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JESSE TODD, EDITOR

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EDITORIAL POLICY

The purpose of this journal is to provide information on the archeology of the Texas Prairie-Savannah. We solicit articles from avocational archeologists, vocational archeologists and graduate students who have conducted extremely well done research.

As previously mentioned, the focus of the journal is articles on the Texas Prairie-Savannah; however, articles from adjoining areas also are welcome since the boundaries of the prairie-savannah are not well established but have transitional zones. Also, cultural boundaries are not truly dependent upon the boundary of some state that did not exist when the aboriginal inhabitants populated the area.

We prefer that an article not exceed 20 pages; however, there can be (and will be) exceptions.

IF YOU HAVE QUALMS ABOUT YOUR WRITING SKILLS, DO NOT LET THAT PROHIBIT YOU FROM SUBMITTING AN ARTICLE. THE INFORMATION THAT YOU PROVIDE IS MORE IMPORTANT. WE HAVE PEOPLE THAT WIIL HELP YOU WITH THE WRITING.

Sincerely,

Jesse and Antoinette Todd

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INTRODUCTION

Jesse Todd and Lance K. Trask

The Texas Prairie-Savannah Region comprises of 26 counties which are shown in Figure 1. The abbreviations for the counties is provided in Table 1. The general soil zones are illustrated in Figure 2.

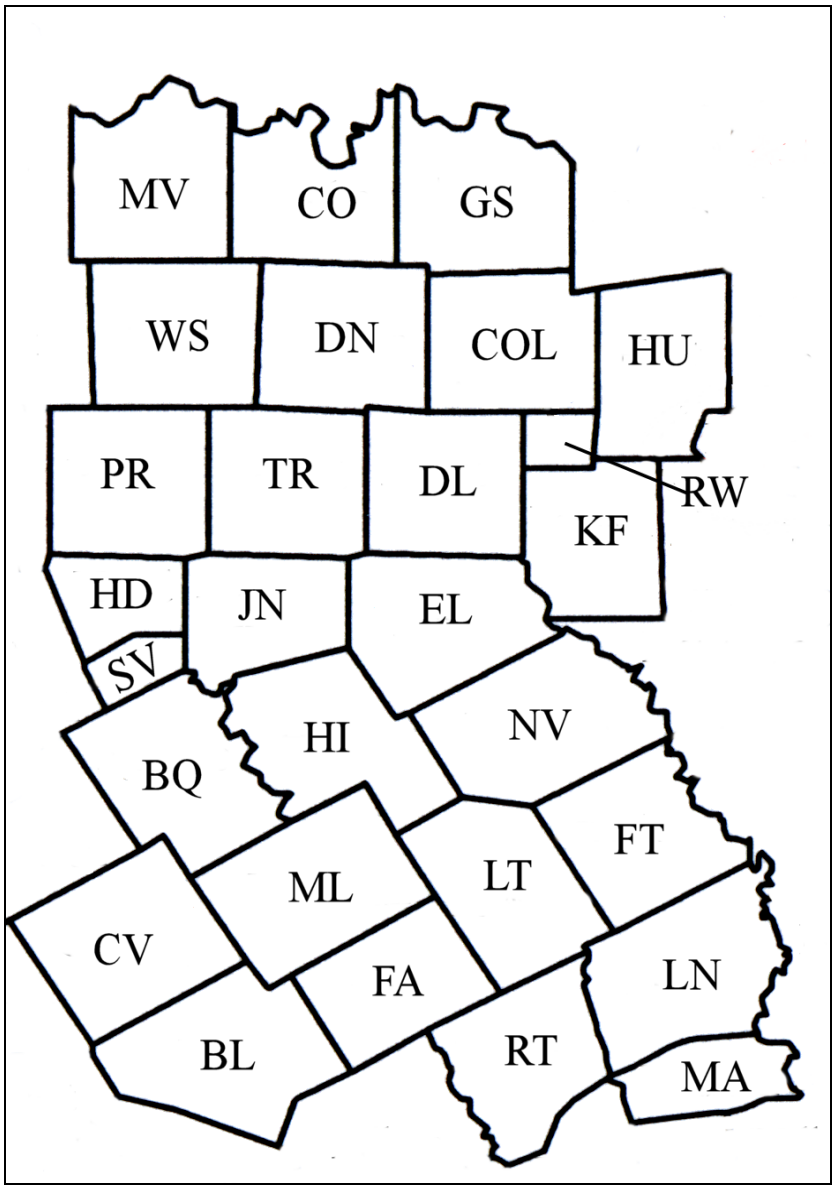

Figure 1. Counties within the Texas Prairie-Savannah. Abbreviations are explained in Table 1.

.**TABLE 1. COUNTY MAP ABBREVIATIONS AND COUNTY NAMES**

Abbreviation	County
BL	Bell
COL	Collin
CO	Cooke
CV	Coryell
DL	Dallas
DN	Denton
EL	Ellis
FA	Falls
FT	Freestone
GS	Grayson
HI	Hill
HD	Hood
JN	Johnson
KF	Kaufman
LN	Leon
LT	Limestone
MA	Madison
ML	McLennan
MU	Montague
NV	Navarro
PR	Parker
RT	Robertson
RW	Rockwall
SV	Somervell
TR	Tarrant
WS	Wise

A UNIQUE LEAF-SHAPED BIFACE FROM THE BRUSHY CREEK CLOVIS SITE (41HU74), HUNT COUNTY, TEXAS

Wilson W. Crook, III

INTRODUCTION

Ongoing investigations at the Brushy Creek Clovis site (42HU74) in Hunt County, Texas have now recovered a total of 52 tools among which are 2 Clovis points, a fluted preform, 6 large curved blades, 7 small (<70 mm) bladelets, and a number of end scrapers, worked flakes, gravers, hammerstones and other tools (Crook and Hughston, 2008; Crook, et al. 2009a, 2009b). A recent find has been the discovery in December, 2010 of a thin leaf-shaped biface which appears to be rare in Clovis contexts. This paper discusses the find and the character of the biface as well as its potential relationship to other Paleoindian populations.

BRUSHY CREEK SITE (41HU74)

The Brushy Creek Clovis site is located in an alluvial exposure along Brushy Creek in western Hunt County, Texas, approximately 500 m east of the Collin-Hunt County line. The area was known as a potential Paleoindian occupation since the 1980's due to the discovery of a number of extinct Pleistocene mammal bones in the area. A definitive Clovis component was confirmed in July of 2004 with the discovery of a single Clovis point in a large point bar immediately below a major embankment. Subsequent limited excavations have found a number of tools which are all consistent with the known Clovis tool kit (Collins and Hemmings 2005; Bradley et al. 2010). Moreover, based on the model developed by Huckell (2007) at Murray Springs, we have determined that the lithic assemblage thus far recovered from Brushy Creek is composed almost exclusively of final products (as opposed to any raw material, initial or intermediate products) and thus indicative of a seasonal campsite (Crook and Hughston 2007).

LEAF-SHAPED BIFACE

In December, 2010, the author had the opportunity to revisit the Brushy Creek site to check on its condition. Significant volumes of rain coupled with the activity of recreational dirt bikers had done considerable damage to the point bar where the original Clovis discovery had been made. The embankment above the bar, which contains what is left of the site was still intact. Several small chert flakes were found eroding out of the embankment along with a single flake which had been reworked into a graver. At the base of the embankment, clearly having just been deposited in the point bar below was a large leaf shaped biface.

The biface (Figures 1 & 2) is clearly leaf shaped and has been extensively thinned by the use of *outré* passé (overshot) flaking. One of these flakes traveled transversely across the blade intersecting an already thinned edge on the opposite side which resulted in the creation of an unintentional notch (see the figures). The biface is 98.5 mm in length and has a maximum width of 41.9 mm. Thickness varies from 6.9 to 10.0 mm, thus

producing a width-to-thickness ratio of 4.2 to 6.2. This ratio is thin for most Clovis age bifaces but doesn't quite fit into the established range for known Folsom "ultra-thin" bifaces. The site has produced only artifacts to date which are consistent with a single component Clovis occupation.

The specimen is made of gray chert (GLEY1 6/10Y) which strongly fluoresces yellow-orange under both short and long-wave ultraviolet radiation. While not completely conclusive, this is consistent with known UV reaction of Edwards chert. Microscopic examination of the biface shows that it has been coated in areas with a fine-grained red powder. A small sample was scraped from the biface and subjected to X-ray powder diffraction analysis using CuKα radiation. The resulting diffractogram showed peaks which matched the mineral hematite, or red ochre (Fe_2O_3).

CONCLUSIONS

The Clovis tool kit comprehends a number of bifacially flaked tools including projectile points, preforms, knives, cache blades, adzes, etc. Bradley et al. (2010) divide the Clovis biface technology into two broad categories: (1) simple bifaces, which are constructed relatively quickly to reach a general form, and (2) complex bifaces, which were made through an extended and complex reduction process. The latter can be further categorized as being either (1) proportional bifaces or (2) thinned bifaces. Proportional bifaces include tools such as adzes and choppers which do not show the same degree of overshot flake reduction as thinned bifaces. These are intentionally reduced to produce the characteristic projectile points and other cutting tools.

Secondary Clovis biface reduction may begin with large ovate blades but with the exception of those that seem to have been intentionally left in this form for cache deposition, they are quickly reduced into lanceolate shaped bifaces (Huckell, 2007; Bradley et al. 2010). These middle interval bifaces are almost never left in their original ovate, leaf shaped form, let alone continued to final completion as a leaf shaped tool. There is one bi-pointed biface (artifact A-11b) in the Simon Clovis Cache from Idaho (Kohntopp 2010) but it is unclear if the biface was originally intended to be bi-pointed (Dennis Stanford, personal communication, 2011). In this regard, the Brushy Creek biface as a completed bi-pointed biface in a Clovis context appears to be somewhat unique.

ACKNOWLEDGMENTS

The author is indebted to physical review of the biface by both Mike Collins and Clark Wernecke of the Gault School of Archeological Research as well as observations made by Dennis Stanford of the Department of Anthropology, Smithsonian Institution.

Figure 1. Obverse face of the Brushy Creek leaf-shaped biface.

Figure 2. Reverse face of the Brushy Creek leaf-shaped biface.

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RECENT FINDS FROM THE BRUSHY CREEK CLOVIS SITE (41HU74), HUNT COUNTY, TEXAS

Wilson W. Crook, III and Mark D. Hughston

INTRODUCTION

Ongoing investigations at the Brushy Creek Clovis site (41HU74) in Hunt County, Texas have now recovered a total of 66 tools among which are 2 Clovis points, a fluted preform, 6 large curved blades, 9 small (<70 mm) bladelets, and a number of end scrapers, worked flakes, gravers, hammerstones and other tools (Crook and Hughston, 2008; Crook, et. al., 2009a; 2009b). Recent finds over the last two years have added what appears to be the broken bit end of a chert adze, two additional blades, two bifaces, a number of well-made gravers, several flake side-scrapers, a possible burin, a small heavily-used hammerstone, a worn piece of red ochre, and an unusual piece of banded agate which appears to have been imported into the site from some distance. In addition, 17 new pieces of debitage have been recovered, the majority of which are biface thinning flakes made from Edwards chert. Many of these flakes have the same coloration and UV response as chert from known Clovis locations such as the Gault site (41BL323). This paper discusses the finds and places them in context with the current site artifact assemblage.

BRUSHY CREEK SITE (41HU74)

The Brushy Creek Clovis site is located in an alluvial exposure along Brushy Creek in western Hunt County, Texas, approximately 500 meters east of the Collin-Hunt County line. The area was recognized as a potential Paleoindian occupation since the 1980s due to the discovery of a number of extinct Pleistocene mammal bones in the area. A definitive Clovis component was confirmed in July 2004 with the discovery of a single Clovis point in a large point bar immediately below a major embankment. Subsequent limited excavations have found a number of tools which are all consistent with the known Clovis tool kit (Collins and Hemmings, 2005: Bradley, et al., 2010). Moreover, based on the model developed by Huckell (2007) at Murray Springs, we have determined that the lithic assemblage thus far recovered from Brushy Creek is composed of almost exclusively final end-products, as opposed to any raw material, initial or intermediate lithic reduction phases. Thus the assemblage is indicative of a seasonal campsite (Crook and Hughston, 2007).

RECENT ARTIFACT DISCOVERIES

In December of 2011, the authors had the opportunity to revisit the Brushy Creek site to check on its condition. Significant volumes of rain during the days immediately preceding the visit coupled with the activity of recreational dirt bikers (who were riding up and down the creek at the time) had done considerable damage to the point bar where the original Clovis discovery had been made. However, the strong rains had freshly eroded a number of artifacts and debitage onto the surface of the bar. These included the broken bit end of a adze, two small (<70 mm) Clovis blades, a broken proximal end of a

biface (a second bi-pointed biface found in 2010 is the subject of a separate paper), four flake side scrapers, three flakes with well-defined graver points, a burin, a hammerstone, a piece of red ochre, and a small piece of highly colorful banded agate. A listing of the artifacts and their compositions is included in Table 1.

Table 1. New discoveries by tool type and lithic material from the Brushy Creek site (41HU74), Hunt County, Texas.

Artifact Type	Chert	Quartzite	Other/Shell	Total
Clovis Blades				
➢ **Small (<70mm)**	**2**	**-**	**-**	**2**
Biface	**1**	**-**	**-**	**1**
Adze	**1**	**-**	**-**	**1**
Scrapers				
➢ **Side Scraper**	**3**	**1**	**-**	**4**
Gravers	**2**	**1**	**-**	**3**
Burin	**1**	**-**	**-**	**1**
Hammerstone	**-**	**1**	**-**	**1**
Red Ochre	**-**	**-**	**1**	**1**
Agate Piece	**-**	**-**	**1**	**1**
TOTAL	**10 (67%)**	**3 (20%)**	**2 (13%)**	**15**
Unworked Debitage	**12**	**5**	**-**	**17**

The adze (Figure 1) is constructed of pale yellow tan chert (5Y 7/4) and has been extensively thinned by the use of *outré* passé (overshot) flaking as well as extensive basal thinning. One of these basal thinning flakes has created a pronounced scooped bit edge. Microscopic examination showed edge crushing on this edge, probably from working with wood and/or bone. The adze fragment is 53.1 mm in length and has a maximum width of 39.2 mm (30.7 mm at the bit edge). Thickness varies from 20.4 mm at the base to 10.0 mm across the basal thinning flakes. The edges along the sides of the tool away from the bit edge have extensive polish, probably from hafting. The tool is broken across the proximal end, also probably from working which then resulted in it being discarded.

Two small blades were recovered. One is a cortical blade made from pinkish-gray (7.5YR 8/2) chert (Figure 2). The chert has a strong yellow-orange fluorescence but does not appear to be Edward chert; rather it has a much closer physical appearance to Alibates material. The blade is 62.5 mm x 28.7 mm with a maximum thickness of 9.5 mm. It is strongly curved (index of curvature = 7.70) and has a length to width to thickness ratio which is not only consistent with the other blades recovered from the site (Crook, et al., 2009) but also with blades recovered from Oklahoma Clovis sites such as Anadarko and Domebo. There is minor lateral retouch on both edges.

The second blade has clearly been snapped so its length (39.8 mm) is not reflective of its original length. Because of the breakage at its proximal end, the blade is relatively flat with little to no curvature. It is composed of white to gray mottled chert (10R 7/1). Both in appearance and in fluorescence (very strong yellow-orange), it appears

to be made of Edwards chert. The artifact is an interior blade with prominent previous blade scars on it ventral surface (Figure 3). There is very minor retouch near the distal end as if it might have been intended for use as an end-scraper.

Figure 1. Obverse face of Brushy Creek adze showing prominent basal thinning at bit edge.

Other artifacts recovered include the basal end of a chert biface, four flake side scrapers, three flakes with prominent graver points (an example is shown in Figure 4), a flake with a possible burinated edge, a small well-used quartzite hammerstone, a small piece of well-worn red ochre, and a piece of stream polished banded agate. All are consistent with the Clovis tool kit, including the preference of non-local, exotic toolstone (Stanford and Bradley, 2012). With the exception of the hammerstone, one flake scraper

and one graver which are made from local Ogallala quartzite, the remainder of the artifacts are constructed from white to gray Edwards chert.

The piece of banded agate is particularly unique with prominent red, yellow and black coloration (Figure 5). It is clearly not from the Northeast Texas area and thus has been imported into the site. Its small size (30.2 x 23.0 mm) precludes it from being a source rock for tool production. The piece has rounded faces from being stream rolled and appears to be a pick up that was brought back into the site.

Figure 2. Clovis interior cortical blade.

Figure 3. Small Clovis interior blade which has been snapped intentionally snapped on the proximal end.

In addition to the above described artifacts, 17 pieces of debitage were recovered; 12 of these were made from light-gray to gray chert with the remainder from fine-grained quartzite. All of the chert flakes display strong yellow-orange fluorescence and are probably from the Edwards Plateau. Of the quartzite pieces, two are of particular note in that they appear to be core tablet flakes (Figure 6). Both are constructed from very fine-grained yellow to red quartzite and have a waxy luster characteristic of heat-treating. Both have three to four flake scars where vertical flakes have been removed from the original core before the core was re-shaped by removing the original ventral surface to prepare it for additional flake removal. Core tablet flakes are a common characteristic of Clovis lithic technology (Bradley, et al., 2010), albeit rarely demonstrated on quartzite, even heat-treated material. While a number of Clovis flakes have been recovered from the site, almost all have been made from non-local chert. No cores have been found to date so the identification of these as true Clovis core tablet flakes remains problematical.

Figure 4. Flake of Edwards chert with prominent graver point.

Figure 5. Stream-rolled piece of banded agate possibly from Crowley's Ridge in northeastern Arkansas.

Figure 6. Possible core tablet flakes constructed from heat-tempered, fine-grained quartzite.

CONCLUSIONS

All of the artifacts recovered during the recent visit to the Brushy Creek site are consistent with Clovis age occupation as previously reported by the authors (Crook, et al., 2009). New additions to the site's artifact assemblage include the broken bit of an adze as well as the rounded piece of banded agate. Clovis age adzes have been described by Bradley, et al. (2010) from the Gault site. Three such tools have been discovered; all with slightly differing forms but with the common feature of a Clear Fork like straight edge bit. Micro-examination of the bit edge shows edge crushing consistent with working with wood. The tools also showed hafting polish.

The adze recovered from the Brushy Creek site shares both of these characteristics as well as evidence of overshot bifacial reduction and strong basal thinning on one face to create a pronounced, scooped bit edge. Bradley et al. (2010) conclude that such tools are more likely to be source camp tools where wood work would be common. In this regard, the presence of an adze at Brushy Creek, a site which is clearly not a source camp, is a bi of an anomaly. However, having wood working tools to repair damaged darts or spear shafts at a seasonal campsite is not beyond belief.

Another feature consistent with Clovis culture is the predominance of imported toolstone in both the artifact assemblage as well as many of the recovered pieces of debitage. The stream rolled piece of banded agate, while by itself is not a distinctive Clovis artifact, clearly shows a cultural trait for finding and transporting exotic stone long distances. The banded nature as well as the red and yellow colors is characteristic of Crowley's Ridge agate from northeastern Arkansas. However, absolute identification is not possible and this remains only a possible location for the rock's source.

As noted above, most of the debitage recovered represents bifacial thinning flakes consistent with resharpening / reshaping used tools. In appearance and response to UV radiation, the flakes appear to be Edwards chert. Given the advancement in chert identification techniques currently underway at the Gault project (M. L. Collins, personal communication, 2011), it may someday be possible to determine the origin of these flakes and prove a direct link between Brushy Creek and other Texas Clovis sites.

ACKNOWLEDGEMENTS

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The Bachman's Dam Site (41DL23): A Small Early Archaic Campsite in Northwestern Dallas County, Texas

Wilson W. Crook, III

INTRODUCTION

In the characterization of the Archaic Horizon of the Upper Trinity watershed, Crook and Harris (1952) identified a number of component sites along both the Elm Fork and main branch of the Trinity River (see Crook and Harris 1952:Figure 1). One of the earliest of these sites to have been studied was the Bachman's Dam site (41DL23), having been discovered by Claude Albritton of Southern Methodist University in the 1930s. The author's late father made repeated visits to the site in the early 1950's and the author conducted a limited excavation on a small portion of the site that remained in late 1960s and early 1970s. While the site was mentioned briefly in Crook and Harris' landmark papers in 1952 and 1954, no comprehensive site description has ever been published. This paper thus serves to record both my own observations but also those of Wilson W. Crook, Jr., R. K. Harris and others whose notes are in my possession.

DESRIPTION

The Bachman's Dam site (41DL23) lies in northwest Dallas County, approximately 500 meters south of Bachman Lake dam, south of Shorecrest Drive in the section between Denton Drive and Harry Hines Blvd (Figure 1). The site is on a steep slope below Love Field Airport where an old channel of Bachman's Branch has cut through the Union Terminal/Carrollton (T-1) terrace to reach the Trinity River (Figure 2). The primary datum of the site is at an elevation of 132 meters (445 feet) above sea level. New industrial operations have been built over top of most of the area and little of the site remains exposed today. Both the site description and name are on file at the Texas Archeological Research Laboratory in Austin.

GEOLOGY

The Bachman's Dam site is located on the south side of Bachman's Branch, a minor tributary of Upper Trinity River. Bachman's Branch rises near Forest Lane east of the site and runs for approximately 10 miles south and then west into the Elm Fork of the Trinity River. The stream was originally named Brownings Branch in the 1840's but was later renamed after the John B. and William F. Bachman families settled there (Tarpley 1969). The stream was dammed in 1903 to create a water supply for the City of Dallas (Bachman Lake) but it proved too small and was replaced with the construction of White Rock Lake in 1911.

Site 41DL23 lies on a steep slope where an older channel of the stream has cut into the T-1 (Union Terminal/Carrollton) terrace (Figure 2). The site was originally exposed both along the bank of the former channel and in small borrow pits used for a nearby MKT railroad spur as well as local private roads. Total aerial extent of the site was estimated to be no more than approximately 0.2 Ha (0.5 acres).

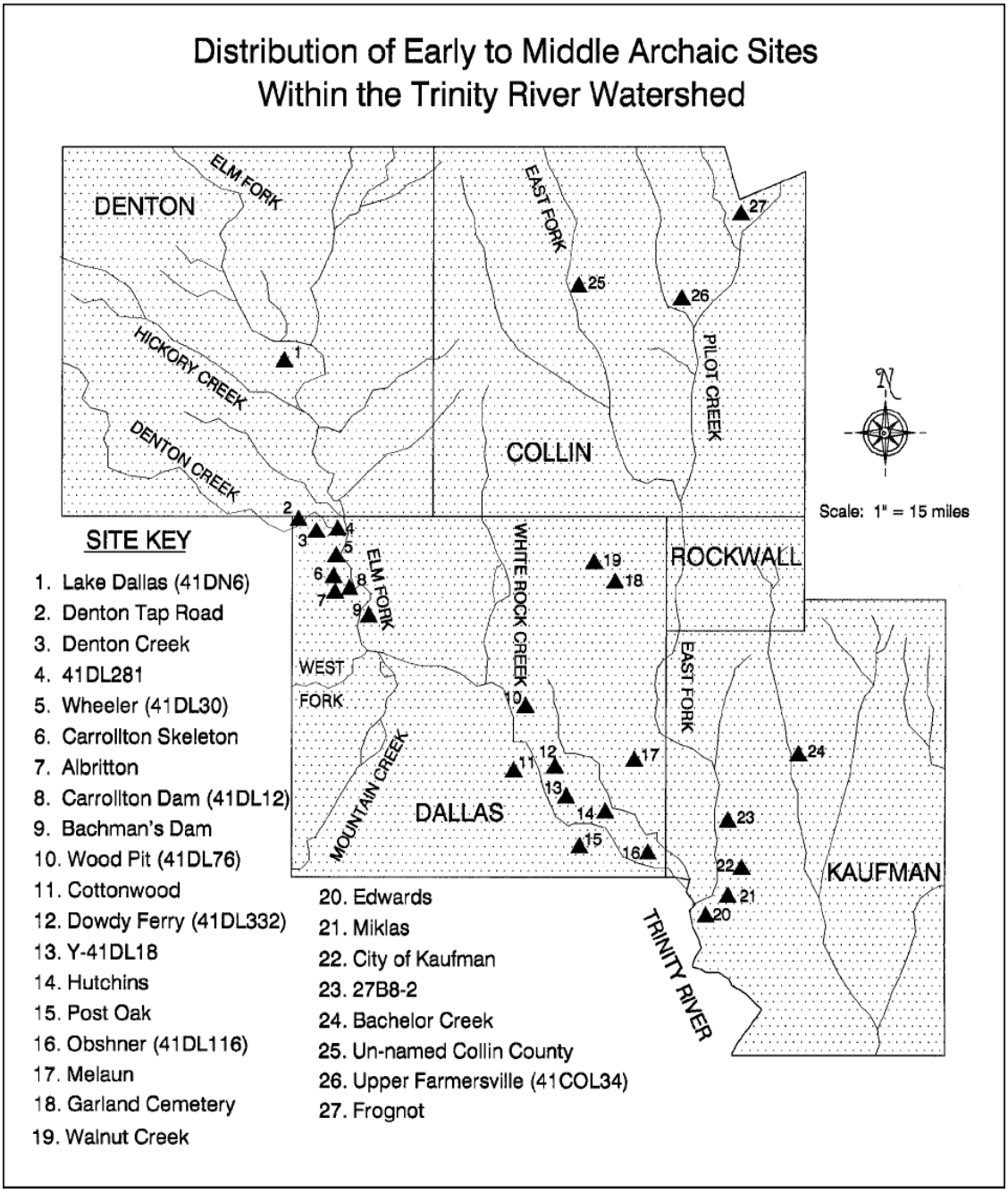

Figure 1. Distribution of Early to Middle Archaic sites within the Upper Trinity River watershed.

Barrow pit operations and erosion exposed a typical, but very thin section of the T-1 Trinity terrace (high ground above a minor tributary creek hence less terrace deposition) including 0.2 meters of the gray, calcareous sand of the Pattillo Formation and a further 0.6 meters of the reddish-yellow (7.5YR 6/8) sandy clay of the Albritton Formation. These sediments are overlain on part of the T-2 (Pemberton Hill) terrace,

including 1 meter of the yellow-white Shuler sands and an undetermined section of the basal Hill Member gravels (Figure 3).

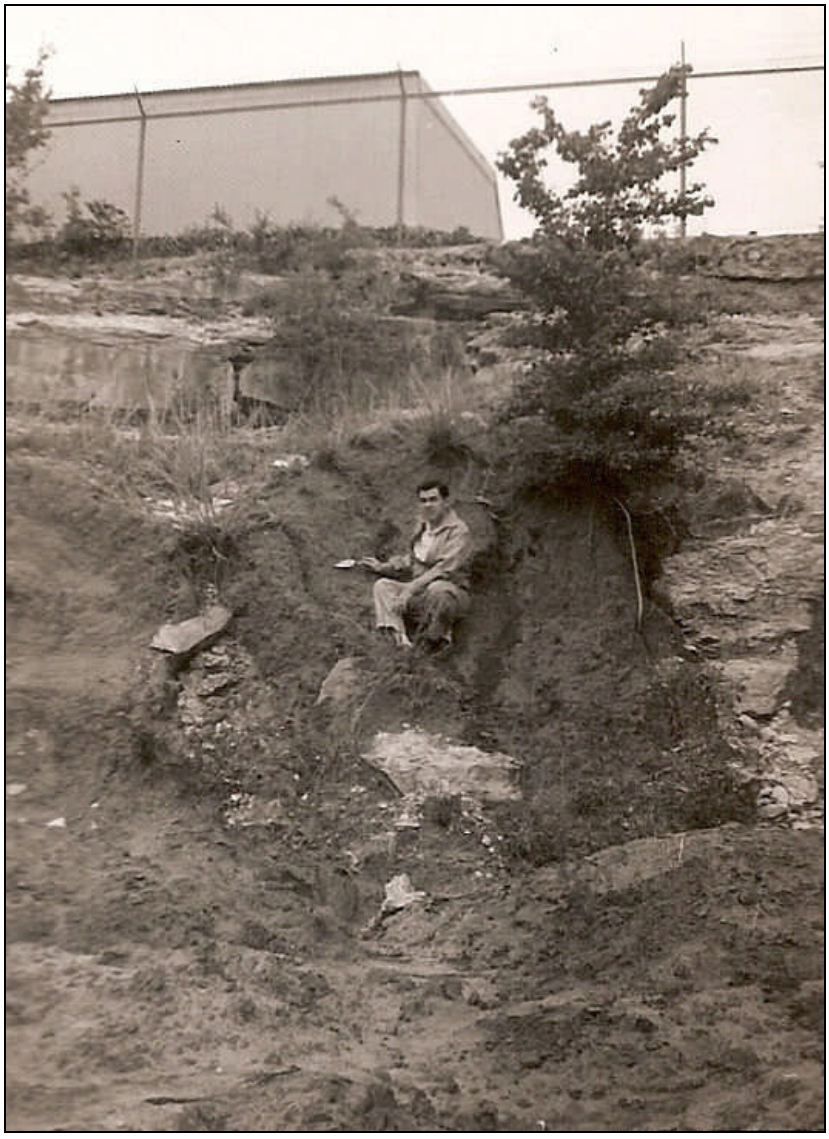

Figure 2. The late Jack Harkey working in one of the small barrow pit exposures at the Bachman's Dam site in May, 1952. Photograph taken by Wilson W. Crook, Jr.

Almost unique within Archaic sites along the Trinity River, no artifacts were found within the upper Pattillo; all cultural material was located within the Albritton ranging from 5 cm below the upper surface all the way to within 4 cm of its base. Based on this finding coupled with evidence at other sites along the Upper Trinity River (Lake Dallas (41DN6), Carrollton Dam (41DL12), Wheeler (41DL30), Wood (41DL76), Dowdy Ferry (41DL3320, etc.), apparently only a Late Paleoindian to Middle Archaic horizon is present at the site (Crook and Harris 1954, Crook 2008).

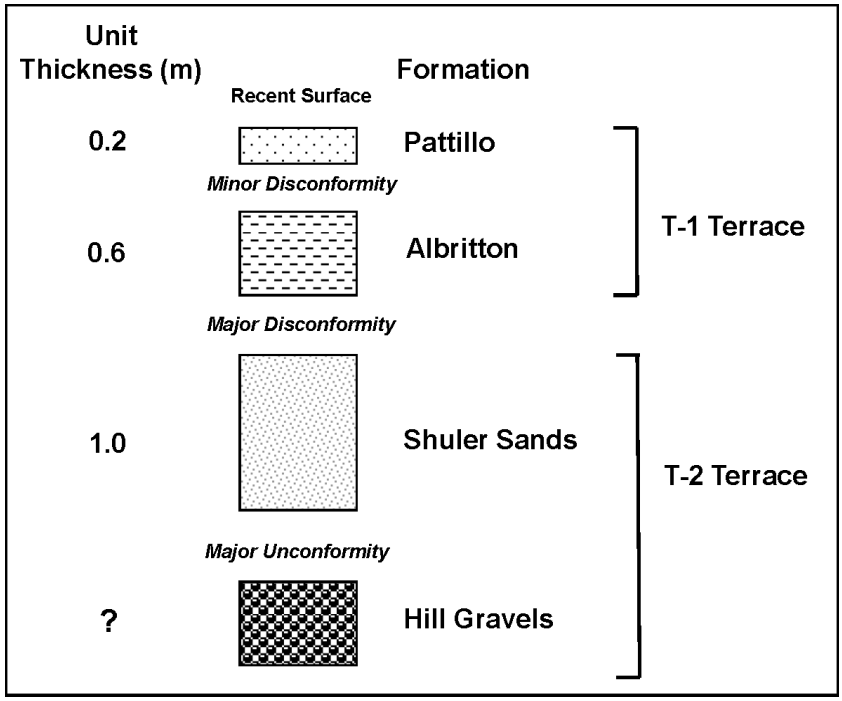

Figure 3. Geologic section at the Bachman's Dam site.

ARTIFACT ASSEMBLAGE

Based on the combined collections of Wilson W. Crook, Jr., R. K. Harris, and the writer, a total of 33 tools have been recovered from the site representing an occupation from Late Paleoindian to Early-Middle Archaic. Within the Upper Trinity watershed, Archaic occupations are generally fairly evenly distributed between Early, Middle and Late Archaic, with a slight weighting to the latter due to a general perceived increase in population with time (Prikryl 1990). The artifact assemblage from the Bachman's Dam site is almost exclusively Early to Middle Archaic in age and in this regard, the site is very analogous to the Obschner site (41DL116) located in extreme southeast Dallas County (Crook and Harris 1955). Bachman's Dam and Obschner are the only Trinity Archaic sites where the entire occupation is located within the Albritton Formation.

Chipped stone artifacts at the site are constructed from three basic materials: chert (44%), quartzite (52%), and ironstone (4%). All can be found locally as cobble fields in the eroded remnants of the ancient T-5 terrace. These cobble fields, known as the "Uvalde Gravels", are composed of as much as 80% quartzite, with some chert (10-15%) and a small amount of petrified wood and ironstone (Crook 1987).

Projectile points are the most abundant tool from the site with some 14 whole or partial points having been recovered. Several point types have been recognized including Dalton (1), several partial but clearly Late Paleoindian (Angostura?) points (2), Carrollton (4), Trinity (3), Bulverde (1) and Dallas (1). Another 2 were incomplete and lacked distinguishing characteristics for definitive typing. Chert is the predominant material used in the manufacture of these dart points (71%). Over 80% also show extensive basal grinding. Lengths range from 32 to 54 mm, with an average of

approximately 46 mm. Dart points were found throughout the Albritton with the Dalton base found *in situ* within 4 cm of the base of the unit.

A complete list of all the point types recovered from the site and their compositions are shown in Table 1. Representative examples of dart points from the site are shown in Figure 4.

In addition to projectile points, 15 other chipped stone tools were recovered. unlike the dart point assemblage, composition of the utilitarian tools is predominantly quartzite (67%). Bifacial cutting and scraping tools constitute the majority of non-projectile point lithics from the site. Five bifaces/knives were collected; 3 are ovoid leaf-shaped and two are square-based. Both bifacial and unifacial scrapers are present at the site with two distinct sub-types recognized including ovoid side scraper (3) and flake side scrapers (3). Larger bifacial scrapers are constructed exclusively from quartzite whereas smaller flake side scrapers are made predominantly from chert. In this regard, unworked chert debitage is relatively rare at the site with virtually every piece of chert being used and re-used as some utilitarian tool.

Other utilitarian lithic tools include 4 burins displaying both dihedral and carinated construction. A single well used quartzite core was also recovered. Figure 5 shows some of the non-projectile point chipped stone tools from the site and their complete listing by type and composition are presented in Table 1.

In addition to the above described lithic artifacts, two fired clayballs were recovered from the Albritton Formation. Described as "clay blobs" by Crook and Harris (1952, 1954), they are a common component of Early to Middle Archaic sites in the Upper Trinity watershed. Patterson (1986, 1989) has recorded a number of Late Paleoindian to Archaic sites in southeast Texas which have extensive collections of these fired clayballs. He has postulated that they were either used for seasonal specialized food processing and/or for heat treating siliceous lithic material. Hudgins (1993) has demonstrated experimentally that clayballs retain heat significantly longer than wood coals and can be effectively used to roast plant food materials or meat without the need for ceramics.

Lastly, a large completely circular concretion of white limestone was found *in situ* within the Albritton Formation (see Figure 5). The object is clearly an internal cast of either root or fossil. Its presence is completely unique within the author’s experience in the Upper Trinity watershed and not natural to any of the Trinity terraces. Therefore the object must have been picked up and transported into the site by one of its inhabitants.

CULTURAL AFFILIATION

The material present at Bachman’s Dam is consistent with the description of the Upper Trinity River Archaic as originally put forward by Crook and Harris (1952; 1954) and as subsequently re-proposed by Prikryl (1990). Excavations into the borrow pit walls recovered the majority of the artifacts *in situ* thus providing a solid stratigraphic context for the site. The small number of artifacts recovered indicates that this is one of the smaller Archaic occupations thus far reported along the Trinity and its tributaries.

Table 1. Distribution of artifacts by tool type and lithic material from the Bachman's Dam site (41DL23), Dallas County, Texas.

Tool Type	Chert	Quartzite	Other	Total
Projectile Points				
- Dart Points				**14**
➢ **Dalton**	**1**	**-**	**-**	
➢ **Unidentified Paleo**	**2**	**-**	**-**	
➢ **Carrollton**	**3**	**1**	**-**	
➢ **Trinity**	**2**	**1**	**-**	
➢ **Bulverde**	**1**	**-**	**-**	
➢ **Dallas**	**1**	**-**	**-**	
➢ **Unidentified**	**-**	**2**	**-**	
- Burins	**2**	**2**	**-**	**4**
- Knife/Biface				**5**
➢ **Ovoid Leaf**	**-**	**3**	**-**	
➢ **Square Based**	**-**	**1**	**1**	
- Scrapers				**6**
➢ **Oval Biface**	**2**	**1**	**-**	
➢ **Flake Side**	**1**	**2**	**-**	
- Core	**-**	**1**	**-**	**1**
- Clayballs	**-**	**-**	**2**	**2**
- Limestone Concretion	**-**	**-**	**1**	**1**
Total	**15 (45%)**	**14 (42%)**	**4 (13%)**	**33**

Prikryl (1990) proposed that the Early Archaic for the Upper Trinity watershed was characterized by what he termed "early split stemmed points", as well as the presence of a small but distinctive percentage of Late Paleoindian points, primarily San Patrice, Dalton, Scottsbluff, Angostura, etc. The base of an apparent Dalton point was found *in situ* near the base of the Albritton sandy clay at the Bachman's Dam site.

The Middle Archaic in the Upper Trinity as defined by Prikryl (1990) is characterized by the presence of Carrollton, Wells, and large basal notched points (Andice/Calf Creek). Crook and Harris (1952, 1954) noted that the Early to Middle Archaic was also characterized by a diagnostic association of Carrollton and Trinity points plus lesser amounts of basal notched (Andice), Bulverde, and crude leaf-shaped points which they called "Wheeler Leaf". Crook (2007) found similar associations, especially of Carrollton and Trinity points in the Early to Middle Archaic in a detailed analysis of the Dowdy Ferry site (41DL332), also located in Dallas County. These artifacts occur within the Albritton Formation upwards into the basal portions of the Pattillo. Chert is the preferred construction material in the Early to Middle Archaic, however one third or more of the points are constructed from local quartzite. Average point length of dart points in the Early to Middle Archaic is roughly 45-50 mm, as compared to less than 43 mm for Late Archaic points. Other distinctive Early Archaic

tools include burins, Clear Fork gouges, Carrollton axes, Waco net sinkers and fired clayballs. Of these, only burins and clayballs have been found at Bachman's Dam.

Figue 4. Representative projectile points from the Bachman's Dam site. Left to right: Dalton (?), unidentified Paleoindian (Angostura ?), Carrollton (3), Trinity/Dallas.

Figure 5. Representative non-projectile point lithic artifacts from the Bachman's Dam site. Top Row, left to right: flake side scraper, burin, ovoid side scrapers (2). Bottom Row, left to right: leaf-shaped biface (3), large limestone concretion.

Prikryl (1990) proposed dates of 3,000-6,000 BP for the Middle Archaic of the Upper Trinity and 6,000-8,500 BP for the Early Archaic and Late Paleoindian. The stratigraphic data from the Bachman's Dam site supports these conclusions. Based on the date obtained at the Wood Pit (Crook, 1959), the base of the Pattillo would seem to be about 6,000 BP. Early to Middle Archaic materials (Carrollton, Trinity, Bulverde, burins, Carrollton axes, Waco netsinkers) are typically found below or slightly above this horizon. Late Paleoindian and clearly Early Archaic artifacts (Dalton, Angostura, San Patrice, Gower, Early Lanceolate, Clear Fork gouges) are found well below the Albritton-Pattillo contact.

ACKNOWLEDGEMENTS

The author would like to thank the late Wilson W. "Bill" Crook, Jr. for his personal insights into the geology, archeology and association to other Archaic sites of the Carrollton Dam site, and the subsequent gift of his field notes and collections, which enriched the information contained in this report. I would also like to thank the Smithsonian Institution (Museum Support Center) for making their collection from the Carrollton Dam site (R. K. Harris Collection) available for study.

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The Miklas Site (41KF59): A Large Multi-Component Archaic Campsite in Southwestern Kaufman County, Texas

Wilson W. Crook, III

INTRODUCTION

The Archaic Horizon within the Upper Trinity River watershed was initially described by Crook and Harris in 1952 and later in 1954. While this characterization was based on observations at a number of sites along both the Elm Fork and main branch of the Trinity, only four sites, (Wheeler (41DL30), Lake Dallas (41DN6), Wood Pit (41DL76) and, Milton Pit (41DL259), were used to characterize the Carrollton (Early to Middle Archaic) and the Elam phase (Middle to Late Archaic). Of the 20+ other sites which were used to characterize the two phases, none were ever described in a separate site report. Over the course of the last decade, the writer has taken his own field notes and combined them with those of the late Wilson W. Crook, Jr. and R, K, Harris as well as others and has now published site descriptions on the Carrollton Dam site (Crook 2008), the Post Oak site (Crook, 2008), the Milton Pit (Crook 2006, 2008), the Dowdy Ferry Site (Crook 2007; Crook and Hughston 2007) and the Bachman Dam site (in this issue).

Another location, the Miklas site in southwestern Kaufman County, is one of the largest Archaic sites along the Upper Trinity watershed in terms of both aerial extent as well as total artifacts recorded. This paper serves to record the writer's observations of site location, geologic context and artifact assemblage, but also includes the field observations and the collections of the late Wilson W. Crook, Jr., R. K. "King" Harris, Lester Wilson and Bobby Vance which are in my possession.

DESCRIPTION

The Miklas site (41KF59) lies in the southwestern Kaufman County, Texas, approximately 8 km (5 miles) south of Kaufman. The site is located on the east side of Kings Creek on a high rise midway between Kings Creek and Cottonwood Creek. Lithic material is scattered over an area of roughly 1 Ha (2.4 acres), however the occupational midden is relatively thin (30-45 cm). At the north end of the site, and completely separate from the pure Archaic southern portion of the site, is a small Late Prehistoric (ceramic and arrow point) occupation. The primary datum of the site is at an elevation of 119 meters (390 feet) above sea level. Both the site's name (named for the original landowner) and location are on file at the Texas Archeological Research Laboratory in Austin.

The Miklas site lies within the Blackland Prairie physiographic province, a narrow north-south zone bounded by the Eastern Cross Timbers to the west and the Post Oak Belt to the east. Soils of the Blackland Prairie are for the most part, organic-rich, calcareous clays of the Houston Black-Heiden, Ferris-Heiden, and Trinity-Frio soil groups (Coffee, Hill and Ressel 1980). These soils are characterized by a low permeability, which effectively inhibits the growth of trees except along major waterways. The result is an alternating terrain of open prairie dissected by serpentine riparian woodlands.

GEOLOGY

The Miklas site is located on the east side of Kings Creek in southwestern Kaufman County. Kings Creek feeds into Cedar Creek which is a tributary of the Trinity River. A terrace system is not developed at the site, but the main occupational area is on a gentle topographic rise about 10 meters above the creek so as to have avoided inundation during periodic flooding.

Only two geologic strata are present at the site. Uppermost is a black, organic-rich topsoil of the Frio Series of the Trinity-Frio Association. It is classified as a vertisol due to the presence of abundant swelling clay, notably montmorillonite (Hausenbuiller 1972). This topsoil layer is relatively thin, often no more than 15-30 cm; less on the rise where the Archaic site is located and more on the slopes leading to both Kings Creek to the west and Cottonwood Creek to the east. Archaic material on the surface has been admixed with this unit due to years of plowing. *In situ* Archaic material is found only at the very base of the black soil. At the north end of the site, pottery is found from the surface to the base of the alluvium, post-dating the underlying strata. Based on ceramics, arrow point typology, age of the topsoil appears to be no more than 1,000 to 1,500 years.

Lying unconformably below the black topsoil is a yellow-tan sandy clay. This unit does not correlate to any of the known mainstream Upper Trinity terrace deposits but appears to be a major depositional unit along its tributaries, particularly the East Fork system and many of the small Trinity tributaries in Kaufman County (W. W. Crook, Jr., personal communication, 1984). The yellow-tan sandy clay is a surface alteration of the Cretaceous bedrock, typically the Taylor Marl (Ozan Formation). Thickness of the yellow-tan sandy clay is as much as 3 meters. Occupational material is restricted to the upper few centimeters and is composed of non-ceramic Archaic material. The unit predates the black topsoil by an undetermined age.

ARTIFACT ASSEMBLAGE

Based on the combined collections of Wilson W. Crook, Jr., R. K. Harris, Lester Wilson, Bobby Vance and J. B. Sollberger and the writer, a total of 575 tools have been recovered from the site representing an occupation from Early to Late Archaic (the Late Prehistoric occupation north of the site is completely separate and is not included in this report). Many of the sites ascribed to the Archaic along the Upper Trinity watershed are multi-component sites, with cultural material ranging from Paleoindian to Late Archaic. Within the Archaic component, occupations are generally fairly evenly distributed between Early, Middle and Late Archaic, with a slight weighting to the latter due to a general perceived increase in population with time (Prikryl 1990). In this regard, the Miklas site is unusual as the artifact assemblage is strongly weighted to the Middle to Late Archaic; so much so that in the author’s experience it comprises the largest single concentration of Late Archaic Elam Phase material.

Chipped stone artifacts at the site are constructed from three basic materials: chert, quartzite, and petrified wood. All can be found locally in the eroded remnants of the ancient upper terraces of the Trinity system. These cobble fields, known as the "Uvalde Gravels", are composed of as much as 80% quartzite, with some chert (10-15%) and a small amount of petrified wood (Crook 1987). It should be noted that the chert

from the local Upper Trinity cobble fields is typically slate-gray in color and of relatively poor quality. However, chert artifacts from the Miklas site show a variety of colors including light gray, dark blue-gray, cream, white and black. Thus a significant percentage of this material must have been imported from outside the Upper Trinity River watershed. Based on strong yellow-orange fluorescence to both short and long-wave UV radiation, the Edwards Plateau seems to be the source for much of the chert found at the Miklas site.

Projectile points are the most abundant tool from the site with some 295 having been recovered. A number of different point types have been recognized as would be expected from a multi-component occupation (Table 1). A total of 17 dart points can be attributed to the Early to Middle Archaic Carrollton phase including Gower (1), Carrollton (8), Trinity (7), and "Wheeler Leaf" (1). Chert is the predominant material used in the manufacture of Early to Middle Archaic dart points (56%). Two-thirds also show extensive basal grinding. This is especially evident in all of the Carrollton and Trinity specimens.

Another 184 dart points were recovered that can generally be attributed to the Middle to Late Archaic Elam phase. Identified types include Yarbrough (19), Gary (131), Ellis (6), Edgewood (3), Dawson (15), and Kent (10). In general, these points are smaller than those from the Early to Middle Archaic (average length 39 mm) and are mostly constructed of quartzite (92%). Moreover, basal grinding of any form is totally absent.

A complete list of all the point types recovered from the site and their composition are shown in Table 1. This includes the 94 which due to being incomplete were unable to be definitively typed. Representative examples of Early to Late Archaic dart points from the site are shown in Figure 1.

In addition to projectile points, 280 other chipped stone tools were recovered. Like the dart point assemblage, where quartzite comprises 85% of the lithic material, composition of the utilitarian tools is also predominantly quartzite (87%).

Bifacial cutting and scraping tools constitute the majority of non-projectile point lithics from the site. Two types of bifaces/knives were observed: ovoid/leaf-shaped (45 specimens) and square-based (14 specimens). Both bifacial and unifacial scrapers are present at the site. At least four distinct sub-types have been recognized including ovoid side scraper (126), plano-convex "turtleback" (31), flake side scrapers (17), and Clear Fork gouges (10). Larger bifacial scrapers are constructed primarily of quartzite whereas smaller flake side scrapers are made equally from quartzite and chert. In this regard, unworked chert debitage is relatively rare at the site with virtually every piece of chert being used and re-used as some tool. This activity supports the previous conclusion that much of the chert from the site has been imported and thus was highly valued by the site's occupants.

Other chipped stone tools include 3 hand-sized simple chopping tools, 10 Carrollton double bitted axes, 7 Waco "net sinkers", 4 flake gravers, 4 sandstone grooved abraders, a single ironstone gorget and 8 well used and discarded cores. Figures 2 and 3 show some of the non-projectile point lithic tools from the site and their complete listing by type and composition are presented in Table 1.

It should be noted that no fired clayballs were present in any of the artifact collections. These artifacts appear to be restricted in the Upper Trinity watershed to Archaic sites that occur in the reddish sandy clay of the Albritton Formation (Crook

2007). Since no Albritton Formation is present at the site, clayballs are also apparently absent.

Table. 1. Miklas site (41KF59) lithic artifacts by composition and tool type.

Tool Type	Chert	Quartzite	Other	Total
Dart Points				**295**
➢ **Gower**	**1**	**-**	**-**	
➢ **Carrollton**	**6**	**2**	**-**	
➢ **Trinity**	**2**	**5**	**-**	
➢ **Wheeler Leaf**	**-**	**1**	**-**	
➢ **Yarbrough**	**-**	**19**	**-**	
➢ **Ellis**	**2**	**4**	**-**	
➢ **Gary**	**7**	**121**	**3**	
➢ **Edgewood**	**3**	**-**	**-**	
➢ **Dawson**	**1**	**14**	**-**	
➢ **Kent**	**1**	**9**	**-**	
➢ **Unidentified**	**19**	**73**	**2**	
Knife/Biface	**1**	**55**	**3**	**59**
Scrapers (all types)	**35**	**137**	**2**	**174**
Clear Fork Gouge	**-**	**7**	**3**	**10**
Graver	**1**	**3**	**-**	**4**
Chopper	**-**	**3**	**-**	**3**
Carrollton Axe	**-**	**10**	**-**	**10**
Core	**-**	**8**	**-**	**8**
Net Sinker	**-**	**7**	**-**	**7**
Grooved Abrader	**-**	**-**	**4**	**4**
Gorget	**-**	**-**	**1**	**1**
TOTAL	**79 (14%)**	**478 (83%)**	**18 (3%)**	**575**

CULTURAL FEATURES

No cultural features, such as burials, fire pits or burned rock middens were recognized at the site. While burned rock middens have been reported from Late Archaic sites in the Trinity watershed (Lorraine and Lorrain 2001), they are not common. This may be due, in part, to the fact than many of the Archaic site along the Upper Trinity have been discovered due to commercial gravel operations or in plowed fields, which by their very nature destroys subtle features such as hearths and middens. Mussel shells, while present in local Archaic sites, do not typically occur in sufficient numbers so as to create a substantial midden, although Crook (1959) reported one such small feature from the base of the Pattillo at the Wood Pit (41DL76). A single date of 5,945 +/- 200 BP was obtained from the unexposed interior of the shells.

Figure 1. Representative projectile points from the Miklas site (41KF59). Top Row Early to Middle Archaic, left to right: ground stem Carrollton (?), Trinity, Wheeler Leaf; Middle to Late Archaic: Edgewood (2). Bottom Row Middle to late Archaic, left to right: Various types of Gary points (8).

Figure 2. Representative non-projectile point lithic artifacts. Top Row, left to right: flake side scraper, oval biface scrapers (3), re-worked Gary point end scrapers (2). Bottom Row, left to right: leaf-shaped bifaces (2), "turtleback" side scrapers (2). Clear Fork Gouge.

Figure 3. Large lithic artifacts from the Miklas site. Top Row, left to right: “Waco net sinkers” (4). Bottom Row, left to right: large quartzite choppers (2), gorget fragment.

CULTURAL AFFILIATION

The material present at the Miklas site is consistent with the description of the Upper Trinity River Archaic as originally put forward by Crook and Harris (1952) and as subsequently re-proposed by Prikryl (1990). Prikryl (1990) proposed that the Early Archaic for the Upper Trinity watershed was characterized by what he termed "early split stemmed points", as well as the presence of a small but distinctive percentage of Late Paleoindian points, primarily San Patrice, Dalton, Scottsbluff, Angostura, etc. As mentioned above, only one Early Archaic (Gower) and no Late Paleoindian points have been found at Miklas. This confirms R. K. Harris' initial observation that the occupation at both the site was heavily weighted toward the Middle to Late Archaic.

The early to Middle Archaic in the Upper Trinity as defined by Prikryl (1990) is characterized by the presence of Carrollton, Wells, and large basal notched points (Andice/Calf Creek). Crook and Harris (1952, 1954) noted that the Early to Middle Archaic was characterized by a diagnostic association of Carrollton and Trinity points plus lesser amounts of basal notched (Andice), Bulverde, and crude leaf-shaped points which they called "Wheeler Leaf".

Analysis of the Miklas dart point assemblage shows a minor Early to Middle Archaic occupation containing primarily Carrollton and Trinity points. Basal grinding is present in the stems of Carrollton and the side notches of Trinity points. Other tools probably associated with this interval include square-based bifaces, ovoid and flake side

scrapers, as well as Clear Fork gouges, Carrolton axes, net sinkers and gravers – probably about 75-100 artifacts or roughly 15% of the total artifact assemblage.

The Middle to Late Archaic is abundantly represented at the Miklas site (~85% of all artifacts). Characteristic dart points include Gary, Yarbrough, Ellis, Edgewood, Dawson and Kent. These are predominantly constructed of local, fine-grained quartzite and display no basal grinding. Other tools include large leaf-shaped bifaces, "turtleback" scrapers and grooved abraders.

Prikryl (1990) proposed dates of 8,500-6,000 BP for the Early Archaic of the Upper Trinity, and 6,000-3,000 BP for the Middle Archaic. There apparently is a small hiatus between the end of the Middle Archaic and the beginning of the Late Archaic. He placed a date of 3,500-1,250 BP for the Late Archaic, terminating with the arrival of the bow and arrow and pottery. As stated above, Prikryl also postulated a slight increase in populations along the Trinity based on the numbers of artifacts in the Late Archaic as compared to Early to Middle Archaic horizons. The evidence from the Miklas site is consistent with this proposed timeline and occupational increase.

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The author would like to thank both the late R. K. "King" Harris and Wilson W. "Bill" Crook, Jr. for their personal insights into the geology, archeology and paleontology of the Miklas site during their lives, and the subsequent gift of their field notes which enriched the information contained in this report. I would also like to acknowledge the late Lester Wilson and Bobby Vance, both long-time members of the Dallas Archeological Society, whose collection and field notes and maps the author was allowed to purchase from Mr. Vance's widow. I would further like to thank Dr. James Krakker of the Smithsonian Institution who allowed me to inspect and record the Miklas site portion of the R. K. Harris Collection (A512294-0 through A512350-0) and Ms. Laura Nightengale of the Texas Archeological Research Laboratory who allowed me to inspect the J. B. Sollberger collections from the site.

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BURNED CLAY OBJECTS FROM SITE 41DL238, DALLAS COUNTY, TEXAS

Paul Lorrain

INTRODUCTION

Sites containing fired or burned clay objects variously described as lumps, balls or blobs are frequently reported from sites in Southeast (Turpin 2004) and North Central Texas (Wilson 2009). The clay objects are typically crudely oval-shaped with a red or reddish-brown exterior. The largest dimension is usually 3 to 4 inches.

DISCUSSION

An archeological site containing the burned clay objects is 41DL238 in Dallas County. The site was discovered in a borrow pit adjacent to the Elm Fork of the Trinity River. A few, random burned clay objects were visible in the vertical wall of the borrow pit as shown in Figure 1. In the area shown in Figure 2, however, there appears to be a filled-in, bowl-shaped pit with a layer of the fired clay objects at the bottom of the pit. As the pit area was excavated, more burned clay objects were exposed as shown in Figure 3 and 4. Finally, approximately 200 of the objects were uncovered in a roughly circular pit about 4 feet in diameter. The burned clay objects were in a single, flat layer in no apparent order. Figure 5 is a photograph of one of the specimens as found and the object in cross-section (Figure 6). The exterior color is fairly uniform, but the color gradation in the section indicated perhaps differential heating.

The feature is presumed to be an earth oven. Earth ovens that used rocks as heating elements are more familiar, but, apparently, if rocks were not available, fired clay objects could be substituted. Experiments by Hudgins (1993) and by Stilley (2007) indicate that the burned clay objects are effective for baking both plants and animals. There is little evidence to indicate which foods were prepared. No bone or shell was recovered from the pit. Bone and shell also are absent from other parts of the site. No plants are in the area which appears to be suitable for food and little floral material has been recovered from other archeological sites in the area (Todd 2005). The age of the site also is problematical. A large variety of predominantly Late Archaic points was found in the area, but none were clearly associated with the pit.

CONCLUSIONS

No more than a few dozen burned clay objects have been reported from sites in the Upper Trinity River Watershed and all range from Early to Middle Archaic in age (Crook 2009). The amount of Late Archaic points in the vicinity of site 41DL238 may suggest that burned clay objects in the Dallas County area, as well as North Central Texas may be more plentiful and younger than previously recognized.

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Figure 1. Burned clay objects in wall of borrow pit. View is to the west.

Figure 2. Bowl-shaped pit during excavation. Trowel points to the north.

Figure 3. Close-up of burned clay objects. Trowel points north.

Figure 4. Burned clay objects after more excavation. View is to the north.

Figure 5. Burned clay object.

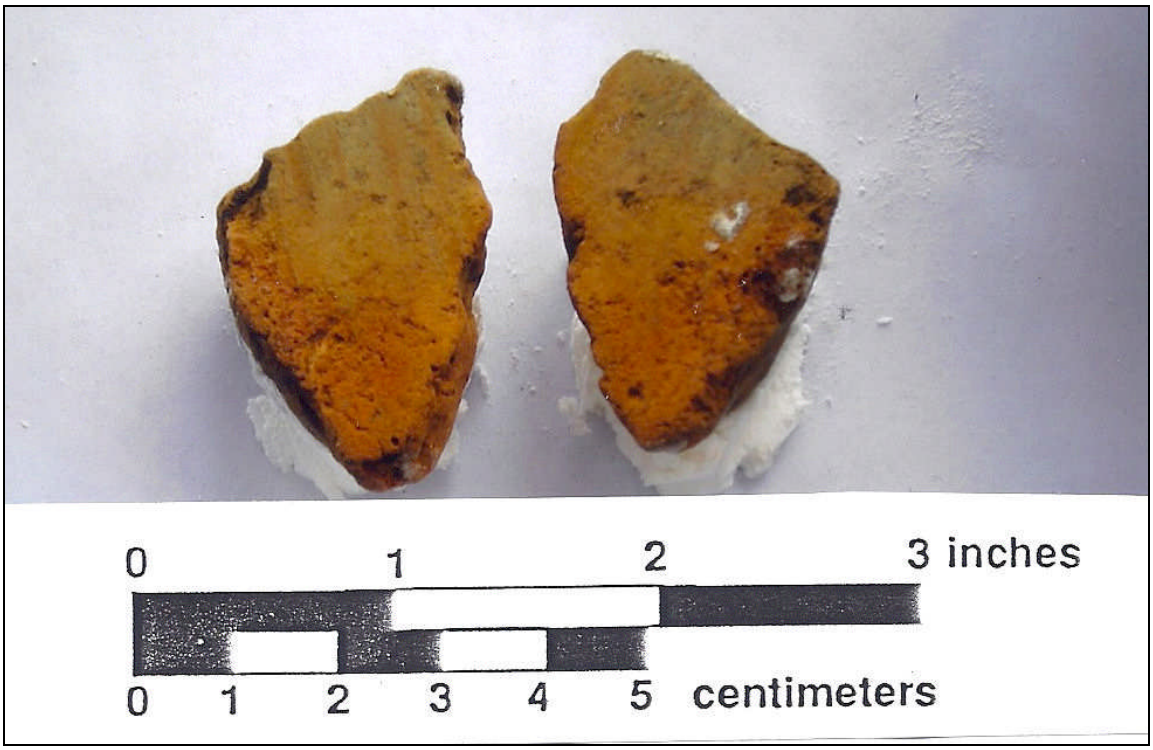

Figure 6. Cross-section of above burned clay object.

ANALYSIS OF THE ABORIGINAL CERAMIC SHERDS FROM THE BOWMER SITE (41BL116) AND THE BOWMER 3 SITE (41BL1110), BELL COUNTY, TEXAS

Timothy K. Perttula

INTRODUCTION

The analysis of the recovered ceramic sherds from the Bowmer site (41BL116) (see Malof 2009), and the nearby Bowmer 3 site (41BL1110) along the Lampasas River in Bell County, Texas, emphasizes the acquisition of information on the technological and stylistic character of the aboriginal ceramic sherds from each site. Of particular interest is the manufacture and production of ceramic vessels as adduced from the study of temper use, firing, and surface treatment, as well as the stylistic character of the decorated sherds, with the goal of assessing the place of the pottery made and used at these two sites within the context of Central Texas prehistoric ceramic traditions and practices.

METHODS OF ANALYSIS OF VESSEL SHERDS

Detailed analysis of the ceramic sherds from the Bowmer site and the Bowmer 3 site is based on differences in temper, type of sherd (i.e., body or base; no rim sherds are present), decoration (if present), surface treatment (smoothing, burnishing, or polishing; see Rice 1987), and firing conditions (cf. Teltser 1993). Sherdlets, sherds less than 1 cm in length and width, were tabulated, but not subjected to detailed analysis (Appendix 1). Sherd cross-sections were inspected macroscopically and with a 10X hand lens to determine the character of the paste and its inclusions. Determining the firing conditions is based on the identification of the firing core in the sherd cross-sections and the identification of oxidation patterns as defined in Teltser (1993:535-536 and Figure 2a-h; see also Perttula 2005).

A number of attributes were employed in the analysis of the ceramics from the Bell County prehistoric sites. The first attribute is temper, the deliberate and indeterminate materials found in the paste (Rice 1987:411), including a variety of tempers (burned bone, hematite, and fired clay) and "particulate matters of some size."

Although most of the sherds are small and thus from indeterminate vessel forms, where sherds were large enough, vessel form categories that could be identified include bowls or carinated bowls and restricted containers, exclusively jars. Observations on ceramic sherd cross-sections permit consideration of oxidation patterns (Teltser 1993:Figure 2), namely the conditions under which a vessel was fired and then cooled after firing. Finally, wall thickness was recorded in millimeters (mm), using a vernier caliper, along the mid-section of the sherd.

With respect to interior and exterior surface treatment on the sherds, the primary methods of finishing the surface of the ceramic vessels at the two sites includes smoothing and burnishing/floating (cf. Rice 1987:138) from initial surface treatment work by the potter. Brushing of the vessel surface is considered a decorative treatment because the brushing was applied to be an integral part of the decoration of both rim and

body vessel surface. A roughened and brushed pot would certainly have been easier to pick up and carry than would an unroughened or smoothed vessel. Smoothing creates "a finer and more regular surface…[and] has a matte rather than a lustrous surface" (Rice 1987:138). Burnishing creates an irregular lustrous finish marked by parallel facets left by the burnishing tool (perhaps a smoothed pebble or bone).

In addition to brushing as a form of decoration, other sherds at the Bowmer site are decorated with engraved, incised, or punctated decorative elements. Engraving was done with a sharp tool when the vessel was either leather-hard or after it was fired, while the other decorative techniques were executed with tools or fingers (incising and punctations with wood or bone sticks or dowels), or by using frayed sticks or grass stems (brushing) across the vessel surface when the vessel was wet In one instance, a sherd from 41BL1110 has evidence of the application of a hematite-rich clay slip or red wash. The clay wash was typically applied to one or both surfaces in this prehistoric Central and South Texas ceramic ware, and then was burnished after it was leather-hard or dry; when the vessel was fired, it created a very thin red coating on the exterior vessel surface.

BASIC CHARACTER AND PROVENIENCE OF THE CERAMIC ASSEMBLAGES FROM THE BOWMER SITE AND BOWMER 3 SITE

A total of 56 sherds and 25 sherdlets have been recovered from the Bowmer site during the various archeological investigations (Table 1 and Appendix 1). A single sherd and a sherdlet are from the Bowmer 3 site. Given that the approximate average ground surface elevation across the site is 99.90 m, with one exception (Unit 992-1008, with a starting elevation of 99.45 m, situated on a lower bench, likely formed in Late Prehistoric times), all of the sherds from the Bowmer site are from the surface to a maximum of 99.60 m elevation, or from the surface to ca. 30 cm bs. There is a single uni-modal peak in sherd densities by the bottom depth of the levels that contain sherds—99.75 m (ca. 15 cm bs) elevation—but sherds from levels with bottom depths between 99.85 m (ca. 5 cm bs) and 99.65 m (ca. 25 cm bs) are also relatively abundant.

The prehistoric occupation that left the aboriginal sherds was not substantial with respect to the thickness of the archeological deposits. Units with sherds from more than one 5 cm level (see Table 1) indicate that they come from mean depths of only 5.7-19 cm bs, suggesting the ceramic-bearing prehistoric occupation was approximately 13 cm in thickness.

The aboriginal ceramic sherds from the Bowmer site were found in units covering an area of approximately 33 m (north-south) x 29 m (east-west), or 957 m^2 (Figure 1). In the northwestern part of the excavations, the sherd density is 1.0 sherd per m^2. This compares to 2.5 sherds per m^2 in the western part of the excavations, and only 1.1 sherds per m^2 in the main excavation block (Figure 1). Only one sherd was recovered from excavations south of the N1000 grid line. The overall density across the site is only 1.1 sherd per m^2, suggesting that there are approximately 1050 sherds from at least an estimated 14 vessels (see below) distributed across this part of the Bowmer site.

Table 1. Provenience of the ceramic sherds from the Bowmer site.

Provenience (N and E grid coordinates)	Depth (m bd)	No. of plain sherds	No. of decorated sherds	N
992-1008	99.25-99.20	1	-	1
1001-1002	99.761	1	-	1
1001-1006	Surface-99.75	2	-	2
1001-1007	Surface-99.75	2	1	3
	99.70-99.65	-	1	1
1002-1002	99.913-99.60	1	1	2
1002-1006	99.70-99.65	1	-	1
1003-1002	99.85-99.75	1	-	1
	99.75-99.70	1	-	1
1003-1003	99.75-99.70	-	1	1
1003-1004	99.75-99.70	2	-	2
	99.70-99.65	1	-	1
1003-1006	99.70-99.65	1	-	1
1004-978	99.70-99.65	1	2	3
	99.65-99.60	1	1	2
1004-1001	99.90-99.85	1	-	1
	99.75-99.70	1	-	1
1004-1003	99.80-99.75	-	1	1
	99.75-99.70	1	-	1
1004-1005	99.80-99.75	1	-	1
1004-1007	99.80-99.75	1	1	2
1005-1004	99.80-99.75	1	-	1
1005-1007	Surface-99.75	2	2	4
1006-1003	99.90-99.85	1	-	1
1006-1004	99.90-99.85	4	-	4
	99.80-99.75	-	1	1
1006-1005	99.95-99.90	2	-	2
	99.90-99.85	1	1	2
1006-1006	99.85-99.80	2	-	2
1006-1007	99.85-99.80	1	-	1
	99.75-99.70	1	-	1
1023-983	99.85-99.80	1	1	2
	99.75-99.70	-	1	1
1025-983	99.85-99.80	-	1	1
1025-984	99.85-99.80	-	2	2
Totals		38	18	56

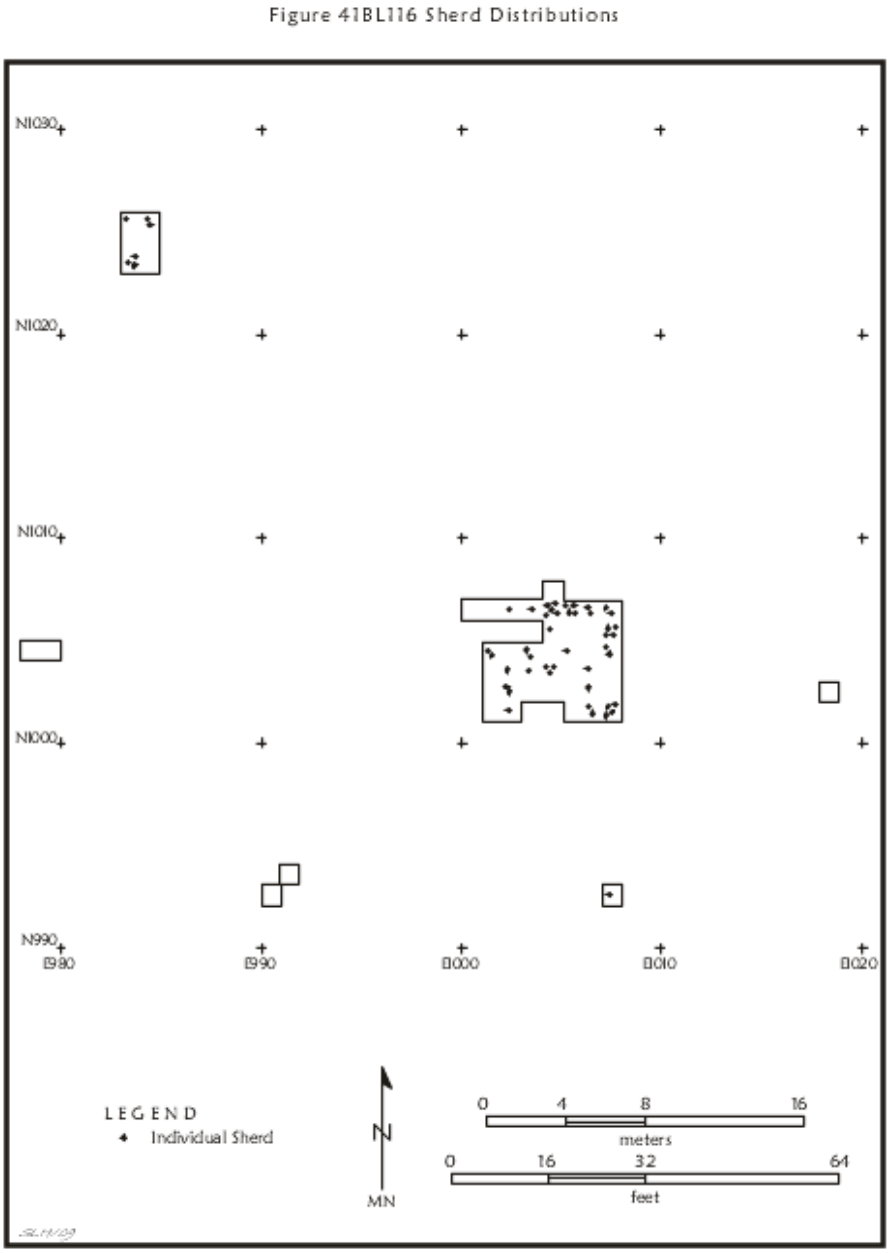

Figure 1. Distribution of ceramic sherds in the excavations at the Bowmer site.

Findings from the Analysis of the Bowmer Site Ceramic Sherds

The ceramic sherds from the Bowmer site consist exclusively of body sherds from thin-walled vessels tempered, fired, burnished/smoothed, and decorated in several different ways. The detailed analysis of each of the sherds from the Bowmer site is provided in Table 2.

Table 2. Detailed Analysis of the Aboriginal Ceramic Sherds from the Bowmer Site (41BL116).

Provenience (N and E grid coordinates)	Depth (m bd)	Sherd Type	Dec.	Temper	ST	TH (mm)	FC
992-1008	99.25-99.20	body	plain	b	-	5.1	A
1001-1002	99.761	body	plain	b-h	E B	4.9	A
1001-1006	Surf-99.75	body	plain	b-h	I B	5.5	A
		body	plain	b-h	E B	5.2	A
1001-1007	Surf-99.75	body	Eng.	h	E B	5.6	A
		body	plain	b-h	E B	4.9	A
		body	plain	b-h	E B	7.6	D
	99.70-99.65	body	Eng.	b-h	I/E B	6.0	A
1002-1002	99.913-99.60	body	plain	b-h	I B	5.7	A
		body	Eng.	b-h	E B	5.5	A
1002-1006	99.70-99.65	body	plain	b-h	I/E B	5.1	A
1003-1001	99.80-99.75	body	plain	b-g	I/E B	4.5	G
1003-1002	99.75-99.70	body	plain	b	-	6.7	B
1003-1003	99.75-99.70	body	Eng.	none	I/E SM	4.5	G
1003-1004	99.75-99.70	body	plain	g	E B	5.6	A
		body	plain	b	I/E B	5.0	A
	99.70-99.65	body	plain	b-h	I/E B	5.3	A
1003-1006	99.70-99.65	body	plain	b/SP	-	6.9	K
1004-978	99.70-99.65	body	B-I	b	-	6.4	H
		body	B=I	b	-	6.6	H
		body	plain	b	-	6.5	H
	99.65-99.60	body	B	b	I SM	6.3	B
1004-978	99.65-99.60	body	plain	b	I B	2.8	F
1004-1001	99.90-99.85	body	plain	b-h	E B	5.6	A
	99.75-99.70	body	plain	b-h	E B	5.4	A
1004-1003	99.80-99.75	body	B	b-h	I B	4.8	A
	99.75-99.70	body	plain	b-h	-	5.7	C
1004-1005	99.80-99.75	body	plain	b	I/E B	3.9	D
1004-1007	99.80-99.75	body	Eng.	b-h	I/E B	6.2	A
		body	plain	b-h	I B	5.4	A
1005-1004	99.80-99.75	body	plain	b-h	I/E B	5.9	A
1005-1007	Surf-99.75	body	plain	b-h	I/E SM	5.5	A
		body	Eng.	b-h	E B	5.9	A
		body	Eng.	b-h	I/E B	5.3	C
		body	plain	b-h	-	5.6	A
1006-1003	99.90-99.85	body	plain	b	I/E B	5.9	H
1006-1004	99.90-99.85	body	plain	b-h	E B	5.1	A
		body	plain	b	I/E B	4.2	H
		body	plain	b-h	E B	4.9	A
		body	plain	b-h	I/E B	5.2	A
	99.80-99.75	body	Eng.	b-h	E B	5.6	A

Table 2, cont.

Provenience (N and E grid coordinates)	Depth (m bd)	Sherd Type	Dec.	Temper	ST	TH (mm)	FC
1006-1005	99.95-99.90	body	plain	b	I/E B	4.1	F
		body	plain	b	I/E B	4.0	F
	99.0-99.85	body	Eng.	b-h	I/E B	5.4	A
		body	plain	b-h	I/E B	6.2	A
1006-1006	99.85-99.80	body	plain	b-h	E B	5.6	A
		body	plain	b-h	E B	5.5	A
1006-1007	99.85-99.80	body	plain	b-h	E B/ I SM	4.6	H
	99.75-99.70	body	plain	h	-	3.3	G
1023-983	99.85-99.80	body	plain	b	-	5.1	K
		body	I	b	I B	5.4	F
1023-983	99.75-99.70	body	tP	b	-	5.8	F
1025-983	99.85-99.80	body	B-I	b	-	5.6	F
1025-984	99.85-99.80	body	B-I	b	-	5.5	F
		body	I	b	I B	5.4	B

Decoration: tP=tool punctated; Eng.= engraved; B=brushed; B-I=brushed-incised; I=incised
Temper: b=bone; h=hematite; g=grog or fired clay; o=organics; SP=sandy paste
ST=surface treatment: I=interior; E=exterior; SM=smoothed; B=burnished/floated
FC=firing condition (see Teltser 1993; Perttula 2005): A, oxidizing; B, reducing; C-E, incompletely oxidized; F-H, reducing, but cooled in a high oxidizing environment; I-L=incompletely oxidized, possibly smudged; X=multiple oxidized and reduced bands in the sherd core section
TH=thickness

Approximately half of the sherds from the Bowmer site excavations are from a single vessel (either a bowl or a carinated bowl) found in the main block (referred to hereafter as Vessel 1). This vessel, represented by 29 body sherds, is bone and hematite-tempered, has a relatively simple engraved decoration (see below), is well burnished on both interior and exterior vessel surfaces, and was fired and cooled in a high oxygen environment (cf. Teltser 1993:Figure 2a). The other sherds—based on temper, decoration, wall thickness, and firing conditions—are from as many as 13 other vessels, either plain (n=7) or decorated (n=6); none of these vessels are represented by more than six sherds, indicating a high degree of fragmentation/breakage and vessel dispersion across the Bowmer site.

Vessel Construction

Based on the breakage patterns of the sherds, the pottery from the Bowmer site was made using clay coils. Although there are no rim or base sherds in the sherd

assemblage, it is likely that vessel construction began with the base and then proceeded by stacking the coils one upon another, progressing up the vessel body to the rim. These coils were welded together by "pressing each rope [or clay coil] down on the vessel's interior surface while pressing and pulling up on the pot's exterior" (Johnson 1994:205).

Use of Temper

The prevalence of burned and crushed bone temper in the sherds from the Bowmer site clearly demonstrates that these sherds are almost exclusively from bone-tempered wares, regardless of the other aplastics that were documented in the sherd pastes. Similar bone-tempered ceramic assemblages, some of which have sherds from engraved vessels, are documented over a large part of Central and southern Texas in both prehistoric and early historic archeological contexts, and the plain wares are commonly referred to (although not necessarily with good reason) as Leon Plain when such sherds are found in Late Prehistoric (post-ca. A.D. 1200) contexts and Goliad ware when found in early historic mission contexts (Hester 1989; Ricklis 1995, 1999, 2000). In fact, "despite the difference in names, no clear-cut technological distinctions have been successfully recognized; hence Leon Plain and Goliad ware probably represents a continuation of the same pottery tradition" (Walter 2007:87). Approximately 96% of the sherds from the Bowmer site have bone temper (Table 4).

Table 3. Temper use in the Bowmer site sherds.

Temper	Vessel 1	Other engraved	Utility ware	Plain sherds
bone	-	-	88.9*	62.5
bone-hematite	100.0	50.0	11.1	18.8
bone/sandy paste	-	-	-	6.3
bone-grog	-	-	-	6.3
hematite	-	-	-	6.3
none	-	50.0	-	-
summary temper analysis				
sherds with bone	100.0	50.0	100.0	93.7
sherds with hematite	100.0	50.0	11.1	25.1
sherds with grog	-	-	-	6.3

*=percentage

Tempers were added to the paste to hold the constituents of vessels together, but not limit the natural plasticity of the clays chosen for vessel manufacture; too much temper added to the paste, and the clay would be too limp to manipulate and shape, but too little temper, and a vessel would be likely to spall and break when it was being fired.

Although not quantified here, the amount of bone added to the paste ranged from less than 5% to between 5-25% of the clay paste). Crushed and burned bone was likely added to a vessel's paste by these aboriginal potters because crushed and burned bone produces with little effort an angular particle shape whose coarseness gave vessels tempered with it the ability to withstand thermal shock. Johnson (1994:205) also has suggested that the addition of bone temper—as well as the absolute amount of the distinctive temper added to the paste—was "to counteract the tackiness of the highly plastic, fine-grained clay that they preferred…if not enough bone is added to such clay, the greenware will ruinously crack and spit." That the bone temper in the Bowmer site ceramic sherds was fine to medium-textured suggests that the clay used for vessel manufacture was not particularly fine-grained or highly plastic as that documented by Johnson (1994) from various Toyah phase sites in central Texas.

Hematite, which is a fairly common occurrence on the site (Andy Malof, April 2009, personal communication) may have been added to the paste of certain vessels strictly as a matter of personal choice by individual potters, but it may have served a useful purpose nonetheless. That is, the occurrence of crushed grains of hematite in the paste would have enhanced a vessel's ability to melt and fuse the paste constituents during firing, thus resulting in a dense, hard body, and a reduced vessel porosity (Rice 1987:96). Similarly, the addition of a coarse temper like hematite pieces would have aided a vessel's ability to withstand thermal shock. Vessels with crushed pieces of hematite are particularly prevalent in the engraved Vessel 1 (see Table 3).

One plain sherd has small pieces of fired clay or grog temper (see Table 3) along with fine or moderate amounts of bone temper. Whether these pieces represent deliberately added crushed sherd fragments—as is so commonly seen in East Texas Caddo ceramic wares—or incidental inclusions incorporated in the clay paste during its preparation for vessel manufacture has not been determined. Perhaps the potters of this bone-grog-tempered vessel recognized that the addition of grog or fired clay to the vessel paste slowed the oxidation process during firing, creating darker-colored vessels in a reducing firing environment (or lighter tan, orange, and brown colors in oxidizing environments), while allowing them to be fired longer, and producing a harder ceramic vessel (Rice 1987:354; Teltser 1993:532, 540). Since grog has expansion coefficients generally comparable to the coefficients of the clay paste most commonly seen in aboriginal pottery vessels, this would have contributed further to the ability of fired vessels to withstand heat-related stresses, as well as increasing their flexural strength (Rice 1987:362).

Pastes

Only one (1.8%) of the Bowmer bone-tempered sherds has a sandy paste (see Table 3), and the remainder have a silty to clayey paste. The occurrence of a single sandy paste vessel sherd suggests that only rarely did the aboriginal potters there make use of a naturally sandy clay for vessel manufacture (i.e., the clay contains some natural tempering particles in the form of sand).

Technological and petrographic studies of Late Prehistoric ceramics from Central and South Texas sites indicate that bone-tempered sandy paste pottery is relatively common in 13th to 17th century sites. Depending upon their location in these regions, if

sandy paste bone-tempered pottery was manufactured, it accounts for as little as 22-50% of the sherds or vessel groups (Hester and Parker 1970; Black 1986a, 1986b; Ricklis and Collins 1994; Quigg and Peck 1995; Perttula 2009) to as much as 70-100% (Black 1986b; Rogers and Perttula 2005). The most reasonable explanation for the technological diversity documented in Central and South Texas bone-tempered pottery is that it is both (1) a reflection of situational (physical and geological) variations in the character of the clay sources that were available for vessel manufacture, and (2) the knowledge that aboriginal potters had about clay as well as ceramic pastes and fabrics (the quantity and proportion of aplastics and other inclusions, both natural and additive) that could be brought to bear to insure the successful manufacture of plain bone-tempered pottery vessels that had different intended functions. It is important to document both the natural variation that must exist in the clay sources in the region (e.g., Neff and Glascock 2005:C-12 to C-13) that would have been suitable for ceramic manufacture, as well as the intra-regional variation in pottery fabrics (i.e., the mixture of clay and temper to make pottery) that is suspected to have characterized the ceramic assemblages produced by a diverse number of aboriginal groups at different times and in different places across this large region.

Decoration

The 18 decorated sherds in the Bowmer site sherd assemblage are equally divided between fine wares (n=9) and utility wares (n=9). The fine wares include the engraved vessel sherds from bowls and/or carinated bowls, while the utility wares are the coarse paste decorated vessels, usually cooking or storage jars and simple bowls. These wares, when found on Caddo sites in East Texas, are known to have been made and used differently, based on functional, technological, and stylistic analyses on numerous Caddo sherd assemblages in the broader East Texas region, with uses ranging from food service, cooking of food stuffs, as containers for liquids, and for plant food/seed crop storage. How do the decorated sherds from the Bowmer site compare to Caddo decorated vessel sherds?

The Vessel 1 decorated sherds (n=7) include several different finely engraved elements (Figure 2a-d) that are found on the rim and /or upper body of a bowl or carinated bowl; there are no rim sherds or sherds broken at the carination to definitively establish its form. Based on the combination of engraved elements, the engraved motif consists of a single horizontal engraved line at the base of an engraved panel on the rim and upper body, and the panel is composed of a series of at least four diagonal opposed engraved lines (Figure 2a-b). Comparable decorative elements and motifs are found in Caddo fine wares from Early Caddo (ca. A.D. 900-1200) and Middle Caddo period (ca. A.D. 1200-1400) contexts in East Texas, although because of the generalized motif, the specific defined ceramic type is not known. The Vessel 1 engraved sherds are confined to the main block excavation at the Bowmer site (Figure 3).

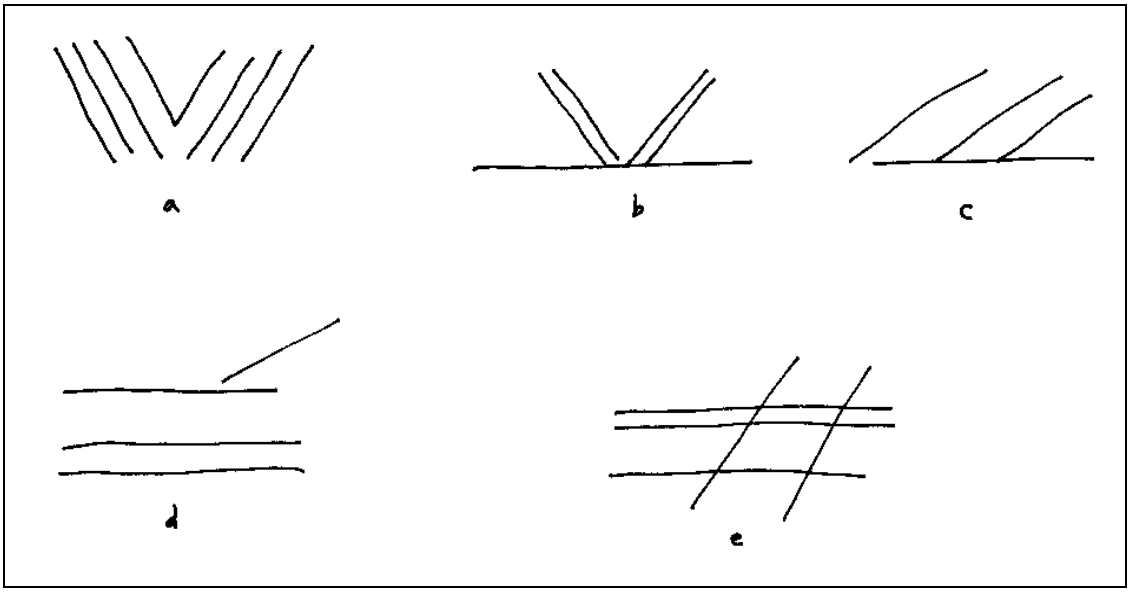

Figure 2. Decorative elements represented among the engraved sherds at the Bowmer site: a-d, Vessel 1; e, another engraved vessel. Provenience: a, N1005 E1007, Surface to 99.75 m; b, N1004 E1007, 99.80-99.75 m; c, N1001 E1007, 99.70-99.65 m; d, N1006 E1005, 99.90-99.85 m; e, N1005 E1007, Surface to 99.75 m.

The two other engraved sherds are from two different vessels. One of the sherds has a set of parallel engraved lines, while the other has both parallel engraved lines and broadly-spaced cross-hatched lines (see Figure 2e). If it were not for differences in temper, firing conditions, or body wall thickness, the design and execution of the finely engraved sherds could comfortably also be attributed to Vessel 1. It seems likely that the Vessel 1 and other engraved sherds are part of a ceramic assemblage left during a single occupational episode dating before ca. A.D. 1400.

The utility wares include body sherds from an estimated four (or possibly five) bone-tempered vessels with punctated (n=1), incised (n=2), brushed (n=2), and brushed-incised (n=4) decorative elements. The one punctated sherd has a single row of tool punctates. The incised body sherds include one with a single straight incised line and another with widely-spaced sets of parallel lines. The temporal or typological affiliation of these sherds is not known.

The brushed and brushed-incised sherds have a northern and western distribution in the Bowmer site excavations (Figure 4), different from that documented for the fine wares. Two of the sherds have parallel (probably oriented vertically on the vessel body) brushing marks, while three of the brushed-incised sherds have sets of parallel and closely-spaced brushed and incised lines, likely also oriented vertically on the body of utility ware jars. The last brushed-incised sherd has parallel brushing marks on the exterior vessel surface and a single straight incised line on the vessel interior surface.

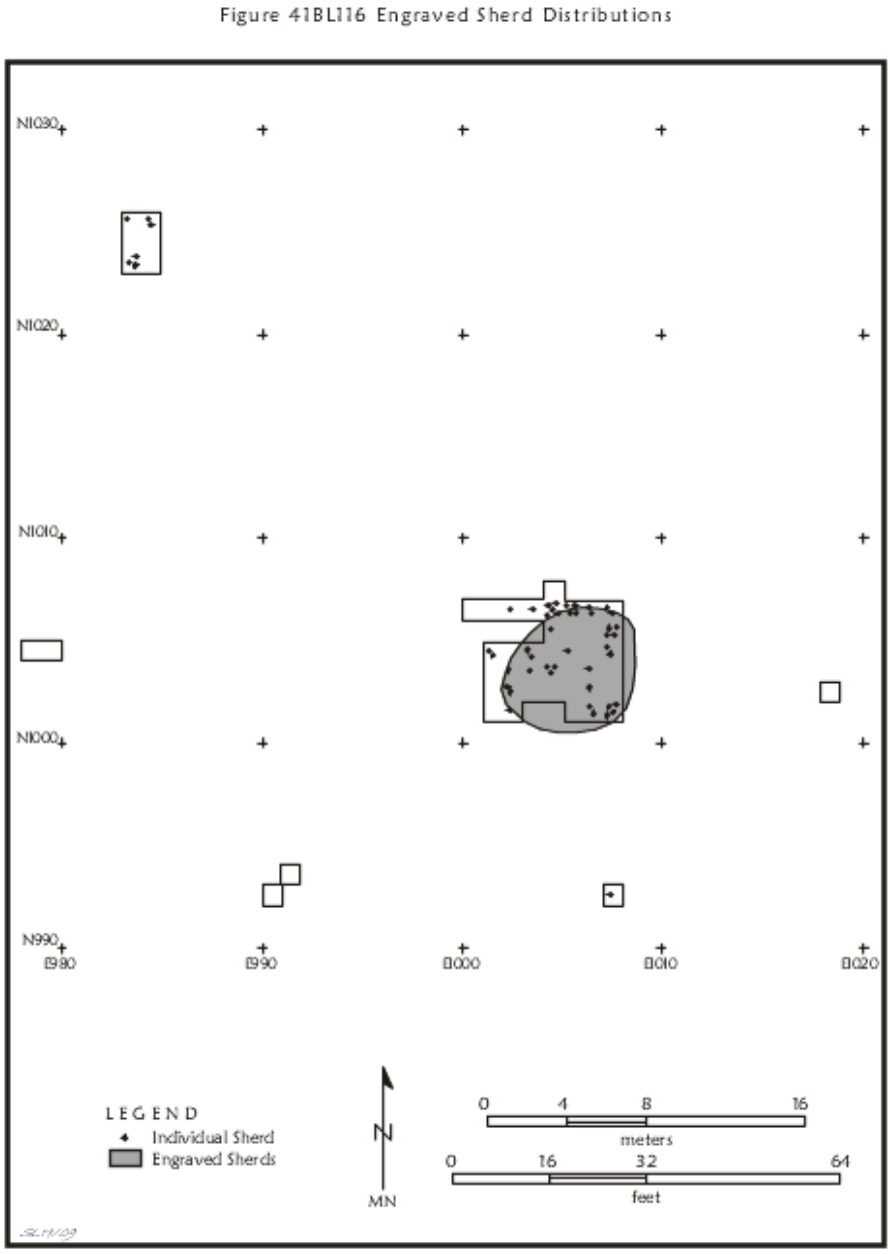

Figure 3. Distribution of engraved sherds at the Bowmer site.

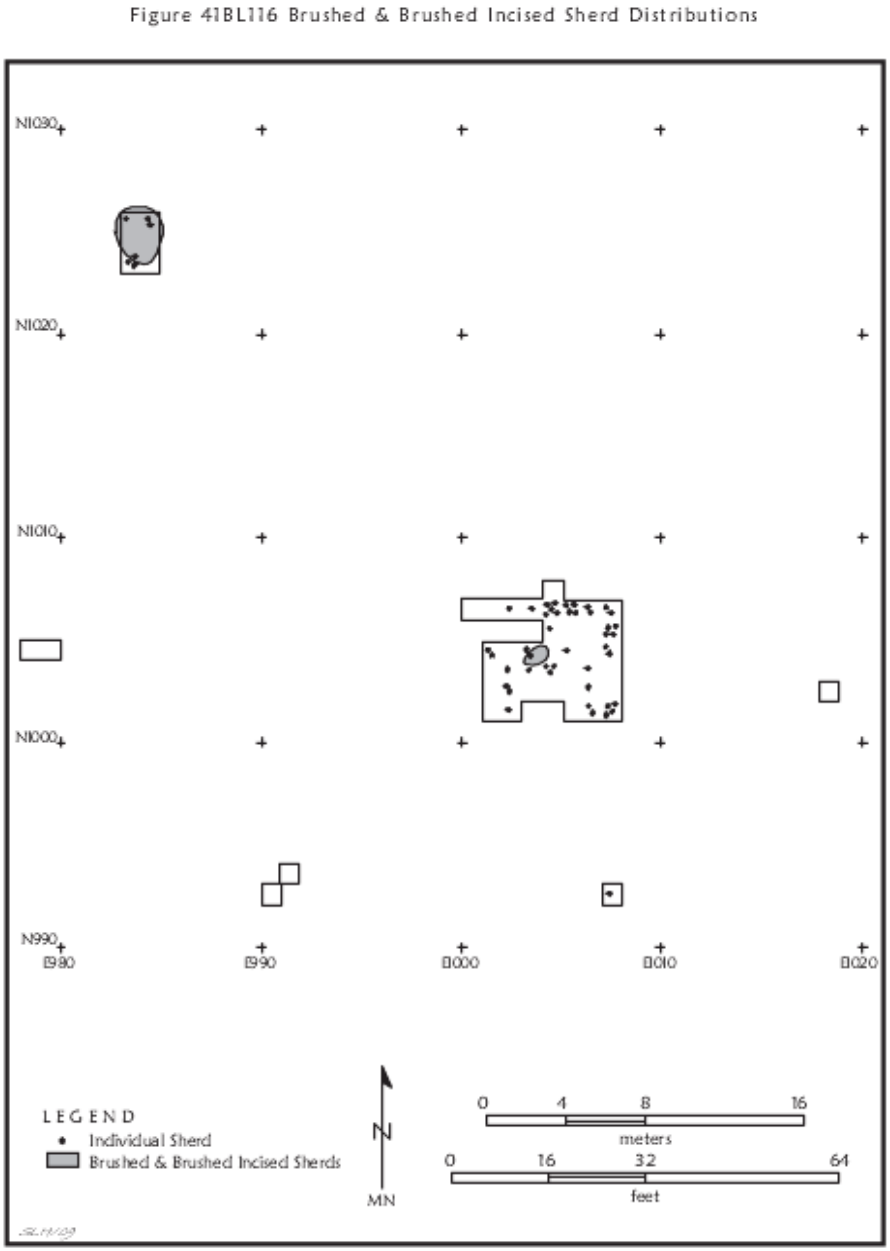

Figure 4. Distribution of brushed and brushed-incised sherds at the Bowmer site.

Sherds from brushed, brushed-incised, and brushed-punctated vessels have been found in prehistoric and early historic aboriginal sites in both Central Texas and East Texas Caddo sites (Suhm 1955; Ricklis and Collins 1994:Table 47; Perttula et al. 2003; Shafer 2006). In both regions, brushed pottery appears to be present only in post-A.D. 1200/1300 sites, although it is not usually particularly abundant in Central Texas sites, since ceramic vessel sherds of any kind are generally sparse in this region. Brushed pottery in the Big Cypress, middle Sabine, and Neches-Angelina river basins in East

Texas comprises at least 40-60% of all the decorated sherds in many large ceramic assemblages; brushed pottery becomes especially common after the 15th century A.D. in this part of the Caddo area, reaching proportions of more than 80% in some early historic Caddo sites (Perttula et al. 2003:11). Much of the brushed pottery in East Texas Caddo sites is bone-tempered, as is the case with brushed Central Texas pottery.

Surface Treatment

Many of the pottery sherds from the three Bowmer site have been either smoothed or burnished on one or both vessel surfaces: burnishing of interior and exterior sherd surfaces is particularly common in the assemblage, more so on the Vessel 1 and plain sherds (Table 4). Sherds with burnished and/or floated (i.e., a rubbing of the vessel surface that "brings to the surface many fine-grained particles," Johnson 1994:193) exterior surfaces comprise between 50-79.3% of the sherds; 33-50% of the sherds also have burnishing on interior vessel surfaces. Smoothed vessel surfaces are not common among any of the wares.

Table 4. Surface treatment on the sherds from the Bowmer site.

Surface Treatment	Vessel 1	Other engraved	Utility ware	Plain sherds
int. smoothed	3.4*	50.0	11.1	6.3
ext. smoothed	3.4	50.0	-	-
int. burnished	41.4	50.0	33.3	50.0
ext. burnished	79.3	50.0	-	50.0

*=percentage

When done, the burnishing or smoothing of the pottery from the Bowmer site was likely completed primarily to lower the permeability of particular vessels (cf. Rice 1996:148), to better hold liquids or food stuffs (cf. Johnson 1994:193) in plain or engraved bowls or carinated bowls, or to increase their heating effectiveness (in the case of utility ware cooking jars) Smoothing also served to better weld the vessel coils together before firing.

Given that burnishing is more prevalent on sherd exterior surfaces in the sherd assemblage from the site (see Table 4), but is still commonly seen on interior vessel surfaces, suggests that many of the sherds are from vessels that were not used for cooking per se, but probably instead to serve and hold foods and liquids. The practice of smoothing or burnishing interior surfaces of such vessels would have been advantageous in the repeated use of such serving vessels. Additionally, the exterior smoothing and burnishing was probably also designed for stylistic and display purposes, creating a flat and lustrous surface (cf. Johnson 1994:193), even if that surface was not decorated.

Firing Conditions

The pottery from the Bowmer site was fired in a variety of ways. The engraved Vessel 1 sherds were fired and cooled in a high oxygen environment (Table 5). The potters that made this engraved vessel were successful in firing it at a sufficiently high temperature and duration that the paste was completely oxidized, producing a durable vessel that was not subject to diminished strength from cumulative thermal fatigue, cracks, or fractures.

Table 5. Firing conditions of the sherds from the Bowmer site.

Firing Condition	V.1	Other engraved	Utility ware	Plain sherds
Oxidizing	100.0*	-	11.1	-
Incompletely oxidized	-	50.0	-	18.3
Reducing	-	-	22.2	6.3
Reducing, cooled in the open air	-	50.0	66.7	62.5
Smothered, sooted, smudged	-	-	-	12.5

*=percentage

The other engraved sherds were from vessels either incompletely oxidized during firing, or fired in a low oxygen or reducing environment (probably smothered in a bed of coals from a wood fire). Between 68.8-88.9% of the utility ware and plain ware sherds were also fired in a reducing environment (see Table 5). Many of these sherds were from vessels that were subsequently cooled in a high oxygen environment (i.e., fire-hardened vessels were removed from the fire to cool), where either one or both vessel surfaces had thin oxidized or light-colored (reddish-brown to yellowish-brown) surface colors. The more heterogeneous firing conditions in the remainder of the vessel sherd assemblage, suggests that as long as the porosity of the vessels being used at the Bowmer site was not excessive, and there was a good balance between clay plasticity and temper constituents, they were not fired for as long a time as the harder engraved wares, but they were still quite serviceable vessels.

Two plain sherds from the Bowmer site have a distinctive core, much of the core having a light oxidized exterior and a thin dark interior cross-section (K on Table 2), suggesting they are from vessels that have been smothered, sooted, or smudged during firing. Aten and Bollich (2002:54-55) note that this manner of vessel firing is characteristic of a sandy paste pottery ware such as Goose Creek Plain, *var. unspecified*. They also suggest that vessels with this kind of firing may have been placed in a fire with the "orifice [of the vessel] facing into the fire." Furthermore, the sherds with cores lighter than the surfaces may have come from vessels where "after extended firing that burned off all organics, the fire may have been smothered to cause reduction and darkening of the exterior surface."

Wall Thickness

Regardless of the ware, the vessel sherds from the Bowmer site have thin body walls (Table 6). Mean body wall thickness ranges only from 4.95-5.76 mm.

Table 6. Mean thickness of the body wall of the Bowmer site sherds.

Ware	Mean thickness (mm)	Standard deviation (mm)	Coefficient of variation
Vessel 1	5.46	0.28	5.1
Other engraved	4.90	0.40	8.2
Utility ware	5.76	0.46	8.0
Plain sherds	4.95	1.16	23.4

The quite uniform thickness of vessel body sherds between the different wares at the Bowmer site—especially the engraved and utility wares with CV values ranging only from 5.1-8.2 (see Table 6)—suggest that the aboriginal potters were adept at the manufacture and finishing of vessels with a narrowly defined idea regarding the acceptable thickness of usable vessels. The plain sherds are much more variable in thickness, likely because there are several different vessels represented (estimated seven vessels) in the plain sherds, and some of these may have been of different sizes, or are from functionally-specific classes of pottery that have thicker walls than other kinds of vessels in use (cf. Ulrich 2006:125).

Bowmer 3 (41BL1110)

The single sherd from the Bowmer 3 site is from level 4 (98.70-98.65 m) in Unit 5. It is a very thin (3.8 mm) body sherd from a bowl with an exterior red wash. The bowl sherd is from a vessel with bone and hematite temper inclusions, and it has an exterior burnish. The vessel was incompletely oxidized (e.g. Teltser 1993:Figure 2c) during firing. The one sherdlet from the site is from Unit 4 (level 4).

Sherds and vessel batches with a red wash or thin slip (particularly a wash or slip on the exterior vessel surface) are not uncommon occurrences in plain bone-tempered pottery assemblages in central and southern Texas that date after the 13th-14th centuries A.D. (Table 7; see also Ricklis and Collins 1994:Table 47). Such a vessel decoration continued to be employed by aboriginal potters into historic times, but where information is quantified, a red wash or slip was certainly not used in any quantity then.

There are only a few sites in this broad area, however, where red washed bone-tempered ware is especially abundant: two sites in the Colorado River basin in the northwestern part of the Edwards Plateau (Johnson 1994; Treece et al. 1993) and one site in the Nueces River basin in the Gulf Coastal Plain, at opposite ends of the distribution of Toyah phase sites (Johnson 1994:Figure 106). These sites date from the 14th century A.D.

to the mid-16th century, but the relative proportions of red washed pottery appears to have diminished after that time (see Table 3). Perhaps 41BL1110 was occupied in this late era, though the recovery of numerous Scallorn arrow points suggests that the site was also occupied prior to ca. A.D. 1200 (Andy Malof, April 2009 personal communication).

Table 7. The relative frequency of red washed or slipped pottery among bone-tempered plain ware assemblages in central and southern Texas.

Site	estimated age	% red wash	Reference
41GD112	late 18th-early 19th century A.D.	1.3%+	Ricklis 1999
41GD1	18th century	0.7+	Ulrich 2005
41CC131	16th century A.D.	9.0+	Treece et al. 1993
41LK201	late 15th-late 16th century A.D.	15.8*	Highley 1986
41MC296	15th-17th century A.D.	25%*	Black 1986b
41ZV155	15th-16th century A.D.	3.7+	Inman et al. 1998^
41KM16	14th-16th century A.D.	38.5%*	Johnson 1994**
41JW8	14th century A.D.	4.0+	Black 1986a^^
41LK128	13th-14th century A.D.	100%*	Black 1986b

+=percentage of sherds; *vessel groups; ** 54% of the vessel groups have an interior red wash; ^ 1.2% of the sherds have an interior red wash; ^^ 1% of the sherds have an interior red wash

SUMMARY AND CONCLUSIONS

This report concerns the small number of aboriginal ceramic vessel sherds recovered from archeological excavations at the Bowmer (41BL166) and Bowmer 3 (41BL1110) sites on the Lampasas River in Central Texas. This consists of 56 sherds from an estimated 14 vessels at the Bowmer site, and a single sherd from a red-washed vessel at the Bowmer 3 site. The ceramic vessel sherds are from shallow archeological contexts at both sites, and at the Bowmer site, "Scallorn points are more common than Perdiz points in ceramic zones" (Malof 2009:20). The density of ceramic sherds is low, and it is estimated that there may be approximately 1000 sherds in the investigated occupation area at Bowmer.

The ceramic vessel sherds from the Bowmer site include 29 from Vessel 1, an engraved bone-tempered bowl or carinated bowl, two other engraved sherds from separate vessels, nine utility ware brushed, brushed-incised, incised, and punctated sherds from an estimated four vessels, most likely jars, and 16 plain sherds from an estimated seven vessels. These sherds are from uniformly thin-walled (4.9-5.76 mm), smoothed to burnished, and bone- or bone-hematite-tempered vessels made from a silty or clayey paste that were either fired in a high oxygen or oxidizing environment (Vessel 1) or in a low oxygen or reducing environment (utility wares and plain sherds), then left to cool in the open air. In these technological characteristics, the bone- and bone-hematite-tempered

vessel sherds from the Bowmer site are very similar to 13th to 17th century A.D. aboriginal sherd assemblages from a number of Central and South Texas Toyah phase sites (see Perttula 2009:Table 11), and would suggest that these sherds are from vessels made by groups that ranged across both regions. However, the diversity of decorated sherds from the Bowmer site, particularly the engraved sherds from a minimum of three vessels, may tell a different story with respect to the origins and cultural affiliation of these vessel sherds.

While not found in great numbers, engraved sherds from vessels of apparent Caddo origin have been found at a number of sites in Central Texas (see Watt 1953; Jelks 1962; Sorrow et al. 1967; Stephenson 1970; Ricklis and Collins 1994; Turner 1997; Perttula et al. 2003; Shafer 2006), particularly sites "restricted to the eastern margin of the Edwards Plateau and the prairie environment immediately to the east and northeast of the plateau" (Ricklis and Collins 1994:305 and Figure 155). These engraved wares are from contexts that in East Texas Caddo sites would date from Early Caddo (ca. A.D. 900-1200) to Historic Caddo (ca. A.D. 1680-1800) times, but with an apparent peak in Caddo style engraved pottery in Central Texas prairie sites dating before ca. A.D. 1300 (cf. Shafer 2006). The Bowmer site engraved wares, although from an undated context, may also be from an occupation that falls in this early period. However, the recovery of brushed pottery from Bowmer—if this pottery is associated with the engraved wares, which seems likely given its depth in the archeological deposits and the small occupation area with ceramic sherds—suggests (if temporal comparisons with the East Texas Caddo area are appropriate with respect to brushed utility wares, since some brushed pottery may have been made in Central Texas and were not Caddo trade wares, see Suhm 1955:19) that the occupation would have been after ca. A.D. 1200/1250, and perhaps even after ca. A.D. 1300.

Shafer (2006:5) has strongly suggested that "[a]rguable prehistoric Caddoan [sic] groups occupied the central Brazos valley and its tributaries by A.D. 1100 if not earlier, based on crossdating artifact styles from the George C. Davis site…Terminal dates are ca. A.D. 1250-1300, based on crossdating and extant dates" from prehistoric sites in Central Texas. Shafer considers these groups the Prairie Caddo. He goes on to hypothesize that the southern Prairie Caddo (i.e., the central Brazos and its tributaries) permanently occupied "portions of the central Brazos valley with intermittent and interdigitated Caddo presence in the peripheries to the west and south" (Shafer 2006:7). The Bowmer site is located in one of these proposed peripheral areas to the west of the Brazos River.

It has been further suggested by Shafer (2006:10) that Caddo ceramics made at the George C. Davis site in the middle Neches River valley were moving or being exported to outlying settlements in the southern Prairie Caddo area. This pottery was thought to have been obtained during feasting activities at the George C. Davis site, and then apparently carried back to Central Texas and used "essentially for domestic roles" (Shafer 2006:26). He also suggests that "the absence of fine engraved pottery would be expected in small hunting camps," while larger villages on the Brazos and various tributaries would have a "variety of vessels in both form and decoration" (Shafer 2006:10). It is not known if the Bowmer site is considered a hunting camp, but Malof (2009 personal communication) suggests it is a base camp used seasonally, probably during the late summer/early fall; the occupational area is small. Nevertheless, this site,

located in a peripheral part of the central Brazos river basin, contains an impressive diversity among its small sample of sherds of engraved wares (none specifically identified as coming from Early Caddo types), decorated utility wares, and sherds from plain vessels. All of it is bone-tempered, which is prima facie evidence that these sherds did not come from the George C. Davis site, as almost all the pottery from this site is grog-tempered (Shafer 2006:25).

Another possibility, one I favor, is that Caddo vessels manufactured in a number of different regions in East Texas (see Perttula et al. 2003:Figure 16) were only very occasionally traded or exchanged for various reasons (not just feasting) with aboriginal hunter-gatherer groups whose territorial range included the Central Brazos river basin. These same hunter-gatherer groups did make their own pottery, primarily a plain bone-tempered ware as well as a brushed-punctated utility ware (Boothe Brushed). On the basis of a stylistic, petrographic, and chemical analysis of sherds from 11 Central Texas sites (Perttula et al. 2003:Figure 1), Perttula et al. (2003:63) concluded that:

> The generally low number of Caddoan [sic] pottery sherds found on many central Texas sites, and the fact that the pottery was not made from central Texas clays, indicates that the sherds are from vessels traded to local central Texas hunter-gatherers, not vessels produced by Caddoan [sic] peoples who had settled in or were periodically using the central Texas region.

From these findings, the majority of the vessel sherds from the Bowmer site—almost certainly the engraved vessel sherds—are likely to be from vessels made by Caddo potters living in East Texas. Where within this Caddo region is not known presently because the stylistic character of the engraved sherds is not regionally distinctive. The fact that the engraved sherds are from bone-tempered vessels does not help narrow down the region of vessel production because bone-tempered Caddo pottery—whether from plain or decorated vessels—is present in a number of different areas across East Texas. Probably the best known area of bone-tempered Caddo pottery in East Texas, also associated with the manufacture of brushed pottery and distinctive hatched and curvilinear zoned engraved wares, is in the Angelina-lower Sabine river basins, especially after ca. A.D. 1250 (Perttula 2008:Figure 12-3). Perhaps some of the Bowmer vessels originated in this part of Hasinai Caddo territory?

How do we make progress in understanding the technological, stylistic, and chronological character of aboriginal ceramic wares from the area that Shafer (2006:Figure 1) has labeled the area of the Southern Prairie Caddo, which includes sites such as Bowmer? Three ways come to mind. First, it is important to obtain suites of thermoluminescence dates (see Feathers 2003) on samples of the different kinds of aboriginal ceramics from discrete and/or stratified contexts on both prehistoric and early historic sites in the region, so as to finely document any changes in paste composition, forming technology, and firing technology over time, as well as the temporal intervals in which both local Central Texas and non-local Caddo pottery is being made and/or used in this area. Second, efforts are needed to continue the application of petrographic analysis of sherds from Central Texas sites of known age, to consistently quantify the character of the paste and temper of different sherds and vessel groups. Third, and finally, the use of

instrumental neutron activation analysis (sparingly used to date in the region, see Neff and Glascock 2005; Perttula et al. 2003) on sherd and clay samples should be routinely conducted to identify the chemical compositional character of the pottery, and establish whether the pottery has been made locally or non-locally. The application of these methods should proceed in combination with the development of thoughtful research problems on ceramic production, and the macroscopic analysis of technological, functional, and stylistic attributes of this aboriginal pottery from individual sites—and always with a comparative perspective brought to bear between individual sites (as exemplified by Shafer's [2006] study of the Prairie Caddo). These approaches may well lead to the broader appreciation of ceramic production (cf. Arnold 2008), and the technological changes within this material culture, among both the many different prehistoric and early historic mobile hunter-gatherers of Central Texas.

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Appendix 1, Provenience of Sherdlets from the Bowmer Site (41BL116)

Provenience (N and E grid coordinates)	Level	Depth	No. of Sherdlets
1006-1002	1	99.95-99.90	1
1006-1004	2	99.90-99.85	1
1025-983	3	99.85-99.80	1
1001-1002	1	99.80-99.75	1
1001-1006	1	99.80-99.75	1
1004-1005	3	99.80-99.75	1
1004-1007	3	99.80-99.75	3
1002-1007	4	99.75-99.70	1
1003-1002	4	99.75-99.70	1
1003-1004	3	99.75-99.70	1
1003-1006	4	99.75-99.70	1
1004-978	2	99.75-99.70	3
1003-1003	5	99.70-99.65	3
1004-978	3	99.70-99.65	3
1005-1007	3	99.70-99.65	1
1003-1004	5	99.65-99.60	1
1004-978	4	99.65-99.60	1

THE TIMMONS' CACHE (41CV-), CORYELL COUNTY, TEXAS

Marvin Glasgow

During May of 2010, Mr. Brent Simmons and his son, Riley, were arrowhead hunting on their family property near Ater in Coryell County, Texas. They decided to excavate in an area that already had been disturbed by artifact collectors. Since evening was approaching, the two did not want to leave any open holes, they began to fill the hole in with surrounding dirt. A large stone was encountered which turned out to be one of the bifaces described below. After careful investigation, four more chert bifaces were found.

A two-inch long projectile point that resembles a Clovis point was discovered nearby and made from material similar to that of the bifaces. The point is approximately 52.13 mm long, 31.06 mm wide and 8.89 mm thick. A short distance from the cache is a spring that was flowing in either the late 1940s or the early 1950s according to a cousin of Mr. Timmons' father. Also, two metates rubbed into the limestone bedrock surface are near the cache and 300 to 400 yards away are four possible teepee rings. The site/cache is located approximately one-fourth mile north of the Leon River.

Table 1. Biface measurements.

Biface No.	Length (mm)	Width (mm)	Thickness (mm)	Figure No.
1	150.27	81.05	13.87	1
2	127.28	91.91	16.70	2
3	161.07	85.53	13.04	3
4	135.25	93.96	16.30	4
5	143.28	83.77	16.05	5

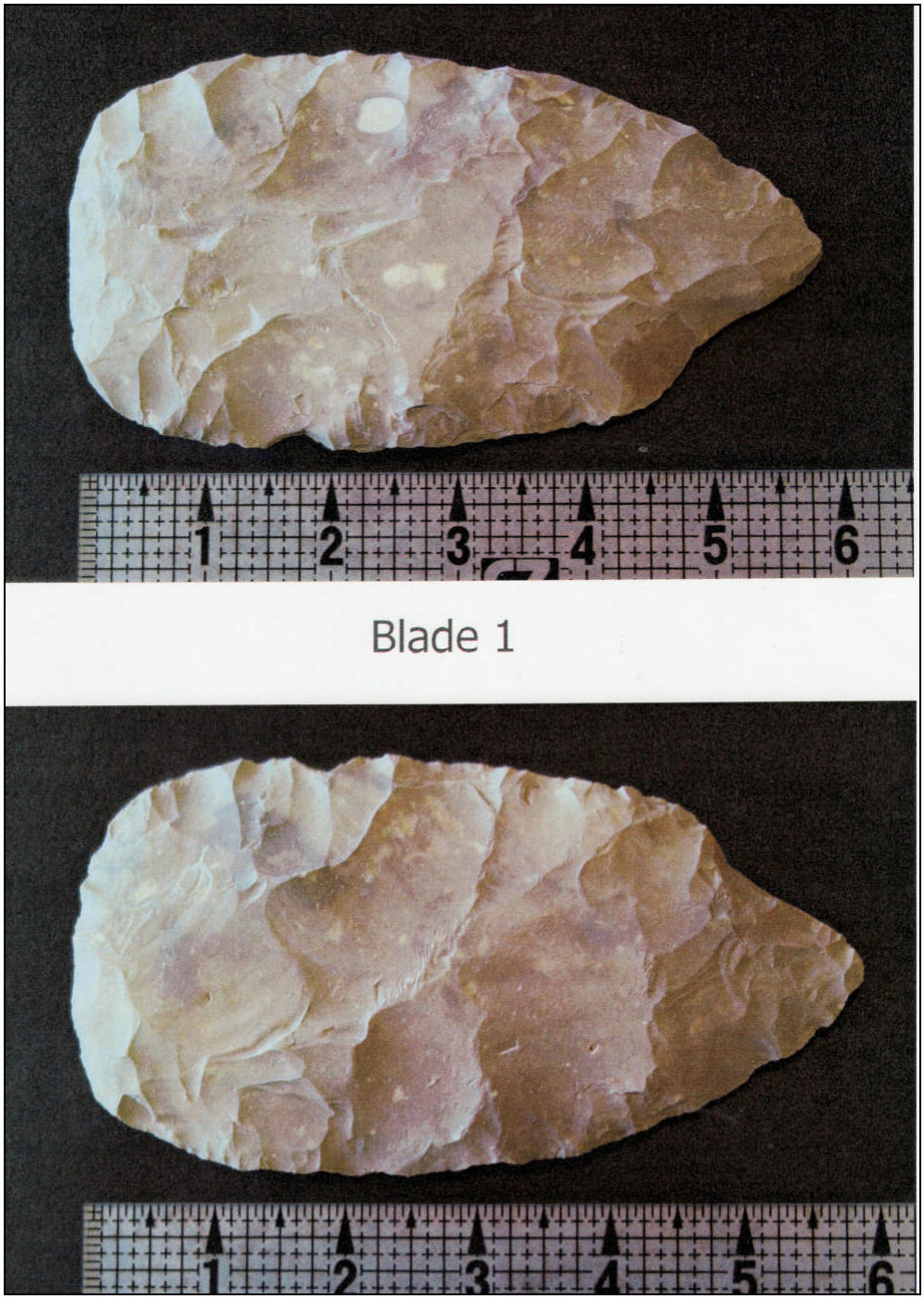

Figure 1. Obverse and reverse views of Blade 1 from the Timmons' cache.

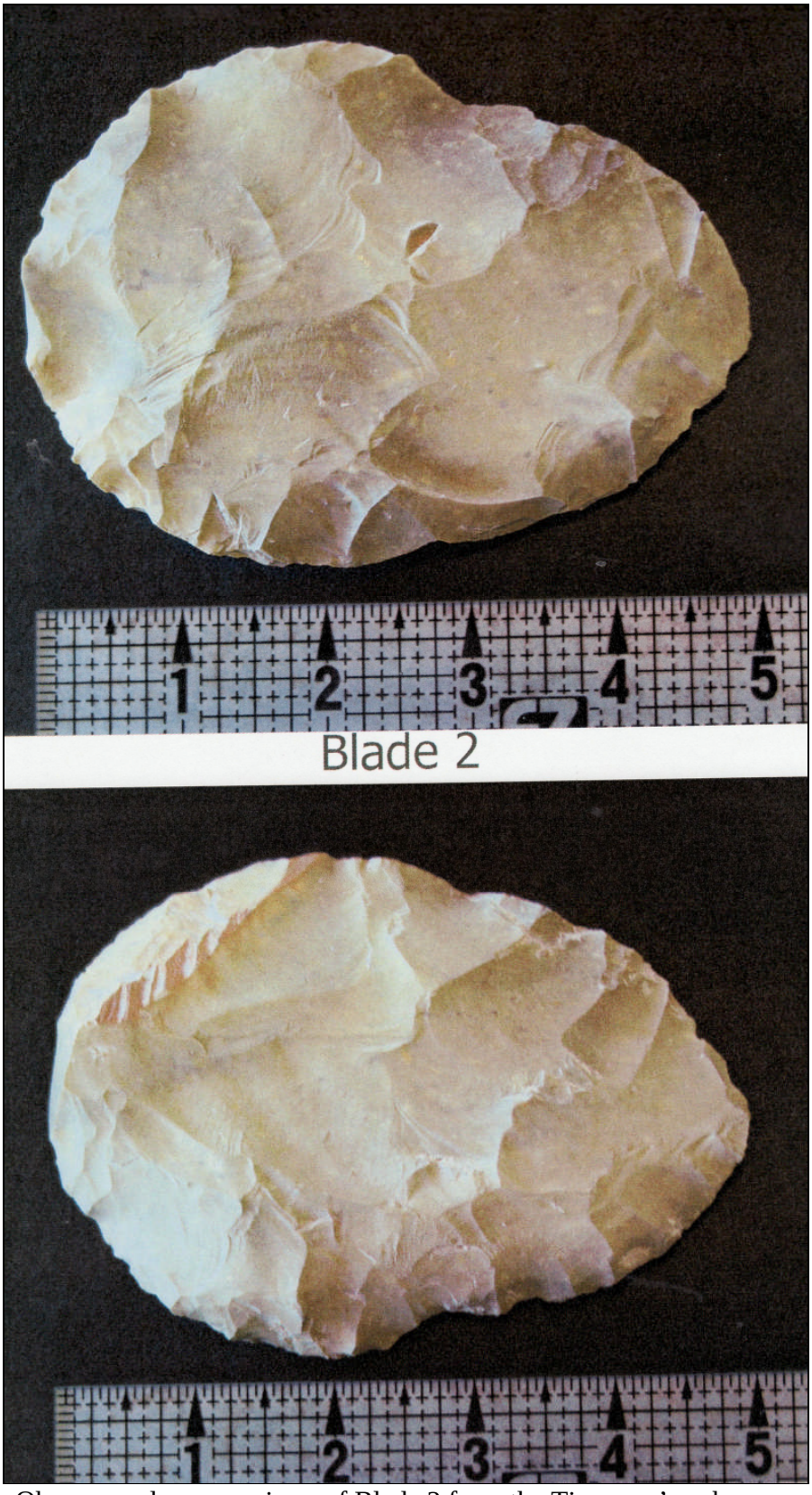

Figure 2. Obverse and reverse views of Blade 2 from the Timmons' cache.

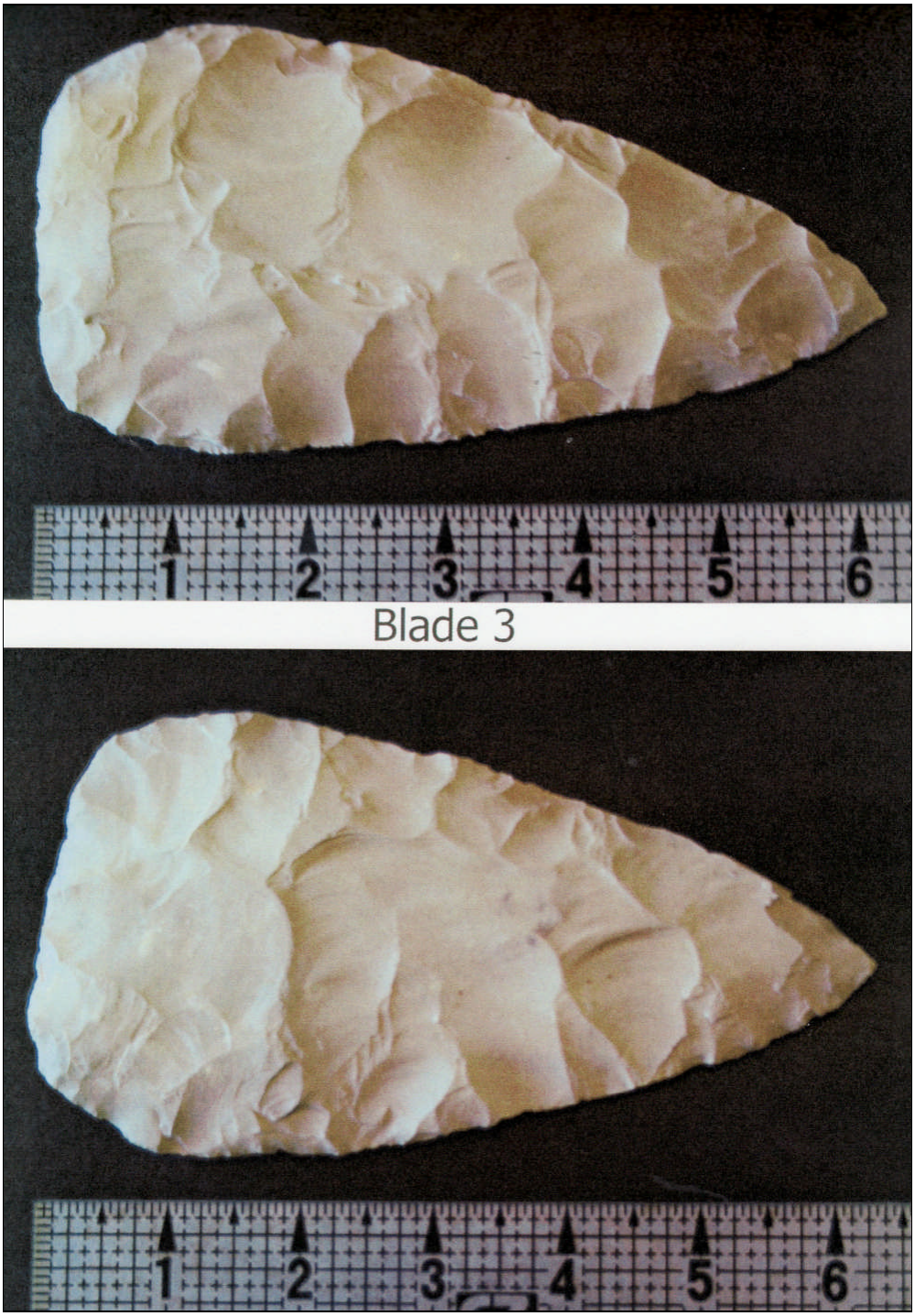

Figure 3. Obverse and reverse views of Blade 3 from the Timmons' cache.

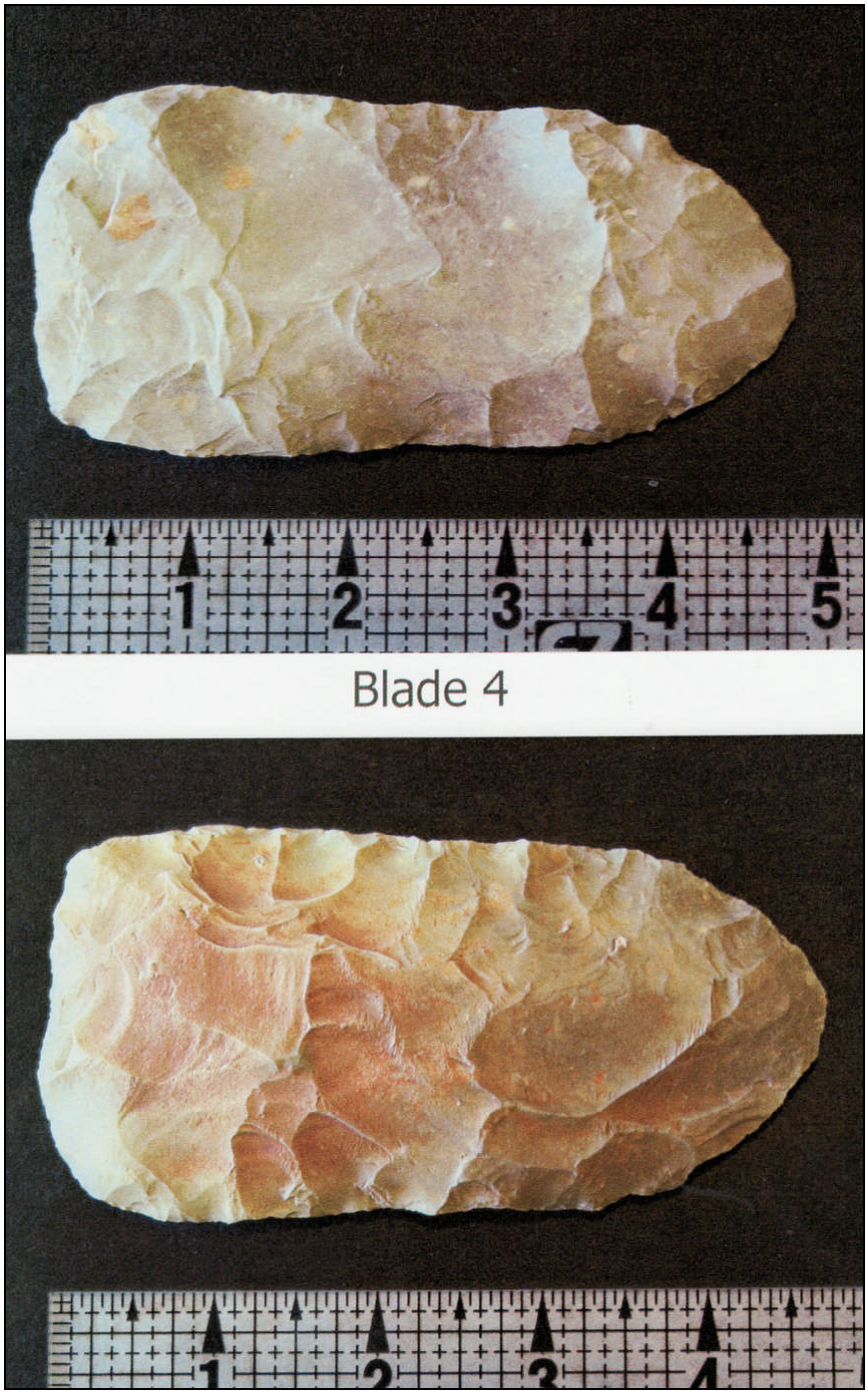

Figure 4. Obverse and reverse views of Blade 4 from the Timmons' cache.

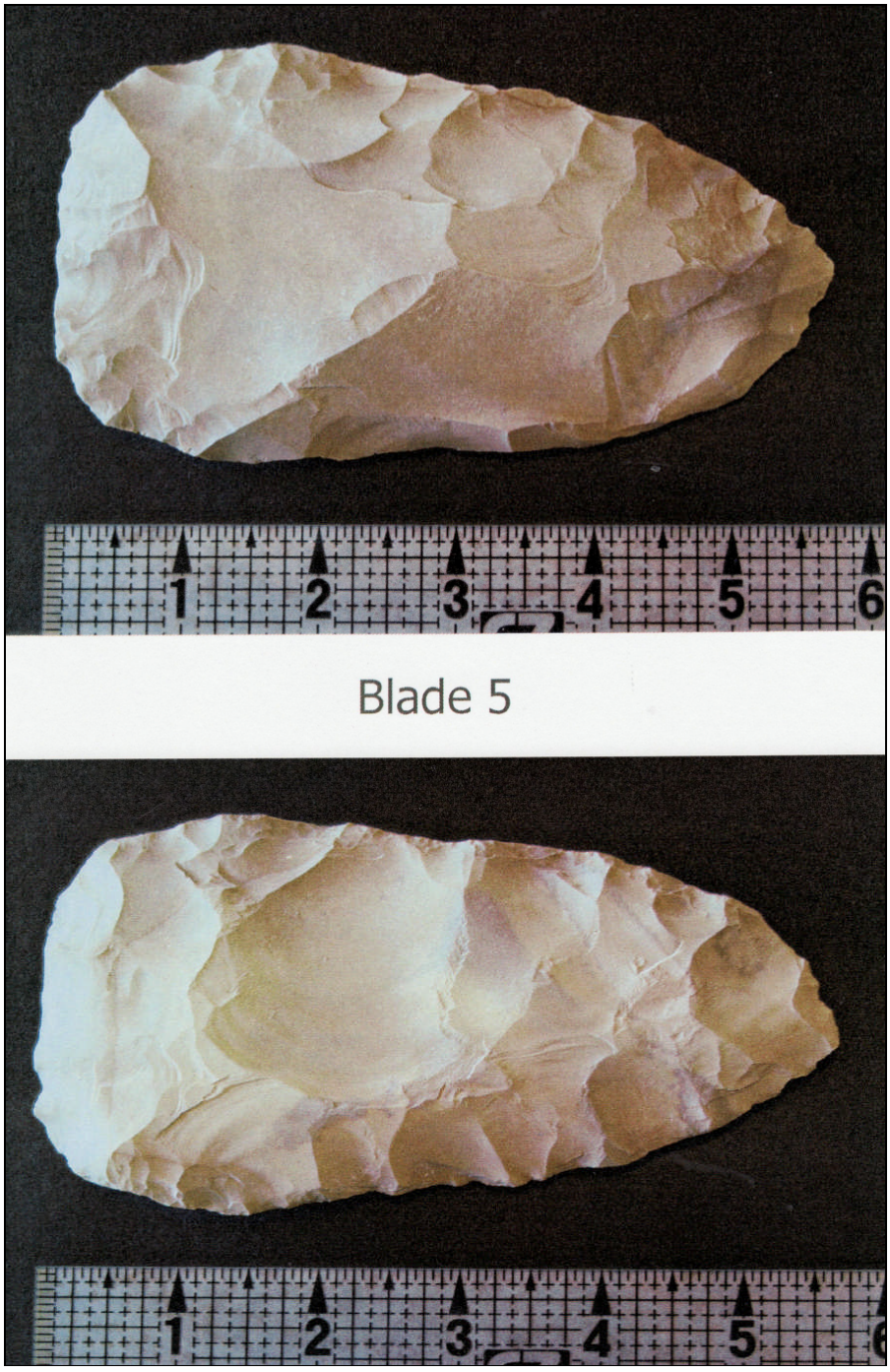

Figure 5. Obverse and reverse views of Blade 5 from the Timmons' cache.

RITUAL ANIMAL INTERMENTS FROM PREHISTORIC ARCHEOLOGICAL SITES WITHIN THE UPPER TEXAS PRAIRIE-SAVANNAH

Jesse Todd

Ritual animal interments found on prehistoric archeological sites in the upper portion of the Texas Prairie-Savannah are discussed.

INTRODUCTION

Animal interments may represent ritualized burial. This argument is based on two criteria. The first criterion is that time and energy was expended to create the pit to bury the animal, and the second criterion is that the interments may be in groups (possibly cemeteries) or else associated with human interments (Fugate 2010:91-92).

DISCUSSION

In the northern portion of the Texas Prairie-Savannah, the majority of animal interments are dogs, *Canis familiarius*. At least three dogs were uncovered at the Gossett Bottom site (41KF7) in Kaufman County (Story 1965). However, only one dog burial was recognized as an intentional interment. The dog was tightly flexed with the head to the east and the body facing north (Story 1965:175). The potential deliberate burial of a puppy aged from 2.5 to 4 months old (Butler 1975:77-78) was recovered from the Sister Grove site (41COL36) at Lake Lavon in Collin County, Texas. The burial was in a circular depression referred to as "Wylie Focus pit" and the only other associated interment was that of a human. The almost complete skeleton was lying on its left side (Lynott 1975:26-27). The site dates to circa A.D. 1160 (Lynott 1975:70).

At the Bird Point Island site (41FT201) in Freestone County, Zone 2 (circa A.D. 580-860) contained Feature 1 (Bruseth and Martin 1987:86-88). The feature is similar to a "Wylie Focus pit" and contained human burials and three dog burials. Part of one dog's skeleton was missing due to removal during the backhoe trenching and one dog's skeleton was disturbed due to shovel testing. The northern portion of the third dog's skeleton was missing and no reason was given for this. The dog interment with the missing skeletal parts was located beneath two human burials. Another dog interment was discovered in Zone 3 (107 B.C. to A.D. 130) of Feature 1 and possibly was associated with the human interments in the feature. Although no grave pit was discernible, Bruseth and Martin suggest that the dogs were burials due to the articulation of the bones. A fifth dog burial was found in the South trash midden, A.D. 1300-1600, at the site (Bruseth 1987:119; Murray 1987:138). Murray (1987:138) points out that apparently no dog burials were found from circa A.D. 1000 to 1200 occupation of the site.

At least one possible dog interment was recovered from excavations at the Adams Ranch site (41NV177) in Navarro County according to Martin (1987:213). Other dog bones were recovered from the feature which may indicate the dogs were used as subsistence resources rather than representing intentional interments. Martin points out that dogs were eaten on ritual occasions in historic times by Native Americans, and Snyder (1991) discusses dogs as a food resource in the Great Plains area.

Stephenson (1950:301, 303) reports that the burial of a wolf was uncovered at the Hogge Bridge site (41COL1), which is a "Wylie Focus pit" site on the East Fork of the Trinity River in Collin County. The site also contained a circular depression and a wolf, possibly a red wolf, was uncovered on the south interior slope of the pit (Figure 1). The grave was oval, no burial furniture was present and the style of the burial pit was similar to those in which humans remains were interred. Although not in direct association with the wolf burial, human burials were recovered on the eastern rim of the pit. Stephenson (1950:305) comments that the burial may have been some form of animal worship. Marmaduke (1975:151), however, refers to the burial as that of a "young" bear based upon Stephenson's notes. According to Stephenson's notes, a fully articulated bear skeleton was found on the south interior slope of the pit and prior to photographing and mapping, a violent rain storm prevented further work until the area was dry. In the mean time, it appears that individuals also had removed some of the important diagnostic skeletal elements and scattered the rest of the bones. Bear bones are absent from archeological sites in eastern North Central Texas, but wolf remains were found at site 41CO141 in Cooke County (Ferring and Yates 1997:153). The animal appeared to be a prey item. Due to the lack of evidence for bear remains in archeological sites, the burial at the Hogge Bridge site probably was that of a wolf. Story (1965:253-254) states that wolf burials may be a typical Wylie Focus feature according to Stephenson.

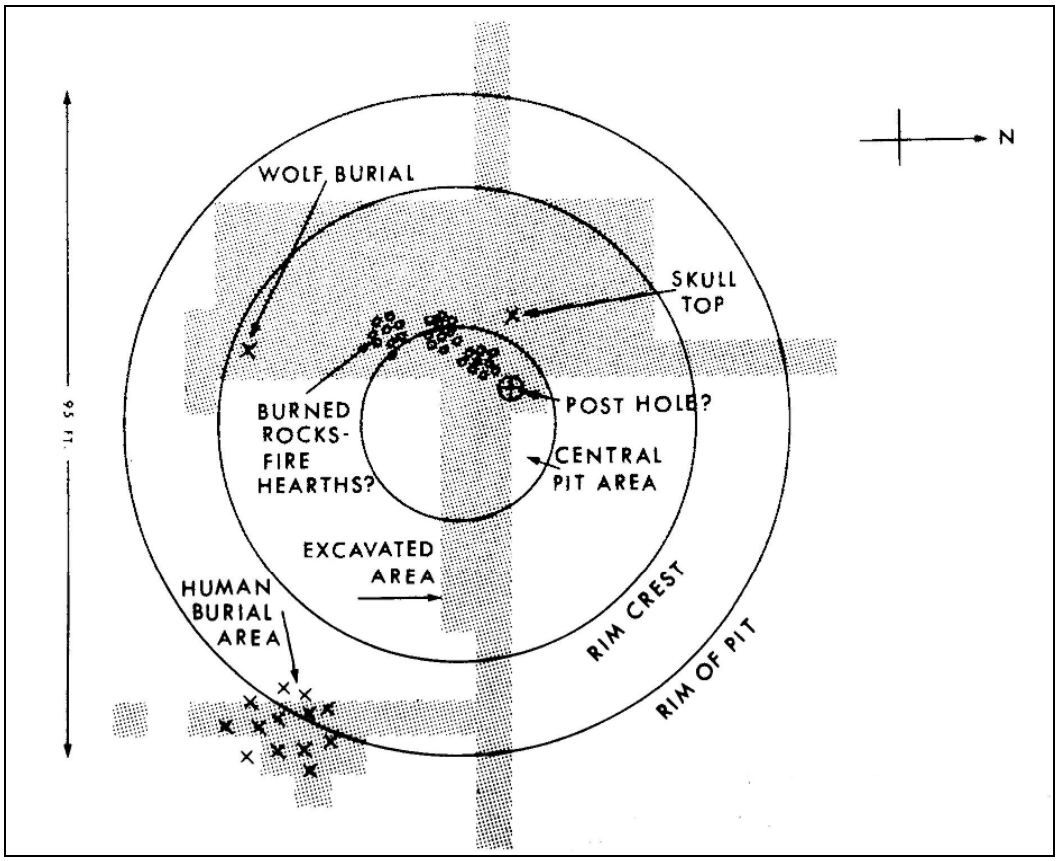

Figure 1. Location of wolf burial at the Hogge Bridge site (Smith 1969:10). Courtesy of the Dallas Archeological Society.

A buried buffalo skeleton (Figure 2) was discovered approximately 2.5 feet below the ground surface in a front yard of a residence in Aledo in Parker County. The skeleton was excavated by the Tarrant County Archeological Society and Bonnie Yates analyzed the bones. The bison was young and had been skinned but no cut marks were present. The burial pit had been dug through the sand into the clay. Flint skinning tools and a Martindale point were found associated with the burial (Norris 2000:26).

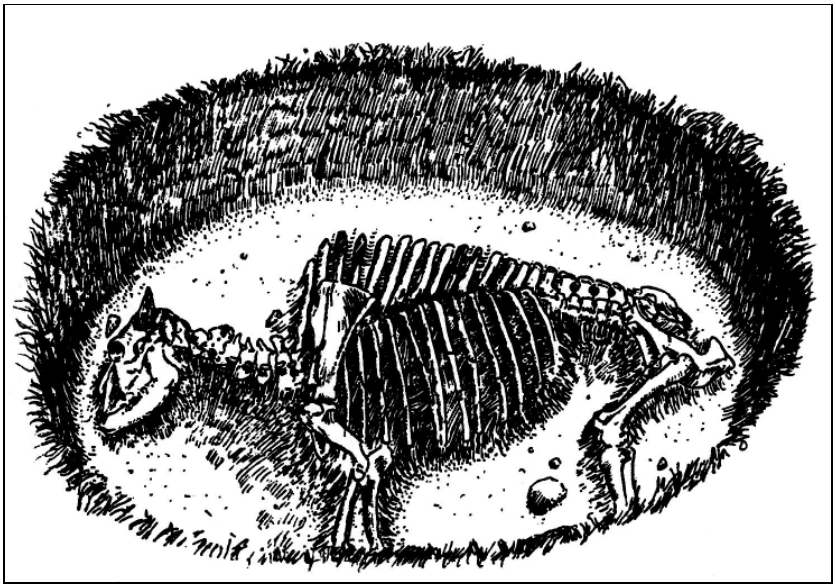

Figure 1. Burial of young bison in Parker County. Courtesy of Mr. Norris (2000:26).

CONCLUSIONS

Apparently dog interments have been found associated with human interments which indicates their importance as probably not only an animal helper but as a pet. Nonetheless, this is one of the criteria for ritualized interment according to Fugate (2010). Although no prepared pits were found for the dog burials at Bird Point Island and the Adams Ranch site, Bruseth and Martin believe that they were intentional interments. This also fits the criteria for a ritualized interment according to Fugate. The burial of the wolf (or bear) and buffalo is interesting, and, as Stephenson (1950:305) points out, may represent some form of animal worship/totem/reverence.

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A STORM CELLAR IN GUNTER, TEXAS

Jesse Todd

While traveling through Gunter, Texas which is approximately 11 miles west of Van Alystyne in Grayson County, I noticed a complete storm cellar sitting in a vacant lot. I left a message that I would like to photograph and measure the storm cellar at the residence of Ms. Carolyn George. She called me and told me that the storm cellar belonged to Mr. Billy Bennett. After contacting Mr. Bennett, he graciously stated that I could photograph and study the storm cellar.

Figure 1. The front of the storm cellar. View is to the north.

The storm cellar is approximately 85 inches wide east-west (Figures 1 and 3) and about 109 inches north-south (Figure 2), is approximately 109 inches long, 85 inches east-west and about 10 feet tall. The door/snout is approximately 69 inches long and the tip is approximately 18 inches thick (Figures 2 and 4). The door opening is 59 inches long and about 26 inches wide (Figure 5). Six steps are present leading into the storm cellar. The first step is 8 inches from the opening and is 8.5 inches wide. The remainder of the steps appears to be about 9 inches deep and 8.5 inches wide. A metal strip about 0.75 inches wide is at the far end of each step. The vertical entrance to the storm cellar is approximately 60 inches tall and 26 inches wide.

Unfortunately, due to the amount of trash present, no photographs could be taken inside of the cellar or measurements made.

Figure 2. Side of the storm cellar. View is to the west.

Figure 3. Rear of the storm cellar. View is to the south.

Figure 4. Profile of the entrance to storm cellar. Note the amount of concrete on the side of the entrance.

Figure 5. Steps leading into the storm cellar.

The storm cellar appears to have been made in at least two episodes. The underground half was laid first. As can be seen from the above photographs, the bottom portion of the outside of the storm cellar does not appear to have been created in an outside form, but poured and reflects the shape of the hole in the ground. The inside of the storm cellar appears to have been made in a form. The second episode was the creation of the upper portion of the storm cellar and the concrete uniting the two is shown in Figure 4.

The upper portion of the storm cellar appears to have been created in a form and, based upon a brief analysis, made in two layers. The capstone above the door opening (Figure 1) may have been added as the concrete was setting. A diamond-shaped indentation (figure 6) is present on all four sides. The indentation is 2.5 tall by 2.5 inches wide.

Figure 6. Diamond-shaped indentation in side of bottom portion of storm cellar.

The age of the storm cellar is unknown, but it is formed from a mixture of gravel and concrete. Indentations in the storm cellar such as shown in Figure 6 probably were made when the storm cellar was removed from underneath the ground by bulldozers. The purpose of removing the storm cellar and displaying it in Gunter is unknown.

POSSIBLE MOSASAUR BONE BEADS FROM THE NORTH SULPHUR RIVER, FANNIN/HUNT COUNTIES, TEXAS

Barbara Elliott and John McCraw

Ms. Barbara Elliott found a perforated mosasaur vertebra (Figure 1) in the North Sulphur River while Mr. John McCraw bought a perforated mosasaur vertebra from a person who claimed the perforated bone (Figure 2) was from the North Sulphur River. The vertebra shown in Figure 2 is 1.75 inches long, 1.5 inches wide at the base, 1 inch in the center and 0.875 inches at the rounded end. The perforation is approximately 0.75 inches at the edges and 0.625 inches at the center. In addition, another person who lives in Commerce claims to have found two more perforated mosasaur bones in the North Sulphur River. The fact that they were used as beads is conjectural, but the size is appropriate. No wear studies were done.

Figure 1. Both sides of perforated mosasaur vertebra found by Barbara Elliott.

Figure 2. Both sides of perforated mosasaur vertebra bought by John McCraw.

Mr. McCraw contacted members of the Surface Hunters of Texas and three individuals also had found holed vertebra in the North Sulphur River (Figure 3).

Figure 3. Additional holed vertebra from the North Sulphur River.