The Journal

Houston Archeological Society

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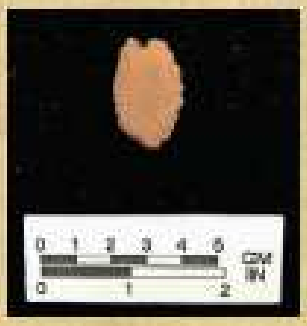

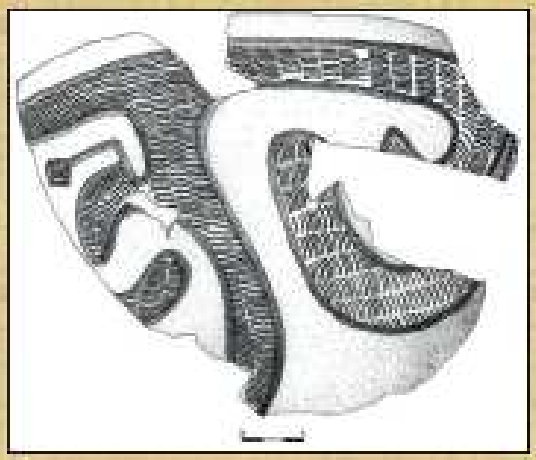

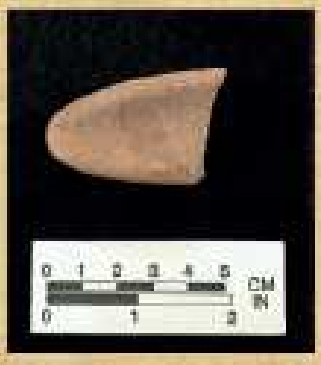

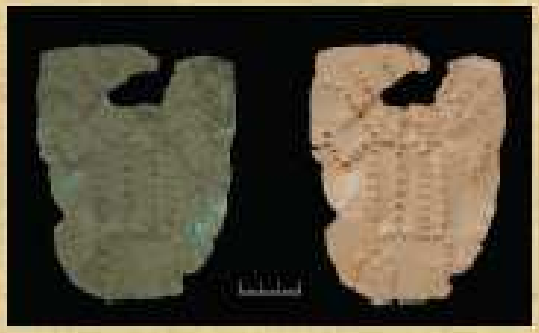

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Cover photos:
Left, top: Clovis points from Collin County, TX (page 12);
Left bottom: The Dianna Bailey Harvey biface from Liberty County, TX (p75);
Center, top: HAS members working on Mabin Stamped, var. Joe's Bayou sherds (page 53);
Center, middle: Illustration of the Mabin Stamped, var. Joe's Bayou ceramic bowl (page 59);
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Right, top: Ceramic pendant from Liberty County, TX (page 80);
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Wilson W. Crook, III, Editor

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Foreword

The ***Journal of the Houston Archeological Society*** is a publication of the Society. Our Mission is to foster enthusiastic interest and active participation in the discovery, documentation, and preservation of cultural resources (prehistoric and historic properties) of the city of Houston, the Houston metropolitan area, and the Upper Texas Gulf Coast Region.

The Houston Archeological Society holds monthly membership meetings with invited lecturers who speak on various topics of archeology and history. All meetings are free and open to the public.

Membership is easy! As a nonprofit organization, membership in the Houston Archeological Society is open to all persons who are interested in the diverse cultural history of Houston and surrounding areas, as well as the unique cultural heritage of the Upper Texas Gulf Coast Region. To become a member, you must agree with the mission and ethics set forth by the Society, pay annual dues and sign a Code of Ethics agreement and Release and Waiver of Liability Form.

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Editor's Message

I am pleased to present Issue #141 of *The Journal*, the second issue to be published by the Houston Archeological Society in 2019. This issue does not have a specific theme but contains thirteen papers about various aspects of Texas archeology covering the Paleoindian, Archaic, Woodland, and Late Prehistoric periods, and one paper on Roman archeology.

The first paper describes two Clovis points which were found by a local collector in Collin County who allowed the artifacts to be photographed, measured, and analyzed by XRF in an effort to source the chert. Next is a short paper dealing a Fishtail-like paleo point from the Wood Springs site in Liberty County. The third paper describes the occurrence of Calf Creek Horizon projectile points (Andice, Bell) from the Wood Springs site in Liberty County. This may represent the easternmost occurrence of Andice and Bell points in Texas. The next paper describes a highly unusual cache of 11 large, Archaic bifaces which was discovered by Charles "Gipper" Nelson in Limestone County. Mr. Nelson brought the cache to the Gault Lab at Texas State University for observation and analysis. The trace element geochemistry of the bifaces was determined by XRF analysis and the artifacts were sourced to the eastern side of the Edwards Plateau.

These papers are followed by two articles on bannerstones from Liberty County, all made from exotic non-indigenous materials. This is followed by a paper on a boatstone from the Savoy site in Liberty County. The next paper describes a new discovery of a Mabin Stamped, *var. Joe's Bayou* bowl from the Savoy site in Liberty County. The vessel was found by members of the Houston Archeological Society while working on the extensive Andy Kyle Archeological collection at the Sam Houston Regional Library and Research Center in Liberty. The vessel marks the sixth known occurrence of the pottery type and the first outside of the Lower Mississippi River Valley. This is a very significant discovery and we are proud to first publish its discovery in *The Journal*. Next is a paper by Gus Costa and Douglas Mangum on a rare, prehistoric copper artifact from a prehistoric site near the San Jacinto battlefield. Combined with the previous papers, Gus and Douglas unambiguously demonstrate that there was direct contact between the Mississippi Valley and Southeast Texas in prehistoric times. These papers are followed by an article by Tim Perttula describing a ceramic sherd assemblage from a site in Orange County near the Texas-Louisiana border (41OR15). Following this is a description of an unusually large Harvey or Mineola biface, which may represent what the tools looked like in their initial stages of use. A short paper describing a unique notched ceramic pendant recently recovered from the Wood Springs site in Liberty County concludes the research on Texas archeology. The last paper of this issue is one by our resident Roman expert, Louis Aulbach, in conjunction with Dub Crook on the translation of two previously undocumented Roman soldier "diplomas". These documents were issued to soldiers upon completion of their term of military service and often confer permanent Roman citizenship on both the soldier and his family..

Note that our new publishing policy has now expanded to include any topic of archeological interest that is studied and written by a HAS member. First preference will be given to subjects along the Gulf Coast / Houston area, followed by archeological subjects within the State of Texas. Material from outside Texas within the U.S. would receive next consideration followed by subjects outside the U.S.. So if you have worked on a site in Texas, the U.S., Europe, Africa, Meso-America, etc., consider writing it up and submit it to *The Journal* for publication.

As always, we are very open to receiving any new submission that deals with an archeological subject. Do not worry that your paper may not be "perfect"; your editor is more than willing to work with you to create a publishable result. *The Journal* is the ideal vehicle for young and older authors alike to either begin or expand your published resume. Please send all submissions and inquiries to Dub Crook at the following email address:

dubcrook@kingwoodcable.com

Or call me with questions at 281-360-6451 (home) or 281-900-8831 (cell).

Contents

TWO CLOVIS POINTS FROM BLUE RIDGE, COLLIN COUNTY, TEXAS

Wilson W. Crook, III

Introduction

In March of 2014, I gave a presentation on the subject of the peopling of the Americas to the Collin County Archeological Society. After the presentation concluded, a local collector (who wishes to remain anonymous) came up to me and told me that he had discovered four fluted projectile points which he believed to be Clovis points. The four points were reportedly found in the same general area on a small rise above Pilot Grove Creek just south of the town of Blue Ridge in northeastern Collin County. No other artifacts were found in association with the points although there were scattered fragments of large bones.

The local collector said that he was intrigued about some comments I had made in my presentation about the possibility of sourcing the chert in Texas Clovis artifacts using X-ray Fluorescence (XRF). I told him that for all intents and purposes the methodology was non-destructive and that I would be willing to analyze his Clovis points at no cost to him. At the same time, I informed him of the program initiated by Dave Meltzer at S.M.U. to measure and record all the known Clovis artifacts found in Texas. I emphasized the scientific value of his finds as there had only been one confirmed Clovis point recorded for Collin County (Crook 2015) and his finds would quintuple the previous information for the county. He was less enthusiastic about this but I tried to assure him that measuring and recording the artifacts in no way jeopardized his ownership of them. Ultimately I left him my business card and all my contact information and said if he was interested in letting me analyze his points he could send them to me via registered mail and I would promptly return them to him after the analysis was completed.

To be honest, I did not think I would ever hear about the points again. To my surprise, within a week a package arrived via registered mail which contained two of the four Blue Ridge Clovis points. On April 2-3 of 2014, I took the two points to Texas State University to have them analyzed for trace element geochemistry on their X-ray Fluorescence unit. After completing the geochemical analysis and measuring the two points, both were returned to their owner. While I volunteered to do the same type of analysis on the other two points reportedly found at the Blue Ridge site, to date I have heard nothing more from the owner. This paper thus serves to record the two Clovis points I have measured and place them into context with other Clovis age finds from the North Central Texas area.

Artifact Description and Analysis

The two Clovis points which are the subject of this analysis were reportedly found south of the town of Blue Ridge which lies in northeastern Collin County. As described to me by the local collector and avocational archeologist, the points were found on a small sandy rise above the east bank of Pilot Grove Creek. Both points were found on the surface. Additional exploration of the area by their finder failed to reveal any additional associated artifacts, either on the surface or at depth. Some highly friable fragments of large bones were also found in the same location.

Both Clovis points are undamaged and unusually large, having lengths of 103.2 mm and 110.8 mm, respectively. This is considerably longer than the state mean (65.0 mm) as reported in the Texas Clovis Fluted Point Survey of 408 specimens (Beaver and Meltzer 2007). Research at the Gault site, Pavo Real, Brushy Creek, Timber Fawn, Wood Springs, and other Texas sites indicates that Clovis points are continually used, re-sharpened (and/or re-based) and then reused (Collins 1998; Bradley et al. 2010; Crook et al. 2009; Crook et al. 2016; Crook 2017). However, once a Clovis point reaches a length of 50-70 mm, it is frequently discarded (Michael B. Collins, personal communication, 2008). The two Clovis points found at the nearby Brushy Creek site (41HU74) in Hunt County have lengths of 61.4 mm and 51.1 mm, respectively, and both showed signs of having been re-tipped and/or re-based (Crook et al. 2009). In this regard, the Blue Ridge points are highly unusual and are likely at or near their original construction length. A photo of both the obverse and

Figure 1. Obverse face of the two Clovis points from Blue Ridge, Collin County, Texas.

Figure 2. Reverse face of the two Clovis points from Blue Ridge, Collin County, Texas.

reverse faces of the two points is shown in Figures 1 and 2.

Fluting is present on both the obverse and reverse faces of both points, although the length of the flutes (28.9 mm and 20.0 mm for point1 and 26.8 mm and 20.7 mm for point 2) are relatively short compared to the overall length of the points. Similarly, lateral edge grinding (34.9 mm on left edge, 36.9 mm on right edge for point 1; 35.0 mm on left edge and 33.9 mm on right edge for point 2) is about one-third the length of each point. Basal depth is 4.7 mm for point 1 and a much shallower 3.0 mm for point 2. Both points have weak basal grinding. A complete compilation of all the points' physical characteristics, as submitted to the Texas Clovis Fluted Point Survey, is listed in Table 1.

Point 1 is constructed from a dark gray-brown chert (10YR 3/2) that varies slightly in color across the artifact (10YR 3/2 – 4/2 – 3/3 – 4/3). The chert fluoresces a weak yellow-orange color under short-wave UV light and a strong yellow-orange under long-wave radiation. This is very similar to the so-called "Gray Brown-Green Mottled" variety of Edwards chert as described by Dickens (1995) from the Fort Hood Military Reservation in Bell and Coryell counties. The point has an overall waxy sheen and there are areas of reddish-brown coloration near the distal end that could be indications of heat treatment.

Point 2 is made from a dark gray to grayish-brown chert (10YR 4/1 – 4/2 – 5/2). Under both short and long-wave UV light the point fluoresces a strong yellow-orange coloration which is potentially indicative of Edwards chert (Hofman et al. 1991; Hillsman 1992). The color is also similar to a number of cherts found across the Edwards Plateau, including the region in and around the Fort Hood Military reservation. As can be seen in Figures 1 and 2, the distal end appears to have been slightly damaged and the point was apparently re-tipped into a more rounded tip. Examination of the lateral edges shows both minor polish as well as some pitting of the chert indicating that the point may have also been used as a knife after suffering some damage to its distal end.

Both points were subjected to a trace element geochemical analysis using a portable X-Ray Fluorescence spectrometer (pXRF) in order to attempt to determine their provenance. The analysis was conducted using a Bruker Tracer III-SD handheld energy-dispersive X-Ray Fluorescence spectrometer equipped with a rhodium target X-Ray tube and a silicon drift detector with a resolution of ca. 145 eV FWHM (Full Width at Half Maximum) at 100,000 cps over an area of 10 mm^2. Data was collected using a suite of Bruker pXRF software and processed running Bruker's empirical calibration software add-on. The analysis was conducted on April 2-3, 2013

Table 1. Blue Ridge Clovis points physical measurements.

Measurements (mm)	Clovis Point 1	Clovis Point 2
Maximum Length	103.2	110.8
Maximum Width	38	33.1
Basal Width	33.2	27.2
Distance from Maximum Width to Base	40.9	55.1
Maximum Blade Thickness	7.5	10
Distance from Maximum Thickness to Base	50	47.2
Basal Depth	4.7	3
Thickness at Flute	4	6
Number of Flutes (Obverse)	1	1
Obverse Flute Length	28.9	26.8
Obverse Flute Width	10.1	10.8
Number of Flutes (Reverse)	1	2
Reverse Flute Length	20	20.7
Reverse Flute Width	10	10.8
Length of Grinding Left Lateral Edge	34.1	35
Length of Grinding Right Lateral Edge	36.9	33.5
Basal Grinding	Yes	Yes
Weight (grams)	34.9	47.6
Breaks	None	None
UV Fluorescence	Strong Yellow-Orange	Strong Yellow-Orange
Lithic Material	Chert	Chert
Color*	Dark Gray-Brown 10YR 3/2 to 4/2 to 3/3 to 4/3	Dark Gray to Grayish-Brown 10YR 4/1 to 4/2 to 5/2

** Color matches Fort Hood Gray Green-Brown Mottled; X-Ray Fluorescence analysis confirms the source as Fort Hood chert.*

at the laboratory of the Gault School of Archeological Research located at Texas State University in San Marcos.

Both Blue Ridge Clovis points were measured at 40keV, 55ìA, using a 0.3 mm aluminum / 0.02 titanium filter in the X-Ray path, and a 60 second live-count time. Peak intensities for Ká and Lá peaks of 22 trace elements were calculated as ratios to the Compton peak of rhodium and converted to parts-per-million (ppm) (Table 2).

Provenance analysis of the trace element data collected from the artifact was conducted using a database of geologic samples from the Edwards Plateau obtained by the Gault School of Archeological Research. A total of 464 geologic samples from 4 major geographic regions of the Edwards Plateau (Gault area, Fort Hood area, Callahan Divide, Leon Creek) were collected and analyzed using the same method described above. A statistical analysis based on the methodology developed by Speer (2014) and further refined using XRF by Williams and Crook (2013; Crook and Williams 2013) was conducted on both the geologic database as well as the Blue Ridge Clovis points. Statistical analysis of the trace element signature from the Clovis point indicates a match for Edwards chert at a 95 percent confidence level and a probable match to the general Fort Hood region (northeastern side of the Edwards Plateau). This result confirms the visual and UV observation of the artifact that had previously suggested a Edwards Plateau and Fort Hood origin for the chert.

Conclusions

Reported occurrences of Clovis points are rare in North Central Texas, with a single point recovered from the Lewisville site (41DN72) in Denton County (Crook and Harris 1957), a broken fluted point from the Aubrey site (41DN479) also in Denton County (Ferring 2001), two Clovis points from the Lake

Table 2. Trace element geochemistry of the Blue Ridge Clovis points, Collin County, Texas (all measurements are in parts-per-million).

Element	Clovis Point #1	Clovis Points #2
Calcium	7352	4716
Titanium	228	182
Chromium	0	0
Manganese	94	82
Iron	5538	2451
Cobalt	2	3
Nickel	11	10
Copper	0	0
Zinc	0	0
Arsenic	0	0
Rubidium	7	8
Strontium	38	8
Yttrium	18	19
Zirconium	27	28
Niobium	5	5
Molybdenum	4	4
Tin	1	1
Antimony	0	0
Barium	763	949
Lead	8	8
Thorium	5	5
Uranium	2	13
Probable Source	Edwards Chert (Fort Hood area)	Edwards Chert (Fort Hood area)

Dallas site (41DN6) in Denton County (Crook and Harris 1954), a single Clovis point from the Louis Obschner site (41DL116) in Dallas County (Crook and Harris 1955), two complete but highly used points from the Brushy Creek site (41HU74) in Hunt County (Crook et al 2009), and a single Clovis point from the Sonya Howard mammoth site (41COL257) in Collin County (Crook et al. 2011; Crook 2015). Other Clovis points have been found in Dallas County but have never been formally described (Crook and Harris 1957; Wilson W. Crook, Jr. and R. King Harris, personal communication, 1975). The Clovis points found near Blue Ridge mark the second reported Clovis occurrence for Collin County and its location, midway between the Hunt County and Dallas-Denton county sites, poses an interesting question as to whether they might be related to a single occupation that migrated west-to-east across the Upper Trinity watershed.

The composition of the chert in the Blue Ridge points also shows a potential correlation to the Sonya Howard Mammoth (41COL257) site 22 km to the south and to the Brushy Creek (41HU74) site 18 km to the east. XRF analysis on the chert artifacts from Brushy Creek has shown a large number are constructed of Edwards Plateau chert, mostly from the eastern part of the Plateau including the area in and around the Gault site in Bell County and from the Fort Hood region (Crook and Williams 2013). Similarly, the Clovis point recovered from the Sonya Howard Mammoth site has a trace element geochemistry that is very similar to that measured in the Blue Ridge points. Paleoindian hunters, especially Clovis people, are well-documented to have traveled extensive distances to access unique and/or high quality work material (Bradley et al. 2010). In fact, one of the salient characteristics of Clovis assemblages is the wide variation seen in the lithic material used and the long distances that separate the archeological site

and the geologic provenance of the source material (Kilby 2008). Both the Blue Ridge, Sonya Howard, and Brushy Creek site assemblages strongly reinforce this character trait.

Acknowledgments

I would like to thank the Gault School of Archeological Research located in the Prehistory Project at Texas State University for access to their portable X-Ray Fluorescence unit. In particular, I would specifically like to thank Dr. Thomas J. Williams for his unparalleled expertise in XRF analysis and subsequent canonical discriminant analysis of the data that led to the determination of the Edwards Plateau (Fort Hood area) probable provenance for the Blue Ridge Clovis points.

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ANOTHER FISHTAIL-LIKE POINT FROM SOUTHEAST TEXAS

Wilson W. Crook, III

Introduction

Fishtail points, or "Cola de Pescado" are the Clovis age equivalent for Central and South America. As such, they are diagnostic indicators for one of the earliest Paleoamerican occupations in South and Central America (Bradley 2015; Collins and Ayala 2015; Suarez 2015). Fishtail points acquired their name due to their pear-shaped body coupled with their unique flared stem. However, there is considerable variability in the design, manufacturing technique, and size of Fishtail points, with the major morphological differences being in the lengths and widths of the blade and stems, and the development of shoulders (Suarez 2000, 2001, 2006; Suarez and Gillam 2008). Fluting of the base is inconsistent with many points fluted on only one side or not at all. Suarez (2015) found in the Uruguay Fishtail database that roughly two-thirds of the points have not been fluted, about a quarter have fluting on one face, and less than 10 percent have been fluted on two faces. Moreover, post-fluting retouch often erases the original channel flake scar (Bradley 2015). Only the methodology use to produce the stem "flare" (maximum basal width minus minimum stem width) remains highly standardized, regardless of point size and/or alteration through resharpening (Bradly 2015). Thus measurements of the stem length, width and flare constitute a major defining characteristic of true Fishtail points.

Fishtail points have a discontinuous distribution across Central and South America. Originally described by Bird (1938, 1988) from Fell's Cave in Chile, Fishtail points are known from as far north as Panama and Belize in Central America (Bird and Cooke 1978); from Ecuador and Peru (Bird 1969; Chauchat and Zevallos 1979; Nami 2000); to a more continuous distribution in the Southern Cone including central and southern Chile, the Pampas-Patagonia regions of Argentina, the Uruguayan Plains, and extreme southern Brazil (Politis 1991; Nami 1997, 2007; Flegenheimer et al. 2013). Fishtail points have not been found in either northern South America (Colombia, Venezuela) or the rest of the eastern coast of South America (Suarez 2003; Flegenheimer et al. 2013; Bradley 2015).

Collins and Ayala (2015) have described two Fishtail-like points from collections in Texas. The first is from an Archaic burial at the Buckeye Knoll site (41VT98) in Victoria County and the second is from a surface find near Attoyac Bayou in northeastern Nacogdoches County. Neither point displays the classic form of points from Argentina or Uruguay but both retain the characteristic flared stem that defines true Fishtail points (Collins and Ayala 2015). Moreover, both points are constructed of lithic material which appears to be of types not indigenous to Texas. Measurement of the stem characteristics of both points shows they fit well within the range of South American fishtail points, and as a result, Collins and Ayala (2015) have hypothesized that they are treasured heirlooms that made their way via long-distance exchange networks from Central America or northern South America to Texas.

Recently, the author discovered a Fishtail-like point from the Wood Springs site (41LB15) in Liberty County, Texas. The point was a surface find from the right-of-way of a small local road that bisects the site from west to east. A large number of artifacts collected from the Wood Springs are present in the Andy Kyle Collection currently curated at the Sam Houston Regional Library and Research Center in Liberty. Examination of this collection shows the site represents a long-term occupation that extends from the earliest part of the Paleoindian period (Clovis) through the Late Prehistoric (Crook et al. 2017). A natural gas pipeline bisects the site from west-to-east and the small road mentioned above from north-to-south. As a result, much of the site has been disturbed such that Paleoindian, Archaic, Woodland, and Late Prehistoric materials can be found alongside each other on the surface. Given the unique shape of the newly found Fishtail-like point, the point's morphology has been studied and compared to the two points described by Collins and Ayala (2015) and to other South American Fishtail points. This paper thus serves to record its occurrence.

The Wood Springs Point

The Fishtail-like point from the Wood Springs site is 66.6 mm in length and has a maximum width

of 33.8 mm. Maximum thickness is 7.0 mm near the middle of the point. These measurements fit within the overall range of Central and South American Fishtail points, including the 90 specimens currently in the Uruguayan Fishtail database (Table 1) (Suarez and Gillam 2008; Collins and Ayala 2015; Nami 2015; Suarez 2015; Crook 2017). There is extensive collateral flaking on the blade, especially toward the distal end of the point. Similar well-developed collateral flaking has been observed in some Fishtail points from Uruguay (Suarez 2001; Nami 2015; Nami and Castro 2014). The stem of the Wood Springs point is beveled with both the lateral edges of the stem and the base having been extensively ground. Examination of the stem under a binocular microscope (20-60x) shows that the construction of the stem appears to have been later than the rest of the blade suggesting that the point may have been broken and hurriedly rebased using several, large flake removals from each face. The base has then been retouched to create the characteristic Fishtail point flare.

As mentioned above, the single most diagnostic feature of South American Fishtail points is the consistent construction method used to make the characteristic "fishtail" stem. Researchers have shown that virtually all known Fishtail points can be identified as such by the taking of three stem measurements including the maximum width of the base, the minimum width of the stem, and the measurement of the "basal flare"; the latter being defined as the maximum basal width minus the minimum stem width. Published metrics on the stems for 11 Fishtail points from Chile, 4 from Argentina, 11 from Uruguay and single points from Southern Brazil (Rio Grande do Sul) and Belize are shown in Table 2. Maximum basal width ranges from 13-26 mm with a mean of 17.5; minimum stem width ranges from 11-23.5 mm with a mean of 16.0. The basal flare ranges from 0 to 5 but averages near 2 (1.9) (see Table 2). As can be seen in Table 2, both the Buckeye Knoll and Nacogdoches Fishtail points described by Collins and Ayala (2015) as well the point from the Gsell Collection described by Crook (2017) fit within the known range of Fishtail points. The Wood Springs point likewise has similar measurements with a maximum basal with of 18.2 mm with a minimum stem width of 16.5 mm. This produces a "basal flare" of 1.7, extremely close to the mean for the Fishtail points from Central and South America as shown in Table 2.

Weight of the point is 17.3 grams. The Wood Springs point is an almost white, light yellowish-gray (5Y 8/1) color. The point has a dull, waxy sheen characteristic of artifacts that have been heat treated prior to knapping. Under UV radiation, the point fluoresces a pale lemon yellow to yellow-orange color, typical of Edwards chert (Hofman et al. 1991; Hillsman 1992). Other artifacts constructed from Edwards chert have been recovered from the Wood Springs site from either the Paleoindian or Early Archaic period (Crook et al. 2017). After the Early Archaic, most of the lithic artifacts are made from local petrified wood and quartzite, or from cherts that originate in western Louisiana. Photographs showing both the obverse and reverse faces of the point are presented in Figures 1 and 2. The collateral flaking on the distal end of the point and the characteristic flare of the base can be seen in both figures.

The broad tips of some Fishtail points have led researchers to question their suitability as projectile points (Suarez 2006, 2015; Nami 2007, 2015). Such variants are believed to have possibly been used as knives or some type of cutting tool. Recent work on points from northern Uruguay suggests that some

Table 1. Comparison of South American Fishtail Point Metrics with the Wood Springs and other Texas Fishtail Points.

Provenance	Maximum Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)
Wood Springs (41LB15), Liberty County, Texas	66.6	33.8	7
McFaddin Beach (41JF50), Jefferson County, Texas (Gsell Collection)	55.4	30	8
Buckeye Knoll (41VT98), Victoria County, Texas	276	84	10.6
Nacogdoches County, Texas	140	46	8.8
Uruguay Fishtail Database (n=90) Range	35-109	21-56.8	5-11
Lamanai, Belize	89	54	8
South American Range	*35-109*	*21-56.8*	*5-11*
South American Mean	*72*	*38.9*	*8*

Table 2. Metric Comparison of Fishtail Point Stems from Central and South America to those from Texas Collections.

Provenance / Specimen	Stem Length (mm)	Minimum Stem Width (mm)	Maximum Base Width (mm)	Basal Flare (Max. Base Width – Min. Stem Width)
Fell's Cave, Chile - 41.1a		17.6	18	0.5
Fell's Cave, Chile - 41.1b		16	17.5	1.5
Fell's Cave, Chile - 41.1c		12	13	1
Fell's Cave, Chile - 41.1d		14	15	1
Fell's Cave, Chile - 41.1e		17	17	0
Fell's Cave, Chile - 41.1f		12.5	14.5	2
Fell's Cave, Chile - 41.2 8303		17.3	19	1.7
Fell's Cave, Chile	14	11.5	13	1.5
Fell's Cave, Chile	18	15	16	1
Cueva del Medio, Chile – 1		11	13	2
Cueva del Medio, Chile - 2		19	20.5	1.5
Cerro la China, Argentina – 88		13	15	2
Cerro la China, Argentina - 455		13	14	1
San Cayetano, Argentina		16	18	2
Rio Sauce Chico, Argentina		17.5	19	1.5
Lobos, Uruguay		13	16.5	3.5
Alegre, Uruguay – 1		13	14	1
Alegre, Uruguay – 2		14	17	3
Rio Negro, Uruguay	27	17	21	4
Rio Negro, Uruguay	13	19	20	1
Uruguay – a		18.5	19.5	1
Uruguay - 1		23.5	26	2.5
Uruguay – 4		14	14.5	0.5
Uruguay – 8		19	21	2
Uruguay – 16		17	21	4
Uruguay - 19		15	20	5
Rio Grande do Sol, Brazil		12.5	15	2.5
Lamanai, Belize	25	20	22	2
Range	*13-27*	*11-23.5*	*13-26*	*0.0-5.0*
Mean	*19.4*	*16*	*17.5*	*1.9*
Buckeye Knoll, Victoria County	22	21	25	4
Nacogdoches County	19	20	22	2
McFaddin Beach, Jefferson Co.	19.2	13	15.5	2.5
Wood Springs, Liberty County	18	16.5	18.2	1.7

Figure 1. Photograph of the obverse face of the Fishtail-like point from the Wood Springs (41LB15) site, Liberty County, Texas.

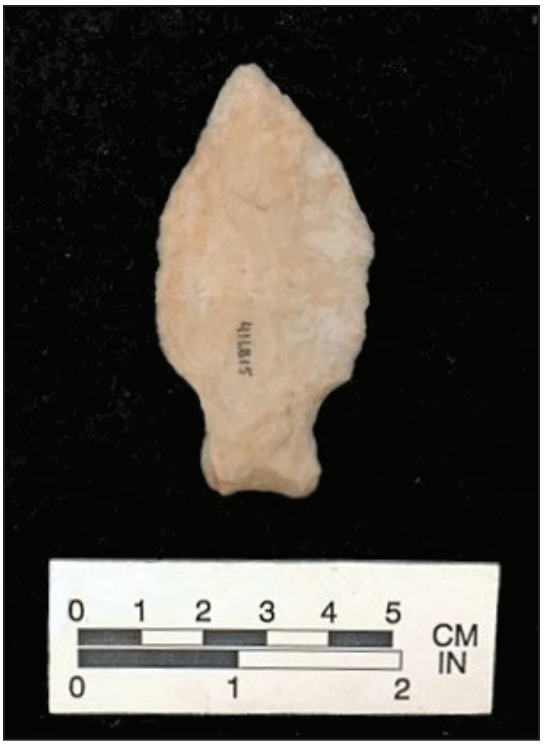

Figure 2. Photograph of the reverse face of the Fishtail-like Point from the Wood Springs site.

Fishtail points were intentionally designed as hafted bifacial knives that could be easily modified into projectile points if hunting needs required them to be modified (Suarez 2015). Examination of the point from the Wood Springs site under a high powered, digital microscope failed to show any wear patterns on the lateral edges of the blade that would be consistent with its use as a knife.

Conclusions

There are strong similarities between Fishtail and Clovis points. Both cultures went to extreme lengths to acquire high quality toolstone for projectile point manufacture. Many Fishtail and Clovis points display a waxy appearance characteristic of having been heat-treated. Both used a well-developed bifacial thinning technique including across-the-face and controlled overshot flaking (Bradley 2015; Suarez 2015). The manner in which platforms were prepared for the removal of bifacial thinning flakes and the wide spacing of flake removals is also similar. The lateral edges and bases of Clovis points and the stems and bases of Fishtail points were ground to facilitate hafting. The major difference between the two points is Clovis points have fairly straight, slightly contracting lateral margins and Fishtail points are clearly stemmed with flaring basal ears. Given the large number of commonalities between the two points, researchers have speculated if there is a common cultural and technological source for both point types (Nami 1997; Suarez 2001, 2006; Bradley 2015).

While the Wood Springs point has many of the characteristics of known Fishtail points from Central and South America, its beveled stem makes its identification as a true Fishtail point problematical. The beveled stem is somewhat characteristic of a Nolan Archaic dart point from Central Texas (Suhm and Kreiger 1954; Suhm and Jelks 1962) but the flared base and the wide flare of the blade is much more akin to a Fishtail point than a Nolan. Moreover, the well-developed collateral flaking on the blade coupled with extensive lateral edge grinding on both the stem and the base are clearly more of a Paleoindian trait than that of the Middle to Late Archaic, the generally accepted time period for Nolan points. As mentioned above, it appears as though the point was damaged and has been subsequently re-based. The stem repair could have been done by someone familiar with the traits of a Fishtail point or perhaps it was just an accident. Given its extensively ground base and its very thin blade, I believe the point is of Paleoindian origin. However, for now I will classify it as a "Fishtail-like" point and not a definitive Central/South American artifact.

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THE OCCURRENCE OF CALF CREEK HORIZON BARBED POINTS FROM THE WOOD SPRINGS (41LB15) SITE, LIBERTY, COUNTY, TEXAS

Wilson W. Crook, III

Introduction

The Archaic Horizon within the Upper Trinity River watershed was originally defined by Crook and Harris in the early 1950s (Crook 1952; Crook and Harris 1952, 1953, 1954, 1955). Artifacts used to characterize the Early to Middle Archaic Carrollton phase were found at nearly 80 sites Denton, Dallas, and Kaufman counties along both the Elm Fork and the main stem of the Trinity River. Several of these sites were subsequently more fully described by the author (Crook 2007c, 2008a, 2008b, 2012). In addition, the author discovered similar assemblages of Carrollton phase material in sites along the East Fork of the Trinity and its tributaries in Collin County (Crook 2007a, 2007b).

The Carrollton phase of the Trinity River Archaic spans both the Early Archaic as well as into the lower Middle Archaic (Crook 2007c; Crook 2018c). The phase can be characterized by a number of diagnostic traits including Split-stemmed (Gower) points, Carrollton, Trinity, Wheeler Leaf (Crook 2018b), Bulverde, and Dallas dart points, a variety of bifacial scraping and cutting tools, unifacial Clear Fork type gouges, Waco sinkers, double-bitted axes ("Carrollton Axe"), gravers made on flakes, hammerstones, choppers, and clayballs (Crook and Harris 1952, 1954; Crook 2007c, 2009, 2018c). This assemblage is consistent in Early Archaic sites across the entire Upper Trinity watershed. Moreover, the identical assemblage has now been found at a number of sites adjacent to the Trinity River in Liberty County in Southeast Texas (Crook et al. 2017, 2018c).

Another diagnostic component of the Carrollton phase Archaic is the presence of Calf Creek Horizon (CCH) projectile points including Andice, Bell, and Calf Creek types (Crook 2018a). Though a relatively rare artifact in terms of the total dart point assemblage, most larger Carrollton phase sites contain one or more of these barbed points. Recently, work on the Andy Kyle Archeological Collection currently curated at the Sam Houston Regional Library and Research Center in Liberty, Texas has identified two broken Calf Creek Horizon points from the Wood Springs (41LB15) site (Crook et al. 2017). Further exploration of the site by members of the Houston Archeological Society has uncovered a third CCH projectile point. Subsequent study of the points showed that two can be classified as Andice points while the third point falls into the classification of Bell points. This paper serves to describe these points which mark one of the easternmost occurrences of Andice and Bell points in Texas.

Calf Creek Horizon Points from the Wood Springs Site

Barbed points belonging to the Calf Creek Horizon include Andice, Bell, and Calf Creek types (Turner and Hester 1985, 1993, 1999; Turner et al. 2011). Due to the similarity of the points, coupled with the tendency for the barbed points of the Calf Creek Horizon to change shape over time with breakage and re-sharpening, much confusion has occurred with regard to what diagnostic features actually separates the three point types. Recently, Sergio Ayala (2014) has conducted an intensive study of over 1,000 Andice, Bell, and Calf Creek points (191 complete) from Central, South, and North Central Texas as well as across Oklahoma in an effort to determine if the three points are indeed valid types and if so, what characterizes each point's typology. His work has determined that there are five key distinguishing traits: (1) maximum length, (2) maximum width, (3) maximum thickness and its location on the point, (4) stem length, and (5) stem width. Ayala found that Andice stems average about 22 mm in length and the stem length-to-width ratio averages approximately 1.25:1. Bell points have much smaller stem lengths, seldom exceeding 16 mm with an average stem length-to-width ratio of approximately 0.77:1. Calf Creek points have average stem length-to-width ratios of approximately 1:1 with an average stem length of about 17 mm. In addition, Ayala (2014) discovered that for all three types, width-to-thickness ratios for late stage productions (not preforms) ranged from 5:1 to 7:1 with the average being about 5.5:1. Moreover, 90 percent of the specimens examined had their point of maximum thickness just above the juncture of the stem with the blade.

Figure 1. Calf Creek Horizon barbed points from the Wood Springs site. From left-to right, point #1 is an Andice point that has been re-sharpened into an end-scraper; point #2 is a heavily damaged Andice point showing prominent impact fracture scars; point #3 is a Bell point. Note the prominent pink coloration from heat treatment of the point's chert.

In general, Andice points push the basal notching to the limit of knapping technology, requiring extensive skill and application of special techniques in order to replicate consistent success. Bell points, on the other hand, emphasize a greater combination of pressure flaking and indirect percussion with as little as three notching flakes to produce the barbs (Sergio Ayala, personal communication 2017). Calf Creek points generally fall in between the two in terms of difficulty to make.

Ayala (2014) also determined that both Andice and Calf Creek points show extensive heat-treating prior to completion of the point. This results in increased luster and a darkening of color of the lithic material used. If iron is present in the chert, Andice and Calf Creek points also commonly show red and pinkish colors. To date, no Bell preforms have been reported so it is uncertain if Bell point preforms were similarly heat-treated.

All three point types typically show evidence of breakage and re-sharpening. The most common forms of breakage include (1) impact fracture to the distal end of the point which results in a shortening of the overall length with re-sharpening, (2) transverse or bending fractures which breaks one or both of the barbs, and (3) transverse fracture where the momentum of the shaft continues forward resulting in breakage of the stem, usually at the juncture with the blade (Ayala 2014). The latter is virtually impossible to repair and often results in the point being discarded.

The importance of the differences in the stem length-to-width ratios in terms of demonstrating that Andice, Bell and Calf Creek points are indeed three distinct point types cannot be overstated. The marked differences in stem construction clearly shows that while production of the points shares a similar technology, they were clearly made using three separate methods. Thus, by measuring both the stem length-to-width ratio and the ratio of the blade width-to-thickness, the typology of the point can be determined (Ayala 2014).

Of the three barbed points that were the basis for this study, two points are heavily damaged having been broken from impact fractures and are missing one or both barbs. One of the points has been further re-sharpened into a hafted end-scraper. The third point also appears to have had the distal end resharpened but is otherwise complete with both barbs remaining (Figure 1). Detailed measurements of the three points is shown in Table 1. Based on the methodology developed by Ayala (2014), points #1 and #2 have stem length-to-width ratios greater than 1.17 which defines them as Andice points. The third point (point #3, Table 1) has a stem length-to-width ratio of 0.83, which falls into the range of Bell points. All three points fluoresce a yellow-orange color under both short-wave and long-wave UV radiation and are presumed to be constructed from Edwards chert (Hofman et al. 1991; Hillsman 1992). Andice point #2 was also subjected to a trace element geochemical analysis using X-ray fluorescence which demonstrated that the chert material was consistent with Edwards chert.

Figure 2 shows a plot of the stem length-to-width ratios of the three Calf Creek Horizon points from the

Table 1. Calf Creek Horizon barbed points (Andice – Bell) from the Wood Springs site.

Point Number and Type	Material[1]	Length (mm)	Width (mm)	Thick-ness (mm)	Width to Thickness Ratio	Stem Length (mm)	Stem Width (mm)	Stem L:W Ratio	Damage / Comments
Point 1 - Andice	Gray Chert	25	29	7.2	4.03	13.2	11.3	1.17	One barb missing; other barb damaged; tip damaged; resharpened into end-scraper
Point 2 - Andice	Brown Chert	60.4	38.5	7.2	5.34	23.9	14.5	1.65	Tip and both barbs missing; prominent impact fracture
Point 3 -Bell	Pink-Gray Chert	63.2	49.6	6	8.27	15.2	18.5	0.83	Complete; appears to have been re-tipped

[1] All three points fluoresce a yellow-orange color under both short-wave and long-wave UV radiation and are presumed be made from Edwards chert.

Wood Springs site. As can be seen in the figure, the two groupings of length-to-width ratios are clearly discernable, reinforcing the observation made by Ayala (2014) that these are the key measurements for determining point types with the Calf Creek Horizon grouping. A second plot was constructed using the same stem length-to-width ratio as the X-axis but plotted against the blade width-to-thickness ratio on the Y-axis (Figure 3). The same two groupings for Bell and Andice points remain but there is considerable variation in terms of blade width-to-thickness ratios. Ayala (2014) determined that blade width-to-thickness ratios varied between 5:1 and 7:1 with the average being around 5.5:1 for complete Calf Creek Horizon points from Central Texas and Oklahoma. Only one of the barbed points from the Wood Springs site falls within this range with the other two points falling well below or above the ideal range (see Figure 3). This is probably due to the fact that both of the points had been damaged during use and extensively resharpened, making them either narrower or shorter over time, and thus distorting their measurements.

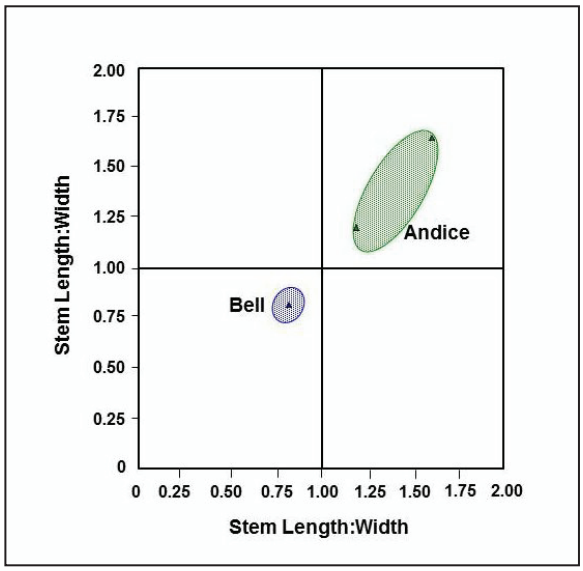

Figure 2. Calf Creek Horizon barbed points (Andice – Bell) from the Wood Springs site plotted by stem length-to-width ratio.

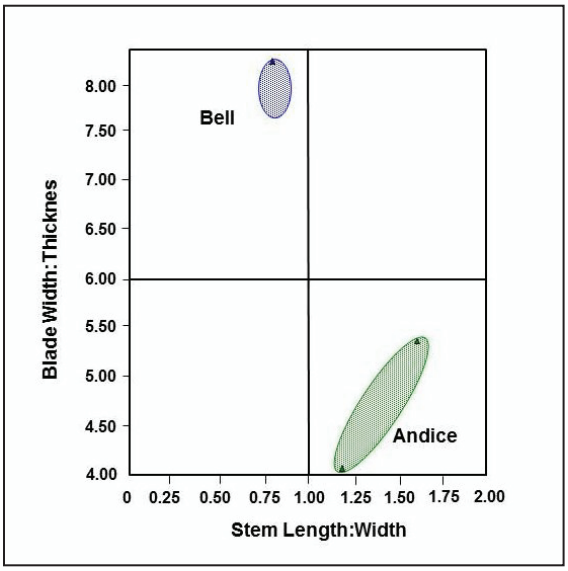

Figure 3. Calf Creek Horizon barbed points (Andice – Bell) from the Wood Springs site plotted by stem length-to-width ratio vs blade width-to-thickness ratio.

Conclusions and Discussion

Calf Creek Horizon points, mainly Andice and Bell, form a minor but consistent component of the Carrollton phase Archaic in the Upper Trinity watershed (Crook 2018a). Never abundant in comparison to the overall dart point assemblage, nevertheless Calf Creek Horizon points have been found in roughly half of the known major sites of the Carrollton Archaic in Denton, Dallas, Kaufman, and Collin counties. Typically only a single barbed point is present per site; the exceptions being the Wheeler site (n=12), Dowdy Ferry (n=4), and Lake Dallas (n=3) (Crook 2018a). The latter three sites are some of the largest within the Upper Trinity watershed area with total artifacts assemblages in excess of 175 tools. The occurrence of three Andice and/or Bell points at the Wood Springs site, a site with a well-established Carrollton Archaic presence, confirms the same observation for the Lower Trinity watershed, at least in Liberty County.

All three of the Calf Creek Horizon points are made from high quality cherts which are not of local origin. Based on their fluorescence under UV radiation and a single XRF analysis of one point, the chert used to make these points appears to have originated in the Edwards Plateau of Central Texas. This implies at least some periodic contact between Central Texas and the Lower Trinity watershed during the Early to Middle Archaic. The Calf Creek Horizon points are clearly different from the remainder of the dart point types that make up the Carrollton Phase Archaic, notably in their skill in manufacture. Thus it is possible that they were either the product of trade or perhaps made locally by someone with intimate knowledge of Calf Creek Horizon technology and with access to high quality chert. They also could have been brought into Southeast Texas by Carrollton groups moving seasonally along the Trinity River.

Like many Archaic artifacts in Texas, most of the projectile points within the Carrollton Archaic have not been precisely dated. Crook (1959) reported a date for the upper part of the Carrollton phase occupation as ca. 6000 B.P. based on a single radiocarbon date from the Wood Pit (41DL76) in Dallas County. The date was based on some shell material near the contact of the Albritton Formation and the overlying Pattillo gray sands. The majority of the Carrollton Phase Archaic, including Split Stemnmed (Gower), Carrollton, Trinity, and Calf Creek Horizon points, were found well below this level, some as much as 50-70 cm or more below the point where the radiocarbon date was obtained. Thus the 6000 B.P. date should be seen as an absolute minimum date for the barbed points with their arrival being significantly older, possibly as old as 7000+ B.P. This date is consistent with similar observations on Andice and Bell points from Central Texas (Prewitt 1981, 1983; Turner and Hester 1985, 1993, 1999; Turner et al. 2011).

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THE CLOFUS OSWALT/GIPPER NELSON BIFACE CACHE, LIMESTONE COUNTY, TEXAS

Wilson W. Crook, III and Charles Austin "Gipper" Nelson, Jr.

Introduction

During the mid-1980s, Mr. Clofus Oswalt of Groesbeck, Texas had a load of sand delivered to his home. As the local contractor unloaded the sand, Mr. Oswalt's in-law, Charles "Gipper" Nelson noticed several large bifaces within the sand. An avid avocational archeologist, Mr. Nelson thoroughly searched through the entire load and recovered a total of 11 tear drop-shaped bifaces. All the bifaces were made from a light-colored, fine-grain chert. He then asked the contractor to show him precisely where the load of sand came from. This led to a location about 5 km north of Groesbeck on the west side of State Highway 14. The contractor showed Mr. Nelson where he had taken the load of sand and the area was thoroughly searched for additional bifaces, flakes, or other signs of cultural material. No further artifacts were recovered during this search. His conclusion was that the 11 bifaces were part of an isolated materials cache and that his load of sand had fortuitously captured every biface that was left in the cache.

In 2017, Mr. Nelson posted a photograph of 10 of the 11 bifaces from the cache on Facebook in the Group known as "Texas Chert". The senior author noticed the photo and observed that several of the bifaces looked as if they might contain across-the-face flake scars. As this might indicate that the cache was part of a Clovis cache, the photo was sent to the staff of the Prehistory Project at Texas State University in order to get their opinions. They similarly felt that the bifaces needed to be analyzed further so a date was arranged for Mr. Nelson to come to Texas State University in San Marcos and have the bifaces visually inspected and measured, as well as analyzed for trace element geochemistry via X-ray fluorescence (XRF) in an attempt to source their origin. This analysis took place on May 28, 2018. In attendance examining the bifaces were Michael B. Collins, Thomas J. Williams, and Nancy V. Williams of Texas State University, and the authors. This brief paper thus serves to document the observations and findings on the Clofus Oswalt/Gipper Nelson cache.

Cache Location

The location of the cache is on the west side of State Highway 14 about 5 km north of Groesbeck in central Limestone County. The location is just south of Fort Parker Lake and the Fort Parker State Park. The cache was found buried within a small sand terrace immediately west of State Highway 14.

The eleven bifaces that comprise the cache must have been located together as they were all contained within a single load of sand delivered to Mr. Clofus Oswalt's house. A detailed search of the area immediately adjacent to where the load of sand was removed failed to reveal any further cultural material including shell, bone or lithic debitage. A Late Archaic to Late Prehistoric age site (41LT65) is located less than a kilometer to the east but it is uncertain if the biface cache described herein is related to that site or not (Texas Archeological Site Atlas, accessed August 11, 2018).

Artifact Description and Analysis

The Clofus Oswalt/Gipper Nelson biface cache contains 11 pieces, all of which appear to be "quarry blanks". The term "quarry blanks" is used to describe an initial form that has been shaped with numerous flakes removed; however, they have not been shaped to the point of becoming a preform (Bement 1991). Virtually no cortex is present on any of the bifaces, however, none of the edges show any retouch. Close examination of the bifaces showed that while there are some longer flake scars, none are the result of true across-the-face or overshot flaking (Michael B. Collins, personal communication, 2018). Thus the bifaces are likely Archaic in age and consist of blanks which were constructed for transport and the later manufacture of other artifacts. The quarry blanks in the Clofus Oswalt/Gipper Nelson cache are uniformly tear drop-shaped with an average dimension of 116 mm in length, 56.5 mm in maximum width, and 15 mm in thickness (Table 1). Nine of the 11 bifaces are within 10 percent of this general shape; only biface #4 and #11 are slightly shorter and thicker, respectively (see Table 1). The

Table 1. Physical Measurements of the Clofus Oswalt/Gipper Nelson Biface Cache.

Artifact	Length (mm)	Width (mm)	Thickness (mm)	Weight (gm)
Biface #1	121.9	55.7	15.5	118
Biface #2	121.4	52.7	14	93.1
Biface #3	141.9	53	17.5	137.8
Biface #4	91.9	54.1	14.8	76.1
Biface #5	110	56.8	13.5	97.5
Biface #6	121.2	55	14	99.2
Biface #7	104.2	66.5	16.3	111.6
Biface #8	115.3	51.4	16.8	91.4
Biface #9	125.5	56.8	14	101.5
Biface #10	112.2	51.4	14.2	91.1
Biface #11	109.1	70.1	14.3	114.6
Average	115.9	56.5	15	102.9

uniform nature of the bifaces indicates that they were likely constructed by the same individual who had a basic general shape in mind before knapping the blanks. The tear-drop shaped "cache biface" is well-known from a number of sites across Texas, and is usually of Archaic age (Miller 1991, 1993; Fields et al. 1991).

Nine of the cache bifaces appear to be from the same location as the color from piece to piece is almost identical. The other two bifaces are made from a slightly bluer-gray chert. The chert has a varied color, ranging from very light gray (8N/0) to light gray (7N/0) to yellowish-gray (5Y 7/2) to light brown (5YR6/4) to light blueish-gray (5B 7/1). The latter color is restricted to biface 4 and 11. Photographs of each of the 11 bifaces that constitute the cache are shown in Figures 1-11. The order and numbering of the bifaces corresponds to the listing in Table 1.

In response to both short-wave and especially long-wave ultra-violet radiation, the bifaces all fluoresce a brilliant lemon-yellow color which is indicative of Edwards chert. However, to more accurately determine their source, the 11 bifaces from the Clofus Oswalt/Gipper Nelson cache were subjected to a

Figure 1. Biface #1, Clofus Oswalt/Gipper Nelson Cache, Limestone County, Texas. (Photograph by Thomas J. Williams)

Figure 2. Biface #2, Clofus Oswalt/Gipper Nelson Cache, Limestone County, Texas. (Photograph by Thomas J. Williams)

Figure 3. Biface #3, Clofus Oswalt/Gipper Nelson Cache, Limestone County, Texas. (Photograph by Thomas J. Williams)

Figure 4. Biface #4, Clofus Oswalt/Gipper Nelson Cache, Limestone County, Texas. (Photograph by Thomas J. Williams)

Figure 5. Biface #5, Clofus Oswalt/Gipper Nelson Cache, Limestone County, Texas. (Photograph by Thomas J. Williams)

Figure 6. Biface #6, Clofus Oswalt/Gipper Nelson Cache, Limestone County, Texas. (Photograph by Thomas J. Williams)

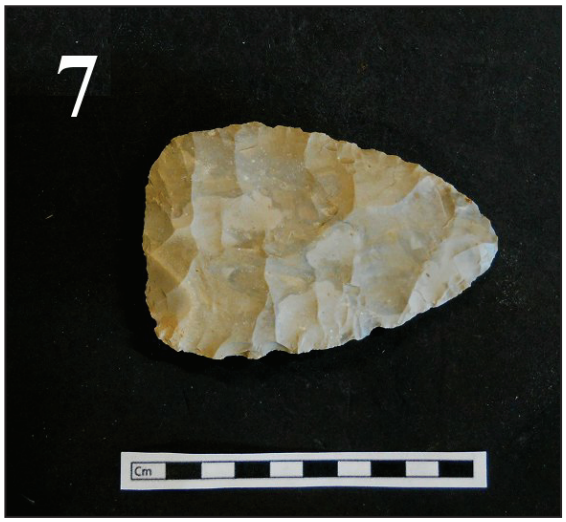

Figure 7. Biface #7, Clofus Oswalt/Gipper Nelson Cache, Limestone County, Texas. (Photograph by Thomas J. Williams)

Figure 8. Biface #8, Clofus Oswalt/Gipper Nelson Cache, Limestone County, Texas. (Photograph by Thomas J. Williams)

Figure 9. Biface #9, Clofus Oswalt/Gipper Nelson Cache, Limestone County, Texas. (Photograph by Thomas J. Williams)

Figure 10. Biface #10, Clofus Oswalt/Gipper Nelson Cache, Limestone County, Texas. (Photograph by Thomas J. Williams)

Figure 11. Biface #11, Clofus Oswalt/Gipper Nelson Cache, Limestone County, Texas. (Photograph by Thomas J. Williams)

trace element geochemical analysis using a portable X-ray fluorescence spectrometer (pXRF) in order to attempt to determine their provenance. The analyses were conducted using a Bruker Tracer III-SD handheld energy-dispersive X-ray fluorescence spectrometer equipped with a rhodium target X-Ray tube and a silicon drift detector with a resolution of ca. 145 eV FWHM (Full Width at Half Maximum) at 100,000 cps over an area of 10 mm^2. Data was collected using a suite of Bruker pXRF software and processed running Bruker's empirical calibration software add-on. Sample area on each artifact analyzed was carefully selected to specifically avoid any inclusions within the chert and, where possible, only on flat surfaces such as a flake scar to reduce the scattering effects due to surface topography.

All the bifaces were measured using operating parameters of 40keV, 36.2ìA, using a 0.12 mm aluminum/0.01 mm titanium filter in the X-ray path, and a 300 second live-count time. Multiple measurements were taken on both the obverse and reverse faces of each artifact and the measurements then averaged for each sample. Peak intensities for Ká and Lá peaks were measured for a suite of 22 elements including calcium, titanium, chromium, manganese, iron, cobalt, nickel, copper, zinc, arsenic, rubidium, strontium, yttrium, zirconium, niobium, molybdenum, tin, antimony, barium, lead, thorium, and uranium. From these measurements, the peak intensities for each element were calculated as ratios to the Compton peak of rhodium and converted to parts-per-million (ppm). The raw data was processed using a multivariate discriminant analysis ("Fishers Discriminant Analysis") (Fisher 1936; Krzanowski 1977; Friedman 1989; Rencher 1992). This statistical method was utilized as, unlike principle component analysis, it allows data to be analyzed by individual region. By using this type of statistics, a discrete variance in geochemical signatures can be analyzed and compared. Appendix I provides all raw data collected in ppm on the 11 bifaces artifacts from the Clofus Oswalt/Gipper Nelson cache.

Provenance analysis of the trace element data collected from the artifacts was conducted using an Edwards Plateau chert data base initially constructed by Williams and Crook (2013) and subsequently augmented by Williams. Based on the results of the XRF analysis, the 11 bifaces from the Clofus Oswalt/Gipper Nelson Cache, regardless of color, were shown to share a similar trace element geochemistry characteristic of Edwards Plateau chert. In particular, the bifaces contained anomalous

amounts of strontium which is characteristic of chert from the northeastern part of the Edwards Plateau, in the general area of the Fort Hood Military Reservation (Williams and Crook 2013). A discriminant analysis of the raw data confirmed that all the bifaces were made from chert from one general location.

Conclusions

Lithic caches are known from virtually every occupational time period across Texas, albeit little is known about the practice other than it appears to have been indicative of trade (Miller 1993). Caches of shaped raw material are known from Paleoindian to Late Prehistoric times so unless a distinctive artifact can be found, it is virtually impossible to assign an age to a cache as described herein (the tear-drop shaped perform is common throughout time and thus is not age distinctive).

The practice of caching artifacts is believed to be due to the fact that the distribution of lithic raw material suitable for making sharp edged tools is not uniform across the state (Banks 1990). The area of Limestone County is particularly so being limited mainly to stream cobbles which contain predominantly orthoquartzite. Similar lithic caches of high-quality Edwards chert are known from both North-Central and Northeast Texas (Miller 1994; Crook and Hughston 2011; Glasgow 2012).

Given the lack of use-wear on any of the artifacts, their apparent burial together, and their complete lack of association with any known site in the area, all lend credence to the idea that they represent a lithic material cache. This presumption is further supported by the biface components' near equal size, color and trace element composition. Absent any direct association with other artifacts makes determination of a cultural affiliation with the cache problematical. The lack of overshot flake scars indicates that the cache is most likely not of Clovis age. Given that the preponderance of similar biface caches across Texas have been shown to be Archaic in age, it is likely that the Clofus Oswalt/Gipper Nelson cache is also an Archaic materials cache (Miller 1991, 1993). However, it cannot be absolutely ruled out that the cache could be of Late Paleoindian or even Late Prehistoric age. Likewise, while it is likely that the original cache consisted of the eleven bifaces that have been recovered, all that can be positively stated is that they represent the bifaces that remained in the cache at the time of their discovery.

Acknowledgments

We are extremely grateful for the time and observations of Michael Collins, Tom Williams and Nancy Williams of the Prehistory Project, Texas State University. In particular, we wish to thank Tom Williams who not only photographed each biface but also conducted the detailed XRF trace element geochemical analysis described herein.

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TWO BANNERSTONES FROM THE SAVOY SITE (41LB27), LIBERTY COUNTY, TEXAS

Wilson W. Crook, III and August G. Costa, Ph.D., R.P.A.

Introduction

In 2017, the Houston Archeological Society (HAS) was asked by the Texas Historical Commission to assist the Sam Houston Regional Library and Research Center in Liberty, Texas to create a new interactive museum exhibit on the prehistory of Southeast Texas using the extensive Andy Kyle Archeological Collection. The collection was given to the Center by the late Mr. Andy Kyle and consists of well over 30,000 artifacts collected from 95 sites in nine Southeast Texas counties. The artifacts within the Kyle Collection range from Clovis (ca. 13,000 B.P.) to Late Prehistoric (ca. 500 B.P.) in age. One of the more prolific sites represented in the collection is the Savoy site (41LB27) located in northeastern Liberty County. Artifacts from the Savoy range from Middle Archaic to Late Prehistoric, with an extensive Woodland period collection (Crook et al. 2017).

Recently, several previously unknown boxes of material from the Savoy site were located by Ms. Alana Inman, Director of the Sam Houston Regional Library. In these boxes were a large number of both Woodland period ceramic sherds and box of ground stone artifacts. Inside one box of sherds was a large sack labeled "Stone Field" and "One Spot". This sack contained 58 sherds from a single, large oval-shaped bowl. Examination of the decoration on the exterior of the sherds showed it to be type Mabin Stamped, *var. Joe's Bayou*; an Early Woodland pottery type previously known only from two sites in eastern Louisiana and three sites in western Mississippi – all located along the Mississippi River (Richard A. Weinstein, personal communication 2018). The box of ground stone artifacts contained mostly small one-hand grinding stones and nutting stones, largely constructed from local sandstone. However, two artifacts were made from non-local stone. Close examination showed these items to be broken bannerstones. Bannerstones are symmetric, groundstone artifacts, marked by a central drilled perforation. They are associated with Archaic period contexts throughout the woodlands of the American Southeast, but are rarely encountered in Texas (Costa 2019; Costa and Gilmer 2019; Lutz 2000). As no bannerstones have been previously reported from Liberty County, this short paper serves to document the occurrence.

The Savoy Site (41LB27)

The Savoy site is located approximately 4.2 km southwest of the community of Moss Hill in northeastern Liberty County. The site is bisected by County Road 2099 and hand written notes left by Mr. Kyle in the boxes of artifacts indicate that both the Mabin Stamped, *var. Joe's Bayou* bowl and the two bannerstones were found on the part of the site that occurs south and west of CR 2099, known as the "Stone Field" after the property's original owner (Figure 1). The north and western side of the site is owned by the Savoy family for whom the site was named. Mr. M. L. Stone owned the land on the other side of the road. Andy Kyle would designate cultural material from Mr. Stone's part of the site as "Savoy site – Stone Field". The Savoy site is part of a series of four sites that occur parallel to one another along a 600 meter southeast-to-northwest stretch of land. Site 41LB26 lies 215 meters to the southeast; site 41LB28 is 225 meters to the northwest; and site 41LB29 is 400 meters to the northwest. All four sites contain similar cultural material predominantly from the Middle and Late Archaic, Woodland, and Late Prehistoric periods. The Savoy site, in particular, contains cultural material the Paleoindian and Early Archaic periods as well (Kindall and Patterson 1986; Crook et al. 2017; Crook 2018). The nearest source of permanent water to the Savoy site is Knight's Bayou, which is located 1.2 km to the west. Knight's Bayou is a tributary of the Trinity River which lies 2.5 km to the west of the site.

The site was originally recorded in 1973 by the University of Texas during the Louisiana Loop Survey (Elton Prewitt, personal communication, 2019). A second survey was conducted in the mid-1980s by members of the HAS in conjunction with Mr. Andy Kyle who showed them where his artifacts were found (Kindall and Patterson 1986). A third exploration of the area was conducted in 2014 by TRC

Figure 1. Photograph of the Stone Field the Savoy (41LB27) site, Liberty County as it appears today.

Environmental Corporation as part of a pipeline right-of-way survey. TRC conducted 21 shovel tests over both the north and southern portions of the site. Nine of the 21 shovel tests contained cultural materials including a Gary point, an Alba point, and numerous ceramic sherds (TRC notes on file with the Texas Archeological Research Laboratory).

Occupational material at the Savoy site covers at least 0.7 acres today, however, based on information given to the HAS by Mr. Kyle, this area represents only about 20 percent of the original site size. Much of the site was destroyed by the construction of County Road (CR) 2099 coupled with farming and house construction in the area (Sheldon Kindall, personal communication, 2017). Soils covering the area of the Savoy site belong to the Spurger-Bienville-Kennefick complex, specifically a mix of Bienville and Kennefick soils (Griffen 1996). The typical soil profile at the site consists of about 13 cm of a dark brown loamy fine sand underlain by 200+ cm of a very fine-grain dark yellowish-brown loamy sand (Griffen 1996). Based on data from both Prewitt's 1973 survey and the 2014 TRC survey of the site, the artifact horizon extends to at least one meter or more in depth with cultural material present from the surface to the base of the test pit. No test pits were dug below this depth.

Artifacts from the site represent the following archeological periods: (1) Paleoindian – ca. 12,000-8,500 B.P. (marked by Dalton, San Patrice, Pelican, and Wilson points), (2) Early Archaic – ca. 8500-6000 B.P. (marked by Gower, Carrollton, Trinity, and Bulverde points plus Clear Fork gouges and Waco sinkers), (3) Middle to Late Archaic – 6,000-2,000 BP (marked by Ellis, Yarbrough, Kent, Ellis, Ensor, and Gary points, (4) Woodland (Early Ceramic) – 2,000-1,400 BP (marked by Gary and Kent points and both plain and decorated ceramics), and (5) Late Prehistoric 1,400-500 BP (marked by Alba, Catahoula, Friley, and Perdiz points, and both locally manufactured sandy-paste and imported Caddo ceramics) (Crook et al. 2017; Crook 2018; Suhm et al. 1954; Suhm and Jelks 1962; Turner and Hester 1985, 1993, 1999; Turner et al. 2011).

Savoy Site Bannerstones

Two bannerstones were recovered by Mr. Kyle from the surface of the Savoy site. Both are broken and represent only about half of their original size. Comparative physical characteristics of the two artifacts are presented in Table 1.

Bannerstone 1 is constructed from an igneous rock that could possibly be a meta-gabbro (precise

Table 1. Comparative Measurements of Savoy Site Bannerstones. (all measurements in mm except for weight)

Characteristic	Bannerstone 1	Bannerstone 2
Maximum Length	46.9	40.4
Maximum Width	33.4	42.2
Maximum Thickness	17.5	10
Diameter of Perforation	10	9.8
Weight (gm)	49.5	28.6
Lithic Material	Meta-Gabbro with Serpentine	Banded Slate
Color	Moderate Olive-Brown (5Y 4/4) to Olive Gray (5Y 3/2) to Grayish Olive-Green (5G 3/2) to Dusky Yellow-Green (5GY 5/2)	Gray (GLEY1 4/0) to Greenish-Gray (5/1) to Dark Greenish-Gray (4/1)

identification is difficult due to the surface polish of the artifact). Some alteration of the rock is present in the form of epidote, chlorite and possibly serpentine. The result is a mottled olive-brown to grayish-green to dusky yellow-green colored stone. The bannerstone is broken along the perforation-barrel leaving only one wing (Figure 2). The original bannerstone was a winged ovoid form. Maximum length of the remaining piece is 46.9 mm but the original artifact would have had a total length of 100 mm or more. Maximum width is 33.4 mm located near the perforation. Maximum thickness of 17.5 mm, also located at the perforation and slopes to a thickness of 6.5 mm at the distal margin. Diameter of the perforation is 10.0 mm, but as this measurement is taken from the margin; the original diameter would have been slightly larger. There is no indication that the perforation was drilled biconically. Weight of the remaining fragment is 49.5 grams indicating that its original full weight would have been in excess of 100 grams.

Figure 2. Bannerstones from the Savoy (41LB27) site, Liberty County. Bannerstone 1 is on the left and Bannerstone 2 on the right.

The artifact is heavily worn on the outer edge and contains numerous scratches along both the dorsal and ventral surfaces. The margins of the perforation are also heavily worn suggesting that the remaining fragment could have been repurposed as a small celt or a wedge after breakage.

Bannerstone 2 is constructed from a banded slate that varies in color from gray to greenish-gray to dark greenish-gray. The intended form of the bannerstone appears to have been a winged type. The artifact was initially broken through its perforation such that only one wing is remaining. A tapered second perforation was attempted through the remaining wing, perpendicular to the original barrel axis, but the attempt failed (see Figure 2). This artifact presents an interesting case of attempted recycling of exotic and clearly valued material. Maximum length of the artifact is 40.4 mm but the original bannerstone would have had a total length of 90 mm or more. Maximum width is 42.2 mm sloping to 28.0 mm at the distal end. Thickness is 10.0 but as the bannerstone is split, this too would have been much thicker in its original form. The original perforation could not be measured due to the location of the breakage.

The secondary perforation is 9.8 mm in diameter at its origin and tapers to about 6 mm (see Figure 2). This perforation was drilled from the distal edge of the wing and terminates before it reached the point of original breakage. Weight of the artifact is 28.6 grams but this represents about a quarter of the original bannerstone as it has broken at the margin of the original perforation and then the remaining fragment was drilled a second time and split.

Conclusions and Discussion

Bannerstones are not uncommon in the Southeastern part of the United States but are rare in Texas (Costa 2019; Lutz 2000; Mitchel et al. 1980). Less than 50 have been reported from the State, mainly from northeast and southeast Texas (Costa 2019; Duke 1989). In Southeast Texas, bannerstones have been reported from Austin, Burleson, Harris, Montgomery, Waller, Polk, and San Augustine counties (Costa 2019; Duke 1989, 1991; Duke 1985; Duke and Duke 1988; Texas Historic Site Atlas (accessed July 20, 2018)). The occurrence of two bannerstones from northeastern Liberty County fits well with this east-to-west trend across the Upper Gulf Coast.

Many of the bannerstones recovered from Texas are made from exotic materials typically not native to the area where they are found. As such, they are seen as the products of trade. Bannerstone 1 from the Savoy site is made from what appears to be a metamorphosed gabbro that has possibly been slightly serpentinized. The closest area to Liberty County that contains like rocks is in the area of Hominy Hill in Pulaski County, Arkansas (Daugherty 2012). Outcrops in this area contain rocks which are very similar in both color and composition to the broken bannerstone from the Savoy site. The distance from northeastern Liberty County to these outcrops is over 600 km.

Bannerstone 2 from the Savoy site is made of a fine-grained banded slate. The nearest outcrops of slate to Liberty County is Ouachita fold belt in southeastern Oklahoma, where Paleozoic shales (Silurian Missouri Mountain Formation) have been intensely folded and metamorphosed into fine-grained, high quality slates (Davis 1960). This is especially true in east-central McCurtain County where slate outcrops up to 5 meters in thickness have been exploited both in Prehistoric and Historic times (Davis 1960). In fact, to this day, the area has a Slate Creek and slate roofing companies prominently advertise locally. Distance from the slate outcrops to the Savoy site is approximately 450 km. Ouachita banded slates were a favored toolstone for bannerstone production in Archaic times (Lutz 2000). Surprisingly, this distinctive toolstone has hitherto never been described amongst the known Texas bannerstone sample (Costa 2019). The Savoy site specimen reported here is the first banded slate bannerstone described in Texas. It may also represent the first case of a well-documented secondary perforation (ie. recycling behavior) of a bannerstone in Texas.

The purpose of bannerstones remains somewhat of an enigma (Costa 2019; Mitchell et al. 1980; Duke 1989). One of the most accepted interpretations of their function is as an atlatl weight (Turner and Hester 1999; Turner et al. 2011). This theory has been casually tested in modern atlatl competitions where participants reported increases in both the distance and accuracy of the thrown dart when using a weighted thrower (Duke 1989). The average size of the perforation from recovered examples across Texas (11-14 mm) suggests that the diameter of atlatl darts was relatively uniform so that a weight could easily slide along the shaft (Duke 1989). Other studies have shown that atlatl weights, such as bannerstones, actually decrease spear/dart throwing efficiency as they decrease the velocity of the throwing lever system (Whittaker 2016). In any case, the atlatl weight function does not explain the time required to both shape and drill a relatively hard rock using rudimentary tools. Moreover, many bannerstones have been found in the burial contexts suggesting that their value as prestige items exceeded their functional use.

Bannerstones are found in Archaic period sites throughout the woodlands of the American Southeast but are most common in the Mississippi and Ohio River Valleys, in areas where Hopewellian and Mississippian chiefdoms later emerged. The presence of two bannerstones made from exotic raw materials that occur far from Liberty County strongly indicates that their presence is the result of trade. The occurrence of other materials from the Mississippi Valley is suggestive that the bannerstones may also have been traded from the Lower Mississippi Valley region.

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The authors are grateful to Ms. Alana Inman, Manager of the Sam Houston Regional Library and Research Center in Liberty, Texas for inviting the Houston Archeological Society to participate in the development of the new prehistory exhibit at the Center and thus affording us the opportunity to study in detail all the artifacts contained in the Andy Kyle Archeological Collection. Alana not only provided open access to study the collection but also allowed for the study of artifacts outside the Center.

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A BROKEN BANNERSTONE FROM THE WOOD SPRINGS SITE (41LB15), LIBERTY COUNTY, TEXAS

Wilson W. Crook, III

Introduction

In 2017, the Houston Archeological Society (HAS) was asked by the Texas Historical Commission to assist the Sam Houston Regional Library and Research Center in Liberty, Texas to create a new interactive museum exhibit on the prehistory of Southeast Texas using the extensive Andy Kyle Archeological Collection. The collection was donated to the Center by the late Mr. Andy Kyle, a long-time resident of Liberty County, and consists of over 30,000 artifacts collected from 95 sites in 9 Southeast Texas counties. The artifacts within the Kyle Collection range from Clovis (ca. 13,000 B.P.) to Late Prehistoric (ca. 500 B.P.) in age. One of the more prolific sites represented in the collection is the Wood Springs site (41LB15) located in central Liberty County. Artifacts from the Wood Springs site range from Paleoindian to Late Prehistoric, with an extensive collection from the Archaic Period (Crook et al. 2017).

Recently, a broken ground stone artifact containing a central perforation has been recovered from the road right-of-way that traverses through the center of the site. Examination showed the artifact to be a broken bannerstone made from greenstone, a lithic material not native to Southeast Texas. As no bannerstones have been previously reported from the Wood Springs site and only two from Liberty County (Crook and Costa, in press this issue), this short paper serves to document the occurrence.

The Wood Springs Site (41LB15)

The Wood Springs site is located approximately 3 km northwest of Liberty, Texas on the west side of

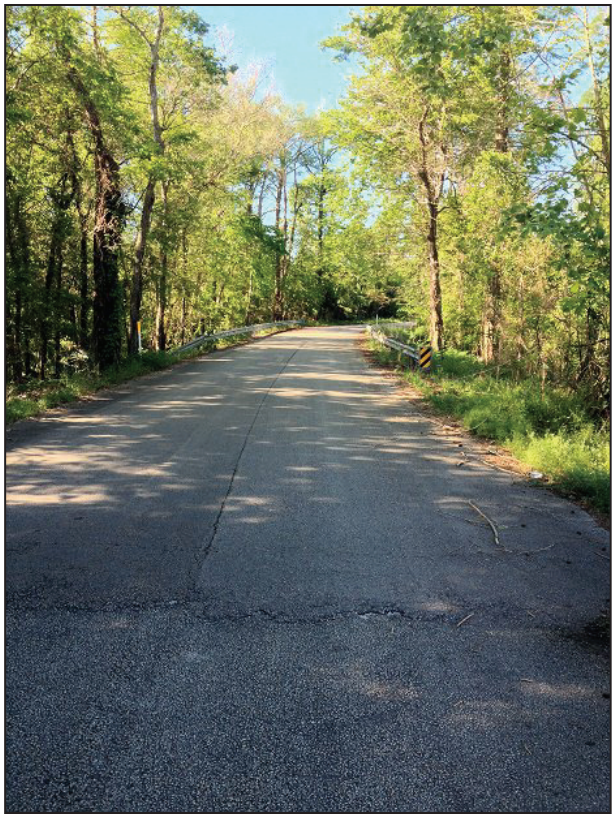

Figure 1. The central part of the Wood Springs (41LB15) site, Liberty County as it appears today. The broken greenstone bannerstone was found to the right of the small bridge along the road right-of-way.

a small stream known as Wood Springs Creek or Atascosito Springs. This stream is fed by several perennial springs and is a minor tributary of the Trinity River 2.0 km to the west. The site lies on either side of a small road within a sandy terrace on the northwest side of the creek. A natural gas pipeline right-of-way crossing bisects the site and serves as a marker for the approximate middle of the occupation (Elton R. Prewitt, personal communication, 2018). The site was one of the many sites from which Mr. Andy Kyle collected artifacts between 1946-1986. The site's location was originally described and registered by Elton R. Prewitt in 1973 as part of the Louisiana Loop Survey. Wood Springs was subsequently investigated by Sheldon Kindall and other members of the HAS during their research on the Andy Kyle Archeological Collection during the mid-1980s (Kindall and Patterson 1987). A small elevated bridge has been constructed across Wood Springs Creek. Fill material to construct the crossing was taken from the middle of the Wood Springs site and it is from this material along the road right-of-way that the artifacts described herein were found (Figure 1).

Occupational material at Wood Springs covers at least 0.5 acres and possibly as much as 5 acres or more (Sheldon Kindall, personal communication, 2017; Houston Daniel, personal communication, 2018). While Mr. Kyle only collected artifacts on the surface, several shovel tests were conducted by Elton Prewitt in 1973, by the HAS in 1986, as well as more recently by the author. Soils covering the area of the Wood Springs site belong to the Spurger-Bienville-Kennefick complex, specifically a mix of Spurger and Kennefick soils (Griffen 1996). The typical soil profile at the site consists of about 8 cm of a pale brown (10YR 7/3) to light gray (10YR7/2) loamy fine sand. This is underlain by a fine-grain brown sandy loam that in places has yellow to reddish mottles. The artifact horizon extends to a depth of at least one meter (no test pits have been dug below this depth). Based on artifacts collected by Mr. Kyle and more recently by members of the HAS from the surface road right-of-way, the Wood Springs site represents a long-term occupation that extends from the earliest part of the Paleoindian period (Clovis) through the Late Prehistoric. Construction of the natural gas pipeline has disturbed much of the site such that Paleoindian, Archaic, Woodland and Late Prehistoric materials are found alongside each other on the surface. Artifacts from the site represent the following archeological periods: (1) Paleoindian – ca. 13,000-8000 B.P. (marked by Clovis, Dalton, San Patrice, Pelican, Scottsbluff, and Angostura points) (Bousman et al. 2004; Jennings 2008), (2) Archaic – 8000-2000 B.P. (marked by Andice, Bell, Carrollton, Trinity, Bulverde, Williams, Pedernales, Ellis, Yarbrough, Kent, Ellis, Ensor and Gary points, unifacial Clear Fork gouges, Waco sinkers, gravers, clayballs, etc.) (Crook et al. 2017; McClure and Patterson 1988; Patterson 1983, 1991), (3) Woodland phase – 2000-1400 B.P. (marked by Gary and Kent points and plain ceramics) (Patterson 1991), and (4) Late Prehistoric 1400-500 B.P. (marked by Alba, Catahoula, Friley, and Perdiz points, and both locally manufactured and imported Caddo ceramics) (Suhm et al. 1954; Suhm and Jelks 1962; Kindall and Patterson 1987; Patterson 1991; Aten and Bollich 2002). To the above assemblages, the discovery of the greenstone bannerstone described herein is added.

Table 1. Comparative Measurements of the Greenstone Bannerstone from the Wood Springs Site, Liberty County.
(all measurements in mm except for weight)

Characteristic	Bannerstone
Maximum Length	46.1
Maximum Width	22
Maximum Thickness	15.5
Diameter of Perforation	10.8
Weight (gm)	22.5
Lithic Material	Greenstone
Color	Light Olive (10Y 5/4) to Light Olive-Brown (5Y 5/6)

Wood Springs Bannerstone

A single bannerstone has been recovered by the author from the surface of the Wood Springs site. Examination of the materials recovered by Mr. Kyle from the Wood Springs site failed to show any other similar ground stone artifacts. The bannerstone is broken along one side of its central perforation and as such, represents slightly less than half of its original size. Comparative physical characteristics of the artifact are presented in Table 1.

The bannerstone is constructed from a greenstone. Named for their yellow-green color, greenstone is a general term used in geology to describe a variety of lithologies that have formed from low-grade metamorphism of mafic and ultra-mafic igneous rocks (Dunning 1960; Gall and Steponaitis 2001). Greenstones are well-known to be a favored rock for ground stone artifacts due to their aesthetic color, ability to be easily shaped via pecking and grinding, and their ability to retain both shape and polish with use (Gall and Steponaitis 2001). They are also moderately hard (6-7 on the Mohs hardness

Figure 2. Top view of greenstone bannerstone from the Wood Springs (41LB15) site, Liberty County showing diamond shape (right) and perforation (left).

scale) and thus are fairly resistant to breakage (Vaughn 1993; Gall and Steponaitis 2001).

The bannerstone has been broken along one side of the perforation leaving only one margin (Figure 2). The overall form is a narrow diamond shape and does not have the extended wings seen in other bannerstones (Turner and Hester 1985, 1993, 1999; Turner et al. 2011) (Figure 3). Maximum length of the remaining piece is 46.1 mm but the original artifact would have had a total length of close to 100 mm. Maximum width is 22.0 mm located near the perforation. Maximum thickness of 15.5 mm, also located at the perforation and slopes to a thickness of 5 mm at the outer edge. Diameter of the perforation is 10.8 mm, but as this measurement is taken from the margin; the original diameter would have been slightly larger, possibly closer to 12 mm. There is no indication that the perforation was drilled biconically (Figure 4). Weight of the remaining fragment is 22.5 grams indicating that its original full weight would have been close to 50 grams. The artifact is heavily worn on the outer edge and contains numerous scratches along both the dorsal and ventral surfaces. There is a small groove (8 mm in length x 2.5 mm wide x 3 mm deep) in the center of the outer edge of the margin (see Figure 3). It is purposefully made as opposed to a scratch and may have had a corresponding groove of the other margin which is now missing. The purpose of the groove is unknown but may have been used to help affix the bannerstone to whatever went through the central perforation.

Composition of the Bannerstone Lithic Material

As mentioned above, the bannerstone is clearly constructed from a greenstone. Detailed examination of the artifact under a binocular microscope (2x-20x) show the greenstone to be composed of actinolite

Figure 3. Side view of greenstone bannerstone from the Wood Springs (41LB15) site, Liberty County. Note notch cut into the right side.

Figure 4. Inside view of greenstone bannerstone from the Wood Springs (41LB15) site, Liberty County showing perforation.

($Ca_2(Mg,Fe)_5Si_8O_{22}(OH)_2$), epidote ($Ca_2(Al,Fe)_2(SiO_4)_3(OH)$), and albite ($NaAlSi_3O_8$) with minor amounts of probable chlorite ($Mg_5,Al)(Al,Si_3)O_{10}(OH)_5$, and quartz ($SiO_2$). There are also small brown spots which may be the alteration product of pyrite (FeS_2). The rock is fine-grained and exhibits a hackly fracture. Under low-grade greenschist-facies metamorphic conditions (300-450°C, 2-10 kilobars), actinolite forms from the alteration of pyroxene (augite) and epidote and albite form from the alteration of calcium-rich plagioclase (labradorite) (Philpotts 1990). Therefore, the greenstone lithic material used in the construction of the bannerstone formed from a basaltic parent rock that underwent greenschist-facies metamorphism.

The closest greenstone outcrop which is chemically similar to that of the Wood Springs bannerstone is the Hillabee Metavolcanic Complex located in central and eastern Alabama (Stow 1979; Tull and Stow 1980, 1982; Szabo et al. 1988; Gall 1995). The Hillabee Metavolcanic Complex is a long, narrow, discontinuous belt of metamorphosed basalt flows that emerge from beneath Coastal Plain sediments in Chilton County, Alabama and trend in a northeasterly direction for approximately 170 km (Szabo et al. 1988). Three major lithologies are present including mafic phyllite, massive greenstone, and a hornblende-bearing siliceous phyllite and gneiss (Gall 1995). Of these, mafic phyllites have a well-developed rock cleavage which rules them out for use in lithic artifacts. Siliceous phyllites and gneisses have a very different mineralogy from the Wood Springs greenstone, so they cannot be its source. However, the massive greenstones of the Hillabee Complex contain rocks which are of identical composition to the Wood Springs bannerstone. Based on chemical analysis conducted on Hillabee greenstone from the Moundville site in Alabama, protoliths for the greenstones were low sodium, low potassium tholeiitic basalts (Wilkinson 1986; Gall and Steponaitis 2001). These volcanics were probably part of a continental-bound volcanic arc that erupted during the Ordovician (485-444 mya) and underwent low-grade regional metamorphism during the Acadian Orogeny of the Devonian period (419-359 mya) (Tull et al. 1978; Gall and Steponaitis 2001).

A total of 568 artifacts made from Hillabee greenstone have been recorded from the Mississippian Moundville site in Alabama (Gall and Steponaitis 2001). Of these, 556 (98 percent) are complete, broken, chips, or preforms of celts. While considerably rarer, other artifacts such as discs, slabs and pendants of Hillabee greenstone are also known from Moundville. The closest outcrop of geochemically similar material is located in Gale Creek in Chilton County, only about 85 km east of Moundville (Gall and Steponaitis 2001). This location is roughly 1,000 km east of Wood Springs.

Conclusions and Discussion

Bannerstones are not uncommon in the Southeastern part of the United States but are rare in Texas (Costa 2019; Lutz 2000; Mitchel et al. 1980). Less than 50 have been reported from the State, mainly from northeast and southeast Texas (Costa 2019; Duke 1989). In Southeast Texas, bannerstones have been reported from Austin, Burleson, Harris, Montgomery, Waller, Polk, and San Augustine counties (Costa 2019; Duke 1989, 1991; Duke 1985; Duke and Duke 1988; Texas Historic Site Atlas (accessed July 20, 2018)). The occurrence of two bannerstones from northeastern Liberty County fits well with this east-to-west trend across the Upper Gulf Coast.

Most of the bannerstones recovered from Texas are made from exotic materials typically not native to the area where they are found. As such, they are seen as the products of trade. The bannerstone from the Wood Springs site appears to be identical in texture, color and mineral composition to rocks from the Hillabee Metavolcanic Complex in eastern Alabama. These rocks have a well-established history of having been used as high-grade toolstone for celts and other ground stone artifacts during the Late Prehistoric (Mississippian) period in Alabama. The closest outcrop of Hillabee greenstone to Liberty County is nearly 1,000 km to the east. Thus for the artifact to wind up in Southeast Texas it must have been part of a very long-distance, multiple party trade network.

Bannerstones are most commonly found east of Texas in Archaic period contexts in the American Southeast and the Upper Mississippi Valley although they may extend temporally into the Woodland period as well. The presence of two bannerstones made from materials that occur significant distances from Liberty County from the Savoy site (41LB27), 15 km north of Wood Springs, strongly indicates that their presence is the result of trade. The occurrence at the Savoy site of a bowl of Mabin Stamped *var. Joe's Bayou* pottery which originates from the area of the Mississippi River in eastern Louisiana and western Mississippi is suggestive that trade networks existed from Southeast Texas across part of the American Southeast. The presence of a greenstone artifact that likely originated in eastern Alabama further supports the theory that more expansive trade networks existed in prehistoric times than have previously been recognized.

Acknowledgments

The author is grateful to Ms. Alana Inman, Manager of the Sam Houston Regional Library and Research Center in Liberty, Texas for inviting the Houston Archeological Society to participate in the development of the new prehistory exhibit at the Center and thus affording us the opportunity to study in detail all the artifacts contained in the Andy Kyle Archeological Collection. Alana not only provided open access to study the collection but also allowed for the study of artifacts outside the Center.

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A BROKEN BOATSTONE FROM THE SAVOY SITE (41LB27), LIBERTY COUNTY, TEXAS

Wilson W. Crook, III

Introduction

Over the past two years, the Houston Archeological Society (HAS) has been working with the Sam Houston Regional Library and Research Center in Liberty, Texas to assess the contents of the extensive Andy Kyle Archeological Collection currently curated at the Center. The collection was donated to the Center by the late Mr. Andy Kyle and consists of well over 30,000 artifacts collected from 95 sites in 9 Southeast Texas counties. One of the more prolific sites represented in the collection is the Savoy site (41LB27) located in northeastern Liberty County. Artifacts from the Savoy range from Middle Archaic to Late Prehistoric, with an extensive collection from the Woodland period (Crook et al. 2017).

Recently, several previously unknown boxes of material from the Savoy site were located by Ms. Alana Inman, Director of the Sam Houston Regional Library. In these boxes were a large number of both Woodland period ceramic sherds and box of ground stone artifacts. The box of ground stone artifacts contained mostly small one-hand grinding stones and nutting stones constructed from local sandstone. However, three artifacts were made from non-local lithics and included two broken bannerstones and a broken boatstone. No boatstones have been previously reported from Liberty County, so this short paper serves to document the occurrence.

The Savoy Site (41LB27)

The Savoy site is located approximately 4.2 km southwest of the community of Moss Hill in northeastern Liberty County. The site is bisected by County Road 2099 and hand written notes left by Mr. Kyle in the boxes of artifacts indicate that the boatstone were found on the part of the site that occurs south of CR 2099, known as the "Stone Field" after the property's owner (Figure 1). It is unknown if the broken boatstone was found on the north or south side of CR 2099 (Figure 2). The Savoy site is part of a series of four sites that occur parallel to one another along a 600 meter southeast-to-northwest stretch of land. Site 41LB26 lies 215 meters to the southeast; site 41LB28 is 225 meters to the northwest; and site 41LB29 is 400 meters to the northwest. All four sites contain similar cultural material ranging from Mid-

Figure 1. Location of the "Stone Field" part of the Savoy (41LB27) site, Liberty County as it appears today.

Figure 2. The northern part of the Savoy site which lies north of CR 2099.

dle Archaic to Woodland periods and into the Late Prehistoric period as well (Kindall and Patterson 1986). The nearest source of permanent water to the Savoy site is Knight's Bayou, which is located 1.2 km to the west. Knight's Bayou is a tributary of the Trinity River which currently lies 2.5 km to the west of the site but was much closer during prehistoric times.

The Savoy site was originally recorded in 1973 by the University of Texas during the Louisiana Loop Survey (Elton R. Prewitt, personal communication, 2019). A second survey was conducted in the mid-1980s by members of the HAS in conjunction with Mr. Andy Kyle who showed them where his artifacts were found (Kindall and Patterson 1986; Sheldon Kindall, personal communication, 2017). A third exploration of the area was conducted in 2014 by TRC Environmental Corporation as part of a pipeline right-of-way survey. TRC conducted 21 shovel tests over both the north and southern portions of the site. Nine of the 21 shovel tests contained cultural materials including a Gary point, an Alba point, and numerous ceramic sherds (TRC notes on file with the Texas Archeological Research Laboratory).

Occupational material at the Savoy site covers at least 0.7 acres today, however, based on information given to the HAS by Mr. Kyle, this area represents only about 20 percent of the original site size. Much of the site was destroyed by the construction of CR 2099 coupled with farming and house construction in the area (Sheldon Kindall, personal communication, 2017). Soils covering the area of the Savoy site belong to the Spurger-Bienville-Kennefick complex, specifically a mix of Bienville and Kennefick soils (Griffen 1996). The typical soil profile at the site consists of about 13 cm of a dark brown loamy fine sand underlain by 200+ cm of a very fine-grain dark yellowish-brown loamy sand (Griffen 1996). The artifact horizon extends to at least one meter or more in depth.

Artifacts from the site represent the following archeological periods: (1) Archaic – 6000-2000 B.P. (marked by Ellis, Yarbrough, Kent, Ensor and Gary points), (2) Woodland phase – 2000-1400 B.P. (marked by Gary and Kent points and both plain and decorated ceramics), and (3) Late Prehistoric 1400-500 B.P. (marked by Alba, Catahoula, Friley, and Perdiz points, and both locally manufactured and imported Caddo ceramics) (Crook et al. 2017; Suhm et al. 1954; Suhm and Jelks 1962; Turner and Hester 1985, 1993, 1999; Turner et al. 2011).

Savoy Site Boatstone

A single broken boatstone was recovered by Mr. Kyle from the surface of the Savoy site. The artifact is broken vertically near the midpoint and thus represents only about half of its original size. Physical characteristics of the artifact are presented in Table 1 below.

The Savoy site boatstone is constructed from a fine-grain micrite limestone which is not local to the area of the site. Color is a yellowish-gray (5Y 8/1) both on the exterior and on the interior as seen through the broken end. Absent any identifiable fossils, it impossible to tell the age of the limestone. It could have originated from the Edwards Plateau 400

Table 1. Physical Measurements of the Savoy Site Boatstone. (all measurements in mm except for weight)

Characteristic	Boatstone 1
Maximum Length	42.9
Maximum Width	34.2
Maximum Thickness	28.1
Thickness at End	15
Depth of Groove	6.5
Weight (gm)	37.4
Lithic Material	Limestone
Color	Yellowish-Gray 5Y 8/1

km to the west or even from the Arbuckle Mountains of southern Oklahoma 400 km to the north (Sellards and Baker 1934). Boatstones, as the name implies, are boat-shaped being elliptical in plan and plano-convex in longitudinal cross-section with rounded ends (Figure 3). The upper surface is rounded having been pecked to form the desired shape. Extensive peck marks are clearly visible on this surface (Figure 4). The lower surface is flat with a polished groove typical of most boatstones (Turner and Hester 1985, 1993, 1999; Turner et al. 2011) (Figures 5 and 6). Maximum length of the remaining piece of the boatstone is 42.9 mm but the original artifact would have had a total length of 85-90 mm or more. Maximum width is 34.2 mm located near the point of breakage. Maximum thickness of 28.1 mm, also located at the point of breakage and slopes to a thickness of 15.0 mm at the distal end. Maximum depth of the central groove 6.5 mm and shallows toward the distal end. Weight of the remaining fragment of the boatstone is 37.4 grams indicating that its original full weight would have been in excess of 75-80 grams. No groove is present either on the distal end on along the midline of the boatstone.

Figure 3. Top view of the boatstone from the Savoy (41LB27) site, Liberty County. The polished groove in the surface of the flat side is clearly evident.

Figure 4. View of the rounded side of the boatstone from the Savoy (41LB27) site. The original pecking to produce the elliptical shape is clearly present on the surface.

Figure 5. Cross-section view of the Savoy boatstone from the midpoint break. Note the U-shaped groove in the interior of the flat side of the artifact.

Figure 6. Cross-section view of the boatstone from the remaining complete distal end. The U-shaped groove in the interior of the flat side of the artifact is on the right side of the photo.

Conclusions and Discussion

Boatstones are a minor component in Texas archeological sites from the Archaic through the Woodland period. They have been reported from Central Texas (Jackson and Woolsey 1938; Olds 1965; Johnson 1967; Suhm 1957), South Texas (Hoover and Hester 1974), the Gulf Coastal Plain (Patterson 1937; Hester et al. 1978; Hall 1981), North Central Texas (Chandler 1996; Crook and Hughston 2015), and East Texas (Jelks 1965; Shafer 1973). They are never plentiful, usually only one or two from any given site. They are found both within the living area of the site as well as in mortuary contexts (Turner and Hester 1985, 1993, 1999; Turner et al. 2011; Patterson 2000).

The purpose of boatstones remains somewhat of an enigma (Peets 1960). One of the most accepted interpretations of their function is as an atlatl weight based on the discovery of boatstones affixed to atlatls recovered from ten dry caves across the western U.S. (Peets 1960). This theory has been tested by modern researchers and found to increase both the distance and accuracy of the thrown dart (Peets 1960; Palter 1977). The atlatl or dart thrower effectively increases the length of the human arm, and thereby increasers the amount of time during which force (thrust) is imparted to the dart (Peets 1960; Dickson 1985). By allowing the thrower (hunter) to apply the force of his arm for a longer period of time, the atlatl imparts a much higher velocity to the dart that provided by throwing it by the arm alone. By adding a weight, either to the middle or the distal end of the atlatl, even greater velocity can be achieved (Peets 1960; Raymond 1986). However, in the end, greater velocity does not always imply greater accuracy and a slower dart that still penetrates vital organs is more effective than a highr4er velocity dart which misses the target.

Moreover, adding velocity to a dart does not explain either the time required to shape a relatively hard rock using primitive tools or the artifact's relative rarity in archeological contexts. If a boatstone significantly improved the function of an atlatl dart, you would find many more in Archaic sites than have been reported. In addition, a number of boatstones have been found associated with burials of presumably high status individuals (Crook and Hughston 2015). Patterson (2020) reported several boatstones found in burials in Southeast Texas which contained small pebbles inside the concave portion of the artifact. The pebbles were uniform in size and appeared to have been selected for the purpose of "filling the boat". This suggests that their value as highly prized prestige or ritual items exceeded their functional use.

Boatstones are more commonly found east of Texas in both the American Southeast and the Upper Mississippi Valley (Patterson 1937). The presence of a boatstone made from material that occurs significant distances from Liberty County strongly indicates that its presence is the result of trade. The occurrence in the Savoy site of a bowl of Mabin Stamped *var. Joe's Bayou* pottery which comes from the area of the Mississippi River in eastern Louisiana and western Mississippi as well as two bannerstones made from lithic materials not native to Texas sug-

gests that the boatstone may also have originated somewhere east of Texas. Boatstones are most common during the latter part of the Archaic to Woodland period (Turner et al. 2011). This is supported by the occurrence of the artifact at the Savoy site which has an abundance of Late Archaic and Woodland period artifacts.

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The author is grateful to Ms. Alana Inman, Manager of the Sam Houston Regional Library and Research Center in Liberty, Texas for inviting the Houston Archeological Society to participate in the development of the new prehistory exhibit at the Center and thus affording us the opportunity to study in detail all the artifacts contained in the Andy Kyle Archeological Collection. Alana not only provided open access to study the collection but also allowed for the study of artifacts using additional technological means outside the Center.

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A RARE MABIN STAMPED, *VAR. JOE'S BAYOU* VESSEL FROM THE SAVOY SITE (41LB27), LIBERTY COUNTY, TEXAS

Wilson W. Crook, III, Louis F. Aulbach, Elizabeth Coon-Nguyen, M.D., Linda C. Gorski, Larry Golden, Beth Kennedy, Geoffrey F. Mills, Sandra E. Rogers, Robert J. Sewell, and Michael S. Woods

Introduction

In 2017, the Houston Archeological Society (HAS) was asked by the Texas Historical Commission to assist the Sam Houston Regional Library and Research Center in Liberty, Texas in creating a new interactive museum exhibit on the prehistory of Southeast Texas using the Andy Kyle Archeological Collection. The collection was given to the Center by the late Mr. Andy Kyle and consists of well over 30,000 artifacts collected from 95 sites in nine Southeast Texas counties. The artifacts within the Kyle Collection range from Clovis (ca. 13,000 B.P.) to Late Prehistoric (ca. A.D. 1500) in age. One of the more prolific sites represented in the collection is the Savoy site (41LB27) in northeastern Liberty County. Artifacts from the Savoy site range from Middle Archaic to Late Prehistoric in age, with an extensive collection from the Woodland period (Crook et al. 2017).

Recently, several new boxes of material from the Savoy site were located by Ms. Alana Inman, Director of the Sam Houston Regional Library. In these boxes were a large number of both Woodland period ceramic sherds and a box of ground stone artifacts. Inside one box of sherds was a large manila sack labeled "Stone Field" and "One Spot." This sack contained 58 sherds from a single large oval-shaped bowl. Examination of the sherds showed it to be from a Mabin Stamped vessel, an early Woodland ceramic type (Figures 1 and 2). Detailed examination of the decoration on the sherds has led to the vessel's tentative identification as Mabin Stamped, *var. Joe's Bayou*, a rare variety previously known only from five sites adjacent to the Mississippi River in eastern Louisiana and western Mississippi (Toth 1998; Richard A. Weinstein, personal communication, 2018). As such, the occurrence of a Mabin Stamped, *var. Joe's Bayou* vessel at the Savoy site in Liberty County marks the first known occurrence of the type outside of the Lower Mississippi Valley as well as in the State of Texas. This paper thus serves to record the vessel and document the occurrence of the type from a new location in Southeast Texas.

Figure 1. Dub Crook, Beth Kennedy, and Sandy Rogers (standing right) with the initial discovery of the sack of Mabin Stamped sherds from the Kyle Collection.

Figure 2. Dub Crook, Sandy Rogers, Mike Woods, and Larry Golden (clockwise from the top) searching for additional sherds to the Mabin Stamped bowl in the Andy Kyle Collection

The Savoy Site (41LB27)

The Savoy site is located approximately 4.2 km southwest of the community of Moss Hill in north-central Liberty County. The site is bisected by County Road 2099 and hand written notes left by Mr. Kyle in the boxes of artifacts indicate that the Mabin Stamped sherds were found on the part of the site south of CR 2099 (Figure 3). This land was originally owned by the Stone family and thus Mr. Kyle referred to the area as "Stone Field." The Savoy site is part of a series of four sites that occur parallel to one another along a 600 meter southeast-to-northwest stretch of land. Site 41LB26 lies 215 meters to the southeast; 41LB28 is 225 meters to the northwest; and 41LB29 is 400 meters to the northwest. All four sites contain similar cultural material ranging from Middle Archaic to Woodland periods as well as the Late Prehistoric period (Kindall and Patterson 1986; Crook et al. 2017). The nearest source of permanent water to the Savoy site is Knight's Bayou, 1.2 km to the west. Knight's Bayou is a tributary of the Trinity River 2.5 km to the west of the site.

The site was originally recorded in 1973 by the University of Texas during the Louisiana Loop Survey (Elton R. Prewitt, personal communication

Figure 3. Location of the Savoy (41LB27) site, Liberty County as it appears today. The Mabin Stamped vessel described herein came from the center of the photo at the edge of the green and brown grass.

2019). A second survey was conducted in the mid-1980s by members of the HAS in conjunction with Mr. Andy Kyle, who showed them where his artifacts were found. A third exploration of the area was conducted in 2014 by TRC Environmental Corporation as part of a pipeline right-of-way survey (TRC field notes on file at the Texas Archeological Research Laboratory in Austin). TRC conducted 21 shovel tests over both the north and southern portions of the site. Nine of the 21 shovel tests contained cultural materials including a Gary point, an Alba point, and numerous ceramic sherds (mainly Goose Creek Plain).

Occupational material at the Savoy site covers at least 0.7 acres today; however, based on information given to the HAS by Mr. Kyle, this area represents only about 20 percent of the original site size. Much of the site was destroyed by the construction of CR 2099 coupled with farming and house construction in the area (Sheldon Kindall, personal communication, 2017). Soils covering the area of the Savoy site belong to the Spurger-Bienville-Kennefick complex, specifically a mix of Bienville and Kennefick soils (Griffen 1996). The typical soil profile at the site consists of about 13 cm of a dark brown loamy fine sand underlain by 200+ cm of a very fine-grain dark yellowish-brown loamy sand (Griffen 1996). The artifact horizon extends to at least one meter or more in depth.

Artifacts from the site represent the following archeological periods: (1) Archaic – 6,000-2,000 B.P. (marked by Ellis, Yarbrough, Kent, Ensor, and Gary points) (Patterson 1991), (2) Woodland period – 2,000-1,400 B.P. (marked by Gary and Kent points and both plain and decorated ceramics) (Patterson 1991), and (3) Late Prehistoric 1,400-500 B.P. (marked by Alba, Catahoula, Friley, and Perdiz points, and both locally manufactured Goose Creek and imported Caddo ceramics) (Crook et al. 2017; Suhm and Krieger 1954; Suhm and Jelks 1962; Turner and Hester 1985, 1993, 1999; Turner et al. 2011).

After it was determined that the Savoy vessel was of a hitherto unknown type of pottery from Southeast Texas and that it could be partially reconstructed, an extensive search was conducted of all of the boxes from the Savoy site in the Andy Kyle Archeological Collection . Despite repeated searches for additional sherds from the vessel, most notably from the vessel's base, no additional sherds outside of those in the paper sack labeled "One Spot" were found. Moreover, no additional sherds with a similar decoration were found in any of the collections from the other 94 sites represented in the Kyle Collection.

Ceramic Vessel Description

The ceramic vessel found by Mr. Kyle at the Savoy site is a large ovoid-shaped bowl of Mabin Stamped, *var. Joe's Bayou* (Toth 1988; Brown 1998), or possibly a related new variety of Mabin Stamped. The vessel type is identified by its exterior decoration which consists of broad curvilinear lines with the areas encompassed by these lines alternately

Figure 4a. Exterior of reconstructed wall section 1.

Figure 4b. Interior of reconstructed wall section 1. Note the color mottling toward the base of the vessel from extensive use.

filled with dentate, non-rocked stamping. Two large wall sections could be partially reconstructed. These consist of wall section 1 (Figures 4a-b) which is comprised of 14 sherds, and wall section 2 (Figures 5a-b) with 31 sherds. A large (91 x 111 mm) rim sherd is also present that does not conjoin with either wall section (Figure 6). There are also 12 additional small sherds (<2 cm each) that may be part of the base but do not refit to either of the two larger wall sections. The larger wall sections appear to join at one very small 2 cm edge, which when held together allowed for an approximate measurement of the diameter of the orifice of the bowl.

Reconstruction of the vessel was complicated by several factors. First, the vessel appears to have been broken in antiquity and subjected to years of weathering. Many of the larger wall sherds are slightly warped, complicating refitting. In addition, almost all of the edges of the sherds are rounded from weathering, thus providing a narrow surface area for

Figure 5a. Exterior of reconstructed wall section 2.

Figure 5b. Interior of reconstructed wall section 2.

glue to hold the sherds together. Lastly, the two reconstructed sections are very fragile as the absence of any basal sherds to help support the weight of the wall sections hindered stable reconstruction. As a result, photographs and illustrations of the vessel are shown in the two separate wall sections (see Figures 4a-b and Figures 5a-b). Detailed illustration of the stamping decoration is shown in Figure 7 and a good depiction of the complete wall decoration is provided in Figures 8-10. Specific attributes of the vessel are provided below:

SITE NAME OR SITE NUMBER: Savoy site (41LB27), Liberty County, Texas

VESSEL NUMBER: N/A; curated at the Sam Houston Regional Library and Research Center, Liberty County, Texas

VESSEL FORM: Large oval-shaped bowl

PASTE: Fine-grain clay with coarser clay fragments (slightly lighter in color than surrounding paste)

Figure 6. Large rim sherd that does not fit with either wall sections 1 or 2 (see Figures 4a and 5a) and appears to be the only sherd from the opposite side of the bowl.

and fine-grained sand as temper inclusions. The use of clay as a temper in an oxidizing environment would have led to lighter-colored vessels (tan to light brown) and allowed for a longer firing period, thus producing a harder ceramic vessel (Rice 1987; Teltser 1993)

RIM AND LIP FORM: Straight (direct); no indication of rim being everted or inverted; rims are slightly thicker than the rest of body (0.5-1.0 mm). Lip form is flat and slightly everted toward the exterior of the bowl

EXTERIOR SURFACE COLOR: Pale Yellow (2.5Y 8/4-7/4) to Very Pale Brown (10YR 7/4)

INTERIOR SURFACE COLOR: Generally the same as the exterior; in places the interior surface is slightly darker (2.5Y 5/2 Grayish-Brown to 2.5Y4/2 Dark Grayish-Brown to 2.5Y3/2 Very Dark Grayish-Brown) due to the presence of fire mottling or clouding

CORE COLOR: Darker than interior or exterior surfaces indicating firing in a low oxygen, reducing, environment then pulled from the fire to cool; sherd cores are typically Gray (7.5YR 7/1) in color

WALL THICKNESS (IN MM): Rim, 9.0-9.5 mm; Body, 6.0-9.0 mm (thicker toward the base); The base is believed to be flat based on a few basal sherds that do not refit with any of the wall sections; the thickness data suggests the vessel was built from the base upwards to the rim (Krause 2007)

INTERIOR SURFACE TREATMENT: Smoothed

EXTERIOR SURFACE TREATMENT: Smoothed and decorated

ESTIMATED VESSEL HEIGHT (IN CM): 200-210 mm

ESTIMATED ORIFICE DIAMETER (IN CM): 305-330 mm

BASE DIAMETER (IN CM) AND SHAPE OF BASE: Unknown but less than the orifice diameter ; base is probably flat based on a few thick basal sherds that do not refit with either major wall section

DECORATION (INCLUDING MOTIF AND ELEMENTS WHEN APPARENT): Single wide (4 mm) horizontal incised band around the lip of the bowl 10-12 mm below the rim. Sweeping U-shaped curvilinear lines both parallel and perpendicular to the incised line below the rim. The lines are approximately 5 mm in width and U-shaped in cross-section. Alternate areas within these curvilinear lines are filled with dentate stamping. Individual stamps are 10-11 mm in length and 1-1.5 mm in width. There is no rocking present. The area below the incised rim line is also filled with rows of dentate stamping (see Figures 4a-b, 5a-b, 6-10).

Figure 7. Detail of dentate stamping from below the rim of wall section 1. Note the stamping pattern does not show any rocking.

TYPE AND VARIETY: Mabin Stamped, *var. Joe's Bayou* (see Brown 1998:36), or perhaps a hitherto unknown variety of Mabin Stamped based on the minor use of a fine-grained sand temper

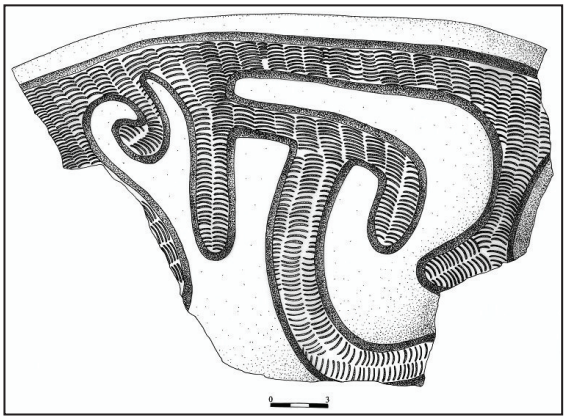

Figure 8. Illustration of the stamping and zoned patterns on the exterior of wall section 1. (Illustration by Claudia Penati)

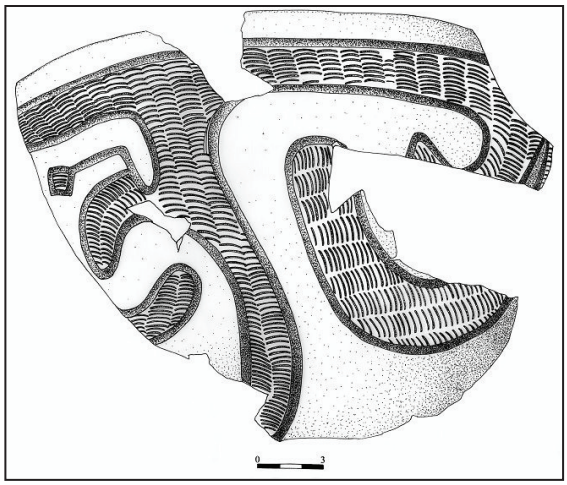

Figure 9. Illustration of the stamping and zoned patterns on the exterior of wall section 2. (Illustration by Claudia Penati)

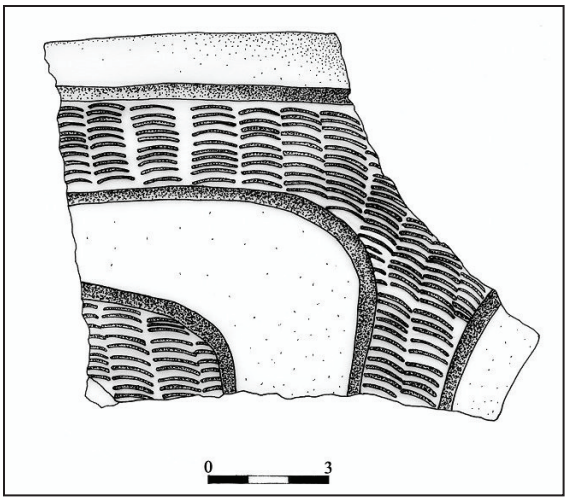

Figure 10. Illustration of the stamping and zoned patterns on the exterior of the large isolated rim sherd (see Figure 6). (Illustration by Claudia Penati)

Discussion

Sometime around the birth of Christ, the resident Tchefuncte culture of the Lower Mississippi Valley was exposed to contact from cultures in the Upper Mississippi River Valley that led to in several noticeable cultural changes. Chief among these changes seen in the archeological record were the adoption of conical burial mounds and a distinctive set of ceramic decorations that mirrored certain Hopewellian pottery from the Illinois Valley that had incised geometric and stamped designs (Toth 1998; McGimsey 2010). The striking similarity of Marksville ceramics to pottery from northern Mississippi Hopewell sites was first noted by Setzler (1933a, 1933b) and has since become recognized as a southern expression of Hopewellian culture (Vescelius 1957; Toth 1974). From the aggregate of the two cultures emerged a new cultural system termed Marksville in the Lower Mississippi Valley. Chronological estimates are imprecise but the entire span from the introduction of Hopewelliam elements into the Lower Mississippi Valley to the replacement of the Marksville system by Baytown phases is roughly 400 years (ca. A.D. 0-400) (Toth 1988).

One distinctive Hopewellian feature that is present on some Marksville period pottery is a bird motif, usually formed by outlining a bird's head (Toth 1988). Initially identified as a raptor because of the characteristic hooked beak, it is now believe that the long neck design of the bird outlined on some Marksville pottery may indicate that it represents instead a roseate spoonbill, a common bird of the marshes along the Gulf Coast (Toth 1988). While it is far from certain, several of the outlined regions on the body of the Savoy site bowl do have what could be interpreted as stylized bird-like features (Figure 11).

One of the diagnostic features of the Marksville period, especially of the early part of the period (ca. A.D. 0-200), is the presence of various types of Mabin Stamped ceramics (Toth 1988). Within the general family of Mabin Stamped ceramics, at least six varieties have been identified including Mabin

Figure 11. Detail of possible bird motif design on the exterior of wall section 1.

Stamped, *var. Mabin*, Mabin Stamped, *var. Cassidy Bayou*, Mabin Stamped, *var. Crooks*, Mabin Stamped, *var. Deadwater*, Mabin Stamped, *var. Joe's Bayou*, and Mabin Stamped, *var. Point Lake*. Each variety differs from the others based on the style of decoration, notably the type of stamping used. Brown (1998:36) compiled a simple sorting manual for the decorated ceramics found in the Lower Mississippi Valley. The decoration on the vessel found at the Savoy site in Liberty County can be characterized by the following features as outlined by Brown (1998): (1) dentate stamping, (2) large areas of the body zoned by broad, U-shaped lines, (3) the stamping is lifted, not rocked, (4) the stamping was done with a multiple notched tool made from either bone, shell, or wood, and (5) the stamping occurs in parallel rows of curved dentate marks. Based on the data provided by Toth (1988) and Brown (1998), the above features identify the Savoy site vessel as Mabin Stamped, *var. Joe's Bayou*. *Variety Joe's Bayou* from the Lower Mississippi Valley is also characterized by a soft, chalky paste, which is typical of most of the Marksville period vessels from the Lower Mississippi Valley (Toth 1988; McGimsey 2010). The presence of minor amounts fine-grained sand in the paste of the Savoy vessel may indicate that it represents either a different variety, or it could even be a closely-related variety that hitherto has not been described in the literature.

Of the varieties of Mabin Stamped vessels, *var. Joe's Bayou* is by far the rarest, known previously from only two sites in the Tensas Basin of northeastern Louisiana (Mansford Plantation [16MA13] and Panther Lake [16MA22] and three sites in the Yazoo Basin of western Mississippi (Norman [22-Qu-518], Kirk [22Ws-542], and Mabin [22-Yz-587] (Toth 1988) (Figure 12). In each case, the number of Mabin Stamped, *var. Joe's Bayou* sherds per each site is limited to a single sherd, with the largest being a rim sherd from the Panther Lake site (the type is named for a small creek near the Panther Lake site). In fact, the variety is so rare that Toth (1988) defined it in the hope that it would engender additional reports of its occurrence and association. Toth (1988) noted that Mabin Stamped, *var. Joe's Bayou* was only found where there were substantial Early Marksville components. Given both the number of sherds as well as the vessel's size, the bowl recovered by Andy Kyle from the Savoy site undoubtedly represents the single best known example of Mabin Stamped, *var. Joe's Bayou*.

Within the Lower Mississippi Valley, Marksville period sites are identified almost exclusively by the presence of conical burial mounds and the presence of zoned stamped ceramics. Complete vessels show-

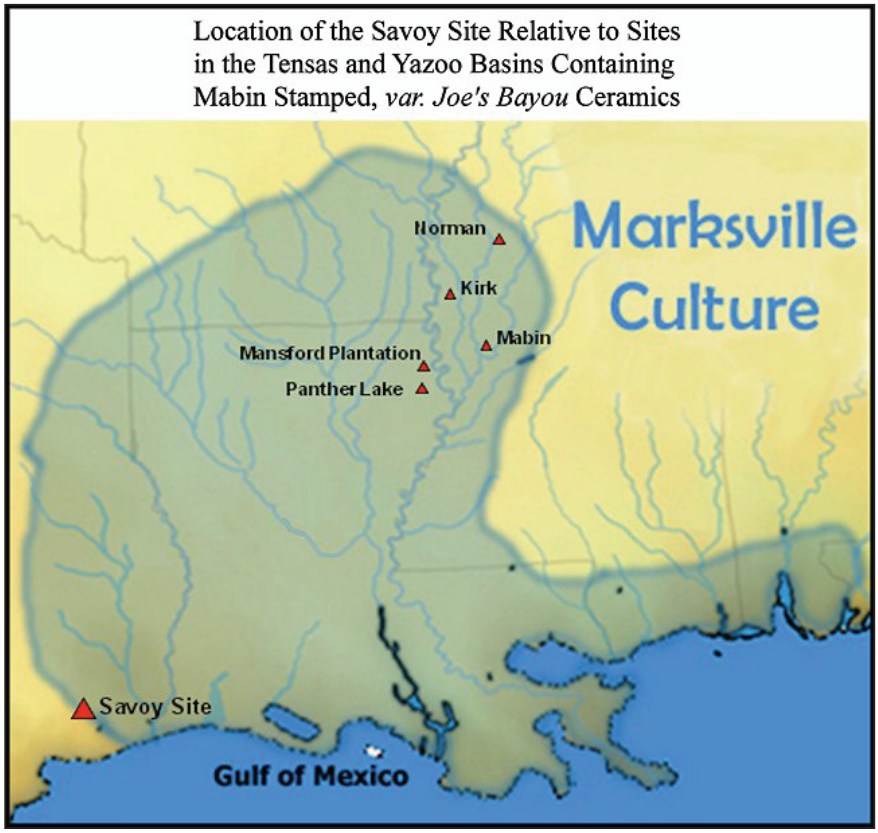

Figure 12. Map showing the locations on known occurrences of Mabin Stamped, var. Joe's Bayou pottery and the Savoy, Texas site.

ing the entire design layout have only been recovered from burial contexts and these vessels only represent a portion of the entire range of Marksville styles and vessel forms (McGimsey 2010). Notably, Marksville burial vessels tend to be smaller than those recovered from domestic contexts and clearly reflect a distinct mortuary assemblage (Gibson et al. 2003). The vessel recovered from the Savoy site is too large to fit the definition of a classic Marksville mortuary ceramic. Moreover, both the interior and exterior of the wall sections show considerable fire mottling from extensive use as a domestic vessel (see Figure 4b and Figure 5b). Lastly, the late Mr. Kyle collected literally every artifact that he found on the surface of sites, including every piece of lithic debitage, shell, charcoal, and bone. No human bones are present in any of the Savoy site boxes further indicating that the vessel described herein was likely not from a mortuary context.

Another feature of the Marksville period is extensive raw material exchange as well as an increase in demand for prestige goods (McGimsey 2010). Virtually all of the several thousand sherds from the Savoy site are various forms of locally-made Goose Creek pottery (Goose Creek Plain, *var. unspecified* and Goose Creek Incised). In this regard, the Mabin Stamped, *var. Joe's Bayou* vessel is distinctly anomalous, which is probably why the late Mr. Kyle specifically bagged its sherds separately from the remainder of the ceramics he collected from the site. Not only is the decoration unique for the Savoy site, it is the only such decorated pottery from the tens of thousands of sherds in the Andy Kyle Archeological Collection, which includes material from 95 sites over nine southeast Texas counties. Thus, while sandy paste Goose Creek pottery is the predominant ceramic ware from the Savoy site as well as in most sites across the Upper Gulf Coast (Aten and Bollich 2002; Perttula 2018), it does not appear that this vessel was made locally. As such, it must have been made externally, likely in the Lower Mississippi Valley, and traded/exchanged between different groups before it ended up in an aboriginal Liberty County, Texas site.

Acknowledgments

The authors are grateful to Ms. Alana Inman, Manager of the Sam Houston Regional Library and Research Center in Liberty, Texas for inviting the Houston Archeological Society to participate in the development of the new prehistory exhibit at the Center and thus affording us the opportunity to study in detail all the artifacts contained in the Andy Kyle Archeological Collection. Alana not only provided open access to study the collection but facilitated our research on artifacts, such as the ceramic vessel described in this paper, by also allowing for the study of artifacts outside the Center. In addition, the lead author would like to thank Tim Perttula, Rich Weinstein, and Jeff Girard for all of their advice and help in determining the identification of the Mabin Stamped, *var. Joe's Bayou* vessel from the Savoy site. Without their assistance and education on Marksville period ceramics from the Lower Mississippi Valley and Southeast Texas, this paper would most likely never have been written.

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AN UNUSUAL PREHISTORIC COPPER PLATE FROM THE SAN JACINTO BATTLEGROUND, HARRIS COUNTY, TEXAS

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Introduction

In 2005, Moore Archeological Consulting (MAC) recovered a unique decorated copper sheet during intensive metal detecting work at Peggy Lake, south of San Jacinto Battleground State Historic Site in Harris County, Texas. The copper artifact was encountered during historic archeological investigations conducted by MAC on behalf of the Texas Parks and Wildlife Department (TPWD) as part of a larger initiative to better understand the Mexican forces retreat in the aftermath of the Battle of San Jacinto (Mangum and Moore 2006). While initially believed to be associated with the 19th century battle, subsequent examination of the copper plate has led to the conclusion that it was an accidental prehistoric discovery. Prehistoric copper artifacts are extremely rare in Texas. Although, comparable decorated native copper sheets are known from Woodland to Mississippi period contexts in the Mid-West, Mid-South, and Southeast, none have hitherto been documented in the state of Texas (Neusius and Giles 2014; Trevelyan 1988). This new find presents a unique opportunity to better understand social complexity, prestige, and long-distance trade amongst the ancient indigenous peoples of the Houston area. In this paper, we describe the context for this discovery and the results of preliminary research on this item.

Context

The copper plate was recovered along the shores of Peggy Lake (Upper San Jacinto Bay) in an area first frequented by prehistoric peoples and later where aspects of the historic Battle of San Jacinto occurred in 1836. The copper plate was recovered from Block 2 of MAC metal detecting investigations on Port of Houston Property while searching for battle-related items (Mangum and Moore 2006). The find came from a mixed context where prehistoric artifacts from a cluster of Archaic to Woodland period shell midden sites (41HR127, 41HR128, 41HR124, 41HR125), were found comingled with battle-related items from the San Jacinto Mexican Retreat site (41HR1109) and later historic homestead materials.

The copper plate was discovered at the foot of a gentle slope that marks the boundary between the terrace escarpment along which many of the prehistoric Peggy Lake complex sites are found and a small seasonally-ponded lowland where prehistoric site 41HR127 is located. The find is almost equidistant between site 41HR127 in the low area to the south and 41HR128 on the low ridge to the north. These sites are more or less continuous with the better-known "Worthington Site " (41HR124/41HR125) which is located about 50 meters north of the copper plate discovery location (Gadus and Howard 1990).

41HR124 was first excavated by R. B. Worthington in the 1950s, and later professionally excavated in 1988 by Prewitt and Associates, Inc. (Gadus and Howard 1990). This site and those nearby were interpreted as long-term campsites with food processing and tool production areas. The Worthington site (41HR124) is a large *Rangia* shell midden dating to the Ceramic period (A.D. 100-1700) and, at least in part, to the Late Prehistoric period (ca. A.D. 600-1700). Dart points from the Worthington collection may also indicate a Late Archaic or Early Ceramic (Woodland) component (Gadus and Howard 1990).

The Peggy Lake plate was buried 16 centimeters beneath the surface and was recovered within 5 meters of a bronze buckle from a Mexican uniform and several musket balls associated with the San Jacinto Mexican Retreat site (41HR1109). At the time of discovery, the copper object was initially identified as a battle-related artifact (Mangum and Moore 2006). The plate was later recognized as a prehistoric find following closer examination in the lab.

Description and Comparison

The Peggy Lake specimen represents a Woodland or Mississippi period native copper embossed plate. Plates of this sort found elsewhere in the American Heartland and Southeast are typically made from native copper (i.e., natural copper found in solid mineral form rather than extracted through smelting copper ore). Such native copper was either mined or

Figure 1. Peggy Lake Copper Plate before (left) and after (right) restoration. Scale is 3 cm.

collected from primary and secondary (e.g., glacial drift) sites in the Great Lakes (primarily Michigan), Canadian Maritimes, and the Appalachian Mountains and traded over vast distances (Martin 1999; Sanger et al. 2018). Native copper nuggets were worked by cold hammering (with some hot hammering), annealing and grinding the material into shape (Ehrhardt 2009). Copper sheets (0.18-1.25 mm in thickness) were commonly fashioned into ornamental (e.g., copper 'animal effigy' sheets) items by Hopewellian metalworkers. Later, Mississippian metalworkers utilized copper sheets and more sophisticated copper foils (<0.5 mm) as well as more complex composite and riveted copper items (Erhard 2009; Trevelyan 1988).

The Peggy Lake copper plate is unassuming compared to other examples of Woodland and Mississippian copper sheet metalwork. The artifact is roughly shield-shaped measuring 10 centimeters wide, 13 centimeters long, and 1 millimeter thick (Figure 1). These dimensions are consistent with copper sheet artifacts classified as hairdress elements or breastplates (Trevelyan 1988). The artifact is decorated by numerous punctate embossed depressions that together form a patterned anthropomorphic "birdperson" figure (Figure 2). This appears to be is the first anthropomorphic figure ever documented in the prehistoric archeological record of Southeast Texas.

The embossed points on the plate create a figure that appears to be a birdperson motif complete with body, clawed feet, and what is either wings, a headdress, or rays rising up from the head and back. In addition to these features, the figure also carries a mace and may also be holding a shield in front of the body. Some details of the design may have been lost as a result of damage to the upper portion of the plate near where the head would typically be seen (see Figure 2). The bird-related motifs are by far the most common found amongst Mississippian headdresses (Trevelyan 1988). The birdman is a central icon in the Southern Cult or Southeastern Ceremonial Complex that prevailed in Mississippi times (Brown 2007; Neusius and Giles 2014).

Although repoussé is most commonly encountered in Mississippian copper plates, the simple punctate design is also reminiscent of Middle to Late Woodland and Hopewellian copper plates (Trevelyan 1988). It is likely that the decorations on the Peggy Lake artifact were created by laying the finished, but not yet decorated, plate on top of a piece of thick leather on the ground and then pressing the desired design into the copper with a bone, antler, or wooden tool.

Several copper plates similar to the Peggy Lake specimen in both form and method of manufacture are available for comparison. Farnsworth and Koldehoff (2004) describe a Terminal Late Woodland period plate interpreted as a headdress element recovered above the head of a male individual (Burial 26) from Cummings Mound #50 in southern Illinois. This item, like the current find is ~1 millimeter in thickness and ~11.4 centimeters in maximum length.

Figure 2. Bird-Person motif with apparent mace (yellow) embossed on the Peggy Lake Copper Plate.

Similar copper items have also been recovered from the Chapel Hill site (St. Clair Co., Illinois) and a few mound sites in Florida including Mt. Royal in Putnam County (Farnsworth and Koldehoff 2004). Even so, all these examples are lacking in figural design elements like that seen on the Peggy Lake plate.

At present the only example of a copper plate that closely matches the Peggy Lake specimen in both motif and method of manufacture is one recovered from the Glass Mounds (40WM3) in Tennessee (Deter-Wolf 2014; Moore et al. 2009). Reportedly there are as many as ten similar examples that were found at that site, but all are in private collections and, so far, we have been unable to observe them for comparative purposes. The particular design of the one plate known to have come from Glass Mounds lacks any overt birdperson designs and appears to be a face only. Nevertheless, this artifact is the closest apparent analog to the one found at Peggy Lake.

Prehistoric Copper in Texas and Vicinity

Copper artifacts are scarce in Texas. Although Archaic period copper is known from the Upper Midwest and nearby at Poverty Point in Louisiana, all known occurrences in Texas appear to represent Woodland period or later occurrences (Hill et al. 2016; Sanger et al. 2018). Copper is occasionally found in Formative Caddo and later contexts in Texas (Barnes and Perttula 1999; Girard and Perttula 2016). A notable copper gorget, bracelets, and thin hammered copper fragments were recovered from mortuary contexts at the Jonas Short site (41SA101) in San Augustine County (Perttula and Walters 2016). The George C. Davis site (41CE19) yielded some earspools originally covered with thin copper sheets (Newell 1949). The Bowser site (41FB3), excavated by the Houston and Fort Bend Archeological Societies, produced a small amount of copper in the form of a pin or awl (Patterson et al. 1993; Patterson et al. 1998). This artifact was found along the left thigh of female sub-adult individual (Burial 21). The object was 141 mm long and 6 mm in max diameter. Although 41FB3 had Late Archaic components, the burial in question may date to the Woodland period (i.e., Southeast Texas Ceramic Period).

Geochemical Sourcing of the Peggy Lake Copper Plate

The copper plate was sent to the Texas A&M Conservation lab for restoration and conservation treatment. Beforehand several shavings were sampled from the artifact for geochemical study. Native copper is not available within or near Texas. We can deduce that the Peggy Lake copper plate was traded a great distance to get to the Houston area. The nearest known source for native copper that was exploited by prehistoric peoples is over 600 miles away in the southern Appalachians (Sanger et al. 2018). Resolving the precise provenance or geographic origin of the Peggy Lake copper sheet is important for better understanding ancient trade networks and possibly better resolving the period of manufacture. Copper sourcing studies elsewhere in North America have shown that copper assemblages often have multiple sources and those sources preferentially changed over time (Ehrhardt 2009). Geochemical analysis of the bulk and trace elements of archeological metals can facilitate "fingerprinting" or matching of materials to their original provenance or extraction locations.

The Peggy Lake copper plate samples were sent to Dr. Michael Ketterer who subjected the samples to instrumental spectroscopic analysis to quantify the amount of silver and lead isotopes that might be useful to compare the copper to known datasets (Ketterer 2006). Atomic Absorption Spectroscopy (AAS) was used to determine the amount of silver in the samples. Inductively Coupled Plasma-Mass Spectrometry (ICP-MS) was used to determine the lead isotope ratios ($^{207}Pb/^{206}Pb$ and $^{208}Pb/^{206}Pb$) of the copper. Both the silver and lead content were found to be very low. The silver was variable (100-300 ppm) and insufficient to provide a provenance (i.e.,

material source) determination. The lead isotope results suggest that the copper may have come from a source in the Middle Mississippi River Valley. Significantly, these results suggest that the lead in the copper artifact is not consistent with other prehistoric sources of copper in the Americas such as Michigan's Upper Peninsula or the Chihuahuan mines in northern Mexico. The latter rules out the possibility that the plate is a historic artifact related to the Mexican retreat site (41HR1109). Even so, only three of the six samples sent yielded measurable concentrations of lead. The overall concentration of lead was low which led to poor precision in the resulting dataset (Ketterer 2006). As such, the current geochemical results remain provisional. Additional provenance study is needed and planned to resolve to possible origin of the Peggy Lake copper plate.

Discussion

In 2005, MAC accidentally discovered a prehistoric copper plate during battleground archeology metal detecting south of the San Jacinto Battleground. Given the disturbed context in which the plate was discovered, it is impossible to provide a precise age for the artifact. Radiocarbon dates and other diagnostics from the nearby prehistoric site complex (Gadus and Howard 1990) suggest an age of ca. A.D. 100-1700 can be loosely associated with the copper plate. The design technique of the plate has several analogs that appear more common and consistent with Hopewellian and Late Woodland copper metalwork. In contrast, the unique birdperson motif on the plate may imply closer ties to Mississippian culture. The size and shape of the Peggy Lake copper plate, suggests that it may represent a headdress element.

Copper artifacts are scarcely encountered in the prehistoric record of Texas, yet they are important indicators of social prestige, mortuary contexts, and long-distance trade. Preliminary results suggest that the current find was likely traded a very long distance (>600 miles). This artifact represents previously poorly documented evidence of trade between the tribes of the Houston region and those farther along the coast and up the Mississippi River. The Peggy Lake copper plate, along with a growing volume of exotic items (e.g., bannerstones, exotic point types, unusually pottery – see other papers in this volume) in Southeast Texas contradicts interpretations that characterize the ancient peoples of the Houston area as simple, provincial groups, largely disconnected from their more cosmopolitan neighbors to the east.

The occurrence of copper and other exotic items elsewhere in the Mid-South and Southeast has also been linked to the emergence of an elite class within prehistoric societies (Sanger et al. 2018). Long-distance exchange such as that demonstrated by the Peggy Lake Copper plate may have had a role in helping aspiring elites acquire and display social capital. Emergent elites could have used both exotic items and ritual to elevate their positions within the broader political landscape. The embossed birdperson found on the Peggy Lake copper plate is one of the most conspicuous symbols in the Southeastern Ceremonial Complex related to Mississippian culture (Brown 2007). The discovery of this icon in Southeast Texas is among the most compelling evidence for the emergence of social elitism and ceremonialism known in the area. Unfortunately, the Peggy Lake copper plate lacks clear context and association, so we can only guess as to what specific components of the local Ceramic period (or Mossy Grove) culture it relates to.

Copper plates are invariably recovered from Woodland and Mississippian mortuary contexts (Ehrhardt 2009; Trevelyan 1988). As such, the discovery of an ornamented copper plate implies the presence of a significant, possibly undocumented mortuary complex in the vicinity. Previous investigations at the Red Tail Site (41HR581, 500 meters to the south) by Gadus and Howard (1990) identified several prehistoric burial features. Given the accidental nature of this discovery and the close association between copper metal artifacts and later prehistoric mortuary contexts, we suggest metal detecting might prove to be a beneficial technique for identifying similar artifacts in shell midden and burial contexts in Southeast Texas.

Future archeological investigations at prehistoric sites on Galveston Bay and in similar settings might include some use of metal detectors by trained professionals as part of the field methodology. This is particularly relevant for burials or mortuary sites in the area where delicate copper items might go unnoticed. The area where the Peggy Lake copper plate was found had been previously investigated intensively by traditional methods of archeological testing, including excavation units and trenching without encountering similar artifacts (Gadus and Howard 1990). Metal detecting on similar prehistoric sites in Southeast Texas would allow for a more targeted approach to see if additional examples of copper artifacts can be found to further develop hypotheses relating to trade, emergent elitism and ceremonialism in the later prehistory of the area.

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41OR15 AND 41OR39 ON LITTLE CYPRESS BAYOU IN THE LOWER SABINE RIVER BASIN, ORANGE COUNTY, TEXAS

Timothy K. Perttula

Introduction

Sites 41OR15 and 41OR39 were recorded in October 1940 by Gus Arnold as part of the University of Texas archaeological survey of selected parts of East Texas (Im 1975). The two sites were on the property of Ben Smith along the west bank of Little Cypress Bayou, a tributary to the Sabine River in Orange County, Texas (Figure 1); the sites were ca. 1 mile upstream of the confluence of Little Cypress Bayou and the Sabine River. 41OR15 was reported to cover 3 acres of a bluff along Little Cypress Bayou, and 41OR39 (150 ft. downstream), covered 1 acre on the bluff above the bayou.

According to the landowner, both sites were believed to have been occupied by Choctaw Indians, probably after the mid-to late 1830s in post-removal times (see Voss and Blitz 1988). Gus Arnold noted that "Mr. Smith reports at the time he farmed this land, great quantities of potsherds were exposed [at 41OR15, but no sherds were known to have been found at 41OR39]. Also, that at the time his grandfather came to this area, Choctaw Indians were supposedly living here. Large quantities of shell and bone were found in association with sherds." At 41OR39, Arnold reported no pottery sherds, but large quantities of chert flakes and chips.

Historic Choctaw ceramic assemblages from sites in Mississippi, Louisiana, and Oklahoma are typologically and stylistic distinctive, and it would be expected that Choctaw ceramic types of historic age would be present at a 19th century Choctaw

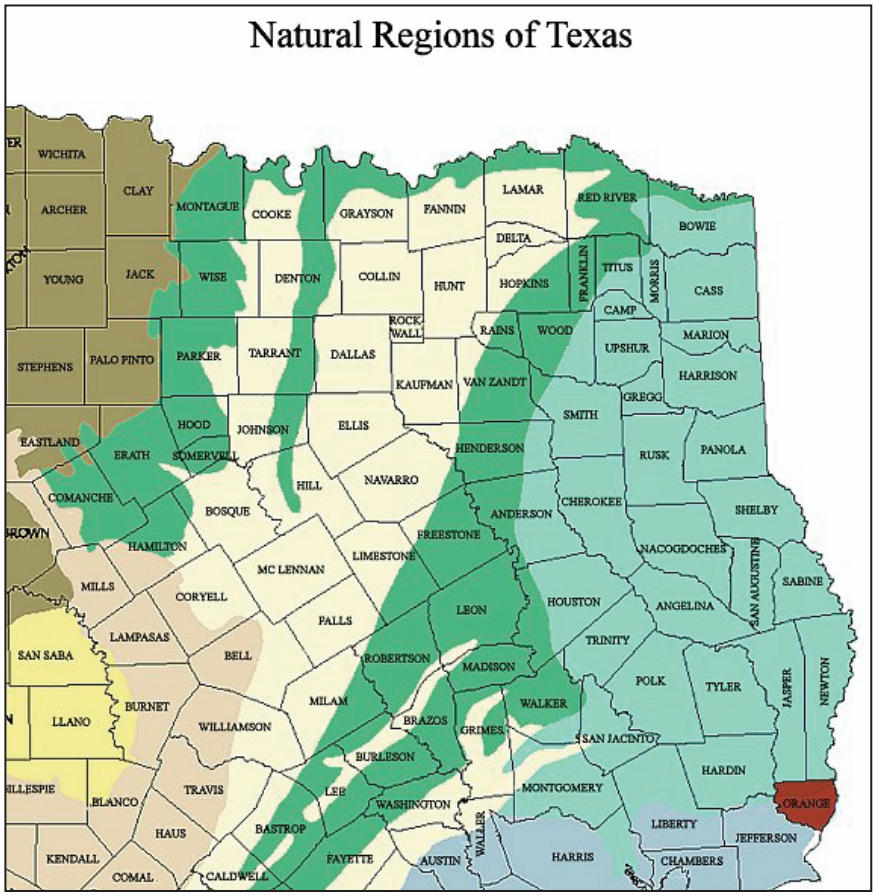

Figure 1. The location of Orange County in Southeast Texas.

Table 1. Ceramic vessel sherds from 41OR15.

Category	Sandy paste	Grog-tempered	Bone-tempered	N
Plain base sherd	3	0	0	3
Plain body sherd	81	7	1	89
Plain body sherd with drilled hole	1	0	0	1
Plain rim sherd	1	1	0	2
Straight incised line	1	0	0	1
Tool punctated	1	0	0	1
Totals	88	8	1	97

occupation in Southeast Texas. Voss and Blitz (1988) and Lee (2003) have defined a historic Choctaw ceramic assemblage that consists of both shell-tempered Bell Plain and Mississippi Plain (although sometimes with brushed surfaces) types, as well as the non-shell-tempered and frequently sandy paste types Chickachae Plain, Chickachae Combed, Chickachae Incised, Chickachae Red, Chickachae Red and Black, and Nicked Rim Incised. Chickachae Combed is the archetypal decorated Choctaw pottery type in all post-1760s Choctaw sites, and the type has readily identifiable and stylistically diverse combed decorations (Perttula 2012:Table 11), either in rectilinear, geometric, or curvilinear patterns that occur as the sole motif, or as elements in a motif that combines several different elements. By the end of the 18th century this was the principal – if not exclusive – style of decorated Choctaw pottery (Galloway 1995, 2006; Galloway and Kidwell 2004; Voss and Mann 1986; Voss and Blitz 1988; Mooney 1997). This combed pottery is also found on 19th century Choctaw sites in both Louisiana and Oklahoma (Ford 1936; Quimby 1942; Schmitt and Bell 1954; Penman 1983; Gettys 1990, 1995; Hunter et al. 1994, 1997; Lee 2003; Brooks 2008; Thompson 2008). The combed decoration, made with a comb-like implement in bands of thin combed lines (Galloway 2006), is on polished serving vessels (Gettys 1995:Figure 6a). According to Gettys (1990:418), "the making and using [of this] traditional pottery continued well into the last quarter of the 19th century, and possibly into the early 20th century."

Ceramic Vessel Sherd Collection

There are 97 ceramic vessel sherds in the 41OR15 collection gathered by Gus Arnold in 1940 at the Texas Archeological Research Laboratory at the University of Texas at Austin (Table 1). Approx-

Figure 2. Selected ceramic vessel sherds from 41OR15: top row, left to right, plain sandy paste body sherd; plain sandy paste base sherd; plain grog-tempered body sherd; bottom row, left to right: plain sandy paste body sherds.

imately 91 percent of the sherds are from sandy paste vessels (Figure 2) that are Goose Creek series ceramics dating to the Woodland period Mossy Grove culture (dating from ca. 500 B.C.-A.D. 800) in this part of Texas (Aten 1983; Aten and Bollich 2002; Moore 1995; Ricklis 2004; Story 1990), primarily Goose Creek Plain, *var. unspecified*. The remainder of the sherds include eight (8.2 percent of the assemblage) plain grog-tempered body and rim sherds and one (1.0 percent of the assemblage) plain bone-tempered plain body sherd (Table 1). The grog- and bone-tempered sherds are likely from a post-A.D. 800 Late Prehistoric use of the site by aboriginal peoples (see Ricklis 2004:195).

Of the Goose Creek series vessel sherds fro 41OR15, one Goose Creek Plain, *var. unspecified* body sherd has a 4.3 mm diameter drilled suspension hole, a Goose Creek Punctated body sherd has a row of tool punctations, and another body sherd, from a Goose Creek Incised vessel, has a straight incised line. About 98 percent of the sandy paste sherds from the site are from Goose Creek Plain, *var. unspecified* vessels (see Table 1).

Summary

None of the distinctive tempered and decorated ceramic vessel sherds known to occur on post-A.D. 1760 Choctaw sites in pre- and post-1831-1832 removal sites in Mississippi, Louisiana, and Oklahoma are present in the ceramic assemblage from 41OR15 in Orange County, Texas. Instead, the ceramic sherds collected from the site by Gus Arnold in 1940 are from both Woodland Mossy Grove and Late Prehistoric components, with either sandy paste Goose Creek series sherds or grog- and bone-tempered sherds, respectively, characterizing the two components. The principal component at 41OR15 belongs to the ca. 500 B.C.-A.D. 800 Mossy Grove culture, which has sites distributed throughout Southeast Texas and a considerable portion of East Texas (Ellis 2013:139 and Figure 1). There is no archaeological evidence in the ceramic vessel sherd assemblage from 41OR15 that it was ever occupied by Choctaw Indians.

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AN UNUSUALLY LARGE HARVEY (MINEOLA) BIFACE FROM THE SAVOY SITE (41LB27), LIBERTY COUNTY, TEXAS

Wilson W. Crook, III

Introduction

In October of 2018, I gave a public presentation on the prehistory of Southeast Texas at the Sam Houston Regional Library and Research Center in Liberty. The presentation was based on information that the Houston Archeological Society had gained from working over the last two years on the extensive Andy Kyle Archeological Collection. This massive collection of prehistoric artifacts was a gift to the Center by the late Mr. Andy Kyle, long-time resident of Liberty County and avid avocational archeologist. The collection comprises well over 30,000 artifacts from 95 archeological sites from nine counties in Southeast Texas. These include 36 sites in Liberty County, 21 sites in Polk County, 13 sites in Jasper County, 8 in Sabine County, 7 in Tyler County, 5 in Hardin County, 3 in Angelina County, 1 in San Augustine County and 1 site in Newton County. The sites present in the collection represent an area that is essentially between the Trinity and Sabine Rivers (Crook et al. 2017).

After the question-and-answer session was concluded at the end of the presentation, various interested citizens of Liberty County came forward with artifacts they had found on their land. One avocational archeologist, Ms. Dianna Bailey, brought an extremely large Harvey (Mineola) biface for identification. She noted that she lived near the Savoy site (41LB27) in north-central Liberty County and that the biface had been found on her property. After observing that it had all the characteristics of the Harvey bifaces present in the Kyle Collection (Crook 2018), I commented on how much larger it was than those I had previously studied. After she had departed, I begin to wonder if the Harvey bifaces that were present in the Andy Kyle Archeological Collection were only those that had been completely worn out and then discarded. As such, what we found in the archeological contexts might not be representative of the original tool, only its depleted and discarded end product. Therefore, I decided to contact Ms. Bailey and see if she would allow me to study her large biface. Ms. Bailey was extremely cooperative and I ultimately made a trip to her house to observe her family's collection from the Savoy site. This brief report serves to document her large Harvey biface and then compares it to the other tools in the Andy Kyle Archeological Collection. While the collection which contains the biface was found by the Bailey family, for simplicity I will refer to the tool described herein as the "Dianna Bailey biface".

The Harvey or Mineola Biface

Harvey or Mineola bifaces are a minor but consistent component of the Late Archaic to Woodland artifact assemblage throughout Southeast Texas. They are crudely made bifacial tools constructed almost exclusively from silicified (petrified) wood (Crook at al. 2017; Crook 2018). Silicified wood is found as thin slabs in the river valleys and elsewhere throughout Southeast Texas. These slabs were collected by the aboriginal inhabitants of the region and bifacially flaked on the distal end to create an expedient chopping – scraping – cutting tool. These tools are similar to what has been described as a Harvey or Mineola biface (Turner and Hester 1985, 1993, 1999; Turner et al. 2011) but differs slightly from the original description given by Jelks (1965, 2017), Johnson (1962), Ellis et al. (2013) and others.

The Harvey or Mineola biface was originally described by Curtis Tunnell (1961a, 1961b) from three sites in the McGee Bend (later Sam Rayburn) Reservoir (Sawmill – 41SA89, E. E. Runnells #1 – 41SA87, and the E. E. Runnells #2 – 41SA86). The longitudinal grain of the silicified wood is aligned with the long axis of the tool. Length varied from 40-170 mm, widths from 20-80 mm, and thickness from 5-24 mm (Jelks 2017). Johnson (1962) found similar tools at the Yarbrough site and they have been further found at a number of other sites in Northeast Texas (McClurkan 1968; Day 1984; Dockall and Fields 2012; Ellis et al. 2013).

A total of 53 Harvey-Mineola bifaces from 14 sites in 5 Southeast Texas counties were identified in the Kyle Collection (Crook 2018). All but one (98 percent) of the bifaces are constructed from thin slabs of silicified wood. Lengths varied from 43.1 – 95.8 mm with the average being 61.6 mm. Widths

Figure 1. The Savoy site on the north and east side of County Road 2099 as it appears today.

range from 23.0 – 49.1 mm with an average of 36.2 mm. Thickness varies from 6.2 – 15.0 mm with the average being 12.0 mm. All are within the ranges given by Jelks (1965, 2017) for the 241 type Harvey-Mineola bifaces from the Sam Rayburn Reservoir area.

Bifacial flaking is present on the distal end of all 53 artifacts; on the distal and proximal ends of nine (17 percent) of the specimens. In all cases, the bifacial flaking created a straight to slightly convex bit edge. Original cortex is present on the dorsal and ventral surfaces of all but one artifact. Cortex was also present on the proximal end of all but the nine bifaces which were double-bitted. No flaking was seen on any of the lateral edges.

The Dianna Bailey Biface

As mentioned above, the Dianna Bailey Harvey biface was found on the western side of the Savoy site (41LB27). This is the area that was originally owned by Mr. Stone and is referred to as "Stone Field" in many of Andy Kyle's notes on the Savoy site. The Savoy site is bisected today by County

Figure 2. The "Stone Field" part of the Savoy site where the large biface was found.

Road 2099 and the "Stone Field" part of the site lies to the west and south of the road (Figures 1 and 2). The nearest source of permanent water to the Savoy site is Knight's Bayou, 1.2 km to the west. Knight's Bayou is a tributary of the Trinity River, which is presently located 2.5 km to the west of the site.

Physical measurements of the Dianna Bailey biface are shown in Table 1. Length of the artifact is 235.0 mm. This is almost four times the average length of the 53 other Harvey bifaces studied from the Andy Kyle collection and is 40 percent larger than the longest Harvey biface recorded by Tunnell (1961a, 1961b) or Jelks (1965, 2017) from sites in the McGee Bend (later Sam Rayburn) Reservoir. Maximum width of the artifact is 65.4 mm, almost twice as wide as the average from the Kyle collection but within the range of those observed from McGee Bend (Jelks 2017). Maximum thickness is 28.5 mm near the midpoint of the biface. Color of the silicified wood lithic material is a dark bluish-gray (GLEY2 5/1) with an exterior coating (bark) which is dark yellowish-brown (10YR 4/2) to grayish-brown (10YR 5/2) (Figure 3).

As can be seen in Figure 3, two notches have been cut into the lateral edges of the biface near the midpoint of the artifact. Examination of both the dorsal and ventral surfaces in this area shows that the silicified bark material on the external surface has been extensively worn, creating a smooth, dark polish (Figure 4). This wear most likely was created from the artifact being hafted and then rubbing back and forth during use.

Unfortunately, most of the bit end of the biface has been broken during use. However, on both the

Figure 3. The large Dianna Bailey Harvey biface from the Savoy site, Liberty County, Texas.

Table 1. Comparative Measurements of the Dianna Bailey Biface to other Harvey-Mineola Bifaces from the Andy Kyle Archeological Collection.

Site	Length (mm)	Maximum Width (mm)	Maximum Thickness (mm)	Presence of Cortex	Lithic Material
Dianna Bailey Biface – Savoy Site (41LB27)	235	65.4	28.5	Dorsal, Ventral, Proximal	Silicified Wood
Andy Kyle Collection Range (53 Artifacts)	43-96	23-49	6-15	Cortex on three faces	Silicified Wood
53 Artifact Average	61.6	36.2	12	Cortex on Dorsal, Ventral and Proximal faces on majority of specimens	Silicified Wood
Increase in Size of Dianna Bailey Biface over Kyle Collection Average	381%	181%	238%		

Figure 4. Dorsal surface of the Dianna Bailey Harvey biface. Note the worn, polished areas which appear dark and smooth in the photograph.

left and right lateral margins of the distal end, distinct step fractures are present. This is consistent with the tool having been used against a hard material such as bone or more likely some type of hardwood (Keeley 1980). This is also consistent with similar observations made on a number of the smaller Harvey bifaces present in the Kyle collection (Crook 2018).

Conclusions and Discussion

Artifacts recovered by the Bailey family from the area of the Savoy site where the biface was found include Gary, Kent, and Yarbrough projectile points as well as abundant Goose Creek Plain and Incised ceramics. **T**hese artifacts are consistent with a Woodland period occupation (ca. 1000 B.C. – 700 A.D.). Artifacts collected by Andy Kyle from the Savoy site show the Late Archaic and Woodland periods were the largest occupations at the site, comprising the majority of recovered artifacts.

Of the 53 Harvey bifaces thus far identified from the Kyle collection, by far the largest number (n=12) come from the Savoy site. These tools average about 58 mm in length and all show extensive use-wear on their distal bit end. None of the bifaces show any modification on the lateral edges. The Dianna Bailey biface is similar in most ways except for its unusual length (235 mm). Slight lateral edge flaking is present on one edge near the proximal end of the artifact (see Figure 3), however, that edge shows absolutely no wear and the flaking must have been done to remove some defect to the original silicified wood slab.

Of the 53 Harvey bifaces studied in the Kyle collection, 62 percent come from sites in Liberty County near or adjacent to the Trinity River or one of its major tributaries. Harvey bifaces from Jasper (n=5), Polk (n=5), Tyler (n=9), and Sabine (n=1) counties also come from sites located near significant river drainages. While it cannot be ascertained for certain, the evidence that the Harvey bifaces from the Kyle Collection were hafted tools from sites near major, navigable bodies of water, lends credence to the possibility that they were used as adzes in the construction of hardwood canoes.

The presence of such a large biface as represented in the Dianna Bailey artifact is intriguing. A hafted tool 235 mm in length would make a much more effective adze in hollowing out a large felled tree, especially in the initial stages of construction. As observed in the Harvey bifaces from the Kyle collection, the tools are minimally worked and it would have been relatively easy to bifacially flake a new bit edge as the tool became worn down from use. This would also have periodically required rehafting the tool in order to maintain sufficient exposure of the bit edge and general overall balance of the tool. The smaller, shorter and lighter bifaces may also have been more efficient in later, finer work. Ultimately the tools became so small that they were no longer functional and they were discarded. Of course, much of this is supposition, but the large Dianna Bailey biface could represent an example of what many of the Harvey bifaces from Southeast Texas looked like in their initial stage of use.

Acknowledgements

I am extremely grateful to Ms. Dianna Bailey for her avid interest in archeological knowledge and allowing me to study the large biface described herein. It is largely because of the interest of local landowners that much of Texas prehistory has been

made available for study. Her kindness and hospitality are a model for what can be accomplished between landowners and researchers for the benefit of Texas archeology.

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A UNIQUE CERAMIC PENDANT FROM THE WOOD SPRINGS SITE (41LB15), LIBERTY COUNTY, TEXAS

Wilson W. Crook, III

Introduction

Beginning in 2017 and continuing to this day, the Houston Archeological Society (HAS) has been involved in assisting the Sam Houston Regional Library and Research Center in Liberty, Texas to create a new interactive museum exhibit on the prehistory of Southeast Texas using the extensive Andy Kyle Archeological Collection. The collection was donated to the Center by the late Mr. Andy Kyle, a longtime resident of Liberty County, and consists of well over 30,000 artifacts collected from 95 sites in 9 Southeast Texas counties. The artifacts within the Kyle Collection range from Clovis (ca. 13,000 B.P.) to Late Prehistoric (ca. 1500 A.D.) in age. One of the more prolific sites represented in the collection is the Wood Springs site (41LB15) located in central Liberty County. Artifacts from the Wood Springs site range from Paleoindian to Late Prehistoric, with an extensive collection from the Early Archaic and Late Prehistoric periods (Crook et al. 2017).

Recently, a unique engraved ceramic sherd containing a perforation at one end has been recovered from the road right-of-way that traverses through the center of the site. Examination showed the artifact to be a broken pottery sherd which has been modified via engraving into a notched ceramic pendant. Gorgets and pendants made from shell or stone are well-known throughout Texas (Skinner et al. 2014; Crook and Hughston 2015). However, ornaments made from broken ceramics are quite rare with the author knowing of only one similar artifacts from the Gilkey Hill site in Kaufman County, Texas (Crook 2015). This short paper serves to document the artifact and its occurrence.

The Wood Springs Site (41LB15)

The Wood Springs site is located approximately 3 km northwest of Liberty, Texas on the west side of a small stream known as Wood Springs Creek or Atascosito Springs. This stream is fed by several perennial springs and is a minor tributary of the Trinity River 2.0 km to the west. The site lies on either side of a small road within a sandy terrace on the northwest side of the creek. A natural gas pipeline right-of-way crossing bisects the site and serves as a marker for the approximate middle of the occupation (Elton R. Prewitt, personal communication, 2018). The site was one of the many sites from which Mr. Andy Kyle collected artifacts between 1946-1986. The site's location was originally described and registered by Elton R. Prewitt in 1973 as part of the Louisiana Loop Survey. Wood Springs was subsequently investigated by Sheldon Kindall and other members of the HAS during their research on the Andy Kyle Archeological Collection during the mid-1980s (Kindall and Patterson 1986). A small elevated bridge has been constructed across Wood Springs Creek. The site occurs on either side of Wood Springs Creek and the artifact described herein came from the eastern side where Wood Springs merges into 41LB16. However, based on Prewitt's notes from his 1973 survey work, it is believed the area where the ceramic pendant was found lies within the boundaries of Wood Springs and not 41LB16.

Geology

Occupational material at Wood Springs covers at least 0.5 acres and possibly as much as 5 acres or more (Sheldon Kindall, personal communication, 2017; Houston Daniel, personal communication, 2018). While Mr. Kyle only collected artifacts on the surface, several shovel tests were conducted by Elton Prewitt in 1973, by the HAS in 1986, as well as more recently by the author. Soils covering the area of the Wood Springs site belong to the Spurger-Bienville-Kennefick complex, specifically a mix of Spurger and Kennefick soils (Griffen 1996). The typical soil profile at the site consists of an upper 8 cm of a pale brown (10YR 7/3) to light gray (10YR7/2) loamy fine sand. This is underlain by a fine-grain brown sandy loam that in places has yellow to reddish mottles. The artifact horizon extends to a depth of at least one meter (no test pits have been dug below this depth). Based on artifacts collected by Mr. Kyle and more recently by members of the HAS, the Wood Springs site represents a long-term occupation that extends from the earliest part of the Paleoindian

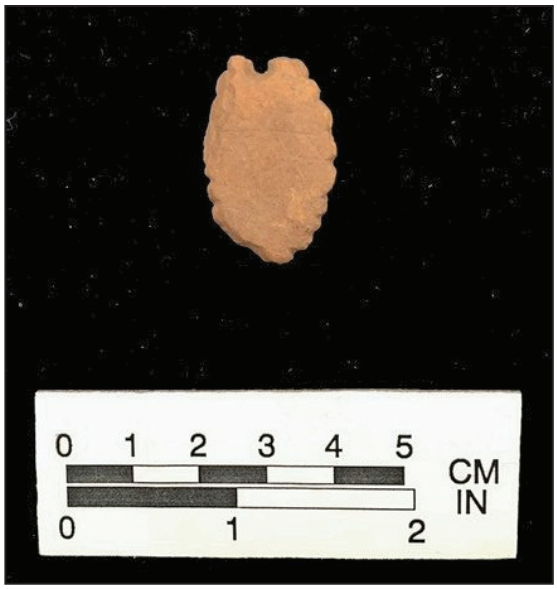

Figure 1. Obverse view of the ceramic pendant from the Wood Springs (41LB15) site, Liberty County showing its oval shape and engraved notching. The pendant was broken through the perforation at the top.

Figure 2. Reverse view of the ceramic pendant from the Wood Springs (41LB15) site, Liberty County. Note the darker coloration on this face of the artifact.

period (Clovis) through the Late Prehistoric. Construction of the natural gas pipeline has disturbed much of the site such that Paleoindian, Archaic, Woodland and Late Prehistoric materials are now found alongside each other on the surface. While cultural material from Clovis to the Late Prehistoric occurs at the site, Wood Springs is notable for an abundance of artifacts from the Early to Middle Archaic – 8000-5000 B.P. (Crook 2018) and from the Woodland – 2000-1400 B.P. (marked by Gary and Kent points and plain ceramics) (Patterson 1991), and Late Prehistoric - 1400-500 .B.P (marked by Alba, Catahoula, Friley, and Perdiz points, and both locally manufactured and imported Caddo ceramics) periods (Suhm et al. 1954; Suhm and Jelks 1962; Kindall and Patterson 1986; Patterson 1991; Aten and Bollich 2002). To the above assemblages, the discovery of the engraved ceramic pendant described herein is added.

Wood Springs Ceramic Pendant

A single engraved ceramic pendant has been recovered by the author from the surface of the Wood

Table 1. Measurements of the Ceramic Pendant from the Wood Springs Site, Liberty County. (all measurements in mm except for weight)

Measurement (mm)	Ceramic Pendant
Maximum Length	29.8
Maximum Width	19.6
Maximum Thickness	5.5
Diameter of Perforation	4
Decoration	Edge notching through engraving; fine cross-hatched lines in a series of "X" patterns engraved on the obverse face
Weight (gm)	4.6
Material	Sandy clay paste sherd probably from a Goose Creek Plain vessel
Color	Light Reddish-Brown (5YR 6/4) to Light Brown (7.5YR 6/4)

Figure 3. High resolution (60x) photomicrograph of the notching on the side of the pendant. The photo clearly shows the sandy nature of the paste and that the notches have been engraved.

Figure 4. High resolution (60x) photomicrograph of the broken perforation at the top of the pendant. Not that the perforation was apparently drilled from a single direction rather biconically.

Springs site. Examination of the 2,623 ceramic sherds recovered by Mr. Kyle from the Wood Springs site failed to show any other similar artifact. The pendant is broken along one end of its perforation as well as on the upper left edge of the obverse face (see Figure 1). Physical characteristics of the artifact are presented in Table 1 and both the obverse and reverse faces are pictures in Figures 1 and 2.

Based on its uniform thickness of 5.5 mm across the pendant and the absence of any notable curve, the sherd from which the pendant was created likely came from the side walls of a small jar. Various varieties of the Goose Creek series of pottery make up over 97 percent of the ceramics present in the Andy Kyle Archeological Collection (Crook et al. 2017). Most Goose Creek pottery is poorly made and falls apart over time. This results in almost no complete vessels being known (Suhm et al. 1954; Suhm and Jelks 1962). The pendant is made from a sandy-paste but is clearly much better fired than most Goose Creek vessels.

The pendant was studied under a high power digital microscope (Dino-Lite AM4111-T). Examination of the edges clearly shows that they have been engraved into the side of the sherd and then rounded by polishing (Figure 3). The perforation was drilled from one direction only and thus has a diameter on the obverse face which is slightly larger than on the reverse face (Figure 4).

Examination of the obverse face at high power (60-80x) shows a series of fine lines were engraved into the flat surface of the sherd (Figure 5). By photographing the sherd and enlarging the photograph, the lines could be traced by superimposing black lines over the engravings. The result is shown in Figure 6. As can be seen, the lines construct a series of "X" patterns aligned in vertical rows stacked on top of each other. In making this reconstruction, I only placed the black lines where I was confident that I could see engraved lines on the sherd. Undoubtedly the patterns extends both above and below covering the entire face of the sherd but wear and surface damage has obscured their location. No such lines are present on the reverse face. Given the care that was taken to both notch the lateral edges of the sherd and drill a perforation hole, it is very likely that these engraved lines were made after the sherds was transformed into a ceramic pendant and were not present on the original piece of pottery.

Conclusions and Discussion

Ornaments such as beads, gorgets, pendants, etc. are a consistent, albeit rare artifact from many East

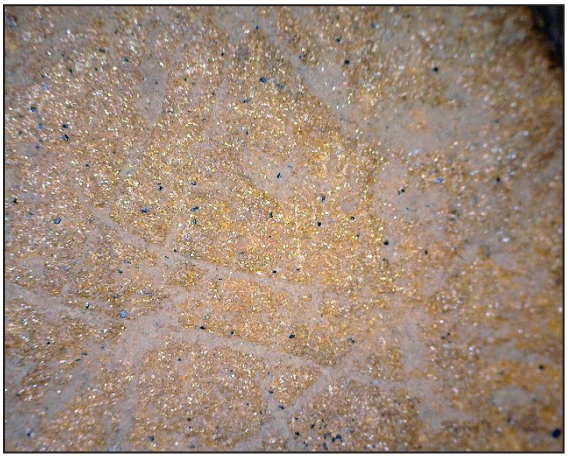

Figure 5. High resolution (80x) photomicrograph of fine linear engraved lines on the obverse face of the pendant.

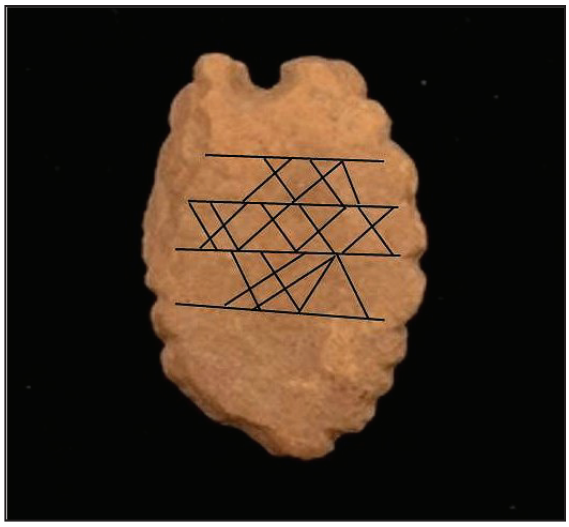

Figure 6. Black lines superimposed on top of the fine linear engraved lines seen in Figure 5. Note the apparent series of "X" cross-hatched markings.

Texas Woodland and Late Prehistoric period sites. Almost all of these types of artifacts are made from shell or bone, or in the case of gorgets, from some form of non-indigenous exotic stone (Crook and Hughston 2015). A few beads have been found made from clay (Harris 1936, 1942, 1948; Harris et al. 1963; Costa and Perttula 2018), but these are extremely rare as compared to beads constructed from shell or bone. Shaped sherds identified as spindle whorls have been recovered from East Texas, but these are circular in shape and have a much larger perforation that is also near the center of the artifact (Newell and Krieger 1949; Perttula 1992; Crook and Hughston 2015). No such shaped sherds were found in the Andy Kyle Archeological Collection.

Shaped sherds are also rare from Caddo sites in East Texas, especially those that have not been made into spindle whorls (Timothy K. Perttula, personal communication, 2014). Two shaped sherds similar to the one from Wood Springs artifact were reported from the George C. Davis site (41CE19) in Cherokee County, Texas (Newall and Krieger 1946). The artifacts recovered from the Davis site, described as "egg shaped objects", were of a similar size to the Wood Springs pendant but lack any perforation or edge notching. Similar non-perforated shaped ceramics have also been reported from a few sites throughout the Caddo occupational area (Perttula 1992, 2005; Perttula et al. 2011). However, none look like the Wood Springs pendant. A perforated pendant made from a shaped sherd was recovered from the Gilkey Hill site in Kaufman County but the pendant does not have any edge notching (Crook 2015). In this regard, the artifact described herein appears to be unique. Why a sherd from a Goose Creek type vessel at the Wood Springs site was subsequently skillfully made into a piece of ornamentation remains unknown.

Acknowledgments

The author is grateful to Ms. Alana Inman, Manager of the Sam Houston Regional Library and Research Center in Liberty, Texas for inviting the Houston Archeological Society to participate in the development of the new prehistory exhibit at the Center and thus affording us the opportunity to study in detail all the artifacts contained in the Andy Kyle Archeological Collection. Alana not only provided open access to study the collection but also allowed for the study of artifacts outside the Center. I am also grateful to HAS colleague, Robert Sewell, who helped me take the high resolution digital photomicrographs which appear in this paper.

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TWO PREVIOUSLY UNDOCUMENTED ROMAN MILITARY DIPLOMAS

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Introduction

Both authors have been interested in Roman archeology and history for a number of years. The lead author has extensively studied Roman architecture and inscriptions in the area of modern Rome and Ostia Antica and has published a number of guidebooks on the area (Aulbach and Gorski 2015, 2016, 2018, 2019). The second author has studied Roman archeology, especially as it pertains to events in the first and second centuries A.D. as part of a long-term teaching avocation (Crook 2017, 2018). To augment this teaching as well as to help illustrate his books, the second author has established a number of contacts in the global antiquities business. Only the most reputable artifact dealers who have well-established reputations for scrupulously conforming to all the laws and standards dealing with legally-obtained antiquities have been contacted. One of these dealers, Mr. Ilija Slijepcevic of Ad Paetorium Coins, has recently come into possession of two fragmentary Roman military "diplomas". Mr. Slijepcevic lives in Korzarska-Dubica, Bosnia & Herzegovina, and specializes in Roman artifacts from the provinces of Dalmatia, Pannonia (Illyricum), Moesia, and Thrace – modern Bosnia & Herzegovina, Croatia, Serbia, and Bulgaria. Both of the artifacts described herein were recovered before 1970 by metal detecting and originate from Pannonia or Moesia, and Thrace. As neither of the two partial documents have previously been published, this short paper serves to document the finds for future researchers.

Background – Roman Military Diplomas

Roman Military Diplomas (*Diplomatas*) were issued to veterans of the Roman army or navy and served as both their discharge papers (*honesta missio*) as well as their documentation of citizenship in the Roman Empire (Cowan 2003a, 2003b, 2013, 2017; Dando-Collins 2010). The regular army (legionnaires) was originally composed almost exclusively of Roman citizens from Italy (northern Italy in particular). However, as the Empire expanded in the first and second centuries A.D., many non-citizens from the outer provinces were incorporated into the armed forces (Cowan 2013). At first, these men served as "auxiliaries", usually taking advantage of a particular local fighting skill such as cavalry, javelin throwers, archers, or slingers. For example, men from Crete were renowned for their archery skills and Balearic islanders were known as the premier slingers of the ancient Roman world (Simkins 1979, 1984). However, after 69 A.D., provincial recruits and conscripts from the provinces, notably the Danube Basin and the Balkans, began to fill the legions as well as the auxiliary troops (Cowen 2013).

Men would be recruited into military service as early as age 17, but new recruits as old as 36 are known with the average age of enlistment being about 20-23 (Cowen 2003a, 2013; Dando-Collins 2010). Prior to the Battle of Actium in 31 B.C., soldiers signed up for a single term of six years. However, with the rapid expansion of the Empire at the beginning of the first century A.D., Caesar Augustus (Octavian) raised the mandatory term of military service to 16 years followed by an additional 4 years in a corps of veterans known as the *vexillum veteranorum* (Cowen 2013; Dando-Collins 2010). The latter performed special duties including training of younger soldiers and as a form of military police. Upon completion of the 20 years of service, soldiers were granted a special one-time discharge bonus or offered land to settle on. If the soldier was a non-Roman citizen, he was also given a special diploma granting full citizenship in the Empire.

In A.D. 6, the minimum service term was increased to 20 years (the *vexillum vetaranorum* largely discontinued) and by the middle of the first century A.D., this was increased again to 25 years. Concurrent with the increase in mandatory term of service, the discharge bonus (*honesta missio*) was increased to 3,000 denarii (12,000 sesterces), which was the equivalent of about 13 years of base pay (Speidel 1992; Dando-Collins 2010). The offer of a large discharge bonus, coupled with the potential of owning land and acquiring full citizenship in the Empire was an attractive offer for many young men, especially those coming from the more rural border provinces. Of course, to obtain all of these benefits,

a soldier had to survive the full 25 years of military service. Based on surviving Roman records, about 40 percent of all soldiers who enlisted were likely to be killed or invalided out due to serious injury before the end of their service term; another 10-15 percent would likely die from disease or some illness. So only about 45 percent of those enlisting lived long enough to earn their honorable discharge and pension bonus (Scheidel 1996; Cowen 2003a, 2013).

As a soldier approached the end of his term of service, the commander of the unit would list all of the soldiers under his command who were eligible for retirement. This list would be sent to the Governor of the province where the unit was stationed who would then bundle all the requests for discharge for his province and forward them to Rome. The Imperial Administration office would draw up a master list for all the soldiers deserving of retirement from each province which would then be personally approved by the Emperor. A large bronze plate would be drawn up listing all the veterans honorably discharged in that year. This plate would be placed in a public place in Rome, such as the Temple of Minerva, as a permanent master record. Individual bronze diplomas (*diplomatas*) for each soldier (with the veteran's name and unit) would be written in Rome and then sent to the Provincial Governor. These would be passed on to the unit commander who would then award each retiring soldier with his own document at a public ceremony. A complete diploma would be constructed from a bronze plate, varying from 10 x 12 to 21 x 16 cm (the size depending on the particular period) (Holder 2006). The plate would be inscribed on two sides or consist of two plates bound through punched holes with bronze wire. Each diploma was sealed by seven witnesses, the seals often covered with bronze plates to protect them from wear (Holder 2006; Roxan 2009). The diploma then served as a legal document, valid across the entire Empire, to demonstrate both an honorable discharge and the right to full citizenship.

None of the master lists of discharged veterans placed in Rome have survived (to date) (Dando-Collins 2010). With the sacking of Rome on numerous occasions coupled with the value of bronze, the documents were likely melted down and/or cut and made into other objects. However, more than 1,000 complete or partial personal military diplomas are known with a substantial number of these having been translated and published. Most of these documents have been found in the outer provinces of the Empire. The barbaric invasions in the third to fifth centuries A.D. destroyed many smaller Roman settlements which were never reoccupied. Military diplomas which might otherwise have been destroyed or melted down survived in these areas to be found later by archeologists and relict hunters.

As diplomas often show the origin of the recipient, it can be seen that many of the non-Italian recruits came from the Danube valley and the adjacent provinces along the Adriatic and the Balkans (modern Bosnia Herzegovina, Croatia, Serbia, and Bulgaria) (Figure 1). However, diplomas have been found that mention virtually every province in the Empire. The list of the origin of published non-citizen military diplomas includes the following locations:

• Aegyptus	5
• Africa	3
• Arabia	2
• Asia	1
• Britannia	19
• Cappadocia	1
• Galicia	2
• Cilicia	1
• Dacia	6
• Dacia Porol	10
• Dacia Inferior	11
• Dacia Superior	17
• Dacia Palmyr	2
• Dalmatia	2
• Equites Singul	11
• Germania	7
• Germania Inferior	6
• Germania Superior	9
• Legio I Ad	1
• Legio II Ad	1
• Iudea	3
• Lycia Pamphylla	3
• Macedonia	1
• Mauretania Caes	3
• Mauretania Ting	17
• Moesia	2
• Moesia Inferior	35
• Moesia Superior	26
• Noricum	8
• Pannonia	6
• Pannonia Inferior	25
• Pannonia Superior	26
• Raetia	21
• Sardinia	3
• Syria	9
• Syria Palestine	6
• Thracia	12
Total	**323**

Figure 1. Map of the Roman Empire and its provinces, first century A.D.

As can be seen from the above list, the provinces of Dacia (n=46), Dalmatia (n=2), Moesia (n=63), Pannonia (n=57), and Thracia (n=12) represent over 55 percent of the total translated military diplomas that mention a soldier's province of origin.

Diploma Number 1

The first diploma described herein is a rectangular-shaped bronze fragment that has been cut diagonally on the right side and the bottom. The original size of this style of diploma was most likely about 120.6 mm (4.75 inches) in height by 154.2 mm (6 inches) in width (Egbert 1896:355), but the remaining dimensions of the fragment are 103.0 mm (4.06 inches) in height by 104.1 mm (4.1 inches) in width. Thickness is a uniform 2.0 mm and the fragment weighs 119.9 grams (4.2 ounces). The reported provenance of the piece is that it was found in the Roman province of Thracia (modern Bulgaria) in the mid-1950s by a local metal detector. The piece was sold to a German collector who retained it until his death in the early 1970's. The document was then sold as part of his estate to a Canadian woman whose family retained it until early 2019, whereupon it was sold to an antiquities dealer in the U.K., who then subsequently sold it to Mr. Slijepcevic of Ad Praetorium Coins. It is rare for such an artifact to have this long a preserved provenance history that supports its authenticity.

The transcription of the inscription on a military diploma can often be a challenging task. As in the case of this fragment, there are losses to the text due to the mutilation of the diploma, perhaps in the re-use of the copper tablet for some other purpose. On the portion of the diploma that is still intact, the inscription itself has been created in a style that minimizes the spacing of the letters, as well as the words, such that reading the text is difficult. The use of abbreviations in the inscription simply adds to the complexity of the process.

These difficulties can be overcome by realizing that the diplomas are standardized forms that use formulas, or boilerplate text, for much of the text of the document. Standardized abbreviations are used in the salutation that identifies the Emperor and his titles. And, there is a formal arrangement of the sections in the document, as follows:

1. the name of the Emperor and his titles,
2. the class of the soldiers who are receiving the privileges (for auxiliaries),
3. the number of years of service (for auxiliaries),

4. a formulaic text to confer the privileges
5. a formulaic statement of the privileges conferred,
6. the date of the diploma,
7. the name of the soldier, and
8. a formula stating the place where the diploma is recorded (Egbert 1896:356-358).

The diploma fragment has been inscribed on both sides. The reverse side reads as follows:

MILITAEVI
DVMTAXAT
TRIMISVO
IVRIXESM

Typically, the outer side of the tablet had the names of the witnesses. The inscription on side one is too fragmentary to provide an adequate translation.

The obverse side contains the following inscription:

IMPCAESGIVLVERVSM
MINVSPIVSFELIXAUG
MAXTRIBPOTIICOSPP
NOMINAMILITIVMQVIM
INCOHORTIBVSPRAETO
MINIANISDECEM I II
IV V VI VII VIII IX X
PIISVINICIBVSPIE E
FORTITERMILITIARVM
TRIBVICONVBIIDVMT
SETPRIMISVX

Both sides of the diploma fragment are shown in Figures 2 and 3. Latin inscriptions such as this are often difficult to translate because of the Roman's proclivity to use both acronyms and abbreviations as well as run words together (Booms 2016). An expansion of the abbreviations on this diploma is provided below. The letters in capitals are the ones inscribed on the diploma, while the lower case letters are the ones added to form the complete word.

The first step is to decipher the name of the Emperor, his honorary surnames, and his titles. A list of common abbreviations is useful for interpreting the long and sometimes complex epithets for the Emperor (Egbert 1986:114-120). The name of the Emperor on this diploma and his full list of titles are expanded in lines 1 to 3 below. As usual, the title of *Pater Patriae* (father of the country) was the last in the sequence.

Lines 4 to 7 provide the formula for Praetorian cohorts in which the soldier served.

Line 8 and 9 includes the name of the final Praetorian cohort, and continues with the formulaic text for privileges conferred on Praetorian cohorts.

Lines 10 and 11 contain portions of the formulaic text of the right to marriage for soldiers of the Praetorian cohorts.

1 IMPerator CAESar Gaius IVlius Lucius VERVS
2 maxiMINVS PIVS FELIX AUGgustus pontifex
3 MAXimus TRIBunica POTestate II COnSul Pater Patriae

4 NOMINA MILITIVM QVI Militaverunt
5 IN COHORTIBVS PRAETOriis
6 maxiMinINIANIS DECEM I II iii
7 IV V VI VII VIII IX X

8 PIIS VINdICIBVS qui PIE Et

9 FORTITER MILITIARVM . . .

10 TRIBVI CONVBII DVMtaxaT

11 singulIS ET PRIMIS VXoribus

Based on the expanded text above, the inscription would translate to:

"Emperor Caesar Gaius Julius Lucius Verus Maximinus, dutiful and blessed Augustus, Pontifex Maximus, with the tribunician power for the second time, consul, father of the country,

to the names of the soldiers who served in the ranks of the ten Maximinian Praetorian cohorts, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10,

and the Loyal and Avenging Cohort, who loyally and

bravely performed their military services,

I have granted the right of marriage with one wife

and the first one only … "

Since Diploma No. 1 has suffered the loss of portions of the text on both the right side and the bottom, the full text of the privilege is lacking. However, the complete standard text of the privilege granted to a member of a Praetorian unit (lines 8 to 11) would be inscribed as a variation of this:

"… quibus, fortiter et pie militia functis, ius tribuo conubii dumtaxat cum singulis et primis uxoribus, ut etiam peregrini iuris feminiae matrimonio

suo iunxerint proinde liberus tollant ac si ex duobus civibus Romanis natos." (Egbert 1896:358)

" … who, having courageously and loyally performed their military service, I grant the right of marriage with one wife and the first one only, so that, even if they unite in marriage with foreign women, they may raise their children just as if that have been born of two Roman citizens." (adapted from Campbell 1994:200)

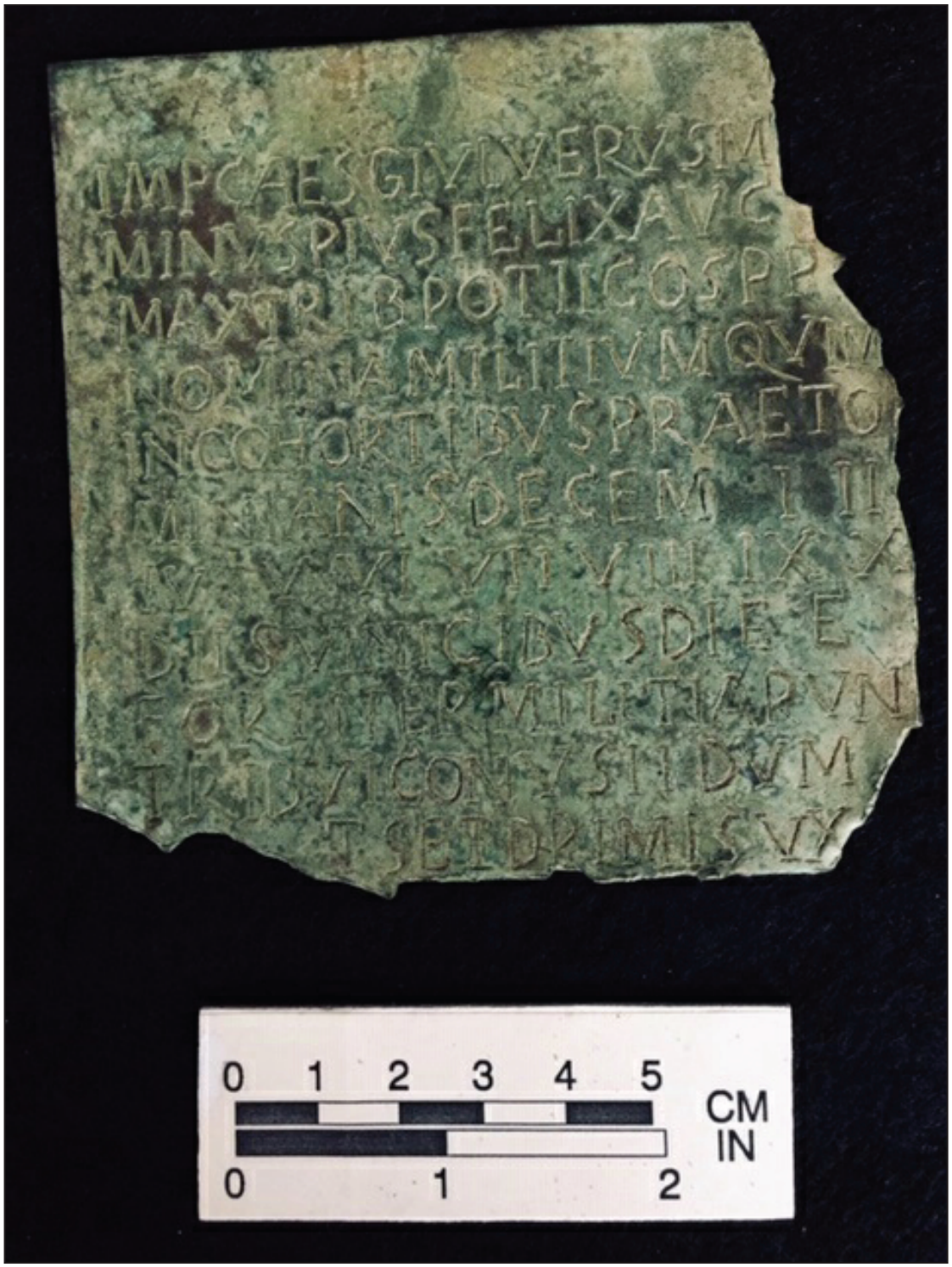

Figure 2. Obverse face of the Roman Military Diploma fragment from Thrace.

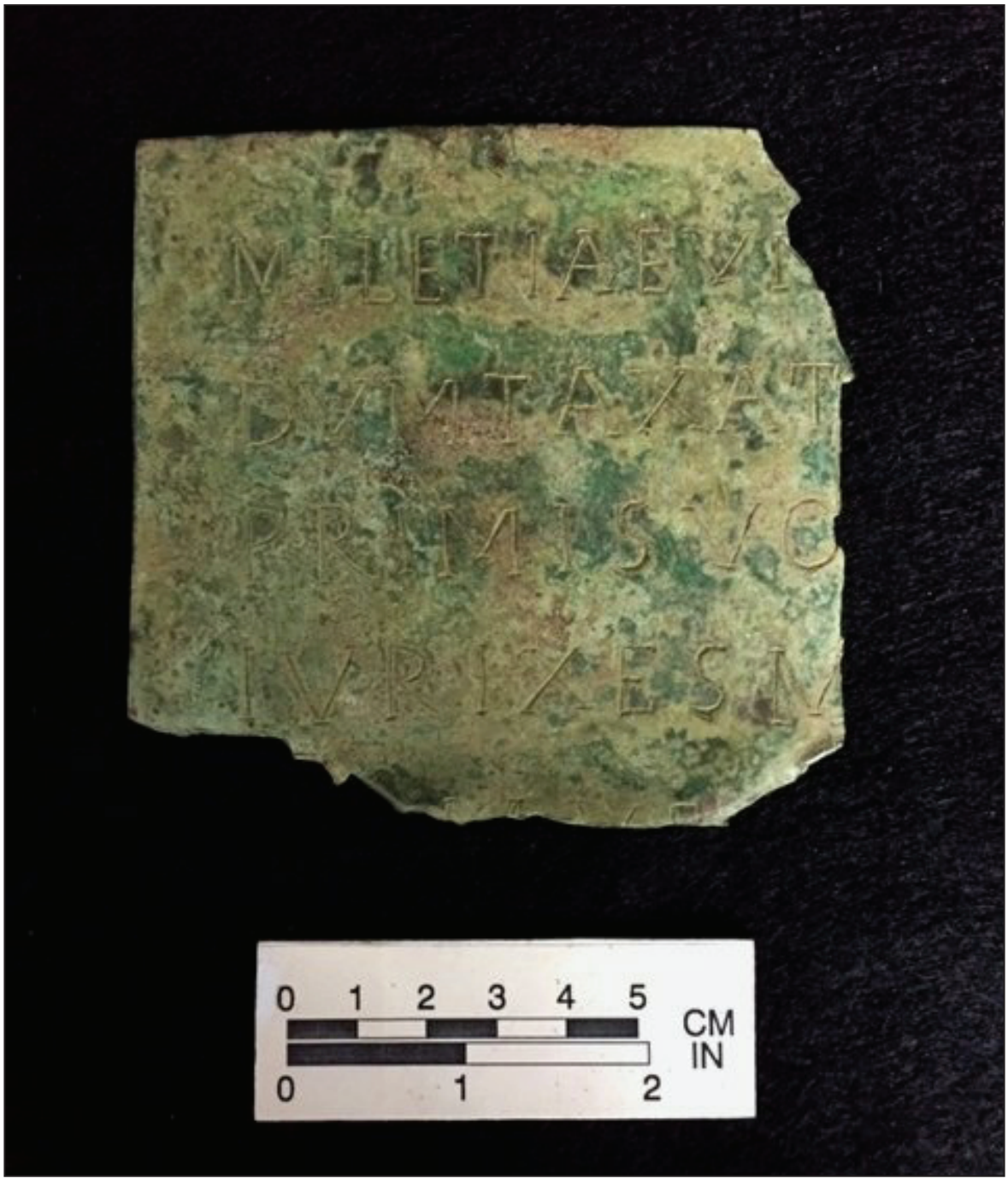

Figure 3. Reverse face of the Roman Military Diploma fragment from Thrace.

This military diploma appears to belong to a soldier who served in a cohort of the Praetorian Guard. The diploma of honorable discharge was issued by the Emperor Maximinus Thrax (Imperator Caesar Gaius Iulius Verus Maximinus Augustus) (ca. 173 – May, 238 A.D.), who himself was from Moesia or Thrace (Figure 4). Maximinus Thrax was proclaimed Emperor by the German legions after the murder of Severus Alexander (Scarre 1995). He reigned for three years and three months before being assassinated in May, 238 A.D. Maximinus Thrax doubled the pay of the army which made him immensely popular with the military, but he did so by raising taxes, especially on the upper classes in Rome, which alienated both the Senate and many of the people (Kerrigan 2016). Given the very limited

Figure 4. Bust of Emperor Maximinus Thrax, Hall of Emperors, Capitoline Museum, Rome.

length of rule for Maximinus Thrax, this firmly dates the military diploma to a narrow three year time period between ca. 235-238 A.D.

Diploma Number 2

The second diploma fragment is a triangular shaped bronze fragment with two distinct rough-cut edges. Remaining dimensions are 86.5 mm (3.4 inches) in height by 101.0 mm (3.9 inches) in width. Thickness is 3.0 mm across the fragment and the weight of the document is 128.4 grams (4.5 ounces). (Figure 5). The reported provenance of the piece is that it was found either in the Roman province of Pannonia or Moesia (modern Bosnia Herzegovina, Croatia, or Serbia) by a local metal detector in the 1970s. The piece was sold to a local collector who retained it in his family until his death in early 2019, whereupon it was sold to Mr. Slijepcevic of Ad Praetorium Coins.

The fragment is inscribed only on one side with the following inscription:

EQV
SCRIPTA
QVE • EORVM
NVBIVM • CVM
ABVISSENT • CUM ES
VT • SI • QVI • CAELIBES
QUAS • POSTEA • DV

Because of the two diagonal cuts, the remaining part of the document contains only a very partial inscription. However, the Romans, much like modern government bureaucracies, often used standard forms for certain documents, such as military diplomas. Therefore, the wording of those inscriptions tends to be fairly formulaic (Holder 2006; Dando-Collins 2010; Booms 2016). The formulas may vary over time but tend to be uniform for any specific period of time. The words contained in the above inscription are from the standard text for a privilege of citizenship and marriage granted to a soldier who served in the *alae* (cavalry) or an auxiliary cohort. The particular phrasing of this grant of privilege dates to the period after the Emperor Trajan (Egbert 1986:356-358). The capital letters are from the Diploma 2, while the lower case letters are the expanded text from standard formulaic text from a similar record, namely, EDCS-66100004, in an epigraphic database (Clauss and Slaby 2019).

> " … EQVitibus et peditibus qui militaverunt … vicenis pluribusve stipendiis emeritis dimissis honesta missione quorum nomina subSCRIPTA sunt ipsis liberis posterisQVE EORVM civitatem dedit et coNVBIVM CVM uxoribus quas tunc hABVISSENT CVM ESt civitas iis data aVT SI QVI CAELIBES essent cum iis QVAS POSTEA DVxissent dumtaxat singuli singulas …"

> " … to the cavalrymen and the infantrymen … who have been honorably discharged having completed twenty-five or more years' service, and whose names are written below, to them, their children, and their posterity, citizenship and the right of marriage with the wives they had when citizenship was given to them, or, if they were unmarried, with those whom they married afterwards, limited to one wife for each man." (adapted from Campbell 1994:196-197)

Figure 5. Obverse face of the Roman Military Diploma fragment from Pannonia or Moesia.

This inscription would indicate that Diploma No. 2 was granted to an infantryman or a cavalryman, who fought in the wings (*alae*) of a cohort, probably raised from the region where the diploma was found, ie., Pannonia and/or Moesia. Note that the diploma also grants citizenship to the soldier's wife and sons, if any. This diploma and honorable discharge most likely dates to the ca. 100-135 A.D. timeframe.

Conclusion

Roman military diplomas are known from the period of the Emperor Claudius (41-54 A.D.) through the Tetrarchie (ca. 306 A.D.). Of the 1,002 known diplomas that mention an Emperor's name, 54 percent fall between the reigns of Trajan (n=113) to Hadrian (n=180) to Antonius Pilas (n=248) (98 – 161 A.D.). In this regard, Diploma No. 2 described above would fit into this large grouping that reflects the expansion of the Roman Empire and its legions and the need for a large number of volunteers and conscripts from the outer provinces, especially from the area of Dalmatia, Pannonia, Moesia, and Thrace.

Diploma No. 1 comes the later period of ca. 235-238 A.D. during the reign of the Emperor Maximinus Thrax. Only five military diplomas are known

from this period so the document described herein is a significant addition to the published database from this time period.

Estimates have been made that the number of diplomas issued by Rome to honorably discharged soldiers during the time of the Empire (27 B.C. – 476 A.D.) must have been in the hundreds of thousands (Dando-Collins 2010). Why then, have so few (~1,000) documents survived with most of those being only fragments. Moreover, none of the master copies placed in the archives in Rome have survived. Bronze was a costly and valuable material that could be easily cut, re-shaped, or melted down for other uses. The inscription on the diplomas had no meaning to anyone other than the owner and his immediate family and the concept of archeological preservation was not yet in practice. It is likely that most of the documents were re-purposed into other tools. However, Roman military diplomas continue to come to light and if they become available to researchers (as in the case of the two diplomas described herein), then new historical information will continue to become available to the archeological and historical communities.

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