Volume 2019 Article 34

2019

The Pearson Site (41RA5) at Lake Tawakoni on the Sabine River, Rains County, Texas

Timothy K. Perttula

The Pearson Site (41RA5) at Lake Tawakoni on the Sabine River, Rains County, Texas

The Pearson Site (41RA5) at Lake Tawakoni on the Sabine River, Rains County, Texas

Timothy K. Perttula

Introduction

The Pearson site (41RA5) in the Blackland Prairie of East Texas is one of a number of aboriginal archaeological sites recorded during a 1957 archaeological survey of the flood pool of then proposed Lake Tawakoni on the Sabine River (Figure 1) (Johnson 1957); the site is now inundated. The Pearson site was located on several low sandy rises across ca. 25 acres in the Hooker Creek-Sabine River floodplain, and these rises had both aboriginal and European artifacts on the surface. Johnson and Jelks (1958) and Duffield and Jelks (1961) have argued that the Pearson site was the Tawakoni-Yscani village visited by a Spanish missionary in 1760 and part of a recently defined Norteno focus, a complex of sites apparently associated with the Wichita tribes. Schambach (1996), by contrast, considers the Pearson site to be an 18th century Tunican entrepot.

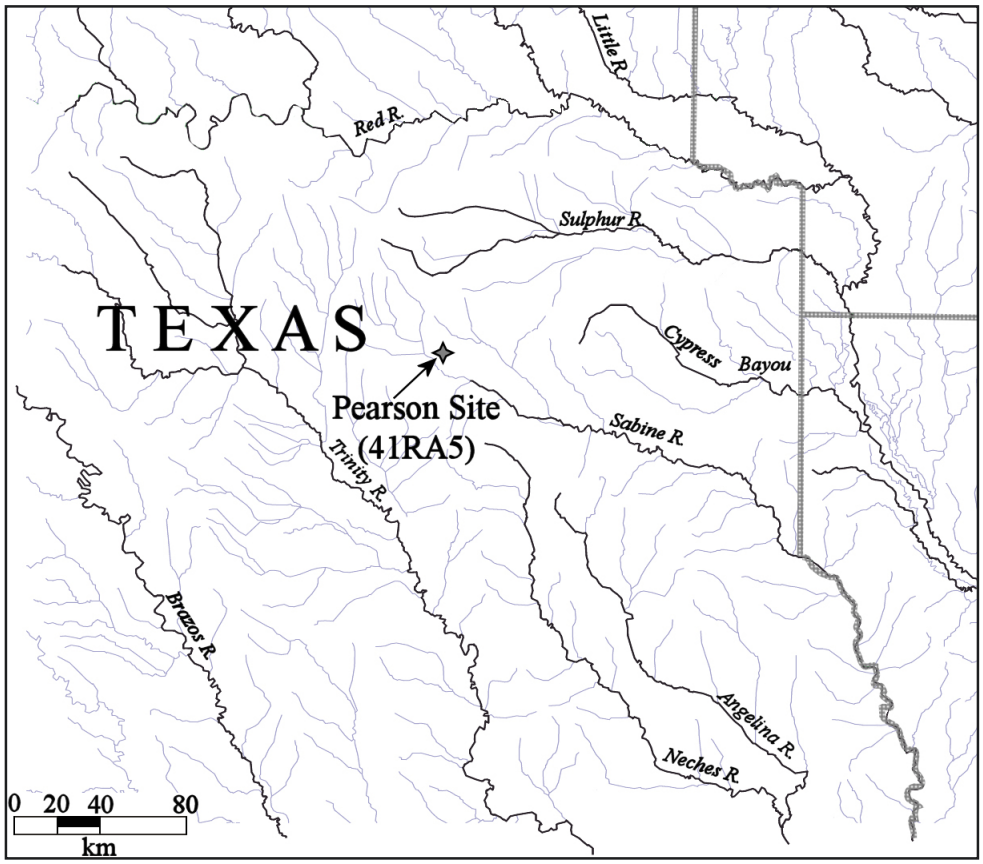

Figure 1. Location of the Pearson site (41RA5) in the upper Sabine River basin in East Texas.

In this article, my main purpose is to discuss the archaeological findings obtained from a reanalysis of the ceramic vessel sherds, projectile points (both dart points and arrow points), and several of the different kinds of European trade goods in the assemblage, most particularly the glass beads. Other kinds of European trade goods were noted in the assemblage, but they did not receive a detailed reanalysis; instead I relied on the analyses in Duffield and Jelks (1961) for my review and assessment of the collection.

Previous Archaeological Investigations

The Texas Archeological Salvage Project at the University of Texas at Austin investigated the Pearson site in 1960 prior to the creation of Lake Tawakoni by the Sabine River Authority on the Sabine River in the upper Sabine River basin. The work done included the excavation of six long (900-1100 ft.) and 8-10 ft. wide north-south and east-west intersecting trenches (Duffield and Jelks 1961:Figure 2) that were excavated to the clay B-horizon, between ca. 0.8-1.25 ft. below surface, looking for occupational features preserved in the archaeological deposits.

No clear cultural features were identified at the site during the trenching, although a 15 ft. diameter and 0.5 ft. deep concentration of glass beads, an iron hatchet, an iron or lead religious medal, and two scraping tools was found in the southwestern part of the site (Duffield and Jelks 1961:Figure 2). Duffield and Jelks (1961:12) suggest that the bead concentration and the few other associated artifacts—including some beads still "aligned in patterns" (Duffield and Jelks 1961:12 and Figure 14c, e)—represent mortuary offerings associated with a burial previously disturbed by site plowing. No preserved human remains were associated with this bead concentration.

The Character of the Material Culture Remains in the TARL Collections

According to Duffield and Jelks (1961:Table 1), a total of 2763 artifacts were recovered in their investigations at the Pearson site (Table 1). Almost 67 percent of the artifacts were European glass beads, most in a discrete concentration, followed by aboriginal ceramic vessel sherds, chipped stone scrapers, and projectile points.

Table 1. Inventory of recovered artifacts from the Pearson site, based on Duffield and Jelks (1961:Table 1).

Artifact category	No.	Percent
Dart points	86	3.1
Arrow points	32	1.2
Knives	36	1.3
Scrapers	160	5.8
Bifaces	5	0.2
Cores	22	0.8
Drills	2	0.1
Gravers	2	0.1
Miscellaneous chipped stone	1	Trace
Sub-total, chipped stone	346	12.6
Celts	2	0.1
Manos	4	0.1
Milling stone	1	Trace
Pitted stone	1	Trace
Hammerstones	2	0.1
Sub-total, ground stone	10	0.4

Table 1. Inventory of recovered artifacts from the Pearson site, based on Duffield and Jelks (1961:Table 1), cont.

Artifact category	No.	Percent
Pottery sherds	263	9.5
Ceramic Pipe sherds	9	0.3
Sub-total, ceramics	272	9.8
Glass Beads	1848*	66.9
Firearm Parts	36	1.3
iron Axes	4	0.1
Cast Iron Pots	2	0.1
Scissors	2	0.1
Knife Fragment	1	Trace
Fork or Spoon Handles	2	0.1
File-Blade Fragment	1	Trace
Buttons	3	0.1
Pinking Iron	1	Trace
Iron Scraping Tools	2	0.1
Chisel	1	Trace
Other Iron Objects	66	2.4
Brass Tinklers	6	0.2
Brass Pendant?	1	Trace
Brass Bail Ear	1	Trace
Harness Gear	1	Trace
Brass Buckles	3	0.1
Escutcheon Pin	1	Trace
Quartz Insert or Inlay	1	Trace
Lead	2	0.1
Glass	36	1.3
China and Crockery	113	4.1
Religious Medal	1	Trace
Sub-total, Historics	2135	77.2
Totals	2763	100.0

*does not include the two blocks of soil with in situ glass beads

Ceramic Vessel Sherds

The ceramic vessel sherds in the Pearson site assemblage are from plain ware, utility ware, and fine ware vessels (Table 2). Fifty percent of the rim sherds and 74 percent of the sherds are from plain ware, and there are 54 decorated sherds from utility ware and fine ware vessels; 53.7 percent of the decorated sherds are from utility wares, and the remaining 46.3 percent are from fine ware vessels. The plain to decorated sherd ratio is 2.87. At the nearby Gilbert site, more than 61 percent of the decorated sherds (n=719) are from fine wares (Story et al. 1967:Tables 7 and 8; Perttula 2012:Table 3).

Table 2. Ceramic wares at the Pearson site.

Sherd type	Plain ware	Utility ware	Fine ware	N
Rim	4	1	3	8
Body	145	28	22	195
Base	6	-	-	6
Totals	155	29	25	209

Approximately 15 percent of the sherds from the Pearson site, all plain ware, have a sandy paste and no temper inclusions (Table 3). These sherds are quite similar to Edwards Plain as defined by Baugh (2014:7-12). At the nearby and roughly contemporaneous Gilbert site (41RA13), about 9 percent of a recently analyzed sample of ceramic vessel sherds have a sandy paste (Perttula 2012), and Story et al. (1967:Table 5) indicates that 5.6 percent of a larger sample of sherds from the Gilbert site are plain sandy paste wares. Baugh (2014) considers Edwards Plain to be a *Kirikir'is* or Wichita tribal pottery type that was made between ca. A.D. 1450-1725; its presence at both the Gilbert and Pearson sites suggests that this pottery continued to be manufactured until at least the 1740s-1760s, if not later.

Table 3. Temper groups in the ceramic vessel sherds from the Pearson site.

Temper group	Plain ware	Utility ware	Fine ware	N
sandy paste	32	-	-	32
bone	17	8	4	29
bone-hematite	9	1	2	11
grog	53	12	15	80
grog-bone	9	4	1	14
grog-bone-hematite	3	-	-	3
grog-hematite	29	4	2	35
hematite	2	-	-	2
shell	1	-	1	2
% Sandy paste	20.6	-	-	15.3
% Bone	24.5	44.8	28.0	27.3
% Grog	60.6	69.0	72.0	63.1
% Hematite	27.7	17.2	16.0	24.4
% Shell	0.6	-	4.0	1.0
Totals	155	29	25	209

The other ceramic sherds are from vessels tempered with several different combinations of tempers, including burned bone, grog, hematite, and burned mussel shell (Table 3), the latter temper very rare in the assemblage. The most common temper is grog, comprising 38.2 percent of the assemblage, and sherds with grog and other temper inclusions account for 63.1 percent of the site sample; the highest percentage of grog-tempered sherds occur in the fine ware. Sherds with vessels that have hematite

temper, either as the sole temper, or in combination with grog and/or bone, are present in 24.4 percent of the sherds. The highest proportion of sherds with hematite temper occurs in the plain wares (see Table 3). Sherds from vessels tempered with burned bone are most common in the utility wares (44.8 percent).

The utility wares from the Pearson site are most commonly represented by sherds with incised (51.7 percent of the utility wares) or brushed (31.0 percent) decorative elements, while 84 percent of the fine wares have engraved decorative elements (Table 4). The decorated sherds are uniformly from tempered wares.

Table 4. Decorative methods and elements in the utility ware and fine ware sherds from the Pearson site.

Decorative method and elements	Rim	Body	N
Utility Ware			
Appliqued			
appliqued node	-	1	1
Brushed			
horizontal brushed marks	1	-	1
opposed brushed marks	-	1	1
parallel brushed marks	-	7	7
Brushed-Incised			
parallel brushed-incised marks and lines	-	3	3
Incised			
curvilinear incised line/lines	-	2	2
opposed incised lines	-	2	2
parallel incised lines	-	6	6
straight incised line	-	5	5
Incised-Punctated			
circular punctated row-vertical incised lines	-	1	1
Fine Ware			
Engraved			
cross-hatched engraved zone	-	5	5
cross-hatched engraved triangular zone	-	1	1
diagonal-parallel engraved lines with tick marks	-	1	1
horizontal engraved line	1	-	1
horizontal-diagonal engraved lines and row of excised punctations	1	-	1
horizontal and diagonal opposed engraved lines	-	1	1
horizontal-vertical-curvilinear engraved lines	1	-	1
opposed engraved lines	-	1	1
parallel engraved lines	-	1	1
straight engraved line	-	2	2
triangular hatched zone	-	4	4
vertical hatched zone	-	1	1
vertical-diagonal lines-curvilinear engraved line	-	1	1

Table 4. Decorative methods and elements in the utility ware and fine ware sherds from the Pearson site, cont.

Decorative method and elements	Rim	Body	N
Red-Slipped			
ext. red-slipped	-	2	2
Trailed			
curvilinear trailed lines, one with tick marks	-	1	1
parallel trailed lines	-	1	1
Totals	4	50	54

The one appliqued body sherd has a single appliqued node (Figure 2a; see also Table 4), and may be from an Emory Punctated-Incised jar (see Story et al. 1967:144). The brushed and brushed-incised sherds, comprising 41 percent of the utility wares, may also be from Emory Punctated-Incised vessels as Story et al. (1967:137) indicate that when brushed elements are present, they "may occur almost anywhere on the vessel, from the lip to the base." At the Pearson site, the one brushed rim has horizontal brushed marks, while the body sherds have opposed and parallel brushed marks.

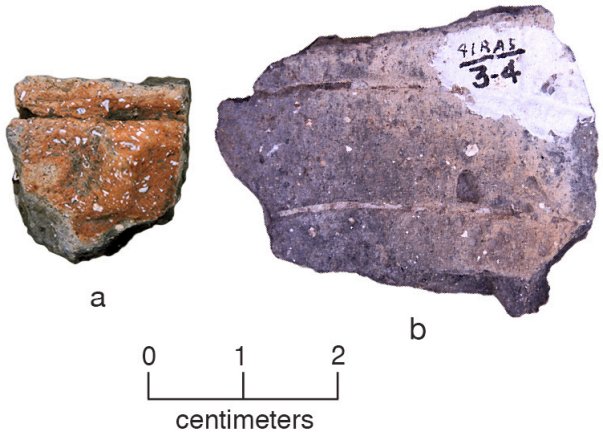

Figure 2. Selected utility ware sherds from the Pearson site: a, appliqued; b, curvilinear incised lines.

The incised sherds (52 percent of the utility wares), all body sherds, have curvilinear or geometric lines (see Figure 2b and Table 4). These decorative elements are also consistent with Emory Punctated-Incised vessels, in that incised lines consist "of straight to slightly curved lines extending from below the rim to the base or to about the middle of the body" (Story et al. 1967:137). The one incised-punctated sherd, also from an Emory Punctated-Incised vessel (Story et al. 1967:137) in the assemblage, has a row of circular punctations, likely at or near the rim-body juncture of a jar, with vertical incised lines extending down the vessel body.

The 21 engraved fine ware sherds in the Pearson site collection (see Table 4) include a number from Womack Engraved vessels with cross-hatched (n=6) engraved zones, including one with a triangular zone (Variety A, Duffield and Jelks 1961:Figure 10) (Figures 3a-c and 4d, f), and two sherds from Natchitoches Engraved vessels with triangular hatched (n=1) and vertical hatched (n=1) decorative elements (Figures 3e and 4g-h). The one rim sherd with horizontal-diagonal engraved lines and a row of excised punctations (Figures 3f and 4b) and one body sherd with diagonal-parallel engraved lines with tick marks may be from Variety B of Womack Engraved. Two other rim sherds, not identifiable to a type, have either a horizontal engraved line or horizontal-vertical-curvilinear engraved lines (Figures 3d and 4c). The other engraved sherds in the small assemblage of fine wares at the Pearson site can be grouped into a miscellaneous category: they include horizontal and diagonal opposed engraved lines; opposed engraved lines; parallel engraved lines; straight engraved line; and vertical-diagonal-curvilinear engraved lines.

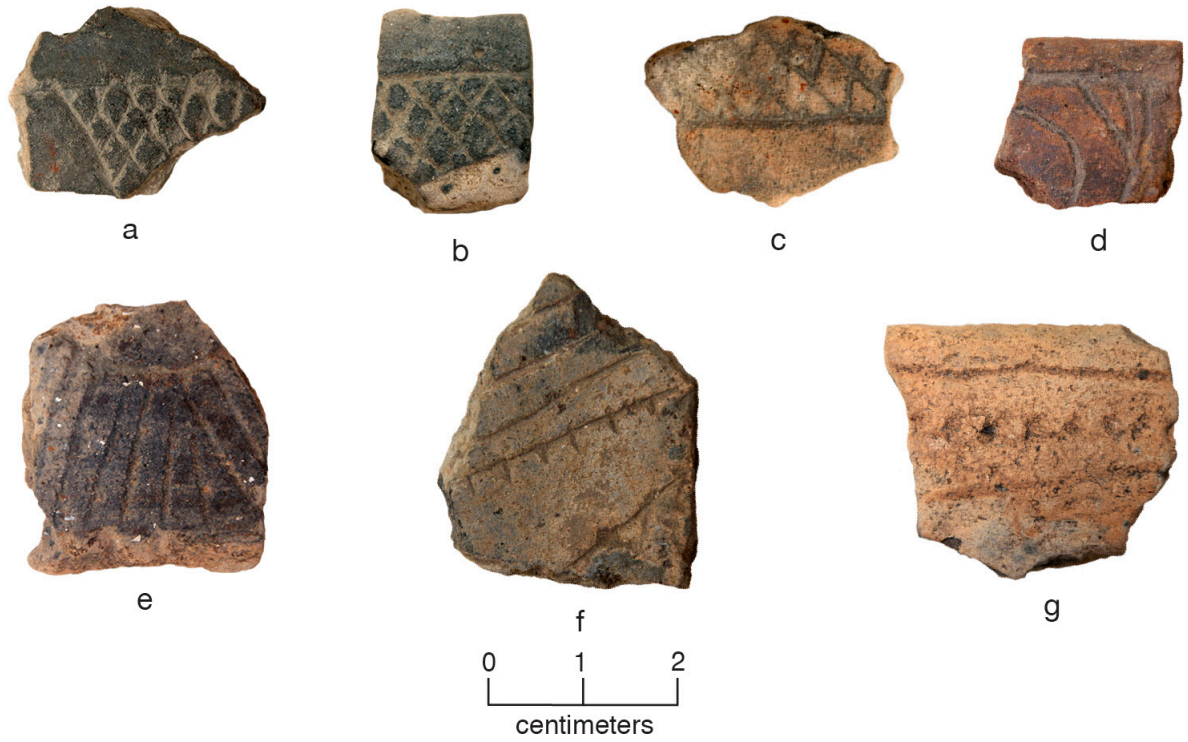

Figure 3. Engraved rim and body sherds from the Pearson site assemblage.

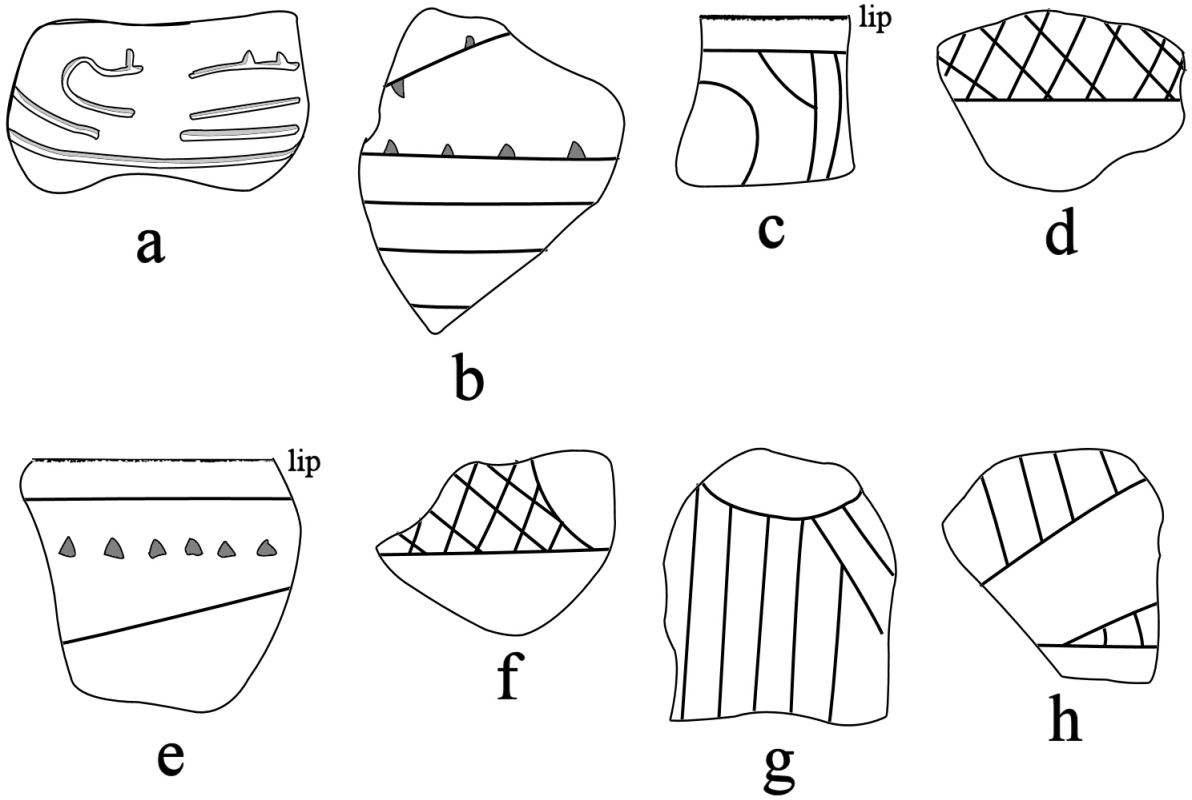

Figure 4. Selected fine ware decorative elements on sherds from the Pearson site.

Other fine wares at the Pearson site are either red-slipped (8 percent of the fine wares) on their exterior surfaces or have curvilinear or parallel trailed lines (8 percent of the fine wares, see Table 4). Slipped wares are described as "quite rare" at the Gilbert site (Story et al. 1967:112). The two trailed body sherds (Figure 5a-b) are likely from Keno Trailed vessels (see Suhm and Jelks 1962:Plate 44), although the use of tick marks on trailed lines on one body sherd is unique (Figure 5b; see also Figure 4a).

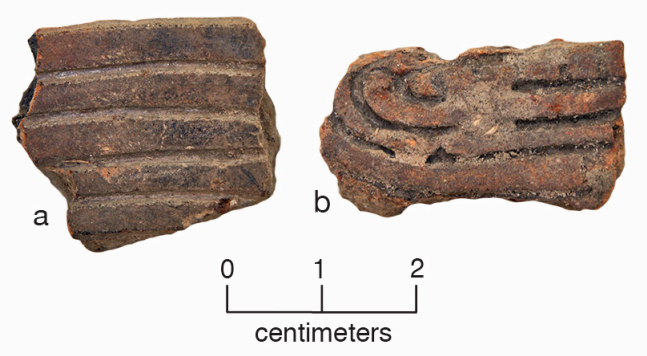

Figure 5. Trailed body sherds from the Pearson site.

Selected Chipped Stone Tools

There are a number of dart points and arrow points in the Pearson site collection, reflecting a lengthy, if not intermittent, use of the site since ca. 5000 years B.P., during the Late Archaic, into the 18th century A.D. The identified types in the collection follow Turner et al. (2011).

Dart Points

Of the more or less complete dart points in the Pearson site assemblage (n=51), 75 percent are identified to eight different defined types (Table 5), principally including Gary (n=10, 19.6 percent), Trinity (n=9, 17.6 percent), and Edgewood (n=7, 13.7 percent) (Figures 6 and 7). Thirteen of the dart points, all considered to be Late Archaic period in age, are categorized by the stem shape—i.e., expanding stem or straight stem—along with base shape and the presence of barbed shoulders—but have not been identified to a specific type.

Table 5. Dart points from the Pearson site.

Lot	Type	Raw Material	L (mm)	W (mm)	Th (mm)	SW (mm)	Comments
4-27	Edgewood	gray chert	41.0+	23.0	7.5	16.5	
5-28	Edgewood	very dark gray chert	35.5+	19.8	5.3	10.0	
5-33	Edgewood	dark grayish-brown chert	-	21.3	5.6	11.6	impact fracture
5-34	Edgewood	quartzite	-	22.0	7.2	13.4	
5-36	Edgewood	coarse-grained quartzite	-	-	7.0	15.4	impact fracture
5-37	Edgewood	gray chert	-	-	6.9	12.2	impact fracture
11	Edgewood	quartzite	-	-	7.0	13.9	
5-32	Ellis	yellowish-gray chert	-	23.3	7.9	13.0	
10-43	Ellis	gray chert	-	19.0	8.3	14.0	impact fracture

Table 5. Dart points from the Pearson site, cont.

Lot	Type	Raw Material	L (mm)	W (mm)	Th (mm)	SW (mm)	Comments
1-28	Gary	petrified wood	32.6	16.1	6.3	9.0	cortex on on face
1-30	Gary	dark gray chert	38.6+	20.1	7.3	13.5	cortex on stem
3-7	Gary	coarse-grained quartzite	-	18.1	5.9	12.7	unifacial
3-8	Gary	coarse-grained quartzite	-	23.9	6.9	21.0	
5-27	Gary	petrified wood	47.0+	20.9	6.7	14.0	
5-29	Gary	quartzite	42.8+	22.0	8.6	16.0	
5-38	Gary	coarse-grained quartzite	-	19.0	7.2	15.8	
8	Gary	quartzite	-	49.9	8.3	20.2	
10-44	Gary	quartzite	38.2+	25.2	7.3	16.2	
11	Gary	quartzite	-	20.0	7.0	12.3	
1-31	Godley	coarse quartzite	29.0	16.3	7.6	13.0	
5-39	Godley	gray chert	-	22.6	7.9	13.0	
6-1	Godley	grayish-brown chert	31.9	17.4	7.2	14.0	
15	Godley	brownish-gray chert	36.0	17.9	8.4	13.0	
15	Godley	grayish-brown chert	33.1	17.6	6.4	13.3	
5-23	Kent	reddish-brown chert	34.1	17.5	7.9	12.3	
10-35	Neches	petrified wood	30.9	13.0	6.0	10.9	
11	Neches	gray chert	34.9	18.0	7.8	10.5	
1-26	Trinity	brown chert	38.1	16.0	7.3	11.8	
1-33	Trinity	light gray chert	-	-	5.1	15.9	
5-15	Trinity	black chert	38.9	14.2	7.6	11.3	
5-25	Trinity	dark brown chert	29.2	16.0	7.1	12.0	
5-41	Trinity	petrified wood	27.0	16.0	4.9	12.3	unifacial
5-44	Trinity	brown chert	-	20.9	5.8	15.3	
10-46	Trinity	gray novaculite	28.0	14.5	5.7	11.9	
10-97	Trinity	petrified wood	-	17.0	6.7	13.0	
11	Trinity	gray chert	-	14.4	6.3	11.7	
1-32	Yarbrough	quartzite	-	26.0	8.3	17.0	
15	Yarbrough	quartzite	34.3+	15.5	7.6	13.2	impact fracture

Table 5. Dart points from the Pearson site, cont.

Lot	Type	Raw Material	L (mm)	W (mm)	Th (mm)	SW (mm)	Comments
Unidentified expanding stem, flat base, minimal barbs							
3-10		coarse quartzite	-	15.9	7.9	10.9	
11		light gray chert	28.6	17.9	6.2	17.4	resharpened blade
15		petrified wood	30.4	16.5	5.3	13.0	
19		petrified wood	29.7	21.0	4.5	13.1	cortex on both faces
Unidentified expanding stem, flat to concave base, minimal barbs							
20		petrified wood	31.0+	22.3	5.2	14.8	cortex on both faces, impact fracture
Unidentified expanding stem, convex base, minimal barbs							
1-29		quartzite	28.9	15.4	5.7	10.8	
Unidentified expanding stem, flat base, barbed							
15		petrified wood	20.0	14.2	4.0	10.8	cortex on one face
Unidentified expanding stem, flat to convex base, barbed							
5-35		dark gray chert	-	26.2	5.2	15.0	
Unidentified straight stem, flat base, minimal barbs							
5-31		petrified wood	32.0	16.0	4.3	13.0	
5-46		coarse quartzite	21.0	16.2	4.6	12.3	cortex on one face
17		brownish-gray chert	29.0+	19.0	8.3	11.6	cortex on blade, uni-facial
Unidentified broad straight stem, flat base, barbs							
3-6		novaculite	-	-	8.9	18.1	impact fracture
Unidentified long, narrow straight stem, flat base, no barbs							
3-9		petrified wood	48.7	16.2	9.5	14.0	

L=length; W=width; TH=thickness; SW=stem width

The Late Archaic dart points in the Pearson site assemblage include Ellis (see Figure 6c), Godley (ca. 3800-2500 years B.P.) (see Figure 6b, e), Kent (ca. 3800-2500 years B.P.), Neches (ca. 5000-3800 years B.P.), Trinity (ca. 5000-3800 years B.P.) (see Figure 6f-h), and Yarbrough (ca. 3800-2500 years B.P.) (see Figure 6a) types (Figure 8; see also Table 5), indicating periodic use of the site throughout the Late Archaic period. The Trinity dart point (n=9) is the most common in the Late Archaic assemblage.

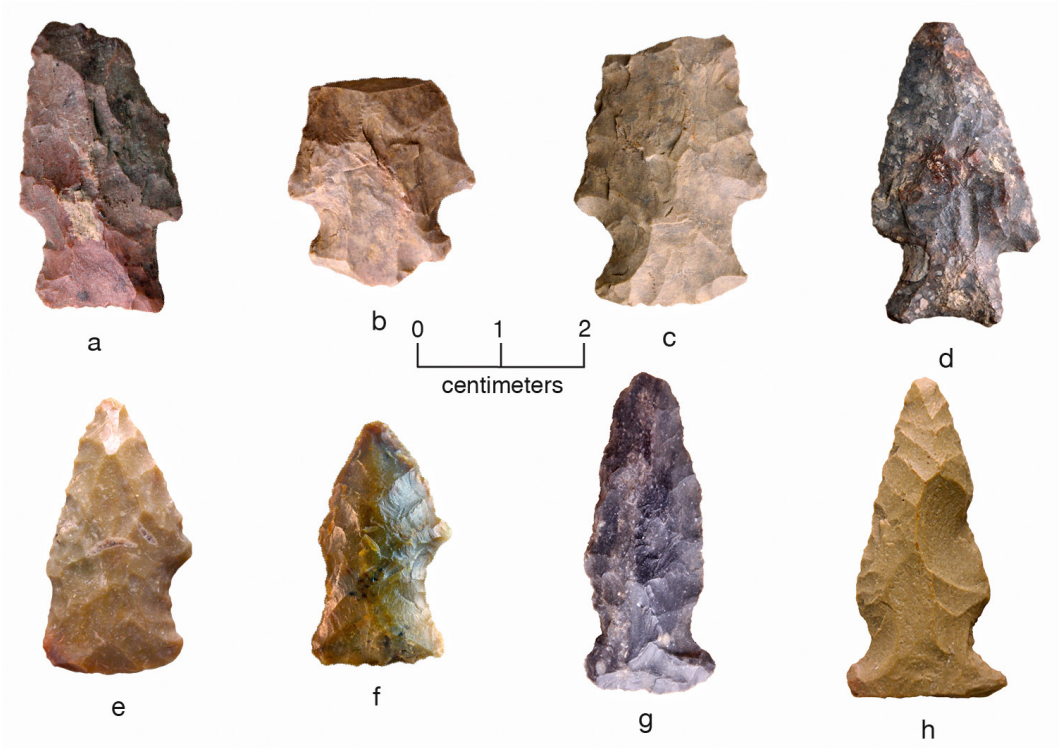

Figure 6. Selected dart point types from the Pearson site: a, Yarbrough; b, e, Godley; c, Ellis; d, Edgewood; f-h, Trinity.

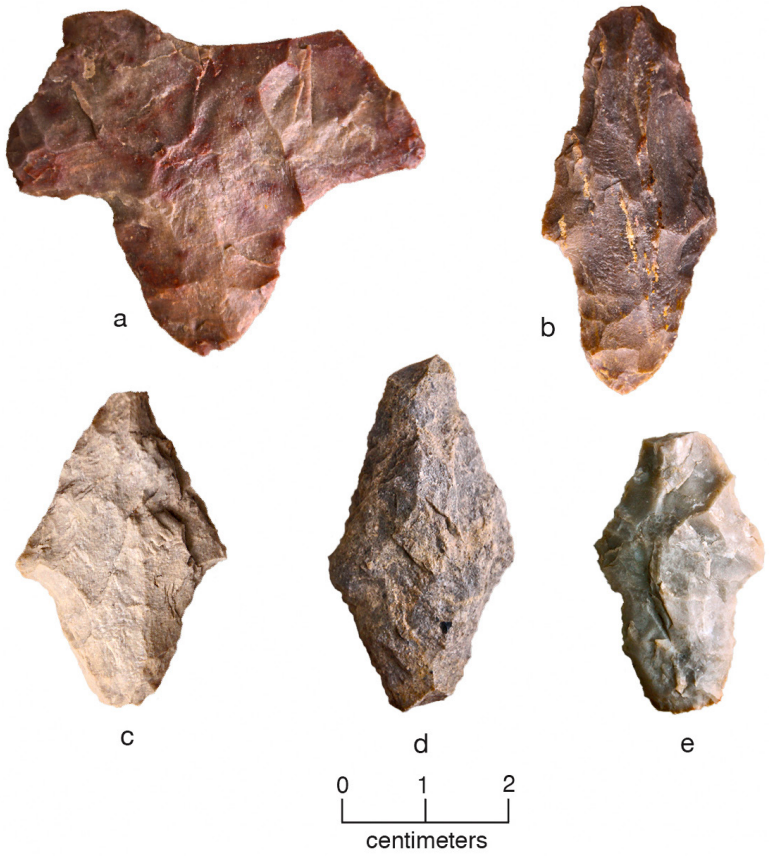

Figure 7. Gary dart points from the Pearson site.

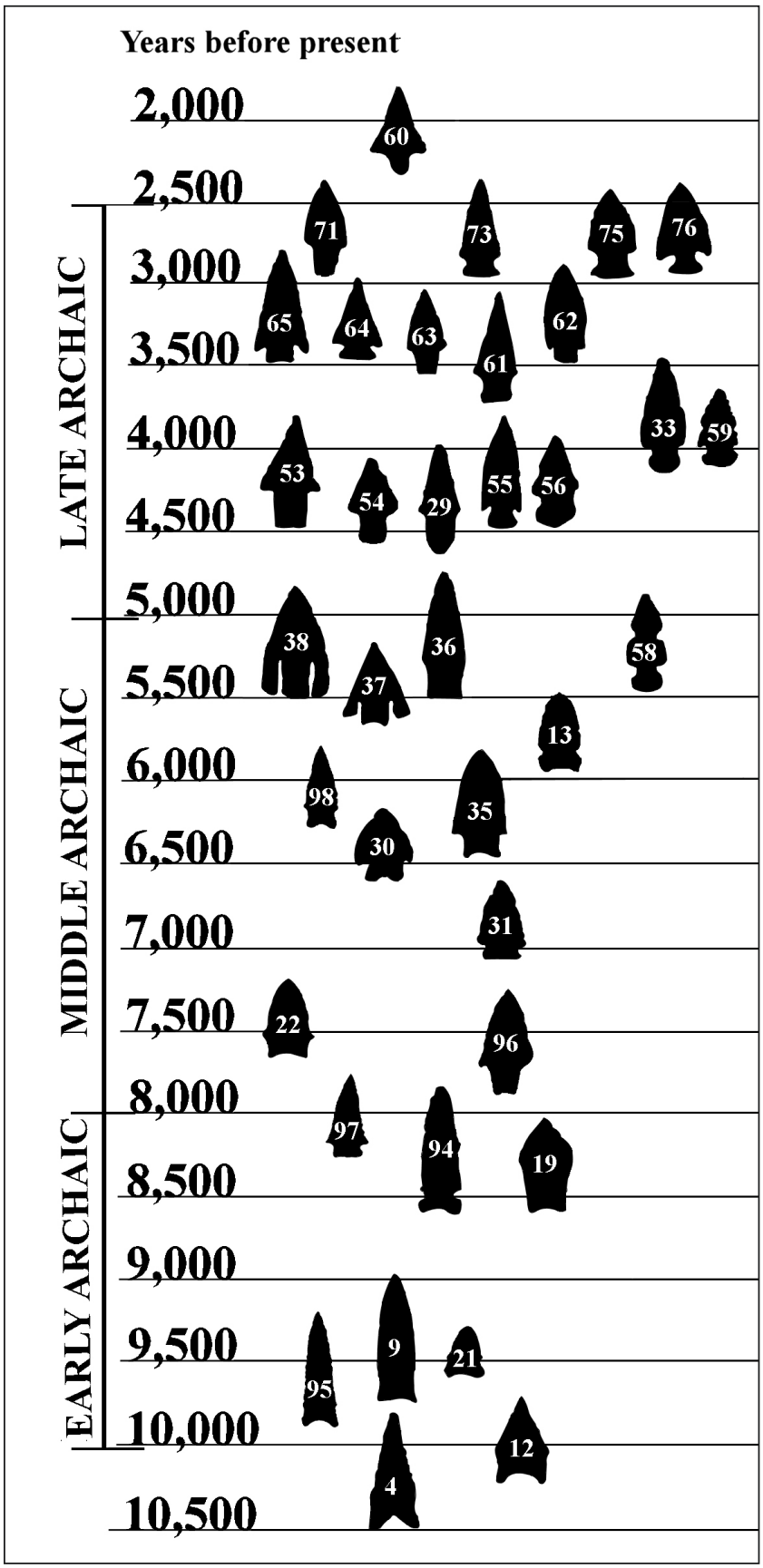

Figure 8. Proposed temporal ordering of dart points in the East Texas Archaic, ca. 10,000-2500 years B.P. (after Carpenter and Paquin 2010). Key to projectile point types on Figure 8: 4. Dalton; 9. Scottsbluff; 12. San Patrice; 13. White River; 19. Pelican; 21. Keithville, or San Patrice, var. Keithville; 22. Kirk; 29. Wells; 30. Cossatot; 31. Palmer; 33. Palmillas; 35. Johnson; 36. Morrill; 37. Bell; 38. Andice; 53. Bulverde; 54. Carrollton; 55. Williams; 56. Trinity; 58. Evans; 59. Neches; 60. Gary; 61. Yarbrough; 62. Pontchartrain; 63. Kent; 64. Ellis; 65. Marshall; 71. Dawson; 73. Godley; 75. Epps; 76. Motley; 94. Graham Cave; 95. Breckenridge; 96. Hidden Valley; 97. Rice Lobed; 98. Jakie. Figure drawn by Lance Trask, based in part on Carpenter and Paquin (2010), Lohse et al. (2014), and Perttula (2016).

There are two Woodland period point types dating from ca. 2500-1150 years B.P.) in the Pearson dart point assemblage: Edgewood (n=7) (see Figure 6d) and Gary (n=10) points (see Figure 7 and Table 5). The thickness and stem width data for the Gary points suggest that four are *var. Camden* (see Schambach 1982; Leith 2014), dating after ca. A.D. 400, and three others are *var. LeFlore* (ca. A.D. 1-400). The mean thickness of the *var. LeFlore* points is 7.7 mm and their mean stem width is 16.0 mm. Conversely, the mean thickness and stem width of the *var. Camden* points at the Pearson site is 6.73 mm and 13.13 mm, respectively.

In addition to the more or less complete dart points that can be identified to a defined type, there are 18 dart point fragments in the collection from the Pearson site. They are on quartzite (n=11, 61 percent), gray chert (n=3, 16.7 percent), coarse-grained grayish-white quartzite (n=2, 11.1 percent), reddish-gray chert (n=1, 5.6 percent), and very dark gray chert (n=1, 5.6 percent). The coarse-grained grayish-white quartzite originates at a quarry on Mill Creek in Van Zandt County in the upper Sabine River basin. According to Malone (1972:32), the quarry covers between 3-4 acres of an upland landform, manifested as outcrops of large boulders (Malone 1972:Figure 13) with "partially decorticated cores, as well as numerous flakes."

This distinctive coarse-grained quartzite is present in the Pearson site assemblage, accounting for 4.8 percent of the Late Archaic dart points and 23.5 percent of the Woodland period dart points (Table 6; see also Table 5); this material is represented on 15.4 percent of the unidentified expanding stem and straight stem dart points. The use of non-local cherts for manufactured dart points is much most common during Late Archaic period times, as is the case for local cherts, and novaculite, the latter likely obtained from Red River gravels well north of the Pearson site. Local fine-grained quartzite was primarily used for Woodland period dart points at the site, while local petrified wood was equally common in both the Woodland and Late Archaic period dart points.

Table 6. Lithic raw material usage in the Woodland and Late Archaic dart points from the Pearson site.

Period	Non-local chert	Local chert	QTZ	cQTZ	PW	Novaculite	N
Woodland	29.4%	-	35.3%	23.5%	11.8%	-	17
Late Archaic	52.4%	14.3%	9.5%	4.8%	14.3%	4.8%	21
UID ES	25.0%	-	12.5%	12.5%	50.0%	-	8
UID SS	20.0%	-	-	20.0%	40.0%	20.0%	5
Totals	37.3%	5.9%	17.6%	13.7%	21.5%	3.9%	51

QTZ=quartzite; cQTZ=coarse-grained quartzite; PW=petrified wood; UID=unidentified ; ES=expanding stem; SS=straight stem

Almost 70 percent of the Gary dart points from a studied site (41VN63) in the upper Sabine River basin are made on the gray-white coarse-grained quartzite (see Perttula et al. 2017); 70 percent of the dart point tips are also made from this material. At the Yarbrough site (41VN6, see Johnson 1962) a few miles east of 41VN63, about 4 percent of the dart points are made from this distinctive quartzite, mostly having been heat-treated. This includes 5.2 percent of the Gary points (n=328), 2.1 percent of the Wells points (n=47), 5.3 percent of the Marshall points (n=19), 15.2 percent of the Ellis points (n=33), 6.0 percent of the Edgewood points (n=50), and 20.0 percent of the Wesley points (n=5); none of the arrow points (n=9) were made from this white/pink quartzite. The age of the dart points made from this quartzite certainly suggest that this material was primarily utilized in Late Archaic and Woodland period times, as is the case at 41VN63 and the Pearson site. At another site (unrecorded) on the Robert L. Richey property on the Sabine River a few miles west of 41VN63, the grayish-white quartzite raw material occurs on 61.5

percent of the small lithic debris sample (n=8). The few diagnostic artifacts from this site are decorated ceramic sherds that likely date from ca. A.D. 900-1200, indicating the continued use of this quartzite raw material in ancestral Caddo times (see Perttula and Richey 2017). None of the arrow points or arrow point preforms at the Pearson site are on the coarse-grained gray-white quartzite.

Arrow Points

There are 14 typologically identified arrow points in the Pearson site collections at TARL (Table 7), primarily Alba (Figure 9a-e) and Fresno (Figure 10a-c) types. The stemmed arrow points are associated with both a Late Woodland (ca. A.D. 700-800) occupation as well as a later Formative Caddo to Early Caddo period (ca. A.D. 800-1200) occupation. The Fresno arrow points and preforms are part of the 18th century component at the site. On Historic aboriginal (i.e., Caddo and Wichita groups) sites in East Texas, triangular arrow point forms are predominant on sites from the Sabine River north to the Red River (see Harris et al. 1965:Figure 1b-e; Jelks 1967:Figure 68a-g).

Table 7. Arrow points from the Pearson site.

Lot	Type	Raw Material	L (mm)	W (mm)	Th (mm)	SW (mm)	Comments
3-48	Alba	grayish-brown chert	-	-	3.4	4.7	
5-45	Alba	red chert	-	17.0	3.1	6.6	
41-8	Alba	gray chert	22.0	13.1	2.5	4.6	unifacial, serrated blade
61-2	Alba	quartzite	19.5	13.0	2.6	6.0	unifacial, serrated blade
80-1	Alba	quartzite	18.9	12.6	3.6	6.1	unifacial
109-4	Alba	quartzite	19.0	14.0	2.7	5.0	unifacial, serrated blade
140-16	Alba	gray chert	16.9	12.0	2.4	3.9	
11	Catahoula	red chert	-	-	2.2	-	
70-1	Steiner	red chert	21.5	13.9	3.9	8.8	serrated blade
Triangular arrow points (Fresno)							
1-34		dark gray chert	22.0	11.6	3.3	N/A	unifacial, flat base
1-35		light gray chert	22.2+	14.0	3.2	N/A	unifacial, concave base
1-36		light gray chert	-	11.0	2.3	N/A	base and mid-section
5-47		light gray chert	21.0	12.5	4.8	N/A	flat base
11		very dark gray chert	-	10.9	3.2	N/A	tip and mid-section
Triangular arrow point preforms							
4-31		gray chert	-	18.4	4.3	N/A	
4-36		light gray chert	-	-	3.2	N/A	

L=length; W=width; Th=thickness; SW=stem width

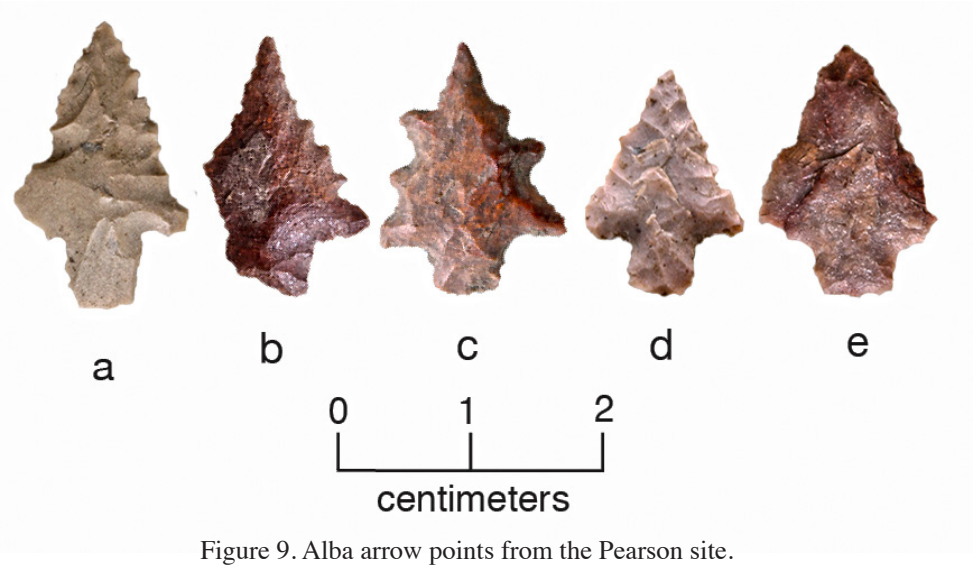

Figure 9. Alba arrow points from the Pearson site.

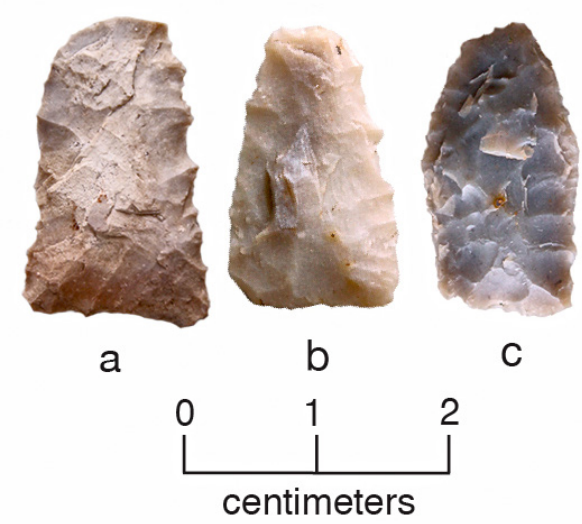

Figure 10. Fresno arrow points from the Pearson site.

The Steiner arrow point is one of the earliest arrow point forms in East Texas (Shafer and Walters 2010), estimated to date to the Late Woodland period. The Pearson site specimen is made from a local red chert, as is the post-A.D. 800 Catahoula arrow point (see Table 7). More than 57 percent of the Alba arrow points are made on locally available quartzite and chert raw materials, with the remainder on non-local cherts that may have originated in Central Texas lithic sources. By contrast, 100 percent of the Fresno points and preforms are on non-locally available cherts (see Table 7), possibly procured from Red River gravels, indicating a considerable change in the aboriginal procurement of lithic raw materials from Early Caddo period times to the 18th century, as well as the intensity of regional interaction/exchange.

Historic Trade Goods

Glass beads

The first step in the analysis of the 2,250 glass beads from the Pearson site collection was the completion of a comprehensive attribute analysis by lot number of the beads found at the site**.** The beads were identified and classified according to material, size, shape, color, opacity, and technology with which they were produced (see Perttula and Glascock 2017:511-513). The bead varieties were also identified using the accepted Kidd and Kidd (1970) classification systems.

Thirteen different glass bead types have been identified in the Pearson site assemblage (Table 8), including a six-sided bead (Class I, Figure 11c), rounded beads (Class II), tubular beads with a black core, and occasionally three sets of two white stripes (Class III), and round beads with either black or light gray cores (Class IV). The principal glass bead types are IIa55 (42.4 percent) (Figure 11a), IIa13 (37.3 percent) (Figure 11b), and IVa13 (13.8 percent). Types IIIb1 (with stripes) (Figure 11d), IVa1, and IVa2 are Cornaline d'Aleppo beads (Figure 11e); they comprise only 0.9 percent of the bead sample. Bead types by lot number are provided in Table 9.

Table 8. Glass Bead types in the Pearson site assemblage.

Type	Description	N	%
If3	6-sided, clear glass, Emerald	1	Trace
IIa6	round, opaque glass, Black	1	Trace
IIa13	round, opaque glass, White	841	37.3
IIa15	oval, opaque glass, White	1	Trace
IIa40	round, opaque glass, Robin's Egg Blue	92	4.1
IIa43	round, translucent glass, Brite Blue	16	0.7
IIa44	round, clear glass, Cerulean Blue	7	0.3
IIa54	oval, clear glass, Ultramarine	5	0.2
IIa55	round, clear glass, Brite Navy	954	42.4
IIIb1	tubular, opaque glass, Red-Black core sets of white stripes	10	0.4
IVa1	round, opaque glass, Red-Black core	8	0.4
IVa2	round, opaque glass, Red-Light Gray core	3	0.1
IVa13	circular, translucent glass, White-Light Gray core	311	13.8
Totals		2250	100%

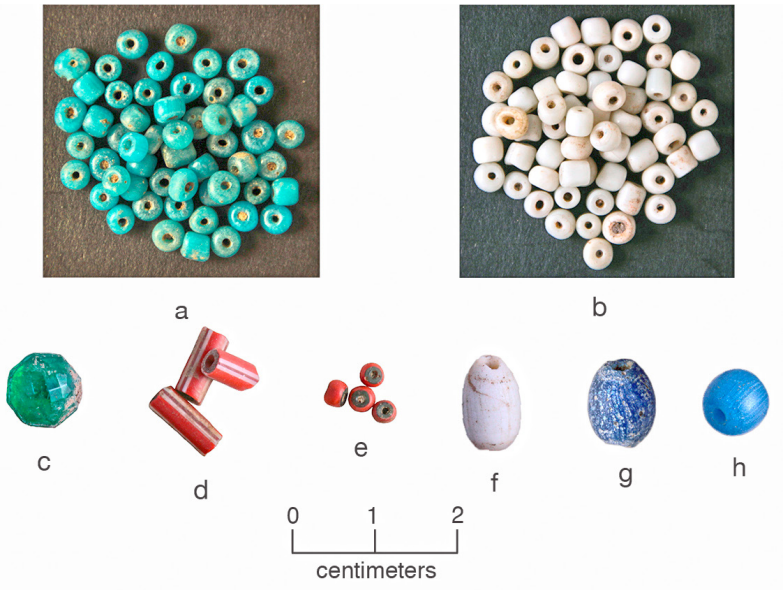

Figure 11. Examples of glass bead types from the Pearson site: a, IIa55; b, IIa13; c, If3; d, IIIb1; e, IVa1; f, IIa15; g, IIa54; h, IIa40.

Table 9. Glass Beads by Lot No. from the Pearson site.

Lot No.	Type	N
1	IIIb1	1
1-78	IIa44	1
	IIa54	1
2	IIa40	1
	IIa43	1
3	IVa1	1
4	IIa40	51
	IVa1	1
	IVa2	1
4-61	IIa13	1
	IIa44	1
5	IIa13	2
5-95	IIa13	18
	IIa43	15
	IIa44	1
	IIIb1	1
6	IIa15	1
7	IIa13	107
10-1	IIa13	10
	IIa40	10
	IIa54	1
	IIIb1	2
	IVa2	1
11	IIa40	1
	IIa54	1
22	IIa13	1
	IIa44	2
	IIa54	1
27	IIa13	479
	IIa55	337
No Lot No.	If3	1
	IIa6	1
	IIa13	223
	IIa40	29
	IIa44	2
	IIa54	1
	IIa55	617
	IIIb1	6
	IVa1	6
	IVa2	1
	IVa13	311
Totals		2250

The glass beads from the Pearson site are dominated by blue colors (n=1074, 47.8 percent) and white (n=1154, 51.3 percent). Other colors include red (n=20, 0.9 percent), black (n=1), and emerald (n=1). The glass bead color pattern for the Pearson site is much different than roughly contemporaneous sites in the Nacogdoches County area of East Texas (see Avery 2017:Figure 4 and Table 1), as blue beads comprise at least 60-70 percent of the assemblages. In sites in the Red and Sabine river basins with glass

beads—most especially the Gilbert (41RA13), Womack (41LR1), and Roseborough Lake (41BW5) sites—the assemblages are dominated by white and blue beads, with small percentages of red beads (Avery 2008:Figure 4); at the Gilbert site, however, about 13 percent of the glass beads are black (Jelks 1967; Avery 2008:Table 1), compared to less than 0.1 black beads at the Pearson site. It is possible that these color differences reflect tribal/ethnic associations, as well as temporal trends (Avery 2008:61). Walthall (2015:276-277) also suggests similarities in bead colors due to inter-tribal gift giving and exchange and shared trade sources, likely French traders.

A general sequence of bead types from late 17th century to 19th century sites in Texas and Northwest Louisiana can be proposed based on comparative data on sites with large bead assemblages where the beads were uniformly classified using the Harris and Harris (1967) classification system (Table 10), and as such provides an ideal data set to determine how the bead assemblage from the Pearson site compares with regional trends in bead use at Native American sites in the region. For this purpose, the more than 180 bead types in the Harris and Harris (1967:139–155) scheme were combined into eight broad groups based primarily on bead size, decoration, and method of manufacture (i.e., drawn or wire-wound beads). Groups VII and VIII (Table 10) represent several bead types that Harris and Harris (1967:157) suggest appeared in the bead trade during two specific temporal intervals: 1767–1780 and 1780–1820 respectively.

Table 10. Chronological sequence of bead types from Texas and Northwest Louisiana sites, using the Harris and Harris (1967) bead classification system.

Site and Age	Bead Groups (percent)*								Total Beads from site
	I	II	III	IV	V	VI	VII	VIII	
Clements, pre-1700	97.8	-	-	2.2	-	-	-	-	45
Atlanta State Park, pre-1700	72	-	-	28	+	-	-	-	1,841

Womack, 1700–1730	40	3	0.6	56	0.5	-	-	-	2,123
Deshazo, 1686–1714	25	+	-	66	8.4	-	-	-	4,646
Gilbert, 1740–1767	7	+	0.1	71	11.3	3.6	-	-	3,453
Roseborough Lake, 1720–1780	8	0.7	0.1	72	4.5	2.2	4	-	2,958
Kinsloe phase sites, ca. 1720-1780+	+	+		95.2	4.6	0.1	-	-	7.926
41HO64, 1730s-1760s	+	0.1	-	95.2	4.6	0.1	-	-	7,646
Pearson, 1760s+	0.3	0.4	+	98.5	0.4	-	0.3	-	2,250

Vinson, 1760–1790	1.2	-	0.1	66	19	9.2	0.6	1.2	2,785
Walton, ?–1820	0.1	-	-	82	6.2	0.2	10.8	-	2,392
Stansbury, ?– 1840	+	-	-	91	+	-	-	-	2,499
Canyon Creek, 1800–1850	0.8	-	2.7	92.5	4.0	-	-	-	2,499
16BO176, 1820–1840	-	-	2.8	97.0	-	-	-	+	3,260

*Group I = large-medium-sized (No. 1–18); Group II = large-striped, No. 20–39; Group III = large wound and faceted, No. 40–43, 52–54; Group IV = small seed/drawn, No. 44–50; Group V = Cornaline d'Aleppo, No. 51, 55, 57, 59, 67–68, 86, 99; Group VI = small drawn beads, No. 79–84; Group VII = 1767–1780 varieties, No. 64–65, 98, 101–104, 106–108, 115, 118, 128, 137–138, 155; Group VIII = 1780–1820 varieties, No. 95, 100, 109, 111–114, 116–117, 119–120, 122, 124, 129, 132.
+=trace
Sources: Creel 1982; Harris and Harris 1967; Harris et al. 1965, 1980; Jelks 1967; Lewis 1987; Miroir et al. 1973; Perttula 1993; Perttula et al. 2004; Perttula and Selden 2014; Shafer et al. 1994; Smith 1993; Stephenson 1970; Story 1985.

The sites can be readily separated into three chronologically distinctive bead assemblages: those that date before 1700, ca. 1700–1767, and ca. 1760–1850 (see Table 10). The first group is dominated by medium-sized to large white, blue, and black beads of simple construction, with less than 30 percent of the beads being small drawn beads of the same colors.

The 1700–1760 sites have more small drawn beads than do the pre-1700 sites, with one group ranging from 56 to 72 percent, along with significant numbers of medium to large drawn beads (Group I) and drawn and tubular-shaped Cornaline d'Aleppo beads (Group V). The other group, dating from ca. 1720-1780, including the Pearson site, has a much higher proportion of small drawn beads (95-98 percent), with Cornaline d'Aleppo beads (see Table 10). Cornaline d'Aleppo beads in particular seem characteristic of many eighteenth-century Texas Caddo and Wichita sites, more so than many other historic Native American sites in the southeastern United States.

Large striped (Group II) and wound beads make their first appearance in the 1700–1760 sites. This is also generally the case for colonial French Louisiana sites in the Southeast (Smith 2002), with the exception of earlier 17th century striped beads from a few sites that appear to be of Spanish origin (Smith 1983, 1987, 1990; Ricklis 1994).

The bead assemblage data show a clear temporal trend in the frequency of the small drawn "garment" or "embroidery" beads (Group IV) replacing the larger and heavier "necklace" beads (Groups I–III) by ca. 1750. This trend or shift in bead size has been previously noted by Gregory (1973) and Hunter (1990) in Texas and Louisiana 18th century aboriginal sites. This overall bead size trend appears to culminate in the mid-19th century in Texas and Northwest Louisiana sites, along with the appearance after 1800 of large faceted beads (see Table 10). To reiterate, by the early 19th century, small drawn beads comprised more than 90–95 percent of the beads from this group of sites, and the larger beads were primarily faceted (see Table 10).

Lead Bead

A fragment of a lead ball in the Pearson site assemblage was modified into a rounded lead bead. The lead bead is 8.9 mm in diameter.

Gun Parts

Among the gun parts recovered in the archaeological investigations at the Pearson site is a fragment of a cast brass trigger guard (Figure 12a; see also Blaine and Harris 1967:Figure 39) that was broken at the rear tang. The piece is 45.3+ mm in length, 13.1 mm wide, and 2.5 mm thick. In Lot 11, there is an engraved cast brass finial from the butt plate (Figure 12b; see also Duffield and Jelks 1961:Figure 13w; Blaine and Harris 1967:Figures 26 and 37c). The finial is 37.0+ mm in length, 13.7 mm in width, and 2.2 mm in thickness.

Figure 12. Gun parts from the Pearson site: a, trigger guard fragment; b, brass finial of forestock plate; c, cast brass side plate fragment; d, trigger guard bow fragment.

The Pearson site collection also includes a cast brass side plate fragment (Lot 5-89) with a leaf floral design (see Figure 12c; see also Duffield and Jelks 1961:Figure 13q; Blaine and Harris 1967:Figure 38g). The side plate fragment is 20.5 mm in width and 1.0 mm in thickness, with a 6.6 mm diameter upper screw hole. Jackson et al. (2012:165 and Figure 3-39) illustrate a similar side plate from the Gallant Falls site (41NA344), the site of Mission Concepcion, and they note that such side plates occur on Type D French trade guns that date after 1730 (see Hamilton 1980:31) or ca. 1750 at the Womack site (41LR1) on the Red River.

The one cast brass trigger guard bow fragment (Lot 10-3) has a scroll and floral engraved motif (see Figure 12d; see also Duffield and Jelks 1961:Figure 13u and Blaine and Harris 1967:Figure 40a-d). The trigger guard is a maximum of 21.0 mm in width and 2.6 mm in thickness.

A cast brass escutcheon pin clamp is also in the Pearson site assemblage (see Duffield and Jelks 1961:Figure 13o; Blaine and Harris 1967:Figure 26). The pin clamp was on the upper barrel of a French musket and above the gun cock and trigger guard. It is 26.0 mm in length, 6.1 mm in width, and 2.4 mm in thickness.

Another gun part in the Pearson site collection is a curved iron frizzen (see Duffield and Jelks 1961:Figure 13o; Blaine and Harris 1967:37 and Figure 28a-d) with a rounded top and a striking surface or "steel." The frizzen is 34.0+ mm in height, 23.0 mm in width, 23.9 mm in width below the rounded top, and 8.7 mm in width at its lower end (measurement D on Blaine and Harris 1967:Figure 28).

There is also an iron horizontal pivot gun lock sear in the gun parts assemblage (see Duffield and Jelks 1961:Figure 13p; see Blaine and Harris 1967:Figure 29e-f). The sear is 32.0 mm in length, 23.9 mm in height, and ranges from 2.6-4.9 mm in thickness. The hole for attachment on the trigger arm (see Blaine and Harris 1967:Figure 27) is 4.2 mm in diameter.

One iron gun barrel fragment (Lot 11) from an 18th century French trade gun is in the Pearson site artifact collection at TARL. The barrel has been flattened at one end (see Duffield and Jelks 1961:Figure 13a'), and is at least 102.9 mm in length, 23.9 mm in width, and with an interior diameter of 15.4 mm.

Gunflints

There are four blade gunflints in the Pearson site collection at TARL made from grayish-brown chert (n=2) (Figure 13a) or black chert (n=2) (Figure 13b-c); based on the color, the former may be French gunflints while the latter may be English gunflints (see Durst 2017:Table 18.3). Blade gunflints were generally made after the mid-18th century, while earlier gunflints were of the spall type (Kenmotsu 1992:152). The gunflints range from 23.0-33.6 mm in length along the sides (see Durst 2017:Figure 18.4), and are perhaps for use with carbines, 17.0-23.2 mm along the heel, and are 5.4-8.0 mm in thickness. Three of the four gunflints are unifacially flaked, and have damage on the striking edge as well as the heel and/or the sides; one of these gunflints has a broad ridge (see Durst 2017:Figure 18.4) on one face. The one bifacially chipped gunflint has edge damage on the striking edge as well as one side.

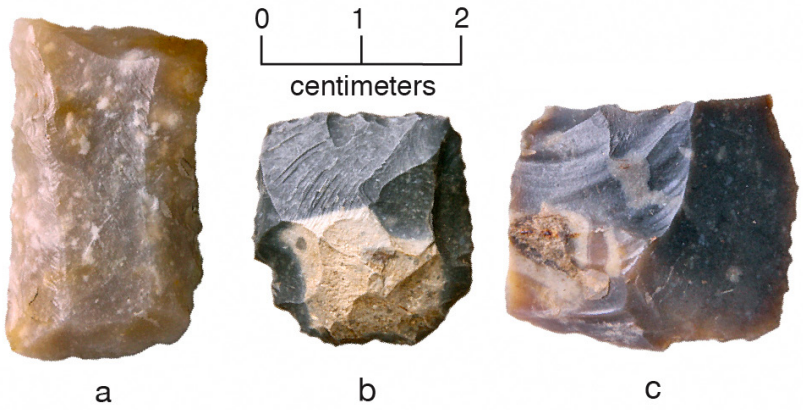

Figure 13. Gunflints from the Pearson site.

Lead Balls

Three round and cast lead balls consistent in size with balls used on French trade guns are in the Pearson site collection (see Duffield and Jelks 1961:Figure 13r-t; Hamilton 1976:33, 1979), two with sprue scars (see Keith 2017:Figure 19.6). These range from .43 cal to .56 cal in size, referring "to the bore diameter as it relates to size of the lead ball it took" (Keith 2017:479). There is also one poorly cast lead ball fragment; it is 0.48 inches/12.3 mm in diameter.

Lead Sprue

There are two lead sprue masses in the assemblage (Lots 1-77 and 4-58) (see Duffield and Jelks 1961:61); these are the left-over residues from the on-site manufacture of lead balls for use in muskets or fusils. The lead masses range in size from 26 x 16 x 5 mm to 44 x 27 x 11 mm in length, width, and thickness.

Other Historic European Trade Goods

Iron Axes

The first of the iron trade axes in the Pearson site collection has a broad blade and curved bit and a wide eye hole (42.2 mm in height and between 29.0-62.0 mm in width) (see Duffield and Jelks 1961:Figure 13a; see also Harris et al. 1967:Figure 23). The axe blade is 71.0 mm in width, a maximum of 82.0 mm in height, between 14-28 mm in width from near the hole to the edge of the blade, and 14.28 mm in thickness. The eye hole has a triangular shape, with 44.0 and 47.0 mm edges and a 47.0 mm diameter; the iron of the eye hole is 7.0 mm thick.

The second iron axe (Lot 19-92-198) has a blade composed of two layers of iron that have split apart slightly at the curved blade edge. The blade is 84.0 mm in length, only 5-10 mm in width, thinning towards the bit, and between 27-58 mm in height. The eye hole on this axe is 42 mm in height, with a 31.0 mm inner diameter; the eye hole is only 4.0 mm thick.

Blaine (1988, 1992:189) suggests that the iron axes or hatchets at the nearby Gilbert site (41RA13) "were used primarily for working metal rather than wood." Blaine (1992:189) suggests this is part of the aboriginal experimentation with metals that took place on aboriginal historic contact sites where metal objects were apparently readily obtained in trade with the French.

Tinkler

The one sheet brass tinkler in the assemblage is a pointed base form (see Harper et al. 1967:Figure 43a-e) with an opening at the top (Figure 14; see also Duffield and Pearson 1961:Figure 13i). It is 27.0+ mm in length and 6.2 mm in width.

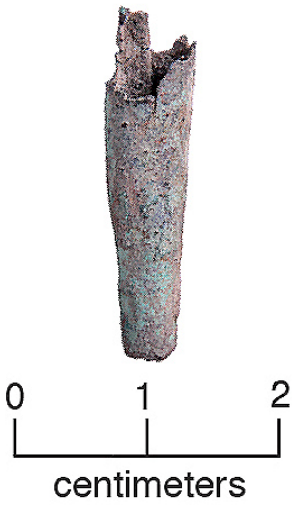

Figure 14. Pointed base tinkler from the Pearson site.

Sheet Brass Bail Ear and Sheet Brass Kettle Fragments

The assemblage has two pieces of folded sheet brass from kettles as well as one kettle bail ear (see Duffield and Jelks 1961:Figure 13l; Harris and Tunnell 1967:Figure 46b-g). The kettle bail ear has been pierced for a rivet for fastening to the kettle.

Summary and Conclusions

The Pearson site (41RA5) at Lake Tawakoni on the upper Sabine River in the Blackland Prairie in modern-day Rains County, Texas, is a multi-component aboriginal site that was excavated by the Texas Archeological Salvage Project in 1960 (Duffield and Jelks 1961), prior to construction of the lake. The work documented a wide but shallowly dispersed archaeological deposit on natural sandy alluvial rises in the Sabine River floodplain, and these deposits include temporally diagnostic artifacts from Middle Archaic, Late Archaic, Woodland, Early Caddo, and 18th century contexts. This last component, the most substantial of the different components at the site, was of particular interest to Duffield and Jelks (1961) because they argued that the Pearson site was part of a Tawakoni-Yscani village occupied in the 1760s. During their work, a diverse range of historic European trade goods were documented as the site's artifact assemblage, primarily including gun parts from French fusils, glass beads, and various iron or brass tools or containers. along with triangular arrow points of the Fresno type, and 209 ceramic vessel sherds from two different ceramic traditions from an unknown number of vessels.

Although there are no radiocarbon dates from the Pearson site, the recovered glass beads, gun parts, and engraved and tempered Caddo pottery found in the work suggest that the site was occupied in the mid-18th century. The work done by Johnson and Jelks (1958) and Duffield and Jelks (1961) suggests that the Pearson site was part of a Tawakoni-Yscani settlement visited by the Spanish in 1760. The ceramic vessel sherds found there are from both Wichita (15.3 percent) and Caddo (84.7 percent) traditions, but the overall low density of ceramic sherds suggests that the production of vessels was less important by ca. 1750 to the Tawakoni-Yscani than was their reliance on Caddo manufactured vessels obtained through French trade networks as well as copper kettles to cook and store foods (see Beach 2015:86). Consequently, I view the existence of the two ceramic traditions at the Pearson site not to be evidence that Tawakoni/Yscani and ancestral Caddo peoples lived together on the site, as Baugh (2014:44) did in his analysis of the ceramic vessel sherds from the Lowrance site (34MR10) in south-central Oklahoma, but as evidence of a Tawakoni/Yscani settlement whose occupants obtained an unknown number of Caddo vessels in trade and exchange, along with European trade goods. Such ceramic vessels may have been obtained, for instance, from the Caddo occupants of the Gilbert site (41RA13) in the upper Sabine River basin or ancestral Caddo groups on the Red River (Story et al. 1967; Perttula 2012). The occurrence of several thousand sherds from Caddo fine ware, utility ware, and plain ware vessel sherds in the various midden features at the mid-18th century Gilbert site does indicate that the site was occupied by Caddo peoples that regularly made, used, and broke ceramic vessels during the course of the occupation, and likely traded or exchanged vessels with the Tawakoni/Yscani. Instrumental neutron activation analysis of three sherds from the Gilbert site (Perttula 2012:13) also indicate that they came from vessels made with local sub-region 5 clays in the upper Sabine River basin.

Acknowledgments

Thanks to Marybeth Tomka of the Texas Archeological Research Laboratory at The University of Texas at Austin for allowing access to the collections from the Pearson site. Lance Trask and Brian Wootan prepared the figures in this article.

References Cited

Avery, G. E.

2008 Seed Bead Color Patterns from Colonial Period Sites in Texas and Louisiana. *Journal of Northeast Texas Archaeology* 28:57-63.

2017 Seed Beads at Mission Dolores and Mission San Miguel: A Preliminary Study of Groupings by Color. *Bulletin of the Texas Archeological Society* 88:23-29.

Baugh, T. G.
2014 Cultural Cycling among the Caddo and Wichita: A Study of Frontier Interaction as Viewed from the Lowrance Site (34MR10). *Oklahoma Anthropological Society Bulletin* LXI:1-54.

Beach, S. D.
2015 Wichita Women and Their Roles in the World Economy: How Postcontact Ceramics Inform Culture Change in the Southern Plains. Master's thesis, Department of Anthropology, University of Oklahoma, Norman.

Blaine, J. C.
1988 Trade Hatchets from the Gilbert Site. *The Record, Fiftieth Anniversary Edition* 42(3):111-117. Dallas Archeological Society, Dallas.

1992 A Summary and Discussion of Additional Findings at the Gilbert Site, an Eighteenth-Century Norteno Occupation in Rains County, Texas. *Bulletin of the Texas Archeological Society* 63:175-196.

Blaine, J. C. and R. K. Harris
1967 Guns. In The Gilbert Site: A Norteno Focus Site in Northeastern Texas, edited by E. B. Jelks. *Bulletin of the Texas Archeological Society* 37:33-86.

Carpenter, S. and P. Paquin
2010 Towards a Genealogy of Texas Stone Projectile Points. *Bulletin of the Texas Archeological Society* 81:153-175.

Creel, D. G.
1982 Artifacts of Non-Native Manufacture. In *The Deshazo Site, Nacogdoches County, Texas, Volume I: The Site, Its Setting, Investigation, Cultural Features, Artifacts of Non-Native Manufacture, and Subsistence Remains*, edited by D. A. Story, pp. 113-130. Texas Antiquities Permit Series, No. 7. Texas Antiquities Committee, Austin.

Duffield, L. F. and E. B. Jelks
1961 *The Pearson Site: A Historic Indian Site at Iron Bridge Reservoir, Rains County, Texas*. Archaeology Series No. 4. Department of Anthropology, The University of Texas at Austin.

Durst, J. J.
2017 Gunflints. In *La Belle: The Archaeology of a Seventeenth-Century Ship of New World Colonization*, edited by J. E. Bruseth, A. A. Borgens, B. M. Jones, and E. D. Ray, pp. 446-458. Texas A&M University Press, College Station.

Gregory, H. F.
1973 Eighteenth Century Caddoan Archaeology: A Study in Models and Interpretation. Ph.D. dissertation, Department of Anthropology, Southern Methodist University, Dallas.

Hamilton, T. M.
1976 *Firearms on the Frontier: Guns at Michilimackinac 1715-1781*. Reports in Mackinac History and Archaeology No. 5. Mackinac Island State Park Commission and printed by Pendell Printing, Inc., Midland, Michigan.

1979 Guns, Gunflints, Ball and Shot. In *Tunica Treasure*, by J. P. Brain, pp. 206-216. Peabody Museum of Archaeology and Ethnology, Harvard University, Cambridge, Massachusetts and the Peabody Museum of Salem, Salem, Massachusetts.

1980 *Colonial Frontier Guns*. The Fur Press, Chadron, Nebraska.

Harper, L., R. Harper, R. K. Harris, I. M. Harris, E. B. Jelks, and J. N. Woodall
1967 Ornaments. In The Gilbert Site: A Norteno Focus Site in Northeastern Texas, edited by E. B. Jelks. *Bulletin of the Texas Archeological Society* 37:87-104.

Harris, R. K. and I. M. Harris
1967 Trade Beads, Projectile Points, and Knives. In *A Pilot Study of Wichita Indian Archeology and Ethnohistory*, assembled by R. E. Bell, E. B. Jelks, and W. W. Newcomb, pp. 129-162. Final Report for Grant GS-964, National Science Foundation, Washington, D.C.

Harris, R. K. and C. D. Tunnell
1967 Miscellaneous European Goods. In The Gilbert Site: A Norteno Focus Site in Northeastern Texas, edited by E. B. Jelks. *Bulletin of the Texas Archeological Society* 37:87-105-111.

Harris, R. K., I. M Harris, and M. P. Miroir
1980 The Atlanta State Park Site in Northeastern Texas. *Louisiana Archaeology* 6:231-239.

Harris, R. K., I. M. Harris, and J. N. Woodall
1967 Tools. In The Gilbert Site: A Norteno Focus Site in Northeastern Texas, edited by E. B. Jelks. *Bulletin of the Texas Archeological Society* 37:18-32.

Harris, R. K., I. M. Harris, J. C. Blaine, and J. Blaine
1965 A Preliminary Archeological and Documentary Study of the Womack Site, Lamar County, Texas. *Bulletin of the Texas Archeological Society* 36:287-363.

Hunter, D. G.
1990 The Apalachee on Red River, 1763-1834: An Ethnohistory and Summary of Archaeological Testing at the Zimmerman Hill Site, Rapides Parish, Louisiana. *Louisiana Archaeology* 12:7-127.

Jackson, M. K., T. Middlebrook, G. Avery, H. Shafer, and B. Meissner
2012 *Trade and Cultural Interaction along El Camino Real de los Tejas During the Spanish Colonial and Republic Periods in Nacogdoches County, Texas*. 2 Vols. Nine Flags Museum, Nacogdoches.

Jelks, E. B. (editor)
1967 The Gilbert Site: A Norteno Focus Site in Northeastern Texas. *Bulletin of the Texas Archeological Society* 37:1-248.

Johnson, L., Jr.
1957 Appraisal of the Archeological Resources of Iron Bridge Reservoir, Hunt, Rains, and Van Zandt Counties, Texas. National Park Service Mimeographed report.
1962 The Yarbrough and Miller Sites of Northeastern Texas, with a Preliminary Definition of the LaHarpe Aspect. *Bulletin of the Texas Archeological Society* 32:141-284.

Johnson, L., Jr. and E. B. Jelks
1958 The Tawakoni-Yscani Village, 1760: A Study in Archeological Site Identification. *Texas Journal of Sciences* 10:405-422.

Keith, D. H., with contributions by K. Smith
2017 Iron and Lead Shot. In *La Belle: The Archaeology of a Seventeenth-Century Ship of New World Colonization*, edited by J. E. Bruseth, A. A. Borgens, B. M. Jones, and E. D. Ray, pp. 459-479. Texas A&M University Press, College Station.

Kenmotsu, N. A.
1992 The Mayhew Site: A Possible Hasinai Farmstead, Nacogdoches County, Texas. *Bulletin of the Texas Archeological Society* 63:135-173.

Kidd, K. E. and M. A. Kidd
1970 *A Classification System for Glass Beads for the Use of Field Archaeologists*. Canadian Historic Sites: Occasional Papers in Archaeology and History, No. 1:45-89. National Historic Sites Service, National and Historic Parks Branch,

Leith, L.
2014 Towards a Common Understanding: A Revision of Fourche Maline Chronology in Oklahoma. *Caddo Archeology Journal* 24:5-28.

Lewis, G. A.
1987 The Clements Brothers' Farm Site (41CS25). Master's thesis, Department of Anthropology, The University of Texas at Austin.

Lohse, J. C., S. L. Black, and L. M. Cholak
2014 Toward an Improved Archaic Radiocarbon Chronology for Central Texas. *Bulletin of the Texas Archeological Society* 85:251-279.

Malone, J. M.
1972 *Archaeological Reconnaissance at Proposed Mineola Reservoir*. Archeological Survey Report No. 10. Texas Historical Survey Committee, Austin.

Miroir, M. P., R. K. Harris, J. C. Blaine, and J. McVay
1973 Benard de la Harpe and the Nassonite Post. *Bulletin of the Texas Archeological Society* 44:113-167.

Perttula, T. K.
1993 Glass Trade Beads from a Coushatta Indian Site in Northwestern Louisiana. *The Bead Forum*, No. 22:13-16.

2012 Analysis of Ceramic Sherds from the Mid-18th Century Gilbert Site on Lake Fork Creek, Rains County, Texas. *Journal of Northeast Texas Archaeology* 37:1-22.

2016 The Archaeology of the Archaic Periods in East Texas. *Journal of Northeast Texas Archaeology* 62:61-89.

Perttula, T. K. and M. D. Glascock
2017 Glass Beads. In *La Belle: The Archaeology of a Seventeenth-Century Ship of New World Colonization*, edited by J. E. Bruseth, A. A. Borgens, B. M. Jones, and E. D. Ray, pp. 509-530. Texas A&M University Press, College Station.

Perttula, T. K. and R. Richey
2017 The Robert Richey Site in Northern Van Zandt County, Texas. *Journal of Northeast Texas Archaeology* 75:107-110.

Perttula, T. K. and R. Z. Selden, Jr.
2014 Glass Beads from Kinsloe Focus Sites in Gregg, Harrison, and Rusk Counties, Texas. *Journal of Northeast Texas Archaeology* 44:51-73.

Perttula, T. K., T. E. Emerson, and R. E. Hughes
2004 41HO64/41HO65, Late 17th to Early 18th Century Caddo Sites on San Pedro Creek in Houston County, Texas. *Bulletin of the Texas Archeological Society* 75:85-103.

Perttula, T. K., B. D. Skiles, and J. A. Sitters
2017 41VN63: A Late Archaic-Woodland Period Site in the Upper Sabine River Basin, Van Zandt County, Texas. *Journal of Northeast Texas Archaeology* 75:79-82.

Ricklis, R. A.
1994 *Aboriginal Life and Culture on the Upper Texas Coast: Archaeology at the Mitchell Ridge Site, 41GV66, Galveston Island*. Coastal Archaeological Research, Inc., Corpus Christi.

Schambach, F. F.
1982 An Outline of Fourche Maline Culture in Southwest Arkansas. In *Arkansas Archeology in Review*, edited by N. L. Trubowitz and M. D. Jeter, pp. 132-197. Research Series No. 15. Arkansas Archeological Survey, Fayetteville.

1996 The Womack, Gilbert and Pearson Sites: Early Eighteenth Century Tunican Entrepots in Northeast Texas? *Caddoan Archeology* 7(3):9-31.

Shafer, H. J. and M. Walters
2010 The Browning Site (41SM195A) Lithics: Considering Patterns of Identity and Interaction through Lithic Analysis. *Bulletin of the Texas Archeological Society* 81:127-151.

Shafer, H. J., J. E. Dockall, D. W. Owsley, and T. S. Ellzey
1994 The Canyon Creek Site (41OC13): A Component of the Southern Plains Equestrian Nomad Archeological Complex. *Bulletin of the Texas Archeological Society* 62:285-333.

Smith, J. E., III, with contributions by J. C. Blaine, K. Gilmore, R. K. Harris, and I. M. Harris
1993 The Vinson Site (41LT1): A Norteno Focus Indian Village in Limestone County, Texas. *Bulletin of the Texas Archeological Society* 64:65-162.

Smith, M. T.
1983 Chronology from Glass Beads: The Spanish Period in the Southeast, c. A.D. 1513-1670. In *Proceedings of the 1982 Glass Trade Bead Conference*, edited by C. F. Hayes III, pp. 147-158. Research Records No. 16. Rochester Museum & Science Center, Rochester, New York.

1987 *Archaeology of Aboriginal Culture Change in the Interior Southeast: Depopulation during the Early Historic Period*. University Presses of Florida, Gainesville.

1990 Glass Beads from the Goldsmith Oliver 2 Site. In *Goldsmith Oliver 2 (3PU306): A Protohistoric Archeological Site near Little Rock, Arkansas*, by M. D. Jeter, K. H. Cande, and J. J. Mintz, pp. 217-223. AAS Project Nos. 631 and 656 Report. Arkansas Archeological Survey, Fayetteville.

2002 Eighteenth-Century Glass Beads in the French Colonial Trade. *Historical Archaeology* 36(1):55-61.

Stephenson, R. L.
1970 Archeological Investigations in the Whitney Reservoir Area, Central Texas. *Bulletin of the Texas Archeological Society* 41:37-286.

Story, D. A.
1985 The Walton Site: An Historic Burial in McLennan County, Texas. *Central Texas Archeologist* 10:66-96.

Story, D. A., B. Barber, E. Cobb, H. Cobb, R. Coleman, K. Gilmore, R. K. Harris, and N. Hoffrichter
1967 Pottery Vessels. In The Gilbert Site: A Norteno Focus Site in Northeast Texas, edited by E. B. Jelks. *Bulletin of the Texas Archeological Society* 37:112-187.

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.

Turner, E. S., T. R. Hester, and R. L. McReynolds
2011 *Stone Artifacts of Texas Indians*. Taylor Trade Publishing, Lanham, Maryland.

Walthall, J. A.
2015 Seventeenth-Century Glass Trade Beads from La Salle's Fort St. Louis and the Grand Village of the Kaskaskia. *Midcontinental Journal of Archaeology* 40(3):257-281.