinned by fairly narrow, diagonal, parallel flake scars (reaching to the midline near the tip, about halfway to the midline farther toward the base). These are up to 8.3 mm long and about 2.3 to 3.9 mm wide. The opposite edge near the tip simply has more laterally directed, broader pressure or soft-hammer scars. The point is slightly asymmetrical in plan view and one face (not illustrated) has a large knot that the knapper was unable to remove. In side view the specimen is longitudinally curved, possibly because of the presence of the knot. Both edges have discontinuous, fine pressure trimming.

The base has one small flake scar originating from the basal edge on one side and a remnant of another on the other side; otherwise there is no basal trimming except by scars originating from the basal edges. The base is essentially straight with rounded corners.

At 20X, light rounding of edges is visible at various places but is neither pronounced nor lengthy in extent. This specimen somewhat resembles one reported by Chandler and others (1983:Fig. 2, b, with a missing base) from Jim Wells or Nueces County, but is larger.

maximum length: 6.61 cm
maximum width: 2.56 cm
maximum thickness: 0.97 cm
basal width: 1.54 cm
weight: 15.69 g

Unclassified Pandale-like (Fig. 4, A; Specimen 839)

This point has attributes of both Pandale and Nolan points but is not a close match for either. It is made of gray-brown, good quality, very homogeneous chert. The blade is strongly twisted and is beveled both on the tip, which has probably been reworked, and on the stem. One face has large, expanding soft-hammer scars that overreach the midline; the other has smaller soft-hammer scars that mostly extend to the midline. Intermittent pressure trimming is present along the edges.

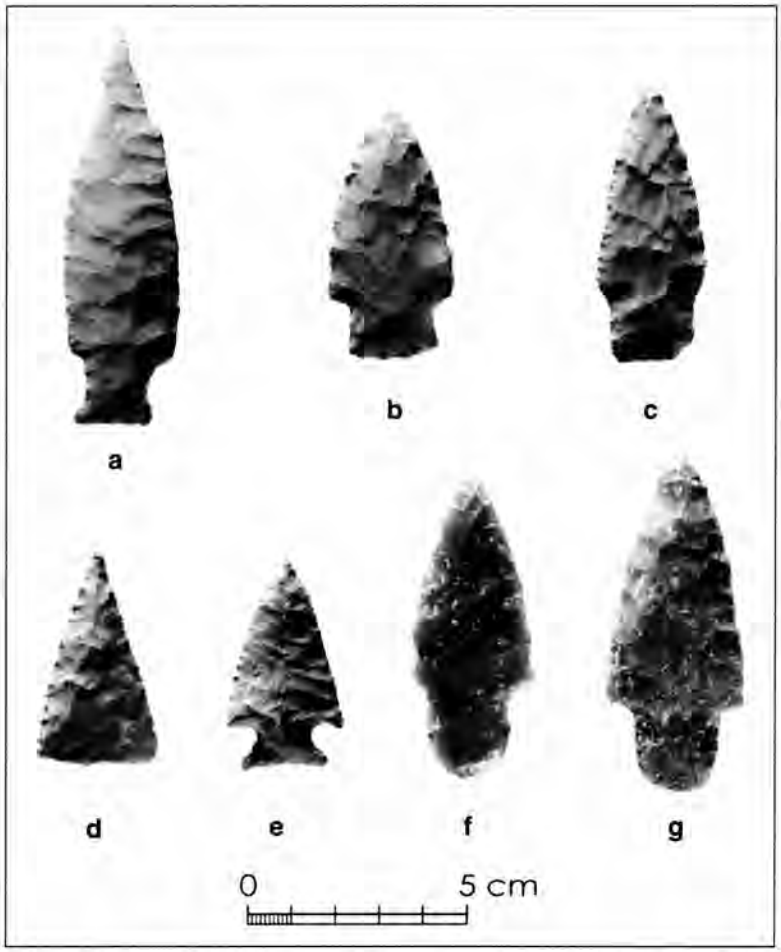

Figure 4. Projectile Points. A, unclassified Pandale-like (Specimen 839); B, La Jita or Morhiss (Specimen 841); C, Travis (Specimen 835); D, Tortugas (Specimen 844); E, Marcos (Specimen 852); F, Morhiss (Specimen 836); G, Morhiss (Specimen 850). F and G have asphaltum traces on the stem.

At 20X, the reworked and beveled tip shows mostly step fracturing caused by the beveling process. Occasionally, light rounding over step fracturing can be seen; on the remainder of the blade element, occasional light rounding of edge projections occurs. Nibbling (small, invasive, short flake scars) is fairly widespread, though discontinuous, and may be due to wear. Overall, the edges appear relatively pristine.

Although this specimen is well outside the expected geographic range for Pandale points (Prewitt 1995:Fig. 39), it resembles some specimens that have been identified as Pandale (cf. Word and Douglas 1970:Fig. 14, D) or Nolan (cf. Weir 1979:Fig. 10, G; see also Sorrow 1969, Fig. 18, P). The chert appears more typical of the lower Guadalupe River drainage, and the specimen was probably made locally.

maximum length: 9.04 cm
maximum width: 2.59 cm
maximum thickness: 0.74 cm
stem neck width: 1.44 cm
basal width: 1.80 cm
weight: 17.02 g

La Jita or Morhiss
(Fig. 4, B; Specimen 841)

This dart point is made of mottled grayish-brown chert, somewhat coarser-grained with a matte texture, and with small milky inclusions. A rust stain from contact with an iron tool is present on one face. It has a slightly expanding stem, angular but unbarbed shoulders, and a slightly convex base. Basal corners are angular rather than rounded, and in this respect the specimen resembles La Jita or Lange more than Morhiss points. This dart point resembles one from 41 VT 16 classified as Lange by Fox and Hester (1976:Fig 19, i). It is somewhat poorly made and appears to be almost entirely percussion flaked, probably with extensive use of a hard hammer.

At 20X (and also without magnification), edges show frequent step fracturing and crushing, probably a result both of poor chert quality and of hard-hammer percussion.

maximum length: 5.59 cm
maximum width: 2.83 cm
maximum thickness: 0.91 cm
basal width: 2.04 cm
neck width: 1.91 cm
weight: 14.67 g

Travis
(Fig. 4, C; Specimen 835)

This point is made of light brownish-gray chert. It may have been reworked, since both lateral edges show bifacial beveling, while the faces bear wide, shallow soft-hammer retouch scars. Without magnification, the beveling looks as if it were produced by pressure retouch; the flake scars are quite narrow (1.7 to 5.5 mm wide, most about 3 to 4 mm wide), but with magnification, edge crushing and step fracturing can be seen (usually localized), perhaps indicating the use of a small, narrow hard hammer, or possibly a punch. The beveling effect might be due to inadequate percussor mass. The stem has one or two basal thinning scars on each face, and is nearly parallel-sided. The base is straight, and one basal corner is broken off. The shoulders are very weak.

maximum length: 6.27 mm
maximum width: 2.45 cm (at shoulders)
maximum thickness: 0.71 cm
basal width: 1.90 cm
weight: 11.65 g

Tortugas
(Fig. 4, D; Specimen 844)

Made of gray-brown, fairly fine-grained chert, this specimen has some rust stains indicating contact with a metal tool. Beveling of the lateral edges is present but is not well developed. The left edge on each face is only slightly more beveled than the right edge. The base has been thinned by several scars on each face and is wedge-shaped in section. At 20X, the lateral and basal edges appear sharp and pristine. Edges were probably finished by pressure flaking.

maximum length: 4.83 cm
maximum width: 2.69 cm
maximum thickness: 0.71 cm
weight: 7.31 g

Marcos
(Fig. 4, E; Specimen 852)

This small point resembles the Marcos type fairly well except for the slightly concave base, which is perhaps more typical of other types such as Ensor. The greater width and careful flaking of the blade suggest Marcos rather than Ensor. Made of homogeneous brown, vitreous chert, this well-made specimen is finished entirely by pressure-flaking. Both faces are covered by narrow, ribbonlike, parallel-collateral scars which generally meet at the midline. The base is thinned on one side by similar scars, and on the other by less patterned small flake scars. At 20X, the lateral edges appear relatively undamaged except for rows of minute invasive scars probably produced by abrader scrubbing. Some unscrubbed sections retain the scalloped outline left by face-alternate pressure removals.

maximum length: 4.68 cm
maximum width: 2.65 cm
maximum thickness: 0.63 cm
neck width: 1.24 cm
basal width: 1.97 cm
stem length: 0.98 cm
weight: 16.20 g

Morhiss
(Fig. 4, F; Specimen 836)

This point is made of homogeneous, vitreous brown chert. It is very similar in shape and manufacture to Specimen 850. It is relatively thick and appears to be reduced mostly by hard-hammer percussion. Small knots appear near an edge on both faces and the adjacent lateral edges are extensively step fractured where the knapper was unable to thin the face. Flake scars are broad, irregular in shape and varying in orientation. Shoulders are angular and somewhat asymmetrical. The stem is slightly bulbar in outline. Asphaltum patches are less extensive than on Specimen 850, probably because the material has not adhered as well to the vitreous surface of this point. Asphaltum traces extend 16.9 mm from the base on one side of the stem and 18.9 mm on the other. At 20X, the blade edges appear irregular and frequently crushed or step fractured, but unworn. Minute invasive scars, possibly from percussor scrubbing, are visible in reentrants.

maximum length: 6.81 cm
maximum width: 2.79 cm
maximum thickness: 1.00 cm
neck width: 1.76 cm
maximum stem width: 1.84 cm
weight: 18.26 g

Morhiss
(Fig. 4, G; Specimen 850)

This specimen, made of gray, somewhat coarse-grained chert with light gray inclusions, has a slightly tapering stem, evenly rounded base, and angular shoulders. It is fairly thick in cross-section and is (soft-hammer?) percussion-thinned; there appears to be little or no evidence of pressure trimming. Traces of asphaltum cover the stem only, stopping where a line projected across the shoulders would fall. On one face, asphaltum extends 17.6 mm from the base, and on the other 14.8 mm.

At 20X, occasional areas with light to moderate edge rounding can be seen on lateral edges; these are not extensive.

maximum length: 7.71 cm
maximum width: 3.14 cm
maximum thickness: 0.83 cm
stem width: 1.91 cm (at shoulders)
weight: 21.74 g

Thinned, Unstemmed Bifaces
Specimen 837 (Fig. 5, A)

This small biface is lanceolate in shape, with slightly convex lateral edges and a straight base. It is made of light grayish-brown chert and is very carefully thinned. The craftsmanship is better than is shown by the other unstemmed bifaces and by many of the projectile points in this collection. At its thinnest point, the width-to-thickness ratio is 5.8:1. This specimen appears to be made almost entirely by soft-hammer percussion. Minute trimming scars are present along parts of the edge, probably produced by percussor scrubbing. At 20X, all edges appear sharp and undamaged except for some small-scale edge

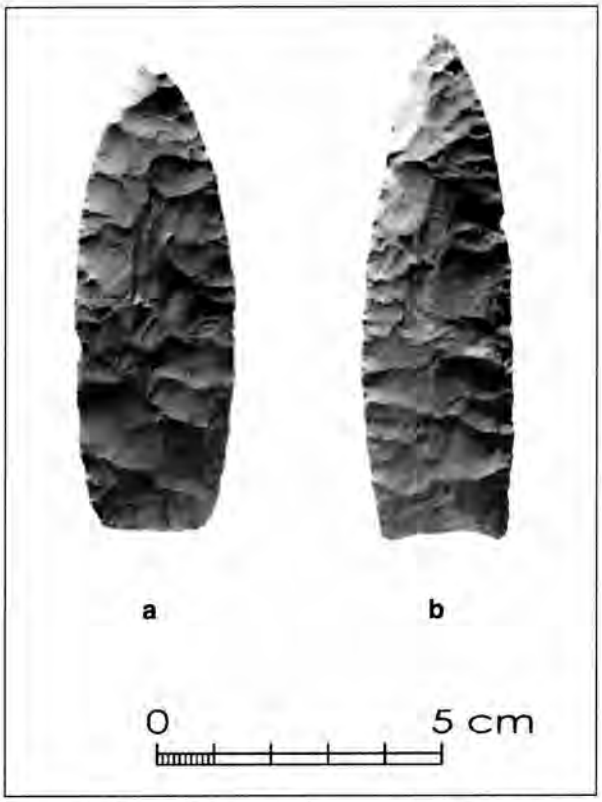

Figure 5. Small Thinned Bifaces. A, Specimen 837; B, Specimen 834.

breaks and nibbling (appearing under magnification as microbeveling of the edge). This specimen has lime encrustations on both faces.

maximum length: 8.09 cm
maximum width: 2.76 cm
maximum thickness: 0.56 cm
weight: 13.85 g

Specimen 834 (Fig. 5, B)

This small specimen is made of light to medium brown chert, somewhat variegated, and is similar in outline to Specimen 837 except that the base is concave. It, too, is well thinned and carefully knapped, though slightly asymmetrical. The width-to-thickness ratio is 5.2:1. It appears to be made mostly by soft-hammer percussion and has edges trimmed by scrubbing or pressure flaking. At 20X, lateral and basal edges show little damage except that left by the percussor, and look much the same as on Specimen 837. This specimen has only a few lime encrustations on one face.

maximum length: 8.80 cm
maximum width: 2.60 cm
maximum thickness: 0.61 cm
weight: 16.00 g

Specimen 847 (Fig. 6, A)

This elongate, triangular specimen has a straight base and nearly straight lateral edges, and is made of brown chert. When viewed from the distal end, the distal half has a pronounced counterclockwise twist. It is made chiefly by soft-hammer (?) percussion but final edge trimming appears to have been done by pressure flaking, and the edges have a slightly serrated appearance as a result. At 20X, one lateral edge shows a rather deeply serrate shape with marked edge crushing and step fracturing in the reentrants. This appears to be localized crushing by a pressure flaker, and it is most pronounced toward the distal end where

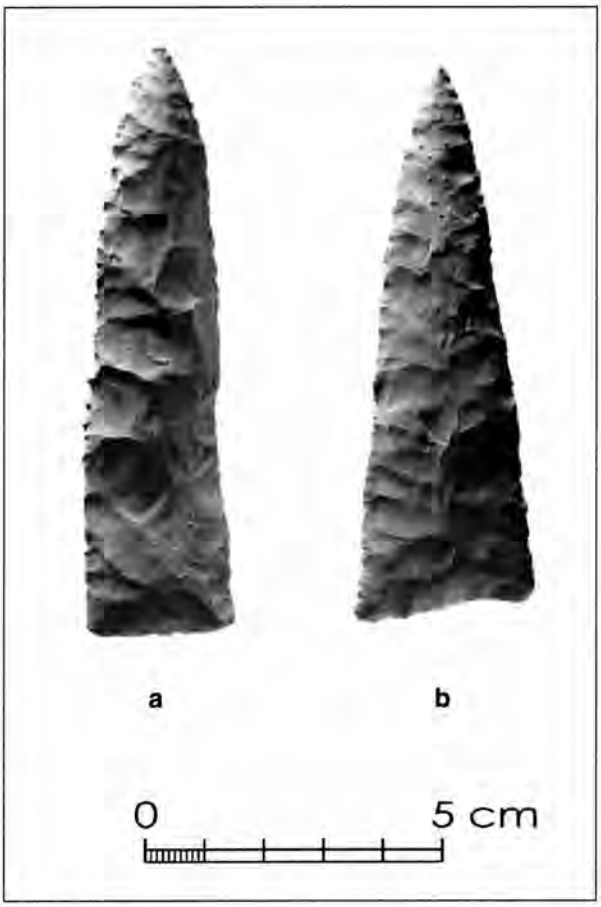

Figure 6. Thinned Bifaces. A, Specimen 847; B, Specimen 838.

the biface is proportionately thickest (and where thinning proved increasingly difficult). The other lateral edge is somewhat similar, but more acuminate, less serrated, and with less crushing, and superimposed over this damage is light edge rounding which perhaps represents use wear. The first-described edge may also have some use wear but the irregularity of the edge and presence of microscopic lime encrustations make its detection problematical.

maximum length: 9.84 cm
maximum width: 2.46 cm (at base)
maximum thickness: 0.68 cm
weight: 18.80 g

Specimen 838 (Fig. 6, B)

This slightly asymmetrical biface is made of grayish-brown, vitreous chert, and has straight lateral edges and a slightly concave base. It is well made, chiefly by soft-hammer percussion, and appears to have been subsequently pressure retouched along both lateral edges.

Under magnification, this biface appears to show evidence of use as a cutting tool (resulting in slight facial polish and some edge rounding) followed by pressure resharpening which removed some of the facial polish and most of the edge rounding. Polish can be observed at magnifications of 7X and above and seems to be best developed in a zone along the lateral edges, although one area near the tip shows fairly well developed polish on a soft-hammer thinning scar, truncated by several adjacent pressure retouch scars. In general, polish is best developed adjacent to flake scar ridges but is not pronounced. Other places along the lateral edges where pressure scars truncate earlier, polished, pressure scars can also be seen. Distal edges are generally sharp, showing only occasional very small-scale nibbling (use wear?) and the localized crushing and step fracturing left by the pressure flaker. A few small remnant sections of edge showing rounding and pronounced polishing on the edge itself indicate areas missed by the rejuvenation process. The proximal parts of both lateral edges, however (extending 27.0 mm from the base on one edge and 32.8 mm on the other), are heavily rounded, both in reentrants and on edge projections. Very weak striations at right angles to the edge are present on both faces and occasionally lapping onto the edge itself, on these heavily rounded proximal edge segments. The origin of these is unknown. Rounding in the reentrants indicates use wear rather than intentional dulling (grinding with an abrader would affect projections most heavily) and therefore suggests it was not the presence of a haft or binding which prevented resharpening of the proximal part, but rather some other (unknown) reason, unless the tool was first dulled use along the entire edge, then mounted on a haft before being resharpened. The type of wear seen here indicates application to a soft substance such as meat or something comparable in texture.

maximum length: 9.36 cm
maximum width: 3.01 cm
maximum thickness: 0.76 cm
weight: 18.65 g

Specimen 843 (Fig. 7, A)

This biface differs from the previously described specimens in that it is larger, less well made, and thicker. Made of variegated light gray to gray-brown chert with light gray spots, it has a round base and is somewhat asymmetrical. It was made by percussion, perhaps a combination of hard and soft hammer. The distal end is step-fractured. Lateral edges have not been trimmed by scrubbing or pressure flaking, and one edge retains some rather irregularly scalloped areas.

This specimen looks much like an incomplete, partially thinned biface, but the convex base has been heavily ground, probably with a sandstone abrader. The basal edge is very heavily rounded in cross-section, with severely reduced edge projections and partial faceting of the edge, which has a matte luster and is not polished (although a few adjacent flake scar ridges on one face show slight polish). This kind of edge rounding was obviously produced by abrasion against a rigid object and contrasts very distinctly with the kind of edge rounding noted above on Specimen 838. The basal grinding is both unusual and surprising, considering the unfinished appearance of the biface. At 20X, edge projections on the proximal parts of both lateral edges show some rounding. One face has fairly abundant lime encrustations.

Figure 7. Thinned Biface and Biface Reject. A, Thinned biface (Specimen 8430; B, biface reject (Specimen 848).

maximum length: 11.63 cm
maximum width: 3.44 cm
maximum thickness: 1.25 cm
weight: 45.66 g

Biface Reject
(Fig. 7, B; Specimen 848)

This relatively thick, narrow, lanceolate biface is made of mottled gray-brown chert with a dull luster. Its base is formed by what appears to be a single-facet striking platform remnant, indicating it was made on a large flake whose proximal end forms the base of the specimen. This biface appears to be made by hard-hammer percussion and presumably was discarded because the knapper could not thin it further; poor chert quality was probably a contributing factor. Both faces have lime encrustations.

maximum length: 10.55 cm
maximum width: 2.61 cm
maximum thickness: 1.27 cm
weight: 31.49 g

Metapodial Awl (Fig. 8; Specimen 840)

This artifact evidently is made from the metapodial of an artodactyl, probably the proximal metatarsal of a whitetail deer. Part of the proximal articular surface forms the basal end. The bone has been split longitudinally, then whittled or abraded into shape. At 15X, abundant striations can be seen; most of these are longitudinal and parallel and are most concentrated on the distal end, but some short striations at other angles can be seen. Striations are probably whittling marks rather than use wear. Considerable burnishing is also present.

maximum length: 13.54 cm

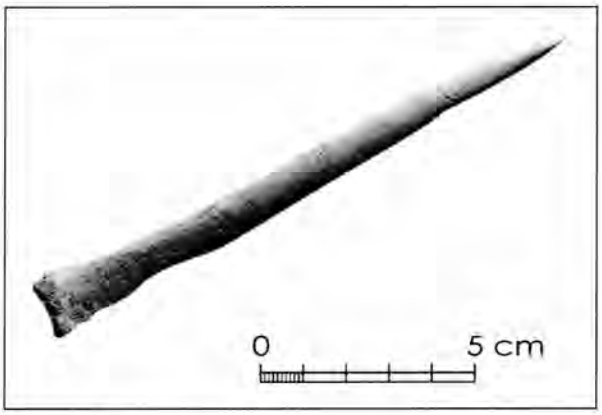

Figure 8. Metapodial Awl.

Clear Fork Tool (Fig. 9, A, B)

This artifact was found by Sonny Timme several years ago at Berger Bluff, embedded in the creek bank. Sonny estimated it to be about 15 feet (4.6 m) below the surface (Sonny Timme, personal communication). If this estimate is correct, it would fall at about the midpoint of Stratum 4, which would be quite plausible in regard to what we know of the stratigraphy and chronology of the site. Microscopic examination shows patches of gray to pinkish sediment adhering in many of the flake scars. Magnification (40X)

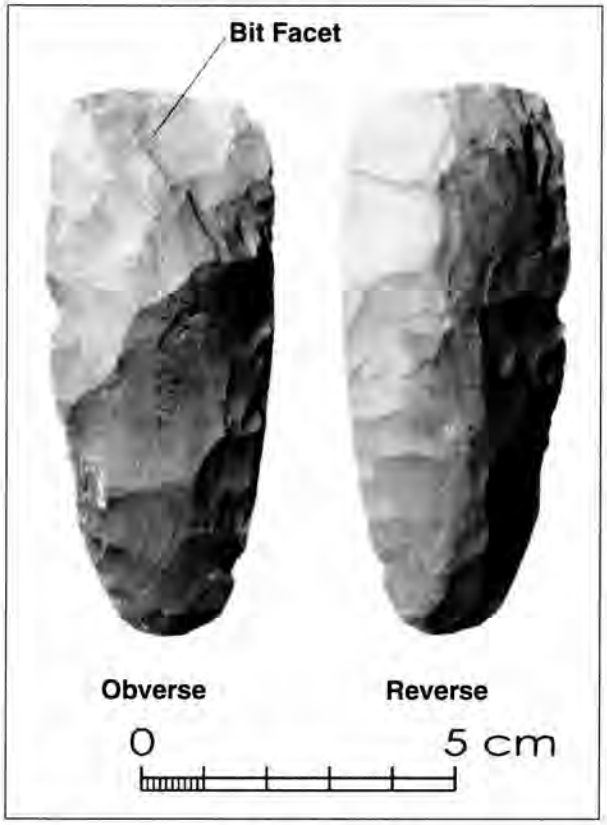

Figure 9. Clear Fork Tool. Two views of the same specimen are shown.

shows that the sediment consists of grains of quartz sand ranging from about 0.1 to 0.2 mm in diameter (with a few up to 0.3 mm) encased in a pinkish calcareous matrix which reacts to cold, dilute HCl. Pink sediments are not known to be characteristic generally of Berger Bluff, but the middle part of the stratigraphic section is poorly documented. Rubified sediments are abundant immediately upstream where the Lissie terrace is exposed (Brown 2006:449-460). Also observed microscopically were lime encrustations and an unidentified brown waxy substance on one side near the bit (evidently applied since the tool was found).

This specimen compares favorably with those from the Johnston-Heller site described by Birmingham and Hester (1976; especially Fig. 6, b; see also Table 1 therein) and is slightly larger than the mean reported for a statewide sample of 206 Clear Fork tools studied by Hudler (1997). It is made of homogeneous yellow-brown chert with a dull luster. It is bifacial, apparently made entirely by hard-hammer percussion. In plan form it is subtriangular with a rounded proximal end, and in transverse section it is biconvex in shape. The bit end is somewhat scoop-shaped as a result of hard-hammer resharpening of the working edge. Both lateral edges are intentionally ground. All cortex has been removed. Flake scars are mostly expanding in shape, a few ending in step terminations. The largest scar is about 26 mm long and 25.5 mm wide. In plan view, the bit edge is slightly convex in shape, not having been resharpened enough to take on the concave shape often associated with exhausted Clear Fork tools. At 20X, the chert appears rather grainy in texture and the bit edge is lightly to moderately rounded, mainly on edge projections and to a lesser extent in reentrants. The center of the bit edge is somewhat step fractured, while adjacent sections have small flake scars with step or feathered terminations. These may be use damage, but could also represent percussor damage. Viewed at 80X, the distal edge appears rather sharp. Many small nicks and trough-shaped scars can be seen on the edge, but it is not clear whether these are use or percussor damage.

The specimen was examined carefully on both dorsal and ventral sides at magnifications up to 40X for evidence of haft wear, although it was not first washed (as would normally be done to remove oily residues from handling) because it was considered important to preserve sedimentary evidence of provenience that might adhere to the tool. Light facial polish is present on both sides, on the proximal end. On that side bearing the bevel for the bit, it appears mostly near the lateral edges. On the opposite side it is better developed, appearing over most of the proximal part of the tool. Some small patches near the proximal end on this face are burnished, possibly as a result of haft wear. Prominent flake scar ridges show light polishing and in once case, possible rounding, mostly on the side lacking the distal bevel.

Edge grinding occurs on the proximal end, and along both lateral edges in nearly continuous fashion almost to the distal end, stopping at about 22 mm from the bit edge on one side and 24.5 mm on the other.

Comment: this artifact shows some evidence of use, but it is not pronounced. Perhaps only one episode of resharpening is indicated.

maximum length: 8.61 cm
maximum width: 3.67 cm
bit width: 3.16 cm
maximum thickness: 1.74 cm
distal spine-plane angle: 46-50°, average about 46°
weight: 56.46 g

A VICTORIA POINT FROM 41GD31

This specimen (Fig. 3) was found on the surface at 41GD31, about 250 m downstream from Berger Bluff, in January, 1980. It was found on the sloping, eroded surface of a chocolate brown, clay-rich stratum resembling Stratum 3 in the bench area of Berger Bluff. An abbreviated description was published in Brown (1986:7, Fig. 3, l), but it is described in greater detail here.

It is made of light-gray to clear chalcedony with longitudinal black streaks (in Fig. 3, the point has been opaqued for photography, and the black streaks do not show). The point is leaf-shaped, with a narrow, straight base, slightly recurved stem edges, and a slight shoulder on one side only. Neither the base nor the stem edges are ground. The specimen is slightly plano-convex in transverse section and shows noticeable longitudinal curvature; it was probably made on a large flake. Flaking on the distal half of the point chiefly consists of rather irregularly patterned, soft-hammer flake scars, but on one side (not shown), the proximal half is covered by long, parallel-diagonal, shallow soft-hammer scars. One of these scars (30.3 mm long and 8.7 mm wide) originates at one edge and actually extends all the way to the opposite edge; adjacent scars extend to the midline or beyond. Some small-scale scars that probably represent pressure removals are present, especially on the distal end.

At 20X, lateral edges show little evidence of rounding. A few edge projections show moderate rounding, however. Some step fracturing from percussor damage is present.

maximum length: 8.37 cm
maximum width: 2.97 cm
maximum thickness: 0.73 cm
basal width: 1.12 cm
weight: 18.47 g

CONCLUSIONS

Table 2 represents my attempt to assemble an inventory of lithic artifact types from the various investigations at Berger Bluff, both surface and excavated contexts. Only the Victoria points represent new additions to the Berger Bluff artifact inventory, but they help substantiate Late Paleoindian or Early Archaic occupation of the area. The fairly close resemblance of these to ones found at the Woodrow Heard site may suggest that the radiocarbon assays from that site (8010 ± 50 to 8380 ± 50 radiocarbon years before present, uncalibrated; Decker, Black and Gustavson 2000:Table 6) have some applicability to the three Victoria points reported here.

Of these three, one was found on the Lissie terrace scarp (lying on deposits that probably predate human entry into the Americas), and one was found downstream lying on deposits that visually resemble Stratum 3 at Berger Bluff. The findspot for the third specimen is unknown, except that it came from Berger Bluff. I suspect that these points might fit chronologically into the Berger Bluff stratigraphic section somewhere in the upper part of Stratum 3 or the basal part of Stratum 4, but without any *in situ* finds, that is nothing more than speculation. Unlike many of the comparable specimens seen in the published literature, all three of these points are complete, undamaged, and with no evidence of reworking.

In any case, the Victoria points seem to document at least some occupation of the area following the brief visits responsible for the sparse debris scatters in the bench deposits. I have speculated elsewhere (Brown 2006: 1742) that environmental degradation may have led to substantial abandonment of smaller drainages in the region in the early Holocene. These Victoria points suggest that there was at least some continued local occupation in the early Holocene.

ACKNOWLEDGMENTS

Thanks to Sonny Timme and to the late Mark Hudgeons for lending material for study. Susan Dial, Steve Black, and Mike Collins commented on earlier drafts of this report.

Table 2: Lithic Artifact Classes From Berger Bluff

Perdiz	Mitigation (Brown 1983:Fig. 16, de, e)
Scallorn	Mitigation (Brown 1983:Fig. 16, c)
Fresno?	Mitigation (Brown 1983:58, Fig. 15, g)
Darl	Mitigation (Brown 1983:Fig. 16, a)
Ensor	Mitigation (Brown 1983:Fig. 16, g, h)
Ensor/Marcos	Mitigation (Brown 1983:Fig. 16, f)
Bulverde	Vogt collection (Fox, Black and James 1979:Fig. 21, a)
Lerma	Vogt collection (Fox, Black and James 1979:Fig. 21, d)
Marcos	This report
Marshall	Vogt collection (Fox, Black and James 1979:Fig. 21, e)
Morhiss	Vogt collection (Fox, Black and James 1979:Fig. 21, b)
Morhiss	Mitigation (Brown 1983:Fig. 16, k-m)
Tortugas	This report
Tortugas?	Mitigation (Brown 1983:Fig. 15, a-b)
Palmillas	Birmingham collection (Fox and Hester 1976:Fig. 7, a)
Pedernales	Birmingham collection (Fox and Hester 1976:Fig. 7, a)
Pedernales	Testing phase, surface (Fox, Black and James 1979:50-51, Fig. 15, n)
Pedernales	Testing phase, surface (Fox, Black and James 1979:50-51, Fig. 15, n)
Travis	Vogt collection (Fox, Black and James 1979:Fig. 21, c)
Victoria	This report
Stemmed, unidentified dart point	Testing phase, (Fox, Black and James 1979:51, Fig. 15, o)
Unidentified triangular, lozenge-shaped points	Testing phase, (Fox, Black and James 1979:51, Fig. 15, I, k, m)
Unidentified, side-notched dart point	Flume No. 3 backhoe trenching (Brown 1986:Fig. 3, o)
Unidentified triangular biface	Bench testing (Brown 2006)
Clear Fork tool	Vogt collection (Fox, Black and James 1979:Fig. 21, i)
Clear Fork tool	This report
Cores	Fox and Hester (1976:36; Fig. 7, g)
Polyhedral core, small	Bench testing (Brown 2006)
Thinned bifaces	Fox and Hester (1976:36; Fig. 7, i); Vogt collection (Fox, Black and James 1979:Fig. 21, f-h); Brown (1983:54-59)

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An Initial Review of Archaeological Research at 41VT141 McNeill Ranch, Victoria County, Texas

Pat Braun, Jimmy Bluhm and William W. Birmingham

ABSTRACT

In 2003, avocational archaeologists in Victoria were told that chipped stone artifacts were being found in loads of topsoil being applied to some yards in the city. After learning the location of the soil quarrying, they met with landowners and were able to stop the destruction of the site. Soon thereafter, these, and other, avocationals in the area began a program of investigations at the site. This was done in close coordination with the Museum of the Coastal Bend. Surface survey and testing indicated that the site had been occupied since Late Paleoindian times. Prehistoric burials were exposed by some of the soil removal, and these were removed and analyzed by bioarchaeologists. The excavations and other studies at 41VT141 have produced a wide array of data. In this paper, we provide an introduction to the archaeology of the site.

INTRODUCTION

The McNeill Ranch site (41VT141) is located on the east side of the Guadalupe River in the northern part of Victoria County. Removal of topsoil from the land inadvertently distributed identifiable artifacts into the community and led to the identification of one of the most productive archaeological sites in the Coastal Bend region of Texas. Immediately after learning from Jimmy Bluhm, Texas Historical Commission (THC) Steward for Victoria County, that they had a significant archaeological site on their property, Mr. and Mrs. John McNeill cancelled the soil removal operations and granted access to the property for archaeological research. Jimmy Bluhm and Bill Birmingham, another THC Steward in Victoria County, worked with the landowners, assembled an experienced team to salvage exposed and endangered burials, and initiated a controlled excavation of intact areas of the site. The result was proof of a location continuously occupied by prehistoric humans for at least 9,000 years.

Field work is ongoing, but this report marks completion of the first 3.5 years of investigation that started August, 2003. The excavation was accomplished by the original volunteer crew assembled by Bluhm and Birmingham, most of whom are still associated with the project. The team was staffed by THC Stewards Pat Braun (Aransas County), Nelson Marek (Calhoun County), Gary McKee (Fayette County), and experienced volunteers, many from the Fort St. Louis project. They included Jud Austin, Lynn Calhoun-Bludau, Frank Condron, Bobbie Guinn, Ben McReynolds, Richard McReynolds, Helen Shook, Ed Vogt, and Trudy Williams. Jennifer Rice and Matt Taylor joined the crew and accepted responsibility for analysis of the human remains.

Sixteen acres were identified as archaeologically significant and prepared for excavation. Over three years of work produced a wealth of cultural material and diagnostic artifacts. Lab space was provided at the Museum of the Coastal Bend (MCB) in Victoria, Texas, where artifacts were processed, curated and stored. All pertinent information has been loaded into a Microsoft Access database and is available online at the MCB for research along with access to the original field notes and artifacts.

The project is very fortunate to have had artist Richard McReynolds as a member of the team. Scale drawings of some significant stone tools are included at the end of this report along with a log containing brief descriptions and proveniences. Details of each

item appear in the Unique Artifact Log on the site database. (on file, MCB).

Research and educational activities provided by this site included grade and high school outings, Boy and Girl Scout field trips, teacher workshops, museum tours, and graduate student research. Dr. Michael Bever, Department of Anthropology, The University of Texas at Austin, conducted a field school at 41VT141 in the summer of 2006.

Figure 1. Location of Victoria County, Texas Coastal Plain.

SITE LOCATION AND GEOARCHAEOLOGICAL HISTORY

41VT141 is strategically located on a terrace of Deweyville age (Late Pleistocene; Aiuvalasit 2007) near an oxbow lake cut off from the Guadalupe River (the present channel is almost a mile to the south.) This region offered prehistoric peoples access to food, water and a life-sustaining environment for at least 9,000 years. During historic times, the land has been utilized for cattle ranching. An in-depth description of the geological formation and history of the site can be found in the master's thesis by Michael Aiuvalasit (2006a; 2006b) He offered the following brief summary of his geoarchaeological research as it relates to the site.

> The results suggest a local eolian origin for the sand deposits, which were subsequently reworked by colluvial action on the slope of the Deweyville Terrace. Archaeological deposits of the entire prehistoric sequence to Late Paleoindian (Angostura, Golondrina) exist in stratigraphic context. Intact human burials and hearth features imply integrity of the archaeological deposits. . . (Aiuvalasit, e-mail communication, May 9, 2006).

Excavations conducted the original volunteer crew exposed deep profiles and in situ diagnostic artifacts that were used in conjunction with the geoarchaeological data to define the characteristics of the site. Evidence of bioturbation from roots and animal burrowing as well as some disturbance from colluvial slope wash exists in varying degrees in different parts of the site. Aiuvalasit concludes, however, that "the presence of diagnostic artifacts in good stratigraphic context and intact features is evidence that bioturbation has not disturbed the archaeological deposits to the degree where integrity is compromised" (Aiuvalasit 2006a:117).

The site is located near three sites whose chronology and material culture have particular relevance. Site 41VT15 (Birmingham and Hester 1976; Bourbon 1997) is 2.5 miles west-southwest, and has deep deposits yielding Paleoindian artifacts, incuding points and Clear Fork tools. Site 41VT11 is 1.5 miles southwest of 41VT141 and represents the third location of Mission Espiritu Santo (1726-1749; Walter 2007). To the south/southeast lies 41VT8, Presidio Loreto (see Fox and Tomka 2007). Both contain deposits from Spanish Colonial times, as well as prehistoric evidence.

BOUNDARIES AND EXTENT OF SITE

Initial surveys were conducted with assistance from Jeff Durst, THC archaeologist for Regions 5 and 6. Surveys identified 16 acres for the initial site and mapped them into distinct areas. The criteria used for area identification included analysis of the extensive surface material, examination of exposed cultural material in both disturbed and intact areas, and location. Proximity to the current Guadalupe River and

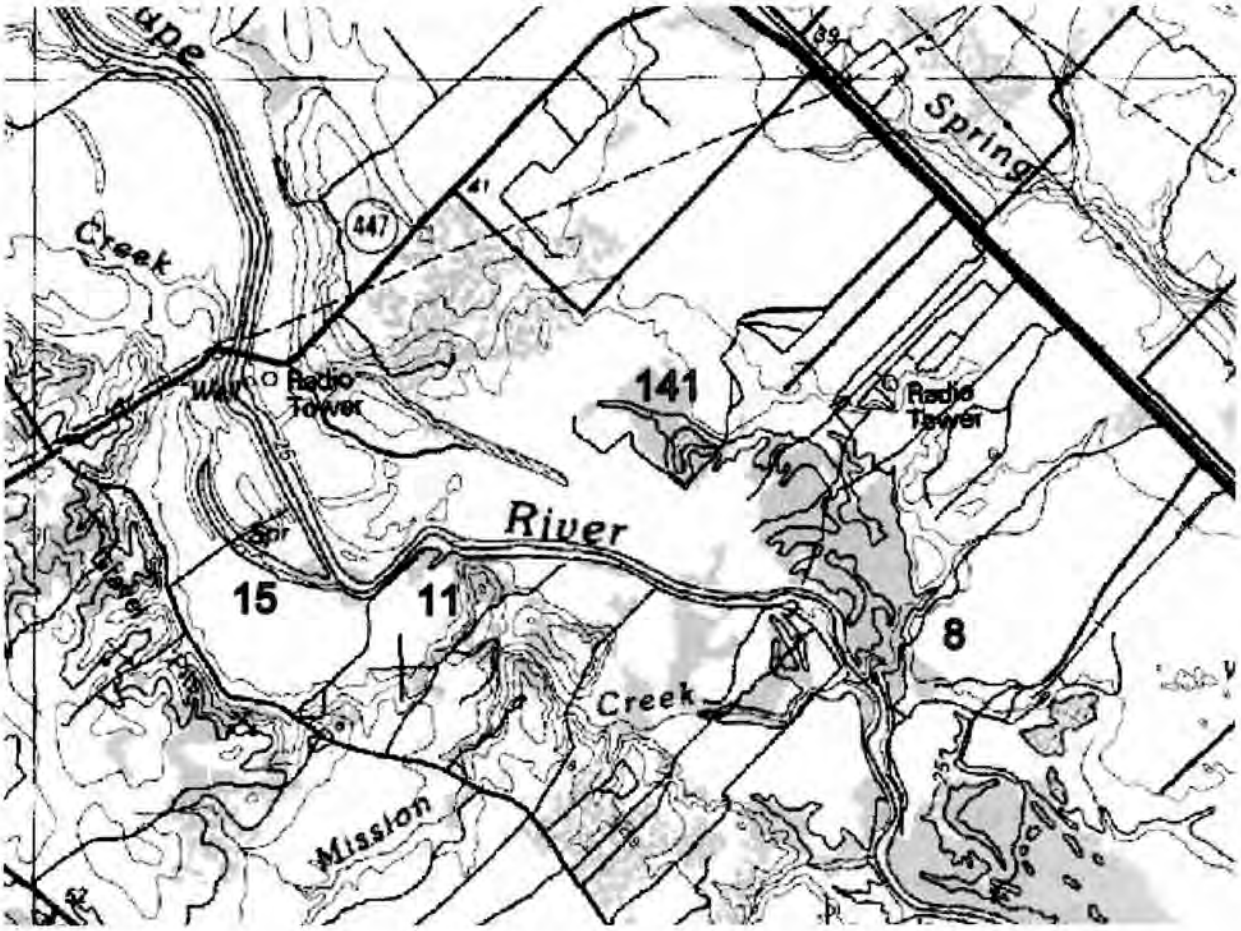

Figure 2. Northern Victoria County, Showing the General Locations of Sites 41VT141, VT8, 41VT11, and 41VT15.

one of its numerous oxbows was also considered. The historical records reveal interesting changes in the courses of the Guadalupe River in the area during the past 300 years.

Identified as individual components were: Burial Areas 1 and 2, Habitation Areas 1-5, the Anaqua Mott Habitation Area, and Paleo Area 1. Later, during excavation at Paleo Area 1, rains exposed human remains approximately 30 meters north. This was called Burial Area 3 and scheduled for immediate excavation.

The southern edge of the property extends from the Guadalupe River on a northeast line to Highway 87. Near this property line, northeast of the site, is an area where extensive soil removal left a large bare scraped surface and a low rough embankment along the fence at the property line. Surface surveys along this narrow strip produced some Archaic artifacts and Late Prehistoric pottery sherds. Due to the extent of the surface damage, no research location was identified.

Located approximately 561 meters from the Primary Datum of the site and northwest of the above disturbed area is a large huisache mott that appeared to be a candidate for an early habitation site. Eight test holes were dug in a random pattern 8-10 meters apart; no cultural material was found. Thus, this area was not included in the initial definition of the site.

SURFACE COLLECTION

41VT141 has provided a wealth of diagnostic surface material. As the project was developing, two locales were particularly notable for exposed surface artifacts. These were termed "site 1" (located northwest and west of Habitation Area 4) and "site 2" (later became Paleo Area 1). This impressive collection contains to date approximately 1,000 artifacts that have

been identified and catalogued. Representative points, blades, or stone and bone tools have been found from each period in the archaeological sequence from Historic through Paleo-Indian. Clear Fork tools common to the Late Paleo-Indian and Archaic periods were found in disproportionately large numbers. The date range of these surface artifacts also supports the theory of continuous human occupation for over 9,000 years at this location (see Table 1).

In addition to diagnostic artifacts, the surface collection contains pottery sherds, abrading stones, beads, bone awls, buttons (shell), cobbles, flaking tools, game pieces, gouges, gravers, hairpins (bone), pendants, shaft scrapers, shells, spoke shaves, flakes, choppers, cores, broken points, hammerstones, manos, miscellaneous blades and points, perforators, preforms, tools, and knives.

The complete surface collection has been curated along with excavated material at the MCB and is available for use by researchers.

CLIMATE

The climate of Victoria County is subtropical, controlled predominately by warm, moist air masses originating over the Gulf of Mexico, and brought ashore by prevailing south and southeasterly winds. Winters are usually mild with average daily temperatures ranging from the mid 60s to the mid 40s; temperatures drop below freezing an average of 11 days per year. Rainfall is usually between 1.5 and 3 inches monthly during January, February and March.

Early spring is pleasant and dry, but by May and June rainfall amounts increase to an average of 5 to 6 inches. High temperatures average about 90° with the low average 62°.

Summer is perhaps the most diverse season, particularly in regard to precipitation. Thunderstorms and related tropical easterlies may produce periods of excessive moisture. It is primarily during this season that hurricanes and other severe tropical disturbances may trace paths through the region. The temperature ranges from low 60s to a high of 100° or more.

Hurricanes may occur through October, but fall is usually mild and moderate with fluctuating amounts of precipitation and temperatures. Overall, this region would have offered its prehistoric and early historic inhabitants a mild, relatively stable climate in which year-round occupation and utilization could easily have occurred. (Weinstein 1992).

MODERN FAUNA

Excavating on a working ranch enabled the archeologists to observe not only cattle and horses but an abundance of wildlife and birds. Animals seen often included:

Jack *(Lepus californicus)*, cottontail and swamp rabbits *(Sylvilagus floridanus)*
Box *(Terrepene)*, soft shell *(Trionyx)*, and slider *(Pseudemys)* turtles
Wild turkeys *(Meleagria gallopavo)*
Lizards *(Scaloporus olivaceous)*
Gecko *(Anolis carolinensis)*
Coyotes *(Canis latrana)*
Toads *(Bufonidae)*
Frogs *(Ranid)*
White tailed deer *(Odocoileus virginianus)*
Mice *(Mus)*

Tracks and other signs of various nocturnal animals were usually seen each morning around the excavations. These included raccoons *(Procyon)*, feral hogs *(Sus scrofa)*, skunks *(Mephitis)*, gophers *(Geomyidae)*, and opossum*(Didelphis virginiana)*. Squirrels *(Sciurus carolinensis)*, gray fox *(Urocyon cinereoargenteus)*, king snakes *Lampropeltis)*, and western cottonmouths *(Akistrodon piscivorous leucostoma)* occasionally appeared.

The size and depth of the nearby oxbow are determined by both rainfall and the Guadalupe River depth as there remains an underground connection between the oxbow and the river. During the rainy year 2004, the hatching and growth of baby alligators *(Alligator mississippiensis)* proved entertaining. Gar *(Lepisosteus asseus)* was the only fish species noted. Herons and egrets *(Aredea spp.)*, ducks *(Anas spp.)* and other small water birds were seen.

Fifty bird types were observed or heard, at 41VT141, including:

Mourning Dove *(Zenaida macroura)*
Barn Swallow *(Hirundo rustica)*

Table 1. Summary of Surface-Collected Artifacts Found at 41VT141.

Identifiable Points and Blades			
Period	Date	Name	# of Artifacts
Late Prehistoric	A.D. 1528–A.D. 950	Cuney	1 •
		Perdiz	14 ••••••••••••••
		Scallorn	15 •••••••••••••••
Late Archaic	A.D 950–1000 B.C.	Matamoros	3 •••
		Darl	7 •••••••
		Edgwood	1 •
		Ensor	5 •••••
		Fairland	4 ••••
		Figueroa	1 •
		Frio	1 •
		Marcos	11 ••••••••••••
		Desmuke	1 •
		Lange	15 •••••••••••••••
		Morhiss	6 ••••••
Middle Archaic	1000 B.C.–2600 B.C.	Kent	11 ••••••••••••
		Palmillas	11 ••••••••••••
		Williams	1 •
		Pandora	3 •••
		Pedernales	3 •••
		Tortugas	4 ••••
Early Archaic	2600 B.C.–6000 B.C.	Abasolo	1 •
		Andice	2 ••
		Bell	1 •
		Bulverde	2 ••
		Early Triangular	1 •
		Guadalupe	9 •••••••••
		Martindale	2 ••
		Uvalde	2 ••
		Refugio	3 •••
		Yarbrough	1 •
Late Paleo-Indian	6000 B.C.–8500 B.C.	Clear Fork	22 ••••••••••••••••••••••
		Lerma	4 ••••
		Angostura	2 ••
		Golondrina	2 ••
		Scottsbluff	1 •
		Dalton	1 •
		Plainview	4 ••••

American Robin *(Turdus migratorius)*
Eastern Phoebe *(Sayornis phoebe)*
Tufted Titmouse *(Parus bicolor)*
Eastern Bluebird *(Sialia sialis)*
Scissor-tail Flycatcher *(Tyrannus forficatus*
Indigo *(Passerina cyanea)*
Belted Kingfisher *(Ceryle alcyon)*
Killdeer *(Charadrius vociferous)*
Eastern Meadowlark *(Sturnella magna)*
Blue Jay *(Cynocitta cristata)*
American Crow *(Corvus brachyrhynchos*
Woodpeckers *(Picidae)*
Northern Cardinal *(Cardinalis cardinalis*
Caracara *(Polyborus plancus)*
Great Horned *(Bubo virginianus)* and Barred *(Strix occidentalis)*
Owls (Camp 2006)

MODERN FLORA

Biologist James De Young, surveyed 41VT141 in 2005 and found this Victoria County site to be typical of riverine communities near the central Texas Coast, a zone that integrates differing vegetation areas: the Gulf Coast Prairies and Marshes, the Post Oak Savannah, and the South Texas Plains. Plant types from these vegetative groups may be found on or adjacent to the various areas of the site. Plant communities present are River Forest, River Terrace, and Upland Grass/Shrub.

River Forest communities dominate the lowland, flood prone areas surrounding a maze of Guadalupe River oxbow drainages.

Pecan *(Caraya illionoinensis)* trees dominate the forest communities with Sugar Hackberry *(Celtis laevigata)* found in areas of slightly higher elevation. Other areas of forest have no clearly dominant species but contain a mix of species, any of which might dominate with climate/weather changes. Small colonies of Anaqua *(Ehretia anacua),* for instance, sometime occur in the lowland forest on small areas of better drainage.

Swamp Privet *(Forestiera acuminate),* Black Willow *(Salix nigra),* and Buttonwood *(Platanus occidentalis)* often establish colonies in low areas with ephemeral water and on the borders of oxbows. Small colonies of Chinese Tallow *(Sapium sebiferum)*, an introduced species, are also present, usually where some forest disruption has occurred.

Other tree species which occur in forest communities include:

American Elm *(Ulmus americana)*
Cedar Elm *(Ulmus crassifolia)*
Cottonwood *(Populus deltoids)*
Red Mulberry *(Morus rubra)*
Box Elder *(Acer negundo)*
Green Ash *(Fraxinus spp.)*
Honey Locust *(Gleditsia triacanthos)*
Gum Elastic *(Bumelia lanuginose)*
Huisache *(Acacia fornesiana)*
Texas Persimmon *(Diospyros texana)*
Western Soapberry *(Sapindus drummondii*

Understory small trees, shrubs, and vines occurring in the forest community include:

Texas Hawthorne *(Crataegus texana)*
Possum Haw *(Ilex deciduas)*
Turks Cap *(Malvaviscus arbooreus)*
Yaupon *(Ilex vomitoria)*
Mustang Grape *(Vitis mustangensis)*
Summer Grape *(Vitis aestivalis)*
Trumpet Creeper *(Campis radicans)*
Greenbriar *(Smilax bona-nox)*
Poison Ivy *(Rhus toxicondendron)*
Peppervine *(Ampelopsis arbora)*
Virginia Creeper *(Parthenocissus quinquefolia)*

The River Terrace communities slope variously from the upland/shrub communities down the oxbow drainages and forest communities. The tallest trees on the lowest elevations are: Pecan, Cedar Elm, Sugar Hackberry and Western Soapberry. As the elevation increases into drier, well-drained environments, the community becomes more open, interspersed with small clearings and trees and shrubs of shorter statue with drought tolerant nature.

Trees and shrubs common to the terrace slopes include:

Anaqua *(Ehretia anacua)*
Honey Mesquite *(Prosopis glandulosa)*

Sugarberry *(Celtis laevigata)*
Brasil *(Condalia hookeri)*
Huisache *(Acacia fornesiana)*
Prickly Ash *(Zanthoxylum hirsutum)*
Possum Haw *(Ilex deciduas)*
Lantana *(Lantana horrida)*
Yaupon *(Ilex vomitoria)*
Rusty Viburnum *(Viburnum rufidulum)*
Green Ash *(Fraxinum spp.)*
Spiny Hackberry *(Celtis pallida)*

Vines on the terraces include:

Peppervine *(Ampelopsis arbora)*
Pearl Milkweed *(Matelea reticulate)*
Mustang Grape *(Vitis mustangensis)*
McCartney Rose *(Rose bracteata)*
Summer grape *(Vitis aestivalis)*
Dewberry *(Rubus trivialis)*

The sandy and sandy loam Upland Grass/Shrub communities, under favorable conditions, support many species of herbs, wildflowers, and grasses common to the Texas Coastal Prairies and Marshes. Good rainfall in 2004 produced an abundance of wildflowers, including:

Bluebonnets *(Lupinus texensis)*
Indian Paintbrush *(Castilleja indivisa)*
Winecups *(Callirhoe leiocarpa)*
Firewheel *(Gaillardia pulchella)*
Prairie Primrose *(Oenothera speciosa)*
Mexican Hat *(Ratibida columnaris)*
(De Young 2005)

MATERIALS, METHODS AND RESULTS

The 41VT141 primary datum was arbitrarily set to N400 E800, elevation 100 meters. It was permanently mounted on one of the highest spots in the west central part of the site. Using a Total Data System and transit, each of the distinct archaeologically significant areas was laid out with coordinates and elevations extended from the primary datum.

With some exceptions that will be noted by area, all work was carried out in 1 meter square units and excavated by 10 cm levels. Use of ¼ inch screens was standard procedure with a 1/8 inch screen used on one sample per unit. Munsell soil descriptions were recorded by level. Bamboo blades and brushes replaced trowels whenever unique artifacts or features were encountered.

Figure 3. Fieldwork and Mapping in Progress, 41VT141. View is of Paleo Area 1.

Provenience and descriptive information of in situ and screened artifacts are recorded in the site database and are not repeated here.

Details of techniques and procedures are in the "41VT141 Field Guide" on file at the MCB.

Burial Areas 1 And 2

Salvage of exposed and endangered human remains made Burial Areas 1 and 2 logical starting points for the excavations. The decision was made, however, to concurrently start controlled excavations in an undisturbed area near the burials to record as much as possible about the site and its history. Areas 4 and 5 were chosen for this purpose.

The soil removal process exposed Burials 1 and 2 in such a way that it necessitated extensive work to reach them. In both cases the initial commercial operation piled overburden on top of the natural surface above the burials. Continued commercial digging exposed bones in the side of the vertical wall created by the earth moving equipment. Our excavation was started by removing approximately two meters of overburden by shovel and screening it through ¼ inch screens. Trowels replaced shovels when the natural surface was reached. As the burials were approached, all subsequent work continued with trowels, bamboo blades, and brushes.

During excavations at Burial Areas 1 and 2, scattered human bones were grouped into five burial collections. Two samples were dated using accelerated mass spectrometry (AMS). Burial Area 1 contained a partial human skull and associated long bones in Unit N434 E776, elevation 99.40. Disarticulated human bones and teeth were scattered in adjacent units to the same elevation and were collectively called the second burial.

The three burials in Burial Area 2 consisted of two small collections of human remains from level 12 and a fully articulated skeleton, flexed with head facing to the East, exposed in level 18. It was located directly beneath a stone feature found in level 12.

Dr. Matt Taylor, bioarchaeologist, has carried out studies of these two Burial Areas, and has obtained a couple of radiocarbon dates (cf. Taylor 2005). His analysis resulted in identification of the following:

Burial Area 1

Individual 1: Female, age 16-22, AMS calibrated date 2,020 ± 40 B.P., observable pathological conditions and non-pathological features

Figure 4. View of Burial Area 1 at 41VT141.

Figure 5. Burial 1, Burial Area 1, 41VT141.

Individual 2: Probable Female, age 35+, observable pathological conditions
Individual 3: Undetermined sex, age 20+, no observable pathologies
Individual 4: Probable female, age 20+, no observable pathologies

Burial Area 2

Individual 1: Probable male, age 20+, AMS calibrated date 1730 ± 40 B.P., stature 171.48 ± 3.78 cm (5'8"), observable pathological conditions and nonpathological features
Individual 2: Probable female, age 20-35, observable pathological conditions
Individuals 3-7 were identified by teeth only. All were age 20+, undetermined sex.
#3: 4 teeth, observable pathology #4: 1 tooth, no observable pathology
#5: 1 tooth, no observable pathology #6: 2 teeth, observable pathology
#7: 1 tooth, observable pathology

Associated with these human remains were large quantities of debitage, clay, fire cracked rock, sandstone and pebbles. Numerous biface distals, proximals, medials and preforms, and utilized flakes were distributed throughout along with diagnostic stone tools dating as far back as the Late Paleo-Indian (identified by Angostura points). The Archaic

Figure 6. Burial Area 2, 41VT141. Shown here is Individual 1.

periods were represented by Fairland, Ensor, Tortugas, Abasolo, Godley (?), Lange, and Morhiss; and the Late Prehistoric by Perdiz and Scallorn points.

Burial Area 3

Burial Area 3 is the most recently excavated and is still active. It is in an area of the site that had approximately two meters of soil removed by mining. It was identified by exposed human remains on the surface following heavy rains. Two human burials were excavated from this area.

Dr. Jennifer Rice, bioarchaeologist, is carrying out research with Burial Area 3 (see Rice 2006). She classified the fragmented remains from Unit N368 E1012, elevation 94.20, as a probable female adult with no observable pathology. The calibrated AMS date is 3,650 ± 40 B.P. This date is within the Early Archaic period and is somewhat supported by the presence of Bulverde, Angostura, and Clear Fork tools found below the human remains but confounded by Morhiss and Lange tools also found below.

Dr. Rice identified the larger grouping of fragmentary remains from Unit N366 E1013, elevation 94.70, as an adult of undetermined sex with no observable pathology.

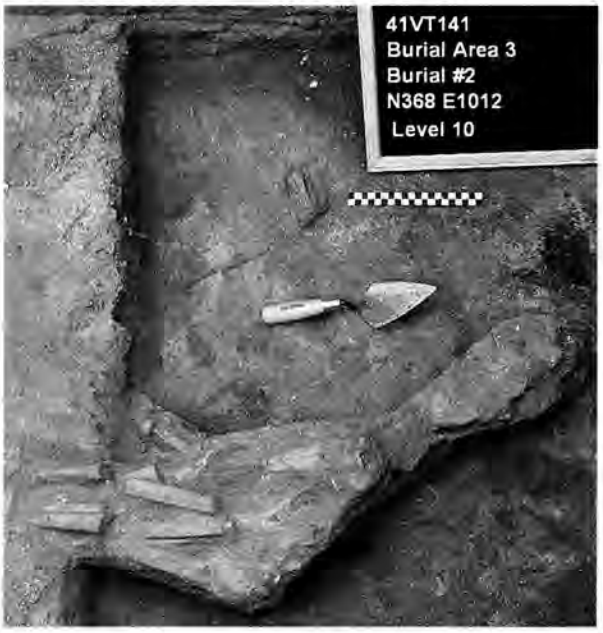

Figure 7. Burial 2, Burial Area 3, 41VT141 (from Rice 2006: Figure 2).

An extensive caliche and sandstone foundation-like feature appeared in five units at levels 11-13 and was recorded prior to removal. A small hearth was found in Unit N368 E1012, level 10. A small hearth was excavated in the NW corner of Unit N367 E1011, level 13, surrounded by white and red burned soil that extended 10 cm up the north wall.

At this time the extent of Burial Area 3 was nine 1 x 1 meter units and the deepest units went to depths of 1.4 meters. No sterile surface was been reached.

Habitation Area 4

Excavation of Habitation Area 4 was started concurrently with the salvage operations on Burials 1 and 2. In contrast to the salvage of the endangered burials, Area 4 was carefully selected for its location and potential. It consisted of a 2 x 3 meter area divided into 6 one meter squares and was excavated in 10 cm levels to a depth of 2.6 meters. The bottom of the Area

Figure 8. Thin biface from Burial Area 3, 41VT141. Level 10. Length is 133 mm.

Figure 9. Thin Biface, Burial Area 3, 41VT141. Level 3. Length is 98 mm.

reached the Deweyville Terrace with levels 25 and 26 and became increasingly difficult to dig. Work was completed on these two levels with trowels, and diagnostic artifacts were found in situ. One subsequent core was taken below level 26 in Unit N398 E850 and produced no cultural material.

From an analysis of artifacts, archaeological time sequences,and time horizons defined by soil analysis, Habitation Area 4 provided the most complete evidence for continuous occupation from Historic through the Late Paleo-Indian periods. (Braun 2007). Artifacts from Area 4 were placed on a profile of the excavation identifying units and the 26 levels. Most of the artifacts had been found in situ; the remaining in the screens. No surface material was used for the analysis. The profile was superimposed on time horizons developed by Aiuvalasit (2006) from his soil analysis. The diagnostic artifacts used by this analysis were dated using Turner and Hester, and archaeological time horizons developed for the Coastal Bend (Birmingham and Shook 2006). The match between these dates and the time horizons defined by the soil analysis substantiates the use of Area 4 to accurately identify the cultural occupation levels of this region of the site.

There was, however, some mixing of Historic and Prehistoric material in the analysis above. This is not uncommon with the amount of bioturbation from roots, small animal burrows, nests, and water drainage found here.

It is sometimes difficult to identify the boundary between the end of the Late Prehistoric and the beginning of the Historic in many parts of the state. Turner and Hester (1996:325) note that "...the initial Spanish expeditions had little, if any, effect on the native cultures, which were largely unchanged for another 100-150 years." At Area 4, the bulk of all ceramics and glass was concentrated in the upper 8 levels, and there was no stratigraphic separation from prehistoric remains.

Animal bone was discovered in every level through 24 and was dominated by turtle. Lab identification found deer, fish otoliths, gar scales, snake, viper, rodent, and bison. Bone was not submitted for expert analysis, and non-human long bones have been generally classified as deer. No animal bone was found in the Deweyville strata, levels 25 and 26.

N398 E852, level 5 produced a hearth (Feature #2) containing over 100 stones, primarily quartzite. Feature #1 is a smaller hearth consisting of 58 quartzite stones found in N398 E851 and N397 E851, levels 9-11. In both hearths each stone was mapped in situ, measured, and weighed. They will remain with the collection of cultural material in the MCB.

Utilized flakes, fire cracked rock, and large amounts of debitage continued throughout all levels of the area. There were no sterile levels in Area 4. It produced more than 400 individually identified artifacts, two hearths with more than 200 fire-cracked stones, 56,000 g of debitage, 67,600 g of fire-cracked rock (not including hearthstones), sandstone, pebbles, aboriginal pottery, shell, and non-human bone.

A 20 x 20 cm core was cut below the final level 26 of Area 4; no cultural material was obtained. This is not conclusive evidence, however, that the limit of human existence has been reached in this area. The area has been backfilled and returned to its natural state. For future field research, easy access to the lower levels exists. The west side of the unit extends to

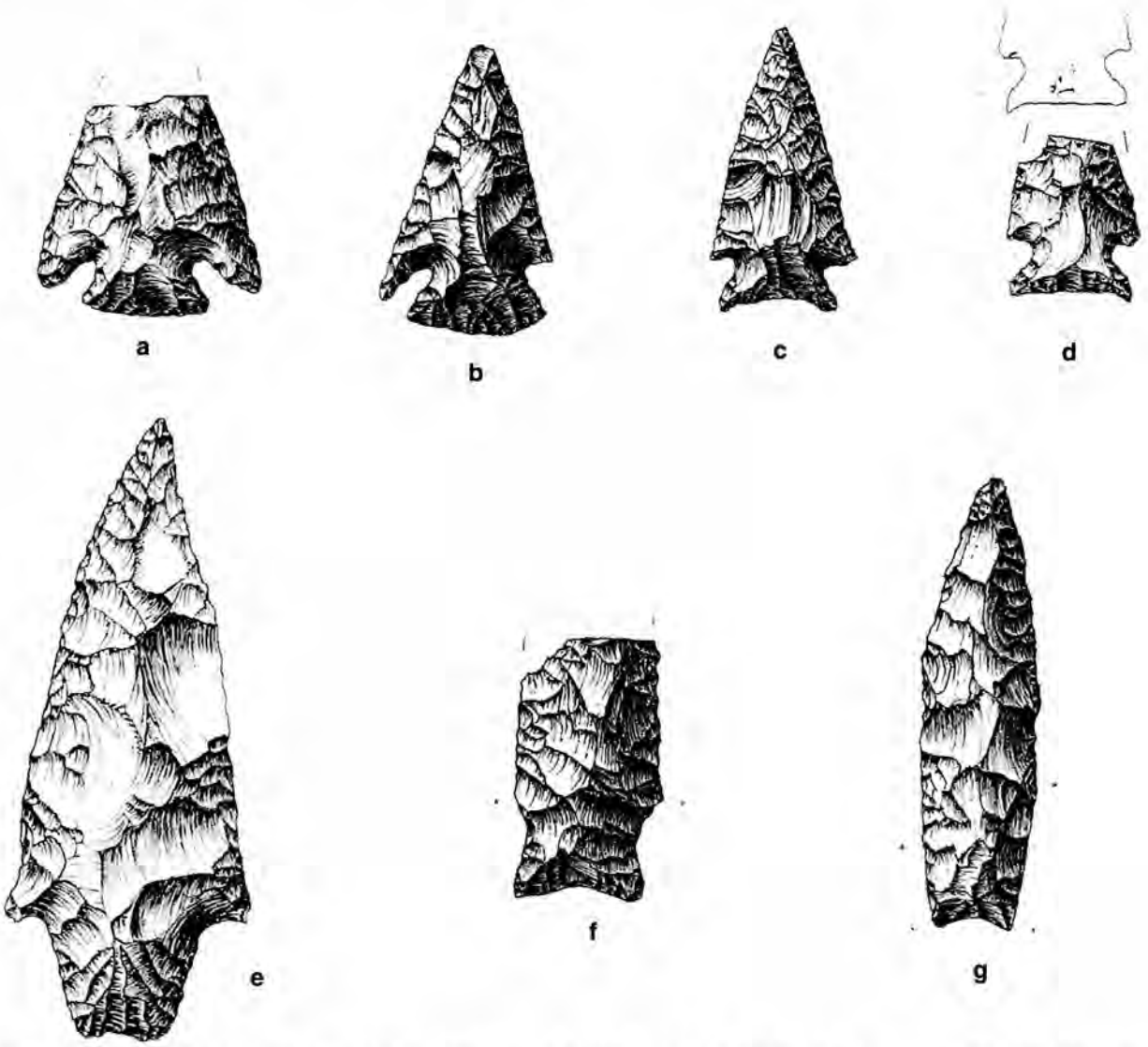

Figure 10. Selected Dart Points from 41VT141. Figure 10. a, b, Marcos; c, d, Fairland (the fragmentary Fairland shown in d has asphaltum on the stem; e, Morhiss point from Area 4, Level 15 (length, 96 mm); f, Hoxie point from Area 4, Level 20 (length, 41 mm); G, Angostura (Paleo Area 1, Level 1; length, 78 mm).

within 2 meters of an embankment created by soil removal operations. This bank could be excavated down to level 26 and below. Surface material is collected as this bank continues to erode and contains ample evidence for continued investigation in the area.

4 North Terrace

Soil that had been pushed into a small mound near the northwest corner of Habitation Area 4 revealed some exposed cultural material. Because of its proximity to Area 4 it was named "4 North Terrace" and screened without provenience. Nothing unusual was extracted, but it did produce a bone awl, bone billet, quartzite cobble, broken points, debitage, and utilized flakes.

Area 5

Habitation Area 5 was chosen for excavation because it represented an undisturbed area near Burials 1 and 2; numerous surface artifacts were found in the vicinity.

Ultimately, Area 5 included 3 adjacent meter square units with a depth of 1.4 meters. Soil was

excavated by trowel and screened in ¼ inch screens. The extent of of excavated artifacts included: 2 altered mammal bones, 5 biface fragments, 3 preforms, 1 shell bead, 3 biface distals, 1 chopper, 1 spokeshave, 3 proximal bifaces, 2 utilized flakes, 1 medial biface, 2 Perdiz fragments, 1 antler billet, 1 thin biface, bone awl fragment, bison bone, 1 perforator, pottery sherds, and a large burned clay feature with bone in level 10.

Area 5 is small and precariously located at the edge of an embankment created by soil removal. There is no pressing need to continue excavation at this time, and Area 5 has been closed.

5 North Bluff

Within several meters of Area 5 is a bluff created by the soil removal operations. The bluff-like edge rising from the damaged area to the natural surface was named "5 North Bluff." A cut 2 x 1 meters was dug at the edge of this bluff to a depth 1.1 meters. This work produced: 7 biface distals, 24 utilized flakes, 5 biface proximals, 6 biface medials, 4 preforms, 10 bifaces, 1 Clear Fork tool, 1 Guadalupe tool, 3 scrapers, 2 bone awl fragments, 11 cores, 1 chopper, 2 hammerstones, 1 mano, 1 dart point, 11 pottery sherds (1 incised), 1 perforator, 3 miscellaneous points, 1 "eccentric" fragment, 2 Perdiz points, and various tools that appear to have been broken during manufacture.

Figure 11. Artifacts in situ in Area 5, 41VT141.

The North Bluff has been closed.

Anaqua Mott Habitation Area

The Anaqua Mott is on the southern side of the 16 acres between the habitation and Paleo areas. It is shaded by a large stand of anaqua trees and slopes down to the south toward the Guadalupe River ox-bow. Two separate excavations were opened on the north-south axis of the area 18 meters apart. The lower consisted of four 1 meter square units that were excavated to eight 10-cm levels (one unit through 9 levels). The upper excavation contained two 1-meter square units that were excavated to a depth of 15 levels (1.5 meters).

Two artifacts found in situ in the southern units were unique to 41VT141 to date. One is a tiny green glass, reworked Guerrero point, and the other a sandstone abrading stone. The Guerrero point (Figure 12) likely represents visits by Aranama or related groups from nearby Mission Espiritu Santo (Walter 2007) or Presidio Loreto (Fox and Tomka 2007).

Artifacts range from Historic through Early Archaic periods, with no discernable pattern emerging from these limited excavations. The Anaqua Mott needs a closer examination to determine its place in the overall development of the site

Paleo Area 1

Paleo Area 1 was a mixture of intact and disturbed surfaces. All units were 1 meter square, and initial excavations started with 5 cm levels screened with 1/8 inch screens. As the units became increasingly

Figure 12. Reworked Guerrero Point, Made of Green Glass. Found at the Anaqua Mott habitation area, 41VT141. Length is 12 mm.

difficult to manage with heavy clay and pebble content, the levels were increased to 10 cm, and screened with ¼ inch screens. At each level a sample was taken for 1/8 inch screening. After completion of 9 units with a final depth of 80 cm, work was suspended, but the area was not closed. Cultural material was present in the lowest level of each unit indicating the need for further excavation.

This area produced 20 excavated Clear Fork tools, 1 expanding-stem dart point, 6 Angostura, 3 Golondrina, 2 St. Mary's Hall, and 1 Bulverde. This combination clearly points to human activity into the Late Paleo-Indian period. Additional Clear Fork tools were found across the site with the majority from the surface in the general Paleo area. These other sources include:

Figure 13. The Paleo Area, 41VT141. Artifacts in situ. Center, Golondrina point; lower right, Clear Fork tool (see Figures 14-15).

General Paleo surface area–19
Non-specified surface–3
Area 4 excavation (levels 14-25)–5
Burial Area 3–2

Miscellaneous bifaces, choppers, cores, blade fragments, hammerstones, preforms, scrapers and numerous utilized flakes were excavated here. The area is securely covered but not backfilled. It has potential for very interesting research on the geology of the site as well as its prehistoric human inhabitants.

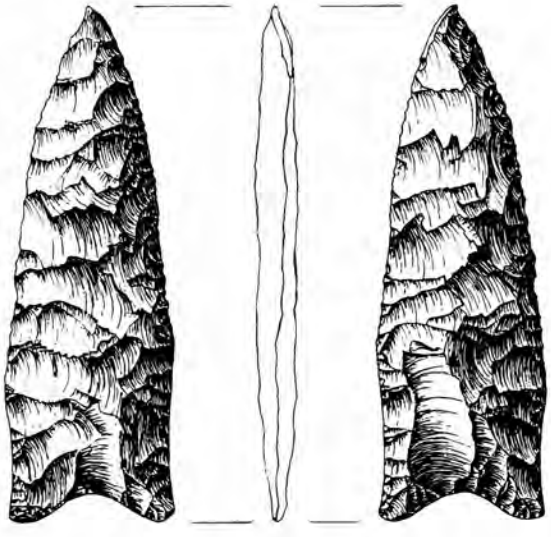

Figure 14. Golondrina Point from Paleo Area 1. Level 4, elevation 93.82, N341.63/ E993.37. Length, 87 mm. (see Figure 13).

CONCLUSIONS

41VT141 is a large multi-component site that produced a wealth of research material in its first three years of excavation and has potential for significant additional research. A detailed interpretation of the site has not been attempted here. Our goal is to present our methods and recording of all activities and recovered cultural material, and to make everything available for use by future researchers. The Museum of the Coastal Bend in Victoria is the official repository for all excavated material, surface collections and data. Lab processing and curation have been done by volunteers from the 41VT141 team. Access to the research material is controlled by the Director of the MCB, and the following are available:

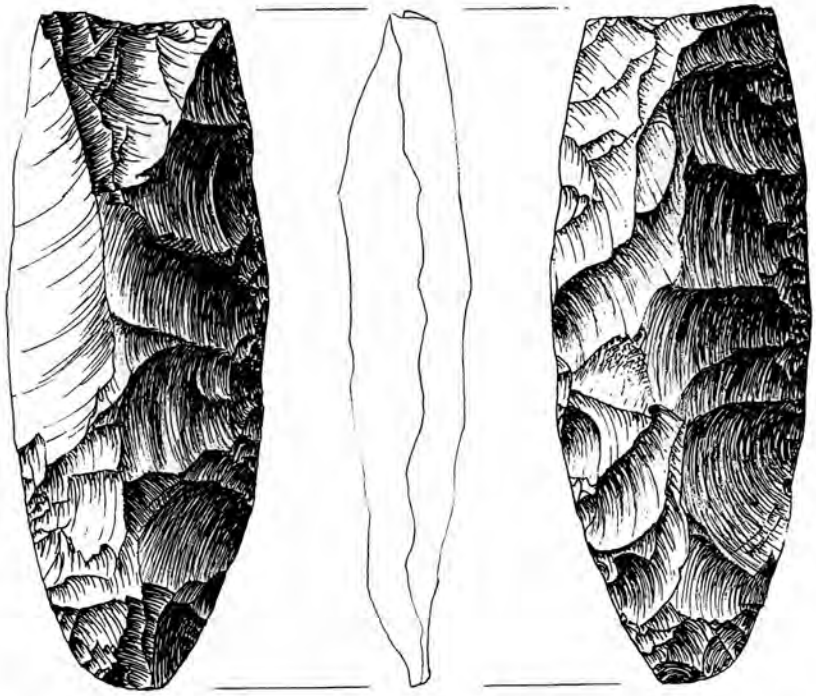

Figure 15. Clear Fork Biface from Paleo Area 1. Level 1, elevation 93.89, N340.58/E996.83. Length, 100 mm. (see Figure 13).

Figure 16. The Paleo Area, 41VT141. Paleoindian projectile point in situ. Level 5. Elevation 93.70. N340.65/E993.18. See Figure 21.

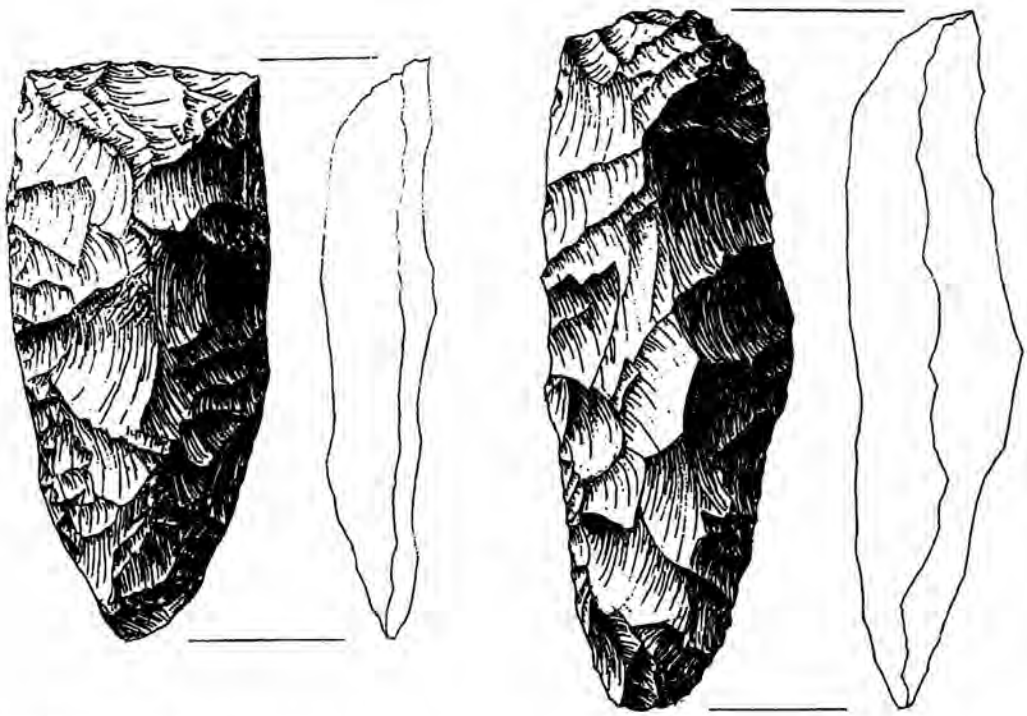

Figure 17. Clear Fork Tools, 41VT141. Length of left specimen is 89 mm. Both are from Paleo Area 1.

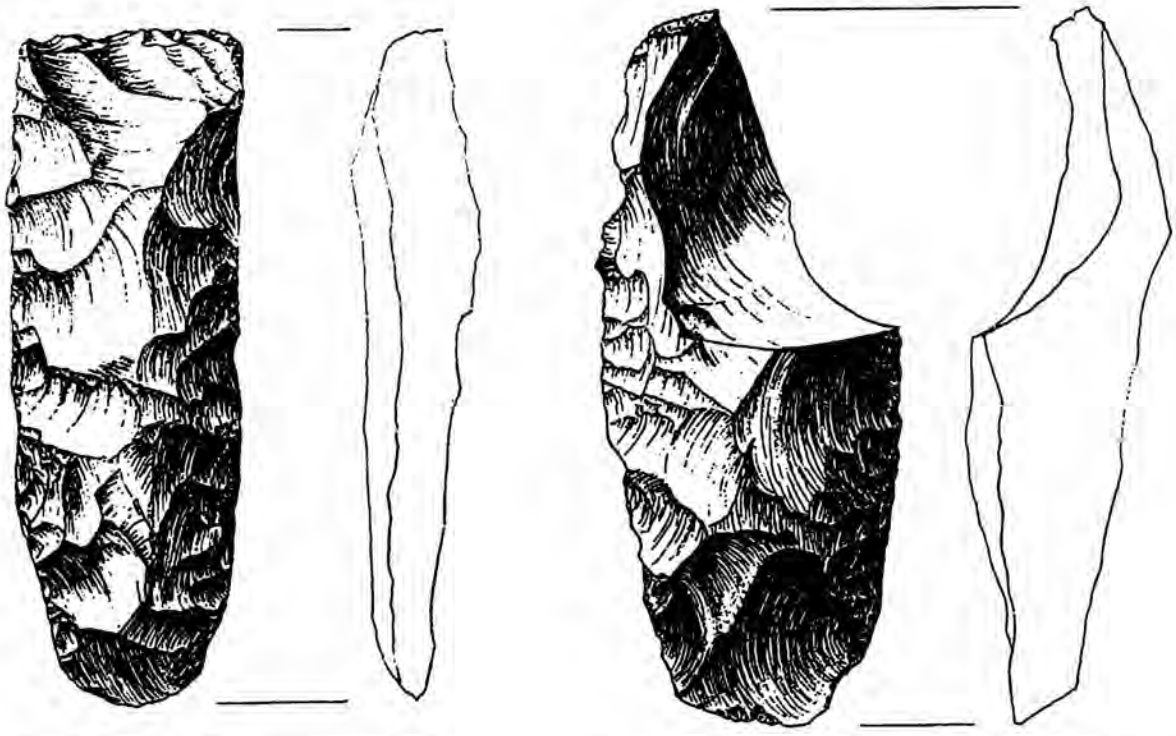

Figure 18. Clear Fork Tools, 41VT141. Length of top specimen, 108 mm. Both are from Paleo Area 1. The lower specimen is thought to be a manufacturing failure.

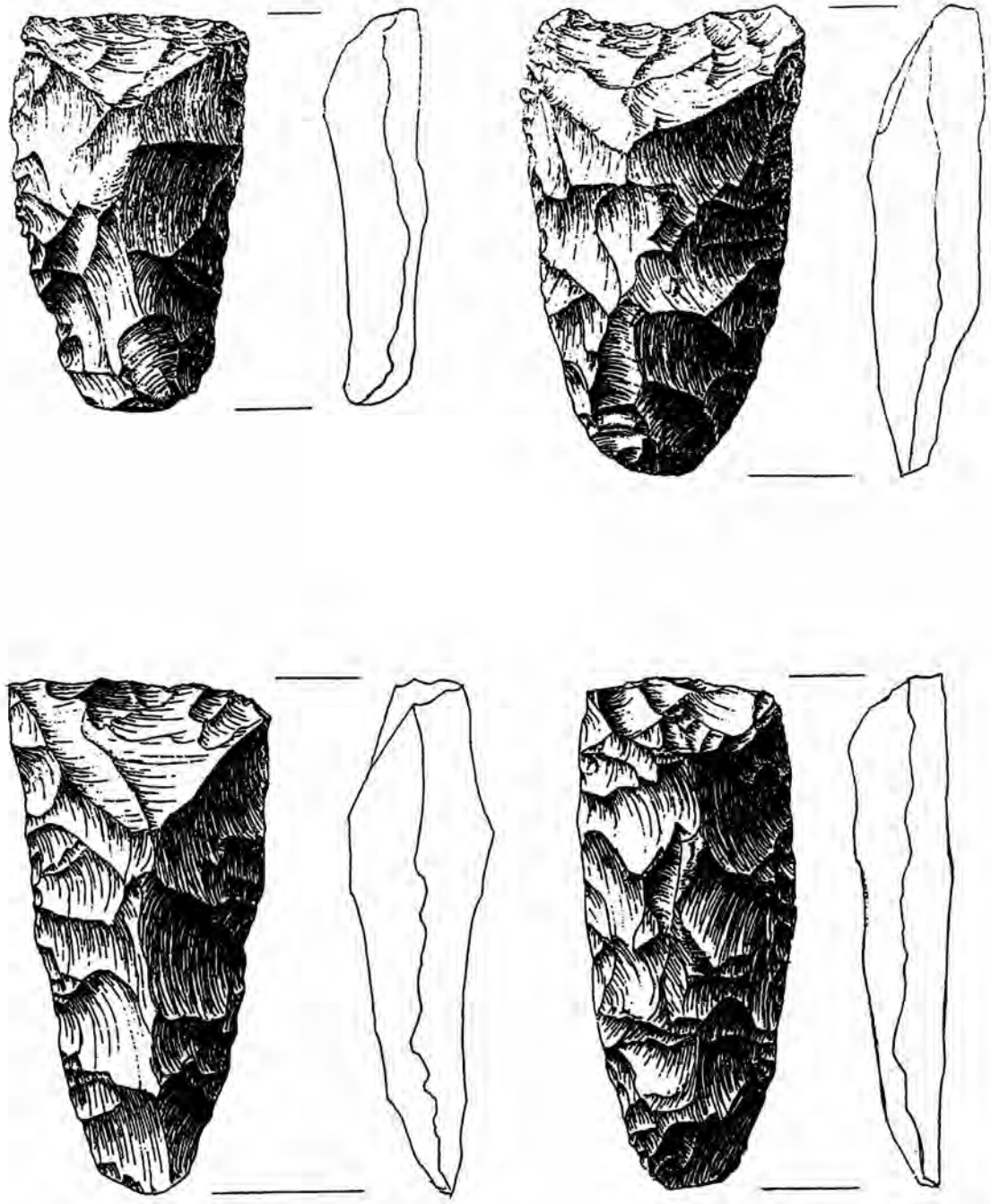

Figure 19. Clear Fork Tools, 41VT141. Length of specimen in lower right is 82 mm. These are all surface finds from Paleo Area 1.

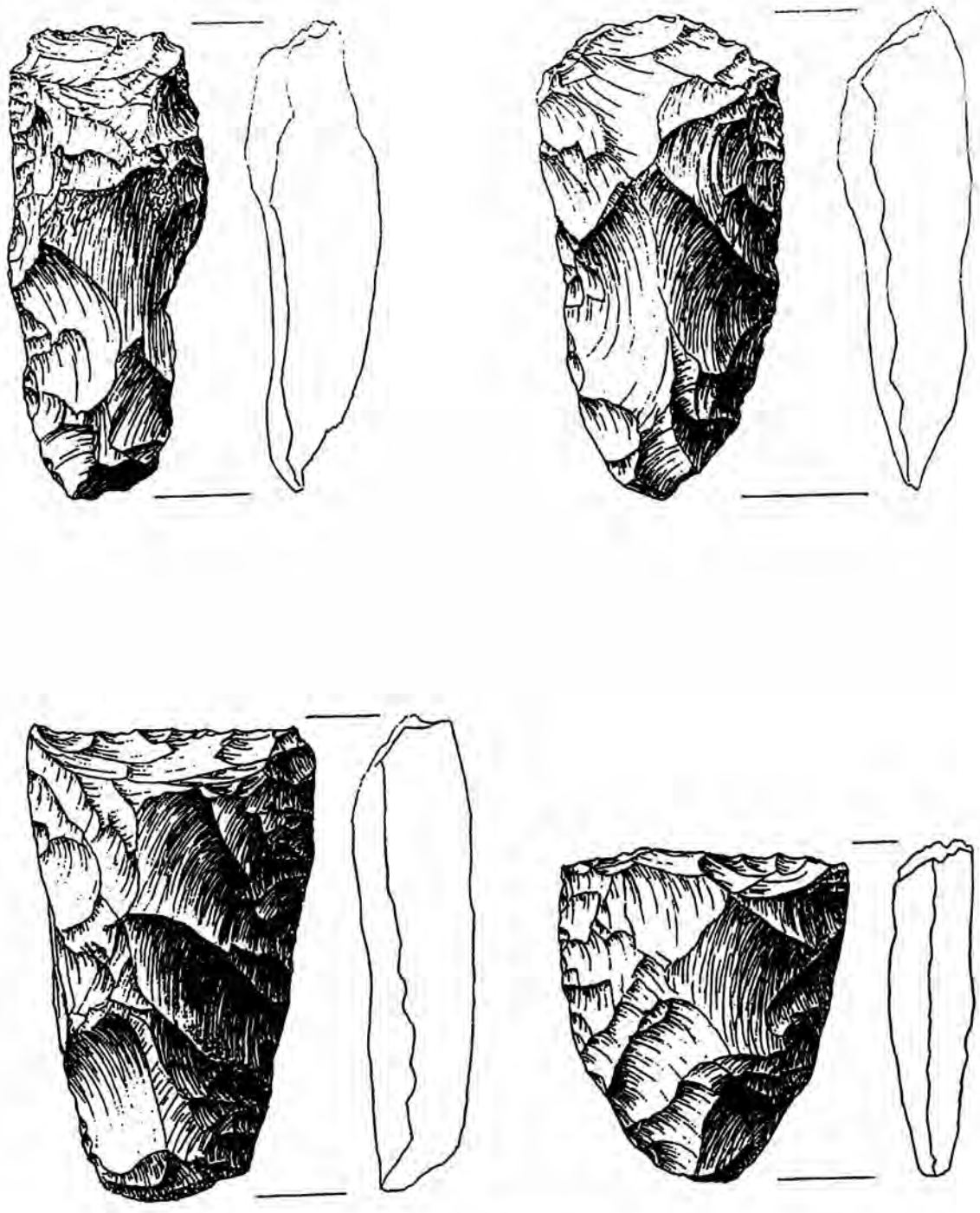

Figure 20. Clear Fork Tools, 41VT141. Length of specimen in the lower left, 69 mm. All are from Paleo Area 1.

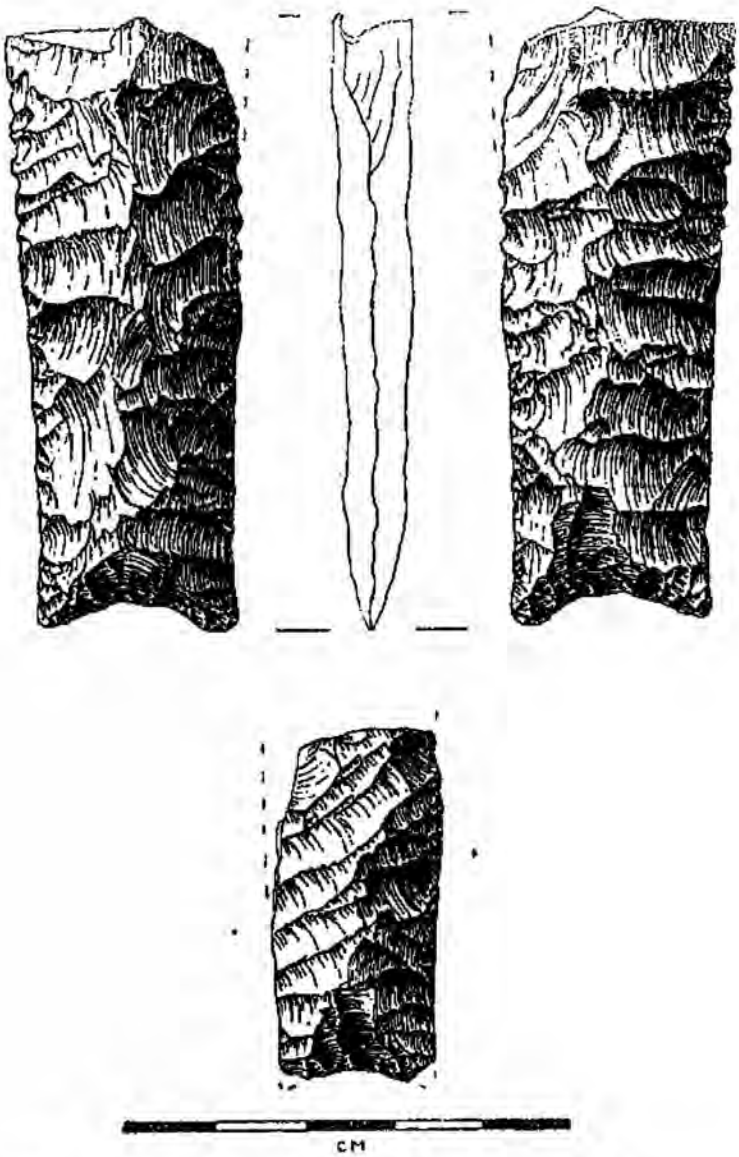

Figure 21. Projectile Points from the Paleo Area, 41VT141. Top, type unknown (see Figure 16); Bottom left, St. Mary's Hall point (level 4). Scale is 5 cm.

- Field Manual with excavation guidelines.
- Lab Operations Manual.
- Compiled books of original field notes.
- All data in computerized form (Microsoft Access) and hard copy.
- Guest sign-on, computer, and work space.
- Physical access to artifacts when appropriate.
- Assistance and consultation by members of the original volunteer crew.

The site is large and contains a wealth of information awaiting discovery. It can support significant field research in the future.

MUSEUM OF THE COASTAL BEND ARCHAEOLOGICAL EXHIBIT

Members of the 41VT141 team designed and assembled an exhibit on archaeology for the Museum

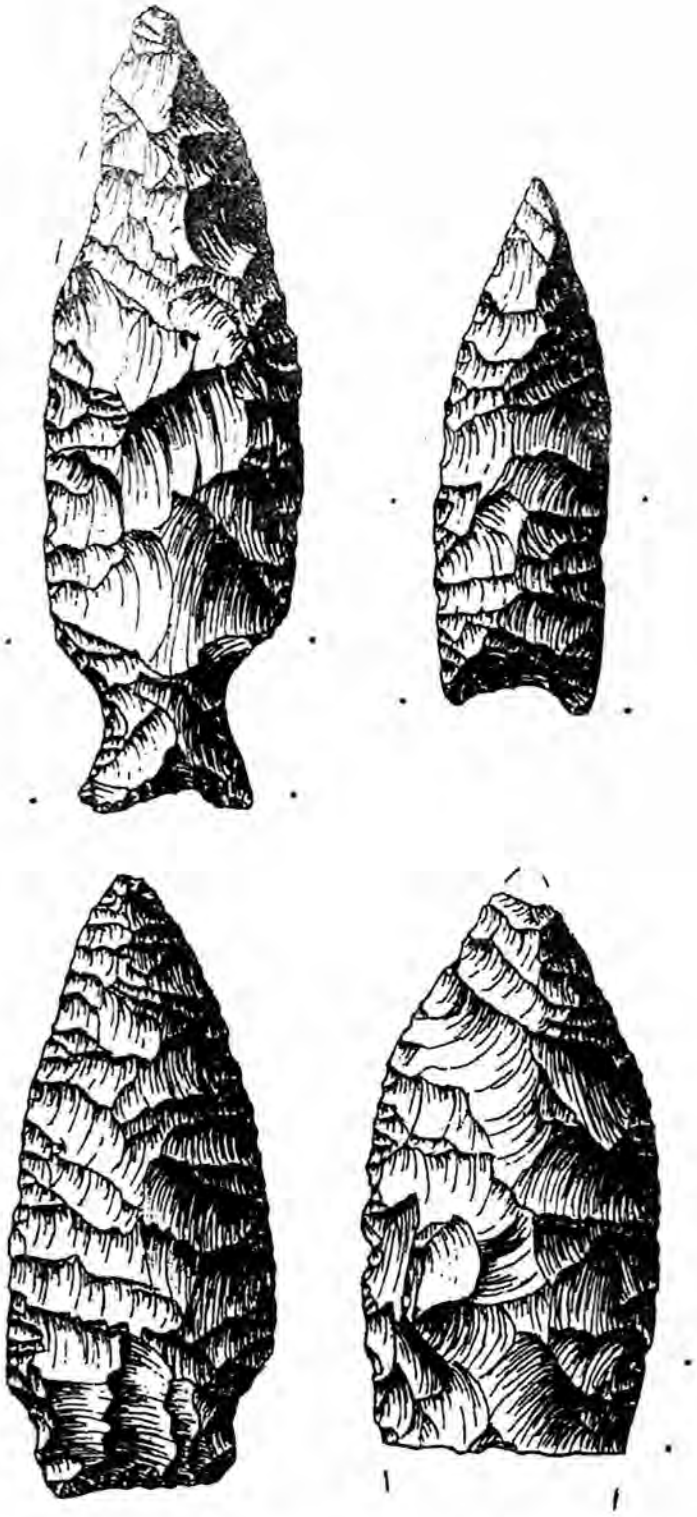

Figure 22. Paleo Area 1, 41VT141. Length of specimen in upper left, 89 mm. That specimen has an expanding stem, the edges of which are extensively dulled. Upper right, identified as St.Mary's Hall; bottom, reworked and distal fragments of Paleoindian bifaces.

Figure 23. Andice Point from the Surface of Site 41VT141. Length, 50 mm.

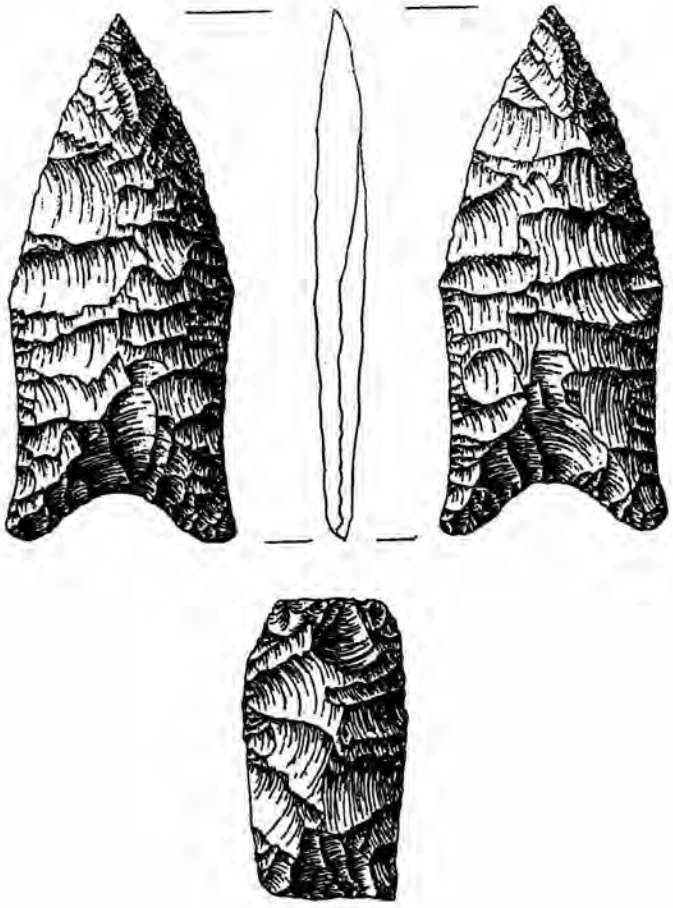

Figure 24. Paleoindian Artifacts from the Surface of Paleo Area 1, 41VT141. Top, Golondrina point; Bottom, reworked St. Mary's Hall point. Length of top specimen is 68 mm.

Figure 25. View of the 41VT141 Exhibit at the Museum of the Coastal Bend, Victoria, Texas.

of the Coastal Bend called "Early Peoples of the Texas Coastal Bend" which opened February, 2007. Artifacts from the McNeill Ranch are a major component of that exhibit. Sample diagnostic pieces from all archaeological time horizons are on display along with interpretive analysis and educational displays. (Figure 25).

ACKNOWLEDGMENTS

John and Frances McNeill deserve special commendation for their concern over the preservation of their property and willingness to make the site available for research. Their ongoing support is invaluable.

We acknowledge again the efforts of the original crew who donated their time and skill to uncover the wealth of this site and complained only mildly during 100° + days of heavy work. We also appreciate the efforts of those new to archaeology who worked hard and quickly became productive members of the team. They include Frances Sawyer, Alex Smith, Jenni Kelly, Diana Rhodes, and Howard Camp.

Work at the site is ongoing with most of the original crew who also staff the lab. We recognize the efforts given to special projects:

Jimmy Bluhm for his dedication and hard work managing the operations at the site and coordinating activities with educational and research organizations
Jud Austin and Helen Shook, Lab Directors
Bill Birmingham for design and manufacture of special excavation tools for everyone
Pat and Ron Braun, design and creation of databases
Helen Shook for contributing the Fauna, Flora and Climate portions of the report
Richard McReynolds, Artist, for his detailed drawings
Dr. Robert Shook, for computer graphics work
Coastal Environments, Inc. for the Munsell Soil Book

We appreciate the consultants who offered their time and expertise to visit and assess the site with us:

Michael Aiuvalasit, MA. Department of Anthropology, Texas A&M

Dr. Michael Bever, Department of Anthropology, University of Texas at Austin
Dr. Robson Bonnichsen, the late Director of the Center for Study of the First Americans, Texas A & M University
Dr. Jim Bruseth, Director, Archeology Division at THC
Dr. Michael Collins, Research Associate, Texas Archeological Research Lab (TARL)
James DeYoung, Biologist
Jeff Durst, THC Regional Stewards Director, Regions 5 and 6
Dr. Thomas R. Hester, Professor of Anthropology emeritus, The University of Texas at Austin
Wes Miller, Soil Analyst
Elton Prewitt, Research Associate, TARL,
Dr. Jennifer Rice, Bioarchaeologist, Our Lady of the Lake University
Dr. Robert Ricklis, Corpus Christi, Texas
Dr. Tamra Walter, Associate Professor of Anthropology, Texas Tech University
Dr. Mike Waters, Geoarchaehologist, Texas A&M University
Richard Weinstein, C.E.I., Baton Rouge, Louisiana.

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A Decorated Mussel Shell Pendant from Nuevo Leon, Mexico

Don Kumpe

ABSTRACT

A decorated freshwater mussel shell pendant from northeastern Nuevo Leon, Mexico is illustrated, described, and compared to similar specimens that appear to be in a mirrored style.

INTRODUCTION

Chandler and Kumpe (1992, 1997) report a variety of decorated mussel shell pendants from the lower Rio Grande of south Texas and northeastern Nuevo Leon, Mexico. Several specimens were recognized as a particular style or type of pendant (Chandler and Kumpe 1997: 11). However, the style was not defined or described. The specimen reported in this paper and illustrated in Figure 1, A appears to be in the style mentioned by Chandler and Kumpe (ibid.). Similar specimens are illustrated for comparisons (Figure 1, B-H) and the mirrored style that is apparently common to all of the pendants in this paper is described. Three decorated mussel shell pendants from the lower Rio Grande do not appear to be in the same style and are not included (See Chandler and Kumpe 1992: Figure 1, E-F, H).

THE ARTIFACT

The artifact reported in this paper (Figure 1, A) is a complete freshwater mussel shell pendant with one suspension hole. The perforation began from the interior of the shell, penetrated to the exterior, and was finished from the exterior. Prior to incising, the freshwater mussel shell valve (the medium) was ground to a sub-rectangular shape. Two parallel incised lines begin below the centered suspension hole and extend longitudinally to the base of the pendant. The lines divide the medium into halves and the incised designs on one side of the pendant are mirrored by the incised designs on the opposite side. Each of the large mirrored panels is composed of three small panels formed by angled pairs of parallel incised lines and a latitudinal line near the base. The small panels in the upper two thirds of the design contain angled parallel lines, while the small panels in the lower one third of the design contain longitudinal parallel lines. The dimensions of this specimen are 60 x 46 x 3.2 mm. It was found by a Mexican citizen in Nuevo Leon, Mexico approximately 40 miles south of Falcon Reservoir.

DECORATED PENDANTS IN THE MIRRORED STYLE

Figure 1 illustrates eight decorated mussel shell artifacts. The pendant in Figure 1, A is reported and described above. Seven specimens were reported by Chandler and Kumpe (1992, 1997) and are illustrated for comparisons (Figure 1, B-H). The pendant in Figure 1, D was salvaged from a larger pendant and the vertical lines probably represent the center of the original artifact (Chandler and Kumpe 1997: 11). Some specimens retain only one of the two mirrored panels that are believed to have been present (Figure 1, E, G, H).

The mirrored style of decorated mussel shell pendant is apparently defined by the longitudinal medial division of a freshwater mussel shell medium and the equidistant separation of two incised longitudinal pan-

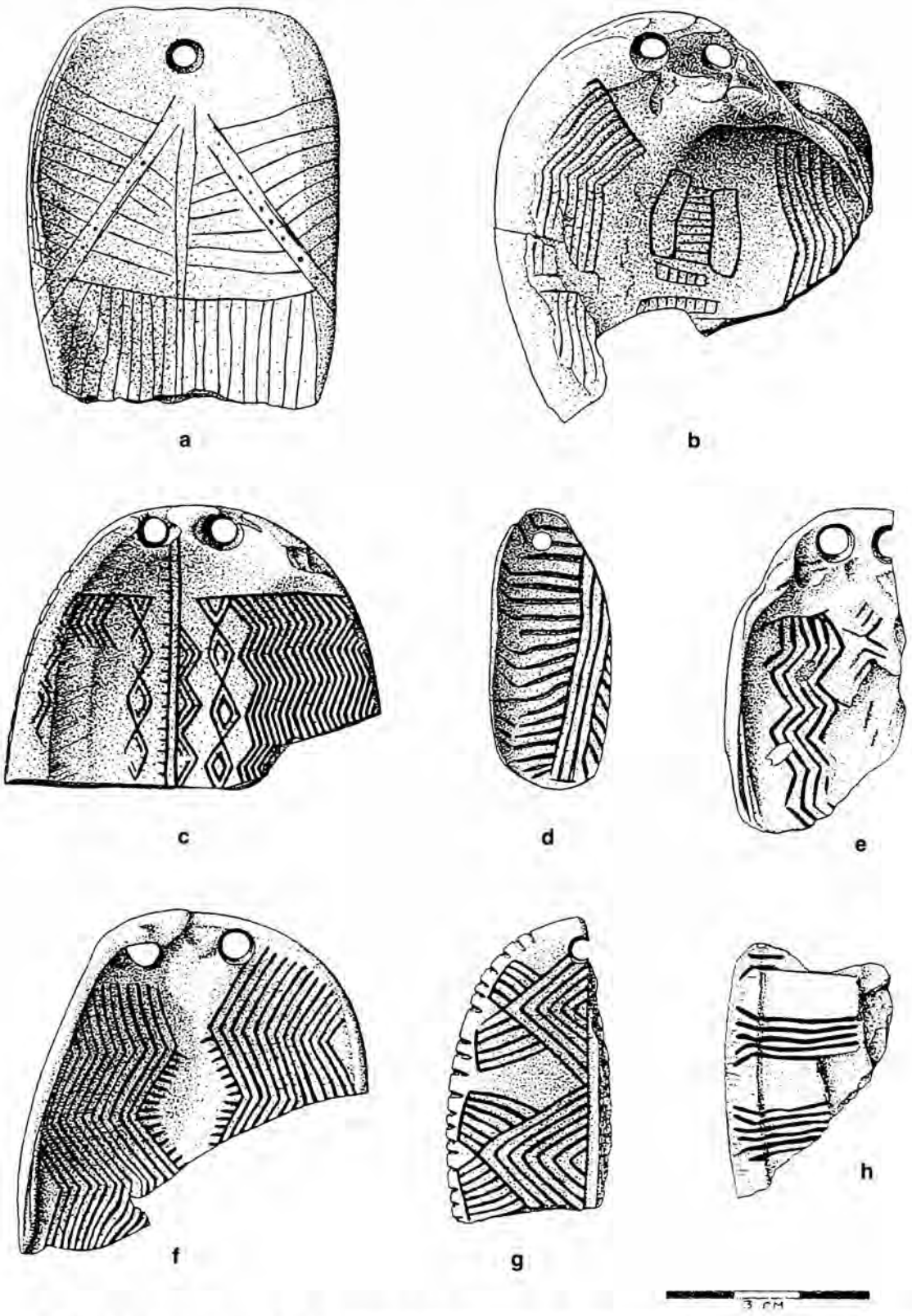

Figure 1. Decorated freshwater mussel shell pendants in the mirrored style. Specimen A is reported in this paper. Seven specimens (B-H) have been previously published by Chandler and Kumpe (1992, 1997) and are illustrated for comparative purposes. Drawings were done by Richard McReynolds.

els that are mirrored, i.e. repeated with right and left reversed. The division of the medium and the separation of the mirrored panels is usually accomplished by the varying use of parallel vertical lines (Figure 1, A, C, D, G), but may be as imaginative as a vertical column of diamond-shaped space (Figure 1, F), or a vertical medial panel of small designs with space left on each side (Figure 1 B, E).

Mirrored style pendants may have one or two suspension holes; usually there are two. The medium appears always to be the interior surface of a freshwater mussel shell valve and the decorations appear to encompass all, or nearly all, of the interior surface. The medium may be unaltered (Figure 1, B) or ground to a sub-rectangular shape; usually it is ground. Rarely, the edges are decoratively notched (Figure 1, G). Incisions may be comparatively amateurish, as on the specimen reported in this paper (Figure 1, A), or remarkable for their uniformity of spacing and skillful workmanship (Figure 1, C, F-G).

Chandler and Kumpe (1997: 13) remark that there is no repetition of the total design on any of the shell pendants, i.e., each pendant apparently has an incised design that uniquely represents the creativity and imagination of the individual craftsman. That appears to be the case even though stacked and linked longitudinal panels of chevrons, or "zigzags," are common to five of the mirrored designs or motifs (Figure 1, B, C, E, F, G). In every case of the use of chevrons they are uniquely presented.

DISCUSSION

Hester and McReynolds (2003:13) consider whether the engraved designs on these pendants represent "art" (as decoration) or whether the lines and combinations of lines have symbolic importance. They cite the example of similar zigzag lines found as pictographs at the Old Sullivan Springs overhang along the Rio Grande in Webb County (Hester 1987: Figure 1). Zigzags are also on two decorated stone pipes from Falcon Reservoir (Chandler 1997: 13, 17) and it seems remarkable that stacked and linked zigzags occur on five of the mirrored style pendants. The use of the zigzag design on shell pendants from locations as widely separated as Cameron County, Texas (Figure 1, B) and northeastern Nuevo Leon, Mexico (Figure 1, A & C), as well as in Webb County pictographs and on stone pipes from Falcon Lake, suggests that the design may have been meaningful or symbolic.

CONCLUSION

A mirrored style of elaborately decorated freshwater mussel shell pendant apparently occurs along the lower Rio Grande in Texas, in northern Tamaulipas, Mexico, and as far south as northeastern Nuevo Leon, Mexico. The preparation of the mussel shell medium and the incised decorations on the mirrored style of pendant appear to reflect the preferences, skills, creativity, and imaginations of the individuals, the hunter-gatherers, who manufactured these ornaments. The distribution of the mirrored style of pendant may indicate a region of cultural contact and shared beliefs.

ACKNOWLEDGMENTS

The author would like to thank Bill Yoder for his assistance and Richard McReynolds for his drawing and suggestions.

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Mexican Majolica from a Colonial Site at Falcon Reservoir on the Lower Rio Grande of Texas

Timothy K. Perttula

INTRODUCTION

There is an extensive late 18th and early 19th century Spanish Colonial archaeological record preserved in the many *rancho* sites, both large and small, that have been recorded and investigated at Falcon Reservoir on the lower Rio Grande (see Bonine 2004; Perttula 2004). One of the more distinctive items of material culture found on these Falcon Reservoir sites is Mexican majolica, a tin-glazed ceramic ware (see Fox and Ulrich 2008). A wide variety of majolica types have been reported from other lower Rio Grande sites that were first occupied in the late 18th century (see Bonine 2004; Fleming and Perttula 1999), and continued to be occupied up until the construction of Falcon Reservoir in the 1950s. In this article, I summarize the character of a large assemblage of majolica sherds from one of the earlier *ranchos* at Falcon Reservoir, namely the Cabaseño Ranch.

THE CABASEÑO RANCH SITE (41ZP79)

The Cabaseño Ranch site, on the north bank of the Rio Grande, was first occupied by Hispanic settlers who had come from Mexico around 1775 to be part of a burgeoning ranching and agrarian community along both banks of the river. This community was part of a larger post-1750 Mexican colonization efforts in the province of Nuevo Santander (Thompson 1997:19-24) that had been established through a series of large land grants or *porciones* along the Rio Grande.

This *rancho* is on an alluvial terrace (now mainly under the waters of Falcon Reservoir) of the Rio Grande that was first occupied from ca. 1775-1800, when a small settlement of three adobe-covered wood-walled and thatched houses or *jacales* was established in one area of the site (Area I) (Perttula et al. 1999:Figure 3). This area also had trash midden deposits and bone-filled pits, as well as an extensive scatter of hand-made olla and bowl sherds from locally hand-made Mier Plain vessels, thin lead-glazed Galera Polychrome bean pots and *chocolateras*, majolica from Puebla, Mexico sources, and late style (ca. 1780-1800) olive jars.

Later and more extensive archaeological deposits at the site are from a post-1830 ranch occupation marked by a number of more substantial stone structural ruins, a *horno* and lime pit, and midden deposits. In addition to 19th century majolica sherds from Guanajuato, Mexico sources, plain and decorated English whiteware are also abundant in these midden deposits. Finally, there is an early 20th ranch occupation at Cabaseño Ranch that has a two-room pier structure, a wood corral, two collapsed *jacales*, and a midden deposit (Perttula et al. 1999:330).

THE MEXICAN MAJOLICA SHERDS

A total of 345 majolica sherds are in the surface collections studied from the Cabaseño Ranch site (Table 1), including 279 with decoration and 66 body and base sherds that are plain. This majolica was made in the highlands of Mexico (Fox and Ulrich 2008:Figure 2-1), most likely from the major ceramic manufacturing locales of Puebla and Guanajuato. Instrumental neutron activation analysis of a small sample of late 18th century majolica from the Cabaseño Ranch site indicates that this majolica was manufactured in Puebla (Neff et al. 2004:63, Table 1, and Figure 4).

Table 1. Decorated majolica sherds from the Cabaseño Ranch site.

Type	Estimated Age*	No.
Huejotzingo Blue on White	1700-1860+	9
Puebla Green on White	1700-1860+	2
San Elizario Polychrome	1750-1850	16
Aranama Polychrome	1750-1850	5**
La Bahia Polychrome	1750-1820	6
San Diego Polychrome?	1770-1800	2
Puebla Blue on White II	1775-1800	3
Molded Blue on White	1775-1800	2
Huejotzingo Wavy Rim Band, green	1775-1825	11
Monterey Polychrome	1775-1830	3
Huejotzingo Green on White	1780-1860+	5
Guanajuato Polychrome	1800-1850	206
Tumacacori Polychrome	1820-1860	1
Unidentified majolica sherds		
unidentified blue		6
unidentified green		1
unidentified orange-brown band		1

*age estimates follow Fox and Ulrich (2008:Figure 4-1)
**includes four with yellow and green bands separated by narrow brown or black lines

The earlier majolica sherds (n=64) from the Cabaseño Ranch site were found exclusively in Area I, while all the Guanajuato Polychrome sherds came from the other parts of the site; because these sherds are from a surface collection, there is a bit of spatial admixture of the otherwise chronologically distinct majolica assemblages. Several of the earlier majolica styles have a lengthy history of manufacture and use (see Table 1), and are not particularly chronologically sensitive, but the recovery of sherds from San Diego Polychrome, Puebla Blue on White II, Molded Blue on White, wavy rim band Huejotzingo Green on White, and Monterey Polychrome suggest that the occupation at Cabaseño Ranch began around 1775 (see Table 1). Through time, these earlier majolica decorative styles were replaced by the earth-toned Guanajuato Polychrome styles.

Puebla Blue on White II and Puebla Green on White sherds account for 7.8% of the earlier majolica styles at the site. These sherds have a grayish-white Puebla paste (cf. Fournier 1997) and a crème-yellow surface color. The Puebla Blue on White II sherds have dark blue flower-petal shaped dots that hang from a single blue band on the exterior surface of cups (Figure 1b), while the Puebla Green on White majolica sherds are decorated with dark green petals (Figure 1a, c) on the interior surface (base and lower body) of plates.

Several kinds of Huejotzingo majolica sherds together comprise the most popular of the late 18th-early 19th century majolica styles found at the Cabaseño Ranch site. These include either blue or green painted decorative bands on the rim and lip of plates, bowls, and cups (Figure 2e-g), or a green wavy rim band (Figure 2b, d) on plates and cups (Fox and Ulrich 2008). One rim sherd with blue and yellow rim bands (Figure 2a) may be a previously unrecognized variant of the Huejotzingo majolica type.

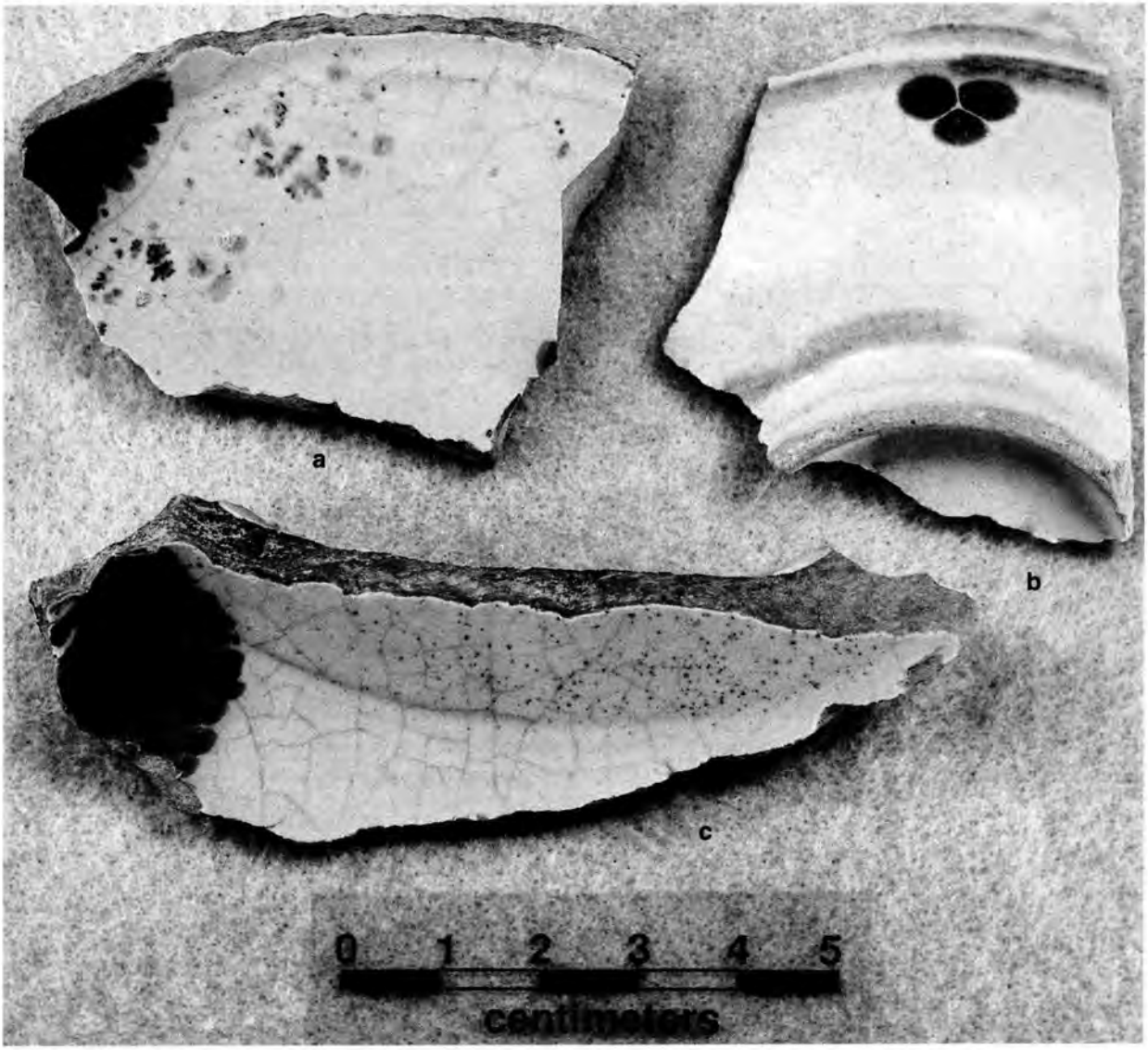

Figure 1. Puebla Blue on white and Green on white majolica: a, c, Puebla Green on White; b, Puebla Blue on White II.

San Elizario Polychrome brimmed plates were also relatively abundant in the late 18th-early 19th century majolica. These vessels were decorated on the interior surface with a broad blue to dark blue band on the rim, as well as very narrow brown or black bands/lines on either side of the blue rim band (Figure 3a-e). Dark blue petals are pendant from the blue rim band; Fox and Ulrich (2008:Figure 4-1) note that San Elizario Polychrome is basically Puebla Blue on White majolica (made from 1600-1830) with the addition of the narrow brown or black bands on the rim. The central design on San Elizario Polychrome is a blue bird figure resembling a crane, with brown or black legs and beaks. Portions of these bird designs are visible on the central part of several Cabaseño Ranch majolica plate sherds (Figure 3f-h).

Two sherds from the site may be from Molded Blue on White majolica because they have two shades of blue floral designs on them (another possibility is that these sherds are from Puebla Blue on Blue plates, see Fox and Ulrich 2008:Figure 4-33); the sherds are small pieces from the body of a plate, however, and thus lack the molded scalloped rims characteristic of the type (Fox and Ulrich 2008:Figure 4-24). One unidentified majolica sherd from Area I has a portion

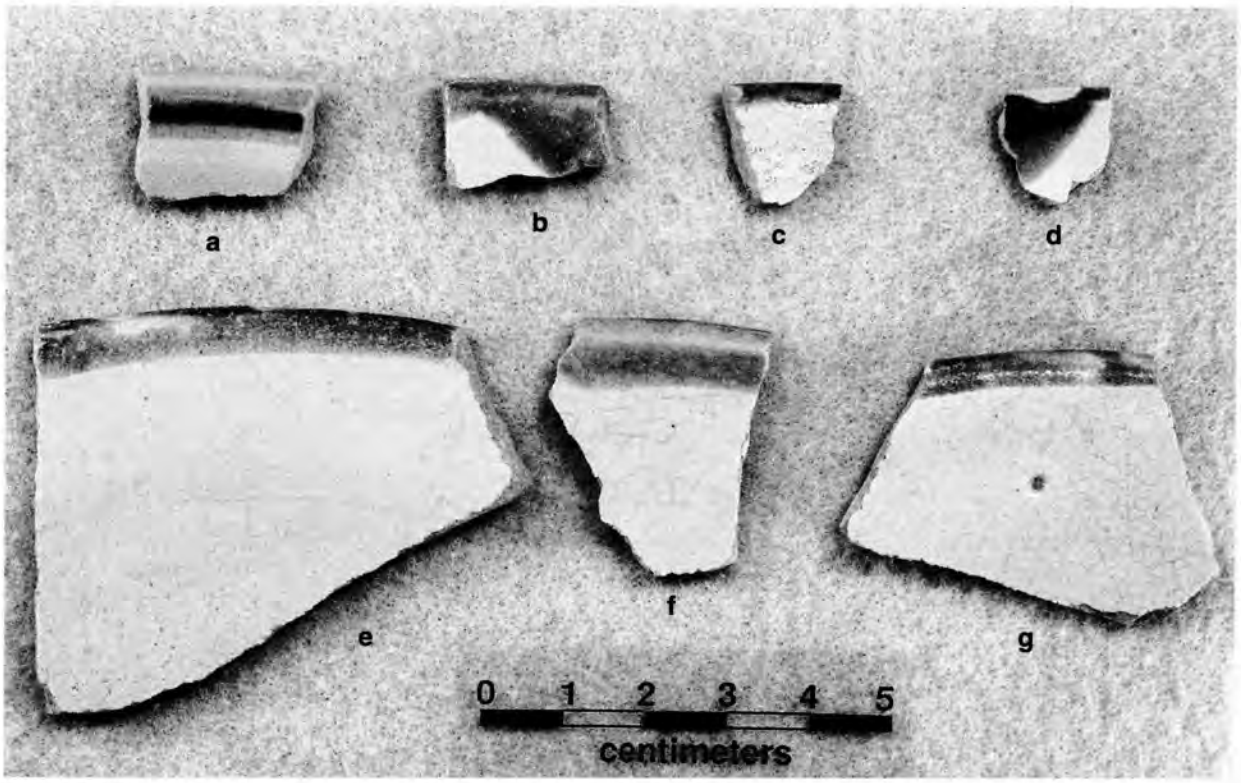

Figure 2. Huejotzingo and Guanajuato majolica: a, blue and yellow banded; b, d, Huejotzingo Wavy Green rim band; c, green banded on interior, Guanajuato Polychrome on exterior; e-g, Huejotzingo Blue on White.

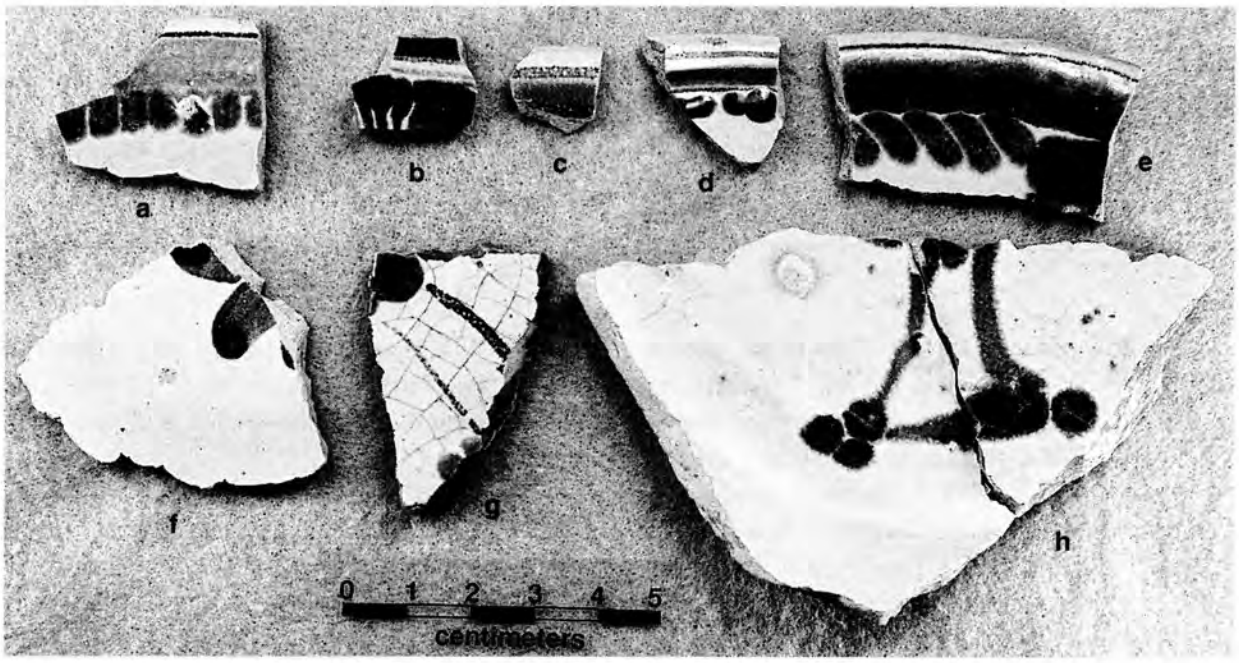

Figure 3. San Elizario Polychrome: a-e, rim; f-h, base.

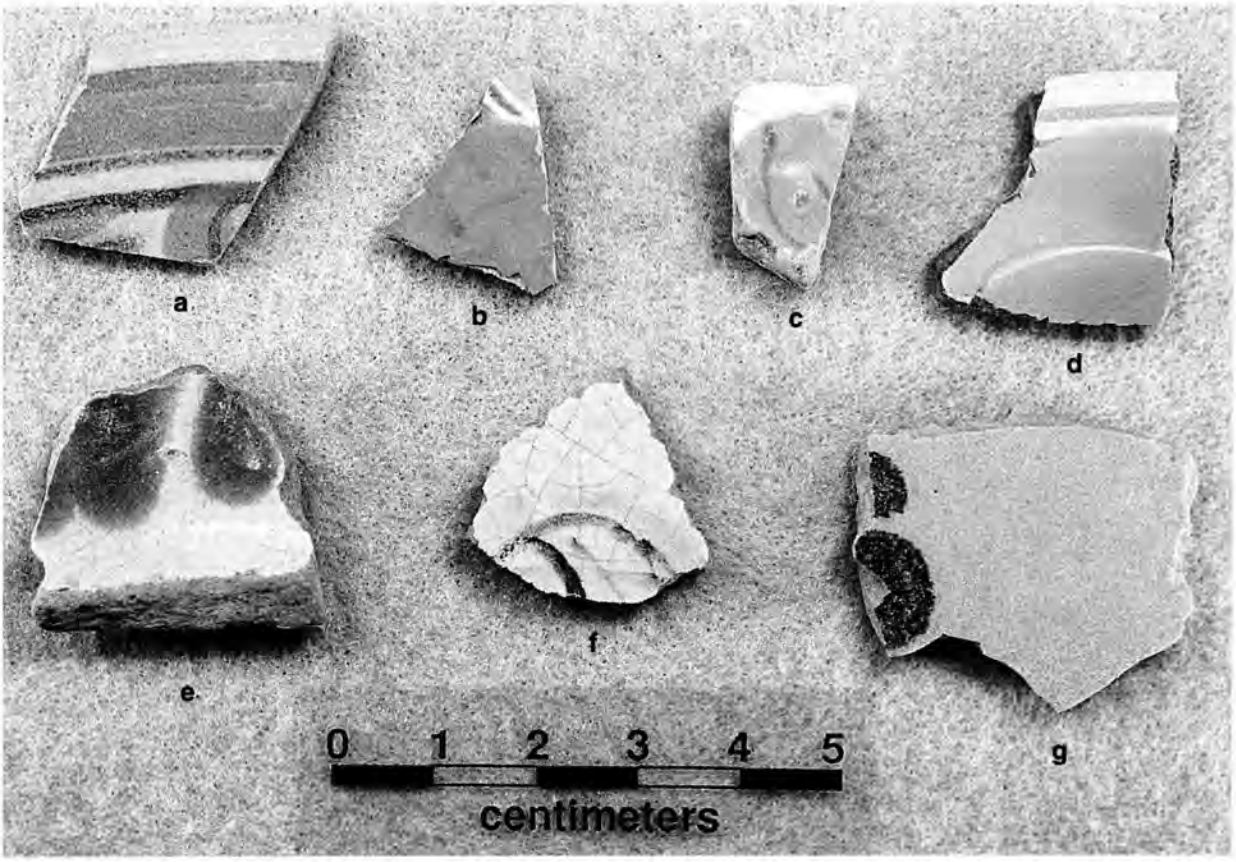

Figure 4. Other majolicas: a, e, Monterey Polychrome; b-d, La Bahia Polychrome; f, Aranama Polychrome; g, Tumacacori Polychrome.

of an orange-brown painted band on it. Although unidentified to type (see Table 1), it resembles what Fox and Ulrich (2008) call Orange Band Polychrome; they date the manufacture of this majolica from 1775-1850. Other than the color of the band, Fox and Ulrich (2008) stress that this type of majolica is identical to the rim treatment on both Puebla Blue on White and San Elizario Polychrome.

Fully 25% of the late 18th-early 19th century majolica from the Cabaseño Ranch site is from Aranama Polychrome tradition types (see Table 1), including Aranama Polychrome (Figure 4f and possibly Figure 5a-d), Monterey Polychrome (Figure 4a, e), possibly San Diego Polychrome, and La Bahia Polychrome (Figure 4b-d). Aranama Polychrome has yellow or orange rim bands bordered by narrow brown or black lines, along with central geometric, floral, or human figure designs (Fox and Ulrich 2008:Figure 4-25). These central figures may be surrounded by petals or different colored balls (see Figure 4f). Fox (March 2008 personal communication) suggests that the yellow-banded sherds with green bands or zones (see Figure 5a-d) may be from Aranama majolicas, but they are too small to be confident of the type identification.

The Monterey Polychrome sherds have broad orange bands with small portions of yellow ovals, black slashes, and adjacent orange spirals (see Figure 4a, e). The green areas on these plate sherds are floral elements of the overall design. The La Bahia Polychrome (as defined by Fox and Ulrich 2008:Figure 4-28) sherds from the Cabaseño Ranch assemblage (see Figure 4b-d) have a yellow-orange band below the rim of plates, with areas or "blobs" (Fox and Ulrich 2008) of yellow, orange and green with dots, slashes, and lines of brown, black, or blue used as accents. The possible San Diego Polychrome sherds have orange rim bands with portions of floral motifs, including black stems and different colored balls or fruits, also outlined in black.

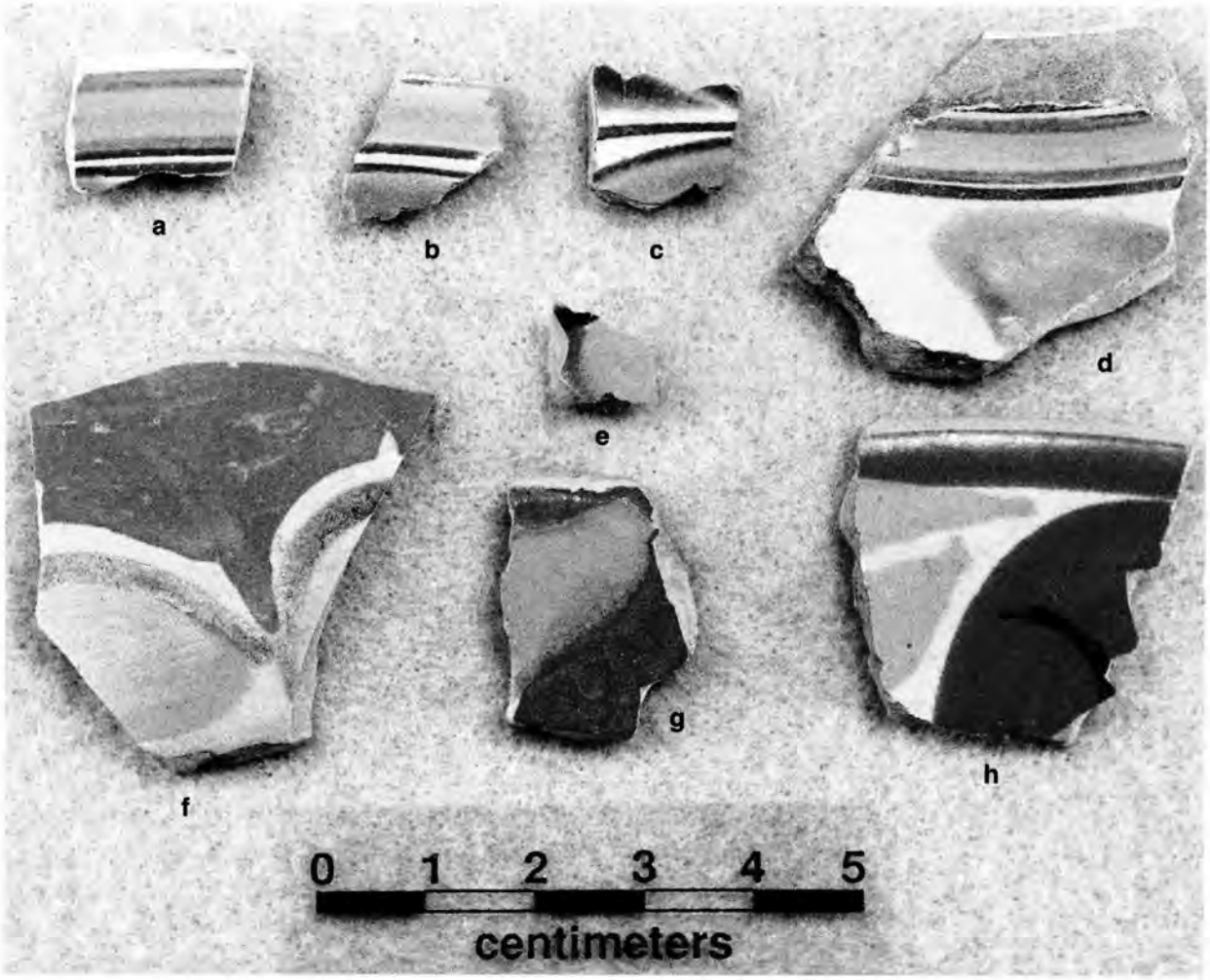

Figure 5. Aranama Polychrome and yellow-red majolica (cf. Guanajuato Polychrome): a-d, Aranama Polychrome; e-h, yellow-red majolica.

The post-1820 majolica sherds at the Cabaseño Ranch site are dominated by Guanajuato Polychrome (see Table 1). This majolica has a reddish-brown or terra cotta paste (Fox and Ulrich 2008). Guanajuato Polychrome sherds (Figure 6, see also Figures 2c and 5e-h) have green, yellow, red, and rusty brown floral (some with black accents) and geometric designs on the inside surface of plates, bowls, and cups. One rim sherd has bands of green and brown on the outer vessel surface, and a thin green band along the interior rim (see Figure 2c).

The other obvious later 19th century majolica from the site is Tumacacori Polychrome. This one sherd (see Figure 4g), from a plate, has a pale blue enamel surface, along with portions of a linear floral decoration.

CONCLUSIONS

The tin-glazed Mexican majolica sherds from the Cabaseño Ranch site (41ZP79) at Falcon Reservoir constitute evidence for the late 18th to mid-19th century occupation of an Hispanic/Tejano ranching family on the lower Rio Grande. There is an interesting diversity of decorated majolica wares—particularly in the ca. 1775-1800 component—as well as an overall predominance of Guanajuato Polychrome majolica at the site (see Table 1).

While it is likely that the mid-19th century ranch settlement was the most extensive here, given the sheer quantity of Guanajuato Polychrome majolica as well as other characteristics of the archaeological record at the Cabaseño Ranch (see Perttula et al. 1999), it is also the

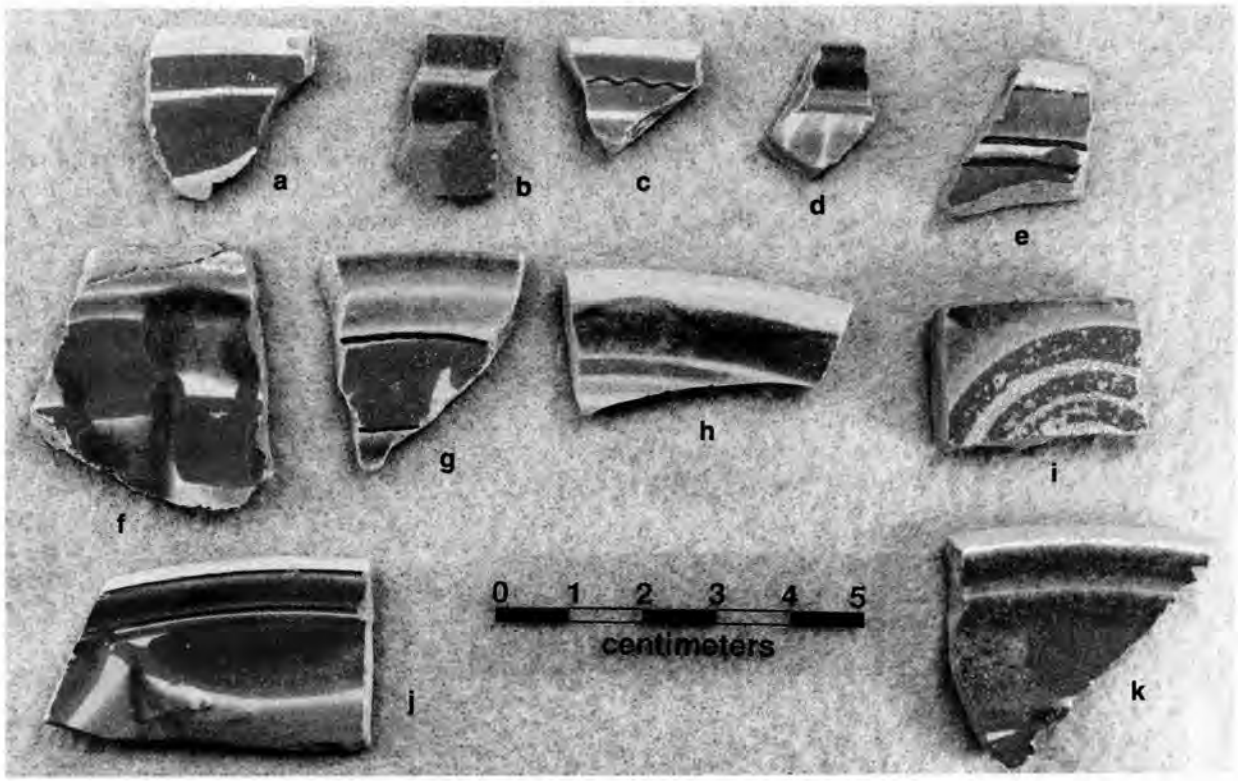

Figure 6. Guanajuato Polychrome majolica.

case that in pre-1820s contexts (Alonzo 1998:67-73), because of limited ceramic trade within Mexico and border regions and towns, good quality majolica was not readily available through long-distance traffic. Thus, in these earlier times along the Rio Grande, much of the consumption and use of ceramics by settlers depended on the local manufacture of hand-made and wheel-made coarse earthenware vessels, supplemented by the occasional purchase of fancier majolica plates, cups, and bowls for the serving of food and drink. Even at that time, however, a wide variety of decorated majolica was apparently available to lower Rio Grande settlers from Puebla, Mexico, potters. The most common majolica wares preferred by the ranchers at Cabaseño Ranch in the late 18th-early 19th century, as at other early ranchos (Bonine 2004; Fleming and Perttula 1999) on the lower Rio Grande, were vessels of Huejotzingo Blue on White and Green on White, San Elizario Polychrome, and Aranama Polychrome tradition. With increased international trade in the region following the opening of the port of Matamoros in 1824, there was a broadening of trade, the introduction of new English ceramic wares, and a new preference for earth-toned Guanajuato Polychrome majolica plates, bowls, and cups, along with much thin lead-glazed wares from bean pots.

ACKNOWLEDGMENTS

I would first like to thank Bo Nelson for taking the photographs of the majolica sherds used in this article. Anne Fox generously agreed to help identify some of the troublesome majolica sherds.

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Metal Points Made from a Cast Metal Pot: A Cache from the Rio Alamo in Northern Tamaulipas, Mexico

Richard McReynolds and Don Kumpe

ABSTRACT

A cache of 15 unfinished metal arrow points and three cast steel pot fragments was recovered on the Rio Alamo near Mier in northern Tamaulipas, Mexico. Scanning electron microscope tests indicate that the 15 metal points were manufactured from missing fragments of this pot. The artifacts from the Rio Alamo cache are illustrated and described. Literature on the Historic Period Indians at Mier is examined.

INTRODUCTION

From the middle 1980s until the present, the Lower Rio Grande valley on both sides of the river, has experienced a heightened interest in Indian artifacts which was brought about mainly by the lowered water levels of Falcon Lake. Sometime in 1992 word spread about a Mexican citizen of Mier finding a cache of metal artifacts on the Rio Alamo, in which several of the arrow points were encased in a clod of dirt or clay. Scant information insured that the cache was not located until early 2008 when the junior author, while viewing a local collection, recognized the group of artifacts as the one he had heard about 16 years previously. Information given to the collector was that a portion of the cache was visible beneath a overhang on the Rio Alamo, near Mier, Tamaulipas, Mexico (Figure 1). There was no evidence of a container, but the artifacts were grouped together and many of the arrow points were extracted from a single clump of rust stained clay. The artifacts were washed with water and placed in a frame, where they remained until the authors were permitted to document the cache.

THE ARTIFACTS

The cache consists of 15 unfinished arrow points and three cast pot fragments, all of which appear to be made of the same material (Figure 2). However, questions arose as to the malleability of a cast metal so the collection was taken to a metallurgical engineer who studied one pot fragment and two arrow points

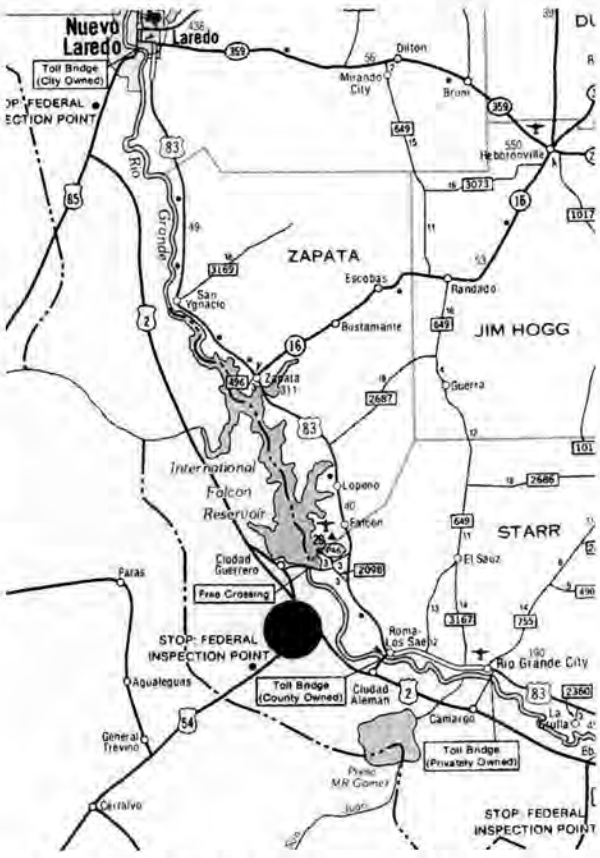

Figure 1. The Lower Rio Grande. The location of the Mier area is shown by the black dot.

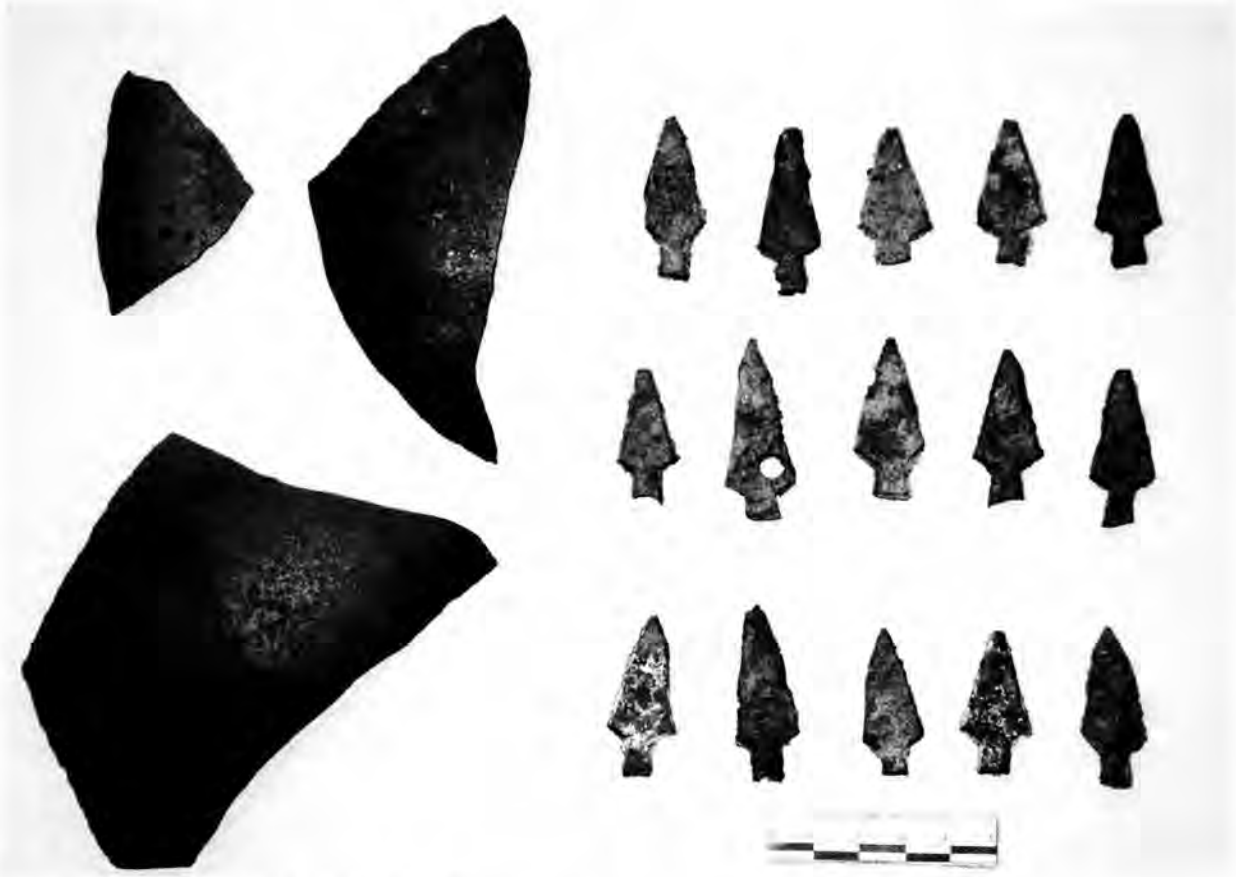

Figure 2. The Arrow Point Cache from Mier, Tamaulipas.

with a scanning electron microscope. The three pieces were determined to be the same material, which is a low carbon, high silicon content steel. It is a hard steel that is breakable when cold but can be made malleable by the temperatures of a mesquite fire (David Lee, personal communication 2008).

The pot fragments (Figure 3) were found to fit together along fracture lines to form one continuous piece, which retains the original curvature of the pot. That curvature indicates it was a small six inch pot. There is a casting seam across two of the joined pieces that is assumed to be the approximate midline of the pot. The thickness of the available pot pieces vary from 1.3 mm to 2.0 mm except along the casting seam, where it varies from 2.5 mm to 2.9 mm. All of the arrow point thicknesses fall within these measurements (Table 1). Several distorted partial rivet holes in arrow points indicate that the pot probably had a bail and the holes are what remains of where the bail holders were attached near the pot rim.

It is obvious that the arrow points are unfinished in that none of the points have had any file work done. All of the points retain ragged, pinched-out edges resulting from the angle of the chisel bit and there is not a sharp point in the group. It appears that a pot fragment was heated, hammered flat on an anvil, and the points were cut out with a hammer and chisel. One specimen (Figure 4, L) retains an obvious series of hammer scars along the obverse edge. Two of the points (Figure 4 I, N) retain some slight curvature. All of the points are rusted to differing degrees and nine of the 15, have a gray ashy substance adhering to one or both sides. The back sides of all of the points show compression scaring from the anvil as they were chiseled out. All of the arrowheads are stemmed with shoulders at obtuse angles in relation to the point and stem. Eleven of the points have slightly expanding stems and four have straight stems all of which retain overlapping chisel marks at the neck area. As previously noted, one arrow point (Figure 4, G) has

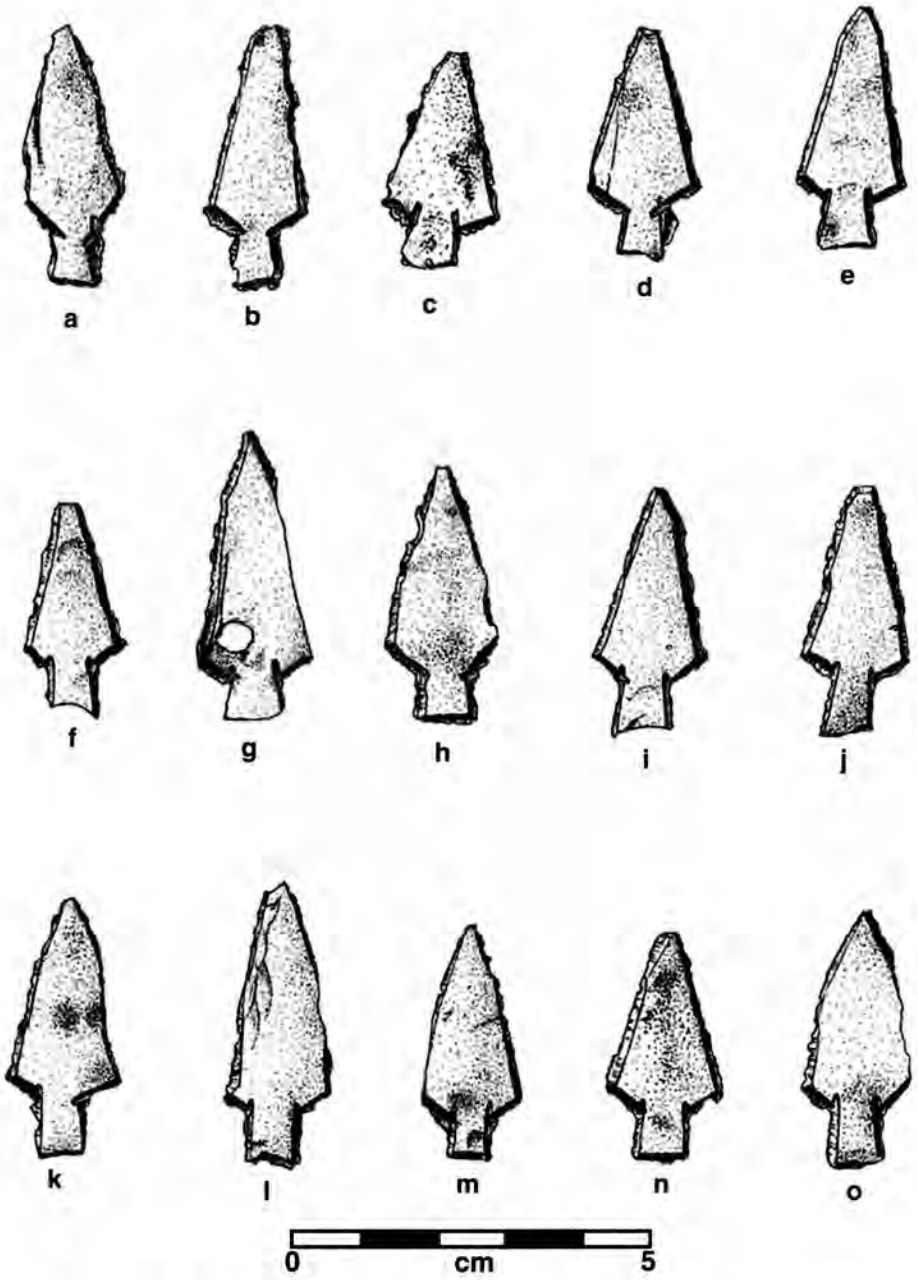

Figure 3. Arrow Points from the Cache. Drawings by Richard McReynolds.

a complete hole in it and, although disfigured, three others (Figure 4 B, F, I) have partial holes at base and blade edges. Specimen 1, G retains 23 mm of its original fracture line from the pot.

DISCUSSION

Metcalf (1963) noted that in the Plains area, metal arrow points got larger as the historic period progressed, possibly due to "a change in bows and hunting methods due to the acquisition of the horse." Taylor points out that the increase of size could also be due to increased availability of metals particularly iron and steel (Taylor 1989), but there does not appear to be much information on metal points of small size.

In reviewing published reports of metal points, it became apparent that although unfinished, the Rio Alamo points as a group are comparatively small.

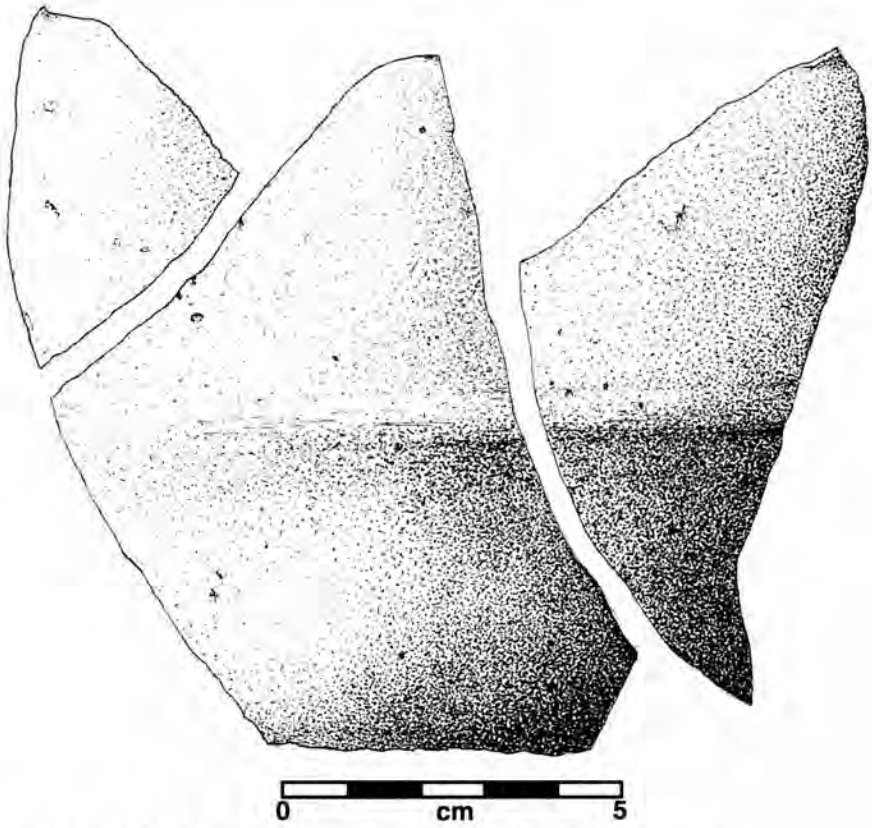

Figure 4. Fragments of the Iron Pot from the Cache. Drawings by Richard McReynolds.

Table 1. Rio Alamo arrow point measurements. (All measurements are in millimeters.)

	Max Length	Max Width	Max Thickness	Stem Length	Stem Width
A	35.8	13.5	1.9	8.0	7.8
B	36.4	14.3	2.0	8.0	7.0
C	29.8	16.5	1.9	5.2	7.8
D	31.5	15.5	2.0	7.8	7.0
E	33.5	15.0	2.0	7.8	8.0
F	29.5	13.8	2.0	7.5	7.0
G	39.9	15.5	1.6	5.9	8.0
H	35.0	15.5	2.0	7.8	8.5
I	34.5	15.5	2.0	7.5	8.0
J	34.5	14.2	2.0	8.0	7.0
K	35.0	15.0	2.2	8.0	7.0
L	39.0	14.4	2.0	8.0	7.5
M	32.5	13.5	2.0	5.5	5.5
N	31.5	16.0	2.0	7.5	7.4
O	35.0	14.5	1.9	7.5	7.0

A.J. Taylor provided size measurements of 110 metal points from South Texas, northern Coahuila and Tamaulipas, Mexico. Included 60 points made of iron or steel and 39 of copper or brass. Metal type was not noted for 11 points. Ten points were non-stemmed or the stems were damaged or missing. Corresponding measurements were taken and averaged for the 15 points from Rio Alamo to compare with average sizes of the South Texas/Northern Mexico Group (see Table 2). The Rio Alamo points are smaller in all average size measurements except thickness. Had they been completed by file work, they would be several millimeters smaller than they now are.

Taylor does illustrate individual points that are somewhat similar in size and shape to the Rio Alamo group. Probably most similar to the Rio Alamo group is a point in the William E. Baker collection from the Panhandles of Texas and Oklahoma. It has a straight stem and inverted shoulders and is 2.8 cm long and 1.3 cm wide. (Taylor 1989 ;Fig. 3D). Two other points which are similar are from the Rocky Mountain site in Alberta, Canada. These two points were in a group of nine mostly larger points excavated at a trading post site, which were originally reported by Nobel (1973). Also slightly similar are the Claremore projectile points from Oklahoma and Missouri, which as far as known are made only of sheet copper or brass and are an Osage Indian point (Perino 1971:16). Chandler and Kumpe (1997) report two metal arrow points found in the same area as the cache points on the Rio Alamo near Mier, but neither were similar in size or shape to the 15 points in the present paper, nor were two other iron points reported by Kumpe, et al. (2000), from the northern portion of Falcon Reservoir, Zapata County, Texas.

Apparently there was no great attempt by the maker to maximize the use of metal. If the remaining pot fragments are any indication of the pieces that were used to produce the 15 arrow points, there were opportunities to economize work and material by taking more advantage of the pre-existing pot fracture lines. Only one (Figure 1, G) of the 15 points retains a non-chiseled fracture edge. We selected an average sized point (Figure 1, H) and laid it on each available pot fragment. The smallest piece could produce a minimum of two points and utilize two fracture edges that would not need to be cut. The mid-sized piece, could produce a minimum of six points with five taking advantage of break lines. The largest piece could produce a minimum of 12 points with at lease six points utilizing a break line edge. In total the remaining pot fragments could have produced a minimum of 20 points and 13 of them could have used one pre-existing fracture edge. If this is a fairly valid average, we would expect at least two additional points of the cache to have a fracture line edge.

It is evident that the individual making these arrow points had a specific pattern in mind. A village blacksmith could produce them in an unfinished condition as trade items, to be finished by the end user, but the inclusion of the source material would be unlikely. It appears improbable that these are local trade points, but they probably were made by an Indian with the necessary tools, possibly very near the cache site.

Assigning a timeline to this cache of metal arrow points is mostly guesswork. The pot is made of a thin cast steel, which seemingly required two molds per pot. Not until 1865 was a process invented by Henry Bessemer that would enable manufacturers to economically produce this type of steel pot. Since this pot

Table 2. Comparisons of Point Sizes: South Texas/NE Mexico and the Rio Alamo Cache

	Max Length Average	Max Width Average	Stem Length Average	Stem Width Average	Thickness Average
110 points S. Texas and NE Mexico	4.99	1.83	1.34	1.05	0.18
15 points R. Alamo	3.42	1.49	0.73	0.74	0.20

was a product of the Bessemer process, it was likely made during or just following the Civil War. We would estimates that it dates prior to 1880.

THE INDIANS AT MIER

Garzas and Malaguitas (Malahuecos) Indians were at Mier in 1753, the year that Mier was established on the bank of the Rio Alamo. However, its mission, Purisima Concepcion, apparently existed in name only as the records say nothing about mission structures. One Zalayas woman (serving as leader of the Garzas!) was reported at Mier in 1757. Malnombre Indians were at Mier in 1772 and Malnombre living elsewhere were recorded as using both stone and iron arrow points. Between 1790 and 1818, other Indian groups were heard of near Mier and these included the Aguichacas, Anda el Camino, Chinitos, Cotonames, Cueros Quemados, and Pajaritos. Cotonames (recorded as late as 1886 near Old Reynosa) were also mentioned in documents that placed them near Mier until well into the 1800s (Salinas 1990: 42, 47, 98-99, 113, 157-158).

The Garzas, an amalgam of Indian group remnants of the Cerralvo area, appear to have been long and closely associated with Mier. Use of the name Garzas (Spanish for "herons") dates to 1715 at Mission San Nicolas de Agualeguas (established in 1675), which was about 25 miles from the Rio Grande on a tributary of the Rio Alamo (Salinas 1990: 96-97, 150-151). Before the collapse of Spanish power, Julian Canales, chief of the (Yue) Carrizos at Camargo (see below), united with Eusebio Solis, chief of the Garzas at Mier, and with the Pintos and other groups totaling about 500 Indians, to attack Spanish royalists; Canales took control of Camargo, which was liberated from the uprising by Don Ygnacio Elizondo on April 25, 1812 (Lopez Prieto and Garcia 1975). Berlandier (1980 II: 428-429), visiting the Garzas Indians on the outskirts of Mier in 1829, remarked that they spoke perfect Spanish while preserving their own language, sometimes waged war against the Comanche in defense of Mexican towns, and remained "intimately linked" to the Carrizos of Camargo, although they spoke a different tongue. He then traveled from Mier to Camargo (separated by fewer than 20 miles) and was perplexed by the more than 30 crosses (roadside memorials or burials) he passed, but at Camargo learned that some of the crosses marked the locations of travelers and shepherds killed by the Comanche. It is unlikely, however, that the Mexican inhabitants of these border towns could always distinguish Comanches from Kiowas (See Berlandier 1969: 108) and it is interesting that Hodge {(1907)1969: 209} reports Carrizo captives still living among the Kiowa.

Berlandier (1980 II: 429), in 1829, found that the Garzas distinguished two "nations" of Carrizos Indians by language. They called the Carrizos of Camargo Yue and those about Laredo Yeme. Salinas (1990: 91-92, 94) remarks that groups called Carrizos included remnants of unrelated groups living along both sides of the Rio Grande between the Laredo area and the Gulf coast. He divided them into Western (Yeme) Carrizos and Eastern (Yue) Carrizos and mentions that Comecrudos, Pintos, Tejones, Cotonames, and Casas Chiquitas were sometimes referred to as Carrizos. Once they arrived on the lower Rio Grande, Anglo-Texans may have indiscriminately applied the name Carrizos to a variety of Indian groups.

On October 3 and 4, 1839, Carrizos, who were part of a Federalist Mexican-Indian-Texan army, took part in the Battle of Alcantro at Arroyo Alta Limpia on the Rio Alamo 12 miles southwest of Mier. Colonel Pavon's Centralist Mexican force was defeated and the victorious Federalist army rested at Mier for 40 days before marching to Matamoros (Nance 1963: 205, 224-231). It is unlikely, however, that the Carrizos, who had fought bravely for the Federalist cause, would have been welcome at Mier; they may have spent the 40 days near the Rio Alamo outside of Mier. The Mexican civil war between Centralists and Federalists would lead to the formation of the short lived Republic of the Rio Grande on January 17, 1840 at Laredo, Texas (Tyler et al., 1996 V:537).

Although Indians continued to live along the lower Rio Grande for decades after the Battle of Alcantro, no references to Indians specifically at Mier could be found after 1839. On a trip up the Rio Grande in 1846, the U.S. steamer Major Brown encountered Carrizo shepherds between Camargo and Laredo who were armed with bows and arrows (Tilden 1847). Salinas (1990: 63) remarks that Car-

rizos and "Tampacuas" raided Anglo-American ranches in Hidalgo County between 1853 and 1855, but, at publication, he had no documentary evidence that Tampacuas was a variant of the name Karankawa, a possibility which had been suggested by Gatschet (1891: 44,50-51). Martin Salinas (personal communication to Don Kumpe 2004) now, however, has evidence that equates the names Tampacuas and Karankawas. Gatschet (1891: 38, 51) remarks that the Karankawas in Texas were exterminated by Juan Cortina in 1858 and, near old Reynosa, he was able to gather a sizable vocabulary of the Comecrudo language in 1886. He also mentions that the "tribe" of the Carrizos has long been extinct, but Gatschet may not have known that there was more than one group named Carrizos. Hodge's comment (above) suggests that some members of a group known as Carrizos survived into the 20th century, albeit far from their homeland.

ACKNOWLEDGMENTS

The authors would like to express their special thanks to Dr. A. J. Taylor for her continued help and encouragement, David E. Lee of Bryant-Lee Associates, for metallurgical assistance, Bill Yoder for his help and, as always, David Calame and Dr. Tom Hester.

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Knapped Glass Tools from a 20th Century Site in Hidalgo County, Texas

Don Kumpe and Mike Krzywonski

ABSTRACT

Knapped glass tools and Historic Period artifacts were recovered in 2007 at a site named Salazar's Field near the community of McCook in west-central Hidalgo County, Texas. The tools appear to be associated with a makeshift home or shelter that may have been occupied by one or more Mexican laborers between ca. 1950 - 1956, but the site may have also been occupied earlier, during a part of the late 1940s.

INTRODUCTION

Salazar's Field site is on the north slope of a rise in a cultivated field west of McCook near the Hidalgo-Starr county line. The site contains historic period artifacts and glass tools that appear to be associated with the occupation of a rent-free home by one or more Mexican laborers employed as field or ranch hands or to clear land. The home was probably a makeshift wooden structure or a *jacalito*. Manufacturing date ranges on glass artifacts and comparison with a study on deposition lag in returnable soda bottles were used to date the period of occupation.

The first glass tool found was surprising because it was manufactured on a colorless glass bottle base with the H over an A factory mark of the Hazel-Atlas Glass Company; the mark was first used in 1923 (Roller 1983: 152). Nevertheless, this artifact, which was apparently a cutting tool (Figure 1, A), was carefully and skillfully pressure flaked, its cutting edge had been heavily utilized, and the glass is covered by a light, multi-hued patina. This specimen shows unequivocal, intentional flaking. Artifacts that might identify the historic components in the site were collected and additional glass tools were recovered.

Glass fractures more easily than stone and wheeled traffic over glass shards in dirt roads is one example of several post-depositional processes that can produce glass pseudo-tools (senior author's personal observations). If glass projectile points are found, even in fragments, their status is usually clear. The status of flaked glass shards, however, is seldom clear because of the possibility for flaking by post-depositional processes and only 5 of 27 flaked glass shards from Salazar's Field are presented as intentionally flaked (plow impacts may have damaged some intentionally flaked glass artifacts at this site to the point of uncertainty). Nevertheless, of the professional and avocational archeologists (including an experienced knapper) who examined the artifacts in Figures 1 and 2 of this paper, the majority agreed with our assessments of from all to some of the glass artifacts. However, one of the professional archeologists believed that *all* of the flaked glass artifacts herein resulted from post-depositional trampling.

Martindale and Jurakic (2006: 417-421) conducted glass breakage and trampling experiments; they found that flaking due to breakage or trampling *generally* lacks the regularity of intentional flaking, but they remark that positive tool identification requires magnification to locate microscopic evidence of use through wear patterns. They also provide photographs of the microscopic attributes of glass tools used experimentally for cutting jute cord, cutting or scraping goat suede, and cutting or scraping wood. Boling (2005: 115, 119-120) supports the importance of microscopic analysis on the edges of glass shards that may have been used as tools and established her own use and trample wear criteria. She also remarks that many archeologists are unaware of how truly widespread the use of glass tools was and is.

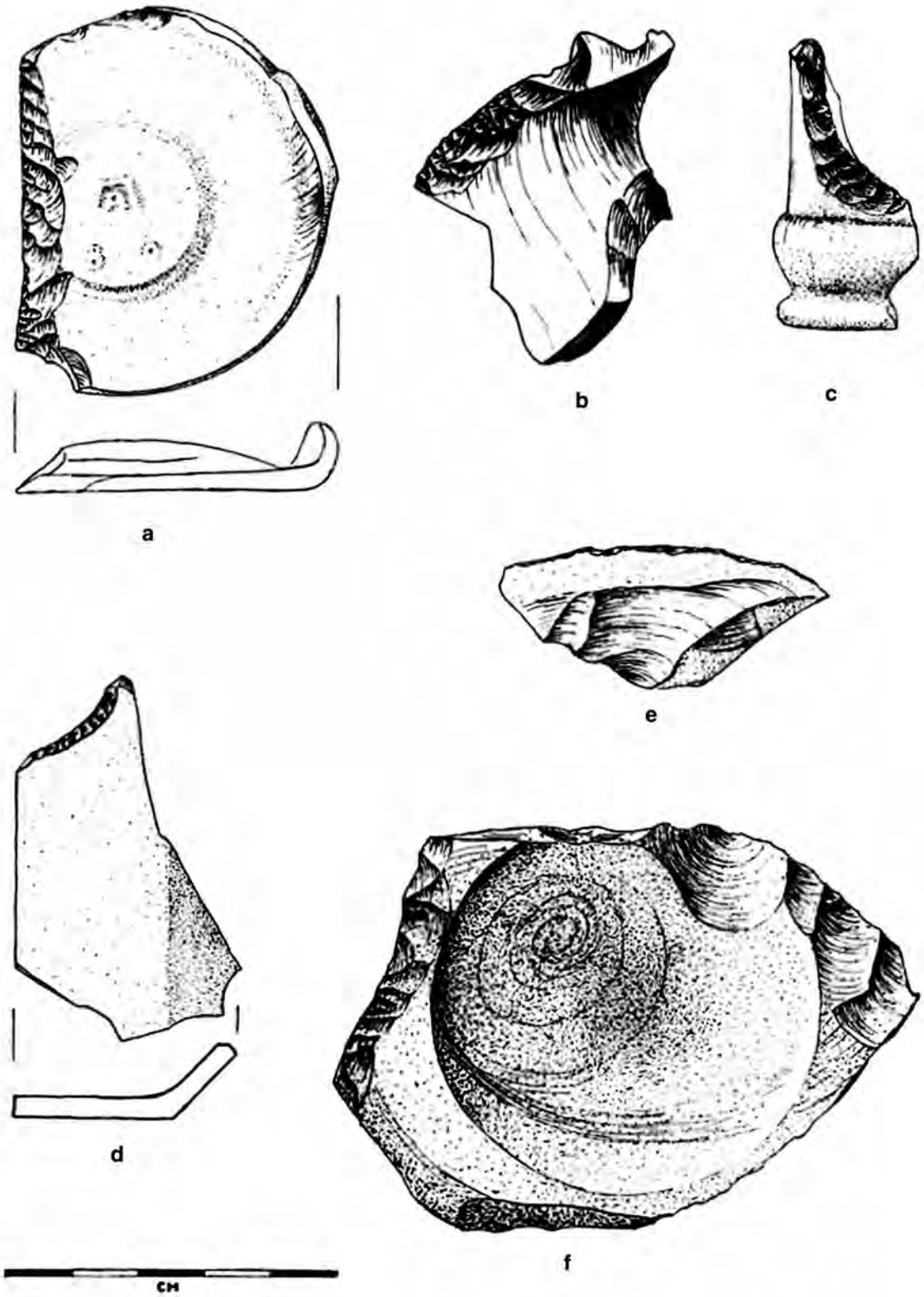

Figure 1. Specimens a-e: Intentionally flaked glass tools from Salazar's Field in west-central Hidalgo County, Texas; f is from a site in southwestern Hidalgo County. Drawings by Richard McReynolds.

Salazar's Field is also a prehistoric site; prehistoric site debris and artifacts are scattered among the 20th century artifacts on the surface of the site. Despite years of cultivation, a discernable concentration of historic debris suggests that a majority of the historic materials were once in a smaller area, probably near the home site, but have been broken and mixed among the prehistoric materials by plowing.

This paper briefly examines the assemblage of Historic Period artifacts from Salazar's Field, the literature on 20th century glass tools, and the lifestyles of Mexican laborers in Hidalgo County; three additional glass tools from various sites on the lower Rio Grande are illustrated and described.

THE PREHISTORIC COMPONENTS AT SALAZAR'S FIELD SITE

Salazar's Field site is part of a large cultivated field that has not been leveled and retains eolian depressions that hold water for months after a heavy rain. *Rabdotus* snails, reminders of the brush that once covered this land, are scattered profusely throughout the site and the surrounding field. The land had been cleared before the Salazar family purchased property here in 1948 and planted cotton (Ivan Garza, personal communication 2008). However, Ivan (Bernardo and Celia Salazar's grandson) could not be entirely certain that the site was on Salazar land; it was possibly just over their property line on Jimenez property. Armando Vela (personal communication 2007) recalls that land around McCook was cleared by Mexican laborers using grub hoes and axes during the late 1940s and early 1950s; Longoria (1997: 36-38) bemoans the loss of yet more brush to bulldozing and root-plowing that left the land around McCook a "moonscape" by 1970.

Prehistoric cultural debris at Salazar's Field included waste flakes and fragments of two freshwater mussel shell valves. The Rio Grande River, the Arroyo Colorado, and Los Olmos Creek are the nearest likely sources for mussel shell. The nearest cherts are Rio Grande Cobbles near Penitas and La Joya. The diagnostics from Salazar's Field are Matamoros, Langtry, and Kinney dart points from the Archaic Period and a small triangular arrow point from the Late Prehistoric Period (Turner and Hester 1999). The proximal end of a large thin biface made of El Sauz Chert was also recovered. Banks (1990: 50-51) remarks that El Sauz Chert is a distinctive lithic resource from the Catahoula Formation that was named for its proximity to the town of El Sauz in Starr County. Mallouf and Tunnell (1979) identify El Sauz Chert as opalized tuffaceous bentonitic clay and describe a cobble outcropping (41SR137) as "a high quality lithic resource area."

THE HISTORIC PERIOD COMPONENTS

The most recent component at Salazar's Field consists of a bolt and iron plow tips left behind during plowing activities that appear to postdate the glass tools and their associated artifacts.

Artifacts apparently associated with the occupation of a makeshift rent-free structure and knapped glass tools were recovered from the surface of the site. The assemblage consists of 115 glass shards, 2 milk glass jars, a machine-made medicine bottle, a glass marble, 15 small porcelain sherds, and 11 metal artifacts. The 115 glass shards were a large percentage of the glass on the surface of the site, but a 13-inch deep plow zone of soft soil conceals additional artifacts. No pane glass was found, but Armando Vela (personal communication 2008) remarks that shacks and *jacalitos* often had windows covered by cloth rags or plastic and some had windows with shutters but no glass. It seemed possible that a woman and a child could have been in residence at Salazar's Field. However, the evidence for that, a marble and 2 cold or face cream jars, is ambiguous as men doing farm or ranch work might use such creams for their hands, and young men, ages 17 to 20 for example, might curate childhood marbles (Charles M. Haecker, personal communication 2007).

Common wire nails, 8d and 20d, and a few common fence staples were recovered. Some nails were bent at angles of roughly 90 degrees or greater and one 20d nail was bent twice at extreme angles; the severely bent nails suggest that the structure may have been pushed over by machinery. The only other metal artifacts were a small brass rod that may have attached a tool end to a wood handle, and a twist key with its accompanying strip of wound tin. Metal was scarce on site, but may have been curated and salvaged. The

possibility for salvaging metal is strengthened by the evident salvaging of bottle glass.

Among the artifacts recovered was a sherd of green porcelain identified as Fiesta Ware, which first appeared in 1936 (Florence 1987). A Jergens Face Cream jar contained a product that was "launched" in 1939 (KAO Brands Consumer Relations Dept., personal communication 2007). The threaded neck on a Clorox bottle fragment is a feature that was introduced in 1940; prior to this date rubber stoppers were used (Tia Daniels at Clorox Consumer Services, personal communication 2007). An L-in-a-keystone mark on an amber bottle base was used by the Lincoln Glass Bottle Co. of Lincoln, Illinois from 1942 until 1952 (Lockhart 2004b: 62-63).

Two specific year dates were obtained. An amber bottle base with embossed stippling (numerous tiny dots) bears the script version of the Duraglas mark that was registered by Owens-Illinois Glass Co. on September 23, 1941; the company claimed first use on September 4, 1940 (Lockhart 2004c) and the "51" embossed to the right of the manufacturer's mark (I in an oval superimposed over an elongated diamond) indicates that the bottle was made in 1951 (Bill Lockhart, personal correspondence 2008). The Circle-A mark on a colorless bottle base was used by the Armstrong Cork Co. on glass containers from January 1939 to 1969 (Lockhart et al. 2006: 57) and the number "45" on this base "is almost certainly a date code for 1945" (Bill Lockhart, personal correspondence 2008).

From drawings of glass shards that retained manufacturer's marks and codes, Bill Lockhart (ibid.) commented on the specific date codes:

> "Since the Lincoln Glass Bottle Co. was sold in 1952, the 1951 code on the Owens- Illinois beer base pretty solidly sets your site during the early 1950s (although it could have been used continually from a bit earlier to a bit later). I conducted a study on deposition lag in returnable *soda* bottles that determined that most soda bottles enter the archaeological record within five years (Lockhart 2004a). Although we have not published an updated study that includes beer bottles, beer bottles should have a slightly shorter deposition lag due to a faster return rate (bars return empties sooner than soft drink customers). Thus, the site must have been used between ca. 1950 and ca. 1956, although it may have been used earlier, too, based on the 1945 date code on fragment C. Since we do not know what kind of container frag. C. came from, however, it may have had a long deposition lag."

The authors concur and also believe that the site may have been used earlier. Armando Vela (personal communication 2008) remarks that land owners with a *jacalito* (or another type of makeshift structure) on their property could use it to house a succession of laborers, whether individuals, families, or groups, and many laborers liked to visit back in Mexico at least once a year. It appears that the site may have been used continually (with possible intervals) between ca. 1950 and ca. 1956, but it may have also been used earlier, during a part of the late 1940s.

DESCRIPTIONS OF THE ARTIFACTS

Five of the glass tools described (Figure 1, A-E) are from Salazar's Field site in west-central Hidalgo County; two (Figure 1, F and Figure 2, B) are from sites in southwestern Hidalgo County; one (Figure 2, A) is from coastal northeastern Tamaulipas, Mexico.

Figure 1, A is a straight-edged cutting tool knapped on a colorless glass bottle base with embossed stippling. The heavily used contact edge is on the exterior surface of the bottle base and the drawing is of the flaked interior surface. The H over an A factory mark of the Hazel-Atlas Glass Company is visible through the glass and the entire artifact is covered by a light, multi-hued patina. This specimen has been skillfully pressure flaked. Dimensions are: L, 59mm; W, 47.5mm; T, 6.4mm. It weighs 23.0 grams.

Figure 1, B is a cutting tool with a convex contact edge on the exterior wall of a neck/shoulder fragment. This amber glass tool has a heavily used cutting edge, flake arises are lightly smoothed from use, and the user's thumb fits nicely into the neck hollow for a non-slip grip. McCrocklin (1993: 11) remarks that if glass or porcelain tools have curved (convex) edges it meant that whatever the tools were used for a curved edge worked the best.

Figure 1, C is a cutting tool with a concave contact edge on the interior wall of a Coca-Cola bottle neck/finish fragment (see Wilkie 1996: 40, Figure 2) and the user's thumb fits into the neck hollow for a non-slip grip and efficient cutting. The maximum length of this specimen is 44 mm. Wilke (1996: 43) remarks that placement of the contact edge on interior versus exterior walls may represent a personal preference, as this decision affects how one grips the tools.

Figure 1, D is a knapped tool on a colorless glass body shard. The slightly concave contact edge is on the interior wall of the shard. Its maximum length is 55mm.

Figure 1, E is a tool on an unidentified glass flake, which is the same color as a Coca-Cola bottle. The only original surface on this artifact parallels the finely flaked edge. Arises along the flaked edge are lightly smoothed from use. Its maximum thickness is 7.5mm.

Figure 1, F is from a site near the Rio Grande River in southwestern Hidalgo County. This is a thick (15.9mm) aqua glass bottle base with a slightly concave contact edge on the exterior surface of the bottle base. The glass is partially covered by a white patina and the aqua color indicates that the bottle was probably manufactured before 1900 (Nickels and Mauldin 2001:58).

Figure 2, A is a base/heel, amber glass bottle shard that is 13 mm thick at center and 148 mm in diameter. There are two concave contact edges on the exterior wall of this large glass tool, which may have been held in both hands, and the convergence of the flaked concave edges may have been sharply pointed. The base has embossed stippling, a manufacturer's mark of the Owens-Illinois Glass Co., and a date code for 1951 (Lockhart 2004c). It was found by Mike Krzywonski at a site in coastal northeastern Tamaulipas, Mexico.

Figure 2, B is a glass tool from Sam Fordyce (Samfordyce), a ghost town in southwestern Hidalgo County that began as a railway terminus in 1905 (Tyler et al. 1996: 785). This amber glass body shard (7 mm thick) is from a heavy duty bottle, possibly intended to be reused or recycled. The concave contact edge of this tool is on the exterior wall of the body shard.

GLASS TOOL USE DURING THE 20TH CENTURY

Boling (2005) apparently uses *expedient* to describe glass tools in general, however, Martindale and Jurakic (2006: 415-416) identified glass shards at a Tsimshian site, Ginakangeek, on the north coast of British Columbia, Canada as *expedient*, i. e. glass tools made quickly, with little effort at secondary shaping and used for a short period of time, perhaps only once. They remark that curated forms of glass tools often mimic lithic tools via flaking, retouching, or grinding and argue that because they look like broken glass fragments the identification of expedient glass tools is only possible through microscopic identification of use wear. Expedient glass tools were identified (through microscopic study) at Ginakangeek in occupational components: Phase 3 (1875-1920), 17; Phase 2 (1920-1952), 40; and, Phase 1 (1952-present), (Martindale and Jurakic 2006: 417, Table 2).

Without magnification, the senior author has identified scores of utilized break edges on the broken distal and proximal ends of prehistoric dart points. Use of the sharp, right-angled break edges on lithic artifacts as tools during the Prehistoric Period may be analogous to use of the sharp, right-angled break edges on glass shards as expedient tools during the Historic Period.

Examples of expedient glass tool use by European-Americans during the 20th century were found. McCrocklin (1993: 12-13) helped his grandfather to smooth and finish axe handles and other wooden implements on a farm in Arkansas during the 1930s; they used straight-edged window pane glass and discarded shards with "nicked" scraping edges that would mar the handles. At McCook, Texas, Ted Respondek (personal communication 2007) remarked that his boyhood friend's father used a glass shard to smooth their slingshot handles. Jewel Babb, born in Juno, Texas in 1900, scraped cow horns with a "piece of glass" until the horns were ready to be perforated and used for bugles (Taylor 1981: 9, 14). Boling (2005: 13-16) remarks that most, but not all, of the evidence for Euro-American glass tool use comes from non-archeological sources, such as hard to find "how-to" books on furniture-making and oral interviews with people who have used glass. She provides examples, similar to, but more varied than those above, of Euro-American glass tool

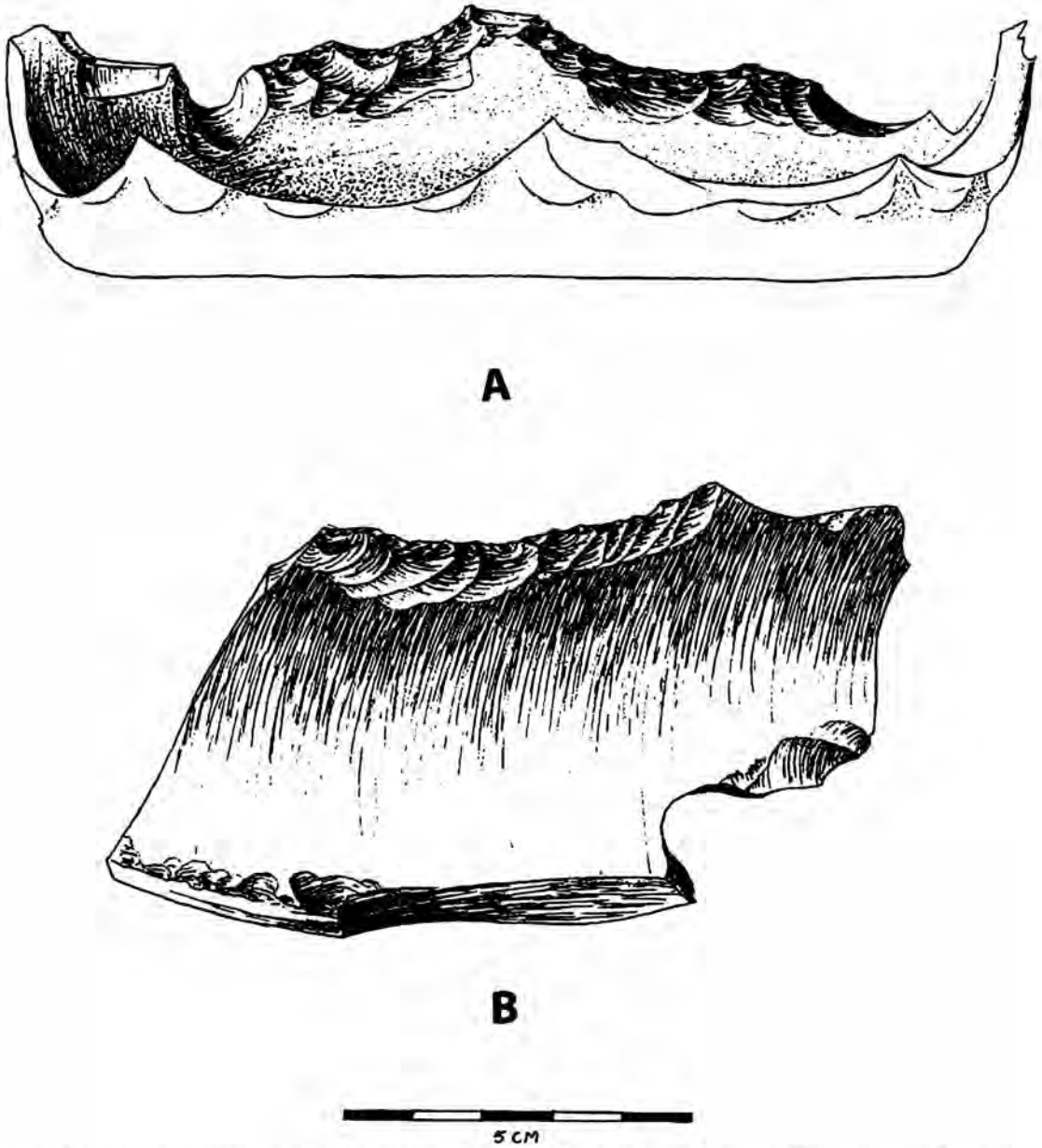

Figure 2. Intentionally flaked glass tools: A is from coastal northeastern Tamaulipas, Mexico; B is from Sam Fordyce in southwestern Hidalgo County, Texas. Drawings by Richard McReynolds.

use in the 20th century, and found that glass tools have been widely used by people of European descent.

Hayden and Nelson (1981: 893-896) report that the *contemporary* Maya in the Highlands of Mexico and Guatemala use (expedient) glass tools for cutting and dehairing leather, for curative and ritual bloodletting and for finishing work on wooden shafts, utilitarian bone tools, ritual bone implements, and horn and antler tools. A spectacular "wax ball," used for ritual self-flagellation and bloodletting, is shown studded with scores of splintered glass. They remark that glass tools used by the Maya are generally shards of glass that are convenient to hold and which have useful edges. Hayden and Deal (1989: 436) argue that the use of industrial glass by contemporary Maya craftsmen constitutes the continuation of a preconquest chipped stone tradition most closely associated with the use of obsidian.

Weigand (1989: 465-466) reports that the Huicholes of Jalisco, Mexico use (expedient) glass tools (along with preferred metal knives) to scrape and cut hides, to cut fabrics, to shave bows and arrows, and so on. He remarks that bottle glass has replaced obsidian and chert, although there is not now, nor in the memory of the oldest Huichol, any chert or obsidian knapping, and glass in not knapped.

Glass tool use by African Americans during the 20th century is reported by Wilkie (1996) from excavations at Oakley Plantation in West Feliciana, Louisiana; 35 glass tools, both retouched and unretouched, were recovered in predominately female contexts from assemblages dating from the 1840s to the 1930s, 8 were from the 20th century. She also mentions (from Ferguson 1995) that using broken glass as a razor was common in the Bahamas until the 1930s.

Kimura (2006: 1-2) reports that Konso, Ethiopia is one of the few places where stone tools are still manufactured and used to prepare hides; women are often involved in the manufacture and use of the tools, but unifacially knapped glass scrapers appear to be replacing stone tools.

In the Kimberly region of Western Australia, Aborigines manufactured small (generally less than 5 cm in length) pressure flaked Kimberly points of stone and used them as spearheads before contact with Europeans; post-contact Kimberly points that were utilized into the 20th century remained small and included glass points (Harrison 2006: 63-64; Bindon et al. 1978: 165). Harrison (2006: 64, 66, 69-74) remarks that after 1880, when systematic collecting of Kimberly material culture began, the "classic" museum Kimberly point tended to be a larger, serrated bottle glass point that could be described as "dazzling"; these larger glass points were traded to non-point-manufacturing Aboriginal groups or sold to collectors. He also remarks that bottle glass flakes and edges of broken glass (expedient glass tools) were used throughout the region for cutting and scraping, but were of little interest to collectors.

Knapped bottle glass tools (including arrow points, which are tools for killing) are often reported on Historic Period Indian sites in Texas, but the tools usually date in the 1700s and 1800s and were commonly made of green bottle glass (McReynolds 2008, this issue; McCrocklin 1993; Hudgins 1986; Perttula 1994). A large glass tool knapped from the base of a lamp was found on an early 20th century Caddo Adais site in the ARK-LA-TEX region (McCrocklin 1993: 8), but sites that were occupied by Native Americans during the 20th century in Texas are rare. However, numerous remnant Native American groups survived into the 20th century on the west coast. So did glass arrow points! Before his capture in 1911, Ishi, the last "wild" California Indian was so used to fashioning arrow points from broken bottle glass that later at the museum where he stayed he sometimes refused to work with traditional obsidian (Starn 2004: 23, 245).

MEXICAN LABORERS IN HIDALGO COUNTY

The literature on Mexican workers in Texas was found to generally discuss various social issues, political agendas, unions, and so on, while the workers themselves are reduced to statistics. It is Norquest (1972, 1975), a farmer in Hidalgo County during World War II, who writes of individuals, including some who retained varying degrees of Native American culture. He remarks that many of the arriving laborers were completely unfamiliar with modern technology and recalls a group of 11 or 12 workers from south of Mexico City who spoke only a native dialect, a Maya couple from Yucatan, and a group from Queretero, only one of whom spoke any Spanish. It was uncommon, however, to encounter laborers who couldn't speak Spanish. During the 1950s, when the O. C. Lindsey family was living in Sharyland, they employed a couple from Mexico, Amalia and Margarito, who would switch from Spanish to an Indian dialect for privacy (Robert Lindsey, personal communication 2007).

Laborers sometimes arrived with their families, erected *jacalitos* of sticks or palms near the job site and stayed only for the duration of the work; (Pope 1971: 65). Medardo Riojas (orchard-meister at Sharyland Orchards, personal communication 2007) remarked that many of the farmers and ranchers in Hidalgo County provided housing for Mexican laborers who often had gardens by the house to see them through. He also mentioned that the workers required for the citrus harvest could overwhelm the available shelters; during the Bracero Program at Shary Estates

in Sharyland, the insides of the citrus trees west of Shary Mansion would be trimmed, tarps would be thrown over the trees and workers slept under the tarp-covered trees.

Some workers resorted to foraging, gathering native plants to survive or extend their stay. Dorothy Allen Kumpe (personal communication 2007) remarked that, during the late 1920s and early 1930s, Ernest C. Allen built an inexpensive wooden structure behind the family home to provide rent-free housing for his laborers on North Depot Road in McAllen; the laborers roasted green ebony bean pods on an open fire, then broke open the pods and ate the beans. She also remembered that the workers roasted mesquite beans and ground ebony beans in a borrowed coffee grinder. Stahl and McElvaney (2003: 151) remark that some people in Mexico cook and eat the unripe seeds of the Texas ebony (*Pithcellobium flexicaule*), or finely grind the ripened seeds to make a substitute for coffee; it is also possible to pop the ripe seeds like popcorn.

Hill et al. (1972: 10-11) report the expertise with which a group of nine Mexican nationals afoot in eastern Zavala County managed to burn and almost entirely consume a large specimen of *Yucca treculeana*. They remark that the group's uncomplicated yet efficient method of exploiting the plant indicated an intimate and previous knowledge of such affairs. It is the sort of knowledge that could save a laborer's life, extend his stay, or conserve his funds.

Ivan Garza (personal communication 2008) remarks that members of the Salazar family bought land around Salazar's Field site in 1948 and Jose Salazar (deceased) *may* have owned the site; Lupe Salazar still lives nearby. Ivan also remarked that the braceros they employed sometimes caught and consumed "white rats" (wood rats with white fur on their undersides). This was probably the Southern Plains woodrat (*Neotoma micropus*), which has white underparts and is at home in thickets of cacti, mesquite, or thorn brush (Schmidly 2004: 436). Eugene Pilarczyk (personal communication 2008) remarked that groups of braceros clearing land near McCook used grub hoes to roust wood rats out of their nests, then ran them down with sticks and roasted them. Mike Krzywonski (personal communication 2008) remarked that, in the early 1990s, wood rats were still being caught in a classic hunter-gatherer style at General Francisco Villa, an *ejido* on Highway 101 north of San Fernando, Tamaulipas, when Steve Walker filmed 3 teenage boys smoking wood rats out of their nests. Steve Walker (personal communication 2008) remarked that the boys employed sticks and a dog named *Piliquilin* to take the rats. He also mentioned that the pure white meat was tasty and sweet, between rabbit and frog legs but nearer to frog legs in flavor.

The braceros working for Bernardo Salazar near Salazar's Field site also trapped quail in dense thickets of cacti by clearing a space in the cactus with sticks (swung like machetes), lining and roofing the space with sticks, and baiting the space; large numbers of quail were taken (Ivan Garza, personal communication 2008). Robles (1996: 18) remarks that Mexican workers placed a value on jobs in Hidalgo County (and in neighboring counties) because the familiar language, way of life, and closeness to home put them more at ease.

DISCUSSION

Laborers in Hidalgo County came from almost every part of Mexico, where nearly one-third of the population is American Indian, more than 50 Indian languages are spoken, and the standard of living is close to subsistence among most of the rural population (Hoiberg and Pappas 2002:80). Laborers arrived alone, or with their families, or in a group, but always with little more than the shirts on their backs. It is not surprising then that Mexican workers traveling or living in the brush in Hidalgo County would consume many of the same foods as local Native Americans. Although their expertise at exploiting natural food resources seems remarkable, some individuals undoubtedly originated in similar, rural brush land areas of northern Mexico and some retained varying degrees of Native American culture. Laborers were resourceful and utilized a variety of subsistence strategies to survive, to extend their stay, or to conserve funds. The (at least temporary) poverty, isolation, lack of possessions, and lack of transportation encountered by some laborers apparently led to subsistence activities and circumstances in which glass tools could have been useful or convenient.

Seven intentionally flaked glass tools from the 20th century are reported in this paper (Figure 1, A-E; Figure 2, A-B); five are from Salazar's Field site in west-central Hidalgo County, one is from Sam Fordyce in southwestern Hidalgo County, and one is from coastal northeastern Tamaulipas, Mexico. A glass tool that was probably manufactured before 1900 is also reported (Figure 1, F); it is from a site near the Rio Grande in southwestern Hidalgo County. Other glass tools have been found. Richard Brady (personal communication 2007) remarked that he was in the company of Richard Clardy (recently deceased) when a carefully flaked cutting tool on a colorless glass bottle base was recovered about 45 miles southwest of Reynosa in northeastern Nuevo Leon, Mexico. He described Clardy's glass tool, found in 1998 or 1999, as broken, but otherwise similar to a specimen from Salazar's Field (Figure 1, A). In the late 1960s, the senior author encountered a glass cutting tool at a small jumble of transported sandstone (possibly a fallen shepherd's rest) southeast of the confluence of the Arroyo Minita with the Rio Grande River in Starr County; this nicely flaked Mexican bottle fragment may have dated in the latter half of the 1800s.

Although the Huicholes and the Maya of Mexico use only expedient glass tools, the knapping skills in evidence at Salazar's Field suggest technological continuity. Those knapping skills are believed to have been acquired in rural Mexico, but not necessarily far from the border. Intentionally flaked and surprisingly modern glass tools found in rural areas of northern Mexico and southern Texas might also be explained by the low cost, convenience, and availability of industrial glass. The use of knapped glass tools into the mid 20th century may have been a northern Mexico phenomenon that sometimes spilled over the border into Texas.

CONCLUSION

It appears that at least one Mexican laborer, skilled at glass knapping and utilizing knapped glass tools as a part of his subsistence strategy, was at Salazar's Field site in Hidalgo County, Texas for a period (or periods) of time while the site was in use, probably between ca. 1950 and ca. 1956, but the site may have also been occupied earlier, during a part of the late 1940s.

ACKNOWLEDGMENTS

The authors would like to thank Bill Lockhart and the Bottle Research Group for their interesting, timely, and useful information. Thanks also to Richard McReynolds for his excellent drawings, to Tom Hester and Tim Perttula for their help with references, and to Armando Vela for insightful comments.

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Aboriginal Use of Glass on the Texas Gulf Coast and Nearby Areas

Richard McReynolds

ABSTRACT

Documented and illustrated here are numerous flaked glass artifacts that are primarily from historic Indian sites, including some Spanish Colonial missions. At least two Perdiz points reflect the continuation of that type well into Historic times, a fact documented at missions like Espirtu Santo in Victoria County (Walter 2007).The bulk of the artifacts are small triangular arrow points of the Cameron type from the lower Rio Grande Valley of Texas and Tamaulipas. Guerrero points made of glass have been found widely distributed at both mission locales and at aboriginal campsites. Several artifacts used as scrapers or knives are reported, and a few specimens from the western United States are included for comparative purposes.

INTRODUCTION

Sometime in the early 1990's C.K. Chandler became interested in the documentation of glass artifacts and he would bring them to me to draw. There would usually be two or three pieces at a time and occasionally more, especially when he had access to a larger pre-existing collection such as the A. E. Anderson Material at the Texas Archeological Research Laboratory (TARL). Since C.K. passed away I've continued to add the occasional piece or two per year but the data on most of the glass artifacts pictured here were gathered by him.

Glass bottles have been washing up on Gulf Coast beaches since the early 1600's. Most of these bottles were a dark olive green color (" black glass") and originally held wines and gins. A little later differing styles of bottles contained rums and the many varieties of alcohol-based medicines called bitters. They were discarded by explorers, sailors, traders, the military and eventually settlers. To the American natives who picked them up either broken or whole, they were valuable resource to be used. Chert was not always available in all areas and glass was a suitable substitute. Martin Salinas (1990) quotes Ladron de Guevara's 1738 description of the Tanaquiapemes of the Rio San Fernando, and possibly other Indians of that area, in which he reported that their arrows had reed shafts and foreshafts of heat treated wood, with points of flint or glass attached to them with a tar. It was presumed that the glass was from bottles collected along the shore as was the tar or asphaltum.

Most of the glass artifacts recorded in this paper have suffered to some degree from the forces of nature. Traditional glass is 75% silica sand, 15% soda and 10% lime. When glass is exposed to water for long periods, its surface becomes hydrated and subject to corrosion. Differing pH levels cause different forms of corrosion. Rainwater is acidic and has a low pH level, while seawater has a high pH level and is basic. A shard of glass left in low pH conditions, like soil or mud on a riverbank will develop an iridescent sheen, that in advanced stages flakes off in layers. A shard immersed in a high pH environment such as a beach or brackish bay will pit and corrode as the sodium and lime are leached away. Hydration in advanced stages will alter the glass surface by forming powdery crystals as it corrodes.

Glass colors are derived from adding differing amounts of chemical elements of metal oxides to the glass mixture. The addition of oxides such as iron will strengthen glass as well as color it. Most of the commercial bottles of the 18th century were a "black glass," in reality a dark olive green to brownish color.

It was made by the addition of iron slag, thus it was cheap, strong and filtered light well thereby protecting the contents.

Other glass color examples are the addition of chromium and iron oxide to get a forest green or adding chromium, iron and carbon for jade green. Copper oxides make soft blues and cobalt oxides a royal blue. Amethyst colored glass has manganese in it and ambers are made with iron, sulphur and carbon. The best red glass was made by adding gold chloride which explains the scarcity of red bottle glass laying about. For a more in depth look at all aspects of glass see LaMotte (2004).

THE ARTIFACTS

This paper is designed to put a number of glass artifacts on record, and to make available good illustrations and measurements for future research. There has been no effort to sort these specimens into groups or categories. Rather, each specimen is listed below, and can be found in Figures 1-4.

The following descriptions are what is known about each artifact. Most of the individuals who found these artifacts are well known within the archaeological community of South Texas and many of the artifacts are from well documented sites.

The majority of these artifacts are from Texas but nine are from just south of the Rio Grande in Mexico, and three are from other states. All of the artifact drawings are exact size or as close as possible and thickness measurements are included on most specimens.

Figure 1 Specimens

Figure 1, A is a small stemmed and barbed "Perdiz-like" point made of olive green bottle glass. The side not shown is flaked around the edges but is mainly unifacial. It is marked #3914 and the corresponding inventory sheet gives the information that it is from Lamar, Aransas County, Texas. It was collected by George C. Martin in 1930 and is curated at the Witte Museum. Maximum thickness 2.3 mm.

Figure 1, B is a small unstemmed bifacial point made of brown to olive green bottle glass.The glass surface has started to deteriorate and has a peacock blue and green iridescence. It is marked #3911 and is from the X Lucas pasture near Rockport, Aransas County, Texas. Collected for the Witte Museum in 1930 by George C. Martin. Maximum thickness, 3.0 mm.

Figure 1, C This is also a stemmed and barbed "Perdiz-like " point made of a clear sea green colored glass. It is marked #4338 and was found by Henry Fulton on Arrowhead Island (?) in the Laguna Madre, Nueces County, Texas, and presented to George C. Martin and Witte Museum in 1930. Maximum thickness, 3.0 mm.

Figure 1, D is another stemmed and barbed, bifacial point, but the barbs and stem are missing. It appears to be made from a pale amber colored glass but the surface is eroded and the flaking is not completely visible. It was found by Dick Bowen in the 1960s at the Kirchmeyer site (41NU11), on Oso Creek, Nueces County.

Figure 1, E is a well made corner notched, straight based point. It is bifacially flaked and has a slight right hand bevel. It is made from a clear glass which does not have a patina. It was found on an alluvial terrace of the Atascosa River in 1965 by Jan Watts. Atascosa County, Texas.

Figure 1, F This is a triangular point probably of the Cameron type. It is bifacially flaked and the distal point is missing. It is made from a pale green glass and has no patina. It was collected at 41CF8 by A.E.Anderson and is now at TARL. Maximum thickness 2.2 mm.

Figure 1, G is a triangular point with a slightly concave base. It is bifacially flaked and the point and both barbs are slightly damaged. It is made from a light green glass that has acquired a gray patina, it was collected at 41CF8, Cameron County by A.E.Anderson, and is now at TARL. Maximum thickness, 3.4 mm.

Figure 1, H This is the point of a unifacial arrowhead whose base is missing. The side drawn is slightly concave and the surface has a heavy grey patina. It was also collected at 41CF8 by A.E.Anderson and is now at TARL. Maximum thickness, 2.7 mm.

Figure 1, I This is a very small bifacially flaked point. It is non-stemmed, has a concave base and the distal point is missing. It is made of amber colored glass. Maximum thickness 2.7 mm. Collected at

41CF8 ,Cameron County by A.E.Anderson and is now at TARL.

Figure 1, J is a triangular, bifacially flaked point. The distal point is missing. It is made from a blue green glass, surface slightly eroded but no patina. Maximum thickness 2.8 mm. Collected at 41CF8 by A. E. Anderson and now at TARL.

Figure 1, K This is a triangular non-stemmed point that evidently broke straight down the middle. The edges were flaked bifacially. Glass color can not be determined as it is coated with a heavy gray patina. Maximum thickness is 2.3mm. Collected at 41CF8 by A.E. Anderson and now at TARL.

Figure 1, L is a triangular point with one barb and distal point missing. Glass color undetermined as it is coated with a heavy gold patina. Maximum thickness, 3.0 mm. Collected from 41CF12 by A.E. Anderson, now at TARL.

Figure 1, M is a triangular point, made from clear glass, with no color and no patina. Bifacially flaked, possibly of quartz. Collected at 41CF12 by A. E. Anderson. The artifact is at TARL.

Figure 1, N This is a broken piece on which the bottom and left edge are bifacially flaked but it is incomplete. It appears to be more knife-like than projectile like. It is made from medium green bottle glass that has a slight curve. Maximum thickness, 2.5 mm. It was collected at the Kent Crane site at Live Oak Point (41AS2) Aransas County, Texas, and is now at TARL.

Figure 1, O This is a small complete triangular arrow point, possibly of the Guerrero type. It is bifacially flaked, made from light green or aquamarine colored glass. Maximum thickness, 3.0 mm. It is from the Kent Crane site, 41AS2, Live Oak Point Aransas County, Texas, now at TARL.

Figure 1, P is a bifacial triangular point, attributed to the Guerrero type. It was found on a site with two other bottle shards. Both the shards and point appear to have originally been amber in color but have acquired a very heavy gold patina. They were found, by Sonny Timme, at Linn Lake, 41VT81, Victoria County. Maximum thickness, 2.6 mm.

Figure 1, Q is a straight based triangular, bifacially flaked Guerrero point. It was made from a pretty blue glass and was excavated by Jim Corbin of Stephen F. Austin State University, at the colonial Caddo mission site of Nuestra Senora de los Dolores de los Ais. San Augustine, San Augustine County, Texas.

Figure 1, R This is a triangular bifacial concave-based point attributed to the Guerrero type. One corner of the base is slightly damaged. It is made of olive green bottle glass and was found with four chert Guerrero points. It was recovered by Alton Briggs while excavating the basement beneath the sales museum at the Alamo in March 1992. Maximum thickness is 3.7 mm. 41BX6 SM , Trench 2, Level 2, 2:10, 5:5. It is now curated at the Center for Archaeological Research (CAR).

Figure 1,S This small point is a straight based, triangular Guerrero arrow point that suffered some tip damage and was reworked. It was made from a pale green bottle glass that has acquired a peacock blue green iridescence on the side drawn and light grey patina on the opposite side. Maximum thickness is 2.3 mm. It was found by the archaeological group of the Museum of The Coastal Bend, at the Anaqua Mott, McNeil-Gonzales Ranch, 41VT141, Victoria County, Texas.

Figure 1, T is a small point with a "V" shaped base. It is bifacially flaked and may be related to McGloin or Starr points which are very similar in shape. It is made of a blue glass and was found by Ray Meyers (of Corpus Christi, Texas) at Falcon dam, Zapata County during its construction in 1950.

Figure 1,U This is a utilized shard of glass, flaked along the top edge on the concave side. The convex side is completely untouched. The flaked edge is not rounded nor polished. Maximum thickness is 3.0 mm. Collected at the Live Oak Point site, 41AS2, Aransas County, and is now at TARL.

Figure 1, V is also a utilized shard which was flaked along two edges of the outer or convex surface. It is made from a light green bottle glass and has a iridescent gold , blue and green sheen. All surfaces are pitted and scratched but the corners and edges of the flaked area are not rounded nor polished. Live Oak Point site (41AS2), Aransas County. Now in the TARL collections.

Figure 1, W is the distal point of a broken arrow point. It was probably unstemmed but the base is missing. It has a gray, partly iridescent coating. Both sides retain original areas of unflaked surface, with more flaking on the side drawn. Maximum thickness,

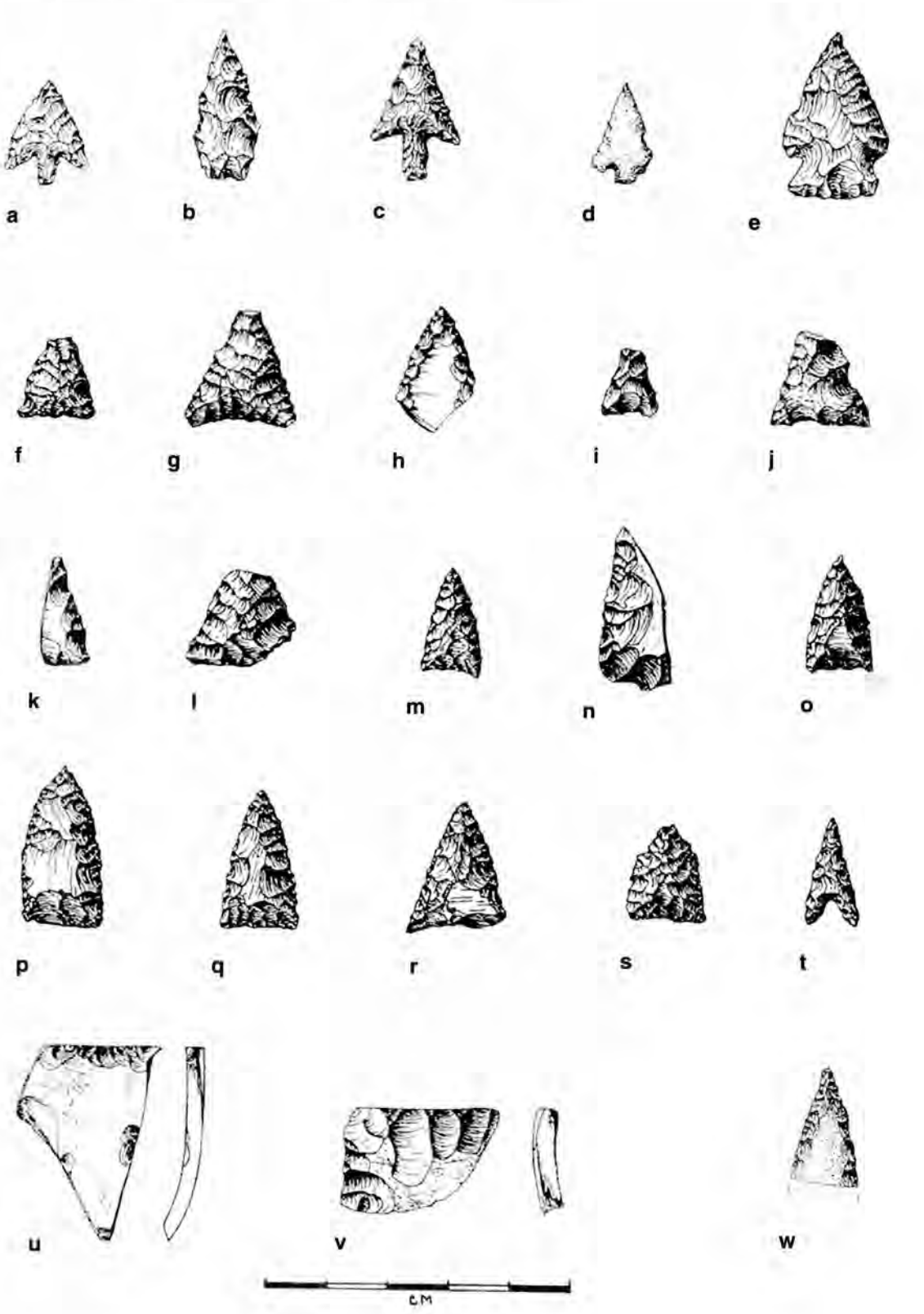

Figure 1. See the text for descriptions of each artifact.

2.5 mm. It was found during a 1974 Texas Historical Commission project at San Jose Mission and photograph of it was published in Clark (1978; see also Fox 1977). It is in the collections at CAR.

Figure 2 Specimens

Figure 2, A is a small triangular Cameron point with a slightly concave base. It is bifacially flaked and made from olive green bottle glass. Maximum thickness is 3.4mm. It was found by Mike Krzywonski. at a site on the Laguna Madre, Cameron County, Texas.

Figure 2, B is also a small triangular, bifacially flaked point made of olive green bottle glass and typologically, it has all the characteristics of a Cameron point. Maximum thickness is 3.0 mm. It was found by Jack Bartholomew in what is known as the Garcia pasture (41CF8) Cameron County, Texas. It is in the collection of Mike Krzywonski.

Figure 2, C This is also a bifacially flaked, triangular Cameron point that has both basal corners missing. Maximum thickness, 2.8 mm. It is also made of olive green glass and was found, by Jack Bartholomew, in the Garcia pasture (41CF8), Cameron County. It is in the collection of Mike Krzywonski.

Figure 2, D is a bifacially flaked point with a slightly concave base and both basal corners missing. Maximum thickness is 3.1 mm. This point also was made from olive green bottle glass. It was found by Jim Walker in the Garcia pasture, Cameron County and is also in the Krzywonski collection.

Figure 2, E This is a bifacially flaked triangular Cameron point with a straight base. It is made from olive green glass that has a light patina on the side drawn. It was found by Don Kumpe at El Ebanito at Loma Tio Guerrero, 10 miles south of the Rio Grande in Tamaulipas, Mexico.

Figure 2, F This is a small triangular point with a centrally notched base. It is bifacially flaked and made from a light green bottle glass, both sides of which have a white patina. It was found by the late Dick Clardy in the Mayran Desert of southwestern Coahuila, Mexico. It is now in the Mike Krzywonski collection. Points of this form found in that region have been called Garza by Heartfield (1975). The Garza type was originally defined for the southern Plains of Texas, and dates to the 16th and 17th centuries (Turner and Hester 1985). While the specimen in Figure 2, F, is identical to Garza points from Texas, it is possible that it is a late stage perform for Toyah or related side-notched arrow points that are particularly common in the Laguna de Mayran region (cf. Heartfield 1975).

Figure 2, G This drawing shows both sides of a unifacially flaked Cameron point, made of olive green bottle glass which has started to deteriorate on the flat side. The flaked side has acquired a peacock blue and green iridescence. It was found by Mike Krzywonski at the same site as specimen"E" (above), in Tamaulipas, Mexico.

Figure 2, H This small side notched point was found by Ellen Sue Turner's father in the Willamette Valley of Oregon. It is made from a light green opaque jadeite milkglass which was also made in a blue color.

Figure 2, I This bifacially flaked stemmed piece is large for a historic-era arrow point. Perhaps this was a knife, with a glossy surface. The higher flake edges near the stem are rounded and the notches are crushed and dulled probably due to hafting wear. A glossy surface is seen in this area. At first, I thought the material was obsidian but it does appear to be manufactured glass of a clear maroon color when held to the light. It was found by Dave Orchard ,and although unlabeled, it was in a box with other artifacts labeled as from Olmos Basin, Bexar County. The basin was evidently a stop-over point around the turn of the century for different Indian groups on their way to the peyote-gathering areas along the Rio Grande.

Figure 2, J This is another seemingly out of place artifact for South Texas. It is side notched and 68 mm long. It is made from an opaque marbled or swirled, pressed glass in a light green and white color. It may be what is known as "slag glass." In the unflaked areas it is a uniform 3 mm thick. It was also collected by Dave Orchard in the Olmos Basin, Bexar County, Texas, and is attributed to the Olmos Basin due to its association with other artifacts from that locale. It is possible that this specimen is "modern," perhaps a fake that Orchard mistakenly put, or mixed, with the Olmos Basin artifacts.

Figure 2, K Shown in Figure 2,K are hree views of a small scraper, flaked only at the bit edge. It is

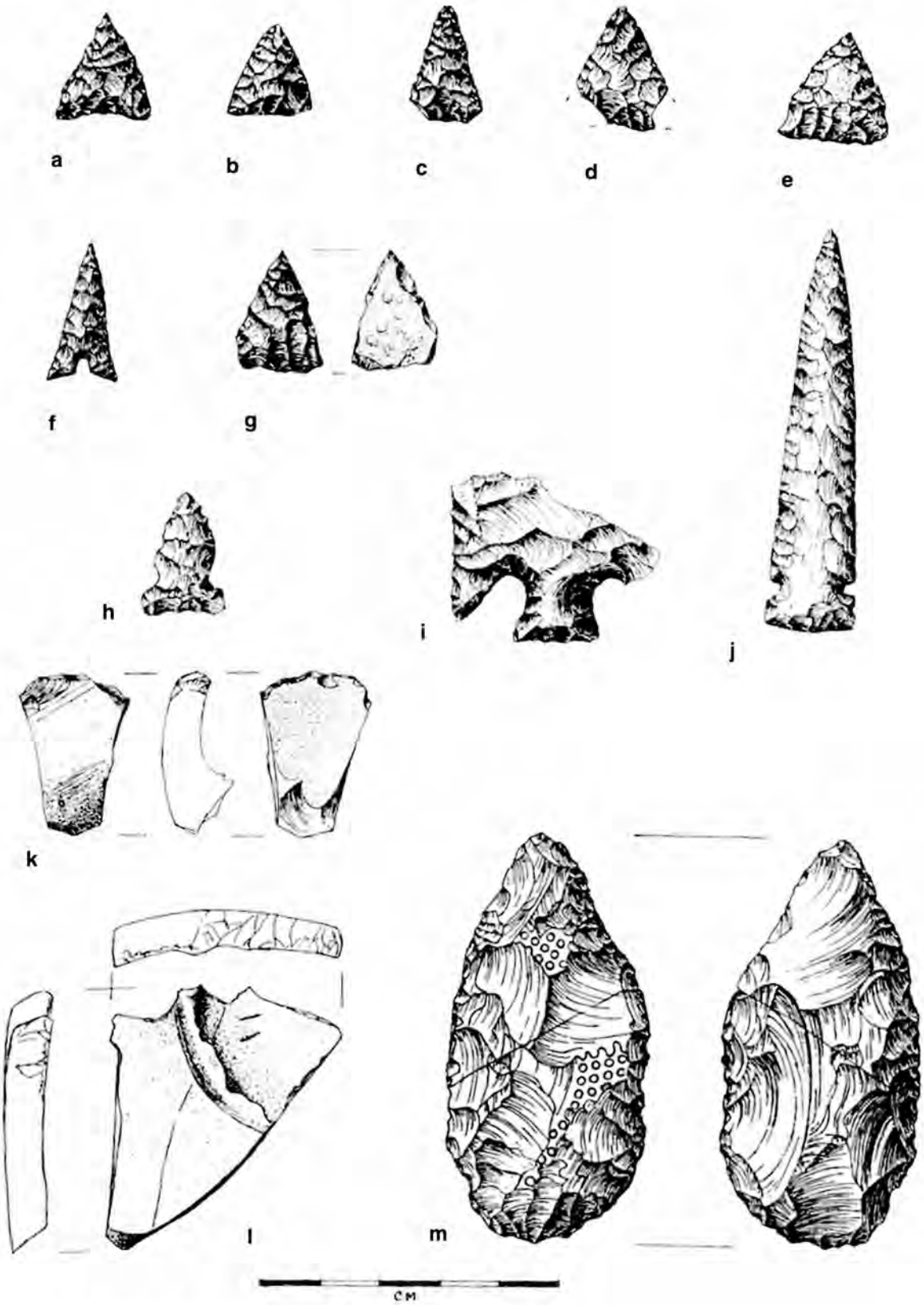

Figure 2. See the text for description of each specimen.

made from olive green bottle glass. Found on a site in Tamaulipas, Mexico by Mike Krzywonski.

Figure 2, L This is another scraper made of an olive green bottle glass. Two other fragments of what appears to be the same bottle were in the vicinity, one being the blob top. That and the open pontil scar on the piece illustrated date it prior to 1860. Also on this site were Cameron points and a cockle shell fragment, found by Don Kumpe in a site in Hidalgo County.

Figure 2, M Here, I have illustrated two views of a biface made from brown glass. No curvature is discernible. It has been broken and was mended after discovery. One face has patches of the original hobnailed surface remaining. These raised bumps or nubs usually designate it as a poison bottle. It was found by Roger Hill at Hueco Tanks, Hudspeth County, Texas.

Figure 3 Specimens

Figure 3, A This is a palm-sized "knife" that has been unifacially flaked along one edge. It is made from the brown glass of a Drake's 1860 Plantation X Bitters bottle. The glass has started to pit and deteriorate slightly and all the edges including the flaked edge have a light patina. It was found by the late Dick Clardy on a site between Brownsville and Boca Chica Beach, Cameron County and is now in the collection of Mike Krzywonski. It is possible that this is a tool of expedience made and used by Union Army troops under the command of General Nathaniel P. Banks, who was in the area from November 1863 until May 1865.

Figure 3, B This is an unusual piece made from a magnifying glass that has been flaked into a scraping tool. The top or working edge shows considerable use and is heavily crushed and microflaked. Maximum thickness is 14.6 mm. It was found by the late Rose Trevino while digging in her flower bed at Laredo, Webb County , Texas.

Figure 3, C is a cutting or scraping tool, made from flat pane glass. It is semi-transparent and has a light aqua tint. Maximum thickness is 6.5 mm. An antiquarian in the Port Isabel area thinks it is glass from a ship lantern. It was found in the northern Laguna Barril area of coastal Tamaulipas Mexico. The specimen is in the Mike Krzywonski collection.

Figure 3, D This is a scraper/ cutting tool made of a dark olive green bottle glass with a slight curvature. It's unifacially flaked on the convex side. The glass has a slightly pitted and worn surface but no patina. It was found by Ed Mokry at 41NU250, a site on the western bay margin of Mustang Island. The site was a shell tool production site with Perdiz points and serrated triangular points. In addition to this glass tool, a brass or copper arrow point was found.

Figure 3, E is also a scraping/ cutting tool made of olive green bottle glass having a moderate curvature. Flaking was done from the concave side and the right edge was used as a scraping tool. It was found by H. Ray Smith in a midden northeast of 41UV199, a site noted for a 19th century historic house, Uvalde County, Texas.

Figure 3, F This is also a scraper. It is made from a "kick-up," which is the thicker central part of a bottle bottom. It is pink or amethyst in color and the surface is slightly weathered. It was found by Phyllis and Doug Bryan in midden refuse outside the mouth of a small shelter in the Big Bend area.

Figure 3, G is another multi-purpose tool used both as a scraper and knife. It's made from a thick section of olive green bottle glass. It was found in the Garcia Pasture(41CF8) Cameron County, Texas by Jim Walker. Now in the Krzywonski collection.

Figure 3, H This piece was probably used as a cutting tool. It is a rim sherd of white milk glass, unifacially flaked along one edge. It was collected by the late E. H. Schmiedlin at 41VT108, Victoria County, Texas and is now at TARL.

Figure 3, I This is a small worked piece of amethyst color glass that appears to have been used as a scraping tool. It is from a surface site in Fillmore Canyon, Organ Mountains, Dona Ana County, New Mexico and is in the Roger Hill collection.

Figure 4 Specimens

The following group of illustrations, shown as Figure 4, are the outlines of some glass points that C.K. got together but at the time, was unable to borrow for illustration. Included in this group was the point from San Jose Mission that Mary Beth Tomka at CAR was since able to lay hands on and let me illustrate(Fig.1W). Four of the outlines are from the

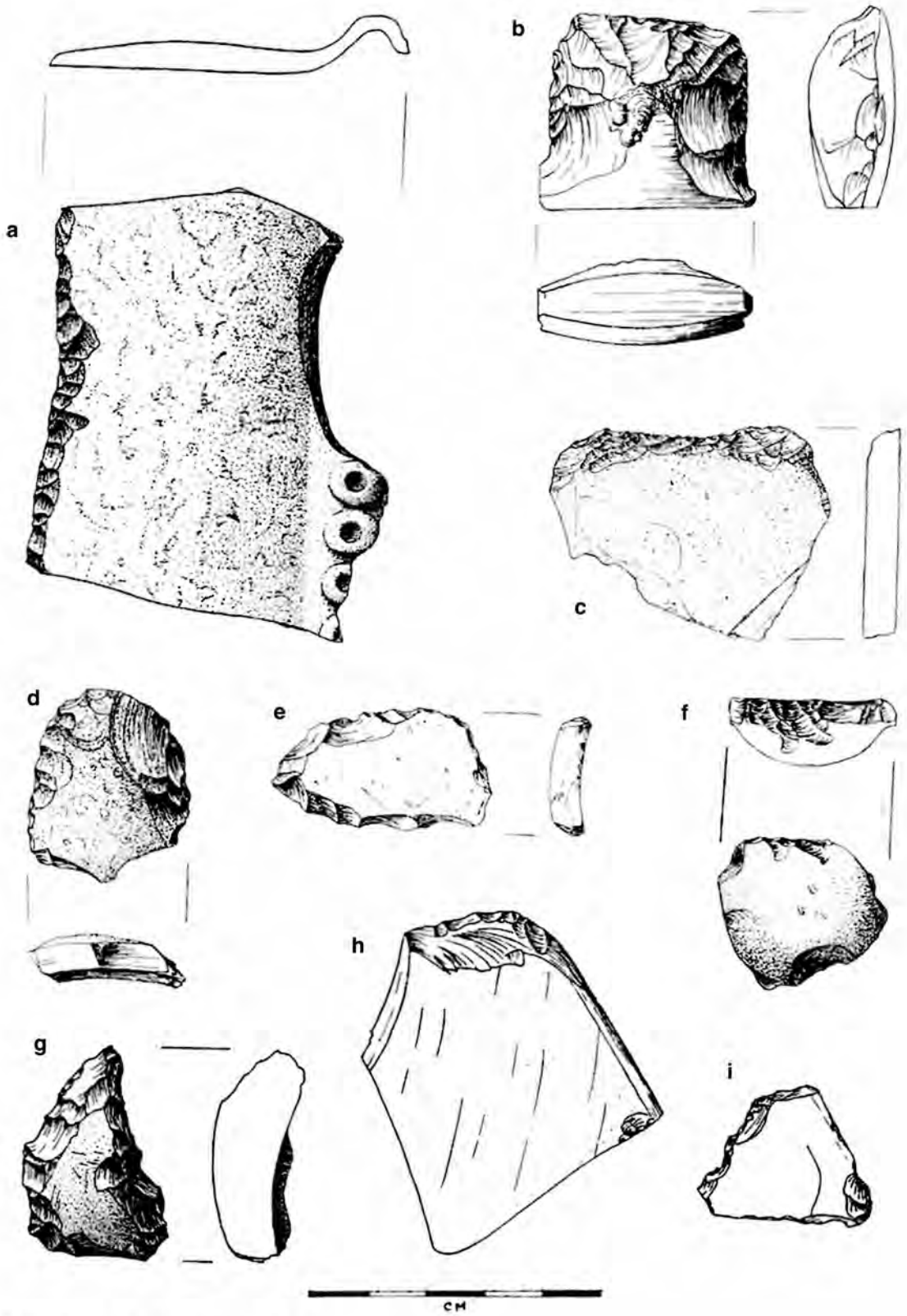

Figure 3. See the text for descriptions of each specimen.

Guerrero type site in Coahuila, Mexico which UTSA excavated in 1975-77. Tom Hester sent me a copy of the lab notes on the Guerrero points including outlines and corresponding measurements, which verified the accuracy of C.K.s notes. In short, this group of outlines and the limited documentation below are probably the best illustration now available of these points.

Figure 4, A is a triangular Guerrero point with a concave base. The outline indicates there may be impact damage to the point. Length as found is 29.5 mm. Width is 17.5 mm and thickness is 3.8 mm. It is bifacially flaked from green bottle glass and was found at Mission San Bernardo-North (Indian quarters), Coahuila, Mexico.

Figure 4, B appears to have suffered some impact damage and possibly reworked. It is triangular Guerrero point, with a straight base. It 18 mm long, 15.3 mm wide and 2.3 mm thick. It is bifacially made of green bottle glass and has patination. It is also from Mission San Bernardo-North (Indian quarters), Coahuila, Mexico.

Figure 4, C is missing its tip. It is triangular with a concave base. Although its length is incomplete, it was evidently one of the larger Guerrero points from either mission site. It has a width of 17 mm and thickness is 3.8 mm. It is bifacially flaked from light green clear glass and was also found at Mission San Bernardo-North (Indian quarters).

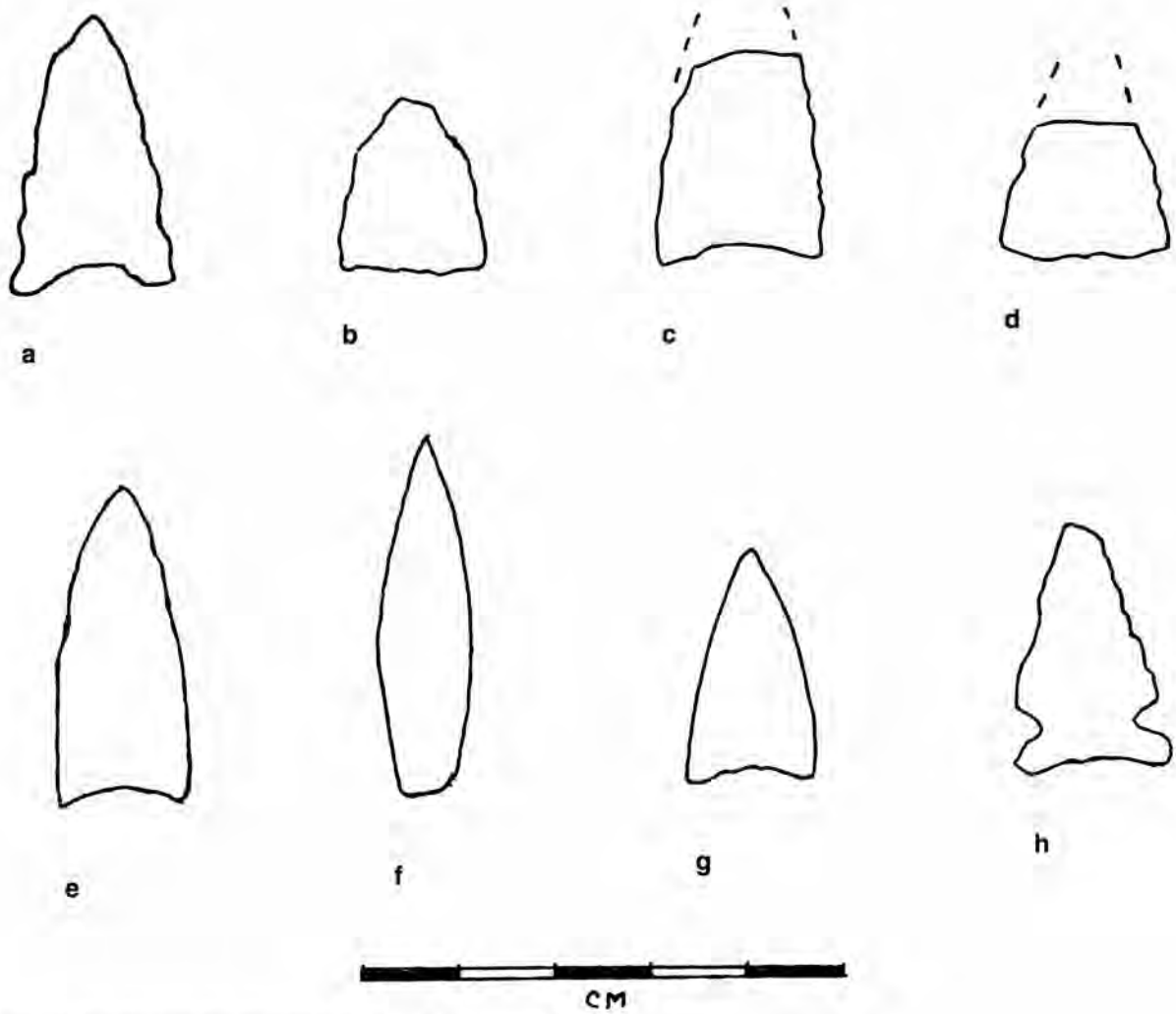

Figure 4. See the text for descriptions of each specimen.

Figure 4, D is Guerrero point, with a straight base and with the tip missing. It is 17 mm wide at the base and 4 mm thick. It is bifacially flaked from green bottle glass and excavated at Mission San Juan Bautista, Coahuila, Mexico.

Figure 4, E. This point is a good general example for the Guerrero type. It is made of green glass and was found during Kathleen Gilmore's excavations in 1973 at Mission Rosario (41GD2) in Goliad County, Texas. A bad photograph of it was published in Texas Parks and Wildlife Department Archeological Report 14, part 1. Its present whereabouts is unknown.

Figure 4, F, G. were both found at a beach site in Aransas County by Danny Agler

Figure 4, H is a side notched point from the northwest coast of California and is in the Lowie (now Hearst) Museum at the University of California-Berkeley.

ACKNOWLEDGMENTS

I'm grateful to several people for their help on this paper. Foremost is the person who gathered most of these artifacts together, my friend C.K. Chandler. Amy Fulkerson and John Spencer helped at the Witte Museum, as did Laura Nightengale at TARL, Mary Beth Tomka at CAR, Dan Potter at THC, and my friends Ed Mokry, Don Kumpe, Ray Smith, Bill Birmingham, my brother Ben and as always, Tom Hester.

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The Cattle Pen Biface Cache, Williamson County, Texas

David L. Calame, Sr. and John Haberer

ABSTRACT

A cache of nine medium -sized bifaces, found in a small Williamson County burned rock midden, are reported, illustrated and discussed.

THE SITE

The site has been recorded as 41WM1184. It is in Williamson County (Figure 1), situated above the south bank of Berry Creek, on a rocky, sloping terrace with thin soil. A dense burned rock midden was the central feature of this site, with buried cultural deposits fading quickly just a few feet in all directions from the midden. The low numbers of time diagnostic projectile points and tools found at this site indicate it was used for brief, and perhaps occasional, episodes through most of prehistory. Beginning with the Late Paleoindian period, as evidenced by Angostura points, the site was used intermittently by groups of people whose diagnostic projectile point types are as follows: Bell, Martindale, Nolan, Bulverde, Pedernales, Marshall, Williams, Lange, Castroville, Montell, Ensor, and Scallorn.

The site's use may well relate to that of small groups of hunter/gatherers passing through from main camps further upstream on their way to hunt further east on the Blackland Prairie. These peoples may have stopped at this site to carry out earth-oven cooking and, at least on one occasion, to bury their dead, as this midden contained one shallow, disarticulated burial. Natural ledge rock in the immediate area may have been used as to obtain cooking materials. The site was completely destroyed by development shortly after its excavation.

Figure 1. Location of Williamson County, Texas.

THE CACHE

The biface cache reported in this paper (Figures 2-4) was found buried in the burned rock midden at a depth of approximately six inches below the surface. The bifaces were stacked with distal tips pointing generally west. Specimens with patina were discovered with the patinated face up, and those specimens with the most patina were on the top of the stack. This cache was discovered approximately four feet from the disarticulated human burial mentioned above, and is not thought to have been associated with this burial.

The nine bifaces found in the cache are described below; each specimen number correlates with the illustrations in Figures 3 and 4. Additional details are found in Table 1.

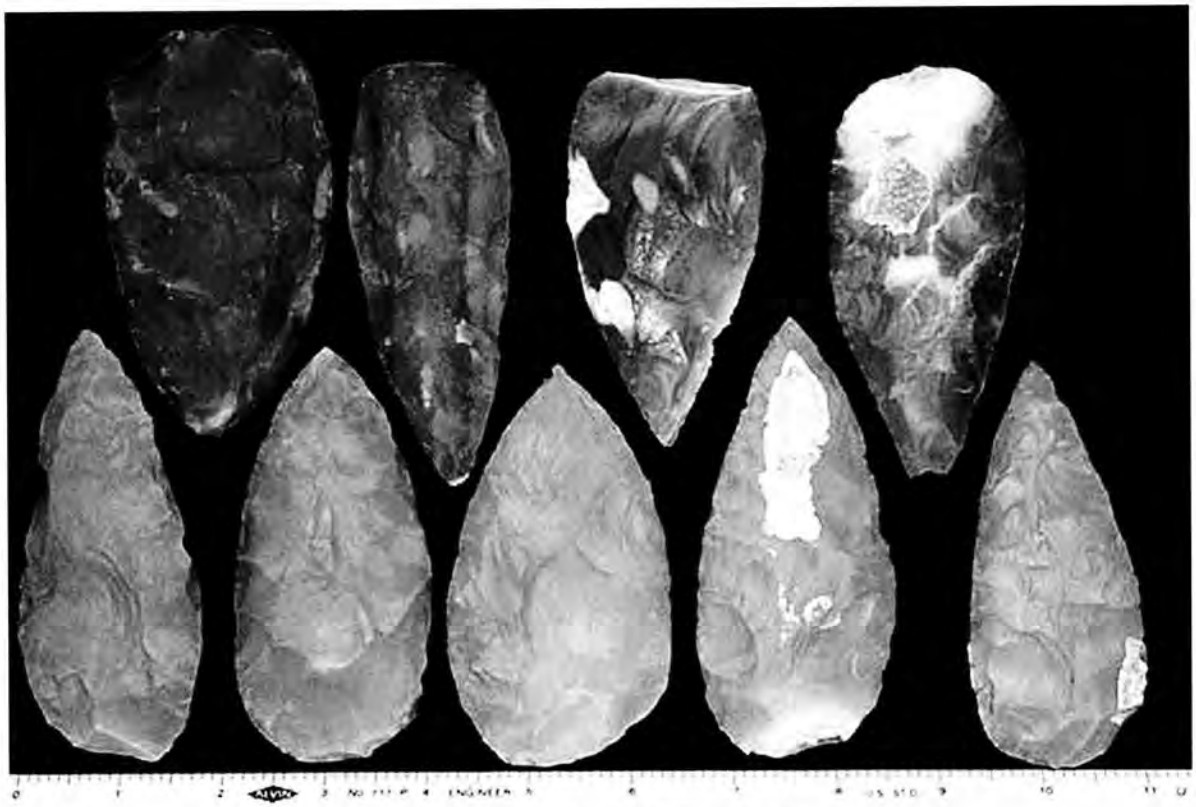

Figure 2. Photograph of the Cattle Pen Biface Cache, Williamson County, Texas.

Figure 3. Cattle Pen Biface Cache Specimens 1-4 as listed in the text.

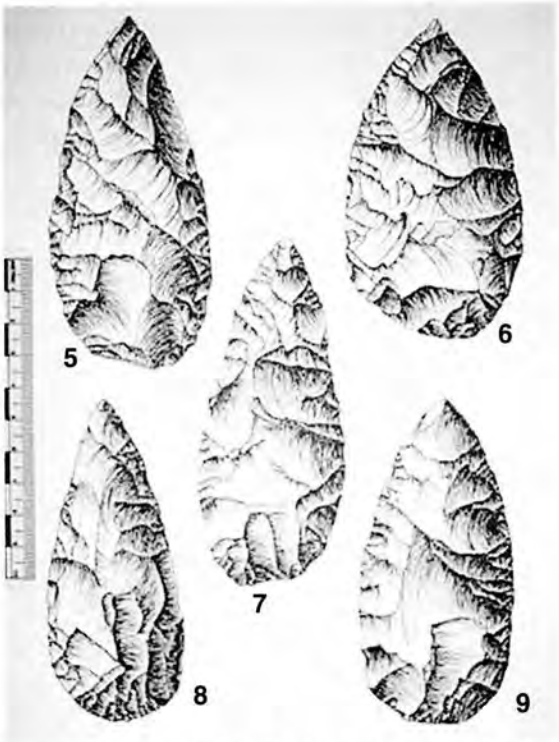

Figure 4. Cattle Pen Biface Cache. Specimens 5-9 as listed in the text.

Table 1. Descriptive Details for the Cattle Pen Biface Cache.

Spec	Length	Width Max.	Thickness Max.	W/T Ratio	Cortex	Overall Shape	Base	Lateral Edges	Cross Section	Symmetrical
1	103 mm	49 mm	12 mm	4.08	Y1	Leaf	Convex	Convex	Plano-convex	No
2	107 mm	41 mm	11 mm	3.73	Y1	Lanceolate	Convex	Convex	Convex	No
3	103 mm	57 mm	13 mm	4.38	N	Ovate	Convex	Convex	Convex	Yes
4	95 mm	50 mm	11 mm	4.55	Y1	Triangular	Straight	Convex	Convex	Yes
5	109 mm	49 mm	12 mm	4.08	Y1	Ovate	Convex	Convex	Convex	Yes
6	100 mm	56 mm	12 mm	4.67	N	Ovate	Convex	Convex	Convex	Yes
7	109 mm	46 mm	12 mm	3.83	N	Leaf	Convex	Convex	Convex	No
8	101 mm	43 mm	12 mm	3.58	N	Leaf	Convex	Convex	Plano-convex	Yes
9	103 mm	49 mm	14 mm	3.5	N	Leaf	Convex	Convex	Convex	Yes

Specimen #1 is an irregular leaf-shaped biface made from high quality Edwards Georgetown chert. Flaking is random, although generally collateral, with several flake scars traveling two-thirds across the face. The biface exhibits two overshot flakes near and at the base. The reverse faces lateral edges have been lowered and lightly trimmed. Cortex remnants remain on the reverse face. This biface was made from a large flake spall and no traces of the bulb of percussion remain. Percussion flaking on this specimen was accomplished with a soft hammer. A light patina covers most of the face illustrated, while the reverse exhibits no patina what so ever.

Specimen #2 is a slender, irregularly shaped biface, made of high quality, Edwards Georgetown chert. Flaking on this specimen is random, soft hammer percussion. Remnants of larger percussion flakes can be seen on the illustrated face as well as what appears to be pressure flaking along the lower left lateral edge. The illustrated face has a light covering of patina, while the reverse face has no patina at all. Evidence of overshot flaking is exhibited in the lower left corner of this biface. From the lower half of this biface, both lateral edges exhibit some sort of use wear. The base of this specimen also exhibits obvious use wear. On the reverse face, both lateral edges have been lowered. The distal tip has traces of cortex. This specimen was made on a large flake spall, and any evidence of the bulb of percussion has been removed.

Specimen #3. This specimen, again, is made from high quality Edwards Georgetown chert. This artifact was made on a large flake spall with all evidence of the bulb of percussion removed. The illustrated face has a light patina, while the reverse has no patina at all. Flaking is again random and accomplished with a soft hammer. Some use wear is evident along the illustrated faces right lateral edge, and this artifact may have been used in scraping and cutting activities. Larger percussion flake scars go well past the artifact's midline, and on the reverse face at least one flake scar appears to almost have overshot the biface. This is the only biface in this cache that has a large flake scar struck from the base.

Specimen #4. This specimen is distinctly triangular in outline and made of high quality Edwards Georgetown chert. This specimen also exhibits a light patina on the illustrated face, while the reverse has no patina. This biface is made on a large flake with all evidence of the bulb of percussion removed. The base of this specimen exhibits a heavy patina, which formed on an older flake surface. Flaking is random and accomplished using a soft hammer and the illustrated face exhibits substantial amounts of pressure flaking and some apparent use wear on the distal half's lateral edges.

Specimen 5 is a leaf shaped biface made of high grade Edwards Georgetown chert. The illustrated face has a light patina across the face, while the reverse has no patina, but does exhibit original cortex remnants on the base and calcium carbonate build up on the distal one half. Flaking is random and soft hammer, with some flake scars appearing to almost over shot the biface on both faces. On the reverse face, the lateral edges have been lowered and some use wear appears present on the illustrated faces lower right lateral edge. This biface was made on a large flake spall whose bulb of percussion was removed.

Specimen #6 is ovate in outline, and also made of high quality Edwards Georgetown chert. It was made on a large flake spall and all evidence of the bulb of percussion has been removed. Again, large, soft hammer percussion flakes are random, with some appearing to have overshot the biface. This specimen also appears to have use wear along the illustrated face's lower right lateral edge. This specimen does not appear to have any patina on either face.

Specimen #7 is a very irregularly leaf shaped biface made from high quality Edwards Georgetown chert. Neither face of this artifact exhibits any observable patina. Again, this specimen was made on a large flake spall, whose bulb of percussion has been completely removed. Flaking was accomplished by soft hammer percussion and is irregular and random. Some flake scar remnants again appear to nearly have overshot the biface edges. Some possible use wear is exhibited on the lower left lateral edge of the illustrated face.

Specimen #8 is made from high quality Edwards Georgetown chert and has hints of patina on the illustrated face only. The artifact was made on a large flake spall and retains no evidence of a bulb of percussion. Flaking is soft hammer and randomly patterned. Remnants of large percussion flakes, which do or nearly

do "overshoot" the biface are exhibited on both faces. The base on this specimen appears to exhibit use wear. The illustrated face's lateral edges have been lowered, and the specimen itself appears to retain some of the original flake spall curvature.

Specimen #9 is made from high quality, Edwards Georgetown chert and has some evidence of patina on the illustrated face. This specimen was made on a large flake spall whose bulb of percussion has been completely removed. Flaking is random and accomplished by soft hammer percussion. Obvious overshot flaking is exhibited on this specimen reverse face, while the illustrated face exhibits at least one flake scar traveling well past three-fourths the specimens face. This specimen appears to exhibit use wear at several locations on both its lateral edges.

Note on raw material The first four bifaces, described above, appear to have been made from the same cobble or core while the next five bifaces appear to have been made from a slightly different Edwards Georgetown chert core or cobble. All were examined with a UV light and the results are found in Table 2.

DISCUSSION

Generally, most biface caches reported in Texas, contain specimens that are much larger in size than those reported in this paper (for a more detailed discussion of caching practices of prehistoric peoples, see Miller (1993, 2008). This central Texas cache consists of nine bifaces of similar size and outline, which could be dart point performs. However, the presence of apparent use wear on the basal and lateral edges on the specimens suggests that their usefulness to their prehistoric owners did not begin as finished dart points. Rather, some of these bifaces appear to have been used in scraping or cutting activities, suggesting that the intended use of a tool might change as the lithic reduction process continues. That these bifaces were cached on a minimally used site, in a setting spaced between larger sites upstream and the Blackland Prairie to the east, might suggest their intended use as tools in processing of food resources, at the time of their caching.

Although these bifaces have absolutely nothing in common with Clovis technology, and are almost

Table 2. Results of UV Light Analysis of Specimens in the Cattle Pen Biface Cache.

Specimen	Natural Light	Short Wave	Long Wave
1	Gley 1 4/5GY	5Y 7/8	5YR 5/6
2	Gley1 4/10Y	10YR 6/8	2.5Y 4/6
3	Gley1 5/10Y	2.5Y 6/6	2.5Y 4/6
4	Gley1 4/10Y	5Y 7/8	2.5Y 4/6
5	Gley1 5/N	25Y 7/6	5YR 6/6
6	Gley1 5/10Y	2.5Y 7/6	5YR 6/6
7	Gley1 5/10Y	2.5Y 7/6	5YR 6/6
8	Gley1 5/N	2.5Y 7/8	5YR 6/6
9	Gley1 5/10Y	2.5Y 7/6	5YR 6/6

certainly from the Late Archaic time period, it maybe, because of the many overshot or near overshot flakes exhibited on these specimens, that the knapper was intentionally using an overshot strategy in his reduction process. However, if this is the case, the possible intentional use of overshot flaking in this cache, did not have the same results one would see at the same stage of Clovis biface reduction.

ACKNOWLEDGMENTS

The authors wish to thank Richard McReynolds for his fine illustrations, which are the better part of this report. Thanks as well to Debbie Calame, for her assistance with the UV light analysis. And finally, thanks to Dr. Thomas R. Hester for his editorial assistance.

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Caddo Ceramics from Two Sites in the Post Oak Savanna, Leon County, Texas

Timothy K. Perttula

ABSTRACT

Caddo pottery is reported from two sites in the post oak savanna of Leon County, Texas. Comparision with Caddo ceramics of the Neches River Basin of East Texas suggests that the Leon County artifacts date between the 9th to the 15th centuries A.D.

INTRODUCTION

During the course of recent archaeological investigations of a proposed gas pipeline cutting across Leon County, Texas, two prehistoric archaeological sites in the post oak savanna (see Fields 2004:Figure 12.1; Shafer 2006:Figure 1) in Leon County, Texas, were found that have Caddo utility ware and fine ware ceramics: 41LN436 and 41LN465. By comparison with well-studied prehistoric Caddo ceramic assemblages in the upper and middle Neches River basin in East Texas (cf. Story 2000), these Caddo ceramics on the two Leon County sites are from occupations that took place from as early as the 9th century A.D. and as late as the 15th century A.D.

THE SITES

Both 41LN436 and 41LN465 were found during a pedestrian survey of a ONEOK gas pipeline. Neither site was near to the proposed pipeline right-of-way, and thus only a surface examination of both sites took place, with no shovel testing. The sites are on sandy knolls on the north side of Beaver Dam Creek, within 200 m of each other, about 18 km west of the Trinity River. Beaver Dam Creek flows east-southeast to its confluence with the Trinity River, near the later Camino Real de los Tejas crossing of the river; the Camino followed a well-worn trail long used by the Caddo and other aboriginal groups.

41LN436 is the larger of the two sites, covering ca. 9000 m^2 (2.2 acres). The other site is only 900 m^2 in size. Between the two sites, a total of 19 aboriginal sherds were observed on the surface, 18 of them of Caddo manufacture. Six sherds were found at 41LN436, with the remaining 13 sherds found at 41LN465.

The Caddo Ceramics

41LN436

All six of the sherds from 41LN436 are body sherds from at least three different vessels. Each of the sherds is tempered with grog or crushed sherds; one also has crushed hematite and burned bone temper additions; these materials are common choices for temper in middle and upper Neches River Caddo ceramics (Perttula 2008). Two of the six sherds have a sandy paste, probably from the use of a naturally sandy clay.

The sherds are also from vessels fired in a reducing or low oxygen environment, probably having been smothered in a bed of coals or ashes during the firing process. Again, this is a common technological practice of Caddo potters. One of the sherds has been

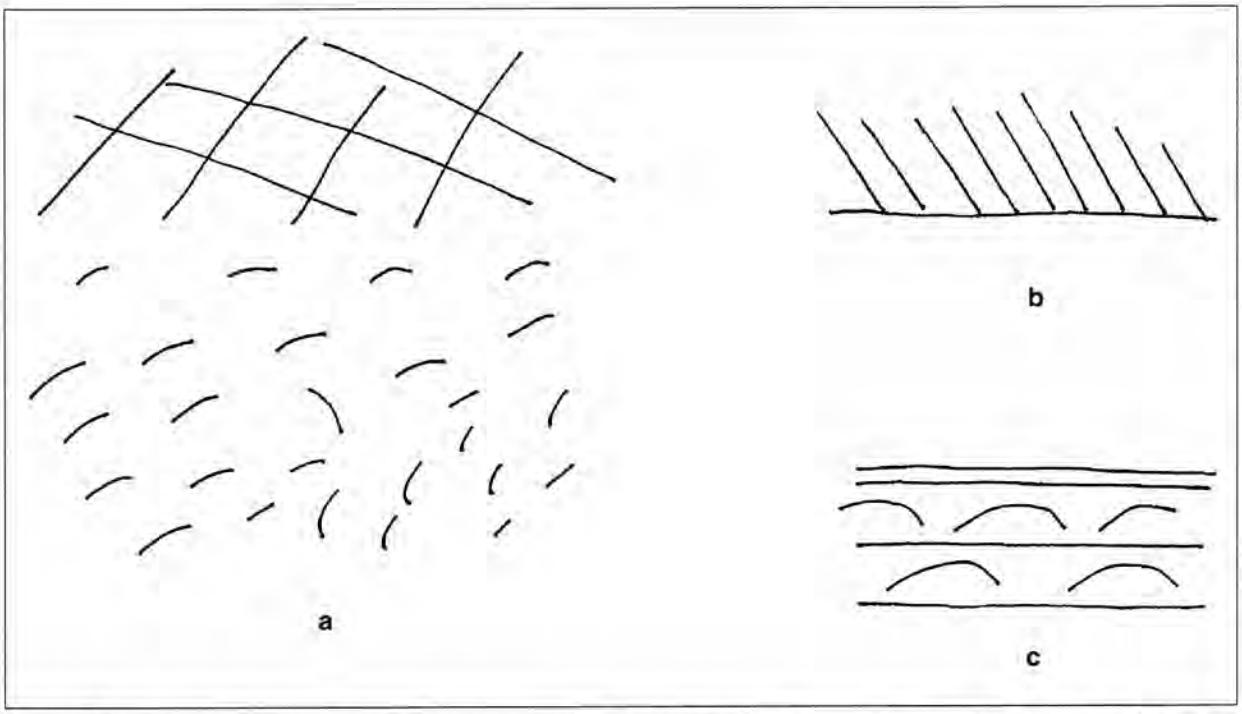

Figure 1. Sketches of selected decorated elements: a, cross-hatched incised-fingernail punctated jar body sherd; b, Holly Fine Engraved carinated bowl sherd; c, Weches Fingernail Impressed, *var. Weches* carinated bowl sherd.

smoothed on its interior surface, presumably to lower the permeability of the vessel from whence it came, probably a cooking jar. The average thickness of the vessel sherds (8.33 ± 0.64 mm) also suggests they are from large and substantial-sized cooking vessels.

Three of the sherds have a decoration on their exterior surface. One has parallel or vertical brushing marks, and may be from the lower portion of a Maydelle Incised or Bullard Brushed jar (Suhm and Jelks 1962:21, 103). Vessels with brushing began to be made by Caddo potters sometime after ca. A.D. 1250, and by the 15th century A.D. were the most common decorated utility ware throughout the middle and upper Neches River basin.

A second decorated body sherd from 41LN436 has randomly placed and large fingernail punctates, while the third has a cross-hatched incised motif on the rim and freely placed narrow fingernail punctates that begin at the rim-body juncture and extend down the jar body (Figure 1a). This jar sherd is also likely from a Maydelle Incised jar, as cross-hatched incised lines on the jar are a common decorative motif on this type (Suhm and Jelks 1962:Plate 52c-d).

41LN465

One of the sherds from 41LN465 is a non-tempered sandy paste sherd (Goose Creek Plain, *var. unspecified*). This kind of pottery was generally made in East Texas between ca. 500 B.C. and A.D. 800, during the lengthy Woodland period. The other 12 sherds are from at least six tempered Caddo vessels, and include four sherds (from at least three vessels) that are decorated and eight that are plain.

The 12 Caddo sherds are tempered with grog (50%), grog and bone (41.7%), or simply with burned bone (8.3%). Only one grog-tempered sherd has a sandy paste; the others have clay and silty pastes. More than 91% of the sherds are from vessels fired in a reducing or low oxygen environment; the other was from a vessel that was incompletely oxidized during the firing. The one rim is 9.7 mm thick, and from a carinated bowl with a 19 cm orifice diameter. Body sherds range from 6.0-9.9 mm in thickness, suggesting a range of vessel sizes in use at the site. The mean body sherd thickness is 7.47 ± 0.90 mm.

Three of the vessel sherds are from distinctive carinated bowl forms, a characteristic prehistoric and early historic Caddo vessel form. One is from a Weches Fingernail-Impressed, *var. Weches* rim (Figure 1c) and another is a sherd from a Holly Fine Engraved vessel (Suhm and Jelks 1962:Plate 39d, i) with a finely executed opposed engraved element (Figure 1b); the third is from a plain carinated bowl. Both of these types of decorated sherds are common wares in 9th century to early 14th century Alto phase ceramic assemblages in East Texas (Stokes and Woodring 1981; Story 2000:14; Shafer 2006:Table 1).

The other decorated sherds at 41LN465 are possibly from Davis Incised, Dunkin Incised, or Kiam Incised vessels (see Suhm and Jelks 1962:35, 37, 89). These include a body sherd with closely-spaced parallel incised lines, and another body sherd with a single row of large tool punctations.

CONCLUSIONS

Are these two prehistoric Leon County sites Prairie Caddo sites (cf. Shafer 2006)? Or are the Caddo ceramics found on them evidence of trade and exchange between East Texas Caddo groups living along the Neches River, ca. 50 miles to the east, and native Post Oak Savanna aboriginal groups? The low number of sherds from different vessels, and the small sample of sherds, from both sites suggest that they were not occupied for long periods of time, either by East Texas Caddo peoples on hunting forays to bison grounds beyond the Trinity and Brazos rivers, or by other aboriginal groups that lived in the Post Oak Savanna and interacted with the Caddo (Fields 2004:367). At this time, given the limited investigations of both Leon County sites, it is impossible to know if other aspects of the distinctive Prairie Caddo material culture (i.e., Gahagan knives, Bonham-Alba arrow points, and deer metapodial beamers, see Shafer 2006:40-41) might be present at them. What can be said at this point is that the two Leon County sites provide further evidence for the wide-spread distribution of prehistoric Caddo pottery in the Post Oak Savanna and Trinity River basin. What more might be said will depend on continued investigations, radiocarbon and thermoluminescence dates from discrete contexts at the sites, and chemical compositional analysis of the Caddo pottery to ascertain its locale of manufacture.

ACKNOWLEDGMENTS

Thanks to Bo Nelson for recording the sites and providing me with information about them.

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Clovis Points from Blanco, Coryell and Williamson Counties, Central Texas

David L. Calame, Sr.

ABSTRACT

Three Clovis points, from Blanco, Coryell and Williamson counties are documented, illustrated and discussed. Detailed illustrations are provided for each specimen.

INTRODUCTION

As a result of conversations with several artifact collectors, I was able to study three Clovis points from Central Texas. One specimen each came from Blanco, Coryell, and Williamson Counties (see Figure 1).

These artifacts are described in this paper. The illustrations provided here were done by Richard McReynolds of San Antonio, Texas.

Figure 1. Locations of Clovis Points Reported in this Paper. 1, Blanco County, 2, Coryell County; 3, Williamson County.

Specimen # 1 Blanco County

(Figure 2)

A fragmentary Clovis point was surface collected from site 41BC152. The site is on an eroded terrace on the south side of North Grape Creek, with thin soils to bare rock, and a previously deflated, light lithic scatter. No other time-diagnostic artifacts were found at this site. A burned rock midden exists due north of and across North Grape Creek from 41BC152, but the finder did not have time to further investigate this midden.

Attributes of this Clovis point are listed in Table 1 below. This fragmentary Clovis point is made of slightly coarse-grained, gray Edwards chert. The point is thinned at the base by a single, short flute on the reverse side, which terminated in a hinge. Lateral edges and the basal concavity are heavily ground. As can be seen in Fig. 2, this specimen's lateral edges flare outward strongly at the base. Grinding on the both lateral edges extends to the fracture, suggesting the fracture occurred within the hafted area of the point. The fracture itself appears to have occurred by pressure being applied to the obverse face. That face exhibits remnants of three large percussion flakes, while the reverse, two large percussion flakes. Examinations under a UV light produced a yellow-orange response, which is well within responses expected from Edwards cherts.

Specimen #2 Coryell County

(Figures 3, 4)

A fragmentary Clovis point was uncovered underneath a large roof spall in a rockshelter at the Chrisner's pay dig site. A small portion of the

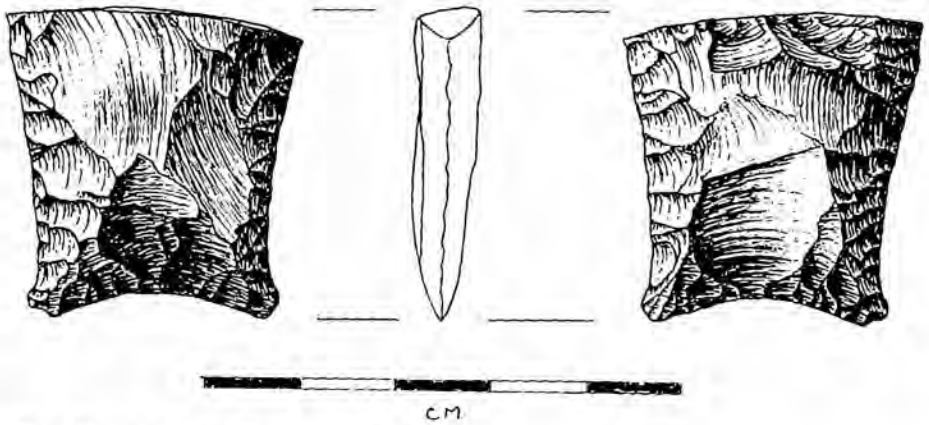

Figure 2. Clovis Point Fragment from Blanco County, Texas.

midsection of this point is missing, and fractures surfaces within the missing section are of a much lighter shade than the rest of the artifact, and appear very fresh in observation under natural light and under UV light. So it is possible the point was broken either by digging tools or by the removal of the roof spall itself. It is seems quite apparent this point was not fractured in antiquity. This specimen fluoresced a classic Edwards chert "pumpkin orange" under the UV light analysis. The specimen exhibits very smooth surfaces even on flake ridges, which is reminiscent of stream rolling. It is possible that this artifact spent some amount of time in the river before being transported into this rockshelter, perhaps by folks during a time period later than Clovis.

The basal area of this specimen is very uncharacteristic of Clovis projectile points in that it is convex rather than concave. It has obviously been reworked after fluting had been accomplished, however, the reworked area appears just as smoothed and buffed as the rest of the artifact, suggesting the reworking occurred long ago, and the area of reworking has endure the same processes of smoothing and buffing that the rest of the point has been subjected too. Pressure flaking of the basal area appears to have produced a slight rectangular stem. Whether this was intentional or not is unclear. What is clear is that re-workings have obliterated the origins of the flutes themselves. The obverse base was thinned by a single flute, while the reverse appears to have been fluted twice.

Lateral edges on this specimen are heavily ground, and the obverse face exhibits remnants of four percussion flakes. The reverse face exhibits remnants of four percussion flakes as well. The distal tip has been blunted slightly, and appears to exhibit a much heavier sheen than the rest of the artifact and maybe evidence of use wear. Attributes of this artifact are found in Table 1.

Based on the author's experience in flintknapping and observing breakage patterns on bifaces, he does not think this is a manufacturing failure. However, a

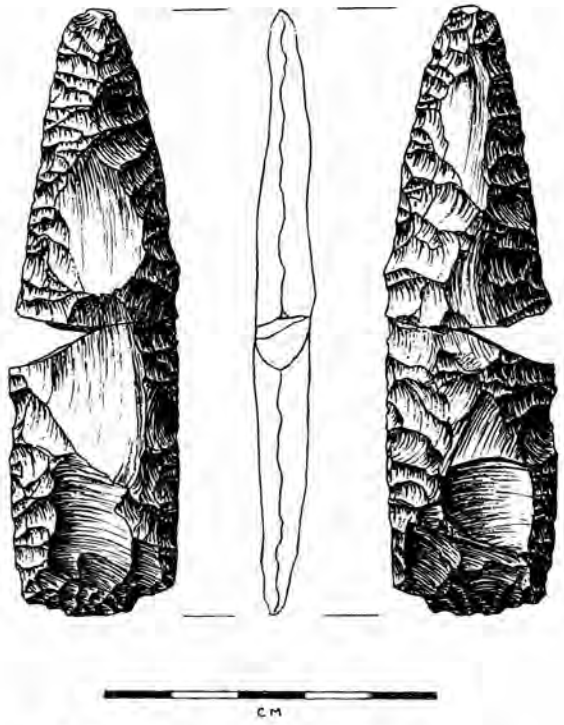

Figure 3. Clovis Point from Coryell County, Texas.

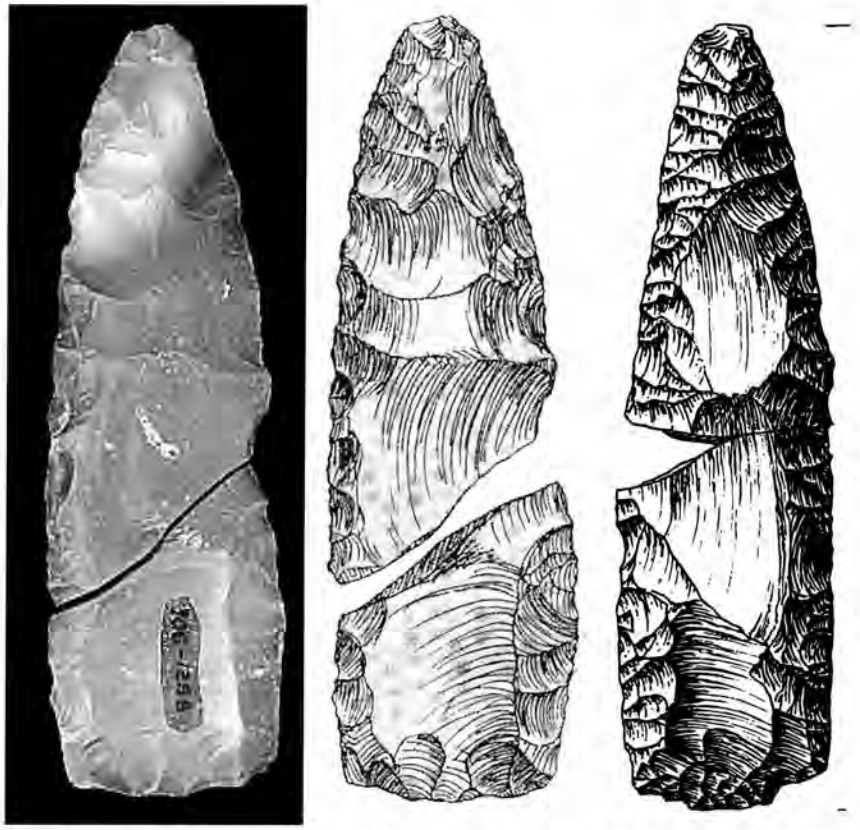

Figure 4. Comparison of Clovis Preform from Kincaid Rockshelter with Coryell County Clovis Point. The two images on the left are from Kincaid Rockshelter (photograph adapted from *Texas Beyond History*, and the drawing is from Collins 2004, Fig. 3-11a). Sizes are approximate.

Clovis perform from Kincaid Rockshelter (Collins 2004:Fig. 3-11,a) has some striking similarities to the Coryell County artifact (see Figure 4). The Kincaid specimen is larger, with a clear manufacturing break. However, the Coryell specimen retains some features (flake patterns and basal edge shape) found on the Kincaid perform.

Specimen #3 Williamson Co.
(Figure 5)

This is a complete Clovis point made on moderately patinated, high quality, tan Edwards chert. This artifact was discovered during non-scientific excavation of a burned rock midden. It is said to have been found in loose association with Nolan points, within the midden itself. The site is 41WM690. The site, originally recorded by Prewitt and Associates in 1985, is described as "a large burned rock midden" along the banks of Cowan Creek, just upstream from it's confluence with the Berry Creek. The site was known to local collectors as one of the "richest sites" in the area, referring to the incredible amounts of artifacts found there. In addition, the site has also produced as many as four Late Prehistoric burials.

The site is situated near a strong spring, which feeds Cowan Creek and sits in the amidst abundant lithic resources. The site was investigated again in 1998 by Horizon Environmental Services, who did a site update and testing ahead of the development of the Sun City project.

The most noteworthy attribute on this complete Clovis specimen is an impressive impact fracture that originated at the distal tip on side 2 of the specimen, then rolled over and took off the left lateral edge. The impact fracture terminated in a hinge within the hafting area. Most likely, the hinge occurred as a result of the surface pressure being applied to the lateral edge by the hafting itself. This impact fracture may have caused the hafting to loosen, and the point may have

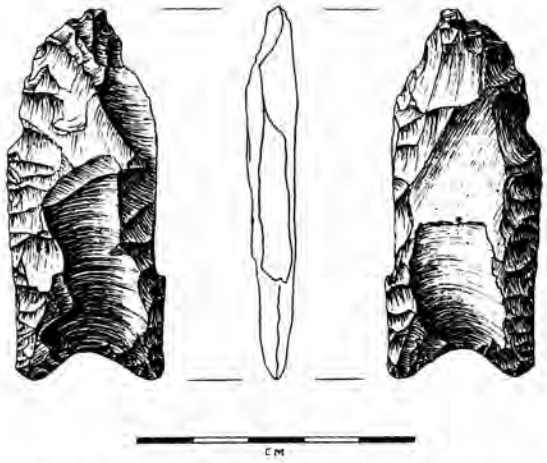

Figure 5. Clovis Point from Williamson County, Texas.

then been discarded, even though the point was not fully exhausted. This is a phenomenon not unexpected in a chert rich area, where, once the hafting has failed, mounting a fresh point would not jeopardize material conservation as it would in regions where lithic sources might be scarce. This specimen fluoresced pumpkin-orange as would be expected of Edwards formation cherts.

The impact fracture itself has been obliterated by reworking 10.76 mm below the distal tip, apparently for the purpose of using the discarded point in some sort of expedient tool, possibly in scraping activities. The reworked edge, however, is patinated in the same manner as the rest of the point, so the re-use

Table 1. Measurements for Clovis Points from Blanco, Coryell and Williamson Counties. All measurements are in centimeters.

Specimen	1	2	3
County	Blanco	Coryell	Williamson
Material	Edwards	Edwards	Edwards
Max. Length	3.31	9.25	6.74
Max. Width	3.09	2.56	2.74
Basal Width	2.58	2.41	2.62
Base to Max. Width	3.31	3.92	1.77
Max. Thickness	0.743	0.921	0.908
Base to Max. Thickness	3.31	5.52	4.78
Max. Flute Thickness	0.564	0.63	6.67
Basal Concavity	0.285	Reworked	0.637
Obverse Flute Length	None	2.39	3.23
Obverse Flute Width	None	1.31	1.9
Reverse Flute Length	1.61	2.45	2.16
Reverse Flute Width	1.5	1.27	1.65
No. Flutes Obverse	0	1	2
No. Flutes Reverse	1	2	1
Grinding Length Left	3.28	2.17	3.05
Grinding Length Right	2.99	2.34	1.9
Basal Grinding	Yes	Reworked	Yes
Fracture Type	Bending	Complete	Impacted
Patinated	Slight	No	Yes

of this point as a tool occurred before or early in the patination process.

Lateral and basal edges of this specimen, where present, are heavily ground in the hafting area. One face retains remnants of four percussion flakes, while the reverse face retains remnants of three percussion flakes. The basal concavity of the reverse retains the negative bulb from removal of a fluting flake. The fluting flake scar on the other is very erratic. This base is thinned by two flutings, while the reverse base was thinned by a single flute. Attributes of this artifact can be found in Table 1.

DISCUSSION

This paper reports fluted Clovis points and their metric attributes from central Texas. These artifacts attributes add to the growing database on Texas fluted Clovis points and also to their distribution. All three artifacts described in this brief paper have been reported to the Texas Fluted Clovis Point Survey, continuing to be compiled by David Meltzer of Southern Methodist University (see Bever and Meltzer 2007).

ACKNOWLEDGMENTS

The author wishes to thank Don Black, John Haberer and Darrell Crain for the loaning of these artifacts to the author for documentation purposes and the trust they exhibited in doing so. Special thanks goes to Mr. Richard McReynolds for his superb illustrations. Last but certainly not least, thanks to *La Tierra* editor, Dr. Tom Hester, for making this paper presentable for publication.

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Test Excavations at Krause Springs (41BT78) Burnet County, Central Texas

Robert Wishoff

ABSTRACT

This report documents a test excavation conducted at 41BT78, a burned rock midden and open camp site at Krause Springs, a private park near Spicewood, Burnet County, Texas. Surface collections have also provided data on the range of occupation at this site, as well as observations on the general nature of erosion of the deposits.

INTRODUCTION

Krause Springs is a private park located near Spicewood, Burnet County, Texas (Figure 1). The site (41BT78) consists of a large campsite marked by extensive occupational debris. It is situated on the south bank of Cypress Creek near its confluence with Lake Travis (Figures 2, 3). The site extends for a distance of at least 270 meters north-south and 90 meters east-west. There is a burned rock midden feature and a great quantity of lithic scatter , and burned rock spread across nearly the entire park. Mussel shell fragments and *Rabdotus* snails are also found scattered about the site area. The owner, Elton Krause, has allowed surface collection of artifacts on the property for some years. An informal review of projectile types found on the property by this author and 20 or so local amateur collectors (Figure 4) include (in no particular order) Abasolo, Catan, Scallorn, Perdiz, Ensor, Fairland, Travis, Lange, Castroville, Marshall, Montell, Pedernales, Nolan, Early Triangular and one possible Midland. In addition to one corner tang biface found by the landowner, there have been numerous fragments of triangular and teardrop-shaped preforms and perhaps knives found at the park.

The site was originally recorded in 1967 by J. David Ing. Later, in 1970, Elton R. Prewitt filed an updated site survey record. He noted the large burned rock midden and suggested that the site might date to Archaic times.

Krause Springs is located within the Balconian biotic province (Blair 1950). There is a large free-roaming population of whitetail deer, as well as exotic

Figure 1. Location of Burnet County, in Central Texas.

species purchased by the landowner. The landowner also raises some cattle which, at times, also roam the park. The vegetation is dominated by live oaks, wild pecan trees and spicebush (*Lindera benzoin*). Early pioneers in the area named the nearby town of Spicewood after the latter plant. Large cypress trees grow at the spring's margins.

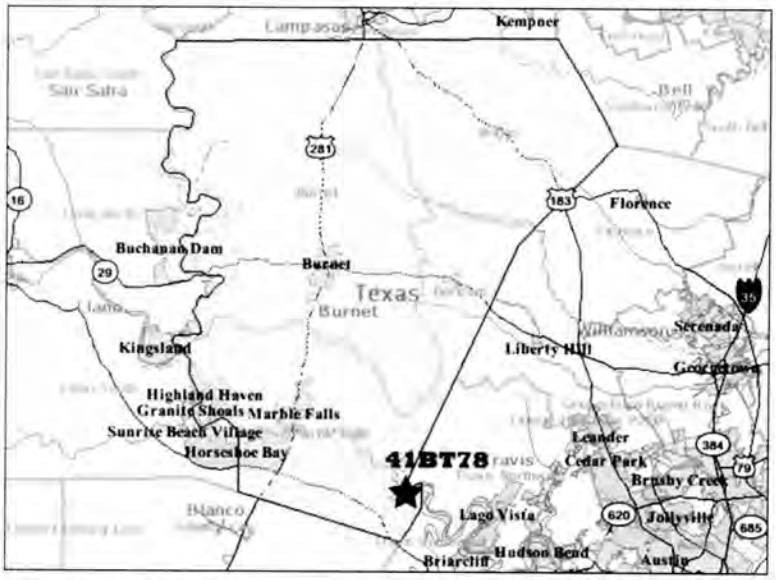

Figure 2. The Area Around the Krause Springs Site, 41BT78.

Geological Setting

According to the *Blanco and Burnet County Soil Survey*, 41BT78 is comprised of the Hensley series which consists of shallow, well drained, gently sloping to sloping soils on erosional uplands (Dittemore, Jr. et al. 1979). These soils formed in clayey residuum from limestone. They occupy hilltop positions and have slopes of 1 to 8 percent. Further, a survey taken by L&L Drilling Co. in preparation for a water well, defined the stratigraphy at 41BT78 as including sand and gravels from surface to 3 feet, red clay from 3 to 6 feet, and brown sand from 6 to 9 feet in depth.

Figure 3. Satellite image of 41BT78 Area.

The History of Krause Springs

Krause Springs, located 34 miles west of Austin in Spicewood, is situated on a bluff overlooking Cypress Creek. Elton and Jane Krause bought the property in the 1950s. The park actually contains 32 springs, the main spring (output is 70 gallons per minute) feeds through an artificial pool and over a travertine cliff into a lower pool which is a part of Cypress Creek. Originally a pig farm, the Krause family has done extensive landscaping, creating a large garden in front of their house, and building many rock tables throughout the park; they have made Krause Springs one of the top park attractions in the state. Krause Springs is listed on the National Register of Historic Places.

Since the site's original survey in 1975, the owner has constructed many more park benches and other facilities for camping. In addition, there is now a plowed field east of the main mounded burned rock midden area. The site has suffered great erosion in the past 30 years and the owner has dumped much dirt in roadways and in the main visitors' camping area in an attempt to control this erosion. It

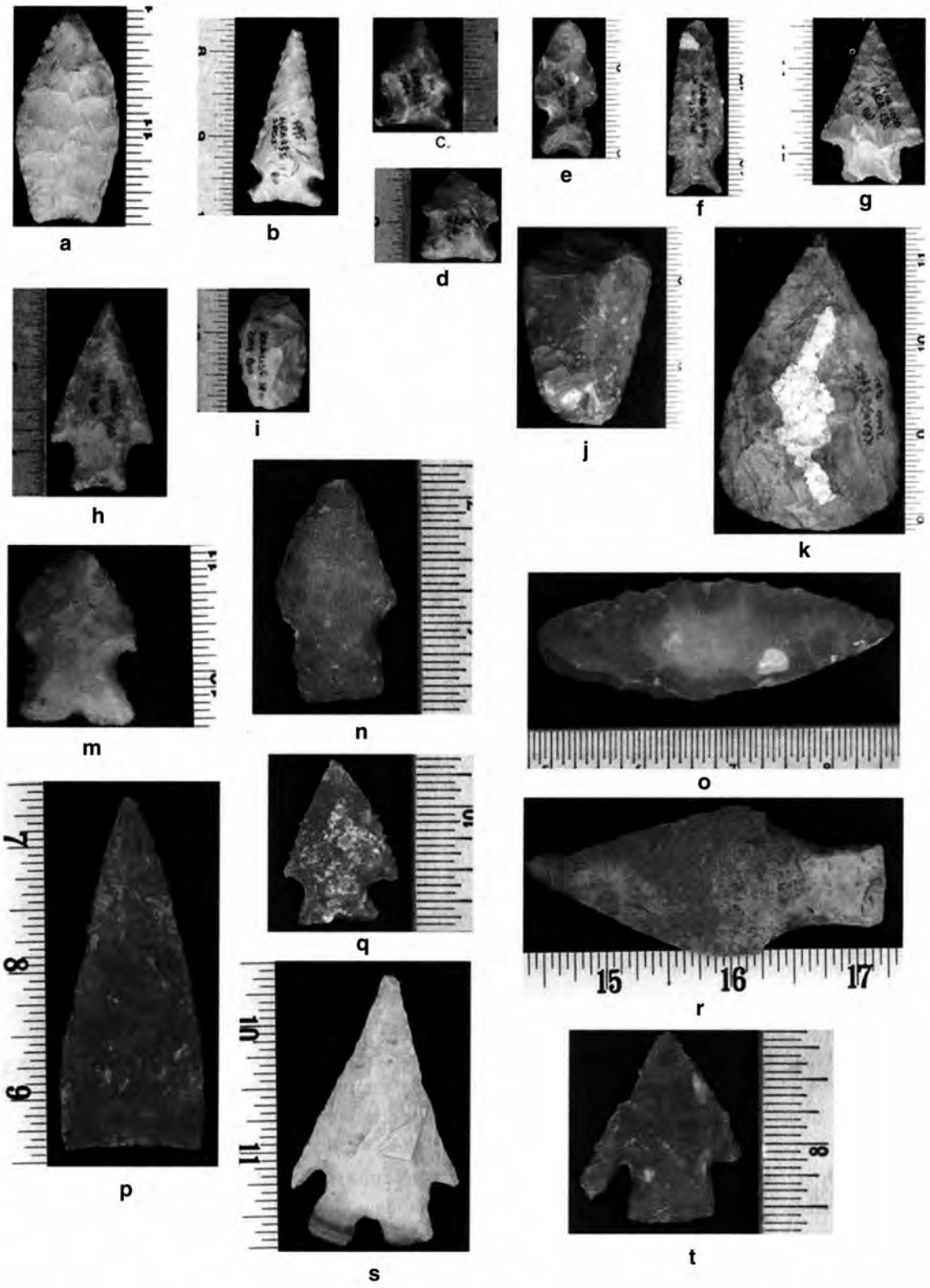

Figure 4. Sample assemblage of projectiles and other lithics surface-collected at 41BT78. a, possible Midland; b, Edwards; c and d, Fairland; e, unknown Archaic projectile; f, Darl; g and h, Pedernales; i, ovate unifacial microlithic tool; k, unifacial Clear Fork type tool; l, large preform; m, possible Frio; n, unknown stemmed projectile; o, 2-beveled biface; p, Kinney; q, unknown projectile; r, Nolan; s, Montell; t, Castroville.

is questionable whether the original estimate of cultural deposits 3-5 meters deep is still plausible. During the summer months the park is increasingly filled with visitors and this heavy use of the land will impact occupational deposit erosion for some time to come.

The owner allows visitors to surface collect within the park, and thousands of projectile points have been picked up by collectors. Over the years, this collected material has shifted from arrow points to dart points and other earlier materials.

After walking this site for over 15 years, this author was invited by the landowner to excavate one 2 m x 2 m unit. The area to be excavated was chosen by the landowner, and was located behind his home, which is constructed over the northwest edge of the site's burned rock midden. In the past, the owner has found a range of projectiles and tools in this location and he was curious as to what a formal excavation might uncover at this specific location. As far as this author knows, this has been the only formal excavation ever performed at this site.

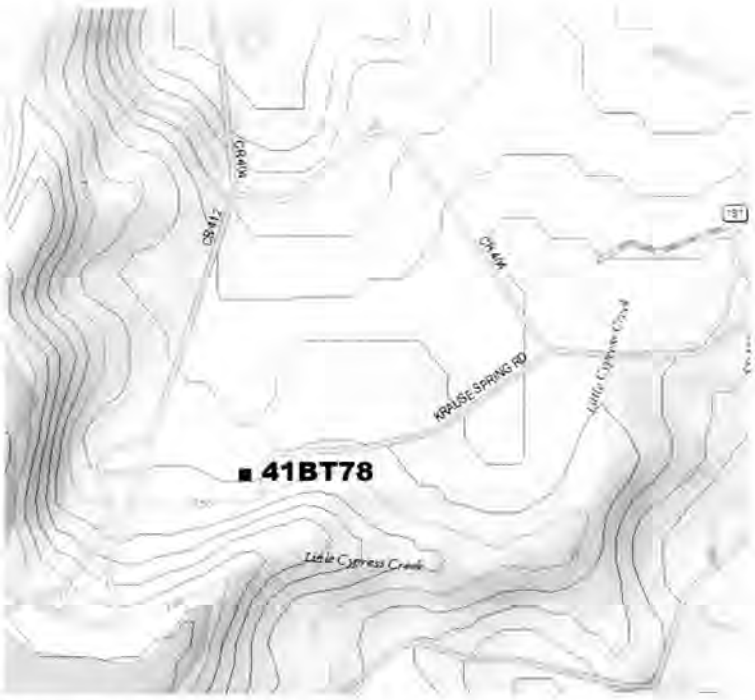

Figure 5. Topographic Map Showing 41BT78 Locale.

PREVIOUS INVESTIGATIONS IN THE AREA

There are relatively few fully documented sites within the immediate area of 41BT78. Directly adjacent to the site, and the earliest recorded, is the Grelle Site (41BT1). First recorded in 1937 and excavated by J. Charles Kelly in 1940-41, the site proved extensive and deep. The study, unpublished with only monthly reports as reference, focused primarily on the site's geomorphology. Of the 450+ artifacts excavated, a large percentage were manos. Of the few projectiles which were recovered, there were only written descriptions of the "occasional bird point" and recovery of a few stemmed-base dart projectiles, likely Pedernales. Recoveries of several Nolan points are also mentioned. More study is needed of the artifact assemblage from this important site (Kelly 1941). There were several burned rock middens, some extending to a depth of more than 2 meters. The highlights of the excavations were in the recovery of six burials. Two of the burials featured distinctive deer rib bone amulets placed at waist, ankle or neck. The rib bones were sawn longitudinally and re-glued by the Indians, who also incised designs and patterns on them. All six internments were located within a small area and covered by stone slabs, which included a metate. The field notes are the only records of this excavation, and no report was ever published. In 1995, this author found an Andice, on the surface near an unexcavated burned rock midden, located to the southeast of the Kelly excavations.

Krause Springs is one of three major springs in the area, the other two being within the LCRA's Double Horn Resource Area which contains 15 recorded sites. Recent excavations in one site (41BT37) in 2004 found projectile points ranging from Perdiz to Nolan, but found no Paleoindian artifacts (Prikryl et al, 2004).

Due to the fact that Krause Springs is located near Lake Travis, an artificial reservoir, there are likely to be many unrecorded sites nearby. WPA projects in the early 1940s recorded 69 sites in the reservoir's flood plain before dam construction. Prikryl et al. (2004) has report that the reservoir covers over 77 sq km

Figure 6. A view of the falls and main swimming hole at Krause Springs 41BT78.

along a distance of 103 km, and they estimate that several hundred sites were likely missed based on current survey standards (Prikryl et al. 2004).

The Wall Ranch (41BT378), recently recorded by the author, is located to east of 41BT78, and is currently being investigated. The author has documented finds of prehistoric materials from this 1880's homestead site as well as a prehistoric assemblage of surface artifacts. Within this assemblage are projectiles ranging from Late Prehistoric arrow points to one Late Paleoindian Angostura dart point. Since the investigation into this site is just beginning, we will have to wait to see if intact cultural deposits are found that can help to accurately define this site and place it within the context of other sites in the area. The author is also assisting the landowner in possibly locating the original 1880's homestead on the property.

EXCAVATION PROCEDURES AT 41BT78

Since the site is listed in the National Register of Historic Places, special care was taken in choosing an area to excavate. Because the purpose of the test excavation was to ascertain the degree of erosion which has taken place on the site through its use as a park, the author did not wish to disturb areas which were not the subject of construction or other activities. The landowner was presented with several likely areas for research and chose one behind his house in a spot where, after performing some light construction, he had earlier discovered a corner tang knife. This author and other collectors have repeatedly found other Archaic artifacts in parking lot, lawn and drive all within 10-20 meters of the excavation locale.

Excavation strategy included laying out one 2 m x 2 m unit and trowel-digging the unit in arbitrary 10 cm levels. All materials were screened through ¼" mesh. All flakes and organic remains (very small quantities of *Rabdotus* snails) were extracted from the screen, counted and catalogued. When possible, a photographic record was made of artifacts found *in situ*. Excavation continued through 55 cm to ensure that the full depth of occupational deposits had been reached.

EXCAVATION RESULTS

The depth of occupational materials in the chosen location was very shallow, extending to about 35 cm.

Figure 7. View of the surface at Unit A before excavation.

Figure 8. View of excavation site and work area behind the Krause home.

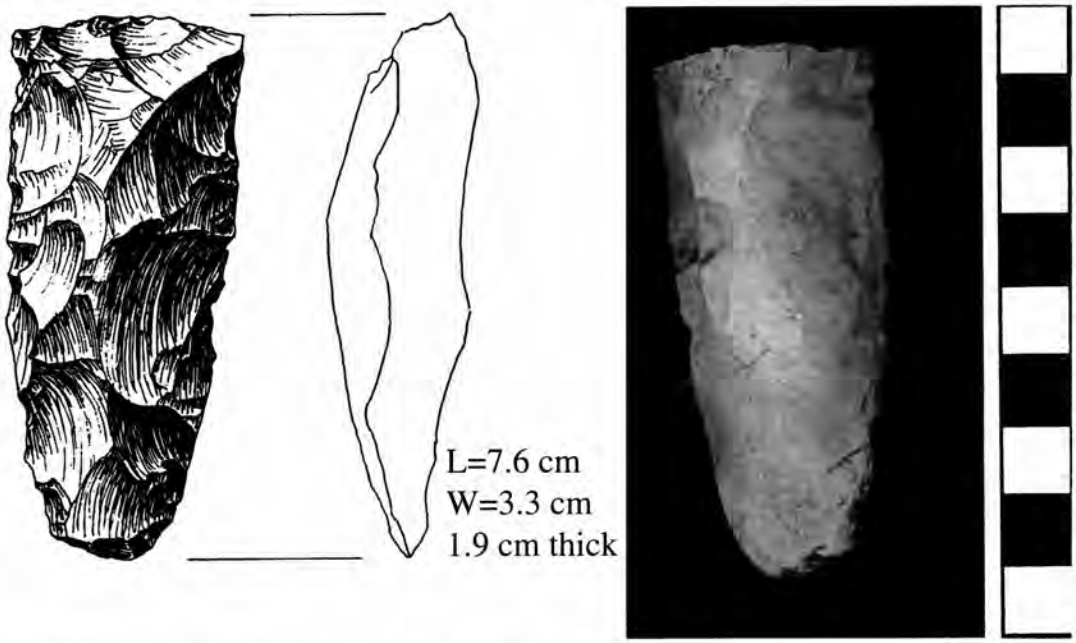

Figure 9. Clear Fork Specimen #1, 41BT78. Both sides are shown, along with a longitudinal cross section. Dimensions of the artifact are shown in the illustration.

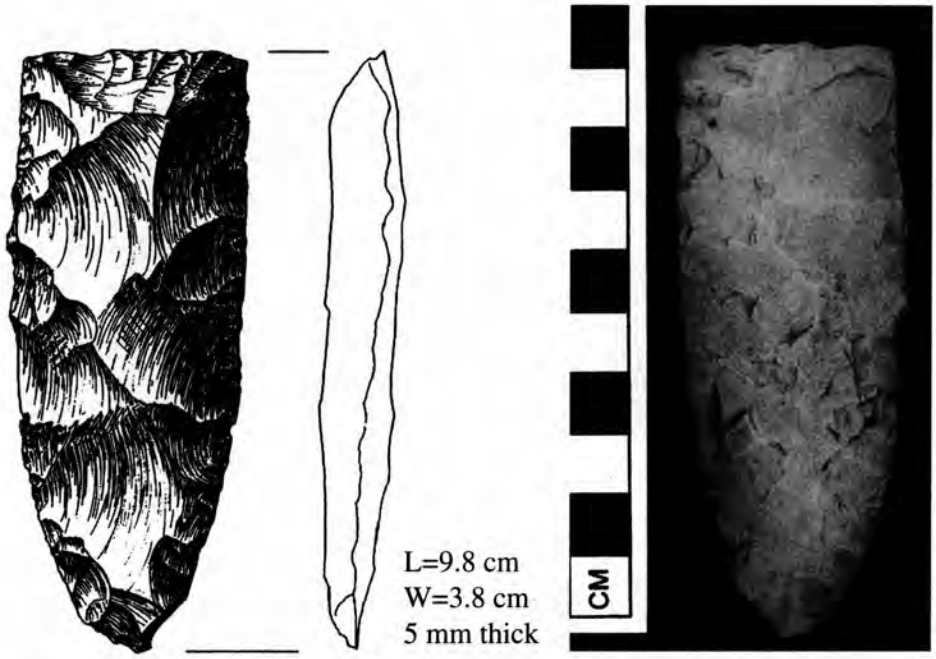

Figure 10. Clear Fork Specimen #2, 41BT78. Both sides are shown, along with the longitudinal cross section. Dimensions of the artifact are shown on the figure.

Area enlarged in Fig. 11.

Clear Fork specimen #1

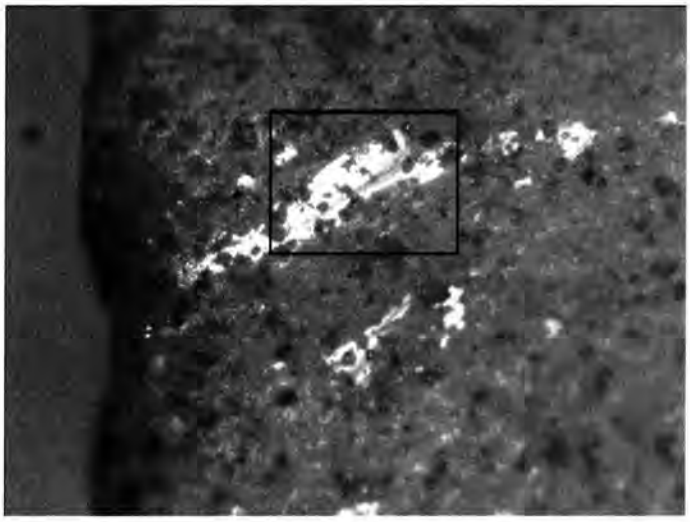

Figure 11. 50X photomicrograph of Clear Fork specimen #1 showing area of abrasive sleeks over topography of tool corner. Rectangle shows area enlarged in Fig. 12.

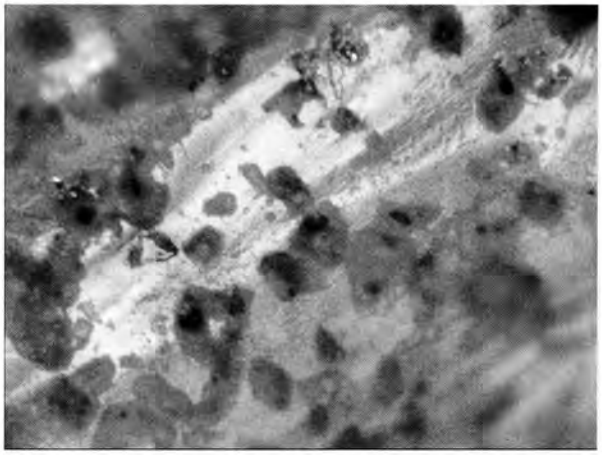

Figure 12. 200X photomicrograph of rectanglular area indicated in Fig. 11.

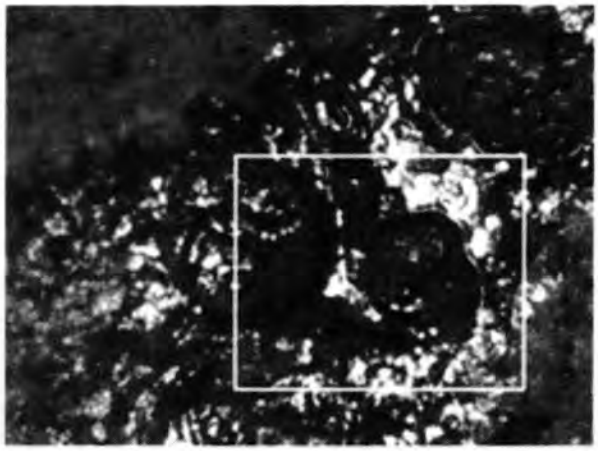

Figure 13. 50X photomicrograph of Clear Fork specimen #1 showing Area B within residue deposit. Rectangle shows area enlarged in Fig. 14.

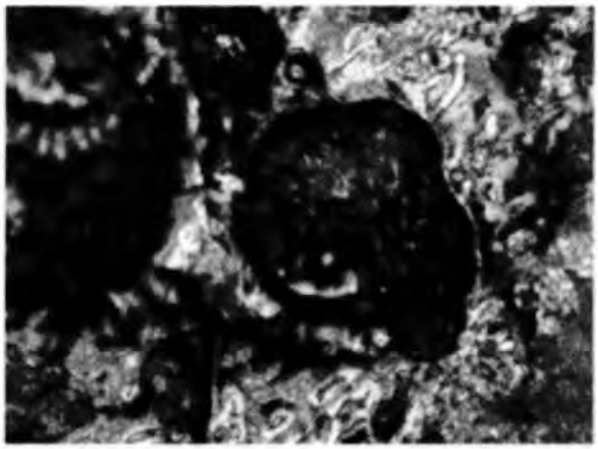

Figure 14. Figure 14. 200X photomicrograph of rectangular area indicated in Fig. 13.

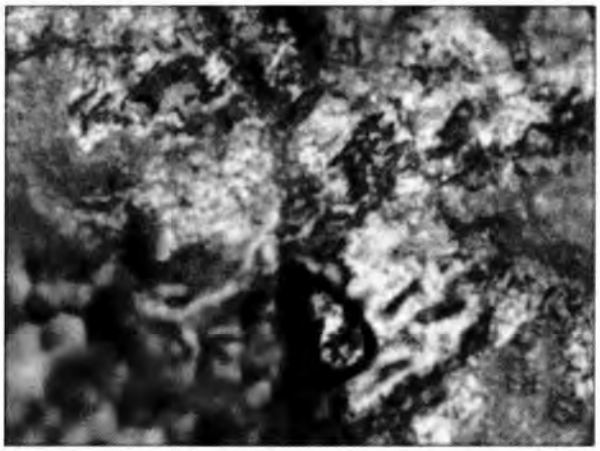

Figure 15. 200X photomicrograph of Area C showing randomly oriented fluid striations in residue.

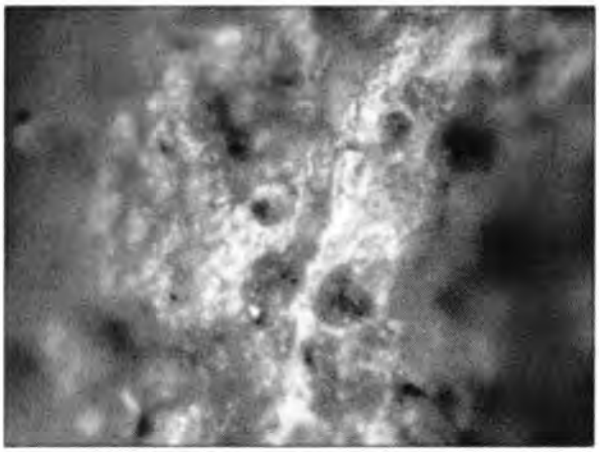

Figure 16. 200X photomicrograph of Area D showing abrasive polish on high topography.

While the assemblage of amateur-collected surface artifacts was weighted toward Archaic types, what we recovered from the excavation was distinctly Late Paleoindian.

Level 1 (0-10 cm) was extremely rocky, the rocks present being fire cracked-rock from burned rock midden activities. It appears as if the Krause home was built on top of a portion of the burned rock midden. Artifacts excavated include one Clear Fork biface found just at the surface and a basal fragment of an Angostura found in screened materials (Turner and Hester 1999).

Level 2 (10-20 cm) yielded an incised piece of limestone found in the screen and one Clear Fork

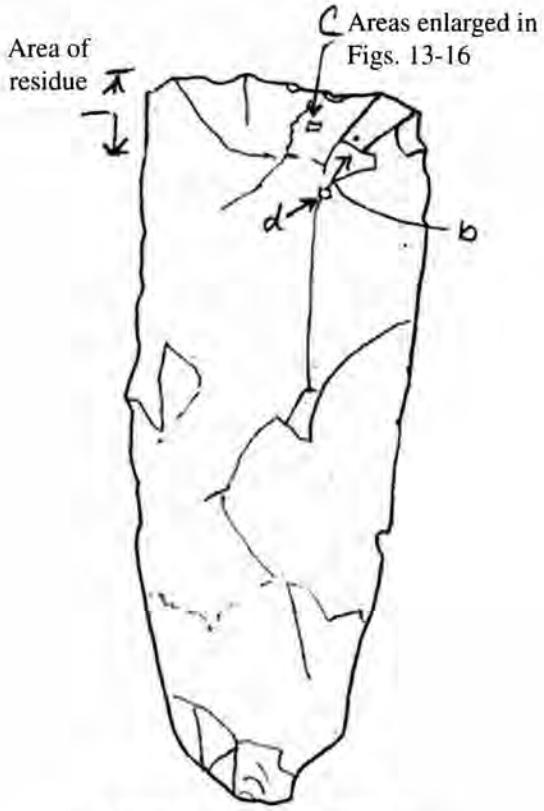

Figure 17. Photo of "bit" end of Clear Fork specimen #1 showing residue.

Figure 19. Reworked Paleoindian Projectile Point from Level 3 of Test Unit. The specimen is 22 mm long, 18 mm wide, and 5 mm thick.

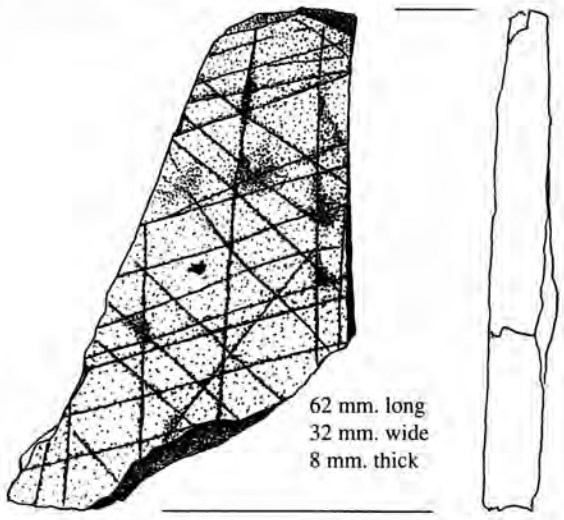

Figure 18. Illustration of incised limestone fragment.

biface found in situ at 20 cm. One small uniface was also found in the screen.

Level 3 (20-30 cm) continued within the occupational deposit. We found a small Late Paleoindian projectile point *in situ* at 28 cm, directly on top of powdery limestone which comprised the very bottom of occupation.

Excavation probes continued to 55 cm, at which point only sterile deposits were encountered.

THE ARTIFACTS

Bifacial Clear Fork Tools

Two bifacial Clear Fork tools were excavated at the site (see Figures 9, 10). Ray (1941) describes six types of Clear Fork tools, basically chipped stone artifacts containing steeply beveled bit edges and triangular to subtriangular profiles (Hudler 1997). Working bits have been found with a range of profiles from straight to strongly convex. Clear Fork tools are found both as unifacial and bifacial varieties, the former temporally associated with Archaic times, the latter, Paleoindian. (Turner and Hester 1999). Dial (in Collins and Dial1998:507) has written: "The preponderance of evidence points to bifacial Clear Fork tools first occurring in Late Paleoindian and very Early Archaic times, preceding unifacial varieties by several thousand years."

Hudler (1997) performed extensive use-wear analysis of replica Clear Fork tools, comparing polishes observed on the bit ends of the replicas to those found on artifacts from archaeological contexts. He found that many were associated with woodworking and other contact with vegetal matter (Hudler 1997). However, there seems to be no consensus as to which types of Clear Forks were used for what purpose, or whether there was any consistency to their use by function and type (Collins and Dial 1998).

Use-wear analysis of the two excavated Clear Fork tools was performed by Marilyn Shoberg, use-wear analyst for the Gault Project, Texas Archeological Research Laboratory. The Clear Fork tools (Figures 9, 10) were examined at both 50X and 200X magnifications. Both specimens are made of a "sugary" quartzite, with a rough surface on Specimen #1, and smooth surface on Specimen #2.

Clear Fork Specimen #1 (Figure 9) appears to have been used, exhibiting patches of polish and abrasive sleeks in several places (Figures 11, 12, and 16). Shoberg observed that there were no long sleeks within the polish which were comparable to those found on Clear Fork tools used experimentally on wood fibers.

In addition, Shoberg observed a dark-brown material—a bubbly, shiny residue—on Clear Fork Specimen #1 (Figures 15-17) which exhibited striations and cracks not organized like motion indicators, i.e., directional. Composition of this residue is unknown at this time.

Clear Fork Specimen #2 (Figure 10) had no visible polish at any magnification, and thus would appear to have not been used. Collins, however, in a personal communication (2006), observed that the artifact could have been in continuous use and therefore continually resharpened. The "burin"-like facet seen in Figure 10 may have resulted from impact during the time the tool was hafted and used. Or it may be related to resharpening efforts directed at the bit edge (see upper left corner of photograph in Figure 10). Furthermore, if the tool was resharpened after its last use, then microphotographic analysis might reveal nothing about the artifact's function.

Incised Limestone Fragment

The incised artifact found at Krause Springs (41BT78) is similar in design to four engraved cobbles found at Gault in Clovis contexts. These are described as having "parallel line sets (which) intersect similar sets at various angles to form rectilinear or diamond-shape(s)." (Collins et al. 1991:15; Collins et al. 1992; Hester et al. 1992) The pattern formed on the Krause example exhibits a much "tighter" grid, looking more like incised pebbles and pecked stones found in Val Verde County which exhibited large spider web patterns (Chandler 1991). It is unclear as to whether this specimen is a fragment of a larger image. This specimen was recovered just below a Clear Fork tool and just above a single Late Paleoindian projectile (described below) indicating a possible Late Paleoindian context for this artifact.

Late Paleoindian projectile point

A Late Paleoindian projectile (Figure 19) was recovered from a depth of 28 cm within level 3 of Unit A. This projectile is heavily ground at the base, appears extensively resharpened and ultimately discarded by its user.

This projectile does not fit any specifically-described type for Late Paleoindian projectiles. It has no flaring "ears" as does a Golondrina, nor does it exhibit small vertical flake removal at the base, as described for a Plainview (Turner and Hester 1999).

Context in which the projectile was recovered (below Angostura and Clear Fork Tools) as well as exhibited basal grinding allow for speculation that this projectile dates from the Late Paleoindian period (7080 B.C.–6830 B.C.). Though by no means universal, Kooyman speculates that basal grinding, actually a true polish, is characteristic of Paleoindian lithic manufacturing technology and served to protect lashing from being cut by sharp tool margins (Kooyman 2001).

CONCLUSIONS

Although the author and other collectors have repeatedly found Archaic-era artifacts in the parking lot, lawn and driveways at Krause Springs Park—all within 10-20 meters of the excavation locale, no Archaic or later artifacts were recovered during the test excavation. These results may well reflect extensive erosion having taken place at the site. It is unknown whether similar degrees of erosion have deflated Late Prehistoric and Archaic contexts in other areas of the park. However, a pedestrian survey of the park continues to show that Archaic artifacts are continuing to be exposed, and evidence of Late Prehistoric occupation has become exceptionally scarce.

The excavation results suggested that there are other, possibly undisturbed Paleoindian deposits at Krause Springs Park.

ACKNOWLEDGMENTS

Special thanks to the Krause family for their hospitality and to Richard McReynolds for his excellent artifact drawings. Special thanks also to Marilyn Shoberg and the Gault Project, Texas Archeological Research Laboratory.

Volunteers who assisted with the survey and test excavation include (in no particular order): Ken Headrick, Gary Blenden, Joe Roberts, Quinn Elliott, Kathy Safarick, David Zettner, Tom Garrett, Levi Garrett, Randy Severs, Brad Wallace and Charles Swenson. Thanks also to Tomye Folts-Zettner, Ecologist, National Park Service, for information about indigenous Texas plants. Thanks also to David Calame and Thomas Hester for their support and encouragement.

This paper is dedicated to the memory of Jane Krause.

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A Detachable Atlatl Hook from Travis County, Texas

David L. Calame, Sr.

ABSTRACT

A detachable atlatl hook, made of antler, was found at the Collins site along Onion Creek in Travis County, central Texas. Like some other central Texas atlatl hooks, it has traits that indicate how it was attached to a spear-thrower. Some brief comparative notes are offered on similar specimens from central and lower Pecos Texas.

THE SITE

Reported here is an antler atlatl hook, or spur, found at the Collins Site, 41TV40 (Figure 1). The site is on the south side of Onion Creek, six miles south of Austin, Travis County, central Texas (Figure 1). Scientific excavations were carried out in 1953-1954 by students from the University of Texas, and a detailed report was published by Suhm (1955). This site at one time included a large rockshelter, which was destroyed during quarry operations. Materials from this shelter were then pushed over terrace edges and into gullies bisecting the site, to construct flat working surfaces. Collectors began digging into these "secondary deposits" in search of artifacts. It is very likely that this detachable atlatl hook was originally amongst deposits which remained at, or came from, the destroyed rockshelter.

Figure 1. Location of Travis County, Central Texas.

CIRCUMSTANCES SURROUNDING THIS FIND

The person who owns the artifact made it available for documentation. He describes the site and the context of the find as follows:

> "The atlatl hook was found at the Collins site in Travis County. The camp has been dug up for years. The area was surrounded on the south side by an overhang ledge. A large number of bison bones and teeth came out of this area. We think it was a kill site. The ledge was destroyed (dynamited) by the landlord. A quarry is next to the camp. Then to make matters worse, huge boulders were bulldozed over the top of the debris. Then slurry was pumped on the top. I have seen this area bulldozed three times. Anything that we find is by hard work and luck. I was able to dig under about six feet of debris and got down to unexcavated tan layers.

We have found Early Triangular points in this area. The soil is loaded with snail and flint but few worked pieces. The hook was found in the upper layers of this tan soil. There were no other artifacts found near it. There is no way to measure (no benchmark) but imagine a camp with all layers removed—Archaic and later. Only Early Archaic and older were left behind. The hook was 12 inches into this tan layer."

THE ARTIFACT

This type of artifact is rare in excavated sites in the Texas area. This specimen (Figure 2), which can be described as a detachable atlatl hook (cf. Webb 1957: 43-44), is in an excellent state of preservation (Figure 2). Artifact attributes are documented in Table 1. Worth noting is a 20 degree difference in planes between the hook notch and the attachment notch of this artifact. The artifact does retain some original curvature from the antler tine. It is the author's opinion that this atlatl hook was not attached to the end of a spear thrower, but rather, inserted into a carved receptacle towards the end of the atlatl.

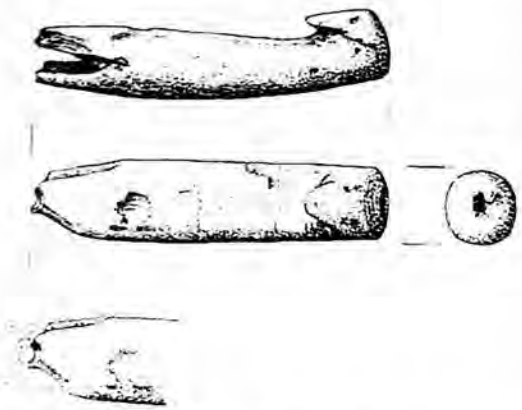

Figure 2. Atlatl Hook from the Collins Site, 41TV40, Travis County, Texas. Drawing by Richard McReynolds.

The specimen's distal end is circular and tapered, allowing a tight, "seated" fit, when it is pushed back into place in the hypothesized atlatl hook receptacle. The attachment notch is cut into the detachable hook far enough to allow the hook plenty of room to slide back into the 'seat' firmly before the drilled perforation is used to "pin" or toggle it into place. Since all force during initiation of a throw would be applied to the 'seated' end of the hook, this design allows for a very solid base from which a spear would be thrown.

Table 1. Measurements of the Detachable Atlatl Hook (in mm)

Length	57.88
Width	13.26
Hook Notch depth	1.22
Attachment Notch depth	8.27
Drilled Hole Radius	2.58
Distance - hole & hook tip	43.66
Proximal to hook tip	13.5
Distance - Top & bottom of pir	9.28
Distance - hole to back of attac	6.9
Distance - distal tip to pin hole	3.5
Proximal Thickness	11.93

An atlatl hook with a very similar hook notch was found in test excavations at 41WM71 (Figure 3). Provenience is described as "Test Pit E, level 3, lot 10." Harry J. Shafer (personal communication 2009), who initially reported this site in 1963, says that the atlatl hook is associated with Darl or Fairland points in the terminal part of the Archaic.

Shafer (ibid.) also notes antler atlatl hooks, with the notch and perforation traits, have been documented from other sites in Bosque, Bell, and Williamson Counties. He considers these be very late in the Archaic, or as Shafer has termed it, the "Texas Woodland" era. Such atlatl hooks are quite similar to some found in the Eastern Archaic (see Figure 4; Webb 1957).

Finally, Martin (1934) published another similar atlatl hook, identified as a detachable spur, found at Shumla Cave No. 5 (Figure 5). The specimen is in the collections of the Witte Museum and is illustrated in photograph form by Shafer (1986:102). Jacob Bourbon (ms.) notes that the specimen is 54.5 mm long, 12.15 mm wide (average) and varies from 3.65 mm at the proximal end to 12.05 mm at the distal end.

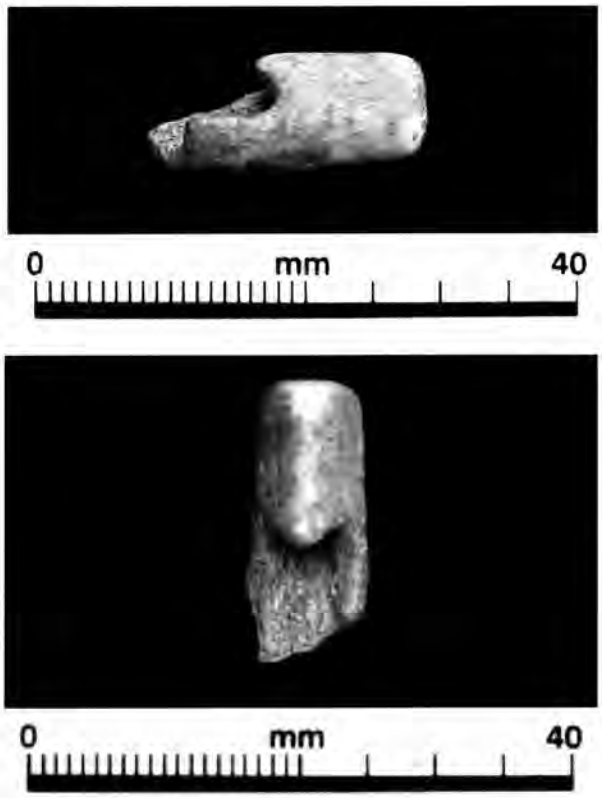

Figure 3. An Atlatl Hook from 41WM71, Williamson County, Texas. Curated at the Texas Archeological Research Laboratory, The University of Texas at Austin. Side and top views shown.

Figure 4. Antler atlatl hook from the Perry Site, Tennessee River, Alabama. Adapted From Webb (1957: Fig. 12,B).

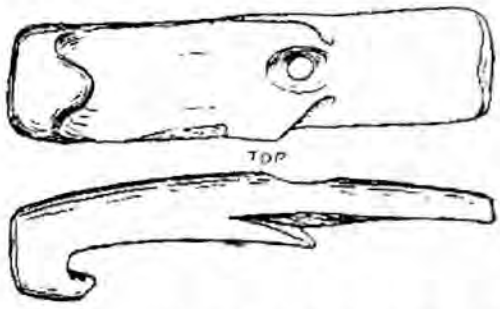

Figure 5. George C. Martin's detachable atlatl hook from Shumla Cave No. 5. (adapted from Martin 1933).

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Update on Black-and-White Pottery Vessels from Central Texas

Malcom Johnson

In 1979, I published a paper in *La Tierra* entitled "Black-on-White Pottery Vessel from Central Texas," that concerned a complete black-on-while vessel reported to have been found in northeastern Gillespie County during the period 185-1870. There were originally two vessels, but only one of the pots was available for illustration (Johnson 1979: Figures 1,2). Ever since that publication, I have been interested in getting the vessel identified or classified. In July 2008, I contacted Dody Fugate, assistant curator of the Museum of Indian Arts and Culture in Santa Fe, Texas, to see if they could add in this task.

On August 5, 2008, Ms. Fugate telephoned me regarding her research with the vessel. It is from the Mimbres/Mogollon culture, and is of a type known as Reserve Black-on-White, dated at A.D. 900-1100. This ceramic type is distributed across southwestern New Mexico, east-central and southeast Arizona, and into northern Chihuahua, Mexico.

That this vessel, and the second one, which I have never seen (said to be smaller), were reportedly found in central Texas places them quite a bit outside of their normal area of distribution. As I noted in the 1979 paper, the family that owns this vessel told me that a relative was one of two early ranchers who rode into an abandoned "Indian camp," found the campfire left burning, and these two vessels nearby.

Aside from a Native American raiding party (Apaches are well documented in the region at the time period) having obtained these from prehistoric sites or as heirlooms in the Southwest, which seems

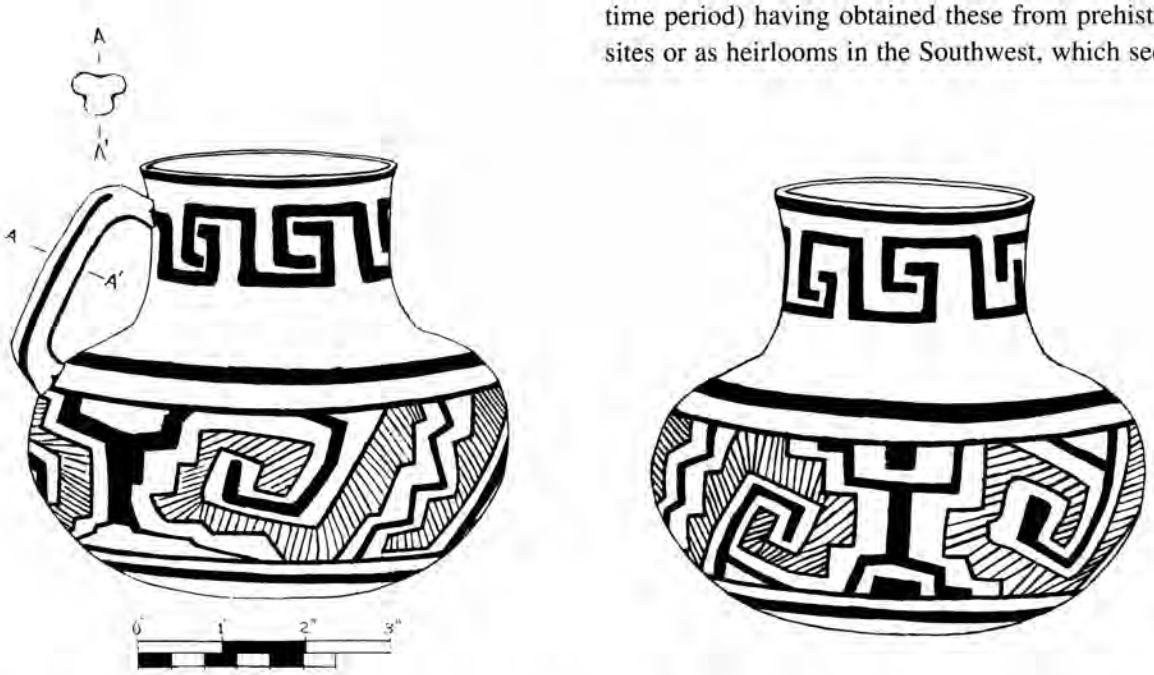

Figure 1. Front and back illustrations of a Black-on-White Pottery Vessels Said to Have Been Found in Central Texas. Originally illustrated in Johnson (1979: Figures 1 and 2).

highly unlikely, it is most likely that these were not actually found at the 1865-1870 campsite. Perhaps these were later obtained by one of the ranchers or someone in his family, and the story of their origin has been lost through time.

In any event, I suggest that these two vessels should not be considered part of the Gillespie County archaeological record.

REFERENCE CITED

Johnson, M.
1979 Black-on-White Pottery Vessel from Central Texas. *La Tierra* 6(4):26-29.