



2011

## The Pipe Site, a Late Caddo Site at Lake Palestine in Anderson County, Texas

Timothy K. Perttula

*Center for Regional Heritage Research, Stephen F. Austin State University*

Follow this and additional works at: <https://scholarworks.sfasu.edu/ita>



Part of the [American Material Culture Commons](#), [Archaeological Anthropology Commons](#), [Environmental Studies Commons](#), [Other American Studies Commons](#), [Other Arts and Humanities Commons](#), [Other History of Art, Architecture, and Archaeology Commons](#), and the [United States History Commons](#)

[Tell us](#) how this article helped you.

---

### Repository Citation

Perttula, Timothy K. (2011) "The Pipe Site, a Late Caddo Site at Lake Palestine in Anderson County, Texas," *Index of Texas Archaeology: Open Access Gray Literature from the Lone Star State*: Vol. 2011 , Article 24.

<https://doi.org/10.21112/.ita.2011.1.24>

ISSN: 2475-9333

Available at: <https://scholarworks.sfasu.edu/ita/vol2011/iss1/24>

This Article is brought to you for free and open access by SFA ScholarWorks. It has been accepted for inclusion in Index of Texas Archaeology: Open Access Gray Literature from the Lone Star State by an authorized editor of SFA ScholarWorks. For more information, please contact [cdsscholarworks@sfasu.edu](mailto:cdsscholarworks@sfasu.edu).

---

## The Pipe Site, a Late Caddo Site at Lake Palestine in Anderson County, Texas

Creative Commons License



This work is licensed under a [Creative Commons Attribution 4.0 License](https://creativecommons.org/licenses/by/4.0/).

---

## The Pipe Site, a Late Caddo Site at Lake Palestine in Anderson County, Texas

*Timothy K. Perttula*

---

### INTRODUCTION

Buddy Calvin Jones excavated a Late Caddo cemetery and midden site he called the Lake Palestine site, in Anderson County, Texas, in March 1968 (Notes on file, Gregg County Historical Museum, Longview, Texas). His notes indicate that a total of 21 Caddo burials were excavated at the site, and the burials were situated primarily around a midden of unknown dimensions (Figure 1). Jones' notes do not specify how many of the burials he excavated at the Pipe site, but one photograph in the records suggests he excavated at least three, one burial of which is the focus of this article.

### AVAILABLE INFORMATION ON THE SITE

Buddy Jones did not formally record the site or obtain a State of Texas site trinomial for the Pipe site. He left enough clues behind, including his site map (see Figure 1), which indicates the site is on a low terrace or lower toe slope, and a photograph showing the site area in a pasture, with a tree-covered floodplain to the north. Given the limited amount of property in Anderson County now covered by Lake Palestine, the only stream of consequence other than the Neches River, suspected to be about 200 m to the east, was an eastward-draining tributary stream that separated the Ferguson site (41AN67) to the south, and 41AN68 to the north (Anderson 1972:Figure 1; Anderson et al. 1974:Figure 1).

41AN68 was interpreted as a "hunting station" (Anderson 1972:Table 1), but the Ferguson site (41AN67) was a Caddo settlement with a midden deposit. The topographic map of the site in Anderson et al. (1974:Figure 58) matches the topography depicted on the Buddy Calvin Jones map, as does the location and general size of the midden deposits. For the moment, then, until more specific site placement information turns up in other Jones notes at the Gregg County Historical Museum, I think it is reasonable to conclude that the Pipe site is the same site as the Ferguson site excavated by Anderson et al. (1974).

In Buddy's work at the Pipe site, he focused on the findings from one burial. Unfortunately, his notes do not indicate which of the 21 burials was of particular interest, nor did he happen to provide a burial number for this particular burial. Given its east-west orientation, and its central placement in the cemetery and midden, it is likely that the burial discussed in Jones's notes is Burial 1 (see Figure 1).

This burial was oriented east-west, with the head (marked by the skull) at the east end of the burial pit, facing to the west (Figure 2), and likely laid out in an extended supine position in the burial pit. A number of items had been placed as funerary objects with the deceased, including a shell pendant at the neck, four ceramic vessels on the right side of the body, and a firth vessel along the area of the left leg on the left side of the body. The vessels on the right side of the body included a carinated bowl by the shoulder, along with a bottle and two jars from the right arm to what would have been the right leg of the individual (see Figure 2). The decorations on these vessels are unknown, and they have not been identified in the Gregg County Historical Museum collections to date (Patti Haskins, December 2010 personal communication).

Several stone tools had been placed along the left side of the body. This included two Perdiz arrow points, tips facing away from the head of the deceased, a large chipped stone knife, and a possible

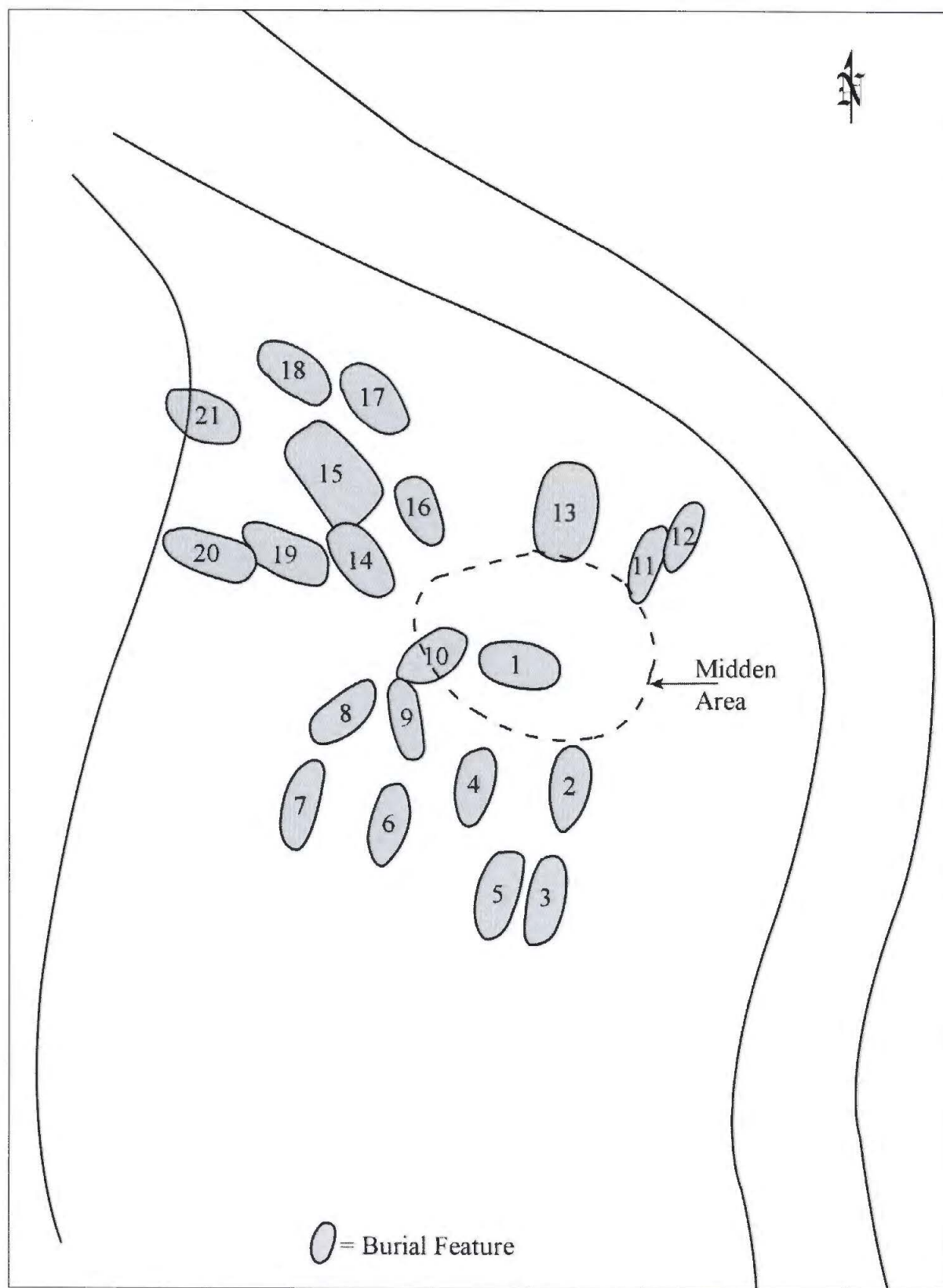


Figure 1. Map of the Pipe Site at Lake Palestine, as drawn by Buddy Calvin Jones in March 1968. Map redrawn by Lance Trask.



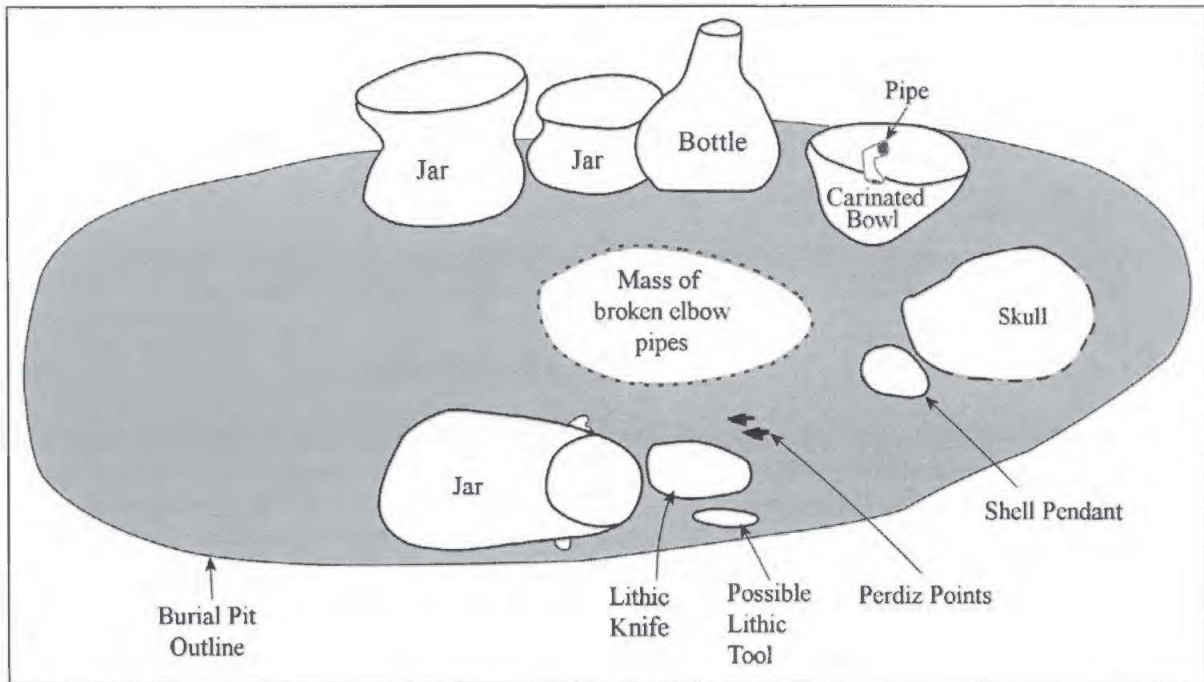


Figure 2. Plan map of the burial at the Pipe site. Figure prepared by Lance Trask.

bi-pointed lithic tool (perhaps a Jowell knife). Jowell knives are bifacially chipped to shape, have areas of use wear along the edges and/or tips of the tools, and have rounded or bi-pointed proximal and distal ends (see Cole 1975:183); the blades are often resharpened, probably after the tool became dulled.

Finally, there was an elbow pipe placed within the carinated bowl by the right shoulder, along with a mass of broken bowls and stems from many elbow pipes that had been placed on the chest area of the deceased (see Figure 2). Those pipes placed on the chest area of the deceased individual are the main subject of this article.

In 1969, a year after this unique Caddo burial had been excavated by Buddy Calvin Jones at the Pipe site, Southern Methodist University conducted excavations at the Ferguson site at Lake Palestine (Anderson et al. 1974:121-134). Their work was concentrated in a midden deposit near the northeastern extent of the landform (in the same area of the landform depicted in Jones' map, see Figure 1). No Caddo burials were identified during the SMU work, not too surprising given that the cemetery with 21 Caddo burials had been completely excavated a year or more before. No habitation features were documented in the SMU excavations, again not surprising in that the midden was an area of trash deposits and habitation features (i.e., pits and post holes from domestic structures) would be expected to not occur in the midden, but in general proximity to, but outside of, the trash midden itself. SMU's archaeological investigations rarely strayed from the midden (Anderson et al. 1974:Figure 58).

What was recovered at the Ferguson site was an abundance of Frankston phase ceramic vessel sherds ( $n=7964$ , including Poynor Engraved, Hume Engraved, Maydelle Incised, Bullard Brushed, Killough Pinched, and LaRue Neck Banded) and ceramic pipe sherds ( $n=43$ , see Gilmore 1974), mussel shell fragments, animal bones, and a modicum of chipped stone tool artifacts. The latter included 16 arrow points and fragments (of the Perdiz type), 13 flake tools and scrapers, and only 297 pieces of lithic debris.

### THE GORGET

The gorget from the Pipe site burial has been located in the Gregg County Historical Museum collections. It has been made from a marine shell columella, probably collected from the upper Texas coast. The gorget is oval-shaped, with two small suspension holes at the top end (Figure 3), the end that would have sat under the deceased's neck. Its edges had been cut and ground, then the exterior was well-polished. The gorget was 87.0 mm in maximum width, 67.0 mm in maximum length, and only 3.9 mm in maximum thickness.

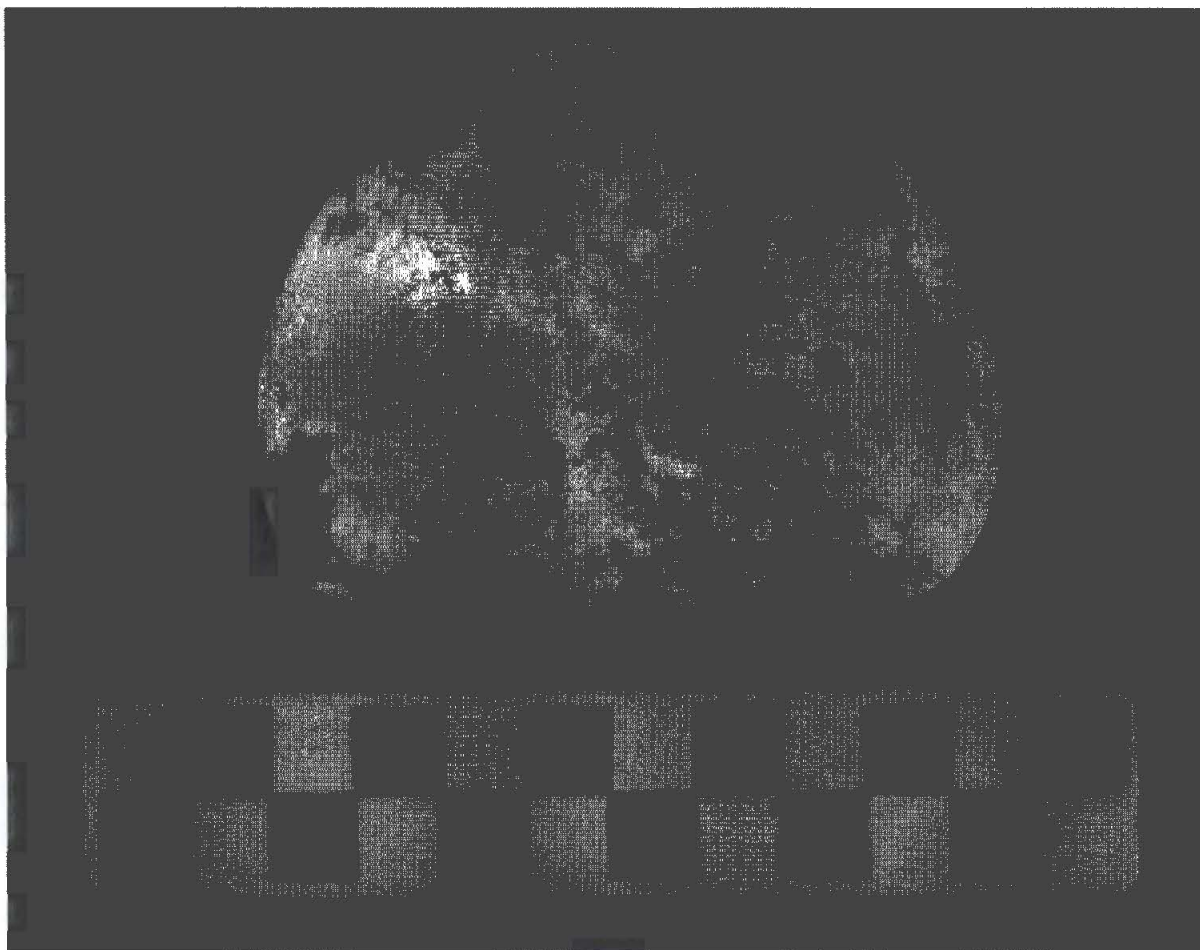


Figure 3. Shell gorget from the Pipe site.

### CERAMIC VESSEL SHERDS AND OTHER ARTIFACTS

Found in the box at the Gregg County Historical Museum that held the many broken pipe sherds were a few miscellaneous artifacts. These include a single piece of burned but unidentified animal bone, a piece of local quartzite lithic debris, and four ceramic vessel sherds. Two are plain body sherds from vessels of unknown form, while a third is from a bottle; the bottle has been burnished on its exterior surface. The fourth sherd is also from a bottle, but it is decorated with a portion of an engraved circle or semi-circle with hatched pendant triangles. This sherd is from a Poynor Engraved vessel (cf. Suhm and Jelks 1962:Plate 63g).

## THE PIPES

There are 105 ceramic elbow pipe sherds from the mass of broken pipes that was resting on the chest of the deceased Caddo individual. This includes 46 plain bowl rim sherds, four decorated bowl rim sherds, 39 plain stem sherds, and 16 decorated stem sherds. No attempt was made at pipe reconstruction, but based on the distinctive decorations on the bowl and stem sherds, there were at least parts of more than 30 individual pipes in the mass of broken pipes.

### *Pipe Bowls*

The pipe bowl sherds from the site were separated into different groups based on the (1) variability in the form and thickness of the bowl rims and lips, as well as (2) whether the bowl was decorated, and (3) what kinds of decorative elements were present on the bowl rims. A total of 10 different pipe bowl groups were defined among the 50 pipe bowl sherds.

The pipes typically have a fine paste. Added tempers include grog and/or finely crushed animal bone.

#### *Group A (n=1)*

The one Group A elbow pipe has a plain and relatively thick (4.4 mm) bowl with an exterior folded lip (Figure 4, left). It is tempered with grog.



Figure 4. Group A (left) and Group B (right) pipe bowls.



*Group B (n=1)*

Group B elbow pipes also have plain bowls, a straight rim and rounded lip (see Figure 4, right). The bowl is 4.3 mm thick.

*Group C (n=6)*

The Group C plain elbow pipe bowls are thin (2.8-3.6 mm range), have everted rims and flat lips, with projections at the lower end of the bowl (Figure 5). Bowl orifice diameters range from 20.0-30.0 mm.



Figure 5. Group C elbow pipe bowl sherds.

*Group D (n=16)*

The Group D elbow pipe bowls are the most common plain elbow pipe bowl form at the Pipe site. The bowls have direct rims that range from flat to rounded on the lip (Figure 6). Observed tempers in the sherd pastes include grog and grog-bone.

The pipe bowls range in thickness from 3.1-4.0 mm. Orifice diameters on the bowls range from 29-40.0 mm.

*Group E (n=7)*

The Group E plain pipe bowls are relatively thin (2.5-4.0 mm in range), with direct rims and rounded lips (Figure 7). Bowl orifice diameters range from 30-42 mm.



Figure 6. Group D elbow pipe bowl sherds.



Figure 7. Group E elbow pipe bowl sherds.





Figure 8. Group F plain elbow pipe bowl rims.

*Group F (n=9)*

The Group F plain pipe bowls may be from L-shaped elbow pipes, although that is unclear because none of them exhibit the L-shaped elbow shape at the juncture of the bowl and stem. These have a long, direct rim with a flat lip (Figure 8), and the bowls are thicker than the other elbow pipes from the Pipe site. Bowl thicknesses range from 3.4 to 7.3 mm, with 67% with bowl thicknesses between 5.2-7.3 mm. Orifice diameters on the bowls are relatively small by comparison to the other pipes, with a range of only 21-30 mm.

*Group G (n=3)*

The Group G elbow pipe bowl sherds are from two different decorated pipes with everted rim bowls (Figure 9). The pipes are moderately thick (3.9-4.3 mm), with relatively large bowls (41 mm in orifice diameter).

One pipe (see Figure 9a) has an engraved triangle decoration that is filled with small punctations. The other two Group G bowl sherds have sets of hatched engraved triangles (see Figure 9b-c); in one instance the apex of the triangles rests on a single horizontal engraved line at the base of the bowl (see Figure 9b).

*Group I (n=1)*

The one bowl sherd in this group has a direct rim and a flat lip, with thick walls (5.6 mm) and a relatively small bowl (28.0 mm orifice diameter). There are two rows of tool punctations on the upper part of the bowl (Figure 10).



Figure 9. Group G decorated elbow pipe sherds: a, punctate-filled engraved hatched triangle; b-c, hatched engraved triangles.

#### *Group W (n=5)*

Group W bowls are plain, with flaring rims, and thin walls (2.8-4.5 mm) (Figure 11). Bowl heights range from 30.9-37.6 mm, and orifice diameters range from 24.0-30.3 mm. Like the Group C pipes, they have projections at the distal end of the bowl, at or immediately below the bowl-stem juncture (see Gilmore 1974:Figure 82j).

#### *Group Wb (n=1)*

The Group Wb elbow pipe bowl is plain, but has a narrow collar at the lower end of the bowl, at the distal stem-bowl juncture (see Figure 11, top row, far right). Gilmore (1974:Table 69) documented two collared pipe sherds in the Lake Palestine pipe sherd assemblage: both of them are from the Ferguson site; Shafer (1981) also had collared pipes at the Attaway site at Lake Palestine in a Frankston phase context. The bowl is 39.5 mm in height, has relatively thick walls (5.0 mm), and a moderately large orifice diameter (35.0 mm).

#### *Pipe Stems*

The pipe stem sherds from the elbow pipes in the burial at the Pipe site were separated into different groups based on the (1) variability in the form and thickness of the stem rims and lips, as well as (2) whether the stem was decorated, and (3) what kinds of decorative elements were present on the pipe stem rims. A total of 19 different pipe stem groups were defined among the 55 pipe stem sherds.

#### *Group H (n=26)*

The Group H pipe stem sherds are the most common in the Pipe site stems, accounting for 47% of the various pipe stem sherds in the collection. These stems are plain, relatively thick, with direct rims and





Figure 10. Punctated bowl rim, Group I sherd.



Figure 11. Group W and Group Wb plain bowl rims.



Figure 12. Group H plain stem sherds from the Pipe site: a, five examples: b, eight examples.



rounded (58%) to flat (42%) lips (Figure 12a-b). Stem wall thicknesses range from 2.6-6.5 mm, while exterior stem orifice diameters range from 15.6-20.0 mm.

*Group J (n=1)*

The one Group J plain stem sherd has a 10 mm high collar, a direct rim, and a flat lip (Figure 13). The stem walls are relatively thick (5.6 mm), and the exterior stem orifice diameter is 23.6 mm.



Figure 13. Group J stem sherd.

*Group K (n=1)*

The Group K stem has a thick (7.4 mm) rim and a flat lip, as well as a collar on the stem. The collar is decorated with three rows of circular punctations (Figure 14); one of the collared pipe stems from the Ferguson site had two rows of tool punctations as well as two horizontal incised lines that enclose one of the rows of tool punctates (Gilmore 1974:Figure 82b). The orifice diameter of this pipe is 30.0 mm.

*Group L (n=1)*

The one Group L pipe stem has three rows of small circular punctations near the stem lip (Figure 15). The decorative treatment is the same for the Group K pipe, except that the latter has a decorated collar, and there is no collar on the Group L stem sherd. The stem is 4.9 mm thick, and has a relatively large exterior orifice diameter (40.0 mm).





Figure 14. Group K stem sherd with punctated rows on its thickened collar.



Figure 15. Group L stem sherd with three punctated rows.

*Group M (n=1)*

The one Group M stem sherd has a thickened collar with three rows of small circular punctations (Figure 16), very much like the Group K pipe. The Group M sherd is distinct from the Group K pipe because it has a thinner (4.6 mm) stem on the pipe.



Figure 16. Group M stem sherd with three punctated rows.

*Group N (n=1)*

The Group N pipe stem has a direct rim and a flat lip. It is decorated with 10 vertical rows of small tool punctations, and each row has at least 13 tool punctations (Figure 17). The stem is relatively thick (5.4 mm) and has an exterior orifice diameter of 22.5 mm.



Figure 17. Group N stem sherd with 10 rows of tool punctations.

*Group O (n=1)*

This Group U pipe stem has a direct rim and a flat lip. The lower stem, opposite the stem-bowl juncture) has a thickened area that is decorated with a single vertical incised line down its center, with two rows of squared tool punctates on either side of the incised line (Figure 18). The stem is relatively thick (5.4 mm) and has an exterior orifice diameter of 24.0 mm.



Figure 18. Group O stem sherd with incised-punctated decoration.

*Group P (n=1)*

The Group P pipe stem has a jutting projection at the juncture of the stem and the lower bowl; the jutting stem area is circular in shape when seen from the bottom side of the stem (Figure 19). This area has a vertical incised zone filled with at least four horizontal incised lines

The stem is direct, with a rounded lip; it is 66 mm in length and 3.0 mm in thickness. The exterior orifice diameter is 15.9 mm.

*Group Q (n=1)*

The Group Q pipe stem has a jutting stem at the far end of the stem, under the pipe bowl (Figure 20). This projection is decorated with four rows of small tool punctations. The stem is 3.6 mm in thickness, and has an exterior orifice diameter of 19.0 mm.

*Group R (n=1)*

The rounded distal end of this Group R pipe stem is covered with at least 10 rows of small tool punctations (Figure 21). The punctations wrap around the area of the pipe under the bowl, and the rim of the stem is plain (Figure 22a-b). This area of the stem is circular in shape when viewed from the bottom side of the pipe (Figure 23).





Figure 19. Group P pipe stem.



Figure 20. Pipe Group Q, with a jutting and punctated stem.

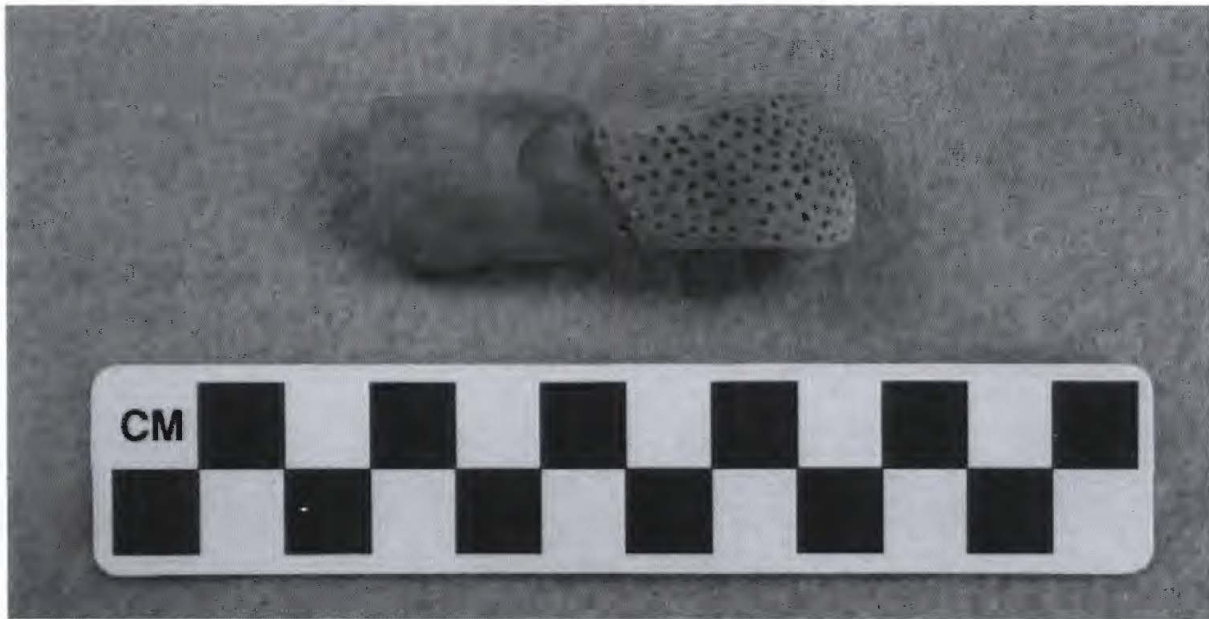


Figure 21. Pipe Group R stem sherd.



Figure 22. Different views of the decorated area at the rounded end of the Group R pipe stem: a, looking down at the bowl-stem juncture, and the rounded punctated stem; b, tool punctated rows wrapped around the lower stem of the Group R pipe.





Figure 23. A bottom view of the rounded and circular end of the Group R pipe stem.

The pipe stem is moderately thin (4.3 mm). The exterior orifice diameter is 22.0 mm.

*Group S (n=2)*

The two Group S pipes have plain and expanding bowls, and a collared area underneath the bowl and at the distal end of the stem with three rows of tool punctations on it (Figure 24). The collared area is a maximum of 11.0 mm in height.

The Group S pipe sherds are from two different pipes, based on stem thickness measurements of 3.1 mm and 5.3 mm for the sherds. The exterior orifice diameter of the bowl on one is 31.0 mm.

*Group T (n=1)*

The one Group T pipe sherd has a wide, flaring bowl with a rounded lip. The area under the bowl, and at the distal end of the stem from the mouthpiece, has been decorated with three horizontal incised lines and a zone (of undetermined size) of small circular punctations (Figure 25). The bowl is 3.7 mm thick, and has an exterior orifice diameter of 40.1 mm.

An interior view of the pipe indicates that the clay pipe bowl was pushed down onto the stem itself, melding the bowl and the stem together. There is a thick hump of clay visible in the interior profile of the pipe below the bowl (Figure 26).

*Group U (n=1)*

The Group U pipe stem is direct with a flat lip. On the proximal end of the stem are three horizontal incised lines that appear to separate earlier executed vertical incised lines into segments that encircle the



Figure 24. Group S collared pipes.



Figure 25. Group T pipe showing incised decoration below and at the distal end of the stem.



Figure 26. Interior view of the Group T pipe showing the melding of bowl and stem.

pipe stem (Figure 27). The distal end of the stem has a thickened or collared area that has at least four sets of vertical incised lines that have bisected short segments of horizontal incised lines or linear punctations.

The stem is 4.6 mm in thickness. The exterior orifice diameter of the pipe stem is 24.0 mm.



Figure 27. Incised pipe stem of the Group U elbow pipe.





Figure 28. Group V plain pipe stems with a distal knob or projection.

*Group V (n=6)*

These burnished pipe stems are plain, with a direct rim and a rounded lip. The distal end of the stems have a knob or projection (Figure 28), as do several other pipe groups at the site; from the under side, the knob has a circular shape. Stem lengths range from 58-71.0 mm, while stem thicknesses range from 3.0-5.7 mm. Exterior stem orifice diameters range from 15.0-20.0 mm.

*Group Wa (n=1)*

This pipe group has three diagonal rows of tool punctations at the lower bowl and stem juncture, along the distal end of the stem. The bowl height on this pipe is 46.0 mm, and it has thin walls (2.5 mm). The exterior orifice diameter is 34.0 mm.

*Group Wc (n=1)*

The Group Wc pipe has a 5-6 mm collar at and immediately below the bowl lip. The bowl (36.6 mm in height) has a flaring rim and a rounded lip. The stem has a distal knob or projection, and there are diagonal incised lines on the distal stem, and underneath the lower part of the bowl.



Figure 29. Group X, Xa, and Xb pipe stems from the Pipe site.

*Group X (n=6)*

The Group X pipe stem sherds represent the most common form of stem decoration at the Pipe site. The stems have either three (n=1) or four (n=5) horizontal lines below the lip (Figure 29). The stems have a direct profile with flat lips. Stem thickness ranges from 4.6-6.5 mm, and the exterior orifice diameter of the one measurable pipe stem was 25.0 mm.

*Group Xa (n=1)*

The Group Xa pipe stem sherd is decorated on the stem with two horizontal incised lines. Between the sets of incised lines is a single row of small tool punctations (see Figure 29, top row, second from left). The stem is direct with a flat lip, 5.6 mm thick, and the exterior orifice diameter is 25.2 mm. This is one of the few pipe sherds in the collection with direct evidence of use, as there is a thick charred organic residue remaining along the interior wall of the pipe stem.

*Group Xb (n=1)*

The Group Xb pipe stem has four horizontal incised lines just below the stem lip, as well as four vertical incised lines on the flattened distal end of the stem (see Figure 29, bottom row, first from left). The stem is relatively thick (5.6 mm) and has an exterior orifice diameter of 26.0 mm.

In summary, based on differences in bowl and stem shape, profiles, thickness, orifice diameter, and decoration (i.e., plain versus decorated, as well as differences in the kind and placement of the decoration). I have defined 10 bowl groups and 19 stem groups in the Pipe site elbow pipe sherd assemblage (n=105). The diversity in stem and bowl shapes in this one mortuary assemblage is impressive, indicating that a wide number of different kinds of pipes were made and used at the time this Caddo individual died and was buried at the Pipe/Ferguson site.



The most common elbow pipe bowl form is Group D, with a direct rim and a rounded to flat lip and orifice diameters ranging from 29-40 mm, while the most common pipe stem form is Group H, also with a direct rim and rounded to flat lips, and stem exterior diameters that range from 15.6-20.0 mm. Table 1 summarizes the main characteristics of the Pipe site elbow pipes. The majority of the bowls are plain, which is consistent with elbow pipes made in much of the Frankston phase (see below, cf. elbow pipe varieties A-D defined for the upper Neches River basin), but 8% have either engraved or punctated decorative elements. Many of the stem sherds are undecorated, but decorated sherds from several pipes are consistently present in the Pipe site assemblage. These pipe stems are decorated with rows of different kinds of punctations; horizontal and vertical incised lines (in sets of four) at the stem lip and/or on the distal projection or knob; and vertical and horizontal incised lines (in sets of two or three) adjacent to or intermixed with rows or zones of small tool punctations.

The best estimate I can offer on the minimum number of pipes represented in the mass of broken pipes, without reconstruction and the attempted conjoining of sherds, is that there were parts of 32 different elbow pipe bowls and parts of 36 different elbow pipe stems. Discussions with Caddo archaeologists indicate that the burial of a single Caddo burial with this many pipes, even in pieces, is unprecedented in the Caddo archaeological area (Ann M. Early, Jeff Girard, David B. Kelley, Frank Schambach, and Mary Beth Trubitt, January 2011 e-mail communications with the author).

**Table 1. Main characteristics of the Pipe site elbow pipe sherds.**

Sherd Type	No. of sherds	Percentage
<b>Bowls (n=50).</b>		
Plain	46	92%
Decorated	4	8%
engraved triangles	3	6%
tool punctates	1	2%
Everted and flaring rim	14	28%
Flat lip	16	32%
Collared	1	2%
Thin sherd walls (2.5-4.6 mm)	13	26%
Thick sherd walls (4.6-7.3 mm)	9	18%
Orifice diameter range, 21.0-42.0 mm		
<b>Stems (n=55)</b>		
Plain	39	71%
Decorated	16	29%
three rows of circular punctations	3	5.5%
three rows of tool punctations on distal projection/collar	1	1.8%
four rows of tool punctations on distal projection	1	1.8%
10 vertical rows of small tool punctates	1	1.8%
10 horizontal rows of tool punctates on distal projection	1	1.8%
diagonal punctates on distal stem	1	1.8%
Subtotal, punctated	8	14.5%

**Table 1. Main characteristics of the Pipe site elbow pipe sherds, cont.**

Sherd Type	No. of sherds	Percentage
four horizontal incised lines at lip	1	1.8%
four horizontal incised lines at lip and four vertical incised lines on distal stem	1	1.8%
horizontal and vertical incised lines on distal projection	1	1.8%
horizontal and vertical incised lines at lip and at distal projection	1	1.8%
diagonal incised lines on distal knob	1	1.8%
Subtotal, incised	5	9.1%
vertical incised lines and vertical tool punctated rows	1	1.8%
three horizontal incised lines and zone of punctations on distal projection	1	1.8%
two horizontal incised lines on lip, and tool punctated row between the lines	1	1.8%
Subtotal, incised-punctated	3	5.5%
Rounded lip	22	40%
Flat lip	19	35%
Collared	2	3.6%
Distal projection/knob	12	21.8%
Thickness of sherd walls, 2.6-7.4 mm		
Exterior orifice diameter range, 15.0-40.0 mm		

### TEMPORAL AND STYLISTIC IMPLICATIONS OF THE PIPES

The fact that the mass of pipes from the Pipe site all come from only one context, that being a burial of a Caddo adult, indicates—unless some are heirlooms that were then placed in the grave at the time of interment, which would be only possible to detect with extensive radiocarbon or luminescence dating (see Perttula and Feathers 2011) of a number of pipe sherds from the site—that all the styles of pipes in the Pipe site burial were being made and used by the people in the local Caddo community at the time the deceased was laid to rest. As such, this contextual fact establishes the contemporaneity of a number of different styles of upper Neches River elbow pipes, and their clear association with Perdiz arrow points and a plain marine shell gorget (as well as vessels whose decorations are unfortunately unknown). The question then becomes: what is the temporal age of the pipes interred with the deceased Caddo adult at the Pipe site?

To answer that question, first I turn to the East Texas radiocarbon data base. There are two radiocarbon dates from the Ferguson site (Perttula 1997:Table 1), both obtained from the Southern Methodist University excavations (Anderson et al. 1974), which I believe to be the same site as the Pipe site investigated by Buddy Calvin Jones. Both dates are on a wood post fragment buried in the midden deposits. These dates, using IntCal09 (Reimer et al. 2009) to calibrate their conventional ages, have calibrated age ranges at 2 sigma (95% probability) of AD 1529-1683 (Tx-1275) and AD 1444-1644 (Tx-1276). If these two calibrated age ranges accurately capture the temporal extent of the Caddo occupation, then it would



appear that the site was occupied through most of the 16th and 17th century A.D. and also mean that all the different kinds of elbow pipes from the site would date from this temporal interval. The mean calibrated age range of these dates is AD 1487-1663.

A second way to attempt to establish the age of the Pipe site is to turn to various ceramic attributes and indices compiled from domestic Caddo sites in the upper Neches River basin to hopefully reasonably establish when the Ferguson site was principally occupied by Caddo peoples. These attributes and indices include such things as the styles of ceramic pipes that are present in the assemblage; as well as the percentage of brushed sherds in the decorated sherd samples from different sites; the percentage of bone temper in the assemblages; the percentage of wet-paste decorations other than brushing (i.e., incised, punctated, applied, neck-banded, etc.); the plain/decorated sherd ratio (P/DR); and the brushed sherd/wet paste decorated sherd ratio. The ceramic pipe data from the Pipe site indicates that only elbow pipe forms were in use. The latter became popular sometime after ca. A.D. 1350 (Hoffman 1967; Rogers and Perttula 2004) across East Texas and other parts of the Caddo area.

From the comparisons of the ceramic attribute data, six different groups of upper Neches River basin Caddo ceramic assemblages can be seriated (see O'Brien and Lyman 1999) from oldest (Group VI) to youngest (Group I). These groups seem to reflect temporal changes due to the high frequency of Late Caddo Frankston phase decorated types, such as Poynor Engraved, Maydelle Incised, Bullard Brushed, Hume Engraved, and engraved effigy vessels, that are found in the Groups II-IV sites (corresponding to the early, middle, and late parts of the Frankston phase)—as well as Patton Engraved sherds from sites in Group I—and the occurrence of Early and Middle Caddo types such as Canton Incised, Dunkin Incised, Holly Fine Engraved, and Pennington Punctated-Incised in the Group V and VI upper Neches River sites (Table 2).

This particular seriation, focusing on the three different temporal groupings of Frankston phase sites and one group of Allen phase sites, is also supported by differences in: (a) the proportions of vessels of Poynor Engraved varieties, Patton Engraved, engraved effigy vessels, Maydelle Incised, La Rue Neck Banded, and Bullard Brushed in upper Neches River Caddo burials (Perttula 2010a), (b) differences in

**Table 2. Comparative sherd assemblage data from selected upper Neches River basin Caddo sites.**

Site	No. of Dec. Sherds	% Brushed*	% bone-temper	% Wet-paste decorations	P/DR	Brushed/Wet paste ratio
<b>GROUP I (Allen phase, Historic Caddo, with Patton Engraved), ca. post-A.D. 1650</b>						
41CE421	1805	88.1	?	8.6	0.30	9.10
Pine Snake	305	85.2	5.7	8.8	0.51	9.63
Blue Branch	49	84.0	?	6.1	0.57	13.67
41CE354	474	82.7	3.1	8.9	0.20	8.14
<b>GROUP II (late Frankston phase), ca. A.D. 1560-1650</b>						
41HE22	228	85.5	?	7.5	0.62	11.5
Henry Lake	188	81.9	3.2	7.3	0.48	11.0
Attaway	814	84.4	?	10.6	1.71	8.0
Debro	311	80.0	?	10.3	0.14	7.75
41SM91	179	82.7	?	13.4	0.55	6.17
A. C. Saunders	5750	75.2	15.5**	14.2	0.21	5.30
William Sherman	525	75.8	?	16.2	0.44	4.68



**Table 2. Comparative sherd assemblage data from selected upper Neches River basin Caddo sites, cont.**

Site	No. of Dec. Sherds	% Brushed*	% bone-temper	% Wet-paste decorations	P/DR	Brushed/Wet paste ratio
<b>GROUP III (middle Frankston phase), ca. A.D. 1480-1560</b>						
Forest Drive	1693	68.6	?	21.9	0.56	3.12
Halbert	1757	65.8	2.6	26.3	0.70	2.51
Woldert	1730	62.7	0.0	28.8	0.72	2.19
<b>Ferguson</b>	<b>4116</b>	<b>60.8</b>	<b>&lt;1.0</b>	<b>27.9</b>	<b>0.61</b>	<b>2.17</b>
<b>GROUP IV (early Frankston phase), ca. A.D. 1400-1480</b>						
41AN38+	1216	57.7	?	26.1	1.28	2.21
Tomato Patch	912	49.2	?	41.7	1.50	1.21
41SM88	95	37.9	?	49.5	1.53	1.31
Mitchell, Area D	54	32.1	0.0	33.3	1.37	1.50
41HE337	149	35.6	5.6	45.6	2.25	0.78
<b>GROUP V (Middle Caddo period), ca. A.D. 1200-1400</b>						
41AN38++	1356	22.3	?	50.3	1.99	0.44
41SM404	446	16.0	8.5	60.7	1.73	0.26
41SM73	165	26.1	?	72.7	2.61	0.37
White Mule	1404	18.5	1.5	63.7	2.61	0.29
41HE139	40	17.5	8.1	65.0	2.51	0.33
Broadway, Z1/2	256	10.9	28.8	70.0	3.97	0.16
<b>GROUP VI (likely Early Caddo period), ca. pre-A.D. 1200</b>						
Broadway, Z3	155	9.7	32.3	73.5	3.80	0.13
Mitchell, Areas A-C	56	1.3	12.0	65.7	1.71	0.03
41SM87	36	0.0	?	69.4	4.44	0.00

Sources: Anderson et al. 1974; Cliff et al. 2004; Johnson 1961; Kleinschmidt 1982; Perttula 2009, 2010a, 2010c; Perttula and Middlebrook 2009; Perttula and Nelson 2004, 2007, 2008a, 2008b; Shafer 1981; Mark Walters, November 2010 personal communication

P/DR=plain/decorated sherd ratio; \*% brushed represents the percentage of brushed sherds among all the decorated sherds; + southern area; ++northern area; \*\*based on the analysis of vessel batches, not a detailed analysis of all the sherds from the site (see Kleinschmidt 1982)

the relative frequencies of common vessel forms in Poynor and Patton Engraved vessels (Kleinschmidt 1982:Figure 24), as well as (c) the occurrence of European trade goods. Corbin (2007) considers the Group I-IV Caddo sites to have been part of an upper Neches River cluster that represented a conglomeration of constituent groups (i.e., groups related by kinship and close interaction and cultural transmission of knowledge and practices) that shared a broadly similar socio-political organization through time and space (see Story and Creel 1982:30-34).

Based on this seriation, the Ferguson site dates to the early part of Group III, in the middle part of the Frankston phase (see Table 2). This group of sites has been estimated to date between ca. A.D. 1480-1560 (Perttula 2010a). As mentioned above, the mean age of the two calibrated radiocarbon dates from Ferguson is AD 1487-1663. This mean age is in agreement regarding the estimated initial occupation of the site taking place around the 1480s, but there is a broad divergence on when the end of the Caddo occupation dates to, either A.D. 1560 from the ceramic seriation data or the A.D. 1660s from the calibrated radiocarbon age ranges. Given the absence of Patton Engraved pottery sherds from the Ferguson site (Anderson et al. 1974:Table 40), and an abundance of Poynor Engraved fine ware sherds in the assemblage, it is doubtful that the Caddo occupation here could have lasted as late as ca. A.D. 1650 (the beginning of the heyday of Patton Engraved manufacture and use), but how much earlier than that is unknown. Simply on the basis of the seriation results, it is conjectured that the occupation at the Pipe site/Ferguson site ended closer to ca. A.D. 1560 than it did to ca. A.D. 1650.

Next, I turn to the stylistic analysis of elbow pipes from other Caddo sites in the upper Neches River basin. A recent examination of the clay elbow pipes from mortuary contexts in the upper Neches River basin (see Perttula 2010b), from several Caddo cemeteries of reasonably well-known age based on the kind and range of decorated ceramic vessels, indicated that there are several stylistic and morphological trends in the elbow pipes:

- the earliest elbow pipes (Var. A) are plain L-shaped forms (Figure 30a);
- flaring bowl forms, or V-shaped elbow pipes, are stylistically sequent, with distal stem knobs or projections; these pipes (Var. B) generally have three or four engraved or deep horizontal incised lines on the stem and short lines on the lower distal stem projection (Figure 30b); some examples have pedestal bases;
- Var. C pipes have horizontal engraved/incised lines on the stem, and lines on the pipe that extend along the entirety of the stem, ending at the distal projection or knob (Figure 30c);
- In Var. D pipes, the horizontal engraved or incised lines extending along the stem and the lower body are replaced by long rows of small punctations, although engraved/incised lines remain below the stem lip (Figure 30d);
- Var. E angular elbow pipes (cf. Todd 2010), with very short stems, are the first forms that are completely covered with decoration, in this case with curvilinear to vertical incised lines (Figure 30e);
- and lastly, there are cross-hatched engraved elbow pipes, where the crosshatching covers the bowl and stem (Var. F) (Figure 30f).

At the Lang Pasture site (41UR38), a well studied 14<sup>th</sup> and early 15<sup>th</sup> century Caddo occupation and cemetery site on a tributary to the Neches River, several miles south of the Lake Palestine dam, Var. A-C elbow pipe forms are present (Perttula 2010a). The pipes from mortuary contexts are Var. A forms, while all three forms are present in domestic contexts. Radiocarbon and thermoluminescence dates on sherds indicate that the main occupation of the site took place in the 14<sup>th</sup> century A.D., from ca. A.D. 1320-1400, with a few of the burials dating to the early part of the 15<sup>th</sup> century A.D. In other upper Neches River basin sites of known age (i.e., dating to the Frankston phase, subphase 1-3, and the Allen phase), Var. A pipes seem to be restricted to pre-A.D. 1480 components (Frankston phase, subphase 1). Var. B pipes are present in ca. A.D. 1400-1560 cemeteries such as Pierce Freeman (41AN34), Mrs. J. W. Blackburn (41CE4), Omer and Otis Hood (41CE14), cemetery #1, and John Bragg (41CE23), as well as ceremonial contexts at the A. C. Saunders site (41AN19), while Var. C pipes occur from ca. A.D. 1400-1650 in several Frankston phase cemeteries. Var. D-F are all apparently post-A.D. 1560 elbow pipe forms as they are present only in Frankston phase, subphase 3 burials (ca. A.D. 1560-1650), as well as Allen phase burials at Emma Owens (41AN21), the Fred McKee (41AN32, four examples), E. W. Hackney (41CE6), and Jim P. Allen (41CE12) cemeteries.



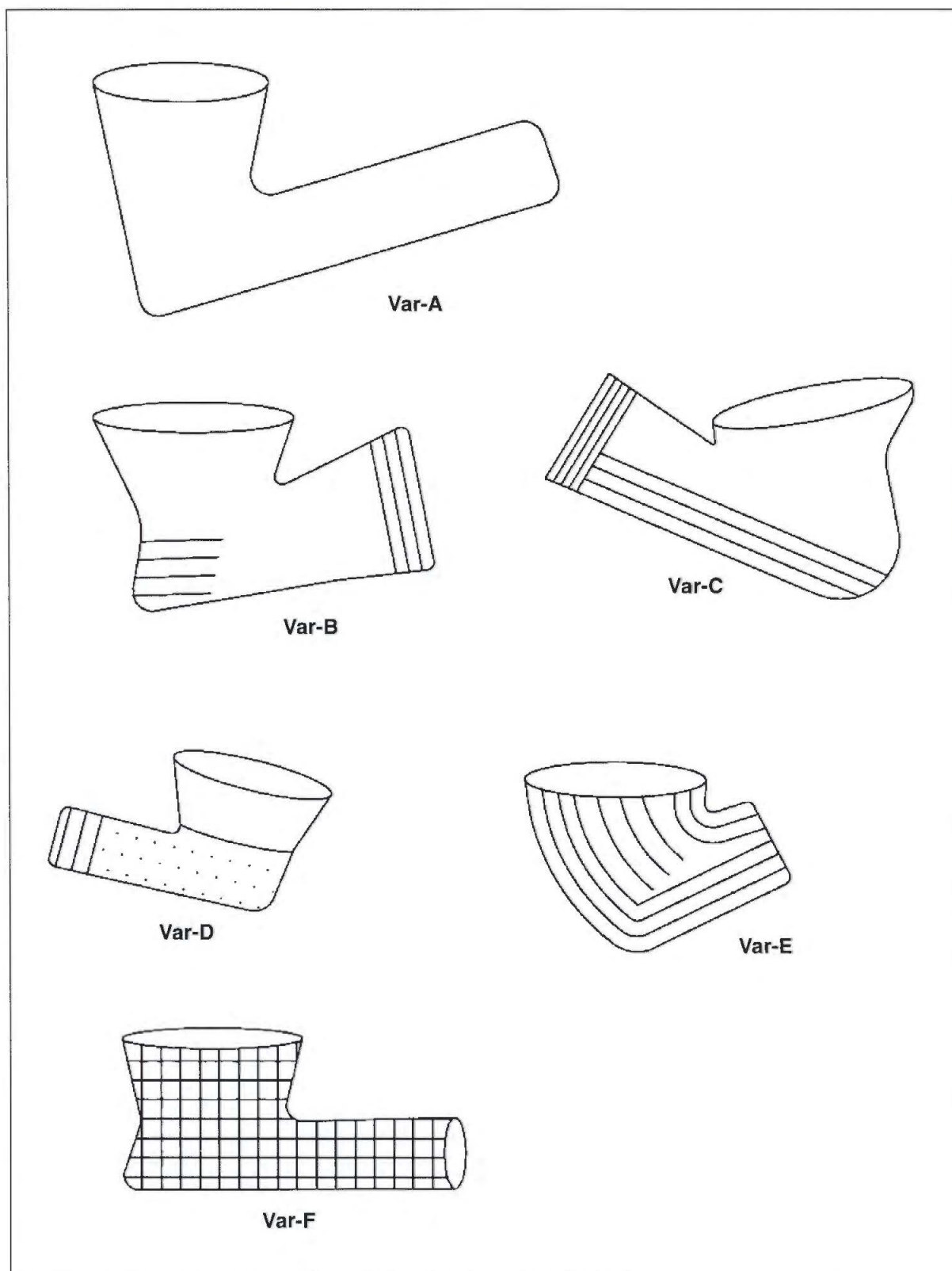


Figure 30. Elbow pipe varieties A-F in the upper Neches River basin.



There are other elbow pipes in the upper Neches River basin that have a variety of incised-punctated decorations (Jackson 1933:75, 78; Gilmore 1974:Table 68; Kleinschmidt 1982). Jackson (1933:75) refers to these as Neches pipes, usually with rows of punctations on the stem, heel, and/or bowl (see Jackson 1936:Plate 28) (see Figure 30d), and rows of raised bands, forming a collar at the stem (Shafer 1981:Figure 9e). These appear to be elbow pipe forms that date from post-A.D. 1480 times, which is corroborated by their absence at the Lang Pasture site, but their presence at the Pipe/Ferguson site.

How do the many decorated pipes at the Pipe site from one context change or alter these proposed temporal trends in pipe styles in the upper Neches River basin? In essence, they do not, except for the presumed date of the Var. D pipes, which were thought to be post-A.D. 1560 elbow pipes in Frankston phase sites, but appear to be older than that given their occurrence at the Pipe/Ferguson site. What is most interesting in light of the findings from the Pipe/Ferguson site is the appearance of most of the Frankston phase elbow pipe forms in this one reported burial context at the site. One needs no better demonstration of contemporaneity of different forms, styles, and defined varieties of elbow pipes than to have them occur together in a discrete feature context, in this case one of the many Caddo burials at the Pipe/Ferguson site. Pipe styles and varieties in the upper Neches River Frankston phase sites appear to have been relatively long-lived, perhaps on the order of at least 50-100 years for each kind of pipe. This would suggest a conservatism in pipe smoking and in the form of pipes (cf. Rafferty and Mann 2004:xvi), among both “shamans and medicine men, who smoked to communicate with the spirits and to heal, but also by ordinary tribal members [at other sites in the upper Neches River basin], who utilized it for offerings and for pleasure” (Winter 2000, ed.:305).

### WHY SO MANY PIPES?

Ceramic pipes and pipe sherds are common artifacts found in upper Neches River basin Caddo sites, especially those sites occupied after ca. A.D. 1400 (Gilmore 1974; Jackson 1933, 1936; Kleinschmidt 1982). Ceramic pipes and pipe sherds seem to be relatively abundant in both domestic and mortuary archeological deposits, with individuals perhaps having one or two pipes placed in grave pits as burial offerings for the deceased Caddo on their journey to the House of the Dead in the sky. The abundance of clay pipes in midden and habitation contexts on Caddo sites clearly puts paid to the assertion by Schambach et al. (1982:121) that “normal farmsteads exhibit an absence of pipes or pipe fragments,” and that “pipes denote religious ceremonial activity.” Rather, the prevalence of clay pipes in both domestic and mortuary contexts throughout the upper Neches River basin indicate that the ritual activities associated with pipe smoking—and the smoking of tobacco (see Rafferty and Mann 2004; Winter 2000; Winter 2000, ed)—were actually part of daily life and the every-day ceremonies that the Caddo carried out in interacting with the spirits and souls around them. Pipes were likely made in many individual farmsteads and hamlets in various communities (although this has not been demonstrated through chemical sourcing or petrographic analysis), and the different pipe styles and decorative elements on them, as well as their local use, may represent one of the distinctive material culture symbols of these various communities.

Pipes were probably smoked on a daily basis by adult members of farmsteads and communities—mainly adult males, but not always—and when the pipes broke during their ordinary use, they were discarded in nearby middens. Pipes were certainly made locally for daily use, but may have “conferred prestige on the person or household possessing them” (Dancey 2005:118). Others must have been made for use in Caddo rituals and ceremonies involving smoking and tobacco, and finally, others were also made for, or contributed to use in mortuary rituals, as clearly exemplified by the very distinctive mortuary rituals (i.e., the apparent intentional breakage of more than 30 pipes) that were carried out as part of the interment of one adult Caddo individual at the Pipe/Ferguson site.

The archaeological evidence from the Pipe site suggests that a large number of plain and decorated elbow pipes were deliberately broken and placed together in a mass on the chest of the deceased. This kind of mortuary behavior is unprecedented in the Caddo area, as far as I have been able to determine. Dr. Frank



Schambach (2010 personal communication) suggested that I look especially to the archaeological record of the Hopewell culture for analogs to the behavior represented by the mass of broken pipes in the one burial at the Pipe site.<sup>2</sup> According to Romain (2009:125), in a study of the prehistoric religion of the Hopewell:

... a considerable number of Hopewell artifacts appear to have been intentionally damaged or destroyed before being buried. Among the best known are the Hopewell effigy pipes. At Tremper, 145 pipes were found in two caches... The large cache contained 136 pipes; the smaller cache contained 9 pipes. All the pipes in the large cache had been broken. At Mound City, a cache of approximately two hundred pipes were discovered in Mound 8... All of these pipes were broken.

Romain (2009:125) went on to suggest a number of reasons why objects such as pipes would be intentionally destroyed by Hopewell peoples or “killed” prior to discard or at the time of their burial. Such possibilities could include that they were broken as part of a social display of disposable wealth, or to negate their value. They might be broken to signify that their spiritual power could be dissipated and not to be used again (see Rafferty 2004:19-20). Objects may be broken because the breaking of the object would cause it to become intact again in the spirit world. Objects might be broken to release their souls, and such “killed” objects placed with the dead also journey to the Otherworld with the deceased, and once there would be of use to the deceased. If the Caddo living at the Pipe/Ferguson site and the local community had such beliefs, then the breaking of these elbow pipes could have had two intended consequences: (a) the pipes would be dispatched to the Otherworld when their use in this world ended; and (b) once broken and their spirits released in this world, the pieces of the pipes would appear whole again in the reversed Otherworld (Romain 2009:125).

In examining the context and meaning of the many broken pipes placed on a chest of a deceased Caddo individual at the Pipe site, it is important to reiterate how important pipe smoking was as a form of communication by Native American peoples, including the Caddo, with the spirit world (Rafferty and Mann 2004:xiii-xv; Winter 2000:305). “The smoke was believed to carry the thoughts and prayers of the smoker to the upperworld... pipes created and reinforced the link between this world and the Otherworld” (Romain 2009:87). That being said, the possibility that this Caddo individual might have been a pipe maker in a upper Neches River basin community, and these pipes mark the importance of his craft, goes against the incontrovertible and unique evidence of the offering of so many pipes (pipes used in life, based on the sooting in bowls and stems), pipes broken apparently deliberately, in the burial of this Caddo adult.

Since there were undoubtedly other pipe makers in many Caddo communities across the upper Neches River basin, or in other communities across the Caddo area, it seems likely that there would be other burials found and documented that would represent the commemoration of a pipe maker and their special craft, but this is not what the archaeological record of the Caddo people tells us. In this particular case, then, the interpretation offered here of the mass of broken pipes associated with this one individual at the Pipe site is that they had a connection with this individual because the individual was likely a spiritually or politically powerful individual who was intimately familiar with the rites and ceremonies of pipe smoking and/or was associated with a spiritually or politically powerful group or lineage (cf. Drooker 2004:76) within this local Caddo community. Pipes, and rituals associated with their use, were a conduit to spiritual interactions by certain religious practitioners, and the deceased individual at the Pipe may well have been such a practitioner.

## CONCLUSIONS

The Pipe site was excavated by Buddy Calvin Jones in 1968—available records and notes strongly suggest that this is also the same site as the Ferguson site (41AN67) investigated by Anderson et al. (1974) prior to the construction of Lake Palestine. Anderson et al. (1974) appear to have been unaware that Jones had excavated at the site prior to their work, or that a Frankston phase cemetery had been present at the Ferguson site. Jones encountered, excavated, and documented (to some extent) a Caddo



burial of an adult (based on the size of the grave pit and a photograph showing an adult-sized skull and leg bones) that was accompanied by at least substantial parts of 32-36 elbow pipes, a goodly number that were decorated, all broken and placed in a mass on the deceased's chest. The available radiocarbon dates from the Ferguson site, as well as the seriation of Caddo ceramic assemblages in the upper Neches River basin, suggests that the site was occupied between ca. A.D. 1480-1560. It is not known if the burial at the Pipe site dates to this interval, although that seems likely based on the stylistic and formal character of the many elbow pipes found in the burial when compared to defined varieties of elbow pipes in the upper Neches River basin.

The Pipe site burial represents a unique mortuary ritual among the practices of the upper Neches Caddo peoples living in the 15th and 16th centuries A.D. The offering of a mass of 30-odd broken pipes placed on the chest of the deceased Caddo individual may represent the focus and culmination of certain rituals conducted at the time this individual was interred. The pipes used in this ritual were apparently broken at that time in the graveside ritual, perhaps to destroy or kill their soul (but for later unification in the Other World), or as a sanctified offering to the deceased individual itself. In the latter case, then it is suspected that this individual was an important religious practitioner in the community and communicated through the smoking of pipes with the spirit world.

#### END NOTES

1. The absence of radiocarbon dates from almost all of the sites in the Upper Neches River basin is a roadblock to confirmation that the seriation is tracking a series of temporal changes in ceramic attributes. However, recently, a series of radiocarbon dates were obtained from 41SM404, a Group V or ca. A.D. 1200-1400 component in the seriation (see Table 2). These dates indicate that the Caddo occupation took place there between ca. A.D. 1300-1390 (Pertulla 2011).
2. Illinois Hopewell sites in the lower Illinois River valley have been reported where pipes were ritually "killed" by breaking off the stem (see Perino 2006), but not to the extent documented from central and southern Ohio Hopewell sites.

#### ACKNOWLEDGEMENTS

I would like to thank Patti Haskins of the Gregg County Historical Museum for facilitating this study of a most interesting East Texas Caddo site. Lance Trask prepared the two map figures, and Bo Nelson took the many photographs of the different pipe varieties at the site. Thanks to Laura Rosenbaum for her help in researching information about Hopewell pipes and the burial of many broken pipes at certain Hopewell sites.

#### REFERENCES CITED

- Anderson, K. M.  
1972 Prehistoric Settlement of the Upper Neches River. *Bulletin of the Texas Archeological Society* 43:121-197.
- Anderson, K. M., K. Gilmore, O. F. McCormick III, and E. P. Morenon  
1974 *Archaeological Investigations at Lake Palestine, Texas*. Contributions in Anthropology No. 11. Department of Anthropology, Southern Methodist University, Dallas.
- Cliff, M. B., E. C. Sills, T. K. Pertulla, and P. Dering  
2004 *National Register Testing of Sites 41HE14, 41HE139, and 41HE343 within Proposed FM 3506 Right of Way, Henderson County, Texas*. Report No. 60. Archeological Studies Program, Texas Department of Transportation, Austin.



Cole, N. M.

- 1975 Early Historic Caddoan Mortuary Practices in the Upper Neches Drainage, East Texas. Master's thesis, Department of Anthropology, The University of Texas at Austin.

Corbin, J. E.

- 2007 Cultural Diversity in the Southern Caddo Region. *Journal of Northeast Texas Archaeology* 26:11-23.

Dancey, W. S.

- 2005 The Enigmatic Hopewell of the Eastern Woodlands. In *North American Archaeology*, edited by T. R. Pauketat and D. D. Loren, pp. 108-137. Blackwell Publishing, Malden, Massachusetts.

Drooker, P. B.

- 2004 Pipes, Leadership, and Interregional Interaction in Protohistoric Midwestern and Northeastern North America. In *Smoking and Culture: The Archaeology of Tobacco Pipes in Eastern North America*, edited by S. Rafferty and R. Mann, pp. 73-123. University of Tennessee Press, Knoxville.

Gilmore, K.

- 1974 Analysis of Pipes. In *Archaeological Investigations at Lake Palestine, Texas*, by K. M. Anderson, K. Gilmore, O. F. McCormick III, and E. P. Morenon, pp. 192-197. Contributions in Anthropology No. 11. Department of Anthropology, Southern Methodist University, Dallas.

Hoffman, M. E.

- 1967 Ceramic Pipe Style Chronology Along the Red River Drainage in Southwestern Arkansas. *The Arkansas Archeologist* 8(1):4-14.

Jackson, A. T.

- 1933 Some Pipes of East Texas. *Bulletin of the Texas Archeological and Paleontological Society* 5:69-86.  
1936 A Perpetual Fire Site. *Bulletin of the Texas Archeological and Paleontological Society* 8:134-174.

Johnson, L., Jr.

- 1961 An Archeological Survey of Blackburn Crossing Reservoir on the Upper Neches River. *Bulletin of the Texas Archeological Society* 31:213-238.

Kleinschmidt, U. K. W.

- 1982 Review and Analysis of the A. C. Saunders Site, 41AN19, Anderson County, Texas. Master's thesis, Department of Anthropology, The University of Texas at Austin.

O'Brien, M. J. and R. L. Lyman

- 1999 *Seriation, Stratigraphy, and Index Fossils: The Backbone of Archaeological Dating*. Kluwer Academic/Plenum Publishers, New York.

Perino, G.

- 2006 *Illinois Hopewell and Late Woodland Mounds: The Excavations of Gregory Perino 1950-1975*. Studies in Archaeology No. 4. Illinois Transportation Archaeological Research Program, University of Illinois, Urbana.

Perttula, T. K.

- 1997 A Compendium of Radiocarbon and Oxidizable Carbon Ratio Dates from Archaeological Sites in East Texas, with a Discussion of the Age and Dating of Select Components and Phases. *Radiocarbon* 39(3):305-341.

- 2009 Late Caddo Ceramics from 41HE337 in Henderson County, Texas. *Journal of Northeast Texas Archaeology* 29:53-57.
- 2010a The Ceramic Artifacts from the Lang Pasture Site (41AN38) and the Place of the Site within an Upper Neches River Basin Caddo Ceramic Tradition. In *Archeological Investigations at the Lang Pasture Site (41AN38) in the Upper Neches River Basin of East Texas*, assembled and edited by T. K. Perttula, D. B. Kelley, and R. A. Ricklis pp. 157-449. MS on file, TRC Environmental Corporation, and Texas Department of Transportation, Environmental Affairs Division, Austin.
- 2010b Caddo Mortuary Practices in the Upper Neches River Basin in East Texas. In *Archeological Investigations at the Lang Pasture Site (41AN38) in the Upper Neches River Basin of East Texas*, assembled and edited by T. K. Perttula, D. B. Kelley, and R. A. Ricklis pp. 685-718. MS on file, TRC Environmental Corporation, and Texas Department of Transportation, Environmental Affairs Division, Austin.
- 2010c Analysis of the Prehistoric Caddo Ceramic Sherds from 41SM404, Smith County, Texas. Report on file with PBS&J, Austin.
- 2011 The Ceramic Stylistic and Temporal Data from 41SM404 in Light of the Radiocarbon Dates from the Site. Report on file with PBS&J, Austin.

Perttula, T. K. and J. K. Feathers

- 2011 Luminescence dates from the Tuinier Farm Site (41HP237), Hopkins County, Texas. *Caddo Archeology Journal* 21:157-162.

Perttula, T. K. and T. Middlebrook

- 2009 Prehistoric Caddo Ceramics from the Henry Lake Site (41CE324), Cherokee County, Texas. *Journal of Northeast Texas Archaeology* 29:9-21.

Perttula, T. K. and B. Nelson

- 2004 *Woodland and Caddo Archeology at the Broadway or Kanduts'ah Kuhnihdahahdisa' Site (41SM273) on the City of Tyler-Lake Palestine WTP Project, Smith County, Texas*. Report of Investigations No. 50. Archeological & Environmental Consultants, LLC, Austin.
- 2007 *Archeological Survey Investigations and Test Excavations at 41CE354 at the North and South Lake areas of the H.R.C. Cherokee Tree Farm, L. P. Project, Cherokee County, Texas*. Report of Investigations No. 80. Archeological & Environmental Consultants, LLC, Austin.
- 2008a *Archeological Survey of Additional Lands of the H.R.C. Cherokee Tree Farm, L.P. Project, Cherokee County, Texas*. Report of Investigations No. 96. Archeological & Environmental Consultants, LLC, Austin.
- 2008b *Archeological Survey of 361.3 Acres of the H.R.C. Cherokee Tree Farm, L. P. Project in the Flat Creek Valley, Cherokee County, Texas*. Report of Investigations No. 98. Archeological & Environmental Consultants, LLC, Austin.

Rafferty, S. M.

- 2004 "They Pass their Lives in Smoke, and at Death Fall into the Fire": Smoking Pipes and Mortuary Ritual during the Early Woodland Period. In *Smoking and Culture: The Archaeology of Tobacco Pipes in Eastern North America*, edited by S. Rafferty and R. Mann, pp. 1-41. University of Tennessee Press, Knoxville.

Rafferty, S. M. and R. Mann

- 2004 Introduction: Smoking Pipes and Culture. In *Smoking and Culture: The Archaeology of Tobacco Pipes in Eastern North America*, edited by S. Rafferty and R. Mann, pp. xi-xx. The University of Tennessee Press, Knoxville.



- Reimer, P. J., M. G. L. Baillie, E. Bard, A. Bayliss, J. W. Beck, P. G. Blackwell, C. Bronk Ramsey, C. E. Buck, G. S. Burr, R. L. Edwards, M. Friedrich, P. M. Grootes, T. P. Guilderson, I. Hajdas, T. J. Heaton, A. G. Hogg, K. A. Hughen, B. Kromer, F. G. McCormac, S. W. Manning, R. W. Reimer, D. A. Richards, J. R. Southon, S. Talamo, C. S. M. Turney, J. van der Plicht, and C. E. Weyhenmeyer  
2009 IntCal09 and Marine09 Radiocarbon Age Calibration Curves, 0-50,000 cal BP. *Radiocarbon* 51:1111-1150.
- Rogers, R. and T. K. Perttula  
2004 *The Oak Hill Village (41RK214), Rusk County, Texas*. Document No. 030083. PBS&J, Austin.
- Romain, W. F.  
2009 *Shamans of the Lost World: A Cognitive Approach to the Prehistoric Religion of the Ohio Hopewell*. AltaMira Press, a division of Rowman & Littlefield Publishers, Inc., Lanham, Maryland.
- Schambach, F. F., N. L. Trubowitz, F. Rackerby, E. T. Hemmings, W. F. Limp, and J. E. Miller, III  
1982 Test Excavations at the Cedar Grove Site (3LA97): A Late Caddo Farmstead in the Great Bend Region, Southwest Arkansas. In *Contributions to the Archeology of the Great Bend Region*, edited by F. F. Schambach and F. Rackerby, pp. 90-140. Research Series 22. Arkansas Archeological Survey, Fayetteville.
- Shafer, H. J.  
1981 Archeological Investigations at the Attaway Site, Henderson County, Texas. *Bulletin of the Texas Archeological Society* 52:147-179.
- Story, D. A. and D. G. Creel  
1982 The Cultural Setting. In *The Deshazo Site, Nacogdoches County, Texas, Vol. 1*, edited by D. A. Story, pp. 20-34. Texas Antiquities Permit Series No. 7. Texas Antiquities Committee, Austin.
- Suhm, D. A. and E. B. Jelks (editors)  
1962 *Handbook of Texas Archeology: Type Descriptions*. Special Publication No. 1, Texas Archeological Society, and Bulletin No. 4, Texas Memorial Museum, Austin.
- Todd, J.  
2010 A Preliminary Classification of Clay Elbow Pipes from Northeast Texas. MS on file with the author.
- Winter, J. C.  
2000 From Earth Mother to Snake Woman: The Role of Tobacco in the Evolution of Native American Religious Organization. In *Tobacco Use by Native North Americans: Sacred Smoke and Silent Killer*, edited by J. C. Winter, pp. 265-304. University of Oklahoma Press, Norman.
- Winter, J. C. (editor)  
2000 *Tobacco Use by Native North Americans: Sacred Smoke and Sacred Killer*. University of Oklahoma Press, Norman.