Archeological Investigations at the Pilgrim's Pride Site (41CP304), a Titus Phase Community in the Big Cypress Creek Basin, Camp County, Texas

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Report of Investigations No. 30, Volume I

April 2005

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Acknowledgments

This work could not have been completed without the support and approval of several individuals at the Pilgrim's Pride Corporation in Pittsburg, Texas, namely Lonnie "Bo" Pilgrim, Mr. Eddie Brewer, Robert Bynum, and Mark McKinney. Both Mr. Pilgrim and Mr. Brewer were instrumental in bringing us into the project, and in encouraging us to complete the archeological work (with a tight time schedule and much controversy) in the best ways we knew how. Mr. Bynum and Mr. McKinney made the arrangements to provide us with as much heavy equipment, and operators to run them, as we needed to cover such a large site as the Pilgrim's Pride site. The oversight of all these individuals of the project through its various permutations, and over the course of several years, is much appreciated.

Dr. Jack Keller made available his field notes, project field records, and other documentation from the first part of the archeological investigations at the Pilgrim's Pride site by Horizon Environmental Services, and we appreciate his assistance in this regard. Dr. Keller also answered any of the questions we had about the records and field notes.

During the field work, I served as Principal Investigator. Project Archeologists included Bo Nelson, James Briscoe, and Russ Brownlow, and each contributed significantly to the successful completion of the project. The hard-working crew members who were there the whole time were Mark Walters, Melinda Tate, Bobby Gonzalez, and Lance Lamb. Others that pitched in included Stacy Halfmoon, Abraham Pedro, Derek Edmonds, and Brien Haumpo of the Caddo Nation of Oklahoma, Robert L. Turner, Jr., and Chris Kugler. I thank each of them for a job well done. Stacy, along with Robert Cast, helped coordinate the consultation with the Caddo Nation of Oklahoma concerning the study of the human remains found at the site during our work, including our efforts to directly date the remains. Dr. Tom Middlebrook and Patti Haskins also volunteered some of their time to help in the documentation and excavation of features in the residential areas. In addition to helping out with the excavation of several features at the site, Bob Turner graciously allowed us to examine his collections from the Horton (41CP20) and Shelby Mound (41CP71) sites as part of our analyses, including important plant and animal remains from the Shelby Mound, and gave us permission to submit several sherds from both sites for instrumental neutron activation analysis (INAA).

Consultants on the project were Steve Tomka (lithic artifacts), J. Phil Dering (paleobotanical remains), LeeAnna Schniebs (faunal remains), and Diane E. Wilson (human remains), as well as Hector Neff, James Cogswell, and Mike Glascock (INAA study of ceramic sherds). Each contributed their expertise to the study and interpretation of these remains, and I am grateful for their willingness to work on the project with us. Melinda Tate helped considerably with the analysis of the decorated sherds from the site, particularly in the sorting of the sherds by decorative element.

The overall appearance of the report has been much enhanced by the many excellent figures and maps prepared for this project by Sandra Hannum. Nancy Reese also provided all of the ceramic vessel drawings

and many of the drawings of stone tools illustrated in the report, and Mr. Tim Gibbs also lent his hand in providing a number of the artifact illustrations in Chapters 5 and 6.

Finally, I would like to thank Wilson C. Daingkau, then of the Caddo Nation's Heritage Museum (Binger, Oklahoma), for taking many of the vessel photographs included in this report, and I very much appreciate the efforts of Robert Cast, the Caddo Nation's Tribal Historic Preservation Officer, and Bobby Gonzalez, NAGPRA Director for the Caddo Nation, for taking care of the arrangements to complete this work, as well as the completion of the artifact curation project of the extensive artifact collection from the Pilgrim's Pride site.

Timothy K. Perttula,
November 2004

Abstract

The Pilgrim's Pride site (41CP304) is an important prehistoric Caddo archeological site in the Big Cypress Creek valley in Camp County, Texas, being situated in the Pineywoods of northeastern Texas. The site was first identified in 1998 during an archeological survey for a proposed Pilgrim's Pride poultry processing plant in their several thousand acre Walker Creek complex. The size and apparent complexity of the Pilgrim's Pride site were evident even then, as midden deposits and large numbers of artifacts covered approximately 12 acres of a prominent upland landform overlooking the Big Cypress Creek valley. It was apparently the most prominent aboriginal Caddo site in the immediate area and for several miles both upstream and downstream from it.

It became apparent that the Pilgrim's Pride site would be adversely effected by proposed construction activities associated with the development of the Pilgrim's Pride poultry processing plant, as it was not possible to move the proposed plant facilities to minimize the construction activities. That determination under Section 106 of the National Historic Preservation Act launched the archeological investigations that have been reported on in this 2 volume report. The archeological work was started by Horizon Environmental Services, Inc. (Horizon), and then, at the request of the Pilgrim's Pride Corporation, Archeological and Environmental Consultants (now Archeological & Environmental Consultants, LLC) was brought on board to work on the project in the fall of 1998. We completed, in the winter and early spring of 1999, the extensive excavations of the Pilgrim's Pride site initiated by Horizon. Our work focused primarily on the large-scale use of heavy machinery (small bulldozers, backhoes, and front-end loaders) of domestic and mortuary areas in the large Titus phase (ca. A.D. 1430-1600) village component. As an adjunct, limited investigations were undertaken in a suspicious rise at the northern end of the village, and this work indicated that the rise was in fact an earthen mound built over a Titus phase structure that had been burned and partially dismantled before it was buried by 2-3 ft. of sand fill. That mound (in Area VII) has now been set aside and preserved by the Pilgrim's Pride Corporation within the Walker Creek complex.

During our archeological investigations at the Pilgrim's Pride site, several members of the crew were Caddo Nation of Oklahoma members, and they were part of all aspects of the work, including identifying and excavating features in domestic areas as well as excavating and recording Caddo burial features in the Area V/VI cemetery. We also worked closely with the Historic Preservation Program at the Caddo Nation during the course of the project, and developed strong working relationships with the Caddo Nation.

The prehistoric Caddo occupation at the Pilgrim's Pride site began during the latter part of the Mississippi period, around A.D. 1400. These Caddo peoples were contemporaneous with various Plaquemine, Middle Mississippian, and South Appalachian aboriginal groups living across eastern North America, and they were a strong and powerful group of peoples. They were farmers, as were other Mississippian groups, living in dispersed communities, and they were active traders, as we know from the wide distribution outside the Caddoan area of decorated Titus phase pottery. The Titus phase Caddo groups in the Big Cypress Creek basin were perhaps the most populous and socially complex of the many Caddo societies

living in Texas at that time, and they were the westernmost aboriginal group that was socio-politically akin to middle and late Mississippian polities in the broader southeastern U.S. region.

The Titus phase Caddo communities in the heartland of the Big Cypress Creek basin were experiencing rapid and sustained population growth during times of fluctuating climatic conditions in the 15th and 16th centuries. These dynamic farming communities dealt with climatic and subsistence stresses by effecting new means of holding their societies together, boldly coming together into several stronger communities centered around the establishment of larger mound centers and villages at key nexuses in the Big Cypress Creek basin.

The Pilgrim's Pride site is one of these newly created larger and community-centered Caddo mound and village settlements, places where the most important and life-giving ceremonies, rituals, and decisions were made by the social and political elite that guided and organized the changing Titus phase societies living along Big Cypress Creek. Smaller farming households were dispersed for several miles around the Pilgrim's Pride site. Life here was organized around the rhythm of planting and harvesting the cultivated plants, men hunting large game, the rituals and ceremonies of the seasons, and daily life in the household and village settlements. At the Pilgrim's Pride site, the village in Areas I, II, III, VIII, and IX is marked by the posthole-marked remnants of domestic structures, midden deposits, and large clusters of outdoor pits used in the cooking and processing of food stuffs, as well as the broken and discarded pieces of fine ware and utility ware ceramics, chipped stone tools, and fragments of wood-working tools.

When their life's race was run, the Titus phase Caddo peoples that had lived at the Pilgrim's Pride site were laid to rest in a sacred cemetery plot (in Area V/VI) that had been set up and maintained for at least 2 generations in an area directly opposite from the Area VII mound (the seat of political authority in the village) and at some distance (both symbolically and in life) from the domestic compounds. Caddo children that died at a young age were kept close to the living, as they were buried beneath and/or near the household they had probably been born and raised in. The deceased men, women, and children were buried in moving ceremonies that lasted several days, and they were accompanied by various offerings placed in the graves that were meant to help them in their journeys to the afterlife.

Change came again to the Caddo peoples living in the Big Cypress Creek basin when a few European explorers and colonizers came to the area periodically in the 16th and 17th centuries. If Europeans were ever at the Pilgrim's Pride site while it was occupied by the Titus phase Caddo (ca. A.D. 1430-1600), they left no obvious traces. When the more permanent European settlement of the Big Cypress Creek country began in the early 19th century, the Caddo had left this part of northeastern Texas some years before, and the Pilgrim's Pride site was seemingly forgotten. But, through the actions and investigations of a dedicated group of archeologists, businessmen, State and Federal agencies, and the Caddo peoples themselves, the proud history of the Caddo peoples at that time and place has come alive again.

Chapter 1

Introduction and History of the Walker Creek Complex Project Archeological Investigations

Timothy K. Perttula

This report presents the results and findings of the excavation of the Pilgrim's Pride site (41CP304), a large prehistoric Caddo Indian site within the proposed Walker Creek project to be built by the Pilgrim's Pride Corporation in Camp County, Texas (Figure 1-1); the project area actually extends into adjoining Titus County, but all the work reported on herein took place in Camp County. Of particular archeological significance is the evidence of a substantial Late Caddoan period, Titus phase (ca. A.D. 1430-1600) occupation at the Pilgrim's Pride site, including several structures, hundreds of features, an earthen mound built over a burned structure, and a large cemetery. Much of the report that follows will discuss in detail these archeological findings, along with the evidence of earlier prehistoric use of the site.

The Pilgrim's Pride Walker Creek project consists of a poultry processing plant, a rendering plant, a hatchery, a wastewater treatment plant, a 5 acre surface water impoundment, and a series of access roads (Perttula and Nelson 1998a: Figure 2) on a ca. 3200 acre tract of property owned by the Pilgrim's Pride Corporation between Mt. Pleasant, Texas, and Pittsburg, Texas, and east of U.S. Highway 271 (see Figure 1-1). The project is situated on upland landforms to the north of Walkers Creek, an eastward-flowing tributary to Big Cypress Creek, and the current channel of Big Cypress Creek lies about 2 km to the east of the site itself.

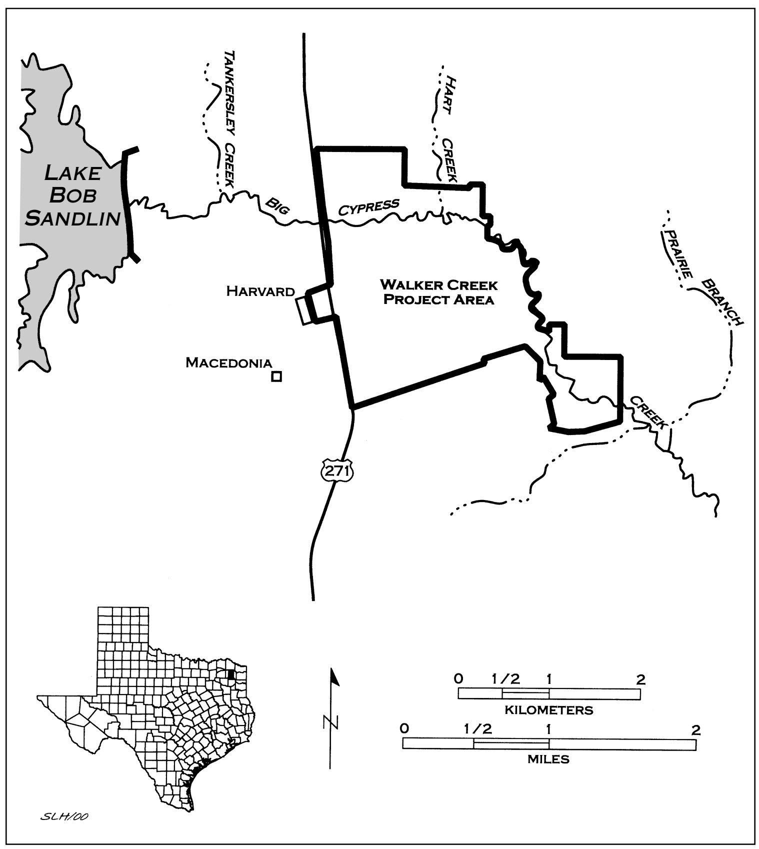


Figure 1-1. General Location Map, Walker Creek project, Camp County, Texas.

Archeological investigations in the Walker Creek project area began in August 1998 at the request of the Pilgrim's Pride Corporation, at which time the Pilgrim's Pride site was first identified (Perttula and

Nelson 1998a). The survey was begun by Horizon Environmental Services, Inc., after Pilgrim's Pride had initiated land clearing and road construction within the project area. Because the proposed industrial construction for the project exceeded 5 acres, the Walker Creek project was required to obtain a Section 402 storm water discharge permit from the Environmental Protection Agency (EPA). Consequently, this proposed undertaking came under the purview of Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations (36 CFR Part 800). The Notice of Intent (NOI) submitted by Pilgrim's Pride Corporation for the Walker Creek project stormwater permit covered 286 acres (see Perttula and Nelson 1998a:Figure 2), and included the various facilities and access road construction areas mentioned above.

In October 1998, the Pilgrim's Pride site was investigated by Keller (1998) to determine its research potential and eligibility for inclusion in the National Register of Historic Places. That work by Keller included extensive heavy machinery work and hand excavations in several parts of the site (Figure 1-2).

Figure 1-2. Aerial overview of the Pilgrim's Pride site, with access roads encircling the site, and trenches and road grader scrapes excavated by Keller visible throughout the site.

These archeological investigations were sufficient for the Archeology Division of the Texas Historical Commission (THC) to determine that the site was eligible for inclusion in the National Register of Historic Places, and for them to recommend the development and implementation of a data recovery plan to mitigate the adverse effects of rendering plant construction on the site since the Pilgrim's Pride site could not be avoided during that construction; in fact, construction plans called for its complete destruction. Following the development of the data recovery plan by Archeological & Environmental Consultants (see below; the company is now known as Archeological & Environmental Consultants, LLC) and the signing of an agreement between Pilgrim's Pride Corporation and the THC under EPA's storm water discharge program (see Appendix XVII, Volume II), the extensive data recovery investigations at the Pilgrim's Pride site were completed by Archeological & Environmental Consultants, of Austin, Texas, between January 1999 and April 1999. Dr. Timothy K. Perttula served as Principal Investigator, and James E. Briscoe, Russ Brownlow, and Bo Nelson served as Project Archeologists for different aspects of the work.

In addition to the data recovery investigations at the Pilgrim's Pride site, other relevant archeological work has also been completed in the Walker Creek complex for the Pilgrim's Pride Corporation. This includes additional survey and shovel testing within the NOI area of potential effects (Perttula and Nelson 1999a), test excavations at two Titus phase sites (41CP314 and 41CP317) near the Pilgrim's Pride site (Perttula and Nelson 1999b), survey of proposed injection well pads and pipeline right-of-way near the rendering plant (Perttula et al. 1999a), survey of 300+ acres for a proposed housing complex west of the Pilgrim's Pride site (Perttula et al. 1999b), and archeological survey of 62+ acres for a proposed refrigeration unit west of the housing complex (Perttula and Nelson 1999c) and immediately south of a 90 acre archeological survey completed by Geo-Marine, Inc. in 1996 (Hunt et al. 1996) that contained the Titus phase Horton site cemetery (41CP20).

RESEARCH DESIGN

The Pilgrim's Pride site is primarily a prehistoric Caddo Indian archeological property determined by the Texas State Historic Preservation Office (TXSHPO) at the THC as being eligible for inclusion in the National Register of Historic Places (NRHP) under criteria D of 36 CFR 60.4; it may also be eligible for the NRHP under criteria A and C, although no such determination was made by either the THC or EPA. The development of the Walker Creek Project by Pilgrim's Pride will have an adverse effect on the Pilgrim's Pride site, and the implementation of this research design and data recovery plan was agreed upon between parties to the Agreement to constitute mitigation of the adverse effects of the undertaking on this historic property (see Appendix XVII, Volume II).

I first discuss previous investigations at the Pilgrim's Pride site, reviewing in particular the character of the Late Caddo Titus phase archeological deposits, because this component was the focus of the data recovery efforts. Next, I review pertinent research issues and problems that can be better understood because of the investigations at the Pilgrim's Pride site. The research issues and problems are framed to follow the Historic Context "The Development of Agriculture in Northeast Texas before A.D. 1600" (Perttula 1993) developed by the TXSHPO as part of the regional preservation plan for archeological resources in the Northeast Texas archeological region (Kenmotsu and Perttula 1993). I conclude the Data Recovery Plan with a discussion of the involvement of the Caddo Tribe of Oklahoma (now the Caddo Nation of Oklahoma) in the data recovery investigations; the proposed field methodology and treatment of human remains and grave goods; methods of analysis and data management; disposition of recovered artifacts, materials, and records from the project; proposed methods for disseminating the results of the work to the interested public; and preparation of the final report.

The Pilgrim's Pride Site and Previous Investigations

The Pilgrim's Pride site (41CP304) is a large Archaic and Late Caddoan period Titus phase site on the crest of a projecting upland landform overlooking, and 18 m above, the Big Cypress Creek floodplain to the east and the Walkers Creek floodplain to the south. From surface and subsurface shovel testing, hand excavations, and mechanical excavation investigations conducted between August 1998 and November 1998 (Perttula and Nelson 1998a:27-37; Keller 1998) by Horizon Environmental Services, Inc., the Pilgrim's Pride site covers approximately 12 acres, all within the proposed rendering plant area to be constructed by Pilgrim's Pride (Figure 1-3).

The site is marked by several concentrations of ceramic sherds, midden deposits, and various features (including burials) from the Late Caddo Titus phase component, along with at least one area (Area I) with a significant amount of Middle-Late Archaic tools, lithic debris, and fire-cracked rock (see Figure 1-3). No features of Middle-Late Archaic age have been identified at the Pilgrim's Pride site, however, and it is doubtful that intact archeological deposits or features of Archaic age remain preserved on the stable upland landform because of long-term destructive pedogenic processes. Consequently, the focus of the proposed data recovery investigations is the Late Caddo Titus phase component. The initial analysis of the decorated sherds from the Pilgrim's Pride site suggests it was occupied during the 15th and 16th centuries (Perttula and Nelson 1998a:30, 1998b:4). As part of the archeological investigations reported on below, this temporal estimate has been refined following the completion of the ceramic analyses of the test excavations and the proposed data recovery assemblages, along with the analysis of radiocarbon and Oxidizable Carbon Ratio (OCR) dates from features (see Chapter 5, 6, and 8, this volume).

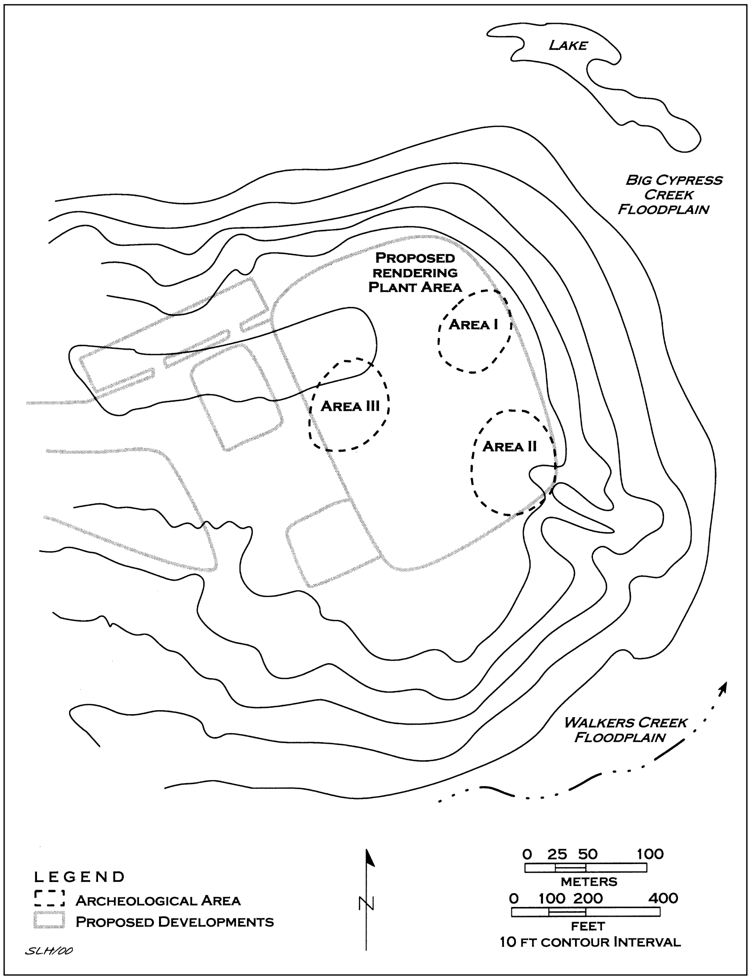


Figure 1-3. The Pilgrim's Pride Site. Areas I-III were identified during the survey of the site as containing large amounts of Titus phase cultural materials.

From the available archeological evidence at the beginning of the data recovery investigations, the Titus phase component at the Pilgrim's Pride site consists of residential areas (individual farmsteads or parts of a hamlet) with children and adult burials, midden deposits, and pit and post features. Although no structures were identified during the test excavations reported by Keller (1998), the presence of probable child burials (usually placed in sub-floor pits), middens, and postholes strongly indicate that such features were constructed on the site; post-holes and pits from such structures were expected to be encountered during the data recovery heavy machinery stripping. Given the extent of the Titus phase deposits at the Pilgrim's Pride site, it appears to represent a *large settlement* (Thurmond 1990), namely a village and nexus of a political community (see discussion in Chapter 11, this volume). The burials appear to be widely scattered over at least a 100 x 120 meter area on the site in areas I, II, III, and IV slated for heavy machinery investigations (Figure 1-4). It is known that midden deposits are present in areas II and III, and possibly in area I, and various non-burial features have been reported by Keller (1998) from proposed heavy machinery areas I, III, and IV. The only known features from area II includes the vessel clusters from features 4 and 6 defined by Keller (1998; see also Perttula and Nelson 1998b), and only one exploratory trench was examined by Keller (1998) in proposed heavy machinery area V.

Research Issues

There are two principal research issues concerning the archeology of the Titus phase use of the Pilgrim's Pride site that our investigations will focus on: (1) establishing the settlement configuration of the Caddo community at the Pilgrim's Pride site; and (2) investigating the mortuary practices used by these prehistoric Caddo peoples. These are selected because the Pilgrim's Pride site is a habitation locale with associated burials and burial furniture, and the important information the site contains on these research issues will contribute to a better understanding of several of the study units proposed in the Historic Context on "The Development of Agriculture in Northeast Texas before A.D. 1600" (Perttula

1993: 137-141). In particular, our investigations are designed to obtain extensive information on the character of Titus phase residential compounds: the evidence of structures; the cemeteries and graves where the dead were buried; the middens where the animal and plant food refuse was discarded; and the material remains of tools and ceramics used in the procurement and processing of wild plant and animal foods and cultivated plants (i.e., maize, beans, and squash).

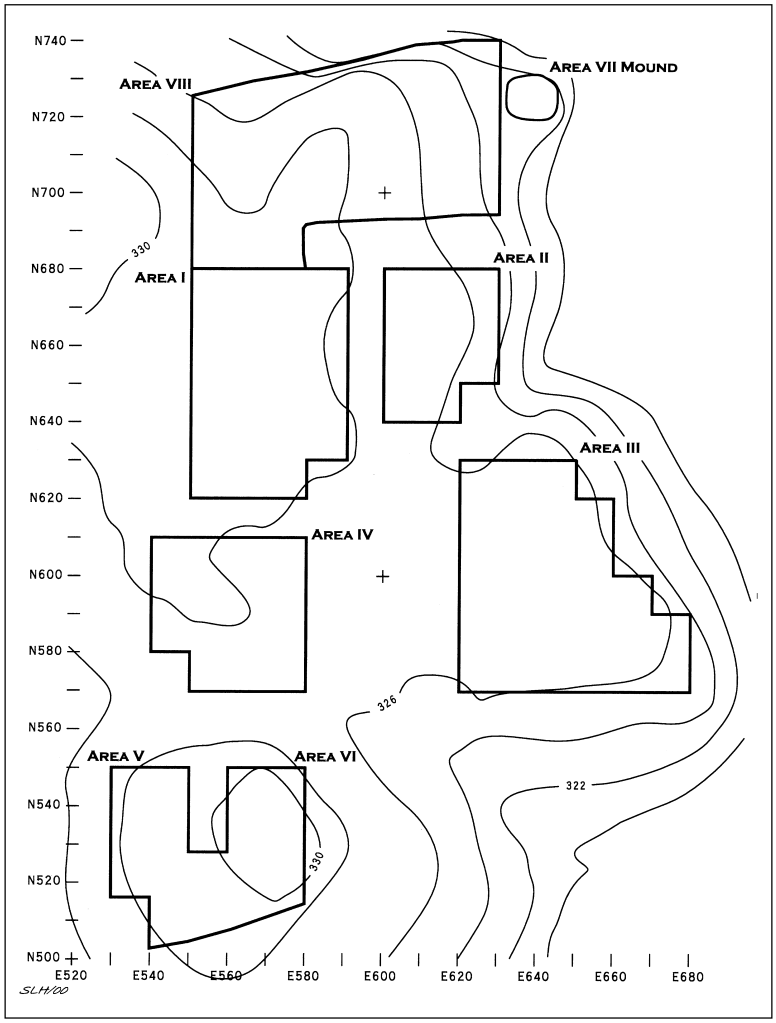


Figure 1-4. Proposed Heavy Machinery Areas at the Pilgrim's Pride Site (41CP304).

Settlement Configuration

While it is the case that the majority of the known Late Caddo archeological sites are small, intact, settlements of farmsteads and hamlets with associated family cemeteries (cf. Story 1990:338-339), few Titus phase residential sites have been investigated to ascertain their character (Perttula 1998c:76-77). This is unfortunate because the individual Caddo household and hamlet are "the most fundamental building blocks of the Caddoan settlement system" (Story 1990:336). To understand these building blocks, from the perspective of how a single Titus phase residential site was internally organized, extensive large-scale excavations, such as we propose below, are essential (see Perttula 1993:136); recent extensive investigations at a Titus phase settlement have now been reported by Sherman et al. (2002) and Parsons (1998).

We know that the residential sites of the Titus phase Caddo populations were occupied by sedentary populations, probably for 1-2 generations, and comprised dispersed communities along Big Cypress Bayou and its tributaries. The communities appear to have consisted of groups of households in small and large settlements that shared decision-making and frequently interacted socially. The settlements were probably composed of one to several family units or households, with house middens/daub concentrations, trash middens, and family cemeteries near the households. The heavy machinery stripping investigations we propose are designed to identify individual households and their associated activity areas, both within and outside of structures. Structures will be recognized by circular patterns of postholes and interior support posts, probably a central hearth, along with possible interior benches and racks for sleeping and above-ground storage purposes. We expect that there were other activities besides trash disposal that occurred outside the houses, including work and cooking areas, ramadas, and above-ground granaries that may be marked by trash-filled pits, hearths, and posts.

The distribution of such features will be used to define individual households. In conjunction with the detailed stylistic analysis of ceramic decorative elements designed to isolate contemporaneous or sequent households in the large settlement, and the absolute dates from features, these data bases will be employed to determine the age and intra-site chronological relationships of components and ceramic assemblages at the site, the occupational history of the site during the Titus phase as reconstructed from ceramic stylistic analyses and feature patterning; and structure/feature relationships and community patterns through time. In essence, what the analyses are directed towards is establishing whether the Titus phase settlement at the Pilgrim's Pride site is one large contemporaneous and permanent settlement of several functionally equivalent households, or is instead comprised of a more complex mixture or related and/or unrelated households occupying an upland landform over several generations.

Mortuary Practices

The study of Titus phase mortuary practices has the potential to contribute important information on the social differences that existed among these prehistoric Caddo populations. In particular, the examination of the complexity of mortuary behaviors (i.e., the energy invested in the mortuary rituals, the amounts of grave goods placed with the dead, the kinds of grave goods placed with the dead, and the locale where the dead were buried) in family and community cemeteries indicates that the mortuary treatment of the elite and non-elite in Titus phase times was quite diverse (Perttula and Nelson 1998c:381-392; Rogers et al. 2003).

The recent analysis of more than 116 Titus phase cemeteries in the Big Cypress Creek, Sabine River, and Sulphur River drainages indicates that they are not uniformly distributed across the basins; the sizes of cemeteries and burial grounds vary considerably by stream drainage; and the cemeteries are not uniformly concentrated on particular stream drainages (Perttula and Nelson 1998c:358). In the Titus phase heartland—roughly the area of Big Cypress Creek between the confluence of Little and Big Cypress creeks to the southeast and the confluence of Brushy Creek and Big Cypress Creek to the west (Perttula and Nelson 1998c: Figure 159)—Titus phase cemeteries (including family cemeteries and large community cemeteries) are much more prevalent along eastward-flowing tributaries of Big Cypress Creek (such as Walkers Creek, Dry Creek, and Greasy Creek in Camp County) than they are on Big Cypress Creek itself. This probably reflects the overall density of Titus phase populations across the Titus phase heartland. From these data, then, we have every reason to expect that family and community cemeteries from a relatively dense Titus phase population will be present along Walkers Creek, and that cemeteries are present at the Pilgrim's Pride site.

If Titus phase burials and cemeteries are identified at the Pilgrim's Pride site during the data recovery effort, our first concern will be to document the number of individual interments and whether they can be associated with individual households, the kinds of grave goods associated with the interments and the energy invested in burial (i.e., shaft tombs versus individual extended grave pits), the sex and age of the individuals should human remains be preserved, and the boundaries and orientation of formal cemetery areas. From this information, we can examine the social hierarchical character of the households within the settlement, as well as within the larger community, by comparisons with other Titus phase family and community cemeteries (see Thurmond 1990; Turner 1992; Perttula and Nelson 1998c; Perttula 2000). The detailed examination of ceramic styles and Ripley Engraved rim motifs on the vessels placed as grave goods will also provide sufficient information to establish the broader social affiliations of the Pilgrim's Pride site households.

If the burials at Pilgrim's Pride represent interments in family cemeteries or a single large family cemetery, then we expect to recover evidence of 10-30 individual interments from family groups—both male and female, as well as juvenile and child burials—with comparable quantities and kinds of grave goods, usually an assortment of whole vessels, along with pipes and ground stone celts in the graves of adult men. Community cemeteries will have more than 70-100 burials, as they are the products of interments from a number of communities in the vicinity, and they must reflect a wider community-based participation in ceremonial and mortuary activities (see Story 1990:338-339). The community cemeteries, on the other hand, will not only have larger numbers of interments, but they will contain the burials of the social elite in the community, typically adult males (Perttula and Nelson 1998c:381; Thurmond 1990). If there are probable high-status Titus phase burials at the Pilgrim's Pride site, they ought to include one of the following, based on the 18 known Titus phase cemeteries (Perttula and Nelson 1998c:Figure 158) with presumed high status burials: burial in a shaft tomb; burial in a mound; burials with large chipped Galt bifaces or knives (and possible ear spools?); individual extended supine burials with large quantities of grave goods, especially quivers of arrow points; and double extended supine burials with quantities of grave goods, particularly ceramic vessels.

Involvement of the Caddo Nation of Oklahoma

Members of the Caddo Indian Tribe of Oklahoma (hereafter, the Caddo Nation) specifically from the Historic Preservation Office and the Native American Graves Protection and Repatriation Act Office, will be involved in all aspects of the proposed field investigations and laboratory analyses of the Pilgrim's Pride site. In particular, tribal members will participate in excavations and monitoring efforts as members of the archeological team, and will assist the Principal Investigator in the analysis of the grave goods from excavated burial features. We also propose to invite Mr. Vernon Hunter, Tribal Chairman, the Tribal Council, and members of the Tribe's Repatriation Committee to visit the site when investigations are on-going, and we intend to present a verbal report of our findings to a meeting of the Tribal Council shortly after the conclusion of the field work.

Proposed Treatment of Human Remains and Grave Goods

Based on the acidic fine sandy loam soils at the Pilgrim's Pride site, it is doubtful that any human skeletal remains will be well preserved, if preserved at all, in grave pits. Rather, the Titus phase Caddo burials will be marked by clusters of pottery vessels and other artifacts (i.e., ground stone celts, caches of arrow points) that represent deliberately placed grave goods. Previous investigations of the distribution of vessels and vessel sections (Perttula and Nelson 1998b) at the Pilgrim's Pride site have identified eight different burials, probably children buried in sub-floor pits within house structures and adults buried in family cemeteries near house structures.

We expect to encounter additional burials/grave good clusters at the Pilgrim's Pride site during the data recovery. If human remains are preserved, we will rely upon the expertise of a qualified physical anthropologist in collaboration with an archeological team to expose, record, and excavate the remains and any associated grave goods. As part of the excavations of the burial and grave goods, a Caddo Nation tribal member on the field crew will conduct the necessary ceremonies as laid out by the Tribe's Repatriation Committee. The human remains (if any), the grave goods, and any associated sediments will be kept together in a sturdy box during the analysis phase of the project, and these materials will be returned to the Caddo Nation for permanent disposition at the completion of the archeological study.

Proposed Methods for Disseminating Results of the Work to the Interested Public

Copies of the final report will be available under the Freedom of Information Act from EPA so that members of the interested public can purchase them to aid in their understanding of local archeology. As requested, copies will be distributed to local archeological societies, libraries, universities, and other interested persons. Furthermore, the archeological consultant to Pilgrim's Pride will present talks on the archeological investigations at the annual Caddo Conference and East Texas Archeological Conferences; will prepare short summaries of the work for publication in such outlets as *Caddoan Archeology*, *Journal of Northeast Texas Archaeology*, and the Newsletters of the Southeastern Archaeological Conference and the Texas Archeological Society (Perttula 1999a, 1999b) and will post text, graphics, and photographs of the work on their Website (www.caddoarchaeology.com).

Preparation of the Final Report

Upon completion of the draft report of findings, the archeological consultant for Pilgrim's Pride will submit the draft report for 30 day review to the TXSHPO and the Caddo Nation. Upon receipt of comments from these parties, the archeological consultant will address the comments as part of the preparation of the final report. Pilgrim's Pride shall provide 20 copies of the final report of the data recovery investigations to the TXSHPO, 10 copies to the Caddo Nation, and one copy each to the Council and EPA. All final reports will meet, in content and in form, the documentation standards in the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (1983).

CONTENTS OF THE REPORT

The report on the archeological investigations at the Pilgrim's Pride site (41CP304) includes two volumes. The remainder of Volume I, besides this introduction and history of the Walker Creek Complex project, has a discussion of the natural and cultural setting (Chapter 2), and a summary of the field and laboratory methods employed during the course of the project (Chapter 3). Chapters 4 and 5 review the archeological investigations in the different residential areas of the Pilgrim's Pride site and describe the artifact assemblages found there. The archeological investigations in the Titus Phase cemetery in Area V are presented in Chapter 6, and Diane Wilson (Chapter 7) provides a detailed analysis of the Caddo skeletal remains from the Area V cemetery. Chapter 8 concerns the archeological findings in Area VII, where a Titus phase earthen mound was identified and explored during the course of the larger investigations of the Pilgrim's Pride site.

The plant and animal remains recovered from features and middens at the Pilgrim's Pride site are discussed by J. Phil Dering in Chapter 9 and LeeAnna Schniebs in Chapter 10, respectively. Dering also supplements the discussion of the character of the Titus phase plant remains by discussing paleobotanical samples from the contemporaneous 41CP316 and the Shelby site (41CP71). Chapter 11 is a synthesis of the archeology of the Pilgrim's Pride site, focusing particularly on the Late Caddo Titus phase occupation, and Chapter 12 provides an overall summary of the archeological investigations discussed in Volume I.

Volume II includes a number of appendices that support and supplement the technical findings presented in Volume I. Appendix I and II describe limited archeological investigations at two other nearby Titus phase components (41CP313 and 41CP316) that are associated with the Pilgrim's Pride community. Appendix III provides succinct descriptions of the several hundred features excavated at the Pilgrim's Pride site.

Appendix IV and V present the radiocarbon dating forms from the Pilgrim's Pride site and sites 41CP313 and 41CP316, and Appendix VI includes the OCR dating results from these sites as well as nearby 41CP317.

Detailed descriptions and illustrations of the vessels found at the Pilgrim's Pride site are provided in Appendix VII, while inventories of the lithic and ceramic artifacts from test excavations and our data recovery investigations are provided in Appendix VIII-XI, respectively. The chemical data from the University of Missouri Research Reactor instrumental neutron activation analysis of sherds from several Titus phase sites in Camp County, Texas, are included in Appendix XII. The few historic artifacts recovered during the investigations are included in Appendix XIII.

Inventories of paleobotanical (Appendix XIV and XV) and faunal remains (Appendix XVI) are also included in Volume II. Appendix XVII provides the agreement between Pilgrim's Pride Corporation and the Texas Historical Commission concerning the excavations at the Pilgrim's Pride site. Finally, Appendix XVIII is a listing of the lot numbers assigned during the course of the project to all the different intra-site proveniences that contained archeological materials. The lot inventory includes the survey and test investigations completed by Horizon Environmental Services, Inc. and the work done by Archeological & Environmental Consultants.

Chapter 2

Cultural and Natural Setting

Timothy K. Perttula

INTRODUCTION

The Pilgrim's Pride Walker Creek project is in the northeastern portions of Camp County in Northeast Texas (see Figure 1-1). The project is in the Big Cypress Bayou basin. The setting is rolling alluvial terraces and uplands of the West Gulf Coastal Plain (Fenneman 1938), with widely scattered intermittent and/or permanent streams that eventually flow into Big Cypress Bayou. While now mainly second growth pines and hardwoods, this general region was an area of mixed oak woodlands and mixed pine-hardwood forests (Brown et al. 1998; Diamond et al. 1987) referred to as the Post Oak Savannah and Pineywoods or the Southeastern Deciduous and Evergreen Forest (Figure 2-1). Vegetative habitats include hardwoods, cypress, tupelo, and sweetgum in bottomland riverine, marsh, and swamp habitats (see Hardy 1995; Ingold 1995; Hardy and Ingold 1996; Sheffield 1995), particularly along Big Cypress Creek and Walkers Creek.

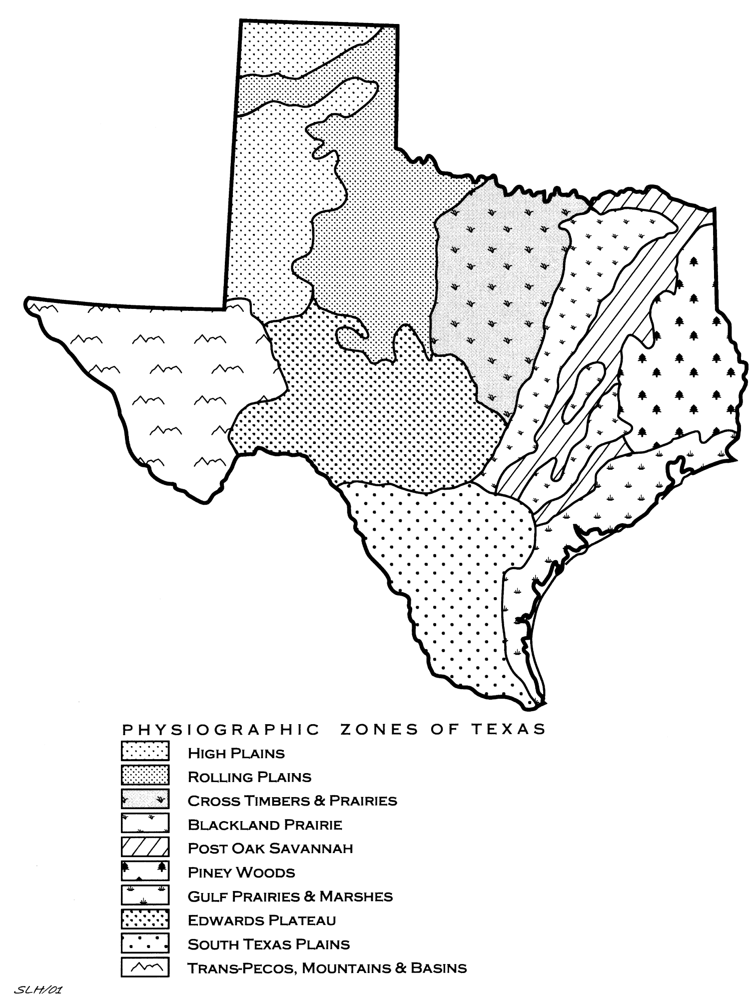


Figure 2-1. Physiographic zones of Texas; the Walkers Creek project lies near the interface of the Pineywoods and Post Oak Savannah.

The Pilgrim's Pride site is located along the modern ecotone between the Pineywoods and the Post Oak Savannah, with the latter lying on sandy loam soils on the north side of Big Cypress Creek (Figure 2-2). The Post Oak

Savannah is a narrow strip of woodlands between the Pineywoods to the east and south, with the Blackland Prairie vegetational region to the west, north (Talco Prairie; see Figure 2-2) and northwest, no closer than 20 km. According to Schmidly (2002:371), the "topography is level to gently rolling and slopes gently from the northwest to the southeast. . . the post oak region can best be described as an ecotone between the eastern deciduous forest and the tall-grass prairie. The area supports a stunted, open forest dotted with small tall-grass prairies. The dominant plants of the overstory are post oak and blackjack oak and to a lesser extent winged elm and black hickory." The Pineywoods have medium-sized to tall broadleaf deciduous forests in more mesic habitats, and shortleaf and loblolly pines are common on upland fine sandy loam soils with adequate moisture. Smaller areas of tall grass prairie may be present in both communities throughout the region (e.g., Jordan 1981:Figure 4.1), particularly in more xeric sandy lands.

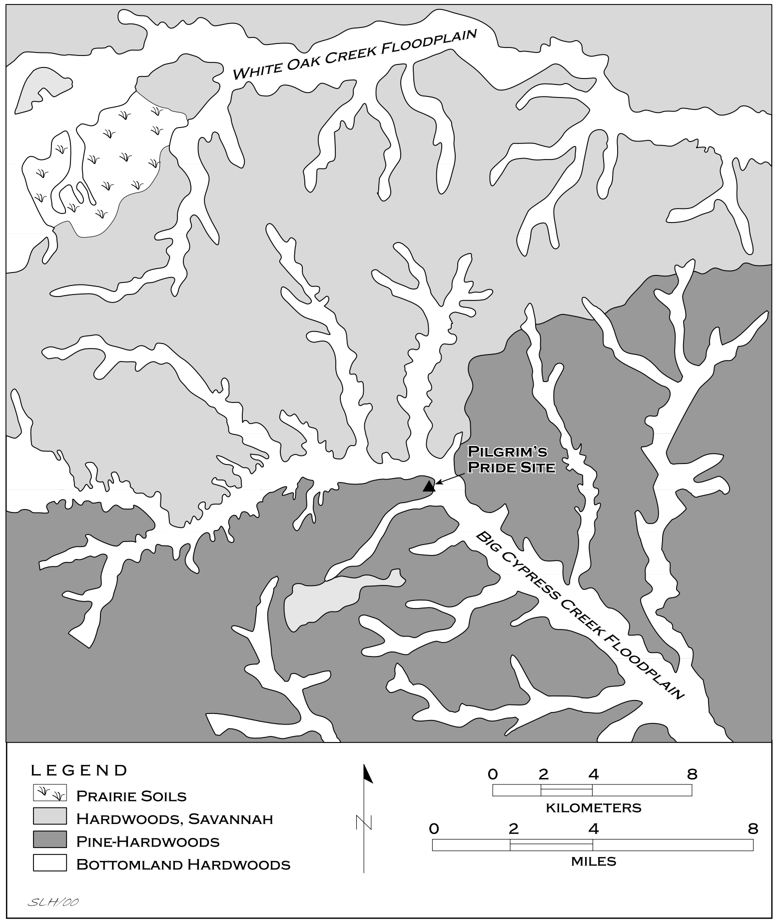


Figure 2-2. Vegetation zones in the vicinity of the Pilgrim's Pride site.

The floodplain of Walkers Creek and Big Cypress Creek and the intermittent tributaries have Quaternary alluvium (Bureau of Economic Geology 1966), and the upland landforms on the north side of Big Cypress Creek, and a narrow strip on the south side, have Eocene-aged Wilcox Group (undivided) silty and sandy clay. According to the Bureau of Economic Geology (1966), the 700+ foot thick Wilcox Group also has local cross-beds of carbonaceous materials (i.e., lignite coal), clay, silt, and quartz sands, and calcareous siltstone and ironstone concretions are common. The Pilgrim's Pride site and the Walker Creek project area primarily sit on the Carrizo Sand formation, with deposits of the Queen City sand and the Reklaw Formation to the immediate south, southwest, and southeast (Bureau of Economic Geology 1966). The Carrizo Sand is a ca. 50 foot thick deposit of quartz sand, with carbonaceous inclusions, and with indurated ledges of ironstone near the top of the formation.

Floodplain and alluvial soils include Estes clay loam along Walkers Creek and Big Cypress Creek, and Nahatche loam-sandy clay loam in the floodplain of both Walkers Creek and smaller intermittent streams (Roberts 1990). Upland soils primarily include Bowie fine sandy loam, 2-5 percent slopes, with smaller amounts of Cuthbert fine sandy loam and Sacul fine sandy loam; the Pilgrim's Pride site is on a patch of Bowie fine sandy loam soil. These soils can be found on upland side and toe slopes, stream divides, and upland ridge tops. The A and E-horizon sediments in the Bowie fine sandy loam are described as typically

30 cm in thickness overlying the sandy clay loam Bt subsoil, with brown, brownish-yellow, light gray, and yellowish-red lens to a depth of ca. 190 cm bs (Roberts 1990). These soils have plinthite nodules as well as hematite and ferruginous sandstone concretions (Roberts 1990:81). The Bowie fine sandy loam soils are relatively fertile and well-drained, with the highest estimated crop and pasture yields of any of the other soil classes in this part of the Big Cypress Creek basin (see Roberts 1990:Table 5).

The Big Cypress Bayou basin of Northeast Texas and northwestern Louisiana includes all of Camp and Marion counties, and portions of Cass, Franklin, Gregg, Harrison, Hopkins, Morris, Titus, Upshur, and Wood counties, in Northeast Texas, and parts of Caddo Parish in northwestern Louisiana. This is an area of more than 2350 square miles. The modern climate is humid subtropical, with warm summers and mild winters, with 43-50 inches of precipitation a year, principally falling in the spring and winter. The average growing season is more than 240 days (Ingold and Hardy 1996). Principal animals and plants in the Big Cypress Creek watershed are listed in Table 2-1.

Table 2-1. Principal Animals and Plants in The Big Cypress Creek Watershed (After Ingold And Hardy 1996).

Animals			
Bigmouth Buffalo	Catfish	Sunfish	Toads and Frogs
Snapping Turtle	Red-eared slider	Mud snake	Southern copperhead
Wood duck	Turkey vulture	Hawk	Great horned owl
Red-bellied woodpecker	Northern cardinal	Opossum	Fox squirrel
Beaver	Raccoon	Bobcat	White-tailed deer
Alligator			
Invertebrates			
Crawfish	Land snail	Mussels	Southern fatmucket
Plants			
Ferns	Shortleaf pine	Bald cypress	Boxelder
Yaupon holly	Giant ragweed	River birch	Spanish moss
Dogwood	Persimmon	Honey locust	Red Oak
Post Oak	Sweetgum	Pecan	Sassafras
Greenbriar	Green ash	Big bluestem	Buttonbush
American elm	Virginia creeper		

MID-19TH CENTURY VEGETATION CONDITIONS

Texas General Land Office (GLO) survey notes from a number of the patented land grant surveys in and around the Walker Creek project area and the middle reaches of the Big Cypress Creek valley in Camp and Titus counties were examined to acquire initial environmental data on the vegetation conditions in this part of the Big Cypress Creek basin in the mid-19th century, before the area was likely to have been extensively cleared and lumbered (Perttula and Nelson 2002:15-16). The 30+ land survey field notes date from 1837-1854.

The predominant overstory trees in this general locale in the mid-19th century were red oak (*Quercus falcata)*, post oak (*Q. stellata)*, blackjack oak (*Q. marilandica*), and various species of hickory (*Carya* sp.), along with sweetgum (*Liquidambar styracliflua*). Pine trees must have only occurred in patches, particularly in Camp County, as they only represent only 0.8 percent (Titus County) to 3.2 percent of the marker trees (Table 2-2). The general composition of the forested landscape on both sides of Big Cypress Creek was an upland woodland of oaks and hickories—with more mesic patches of white oak and red oak—with hardwood forests in the floodplain that comprised willow oak, water oak, overcup oak, maple, sweetgum, ash, elm, and sassafras. There must have been some swampy or marshy, frequently inundated floodplain areas along Big Cypress Creek because of the occurrence of black gum or black tupelo (see Table 2-2). Pine was not a primary constituent in the forest in the mid-19th century, and the pine that did occur (probably shortleaf pine, *Pinus echninata*) probably grew on the drier soils in the forest, likely in patches mixed with blackjack oak and post oak (Bonnicksen 2000:229). The pine that did occur was also likely affected by the frequency and intensity of natural or human-created fires. One 1838 land survey on a large tract of land on the north side of Big Cypress Creek, and west of Tankersley Creek, had a "little prairie." This was probably an area with poorly drained soils that would have had big and little bluestem, switchgrass, and Indiangrass (Marietta and Nixon 1984).

The forest composition in and around the Pilgrim's Pride site in the 1830s-1850s appears to have been greatly influenced by the frequency and timing of Indian-set and lightning-ignited fires (see

Table 2-2. Tree Species Mentioned in General Land Office Records for the Middle Part of The Big Cypress Creek Valley.

Common Name	Species name	Camp County	Titus County
Post oak	Q. stellata	15.9%	19.0%
Blackjack oak	Q. marilandica	19.1%	9.1%
Red oak	Q. falcata	25.5%	33.1%
White oak	Q. alba	1.9%	4.1%
Willow oak	Q. phellos	1.9%	1.6%
Water oak	Q. nigra	2.5%	2.4%
Overcup oak	Q. lyrata	–	0.8%
Hickory	Carya sp.	17.9%	17.4%
Black walnut	Juglans nigra	–	1.6%
Sassafras	Sassafras albidum	0.6%	0.8%
Sweetgum	Liquidambar styraciflua	7.6%	4.9%
Ash	Fraxinus sp.	0.6%	1.6%
Elm	Ulmus sp.	0.6%	1.6%
Maple	Acer sp.	1.9%	–
Black gum	Nyssa sylvatica	0.6%	0.8%
Pine	Pinus sp.	3.2%	0.8%
Number of observations		157	121

Bonnicksen 2000:331, 339). These fires created a mosaic of patches of trees with different tolerances to fire, shade, and moisture, with the more-fire-tolerant shortleaf pine in the area being found on drier upland soils, along with the more fire-resistant post oak and blackjack oak also dominant on the drier soils in the forest.

The post oak and blackjack oaks comprise between 28-35 percent of the tree species mentioned in the area (see Table 2-2), and these two species are actually more common on the Camp County side of Big Cypress Creek (within the modern boundaries of the Pineywoods, see Figure 2-2) than they are on the Titus County side. The latter is within the modern boundaries of the Post Oak Savannah. The post oak and blackjack oaks would have been found on leached soils on poorly drained upland landforms with a low clay content, and there would have been a sparse floor understory cover.

Moister slopes and other upland landforms, along with elevated alluvial landforms, apparently tended to have trees that were moderately tolerant of fire, including loblolly, red oak, white oak, and hickory, along with maple, walnut, and other hardwoods. The white and red oak were nut-bearing trees. This forest mosaic tended to have a greater diversity of species in canopy than the post oak-blackjack oak or pine forests (Marietta and Nixon 1983). About 21-22 percent of the tree species in Camp and Titus counties tabulated in Table 2-2 include these more mesic upland forests; the distribution of mesic forests appears to have been comparable on both sides of Big Cypress Creek. Hickory, in particular, preferred moist slopes as well as river bottoms because they are more vulnerable to fires than the oaks and shortleaf pine.

The distribution of sweetgum in mid-19th century Camp and Titus County land records indicate that there were floodplain habitats in the immediate area that were only occasionally inundated (Nixon et al. 1983). Slighter more floodplain areas were present in Camp County at the time (see Figure 2-2). Other trees common in such habitats would include maple, holly, and American hornbeam.

It is interesting how few pine trees were noted in the middle reaches of the Big Cypress Creek valley during the 1837-1854 General Land Office surveys, particularly since much of Camp County falls within the modern Pineywoods. This is probably a product of two different, but unrelated factors. First, the land surveys that were specifically examined for this study were relatively close to Big Cypress Creek, and thus would have excluded much of the higher and drier upland areas of shortleaf pine that oftentimes occurred in parts of Northeast Texas in pure stands with little undergrowth. The second factor is the possibility that the dominance of pine in modern times in what is termed the Pineywoods may well be the product of the cessation of Indian-set fires as the Caddo Indians were removed from the region by the early 1840s, as well as more strenuous attempts by farmers after the mid-1850s in fighting lightning-ignited fires. As the frequency and intensity of fires diminished in modern times, and fires had not burned for a number of years, the extent of upland sandy loam habitats suitable for pines also increased.

General Land Office field notes indicate that Big Cypress Creek had only a 20-28 foot wide channel in this area, not much different than in modern times. The stream flowed all year-round. The channels of the smaller tributaries ranged from 6-10 feet in width, and many of these (particularly in Titus County) were probably spring-fed, and others only flowed part of the year (Thurmond 1990a:16 and Figure 4).

The General Land Office field notes also indicate that Walkers Creek used to be called Walnut Creek. This suggests that these lands along the creek were notably fertile, because areas covered with black walnut were considered to be the most fertile lands (Collier 1984).

HOLOCENE ENVIRONMENTAL CHANGE

Recent paleoenvironmental research has substantially refined our understanding of paleoenvironmental changes in this part of Northeast Texas, and has extended the record of climatic change back to ca. 14,000 years ago or more. In particular, pollen data from Ferndale Bog (Holloway 1994; see also Ferring 1995) in the Ouachita Mountains of southeastern Oklahoma, and from several bogs in Central Texas (Bousman 1998), indicate that the Late Pleistocene climate (ca. 11,000-14,000 years ago) was cool and relatively dry, and probably supported a grassland steppe.

Models of temperature history, precipitation history, and water availability history prepared by the Center for Climatic Research at the University of Wisconsin-Madison (Figure 2-3a-c) suggest that the annual temperature in the northeastern Texas region (centering on Texarkana) was at least 3-4 degrees cooler between 11,000-14,000 years ago than during modern conditions. By 11,000 years ago, as the climate became warmer and wetter (particularly in summer months (see Figure 2-3b), oak woodlands or oak savanna habitats would likely have been present throughout much of eastern Texas (and north into Oklahoma). These woodlands were maintained for several thousand years—perhaps until 7500-8000 years ago (see Figure 2-3a-c)—although Bousman (1998:Figure 4) notes a period of open, grassland vegetation in Central Texas between 9500-8750 B.P. The Ferndale Bog pollen diagram (see Ferring 1994:Figure 4.5) also points to a more open and grassy setting, based on decreasing oak pollen and lower pollen influx between ca. 8000-9200 years ago. There apparently were two periods of more mesic environments between ca. 9000-8200 B.P. (see Figure 2-3b). Stable isotope data from the 5 m column at the deeply buried Big

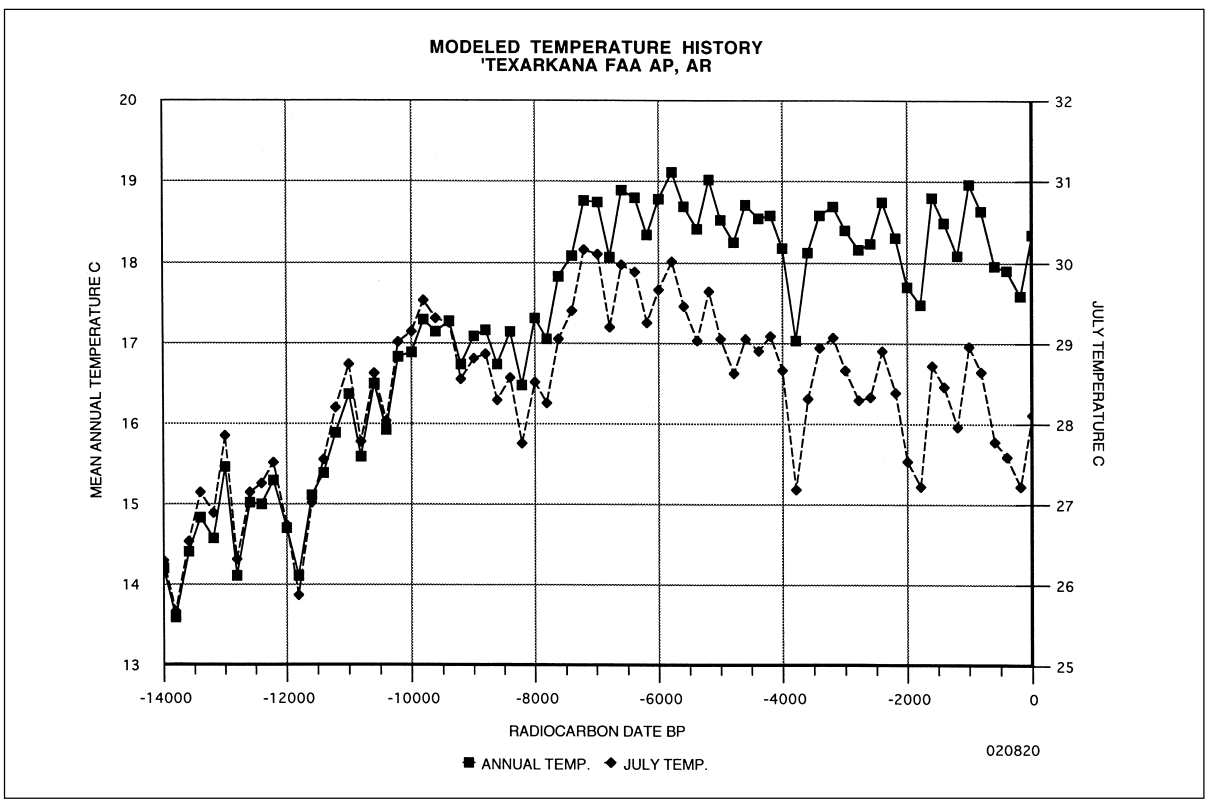


Figure 2-3a. Modeled Temperature History, Texarkana. Graph provided courtesy of Dr. Reid A. Bryson at the Center for Climatic Research, The University of Wisconsin-Madison.

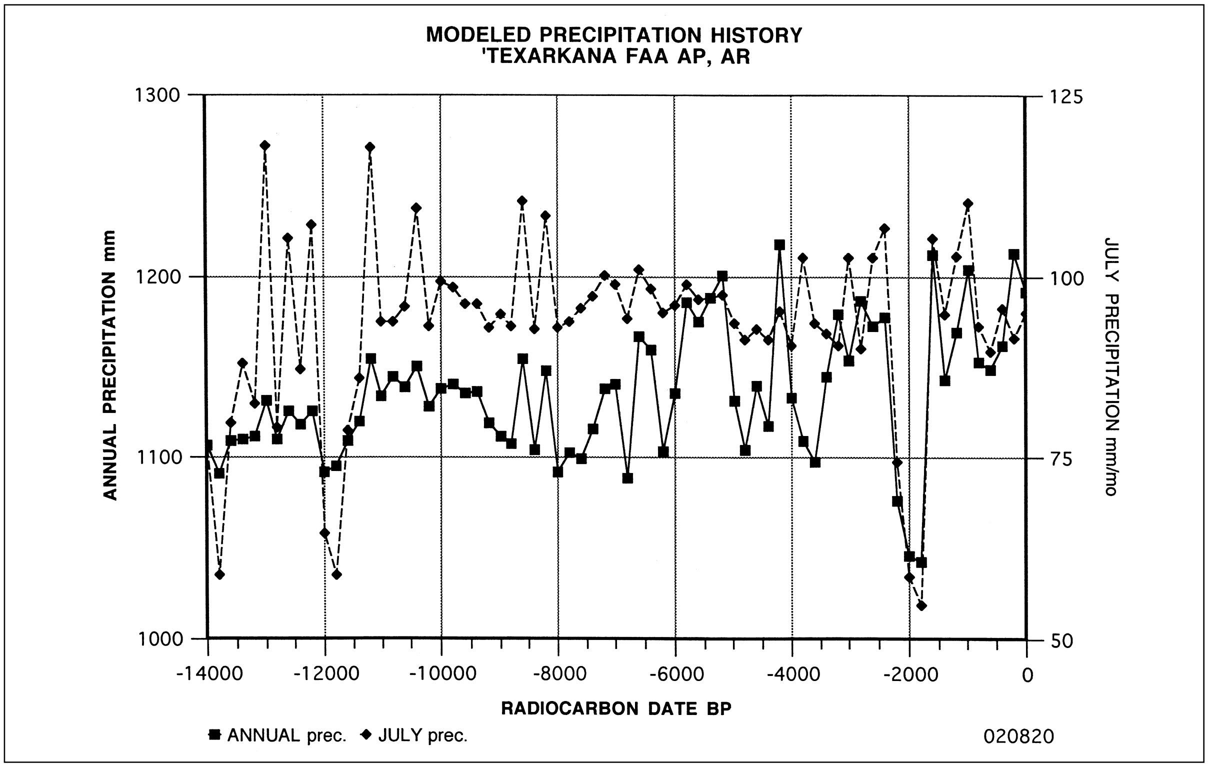


Figure 2-3b. Modeled Precipitation History, Texarkana. Graph provided courtesy of Dr. Reid A. Bryson at the Center for Climatic Research, The University of Wisconsin-Madison.

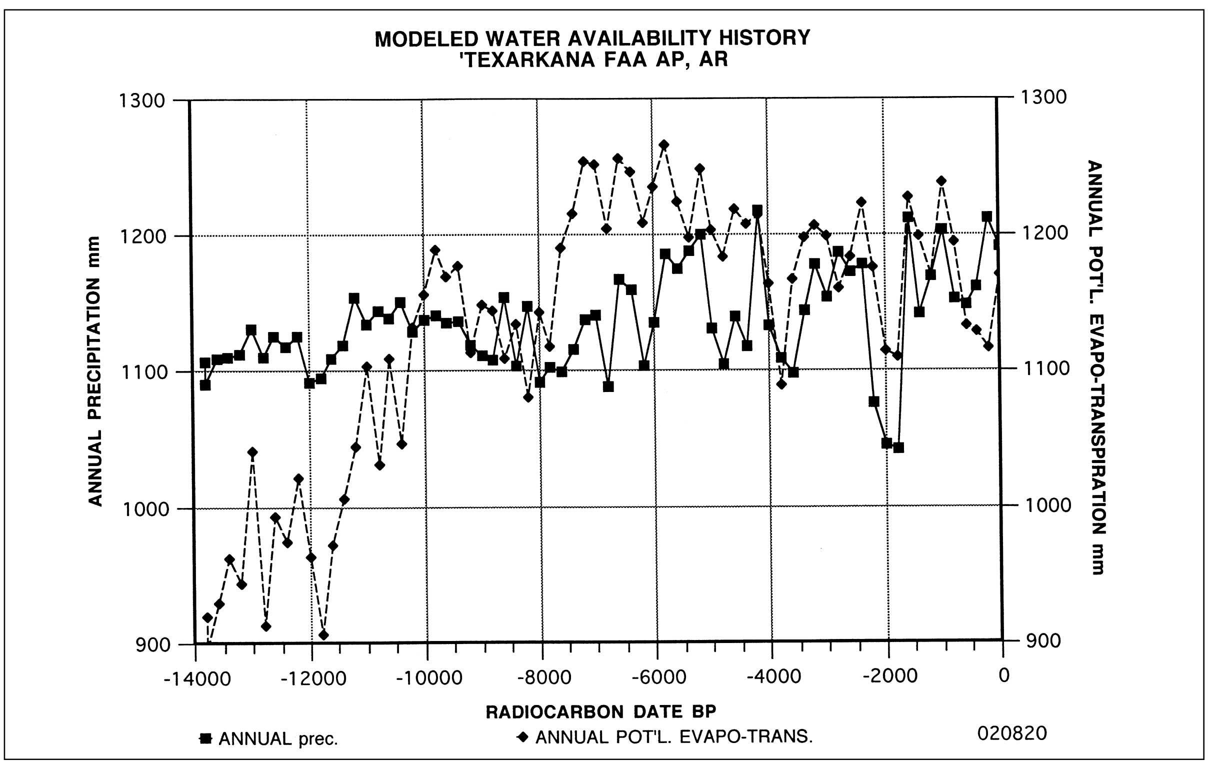


Figure 2-3c. Modeled Water Availability History, Texarkana. Graph provided courtesy of Dr. Reid A. Bryson at the Center for Climatic Research, The University of Wisconsin-Madison.

Eddy site suggests that the period between ca. 10,400-9500 B.P. was warm and dry, but it was even warmer and drier from ca. 11,200 to 10,400 years ago (Hajic et al. 2000:Figure 3-4). The period from ca. 9800-8200 B.P. was characterized by a slight increase in effective moisture.

Between ca. 8000/7500-5000/4000 years ago, the Middle Holocene climate was quite warm and dry (see the recent summary by Steig [1999:1485] for the period between 7000 to 5000 years ago, "a period of particularly profound change") in much, if not all of Texas and elsewhere across the continent. Ferring (1995:24) suggests this was a period of significant reduction in available biomass for Native American hunter-gatherers in the region. In the Ferndale Bog area of southeastern Oklahoma, the vegetation was an oak-hickory-pine woodland, while farther to the south and west in Central Texas, grasslands were dominant. Bousman's (1998:210) palynological analyses led him to conclude that the grass cover was greatest—and the climate the driest—between 5500-4500 B.P., while Ferring (1995:24) places the very dry and warm episode between ca. 6500-5000 B.P. The Big Eddy stable isotope data suggests the peak in warm and dry conditions was about 5200 B.P. (Hajic et al. 2000:35).

Archeoclimatic modeling (R. A. Bryson 1998; R. U. Bryson 1997) for the Texarkana area (see Figure 2-3a-c) suggests that the Middle Holocene was not particularly dry, although temperatures did increase about 3 degrees from a notable 8200 B.P. cool event. The modeled annual mean temperatures are about 1 degree warmer than in modern times, and 1-2 degrees warmer in July than now (see Figure 2-3a). Precipitation and overall water availability remained about the same throughout the Middle Holocene, if not actually increasing a small bit (see Figure 2-3b-c). Modeled precipitation histories for areas in the Post Oak Savannah and Blackland Prairie of northeastern and north central Texas, and elsewhere in the Oak-Hickory forest (cf. Hajic et al. 2000) suggest that Middle Holocene environments there were significantly drier than they were in the Texarkana area (Reid A. Bryson, 2002 personal communication). The lowest annual precipitation levels are surmised to have occurred about 4500-5000 years ago, with precipitation decreasing by about 300 mm from wetter times ca. 8200 B.P.

The Late Holocene period after ca. 5000 years ago appears to have been that of fluctuating climates—between moist or dry cycles—that were generally wetter than during the preceding Middle Holocene period. The modeled precipitation history suggests that the peaks and valleys differed by 100-200 mm through time (see Figure 2-3b). Ferring and Yates (1996:Figure 7.5) proposed that there were wetter years between ca. 5000-2000 B.P. and after 1000 B.P., with a drier cycle between 1000-2000 years ago. The archaeoclimatic modeling for the Texarkana area suggests a very dry (and somewhat cooler) period around 2000 years ago, with an annual decrease of about 150 mm (see Figure 2-3b) in precipitation.

With these climatic and rainfall conditions, Oak-hickory-pine woodlands were probably the principal vegetation in upland habitats in the Big Cypress Creek basin, with a well-developed riverine hardwood forest in floodplain settings. Supporting the drier and warmer cycle in the middle portion of the Late Holocene, the Ferndale Bog pollen record indicates that the peak in pine pollen was between ca. 800-1800 B.P. (Holloway 1994:Table I.2), while Bousman (1998:207) notes one grass spike or peak in the Weakly Bog in Central Texas that dates about 1500-1600 years, with another between 400-500 B.P. These peaks were also proposed in the archeoclimatic models of the Texarkana area (see Figure 2-3a-b), and these periods were also slightly colder and drier.

Stable carbon and oxygen isotopes from mussel shells along Denton Creek in North Texas, however, a good distance to the west of the Pilgrim's Pride site, point to a warm/dry peak at ca. 2850 B.P., and then again after 1500 B.P. (Brown 1998:164). Stable carbon isotope values from humate samples in the Cooper

Lake area of the upper Sulphur River basin in northeastern Texas have C4-enriched peaks (i.e., higher C4 grasses in the biomass) around 2000 B.P. and 4000 B.P. (see Perttula 1999c:Figure 2-4), well in accordance with cooler temperatures (see Figure 2-3a).

For the last 1000 years or more, dendrochronological records of paleoenvironmental change are the most accurate and temporally sensitive data available on Late Holocene environmental change (e.g., Stahle 1996). Fortunately, recent dendrochronological research in Texas, Arkansas, and Louisiana, as well as the Southeast U.S., by Stahle and Cleaveland (1988, 1992, 1993, 1994, 1995) has compiled significant new information on subtle but changing climatic and rainfall conditions and trends for the general Trans-Mississippi South region, of which northeastern Texas is a part.

Most notably, droughts are not uncommon in the region in modern times, and dendrochronological analysis suggests there were numerous wet and dry spells between ca. A.D. 1000-1700 and after, just as there were between 5000-1000 years ago (see Stahle and Cleaveland 1988, 1994). Some of the worse droughts may have occurred around A.D. 1555, 1570, 1595, and 1670, and the period between A.D. 1549-1577 has been suggested to have had the worse droughts in the past 450 years (Stahle et al. 1985).

More detailed dendrochronological analyses on spring rainfall are available from bald cypress tree-ring chronologies dating between A.D. 997-1988 from Big Cypress State Park in northwestern Louisiana (Stahle and Cleaveland 1995; see also Tree-Ring Data Bank, IGBP Pages/World Data Center for Paleoclimatology Program, Boulder, Colorado) (Figure 2-4). Year by year changes indicate that the seven sets of wettest years were between A.D. 1053-1057, 1168-1176, 1178-1180, 1265-1268, 1323-1328, 1553-1555, 1584-1586 (see Perttula 1999c: Figure 2-5; see also Frink and Perttula 2002), 1718-1719, 1797-1800, 1810-1812, and 1866-1873; the wettest years in prehistoric times were about a decade from 1168-1176 and 1178-1180. These years would likely have been optimal growing years for prehistoric Caddo horticultural groups, assuming a correlation between crop production and spring precipitation values (cf. Anderson et al. 1995:265). The wetter rainfall conditions would also likely have led to an increase in the extent of swamp and wetland habitats in much of the Big Cypress Creek basin, and a concomitant expansion in the carrying capacity of woodland plants and animals in valley and floodplain areas. In historic times—after ca. 1650—the wettest intervals occurred between 1797-1815 and 1866-1876.

Conversely, the driest years in prehistoric and early historic times—between A.D. 1014-1016, 1215-1217, 1444-1447, 1455-1460, 1529-1533, 1653-1655, 1697-1699, 1841-1846, and 1855-1860—may well have been periods when food supplies were stressed, as was the ability of prehistoric and early historic Caddo groups to produce sufficient food reserves from the cultivation of tropical cultigens, and the chances of success of any maize harvests during these extended droughty periods (see below). The very dry years between A.D. 1444 and 1460 detected by the dendrochronological record correlate well with the grass spike/drier episode noted by Bousman (1998) from the Weakly Bog pollen record. These droughts probably also affected the constancy of flow in the numerous upland springs in the area, as well as the volume of flow in the Big Cypress Creek basin, which would have influenced the relative quantity of animal and plant foods in floodplain and upland forested habitats. The very droughty years between 1841-1846 correlate closely with the final abandonment of the Timber Hill site (41MR211) on James Bayou by the Caddo (see Parsons et al. 2002), and the droughty years between 1855-1860 span the years when the Caddo were settled on the Brazos Indian Reserve and were then moved to Oklahoma to protect them from land-hungry Texans. Stahle and Cleaveland's (1988) drought reconstruction for North Texas indicates that three of the driest years between 1698-1980 occurred in 1855, 1857, and 1859, and 1855 was the driest year in that 282 year record.

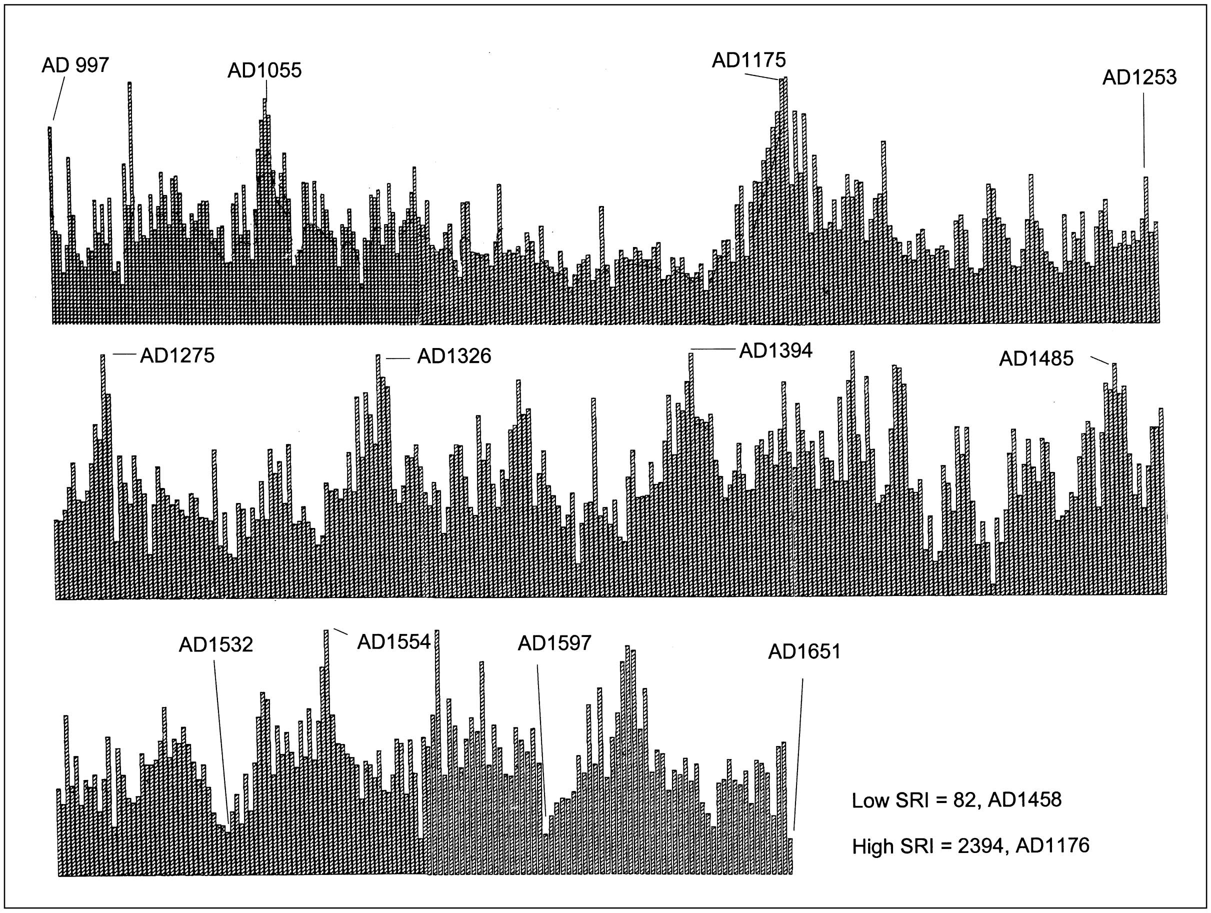


Figure 2-4. Tree-ring width indices, Big Cypress State Park tree-ring data base, A.D. 997-1651.

Looking at the period of wet and dry spells from ca. A.D. 1000-1650, the wetter years (>1400 standard ring width indices [sri]) were more than two times as frequent as the driest and droughty (<560 sri) years (see Perttula 1999c:Figure 2-5). After ca. A.D. 1430, the wetter years occurred less often, some 55 percent less between A.D. 1600-1700 than in the ca. A.D. 1200-1400 period (see Figure 2-4). In historic times, the two wettest but also equitable intervals were between 1792-1826 and 1861-1890, with the wetter years eight times more common than the very dry and droughty years. Conversely, in the period between 1827-1861, the very dry and droughty years outnumbered the very wet years by a ratio of 9:1.

The frequency of very dry years remained rather constant after ca. A.D. 1430 (and also remaining relatively constant until the 1790s), but were conversely quite rare between A.D. 1000-1400. Clearly, then, if the dendrochronological data from Big Cypress State Park are relevant to understanding local climatic conditions in the Big Cypress Creek basin, the Early and Middle Caddoan period (ca. A.D. 1200-1400) settlement of the region took place during an equitable climatic episode when floodplain and upland forests were expanding at the expense of xeric habitats. There were comparable spring rainfall amounts during most of a 400-year period. It is only after the mid-15th century, when the Big Cypress Creek bio-region was occupied by Late Caddo groups having cultural affiliations with other Caddo groups on the Sabine River, as well as the Red River in northwestern Louisiana, and a major period of droughts between A.D. 1444-1447 and 1455-1460, in the early 16th century, the mid-17th century, and then with regularity until the latter part of the 18th century, that more xeric and cooler conditions probably existed in the Big Cypress Creek basin.

Climatic Episodes, ca. A.D. 1430-1680

More detailed reconstructions are considered here of past climatic episodes during the prehistoric Caddo settlement of the Big Cypress Creek basin during the Titus phase. The reconstruction is based on the previously discussed Big Cypress State Park tree-ring data base and recent reconstructions of changes in temperature over the last 1000 years offered by Mann et al. (1998; see also Crowley 2000) using a wide range of proxies, such as tree rings, ice cores, and corals (see Jones et al. 2001:662; Mann 2002) (Figure 2-5).

The climatic episodes that can be defined over this 250 year period provide the opportunity later in Volume I (see Chapter 11) to examine the responses (if any) of Caddo peoples to climatic changes over inter-annual to decadal and multi-decadal intervals, particularly because as a society that was increasingly dependent upon cultivated plant foods, "as agricultural food production increased in importance, fluctuations in climate and hence potential crop yields had varying impacts on societies at both local and regional scales" (Anderson 2001:143). At the same time, in no way do I mean to suggest that climate changes were the root and deterministic cause of cultural changes among the Titus phase Caddo peoples, or that there is always a connection between the two. Rather, climatic changes at different scales can be reasonably expected to "elicit adaptive responses or, at the very least, destabilize well-established adaptive systems" (Binford 2001:447). No adaptive strategy of any peoples is divorced from the range of habitats it exploits to survive and prosper, so in essence what I want to do here is lay the temporal and climatic framework to consider how changes in habitat variability and climate may have affected the adaptive success of the Titus phase and agricultural Caddo peoples living in the middle reaches of the Big Cypress Creek basin.

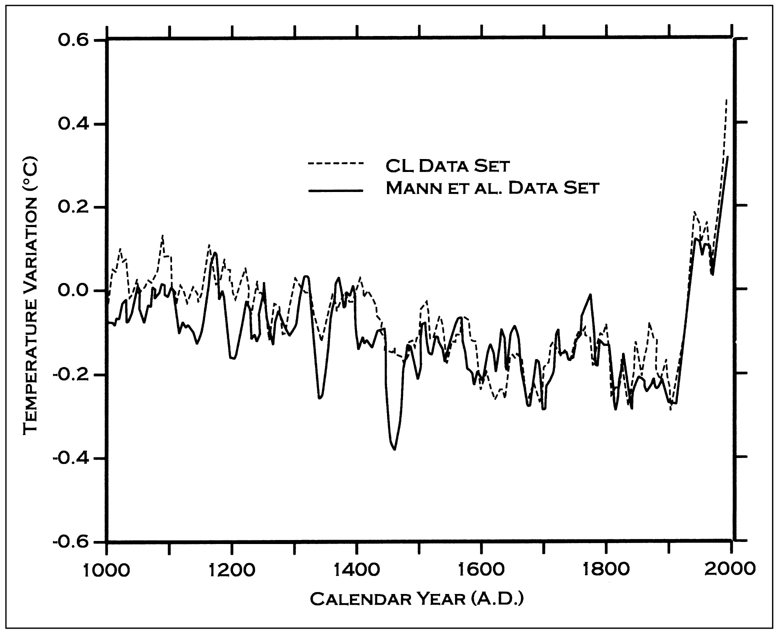


Figure 2-5. Reconstructed Temperature Variation, A.D. 1000-2000, after Mann et al. (1998) and Crowley (2000).

There may be some relevant comparisons to be made between the climatic and native history of the Titus phase Caddo peoples and what recent archeological, bioarcheological, and paleoenvironmental research in the lower Mississippi valley has to say about the mid-16th century societies living there at the time of a mega-drought that lasted from the 1540s to the 1580s (Stahle et al. 2000; Fisher-Carroll 2001; Burnett and Murray 1993). This lengthy period of drought is thought to have had major effects on these native peoples, leading to a major reduction in reproductive potential, agricultural destabilization, social stresses, and "the abandonment of an entire region within a relatively short period" (Fisher-Carroll 2001:242). How might the droughty periods in Northeast Texas between A.D. 1430-1680 affected the Titus phase Caddo groups living in a number of Big Cypress Creek communities?

The climatic data base employed here consists of two parts. The first part is NOAA mean temperature reconstructions for the Northern Hemisphere (Mann et al. 1998; see Crowley 2000; Jones et al. 2001) from A.D. 1430 to A.D. 1680, the estimated beginning and end of the Titus phase occupation of the local region. These mean temperatures were scaled by 0.1 degree variance from the millennial mean temperature (Frink and Perttula 2002; Frink 2002). The mean temperature reconstructions indicate that there has been a general decline in temperature from about A.D. 1000 (if not earlier) to about 1900, with a rapid warming after that time (see Figure 2-5).[1]

Crowley's (2000) studies suggest that prior to 1850, decadal-scale changes in temperature variation are due to low frequency changes in solar irradiance and pulses in volcanism that served as climatic forcing mechanisms. The 11th and 12th centuries were warm, the 13th century was a time of temperature fluctuations, as were the 14th century and much of the 15th century; some of the coldest reconstructed temperatures occurred around the mid-14th century, as well as in the mid-15th century, and much of the 17th century was cool (see Figure 2-5). Otherwise, a considerable amount of the period between ca. A.D. 1300-1580 was relatively warm. After A.D. 1700, about the time that the Titus phase Caddo peoples abandoned Northeast Texas (or populations died out?), temperatures warmed again, until a period of abrupt cooling in the early part of the 19th century. The most recent reconstruction of past temperature variability over the last 1000 years suggests that the 17th century was even colder than previously thought, and much of the 12th, 13th, and 14th centuries were cool (Esper et al. 2002; Mann 2002), as "reconstructed temperatures are consistently well below those indicated by all other records" (Briffa and Osborn 2002:2228; see also von Storch et al. 2004).

The second part of the climatic data base is the A.D. 997-1988 tree ring width data from Big Cypress State Park. The tree ring data is the proxy for moisture over the last 1000 years in the general East Texas region. The range in tree ring values over the 250 year period of the Titus phase, namely the standard ring indices, are from a low of 82 (in A.D. 1458) to a high of 2386 (in A.D. 1578). These data were initially smoothed to a five-year floating average to emphasize trends rather than yearly events, and these trends were portrayed relative to a mean standard ring width of 1000 (see Frink and Perttula 2002:Figure 9.3 and Figure 9.4). From these trends in tree ring width and reconstructed mean temperature variation, I have defined six alternating droughty and mesic periods between A.D. 1430-1680 (Table 2.3). The droughty periods date from A.D. 1430-1476, 1525-1538, and 1573-1602, and the generally warmer and wetter periods date from A.D. 1477-1524, 1539-1572, and 1603-1670+. After 1670, the period from 1671-1676 was relatively dry and cool.

Based on the mean tree-ring width in the three principal droughty climatic episodes, the most sustained and persistent period of drought was at the beginning of the Titus phase, in the A.D. 1430-1476 climatic episode (see Table 2.3). The three peaks of drought conditions in A.D. 1444-1447, 1455-1460, and 1472-1473 had mean tree ring widths of only 370.5-556.0, between 40-60 percent lower than in times of an equitable climate and average growing and moisture conditions. The A.D. 1455-1460 drought was also a notably colder era during the Titus phase.

The other two droughty climatic episodes were also very dry (with mean tree-ring widths ranging between 304-487.5, some 50 to 70 percent lower than in average climatic conditions). These drier and colder drought periods, and the 4 year drought (A.D. 1651-1655) during the last mesic period, did not generally last as long as the cold and dry pulses during the A.D. 1430-1476 period. While the A.D. 1525-1538 droughty period was quite dry (see Table 2-3), it was nowhere as severe a drought as the drought in the mid-16th century that Stahle et al. (2000:121) consider the "most severe prolonged drought over much

Table 2-3. Climatic Episodes, A.D. 1430-1680.

Climatic Episode	Droughty periods	Mean Tree-Ring Width in droughty Periods	Mesic periods
A.D. 1430-1476	X	370.5 (1444-1447) 380.5 (1455-1460) 556.0 (1472-1473)	
A.D. 1477-1524			X
A.D. 1525-1538	X	466.0 (1525-1538)	
A.D. 1539-1572			X
A.D. 1573-1602	X	304.0 (1573-1574) 487.5 (1597-1598)	
A.D. 1603-1660+		425.7 (1651-1655)	X

Note: the lower the mean tree-ring width, the drier the climate. A mean standard ring width of 1000 represents an equitable climate and average growing and moisture conditions.

of North America for at least the last 500 years." This period of persistent drought occurred between about 1560-1590 in parts of Texas and 1540-1580 in northern Mexico, with the worst years in the mid-1570s in Texas—apparently indicated by the two very dry years in 1573-1574—with very low summer precipitation. Reconstruction of the spatial extent of this mid-16th mega-drought by Cook et al. (1999) suggests its effects were more severe from southern Texas to the panhandle of Texas, and then north and west into the southwestern U.S., and were less intensely felt in the Caddoan archeological area.

The droughty climatic episodes occurred about every 35-48 years, or about once every generation, given that the average life span of Caddo males and females in Late Caddoan period times was about 40 years of age (Derrick and Wilson 2001:Table 2). Thus, the memories of these droughts, and the cultural ability to learn how to recognize the signs and changes signaling the onset of droughty conditions, were likely part and parcel of the adaptive strategies possessed by the Titus phase Caddo farming peoples. Even so, it is unlikely that they were culturally prepared for the onset of the most intensive droughty period that occurred between A.D. 1444-1460, or had the crop reserves to successfully withstand such lengthy very cold and very dry conditions.

The more mesic periods between severe droughty conditions lasted between 35-49 years at a time (see Table 2-3). These periods were warmer and wetter than times that came before and after, and were periods of more equitable rainfall and increased net productivity and carrying capacity of plants and animals in the oak-hickory savannah and oak-hickory-pine habitats that were settled by the Titus phase populations. How are these environmental changes linked to subsistence and demographic changes, and what are the effects of subsistence changes on reproductive potential during equitable climatic episodes? We will return to these questions in Chapter 11 of this volume.

CULTURAL SETTING

Introduction

Native Americans settled in the Big Cypress Creek basin of Northeast Texas some 12,000 years ago (if not earlier), and ranged through its forests, grasslands, and broad floodplains and wetlands as mobile hunter-gatherers-fishers. About 2000 years ago, these Native Americans, probably ancestral to Caddo peoples living there in historic times (e.g., Bolton 1987; Swanton 1942), began to settle down within distinct territories, began to use native seeds and tropical cultigens, and developed the art of ceramics. From this hunting-gathering-horticultural milieu, the vibrant and sophisticated prehistoric Caddo culture developed ca. A.D. 800 (e.g., Story 1990; Schambach 2002) across Northeast Texas, Northwest Louisiana, Southwest Arkansas, and eastern Oklahoma. The prehistoric Caddo people were prosperous horticulturists and traders who lived in dispersed sedentary hamlets and villages, and built temples and burial mounds that marked the ceremonial and religious places of important priests and chiefs. The Caddo continued to live in this part of Northeast Texas (particularly in the vicinity of Caddo Lake at the Timber Hill site [41MR211]; see Parsons et al. 2002) until as late as 1842, until they moved to the Brazos River in the 1840s-1850s, and then were removed to Oklahoma in 1859 (Smith 1995, 1996).

The main purpose of this section of Chapter 2 is to summarize the current state of knowledge concerning the prehistoric and early historic archeological record of the Big Cypress Creek basin and Northeast Texas regions. Figure 2-6 provides a current chronological and temporal scheme for all of Texas, including East Texas. In the broader East Texas region, of which the Big Cypress Creek basin is a part, the Paleoindian period is estimated to date from ca. 12,000-8000 years B.P. (using uncalibrated radiocarbon dates as the basis for temporal estimates), the Early, Middle, and Late Archaic periods last from 8000-2000 years ago, and the Woodland period dates from 2000-1200 B.P. The Early Caddoan to Historic Caddoan periods span the period from ca. A.D. 800 to the early 1800s.

Much attention is given here to the Late Caddoan period (ca. A.D. 1400-1680) archeological record (as defined temporally by Story 1990), particularly the Titus phase in the Big Cypress Creek basin, because knowledge of this span of Caddo prehistory and early history is reasonably well-developed (e.g., Thurmond 1985, 1988, 1990a; Turner 1978, 1992; Perttula 1992, 1998a), and because a focus on the Titus phase provides the best opportunity to understand what prehistoric Caddo culture was like immediately before, and after, Europeans invaded the area. Furthermore, the Pilgrim's Pride site was primarily occupied during the Titus phase.

The cornerstone of our knowledge of the prehistoric use of the region is based in large measure on the 1920-1930s excavations of aboriginal sites and cemeteries (Pearce 1920, 1932; Jackson 1933, 1934) in the Big Cypress Creek, Sabine River, and Sulphur River basins by the University of Texas. Since then, most of the information about the Paleoindian, Archaic, Woodland, and Caddo archeological records in the region comes from avocational archeological investigations (see for example, Harris et al. 1980; Jones 1957, 1968; Middlebrook 1994; Nelson et al. 1994; Nelson and Perttula 1997; Thurmond 1990a; M. Turner 1993, 1994; R. Turner 1978, 1992, 1995; Webb 1959, 1963, 1984; Webb et al. 1969), along with extensive professional archeological work in a number of state and federally-funded or permitted reservoirs and

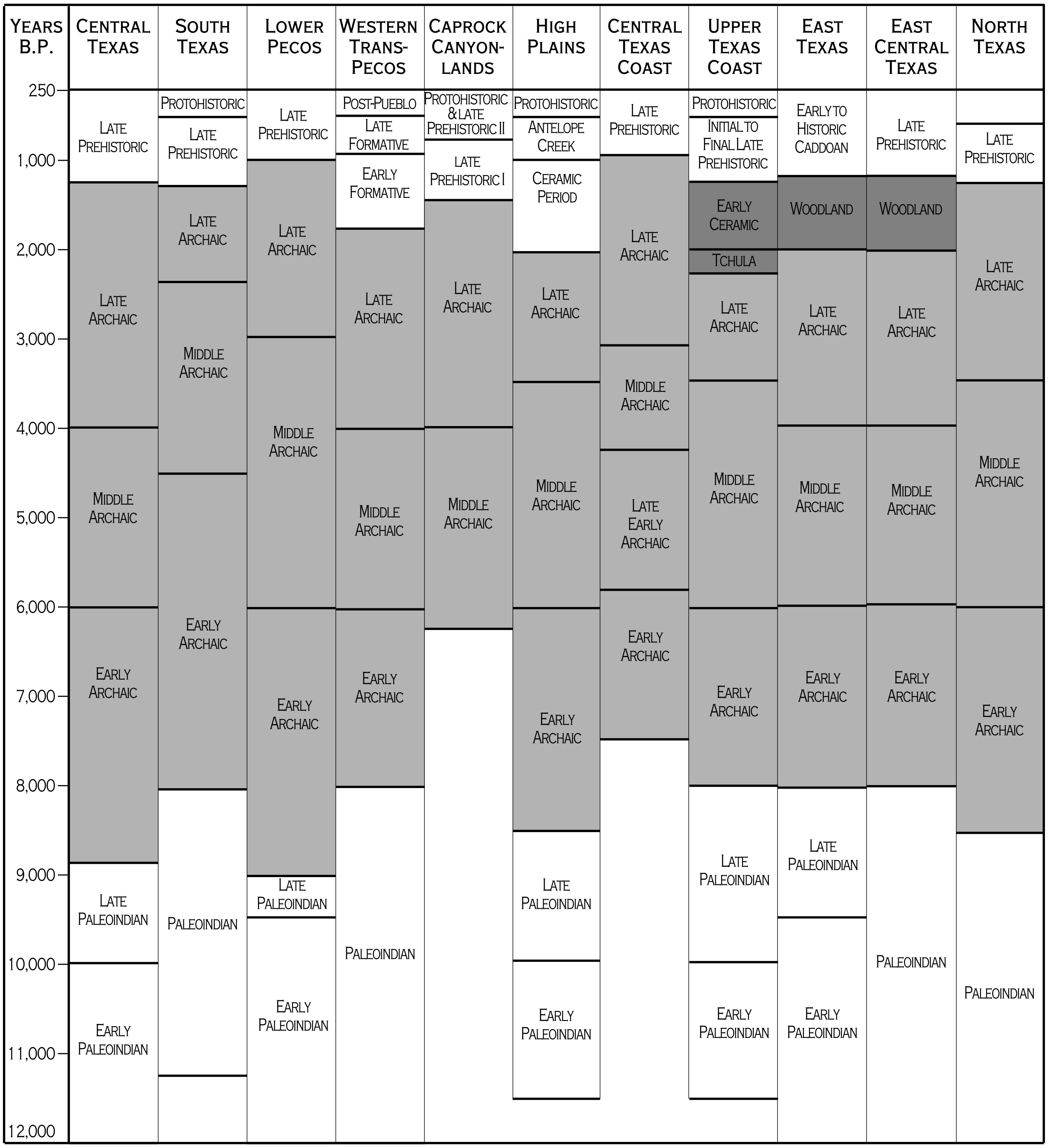


Figure 2-6. Chronological chart for various regions in Texas, including East Texas.

associated facilities in the Sulphur, Sabine, and Cypress basins, including Lake O' the Pines, Lake Bob Sandlin, Cooper Lake, and Lake Gilmer (Bruseth and Perttula 1981; Cliff 1994; Cliff and Beene 1996; Cliff et al. 1974, 1996a, 1996b; Cliff and Hunt 1995, 1998; Cliff and Peter 1992; Driggers 1985; Fields et al. 1997; Horizon Environmental Services, Inc. 1993, 1995; Hunt et al. 1995; Largent et al. 1996; McClurkan et al. 1966; Parsons 1998; Perttula et al. 1986; Sullivan 1977; Thurmond 1990a; Woodall 1969) as well as in large surface lignite mines such as the Monticello mines (e.g., Jones et al. 1993; Kotter et al. 1991, 1993; McCormick 1973, 1974; Nash et al. 1995; Perttula et al. 1998; Sherman et al. 2002).

Fairly recently, Hunt et al. (1996) completed the cultural resources evaluation for the Pilgrim's Pride Corporation of a 90 acre tract due west of the Walker Creek project area, and west of U.S. 271. This tract was originally intended to have a poultry-processing plant and associated wastewater treatment plant, but these facilities are now to be constructed in the Walker Creek project area (Perttula and Nelson 1998a). A Late Caddoan period, Titus phase cemetery—the B. J. Horton site (41CP20)—was located within the western tract (see Turner 1978), along with two historic period sites probably associated with the small community of Harvard, Texas (Hunt et al. 1996). In the new Walker Creek project area, 40 new archeological sites have been identified in several archeological surveys, and they are primarily of Late Caddoan period, Titus phase age (Perttula and Nelson 1998a, 1999; Perttula et al. 1999a, 1999b), and extensive excavations were completed at the large Titus phase community at the Pilgrim's Pride site (Perttula 1999, 1999a), the subject of this volume. As is discussed herein, this settlement contained over 400 archeological features, several circular structures, a large planned cemetery, and a well-preserved earthen mound capping a burned structure.

The Native American settlement of Northeast Texas is a story that began about 12,000 years ago, and "is long, complex, and endlessly fascinating" (Schambach 1993:1). From the archeological record of this region, one may grasp bits and pieces of the tale: the mobile Paleoindian and Archaic foragers; the long-distance trade and exchange of goods (i.e., lithic raw materials); the development of sedentary communities of foragers and possibly pre-maize cultigen users (e.g., Fritz 1994); the adoption of ceramics and the bow and arrow; the development of complex and socially stratified Caddo horticultural and agricultural societies; the use of earthen mounds; and the seemingly rapid abandonment of much of the region in the seventeenth and eighteenth centuries due in large measure to the effects of European-introduced diseases as well as the European colonization of traditional Caddo territory, followed by the permanent expulsion of Caddo groups. Many of the archeological details of these events and developments are becoming well-known (see especially Story 1990; Thurmond 1988, 1990a; Kenmotsu and Perttula 1993:69-187).

Paleoindian Period

For the period prior to about 8000 years ago, the Northeast Texas archeological record primarily consists of surficial, mixed, or isolated finds of temporally diagnostic projectile points (cf. Johnson 1989; Story 1990), based on comparisons with well-dated stratified sites to the east and west of the region (cf. Anderson et al. 1996:15; Collins 1995). Undoubtedly discrete archeological components are present in the region, as shown by the buried Finley Fan site occupied as early as 6400 years B.P. (Gadus et al. 1992) and the spatially discrete Late Paleoindian John Pearce site (Webb et al. 1971), but they have proven to be quite difficult to define and recognize (Fields 1997) (Figure 2-7).

Paleoindian materials have been recovered at a number of archeological sites in the Big Cypress Creek basin of northeastern Texas (see Johnson 1989:Figures 3, 10, 16; Story 1990:Figures 26-29; Bousman et al. 2004). The early Paleoindian (ca. 12,000-9500 years B.P.) archeological materials include Clovis and Folsom fluted lanceolate points, commonly manufactured on high-quality non-local lithic raw materials, along with scraping tools (Story 1990:Table 44). Unfluted lanceolates—commonly resharpened and beveled—dominate the Late Paleoindian period (ca. 9500-8000 years B.P., if not earlier, based on recently obtained radiocarbon dates from Late Paleoindian contexts at the Big Eddy site in the Missouri Ozarks) material culture record in the region, including Dalton (Johnson 1989:Figure 7), Plainview, San Patrice, and Scottsbluff points, as well as early side-notched points and Albany beveled bifaces or knives (see Webb et al. 1971; Johnson 1989:Figure 13), Quince-style bifacial scrapers, and bifacial adzes. Sites of this age throughout the Trans-Mississippi South tend to occur near major drainages (such as the Red River) or in resource-rich areas, along Ouachita Mountains and Ozark Mountains escarpments (Anderson 1996b).

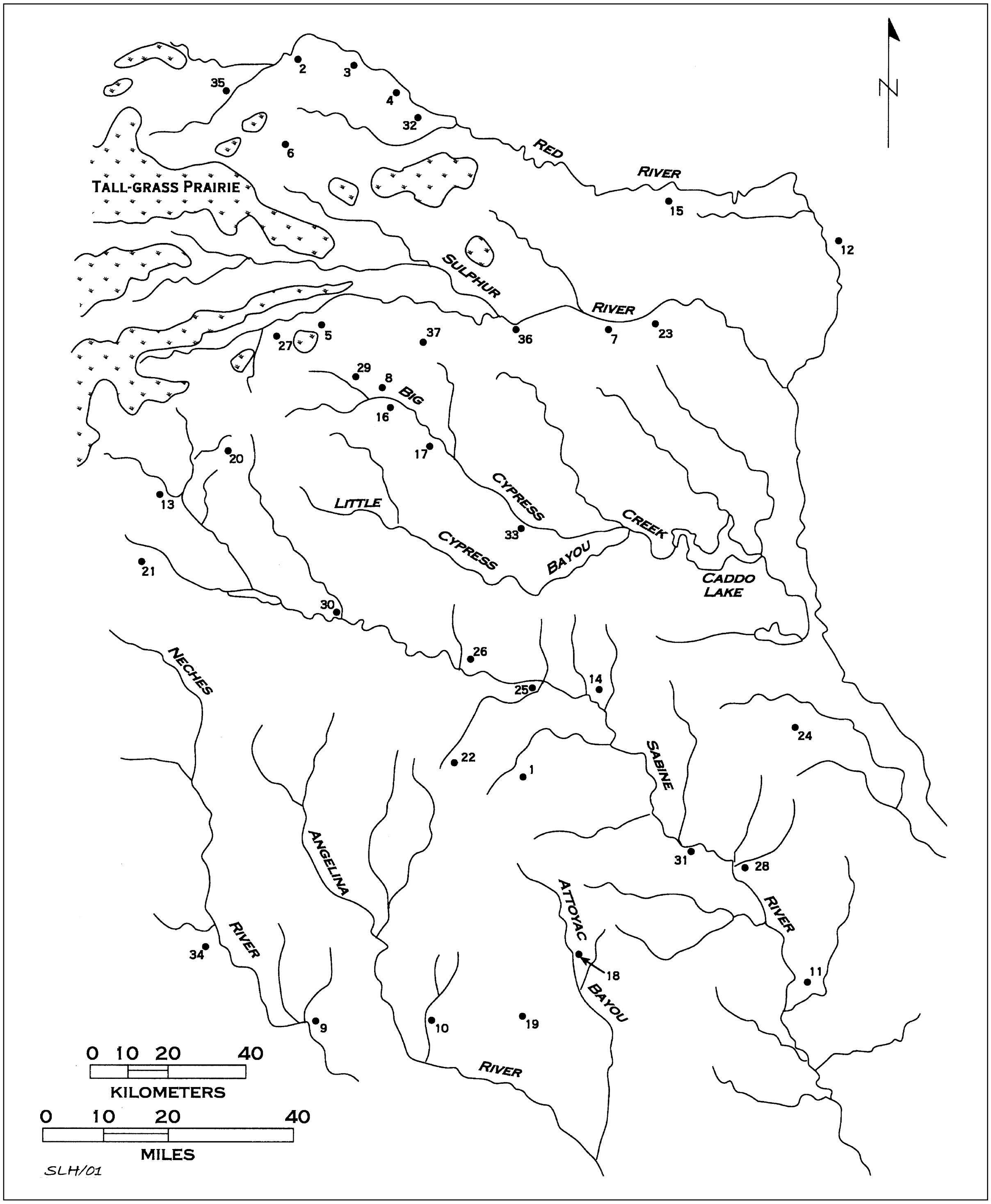


Figure 2-7. Locations of important sites in East Texas and adjoining states, and sites mentioned in the text. Key: 1, Musgano; 2, Fasken; 3, Roitsch-Sam Kaufman; 4, Holdeman; 5, Hurricane Hill; 6, Ray; 7, Snipes; 8, Tankersley Creek; 9, George C. Davis; 10, Deshazo; 11, Coral Snake; 12, Crenshaw and Johnny Ford; 13, Taddlock; 14, Resch; 15, Hatchel-Mitchell-Moores; 16, Benson's Crossing; 17, Harold Williams; 18, Tyson; 19, Mast; 20, Spoonbill; 21, Yarbrough; 22, Oak Hill Village and Herman Bellew; 23, Knight's Bluff; 24, John Pearce; 25, Hudnall-Pirtle; 26, Grace Creek; 27, Finley Fan; 28, James Pace; 29, Hale; 30, Boxed Springs; 31, 41SY81; 32, Rowland Clark; 33, Forest Murphey; 34, A. C. Saunders; 35, A. C. Mackin; 36, Unionville; 37, Mockingbird.

Locally, at the Forrest Murphey site (41MR62), Clovis, Plainview, Dalton, and other lanceolate projectile point forms and tools were found in several discrete concentrations on a high terrace above Big Cypress Creek at the Lake O' the Pines dam site; faunal remains from extinct elephants were also recovered in apparent association (Story 1990), which is rather rare (see Meltzer and Bever 1995).

Anderson (1996a:Figure 3.2) has postulated that the initial and most intensive Paleoindian settlement of the Southeast took place in the resource-rich valleys of the Mississippi, Ohio, Tennessee, and Cumberland rivers. From there, Paleoindian group settled throughout the wooded Southeast and East, with concentrations at 250-400 kilometer intervals, indicating the scale of movement of these highly mobile foragers. As with much of the Southeast, the distributions of Paleoindian artifacts within the Big Cypress Creek basin suggests that these early occupations were principally situated within the valleys of major stream basins (Thurmond 1990a:Table 53 and 54; Perttula 1995). The relatively sparse Paleoindian archeological record, in conjunction with the dispersion of artifacts on many landforms (but especially alluvial terraces and upland projections) and different settings within the region, seems to indicate that the Paleoindian groups occupying this part of Northeast Texas were very mobile hunters and gatherers of a variety of resources rather than specialized hunters of extinct megafauna (Fields and Tomka 1993:82). Johnson (1989:53-54) also suggests that some of the Paleoindian archeological remains (particularly Plainview and Scottsbluff projectile points and Cody knives) from the region are a result of Plains Late Paleoindian (ca. 10,000-9,000 years ago) groups that moved into (or "invaded" according to Johnson [1989:53] in the case of the Cody people) parts of Northeast Texas during periods when grassland habitat spread eastward to exploit the plains resources (such as bison) found there.

Archaic Period

Archeological data from the Yarbrough site (41VN6) on the upper Sabine River (see Figure 2-7) were employed by Johnson (1962) to bring an initial chronological and cultural order to the diverse Archaic period (ca. 6000-200 B.C.) archeological record found in Northeast Texas. Of particular importance in the development of this cultural-historical sequence was Johnson's (1962:208) temporal divisions of the Archaic based on changes in projectile point shapes over time, and the introduction of plain ceramics at the end of the Archaic period. Story (1990:Figure 32) and Thurmond (1990a:Table 8) still provide the most current chronological classifications of Archaic-age dart points, with straight and expanding stem forms seemingly characteristic of the Early and Middle Archaic periods and the contracting stem darts particularly diagnostic of the Late Archaic (and much of the Woodland period as well [Schambach 1982, 1998]).

What have we learned about the Archaic populations who lived in Northeast Texas, and lived for a time at the Pilgrim's Pride site? Recent paleoenvironmental research summarized by Ferring (1995:26) has suggested that much of the Archaic period, particularly the period between about ca. 8000-4000 years B.P., was drier than today, with apparent reductions in biomass and carrying capacity as well as the local expansion of prairie habitats along the western margins of the Northeast Texas Oak-hickory Savannah. Nevertheless, drier conditions and changing vegetation conditions "clearly did not preclude occupations" (Ferring 1995:33) during these periods, and in fact the archeoclimatic modeling discussed above suggests that some parts of the area were not necessarily all that dry, although they were warmer.

While the archeological data are still rather limited, it appears that group mobility remained high for these hunting-gathering foragers during the Early Archaic (ca. 8000-6000 years B.P.), and group territories were large and poorly defined, with most sites conforming to what Thurmond (1990a:41) called "heavy" and "limited-use" areas; that is, the sites appear to represent repeated and recurrent occupations by small groups. Anderson (1996b) suggests that such Archaic groups had highly mobile foraging adaptations along the Red River, the central Sabine River, and in interior uplands away from major drainages, with expedient lithic technologies. Most sites of this age were briefly used, but tended to concentrate in the larger drainages within the region.

By the Middle Archaic period (ca. 6000-4000 years B.P.) in the Sabine River and Big Cypress Creek drainages, fairly substantial and extensive occupations are recognized within the major basins, with a rather limited use of smaller tributaries and headwater areas (see Thurmond 1990a: Figure 9), where Middle Archaic "heavy use" sites occur along Big and Little Cypress Creek, or on tributaries near their confluence with Big Cypress Creek. Burned rock features (possible hearths, ovens, and cooking pits?) and burned rock concentrations are present in dated Middle Archaic contexts at a few sites (see Gadus et al. 1992; Cliff et al. 1996a), suggesting the cooking and processing of plant foods was an important activity by this time, but mainly by small groups for short-term use (Fields et al. 1997:90).Gardner (1997:174) notes that the adoption of stone boiling or hot rock cooking in the processing of hardwood mast (especially hickory nuts) "transformed hickories from one of the most costly to the least costly nut to process. . . an d the addition of abundant hickory nuts to the diet raised the carrying capacity of the local forests."

Lithic raw material data from a possible Middle Archaic assemblage at Lake Fork Reservoir suggests that the exchange of non-local materials (particularly finished tools) was common place (Perttula 1984), although "patterns in raw material use were not uniform across Northeast Texas" (Fields and Tomka 1993:92), and in general, the use of non-local raw materials was not common. At Cooper Lake in Archaic contexts, the very few non-local lithics that are present primarily originated to the north in the Red River basin (Fields 1995; Fields et al. 1997; Perttula 1999c).

Late Archaic sites are widely distributed in the Big Cypress Creek basin and adjoining river basins, occurring along the major streams, near springs, on spring-fed branches, upland ridges, and on tributary drainages of all sizes (cf. Thurmond 1990a; Cliff and Peter 1992; Cliff and Hunt 1995; Dixon et al. 1995; Cliff et al. 1996a). Indeed, the distribution of Late Archaic sites suggests these groups used moderately to extensively almost every part of the region. Anderson (1996b) notes major site concentrations of Late Archaic sites along the Red and Little rivers in Arkansas and Louisiana, as well as in the Ozarks and Ouachita Mountains.

A few Late Archaic occupations in the Pineywoods and Post Oak Savannah of Northeast Texas are known that contain earthen middens (i.e., the Yarbrough site along the Sabine River), but in general sites of this period contain burned rock features, and/or concentrations of burned rock, as well as small pits, and were not particularly intensively used. The burned rocks do signify the continued use of hot rock cooking for the processing and cooking of plant foods.

The Late Archaic occupation in area C at the Unionville site (41CS151) (see Figure 2-7) had a buried anthrosol or buried surface that had been darkened or stained by cultural activities (Cliff et al. 1996a); within the anthrosol were two clusters of burned rock features. At the Mockingbird site (41TT550) on Hayes Creek, the Late Archaic period component dated between 410-830 B.C. contained only scattered burned rocks and low amounts of stone tools and projectile points, suggesting it was used only as a temporary encampment or "limited-use" area (see Dixon et al. 1995). A much more extensive Archaic use of the Tankersley Creek drainage basin has been documented in Middle and Late Archaic period components at 41TT373 (Kotter et al. 1993), where burned rocks from hearth construction and use were relatively abundant, along with projectile points, tools, and bifacial and expedient flake debris. These settlement data are compatible with higher population densities, limited group mobility but a wide dispersion of camp and foraging areas, the possible establishment of definable territorial ranges, and a well-developed foraging economy based on the hunting and gathering of local food resources.

No paleobotanical evidence is available that indicates that the Late Archaic populations in northeastern Texas cultivated native plant species (i.e., such as sumpweed, sunflower, and chenopod), as was the case by the first millenium B.C. in many parts of Eastern North America (Fritz 1994:25-27). Nutshells and *Psoralea* sp. (prairie turnip) are documented in Late Archaic components at the Unionville site (Cliff et al. 1996a; Cliff and Hunt 1995). The relatively high use of local lithic raw materials (typically upland gravel sources) during the Late Archaic in the Sabine, Sulphur, and Cypress basins speaks to a more confined inter-regional interaction at this time (Fields and Tomka 1993; Perttula and Bruseth 1995).

Woodland Period

The Woodland period (ca. 200 B.C. to ca. A.D. 800) in this part of Northeast Texas is conveniently recognized primarily by plain and relatively thick ceramic bowls and "flowerpot" shaped jars (although ceramics are not abundant on Woodland period sites outside of the Red River and lower Sulphur River areas), double-bitted axe heads, the smaller and thinner Gary projectile points and Kent points, and later in the period by small corner-notched arrowpoints (Thurmond 1990a). The same general traits are noted for the Fourche Maline Culture defined by Schambach (2001, 2002), but the Woodland period sites in the middle and upper Big Cypress Creek basin (i.e., upstream from the confluence of the Little and Big Cypress Creek) do not on more general terms—including settlement character and permanence, the construction of burial mounds, and the importance of ceramics—resemble Fourche Maline Culture sites. It appears that the Woodland groups in the area around the Pilgrim's Pride site were still rather mobile, and did not rely on the production and use of ceramic vessels to prepare and cook plant and animal foods.

In several instances, as at the Resch, Bert Davis, Herman Bellew (41RK222), Tankersley Creek, and Folly sites (see Figure 2-7), Lower Mississippi Valley (LMV) related ceramics (such as Tchefuncte Stamped, Churupa Incised, Marksville Incised, Troyville Stamped, and Marksville Stamped) occur with some frequency in Woodland period components in the Sabine River and Big Cypress Creek drainages (Nash and Perttula 2000; Rogers et al. 2001; Story 1990:246, 303, 312; Thurmond 1988, 1990a; see also Young 1981). Later LMV Coles Creek period ceramics (and expanding stem arrow points similar to the Colbert and Friley types) are present in notable quantities in several sites along the Sabine River, particularly at James Pace (see Figure 2-7) in a context dated between ca. 1300-1000 years B.P. (Girard 1994). Likely similar dated contexts in the upper Sabine River basin have ceramic assemblages dominated by horizontally incised decorative motifs, and Friley arrow points also apparently occur in association (see Bruseth and Perttula 1981).

While there is much archeologists do not know about the Woodland period peoples of Northeast Texas, what has been learned over the last 40 years or so is that they were still primarily hunter-gatherers who lived in increasingly larger groups and resided for longer periods of time at certain sites. The fact that some Woodland period sites in the broader area have relatively substantial midden deposits, and some evidence for structures (probably daubed pole and thatch structures), suggests more intensive occupations and a decreased residential mobility, but the degree of permanence is still less than that seen in the subsequent long-term Caddo settlement of Northeast Texas (Perttula, Fields, Corbin, and Kenmotsu 1993:99), and considerably less than documented by Schambach (2001, 2002) on Fourche Maline sites in the Red River basin. On the basis of available information, Woodland period groups may have cultivated squash, and used native seeds and tubers/roots, as well as collected a wide variety of woodland and aquatic animal resources.

Thurmond's (1990a) analysis of prehistoric sites in the Big Cypress Creek basin suggests that Woodland period sites are not very common, perhaps because the area received only limited use during this time period (e.g., Story 1990:310. As Story (1990:310) points out, however, most known Woodland period components in the basin were "limited use sites (i.e., rather short term camps) and that only a few. . . were small settlements." The Woodland period components that are known tend to occur on upland projections and upland slopes along both major and minor streams (Thurmond 1990a; see also Cliff [ed.] 1994). One such Woodland period component (calibrated dates at 1-sigma between A.D. 600-880 on the basis of three radiocarbon dates; another calibrated date of A.D. 140-260 hints at an earlier use of the site during the Woodland period as well) has been investigated at 41TT372, situated on the top of an upland ridge above the Tankersley Creek floodplain (Dixon et al. 1995), as well as at 41TT370 in the same drainage (Kotter et al. 1993). Particularly notable about the occupation at 41TT372 were several burned rock features and quantities of burned rock from the apparent cooking and processing of plant foods, and the absence of ceramics. Burned rock features, including a concentration of burned rocks covering an area of ca. 120 square meters, were also identified in an Woodland period component at 41TT409 that dates about 1650-1800 years B.P. (Kotter et al. 1993). This site is on an upland ridge at the headwaters of Piney Creek, a tributary to White Oak Creek.

By contrast, Woodland period settlements are common throughout the Sulphur River basin, and several archeological components of this age have been extensively investigated at Cooper Lake in the upper Sulphur River basin (Fields et al. 1997)—including the Spike (41DT16), Tick (41DT6), Luna (41DT52), Johns Creek (41DT62), and Hurricane Hill (41HP106) sites (see Figure 2-7). Spike, Tick, and Hurricane Hill have middens, while burials (flexed, bundle, and cremation) in a small cemetery, pits, postholes, and a hearth were excavated on the Southwest rise at Hurricane Hill (Perttula 1997, 1999c; see also Fields et al. 1997:91-92), suggesting this part of the site was intensively used for domestic and mortuary purposes during the early part of the Woodland period.

No Woodland period burial mounds have been definitively documented in northeastern Texas (Story 1990:310), although they have been found in bluff top and alluvial valley settings on the Red River in Northwestern Louisiana and Southwest Arkansas (Schambach 1982, 1997; Webb 1984), and on the Angelina, Neches, and Sabine rivers in Deep East Texas (Story 1990; see also Jensen 1968). The two or three mounds at James Pace on the Sabine River did not, however, apparently serve as platforms for burials or structures, or as caps for these features, and their functional significance is equivocal (Girard 1994:15). The appearance of burial mounds (and mounds covering crematoria) at sites like Coral Snake (see Figure 2-7) in the broader region around Northeast Texas does suggest that more complexly organized local groups did develop during the Woodland period in these localities (Schambach 1997, 2002).

Formative to Middle Caddoan Periods

There is an abundance of archeological information to draw upon when we turn to a consideration of the Formative (ca. A.D. 800-1000), Early (ca. A.D. 1000-1200), and Middle (ca. A.D. 1200-1400) Caddoan period occupations of northeastern Texas. Consequently, our view of the life ways of these prehistoric Caddo groups is much fuller, and perhaps more behaviorally meaningful, than has been the case for the Paleoindian, Archaic, and Woodland period regional archeological record. First, Caddo archeological sites of these ages are quite common throughout the Cypress basin and adjoining river basins (Thurmond 1990a;

Story 1990; Cliff et al. 1996b; Fields et al. 1997); indeed, the Cooper Lake area appears to have been "used most intensively by Native Americans" between ca. A.D. 800 to 1300 (Fields et al. 1997:75). Second, Formative to Middle Caddoan period sites are situated primarily on elevated landforms (alluvial terraces and rises, natural levees, and upland edges) adjacent to the major streams, or in the stream valleys themselves, as well as along minor tributaries and spring-fed branches. Proximity to arable sandy loam soils were preferred for settlement locations, presumably because of good drainage for habitation, and for cultivation purposes.

The majority of these Caddo sites are:

> permanent settlements that have evidence of the structures, including posts, pits, and features marking their residency, along with the cemeteries and graves where the dead were buried; the middens where the animal and plant food refuse was discarded amidmst broken stone tools and pottery vessels; and the material remains of tools and ceramics used in the procurement and processing of the bountiful resources of the region. They represent the settlements of Caddoan communities and sociopolitical entities, and the civic-ceremonial centers that were their focus (Perttula 1993:125).

The distribution of Caddo settlements across the landscape suggests that all habitats were used to some extent, either intensively as locations for the dispersed sedentary communities, households, and farmsteads, as well as cultivated fields, or were periodically used by groups in logistical camps where specific natural resources could be procured by the Caddo in bulk.

The most common types of prehistoric to early historic Caddo settlements in the region during these periods of time appear to be small hamlets and farmsteads (Cliff 1997; Cliff et al. 1996a; Largent et al. 1996; Perttula et al. 1986; Thurmond 1990a), sometimes with small cemeteries (see Goldschmidt 1935). In the Monticello B-2 Mine area, for example, Early and Middle Caddoan period components at 41TT372 are interpreted as a "seasonal campsite or a small family-based agricultural farmstead, at least on a periodic basis" (Dixon et al. 1995:235), principally because of the lack of middens or structural features. Similar and generally contemporaneous small (but mainly Middle Caddoan period in age based on the frequency of brushed ceramics) settlements have been investigated at 41TT392, 41TT396, 41TT400, 41TT406, and 41TT409 (Nash et al. 1995) in the headwater areas of Piney Creek, and at 41TT154 in the Tankersley Creek drainage (Kotter et al. 1993).

Recently studied Early and Middle Caddoan period components at the Unionville site (41CS151), Area C, 41CS150, 41CS155/156, Area B, 41BW553, and 41TT670 along White Oak Creek had well-preserved middens, hearths, postholes, and other features (Cliff et al. 1996a; Cliff and Hunt 1995; Largent et al. 1996). Similar kinds of Early Caddoan period components have been identified at the Spike, Thomas (41DT80), Doctor's Creek (41DT124) and Spider Knoll (41DT11) sites at Cooper Lake. The latter site had numerous postholes (from two possible structures and drying racks or arbors), pits, and a large midden deposit (Fields et al. 1997:93-96). The North rise at Hurricane Hill had a similar array of features and extensive midden deposits dating from ca. A.D. 1000-1200, including portions of two structures, several middens, hearths, burials, and pits (Fields et al. 1997:99-101), while the South rise had three structures, middens, burials, a dog burial, features, and an extensive Caddo ceramic assemblage from a Middle Caddoan period component dated about A.D. 1250-1375 (Perttula 1999c).

The Middle Caddoan period Tigert site (41TT36) on Hart Creek had a small midden and an associated burial with grave goods (Brown 1975), while the Middle Caddo component at the Griffin Mound (41UR142) in the Little Cypress Creek drainage contained a dense midden and a large (+ 2 meters in diameter and 1 meter in depth) storage pit feature, probably associated with a Caddo structure (Nelson et al. 1994). At the Benson's Crossing site (41TT110) on an alluvial terrace along Big Cypress Creek, occupied perhaps during the latter part of the Middle Caddoan period (ca. A.D. 1300-1400), Driggers (1985:96) suggests that the Caddo occupation/midden there was the product of at least two extended families living in a farmstead or small hamlet for more than 20-30 years.

Larger communities (covering 10s of acres) have also been recognized that occur in association with mound centers (such as the large settlements at Hale [41TT12] and Hudnall-Pirtle [Bruseth 1991]) (see Figure 2-7). One of the more significant Caddoan sites investigated to date in the northeastern Texas Pineywoods, the Oak Hill Village (41RK214), estimated to date between ca. A.D. 1150-1400, has at least 42 circular and rectangular structures. Some of the structures had been rebuilt and some overlapped earlier structures, and they were arranged over the 3.5 acre village in a circular pattern around a central plaza area (Cruse 1994, 1995; Rogers and Perttula 1999, 2004). A small earthen mound was at the north end of the site, and several midden deposits (including a large, possibly communal trash dump near the south end of the site) have been identified that appear to be associated with individual structures.

These Formative-Middle Caddo groups seem to have been horticulturists, cultivating some maize and squash, along with several kinds of native seeds (Perttula and Bruseth 1983), gathered nuts and tubers/storage roots, and were proficient hunters of deer, fish, and many other animal species. The available paleobotanical and bioarcheological evidence from Northeast Texas (and elsewhere in the Caddoan area) does not indicate, however, that Caddo groups became dependent upon maize and other domesticated crops until after about A.D. 1300; by ca. A.D. 1450, maize comprised more than 50 percent of the diet of many Caddo groups (see Perttula 1996; Rose et al. 1998; Burnett 1990). In the Sulphur River basin in particular, however, the use of cultivated plants appears to have been rather limited throughout the Formative to Middle Caddoan periods (Cliff 1997; Fields et al. 1997; Perttula 1999c), with only small amounts of maize and squash being recovered from the flotation of feature contents.

Both temple and burial mounds were built by these Formative-Middle Caddo groups. The larger sites are important civic-ceremonial centers containing multiple mounds and associated villages, and these generally date after ca. A.D. 900. The multiple mound centers are rather evenly spaced along both the Sabine River and Big Cypress Creek, and those that are contemporaneous may represent hierarchical systems of an "integrated. . . regional network of interaction and redistribution" (Thurmond 1990a:234). Perttula (1994:12) identifies the Jamestown (eight mounds and village), Boxed Springs (four mounds, village, and large cemetery), and Hudnall-Pirtle (eight mounds and 60 acre village) multiple mound centers, as representing the apex of postulated local Early-Middle Caddo networks in the Sabine River basin, while the Hale (41TT12) and Keith (41TT11) mounds may have served a similar function in the Big Cypress Creek basin. Only a few possible Caddo mounds are known in the lower Sulphur River basin in Northeast Texas (Cliff 1997) that may date to this time period, and they appear to consist of single mounds rather than large mound centers with platform and burial mounds. The distribution, number, and spacing of mound centers in this part of Northeast Texas clearly indicates that the Caddo peoples who built and used these mounds were integrated into societies of considerable socio-political complexity.

The Formative, Early, and Middle Caddo Pineywoods groups possessed a rich material culture. Well-made, corner-notched, and rectangular stemmed arrow points were common (Alba, Bonham, and Catahoula), along with siltstone and green stone celts, flake perforators and drills, large Gahagan bifaces, and a variety of more expedient stone tools (unifacial flake scraping and cutting implements). Long-stem Red River

(Hoffman 1967) and cigar-shaped ceramic pipes were made by the Caddo at this time, along with platform pipes (Turner 1997), as were ceramic earspools and figurines (see Newell and Krieger 1949).

Most distinctive of these Caddo groups were the ceramics they made for cooking, storage, and serving needs (see Perttula et al. 1995). Petrographic and chemical analyses of the pastes of Caddo ceramics from the Sabine River, Big Cypress Creek, and Sulphur River drainage basins suggests that most of the ceramics were made locally, but there is evidence from the paste inclusions that ceramics may have been traded between different Caddo groups in the Sabine and Sulphur river basins (Neff and Glascock 2000; Reese-Taylor 1995:23, 25). These vessels were made in a variety of forms, including: carinated bowls, simple bowls, compound bowls, bowls with collared rims and rim tabs, bottles with tall and tapered necks, and jars with short to tall necks or rims and cylindrical to spherical bodies; Turner (1997) notes the lack of large cooking vessels or jars in four Middle Caddoan period sites in the Dry Creek and Greasy Creek areas of Camp and Upshur counties. Many of the utility vessels were plain, but those that were decorated usually were decorated with incising, punctation, fingernail impressions, neck banding, and applique; brushing of vessel bodies (mainly Pease Brushed-Incised) is a form of surface treatment that is notable after ca. A.D. 1300 in the middle and lower portions of the Cypress Creek basin (Nelson and Turner 1997) and the lower Sulphur River basin (Cliff 1997). Effigy vessels are present in Middle Caddoan period sites in the western portions of the Big Cypress Creek basin.

The use of a red hematite slip on interior and/or exterior surfaces of carinated bowls and bottles (plain and engraved vessels) occurs with some regularity in Early and Middle Caddo ceramic assemblages, especially in the upper portions of the Big Cypress Creek basin (Nelson and Turner 1997; see also Driggers 1985), and in the case of Maxey Noded Redware, the squat, long-necked bottles also have appliqued and/or punctated designs below the neck of the bottle (cf. Krieger 1946). Engraved curvilinear, scroll, ladder, pendant triangles (solid and cross-hatched) and horizontal and/or diagonal motifs were commonly employed on the carinated bowls and bottles. This includes such defined types as Hickory Engraved, Holly Fine Engraved, Spiro Engraved, Sanders Engraved, and Haley Engraved (Suhm and Jelks 1962; Turner 1995). A distinctive engraved motif that appears to characterize the Middle Caddoan period in the Big Cypress Creek basin is an engraved rattlesnake on bottles and beakers (Turner 1996; Nelson and Turner 1997). Engraved vessels (or sherds with engraved rattlesnake motifs, see Driggers 1985) with the rattlesnake motif are known from six Middle Caddoan period sites in the Big Cypress Creek basin (Nelson and Turner 1997:Figure 1). Incised and incised-punctated decorated ceramics—including Crockett Curvilinear Incised and Crockett and Pennington Punctated-Incised "hybrids"—dominate the Formative and Early Caddoan ceramic assemblages at Caddo sites in the upper Sulphur River basin (Fields et al. 1997:81 and Figure 29), while the Middle Caddoan period component at Hurricane Hill (calibrated radiocarbon dates ranging from A.D. 1250-1375) has red-slipped plain and Maxey Noded Redware in small amounts, Sanders Engraved, sherds with engraved pendant triangles and ladders, cross-hatched and diagonal incised and incised-punctated sherds, and Haley variety long-stemmed Red River pipes (Perttula 1999c).

Late Caddoan Period

The Late Caddoan period Titus phase (ca. A.D. 1430-1680) represents the archeological remains of a number of affiliated Caddo groups who lived between the Sabine and Sulphur rivers in the northeastern Texas Pineywoods and Post Oak Savannah (Figure 2-8). These Caddo peoples lived in dispersed year-round settlements where they farmed and hunted, buried their dead in planned cemeteries, and manufactured culturally distinctive ceramics of considerable stylistic and functional diversity. Several hundred

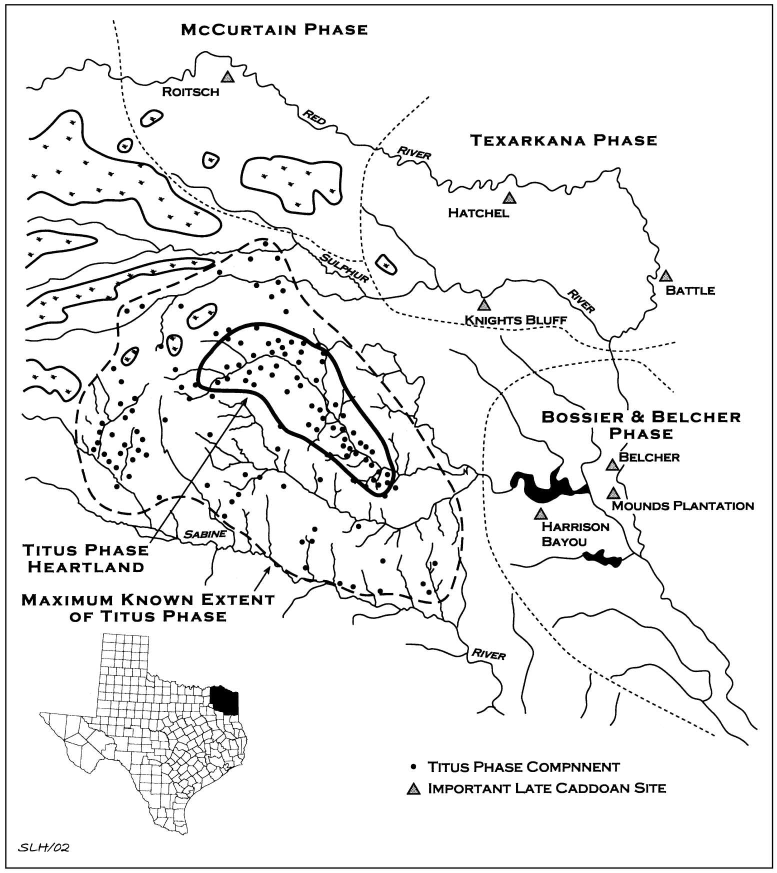


Figure 2-8. Distribution of Late Caddoan period phases and important sites, and the distribution of Titus phase components.

Titus phase components have been identified in the Pineywoods of Northeast Texas. The largest concentration of Titus phase components is found in the Big Cypress Creek valley (Thurmond 1990a: Figure 35; Perttula 1995: Figure 10), especially along eastward-flowing tributaries (i.e., Greasy Creek, Dry Creek, Walkers Creek, etc.) in the Titus phase heartland (see Figure 2-8), with a scattering of sites throughout the Little Cypress Creek valley, the middle portions of the Sulphur River, the middle and upper portions of the White Oak Creek drainage, and the upper and middle reaches of the Sabine River drainage. In the Monticello B-2 area mine, along the interfluve between the Big Cypress Creek and Sulphur River drainages, several important Titus phase settlements and the Mockingbird site (41TT550) cemetery have been identified in recent years (Kotter et al. 1991, 1993; Nash et al. 1995; Dixon et al. 1995; Galan 1998; Perttula et al. 1998; Sherman et al. 2002).

For the most part, the general regional limits of the Titus phase are well established, but information on the intra-regional density of sites (including large cemeteries) is still rather biased due to limited professional investigations across the region as a whole (cf. Thurmond 1990a: Figure 5; Perttula et al. 1986:35-59), extensive pothunting on Big Cypress Bayou, and the lack (until quite recently) of an avocational archeological network in the Pineywoods (Nelson and Perttula 1993, 1997; Perttula and Nelson 1998b). Thus, "apparent site density within the Cypress basin. . . is largely a function of survey intensity" (Thurmond 1990a:32).

The Late Caddoan period as currently defined extends from A.D. 1400-1680 (Story 1990:334). In the northeastern Texas Pineywoods, both the Whelan and Titus phases fall into this period. The chronological span of the two phases is still poorly developed because of the few absolute dates for the Late Caddoan period sequence (Thurmond 1990a: Table 60; Story 1990: Table 81; Perttula et al. 1997: Table 1), although this is changing with recent excavations in the Big Cypress Creek, White Oak Creek, and Sulphur River basins (e.g., Fields et al. 1994a; Horizon Environmental Services 1995; Kotter et al. 1991, 1993; Nash et al. 1995; Largent et al. 1996; Sherman et al. 2002). Calibrated radiocarbon dates for the Whelan phase indicate it began around A.D. 1350, lasting into the early to mid-15th century (Thurmond 1990a; Perttula 1992:102-107; Perttula et al. 1997). More than 50 calibrated radiocarbon dates and numerous Oxidizable Carbon

Ratio dates (e.g., Frink 1994) from Titus phase contexts, including a number of dates from the Pilgrim's Pride site itself, suggest that the Titus phase dates from ca. A.D. 1430-1680 (Perttula 1998a, 1998b).

Thurmond (1985, 1990a) has proposed that the Titus phase is composed of four contemporaneous spatial sub-clusters within the larger Cypress Cluster: the Three Basins, Tankersley Creek, Swauano Creek, and Big Cypress Creek. Titus phase settlements in the Big Cypress Creek-Lake O' the Pines area occur primarily within the Big Cypress Creek subcluster.

Thurmond's (1985, 1990a) spatial sub-cluster model is in contrast to the interpretations of Turner (1978), who proposes early and late chronological subdivisions within the Titus phase based on motif variations on Ripley Engraved carinated bowls (see Perttula 1995:Figure 11a-b, f-g), and changes in vessel form. Examination of the association of vessel forms, motifs, arrow point types, and available radiocarbon dates for the Titus phase suggests a simple alternative: that both spatial and temporal factors contribute to the archaeological character of the Titus phase and its sub-clusters (Perttula 1992). The sub-clusters appeared to have maintained a regional or local spatial integrity, "while at the same time there were diachronic changes in their formal composition that. . . permit establishing a detailed temporal sequence" (Perttula 1992:106).

Each of the sub-clusters are defined by Thurmond (1985, 1990a) on the basis of different Ripley Engraved bowl motifs or motif combinations, other shared pottery types of the engraved fine wares, and different proportions of various arrow point styles. Each Titus phase sub-cluster is characterized by a distinctive constellation of ceramic and lithic styles (Thurmond 1985:193-194).

Thurmond (1985:191) has argued that the Titus phase spatial groups denote socio-politically integrated separate tribes or sub-tribes similar to the confederacies known historically among the Hasinai or the Red River Kadohadacho groups. Thus, the larger Cypress Cluster is:

> the archaeological manifestation of a series of social groups banded together in a sociopolitical structure analogous to and at least partially contemporaneous with that of the Hasinai to the south and the Kadohadacho to the northeast. Four subclusters. . . are believed to represent the individual component groups comprising this affiliated group (Thurmond 1985:196).

No direct measurements of prehistoric Caddo Indian demography (i.e., number of people per square mile, or total number of people at any one time) are really possible for the Titus phase groups. However, Ubelaker (1988:291) estimates a population density of 17 to 31 people per 100 square kilometers in the southeastern United States at the time of initial European contact. Since the Titus phase area covers approximately 12,000 square kilometers (see Perttula 1998a), a possible estimate would be between 2040 and 3720 Caddo peoples lived in Titus phase communities in the early 16th century.

Changes in settlement count over time in the Big Cypress Creek and Lake Fork Creek basins do indicate that there was a steady increase in the number and relative frequency of prehistoric sites through the lengthy Archaic period (ca. 6000 B.C. to A.D. 0), followed by a decrease in the Woodland period (ca. A.D. 0-800), and then a substantial increase of Caddo sites in the Early and Middle Caddoan periods (Bruseth 1987; Thurmond 1990a). The highest number and density of components in the Big Cypress Creek basin occurs during the Late Caddoan period (Table 2-4).

Studies in the Lake Fork Creek basin (Bruseth and Perttula 1981; Bruseth 1987; Perttula et al. 1993a), and recent investigations in portions of the Big Sandy Creek (Perttula et al. 1986) and Little Cypress Creek basins

Table 2-4. Relative Frequency of Prehistoric Cultural Components in The Big Cypress Creek Basin.

Period/Phase	Total Components	Components/100 Years
Paleoindian	40	1.00
Early Archaic	52	2.60
Middle Archaic	94	4.70
Late Archaic	123	6.83
Woodland	24	4.00
Early Caddoan	40	8.00
Middle Caddoan	14	14.00
Late Caddoan		
Whelan	50	50.00
Titus	77	51.33
Total Number of Components	514	

From: Thurmond (1990a:Table 63)

(Horizon Environmental Services, Inc. 1993, 1995; Glander et al. 1993; Parsons 1998), as well as at Caddo Lake in the Big Cypress Creek Watershed (Cliff and Peter 1994:141), are similar to Thurmond's overall results for the Big Cypress Creek basin in confirming the high frequency of Late Caddoan period occupations. Titus phase sites are also notably abundant in the middle reaches of the Big Cypress Creek basin, based on investigations along Big Cypress, Tankersley, and Walkers creeks (Perttula and Nelson 2002; Perttula, Nelson and Schultz 2002; this volume). Clearly, regional Caddo populations were extensive throughout much of the Pineywoods after ca. A.D. 1350. Nevertheless, certain areas within northeastern Texas, such as the upper portions of the Sulphur River basin (cf. Fields et al. 1994a; Cliff et al. 1996b), and parts of the upper Lake Fork Creek basin (see Bruseth and Perttula 1981), were not apparently regularly occupied on a permanent basis by Late Caddo groups, and Fields et al. (1997:115) suggest that after ca. A.D. 1400, the upper Sulphur River basin area was the scene of "nonintensive, presumably limited-purpose use."

Late Caddoan period settlement in the Pineywoods and Post Oak Savannah of northeastern Texas have been termed rural Caddo community systems (Perttula 1992:96) because they were distributed along secondary streams, were widely dispersed, and because they consisted of functionally equivalent farmsteads and hamlets. Similar kinds of rural communities occur throughout much of the Caddoan archeological area (Story 1982, 1990; Jeter et al. 1989).

Small mound centers were being constructed and used up to ca. A.D. 1500 (and possibly later) in northeastern Texas, but they lack evidence of burial mounds or large platforms; rather, they contained mounds that buried burned structures. One such mound is present in Area VII at the Pilgrim's Pride site (Perttula 1999b), and at least ten other Titus phase mounds are known in the Big Cypress Creek basin (Perttula 1998a; Perttula and Nelson 2001; see also Chapter 11, this volume).

The larger Caddo "towns" were distributed along the major stream valleys, such as the Red, Ouachita, and Little rivers. These communities were hierarchically arranged with: civic-ceremonial centers (those with platform and burial mounds), associated "towns" of linear but dispersed farmstead compounds with several structures, bark- or brush-covered shelters and storage platforms (Schambach 1983:7-8), hamlets, farmsteads, and specialized processing and/or procurement locales (such as salt-making sites) (see also Gregory 1980:356-357).

Thurmond (1990a) recognizes three types of Titus phase settlements: *limited use areas*, *small settlements*, and *large settlements*. The limited use areas were seasonally occupied locations where extractive/ processing activities took place, while the settlements were year-round habitations. Small settlements (ranging between 0.2-1.8 ha in size, with midden accumulations, and wattle-daub concentrations) account for 73 percent of the known Titus phase settlements in the Cypress Creek basin, the limited use areas 23 percent, and the large settlements (those larger than 1.8 ha, and with midden accumulations as well as wattle-daub concentrations) only 4 percent of the sample. The Pilgrim's Pride site represents a large settlement as defined by Thurmond (1990a), in reality the apex of a local community of Titus phase peoples along the Big Cypress and Walkers Creek valleys (see discussion in Chapters 4 and 11, this volume).

The settlements appear to have been composed of one to several family units, with house middens/ daub concentrations and trash midden mounds. The range of domestic materials recovered in the midden mounds (e.g., Perttula et al. 1993), along with limited evidence of structure rebuilding, suggests that most Titus phase settlements were occupied only about a generation, when the settlement was moved to another area (perhaps during more droughty conditions?) where farming was possible. Small family cemeteries typically occurred nearby (Bruseth 1987; Perttula et al. 1993; Thurmond 1990a).

Analyses of the spatial distribution of cultural materials at the small settlement at the Burks site (41WD52), a Three Basins sub-cluster component, indicates that the disposal of broken pottery vessels, tools, and animal bones, was quite patterned across the site itself (Perttula 1995:Figure 13). Midden mounds up to one meter in height were common on Titus phase settlements before they began to be plowed in historic times. Excavations at Late Caddo Pineywoods and Post Oak Savannah settlements also suggest that many activities occurred outside the houses, resulting in trash-filled pits, hearths, and posts in these areas, where ramadas and granaries may also have been present, along with concentrations of artifacts and debris (Bruseth and Perttula 1981; Sherman et al. 2002; Thurmond 1990a; Woodall 1969).

Because of the intense professional and avocational focus on the cemeteries that occur on Titus phase settlements, few specifics are available on the types of houses and storage structures used by these groups. Based on the few excavated Late Caddo structures in the Pineywoods (some of which were in mounds and may thus not be at all characteristic of domestic structures), the single pole structures were probably circular in shape, were thatched and wattled, measured at least 5-6 m to 9-10 m in diameter, and may have had, on occasion, extended entranceways (Jelks and Tunnell 1959; Clark and Ivey 1974; Thurmond 1990a:144, 146, 148, 168, 210-211; Kotter et al. 1991; Parsons 1998; Galan 1998; Sherman et al. 2002). The two structures at the Pilgrim's Pride site were between 7-8.5 m in diameter (see Chapter 4, this volume). Structures had central hearths and center posts, 2-4 interior support posts, possible interior benches and racks for sleeping and above-ground storage purposes, smudge pits along the structure walls, as well as storage and trash pits. Structures had some midden accumulation on their floors (i.e., house middens), which were not often prepared or clay-lined, but the vast majority of the daily trash and refuse was deposited on the nearby trash midden mound. Two of the structures at the Ear Spool site (41TT653), both special-purpose structures, had clay-lined floors, and the structures were built within shallow pits (Sherman et al. 2002).

The best information on the distribution of Titus phase settlements in the Pineywoods and Post Oak Savannah comes from Thurmond's (1990a) study of the archaeology of the Big Cypress Creek Basin. Titus phase sites tend to occur on valley terraces, upland projections, and upland slope landforms, with the greatest use of minor (2-10 km^2) and upland basins. Fifty-four percent of all Titus phase components (including farmsteads, hamlets, villages, cemeteries, and a small number of extractive/processing sites) occur in the uplands. Given that the majority of archeological survey efforts in the Big Cypress Creek Basin have concentrated on major streams, and stream valleys in general, ". . . the frequent occurrence of sites along smaller streams is indicated. One suspects that the occurrence of sites in upland areas may be higher than the present data would indicate" (Thurmond 1990a:220). The distribution of Titus phase settlements, then, indicates an equal dispersion of agricultural farmsteads and hamlets in prehistoric times, usually being found near springs, arable soil, and level ground, but also preferring settings along tributary streams.

The permanent settlements and cemeteries of the Titus phase tend to occur in association with freshwater springs (Thurmond 1990a: Table 58 and Figure 33). Known Late Caddoan period Titus phase mound centers, however, typically do not occur in proximity to a spring, but rather are on the floodplain floor in major and intermediate basins, or they are situated on upland projections. Associated occupations are present on terraces, floodplain rises, or upland projections, but are not found on floodplain floor landforms.

Mound-building in the Late Caddoan period in Northeast Texas outside of the Red River valley was thought to have ceased by about A.D. 1500 (Thurmond 1990a; Perttula 1989, 1992, 1993), although recently obtained radiocarbon and Oxidizable Carbon Ratio dates from the Camp Joy Mound (41UR144) on Big Cypress Creek and other Titus phase mounds suggests mound-building may have continued in the Titus phase "heartland" until about A.D. 1600 or even later (Perttula et al. 1997; Perttula and Nelson 1997, 2001). Only a small number of Late Caddoan period mounds are known in the region (ranging from one to four small mounds per site), and they are unlike the types of mound complexes typically constructed in the major river valleys at this time (Story 1990; see also Davis and Gipson 1960; Jelks and Tunnell 1959; Tunnell 1959). Pineywoods mounds were sub-structural mounds; no pyramidal platform or burial mounds are known for this time period. Sub-structural mounds are restricted to mounds that cap a burned circular structure that was constructed on the ground surface or in a small, shallow pit. In at least two instances, the mounds contained sequent structures, but the "structures originated at higher levels in the mound[s] due to occupational accumulations of soil and ash, and not the result of any deliberate capping" (Thurmond 1990a:168).

Thurmond (1990a:234-235) suggests that the locations of Late Caddoan period mounds in the Big Cypress basin appear to be associated with clusters of contemporaneous settlements, cemeteries, and limited use areas, "and it is therefore possible that these concentrations of components represent the archeological manifestation of. . . Cypress cluster constituent groups during the [preceding] Whelan phase." A similar association has been noted for Middle and Late Caddoan period mounds and settlements in part of the Middle Sabine river basin (Perttula 1989, 1994: Figure 9). The larger Titus phase settlements with mounds, as at the Pilgrim's Pride site, appear to represent the main focus of the community hierarchy.

There are two types of cemeteries used by the Titus phase groups: the small family cemetery, and the large supra-local or community cemetery. Demographic profiles from these small cemeteries appear to be representative of a family group in that they contain roughly equal adult male and female representation. The family cemetery is located in immediate proximity to the farmstead or hamlet (as at the Burks site described above), contains few interments, typically about 10-20 individuals in cemeteries along the western margins of the Titus phase, and between 20-40 individuals in the Titus phase "heartland (Perttula and Nelson 1998b), and evidences no apparent differences in status or social rank in grave good associations and burial treatment.

Burials within the family cemeteries include single extended inhumations within a patterned arrangement of burials; burials are oriented roughly east-west (see Bell 1981; Hunt et al. 1996). Children were typically buried in sub-floor pits within the household structures themselves, but were also interred in the family and community cemeteries. According to Thurmond (1990a:235-236), artifact associations in family cemeteries differ only by age and sex:

> adolescents were buried with more offerings than children or infants, and with fewer offerings than adults. The graves of males often contain clusters ofm arrow points in patterns suggesting quivers of arrows, and those of females contain polishing stones or more numerous pottery vessels. Items of exotic material. . . are extremely rare. The occurrence of graves containing very large numbers of artifacts is also quite limited.

The large community cemeteries of the Titus phase are the product of interments from a number of contemporaneous communities in the vicinity, and thus they are reflective of a wider community-based participation in ceremonial and mortuary activities (Story 1990:338-339). These cemeteries usually contain at least 60-70 individuals, but some are known in the Titus phase heartland that contained at least 150-300 individuals (Turner 1978; Thurmond 1990a; Story 1990; Perttula 1993a; Perttula and Nelson 1998b).

The large community cemeteries contain excellent evidence for the existence of social differences within the Titus phase Caddo communities. Since community cemeteries are recognized by the type of burial interment, their relative size, grave good associations, and their relative separation from habitation sites, they are analogous in functional context to the mound centers. Known community cemeteries are not uniformly distributed among the Titus phase groups, but are concentrated on Big Cypress Bayou and several of its tributaries, the Titus phase "heartland," with a few large cemeteries known on Little Cypress and White Oak creeks (see Perttula et al. 1998; Perttula and Nelson 1998b). Presumably, this locality had the most regionally complex sociopolitical organization, and/or the highest population densities during Late Caddo times (e.g., Story 1990:339-340).

The larger community cemeteries are internally organized by space and structurally divided by rank (Turner 1978: Figure 3; Thurmond 1990a:Figure 20). There is little evidence for graves' overlapping, but instead the cemeteries appeared to have regularly expanded over time (see Perttula 1992: Figures 18 and 19). Since the cemetery plan was consistently maintained, and burial locations remembered and probably marked, they may reflect community participation over several generations; the varying position of the higher status burials (as at the Tuck Carpenter and H. R. Taylor sites) evidences this spatial expansion through time.

The social status ranking apparent in the Cypress Cluster burials is based on four criteria seen in the archeological record:

(1) high-status burials sometimes include large shaft tombs and multiple interments; all other high-status Titus phase burials are single, individual burials. Family cemeteries do not contain shaft tombs or multiple interments;

(2) quantities of grave goods in high-status burials are significantly higher than the mean average for the regional burial population as a whole (approximately 14-15 grave goods per burial

[Perttula 1992:Table 7]). Higher status burials differ from the population primarily in the frequency of arrow points and the range and quantity of ceramic vessels placed as grave offerings (Perttula 1992:Table 8);

(3) certain types of artifacts are found in higher status burials. One such example in the Cypress and Upper Sabine basins is the Galt biface (Thurmond 1990a:235), large bifacially chipped knives;

and (4) they are apparently almost always adult males.

There are about 20 Titus phase sites in the Pineywoods and Post Oak Savannah that have burials of presumed high-status individuals, such as Galt, Caldwell, Lower Peach Orchard, Tuck Carpenter, H. R. Taylor, and others. All those known are along Big Cypress Creek and its tributaries (Perttula and Nelson 1998b), particularly the area known as the Titus phase “heartland” between the dam site at Lake Bob Sandlin and the Lake O’ the Pines dam (Perttula and Nelson 1998b: Figure 159), and western and southern tributaries such as Dry Creek, Greasy Creek (Mitchell 2000), Walkers Creek, and Arms Creek. Certainly the best-known and studied community cemeteries with high-status burials are the Tuck Carpenter (Turner 1978, 1992) and H. R. Taylor (Thurmond 1990a) sites.

At Tuck Carpenter, high-status burials dating between ca. A.D. 1430-1550 are at the center of the 70-interment cemetery, while the latest high-status burials (estimated to date after ca. A.D. 1550 to the early 1600s) are alongside the outside cemetery boundaries (see Perttula 1992: Figure 18; Turner 1978). With the exception of the two multiple interments, other single, extended interments were placed in the cemetery in roughly aligned north-south rows. The high-status burials contained on average 37 grave goods per burial, compared to the 14.8 grave goods per individual burial for the cemetery as a whole (Turner 1978, 1992).

The same type of burial program noted at the Tuck Carpenter site was in use at the H. R. Taylor site (see Perttula 1992:Figure 19). Mean values of ceramic vessels (8.3/individual), arrow points (5.09/individual), and total number of specimens (14.5/individual) as grave goods at H. R. Taylor are not significantly different from other Titus phase cemeteries, but the high-status burials each contained on the average between 27-55 grave goods (Perttula 1992:Table 7; Thurmond 1990a).

The segregation of interments by presumed status indicates that high-status individuals account for 8 to 9 percent of the burials at H. R. Taylor and Tuck Carpenter, respectively. Lower-status interments, namely those with quantities of grave goods two standard deviations below the mean average for the two sites (between 0 to 9.0 items at Tuck Carpenter and 0 to 6.7 items at H. R. Taylor), account for 19 and 23 percent of the burials at the two sites. Lower-status individuals at these community cemeteries were usually adult females, juveniles, or children. Overall, in the Titus phase mortuary populations, high-status individuals account for less than 2 percent of all known burials (Thurmond 1990a:235; Perttula and Nelson 1998b).

The majority of Titus phase burials of presumed high-status appear to date after ca. A.D. 1550-1600 (see Perttula 1992; Perttula and Nelson 1998b), during a time of relatively equitable climatic conditions (see Table 2-3). Those individuals buried prior to A.D. 1550 demonstrate considerable intra-regional variability in the manner of burial treatment, as well as the types of funerary objects placed in the burials as offerings. For example, in addition to the multiple interments at Tuck Carpenter, shaft tombs are represented in a pre-A.D. 1550 cemetery at the Lower Peach Orchard site. At the J. E. Galt site, the high-status burial included such offerings as a large number of celt fragments and other native stone implements, rather than caches of arrow points (Thurmond 1990a:Table 29). Galt bifaces were also recovered from the cemetery.

The large Titus phase cemeteries with individuals of high-status are distributed within each of the four spatial sub-clusters identified by Thurmond (1985, 1990a) in the Big Cypress Creek basin, but are also known outside of these sub-clusters (Perttula and Nelson 1998b). The earliest appearance of community cemeteries occurs in the Tankersley Creek, Three Basins, and Swauano Creek sub-clusters, with the latest cemeteries being present in the Swauano Creek and Big Cypress Creek sub-clusters. No post-A.D. 1550-1600 community cemeteries are known in the Three Basins and Tankersley Creek sub-clusters, with the exception of Tuck Carpenter, which suggests that much of these areas were abandoned by resident Caddoan groups about this time, or that smaller family cemeteries were again being used instead of the community cemeteries.

In general, these community cemeteries are relatively short-term mortuary and cultural phenomena that were used intensively after about A.D. 1550 to the early 1600s. It is probably no coincidence that the beginning of the intensive use of community cemeteries in the region occurs generally contemporaneously with the initial contact between Titus phase Caddo populations and the Spanish De Soto/Moscoso entrada of 1542-1543 (see Thurmond 1990b). Indeed, Bruseth (1992:91) interprets the short-term use of these cemeteries as reflecting the passage of the army as well as increased mortality from European diseases. The timing in the intensification of this form of community cemetery in the region is also of considerable significance because the Titus phase community cemeteries may have begun to replace the use of mounds for community ceremonial and religious functions by the 1550s. I have argued that this process of replacement is a reflection of larger changes in social complexity and the scope of community integration, perhaps accompanied by a spatial coalescence and/or decrease in settlement density within the Pineywoods and Post Oak Savannah (Perttula 1992:115).

One of the most distinctive aspects of the Titus phase archeological record is the diverse aboriginal ceramics that occur in domestic and mortuary contexts (Figure 2-9). The wide variety of vessel shapes and decorations, as well as their frequency in domestic contexts, demonstrates the importance of ceramics in the Titus phase for the cooking and serving of food, as personal possessions, and as social identifiers. Both fine wares and utility wares were manufactured in the Titus phase. Differences in paste (and decoration) between the two wares presumably relate to technological and functional variability in the way these kinds of vessels were made and designed to be used (e.g., Steponaitis 1984:85-114; Perttula 2000; see also Reese-Taylor 1995).

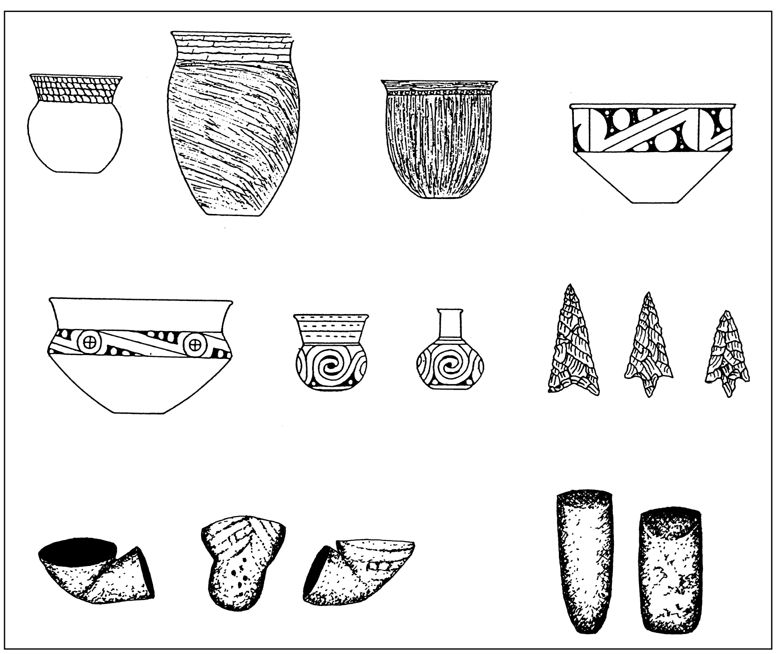


Figure 2-9. Ceramics, arrow points, clay pipes, and celt forms found on Titus phase sites.

The fine wares were generally tempered with finely crushed grog and bone, and were well-polished; shell-tempered vessels are quite rare, and when found, are typically trade wares from the Red River

Caddo (see Perttula et al. 2002). The fine wares were decorated with engraved lines, with scrolls, scrolls and circles, pendant triangles, and other curvilinear motifs being the most common decorative elements in the Titus phase ceramics. Another form of decoration was the application of a red hematite slip on both interior and exterior surfaces, and the painting of engraved lines with hematite or kaolin. The diversity of vessel forms is impressive: carinated bowls, compound bowls, bottles, conoidal bowls, ollas, everted rim jars, square bowls, globular peaked jars, and chalice forms. Other fine wares include zoomorphic effigies and rattle bowls.

The utility vessels were tempered with grog and grit, and had a coarser paste along with a thicker body. Small to large jars (over 30 cm in height with orifice diameters greater than 25-30 cm) and plain conical bowls were typical utility vessel shapes. The presence of carbon encrustations, food residues, and sooting on many of the utility vessels indicate that these pots were used for cooking (e.g., Skibo 1992; Perttula 2000); the large orifice diameters and vessel volumes also suggests that some utility vessels were used primarily for storage of foodstuffs and liquids.

The types of decorations and/or surface treatment on the utility vessels included neck-banding or corrugation, brushing, applique, incision, punctation, or various combinations thereof (Perttula et al. 1995; Turner 1995:Table 1). Small handles or lugs were present on some of the utility vessels. Based on sherd samples from domestic contexts, utility vessels probably comprised between 50 to 70 percent of the ceramic assemblages in Titus phase sites, with proportionally fewer utility vessels (about 30 percent) in mortuary contexts (Thurmond 1990a; Perttula and Nelson 1998b; Perttula 2000).

Other ceramic artifacts manufactured by Late Caddo Pineywoods groups include ceramic earspools, as well as bi-conical and elbow pipes (see Figure 2-9); see also Jackson 1933). Other types of earspools include ones manufactured from siltstone and sandstone, as well as wood (Turner 1992:84). One set of earspools from the Tuck Carpenter site had been covered with copper plate. The elbow pipes are commonly decorated with engraved lines that have been painted with hematite or kaolin clay pigments.

Generally speaking, lithic tools and debris (as well as burned rocks) are uncommon on Late Caddoan period sites in the Pineywoods and Post Oak Savannah. Presumably this reflects the strong development of wood and bone tool industries, few examples of which have been preserved in the archeological record. Excavations at the Ear Spool site indicate, however, that the Titus phase inhabitants there were actively involved in the knapping of a considerable number of Maud arrow points from local raw materials (Sherman et al. 2002).

The tool diversity is low, consisting primarily of triangular and corner-notched arrow points (see Figure 2-9), flake tools (drills, scrapers, and retouched pieces), lithic debris and cores, along with an array of ground stone implements. These include petaloid and tabular celts, metates and manos, battered and polished cobbles and pebbles, hematite and limonite pigment stones, and abrading slabs (Turner 1992; Thurmond 1990a; Perttula et al. 1998).

Although bone is not usually well-preserved on Titus phase sites, bone tools have been recognized at a number of sites. They include deer mandibles, deer beamers, ulna punches, antler tines, and deer and bird bone pins. Turtle carapace rattles have also been noted.

Titus phase subsistence remains with interpretive significance are rather limited to date to a few sites in the upper Sabine and upper Big Cypress basins, rather at the western edge of its settlement distribution

(Perttula 1993, 1995). However, well-preserved subsistence remains are known from a number of other sites of this age in Northeast Texas that have as yet received little professional attention (Thurmond 1990a). Floral evidence from trash midden deposits suggests that the tropical cultigen maize (*Zea mays L.*) was a dietary staple (and maize is common in Titus phase features at the Pilgrim's Pride site), and beans (*Phaseolus vulgaris*) were also an important food source. Nuts and seeds were also gathered, but they may have been of lesser importance in the Titus phase than they were between ca. A.D. 900-1400 (Crane 1982; Perttula and Bruseth 1983; Perttula et al. 1982). In fact, the subsistence evidence from the Titus phase, as well as elsewhere in the Caddoan archeological area and the lower Mississippi Valley, suggests the successful development of an Caddo maize-based economy at about this time (Fritz 1990:421, 425, 2000: Table 9.2).

Vertebrate species identified in Titus phase trash middens include deer, turkey, cottontail rabbit, jackrabbit, squirrel, and beaver. Turtle and fish were also present, but were relatively uncommon compared to mammals and birds. Deer and turkey appear to have been the dominant exploitable species (Perttula et al. 1982, 1993).

The examination of bioarcheological remains lends some additional light on the subsistence character of the Titus phase populations, but to date the results have not been substantial. This is because of the relatively small samples of human remains that have been analyzed from Pineywoods and Post Oak Savannah Late Caddo sites (Burnett 1990:402-408). Based on admittedly limited bioarcheological evidence, principally the low frequency of dental caries and porotic hyperostosis, Burnett (1990:405, 408) suggests that the Late Caddo inhabitants of the Cypress/Upper Sabine and the Middle Sabine river basins consumed little to no maize, and "were not dependent upon a maize-rich diet." Wilson's (1997a) analyses of Titus phase skeletal remains—specifically the high rates of caries—from two burials at the Southall site (41UR3) suggests that this Titus phase population actually consumed an abundance of maize in their diet. The lack of infections, such as osteoarthritis and osteoporosis, in the Late Caddo samples discussed by Burnett (1990), while again rather small, may indicate both a different lifestyle and workload than Caddo residents on the Red River, as well as a high measure of adaptive success (Burnett 1990:404). It is important in future research efforts to resolve the question of why there is this apparent substantial contradiction between the archeological and bioarcheological evidence regarding the nature of Titus phase subsistence.

Although many of the details are unfortunately still sketchy, mortuary goods and other exotic artifacts (such as Gulf Coastal marine conch shell, lithic raw materials, etc.) suggest that intra-regional contacts and the exchange of resources between rural and town Caddo communities flourished at the time of initial European contact in the sixteenth century. Inter-regional exchange and contact was also well developed between Caddo polities, and horticulturists living in the southwestern United States, the southern Plains, and the Lower Mississippi Valley (see Baugh 1998; Kidder 1998; Perttula et al. 2002).

Ceramic wares imported from the Red River Caddo groups are present in the Titus phase. They include such fine wares as Belcher Ridged, Belcher Engraved, Glassell Engraved, and Hodges Engraved from the Belcher phase to the east (Webb 1959:153), and Avery Engraved and Simms Engraved pottery types of the McCurtain and Texarkana phases to the north some 100 km (see Bruseth 1998; Neff and Glascock 2000).

An analysis of the grave good associations in a large sample of Whelan and Titus phase burials from the Big Cypress Creek basin (see Thurmond 1990a) indicates that a modicum of interaction occurred between the Pineywoods and Post Oak Savannah groups and Caddo populations to the north between A.D. 1350-1450, and this increased during the Titus phase proper. Glassell Engraved is a significant item of ceramic trade after 1450, with interaction to the north and east seemingly intensifying after about the middle 1500s. In fact, between 3.2-7.6 percent of ceramic vessels in Titus phase burials are Red River trade wares (Perttula 1992:249).

Significant quantities of non-local lithic raw materials are also present in Titus phase assemblages. Detailed examination of lithic raw materials in Three Basins sub-cluster components in the Sabine River basin indicates that Red River gravel cherts and chalcedonies comprised about 20 percent of the lithic tools and debris (Perttula 1984). These lithic raw materials were probably obtained from Red River Caddo groups who lived in the vicinity of the McCurtain phase Arnold Roitsch (41RR16) civic-ceremonial center (e.g., Banks 1990) downstream from the confluence of the Red and Kiamichi rivers. Hatton tuff, quartzitic sandstone, and siliceous shales from the Ouachita Mountains were obtained from Red River gravels for the manufacture of celts, which were then traded to the south and southeast to other Late Caddo groups.

In one study of the lithic raw materials present in Three Basins subcluster sites (Perttula 1984), Edwards chert from Central Texas (Banks 1990) represented about 8 percent of the lithic tools and debris. This material had to have been obtained by Caddo peoples through trade and exchange with non-Caddo hunting-gathering peoples living more than 150 km to the west and southwest of the Pineywoods.

Galt bifaces, possible "badges of rank or office" (Thurmond 1990a:35), found with high-status Titus and Belcher phase burials from a number of sites (Perttula and Nelson 1997, 1998b), are made from "non-local high grade cherts." Documentation of several Galt bifaces from the Pleasure Point (41MR63) community cemetery on Big Cypress Bayou, for instance, indicate that they were manufactured from a dark brown Edwards chert (Mike Turner, 1993 personal communication), and others are known that were made from Arkansas novaculite (Nelson and Perttula 1997).

The presence of Norteno phase ceramics (Womack Engraved) from Titus phase sites in the Three Basins sub-cluster suggests that the Nortenos (or Wichita-speaking groups who moved into Texas) interacted to some extent with the Pineywoods Caddo beginning some time in the latter part of the 17th century. Neither sites with Norteno ceramics contained European trade goods (e.g., Scurlock 1962), though, and the period when there was Norteno and Titus phase contact can only be suggested to have occurred in perhaps the early to late seventeenth century.

Gulf Coast conch shell was obtained by the Pineywoods Late Caddo for the manufacture of conch columella beads and pendants. This exotic material is rarely used in the Titus phase (Turner 1978), however, compared to that seen among the Red River Belcher and McCurtain phase Caddo groups (Webb 1959; Skinner et al. 1969; Trubowitz 1984; Kelley 1994), as well as among early historic Caddo groups in the same area.

A reconsideration of Titus phase chronologies, in combination with new assessments of the route of the de Soto-Moscoso 1542-1543 entrada through Northeast Texas (Bruseth 1992; Kenmotsu et al. 1993; Schambach 1989; Thurmond 1990b; Perttula 1992), suggests that: (a) the Spanish entrada encountered the Titus phase peoples— probably the *Lacane* province (see Hudson 1997)—and (b) that within 150 years of that encounter the area occupied by the Titus phase had been virtually abandoned. There was a considerable length of time between the initial European-Caddo encounters in the Pineywoods and when the region was ultimately abandoned by the Titus phase Caddo groups. While it is possible that some Titus phase peoples moved to live with either the Red River Kadohadacho, or among the Hasinai Caddo south of the Sabine River, current explanations for the demise of the Titus phase hinge on the introduction and, more importantly, the continued exposure of Caddo groups to European epidemic diseases (Thurmond 1990a:233, 1990b; Perttula 1992), which lead eventually to substantial depopulation among these Pineywoods and Post Oak Savannah groups.

Late Caddoan period Pineywoods and Post Oak Savannah sites such as those of the Titus phase hold great promise to document the nature of sociopolitical, demographic, and economic changes in the region during an eventful 250 year era in Caddo prehistory and protohistory. This is due in large part to their potential for fine-scale chronological control, say on the order of 20-30 years. As other recent studies of Caddo archeology make clear, there have been substantial changes in Caddo societies from ca. A.D. 800 to European contact (cf. Story 1990; Jeter et al. 1989; Early 2000), with one of the more important being the development of more egalitarian sociopolitical systems after ca. A.D. 1400 in many regions of the Caddoan archeological area, including some parts of the Pineywoods and Post Oak Savannah of northeastern Texas (Perttula 1995).

The intensification of maize-based economies after ca. A.D. 1400 in much of the Caddoan archeological area may be in large part responsible for the demise and abandonment of many of the civic-ceremonial centers at a time when there was a reorganization of social and political relationships within Caddo culture on a regional level. The tangible development of predictable maize surpluses at all levels, the "quality of abundance" referred to by Helms (1992:188), would have led to the social homogeneity noted above among some Late Caddoan period groups in the Pineywoods and Post Oak Savannah because household agricultural sufficiency negated the regionally expansive role of the elite-controlled social and political economy. After this time, therefore, social and political integration appears to have been regionally and locally redefined. In situations, however, where there were not predictable maize surpluses, different forms of social integration may have been otherwise developed.

The Post-A.D. 1680 Caddo Archeological Record

Subsequent to the discontinuation of community cemeteries in the early to mid-seventeenth century, most of the upper Sabine River, Big Cypress Creek, and Sulphur River basins were abandoned (Thurmond 1990b; Perttula 1992, 2002) (Figure 2-10). The only post-1680 Caddo occupations that can be related to earlier use of the region are to be found in the lower Sulphur River and Sabine River at

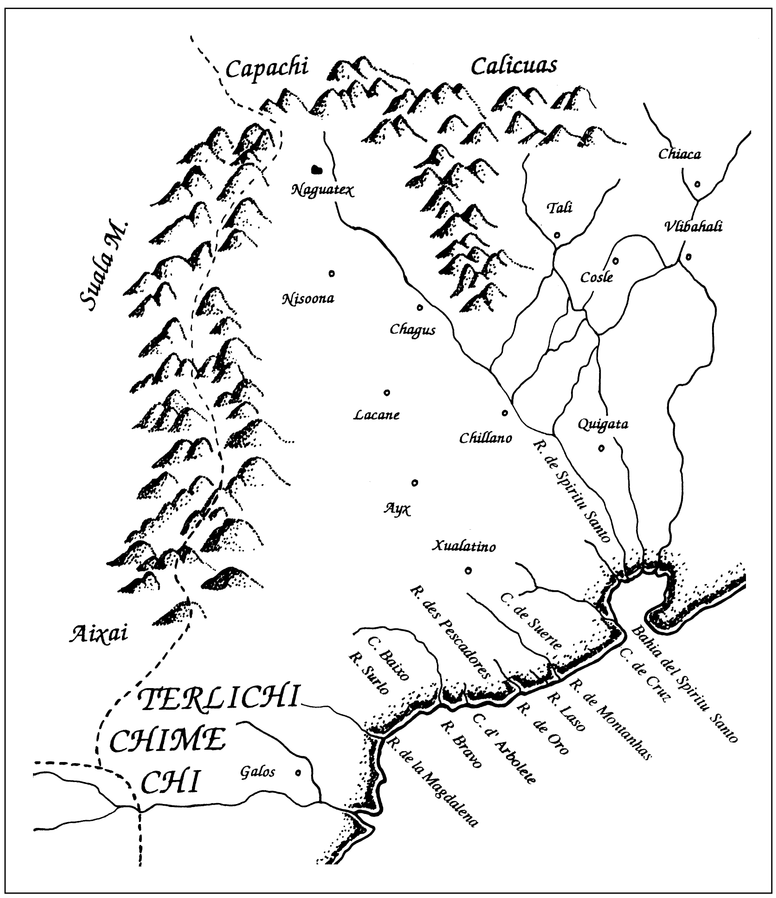


Figure 2-10. Redrawn version of Nicolas Sanson Map, 1656, "Le Nouveaa Mexique et la Floride." Note Caddo groups Naguatex, Nisoona, Lacane, Ayx, and Xualatino on a western tributary of R. de Spiritu Santo, the Mississippi River. This figure reproduced courtesy of the Texas Archeological Society.

known trade portages or along trail crossings of these major streams (Harris et al. 1980; Jones 1968; Perttula 1992:172-177). None of the Caddo communities in the Big Cypress Creek/upper Sabine basins appear to have been ethnographically described, and what is known from ethnographic and archival documents pertains principally to the Nadaco or Anadarko Caddo. This group's prehistoric antecedents are poorly known, and they appear to have only settled in the Sabine River basin after ca. 1770 (Smith 1995:74).

ENDNOTE

1. The current temperature reconstructions for the last 1000 years in the Northern Hemisphere may have underestimated the centennial- to decadal-scale variability by at least a factor of two (von Storch et al. 2004:679-682).

CHAPTER 3

Why and How We Did What We Did—Field and Laboratory Methods

Timothy K. Perttula and Bo Nelson

FIELD METHODOLOGY

The Pilgrim's Pride site had been the subject of test excavations by Keller (1998) before we began our work. Keller's (1998) investigations included the excavation of a number of 1 x 2 and 2 x 2 m units in several different site areas, in conjunction with the extensive use of a road grader (Figure 3-1) and a trackhoe to uncover features and structures.

The field investigations completed by Archeological & Environmental Consultants at the Pilgrim's Pride site were proposed to have two phases. The first consisted of the stripping of key site areas with a number of bulldozers to remove the upper part of the sediments, followed by use of the backhoe machines (using the front-end loader blade for scraping) at the point where features were identified on the scraped surface, or could be expected based on differences in soil color and contrasts (Figure 3-2). The key site areas (see Figure 1-4) were chosen both because of the distribution of features and burials found by Keller (1998; James E. Bruseth, 1998 personal communication) as well as topographic considerations (i.e., flatter and well-drained areas on the landform, including the rise in Area V and VI, were deliberately selected for stripping). The extensive size of the site, and the limited amount of time available for the archeological investigations before the onset of construction, were the primary reasons why we made extensive use of heavy machinery to investigate the site. Accordingly, the field work at the ca. 12 acre site was completed by us in about 160 person-days.

Figure 3-1. Road grading investigations carried out by Horizon Environmental Services, Inc.

The second phase of the work was to include the archeological monitoring of the construction of the rendering plant construction to document and excavate additional important features (i.e., burials, structures, large storage pits) that were not identified during the road grader investigations. However, construction of the rendering plant has not been completed to date, so the monitoring actually consisted of examining an additional site area (Area VIII) that also had the potential to contain important Titus phase archeological deposits (see Figure 1-4). This area was known to have at least one burial; there were several natural rises visible here that appeared to have concentrations of artifacts from Late Caddo Titus phase residential use; many features were exposed in adjoining Area I and Area II (see Figure 1-4); and Area VIII lay between these two residential areas and the Titus phase mound in Area VII. Thus, to fully understand the community structure of the Titus phase village at the Pilgrim's Pride site, it was crucial that Area VIII also be examined in the same manner as the other residential site areas.

Figure 3-2. Bulldozer and backhoe-scraping in Area VIII.

During the bulldozer and backhoe stripping, the key site areas were carefully bladed to the top of the B-horizon clay, or to a soil deposit with strongly contrasting color. The archeological team assigned to that area shovel skimmed (Figure 3-3) and troweled these areas searching for soil discolorations that may be cultural features, cleaning the investigated area at least twice under different visibility conditions to ensure that possible feature stains were confidently identified. Cross-sections of the soil discolorations were employed to determine if the stain was of natural or cultural origin.

Under special circumstances, a limited amount of controlled hand excavations (ca. 75-100 m^2, less than the hand excavations completed during the test excavations by Keller [1998]) was proposed within the key site areas. These hand excavation areas were to be comprised of contiguous 1 x 1 meter units where unique features or archeological deposits were identified in the bulldozer stripping work, and controlled excavations were critical to establishing the associatonal context of artifacts and features, including *burned structures or structural deposits; clusters of features or concentrated midden deposits with well-preserved faunal and floral remains; and/or a discrete Caddo cemetery area.* As no such areas were identified during that phase of the work, no large-scale controlled hand excavations were conducted during the data recovery effort at the Pilgrim's Pride site. Several 1 x 1 m units were excavated (prior to the beginning of the bulldozer and backhoe-stripping) in arbitrary 10 cm levels in Area III, Area IV, and Area V to document the character of the archeological deposits in parts of the site not previously examined by Keller (1998). None of these units contained significant concentrations of artifacts, and in fact the units in Area IV and V showed that almost no residential use was made of these site areas during the Titus phase occupation (see Chapter 4, this volume).

Figure 3-3. Shovel skimming in Area V.

When a cultural feature or likely cultural feature was encountered during either the bulldozer and backhoe-stripping work, or in any controlled hand excavation unit, it was assigned a unique number by area (along with N and E grid coordinates) and recorded on a Feature Record form, and then mapped (and elevations obtained) using a Total Data Station (TDS). The grid coordinates assigned by Keller (1998) to the Pilgrim's pride site (see Figure 1-4) were retained during our investigations.

The numbering of features or potential features proceeded as follows: the first feature in Area I was numbered Fea. 101, just as the first feature in Area II was Fea. 201, the second feature was Fea. 202, etc. Numbering the features in this way allowed work to proceed concurrently in each site area without having to worry about assigning duplicate feature numbers to different features in the various site areas.

The feature was first defined in plan view, and then cross-sectioned for a profile. Approximately 50% of the feature matrix was screened through 1/16-inch screen, with the remaining fill saved for flotation processing, or for special samples. To further document the feature, plan and profile views were drawn, along with taking black-and-white and color slide photographs. Special samples taken included bulk sediments for flotation and radiocarbon dating, and smaller samples (100-200 g) of feature sediments were employed for Oxidizable Carbon Ratio dating (see below), pollen/phytolith analyses (if warranted by enhanced preservation conditions of specific features), or for the collection of charcoal or other organic materials for macro-botanical identifications.

Once the bulldozer and backhoe-stripped areas were shovel skimmed and troweled, any hand excavations completed, as well as all cultural features investigated, the first and main phase of the field investigations was considered completed at the Pilgrim's Pride site. The potential second phase of the work—monitoring of the rendering plant area—was to be initiated only after consultation between THC, Pilgrim's Pride Corporation, and the Caddo Nation of Oklahoma that determined (after a consideration of the findings of the first phase of work) that there were areas remaining within the Pilgrim's Pride site that had the potential to contain important features and archeological deposits that could be documented through archeological monitoring. Consultation among the Agreement signatories determined that no such areas remained at the Pilgrim's Pride site, and accordingly no archeological monitoring was conducted.

METHODS OF ANALYSIS AND DATA MANAGEMENT

The recovered archeological materials were initially processed in the offices of Archeological & Environmental Consultants, LLC in Pittsburg, Texas, a few miles from the Pilgrim's Pride site. These materials were washed, dried, and catalogued by provenience and lot number, and the matrix from selected feature samples was either fine-screened or subjected to flotation to recover micro-botanical and faunal remains (see Chapters 9 and 10, this volume). The initial sorting of materials into broad classes (i.e., ceramics, lithics, bone, etc.) was also accomplished in the Pittsburg office, while the detailed analysis of the ceramics and lithic artifacts was conducted in the Austin office of Archeological & Environmental Consultants, LLC.

The ceramic analysis emphasized the acquisition of information on the stylistic and technological character of the Titus phase ceramic assemblage from the Pilgrim's Pride site. In particular, the primary research issues to be addressed with the ceramic analysis included: (a) determining the age and intra-site chronological relationships of components and ceramic assemblages at the site, (b) the occupational history of the site during the Titus phase as reconstructed from ceramic stylistic analyses; and (c) structure/feature relationships and community patterns through time. We were also concerned with determining the character and frequency of the utility ware vessel forms in the Titus phase households at the site, and how their composition at the assemblage level relates to the proposed intensification of maize consumption by Late Caddoan period groups in Northeast Texas (see SU 9 in Perttula 1993:140).

The stylistic analysis of the ceramics focused on the definition of recognizable decorative elements in the fine wares (i.e., the engraved and red-slipped vessels) and utility wares (i.e., the soft paste decorated vessels, usually cooking or storage jars and simple bowls). More than 150 decorative elements were eventually defined among the fine wares and utility wares, and these will be further discussed in Chapter 5 of this volume. The stylistic analysis was completed in conjunction with formal and technological analyses of the vessels and vessel sections (from macroscopic analyses of sherd thin sections), as well as a sample of the plain sherds and decorated sherds, emphasizing paste characteristics; non-plastic inclusions; surface treatments; and firing environments of the decorated and plain sherd assemblages. A small sample of decorated sherds or sherds from decorated vessel sections from key feature-structure-burial contexts were selected for instrumental neutron activation analysis (INAA; analyses conducted by the University of Missouri Research Reactor). Recent INAA research on Early-Late Caddo ceramics from a number of sites in northeastern Texas has provided useful information on assessing the compositional diversity of different ceramic assemblages, determining if compositional groups are associated with specific vessel forms and decorative elements, and in establishing if the ceramic compositional variation at sites changed over time, and thus reflected differing ceramic resource exploitation strategies or vessel movement patterns (Cogswell et al. 1998; Neff and Glascock 2000; Perttula et al. 2002). Based on the INAA results from the contemporaneous Mockingbird site (Neff et al. 1998; Perttula 2000) in Titus County, Texas, we expected that the Titus phase ceramics from the Pilgrim's Pride site will be compositionally homogenous, and made from local clays (if not on site). If non-local ceramics are identified, they should have compositional profiles consistent with the Red River group defined by Cogswell et al. (1998) and Neff and Glascock (2000).

Although it was not expected that a large Titus phase lithic sample would be acquired during the investigations (see Perttula 1998a:80), the analysis of the lithic artifacts focused on the identification of the range of chipped and ground stone tools in the Pilgrim's Pride lithic assemblage for two purposes: (1) to characterize stylistic and morphological attributes of the tools for documenting local and regional affiliations of the Titus phase population at the site; and (2) to determine intra-site differences in tool use and discard, particularly activities that may have occurred inside of house structures as opposed to tool use in extra-mural work areas and/or midden deposits. Another area of analytical importance was the identification of lithic raw material use in the tools and debris from the site. Previous investigations of Northeast Texas Caddo sites have demonstrated long-term trends in the procurement and use of local vs. non-local raw materials (including Red River gravel sources to the north and Edwards Formation chert more than 150 km to the west), but our understanding remains poorly developed of raw material use in Late Caddoan period Titus phase contexts in the Big Cypress Creek basin. Based on comparisons with the occurrence of non-local ceramics in Titus phase contexts, it is probable that the use of non-local lithics increased about A.D. 1450, and then intensified about the middle of the 16th century (Perttula 1998a:84). The Pilgrim's Pride site was occupied during this period of increased use of non-local materials.

Management and manipulation of the artifactual and feature data recovered during the archeological investigations involved the creation of computer databases, inventories, and tables in Microsoft Excel and Microsoft Word that incorporated provenience and attribute data identified during the laboratory inventory and analysis of materials. From these tables, we developed additional secondary tables for use in the report, statistically manipulated the databases using Microsoft Excel or Systat software, and created mapping or graphical representations of feature locations, artifact densities, or other categories of information.

The analysis of the recovered plant and animal remains was conducted by consultants familiar with the range of exploited species found on prehistoric Caddo Indian sites in Northeast Texas. The purpose of these analyses was to document the variety of plant and animal resources procured by the Titus phase occupants of the site, as well as determine inasmuch as possible the relative importance of tropical cultigens and large game animals in the subsistence strategy of the prehistoric occupants of the Pilgrim's Pride site.

The limited amount of Caddo Indian human remains that were recovered from the Pilgrim's Pride site were studied by Dr. Diane Wilson, a physical anthropologist with a demonstrated expertise in the study of Caddo bioarcheology. The methods of analysis were developed in consultation with the Caddo Nation of Oklahoma, and followed the protocols established in Buikstra and Ubelaker (1994). Data on the remains were collected and encoded using database forms and tables derived from recommended forms in Buikstra and Ubelaker (1994).

Approximately 30 radiocarbon samples (using charred nutshells or charred maize cupules/kernels) from intact cultural features and midden deposits at the Pilgrim's Pride site were proposed for radiocarbon dating analysis by Beta Analytic, Inc. to establish the age of the Titus phase archeological deposits, as well as determine the contemporaneity of burials, midden features, and houses from different parts of the site. Additional samples were submitted from two nearby Titus phase sites—41CP313 and 41CP316—also investigated during the course of the Pilgrim's Pride site project (see Appendix I and II, Volume II). Additionally, 200 g soil samples were secured for the same purpose from more than 80 key pits, hearths, house floor deposits, mound zones and features, or from the basal portions of midden deposits, for Oxidizable Carbon Ratio (OCR) dates. Useful OCR dates with minimal standard deviations (± 10-15 years) have recently been obtained from several Titus phase sites in the Big Cypress Creek basin (Perttula 1998b, 1998c; Perttula and Nelson 1999, 2002), as well as a variety of other Woodland and Late Prehistoric Caddo sites in East Texas (Frink and Perttula 2002). Frink (1992, 1994, 1995, 1999), Frink and Dorn (2002), and Frink and Perttula (2001) discuss the basis and methods of OCR dating.

DISPOSITION OF RECOVERED ARTIFACTS, MATERIALS, AND RECORDS

By agreement between Pilgrim's Pride Corporation (the owner of the artifacts, materials, and records from the Pilgrim's Pride site, which is on private land) and the Caddo Nation of Oklahoma, following the analysis of all recovered artifacts and materials (i.e., notes, photographs, negatives, processed data, maps, computer disks) from the data recovery excavations at the Pilgrim's Pride site by their archeological consultant, and the acceptance of the final report, Pilgrim's Pride shall provide these materials to the Caddo Nation of Oklahoma for curation in their tribal facilities in Binger, Oklahoma. As part of the curation effort, the Caddo Nation of Oklahoma shall then make the artifacts and materials available for future study and research at their tribal facilities, or for other appropriate purposes.

Through a subcontract, the Caddo Nation of Oklahoma also provided personnel in their Historic Preservation Department to work closely with Archeological & Environmental Consultants in actually preparing all the archeological materials for curation. This work was completed in the Tribe's facilities over the course of more than two years.

Chapter 4

Archeological Investigations in the Residential Areas of The Pilgrim's Pride Site (41CP304)

Timothy K. Perttula

In this chapter, I discuss the archeological investigations carried out in the Titus phase residential areas at the Pilgrim's Pride site. A number of different areas at the Pilgrim's Pride site contain archeological evidence of Late Caddoan period Titus phase (ca. A.D. 1430 to the late 17th century) residential occupations. These areas have midden deposits, structures and postholes, pits filled with cooking remains and trash debris, and abundant amounts of utility ware ceramic vessel sherds. These areas include Area I, II, III, VIII, and IX (Figure 4-1). Area IV had only sparse residential deposits, and may be part of a plaza or open area between the residential areas, the northern village mound (Area VII), and the southern cemetery areas (Areas V and VI).

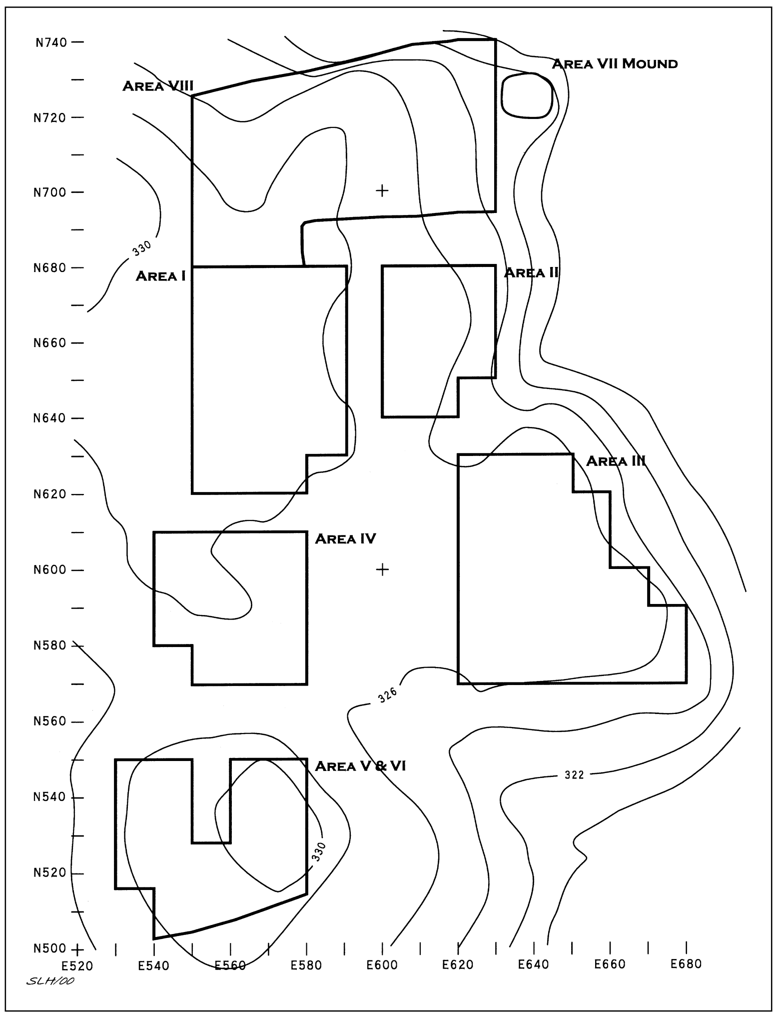


Figure 4-1. Areas investigated at the Pilgrim's Pride site (41CP304), Camp County, Texas.

First off, the archeological work carried out by Horizon Environmental Services (e.g., Keller 1998) will be reviewed and summarized, as that work set the stage for the scope and direction of the work that followed by Archeological & Environmental Consultants (now Archeological & Environmental Consultants, LLC). Then, the findings from our more intensive archeological investigations are discussed area by area, followed by a more detailed review of the kinds of features and archeological deposits encountered in both phases of the work, and their distribution across the site. Also important in this discussion is the temporal context of the archeological deposits, so we will devote some attention to the results of the extensive radiocarbon and OCR dating of features and midden deposits in the various residential areas.

Although there are archeological deposits at the Pilgrim's Pride site that appear to be of Archaic and Woodland period age—indeed, there were a few Paleoindian projectile points recovered from the scraped surface in several areas across the landform—discrete deposits and features containing only pre-A.D. 800 artifacts were never specifically identified during either Keller's (1998) or our work. When we began the more intensive part of the mitigation effort, our efforts were geared specifically to uncovering features and archeological deposits from the relatively well-preserved Titus phase component at the site. In any event, these earlier materials were apparently deposited on a relatively stable surface, and there was never sufficient aggradation from then until (and after) the Late Caddo Titus phase occupation to bury these materials at other than relatively shallow depths, unless they were covered by Late Caddo midden accumulations or mound deposits. The scraping work, however, would have removed most of these deposits before they were ever explored in much depth, mainly from the hand excavations carried out by Keller (1998). Consequently, we will not devote much discussion to these earlier materials in this chapter. Chapter 5 will discuss the range of artifacts, and their distribution, from the pre-A.D. 800 occupation of the Pilgrim's Pride site.

KELLER'S INVESTIGATIONS

At the time of Keller's (1998) work in the summer and fall of 1998, the Pilgrim's Pride site had been recently cleared of tree growth and underbrush, and then it had been raked by a bulldozer with a mounted raking device to remove roots and other buried obstructions. Thus, the surface of the site had excellent surface visibility, and the first task completed by Keller was to conduct general surface collections of artifacts across the gridded landform; the grid established by Keller measured 240 x 180 m in size (see Figure 4-1), a little more than 10 acres in extent.

The surface collection was done in 12 transects that were 180 m in length and 10 m in width. No finer subdivisions of the transects were completed by Keller (1998), and thus the surface collections provide only very general insights into the distribution and density of artifacts (primarily ceramic sherds, both plain and decorated) across the site itself. Keller (1998:1) did note "more densely concentrated" areas of artifacts at N600 E560 and N640 E560, apparently on natural sandy rises occupied by the prehistoric Caddo and earlier groups (i.e., Late Archaic and Woodland period groups).

At that point, 12 different but regularly-spaced transects (Figure 4-2) were excavated with a road motor grader across the site, generally being taken down from the surface to the top of the clay B-horizon. These road grader strips ranged from 2-6 m in width and 40-180 m in length, and were designed to cut across obvious topographic highs and surface concentrations of prehistoric artifacts. All told, 4870 m^2 were excavated with the road motor grader in the search for cultural features and significant archeological deposits (Keller 1998:2). While searching for the type of heavy machinery that would work the best in scraping the Pilgrim's Pride site, smaller and more irregular-sized areas were excavated with a belly scraper and a track hoe between the road grader transects (see Figure 4-2).The four track hoe areas (N669 E615 in Area II; N631 E615 outside of Area III; N635 E645 to the north of Area III; and N590 E582 in Area IV) were each described in Keller's field notes as being 3 x 3 m in size, but the actual disturbances associated with the track hoe excavations were much larger than that (see Figure 4-2).

Keller (1998) also excavated six "exploratory trenches" across the site in searching for features and significant archeological deposits; these were excavated by hand by the field crew, and none of the trench sediments were apparently screened during the work. The northern grid coordinates and sizes of the exploratory trenches are as follows:

Exploratory Trench 1, N660 E 560-610, 50 x 2 m in size (Area I and II)

Exploratory Trench 2, N732-740 E615, 8 x 2 m in size (Area VIII)

Exploratory Trench 3, N540-570 E580, 30 x 2 m (adjacent to Area V/VI)

Exploratory Trench 4, N620-656 E560, 36 x 2 m (Area I)

Exploratory Trench 5, N674 E550-590, 40 x 2 m (Area I)

Exploratory Trench 6, N676-680 E576, 4 x 2 m (Area I)

During the road grader work and exploratory trenching, several ceramic vessels and vessel fragments were uncovered at various places across the site (primarily in Areas I, II, and III), and while there were no associated human remains and no obvious pit outlines, these vessels are considered to be disturbed remnants of prehistoric Caddo burials and funerary objects in village residential areas. Other types of features were also encountered in the road grader scraping, including small and large pits, post holes, and midden deposits. These features were recognized as "suspicious stains" (Keller 1998:3) that were troweled, cross-sectioned, and cleaned "to expose a visible profile or cross-section." They were then "examined to determine whether or not the stain exhibited natural or cultural characteristics" (Keller 1998:3-4), typically a dark fill in a rounded and/or regularly-shaped cross-section or profile. Keller (1998:8-10) also was of the opinion that for suspicious stains to be cultural features at the Pilgrim's Pride site, they had to be of sufficient depth to penetrate the clay B-horizon. Why this should be so was never stated in Keller's (1998) draft report, and at this site

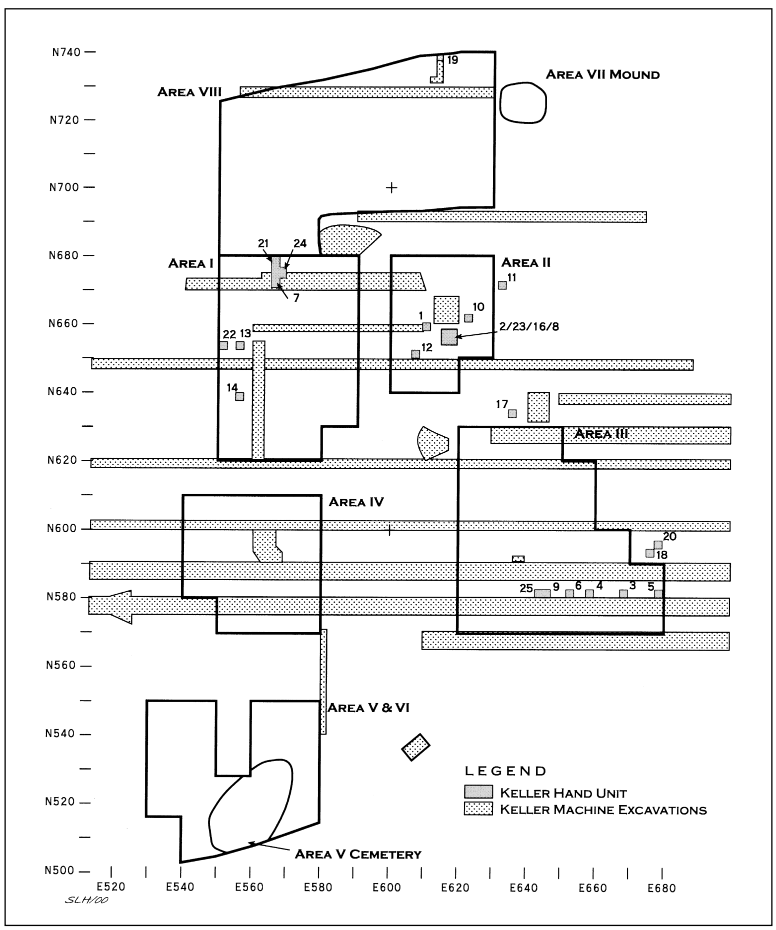


Figure 4-2. Areas I-VIII and the locations of Keller's hand and machine-excavated areas.

(and many other Caddo sites in northeastern Texas) it is patently not the case. Depending upon the depth to the clay B-horizon (which varied from ca. 20-100+ cm below the surface) and the type of features encountered, many prehistoric features were documented in the intensive data recovery work at the Pilgrim's Pride site that did extend in depth into the clay B-horizon. They were detected by carrying the backhoe and front-end loader scraping to depths above the clay where there was a clear soil color contrast that aided in feature detection.

Keller (1998:4) indicates that "499 suspicious stains were cross-sectioned and examined. However, only 55 of these were found to warrant further investigation and most of these on closer inspection proved to be non-cultural." Our examination of the available records on features and stains exposed in Keller's work—including those encountered and defined in the hand excavations to be discussed shortly—has identified 41 features in Area I, II, and III. These include eight likely burials (i.e., vessels and vessel sections, Fea. 1, Fea. 2, Fea. 4, Fea. 5, Fea. 6, Fea. 8, Fea. 9, and Fea. 66) (Figure 4-3), a midden remnant in Area III (Fea. 65), 13 pits, and 19 postholes (see Appendix III, Vol. II). Small soil samples (1-2 liters) were taken from most of these features; OCR samples were subsequently submitted by us from 10 of the better preserved features, and one feature (Fea. 3) had abundant charred *Carya* sp. nutshells that were submitted for radiocarbon dating when we began our investigations at the Pilgrim's Pride site (see below).

With the exposure and identification of "areas of artifact concentration, elevations, areas of darkened soil, and specific cultural features, such as burials, trash pits and midden remnants encountered during mechanical operations" (Keller 1998:5), the final part of the Horizon archeological work at the Pilgrim's Pride site consisted of the hand excavation of a series of 2 x 2 m units (and one 2 x 4 m unit) in Area I, II, III, and VIII (see Figure 4-2). These units total 96 m^2. According to Keller (1998:5), "these units were excavated in 10 centimeter levels and all excavated material was screened through 1/4 inch mesh. Artifacts were separated and bagged by unit and level." Most of these units were excavated to depths of 40 cm bs (the base of level 4), although there were deeper archeological deposits (ca. 60-80 cm bs) explored in Units 13, 14, and 22 in Area I and Units 2, 8, 16, and 23 in Area II (see Figure 4-2). No profiles were drawn of any of the units excavated by Keller (1998), but unit descriptions indicate that the sediments with archeological materials were a sandy loam of brown and yellowish-brown color; darker sandy loam soils in certain parts of Area I, II, and III appear to represent midden deposits.

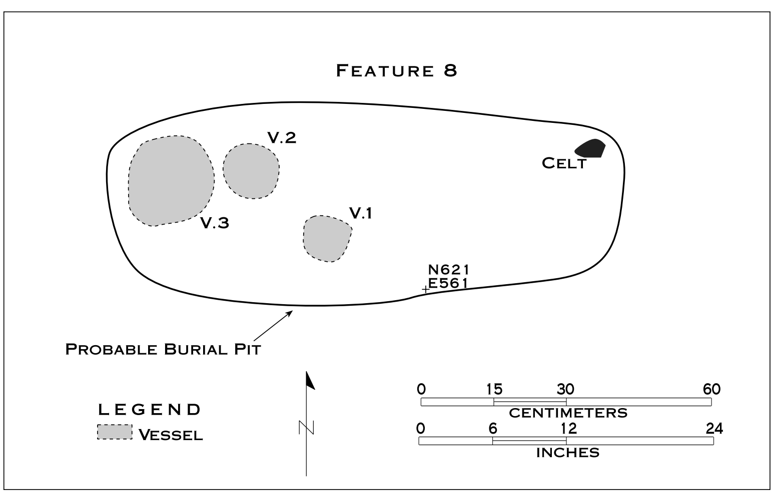


Figure 4-3. Feature 8, exposed in Exploratory Trench 4 in Area I, between 20-31 cm bs.

In Units 7, 21, and 24, the excavations exposed several pit features with charcoal-stained fills (10YR 2/2), as well as a sherd concentration from one vessel (Fea. 9) that may be the remnants of a shallow burial (Figure 4-4). Outside the features, the sediments were a yellowish-brown (10YR 5/4) sandy loam. The Fea. 3 pit—which contained abundant charred *Carya* sp. nutshells (see Dering, Chapter 9, this volume)—extended only to 24 cm bs. A two sigma calibrated radiocarbon age of AD 1447-1642 (Beta-125985) was obtained on the Fea. 3 nutshells (see below). The excavations also uncovered several large sherds along the margins of Fea. 3, but between 5-10 cm bs.

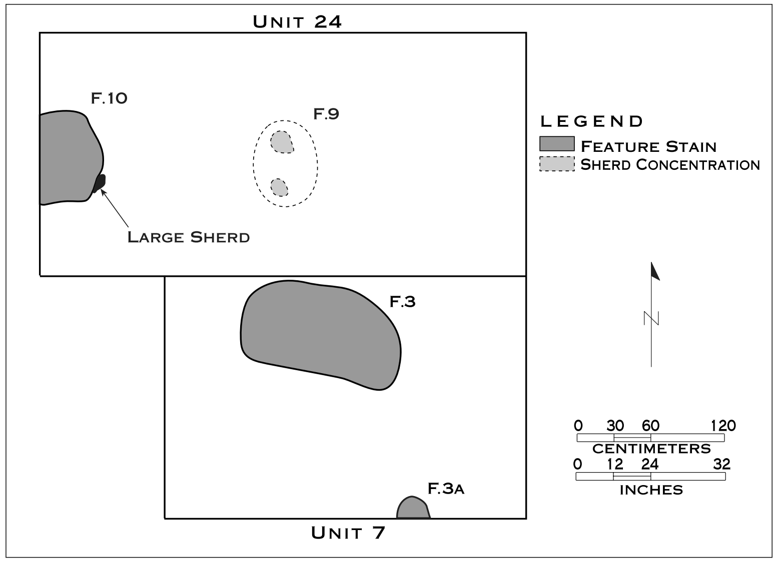


Figure 4-4. Feature stains and sherd concentration in Units 7 and 24, Area I.

Most of the artifacts recovered in this area are plain and decorated ceramic sherds (Table 4-1), and they are concentrated in the 0-10 cm level. The overall density of ceramic sherds (19.4 sherds per square meter) in this part of Area I is moderate compared to the southern part of Area I, the central part of Area II, and the southern part of Area III, and the relative frequency of lithic debris is much lower here than in other site areas, particularly those that appear to have had more substantial Woodland and Archaic archeological deposits.

The archeological deposits in the southern part of Area I (see Figure 4-2) are considerably deeper than in the northern part of Area I, and they are apparently thicker here than in any of the residential contexts at the Pilgrim's Pride site. The sediments were a dark yellowish-brown to yellowish-brown sandy loam.

The vertical distribution of dart points, fire-cracked rock, and ground stone tools (Table 4-2) also suggest that the deposits below ca. 40-50 cm bs have more abundant pre-A.D. 800 archeological materials (albeit well-mixed with Late Caddo ceramic sherds) than most of the other hand-excavated units. The overall density of sherds is more than 62 sherds per square meter, and this is probably a product of more intensive use (and/or trash dumping) in this part of the site. The ceramic sherds—both plain and decorated sherds—are concentrated in the upper 40 cm of the deposit, and they comprise between 80-90% of the artifacts found in those levels (see Table 4-2).

Table 4-1. Unit 7 and 24 artifacts, Area I.

Kinds of Artifacts	0-10 cm	10-20 cm	N
lithic debris	8	3	11
ground stone tool	1	–	1
arrow point	–	1	1
flake tool	–	1	1
plain sherds	103	54	157
decorated sherds	53	23	76
burned clay	3	1	4
daub	–	1	1
Totals	168	84	252

Several charcoal-rich stains were exposed and mapped in Unit 13 that may be associated with the Late Caddo occupation (Figure 4-5). None were apparently cross-sectioned or examined in detail to determine if they were cultural features, but their size and shape suggest the stains may be from small pits and post holes, rather than natural disturbances. The stains

Table 4-2. Unit 13, 14, and 22 Artifacts, Area I.

Kinds of Artifacts	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	N
lithic debris	24	28	15	11	17	20	14	3	132
core	1	–	–	–	–	1	–	–	2
fire-cracked rock	–	–	–	–	–	–	1	–	1
dart point	–	2	–	–	–	–	3	–	5
groundstone tool	1	1	–	–	1	1	–	–	4
arrow point	–	1	–	–	–	–	–	–	1
flake tool	1	–	–	–	1	–	–	–	2
plain sherds	84	106	101	96	33	23	25	6	474
decorated sherds	46	56	51	57	29	19	16	3	277
burned clay	–	1	3	1	–	–	–	1	6
daub	–	1	–	–	–	–	–	–	1
Totals	157	196	170	165	81	64	59	13	895

were mapped in the 30-40 cm and 40-50 cm bs levels. In Unit 14, several large (10-30 cm in length) sandstone rocks were mapped in place in the 40-50 cm level; the rocks were described in the field notes as "reddish sandstone rocks," suggesting they may have been exposed to heat.

Units 2, 8, 16, and 23 were apparently placed in a artifact-rich midden area along the eastern edge of the landform (see Figures 4-1 and 4-2). The 4 2 x 2 m units exposed several charcoal-rich stains and two whole vessels (see Appendix VII, Vol. II), designated Fea. 4 and Fea. 6, respectively, by Keller (1998:6-7). The sediments were a dark yellowish-brown sandy loam, and the clay B-horizon was encountered at about 60 cm bs.

The tops of the two vessels were at 20 cm bs (Fea. 6) and 26 cm bs (Fea. 4) (Figure 4-6). No human remains or pit outlines were observed during the exposure and removal of the two vessels.

The density of artifacts, particularly plain and decorated ceramic sherds, is impressive in this part of Area II, with more than 136 artifacts per square meter. The density just of sherds is 113.5 per square meter, almost 80% higher than in any of the other hand-excavated units in the Titus phase residential areas. These deposits are about 50 cm thick (Table 4-3).

More than 80% of the artifacts in Units 2, 8, 16, and 23 are ceramic sherds (including one pipe sherd), testifying to the intensity of the prehistoric Caddo occupation here. Considering the relatively high densities of lithic debris, and the distribution of dart points and fire-cracked rock below 30 cm bs, we

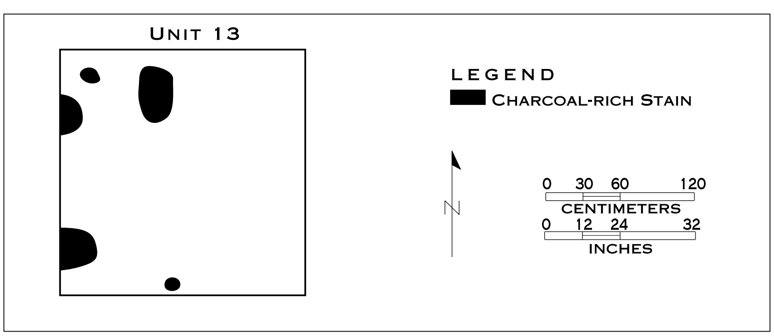


Figure 4-5. Charcoal-rich stains in Unit 13, Area I.

suspect that this was one area of relatively intensive use during Archaic and/or Woodland period times. This part of the site overlooks the confluence of Walkers Creek and Big Cypress Creek.

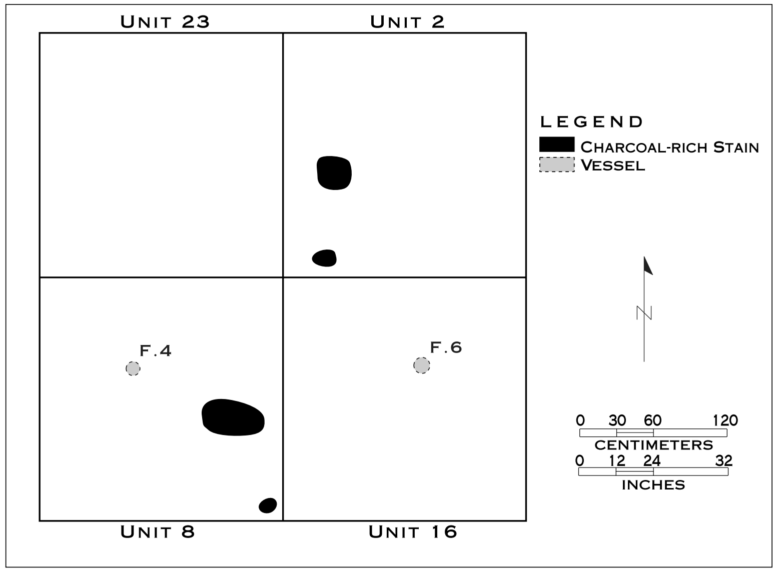


Figure 4-6. Charcoal-rich stains and vessel features in Units 2, 8, 16, and 23, Area II.

Areas not far to the north-north-east, northwest, and southwest of Units 2, 8, 16, and 23 in Area II (see Figure 4-2) have much lower artifact densities and shallower archeological deposits (Table 4-4), although there may have been some midden deposits in the area of Unit 12. The sediments were a yellowish-brown to dark yellowish-brown sandy loam, with the clay B-horizon exposed between 25 cm bs (Unit 11) and 50 cm bs (Unit 10); Unit 12 was not apparently excavated to the B-horizon, but only to 40 cm bs, and the sediments were described in the field notes as a "brown sandy soil." A sample of charred *Carya* sp. nutshells from Unit 12 produced a 2 sigma calibrated age of AD 1388-1660 (Beta-129587); at 1 sigma, the calibrated age range is AD 1419-1627 (see below).

These deposits have material remains from both pre-A.D. 800 and Late Caddo occupations somewhat mixed together between 0-40 cm bs, but plain and decorated sherds account for a little bit more than 70% of the total artifacts in Units 10-12 (see Table 4-4).

Table 4-3. Unit 2, 8, 16, and 23 Artifacts, Area II.

Kinds of Artifacts	0-10	10-20	20-30	30-40	40-50	50-60	N
lithic debris	16	59	100	113	45	22	355
core	–	1	–	–	–	–	1
fire-cracked rock	–	–	–	1	1	–	2
dart point	–	–	3	4	–	–	7
groundstone tool	1	–	–	3	–	–	4
flake tool	–	1	1	1	–	–	3
plain sherds	137	240	326	219	66	16	1004
decorated sherds	94	207	255	184	63	8	811
pipe sherd	–	–	–	–	1	–	1
Totals	248	508	689	527	177	46	2196

The density of sherds, however, is only 14.2 sherds per square meter, about 8 times lower than in Units 2, 8, 16, and 23. No features or charcoal-rich stains were noted in the Unit 10-12 excavations.

Units 3-6 were placed in the southeastern and south-central part of Area III, near probable burial features exposed in road grader stripping. The archeological deposits are relatively shallow, with only a moderately low density of artifacts (17 artifacts per square meter) here (Table 4-5). The clay B-horizon was encountered between 25-40 cm bs in these four units. Unit 5 had a dark yellowish-brown (10YR 3/4) stain about 90 cm in diameter at 30 cm bs, but the field notes comment only that the "dark area was disturbed [and] appeared recent."

Table 4-4. Unit 1, 10-12 Artifacts, Area II.

Kinds of Artifacts	0-10	10-20	20-30	30-40	N
lithic debris	30	40	9	5	84
dart point	–	2	–	–	2
ground stone tool	1	1	–	–	2
flake tool	–	2	–	–	2
biface	–	1	–	–	1
plain sherds	53	50	23	12	138
decorated sherds	42	31	11	5	89
Totals	126	127	43	22	318

The most common artifacts in the Unit 3-6 assemblage are plain and decorated sherds (n=172) and lithic debris. Dart points and ground stone tools found between 20-30 cm bs (see Table 4-5) again indicate that there is a pre-A.D. 800 archeological deposit in this part of the Pilgrim's Pride site, but it is apparently mixed with the Late Caddo Titus phase occupation in these shallow sediments.

Units 9 and 25 were located adjacent to where three vessels (Fea. 2) were identified in a road grader strip. According to Keller (1998:6), Fea. 2 "had been excavated into a deep sandy loam above the argillic interface and no grave outline was present." Another vessel (Fea. 5) was located in Unit 9 just below the plow zone, resting about 35 cm bs. No grave outline was visible around the Fea. 5 vessel, nor was there any obvious relationship between the Fea. 2 and Fea. 5 vessels other than their proximity to one another: Fea. 2, Vessel 2 is only about 1 m east-northeast of Fea. 5, while the other two vessels in Fea. 2 are from 40-60 cm from Fea. 2, Vessel 1. If all four vessels are funerary objects in a single disturbed Titus phase burial

Table 4-5. Units 3-6 Artifacts, Area III.

Kinds of Artifacts	0-10	10-20	20-30	30-40	N
lithic debris	18	15	27	24	96
dart point	–	–	2	–	2
ground stone tool	–	–	1	–	1
flake tool	–	1	1	–	2
plain sherds	39	25	21	12	124
decorated sherds	14	9	4	5	48
Totals	71	50	56	41	273

*In one unit, the 0-10 cm and 10-20 cm levels were combined. They contained 12 pieces of lithic debris, 27 plain sherds, and 16 decorated sherds. These artifacts are not included in the table totals.

roughly oriented east-west, which seems likely given the known orientation of other Titus phase burials (cf. Turner 1978, 1992; Thurmond 1990a; Perttula et. al. 1998; Rogers et al. 2003), then the Fea. 2 vessels were probably placed around the head and left side of the deceased individual, and the Fea. 5 vessel would have been placed near the feet. In distance, the Fea. 2 and 5 vessels are a total of 1.4 m apart; if this represents the approximate location of a burial pit, then the individual buried here was not a fully-grown adult, and was instead probably a child or juvenile.

These units are situated in an area of dark brown sandy loam sediments at least 40 cm in thickness. The archeological deposits are dominated by plain and decorated sherds between 10-40 cm bs (Table 4-6). These two units have the third-highest sherd density of any of the hand-excavated unit clusters in Area I, II, and III, with a density of 35.6 sherds per square meter. This relatively high density, in concert with the dark brown color of the sandy loam deposits, suggests these units may be in a midden deposit.

There are very sparse archeological deposits in Unit 17, just to the north of Area III (see Figure 4-2). The clay B-horizon was encountered at approximately 40 cm bs, and there were no charcoal-rich stains or cultural features in the unit. The sherd density is only 7.5 sherds per square meter (Table 4-7), the lowest of any of the hand-excavated units at the Pilgrim's Pride site.

Table 4-6. Unit 9 and 25 Artifacts, Area III.

Kinds of Artifacts	0-10	10-20	20-30	30-40	N
lithic debris	12	36	16	25	89
plain sherds	7	55	52	67	181
decorated sherds	5	33	26	40	104
Totals	24	124	94	132	374

Units 18 and 20 were situated near the southeastern edge of Area III, along the upper slopes of the landform (see Figures 4-1 and 4-2). The sediments are thin and eroded, but small remnants of midden deposits were encountered in the northern part of Unit 18 and most of Unit 20, overlying the clay B-horizon. Charred *Carya* sp. nutshells from the midden deposits in Unit 20 produced a 2 sigma calibrated age range of AD 1453-1648 (see below) (Beta-125986), indicating the midden accumulated in Titus phase times.

Most of the artifacts in Units 18 and 20 are plain and decorated sherds, with a few pieces of lithic debris and two dart points from the pre-A.D. 800 occupation(s) at the Pilgrim's Pride site (Table 4-8). The artifacts were concentrated between 10-20 cm bs, just above the B-horizon. The sherd density here is 15.9 sherds per square meter, only of moderate density compared to archeological deposits in the south central part of Area II, the west central part of Area I, and the southern part of Area III (about 10 m south and southwest of the Unit 18/20 midden).

Table 4-7. Unit 17 Artifacts, Just North of Area III.

Kinds of Artifacts	0-10	10-20	20-30	30-40	N
lithic debris	–	1	4	–	5
dart point	–	–	–	1	1
plain sherds	12	6	2	2	22
decorated sherds	7	1	–	–	8
Totals	19	8	6	3	36

Unit 19 is in the far northern part of the site, in Area VIII (see

Figure 4-2), about 20 m northwest of the Area VII mound. It was placed along the northern edge of a hand-dug trench (Exploratory Trench 2) that had been previously excavated in a search for evidence of burial pits or funerary objects that may have been associated with the discovery by Bo Nelson of a engraved vessel and Talco point (Fea. 67) eroding from a recently constructed road that ran across the northern part of the Area VIII (see below) (Figures 4-7a-b and Figure 4-8).

Table 4-8. Unit 18 and 20 Artifacts, Just East of Area III.

Kinds of Artifacts	0-10	10-20	N
lithic debris	6	4	10
dart point	2	–	2
plain sherds	24	69	93
decorated sherds	7	27	34
Totals	39	100	139

a

b

Figure 4-7. Unit 19 and Fea. 67 in and near Area VIII: a, hand-dug trench and Unit 19, with recently constructed road in the background; b, exposure of Fea. 67 vessel and Talco point along edge of road.

There were 40-60 cm thick brown sandy loam sediments with archeological deposits in Unit 19. These had only sparse numbers of artifacts, including lithic debris, plain sherds, and decorated sherds (Table 4-9). The sherd density is only 4.6 sherds per square meter, the lowest density in any of the hand-excavated units completed by Keller (1998); the overall artifact density is a low 10.8 per square meter. What artifacts there were in Unit 19 were found primarily between 30-60 cm bs, including a single ground stone tool in the 30-40 cm level (see Table 4-9).

In the course of the Unit 19 excavations, a 15 cm diameter stain or burned area was identified in the 40-50 cm level. The size and shape suggests this may have been a post hole, but the stain was not apparently cross-sectioned or profiled to determine if it was a cultural feature.

INTENSIVE DATA RECOVERY WORK

The main intensive data recovery work completed by Archeological & Environmental Consultants was done in January

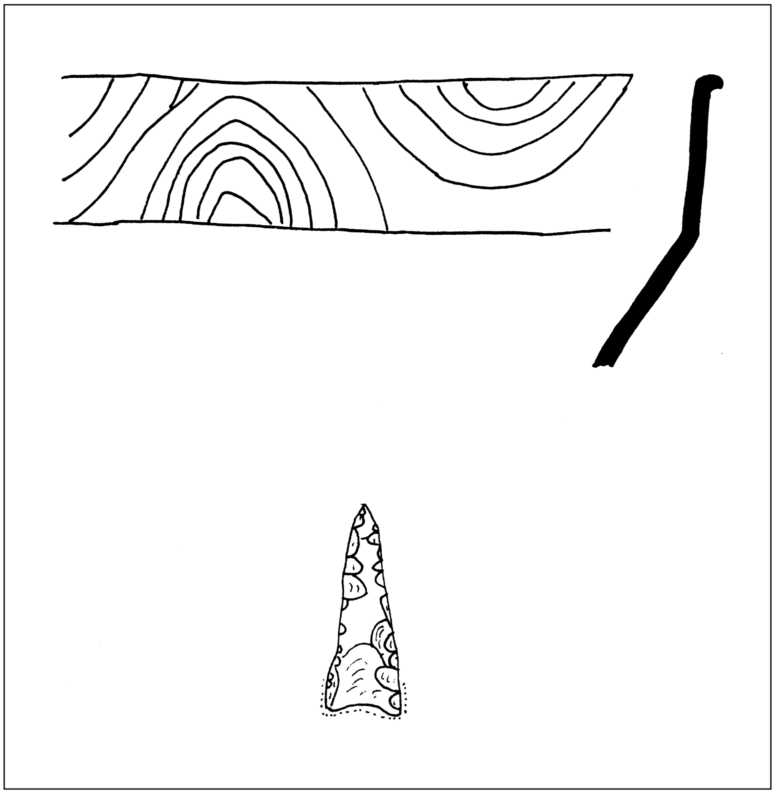


Figure 4-8. Sketch of Fea. 67 vessel decorative element and Talco point eroding from Area VIII road.

and February 1999, with additional work in March 1999 in Area VIII. We relied almost exclusively on the use of small bulldozers and front end loaders to carry out the heavy machinery scraping of more than 12,850 square meters at the Pilgrim's Pride site (Figure 4-9a-b), including Area I, Area II, Area III, Area IV, Area V/VI, and later Area VIII (at the time the Figure 4-9 photographs were taken, much of Area VIII was still covered with an extensive brush pile). This work resulted in the documentation of more than 400 features in the residential areas of the site through shovel scraping and troweling (Figure 4-10), including several midden areas and structure areas (Figure 4-11), and the definition of a Late Caddo Titus phase residential area that covered about 6 acres (170 m north-south x 140 m east-west).

Table 4-9. Unit 19 artifacts, Area VIII.

Kinds of Artifacts	0-10	10-20	20-30	30-40	40-60	N
lithic debris	1	1	3	10	9	24
ground stone	–	–	–	1	–	1
plain sherds	–	3	4	4	2	13
decorated sherds	–	2	1	1	1	5
Totals	1	6	8	16	12	43

Area I

Area I is apparently the most intensively occupied part of the Titus phase community at the Pilgrim's Pride site. Bulldozer-backhoe scraping and shovel skimming of 2300 m^2 documented 228 features (Figure 4-12), including a complete posthole pattern of a circular structure (Structure 1) (Figures 4-13 and 4-14), one burial pit (Fea. 1-128) south of the structure that contained two whole ceramic vessels (Figure 4-15), and 56 pit features. Two other burials had previously been identified in Area I during Keller's work (Fea. 8 and Fea. 9) (see Figure 4-10).

a

b

Figure 4-9. Aerial views of the area scraped at the Pilgrim's Pride site: a, looking south/southwest; Area I is in the central part of the photo, and Areas VII and VIII in the foreground; b, looking north, with Area III in the foreground.

The pit features—including small pits, large pits (ca. 70 cm to 1 m in diameter, and with various depths), and several smudge pits—are concentrated in two clusters south/southeast and west of Structure 1 (see Figure 4-12), and the south cluster of pits appears to have also been a midden area, as there are remnants of midden deposits in several places. A third feature cluster in the southwestern part of Area I has a number of postholes and one large basin-shaped pit (Fea. 1-210), and may represent another Titus phase household area in this part of the site.

Structure 1 is approximately 7 m in diameter, with an entrance facing south (see Figure 4-13). The walls of the structure are defined by regularly-spaced post holes (that once held wood posts) that are about 15 cm in diameter (Figure 4-16); none of the post holes in Structure 1 penetrated the clay B-horizon, as they were embedded in a sandy clay zone. There are a number of interior posts, especially on the eastern side of the house, that may mark interior partitions or benches, as well as at least six smudge pits (Fea. 110, 111, 114, 188, 191, and 1-244) within 1 m of the house wall (see Figure 4-13). Fea. 183 represents the central support post, and it was probably under a shallow hearth that would have been in the plow zone; no evidence of the central hearth was detected in our scraping efforts. Keller's (1998) test investigations impacted the house structure, as Fea. 114 and 1-113 had been cross-sectioned in one of Keller's hand excavated trenches, but the structure was not identified at that time. Feature 113, just to the northwest of the central support post (see Figure 4-16), was also investigated by Keller during his earlier work, but was apparently not considered a feature, as it is not mentioned in his report (Keller 1998) or feature field notes.

The majority (56 percent) of the pit features are relatively deep (20-40 cm in depth below the scraped surface) pits between 30-40 cm in diameter, and they contain abundant charred *Carya* sp. nutshells and some wood charcoal, small pieces of bone, ceramic sherds, and an occasional piece of lithic debris. The shallower pits (less than 15 cm in depth below the scraped surface) have a dark carbon-rich fill, and may be smudge pits.

In addition to the Structure 1 post holes, there are roughly rectangular but smaller post hole patterns northwest of the house, with several pits in the same area (see Figure 4-12). They may mark the locations of

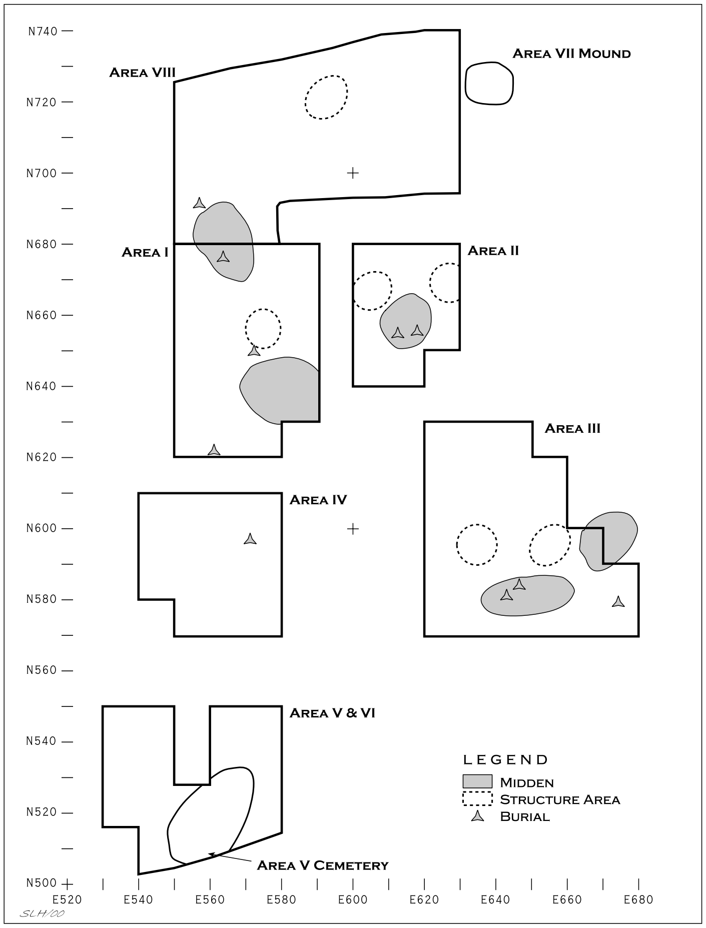


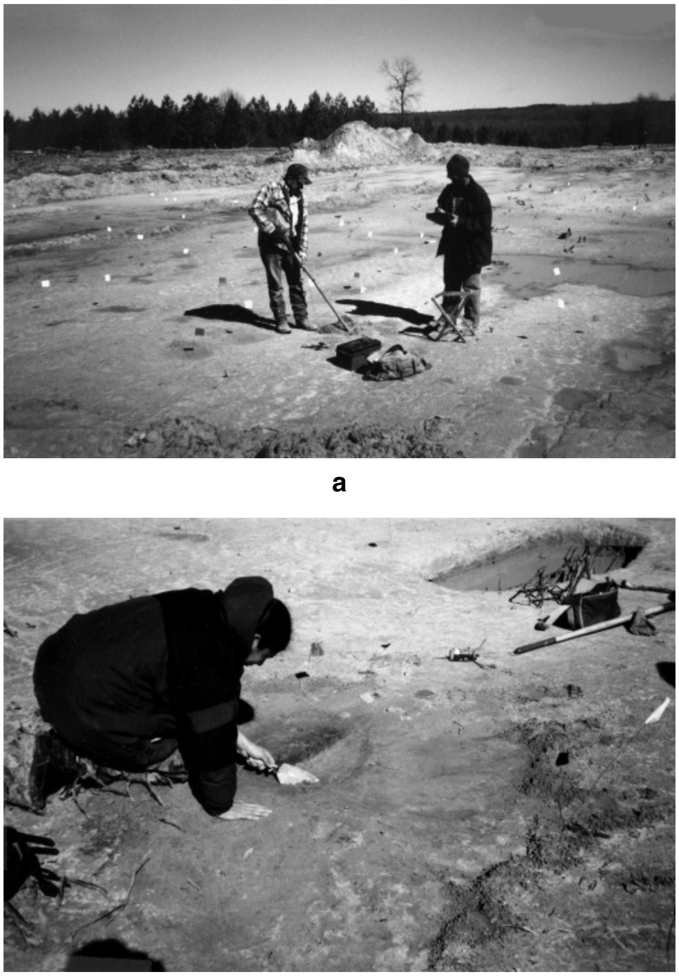
Figure 4-10. Midden, structure area, and burial locations in Areas I-VIII at the Pilgrim's Pride site.

ramadas, arbors, racks, or granaries (or other types of more temporary wood facilities or features) that would have been associated with Structure 1.

Area II

Three or four Titus phase feature clusters were identified in Area II during the machine scraping and shovel-skimming investigations (Figure 4-17). A total of 48 features were identified and excavated in the 1100 m^2 block, including the two burial features (Fea. 4 and Fea. 6) earlier documented by Keller (1998) in the southern part of Area II. These burials occur together with several pits and post holes, and comprise one feature cluster. The second feature cluster is a roughly circular and 6 m in diameter pattern of post holes and pits (primarily smudge pits) between N660 and N670 and E600-E 610 in the west central part of Area II (see Figure 4-17). This represents the remnants of a structure, like Structure 1 in that it apparently had a row of smudge pits along the inside structure wall (see Figure 4-16).

A third feature cluster near N670 E630 (see Figure 4-17) has a partial line of post holes from another Area II structure, intermixed with several small pit features. To the north and northwest of this feature cluster, about 5-15 m away, are a series of widely-spaced pits, both large and small in size, and a single post hole (Fea. 218) (see Figure 4-17).



a

b

Figure 4-11. Investigating features and stains in the scrape areas: a, excavating features in Area I; pin flags mark possible feature locations; b, Abraham Pedro excavating a shallow basin-shaped pit in Area III.

Pit features of various sizes and shapes (Figure 4-18) were very common in this part of the Pilgrim's Pride site (representing 60 percent of the features in Area II), along with midden debris, suggesting that the archeological deposits in several different parts of Area II are primarily the product of outdoor activities and trash disposal. Deeper pits (ca. 40 cm in diameter and 20-40 cm in depth below the scraped surface) are also notable in Area II, comprising 33 percent of the features, compared to 12 percent of the features in Area I and 6 percent of the features in Area III.

The other features in Area II include 17 postholes (Figure 4-19), probably from outdoor racks or ramadas or arbors as well as house structures, and one small clay-filled pit (Fea. 217) that contained a single sherd (see Figure 4-17). The clay-filled and basin-shaped pit, 62 x 47 cm in size and extending 23 cm below the scraped surface (ca. 40 cm bs), has the same kind of red clay fill as a number of the adult burials in the Area V/VI cemetery (see Chapter 6, this volume). No human remains or funerary objects were found in Fea. 217, but the possibility remains that it is a burial interment of a child (e.g., because of the size of the pit itself).

Area III

Approximately 2800 m^2 were stripped from Area III with a bulldozer and backhoe front end loader (see Figures 4-1 and 4-2), and 40 percent in the central and northern part of the block was subsequently shovel skimmed and troweled to accurately identify cultural features. The remainder of the area had either already been disturbed by Keller's (1998) investigations or comprised a sloping and eroded landform surface that was not conducive to intensive investigations employing heavy machinery.

We did excavate one 1 x 1 m unit (Unit 104, at N625 E640) in the northern part of Area III, to investigate the character of the archeological deposits here, and very little was found, since it was apparently located outside of the principal Titus phase residential area or the Archaic and Woodland deposits seen in Area II or the southern part of Area III. This unit encountered the clay B-horizon at 53 cm bs, and the upper 20 cm had already been disturbed by the previous work. Artifacts recovered here included only 10 pieces of lithic debitage, one plain ceramic sherd, and two decorated sherds (see Appendix XI, Vol. II).

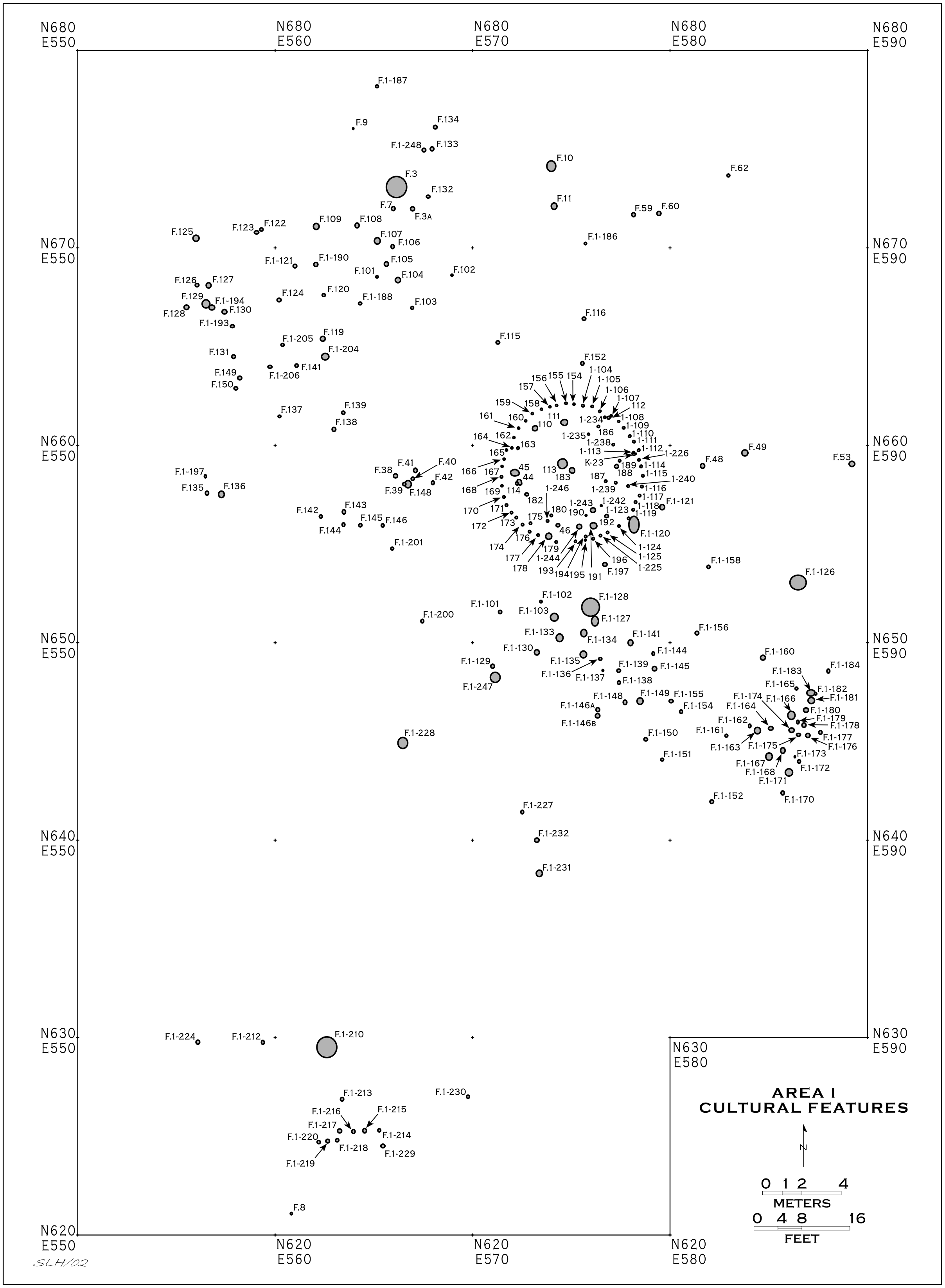


Figure 4-12. Plan of cultural features in Area I.

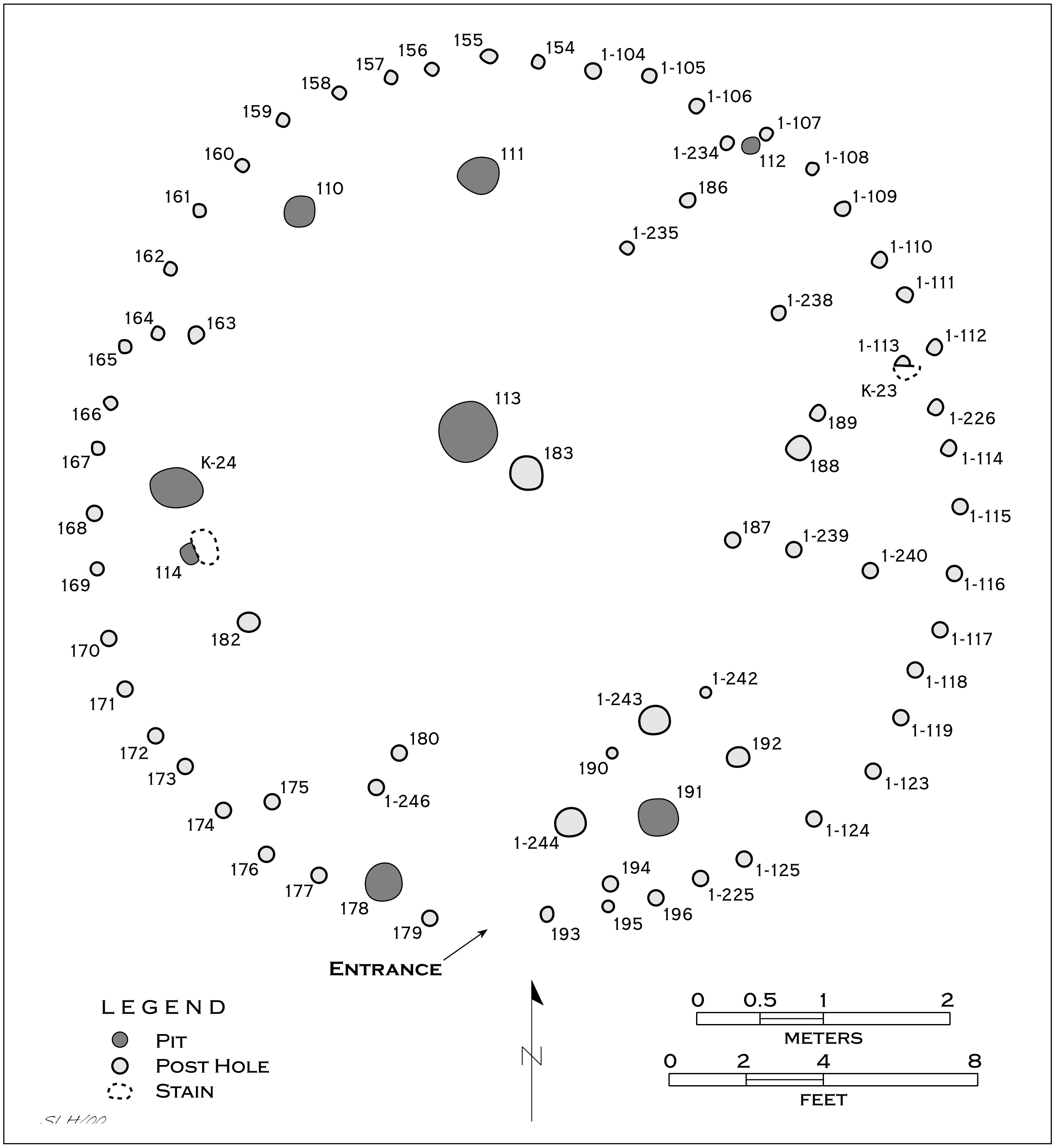


Figure 4-13. Post hole pattern, Structure 1 in Area I.

Including features identified by Keller (1998), a total of 89 cultural features were identified and excavated in Area III (Figure 4-20). These features were distributed principally in two feature clusters on the highest elevation of the natural rise on this part of the Pilgrim's Pride site (see Figure 4-1). These occur across a 20 m long and 45 m wide swath of Area III, with one cluster of primarily post holes centered at N594 EE663 (see Figure 4-20) and the other covering a much larger area between N580-595 and E630-650 (see Figure 4-20). This cluster has several different areas with post holes, with the pit features primarily distributed along the margins of the post hole clusters, as if they were situated outside of structures in extra-mural work/activity areas.

Figure 4-14. Structure 1 excavations and feature cross-sections, looking southwest.

The features include 58 post holes, one possible hearth or large and shallow pit (Fea. 343), 22 small, shallow pits, and five deep (i.e., >15 cm in depth below the scraped surface) pits with dark carbon-rich sediments and an abundance of charred nutshells and cultural materials. Although no clear house patterns were defined in this area, it is suspected that the two feature clusters represent at least two Titus phase household and outdoor activity areas.

Area IV

Area IV consisted of a 1500 m^2 block in the central part of the site (on a small rise) (see Figures 4-1 and 4-2) that was stripped with a bulldozer and backhoe, and then shovel-skimmed to look for cultural features. Only a single cultural feature—a 23 cm diameter posthole (Fea. 401)—was identified in Area IV, just south of Keller's road grader strip #4 and track hoe scrape #4.

The excavation of two 1 x 1 m units (Unit 103 and Unit 4-01) on the rise (see Figure 4-1) recovered less than 10 artifacts per unit, indicating a very sparse Titus phase (or pre-A.D. 800) occupation here. These artifacts were recovered between 0-30 cm bs in a sandy loam sediment, with the clay B-horizon encountered between 24 and 30 cm bs in both units.

The artifacts found in these units include three pieces of lithic debris, a petrified wood bifacial preform, probably for an arrow point based on its thickness (5.1 mm), nine plain sherds, and two decorated sherds. One of the decorated sherds had a red slip on both surfaces, and the other (probably from a Ripley Engraved carinated bowl) had a triangular excised zone, possibly from a scroll motif.

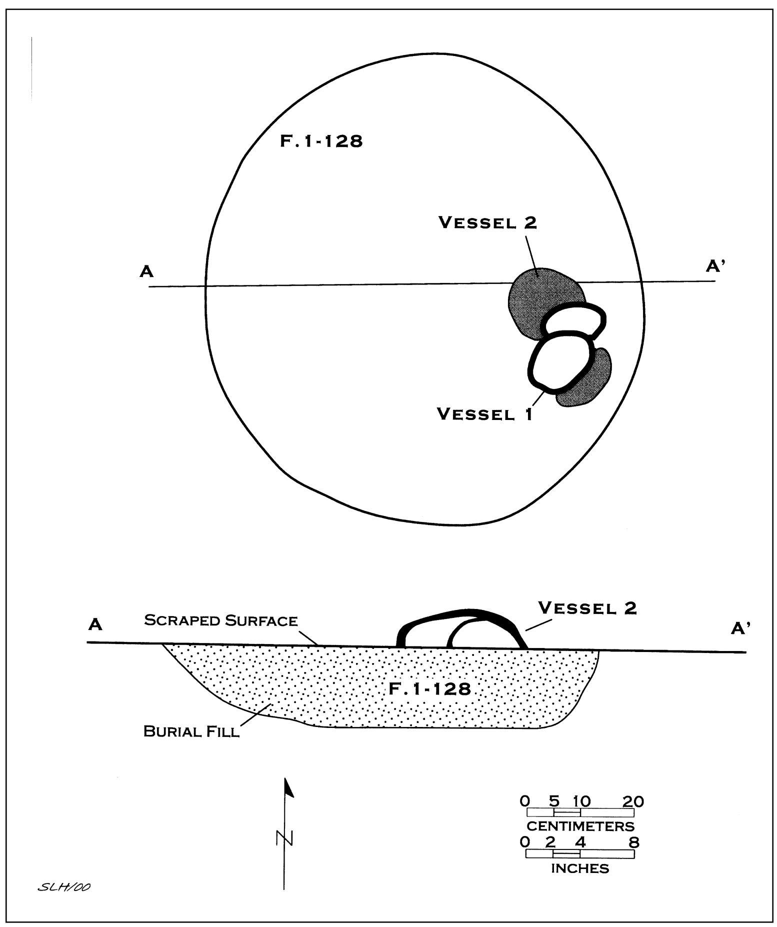


Figure 4-15. Plan and profile of Fea. 1-128, south of Structure 1 in Area I.

Surface collections in Area IV indicate that this area was used during both Woodland and Late Caddo Titus phase times. The evidence for the Woodland period use includes two quartzite Gary, *var. LeFlore* dart points in the northwestern part of the area; Schambach (1982, 1998) suggests that this variety of Gary point was made and used between ca. 1700-2400 years ago by Woodland groups in the Caddoan area. In the north-central part of Area IV (i.e., N600-610 E 570-580), there were a few incised (n=5), engraved (n=1), brushed (n=2), punctated (n=1), and neck-banded (n=1) sherds, as well as an everted rim from a plain jar, all from Titus phase vessels.

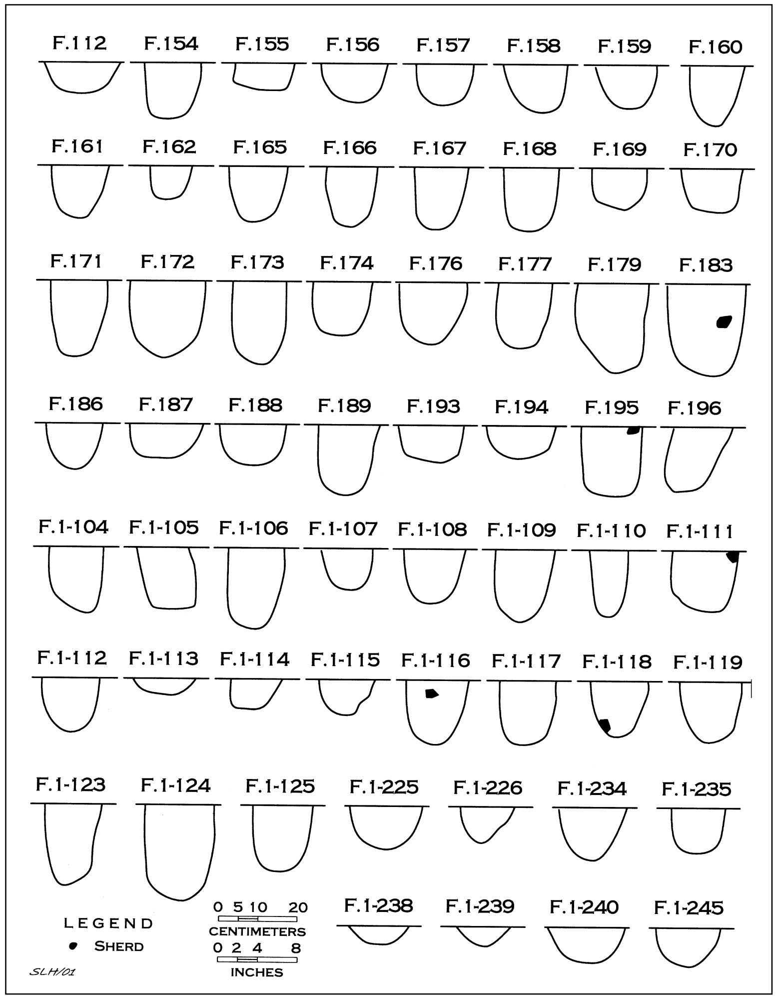


Figure 4-16. Structure 1 post hole profiles.

Area VIII

As part of the preliminary report of findings on the data recovery work in Areas I-VII of the Pilgrim's Pride site (Perttula 1999), a second phase of data recovery was recommended, namely the monitoring of construction activities in one part of the rendering plant area that had the potential to contain important features and archeological deposits, but had not been investigated heretofore in much detail, namely one road grader strip, an exploratory trench, and one 2 x 2 m unit (see Figure 4-2). This area, Area VIII (see Figure 4-1) is directly north of areas I and II, directly west of Area VII, the location of the intact Titus phase earthen mound, and directly south of the then-recently constructed road cutbank (from which Fea. 67 had eroded some months earlier). The Texas Historical Commission concurred with this recommendation in their March 4, 1999 letter to Mr. Lonnie "Bo" Pilgrim of the Pilgrim's Pride Corporation. The southeast corner of the monitoring area was set approximately at N690 E630; the southwest corner grid coordinates are N680 E550; northeast grid coordinates are N740 E630; and the northwest grid coordinates are approximately N730 E550 (see Figures 4-1 and 4-2).

The monitoring area covered approximately 4000 m^2, and was covered with a brush pile that was removed immediately prior to the initiation of the monitoring activities. The monitoring work was deemed important because areas I and II contained the highest densities of cultural features in any of the residential areas at the Pilgrim's Pride site, Structure 1 was only 20 m to the south of the southern edge of Area VIII, and the monitoring area was immediately adjacent to the Area VII earthen mound. Thus, we considered it likely that features associated with the use of the mound may be preserved in the monitoring area (Perttula

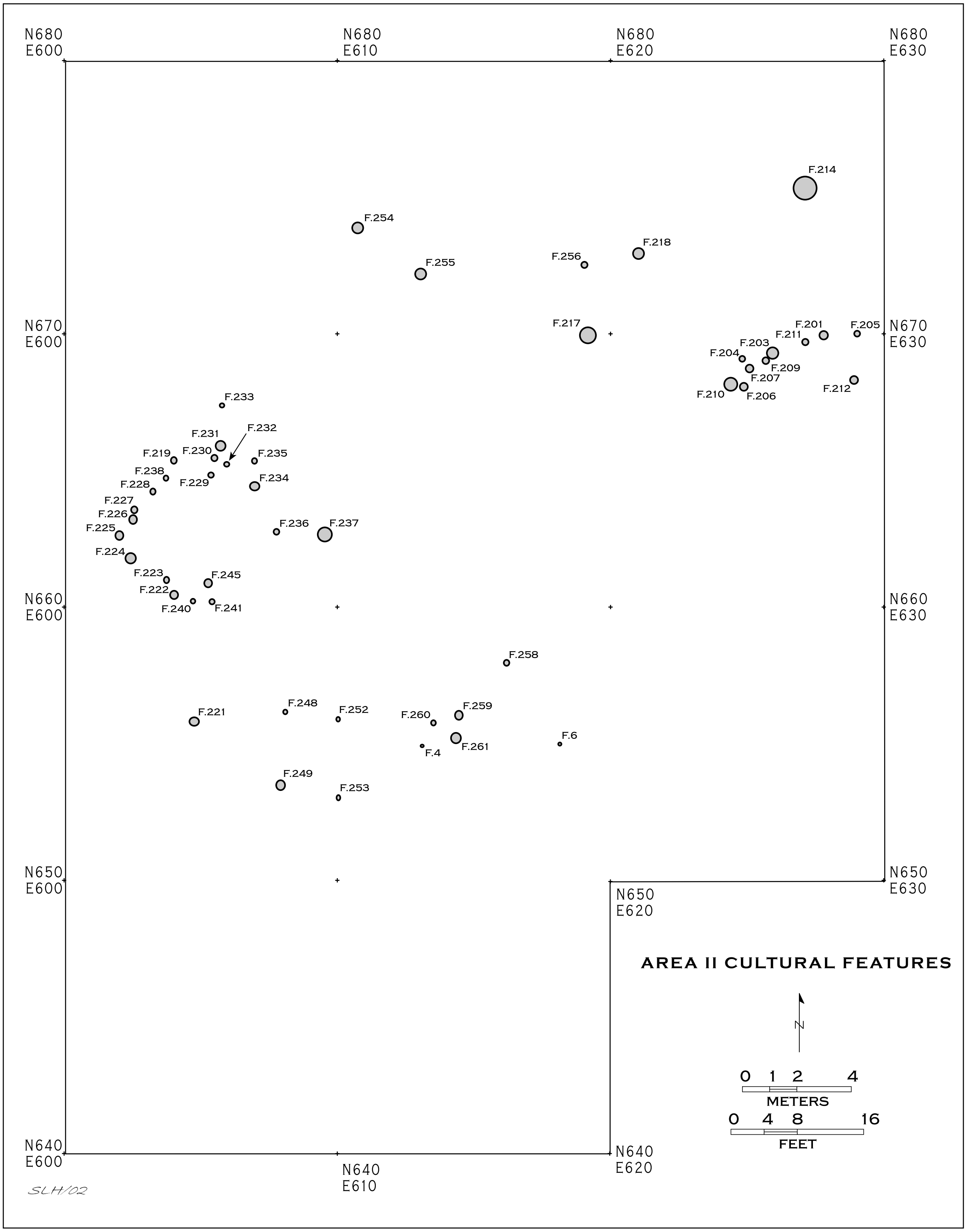


Figure 4-17. Area II cultural features.

1999). Furthermore, a whole vessel from a disturbed burial (Fea. 67) was recovered prior to the test excavations by Horizon Environmental Services at N740 E615 (see Perttula and Nelson 1998a, 1998b), in the northeastern part of the area recommended for monitoring, and other burials were likely to be present in Area VIII.

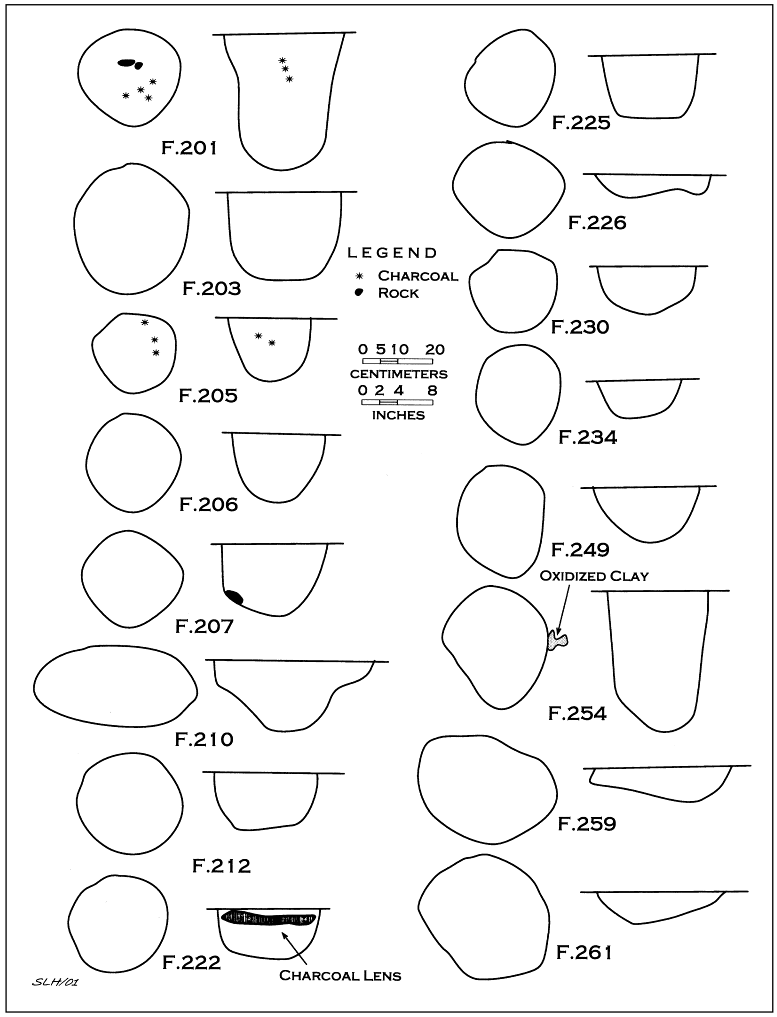


Figure 4-18. Plan and profile of Area II pits.

The monitoring work consisted of two to four archeologists that monitored the construction activities (i.e., the stripping and scraping away of the topsoil) on this part of the rendering plant at the Pilgrim's Pride site. In this effort, the archeologists followed behind the heavy machinery in Area VIII, expeditiously documenting additional features such as burials, clusters of vessels, structure areas, or other features when the bulldozer and backhoe scraping reached a strong soil contrast in the E-horizon and/or the underlying B-horizon clay subsoil. The effort was designed to insure that a representative sample of Titus phase features, or earlier non-Titus phase features, were identified and investigated in this one possible key site area outside the six other areas thoroughly examined during the first phase of the data recovery work. The archeological monitoring effort was completed between March 14-18, 1999.

A total of 36 widely separated archeological features were documented in Area VIII during the monitoring effort (Figure 4-21). This included one burial (Fea. 830), 21 postholes, nine pits, and five smudge pits (all within Structure 2).

The one burial (Fea. 830) feature was marked by a single compound bowl that had been broken in place (Figure 4-22). The vessel had large engraved pendant triangle elements (see Appendix VII, Vol. II). No pit outline or other funerary offerings were identified during the monitoring, however, but we are confident that this whole vessel had been deliberately placed in a grave, perhaps the grave of a child or juvenile.

The other features in Area VIII readily fall into three clusters (Figure 4-23):

Feature cluster 1: three features, including one posthole and two small pits

Feature cluster 2: six features, including three postholes and three small pits, in the vicinity of Fea. 830

area of House 2: 26 features, 17 postholes, four pits (three are less than 15 cm in thickness), and five smudge pits

Feature clusters 1 and 2 may represent outdoor activity areas associated with the broader residential use of areas I, II, and VIII, as there are no obvious structures here, and the small pits (Figure 4-24) may represent outdoor cooking features. The 26 features in the House 2 area (see Figure 4-21) are part of a probable circular Titus phase structure that stood on the crest of a knoll about 35 m due west of the Area VII mound; we referred to this knoll as the eastern knoll in Area VIII, as there is another knoll in the western part of the area, but no features were identified there. This area also had a significant concentration of plain and decorated ceramic sherds from the Titus phase occupation, which seems to negate the possibility that this area and probable structure represents some sort of outdoor work area or temporary structure.

Although a complete post hole pattern was not defined during the monitoring effort in Area VIII, despite extensive shovel skimming and troweling after the area had been scraped with a bulldozer and backhoe front end loader bucket, the post holes (of sufficient diameter to represent wall posts rather that larger roof supports) that were present suggest the structure was ca. 8.5-9 m in diameter, with a possible extended entranceway (marked by four post holes) facing south towards the remainder of the Titus phase residential areas (Figure 4-25). The post holes were generally about 20 cm in diameter (Figure 4-26), compared to the ca. 15 cm diameter postholes in Structure 1 (Area I), suggesting that a larger and taller building may have stood in Area VIII. The incomplete structure post hole pattern also suggests that House 2 may have been of a less durable or sturdy wood post construction than Structure 1, but it is more likely that various shallower post holes (that would have filled out the post hole pattern), combined with poor preservation, may have been overlooked during the scraping effort.

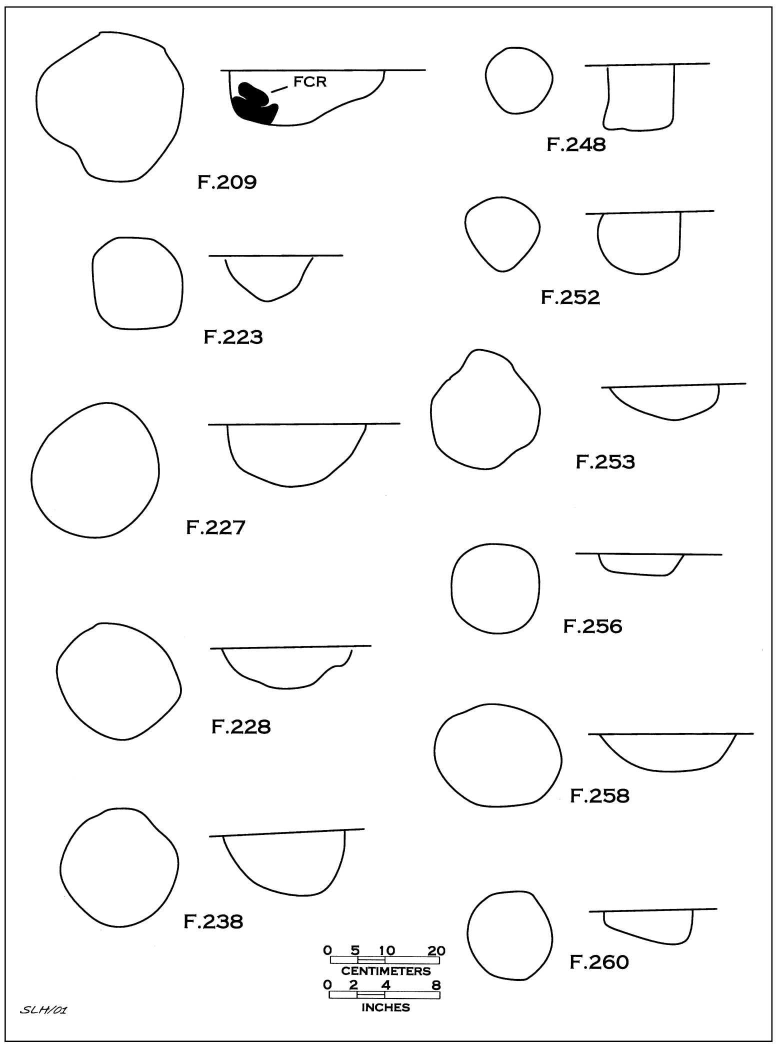


Figure 4-19. Area II post holes.

Inside the possible House 2 structure was a possible center post (Fea. 814) and at least five smudge pits (Fea. 815, 819, 820,

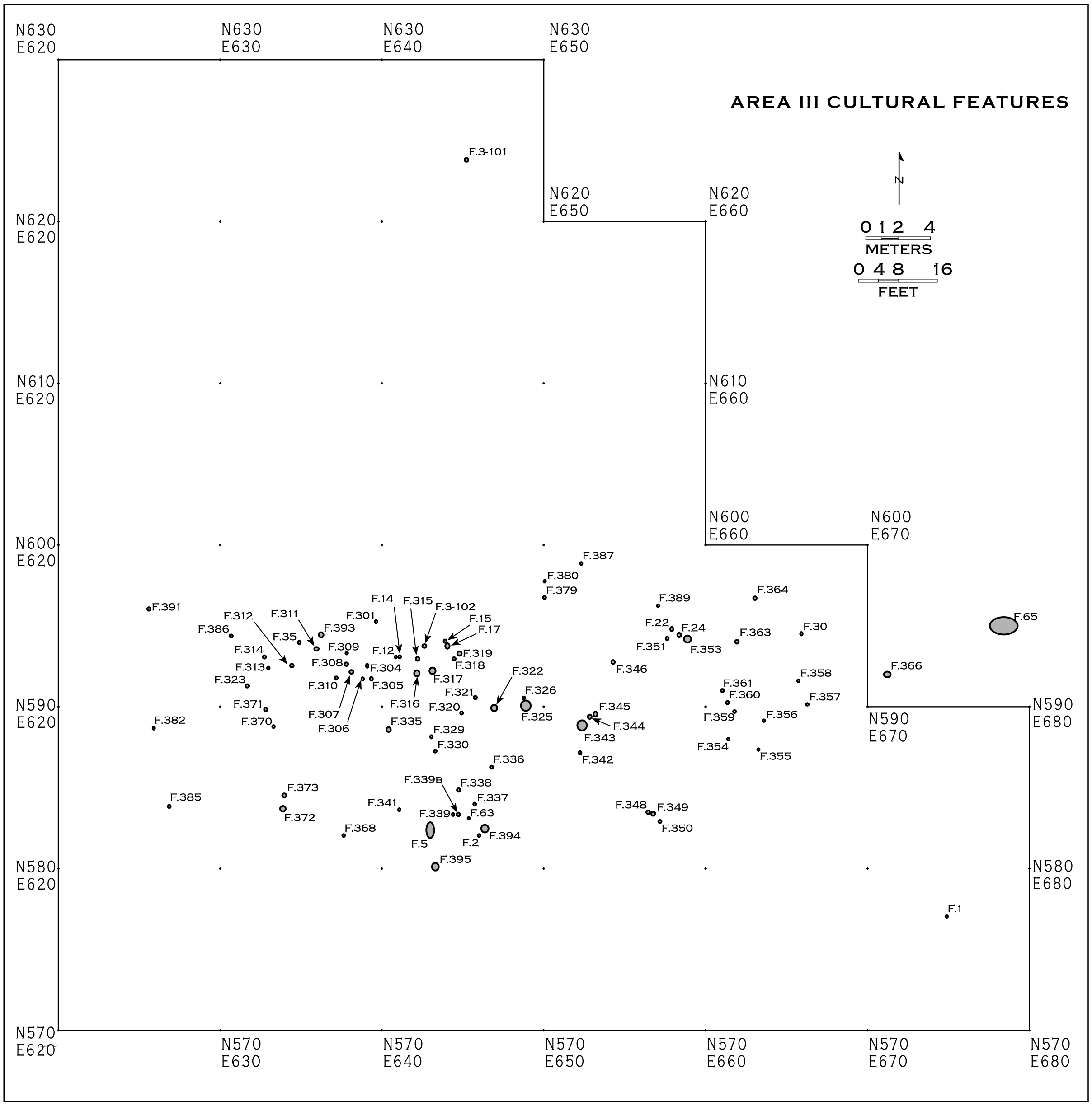


Figure 4-20. The distribution of Area III features.

827, and 828) (see Figure 4-25). Four of the five smudge pits—shallow pits with black organic fills and concentrations of charred organic materials in their fill (Figures 4-27 and 4-28) were just inside what would have been the structure walls (Fea. 819, 820, 827, and 828), similar to the distribution of the pits inside House 1 in Area I (see above), while the other (Fea. 815) was ca. 1 m west of Fea. 814 (see Figure 4-24). The other two pits (Fea. 816 and Fea. 817) are in the interior of House 2, but apparently situated away from the structure walls, and closer to the central part of the structure (see Figure 4-21).

As with the archeological investigations completed in the other parts of the Pilgrim's Pride site, flotation and OCR samples were obtained from each pit feature in Area VIII. All features had plan and profile drawings, along with grid coordinate center-points, and notes on artifact associations and feature fill characteristics were recorded during the feature documentation (see Appendix III, Vol. II).

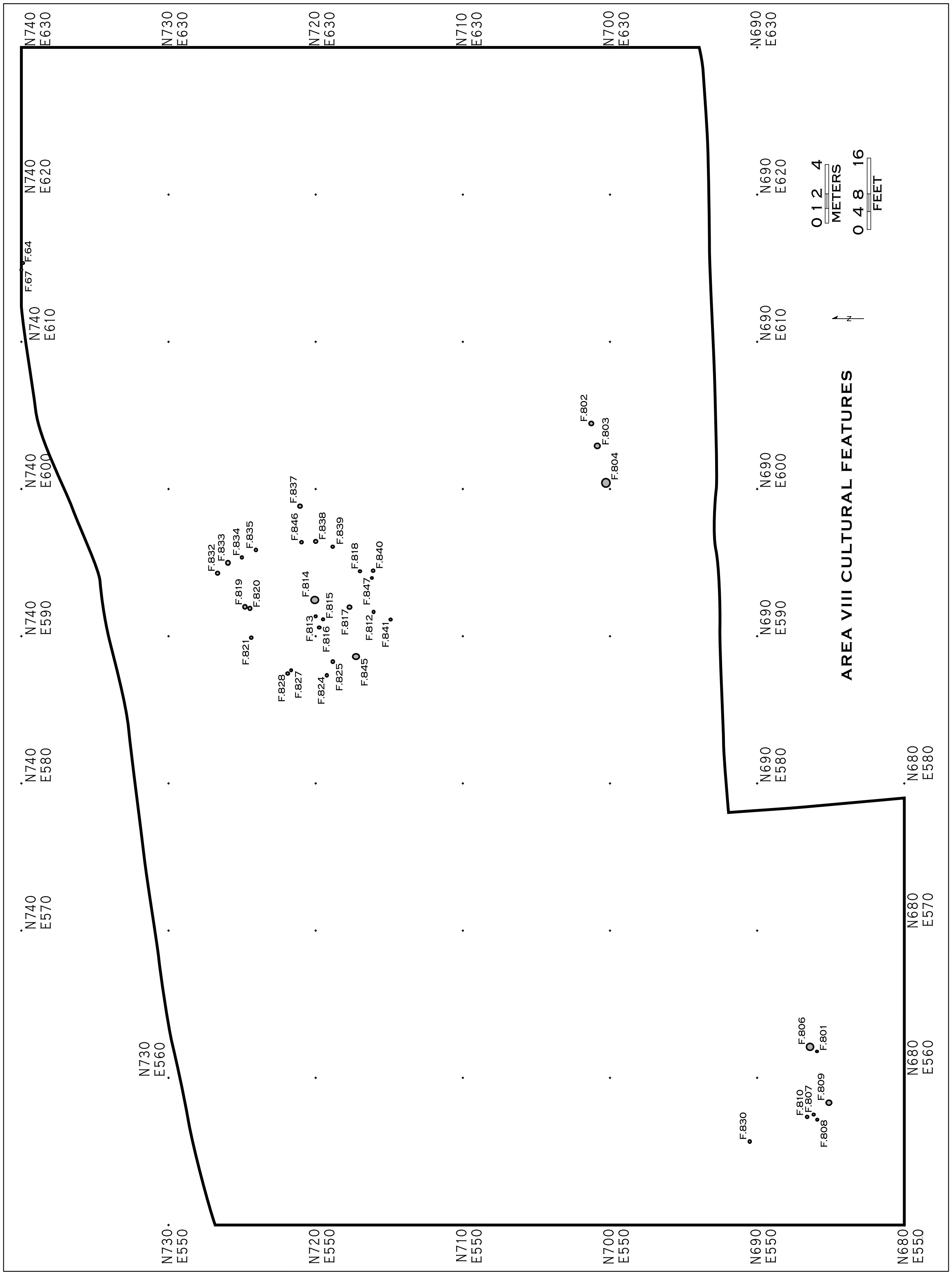


Figure 4-21. Distribution of Area VIII features.

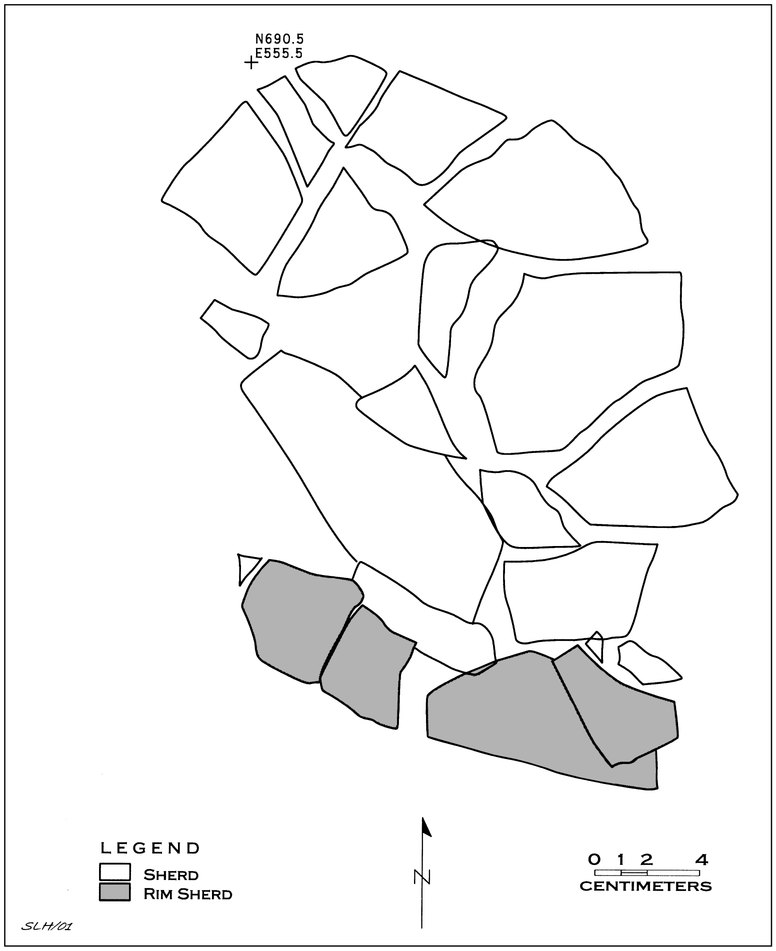


Figure 4-22. Fea. 830, Vessel 1 sherds in plan view.

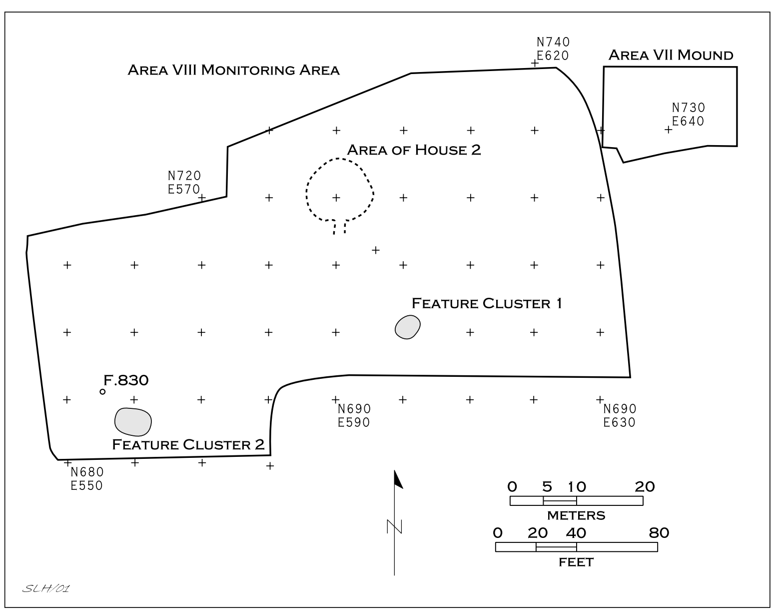


Figure 4-23. Feature clusters 1 and 2 and House 2, Area VIII.

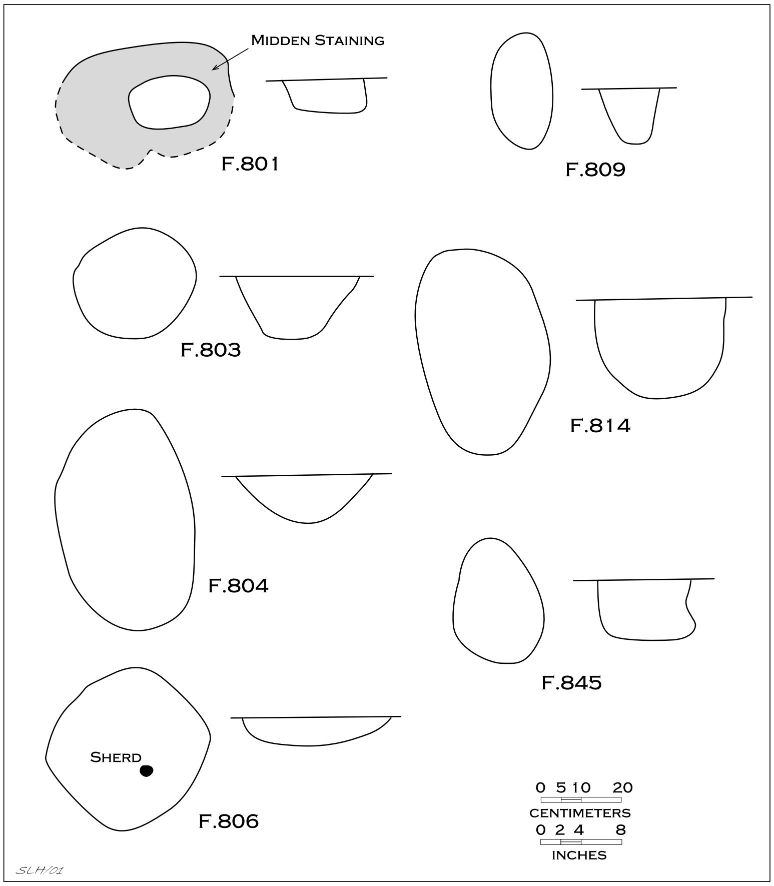


Figure 4-24. Plan and profile of Area VIII pits.

Area IX

An additional feature (Fea. 901) was identified and excavated immediately outside of Area I (see Figure 4-2); its central grid coordinates were N666 E542. It was a large (90 x 120 cm) and shallow pit (10-14 cm in thickness) (Figure 4-29) with a concentration of freshwater mussel shells and several brushed ceramic sherds in the southern part of the fill, along with a very dark charcoal-stained fill. Flotation and OCR samples were obtained from the pit during the monitoring effort.

There were 21.9 g of mussel shell recovered from Fea. 901. This included 10 complete shells and five fragments with identifiable pseudo-cardinal teeth.

TYPES OF FEATURES IN THE RESIDENTIAL AREAS

There are 407 cultural features in the Titus phase residential areas at the Pilgrim's Pride site (Table 4-10), including features earlier recorded and investigated by Keller (1998). More than 56% of the features in the residential areas are in Area I, followed by Area III (22%), Area II (12%), and Area VIII (9.3%), with only single features in Area IV and IX (see Table 4-10).

Not too surprisingly given the residential nature of the Titus phase occupation in most areas at the Pilgrim's Pride site, post hole features are the most abundant kind of feature represented, accounting for more than 60% of all the features from the site, and 65% of the features from the residential areas (see Table 4-10). The majority of the post holes documented during the work are in Area I, and there they comprise more than 70% of the 228 features in this part of the site. Post holes comprise 59-65% of the features in Areas III and VIII, but only 35% of the Area II features.

The post holes in the various residential areas at the Pilgrim's Pride site do not tend to have many artifacts, usually one or two ceramic sherds or a piece of lithic debris (Table 4-11). A few also had flecks of charcoal, but not in quantities that suggest any of the structures had been burned down (either deliberately or accidentally). All in all, this suggests that the house structure areas had not been heavily utilized prior to the construction of these Titus phase houses, because otherwise previously discarded artifacts from earlier occupations would have become incorporated in the post hole when they were encountered during the

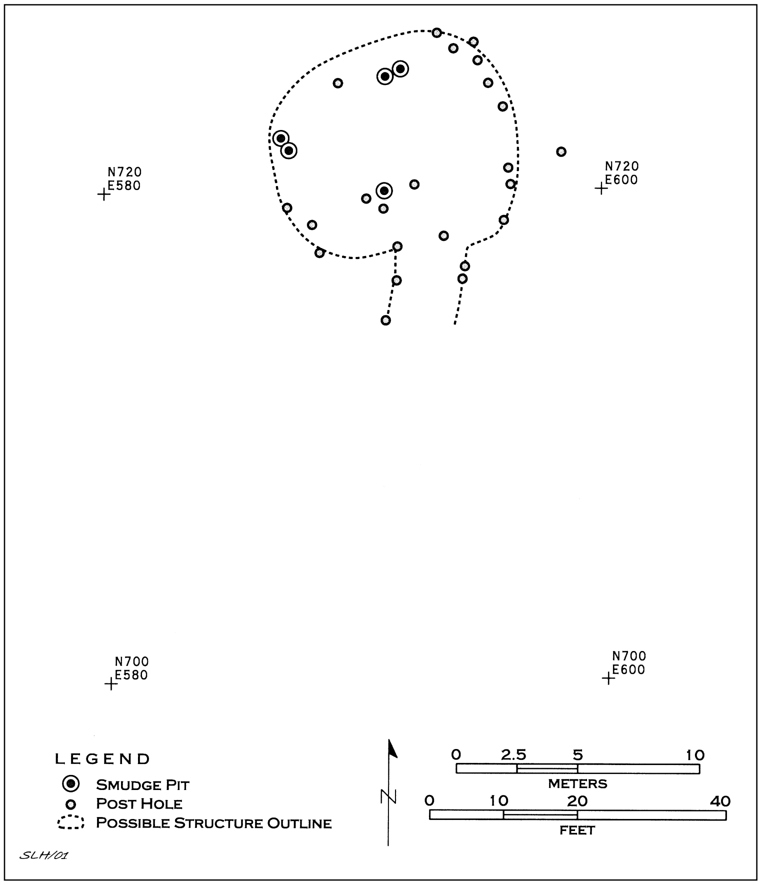


Figure 4-25. Post holes and smudge pits, and possible outline of House 2, Area VIII.

digging out of the posts themselves. The sparse artifact content further suggests that there was not much accumulation of trash or midden deposits in the immediate vicinity (or inside) the structures, probably because the structures were only used for a few years and were not rebuilt and middens seem to have been created 5-10 m or more from the house areas. If there had been midden or substantial trash accumulations inside or in the immediate vicinity of the structures, these materials would have fallen or washed into the post holes when the posts rotted and had to be replaced and then also when the structures were abandoned. There were at least one or two cases where rocks had been apparently deliberately placed in the post (see Figure 4-19, Fea. 209), probably to help stabilize the wood post in its hole.

As another indication of the low density of artifacts in and around the immediate vicinity of structure areas, the troweling of the Structure 1 area (after some scraping had exposed several post hole stains) only recovered 72 artifacts from the structure area and 14 different post holes. Most of these artifacts were plain (n=37) and decorated (n=21) ceramic sherds, along with two pieces of burned clay, 11 pieces of lithic debris, one core, and a fragment of a ground stone tool.

Pits were abundant in the residential areas, including 95 small pits, six large pits, and 27 smudge pits. Pit features contained higher densities of cultural materials than did the post holes (Table 4-12), with a range of lithic and ceramic artifacts, including burned clay. Pottery sherds and burned clay were the predominant artifacts—other than charred plant remains—in the Pilgrim's Pride pit features, and several of the pits had sherds from many different vessels. These particular features—such as Fea. 3, Fea. 1-133, Fea. 1-171, and Fea. 1-210—were either small or large pits that were presumably used as trash receptacles in addition to whatever their original function may have been. Other pits had many pieces of burned clay (see Table 4-12), but none had evidence of in situ heating or soil oxidation, so the burned clay pieces were probably created from cooking use elsewhere on the site, and then during house and site clean-up activities, the pieces of burned clay were swept or tossed into open pits along with sherds from broken pottery vessels, lithic debris, charred plant residues, and animal bones.

Pits were most common among the features in Area II, accounting for 60% of the features (see Table 4-10), whereas pit features account for only 25-42% of the features in Area I, III, and VIII, respectively.

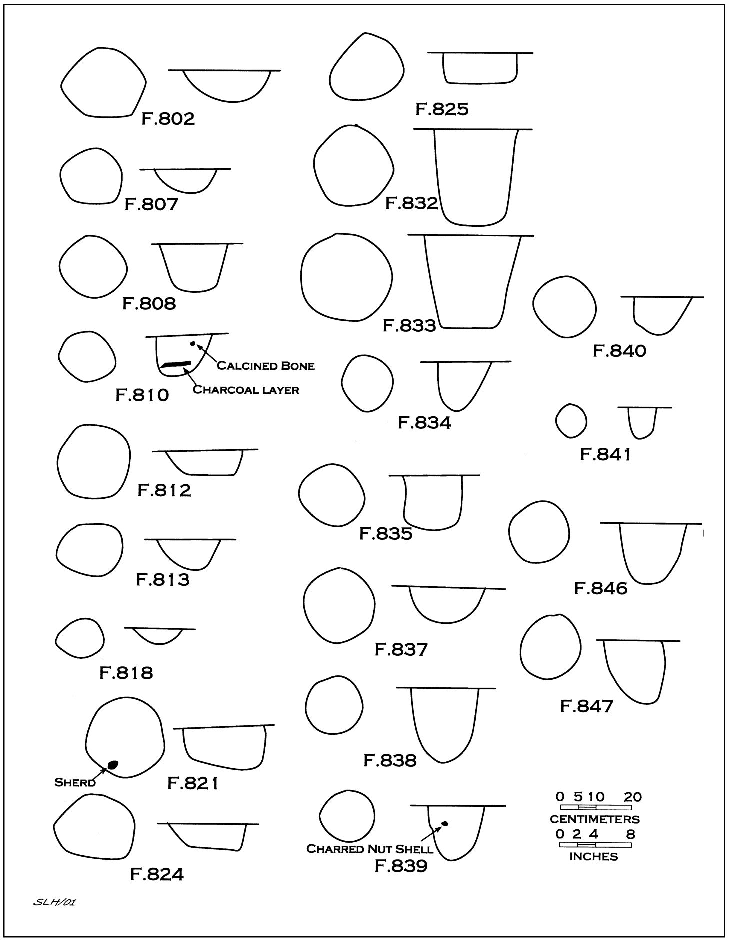


Figure 4-26. Area VIII post holes.

The small and large pits tended to be located away from the post hole clusters and structure areas, and were probably situated in extra-mural or outdoor areas where the cooking and processing of plant and animal foods took place, and where there was probably a lot of trash being accumulated. In Area I, in particular, the midden remnants in the southeastern part of this area happened to be the same place as many of the pit features (see Figures 4-10 and 4-12), and apparently the creation of the midden was at least in part due to the use of the many pit features for cooking and processing activities as well as for trash receptacles.

The large pits may have served several functions, including trash disposal and storage. They tended to be basin-shaped, with shallow sloping basins that extended down toward the clay B-horizon (perhaps between 30-50 cm bs, depending on their location across the site), but they were not deeply excavated, such that they penetrated this soil horizon. As such, they would not have been particularly useful as storage pits, since they did not have large volumes, and their shallow depths would have enhanced opportunities for decay of stored plant foods, unless they had been well parched. Perhaps they were simply larger pits dug by the Caddo for cooking and food processing activities. Fea. 3 and Fea. 61, for instance, in Area I, were large pits with darkly-stained sediments and much charred plant materials (Keller 1998:6, 15), particularly charred *Carya* sp. nutshells. Fea. 1-210, a 106 x 92 cm pit, also contained quantities of charred nutshells, and Fea. 901 had numbers of mussel shells that may

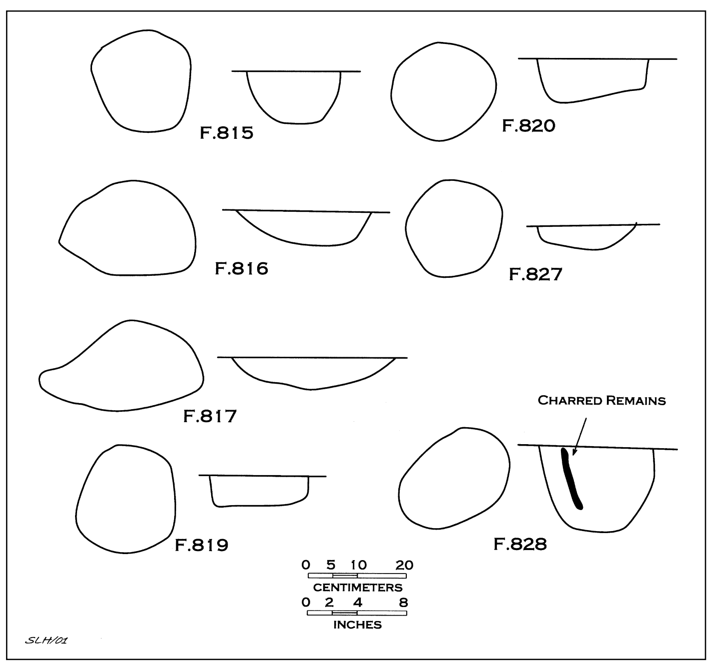


Figure 4-27. Area VIII smudge pits.

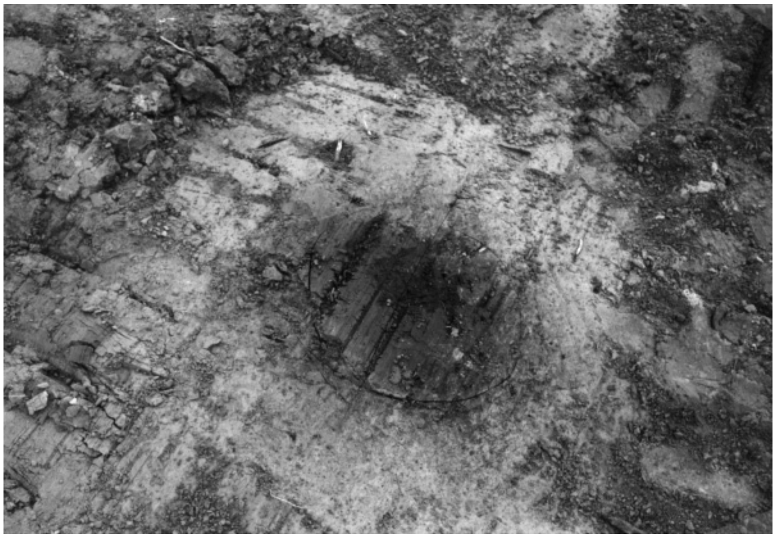


Figure 4-28. Exposure of a smudge pit in the Area VIII monitoring effort.

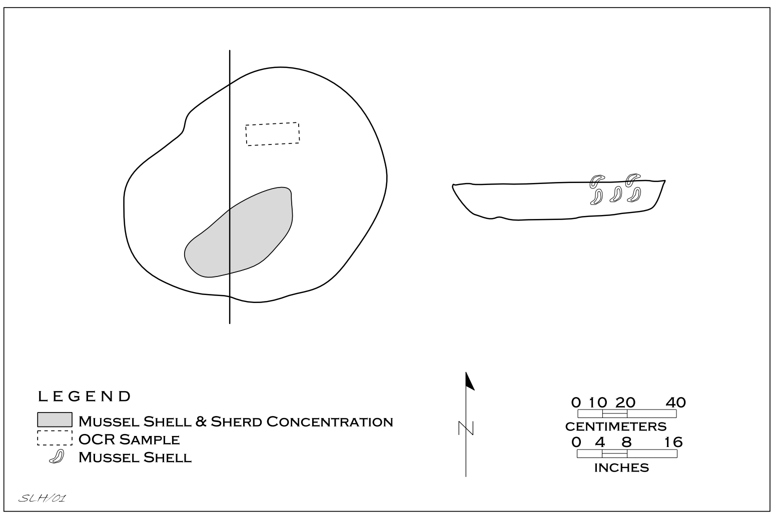


Figure 4-29. Plan and profile of Fea. 901 in Area IX at the Pilgrim's Pride site.

have been cooked in the pit, along with large mammal (i.e., deer) and turtle bones.

The smaller cooking and food processing pits were generally 30-40 cm in diameter, but deeper (extending 20-40 cm below the top of the scraped surface (itself 30-50 cm below the surface, depending upon their location across the site) than the larger pits. Several had multiple fill zones, or zones with distinctive carbon-rich sediments with charred plant remains, wood charcoal, and bone flecks (Fea. 1-133, Fea. 1-146a, Fea. 1-148, and Fea. 1-167). One of the best examples of this kind of small pit is Fea. 125, a 30 x 30 cm pit that extended 30 cm below the scraped surface (or approximately 80 cm bs). There were four fill zones in this pit, the first (10 cm thick) a charcoal-stained fill, and the second (11 cm thick) was a gray sandy loam with lesser amounts of charcoal. The third zone (9 cm thick) was another dark brown charcoal-stained fill with charred plant remains and pieces of burned bone and burned clay. The bottom zone (2 cm thick) was a distinctive light gray sandy clay, perhaps representing the decomposition of organic materials resting on the floor of the pit. The same distinctive gray sandy clay was noted on the bottom of several of the Area V/VI burial features (see Chapter 6, this volume).

A few of the small pits (Fea. 254, Fea. 351, and Fea. 366) had occasional patches of oxidized soil found in association with the features, either along the edge of the pit, or in the central part of the feature. These remains constitute the best direct evidence for the use of the small pits for the cooking and processing of plant and animal foods by the Titus phase Caddo peoples at the Pilgrim's Pride site.

Several of the small pits also had notable concentrations of charred plant remains, including grass monocat fragments (Fea. 44), maize (Fea.114, Fea. 1-141, Fea. 237), and nutshell (Fea. 1-166). Fea. 11, Fea. 1-125, and F. 1-171 were some of the few features at the Pilgrim's Pride site that actually had any preserved animal bones (see Appendix XVI, Vol. II): in these cases, large mammal remains.

Table 4-10. Features in the Different Residential Areas at The Pilgrim's Pride Site, along with Features from Areas V/VI and VII.

Feature Type	Areas I	II	III	IV	V/VI	VII	VIII	IX	N
Post hole	161	17	58	1	–	2	22	–	261
Small pit	49	22	16	–	–	–	7	–	95*
Large pit	4	1	–	–	–	4	–	1	10
Smudge pit	3	6	11	–	–	–	7	–	27
Hearth	–	–	–	–	–	1	–	–	1
Midden Remnant	8	–	1	–	–	–	–	–	9
Burial	3	2	3	1	19	–	2	–	30
Sherd Concentration	–	–	–	–	1	–	–	–	1
Totals	228	48	89	2	20	7	38	1	434

*this includes one small pit between Areas I and II

Table 4-11. Ceramic and Stone Artifacts from Post Hole Features.

Fea. No.	Lithic Debris	Fire-cracked rock	Groundstone tool	Plain sherd	Decorated sherd	Burned Clay
22	–	–	–	1	–	–
35	–	–	–	1	–	–
40	–	–	–	1	8	–
119	–	–	–	1	–	–
124	–	–	–	1	–	–
131	–	–	–	1	2	–
139	1	–	–	–	–	–
141	–	–	–	2	3	–
143	1	–	–	–	–	–
145	–	–	–	–	1	–
160	–	–	–	1	–	–
173	–	–	–	1	–	–
183*	–	–	–	–	1	–
192	–	–	–	4	4	–
194	–	–	–	2	1	–
195	–	–	–	1	2	–
1–101	–	–	–	1	–	–
1–110	–	–	–	1	1	–
1–111	–	–	–	1	–	–

Table 4-11. *(Continued)*

Fea. No.	Lithic Debris	Fire-cracked rock	Groundstone tool	Plain sherd	Decorated sherd	Burned Clay
1–116	–	–	–	1	–	–
1–118	2	–	–	–	–	–
1–139	–	–	–	–	1	–
1–150	–	–	–	–	1	–
1–151	–	–	–	–	1	–
1–164	–	–	–	–	1	–
1–165	1	1	–	–	2	–
1–172	–	–	–	1	–	–
1–179	1	–	–	–	–	–
1–182	–	–	–	–	1	–
1–184	–	–	–	1	1	–
1–193	2	–	–	–	1	–
1–197	–	–	–	2	1	–
1–206	–	–	–	1	1	–
1–218	–	–	–	3	4	–
1–227	–	–	–	–	1	–
1–232	1	–	–	1	–	–
1–242	–	–	–	1	–	–
1–243	–	–	–	5	3	–
1–244	–	–	–	–	1	–
1–246	–	–	–	2	1	–
211	–	–	–	1	–	–
212	–	–	–	1	–	–
339b	–	–	–	3	1	–
379	1	–	–	1	–	–
380	1	–	–	1	–	–
387	1	–	–	–	–	–
808	–	–	–	1	–	4
810	–	–	1	–	–	–
813	–	–	–	2	–	–
821	1	2	–	1	–	–
825	1	–	–	–	–	–
832	1	–	–	–	–	–
835	1	–	–	–	–	–
840	1	–	–	–	–	–
Totals	15	3	1	51	45	4

*center post to Structure 1

Table 4-12. Ceramic and Stone Artifacts from Pit Features.

Fea. No	LD	AP	BIF	GS	DP	FCR	Core	PS	DS	BC	Daub
3*	5	1	–	–	–	–	–	88	23	161	–
3a	–	–	–	–	–	–	–	–	1	–	–
7	–	–	–	–	–	–	–	3	1	–	–
11	–	–	–	–	–	–	–	2	–	27	–
17	1	–	–	–	–	–	–	–	–	–	–
57	–	–	–	–	–	–	–	1	–	–	–
61	1	–	–	–	–	–	–	8	5	108	–
104	–	–	–	–	–	–	–	1	–	11	
106	–	–	–	–	–	–	–	1	–	1	–
107	–	–	–	–	–	–	–	–	1	–	–
109	–	–	–	–	–	–	–	–	1	–	–
125	1	–	–	–	–	–	–	8	2	77	–
127	–	–	–	–	–	–	–	1	–	–	–
136	1	–	–	–	–	–	–	3	–	–	–
178	1	–	–	–	–	–	–	–	–	–	–
1–103	–	–	–	–	–	–	–	5	5	–	1
1–130	–	1	–	–	–	–	–	–	–	–	–
1–133	–	–	–	–	–	–	–	62	7	–	–
1–134	1	–	–	–	–	–	–	3	2	–	–
1–135	–	–	–	–	–	–	–	4	1	–	–
1–149	–	–	–	–	–	–	–	1	–	–	–
1–163	1	–	–	–	–	–	–	2	5	–	–
1–166	–	–	–	–	–	–	–	1	–	219	–
1–167	2	–	–	–	–	–	–	6	1	40	–
1–168	–	–	–	–	–	–	–	1	1	–	–
1–171**	5	–	–	–	–	–	–	35	20	79	3
1–174	1	–	–	–	–	–	–	2	2	–	–
1–178	–	–	–	–	–	–	–	1	–	–	–
1–180	–	–	–	–	–	–	–	2	–	–	–
1–210	9	–	–	–	–	–	–	36	26	5	–
1–219	–	–	–	–	–	–	–	4	13	–	–
1–231	2	–	–	–	–	–	–	3	1	–	–
203	1	–	–	–	–	–	–	2	–	–	–
205	2	–	–	–	–	–	–	–	1	–	–
206	–	–	1	–	–	–	–	1	1	–	–
207	2	–	–	–	–	–	–	1	–	–	–
210	–	–	–	1	–	–	–	3	1	3	–
214	1	–	–	–	–	–	–	4	1	–	–
218	2	–	–	–	–	–	–	–	–	13	2
225	–	–	–	–	–	–	–	1	–	–	–
231	1	–	–	–	–	–	–	–	–	–	–
254	–	–	–	–	–	–	–	3	3	2	–
255	–	–	–	–	–	–	–	2	–	–	–

Table 4-12. *(Continued)*

Fea. No	LD	AP	BIF	GS	DP	FCR	Core	PS	DS	BC	Daub
317	–	–	–	–	1+	–	–	–	–	–	–
321	1	–	–	–	–	–	–	2	–	–	–
322	–	–	–	–	–	–	–	1	–	–	–
325	1	–	1	–	–	–	–	–	–	–	–
338	2	–	–	–	–	–	–	–	–	–	–
343	5	–	–	–	1	–	–	2	4	–	–
346	1	–	–	–	–	–	–	–	–	–	–
366	4	–	–	–	–	1	–	–	–	–	–
372	–	–	–	–	–	1	–	–	–	–	–
394	–	–	–	–	–	–	–	4	3	9	–
801	1	–	–	–	–	–	–	–	–	–	–
806	1	–	–	–	–	–	–	–	–	–	–
814	3	–	–	–	–	–	–	–	–	–	–
816	–	–	–	–	–	–	–	1	–	–	–
819	–	–	–	–	–	–	–	2	–	–	–
820	1	–	–	–	–	–	–	–	–	–	–
827	–	–	–	–	1	–	–	–	–	–	–
828	1	–	–	–	–	–	1	–	–	–	–
845	3	–	–	–	–	–	–	–	–	–	–
901	–	–	–	–	–	–	–	2	3	–	–
Total	64	2	2	1	3	2	1	334	151	715	6

*also includes a possible clay coil fragment;

** also includes an elbow pipe bowl sherd; + projectile point actually recovered 8 cm below the base of the pit feature, being discovered during the pit cross-sectioning

Key: LD = lithic debris; AP = arrow point; BIF = biface; GS = groundstone; DP = dart point; FCR = fire-cracked rock; PS = plain sherd; DS = decorated sherd; BC = burned clay;

The smudge pits tended to be situated inside or near (but outside) house structures. These distinctive pits were 20-30 cm in diameter and perhaps 10-15 cm in depth below scraped surfaces. They had very dark brown (10YR 2/2) to black (10YR 2/1) charcoal-stained fills, with concentrations of charred materials (perhaps used for fuel), including pine cones (probably gathered in the winter months), maize, and cane (*Arundinaria gigantea*) (see Appendix XIV and XV, Vol. II). Two of the smudge pits in Area III (Fea. 372 and Fea. 3-101) had small patches of oxidized or heat-altered soil preserved at the base of the features, indicating that the smudge pits did contain fire. The materials burned in the smudge pits were consumed in "an oxygen-starved environment. As a result, the materials were uniformly carbonized rather than reduced to ash" (Trinkley 1995:126). They also would have produced considerable amounts of smoke.

Midden remnants represent irregular patches of darkly-stained sediments from larger midden areas across the site. In the case of the midden staining in Units 18 and 20 (see Figure 4-2), the remnants of

Table 4-13. Artifacts in Midden Remnant Features.

Feature No.	Lithic Debris	Plain Sherds	Decorated Sherds
1-121	1	2	10
1-126	–	1	2
1-137	–	1	2
1-173	–	1	–
1-181	–	1	–
Totals	1	6	14

midden deposits were only a few centimeters thick. The midden remnants we encountered—all in Area I (see Table 4-10 and Figure 4-10) were 5-10 cm thick, and had irregular profiles when cross-sectioned. The midden remnants were not well-preserved, but the screened fill of these remnants did contain a few sherds and one piece of lithic debris (Table 4-13).

RADIOCARBON AND OCR DATES FROM RESIDENTIAL AREAS

Numerous radiocarbon and Oxidizable Carbon Ratio (OCR) dates were obtained from feature and midden deposits in the Titus phase residential areas at the Pilgrim's Pride site. The 27 radiocarbon dates from the residential areas are listed in Table 4-14. They include 10 calibrated radiocarbon dates from Area I, nine calibrated dates from Area II, four dates from Area III, and four dates from Area VIII.

The calibrated radiocarbon age ranges at 2 sigma (95.4% probability) extend from approximately A.D. 1250 to the late 17th century (and beyond in one case) (Figure 4-30). Most, however, date after A.D. 1400 and end by A.D. 1650. Summarizing the calibrated intercepts from the various residential feature samples indicates four peaks in age of the various features, namely from A.D. 1425-1450, around A.D. 1525, about A.D. 1575, and A.D. 1610-1625 (Figure 4-31). Three of the four calibrated intercept peaks are represented by dated features from each of the four residential areas with radiocarbon samples (see Table 4-14), indicating that the different residential areas at the site were broadly contemporaneous over about a 200 year period. The third peak—the calibrated intercepts around A.D. 1575—are represented only by dated features from Area II and Area III (see Table 4-14), but there are so few dates from that period that it is probably not advisable to make much of any apparent gaps or discontinuities in the Titus phase occupations, at least an argument grounded in the calibrated radiocarbon dates themselves.

The dated features with maize fall, on the basis of intercepts, to the earlier and later parts of the residential occupation by the Titus phase Caddo. However, on the basis of the 2 sigma calibrated age ranges, maize was in use at the Pilgrim's Pride site from A.D. 1400 to the mid- and late 17th century (see Table 4-14), which essentially approximates the period when the site was occupied by the Titus phase Caddo peoples.

OCR samples (n=90) were obtained from many of the pit features from the Pilgrim's Pride site, including 37 samples from Area I, 24 samples from Area II, Area III had 20 samples (including one from a

Table 4-14. Radiocarbon Dates from Residential Areas at The Pilgrim's Pride Site.

Beta #	Provenience	Calibrated Age(s)	Calibrated Age Range, 1 sigma	Calibrated Age Range, 2 sigma	Relative Contribution to Probabilities
Beta-125985	Fea. 3	A.D. 1498, 1512,	A.D. 1485-1530		0.36
		1516, 1599,	A.D. 1553-1633		0.64
		1618		A.D. 1447-1642	1.00
Beta-125986	Unit 20	A.D. 1523, 1565	A.D. 1542-1600		0.53
	N596E678	1578, 1627	A.D. 1498-1533		0.30
	sheet midden		A.D. 1617-1636		0.18
				A.D. 1471-1648	0.98
				A.D. 1453-1461	0.02
Beta-125987	Unit 12	A.D. 1445	A.D. 1419-1524		0.69
	N652E607		A.D. 1576-1627		0.28
	midden		A.D. 1564-1570		0.03
				A.D. 1388-1660	0.97
				A.D. 1326-1353	0.03
Beta-132239	F. 1-135,	A.D. 1462	A.D. 1442-1491		0.93
	sherd with		A.D. 1605-1613		0.07
	organic			A.D. 1436-1519	0.82
	residue			A.D. 1575-1625	0.18
Beta-132240	F. 820, corn	A.D. 1454	A.D. 1431-1520		0.65
			A.D. 1570-1626		0.35
				A.D. 1401-1652	1.00
Beta-132241	F. 254	A.D. 1638	A.D. 1513-1596		0.71
			A.D. 1618-1652		0.29
				A.D. 1463-1668	0.99
Beta-132242	F. 1-210	A.D. 1525, 1558,	A.D. 1509-1602		0.78
		1631	A.D. 1614-1642		0.22
				A.D. 1461-1656	1.00
Beta-132243	F. 827, corn	A.D. 1478	A.D. 1447-1519		0.60
			A.D. 1572-1626		0.40
				A.D. 1436-1640	1.00

Table 4-14. *(Continued)*

Beta #	Provenience	Calibrated Age(s)	Calibrated Age Range, 1 sigma	Calibrated Age Range, 2 sigma	Relative Contribution to Probabilities
Beta-132244	F. 237, corn	A.D. 1641	A.D. 1508-1602		0.67
			A.D. 1615-1661		0.33
				A.D. 1451-1678	0.93
Beta-132245	F. 395, corn	A.D. 1638	A.D. 1507-1602		0.71
			A.D. 1615-1654		0.29
				A.D. 1449-1674	0.96
Beta-132246	F. 1-166	A.D. 1669, 1786	A.D. 1652-1685		0.27
				A.D. 1741-1808	0.54
				A.D. 1636-1824	0.75
Beta-138852	F. 809	A.D. 1433	A.D. 1391-1510		0.81
			A.D. 1316-1346		0.13
				A.D. 1303-1529	0.82
				A.D. 1545-1634	0.18
Beta-138853	F. 321	A.D. 1431	A.D. 1393-1478		0.90
			A.D. 1321-1340		0.10
				A.D. 1303-1519	0.93
				A.D. 1575-1625	0.07
Beta-138854	F. 343	A.D. 1307,	A.D. 1332-1396		0.68
		A.D. 1360	A.D. 1297-1328		0.32
		A.D. 1379		A.D. 1254-1435	1.00
Beta-138855	F. 201	A.D. 1520	A.D. 1484-1640		1.00
		A.D. 1569		A.D. 1428-1679	0.95
		A.D. 1627			
Beta-138856	F. 237, corn	A.D. 1444	A.D. 1409-1512		0.88
			A.D. 1597-1618		0.12
				A.D. 1396-1640	1.00
Beta-138857	F. 254	A.D. 1454	A.D. 1433-1516		0.77
			A.D. 1589-1622		0.23
				A.D. 1419-1530	0.63
				A.D. 1531-1635	0.37

Table 4-14. *(Continued)*

Beta #	Provenience	Calibrated Age(s)	Calibrated Age Range, 1 sigma	Calibrated Age Range, 2 sigma	Relative Contribution to Probabilities
Beta-138858	F. 235	A.D. 1410	A.D. 1391-1440		0.72
			A.D. 1317-1345		0.28
				A.D. 1301-1458	1.00
Beta-138859	F. 206	A.D. 1516	A.D. 1482-1636		1.00
		A.D. 1591		A.D. 1424-1675	0.97
		A.D. 1621			
Beta-138860*	F. 231, corn	A.D. 1222	A.D. 1159-1280		0.92
				A.D. 1150-1286	0.70
				A.D. 1042-1150	0.30
Beta-138861	F. 1-228	A.D. 1702, 1718	A.D. 1685-1740		0.31
			A.D. 1809-1899		0.52
				A.D. 1670-1784	0.40
				A.D. 1793-1948	0.59
Beta-138862	F. 1-167	A.D. 1483	A.D. 1450-1523		0.52
			A.D. 1563-1630		0.48
				A.D. 1431-1653	1.00
Beta-138863	F. 1-141, corn	A.D. 1310,	A.D. 1333-1395		0.71
		A.D. 1353	A.D. 1303-1327		0.29
		A.D. 1385		A.D. 1280-1429	1.00
Beta-138864**	F. 114, corn	A.D. 1310	A.D. 1333-1395		0.71
		A.D. 1353	A.D. 1303-1327		0.29
		A.D. 1385		A.D. 1280-1429	1.00
Beta-138865	F. 136	A.D. 1295	A.D. 1330-1396		0.53
			A.D. 1273-1330		0.47
				A.D. 1180-1430	1.00
Beta-138866	F. 1-171	A.D. 1398	A.D. 1307-1362		0.63
			A.D. 1377-1411		0.37
				A.D. 1290-1438	1.00

Table 4-14. *(Continued)*

Beta #	Provenience	Calibrated Age(s)	Calibrated Age Range, 1 sigma	Calibrated Age Range, 2 sigma	Relative Contribution to Probabilities
Beta-138867	F. 828	A.D. 1511	A.D. 1553-1633		0.61
		A.D. 1600	A.D. 1475-1527		0.39
		A.D. 1616		A.D. 1444-1649	1.00

Calibrations follow Radiocarbon Calibration Program Rev 3.03c (Stuiver and Reimer 1993); samples are on Carya sp. nutshells, except for pine cone (F. 235), oak wood charcoal (F. 1-228 and F. 828), and corn (F. 237, F. 231, F. 1-141, F. 114, F. 820, F. 827, and F. 395).

*According to Beta Analytic, Inc., in a March 8, 2000 e-mail from Darden Hood, the submitted sample (identified as 3.0 g of maize by J. Phil Dering), is a mixture of C3 (non-maize) and C4 (maize) plant remains, but was predominantly C4 (stable isotope values of -9.5 ‰ to -12.7 ‰ on seven different mass spectrometry runs). Beta's final determination of 840 +/- 70 B.P. as the conventional age is based on the average of 10 isotopic readings (-12.8 ‰). However, if the C14 conventional age was based on the average of the C4 values (-10.9 ‰), the final conventional age would be 790 B.P., and the calibrated age would be 50 years or so younger than the calibrations presented here. The initial conventional age provided by Beta Analytic, Inc. in a February 23, 2000 e-mail was 650 +/- 70 B.P. (-24.7 ‰), but the conventional age would be 305 B.P. with an isotopic value of -10.9 ‰. The calibrated age would fall, then, in the 16th and 17th centuries, and this probably is the most reasonable calibrated age for the corn in F. 231 given the Titus phase context of the charred materials.

**Although the material from F. 114 was identified as corn by J. Phil Dering, Beta Analytic, Inc. mass spectrometer isotope values indicated that the material was from a non-maize C3 plant. The initial conventional age calculated by Beta was 380 +/- 70 B.P., which would calibrate at 2 sigma to A.D. 1431-1653. Again, this calibrated age is probably the most reasonable calibrated age for the corn in F. 114 given the Titus phase context of the charred materials.

midden remnant deposit), eight samples from Area VIII, and one OCR sample from Fea. 901 in Area IX (Table 4-15 and Figure 4-32). No OCR column samples were taken from the site, as this was not a common part of the OCR dating procedure at the time (1999) for northeastern Texas Caddo sites (although it is now), and this is unfortunate because OCR column samples from the top to the bottom of the archeological deposits would have been able to identify significant pedogenic turbations (either natural or cultural in origin, cf. Frink and Dorn 2002; Frink and Perttula 2001) that were present in the site sediments, and would have provided a better context to evaluate the OCR dates obtained from the various features. Nevertheless, the OCR dates do provide specific chronological information from the different residential areas at the site.

The OCR dates range from approximately A.D 1150 to A.D 1500 (using A.D. 1950 as the standard for calculating BP dates) (see Figure 4-32 and Table 4-15), with little difference between any of the residential areas in the results. The three peaks in the OCR dates are around A.D. 1250, AD 1350, and around A.D. 1400-1450, with the principal peaks in age around A.D. 1350 and A.D. 1400-1450 (Figure 4-33). The OCR dates, at face value, appear to be at least 75 to 200 years older than the calibrated radiocarbon ages (see Figure 4-31).

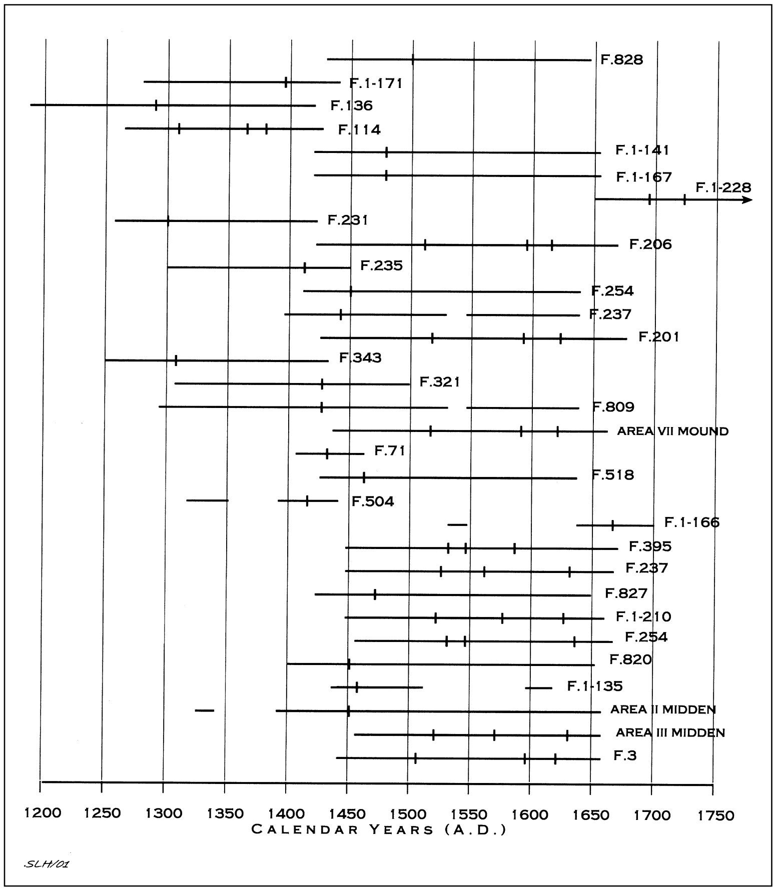


Figure 4-30. Calibrated age ranges and sample intercepts for radiocarbon samples in residential areas.

The discrepancy between the OCR dates on features and the calibrated radiocarbon ages from the same range of features can be accounted for at least in part by the fact that many of the features simply contain the natural sediments enriched by an occasional sherd, lithic artifact, and some charcoal flecks. That is, the sediments filling the pit features represent the natural sediments on the landform that were dug up when the pit was excavated by the Caddo. Thus, the age of the sediments would more closely approximate the natural pedogenic age of those sediments that were dug up and then placed back in the pit, more than they would the time when the pits were actually excavated by the Titus phase Caddo groups that inhabited the site. As such, they are more relevant and informative concerning when there were periods of pedogenic turbations across the local landscape that preceded the Caddo occupation (cf. Frink and Perttula 2002).

Interestingly, some 20 Titus phase pit features (primarily smudge pits, see Table 4-15) with substantial amounts of organic materials in the fill, particularly charcoal-stained sediments and zones of charred plant remains, have OCR dates that uniformly range from (on average) A.D. 1446-1470, clearly falling in the

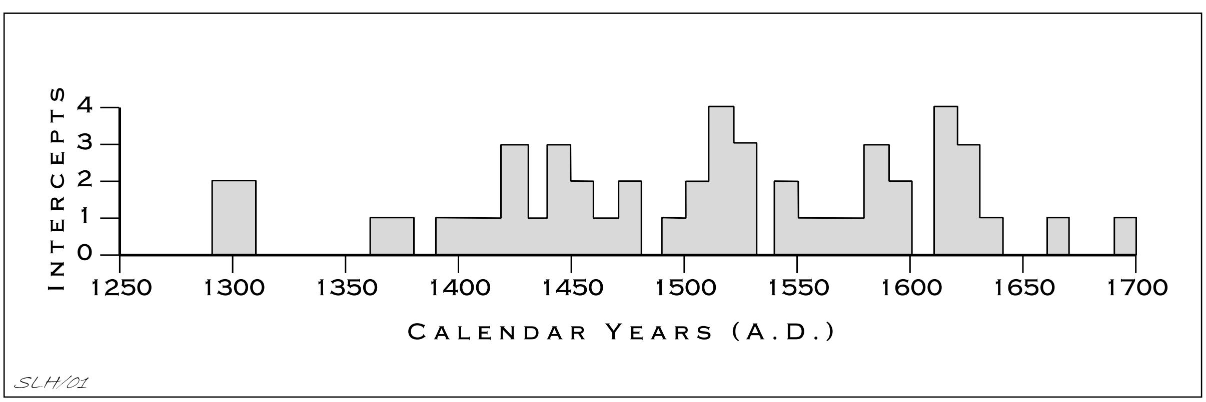


Figure 4-31. Summary of the age ranges of calibrated intercepts for the radiocarbon samples from residential areas.

Table 4-15. OCR Dates from Residential Areas at the Pilgrim's Pride Site.

Area	Fea. No.	OCR Date	SD	Age Range (B.P.)	ACT #
I	F. 104	532	15	A.D. 1403-1433	3917
	F. 106	577	17	A.D. 1356-1390	3919
	F. 109	674	20	A.D. 1256-1296	3904
	F. 110	465	13	A.D. 1472-1498	3902
	F. 111	463	13	A.D. 1474-1500	3901
	F. 125	495	14	A.D. 1441-1469	3903
	F. 136	564	16	A.D. 1370-1402	3900
	F. 141	674	20	A.D. 1256-1296	3912
	F. 148	474	14	A.D. 1462-1490	3913
	F. 178	569	17	A.D. 1364-1398	3921
	F. 183	1229	36	A.D. 685-757	3899
	F. 1-103	704	21	A.D. 1225-1267	4051
	F. 1-126	551	16	A.D. 1383-1415	3865
	F. 1-128	817	24	A.D. 1109-1157	3871
	F. 1-130	569	17	A.D. 1364-1398	3866
	F. 1-133	585	17	A.D. 1348-1382	3875
	F. 1-135	637	19	A.D. 1294-1332	3877
	F. 1-141	535	16	A.D. 1399-1431	3869
	F. 1-146a	537	16	A.D. 1397-1429	3874
	F. 1-148	596	17	A.D. 1337-1371	3876
	F. 1-149	552	16	A.D. 1382-1414	4052
	F. 1-160	744	22	A.D. 1184-1228	4053
	F. 1-163	582	17	A.D. 1351-1385	3870
	F. 1-166	606	18	A.D. 1326-1362	3878
	F. 1-167	588	17	A.D. 1345-1379	3868
	F. 1-171	662	19	A.D. 1269-1307	3867
	F. 1-228	554	16	A.D. 1380-1412	4054
	F. 1-228	743	22	A.D. 1185-1229	4055
	F. 1-231	587	17	A.D. 1346-1380	4063
II	F. 201	791	23	A.D. 1136-1182	3890
	F. 203	848	25	A.D. 1077-1129	3879
	F. 204	496	14	A.D. 1440-1468	3880
	F. 205	720	21	A.D. 1209-1251	3887
	F. 206	676	20	A.D. 1254-1294	3888
	F. 207	655	19	A.D. 1276-1314	3881
	F. 210	689	20	A.D. 1241-1281	3889
	F. 210	622	18	A.D. 1310-1346	4050
	F. 212	668	20	A.D. 1262-1302	3882
	F. 214	683	20	A.D. 1247-1287	3883
	F. 218	640	19	A.D. 1291-1329	3891
	F. 219	776	23	A.D. 1151-1197	3884
	F. 225	745	22	A.D. 1185-1229	3886

Table 4-15. *(Continued)*

Area	Fea. No.	OCR Date	SD	Age Range (B.P.)	ACT #
	F. 230	487	14	A.D. 1449-1477	3885
	F. 231	533	15	A.D. 1402-1432	3898
	F. 232	585	17	A.D. 1348-1382	3897
	F. 234	503	15	A.D. 1432-1462	3906
	F. 235	463	13	A.D. 1474-1500	3920
	F. 236	589	17	A.D. 1344-1378	3894
	F. 237	558	16	A.D. 1376-1408	3905
	F. 248	442	13	A.D. 1495-1521	3914
	F. 254	623	18	A.D. 1309-1345	3916
	F. 255	709	21	A.D. 1220-1262	3893
	F. 261	537	16	A.D. 1397-1429	3892
III	F. 315	499	14	A.D. 1437-1465	3859
	F. 316	518	14	A.D. 1418-1446	3896
	F. 317	718	21	A.D. 1211-1253	3908
	F. 321	516	15	A.D. 1419-1449	3907
	F. 322	675	20	A.D. 1255-1295	3910
	F. 335	480	14	A.D. 1456-1484	3895
	F. 336	475	14	A.D. 1461-1489	3909
	F. 338	500	14	A.D. 1436-1464	3918
	F. 343	551	16	A.D. 1383-1415	3911
	F. 346	642	19	A.D. 1289-1328	3915
	F. 351	549	16	A.D. 1385-1417	3860
	F. 363	549	16	A.D. 1385-1417	3861
	F. 364	653	19	A.D. 1278-1316	4061
	F. 366	602	18	A.D. 1330-1366	3862
	F. 372	546	16	A.D. 1388-1420	3863
	F. 373	600	17	A.D. 1333-1367	4062
	F. 394	688	20	A.D. 1242-1282	3873
	F. 395	493	14	A.D. 1443-1471	3864
	F. 3-101	548	16	A.D. 1386-1418	3872
VIII	F. 804	493	14	A.D. 1443-1471	3823
	F. 806	608	18	A.D. 1324-1360	3825
	F. 809	541	16	A.D. 1393-1425	3824
	F. 810	539	16	A.D. 1395-1427	3827
	F. 819	480	14	A.D. 1456-1484	3828
	F. 820	507	15	A.D. 1428-1458	3829
	F. 827	509	15	A.D. 1426-1456	3822
	F. 828	510	15	A.D. 1425-1455	3821
IX	F. 901	630	18	A.D. 1302-1338	3826

Table 4-15. *(Continued)*

Area	Fea. No.	OCR Date	SD	Age Range (B.P.)	ACT #
Keller's Investigations in Residential Areas					
I	F. 3	529	15	A.D. 1406-1436	3655
I	F. 7	514	15	A.D. 1421-1451	3648
I	F. 11	583	17	A.D. 1350-1384	3649
	F. 23*	747	22	A.D. 1181-1225	3656
	F. 27*	774	23	A.D. 1153-1199	3657
I	F. 39	575	17	A.D. 1358-1392	3650
I	F. 48	522	15	A.D. 1413-1443	3651
I	F. 60	691	20	A.D. 1239-1279	3652
I	F. 61	697	20	A.D. 1233-1273	3653
I	F. 62	579	17	A.D. 1354-1388	3654
III	Unit 20 midden	879	26	A.D. 1045-1097	3658

*These samples were determined to not be from features after an inspection of the feature field notes and Keller (1998), and should be disregarded in any subsequent use of the OCR results from the site. If anything, they represent the pedogenic age of the natural sediments on the Pilgrim's Pride site landform.

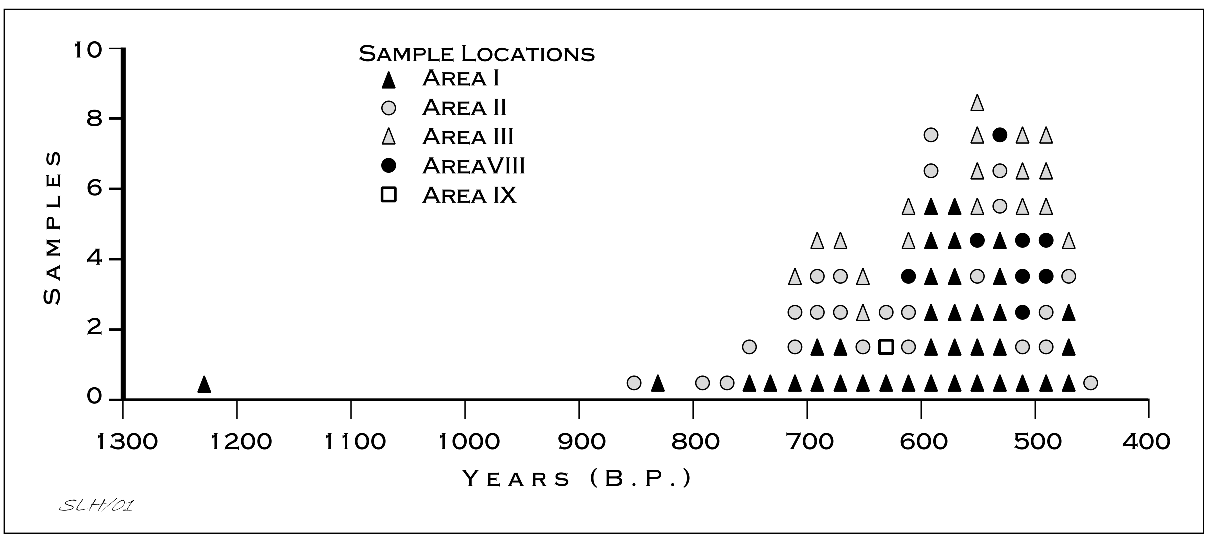


Figure 4-32. Ages of OCR samples from different residential areas at the Pilgrim's Pride site.

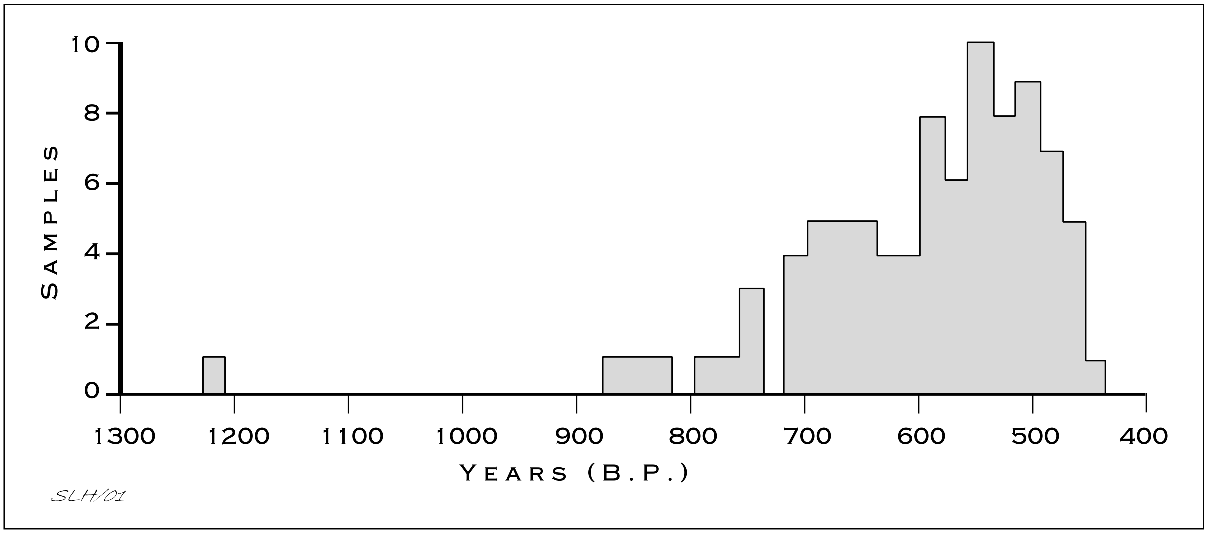


Figure 4-33. Graph summarizing the age of OCR samples from residential contexts at the Pilgrim's Pride site.

Titus phase. Radiocarbon calibrated intercepts from the same group of features (see Table 4-14) have the following ages for four different features: A.D. 1410, AD 1454, 1478, and 1638; A.D. 1511, 1600, and 1616 intercepts from Fea. 828; and A.D. 1498, 1512, 1516, 1599, and 1618 intercepts from Fea. 3. These results suggest that the best kinds of features that should be sampled for OCR dating (particularly in the absence of OCR columns) are those with organically-enriched feature fills.

Chapter 5

Artifact Assemblage from the Residential Areas of The Pilgrim's Pride Site

Timothy K. Perttula, with contributions by James W. Cogswell, Hector Neff, Michael D. Glascock, Steve A. Tomka, and Mark Walters

In this chapter, we discuss the kinds of artifacts—the material culture remains used by Caddo peoples—found in Titus phase residential contexts at the Pilgrim's Pride site. These artifacts are dominated by sherds from both utility ware and fine ware vessels used for cooking, food storage, holding liquids, and serving foods, with only a meager lithic assemblage. Much of the lithics found at the site are actually from earlier Woodland period and Archaic occupations (and indeed, some of this lithic material became incorporated in later Titus phase feature and residential deposits). In the first part of the chapter, the Titus phase ceramic, clay (i.e., daub and burned clay), and lithic artifacts from the site will be reviewed, after which we will discuss the kinds and distribution of Woodland, Archaic, and Late Paleoindian period lithic artifacts (principally lanceolate projectile points) also found scattered across the landform.

CERAMIC ARTIFACTS FROM RESIDENTIAL AREAS

The ceramic artifacts found in the Titus phase residential areas include many sherds from broken fine ware and utility ware sherds, 19 vessels or fragmentary vessel sections from a number of isolated burials in several different residential areas, several perforated sherds (commonly referred to as spindle whorls), one small clay bead, a few pieces of daub, and numerous small burned clay pieces from several pit features.

Ceramic Sherds

Ceramic sherds are by far the most numerous class of material culture remains recovered from the Pilgrim's Pride site during the archeological investigations. More than 9530 sherds are in the sherd assemblage, including 3952 decorated sherds from every part of the large Titus phase village (Table 5-1). Using surface collection data where available, sherd numbers from test excavations (see Chapter 4), and sherd densities in feature/midden areas, the highest densities of sherds are in the northern (E. knoll) and southern parts of Area VIII, the southern parts of Area I and II, and in several concentrations in the southern and southeastern parts of Area III (Figure 5-1). Area IX, to the west of Area I, also had considerable numbers of sherds, but no obvious concentrations were defined in limited investigations there. The highest density of sherds at the site are in the south-central part of Area II, in the immediate vicinity of Units 2, 8, 16, and 23.

Table 5-1. Distribution of Plain and Decorated Sherds at The Pilgrim's Pride Site.

Provenience	Plain Sherds	Decorated Sherds	N
Trenching-grading	785	378	1163
Surface collections*	1503	1073	2576
Test excavation units	2216	1491	3707
Features, test excav.	214	150	364
Area I	279	318	597
Area II	51	105	156
Area III	42	62	104
Area IV	10	13	23
Area V/VI	22	4	26
Area VII	123	76	199
Area VIII	172	131	303
Area IX	171	150	321
Totals	5588	3952	9540

*combined from Horizon Environmental Services and Archeological & Environmental Consultants investigations.

If the surface collection transects laid out by Horizon Environmental Services (see Chapter 4, this volume) had been subdivided into smaller areas, rather than being collected in 150+ m long and 10 m wide strips, it may have been possible to more specifically define spatial trends in ceramic sherd densities at a smaller and more meaningful scale, but the overall patterns depicted in Figure 5-1 make clear that the most intensive Late Caddo Titus phase occupations were confined to three areas between the Area VII mound on the north and the Area V/VI cemetery on the south. The first is on a knoll in Area VIII about 20-40 m west of the Area VII mound; a structure with an extended entranceway was identified in that area of the site. The second area is a 60 x 70 m swath of the landform (in Area I, Area II, and the southern part of Area VIII); many features, structure areas, and midden deposits were uncovered here (see Chapter 4, this volume), and this appears to be the main Titus phase residential area. The final high ceramic sherd density is a 25 x 40 m area in Area III (see Figure 5-1).

Assessments of Assemblage Similarity

It is probable that all areas of the Titus phase residential occupation at the Pilgrim's Pride site are contemporaneous, although the radiocarbon data reviewed in Chapter 4 indicates that the site was apparently occupied by Caddo groups for a maximum of 250 years, or thereabouts, which strongly implies that it was re-occupied by Titus phase groups at different times during that lengthy occupation span. Differences in the kinds of decorated fine wares and utility wares in the various residential areas at the site may provide useful clues as to the overall site occupational history.

A useful measure of the similarity in ceramic decorative elements and methods between the different Titus phase residential areas at the Pilgrim's Pride site is the Brainerd-Robinson (BR) coefficient of

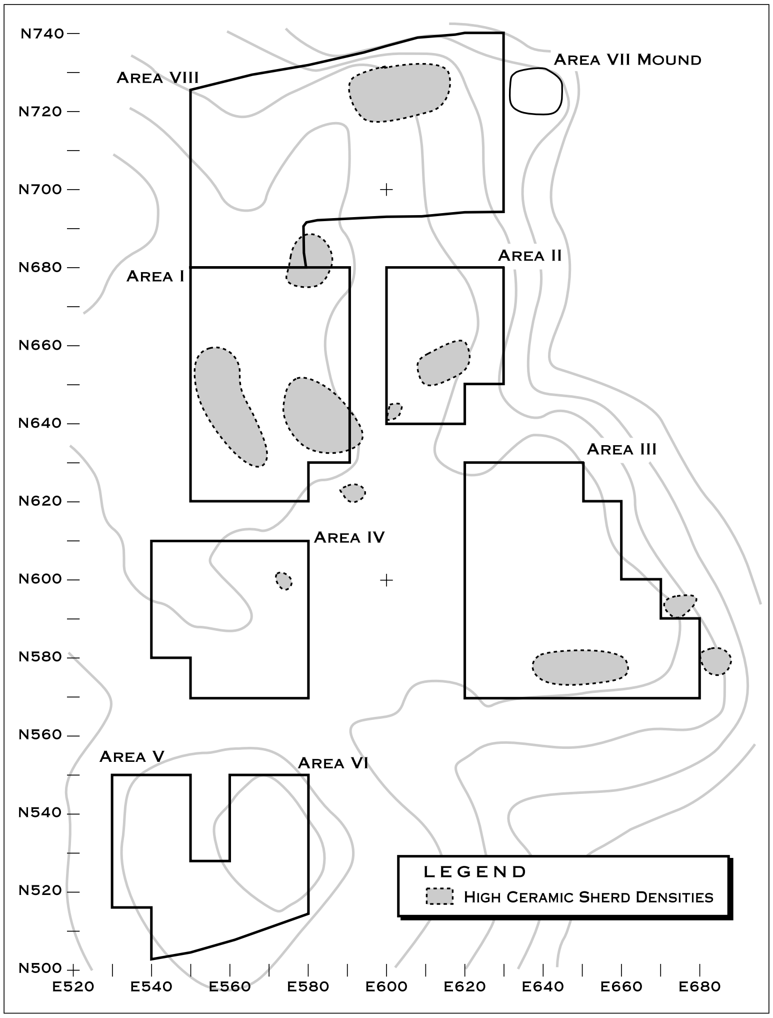


Figure 5-1. High ceramic sherd density areas at the Pilgrim's Pride site.

similarity (Robinson 1951; see also discussion in Cowgill 1990:513). I used frequency data from the 16 decorative methods represented in the different sherd assemblages (Table 5-2, see below for a discussion of the various decorative methods) to compute the coefficient, using the formula:

$$BR = 200 - \sum_{i=1}^{N} [P_{iA} - P_{iB}]$$

The formula takes the percentage of a particular ceramic class (the various decorative methods listed in Table 5-2 for the Pilgrim's Pride site) of sherds in assemblage A (i.e., Area I, Area II, etc.) and subtracts it from the same class in the next assemblage (i.e., assemblage B, C, etc.), taking the absolute value of the differences. The percentages are summed to produce a coefficient of dissimilarity, which is then subtracted from 200 to arrive at the pair-wise BR similarity coefficient. As Fox (1998:38) notes, "a small cumulative difference between assemblages A and B will produce a high coefficient, and a large difference will produce a low coefficient." The highest coefficient value is 200; in the Pilgrim's Pride site assemblage similarity comparisons, the BR similarity is 194.5 (Surface Collections: Test Unit Excavations), and the lowest BR similarity coefficient is 112.5 (Test Unit Excavations: Area VII) (Table 5-3).

The assemblage similarity comparisons in Table 5-3 indicate that there are some basic and profound differences in the composition of the ceramics between all the Titus phase residential areas and the Area VII mound. The similarity coefficients between Area VII and every other assemblage in the residential areas all range between 112.5-131.1, and comprise the lowest similarity values between any of the Pilgrim's Pride site ceramic assemblages.

The Area VII mound ceramics stand apart from the residential area in one principal respect, namely the very high proportion of fine ware vessel sherds here (60.5%), the correspondingly low percentage of utility wares (39.5%), and just the opposite in all residential areas of the site. Even the utility ware vessels that are present in Area VII are different in composition than the residential areas, as the highest relative percentages of punctated-incised sherds are found here as well (see Table 5-2). The abundance of fine ware vessels—including engraved carinated bowls, compound bowls, bottles—and finely burnished and polished red ware

Table 5-2. Decorative Methods in the Various Ceramic Assemblages at The Pilgrim's Pride Site.

Dec. Method	Trenching/ Grading	Surf. Coll.	Exc. units	Fea.	I	II	III	VII	VIII	IX
E	17.2*	19.2	19.1	19.3	20.8	21.9	24.2	50.0	17.5	25.3
RS	10.6	7.6	6.4	4.0	9.4	7.6	3.2	10.5	12.2	7.3
A-P	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NB	2.4	2.1	2.6	2.7	1.9	2.9	4.8	1.3	0.0	0.0
B-A-P	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
B-P	0.5	1.5	1.8	1.3	2.2	0.0	3.2	0.0	3.0	2.0
B	48.4	48.3	48.8	42.7	41.2	35.2	37.1	19.7	41.2	35.3
B-I	1.6	1.4	0.8	0.7	0.0	0.0	0.0	0.0	0.8	0.0
B-A	0.5	0.5	0.3	0.7	0.6	0.0	0.0	0.0	0.0	0.7
B-I-A	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.7
P-I	2.6	2.1	1.7	1.3	2.8	1.9	4.8	6.6	2.3	0.0
P	7.7	7.1	7.6	10.7	5.3	2.9	6.4	3.9	6.1	7.3
I	7.7	9.2	10.2	16.0	14.2	26.7	16.1	6.6	15.3	19.3
A	0.5	0.6	0.5	0.7	1.2	1.9	0.0	1.3	1.5	0.0
A-I	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
B-I-P	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	378	1073	1491	150	318	105	62	76	131	150

*percentages; Key: E = engraved; RS = red-slipped; A-P = appliqued-punctated; NB = neck banded; B-A-P = brushed-appliqued-punctated; B-P = brushed-punctated; B = brushed; B-I = brushed-incised; B-A = brushed-appliqued; B-I-A = brushed-incised-appliqued; P-I = punctated-incised; P = punctated; I = incised; A = appliqued; A-I = appliqued-incised; B-I-P = brushed-incised-punctated.

vessels would seem to indicate that the occupants of the structure eventually burned and then buried by the mound were socially important individuals with ready access to a wide assortment of these fine ware vessels; indeed, the proportion of fine wares in Area VII is even higher than in the Area V/VI burials, where otherwise Titus phase burials tend to also be dominated by fine wares as funerary offerings. The many fine ware vessels used and discarded in Area VII also suggests that important rituals and social events (i.e., public feasting and related ceremonies) took place here that were not conducted in the residential areas, or that such rituals and social events were conducted much more frequently at this special place than they were in the more mundane parts of the Titus phase community.

The ceramic assemblages from residential areas (including the assemblages labeled Trenching/grading, surface collections, excavation units [test excavations conducted by Keller, see Chapter 4, this volume], and features [i.e., features excavated by Keller]) are much more alike one to another than they are different. At most, there are relatively insignificant stylistic differences between each of the assemblages in the kinds of decorations present on the sherds, as indicated by the assemblage similarity coefficients (see Table 5-3). All assemblage similarity coefficients between residential areas range from 150.0 to 194.5 (see Table 5-3) out of a score of 200.

Table 5-3. Similarity Coefficients by Assemblage Pairs.

Assemblage Pair	Similarity coefficient
Surface: Test excavation units	194.5
Trenching/grading: Surface	190.3
Trenching/grading: Test excavation units	187.1
Area I: Area VIII	186.8
Area II: Area IX	183.7
Test excavation units: Test unit features	180.3
Test unit features: Area I	179.6
Area III: Area IX	178.6
Surface: Area I	178.2
Surface: Test unit features	177.0
Test excavation units: Area I	176.8
Test unit features: Area VIII	176.2
Area I: Area IX	175.5
Area I: Area III	175.2
Test unit features: Area III	174.8
Trenching/grading: Area VIII	173.9
Trenching/grading: Area I	173.5
Surface: Area VIII	173.1
Test excavation units: Area VIII	172.5
Test unit features: Area IX	171.8
Area I: Area II	170.5
Trenching/grading: Test unit features	170.3
Area III: Area VIII	169.3
Area II: Area III	168.6
Area VIII: Area IX	166.8
Test excavation units: Area IX	164.8
Test excavation units: Area III	164.3
Surface: Area IX	164.2
Test unit features: Area II	163.1
Area II: Area VIII	162.9
Surface: Area III	161.7
Surface: Area II	156.2
Test excavation units: Area II	156.1
Trenching/grading: Area IX	155.6
Trenching/grading: Area III	154.6
Trenching/grading: Area II	150.0

Table 5-3. *(Continued)*

Assemblage Pair	Similarity coefficient
Area I: Area VII	131.1
Area VII: Area IX	128.4
Area III: Area VII	128.0
Area II: Area VII	125.5
Trenching/grading: Area VII	124.8
Area VII: Area VIII	123.8
Surface: Area VII	122.3
Test unit features: Area VII	114.9
Test excavation units: Area VII	112.5

Nevertheless, groupings of assemblages are apparent across the Titus phase residential areas at the site. Areas I and VIII, which are adjacent to each other, are more alike (coefficient of 180.3) in a broad sense than they are to the other assemblages and constitute one residential group/place, while Area II, Area III (168.6 coefficient between Area II and III), and Area IX (183.7 coefficient between Area II and IX) comprise a second group of similar ceramic assemblages; these areas are east and south of Area I, except for Area IX, which is west of Area I (see Figure 4-2).

Area I and Area VIII decorated ceramics have several characteristics in common: (1) high proportions of brushed utility ware sherds (41.2%); (2) considerable numbers of red-slipped fine wares (9.4-12.2%); and (3) moderate amounts of engraved fine wares and incised, punctated, and punctated-incised utility wares (see Table 5-2). The many red-slipped sherds here is interesting in light of the abundance of red-slipped sherds in the Area VII mound, and leads me to suspect that an elite residence (but one not destined to be burned and buried under an earthen mound) may have been present in Area VIII.

Ceramic assemblages from trenching/grading, surface collections, test excavation units, and test excavation features also share these characteristics, most particularly the high proportions of brushed utility wares (42.7-48.8%) and red-slipped fine wares (7.6-10.6%) in the trenching/grading and surface collection assemblages. That fact suggests that these assemblages and areas, which are wide-spread, represent what the principal Titus phase ceramic assemblage looks like at the Pilgrim's Pride site. Fine wares comprise about 30% of the decorated sherds, and utility wares the other 70%; of the latter, most vessels had a brushed body surface, and sometimes a brushed rim, along with other decorative treatments.

The Area II, III, and IX ceramic assemblages are different from the Area I and VIII groups in a number of ways. First, while the relative proportions of fine wares to utility wares is about the same between these two larger groups (i.e., 30% to 70%), there are lesser amounts of red-slipped fine wares and more engraved vessels in these areas. Second, brushed sherds comprise between 35.2-37.1% of all the decorated sherds, between 6-11% less than in Areas I and VIII. And third, other kinds of decorated utility wares are more prevalent in Area II, III, and IX, including vessel sherds with neck banded, punctated, brushed-punctated, and incised decorations (see Table 5-2).

If the two larger assemblage groups (Area I/VIII and Area II/III/IX) are from broadly contemporaneous residential occupations—and the kinds of decorated types and motifs within each of these groups (e.g., Ripley Engraved, La Rue Neck Banded, Pease Brushed Incised, Maydelle Incised, Bullard Brushed, etc.) suggest that they are—what would account for the differences detected in the assemblage similarity coefficients? Probably the principal factor would be social differences within the group and/or community that lived at the Pilgrim's Pride site, with any kin-related groups at the site making and using pottery that would have been decorated in different ways from one end of the village to another. In other words, the assemblage-scale variation seen in the decorated sherds from the Pilgrim's Pride site may be expressing differences in the level and scale of transmission of ceramic designs between such groups (e.g., Kohler et al. 2004), where a broad conformity in ceramic types across the village otherwise masks local variability in the stability of ceramic designs.

Another possibility is that some of the ceramic designs may be particular to different parts of the Big Cypress Creek and upper Sabine River basins (i.e., neck banding or certain Ripley Engraved motifs), and their appearance at the Pilgrim's Pride site reflects the movements of people (i.e., the people that made and decorated the pottery, or traders that carried the pottery from one village community to others) from those different areas. Since the Caddo peoples are matrilineal (Rogers and Sabo 2004:624), it is unlikely that the movement of people would have been from women who married into the Pilgrim's Pride village (and brought the motifs they had learned in their native villages), since men tended to move their residence at marriage to that of their wives, not the women and the clans they belonged to.

The chemical compositional information reviewed below for Titus phase ceramics from a number of sites is not sufficiently robust to definitely isolate small zones of production within the region. This in turn makes it difficult to demonstrate that different kinds of decorated ceramics were made in different parts of the Titus phase region and moved/exchanged from one area to another within the region, although about 10% of the sherds analyzed to date were from non-Big Cypress Creek and upper Sabine River basin sources.

Finally, perhaps the ceramic assemblage differences that have been recognized are ultimately due to temporal differences in when each of the site areas were occupied and/or re-occupied. The calibrated radiocarbon dates discussed in Chapter 4, as well as the virtual absence of Maud and Talco arrow points and the Ripley Engraved pendant triangle motif—all good indications of post A.D. 1600 Titus phase Caddo occupations—point to a ca. 170-200 year period when the Pilgrim's Pride site could have been, and probably was occupied by Caddo peoples. There are not enough structures, middens, or burials found during the archeological investigations to posit a single occupation that lasted the entire ca. 170-200 year span of time. Instead, it is probably more likely that portions of the landform were occupied and re-occupied at certain times (for 10-20 years at a stretch), and abandoned at others. Thus, each of the recognized intra-site areas could have had a completely different settlement history than each of the others, which opens the distinct possibility that the ceramics from each of those different occupations would be a palimpsest of site use over a range of temporal intervals, some of which may not have overlapped in time.

As I discuss the ceramic decorative elements in the following sections of Chapter 5, it will be important to keep an eye out for any such temporal clues embedded in the relative proportions of decorated fine wares and utility wares as well as specific decorative elements, inasmuch as will be possible given the wide ranges in assemblage sizes from one area to another.

There is one way, however, that may be employed to measure time, or temporal differences, in the residential areas where there is less concern for the effects of sample size, and that is the plain : decorated sherd ratio (P/DR). Ceramic sherd analyses in many parts of northeastern Texas, including the Big Cypress Creek basin, have shown that through time the P/DR decreases in a relatively linear fashion (to as low of 0.30 in late 17th and early 18th century Caddo sites), primarily because later Caddo ceramics tend to have been decorated on both the rim and much of the body (in large measure because of the use of brushing after ca. A.D. 1200 as a form of vessel body decoration), whereas earlier Caddo ceramics are less likely to have both rim and body decorations.

P/DR ratios for the main residential areas are as follows:

Area III, P/DR = 1.80 (449/249)

Area I, P/DR = 1.36 (910/671)
Area VIII, P/DR = 1.31 (172/131)

Area II, P/DR = 1.19 (1193/1003)
Area IX, P/DR = 1.14 (171/150)

These results, when considered in light of the assemblage similarity coefficients discussed above (see Table 5-3), do hint, I think, of temporal differences between the larger assemblage groups (i.e., Area I/VIII versus Area II/IX), although those differences may not be substantial in number of years.

The P/DR values, if an accurate and relative measurement of time, imply that the earliest Titus phase occupation of the Pilgrim's Pride site was in Area III, and was then followed by a larger and more substantial occupation in Area I and Area VIII. The Area VII mound may have been built during either one of these posited occupations; the P/DR ratio in the mound ceramics is 1.62. The final residential occupation of the site, given the same reasoning, by Titus phase Caddo groups would have been in Areas II and IX, and this was probably some time after the mound was constructed.

Decorated Sherds

In the course of sorting and tabulating the decorated sherds from the Pilgrim's Pride site, a total of 176 decorative elements were identified in the almost 4000 decorated sherds in the assemblage. About 27% of the decorative elements are in the fine wares (i.e., engraved or engraved-punctated sherds only; no decorative elements were defined for sherds with only a red slip, although it was noted if the red slip was on one or both vessel surfaces). The remainder of the decorative elements are from the much more abundant utility wares (Table 5-4).

These decorative elements were spread across 16 methods of decoration (including combinations of methods, such as appliqued-incised) in the utility wares and fine wares. For the purposes of the discussion that follows, a decorative element is a single component of the decoration on a vessel, such as a set of engraved triangles filled with hatched lines or rows of tool punctations. Only a small number of the decorative elements, however. in the decorated sherds can be recognized as part of larger motifs, such as a scroll and circle motif in a Ripley Engraved carinated bowl or a horizontally brushed rim with tool punctated rows under the lip and at the rim-body juncture (i.e., one motif on Bullard Brushed jars). Motifs represent recurrent themes in each assemblage's ceramic decorative styles. Schematic drawings of the 176 decorative elements are provided in Figure 5-2 to Figure 5-15.

Table 5-4. Decorative Elements in the Pilgrim's Pride Site Ceramics.

Decorative Element Categories	No. of sherds
Utility Wares	
Appliqued, El. 1-4	24
Appliqued-incised, El. 1-4	8
Appliqued-punctated, El. 1-2	4
Brushed, El. 1-9	1570
Brushed-appliqued, El. 1-2	25
Brushed-appliqued-punctated, El. 1-3	8
Brushed-incised, El. 1-10	120
Brushed-incised-punctated, El. 1-7	8
Brushed-punctated, El. 1-16	80
Incised, El. 1-19	534
Neck Banded El. 1-2	79
Neck banded-brushed, El. 3	3
Neck banded-appliqued, El. 4	5
Neck banded-incised, El. 5	3
Pinched-incised	1
Punctated, El. 1-26	247
Punctated-incised, El. 1-19	98
Fine Wares	
Engraved, El. 1-47	765
Engraved-punctated, El. 1	3
Red-slipped, int./ext. surfaces	233
Red-slipped, ext. surface	45

Utility Wares Decorative Elements

The principal decorative elements in the Pilgrim's Pride site utility wares are: parallel brushed elements (Brushed El. 1, n=1216) from Bullard Brushed and Pease Brushed-Incised jars; parallel incised lines (Incised El. 1, n=198) from Maydelle Incised jars; horizontal brushed (Brushed El. 3, n=134) from Bullard Brushed and/or Karnack Brushed-Incised jars; horizontal incised lines (Incised El. 2, n=133); multi-directional brushed (Brushed El. 6, n=107); horizontal neck banded rows (Neck Banded El. 1, n=76) on La Rue Neck Banded jars; punctated rows (Punctated El. 3, n=43) from Mockingbird Punctated jars; fingernail punctated (Punctated El. 1, n=40); vertical appliqued-brushed (Brushed-appliqued El 1, n=17) sherds from Pease Brushed-Incised jars; and appliqued ridges (Appliqued El. 1, n=14) from McKinney Plain jars. Thumbnail sketches of the main characteristics of each of the utility ware decorative elements are provided below.

- Appliqued El. 1 (n=14), appliqued fillets, at least two and probably four fillets (oriented vertically) on vessel bodies (see Figure 5-2f); McKinney Plain;

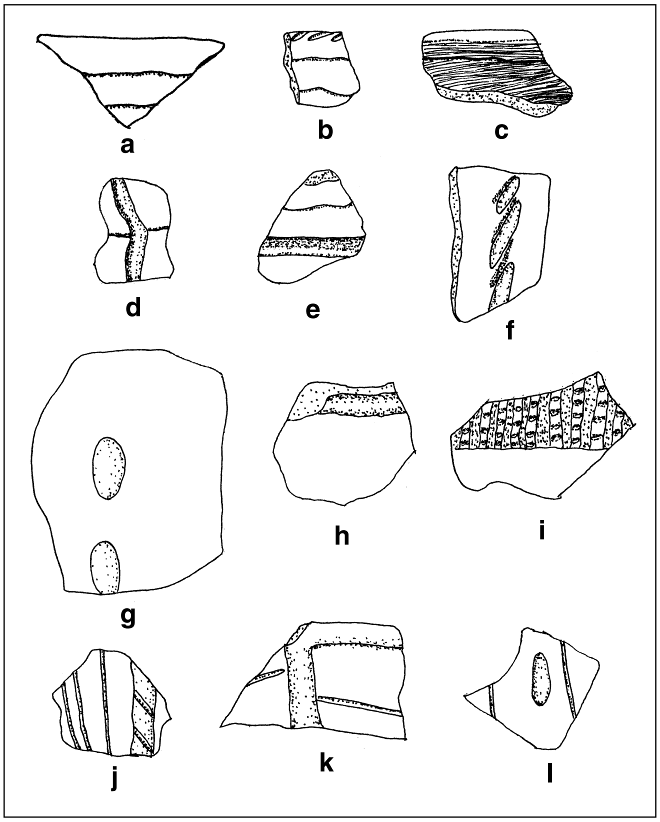


Figure 5-2. Neck Banded, Appliqued, and Appliqued-incised decorative elements: a, Neck Banded, El. 1; b, Neck Banded, El. 2; c, Neck Banded-brushed, El. 3; d, Neck Banded-appliqued, El. 4; e, Neck Banded-incised, El. 5; f-i, Appliqued, El. 1-4; j-l, Appliqued-incised, El. 1-3.

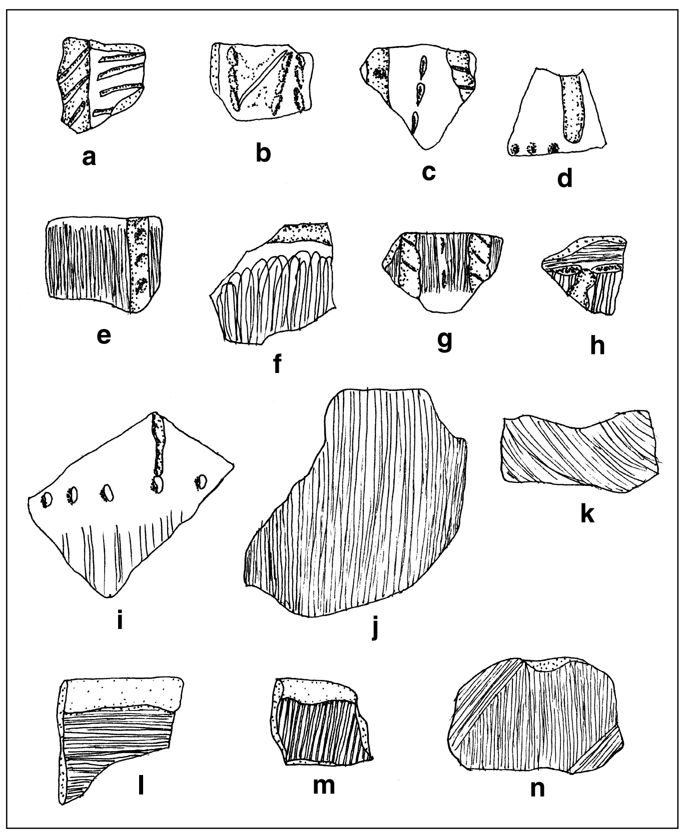


Figure 5-3. Appliqued-incised, Pinched-incised, Appliqued-punctated, Brushed-appliqued, Brushed-appliqued-punctated, and Brushed decorative elements: a, Appliqued-incised El. 4; b, Pinched-incised; c-d, Appliqued-punctated El. 1-2; e-f, Brushed-appliqued El. 1-2; g-i, Brushed-appliqued-punctated El. 1-3; j-n, Brushed El. 1-5.

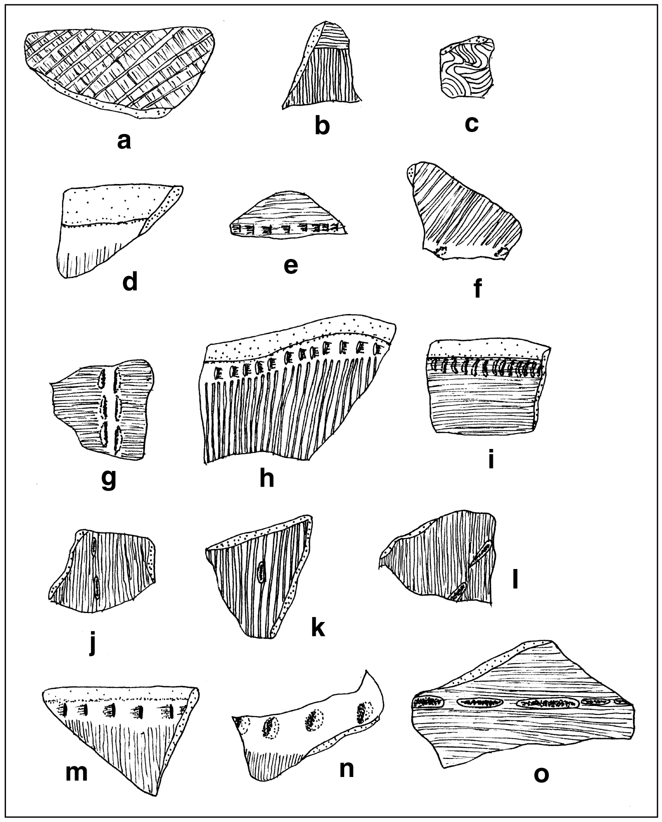


Figure 5-4. Brushed and Brushed-punctated decorative elements: a-d, Brushed El. 6-9; e-o, Brushed-punctated El. 1-10.

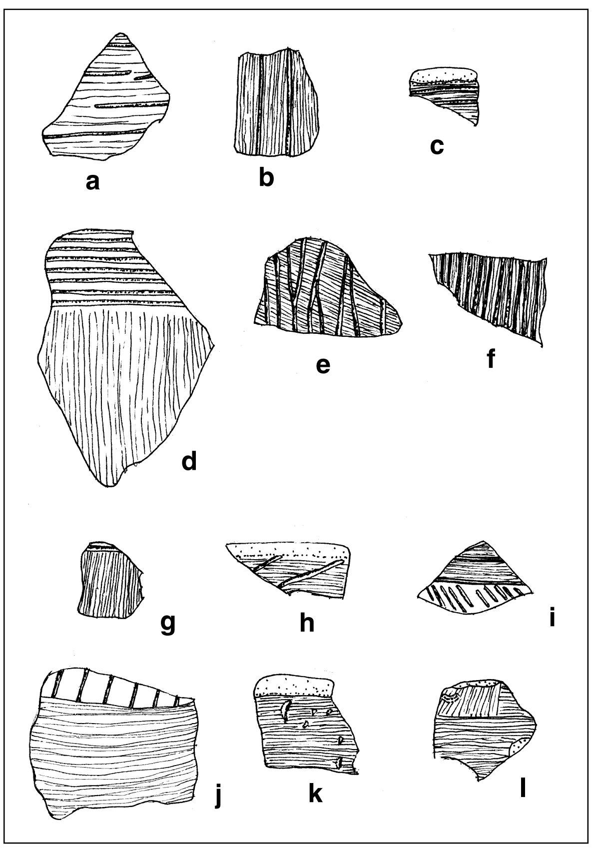


Figure 5-5. Brushed-incised and Brushed-punctated decorative elements: a-j, Brushed-incised El. 1-10; k-l, Brushed-Punctated El. 11-12.

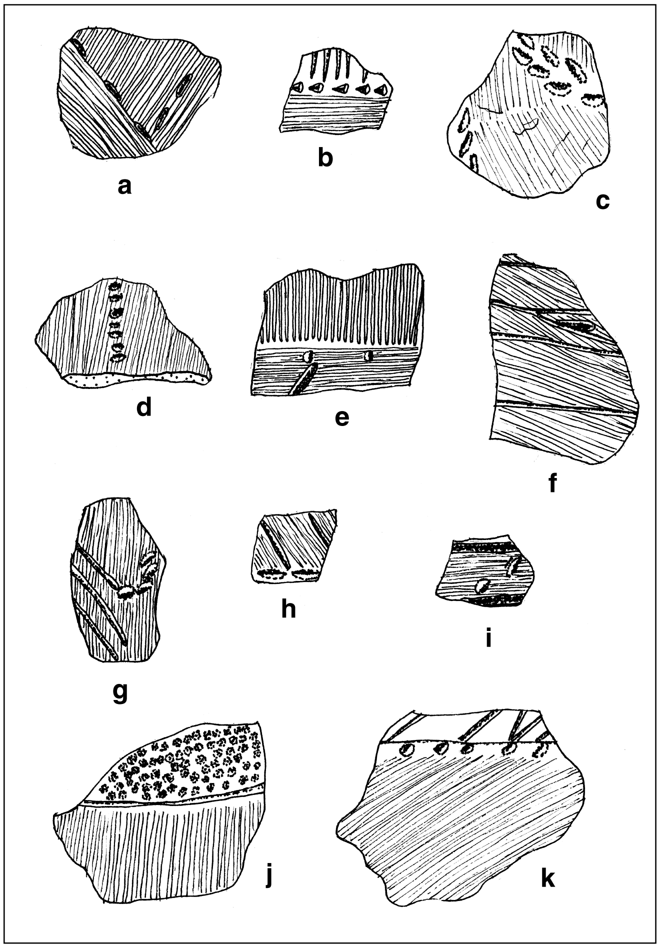


Figure 5-6. Brushed-punctated and Brushed-punctated-incised decorative elements: a-d, Brushed-punctated El. 13-16; e-k, Brushed-punctated-incised El. 1-7.

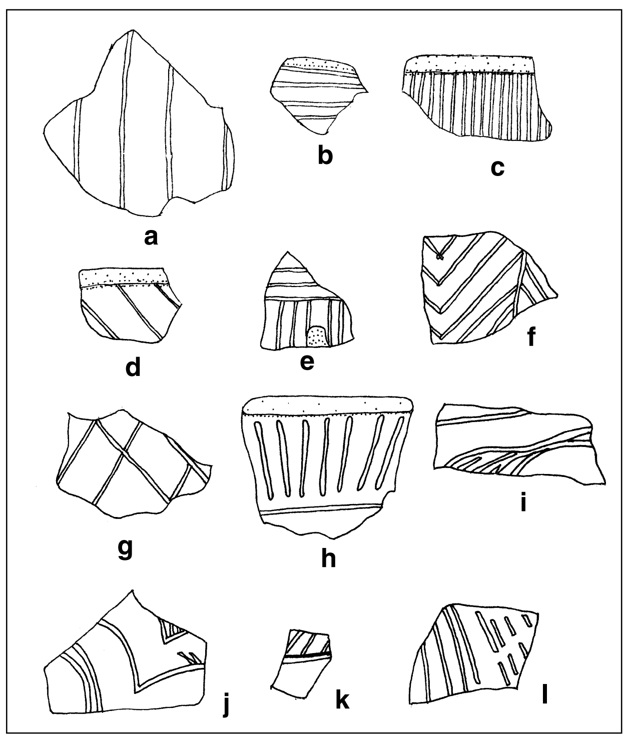


Figure 5-7. Incised decorative elements: a-l, Incised El. 1-12.

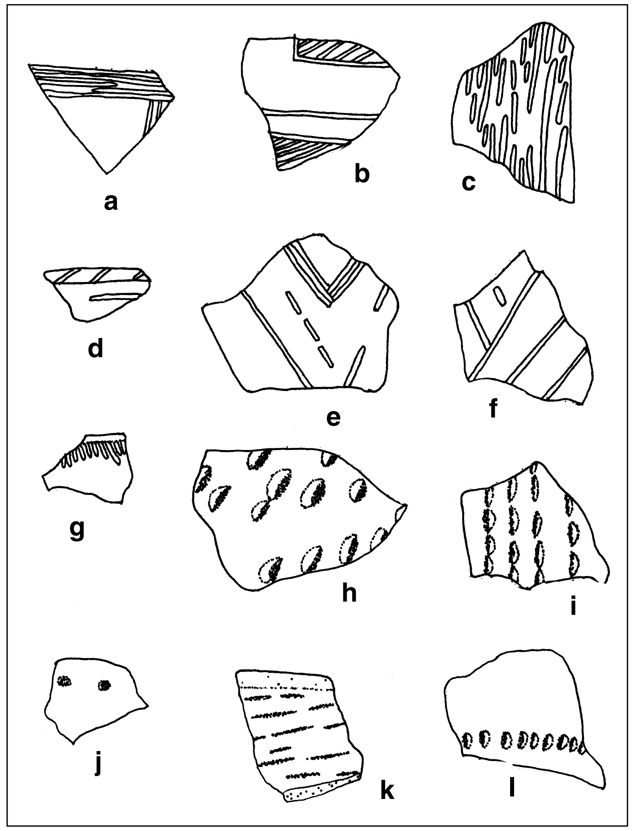


Figure 5-8. Incised and Punctated decorative elements: a-g, Incised El. 13-19; h-l, Punctated El. 1-4.

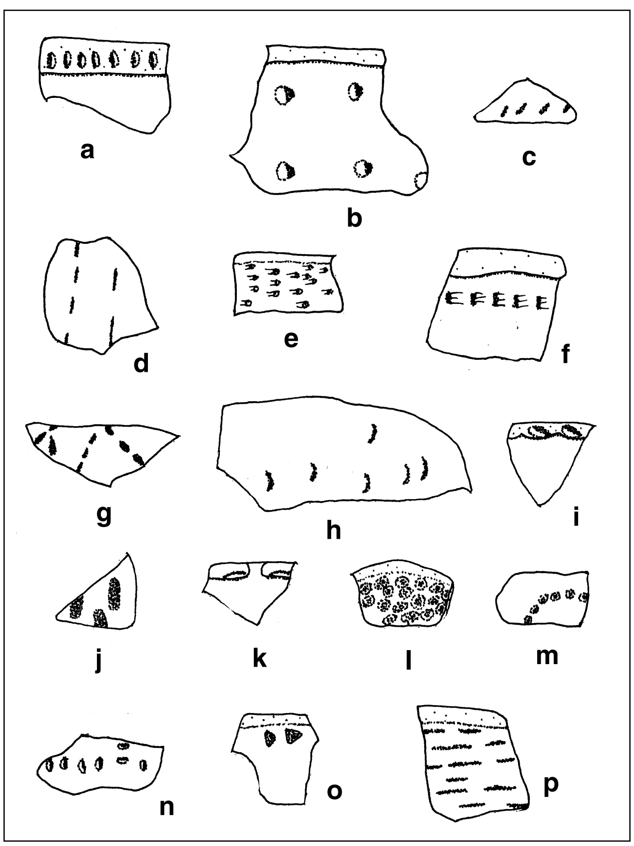


Figure 5-9. Punctated decorative elements: a-p, Punctated El. 5-20.

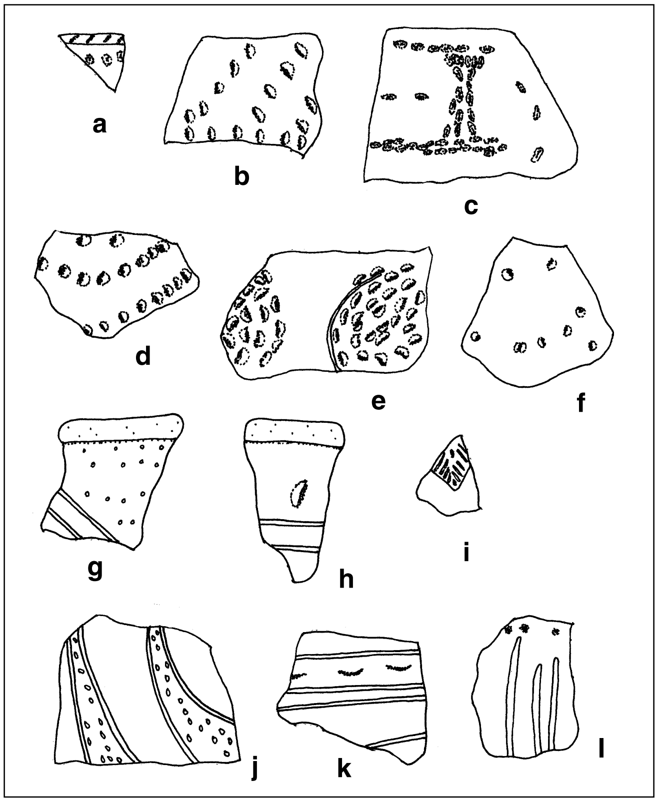


Figure 5-10. Punctated and Punctated-Incised decorative elements: a-f, Punctated El. 21-26; g-l, Punctated-incised El. 1-6.

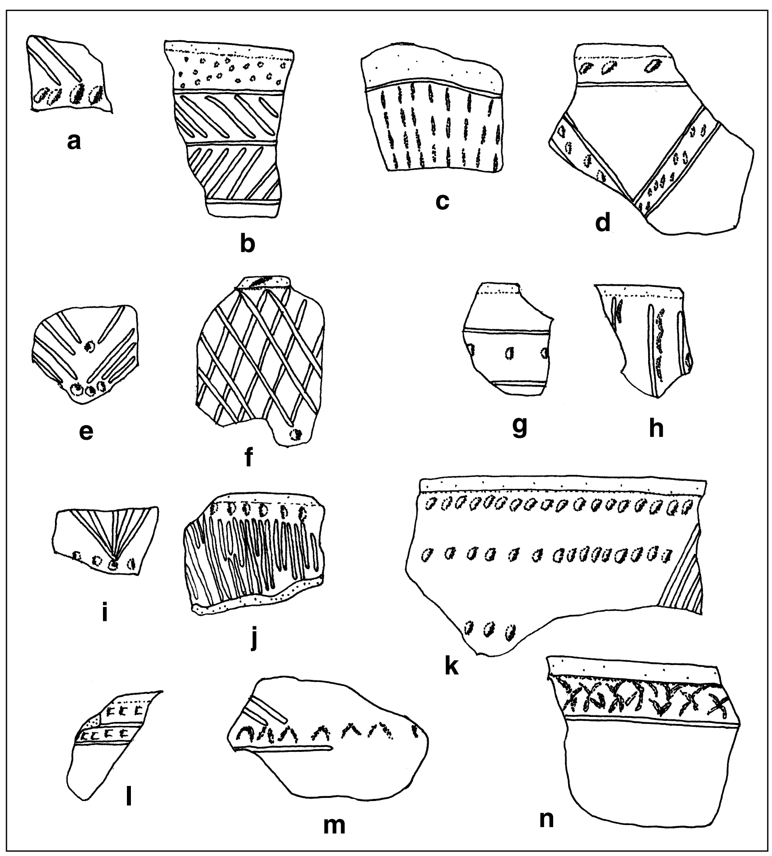


Figure 5-11. Punctated-incised decorative elements: a-l, Punctated-incised El. 7-18; m, Punctated-incised El. 19a; n, Punctated-incesed El. 19b.

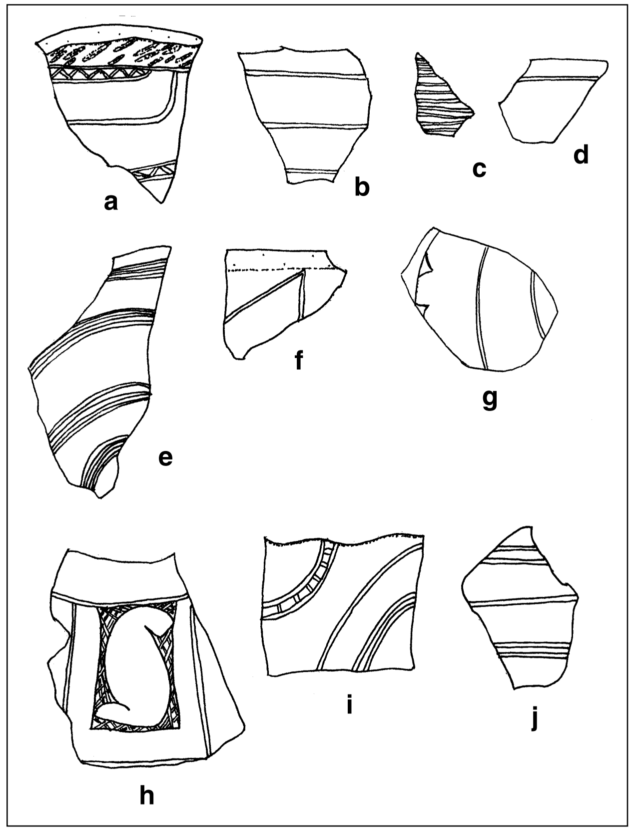


Figure 5-12. Engraved and Engraved-punctated decorative elements: a, Engraved-punctated El. 1; b-c, Engraved El. 1; d-j, Engraved El. 2-8.

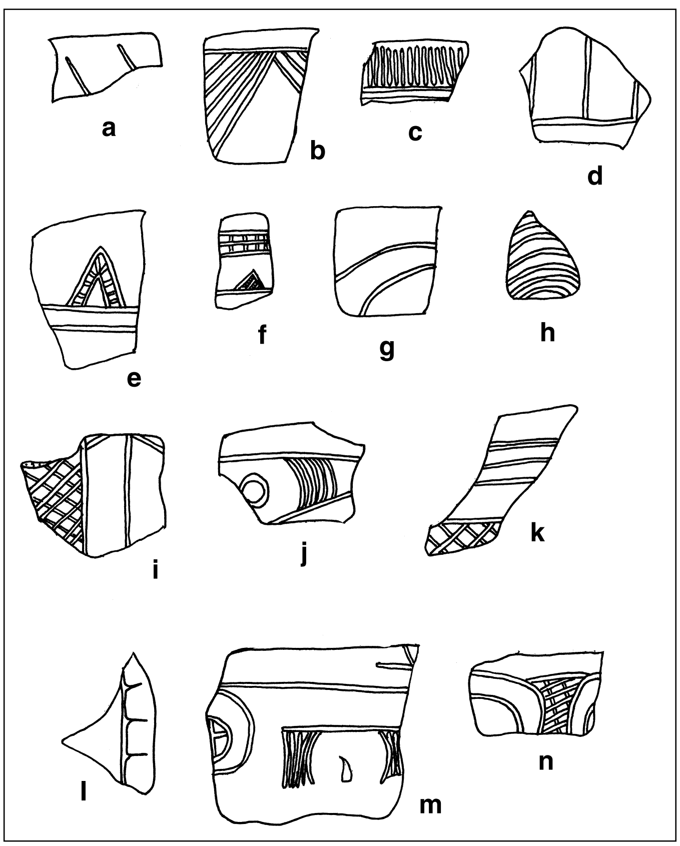


Figure 5-13. Engraved decorative elements: a-n, Engraved El. 9-22.

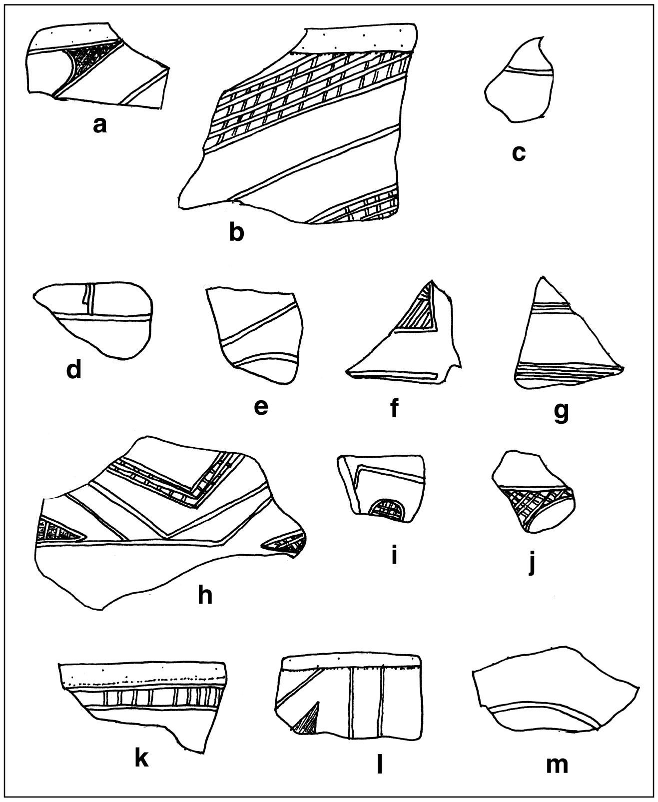


Figure 5-14. More engraved decorative elements: a-b, Engraved El. 23; c-m, Engraved El. 24-34.

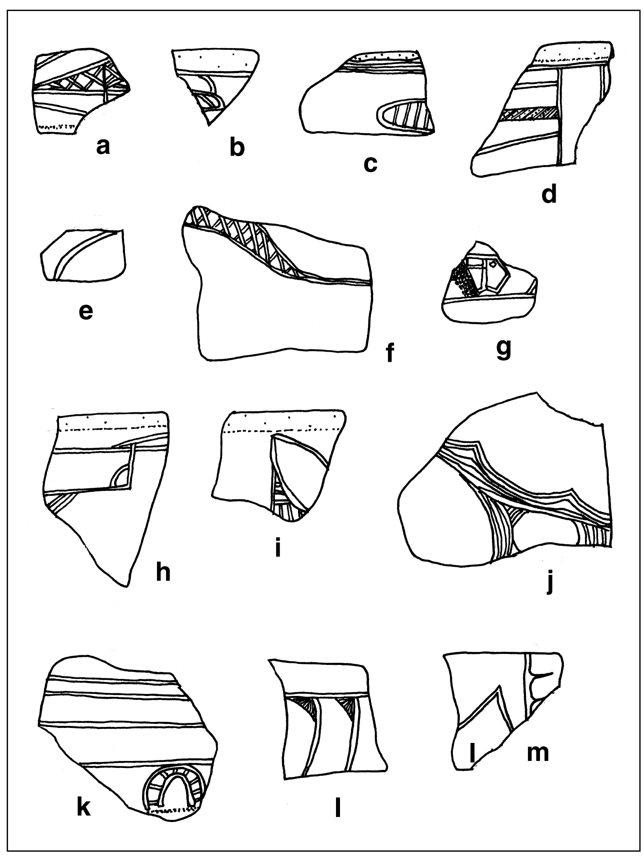


Figure 5-15. Additional engraved decorative elements: a-m, Engraved El. 35-47.

- Appliqued El. 2 (n=7), large appliqued nodes on either the rim or the vessel body; in the latter case, the nodes are oriented vertically, while on the rim, the nodes were apparently equally spaced around the vessel, just under the lip (see Figure 5-2g). In one case, two small nodes were placed immediately adjacent to each other; McKinney Plain;
- Appliqued El. 3 (n=1); appliqued fillet placed horizontally on a vessel, at the rim-body juncture (see Figure 5-2h);
- Appliqued El. 4 (n=2); closely-spaced and vertically-oriented appliqued fillets, and the appliqued fillets have small punctations on them; Harleton Appliqued (see Figure 5-2i);
- Appliqued-incised El. 1 (n=3), vertically oriented appliqued fillets marking panels filled with vertical incised lines; Pease Brushed-Incised (see Figure 5-2j);
- Appliqued-incised El. 2 ((n=1), rim sherd with a vertically placed appliqued ridge dividing sets of diagonal incised lines (see Figure 5-2k);
- Appliqued-incised El. 3 (n=2), small appliqued nodes between sets of either diagonal or vertically incised lines, apparently on the vessel body (see Figure 5-2l);
- Appliqued-incised El. 4 (n=2), vertical appliqued fillet marking a body panel filled with horizontal incised lines (see Figure 5-3a);
- Appliqued-punctated El. 1 (n=2), vertical rows of tool punctations between rows of vertically oriented appliqued fillets, on the vessel body (see Figure 5-3c);
- Appliqued-punctated El. 2 (n=2), vertical appliqued fillets on vessel rim, with a row of tool punctations either near the base of the rim (see Figure 5-3d), or just below the lip;
- Brushed El. 1 (n=1216), these are body sherds to cooking jars that have parallel brushing marks; the brushing marks were made with frayed grass bundles (see Figure 5-3j); the brushing marks are probably oriented vertically (as is seen in whole vessels from the site, see Chapter 6, this volume), but the orientation cannot be determined;
- Brushed El. 2 (n=6), diagonal brushing marks, on both vessel rim and body sections (see Figure 5-3k);
- Brushed El. 3 (n=134), horizontal brushing marks on jar rims (see Figure 5-3l); from Bullard Brushed and Pease Brushed-Incised jars;
- Brushed El. 4 (n=81), finely brushed to "combed" marks on vessel rim and body sections (see Figure 5-3m); the brushing on these sherds may have been done with a stiff bundle of twigs or grass, as the brushing is more finely applied than in the other brushed decorative elements from the site; brushing on the rim is oriented both vertically and horizontally;
- Brushed El. 5 (n=20), multi-directional brushing marks on vessel bodies (see Figure 5-3n);
- Brushed El. 6 (n=107), overlapping brushing marks on vessel bodies (see Figure 5-4a);
- Brushed El. 7 (n=1), this rim and body sherd has horizontal brushing marks on the rim (i.e., Brushed El. 3) and vertical brushing marks on the vessel body (see Figure 5-4b);
- Brushed El. 8 (n=1), curvilinear to wavy brushing marks on the lower part of a jar rim (see Figure 5-4c);
- Brushed El. 9 (n=4), vertical brushing on the vessel rim, with the brushing beginning not immediately below the lip, but a short distance down the rim (see Figure 5-4d); Bullard Brushed;
- Brushed-appliqued El. 1 (n=17), vertical appliqued fillets on vessel body marking panels filled with vertical brushing marks; one example has a small node placed in a vertically brushed-filled panel (see Figure 5-3e);

- Brushed-appliqued El. 2 (n=8), vertical appliqued fillets between panels filled with horizontal brushing marks (see Figure 5-3f);
- Brushed-appliqued-punctated El. 1 (n=5), vertical appliqued fillets dividing panels filled with vertical brushing marks and separate vertical rows of tool punctations embedded in the brushing; Pease Brushed-Incised (see Figure 5-3g);
- Brushed-appliqued-punctated El. 2 (n=2), vertical fillets marking panels filled with vertical brushing, with a row of tool punctations at the rim-body juncture, and just about the appliqued fillet (see Figure 5-3h);
- Brushed-appliqued-punctated El. 3 (n=1), vertical fillet above a horizontal row of tool punctations, which in turn is above vertical brushing on vessel body (see Figure 5-3i); the rim treatment is the same as Appliqued-punctated El. 2 (see Figure 5-3d);
- Brushed-incised El. 1 (n=13), rim sherds with horizontal brushing marks with short or discontinuous horizontal incised lines drawn through the brushing (see Figure 5-5a);
- Brushed-incised El. 2 (n=47), parallel brushing marks and narrow to wide but widely-spaced parallel incised lines (see Figure 5-5b); the orientation of the brushing marks and incised lines are undetermined;
- Brushed-incised El. 3 (n=8), horizontal brushed rim sherds with horizontal incised lines drawn through the brushing marks (see Figure 5-5c);
- Brushed-incised El. 4 (n=3), sets of horizontal incised lines on the rim, with vertical to diagonal brushing marks on the vessel body (see Figure 5-5d);
- Brushed-incised El. 5 (n=28), parallel brushing marks on vessel body sherds, and sets of incised lines cross-cutting the brushing at an oblique angle (see Figure 5-5e);
- Brushed-incised El. 6 (n=16), parallel brushing marks overlying sets of closely-spaced and deeply drawn parallel incised lines (see Figure 5-5f);
- Brushed-incised El. 7 (n=2), vertical brushing marks to one side of a single opposed incised line (see Figure 5-5g); these may also be from vessels with Brushed-Incised El. 4 decorations (see Figure 5-5d), but it is not certain that the incised line on these two sherds is at the rim-body juncture;
- Brushed-incised El. 8 (n=1), horizontal brushing marks on the rim, overlain by diagonal incised lines (see Figure 5-5h);
- Brushed-incised El. 9 (n=1), parallel brushed-incised lines to one side of a set of short diagonal incised lines (see Figure 5-5i); it is possible that the short diagonal incised lines are part of a narrow vertical panel or panel divider on a vessel body, with a brushed-incised decoration in the panels;
- Brushed-incised El. 10 (n=1), set of diagonal to vertical incised lines on the rim, with the vessel body having horizontal brushing marks (see Figure 5-5j);
- Brushed-punctated El. 1 (n=18), horizontal brushing on the rim, with a row of closely-spaced oblong, linear, or round tool punctations at the rim-body juncture (see Figure 5-4e); some sherds have another row of tool punctations underneath the lip, while another rim sherd has a third row of punctations midway down the rim;
- Brushed-punctated El. 2 (n=2), one sherd has diagonal brushing marks on the rim, with a row of widely-spaced tool punctations at the rim-body juncture (see Figure 5-4f), while the other has horizontal brushing on the rim, a closely-spaced row of squarish-shaped punctations at the rim-body juncture, and diagonal brushing marks on the vessel body;
- Brushed-punctated El. 3 (n=5), rim sherds with horizontal brushing marks and fingernail

punctated rows (see Figure 5-4g); the fingernail punctations are either vertically or horizontally oriented; the latter are along the rim-body juncture, while the former comprise a vertical line of punctations that run from the lip to the rim-body juncture;

- Brushed-punctated El. 4 (n=15), these sherds feature a closely-spaced row of punctations—either tool or fingernail—under the vessel lip (see Figure 5-4h-i); most of this category have horizontal brushing marks on the rim, but one rim-peaked jar has finely-executed vertical brushing on the rim (see Figure 5-4h);
- Brushed-punctated El. 5 (n=11), sherds with randomly placed to rows of tool or linear punctations embedded in areas of parallel (vertical?) brushing on vessel bodies (see Figure 5-4j); Pease Brushed-Incised;
- Brushed-punctated El. 6 (n=4), combed sherds with tool punctations pushed through the combing marks (see Figure 5-4k); the few examples suggest the punctations are randomly placed on both rim and vessel bodies;
- Brushed-punctated El. 7 (n=3), sherds with random to linear (diagonal?) rows of fingernail punctations pushed through parallel brushing marks on vessel bodies (see Figure 5-4l); Pease Brushed-Incised;
- Brushed-punctated El. 8 (n=7), vertical brushing on rim and body sections, with single rows of tool punctations either under the lip or along the rim-body juncture (see Figure 5-4m); the punctations are kept separate from the brushing marks on the rim and at the rim-body juncture, but not on the vessel body; one sherd has two rows of tool punctations with vertical brushing along one row, and an area or panel with no brushing marks; Pease Brushed-Incised;
- Brushed-punctated El. 9, row of large, round punctations at the rim-body juncture, kept separate from vertical brushing on the vessel body (n=5) (see Figure 5-4n);
- Brushed-punctated El. 10 (n=1), horizontal brushing marks with a row of linear punctations pushed through the brushing (see Figure 5-4o); Pease Brushed-Incised;
- Brushed-punctated El. 11 (n=1), rim sherd with horizontal brushing, along with horizontal and vertical rows of tool and fingernail punctations (see Figure 5-5k);
- Brushed-punctated El. 12 (n=1), multi-directional brushing on a body sherd, with an apparently random placement of fingernail punctations pushed through the brushing (see Figure 5-5l);
- Brushed-punctated El. 13 (n=1) body sherd with multi-directional brushing, with diagonal rows of fingernail punctations pushed through the brushing; one row of punctations is placed where the brushing directions change orientation; (see Figure 5-6a);
- Brushed-punctated El. 14 (n=1), horizontal brushing on the rim, with a row of triangular-shaped tool punctations at the rim-body juncture (see Figure 5-6b); there are either linear punctations or short vertical incised lines on the vessel body;
- Brushed-punctated El. 15 (n=1), diagonally brushed body sherd with widely-spaced rows of fingernail punctations between areas of brushing (see Figure 5-6c); the fingernail punctated rows are composed of two sets of punctations pitched in opposing directions;
- Brushed-punctated El. 16 (n=4), vertical brushed body sherds with at least one row of closely-spaced and vertically oriented tool punctations pushed through the brushing marks (see Figure 5-6d); Pease Brushed-Incised;
- Brushed-punctated-incised El. 1 (n=1), horizontal brushing marks on the vessel rim, with vertical brushing on the vessel body, and a widely-spaced row of tool punctations at the rim-body juncture (see Figure 5-6e); there are also diagonal incised lines on the rim, cutting through the brushing, similar to Brushed-Incised El. 8 (see Figure 5-5h);

- Brushed-punctated-incised El. 2 (n=1), parallel brushing marks, with diagonal incised lines cutting across the brushing element (see Figure 5-6f); random tear-drop-shaped punctations were pushed through the brushing; Pease Brushed-Incised;
- Brushed-punctated-incised El. 3 (n=1), vertical brushing on the vessel body, with diagonal incised lines and at least one row of diagonal tool punctations (see Figure 5-6g);
- Brushed-punctated-incised El. 4 (n=1), diagonal brushed marks and diagonal incised lines on the vessel body, below a row of tool punctations at the rim-body juncture (see Figure 5-6h);
- Brushed-punctated-incised El. 5 (n=1), rim sherd with horizontal brushing, sets of horizontal lines under the lip and on the rim itself, and at least one diagonal row of tool punctations pushed through the brushing (see Figure 5-6i);
- Brushed-punctated-incised El. 6 (n=2), tightly-filled rim zone with small and round tool punctations, placed above a single horizontal line at the rim-body juncture; the vessel body has vertical brushing marks (see Figure 5-6j);
- Brushed-punctated-incised El. 7 (n=1), rim sherd with a set of diagonal incised lines on the rim, above a row of tool punctations at the rim-body juncture; brushing on the body is diagonally oriented (see Figure 5-6k);
- Incised El. 1 (n=198), parallel incised lines, uncertain orientation on vessel body (see Figure 5-7a); the incised lines range from close to widely-spaced on the sherds;
- Incised El. 2 (n=133), horizontal incised lines around the vessel rim, at least four lines (see Figure 5-7b); in a few cases the horizontal incised lines do not extend from the lip to the rim-body juncture, but only cover the upper portion of the rim itself, leaving the rest of the rim undecorated;
- Incised El. 3 (n=23), rim sherds with closely-spaced vertical incised lines (see Figure 5-7c); probably from Maydelle Incised jars;
- Incised El. 4 (n=53), sets of diagonal incised lines on the rim of jars (see Figure 5-7d);
- Incised El. 5 (n=6), closely-spaced horizontal incised lines on the rim and closely-spaced vertical incised lines on the vessel body (see Figure 5-7e);
- Incised El. 6 (n=36), multiple opposed incised lines (see Figure 5-7f) or herringbone incised lines on the rim and vessel body; one rim sherd has sets of opposed and inverted V-shaped incised lines;
- Incised El. 7 (n=31), cross-hatched incised lines on vessel rims (see Figure 5-7g); the cross-hatching lines range from closely- to widely-spaced on the rim; Maydelle Incised;
- Incised El. 8 (n=6), rim sherds with sets of vertically incised lines on the rim, and a single horizontal incised line at the rim-body juncture (see Figure 5-7h);
- Incised El. 9 (n=7), poorly-executed sets of curvilinear incised lines, probably on the vessel body (see Figure 5-7i);
- Incised El. 10 (n=7), single and multiple sets of curvilinear incised lines, with small hatched zones on some of the curvilinear lines (see Figure 5-7j); except for the fact that these sherds were decorated with incised lines, the decorative element itself is closely related to engraved scroll elements and motifs on Ripley Engraved carinated bowls and compound bowls;
- Incised El. 11 (n=5), horizontal incised line at the rim-body juncture, with diagonal incised lines on the vessel body (see Figure 5-7k);
- Incised El. 12 (n=2), diagonal incised lines on the vessel rim adjacent to diagonal sets of short and discontinuous incised lines (or linear punctations?) (see Figure 5-7l); this element is probably related to Incised El. 17 and 18 (see Figure 5-8e-f);

- Incised El. 13 (n=4), closely-spaced zones of opposed incised lines (see Figure 5-8a), probably on a vessel rim;
- Incised El. 14 (n=4), incised scroll element, with a single central incised line between scroll dividers filled with hatched incised lines (see Figure 5-8b); as with Incised El. 10, this particular decorative element is closely related to engraved scroll elements and motifs on Ripley Engraved vessels;
- Incised El. 15 (n=1), body sherd with closely-spaced and discontinuous sets of incised lines, mimicking rows of linear punctations (see Figure 5-8c);
- Incised El. 16 (n=2), horizontal incised lines on the rim, with diagonal lip notching/incising (see Figure 5-8d);
- Incised El. 17 (n=2), sets of diagonal opposed lines on vessel rim, with discontinuous incised lines between the main diagonal lines (see Figure 5-8e); Maydelle Incised;
- Incised El. 18 (n=11), multiple diagonal opposed incised lines (see Figure 5-8f) on the vessel rim;
- Incised El. 19 (n=3), a series of short vertical to diagonal incised lines below the vessel lip (see Figure 5-8g);
- Pinched-incised (n=1), closely spaced rows of pinched lines, probably on the vessel body, with obliquely-oriented incised lines between them; Killough Pinched (see Figure 5-3b);
- Neck Banded El. 1 (n=76), horizontal rows (at least 2-3, depending upon the height of the rim) of crimped and/or corrugated clay coils, termed neck banded; rims are sometimes scalloped or pinched (see Figure 5-2a); La Rue Neck Banded
- Neck Banded El. 2 (n=3), horizontal rows of neck bands, with lip notching (see Figure 5-2b); La Rue Neck Banded;
- Neck Banded-brushed, El. 3 (n=3), horizontal rows of neck bands, with brushed areas between or over individual neck bands (see Figure 5-2c); La Rue Neck Banded;
- Neck Banded-appliqued, El. 4 (n=5), neck banded rows with vertical appliqued ridges or fillets placed over the neck banding, or appliqued nodes at the top of the rim, overlying the top neck banded row (see Figure 5-2d); La Rue Neck Banded;
- Neck Banded-incised, El. 5 (n=4), neck banded rows with a single horizontal incised line at the base of the rows (see Figure 5-2e); La Rue Neck Banded;
- Punctated El. 1 (n=40), fingernail punctated decoration on rim and vessel body, either in rows or randomly placed across the vessel surface (see Figure 5-8h);
- Punctated El. 2 (n=18), vertical rows of tool punctated or impressed designs (see Figure 5-8i);
- Punctated El. 3 (n=43), rows of tool punctations on vessel rim, rim-body juncture, and across the vessel body (see Figure 5-8j); rims decorated only with widely separated rows of tool punctations may be from Mockingbird Punctated jars (see Chapter 6, this volume);
- Punctated El. 4 (n=31), a row of fingernail punctations at the rim-body juncture of vessels (see Figure 5-8l); it is uncertain whether there were other rows of punctations on these vessel rims;
- Punctated El. 5 (n=11), rows of fingernail punctations below the vessel lip (see Figure 5-9a); in several cases, the rim has been exterior folded, and the punctation itself is on the folded rim. Similar folded and punctated rim decorative treatments were noted on vessels in the Area V/VI cemetery (see Chapter 6, this volume); this decorative element is also similar to Punctated El. 13 (see Figure 5-9m);
- Punctated El. 6 (n=35), 2-4 rows of widely-spaced tool punctations on rims of Mockingbird Punctated jars (see Figure 5-9b);

- Punctated El. 7 (n=9), 1-2 rows of diagonal and dashed punctations, either at the rim-body juncture, or on the rim itself (see Figure 5-9c);
- Punctated El. 8 (n=6), these sherds have vertical dashed punctations on vessel rims (see Figure 5-9d);
- Punctated El. 9 (n=11), very closely-spaced rows of tool punctations on vessel rim sherds (see Figure 5-9e); one sherd from a residential context has at least nine closely-spaced punctated rows, and may be from a small pigment jar (see also Chapter 6, this volume);
- Punctated El. 10 (n=11), rim sherds with a single row of tool punctations below the vessel lip (see Figure 5-9f);
- Punctated El. 11 (n=3), diagonal rows of tool punctations on a vessel rim, and possibly the vessel body as well (see Figure 5-9g);
- Punctated El. 12 (n=1), randomly or freely-placed crescent-shaped fingernail punctations on the vessel body (see Figure 5-9h);
- Punctated El. 13 (n=6), diagonal tool punctations placed on the exterior folded and raised lip of cooking jars (see Figure 5-9i); similar punctated decorative element to Punctated El. 5 (see Figure 5-9a) and to Punctated El. 15, except the folded-over lip on the latter is discontinuous along the rim, with punctations only along the raised portions of the lip (see Figure 5-9k);
- Punctated El. 14 (n=3), vertical rows of tear-drop shaped punctations on vessel rims (see Figure 5-9j);
- Punctated El. 15 (n=1), rim sherd with a folded-over and raised lip, with a series of tool punctations on the raised portions of the lip; unlike Punctated El. 5 or Punctated El. 13 (see Figures 5-9a, i), the folded-over lip is not a continuous raised band of clay (see Figure 5-9k);
- Punctated El. 16 (n=6), rim sherds (some with rim peaks) (see Figure 5-9l) with closely-spaced rounded to oblong tool punctations covering the rim; the tool punctations on this decorative element resemble those on Brushed-punctated-incised El. 6 (see Figure 5-6j);
- Punctated El. 17 (n=1), arc-shaped to circular band of tool punctations on a vessel body (see Figure 5-9m);
- Punctated El. 18 (n=1), horizontal and vertical intersecting rows of tool punctations on a rim sherd (see Figure 5-9n);
- Punctated El. 19 (n=2), tool-impressed triangular punctations in a row underneath the vessel lip (see Figure 5-9o);
- Punctated El. 20 (n=1), rim sherd with horizontal rows of linear tool punctations covering the rim surface (see Figure 5-9p);
- Punctated El. 21 (n=1), a row of tool punctations below the lip, and diagonal lip notching (see Figure 5-10a); other utility ware lip notched decorative elements include Neck Banded El. 2 and Punctated-incised El. 12 (see Figure 5-11f);
- Punctated El. 22 (n=1), a row of tool punctations at the rim-body juncture and widely-spaced rows of diagonal tool punctations across the rim (see Figure 5-10b);
- Punctated El. 23 (n=1), a tool-punctated horizontal scroll element (see Figure 5-10c), like Ripley Engraved, but executed with small punctations instead of engraved lines and excised areas;
- Punctated El. 24 (n=1), diagonal and curvilinear rows of fingernail punctations on a vessel rim (see Figure 5-10d);
- Punctated El. 25 (n=1), circular zones of tool punctations on a vessel body (see Figure 5-10e);

- Punctated El. 26 (n=2), random or freely-placed round tool punctations on vessel body sherds (see Figure 5-10f);
- Punctated-incised El. 1 (n=19), diagonal incised rim sherds with small tool punctated-filled zones between the incised lines (see Figure 5-10g); several of the rims also have a tool punctated row directly under the lip; Maydelle Incised;
- Punctated-incised El. 2 (n=29), horizontal incised lines on the rim with tool punctations either above the incised lines (see Figure 5-10h), at the rim-body juncture (and below the incised lines), or with punctated rows both under the lip and at the rim-body juncture;
- Punctated-incised El. 3 (n=11), diagonal incised lines on the rim, with a row of tool punctations at the rim-body juncture; one sherd has opposed diagonal incised lines with a row of small punctations along the axis of the diagonals (see Figure 5-10i);
- Punctated-incised El. 4 (n=5), curvilinear incised zones filled with small tool punctations (see Figure 5-10j);
- Punctated-incised El. 5 (n=12), narrow parallel incised panels filled with tool or fingernail punctations (see Figure 5-10k); the panels may be oriented vertical, but this is not certain;
- Punctated-Incised El. 6 (n=3), a row of small tool punctations at the rim-body juncture, and vertical incised lines on the vessel body (see Figure 5-10l);
- Punctated-Incised El. 7 (n=1), a row of fingernail punctations at the rim-body juncture, with diagonal incised lines on the vessel body (see Figure 5-11a);
- Punctated-Incised El. 8 (n=4), rim sherds with a zone of small tool punctations below the lip, above at least two other zones or panels of incised lines pitched in opposite directions (see Figure 5-11b); the punctated zone and the diagonal incised zones are separated by broad horizontal incised lines; these may be from Foster Trailed-Incised vessels (see Suhm and Jelks 1962:43), as some examples have horizontal panels (as many as 2-7) filled with diagonal incised lines. In the case of the Foster Trailed-Incised vessels discussed by Suhm and Jelks (1962), the diagonal incised lines are pitched to the left and downward, while the Pilgrim's Pride sherds are pitched to the right and left (see Figure 5-11b);
- Punctated-Incised El. 9 (n=1), a rim-peaked jar with a single horizontal incised line below the lip and above a zone on the rim filled with vertical rows of narrow, linear punctations (see Figure 5-11c);
- Punctated-Incised El. 10 (n=1), a rim with a row of tool punctations and a single horizontal incised line below the lip, and narrow opposed diagonal incised zones (beginning at the horizontal incised line) filled with tool punctations (see Figure 5-11d);
- Punctated-Incised El. 11 (n=3), a row of tool punctations at the rim-body juncture, with opposed sets of diagonal incised lines on the vessel body (see Figure 5-11e); there is a vertical row of punctations at the axis of the opposed diagonal incised lines; a smaller and similar version of this decorative element is Punctated-Incised El. 3 (see Figure 5-10i);
- Punctated-Incised El. 12 (n=1), cross-hatched incised rim, with a row of tool punctations at the rim-body juncture, along with diagonal lip notching (see Figure 5-11f); Maydelle Incised;
- Punctated-Incised El. 13 (n=1), horizontal incised rim with a row of small tool punctations between the uppermost set of incised lines (see Figure 5-11g);
- Punctated-Incised El. 14 (n=1), rim sherd with parallel sets of vertical incised lines and fingernail impressed punctations (see Figure 5-11h);
- Punctated-Incised El. 15 (n=1), a row of tool punctations at the rim-body juncture, with vertical and diagonal sets of radiating incised lines on the vessel body (see Figure 5-11i);

- Punctated-Incised El. 16 (n=1), closely-spaced vertical incised lines on the rim, below a row of tool punctations below the lip (see Figure 5-11j); Karnack Brushed-Incised;
- Punctated-Incised El. 17 (n=1), diagonal incised rim sherd with large triangular zones filled with at least three rows of tool punctations (see Figure 5-11k); Maydelle Incised; similar to Punctated-Incised El. 1 (see Figure 5-10g), except the punctations on this decorative element are much larger in size;
- Punctated-Incised El. 18 (n=1), rim sherd with two rows of square tool punctations below the lip, and separated by horizontal incised lines (see Figure 5-11l);
- Punctated-Incised El. 19 (n=2), opposed sets of fingernail punctated rows on the rim of vessels, with a horizontal incised line below the punctations (see Figure 5-11m-n); one example has the opposed punctations at the rim-body juncture, and diagonal incised lines above it on the rim (see Figure 5-11m), while the other has a short rim with two rows of opposed fingernail punctations under the lip, followed by a single horizontal incised line (see Figure 5-11n);
- Punctated-Incised El. 20 (n=1), this rim sherd has vertical and diagonal dashed punctations, with at least one set of small opposed diagonal lines below one of the vertical punctated rows.

Fine Wares Decorative Elements

The main decorative element in the fine wares is Engraved El. 23 (n=181), which is part of portions of the scroll on Ripley Engraved vessels, including both carinated bowls, compound bowls, bowls, and bottles. Other frequent engraved elements are El. 24 (single straight engraved line, n=96) and El. 2 (single horizontal engraved line, n=87), but the more distinctive engraved elements appear to be from Ripley Engraved vessels that have a variety of motifs (see Thurmond 1990a: Figure 6).

Thumbnail descriptions of the 47 engraved elements and the one engraved-punctated decorative element are:

- Engraved El. 1 (n=60), multiple parallel engraved lines, sometimes closely-spaced and other times widely spaced; orientation uncertain (see Figure 5-12b-c); 13% of these sherds are also red-slipped;
- Engraved El. 2 (n=87), a single horizontal engraved line (see Figure 5-12d) on carinated bowls and compound bowls; one bottle sherd had a single horizontal engraved line at the base of the bottle neck; 4.6% of these engraved sherds have a red slip;
- Engraved El. 3 (n=19), curvilinear bands of closely-spaced engraved lines, probably on bottles (see Figure 5-12e) or scroll and semi-circular motifs (see Thurmond 1990a: Figure 6d) on Ripley Engraved vessels; more than 16% of this class of sherds are red-slipped
- Engraved El. 4 (n=49), rectilinear and diagonal engraved lines on carinated bowls and compound bowls, probably part of the central scroll element on Ripley Engraved vessels (see Figure 5-12f); 6% are red-slipped;
- Engraved El. 5 (n=42), curvilinear engraved lines with ticks and small triangles pendant from the lines (see Figure 5-12g); these are probably all from Ripley Engraved bottles; almost 20% of these engraved sherds are also-red slipped
- Engraved El. 6 (n=9), negative S-shaped engraved element, on Ripley Engraved carinated bowls with a scroll motif (see Thurmond 1990a: Figure 6b) as well as on bottles (see Figure 5-12h); one sherd has a red slip;

- Engraved El. 7 (n=7), curvilinear engraved bands, some with multiple sets of closely-spaced engraved lines (see Figure 5-12i), while others have narrow curvilinear zones filled with hatched lines;
- Engraved El. 8 (n=21), multiple horizontal engraved lines on the rim of carinated bowls and compound bowls (see Figure 5-12j);
- Engraved El. 9 (n=27), sets of diagonal engraved lines on the rim of carinated bowls (see Figure 5-13a); 11% are also red-slipped;
- Engraved El. 10 (n=8), diagonal opposed engraved lines on the rim of vessels, probably forming large triangular elements (see Figure 5-13b); 12.5% are red-slipped;
- Engraved El. 11 (n=11), vertical engraved lines on the rim of carinated bowls and compound bowls; the vertical lines range from widely to closely-spaced across the rim (see Figure 5-13c); one example has a series of very closely-spaced engraved lines above a set of closely-spaced horizontal lines, and the effect is similar to the linear punctated and/or linear incised lines noted on several of the Ripley Engraved, *var. Walkers Creek* sherds (see Figure 5-12a) and vessels from the site;
- Engraved El. 12 (n=2), vertical and horizontal sets of engraved lines on the rim of carinated bowls, probably from Ripley Engraved vessels (see Figure 5-13d);
- Engraved El. 13 (n=7), horizontal or vertical engraved lines, with large triangular elements pendant from one of the engraved lines (see Figure 5-13e); 14% are also red-slipped;
- Engraved El. 14 (n=4), rim sherd with a cross-hatched engraved zone under the lip (probably part of a scroll divider) and a small cross-hatched triangular element at the opposite end of the rim, pendant from a single horizontal engraved line (see Figure 5-13f); these few sherds may be from Ripley Engraved vessels with a pendant triangle motif (see Thurmond 1990a: Figure 6a), but this is not definite because the pendant triangle motif has opposed sets of triangles under the lip and at the rim carination, and these sherds (although small in size) lack the pendant triangles under the lip;
- Engraved El. 15 (n=8), widely-spaced curvilinear engraved lines on carinated bowls and compound bowls (see Figure 5-13g); 25% have a red slip;
- Engraved El. 16 (n=5), multiple and closely-spaced curvilinear engraved lines (see Figure 5-13h); 20% are red-slipped;
- Engraved El. 17 (n=5), carinated bowl rim sherds with a vertical engraved panel next to cross-hatched engraved zones (see Figure 5-13i); these sherds are from Ripley Engraved vessels, and are likely part of various scroll elements; 20% also have a red slip
- Engraved El. 18 (n=10), Wilder Engraved bottle sherds with a scroll and concentric circle motif (see Figure 5-13j);
- Engraved El. 19 (n=3), rim sherds with sets of horizontal engraved lines below the lip, and above a cross-hatched engraved panel (see Figure 5-13k); the panel may extend to the carination on carinated bowls;
- Engraved El. 20 (n=7), linear and rectilinear elements from compound bowls and bottles with small ticks or small triangular elements (see Figure 5-13l);
- Engraved El. 21 (n=5), the engraved decorative element on these carinated bowl sherds is part of the scroll and circle motif on certain Ripley Engraved vessels (see Thurmond 1990a: Figure 6c); the decorative element features a single central scroll line, hatched and excised scroll dividers with semi-circular elements (verging on a nested triangle because of the small engraved element within the semi-circle, see Thurmond 1990a: Figure 6e), and central circles

(see Figure 5-13m); in one case, the circle is divided into four sections, sometimes called the "equal-arm cross" element; the sections lack the central dots seen on some Ripley Engraved vessels with the scroll and circle motif;

- Engraved El. 22 (n=3), these sherds have portions of the interlocking horizontal scroll (see Thurmond 1990a: Figure 6g) motif on Ripley Engraved vessels; the scroll divider has cross-hatched engraved lines (see Figure 5-13n);
- Engraved El. 23 (n=185), this large class of sherds have some portion of scroll motifs on Ripley Engraved vessels, but which scroll motif defined by Thurmond (1990a: Figure 6) is uncertain; these sherds have a diagonal and central scroll line, with excised and cross-hatched scroll dividers repeated on either side of the central scroll line (see Figure 5-14a-b); about 8% of the sherds with this engraved element are also red-slipped;
- Engraved El. 24 (n=96), single straight engraved lines, but with an uncertain orientation on vessels (see Figure 5-14c); almost 15% of these sherds also are red-slipped;
- Engraved El. 25 (n=6), rectilinear engraved element on carinated bowls and compound bowls (see Figure 5-14d);
- Engraved El. 26 (n=14), widely-spaced curvilinear and linear engraved lines on compound bowls and carinated bowls (see Figure 5-14e);
- Engraved El. 27 (n=9), portions of triangular-shaped scroll divider elements, filled with hatched or cross-hatched lines (see Figure 5-14f);
- Engraved El. 28 (n=13), multiple sets of closely-spaced linear and parallel engraved lines, probably oriented horizontally (see Figure 5-14g); 15% are red-slipped;
- Engraved El. 29 (n=3), these sherds are from Ripley Engraved vessels with an alternate nested triangle motif (see Figure 5-14h; see also Thurmond 1990a: Figure 6h); there is a central scroll element with two closely-spaced engraved lines, and the nested triangles are defined by triangular and linear-shaped cross-hatched zones;
- Engraved El. 30 (n=1), a bottle sherd, probably from a Wilder Engraved bottle (see Suhm and Jelks 1962: Plate 78h), with a rectilinear element around a small cross-hatched engraved circle (see Figure 5-14i);
- Engraved El. 31 (n=2), curvilinear cross-hatched zones on engraved bottle sherds (see Figure 5-14j);
- Engraved El. 32 (n=10), narrow horizontal and rectilinear engraved zones underneath the lip on carinated bowls, filled with regularly-spaced hatched lines (see Figure 5-14k); 10% have a red slip; the rectilinear element has at least two horizontal hatched zones connected by a vertically hatched zone; this unique engraved element may be a simpler version of the interlocking horizontal scroll motif, but without the cross-hatched and vertical scroll dividers;
- Engraved El. 33 (n=2), the sherds are from Ripley Engraved carinated bowls with a continuous scroll motif (see Thurmond 1990a: Figure 6f); the elements present on the sherds include the central scroll lines (oriented both vertically and diagonally, beginning at the rim) and excised and triangular-shaped scroll dividers (see Figure 5-14l);
- Engraved El. 34 (n=3), curvilinear engraved lines on the interior of carinated vessels (see Figure 5-14m); the engraving is immediately above the carination itself; one sherd also has a red slip on both interior and exterior surfaces;
- Engraved El. 35 (n=1), this one sherd has a bisected diamond motif (see Thurmond 1990a: Figure 6j) and is from a Ripley Engraved carinated bowl; the decorative element has a cross-hatched filled diamond (see Figure 5-15a);
- Engraved El. 36 (n=1), horizontal and curvilinear engraved lines below the vessel lip, probably part of a scroll divider (see Figure 5-15b);

- Engraved El. 37 (n=2), horizontal engraved lines under the lip, with a oblong to curvilinear element filled with vertical engraved lines (see Figure 5-15c);
- Engraved El. 38 (n=1), carinated bowl rim sherd with a vertical engraved panel and horizontal engraved and excised bands (see Figure 5-15d); the latter may be part of a larger scroll element;
- Engraved El. 39 (n=3), single curvilinear engraved line, orientation uncertain (see Figure 5-15e); one of the sherds has a red pigment smeared in the lines, suggesting it is from an engraved bottle;
- Engraved El. 40 (n=2), curvilinear and meandering cross-hatched engraved zone on carinated bowls, possibly a scroll element (see Figure 5-15f);
- Engraved El. 41 (n=1), intricate rectilinear element of indeterminate orientation on a vessel (see Figure 5-15g);
- Engraved El. 42 (n=1), rim sherd from a carinated bowl, probably part of a Ripley Engraved scroll element; there are horizontal engraved lines underneath the lip, along with a horizontal engraved panel and a triangular-shaped hatch area (see Figure 5-15h); the panel is probably the upper and beginning part of a scroll divider;
- Engraved El. 43 (n=1), carinated bowl rim sherd, with part of the Ripley Engraved scroll element, along with a hatched scroll divider (see Figure 5-15i);
- Engraved El. 44 (n=2), scroll and semi-circle motif, Ripley Engraved carinated bowl; the scroll is comprised of a number of very closely-spaced engraved lines drawn around the empty circles (see Figure 5-15j); both sherds are red-slipped
- Engraved El. 45 (n=1), sets of horizontal engraved lines with small hatched semi-circles above the carination on carinated bowls (see Figure 5-15k);
- Engraved El. 46 (n=1), vertical engraved panels on a compound bowl, with triangular excised/ engraved corners (see Figure 5-15l);
- Engraved El. 47 (n=2), triangular engraved elements with small hachured areas (see Figure 5-15m); probably a decorative element on a compound bowl, as similar small hachured engraved areas are present on at least two compound bowls in the Area V/VI cemetery (see Chapter 6, this volume);
- Engraved-punctated El. 1 (n=3), Ripley Engraved, *var. Walkers Creek* (see Chapter 6, this volume). This distinctive and quite unique decorative element (see Figure 5-12a) was defined on the basis of four vessels in three burials in the Area V/VI cemetery (Chapter 6, this volume). The main distinguishing feature is a band or zone of linear punctations under the lip and above the main engraved element. In the sherds, the engraved elements include part of a scroll (see Figure 5-12a) or a negative S-shaped element; the latter is also seen absent the punctated zone in Engraved El. 6 (see Figure 5-12h). One other *var. Walkers Creek* sherd from a carinated bowl (Unit 23, 0-10 cm bs, in Area II) has a scroll motif with a scroll divider filled with punctated dashes; one of the Area V/VI vessels also has this particular decorative element.

Area I Decorated Sherds

Excavations in Area I at the Pilgrim's Pride site recovered 712 decorated sherds, about 69% of which are from utility ware vessels (Table 5-5). The remainder are fine wares, either red-slipped vessels or engraved carinated bowls, compound bowls, and bottles. Almost 50% of the utility ware sherds from Area I are brushed, with 19% incised, and 12% punctated, with much smaller amounts of appliqued (1.4%), appliqued-incised (0.4%), brushed-appliqued (0.8%), brushed-incised (6.7%), brushed-punctated (3.3%), neck banded (3.5%), and punctated-incised (4.7%) sherds.

Table 5-5. Decorated Utility Ware Sherds in Area I.

Decorative	U13/14/22		U7/24		Test Feature		Data Recovery		
Element	Rim	Body	Rim	Body	Rim	Body	Rim	Body	N
A 1		2						2	4
A 2		2		1					3
Sub-total	0	4	0	1	0	0	0	2	7
A-I 3								1	1
A-I 4		1							1
Sub-total	0	1	0	0	0	0	0	1	2
B 1		62		16		9		98	185
B 3	4	7	1		1	2	6	6	27
B 4		5		2		1	1	2	11
B 5		1		2				1	4
B 6		8		1		2		3	14
Sub-total	4	83	1	21	1	14	7	110	241
B-A 1						1		1	2
B-A 2								1	1
B-A-P 1								1	1
Sub-total	0	0	0	0	0	1	0	3	4
B-I 1								4	4
B-I 2		8		1				6	15
B-I 3		1		2				2	5
B-I 4		1				1			2
B-I 5				2					2
B-I 6		2						2	4
B-I 7		1							1
Sub-total	0	13	0	5	0	1	0	14	33
B-P 1					1		1	1	3
B-P 3								1	1
B-P 4	1	1					1		3
B-P 5		3						1	4
B-P 6								1	1
B-P 8		1		1					2
B-P 9								2	2
Sub-total	1	5	0	1	1	0	2	6	16
I 1		7		4				20	31
I 2		7	1	3		1	4	4	20
I 3	2	1		1					4
I 4	4	1	1			1		7	14

Table 5-5. *(Continued)*

Decorative	U13/14/22		U7/24		Test Feature		Data Recovery		
Element	Rim	Body	Rim	Body	Rim	Body	Rim	Body	N
I 6	2	2	1	1			1	2	9
I 7	1	3		1			1	3	9
I 11								2	2
I 14		1							1
I 15		1							1
I 18		1							1
I 19					1				1
Sub-total	9	24	3	10	1	2	6	38	93
NB 1	7					1	3	2	13
NB 2	1								1
NB 3	1								1
NB 4			1						1
NB 5								1	1
Sub-total	9	0	1	0	1	0	3	3	17
P 1		3				3		2	8
P 2								1	1
P 3		3		2		1		2	8
P 4		7		2				2	11
P 5	1		2						3
P 6	1	2	1			2			6
P 7		4					2		6
P 8		2						1	3
P 9	1				1		4		6
P 10		1							1
P 13					1				1
P 18		1							1
P 19			1						1
P 20			1						1
P 22								1	1
Sub-total	3	23	4	5	2	4	3	14	58
P-I 1	2				1		1	1	5
P-I 2		1		1				4	6
P-I 3		2		2				1	5
P-I 4		1							1
P-I 5		2						2	4
P-I 17							1		1
P-I 19								1	1
Sub-total	2	6	0	3	1	0	2	9	23
Totals	28	159	9	46	7	22	22	200	493

Because of the tendency of Titus phase Caddo potters to decorate their utility ware vessels with different decorative elements on the rim as opposed to the vessel body, another measure of the stylistic character of the utility wares is to compare the frequency of different decorative elements among the 65 rim sherds (see Table 5-5). About 20% of the rims have brushing on them (Figure 5-16a-c), along with 29% incised rims (Figure 5-17f-g), 21% La Rue Neck Banded rims (Figure 5-17a), 18% with punctated rims (Figure 5-16f-g and Figure 5-17j), 7.7% punctated-incised rims, and 6.1% brushed-punctated rims (Figure 5-17c).

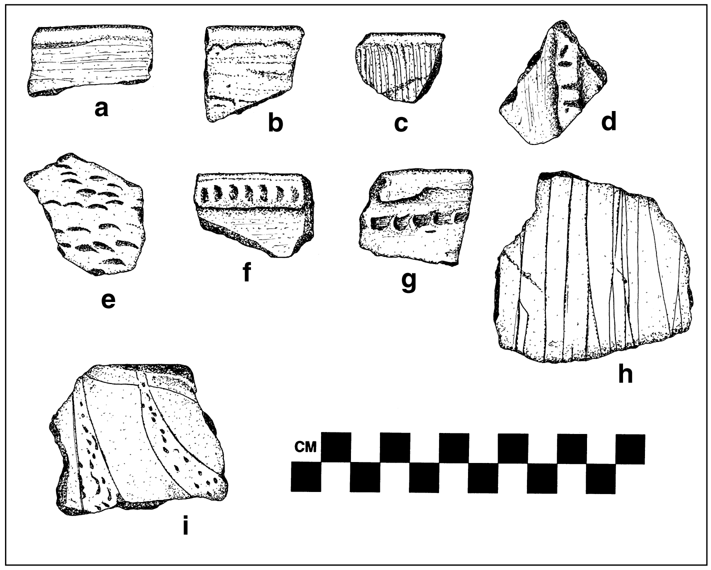


Figure 5-16. Utility ware sherds from Area I: a-b, brushed el. 3; c, brushed el. 4; d, brushed-appliqued-punctated el. 1; e, punctated el. 1; f, punctated el. 5; g, punctated el. 10; h, incised el. 1; i, punctated-incised el. 4. Provenience: a, e, N680 E580 (Lot 152); b, N630 E560 (Lot 132); c, N640 E560 (Lot 171); d, N660 E560 (Lot 107); f, N660 E570 (lot 124); g, N650 E5?? (Lot 138); h, F. 1-135 (Lot 525); i, N670 E500+ (Lot 169).

The few appliqued and appliqued-incised sherds (see Figure 5-17d-e) have fillets or nodes. Those with fillets marked panels on the body of cooking jars, and the panels had sets of incised lines. Brushed-appliqued sherds had appliqued fillets, with the panels filled with brushing marks; fillets may have linear punctations or pinching marks on them (see Figure 5-16d).

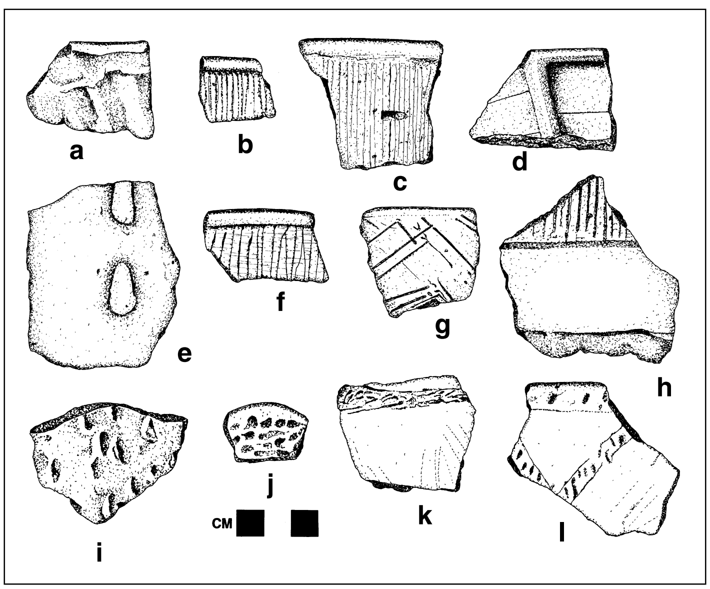


Figure 5-17. Decorated utility ware sherds from the northern and eastern parts of the residential area: a, neck banded el. 1; b, brushed el. 4; c, brushed-punctated el. 6; d, appliqued-incised el. 2; e, appliqued el. 2; f, incised el. 3; g, incised el. 6; h, incised el. 8; i, punctated el. 1; j, punctated el. 16; k, punctated-incised el. 4; l, punctated-incised el. 10. Provenience: a, l, N645 E500+ (Lot 1); b, g, N610 E500+ (Lot 6); c, N650 E500+ (Lot 4); d, surface (Lot 187); e, N630 E500+ (Lot 5); f, N640 E500+ (Lot 3); h, N610 E500+ (Lot 164); i, N650 E5?? (Lot 138); j, N650 E??? (Lot 78); N615 E500+ (Lot 2).

The brushed sherds in Area I primarily had horizontal brushing marks on the rim (see Figure 5-16a-b) as well as vertical brushing (see Figure 5-16c and Figure 5-17b), and probably vertically-oriented brushing on vessel bodies. Some 10% of the body sherds had overlapping or multi-directional brushing (el. 5 and el. 6). Another 33 sherds had parallel brushing and incising on vessel bodies; this particular decorative method was apparently confined only to the bodies of cooking jars. Brushed-punctated vessel sherds commonly had punctations below the lip and/or at the rim-body juncture of horizontal brushed or vertically brushed rims, although occasionally tool punctations were pushed through the brushing on the rim (see Figure 5-17c) or in the brushing on the vessel bodies; in the latter case, the punctations were either in rows or were randomly placed across the vessel body surface.

Horizontal incised rim and body sherds and body sherds with sets of parallel incised lines (see Figure 5-16h) are the principal decorative elements in the Area I incised sherds, accounting for 55% of the incised sherds (see Table 5-5). Other major decorative elements include diagonal incised lines on the rim (el. 4), opposed incised lines on the rim and body (see Figure 5-17g), and cross-hatched incised lines; these are all from Maydelle Incised jars, as are a few rim sherds with vertical incised lines (see Figure 5-17f). An incised el. 11 sherd indicates that some vessels were decorated with horizontal incised lines on the rim, and a different decorative element (diagonal incised lines) on the vessel body. Another distinctive sherd has an incised scroll motif (see Figure 5-8b), quite similar to the scroll motif on Ripley Engraved vessels, except the former was executed with incised lines.

The majority (62%) of the punctated rim and body sherds in Area I were executed with a tool or instrument instead of with a fingernail (see Table 5-5). Whether punctated with a tool or a fingernail, the principal decorative element consisted of rows of punctations beneath the lip and down the rim (el. 20) and/or along the rim-body juncture (see Figures 5-16g and 5-17j). In some cases, the punctations were freely and randomly applied across the vessel body of some utility ware vessels (see Figures 5-16e and 5-17i). Several rims had a row of punctations placed on an exterior folded rim (see Figure 5-16f). Other punctated body sherds (el. 7 and 8) had vertical or diagonal dashed punctations on the upper vessel body as well as the rim, while a few others had decorative elements consisting of diagonal (el. 13 and el. 22) or horizontal-vertical rows (el. 18) of punctations.

All five of the punctated-incised rim sherds in Area I are from Maydelle Incised jars with diagonal incised zones filled with tool punctations. Another rim from this general area had narrow diagonal incised zones on the rim, and the zones were filled with tool punctations (see Figure 5-17k-l); there was also a row of tool punctations below the lip. Others had tool punctations below the lip and at the rim-body juncture, and the rim itself filled with horizontal incised lines (el. 2). Another sherd has curvilinear incised zones filled with small tool punctations (see Figure 5-16i), and four others had narrow incised panels that had been filled with tool or fingernail punctations.

The fine ware sherds in Area I include 37 rim sherds and 182 body sherds (Table 5-6). About 32% of the fine wares (and 14% of the fine ware rims) are from vessels decorated only with a hematite-rich red slip, including a large bowl with a folded and crenelated lip (Figure 5-18a). Ripley Engraved, *var. Walkers Creek* rim sherds are also present in Area I (Figure 5-18b) and in the northern and eastern residential areas (e.g., Area I, II, and VIII) (Figure 5-19a) at the Pilgrim's Pride site.

A number of the rims have a single horizontal engraved line (engraved el. 2); these are from carinated bowls and compound bowls. On the carinated bowls, it is probable that the horizontal line marks the top of an engraved panel that would have filled the rim from near the lip to the carination itself. On compound bowls at the Pilgrim's Pride site, the upper panel may have only had 1-2 horizontal lines, with the principal engraved motif on the lower rim panel (see Chapter 6, this volume). Other rims had multiple horizontal engraved lines (el. 8) and others had sets of diagonal engraved lines (el. 9).

Overall, the principal engraved decorative element in the Area I fine wares is the scroll motif on Ripley Engraved carinated bowls (see Figure 5-18e-f and Figure 5-19d), including triangular-shaped scroll dividers

Table 5-6. Decorated Fine Ware Sherds in Area I.

Decorative	U13/14/22		U7/24		Test Fea.		Data Recovery		
Element	Rim	Body	Rim	Body	Rim	Body	Rim	Body	N
E 1		8						1	9
E 2	4	4	1	2		1	4	2	18
E 3		2				1		2*	5
E 4		4				1		4*	9
E 5		2					1	3	5
E 7					1		1		2
E 8	1	2		2	1	1	1		8
E 9	2	1					4		7
E 11		2		1	1				4
E 14	1								1
E 15								1*	1
E 16		1							1
E 17							1	2	3
E 19		1							1
E 20				1*		2*			3
E 23	3	5		2		2	1	17*	30
E 24		9		7		1		7*	24
E 26								2	2
E 27		2							2
E 28								2*	2
E 29				1				1	2
E 32							2		2
E 34								2	2
E 40		1							1
E 43							1		1
E 47						1			1
E-P 1							1		1
Sub-total	11	44	1	16	3	10	17	46	148
Red-slipped	1	36		6			4	24*	71
Totals	12	80	1	22	3	10	21	70	219

*includes bottle sherds

(see Figure 5-19e). Other recognizable motifs here include the scroll and semi-circle; ticks and pendant triangles on Ripley Engraved bottles (see Figure 5-18d); vertical engraved lines on rims; the alternate nested triangle motif (see Figure 5-18g; these sherds are present only in Area I at the site); a possible horizontal interlocking scroll (see Figure 5-19f); the continuous scroll (see Figure 5-18h); and small hachured triangular elements on compound bowls. Two sherds in Area I have engraved lines on the interior of carinated vessels (el. 34); this is a rare form of engraved decoration, but has been noted in other Titus phase ceramic assemblages (Mark Parsons, 2002 personal communication). Bottle sherds tend to have sets of curvilinear engraved lines on the vessel body (see Figure 5-18c), and at least one distinctive Wilder Engraved bottle (see Figure 5-19c) came from general contexts in the northern and eastern part of the village. This bottle had a scroll and concentric circle motif.

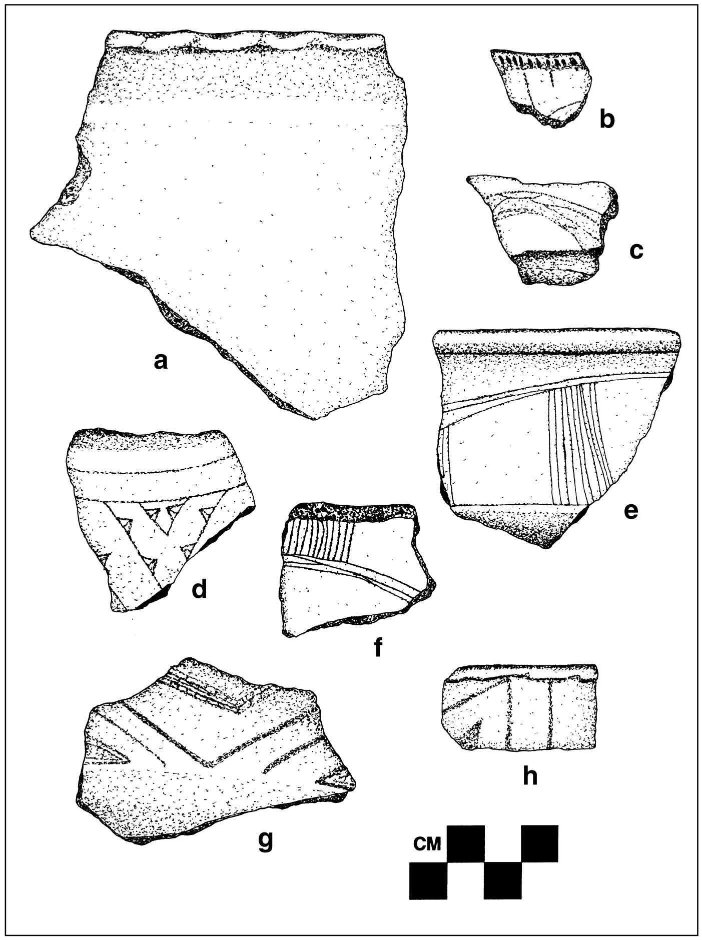


Figure 5-18. Area I fine ware sherds: a, red-slipped; b, engraved-punctated el. 1; c, engraved el. 3; d, engraved el. 5; e-f, engraved el. 23; g, engraved el. 29; h, engraved el. 33. Provenience: a, N660 E570 (Lot 124); b, N680 E560 (Lot 297); c, N660 E560 (Lot 174); d, N630 E590 (Lot 409); e-g, N630 E560 (Lot 132); h, N680 E580 (Lot 152).

Area II Decorated Sherds

Almost 1000 decorated sherds were found in Area II, about 76% being from utility wares. The fine wares comprise the remaining 24%, and included both engraved, engraved-punctated, and red-slipped vessel sherds.

Among the utility wares, almost 60% of the sherds are brushed (Figure 5-20c-d), another 14.8% are decorated with incised lines (Figure 5-20a), and 7.8% have punctated decorative elements (Table 5-7). Less common decorated utility wares in Area II are brushed-incised (4.7%, Figure 5-20e-g), punctated-incised (3%), neck banded (3.8%), brushed-punctated (3.4%), appliqued (1%), brushed-appliqued (0.9%), appliqued-incised (0.4%), and one pinched body sherd. The frequency of decorated utility ware rim sherds (n=76) is probably more revealing of the actual proportion of different decorated utility wares in Area II, with numerous La Rue Neck Banded rims (34%), incised rims (25%), punctated rim vessels (17%), brushed rims (12%), punctated-incised (8%), brushed-incised (1.3%), and brushed-punctated (2.6%). The low proportion (or absence) of rims among the appliqued, brushed, and brushed-incised sherds (see Table 5-7) indicates that these decorative methods (and specific decorative elements) were primarily confined to the body of utility ware vessels.

The few appliqued and appliqued-incised body sherds have both appliqued fillets and nodes, likely from McKinney Plain jars. The brushed-appliqued body sherds (n=7) are from Pease Brushed-Incised vessels; the fillets defined panels on the vessel body, and the panels were filled with brushing marks, either vertical or horizontal in orientation.

The brushed vessels from Area II have horizontal, diagonal (see Figure 5-20c), overlapping, and vertical brushing marks on their rims; horizontal brushing was the most common decorative element. On

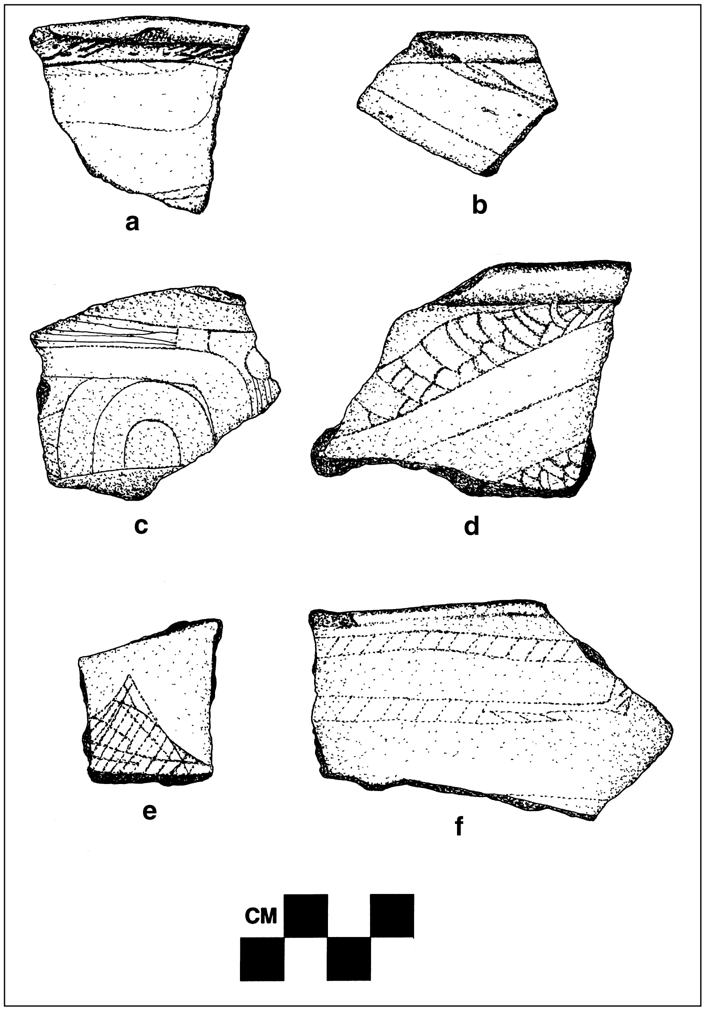


Figure 5-19. Decorated fine wares from the northern and eastern parts of the residential area: a, engraved-punctated el. 1; b, engraved el. 9; c, engraved el. 18; d, engraved el. 23; e, engraved el. 27; f, engraved el. 32. Provenience: a, c, e, N615 E500+ (Lot 2); b, f, N640 E500+ (Lot 3); d, N620 E500+ (Lot 11).

the bodies, the brushing marks are more often than not vertical in orientation, although most are categorized as parallel brushing (see Figure 5-20d) because the orientation could not be determined with certainty on body sherds (see Table 5-7). Others had multi-directional or overlapping brushing marks. Many of the brushed-incised sherds had parallel brushed-incised lines (see Figure 5-20e-f) on vessel bodies, but others have horizontal brushing-incised lines on the rim (see Figure 5-20g), and still others have incised lines that cross-cut the parallel brushing marks (brushed-incised el. 5) or brushing marks that overlie sets of parallel incised lines (brushed-incised el. 6). The brushed-punctated sherds are from vessels with tool or fingernail punctated rows below the lip, and along the rim-body juncture, although several others from Pease Brushed-Incised vessels have at least one row of tool punctations pushed through brushing marks on vessel bodies (el. 16). One variant of these brushed-punctated sherds is the one brushed-punctated-incised el. 4 sherd that has diagonal brushing and incised lines on the vessel body, and below a row of tool punctations at the rim-body juncture; the rim probably had brushing marks on it.

Many of the incised sherds had horizontal incised lines that encircled the rim of simple bowls (incised el. 2). Other rim decorations are vertical incised lines, diagonal incised lines, and one with opposed incised lines (see Table 5-7). Cross-hatched incised decorative elements are common in the Area II utility ware sherds. The more distinctive incised sherds are three body sherds with sets of curvilinear incised lines (el. 10) forming a scroll and another body sherd with a single central incised element (el. 14) between scroll dividers filled with hatched incised lines; these are closely related to scroll elements and motifs on Ripley Engraved carinated bowls. Similar incised sherds were present in Area I and III at the Pilgrim's Pride site.

The punctated sherds have both tool and fingernail decorative elements, mainly in rows below the lip and at the rim-body juncture, or else in several rows around the rim itself. Those sherds with several rows of tool punctations on the rim, and plain bodies, are Mockingbird Punctated jars (punctated el. 3 and el. 6). In other cases, the punctations are in diagonal or vertical rows on the rim and vessel body. One particular rim sherd (punctated el. 23) has a horizontal scroll element like those on Ripley Engraved vessels, but

Table 5-7. Decorated Utility Ware Sherds in Area II.

	U1-2, 8, 10-12, 16, 23 and Fea.		Data Recovery		
Decorative Element	Rim	Body	Rim	Body	N
A 1		5		1	6
A 2		2			2
Sub-total	0	7	0	1	8
A-I 1		2			2
A-I 3				1	1
Sub-total	0	2	0	1	3
B 1		317		29	346
B 2		2			2
B 3	6	42		2	50
B 4	1	18			19
B 5		4			4
B 6	1	29		4	34
B 8		1			1
B 9	1				1
Sub-total	9	413	0	35	457
B-A 1		5		1	6
B-A 2		1			1
Sub-total	0	6	0	1	7
B-I 1		4			4
B-I 2		20			20
B-I 3	1				1
B-I 4		1			1
B-I 5		5			5
B-I 6		4			4
B-I 7		1			1
Sub-total	1	35	0	0	36
B-P 1		7			7
B-P 2		1			1
B-P 3		1			1
B-P 4	2	2			4
B-P 5		1			1
B-P 6		1			1
B-P 8		2			2
B-P 9		1			1

Table 5-7. *(Continued)*

Decorative Element	U1-2, 8, 10-12, 16, 23 and Fea. Rim	Body	Data Recovery Rim	Body	N
B-P 13		1			1
B-P 15		2			2
B-P 16		5			5
Sub-total	2	24	0	0	26
B-P-I 4		1			1
I 1		37		3	40
I 2	9	22	3	2	36
I 3	1	1			2
I 4	5	1		1	7
I 5		1			1
I 6		4	1	2	7
I 7		6		2	8
I 8		1			1
I 9		1			1
I 10		2		1	3
I 11		1			1
I 12		1			1
I 14		2			2
I 18		3			3
Sub-total	15	83	4	11	113
NB 1	20	1	1	2	24
NB 3	1				1
NB 4	2				2
NB 5	2				2
Sub-total	25	1	1	2	29
Pinched-incised		1			1
P 1	2	6			8
P 2		7			7
P 3	1	16			17
P 4		5		1	6
P 5	2				2
P 6	3	2	1		6
P 7		2			2
P 10	1	1			2
P 11		1			1

Table 5-7. *(Continued)*

	U1-2, 8, 10-12, 16, 23 and Fea.		Data Recovery		
Decorative Element	Rim	Body	Rim	Body	N
P 14		1			1
P 16	1	2			3
P 17		1			1
P 19	1				1
P 23			1		1
P 26		1			1
Sub-total	11	45	2	1	59
P-I 1	2	2			4
P-I 2		2	1	2	5
P-I 3		4			4
P-I 4		1			1
P-I 5		2			2
P-I 8	1				1
P-I 11		3			3
P-I 13	1				1
P-I 14	1				1
P-I 15		1			1
P-I 16	1				1
Sub-total	5	15	1	2	23
Totals	68	633	8	54	763

executed with small punctations inside of engraved and excised areas (see Figure 5-10c).

Most of the punctated-incised sherds in Area II have rows of punctations under the lip and/or at the rim-body juncture, and with the rim itself decorated with diagonal, vertical, and horizontal incised lines. The others have curvilinear and triangular incised zones or panels filled with tool punctations (el. 1, el. 4) or fingernail punctations (el. 6). One rim sherd (punctated-incised el. 8) from a probable Foster Trailed-Incised vessel has panels of incised lines pitched in opposite directions from a zone of tool punctations; the zones are separated by broad horizontal incised lines (see Figure 5-11b).

The fine wares from Area II include 39 rims (34% of the Area II rims) and 195 body sherds (23% of all the Area II body sherds). Red-slipped vessels account for more than 21% of the fine wares, including 18% of the fine ware rims (Table 5-8).

Most of the rim sherds are either from vessels with a horizontal engraved line on the rim (el. 2); have scroll motifs (el. 23); or have sets of diagonal engraved lines (el. 9). There are a number of common and/or distinctive engraved elements in the Area II fine wares. They include recti-linear and diagonal lines from scroll elements on carinated bowls, compound bowls, and bottles (el. 4), ticks and pen-dant triangles from Ripley Engraved bottles (el. 5), and multiple horizontal engraved lines (el. 8). Others have sets of curvilinear engraved lines (el. 15), scroll and circle (el 21) and scroll and semi-circle motifs (el. 44), negative S-shaped elements (see Figure 5-20b), in-terlocking horizontal scrolls (el. 22 and 32), one Ripley Engraved, *var. Walk-ers Creek* body sherd (see Table 5-8), a bisected diamond motif (el. 35), and one carinated bowl rim with a row of pendant triangles along the carination (el. 14).

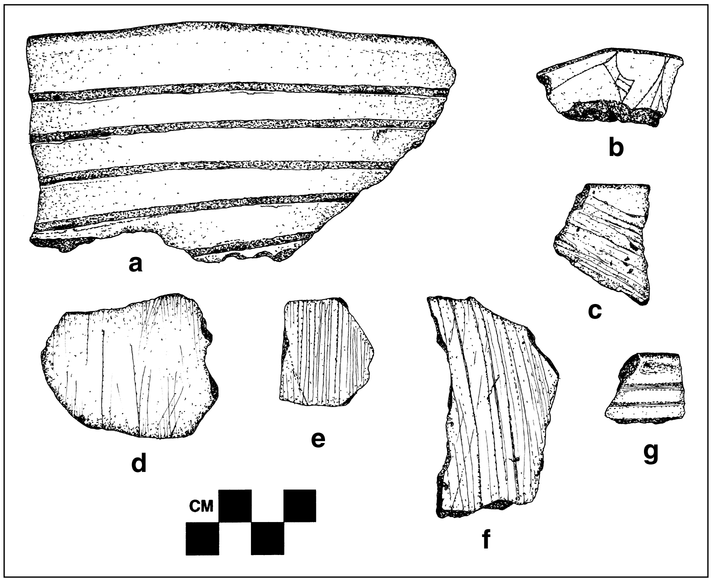


Figure 5-20. Decorated utility ware and fine ware sherds from Area II: a, incised el. 2; b, engraved el. 6; c, brushed el. 2; d, brushed el. 1; e-f, brushed-incised el. 2; g, brushed-incised el. 3. Provenience: a, F. 219 (Lot 544 and 556); b, N660 E600 (Lot 149); c, Unit 23, 10-20 cm (Lot 120); d, F. 214 (Lot 545); e-f, Unit 2, 20-30 cm (Lot 35); g, Unit 16, 0-10 cm (Lot 96).

Area III Decorated Sherds

There are 260 decorated sherds from Area III, almost 80% utility wares and the remainder from engraved fine wares and red-slipped ves-sels. In terms of the proportion of rim sherds, 65% of the rims are utility wares compared to 35% fine wares. The majority of the rim sherds among the utility wares are incised, punctated, and neck banded sherds; only two of the rims have brushed elements (Table 5-9).

The incised sherds account for 32% of the utility wares in Area III (Figure 5-21a-b and Fig-ure 5-22e-g), brushing another 46% (but almost all body sherds), and 9.2% punctated sherds (Fig-ure 5-21c and Figure 5-22i-j). The neck banded sherds (2.9%) are from LaRue Neck Banded jars.

The brushed sherds primarily have parallel brushing marks on vessel bodies, but a few have either overlapping or multi-directional brushing marks; the one definite rim sherd has horizontal brushing and may be from a Pease

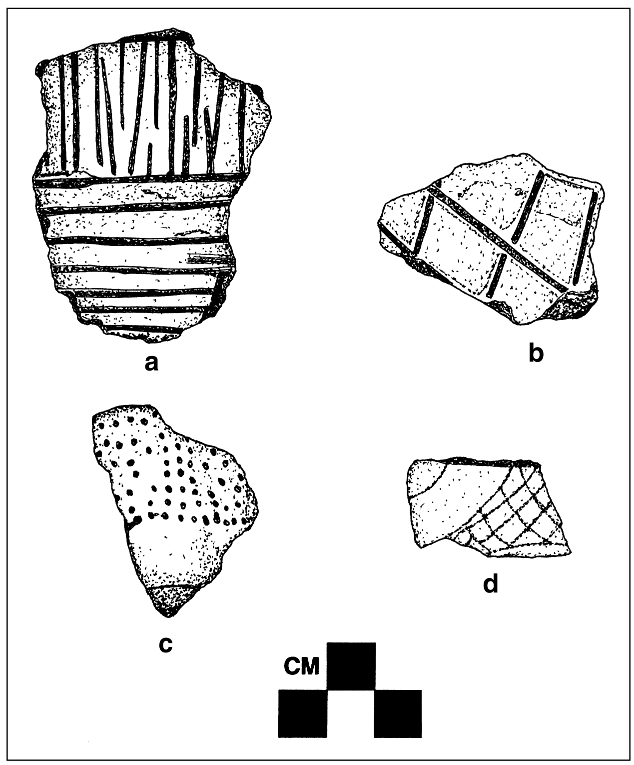


Figure 5-21. Decorated utility ware and fine ware sherds from Area III: a, incised el. 5; b, incised el. 7; c, punctated el. 9; d, engraved el. 23. Provenience: a, F. 5 (Lot 291); b, N560 E 510+ (Lot 18); c, N570 E510+ (Lot 163); d, N630 E500+ (Lot 5).

Table 5-8. Decorated Fine Ware Sherds in Area II.

	U1-2, 8, 10-12, 16, 23 and Fea.		Data Recovery		
Decorative Element	Rim	Body	Rim	Body	N
E 1		18		2	20
E 2	9	9*			18
E 3		4			4
E 4		8*		3*	11
E 5		9*			9
E 6				2*	2
E 7		1		1*	2
E 8	1	2		1	4
E 9	3	2	1		6
E 10		1			1
E 11	1	1			2
E 12		1			1
E 13		1		2	3
E 14	1				1
E 15		4*			4
E 17	1				1
E 20		1		1	2
E 21		2			2
E 22		2			2
E 23	9	34*		1	44
E 24	1	21		3	25
E 26		1			1
E 27		2			2
E 28		2			2
E 31		1			1
E 32			3		3
E 35		1			1
E 36	1				1
E 37		1			1
E 38	1				1
E 39		1			1
E 40		1			1
E 41		1			1
E 44				1	1
E 45				1	1
E-P 1		1			1
Sub-total	28	133	4	19	184
Red-slipped	5	37	2	6	50
Totals	33	170	6	25	234

Table 5-9. Decorated Utility Ware Sherds in Area III.

	U3-6, 9, 25 and features		U18/20		Data Recovery		
Decorative Element	Rim	Body	Rim	Body	Rim	Body	N
B 1		46		16		18	80
B 3	1	1		2		1	5
B 4		2		1			3
B 5						2	2
B 6		4				1	5
Sub-total	1	53	0	19	0	22	95
B-I 1				1			1
B-I 2		3			1		4
B-I 3		1					1
B-I 5		1				1	2
B-I 6		1				1	2
Sub-total	0	6	0	2	0	2	10
B-P 1						1	1
B-P 4					1		1
B-P 5						1	1
B-P 16		1					1
Sub-total	0	1	0	0	1	2	4
I 1		18		3		5	26
I 2	3	4				2	9
I 3	1	2					3
I 4	1	4				1	6
I 5		2					2
I 6		5				3	8
I 7		2				1	3
I 8	2						2
I 10		1					1
I 11		1					1
I 13		1					1
I 14				1			1
I 16		1					1
I 18				1			1
I 19	2						2
Sub-total	9	41	0	5	0	12	67
NB 1	3				2		5
NB 2					1		1
Sub-total	3	0	0	0	3	0	6

Table 5-9. *(Continued)*

Decorative Element	U3-6, 9, 25 and features Rim	Body	U18/20 Rim	Body	Data Recovery Rim	Body	N
P 1		1			2	1	4
P 3		4					4
P 4						1	1
P 5	1						1
P 6	2					1	3
P 8		1					1
P 10	1		2			1	4
P 26		1					1
Sub-total	4	7	2	0	2	4	19
P-I 2						2	2
P-I 3		1					1
P-I 12	1						1
P-I 18					1		1
P-I 20	1						1
Sub-total	2	1	0	0	1	2	6
Totals	19	109	2	26	7	44	207

Brushed-Incised or Bullard Brushed vessel. The brushed-incised sherds also mainly have parallel sets of incised lines and brushing marks on vessel bodies, while the brushed-punctated sherds include those with punctations at the rim-body juncture and/or under the lip; one sherd (brushed-punctated el. 16) has tool punctations pushed through the brushing marks, as described for Pease Brushed-Incised vessels (see Suhm and Jelks 1962:119).

The many incised sherds are dominated by those with closely-spaced horizontal incised lines around the rim (see Figure 5-22e); others with opposed incised lines (see Figure 5-22f-g); diagonal incised lines (el. 6); and cross-hatched Maydelle Incised jars (see Figure 5-21b). Other distinctive incised decorative elements in the Area III utility wares include vertical incised rims, a horizontal incised rim with a vertically incised body (see Figure 5-21a) and another with a diagonal incised body, an incised scroll (el. 10 and el. 14), as well as a lip notched rim with horizontal incised lines (el. 16).

About 70% of the punctated sherds have tool punctations, and the remainder are fingernail punctated. The more common decorative elements are rows of fingernail or tool punctations on the rim and/or rim-body juncture (see Figure 5-22i-j). One rim (see Figure 5-21c) has at least nine rows of closely-spaced small tool punctations, and may be from a small or miniature pigment jar.

The few punctated-incised sherds (see Figure 5-22h) typically have rows of tool punctations along the lip and at the rim-body juncture of sherds decorated with horizontal (el. 2), diagonal (el. 3), cross-hatching (el. 12), or opposed diagonal (el. 20) incised lines. One rim from a rim peaked jar has an incised line below the lip,

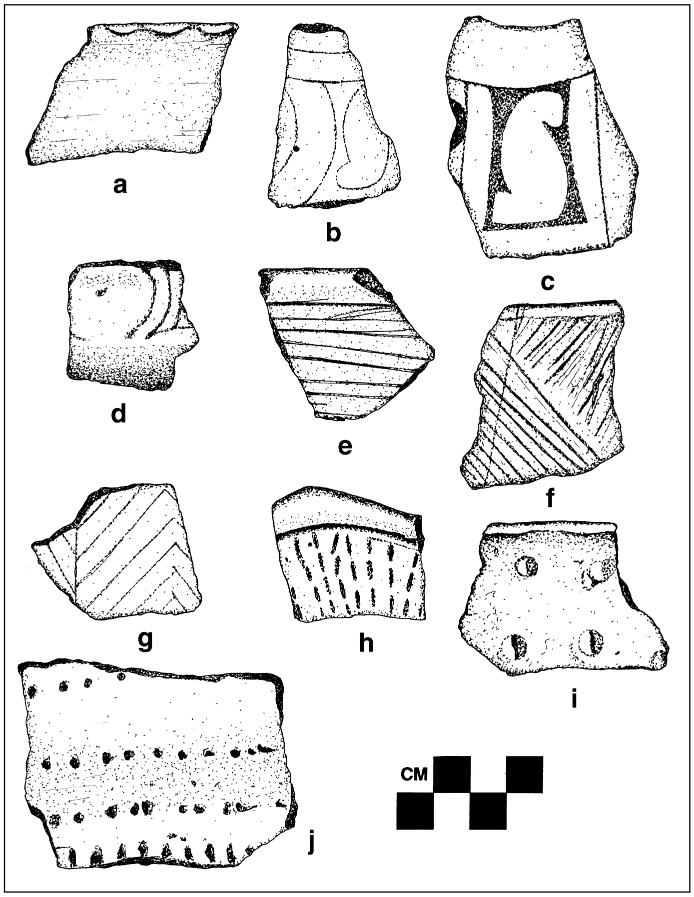


Figure 5-22. Decorated sherds from surface collections, southern and western parts of the residential area: a, red-slipped; b, engraved el. 5; c, engraved el. 6; d, engraved el. 23; e, incised el. 2; f-g, incised el. 6; h, punctated-incised el. 9; i, punctated el. 6; j, punctated el. 6. Provenience: a-b, e, j, N585 E510+ (Lot 7); c, N591 E600 (Lot 383); d, i, N570 E510+, Lot 163; f, surface (Lot 144); g-h, N580 E500+ (Lot 162).

with a series of rows of narrow linear punctations (see Figure 5-22h), and another rows of tool punctations on the rim that are separated by horizontal incised lines (see Figure 5-11l).

The 53 decorated fine ware sherds from Area III include 15 rim sherds and 38 body sherds. Only 11% of the fine ware sherds are red-slipped, but otherwise undecorated, vessels (see Figure 5-22a). The principal engraved decorative element is the Ripley Engraved scroll (see Figure 5-21d and Figure 5-22d) (Table 5-10).

Other important engraved elements in the Area III fine ware sherds (as well as those of more general provenience within the southern and western residential areas) include el. 4 (probably part of a scroll motif, see Figure 5-12f), S-shaped and negative S-shaped motifs on bottles (see Figure 5-22b-c), diagonal and diagonal opposed engraved lines on carinated bowls (el. 9 and el. 10), and sets of curvilinear engraved lines, probably on bottles (el. 16). There is at least one sherd from a Wilder Engraved bottle (otherwise present only in Area IX, see below), and another sherd (el. 46) from a compound bowl with vertical engraved panels on the lower rim panel.

Area IV Decorated Sherds

Only a handful of decorated sherds were found in Area IV, and this area is clearly not part of the main residential component in the Titus phase village. The few decorated sherds (n=13, see Appendix XI, Vol. II) include three fine ware sherds (two engraved body sherds of indeterminate type and one red-slipped body sherd) and 10 utility ware sherds. Three of these sherds are brushed or brushed-incised, one is a La Rue Neck Banded lower rim/body sherd, one has randomly placed tool punctations, and the others have incised decorations: parallel incised lines; cross-hatched incised (Maydelle Incised) lines; and a diagonal incised Maydelle Incised rim.

Area VIII Decorated Sherds

There are 131 decorated sherds from Area VIII of the Pilgrim's Pride site: 70% utility wares (Figure 5-23a-b) and 30% fine wares (Figure 5-23 c-f). The 25 rim sherds, however, are divided between 15

Table 5-10. Decorated Fine Ware Sherds in Area III.

	U3-6, 9, 25 and features		U18/20		Data Recovery		
Decorative Element	Rim	Body	Rim	Body	Rim	Body	N
E 1		1		2		2	5
E 2	1	1		1			3
E 3		2					2
E 4		3		1			4
E 8	1						1
E 9			1		2		3
E 10					2		3
E 11	1		1				2
E 12		1					1
E 14	1						1
E 16		2				1*	3
E 18				1*			1
E 20						1*	1
E 23	1	4*	1	1	2	1	10
E 24	1	1				1	3
E 25						1	1
E 26				1			1
E 27				1			1
E 28		1					1
E 46						1	1
Sub-total	6	16	3	8	6	8	47
Red-slipped		3		1		2	6
Totals	6	19	3	9	6	10	53

*includes bottle sherds

utility ware (60%) and 10 (40%) fine ware sherds, suggesting a more even distribution of fine wares and plain wares in this part of the Pilgrim's Pride site than in any of the other residential areas; perhaps not coincidentally, Area VIII is the one residential area closest to the Area VII mound, and perhaps persons with more access to fine wares lived in this residential area compared to the more far-removed residential areas.

Among the utility wares, brushed sherds are the most abundant, comprising 56% of the sherds, including 29% of the rims (Table 5-11); these have horizontal or horizontal/vertical brushing marks on them. Other brushed rim sherds have a row of tool punctations under the lip along with vertical brushing on the rim itself (see Figure 5-23a) as well as horizontal brushing on the rim overlain by diagonal incised lines (brushed-incised el. 8). The remainder of the rim sherds include five incised (primarily sets of horizontal incised lines), three punctated, and one punctated-incised rim.

Table 5-11. Decorated Utility Ware Sherds in Area VIII, Including Unit 19.

Decorative Element	Rim sherd	Body sherd	N
A-P 2		1	1
B 1		36	36
B 3	3	5	8
B 4	1	2	3
B 5		2	2
B 6		3	3
Sub-total	4	47	51
B-A-P 3		1	1
B-I 1		1	1
B-I 6		1	1
B-I 8	1		1
Sub-total	1	2	3
B-P 4	1		1
B-P 9		1	1
Sub-total	1	1	2
I 1		8	8
I 2	4	4	8
I 4	1	3	4
Sub-total	5	15	20
P 1	1	3	4
P 2	1		1
P 3		2	2
P 6	1		1
P 24		1	1
Sub-total	3	6	9
P-I 2		2	2
P-I 8	1		1
Sub-total	1	2	3
Totals	15	76	91

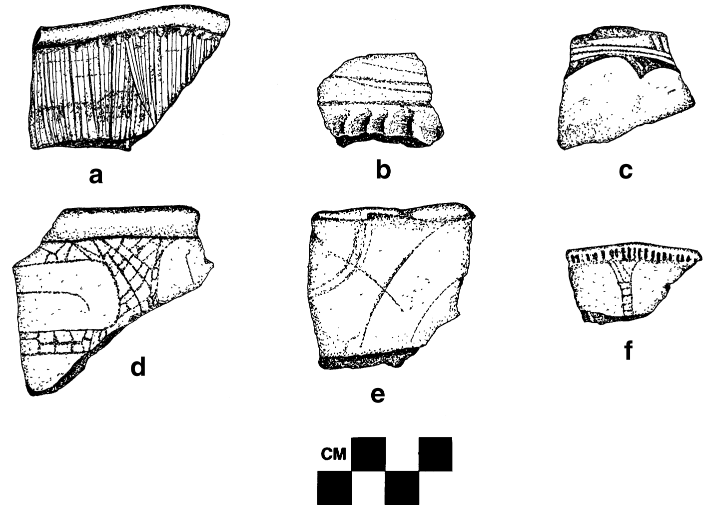


Figure 5-23. Selected decorated sherds from Area VIII: a, brushed-punctated el. 4; b, punctated-incised el. 2; c, engraved el. 5; d, engraved el. 22; e, engraved el. 7; f, engraved-punctated el. 1. Provenience: a, N690 E580 (Lot 168); b, N740, E??? (Lot 160); c, N684 E566 (Lot 145); d, F. 814 (Lot 768); e, Surface (Lot 855); f, F. 801 (Lot 765).

Most of the brushed sherds are body sherds with parallel brushing marks on them, as well as fine combing (brushed el. 4) and overlapping and multi-directional brushing on vessel bodies; the latter comprise 15% of the brushed body sherds. The incised sherds include those with parallel incised lines (orientation uncertain), horizontal incised lines on the rim, and diagonal incised rims (see Figure 5-7d). Punctated sherds amount to approximately 10% of the utility ware sherds in Area VIII, and there are both fingernail punctated (punctated el. 1 and el. 24) as well as tool punctated (punctated el. 2, 3, and 6) elements; fingernail punctated sherds are slightly more common here than are tool punctated sherds. One of the tool punctated sherds is from a Mockingbird Punctated jar (punctated el. 3). The three punctated-incised sherds include one possible Foster Trailed-Incised sherd (el. 8) and two body sherds with a row of tool punctations at the rim–body juncture and underneath a series of horizontal incised lines (see Figure 5-23b).

Forty percent of the fine ware sherds in Area VIII are red-slipped, including 20% of the 10 fine ware rims (Table 5-12). One other rim sherd is from a Ripley Engraved, *var. Walkers Creek* vessel (see Figure 5-23f). This particular Ripley Engraved variety is also present in Area I and II, in the northern part of the residential area (see Figure 5-18b).

Among the other engraved rim sherds, el. 7 is the most common (see Figure 5-23e); other motifs represented are scrolls and the interlocking horizontal scroll (el. 22) (see Figure 5-23d) (see Table 5-12). The Ripley Engraved scroll motif (el. 23) is seen on about 22% of the Area VIII fine wares, and others have scroll elements (el. 4), ticks and pendant triangles on Ripley Engraved bottles (see Figure 5-23c), negative S-shaped elements on bottles, and the scroll and semi-circle motif on Ripley Engraved carinated bowls (see Figure 5-15j); the latter is found in only areas II and VIII.

Area IX Decorated Sherds

Investigations in Area IX recovered 142 decorated sherds, 68% of which are utility wares. Almost half of the utility ware sherds have brushing on them (primarily parallel, but also including multi-directional and opposed brushing marks), but they are all body sherds (Table 5-13). The utility ware rims include two brushed-punctated, three incised, two La Rue Neck Banded, three punctated, and one punctated-incised el. 19 sherd.

Incised utility ware sherds are also relatively abundant, particularly incised el. 1 and 2, as well as incised el. 4 and 18 (see Table 5-13); the latter have either diagonal or diagonal opposed incised

Table 5-12. Decorated Fine Ware Sherds in Area VIII, Including Unit 19.

Decorative Element	Rim sherd	Body sherd	N
E 2	1		1
E 4	1	2*	3
E 5		1*	1
E 6		2*	2
E 7	2		2
E 11	1		1
E 22	1		1
E 23	1	4	5
E 24		3*	3
E 28		1	1
E 39		2	2
E 44		1	1
Sub-total	7	16	23
E-P 1	1		1
Red-slipped	2	14	16
Totals	10	30	40

*includes bottle sherd

lines. Other important decorative elements in the Area IX utility wares are brushed-incised el. 6 and punctated el. 4.

The decorated fine wares in Area IX include 35 engraved sherds (76%) and 11 red-slipped sherds (24%); one of the latter is a plain red-slipped rim (Table 5-14). There are five engraved rims from five different vessels, several of which are from Ripley Engraved vessels (Figure 5-24). The 30 engraved body sherds include a number of sherds from engraved bottles.

The most common engraved elements are #23 and #24, as well as el. 18 and 26. These are from Ripley Engraved and Wilder Engraved vessels. The various scroll motifs (el. 3, el. 4, el. 21, and el. 23) are well-represented in Area IX, as they are in all the other residential areas at the Pilgrim's Pride site. The negative S-shaped engraved el. (el. 6) (see Figure 5-12h and Figure 5-22c) is one of the more distinctive engraved elements in the Area IX fine wares; other sherds with this decorative element were found only in Area II and VIII in the northern part of the residential area.

Use of Pigments and Slips on Engraved Fine Wares

About 8% of the engraved fine wares at the Pilgrim's Pride site also have a red slip on either interior and/or exterior vessel surfaces. These are on 33% of the engraved decorative elements defined in the

Table 5-13. Decorated Utility Ware sherds in Area IX.

Decorative Element	Rim sherd	Body sherd	N
B 1		39	39
B 3		1	1
B 5		2	2
B 6		5	5
sub-total	0	47	47
B-A 1		1	1
B-I 5		1	1
B-I 6		4	4
sub-total	0	5	5
B-I-A 1		1	1
B-P 6		1	1
B-P 8	2		2
sub-total	2	1	3
I 1		10	10
I 2	1	6	7
I 4	1	2	3
I 6	1		1
I 7		2	2
I 17		1	1
I 18		3	3
Sub-total	3	24	27
NB 1	2		2
NB 4		1	1
Sub-total	2	1	3
P 1		1	1
P 2	1		1
P 4		3	3
P 5	1		1
P 6	1		1
P 8		1	1
Sub-total	3	5	8
P-I 19	1		1
Totals	11	85	96

Table 5-14. Decorated Fine Ware Sherds in Area IX.

Decorative Element	Rim sherd	Body sherd	N
E 1		1	1
E 2	1		1
E 3		2	2
E 4		2	2
E 6		1	1
E 8	1		1
E 10		1*	1
E 11	1		1
E 18		4*	4
E 21		2*	2
E 23	1	6*	7
E 24		7*	7
E 26		4	4
E 37	1		1
Sub-total	5	30	35
Red-slipped	1	10	11
Totals	6	40	46

*includes bottle sherds

assemblage. The engraved decorative motif was the principal decoration on these vessels, but the red slip helped to enhance and embellish them for when they were used in particular rituals and ceremonies that were done from time to time here. Decorative elements recognized in the red-slipped engraved sherds particularly include El. 23 (Ripley Engraved with parts of scroll motifs), El. 1 (parallel engraved lines), El. 3 (Ripley Engraved bottles with scroll and semi-circular motifs, El. 2 (single horizontal engraved line), and El. 5 (Ripley Engraved bottles with ticks and small pendant triangles on curvilinear elements).

A much smaller group of engraved sherds (4.3%) have either a red or white clay pigment that had been smeared in the engraved lines. About 70% of the engraved sherds with pigment have a hematite-rich red pigment, and the remainder have a white kaolin clay pigment. Again, the Engraved El. 23 is best represented among the engraved sherds with pigment, accounting for 45% of these sherds.

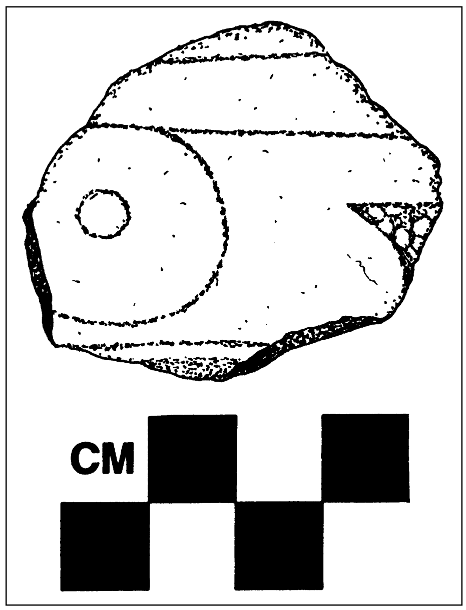


Figure 5-24. Engraved sherd from carinated bowl, Engraved el. 21, Area IX. Provenience: scraped surface (Lot 854).

The engraved sherds with a red pigment include carinated bowls as well as bottles, while the white pigment was apparently reserved solely for use on carinated bowls and compound bowls.

Vessels and Vessel Sections

There are 19 ceramic vessels and/or vessel sections from Late Caddoan period Titus phase burials in the residential areas at the Pilgrim's Pride site (41CP304) (see also Appendix VII, Volume II). The vessels are from 10 different places across the site (see Figure 4-10), each place probably representing a single burial. The generally small size of the majority of the vessels suggests they were grave goods placed with children or juveniles, and child burials in Titus phase contexts were commonly buried in sub-floor pits within house structures. Titus phase adults (usually accompanied with larger vessels) were buried in family cemeteries near house structures, or in community cemeteries used by several different family groups.

The 19 vessels and/or vessel sections are from the following contexts:

- Feature 1, vessels 1-3, N577 E674-675
- Feature 2, vessels 1-3, N582 E646
- Feature 4, vessel 1, N655 E613 (the bag was labeled "N590," however, by Keller's archeological team)
- Feature 5, vessel 1, N582 E645, 30-40 cm bs
- Feature 6, vessel 1, N655 E618 and N656 E617, 20-30 cm, vessel 1
- Feature 8, vessels 1-3, N622 E560
- Feature 66, N596.4 E571.5, vessel 1
- Feature 9, vessel 1, N676 E564, 0-10 cm bs
- Feature 67 (Nelson vessel), ca. N740 E615; and
- Feature 1-128, vessels 1 and 2
- Feature 830, vessel 1

Vessel Descriptions by Spatial Clusters in Residential Areas

Feature 1, vessels 1-3, N577 E674-675

These three vessels, at 40 cm below surface, were badly crushed during exposure by the heavy equipment during the scraping effort. They probably represent grave goods for a single burial. Vessel 1 is represented by six plain base sherds and 66 plain body sherds from the lower section of a vessel of undetermined form or type. The same is true for Vessel 2, with eight plain base sherds and six plain body sherds, and Vessel 3, with two base sherds, two body/base sherds, and 44 plain body sherds. All three vessels were tempered with grog (i.e., crushed sherds)

Feature 2, vessels 1-3, N582 E646 and Feature 5, vessel 1, N582 E645, 30-40 cm

Based on proximity, these four vessels are probably associated with the same burial. Vessel 1 in Feature 2 is a large section of a deep bowl with several appliqued nodes along the rim; the vessel includes five rim sherds and 10 plain body sherds, and was at least 15-20 cm in height. Vessel 2 is a plain grog-tempered bowl (10 rims, 21 body sherds, and two base sherds), and Vessel 3 is a portion of a Pease Brushed-Incised or Bullard Brushed jar (represented by 15 brushed sherds and two small plain body sherds). It had been suggested by Keller (1998) that Vessel 3 was actually pieces of Vessel 1 that had been recently mechanically dragged by heavy equipment, but inspection of the sherds indicate that they are parts of two separate vessels.

Vessel 1 in Feature 5 was a large body and base section of a brushed-incised Pease Brushed-Incised jar. The remaining base and body stood 14.5 cm high, and this jar may have stood 20 cm or more in height.

Given the size of the vessels in the Feature 2/5 cluster, we suspect that they are grave goods placed with an adult Caddo individual.

Feature 4, Vessel 1, N655 E613

This vessel is a well-made Taylor Engraved compound bowl with rim peaks. It stood only 8.6 cm in height, and had a 9.6 cm orifice diameter. This is a small vessel, based on the analysis of compound bowl vessel sizes at the contemporaneous Mockingbird site (41TT550) (Perttula et al. 1998:222). The vessel has two suspension holes on opposite sides of the vessel and under the lip. The small size of the compound bowl suggests it was placed with a child or juvenile as a grave good.

Feature 6, Vessel 1, N655.2 E618.1 and Feature 6, Vessel 2, N656 E617, 20-30 cm

These two vessels are probably associated given their proximity. Vessel 1 in Feature 6, found 20 cm bs, is a medium-sized Bullard Brushed jar with a horizontal brushed rim and a vertically brushed body. It is 16.7 cm in height and has a 17.3 cm orifice diameter. The second vessel (from N656E617) is a pinched jar at least 12.5 cm in height and 12.0 cm in orifice diameter (probably Killough Pinched; see Turner 1978: Figure 23g), composed of at least 50 body sherds found between 20-30 cm in one excavation unit, and a number of rim sherds in the 10-20 cm level in the same unit; it may have been broken in place.

Based on the typical size of the two vessels, we speculate that they were placed with a Caddo adult at death.

Feature 8, Vessels 1-3, N622 E560, Exploratory Trench 4

The three vessels from Feature 8 include a small engraved carinated bowl (5.3 cm in height), a small La Rue Neck Banded jar (13.4 cm in height), and about 60 percent of a Pease Brushed-Incised or Maydelle Incised jar. They were recovered between 20-31 cm bs.

The carinated bowl has two lip nodes, and the engraved motif is composed of a continuous band of closely-spaced vertical or near vertical engraved lines around the rim. The jar has smoothed over neck banding on the upper rim along with 1-2 rows of fingernail punctations at the rim-body juncture, and they closely resemble a series of rim punctated jars from the Mockingbird site (Perttula 1998d:250) that have been dubbed "Mockingbird Punctated." The Mockingbird site cemetery dates between cal AD 1433-1602 (Perttula et al. 1998). The Pease Brushed-Incised or Maydelle Incised jar was probably about 20 cm in height, based on the height from the base to the rim-body juncture of 14.0 cm and an orifice diameter of 18.8 cm; most of the rim was not recovered during the investigations.

The vessels in this feature are a combination of small and medium-sized vessels, perhaps placed as grave goods for a juvenile or sub-adult A small (64 mm in length and 38 cm in width) ground stone celt of Hatton tuff was also included as a grave good in Feature 8.

Feature 66, N596.4 E571.5, Vessel 1

About 70 percent of an engraved bottle was recovered during the scraping effort. The bottle is represented by 29 sherds, including 20 body sherds, two neck/body sherds, and two base sherds; sherds from the bottle neck are not present.

The engraved motif may be from a Ripley Engraved bottle. It has panels defined by semi-circular engraved bands of diagonal lines, with small circles and larger concentric lines within the panels. The engraved design has a red pigment smeared in the lines.

Whether this vessel accompanied an adult or child is unknown, but bottles are a common grave good placed in Titus phase burials (cf. Perttula 2000).

Feature 9, Vessel 1, N676 E564

This vessel section is represented by 15 sherds (eight body sherds, four body-base sherds, and three base sherds), probably comprising 25 percent of a jar. The sherds are from the lower section of a jar, and are not decorated.

Feature 67, Nelson Vessel, ca. N740 E615

This vessel was found along the southern end of a recent road cut in the northeastern corner of the Pilgrim's Pride site (Area VIII). It is a medium-sized carinated bowl (represented by 36 sherds amounting to ca. 80 percent of a complete vessel) with a series of 4-5 concentric engraved circles repeated five times around the vessel (see Figure 4-8, see also Perttula and Nelson 1998a:Figure 6a). The carinated bowl has an orifice diameter of 14 cm. It was likely a grave good for an adult, based on its size. A Talco arrow point—probably also a funerary object—was found in the immediate proximity of the carinated bowl (see Figure 4-8b).

Feature 1-128, Vessels 1 and 2

These two utility ware vessels were recovered from a burial placed near, but outside, Structure 1 in Area I (see Figures 4-12 and 4-15). Vessel 1 is a small jar decorated with tool punctations at the lip and rim-body juncture, and four sets of appliqued ridges on the rim. The body has panels defined by tool punctations that are filled with diagonally opposed incised lines. Vessel 2 is a larger Pease Brushed-Incised jar (16.3 cm in height, with an estimated 1.3 liter volume).

Feature 830, Vessel 1

This large compound bowl was recovered during the scraping of Area VIII. The vessel is 13.5 cm in height, with a 31.0 cm orifice diameter. It has sets of horizontal engraved lines on the upper panel, and a series of large engraved pendant triangles on the lower panel of the compound bowl.

Summary of Vessels from Residential Areas

Taken as a group, these 19 vessels from the Pilgrim's Pride site indicate that there were a number (10 or 11, depending upon whether Fea. 2 and Fea. 5 are part of the same interment) of Late Caddoan period Titus phase grave features in the residential portions of the site. The likely combination of child and adult burials further suggest that the burial features are probably inside as well as outside of several structures. Most of the vessels found in the burials in residential contexts are jars—used as cooking pots—as they account for 56% of the 16 vessels of identifiable form. Only 25% are compound bowls or carinated bowls; 12.5% are bowls; and 6.3% are bottles. By comparison, ceramic vessels placed in the Area V/VI cemetery interments are more diverse in form and decoration, and they are dominated by carinated bowls (34%). Jars comprise only 23% of the vessels placed with the dead, followed by bowls (18%), compound bowls (14%), bottles (10.2%), deep bowls (1.4%), and an olla (0.7%).

The utility wares, including the appliqued, pinched, brushed, and neck banded vessels, are consistent with a Titus phase occupation at the Pilgrim's Pride site. So too are at least two of the engraved vessels (Fea. 4, Vessel 1 and N596.4 E571.5), as they have Taylor Engraved and Ripley Engraved motifs. The other two engraved vessels cannot be readily classified as Ripley Engraved, but the motifs on these (Fea. 8, Vessel 1, Fea. 830, and the Nelson vessel, Fea. 67) are similar to other engraved vessels found in Titus phase contexts in the Area V/VI cemetery and in other Titus phase sites in northeastern Texas.

Our examination of these vessels, along with a perusal of the many decorated ceramics and arrow points from the excavations at the Pilgrim's Pride site, indicate that the burials in the Caddo residential occupation at the site dates from early to late in the Titus phase. Accordingly, we can estimate that the Titus phase settlement at the Pilgrim's Pride took place beginning roughly between ca. A.D. 1430-1450 and may have lasted until after A.D. 1600, the latter based on the recovery of a Talco point in Fea. 67 and a Taylor Engraved compound bowl in Fea. 4.

Ceramic Pipes

Three different elbow pipe fragments were recovered in the excavations in Area I of the Titus phase settlement, two from Feature 8 (a burial feature) and one from Fea. 1-171. All have direct rims and flat lips, with orifice diameters ranging from 3.0-6.0 cm. Bowl heights ranged from 2.05-2.8 cm, with the taller bowls associated with the larger bowls, and thus they were able to hold more smoking materials. The elbow pipe sherds from Feature 8 contained remnants of organic residues. Bowl thickness varied from 4.4-5.9 mm.

Two of the three elbow pipe sherds were tempered with grog, and the third (from Fea. 8) had crushed bone temper. All three were fired in a reducing or low oxygen environment, and one had been smoothed on the exterior surface; all the pipe sherds probably had been originally burnished, but they have become weathered over time.

INSTRUMENTAL NEUTRON ACTIVATION ANALYSIS OF CERAMICS FROM RESIDENTIAL AREAS AT THE PILGRIM'S PRIDE SITE,

by James W. Cogswell, Hector Neff, and Michael D. Glascock

The instrumental neutron activation analyses (INAA) reported on here are part of a larger study to characterize chemical variation in Caddo ceramics from northeastern Texas (Cogswell et al. 1998a, 1999;

Descantes et al. 2003a, 2003b; Neff et al. 1998, 1999; Neff and Glascock 2000; Perttula 2002a; Perttula et al. 2002). At the time these were submitted for INAA, the ceramic samples from residential and mortuary contexts in Camp County, Texas, including the Pilgrim's Pride site (41CP304), were analyzed to increase the representation of ceramics from other regions of northeastern Texas and to see if Late Caddoan period Titus phase pottery in the Big Cypress Creek basin can be chemically affiliated to previously established compositional reference groups.

A total of 22 sherds were submitted for INAA from Titus phase residential contexts in Camp County. Eleven are from a variety of occupational contexts at the Pilgrim's Pride site (Table 5-15), and the other 11 are from four other nearby Titus phase sites: 41CP313 on the Walker Creek complex (see Appendix II, Volume II), 41CP257 along the Lake Bob Sandlin shoreline (Nelson and Perttula 2003), 41CP239 near Lake Bob Sandlin, and 41CP71 (Shelby Mound at the Tracy site) in the Greasy Creek drainage (Table 5-16), a few miles southeast of the Pilgrim's Pride site (Perttula et al. 2004).

Previous Research

The original Missouri University Research Reactor (MURR) report on prehistoric and early historic Caddo ceramics (Neff et al. 1998, 1999) formulated three compositional groups, named Titus, Hurricane 1, and Hurricane 2. A preliminary analysis that combined 39 samples from the Oak Hill Village site (41RK214, see Rogers and Perttula 1999) with the original 50-sample data set (Neff 1998) defined another compositional group consisting of pottery from Rusk County, increased the

Table 5-15. Inventory of INAA Sherds from Residential Areas at The Pilgrim's Pride Site (41CP304).

Sample No.	Context	Descriptions
TKP 110	Fea. 214	parallel brushed vessel body sherd
TKP 112	Fea. 219	Maydelle Incised jar
TKP 114	Fea. 1-107	Ripley Engraved
TKP 119	Area III, N625 E640 (surface)	Ripley Engraved body sherd
TKP 120	Area II, N656 E617 (1 x 1 m)	fingernail impressed jar body sherd
TKP 121	Area VII, Unit 7-01, 100-105 cm	parallel brushed body sherd
TKP 122	Fea. 801	Ripley Engraved, bottle sherd
TKP 123	Fea. 343	La Rue Neck banded
TKP 124	Fea. 1-210	red-slipped bottle body sherd
TKP 125	Area VII, Unit 7-01, 40-50 cm	Ripley Engraved, red-slipped
TKP 126	Fea. 1-171	brushed-punctated jar body sherd

Table 5-16. Additional INAA Sherds from Titus Phase Residential Contexts in Camp County, Texas.

Sample No.	Context	Descriptions
TKP 127	41CP313	overlapping brushed jar body sherd
TKP 128	41CP257	Hodges Engraved, red-slipped
TKP 133	41CP239	plain red-slipped, shell-tempered
TKP 134	41CP239	parallel brushed jar body sherd
TKP 135	41CP239	Ripley Engraved, pendant triangle motif
TKP 136	41CP71	Maydelle Incised jar rim
TKP 137	41CP71	parallel brushed-incised jar body sherd
TKP 138	41CP71	Ripley Engraved, sun circle motif
TKP 139	41CP71	Ripley Engraved, scroll motif, red-slipped
TKP 140	41CP71	brushed-punctated jar body sherd
TKP 141	41CP71	Karnack Brushed-Incised jar rim

similarity between the Hurricane 1 and Titus groups, the affinity of Hurricane 2 with a Red River group (Cogswell et al. 1998a, 1999), and suggested that two additional subgroups existed in the Rusk County data set: Rusk 1 and Rusk 2.

The Rusk group consisted only of samples from Oak Hill Village, and were observed to be chemically similar to the Titus group. Further, the Titus group contained specimens from Oak Hill Village, indicating that this group is composed of samples recovered from a wide area, including parts of Titus and Rusk counties. These analyses also suggested that the Hurricane 1, Titus, Rusk 1, and Rusk 2 groups may represent points along a continuum from low rare earth, high alkali paste compositions in the northwestern and upstream clay sources to higher rare earth, low alkali compositions in southeastern and downstream sources in northeastern Texas, potentially due to increased rainfall along this cline and the concomitant leaching of mobile elements from source clays. A second group (Cogswell et al. 1998a, 1999), which was based on the analysis of additional samples from the Oak Hill Village site and a number of samples from Early-Late Caddoan period sites in Red River County, Texas, strengthened the differentiation between Titus/Hurricane 1 and Red River/Hurricane 2 compositional groups. Those additional samples suggested that Rusk 1 and Rusk 2 subgroups should be collapsed into a single Rusk group.

Sample Preparation

Sample preparation for the new samples from Camp County, Texas was identical to that of the previous samples submitted for this project (Cogswell et al. 1998a, 1999; Neff et al. 1998, 1999; see also Glascock 1992), and thus will not be detailed here. Briefly, the samples were burred with a silicon-carbide drill to remove surface contamination, rinsed with de-ionized water, dried, and then ground to a powder. Activation was accomplished in two irradiations, and analysis was accomplished with three gamma-ray counts, which yielded information on 33 elements. The complete, un-transformed chemical data and descriptive information on the samples used to prepare this section of Chapter 5 are included in Appendix XII (Vol. II).

Data Analysis

As with sample preparation, a discussion of the statistical methods was presented earlier (Neff et al. 1998, 1999). Nickel and zirconium were eliminated from analysis because too many values were below detection limits, and neodymium was eliminated because of high analytical error. Calcium and strontium were eliminated because of their presence in shell temper (see below), thus leaving 28 elements available for analysis. Principal components analysis (PCA) calculated from the variance-covariance matrix was employed to look for structure in the overall data set by using RQ-mode biplots. Principal components also were used to determine Mahalanobis-distance based membership probabilities when group sizes were relatively small. The additional samples permitted calculation of membership probabilities using all 28 elements for the major compositional groups, which is generally the preferred method for such calculations. Inspection of bivariate plots of elemental concentrations also was used to assess compositional trends found by PCA.

Many Caddo sherds from the overall project sample (see Cogswell et al. 1999; Neff et al. 1998, 1999) were tempered with varying amounts of shell (including a red-slipped sherd from 41CP239). The addition of this calcium-rich material to a vessel's paste has the effect of inflating calcium values and correspondingly decreasing values for other elements compared to non-shell-tempered samples.

Steponaitis et al. (1996; see also Steponaitis and Blackman 1981) developed a mathematical correction for shell-tempered pottery:

$$e' = \frac{10^6 e}{10^6 - 2.5c}$$

Where e' is the corrected concentration of a given element in parts per million (ppm), e is the measured concentration of that element in ppm, and c is the calcium concentration in the sample in ppm. The gravimetric factor 2.5 compensates for the amount of calcium in calcite ($CaCO_3$). Based on research conducted at MURR, Neff developed correction factors for barium, manganese, sodium, and strontium, additional elements in shell that may exceed values present in clays. Subsequent investigations (Cogswell et al. 1998b) confirmed the usefulness of this mathematical correction. Accordingly, calcium and strontium were deleted from the suite of elements employed in this analysis, and the corrected values of the other elements were used in pattern recognition and statistical analysis.

Results

The addition of the Camp County Titus phase samples, and additional samples discussed by Cogswell et al. (2000), has resulted in the transference of 24 formerly unassigned samples to compositional groups (cf. Cogswell et al. 1998a, 1999). Of these, two more long-stemmed Red River pipe samples from the Oak Hill village site (EHA081 and EHA083) join EHA 084 as members of the Rusk group. The previously established compositional groups Titus, Hurricane 1, Red River, and Rusk have been maintained. Mahalanobis-distance calculations, supported by differing values for tantalum (Figure 5-25) have led to the reestablishment of Hurricane 2 as a separate compositional group; in Cogswell et al. (1998a, 1999), Hurricane 2 was subsumed into the Red River group. The affinity of the Hurricane 1 compositional group with the Titus group has been preserved (Figure 5-26), as has the overall affinity of the Hurricane 2 compositional group with the Red River group (Figure 5-27). Some samples have been moved to different groups, but by far the majority have remained in the groups to which they were previously assigned.

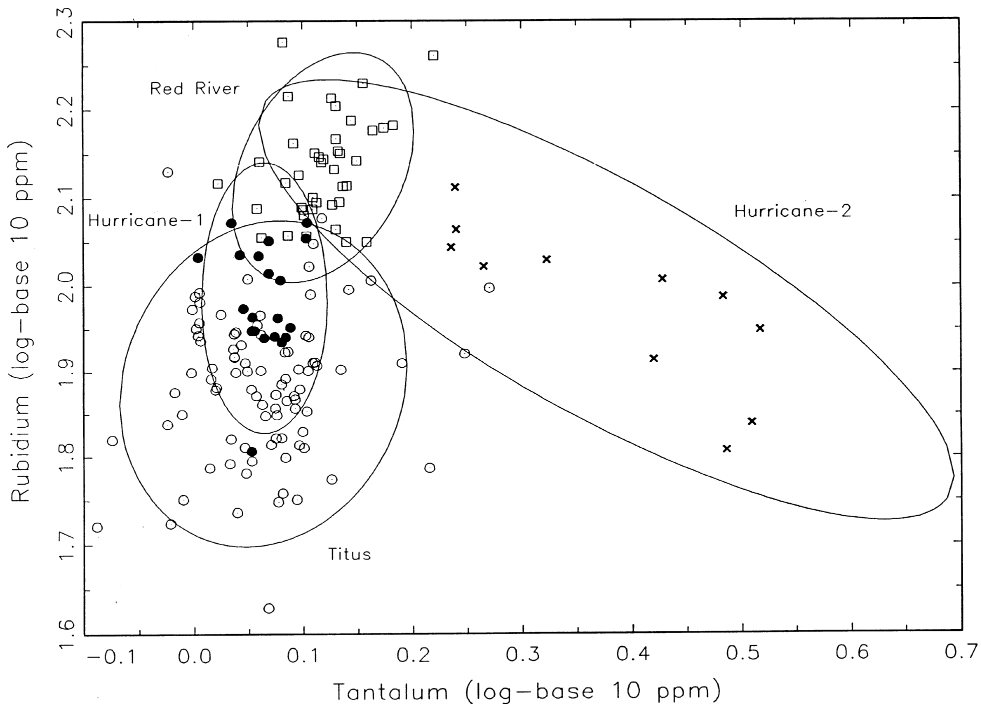


Figure 5-25. Bivariate plot of $\log_{10}$ values of tantalum and rubidium for the Titus, Red River, Hurricane 1, and Hurricane 2 compositional groups. Ellipses represent 90% confidence levels for group membership. Note that Hurricane-2 samples have noticeably elevated concentrated values of tantalum.

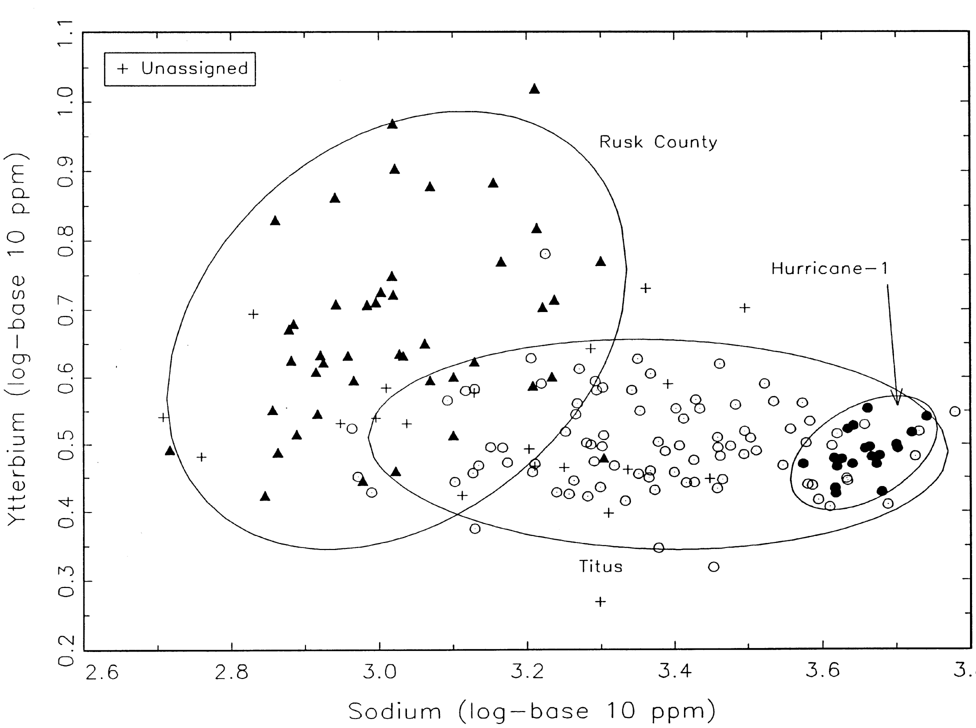


Figure 5-26. Bivariate plot of $\log_{10}$ concentrations of sodium and ytterbium for the entire northeastern Texas ceramic data set. Ellipses represent 90% confidence levels for group membership. Note the compact cluster of all Hurricane 1 samples at the high-sodium values for the Titus compositional group.

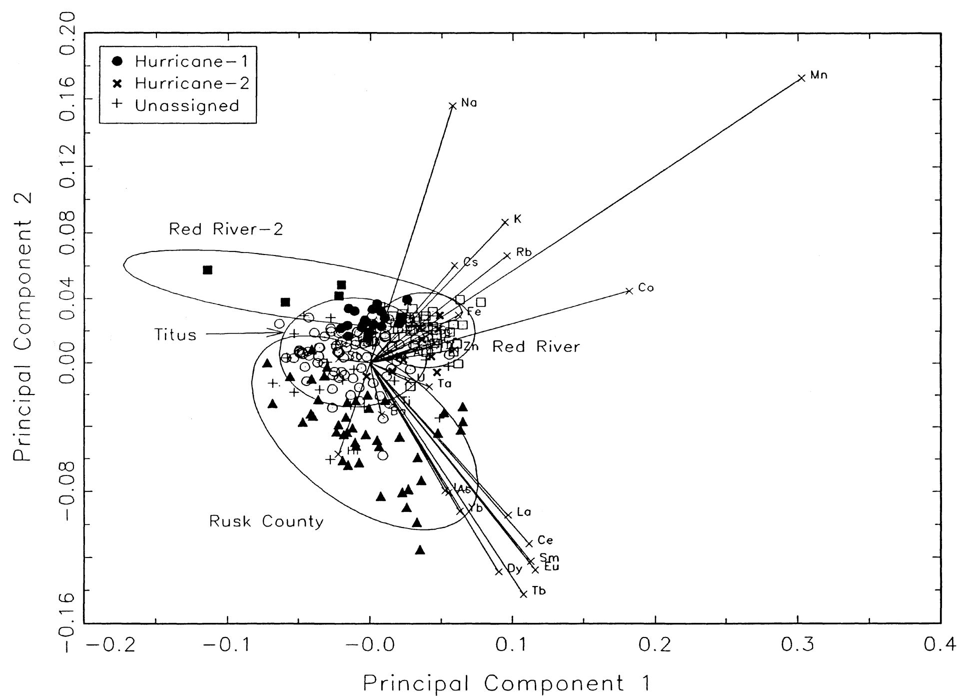


Figure 5-27. RQ-mode biplot of principal components 1 and 2 for the entire northeastern Texas ceramic data set. Ellipses represent 90% confidence levels for group membership.

Principal components analysis (see Figure 5-27) indicated the presence of a Red River subgroup, termed Red River 2, which is supported by low levels of hafnium (Figure 5-28) and effectively zero membership probabilities to the three main compositional groups (Table 5-17). Two of the four Red River 2 samples are from locations outside Texas (see Cogswell et al. 2000), so this subgroup is tenuous at present. We cautiously infer that the Red River 2 compositional group represents a previously unidentified compositional source from the Great Bend area, pottery from which was widely exported (see below).

The predominant number of Camp County, Texas, samples from residential contexts fall into the Titus compositional group (Table 5-18). Only one sample—a red-slipped and shell-tempered sherd from 41CP239 (TKP133)—was assigned to the Red River group and must be from a non-local clay source, one other (a red-slipped sherd) from the Pilgrim's Pride site is assigned to the Cypress-2 group, and four Camp County samples currently are unassigned (see Descantes et al. 2003a: Table 3). The Cypress-2 chemical group is enriched in aluminum and antimony, and relatively high in scandium (Descantes et al. 2003b: Table 1).

Taken together, the INAA samples from the Camp County Titus phase sites indicates that the ceramic vessels (both utility wares and fine wares) were made from local clays, though from two different sources (i.e., Titus and Cypress-1 chemical groups).The one trade ware vessel was a red-slipped and shell-tempered vessel sherd made from a Red River clay source.

Overall, the Titus compositional group continues to incorporate additional samples from archeological sites throughout northeastern Texas (Figure 5-29). Raw clays have not been submitted from northeastern Texas as part of a raw materials compositional survey and analysis, but regardless of the actual geographic/

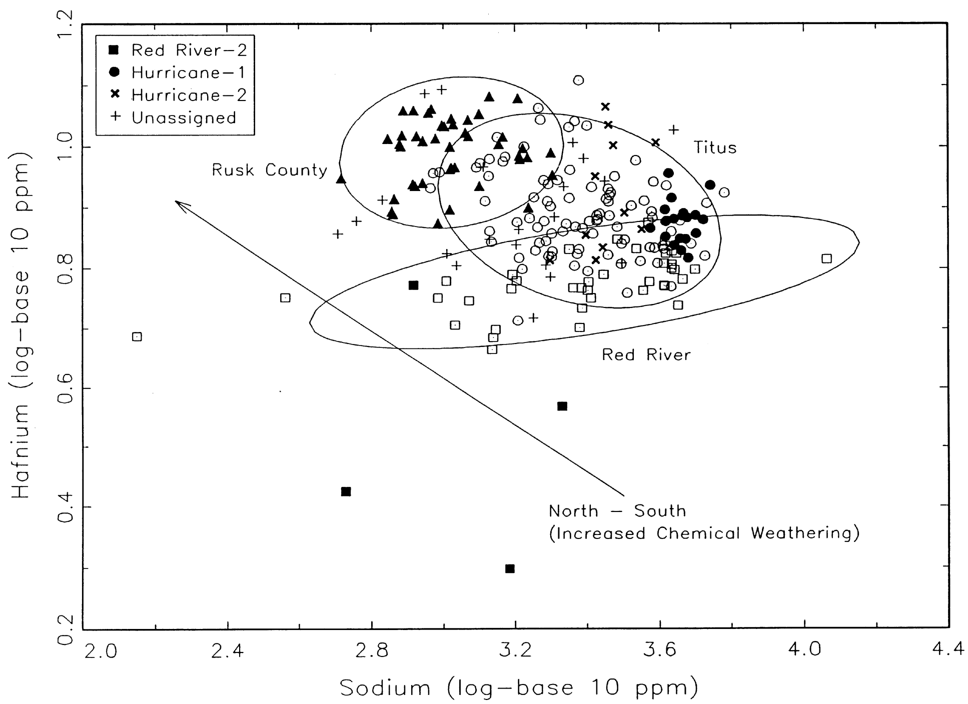


Figure 5-28. Bivariate plot of $\log_{10}$ concentrations of sodium and hafnium for the entire northeastern Texas ceramic data set. Ellipses represent 90% confidence levels for group membership. Note that the Red River 2 samples plot at the lower end of hafnium values.

Table 5-17. Membership Probabilities of Compositional Groups Based on Mahalanobis-distance Calculations Using All 28 Elements.

Titus Compositional Group Membership Probabilities:

Sample	Titus	Red River	Rusk County
EHA001	50.988	0.614	0.000
EHA004	5.183	0.000	0.000
EHA005	23.296	0.002	0.001
EHA006	69.266	0.232	0.004
EHA007	82.277	0.004	0.939
EHA008	97.030	0.020	0.000
EHA010	36.345	0.041	0.026
EHA014	39.696	0.409	0.041
EHA020	99.890	3.048	0.000
EHA021	52.519	0.001	1.207
EHA025	32.326	0.074	2.763
EHA026	29.554	0.001	0.010
EHA028	65.984	0.053	0.127
EHA035	95.559	0.211	23.631
EHA037	72.019	1.599	0.795

Table 5-17. *(Continued)*

Sample	Titus	Red River	Rusk County
EHA042	0.589	0.000	0.109
EHA043	46.430	0.001	0.000
EHA044	6.741	0.012	0.015
EHA045	48.911	0.001	0.001
EHA047	89.025	2.140	0.001
EHA048	3.646	0.000	0.114
EHA049	59.883	0.8S8	0.000
EHA055	52.531	0.011	33.274
EHA056	77.737	0.033	5.330
EHA058	59.421	0.455	0.023
EHA061	94.226	0.140	0.383
EHA062	67.116	0.002	5.399
EHA064	50.910	0.219	0.015
EHA066	67.S32	0.080	0.577
EHA069	95.500	0.056	0.040
EHA071	18.529	0.001	0.000
EHA072	92.274	5.787	0.050
EHA073	66.144	0.010	1.443
EHA075	98.654	0.086	0.242
EHA076	94.438	1.323	0.192
EHA079	25.032	0.006	0.000
Fl0V11	34.484	0.051	0.016
Fl0V12	9.548	0.000	0.001
F3V3	50.488	0.224	0.063
F4V3	31.996	0.003	0.241
F6V2	20.869	0.000	0.000
F7Vl2	26.132	0.003	0.019
F9Vl	77.310	0.000	0.056
F9Vl1	51.250	0.001	0.016
TKP009	87.018	0.058	5.563
TKP011	1.128	0.008	0.000
TKP017	3.185	0.117	0.079
TKP018	1.566	0.318	0.000
TKP024	15.407	2.369	0.055
TKP029	18.652	0.002	1.668
TKP037	19.799	0.000	0.021
TKP073	13.800	8.311	0.005
TKP074	17.708	5.510	0.000
TKP075	4.688	0.370	0.002
TKP077	2.274	0.279	0.002
TKP079	38.903	0.002	0.435
TKP080	29.795	0.052	0.021
TKP082	13.303	0.000	0.006

Table 5-17. *(Continued)*

Sample	Titus	Red River	Rusk County
TKP083	0.520	0.065	0.020
TKP084	96.647	19.245	1.304
TKP085	65.004	0.679	0.000
TKP090	3.438	0.000	0.000
TKP091	11.013	1.095	0.000
TKP092	1.083	0.003	0.003
TKP110	59.050	0.011	9.703
TKP111	98.716	0.044	9.610
TKP112	99.730	0.426	0.686
TKP114	93.508	0.328	0.006
TKP115	74.969	0.002	0.026
TKP116	47.908	0.001	0.216
TKP118	74.342	0.003	0.886
TKP119	48.718	0.001	0.006
TKP120	65.981	0.096	0.000
TKP122	80.454	4.345	0.009
TKP123	49.013	0.018	1.188
TKP125	88.700	0.110	0.006
TKP126	97.419	12.871	16.OS6
TKP127	66.595	1.932	0.072
TKP128	7.665	0.000	0.182
TKP129	37.751	4.861	0.000
TKP130	54.087	0.120	0.801
TKP131	97.207	0.238	25.287
TKP132	98.785	3.378	0.297
TKP134	78.282	0.164	0.096
TKP135	27.581	0.946	1.797
TKP136	29.547	0.423	3.613
TKP137	7.972	0.003	0.001
TKP138	93.228	0.022	1.533
TKP139	66.309	0.103	0.031
TKP141	74.087	0.483	0.010

Red River Compositional Group Membership Probabilities:

Sample	Titus	Red River	Rusk County
MIP123	0.017	53.643	0.000
MIP124	0.682	5.065	0.000
MIP125	0.013	4.291	0.000
MIP126	3.308	58.610	0.000
MIP127	0.125	7S.310	0.000

Table 5-17. *(Continued)*

Sample	Titus	Red River	Rusk County
MIP128	0.149	91.241	0.000
MIP129	0.028	71.016	0.000
MIP130	0.009	24.768	0.000
MIP131	2.972	30.281	0.000
MIP132	0.000	61.736	0.000
TKP012	6.389	52.540	0.003
TKP041	0.001	49.235	0.000
TKP042	0.000	17.673	0.000
TKP043	0.004	87.560	0.000
TKP044	0.383	28.779	0.000
TKP045	0.028	69.794	0.000
TKP046	4.217	60.803	0.000
TKP047	0.000	37.339	0.000
TKP048	0.001	83.127	0.000
TKP049	0.326	79.129	0.000
TKP050	0.101	99.379	0.000
TKP053	0.512	3.797	0.000
TKP056	0.006	83.739	0.000
TKP058	0.000	43.768	0.000
TKP059	0.000	3.561	0.000
TKP060	0.366	8.460	0.000
TKP061	0.014	68.826	0.000
TKP062	0.039	81.133	0.000
TKP065	0.045	94.837	0.000
TKP066	0.000	64.900	0.000
TKPO67	5.537	96.448	0.000
TKP068	50.870	88.453	0.000
TKP069	0.000	3.228	0.000
TKP070	0.187	6.186	0.000
TKP071	0.782	60.948	0.000
TKP072	0.018	57.252	0.000
TKP076	0.000	17.049	0.000
TKP088	0.003	61.757	0.000
TKP089	0.000	47.807	0.000
TKP094	0.000	37.675	0.000
TKP133	0.000	2.13S	0.000

Rusk County Compositional Group Membership Probabilities:

Sample	Titus	Red River	Rusk County
EHA002	0.414	0.008	69.969
EHA003	0.001	0.000	7.239

Table 5-17. *(Continued)*

Sample	Titus	Red River	Rusk County
EHA009	0.001	0.000	99.755
EHA011	27.324	0.260	59.011
EHA012	7.021	0.014	94.472
EHA013	0.000	0.000	5.473
EHA015	1.056	0.013	81.207
EHA017	0.340	0.006	67.983
EHA018	0.311	0.000	9.286
EHA019	15.573	0.013	89.616
EHA022	0.003	0.001	71.513
EHA024	1.765	0.000	84.520
EHA027	0.003	0.000	8.734
EHA030	1.715	0.029	3.269
EHA031	0.323	0.012	26.617
EHA032	0.044	0.004	44.083
EHA033	0.000	0.000	36.452
EHA034	0.164	0.000	73.105
EHA036	0.025	0.000	81.794
EHA038	37.275	0.010	72.339
EHA039	0.027	0.000	2.201
EHA040	19.861	0.000	85.052
EHA041	18.427	0.001	90.139
EHA046	1.590	0.000	5.219
EHA050	0.001	0.000	85.047
EHA051	0.429	0.003	90.682
EHA052	1.839	0.000	38.460
EHA053	1.392	0.000	38.979
EHA054	0.000	0.000	63.382
EHA057	0.002	0.000	81.826
EHA059	29.540	0.000	95.859
EHA063	0.046	0.000	11.315
EHA065	0.009	0.000	34.459
EHA068	53.561	0.083	94.767
EHA070	0.000	0.000	0.376
EHA077	0.100	0.000	45.569
EHA078	16.690	0.133	89.045
EHA081	0.001	0.007	1.471
EHA083	0.004	0.000	27.171
EHA084	0.073	0.000	86.168
TKP081	0.010	0.013	40.246
TKP086	0.000	0.000	24.691
TKP087	0.082	0.021	8.894
TKP140	0.030	0.002	1.372

Table 5-17. *(Continued)*

Hurricane 1 Compositional Group Membership Probabilities*:

Sample	Titus	Red River	Rusk County
TKP001	58.503	0.053	0.005
TKP003	12.833	0.004	0.002
TKP004	0.000	0.000	0.011
TKP006	0.011	0.003	0.000
TKP007	0.758	0.039	1.803
TKP010	7.374	0.009	0.538
TKP014	4.892	0.097	0.012
TKP015	8.276	0.005	0.023
TKP016	14.144	0.290	0.051
TKP020	3.777	0.003	0.000
TKP022	32.960	0.060	0.578
TKP023	31.233	0.011	0.046
TKP026	7.596	0.002	0.061
TKP027	43.892	0.007	0.030
TKP030	69.376	0.055	0.001
TKP032	19.826	0.028	0.002
TKP034	25.634	0.010	0.000
TKP036	2.071	0.023	0.000
TKP038	48.822	0.061	0.712
TKP039	42.883	0.007	0.788

Hurricane 2 Compositional Group Membership Probabilities*:

Sample	Titus	Red River	Rusk County
TKP002	18.162	42.444	0.003
TKP013	0.000	1.432	0.000
TKP019	0.231	7.527	0.000
TKP021	0.000	0.002	0.000
TKP025	0.000	0.002	0.000
TKP028	0.000	0.000	0.000
TKP031	0.008	0.489	0.000
TKP033	0.000	0.002	0.000
TKP035	0.000	0.000	0.000
TKP051	9.317	8.752	0.001
TKP064	0.000	0.002	0.000

*Because of small sample sizes, membership probabilities of samples within their own groups are misleading; probabilities for these groups to other groups are presented instead.

Table 5-17. *(Continued)*

Red River 2 Compositional Group Membership Probabilities*:

Sample	Titus	Red River	Rusk County
TKP057	0.000	0.000	0.000
TKP063	0.000	0.053	0.000
TKP078	0.000	0.000	0.000
TKP093	0.000	0.000	0.000

Unassigned Sample Membership Probabilities:

Sample	Titus	Red River	Rusk County
EHA016	1.855	0.047	1.534
EHA029	0.194	0.003	0.000
EHA060	0.047	0.001	0.000
EHA067	0.077	0.001	0.000
EHA074	0.022	0.000	0.102
EHA080	0.039	0.001	0.000
EHA082	0.000	0.000	0.000
EHA085	0.000	0.001	0.000
FlV4	0.004	0.000	0.000
F5Vl	0.165	0.002	0.133
TKP005	0.000	0.000	0.000
TKP008	0.000	0.000	0.000
TKP040	0.000	0.001	0.000
TKP052	0.000	0.000	0.000
TKP054	0.001	0.031	0.001
TKPO55	0.000	0.044	0.000
TKP109	1.040	1.760	0.000
TKP113	0.083	0.235	0.000
TKP117	0.027	0.572	0.000
TKP121	0.002	0.000	0.001
TKP124	0.017	0.000	0.459

*Because of small sample sizes, membership probabilities of samples within their own groups are misleading; probabilities for these groups to other groups are presented instead.

clay source of this compositional group, it is clear that a significant amount of pottery was exported from this source in Early, Middle, and Late Caddoan period contexts to sites as far away as Illinois and south central Kansas (see Cogswell et al. 2000; Perttula 2002a). These findings clearly support the hypothesis that prehistoric to early historic Caddo pottery was a widely traded commodity.

Table 5-18. INAA Results from Camp County, Texas, Titus Phase Residential Contexts.

		Probabilities for Membership in Group		
Sample No.	Chemical Group	Titus	Red River	Rusk
TKP110	Titus	86.203	0.000	3.030
TKP111	Titus	86.378	0.000	0.463
TKP112	Titus	94.014	0.037	2.398
TKP114	Titus	98.563	0.021	0.094
TKP119	Titus	64.346	0.000	0.240
TKP120	Titus	43.701	0.079	0.009
TKP121	Unassigned	0.519	0.000	0.000
TKP122	Titus	91.949	0.992	0.284
TKP123	Titus	87.665	0.044	10.948
TKP124	Cypress-2	0.033	0.000	0.000
TKP125	Titus	84.572	0.000	0.197
TKP126	Titus	98.028	2.203	2.116
TKP127	Titus	75.778	0.282	2.757
TKP128	Titus	30.783	0.000	0.894
TKP133	Red River	0.000	0.094	0.000
TKP134	Titus	88.547	0.000	0.293
TKP135	Titus	38.849	0.078	1.582
TKP136	Titus	48.975	0.000	0.089
TKP137	Unassigned	1.066	0.000	1.093
TKP138	Titus	69.536	0.001	0.335
TKP139	Titus	38.502	0.000	0.071
TKP140	Unassigned	0.026	0.000	0.189
TKP141	Titus	87.191	0.001	3.985

Acknowledgments

Cogswell, Neff, and Glascock thank Kari Kipper and R. Jeff Speakman for their assistance in this project. Operating support for the MURR Archaeometry Laboratory is provided by a grant from the National Science Foundation (SBR 95-03035).

TECHNOLOGICAL AND FUNCTIONAL ATTRIBUTES OF THE TITUS PHASE CERAMICS FROM THE PILGRIM'S PRIDE SITE

In this section, our concern is establishing the technological and functional character of the Titus phase ceramic vessel sherds from domestic contexts at the Pilgrim's Pride site. This includes determining how plain ware, fine ware, and utility ware vessels (cf. Schambach and Miller 1984) were tempered (if they were tempered), and what the range in vessel pastes were, along with how they were fired and what forms of surface treatments the vessels had before they were ready to be used for particular tasks (see Appendix X and XI, Vol. II). Also of interest are differences in vessel forms among the three basic classes of vessels (i.e., plain wares, utility wares, and fine wares), and we examine these attributes using rim and lip form as well as rim orifice diameters.

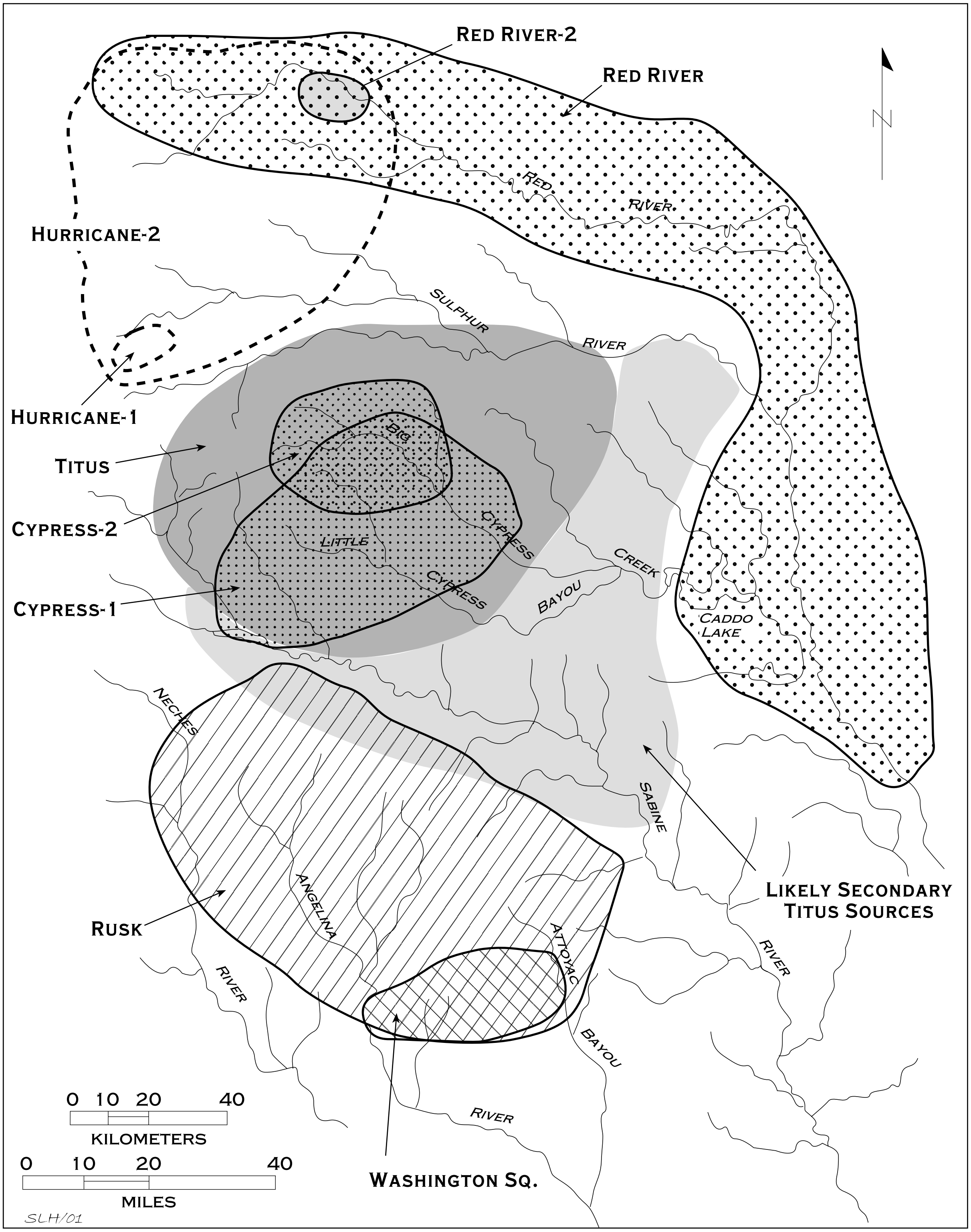


Figure 5-29. Caddo ceramic chemical groups in northeastern Texas defined by instrumental neutron activation analysis, after Perttula (2002a:Figure 5.2).

Recognizing plain wares is self-evident: they are vessels and vessel sherds that are undecorated. Plain rim sherds are included in the plain wares; plain body and base sherds are as well, even though it is likely that they may be from the undecorated portions of decorated utility wares or fine wares. Nevertheless, plain vessels (usually simple bowls and some of the smaller jars) comprise a significant part of the vessel assemblage in the Area V/VI cemetery (see Chapter 6, this volume), and examining the plain body and base sherds as part of the plain wares permits more technological and functional comparisons to be made between the different kinds of vessels used at the Pilgrim's Pride site—even though we add some noise—than would be the case if the plain wares simply were to include plain rim sherds.

Utility wares generally are jars and simple bowls used for the cooking and storage of foods, have a coarse temper, and lack burnishing, polishing, or slipping on exterior vessel surfaces. Such vessel sherds are decorated with brushing, incising, punctations, neck banded, and appliqued elements, either by themselves or in combination with one or more of these decorative methods. Fine wares, conversely, consist principally of engraved, engraved-slipped, and slipped vessel sherds from carinated bowls, compound bowls, some simple bowls, and bottles. The fine ware vessels and vessel sherds more frequently are smoothed, burnished, and/or polished on the exterior vessel surface.

As will become apparent in the discussion that follows, there are clear differences in temper and paste attributes, firing conditions, and surface treatment—as well as the kinds of decorations placed on vessel rims and body surfaces (see above, this chapter)—between the plain wares, utility wares, and fine wares at the Pilgrim's Pride site. These differences can be accounted for by different technological, functional, and stylistic decisions made by the Caddo potters at the site on how to make, fire, finish, and decorate ceramic vessels that were to be used in domestic tasks in the various residential compounds, and that were to also be used for ritual and ceremonial activities at the Area VII mound, the large cemetery in Area V/VI, as well as in certain family cemeteries.

The Titus phase ceramics at the Pilgrim's Pride site were tempered almost exclusively with grog (crushed sherds and/or burned clay pieces), as less than 3% of the vessel sherds do not have any grog temper (Table 5-19). This very high use of grog as a temper is characteristic of Titus phase ceramics in the Titus phase heartland of northeastern Texas (see Perttula 1998a, 1998d, 2000). The non-grog-tempered sherds include 0.4% that have only crushed pieces of burned bone, another 0.5% have only crushed pieces of hematite, 0.2% have hematite and burned bone aplastics, and 0.4% have only a shell tempered paste. The Caddo potters employed 27 different temper-paste combinations in the vessel sherds (including a few sherds [n=5] with no added temper). This would seem to indicate that there were diverse traditions among the Caddo potters at the site in the kinds of temper and paste that were deemed suitable and functional for the manufacture of plain ware, utility ware, and fine ware vessels. There are some differences in temper usage between these three vessel wares, and the possible significance of these differences is discussed below.

The high frequency of grog-tempered pottery among all wares at the site was almost certainly a deliberate attempt on the part of the Caddo potters to slow the oxidation process of the ceramic vessels during firing. This would have created darker-colored vessels in the reducing environment, while allowing them to be fired longer, producing a harder ceramic vessel (Rice 1987:354; Teltser 1993:532, 540). Since grog temper, especially finely crushed grog as seen in much of the fine wares, has expansion coefficients comparable to the coefficients of the clay paste, this would have further contributed to the ability of the fired vessels to withstand heat-related stresses, as well as increasing their flexural strength (Rice 1987:362).

Table 5-19. Tempering Inclusions in Titus Phase Residential Ceramic Assemblages.

Temper/paste categories	Plain ware	Fine ware	Utility ware
grog/clay	41.9*	36.8	47.1
grog-organics/clay	4.4	15.9	8.4
grog-organics/SP	1.0	3.1	0.8
grog/silty	0.2	0.9	1.0
grog/SP	22.4	12.6	16.1
sub-total, grog	69.9	69.3	73.4
grog-hematite/clay	15.6	13.8	15.2
grog-hematite/SP	6.6	5.2	2.3
grog-hematite-organics/SP	0.2	0.0	0.0
grog-hematite-organics/clay	1.0	5.2	3.4
sub-total, grog-hematite	23.4	24.2	20.9
grog-bone/clay	2.7	1.5	2.8
grog-bone/SP	0.3	0.0	0.1
grog-bone-organics/clay	0.4	0.9	0.7
sub-total, grog-bone	3.4	2.4	3.6
grog-bone-hematite-organics/clay	0.0	0.6	0.1
grog-bone-hematite/clay	0.9	0.6	1.0
sub-total, grog-bone-hematite	0.9	1.2	1.1
bone/clay	0.4	0.0	0.1
bone/SP	0.1	0.0	0.0
bone-organics/clay	0.0	0.3	0.1
bone-organics/SP	0.1	0.0	0.0
sub-total, bone	0.6	0.3	0.2
hematite/clay	0.3	0.0	0.0
hematite-organics/clay	0.0	0.6	0.1
hematite-organics/SP	0.1	0.0	0.0
hematite/SP	0.3	0.0	0.0
sub-total, hematite	0.7	0.6	0.1
bone-hematite/clay	0.2	0.0	0.1
bone-hematite-organics/clay	0.1	0.0	0.0

Table 5-19. *(Continued)*

Temper/paste categories	Plain ware	Fine ware	Utility ware
sub-total, bone-hematite	0.3	0.0	0.1
shell/clay	0.4	1.5	0.0
no temper/SP	0.3	0.0	0.1
no temper/silty paste	0.0	0.3	0.0
total % with SP	31.4	20.9	19.4
Totals	1361	326	706

*percentage; SP= sandy paste

Vessel sherds strictly with grog temper are most abundant among the utility wares, followed by the plain wares (see Table 5-19), highlighting the need to produce the most durable vessels among these wares. Coarse sandy paste grog-tempered sherds are also more abundant in these two vessel wares. The addition of bone (5.2% in the plain wares, 3.9% of the fine wares, and 5.0% of the utility wares) and especially hematite (25.6% of the plain wares, 26.0% of the fine wares, and 22.2% of the utility wares), the other principal aplastics (see Table 5-19), would have made the clay more plastic and increased its strength or use life.

The use of hematite as a temper may also have served the same purpose as feldspars, which are often found together in the paste of Caddo vessels (see Perttula 2000; Skokan and Perttula 1998). The occurrence of fine grains of these minerals in the paste would have enhanced a vessel's ability to melt and fuse the paste constituents during firing, resulting in a dense, hard body and a reduced porosity.

There is little overall difference between the three wares in the use of bone or hematite pieces as temper, as these together range between 27.2-30.8% of the sherds (see Table 5-19). All in all, the various temper and paste combinations were well suited to the manufacture of a variety of relatively hard and durable vessel forms in all three vessel wares.

Many of the fine ware sherds have charred organic materials in the paste (see Table 5-19), quite a bit more than in either the utility ware or plain ware sherds. The presence of charred organic materials in 26.6% of the fine wares (compared to 7.1% of the plain wares and 13.6% of the utility wares) indicate that a substantial proportion of the fine ware vessels were not fired at high temperatures and/or not fired for a long duration (although this was counteracted by the considerable addition of crushed pieces of hematite to the paste), and thus the organic materials naturally present in some of the chosen clays did not have a chance to be completely burned off during firing.

Between 19.4% and 31.4% of the vessel sherds have a sandy paste (see Table 5-19), suggesting the regular use of a sandy clay for vessel manufacture along with the use of other local clay sources. The highest proportion of sandy paste sherds (31.4%) are found in the plain wares, and this ware also has the highest proportions of crushed hematite and bone-tempered sherds in the assemblage. First of all, the relatively high amounts of quartz sand in the paste of all three vessel wares is probably related to the Caddo potters at the site being able to better control the making and firing of harder and more durable vessels, whether they were decorated carinated bowls and bottles, jars, or plain bowls. The utility wares and fine wares, on the other hand, have 19.4-20.9% sandy paste sherds. These differences between the three wares suggests that the Caddo potters were making some plain ware vessels that were designed for uses that were not met by either the utility wares or the fine wares, though what those uses are is not particularly apparent. In general, sandy clays held up well to heat-related stresses and would have helped with vessel porosity and thermal conductivity, which would have been ideal for vessels used for the heating and cooking of foods and liquids (see Rice 1987, 1996). It appears that a goodly share of the plain wares were used in such tasks; further support for this argument comes from the fact that some 2.4% of the plain ware sherds (see below) did have organic residues on one or both sherd surfaces.

Only a few sherds (about 0.1%) at the site have shell temper, and these are found in Area I (n=7), Area II (n=1), Area VII (n=3), Area VIII (n=1), and Area IX (n=1); the relatively high frequency of shell-tempered sherds in Area I and Area VII is notable. Six of the sherds are plain body sherds, one is brushed (Brushed El. 1), four have a red slip on interior and exterior surfaces, and two have engraved decorations (Engraved El. 1 and El. 5). The highest frequency of shell-tempered sherds in the detailed analysis sample of 2363 sherds (see Table 5-19) occur among the fine wares (1.5%), followed by the plain wares (0.4%).

Shell-tempered pottery was not made by Titus phase Caddo potters, but it was apparently obtained in trade from other Caddo groups (most notably among Belcher phase groups along the Red River in the Great Bend area to the east or up-river and north of the Pilgrim's Pride site among the McCurtain phase Caddo), though not with any regularity. Some 3% of the vessels in the Area V/VI cemetery are shell-tempered (see Chapter 6, this volume). The red-slipped shell-tempered pottery is probably from Roden ware or Clement Redware, a local McCurtain phase ceramic type, or from the undecorated portions of red-slipped Avery Engraved or Simms Engraved vessels. The Engraved El. 5 shell-tempered sherd (found on the surface by the Area VII mound) is also red-slipped, and probably is from an Avery Engraved carinated bowl. The provenance of the shell-tempered brushed pottery is less obvious, since brushed pottery was not a feature of McCurtain phase ceramics, but shell-tempered Karnack Brushed-Incised pottery is found in Belcher phase components on the Red River (see Webb 1959; Kelley 1997), to the east of the Pilgrim's Pride site some 100 km.

Determining the firing atmosphere—the conditions of temperature, duration of firing, clays with different organic contents, or the amount of oxygen available at the time of firing—is based on the identification of the firing core in the sherd cross-sections and the identification of oxidation patterns as defined in Teltser (1993:535-536 and Figure 2). Observations of the core colors in ceramic sherd cross-sections permit consideration of oxidation patterns (Figure 5-30), and thus the conditions under which the vessel was fired and then cooled after firing. Vessels fired in a high oxygen environment include core colors A, C-E, I-L in Figure 5-30; with the exception of sherd cross-section attribute A, the others are from vessels that were incompletely oxidized during firing. Sherd core attributes B, F-H are from vessels that were fired in a low oxygen or reducing atmosphere (i.e., probably smothered in a bed of coals or other fuels), but vessels with attributes F-H were then pulled from the fire and allowed to cool in the open air; this cooling led to the formation of thin oxidized areas along either one or both sides of the vessel surface (see Figure 5-30).

Most of the ceramic vessels made and used at the Pilgrim's Pride site were fired in a reducing or low oxygen environment—probably smothered in a bed of coals from a wood fire. Between 63.2% and 89.3% of the 1497 sherd samples from the three wares were fired in this way (Table 5-20). Most of them were subsequently cooled in a high oxygen environment, probably meaning that the fire-hardened vessel was removed from the fire to cool. Between 5.4-18.7% of the vessel sherds were fired in a high oxygen or oxidizing environment, particularly the plain wares and the utility wares, with the remainder (4.7-14.8%) incompletely oxidized during firing; some 0.7-3.1% may have been deliberately smudged after firing in a high oxygen environment (see Figure 5-30i-l). The dominance of reduced firing conditions in the sherd assemblage (and even more so in the whole vessels from the Area V/VI cemetery, see Chapter 6, this volume) strongly suggests that the Caddo potters were able to successfully regulate the firing and cooling temperatures for the three wares, especially the fine ware vessels.

Table 5-20. Firing Conditions.

Firing Conditions	Fine ware	Utility ware	Plain ware**
Oxidizing (A)	5.4*	13.5	18.7
Incompletely oxidized (C-E)	4.7	10.7	14.8
Possible smudging (I-L)	0.7	1.5	3.1
Reducing (B)	37.3	23.2	17.2
Reducing, but cooled In open air (F-H)	52.0	50.9	46.0
Totals	279	672	546

*percentage
**sample from data recovery investigations only

The highest frequency of vessel sherds fired in a reducing environment, and either cooled in low or high oxygen environments, occurs among the fine wares, where 89.3% of the sherds were fired and cooled in this manner (see Table 5-20). These sherds also have the lowest percentage of sherds fired in an oxidizing environment, or incompletely oxidized during firing, while the plain wares have much higher percentages (33.5%) of sherds from vessels fired in an oxidizing environment or incompletely oxidized during firing. The utility ware sherds are intermediate between the other two wares (see Table 5-20).

The information on firing conditions in the sherds from the three different vessel wares indicate that there were significant changes in how the three wares were fired, further differentiating the three basic vessel classes, and supporting the notion that the plain wares are more than just an amalgamation of the undecorated sherds from the fine ware and utility ware vessels, but a distinct vessel ware in its own right. The comparison of sherd firing conditions suggests that the fine ware sherds were from vessels that were better made and better fired (i.e., in terms of regulating the firing temperature) than the plain wares and utility wares, and probably also fired longer in a low oxygen environment, with more control over the end product, producing a harder ceramic. These vessels were made to have a lengthy use-life, perhaps for use over several years. The more heterogeneous firing conditions of the utility ware and plain ware vessel sherds is likely the result of the multi-purpose nature of these vessel forms, as they were being used more often as cooking pots and sturdy containers. As long as the porosity of the utility wares and the plain wares was not excessive, they did not need to be fired for as long a time or with as carefully regulated a firing temperature as the harder fine wares to be quite serviceable over time without being subject to diminished strength from cumulative thermal fatigue as well as cracks and fractures. These vessel wares probably had a shorter use-life than the fine wares, and were more readily replaced through regular use, breakage, and discard.

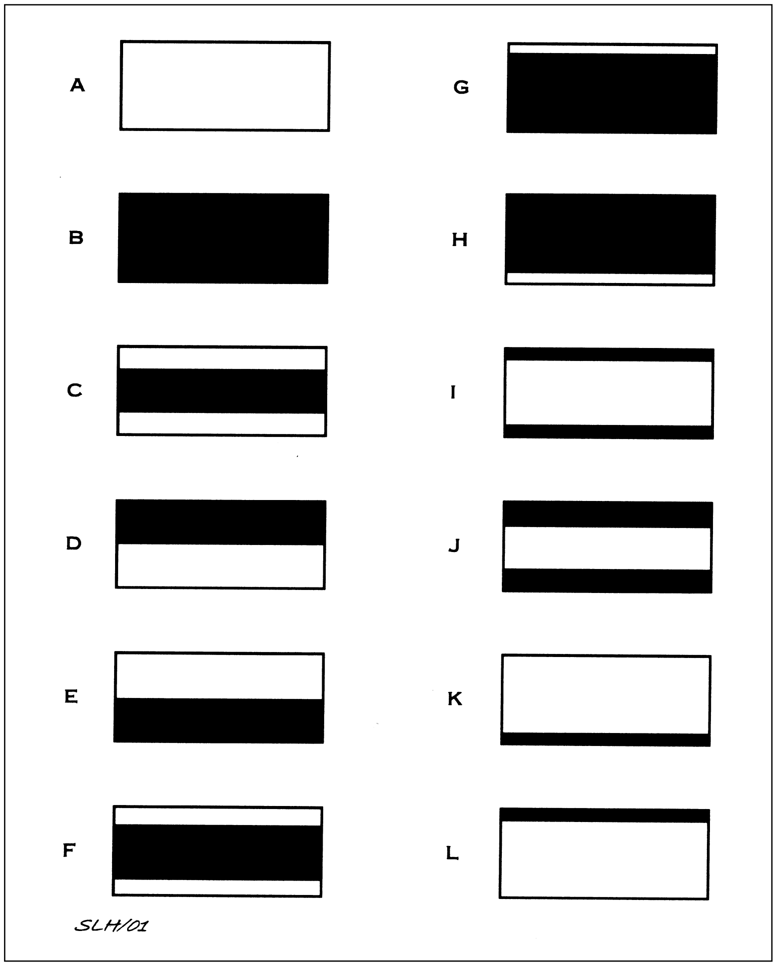


Figure 5-30. Firing conditions observed in sherd cross-section, after Teltser (1993:Figure 2a-h); i-l are unique to this sherd assemblage.

The surface treatment of the vessel sherds from the Pilgrim's Pride site includes smoothing, burnishing, and polishing (Rice 1987: 138). A few sherds also have scraping marks from the initial surface treatment activities. Brushing is considered a form of decorative treatment rather than solely a functional surface treatment (cf. Rice 1987:138), although a roughened and brushed pot would have been easier to pick up and carry than would unroughened or smoothed vessels. Smoothing creates a "finer and more regular surface. . . [and] has a matte rather than a lustrous finish" (Rice 1987:138). Burnishing, on the other hand, creates an irregular lustrous finish marked by parallel facets left by a burnishing tool (perhaps a pebble or bone). A polished surface treatment is marked by a uniform and highly lustrous surface finish, done when the vessel is dry, but without "the pronounced parallel facets produced by burnishing leather-hard clay" (Rice 1987:138).

Also noted is the presence and location of organic residues and charred organic remains, probably the remnants of cooking use (e.g., Skibo 1992).

Many of the plain and/or decorated sherds recovered in domestic contexts at the Pilgrim's Pride site retained evidence of the smoothing, burnishing, and/or polishing on interior and/or exterior vessel surfaces (Table 5-21). Among the decorated utility wares, almost 38% of the sherds have been smoothed on the interior surface, compared to less than 4% smoothed or burnished on exterior surfaces; none were polished. This smoothing was done presumably to lower the permeability and increase the heating effectiveness of particular vessels during their use as cooking and/or storage pots (cf. Rice 1996:148). Only 1.9% have

Table 5-21. Surface Treatment.

Surface Treatment	Fine ware	Utility ware	Plain ware
int. smoothed	34.6*	37.7	27.6
ext. smoothed	39.2	1.4	24.3
int. burnished	16.8	2.0	1.8
ext. burnished	24.2	0.4	6.2
ext. polished	3.1	0.0	0.5
int. polished	2.1	0.0	0.1
int. scraped	0.0	0.1	0.8
ext. scraped	0.0	0.0	0.3
int. organic residues	1.8	1.6	1.5
ext. organic residues	0.6	0.3	0.9
Totals	327	695	1361

*percentage

remnants of organic residues on interior or exterior vessel surfaces. In better preserved Caddo ceramic assemblages, such as the whole vessels from the Area V/VI cemetery or those from the Mockingbird site (Perttula et al. 1998), more than 17% of the vessels had preserved organic residues or charred plant remains adhering to interior or exterior vessel surfaces. These assemblages of vessels from mortuary contexts also had 40-60% of the vessels with smoothed, burnished, or polished interior or exterior vessel surfaces (see Perttula 2000:Table 3), which is not much different than the sherds from residential contexts at the Pilgrim's Pride site.

The decorated fine wares are much more frequently smoothed on the exterior surface than the utility wares (39% compared to 1.4%) as well as more commonly burnished on either interior (16.8%) or exterior (24.2%) vessel surfaces; between 2.1-3.1% of the fine wares also have polished vessel surfaces (see Table 5-21). The roughly equivalent smoothing and burnishing of interior and exterior surfaces of the fine wares (not including the bottles, which have a roughened interior vessel body) indicates that the fine wares were not used for cooking purposes, but probably to hold and serve foods and liquids. The smoothed and burnished interior surfaces would certainly have been advantageous in the repeated use of such serving vessels, whether for individual family use or in community feasting activities. The exterior smoothing, burnishing, and polishing (66.7% of the fine wares had one of these forms of surface treatment) seems to have been designed for stylistic and display purposes, creating a flat and lustrous appearance that would have been well-suited to highlight during use the distinctive engraved and/or slipped exterior surfaces of the fine ware vessels.

Almost 2.5% of the fine ware sherds have an organic residue on them (more than for the utility wares, at 1.9%), although the material source of the residue was has not been established. These residues are not the remnants of charred plant remains, but thin, sticky, varnish-like residues from the specialized use (and/or discard?) of a few fine ware vessels.

The surface treatment on the plain ware sherds is an amalgam of the utility ware and fine ware sherds in the Pilgrim's Pride assemblage. Approximately 6.2% of the plain rim and body sherds are burnished on the exterior surface, which is four times less frequent than in the fine wares, compared to only 1.8% of the interior vessel surfaces. Nevertheless, burnished surfaces in the plain wares are more than three times more common than are burnished surfaces in the utility ware sherds (see Table 5-21), and 0.6% also have polished sherd surfaces. Between 24-28% of the interior and exterior surfaces of the plain ware sherds are smoothed, somewhat less than in the fine wares, but more comparable in surface treatment than they are to the utility wares, as less than 2% of the latter are smoothed on the exterior surface. Taken together, this suggests that some of the plain wares were treated as fine wares—being well-smoothed and/or burnished and polished—and probably were also used for the serving of foods and liquids; some plain wares were probably also employed in more mundane household activities.

Rim and lip form classifications follow the system developed by Brown (1996:Figure 2-12). Rim profiles include outflaring or everted; vertical or direct; and inverted, as well as whether the rim is thickened to one vessel side or the other. The basic lip profiles in the vessel sherd assemblage are rounded and flat, along with whether the lip itself has been rolled or folded to the interior or exterior. Although most of the vessel sherds have indeterminate vessel forms, where sherds are large enough, vessel form categories include open containers such as bowls, carinated bowls, and compound bowls, and restricted containers (jars and bottles). As restricted containers, jars allow access by hand, but bottles do not (Brown 1996:335).

In the detailed analysis of sherds from Titus phase residential areas at the Pilgrim's Pride site, there are 369 rim sherds in the sample. More than 54% are plain (or at least plain along the rim) with the remainder from decorated utility ware and fine ware vessels (Table 5-22).

The fine ware vessel rims are predominately direct or vertical in profile, with rounded lips (76.1%), while 48.5% of the plain wares and only 34.3% of the utility wares have this form of rim and lip shape. Many of the fine wares also have exterior folded lips, a common form of lip treatment on Late Caddo carinated bowls throughout much of the Caddoan archeological area. Plain wares also have many direct rims with flat lips (17.3%), but the other two vessel wares have between 6.0-7.5% flat lips; interior thickened rims are confined to the plain wares (1.5%), although this is a minor vessel rim/lip treatment in vessels found in residential contexts. Everted rims are primarily found on utility ware vessels (33.0%). The everted or outflaring rim (whether with a rounded or flat lip) is a common form of rim/lip treatment on cooking vessels in Middle and Late Caddo assemblages in the region. These forms of rim and lip treatment on cooking vessels would have facilitated the stirring of vessel contents, as well as the pouring and emptying of those contents into serving vessels (bowls, carinated bowls, and compound bowls with tall and straight rims relative to their orifice diameter, thus ideally suited to hold food stuffs and liquids without spilling) or onto trash middens.

In the residential areas, the utility wares are larger in size and orifice diameter, on average, than either the plain wares or fine wares, based on a sample of 231 measurable rim sherds. The mean orifice diameter of the utility wares (21.8 cm) is 14-18% larger than the other vessel wares (Table 5-23), even though there are examples among the different wares in each of the orifice diameter classes. Plain ware vessels tend to be predominant among the 6-10 and 11-15 cm orifice diameter classes, and these are from small jars and medium-sized bowls and jars, as well as in the 21-25 cm class (medium-sized vessels). Fine wares, on the

Table 5-22. Rim and Lip Forms.

Rim/Lip forms	Plain ware	Fine ware	Utility ware
direct-rounded	26.2*	32.8	23.0
direct-rounded, ext. folded	21.3	43.3	11.0
direct-rounded, int. thickened	1.0	0.0	0.0
subtotal	48.5	76.1	34.0
direct-flat	9.9	6.0	4.0
direct-flat, ext. folded	6.9	1.5	2.0
direct-flat, int. thickened	0.5	0.0	0.0
subtotal	17.3	7.5	6.0
everted-rounded	9.4	4.5	22.0
everted-rounded, ext. folded	1.0	0.0	8.0
everted-flat	0.5	0.0	3.0
subtotal	10.9	4.5	33.0
inverted-flat	0.0	0.0	1.0
inverted-rounded, ext. folded	0.5	0.0	0.0
inverted-rounded	0.5	0.0	0.0
subtotal, inverted rims	1.0	0.0	1.0
—rounded	12.4	4.5	10.0
—rounded, ext. folded	6.4	1.5	14.0
—flat	1.0	6.0	1.0
—flat, ext. folded	2.5	0.0	1.0
Totals	202	67	100

*percentage

other hand, tend to be most abundant in the 16-20 cm orifice diameter class in domestic contexts, as are the utility wares (see Figure 5-23). Where the vessel wares are most readily distinguishable is in the proportion of large vessels (26-30 cm and 31-40 cm orifice diameter classes): 27.6% of the utility wares are large vessels, compared to 15.6% of the fine wares and only 10.0% of the plain wares (see Table 5-23). All in all, it is readily apparent that small, medium, and large-sized vessels were being made and used in domestic contexts at the Pilgrim's Pride site. None of the wares even closely approach the "spectacularly large" size of vessels found on the floors of burned Caddo houses at the early 15th century Tom Jones site (3HE40) in Hempstead County, Arkansas (Schambach 2002a:7; Rogers and Sabo 2004: Figure 2).

Table 5-23. Orifice Diameters.

	Residential areas			Burials		
Orifice Diameter (cm)	Fine ware	Utility ware	Plain ware	Fine ware	Utility ware	Plain ware
6-10 cm	4.9*	1.6	10.0	4.0	10.7	18.8
11-15 cm	20.3	12.6	22.5	32.0	46.4	43.8
16-20 cm	42.2	33.8	25.0	36.0	35.7	31.3
21-25 cm	17.2	24.4	32.5	2.0	3.6	3.1
26-30 cm	12.5	15.0	10.0	10.0	0.0	0.0
31-40 cm	3.1	12.6	0.0	16.0	3.6	3.1
Totals	64	127	40	50	28	32
Mean orifice diameter in cm	19.1	21.8	18.3	19.5	15.4	15.0

*percentage

Vessels included as funerary objects in the Area V/VI burials tend to be quite a bit smaller in size than those from residential areas, with the exception of the fine wares (see Table 5-23). The fine wares in burials are 0.4 cm larger in diameter, on average, but the utility wares are 6.4 cm smaller in average orifice diameter; plain ware vessels are 3.3 cm smaller in average orifice diameter. We can speculate that the larger size of the fine wares in the Titus phase burials when compared to fine wares in domestic contexts was because they held served foods for the deceased to use on their journey to the after-life, and it was important that enough served foods be available, hence the slightly larger size of these particular fine wares. With fine wares in domestic contexts, once the served foods had been consumed, they could be readily filled with another serving, so that their absolute size was less important in this life than in the next. It was also important to have large fine ware vessels for domestic use, especially in feasting activities throughout the community.

The smaller size of the utility wares and plain wares from mortuary contexts is also interesting, but the explanation for the size differences between residential and mortuary contexts is not readily apparent. It is often the case that the smaller vessels from Titus phase burials are found in the graves of children and adolescents, but if this size factor was the primary factor accounting for the residential vs. mortuary differences, we would expect smaller sizes across all three wares, including the fine wares, and this is not the case at the Pilgrim's Pride site (see Table 5-23). Perhaps the smaller utility wares and plain wares had less of a role to play in domestic cooking and serving activities than they did in mortuary contexts, and it may have been the case that the smaller utility wares and plain wares found in burials were more often made strictly to be used in mortuary rituals rather than in domestic tasks.

Daub and Burned Clay

Pieces of daub and burned clay are relatively abundant in residential contexts at the site, although found in nowhere near the densities documented in the burned and buried structure in the Area VII mound (see Chapter 8, this volume). Most of what was recovered were only small pieces of burned clay in various features, and only a few pieces of daub from Area I, II, and IX (Table 5-24). All told, the excavations in the residential areas recovered only nine pieces of daub and 722 pieces of burned clay, weighing 386.4 grams.

Table 5-24. Burned Clay and Daub from Residential Contexts.

	Daub		Burned Clay	
Provenience	No.	g	No.	g
Area I				
F. 3	–	–	161	60.5
F. 11	–	–	27	2.8
F. 61	–	–	108	18.4
F. 104	–	–	11	0.6
F. 106	–	–	1	0.7
F. 125	–	–	37	102.3
F. 1-103	1	5.0	–	–
F. 1-166	–	–	219	66.0
F. 1-167	–	–	40	4.9
F. 1-171	3	1.5	79	11.8
F. 1-210	–	–	5	3.5
Structure 1	–	–	2	19.3
Unit 22, 10-20	1	4.1	–	–
Subtotal	5	10.6	690	287.8
Area II				
F. 210	–	–	3	2.7
F. 218	1	0.2	13	1.1
F. 254	–	–	2	0.1
Subtotal	1	0.2	18	3.9
Area III				
F. 394	–	–	9	0.8
Area VIII				
F. 808	–	–	4	4.6
General surf.	–	–	1	45.2
Area IX				
N630 E540	1	4.3	–	–
Miscellaneous Surface				
N580 E690	1	5.0	–	–
N658 E678	1	24.0	–	–
Total	9	44.1	722	342.3

In Area I, the burned clay came primarily from small and large cooking pits in midden areas; these pits all have dark charcoal-stained fill. These pits include Fea. 3 (1.2 m diameter pit), Fea. 61 (112 x 61 cm pit), Fea. 125 (30 cm in diameter pit), Fea. 1-166 (47 cm in diameter pit), Fea. 1-167 (32 cm diameter), and Fea. 1-171 (45 cm in diameter).

CHIPPED STONE ARTIFACTS FROM TITUS PHASE FEATURES IN RESIDENTIAL AREAS

by Steve A. Tomka

Area I Lithics

Feature 3

Three unmodified lithic debitage and a diminutive Perdiz point were recovered from this pit containing charcoal–stained sandy loam fill. Two other pieces of lithic debitage from 10-20 cm bs in Unit 7 may also be associated with Fea. 3; these are non-cortical pieces of a dark grayish-brown chert and ferruginous sandstone.

One of the flakes and the arrow point are of pinkish-gray mottled fine-grained quartzite. The other fine-grained quartzite flake is dark gray. All of the quartzite specimens are of local origin. The third flake is of dark olive green non-local fine-grained chert. The nearest source of this chert is in the secondary deposits of Red River gravel bars (cf. Banks 1990). The dark-gray quartzite and the non-local chert both appear to represent platform preparation debitage and suggest that both locally available and non-local materials were brought onto the site as unprepared cores.

The small Perdiz point appears to have been made on a bladelet (Figure 5-31e). With the exception of the pointed stem, which is fully bifacially flaked, the ventral face of the blank was only marginally retouched. The point is in nearly pristine condition, missing only a small portion of the distal end. The point is 21 x 9 x 4 mm in length, width, and thickness, and has a 4.6 mm stem width.

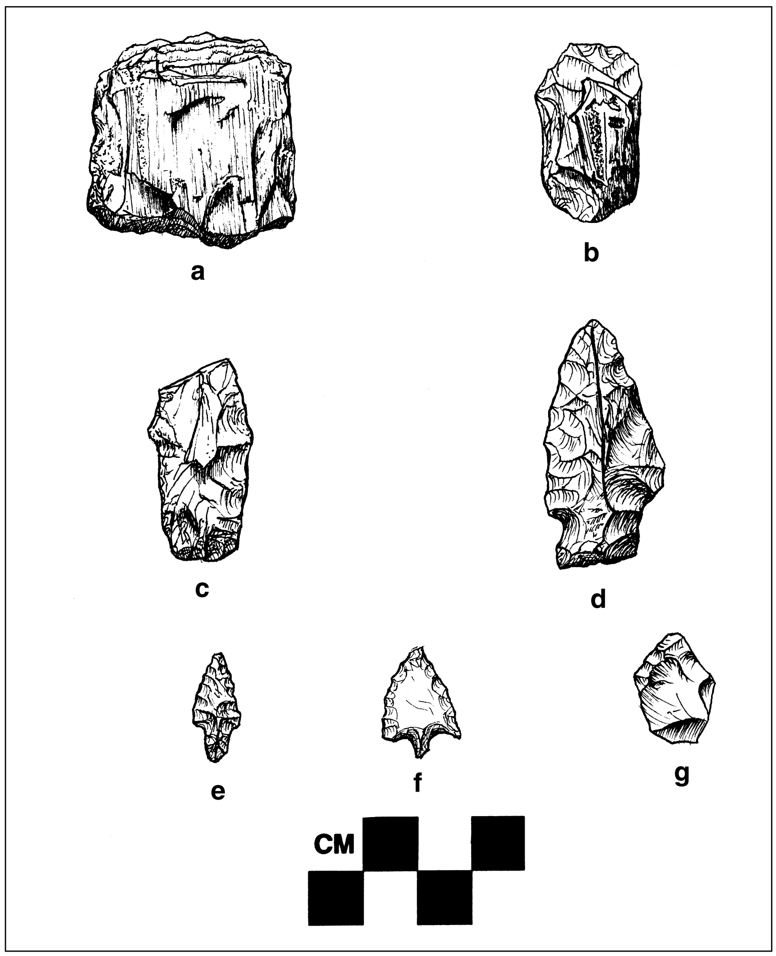


Figure 5-31. Chipped stone tools from Titus phase features: a, gouge; b, biface; c, Wells dart point; d, Yarbrough dart point; e, Perdiz arrow point; f, Bassett arrow point; g, flake tool. Provenience: a, Fea. 206; b, Fea. 325; c, Fea. 343; d, Fea. 317; e, Fea. 3; f, Fea. 1-130; g, Fea. 4.

Feature 8

Nineteen unmodified lithic debitage were recovered from Fea. 8, along with a celt (see discussion of "Ground stone Tools," below). Of these, 13 (68%) are fine to medium-grained quartzite specimens, four are fine-grained cherts, one is a silicified wood piece, and one is gray novaculite. Reddish-brown specimens dominate the quartzite specimens (n=92% of the 13 quartzite debitage), with only one falling in the dark gray category. With two exceptions the quartzite debitage derives from early to middle reduction stage platform/core preparation. One of the exceptions is a multi-faceted proximal fragment with a complex dorsal flake scar pattern resulting from biface manufacture. The second quartzite flake is a probable notching flake removed early in the notching process.

Of the fine-grained chert debitage two are yellow to yellowish-green in color. One is a primary flake while the other is secondary. A banded red chert flake and a gray chert with white specks or inclusions round out the chert debitage. Both reflect platform preparation activities. The single petrified wood debitage is of poorly silicified wood and appears to derive from platform preparation. The angular dark gray novaculite debris may represent the unifacially retouched edge of a scraper. Moderate polish on the leading dorsal face and the adjacent ventral surface, as well as the unifacial retouch, signifies the scraper derivation of the specimen.

Feature 61

A tertiary distal flake fragment was recovered from this pit. The specimen is of heat-treated, locally available, fine-grained quartzite. Although the pit appears to have been some type of thermal facility (e.g., a possible hearth, see Chapter 4, this volume), the lack of heat spalling on the specimen suggests that it was not introduced into the pit prior to or while the feature was in use.

Feature 125

A single tertiary flake of yellow claystone/siltstone was found in this small pit feature. Such lithic material is probably non-local, and more likely to be found in the Red River gravels than in local gravel sources.

Feature 136

A tertiary proximal flake fragment was recovered from this small pit. The light gray fine-grained quartzite is of local origin and does not appear to have been heat treated. It may be the product of middle to late reduction stage biface manufacture.

Feature 139

A large (35 mm) fine-grained quartzite distal flake fragment was recovered from this post hole. The yellowish-gray material is locally available but the size of the specimen suggests a relatively large core or cobble mass. The lack of longitudinal curvature also suggests that the specimen may derive from the early stages of biface manufacture or it may be the product of flake blank manufacture from a multi-directional core. The dorsal face of the flake fragment exhibits two dull flake scars and a lustrous scar. The ventral face of the flake is also lustrous. This type of patterning derives from the heat treatment of a prepared core/biface and its subsequent reduction (i.e., staged heat treatment). Such an approach to heat treatment is more desirable since it would likely result in the sufficient heat treatment of the raw material compared to a larger, thicker, corticate piece.

Feature 143

A tertiary proximal flake fragment was recovered from this post hole. The medium-grained-quartzite material is locally available. The specimen may be the product of bifacial reduction. The material appears to have been heat treated.

Feature 178

One tertiary flake of dark brown chert came from this small pit in Area I. Cherts with this color are suspected of being of non-local origin, perhaps either from a Central Texas source or a Red River gravel source.

Feature 192

A small (36 x 27 x 14 mm) quartzite pebble was recovered from this post hole. It does not appear to have been modified, other than perhaps a bit of smoothing or polishing, and given its small size it is unlikely that it would have been used as a post wedge.

Feature 1-121

A complete primary coarse-grained quartzitic sandstone flake was recovered from the midden deposit remnant. Judging from pecking and battering marks and the microscopically striated dorsal surface of the specimen, it may represent a flake detached from a celt or removed from a recycled mano. The dark gray quartzitic sandstone is probably of non-local origin (i.e., its source may be the Ouachita Mountains in southeastern Oklahoma or the Red River gravels) and has not been heat-treated.

Feature 1-128

A tabular fragment of a poorly silicified petrified wood was encountered in the fill of this burial pit. Although the two ends of the specimen are broken, the breaks do not appear to be cultural.

Feature 1-130

A small triangular Bassett arrow point was recovered from this small pit (see Figure 5-31f). It is made on a yellowish-brown fine-grained chert corticate flake blank. While the short pointed base is bifacially flaked, the remainder of the specimen is only marginally retouched. The dorsal face of the specimen still retains a large portion of the parent flake's corticate surface. One barb was broken in manufacture and the distal tip is missing a small portion. The point may have been functional and no particular technological or functional indication exists of why it was discarded. The Bassett point measures 19 x 14 x 2.6 mm in length, width, and thickness, and has a 2.4 mm stem width.

Feature 1-134

A complete tertiary fine-grained quartzite flake and a thin tabular silicified wood fragment were recovered from this pit filled with charcoal flecks and pieces of burned bone. With the possible exception of slight burning, the silicified wood specimen that was found on the surface of the feature does not appear to be modified. The quartzite flake is of locally available (yellowish-gray) heat-treated material. It may be the product of early to middle reduction stage biface manufacture.

Feature 1-163

A distal primary flake fragment was encountered in this small pit. The corticate, medium-grained quartzite was heat-treated, thus indicating that unprepared cores also were heat-treated at the Pilgrim's Pride site. The flake, produced from locally available raw material, may be the product of core/platform preparation.

Feature 1-165

A small burned quartzite nodule (weighing 0.1 kg) and a heat treated fine-grained chert flake were recovered from this post hole. The nodule has not been modified by chipping. The complete flake may be the product of platform preparation and/or the manufacture of a partially reduced blank. It has a gray-brown color with light blue oval fossiliferous inclusions and may be of non-local origin, perhaps from a Central Texas source.

Feature 1-167

Two fine-grained quartzite flake fragments have been found in this small pit. One is a distal yellowish-gray secondary specimen that does not appear to have been heat-treated. The second is a yellowish-red tertiary medial fragment with signs of heat treatment. The secondary specimen may be the product of core/platform preparation.

Feature 1-171

Two small to medium sized natural quartzite pebbles, two angular pieces of debris, and three lithic debitage were recovered from this small, flat-based pit. The two angular debris consist of locally found coarse-grained quartzite and fine-grained chert. The debitage consist of two chert specimens, a light gray tertiary proximal flake fragment and a red corticate complete flake (this material resembles jasper or claystone/siltstone from Red River gravels). The proximal fragment may derive from tool rejuvenation while the red specimen is from core/platform preparation. The first may be of non-local origin while the second is probably locally available raw material. The medium-grained quartzite flake fragment may derive from the rejuvenation of a tool made of locally available raw material.

Feature 1-174

A large proximal tertiary flake fragment from thinning a biface was encountered in this post hole. The fine-grained chert specimen has a white color that may be the result of heavy patina. Its large size, and blade-like morphology, are unusual within the lithic debitage from the site.

Feature 1-176

A rounded-based proximal biface fragment was recovered from this small pit. The small fragment appears to have been broken during manufacture along an imbedded fracture line. The red fine-grained chert used in its manufacture is probably of local origin. The specimen most likely represents a manufacture failed arrow point blank, and is 5 mm in thickness and 14 mm in width.

Feature 1-179

A small complete silicified wood flake was recovered from this post hole. The tertiary specimen is well silicified and has a corticate platform. The flake may represent debris from the manufacture of silicified wood artifacts similar to the Harvey/Mineola or Bronson bifaces that are commonly found in Late Archaic and Late Prehistoric assemblages from East and northeastern Texas (see Jelks 1965; Story 1965).

Feature 1-193

A proximal flake fragment of well-silicified petrified wood was recovered from the matrix found in this post hole, along with a tertiary flake of brown chert. The raw material is likely to be of local origin. Both specimens may represent middle to late reduction stage biface manufacture.

Feature 1-210

Nine pieces of debitage, a silicified wood fragment, and a small piece of sandstone debris have been found in the fill of this large pit. Six of the debitage are fine-grained quartzite, two are fine-grained chert, and one is clear glass. Five of the six quartzite specimens have lustrous dorsal and ventral faces while one has a dull dorsal face but a lustrous ventral face indicative of removal from a stage heat-treated artifact. These specimens represent core/platform preparation. Both of the fine-grained chert specimens are non-local; one is white in color and the other is olive green, perhaps the green variety of Big Fork chert (cf. Mallouf 1976). They are the products of biface thinning.

There is no doubt that the clear glass proximal flake fragment is the product of intentional chipping. It may represent an intrusive specimen from a historic period component or it might indicate that the occupants of the site had access to some Euro-American goods during the latest period of site occupation (ca. A.D. 1600).

Feature 1-231

A heat spall and a tertiary medial flake fragment were recovered from this small pit. Both are of fine-grained quartzite. The flake fragment is of heat-treated raw material. It may represent core/platform preparation debris or late reduction stage and/or tool rejuvenation debitage.

Feature 1-232

A single complete fine-grained quartzite flake has been found in this post hole. The secondary specimen appears to be the product of core/platform preparation. Luster on the dorsal and ventral faces of the flake is indicative of heat treatment, even though the flake is partially corticate.

Structure 1

Troweling of the Structure 1 area to expose wall and support posts, a small number of lithic artifacts were found in this part of Area I (see Figure 4-12). One artifact was a ferruginous sandstone mano fragment, with smoothed and flat grinding areas on one surface of the ground stone tool. The remainder (n=12) are pieces of knapping debris, including one fine-grained quartzite core fragment, a non-cortical piece of novaculite, fine-grained quartzite lithic debris (n=5), and coarse-grained quartzite lithic debris (n=5). Fifty percent of the quartzite lithic debris is cortical, and are the product of core/platform preparation.

Area II Lithics

Feature 4

A total of eight unmodified lithic debitage was recovered from this probable burial pit. Of these, four are fine-grained reddish-brown quartzite, two are silicified wood, and two are fine-grained cherts with significant coarse-grained inclusions. Two of the quartzite flakes are corticate while the other two are decorticate. All four specimens exhibit moderate luster characteristic of heat-treated specimens. In addition, one of the corticate specimens even shows evidence of stage heat treatment, with a dorsal flake scar having a dull appearance while the ventral surface of the flake is moderately lustrous. One of the two silicified specimens is well silicified and is partially translucent. The other silicified wood flake is of knappable quality although not translucent. The two chert specimens are primary and secondary flakes, respectively, and may derive from the reduction of relatively large (5-8 cm in diameter) locally available cobbles. The debitage represents core/platform activities and potentially early reduction stage biface manufacture (e.g., one fine-grained quartzite and one fine-grained chert flake).

The final lithic artifact from the feature is a secondary fine-grained quartzite flake employed as an expedient scraper (see Figure 5-31g). The flake tool measures 20 x 15 x 2.6 mm in length, width, and thickness. One lateral edge (11 mm) of this flake exhibits small unifacial retouch derived from scraping. The heat-treated flake has the same reddish-brown color as the four other quartzite flakes recovered from the feature.

Feature 203

A single fine-grained chert flake was encountered in the fill of this small pit. The complete specimen is a primary flake. The brown chert is locally available raw material.

Feature 205

A complete flake and a proximal fragment were recovered from the fill of the small pit. The medium-grained quartzite flake may be the product of uniface manufacture or resharpening. The fine-grained proximal fragment may have been removed during platform preparation. Neither specimen is heat-treated.

Feature 206

A poorly silicified narrow tabular piece of petrified wood and a rectangular Harvey/Mineola biface were encountered in this small pit. Harvey/Mineola bifaces were defined by Jelks (1965) in lithic assemblages from McGee Bend Reservoir in the Angelina River basin. The narrow specimen does not appear to have been modified. The rectangular Harvey/Mineola specimen has been unifacially retouched on three sides (see Figure 5-31a). Smaller and shallower step fracture scars are present on the ventral faces of the three edges. These flake scars are the products of use wear. Light use polish is present on the edges of the step fractured flake scars. The type and distribution of use wear suggests that the specimen may have been employed as a small wedge rather than a cutting or scraping tool.

Feature 207

Two complete black chert flakes were found in the fill of this small pit. They are both products of core/platform preparation and both are entirely decorticate. The two specimens appear to be non-local raw materials, and are probably Big Fork chert from the Red River gravels and/or Ouachita Mountains sources.

Feature 210

The sole lithic artifact from this feature is a tabular sandstone grinding stone (119 x 71 x 43 mm) with a small pit or depression near the center of one face; only the face with the small pit (23 mm in diameter and 1 mm in depth) has been using as a grinding tool. The face is smoothed, but there is no battering or abrading, and the remainder of the sandstone tool has not been otherwise modified.

Feature 214

A single fine-grained quartzite flake was recovered from this large pit. The secondary specimen appears to have been heat-treated. The small portion of cortex still remaining on the dorsal face of the specimen exhibits a moderate level of grinding. This suggests that the flake was removed from a recycled mano. The longitudinal curvature and flake scar patterning are characteristic of biface manufacture debitage.

Feature 218

A small angular debris specimen and a distal flake fragment were recovered from this small pit. The angular debris is poorly silicified petrified wood, while the distal fragment is sandstone. Both raw materials are available locally.

Feature 231

A small distal flake fragment was found in the fill of this smudge pit. The decorticate specimen is locally available silicified wood.

Feature 235

An angular chunk of poorly silicified petrified wood is the only lithic artifact collected from this smudge pit. No evidence of flaking or other cultural modifications is observable on the specimen.

Area III Lithics

Feature 2

Two unmodified pieces of lithic debitage were recovered from the feature. One is a secondary flake of white chert. This single faceted flake most likely was produced in platform preparation. The second complete flake is light gray novaculite. It has a blade-like morphology, although it was most likely removed from a biface judging from its multi-faceted striking platform. While the first specimen was probably removed early in the reduction, the novaculite flake may have been removed in the middle to late stages of reduction. The flakes may represent burial offerings associated with the three vessel sections or may simply be part of fill material introduced into the probable burial pit.

Feature 5

Three fine-grained quartzite pieces of debitage were recovered from this probable burial pit. Two of the three are of the reddish-brown quartzite common in the region. The third specimen is dark gray quartzite that is also likely to be of local origin, although some greenish-gray quartzite originates in the Atoka Formation in the western Ouachita Mountains (see Banks 1990). Judging from the complex multi-directional flake scar patterning on its dorsal face, this medial flake fragment may be a biface thinning flake. The larger of the two remaining pieces is corticate angular debris while the smaller specimen is a tertiary distal flake fragment. All three exhibit the luster characteristic of heat-treated specimens.

Feature 17

A small (8 mm) tertiary fine-grained quartzite flake was recovered from this pit feature. The multi-faceted complete flake may represent debris from the rejuvenation of a heat treated bifacial tool. It may have been introduced into the pit as a product of activity area maintenance. Its reddish-brown color is characteristic of local raw materials.

Feature 317

A complete Yarbrough dart point was encountered in this small pit (see Figure 5-31d). The point was actually recovered in the feature cross-sectioning, about 8 cm below the bottom of the pit itself, so the feature association is fortuitous. The specimen is of locally available heat treated fine-grained quartzite, and is 44 x 22 x 10 mm in length, width, and thickness; the stem width is 16.0 mm.

Feature 321

A single primary flake fragment was found in this small pit. The medial specimen is dark gray fine-grained quartzite. The flake fragment appears to be the product of core/platform preparation. It is unclear whether the specimen was removed from a heat-treated core.

Feature 325

A silicified wood biface and a fine-grained quartzite medial flake fragment have been found in this small pit. The biface has a large hump that is surrounded by step and hinge fractured flake removal scars. The specimen is clearly a manufacture-failed biface (see Figure 5-31b). The biface is 32 x 19 x 12 mm in length, width, and thickness. The small flake is of heat-treated quartzite and may be the product of biface thinning or rejuvenation. Both specimens are of locally available raw material.

A similar petrified wood biface was found among the funerary objects in Fea. 515 (see Figure 6-42, below).

Feature 335

A small angular piece of very coarse-grained ferruginous sandstone was encountered in this smudge pit. Although the piece may be a good source of ocher, no evidence of modification is present on the specimen.

Feature 338

A complete flake and a proximal flake fragment were found in this smudge pit. The small complete silicified wood specimen may be the product of tool rejuvenation. The proximal fine-grained quartzite specimen may be the product of core/platform preparation. The flake was removed from a heat-treated artifact. Both pieces of debitage are from locally available raw materials.

Feature 343

Five debitage and a proximal Wells dart point fragment have been recovered from this small pit. The Wells point has a transverse blade fracture (see Figure 5-31c); it measures 19 x 8 mm in width and thickness, and has a 17.0 mm stem width. The stem is also lightly ground on both edges.

Three of the five flakes are fine-grained quartzite, the other two are silicified wood. The smallest of the silicified wood and fine-grained quartzite flakes may be the products of tool resharpening. The second silicified wood and the next smallest quartzite flake are biface thinning flakes. The largest of the quartzite flakes may derive from core/platform preparation or biface manufacture. All of the quartzite flakes appear to have been heat-treated.

Feature 346

A single secondary bladelet (28 x 10 x 2 mm in length, width, and thickness) was found in this small pit. The complete fine-grained chert specimen has a yellowish-tan color and may have been locally obtained, since dull and earth-colored chert raw materials are common in local gravel sources. It may represent the fortuitous byproduct of core/platform preparation.

Feature 366

A large fire-cracked nodule (weighing 1.3 kg) and four debitage were found in this shallow pit. The medium-grained quartzite nodule appears to have been fire-fractured on two faces but no flaking is evident on its surfaces. The four debitage consist of three fine-grained and one coarse grained specimen. All of the former specimens are heat-treated while the coarse-grained piece does not appear to have been altered in such manner. They appear to be the products of core/platform preparation.

Feature 372

A small angular debris of ferruginous sandstone fire-cracked rock (weighing less than 0.1 kg) is the only lithic specimen recovered from this smudge pit.

Feature 379

A tertiary medial flake fragment was the only lithic artifact recovered from this post hole. The fine-grained chert specimen has a reddish-brown color and may be locally available as well as heat-treated.

Feature 380

A complete petrified wood flake was encountered in this post hole. The material is poorly silicified and is locally available. This secondary flake may be the byproduct of manufacturing Mineola/Harvey and/or Bronson bifaces common in the Late Archaic and Late Prehistoric periods.

Feature 387

A medial flake fragment was found in this possible post hole. The slight longitudinal curvature and complex flake scar patterning on the dorsal face of the specimen suggest that it was the product of biface manufacture. The light gray material is a non-local novaculite.

Feature 394

An elongated tabular silicified wood specimen with numerous small embedded quartz crystals along one plane was encountered in this small pit. Although a portion of one end of this piece has been fractured, the fractures do not represent flake removals. Therefore, the specimen appears to be an unmodified silicified wood piece. The material is poorly silicified. Similar pieces of silicified and crystallized silicifed wood have been found in Titus phase burial contexts at the Mockingbird site (41TT550) (see Perttula et al. 1998).

Area VIII Lithics

Feature 801

A large dark gray ferruginous sandstone distal flake fragment was found in this small pit. Its dorsal face retains a large portion of a working surface complete with grinding wear and resurfacing pecking, and this flake must have come from the resharpening of a ground stone tool.

Feature 806

A small fine-grained quartzite angular debris was recovered from the fill of this small pit. The specimen appears to have been heat-treated. The material is available locally.

Feature 810

A small lightly battered hammerstone (42 x 26 x 25 mm in length, width, and thickness) was recovered from this post hole. The ovate quartzite specimen may have been purposefully recycled as a wedge for a post or it may have been incidentally incorporated into the fill.

Feature 814

Two fine-grained quartzite flake fragments were found in the fill of this pit, along with a tertiary flake of light gray chert. The quartzite proximal fragment is of reddish-brown material, while the medial specimen of the same material is yellowish-gray. Both quartzite varieties occur in local gravel concentrations. Both appear to have been heat-treated and may be the products of core/platform preparation, as is the chert flake.

Feature 820

A very small medial secondary flake fragment was encountered in the flotation heavy fraction from this smudge pit. The reddish-brown specimen is of locally available fine-grained quartzite. The raw material appears to have been heat-treated.

Feature 821

A distal flake fragment and two fire-cracked rock pieces (weighing 0.1 kg) were recovered from this post hole. The distal secondary flake fragment is of heat-treated fine-grained quartzite. The reddish-brown material is locally available. The specimen is the byproduct of uni- or multi-directional core reduction. The two fire-cracked chert fragments refit into a single angular piece. Besides the obvious heating, no additional modification is evident on these specimens.

Feature 825

One secondary flake of silicifed wood came from this post hole feature in Area VIII. The flake retains considerable cortex and may be the product of core/platform preparation. This raw material is locally available.

Feature 827

A Yarbrough stem fragment broken at the neck has been recovered from this smudge pit. Yarbrough points are Late Archaic points, although recycled specimens have been found in later contexts, and Gadus et al. (1992) report the recovery of Yarbrough points in Middle Archaic archeological deposits at the Finley Fan site. The specimen is made of a dark gray fine-grained chert of non-local origin, likely from Red River gravels. The fracture is post-depositional in nature.

Feature 828

A small angular core fragment and a secondary proximal flake fragment were found in the fill of this smudge pit. Both fine-grained quartzite specimens appear to have been heat-treated. The small core fragment retains only three flake scars. It exhibits a fire-cracked fracture face, suggesting that it may have been cracked during heat treatment. The reddish-brown flake retains considerable cortex and may be the product of core/platform preparation. The raw materials are locally available.

Feature 832

A small secondary fine-grained chert flake was found in the fill of this post hole. The single faceted platform-bearing flake is likely the product of platform preparation. The reddish chert material does not appear to have been heat-treated. The raw material is locally available.

Feature 835

A distal fine-grained quartzite flake fragment was found in the fill of this post hole. This dark gray specimen has been heat-treated and appears to be the product of biface thinning. The material is likely to have been locally available.

Feature 840

A small yellowish-gray fine-grained quartzite flake has been encountered in the fill of this post hole. The small specimen is heat-treated and it is likely the product of core/platform preparation or possibly tool resharpening.

Feature 845

Two fine-grained quartzite proximal flake fragments and a complete fine-grained chert flake were found in the fill of this small pit. The larger of the proximal fragments is a secondary specimen and may be the product of uni- or multi-directional core reduction. The smaller proximal fragment is a core/platform preparation flake. Both fine-grained quartzite specimens are heat-treated. The light brown chert flake also appears to be the product of core/platform preparation. It has not been heat-treated. All three of the raw materials appear to be locally available.

GENERAL PATTERNS AND INTER-AREA COMPARISONS IN TITUS PHASE LITHIC ARTIFACTS, RESIDENTIAL AREAS I-III AND VIII

A total of 126 chipped and/or ground-battered lithic artifacts were recovered in well-defined contexts from the four Titus phase residential areas at the Pilgrim's Pride site (Table 5-25 and Table 5-26). The majority of these consisted of unmodified lithic debitage (n=113, 90%). Eleven (9%) were chipped and/or ground-battered tools, and one (0.8%) is a heat spall, broken off from exposure to fire. Area I produced the highest quantity of unmodified debitage (n=58, 46%), followed by Areas II (n=27, 21%), III (n=25, 20%), and VIII (n=16, 13%). Areas I, III, and VIII each have three chipped and/or battered artifacts each. An arrow point blank, a Bassett, and a Perdiz arrow point were recovered from Area I. A Yarbrough dart point, a Wells proximal fragment, and a diminutive bifacially retouched specimen, similar to the Harvey/Mineola biface, were found in Area III. Finally, Area VIII yielded a Yarbrough stem fragment, a core, and a lightly-used hammerstone. The larger Harvey/Mineola biface and a small metate or mano came from Area II.

Overall, quartzite dominates the artifact collection, accounting for 58% of the artifacts (Table 5-27). As expected, fine-grained quartzite (n=61, 84%) outnumbers medium-grained (n=9, 12%) and coarse-grained (n=3, 4%) raw materials. Chert artifacts are the second most common raw material (n=28), accounting for 22% of the collection. Silicified wood artifacts account for about 14% of the collection (n=18).

Heat-treated raw materials constitute nearly half (n=61, 48%) of the specimens from the site. Quartzites are the most commonly heat-treated materials (n=60, 82%), since heat treatment can improve its knappability, while only one chert flake (4%) is heat treated.

Among the debitage classifiable to flake type (n=79), specimens derived from core/platform preparation greatly outnumber all other types (n=47, 59%). Debitage from biface manufacture is the next most common group (n=15, 19%).

The non-local raw materials in the small collection consist of gray, black, and olive green cherts, and the few pieces (n=2) of novaculite (see Table 5-27). These materials are from Red River gravels, found well to the north of the Pilgrim's Pride site. All red, yellow, brown, and tan-colored cherts were considered locally available as were all the quartzites, the few ferruginous sandstone pieces, and the silicified wood specimens. Using this classification, only 14 (11%) artifacts can be considered non-local origin specimens, while the bulk of the collection (n=112, 89%) is made of locally available materials.

Although it is difficult to draw any solid conclusions based on the few temporally diagnostic artifacts from the distinct areas, the small Area I collection is dominated by Late Caddo artifacts, while Area III yielded Early and Late Archaic diagnostics. Areas II and VIII have what appear to be Late Archaic diagnostics. Having said this, however, it is also possible that the Early and Late Archaic diagnostics were recycled by prehistoric populations using the Pilgrim's Pride site during Late Caddo times, since the Archaic lithic artifacts were found in Titus phase features.

The majority of the specimens from Area I are from off-midden contexts (n=35, 60%), and midden (n=19, 33%) contexts. Midden context artifacts dominate the proveniences from Areas II and III, with 52% (n=14), and 68% (n=17) of the artifacts. Artifacts derived from structure contexts are most common in Area VIII (n=13, 81%).

Table 5-25. Debitage from The Pilgrim's Pride Site (41CP304).

Area	Lot No.	Feature No.	Subarea	Complete	Cortex Category	Platform Faceting	Flake Type	Max. Dim.	Raw Material	Color	origin	Heating
1	818	136	off midden	proximal	tertiary	two	biface red.	11	m-g quartzite	gray	local	not heated
1	528	139	off midden	distal	tertiary	na	indet.	35	f-g quartzite	yellowish gray	local	stage heat treated
1	478	143	off midden	proximal	tertiary	three+	biface manuf	16	m-g quartzite	reddish brown	local	heat treated
1	515	1-121	midden	complete	primary	three	core prep	31	c-g quartzite	dark gray	local	not heated
1	510	1-231	midden	medial	tertiary	na	indet	8	f-g quartzite	reddish brown	local	heat treated
1	471	1-134	off midden	complete	tertiary	two	plat prep	19	f-g quartzite	yellowish gray	local	heat treated
1	492	1-163	midden	distal	primary	na	core prep	21	m-g quartzite	reddish brown	local	not heated
1	511	1-165	midden	complete	tertiary	two	bif. reduction	15	f-g chert	gray	nonlocal	heat treated
1	804	1-167	midden	medial	tertiary	na	indet	8	f-g quartzite	yellowish gray	local	heat treated
1	526	1-167	midden	distal	secondary	na	platf. prep	14	f-g quartzite	yellowish gray	local	heat treated
1	513	1-171	midden	complete	secondary	two	platf. prep	24	m-g chert	burgundy red	local	not heated
1	513	1-171	midden	distal	tertiary	na	indet	15	m-g quartzite	gray	local	not heated
1	513	1-171	midden	angular	tertiary debris	na	indet	13	f-g chert	light tan	local	not heated
1	513	1-171	midden	proximal	tertiary	two	tool rejuv.	10	f-g chert	light gray	nonlocal	not heated
1	513	1-171	midden	angular	secondary debris	na	indet	22	m-g quartzite	reddish brown	local	not heated

Table 5-25. *(Continued)*

Area	Lot No.	Feature No.	Subarea	Complete	Cortex Category	Platform Faceting	Flake Type	Max. Dim.	Raw Material	Color	origin	Heating
1	512	1-174	midden	proximal	tertiary	three+	indet	24	f-g chert	white	nonlocal	not heated
1	472	1-179	structure	complete	tertiary	corticate	indet	12	silicif. wood	dark brown	local	not heated
1	470	1-193	structure	proximal	tertiary	single	indet	13	silicif. wood	light	local	not heated
1	533	1-210	off midden	complete	tertiary	three+	indet	32	f-g quartzite	yellowish gray	local	heat treated
1	533	1-210	off midden	complete	tertiary	two	core prep	17	f-g quartzite	reddish brown	local	heat treated
1	533	1-210	off midden	complete	tertiary	single	core prep	14	f-g quartzite	reddish brown	local	heat treated
1	533	1-210	off midden	medial	tartiary	na	indet	10	f-g quartzite	reddish brown	local	heat treated
1	533	1-210	off midden	proximal	tertiary	single	core prep	9	f-g quartzite	reddish brown	local	heat treated
1	533	1-210	off midden	medial	tertiary	na	indet	13	f-g quartzite	reddish brown	local	heat treated
1	533	1-210	off midden	distal	tertiary	na	biface thin	11	f-g chert	white	nonlocal	not heated
1	533	1-210	off midden	proximal	tertiary	three+	biface thin	10	f-g chert	olive green	nonlocal	not heated
1	533	1-210	off midden	proximal	tertiary	na	indet	11	clear glass	clear	nonlocal	not heated
1	510	1-231	midden	medial	tertiary	na	indet	8	f-g quartzite	reddish brown	local	heat treated
1	509	1-232	structure	complete	secondary	single	core prep	23	f-g quartzite	reddish brown	local	heat treated
1	786	1-128	off midden	complete	secondary	corticate	core prep	41	silicif. wood	tanish brown	local	not heated
1	470	1-193	structure	proximal	tertiary	single	indet	13	f-g chert	brownish tan	local	not heated
1	176	3	midden	proximal	tertiary	single	plat prep	12	1 f-g chert	olive green	nonlocal	not heated

Table 5-25. *(Continued)*

Area	Lot No.	Feature No.	Subarea	Complete	Cortex Category	Platform Faceting	Flake Type	Max. Dim.	Raw Material	Color	origin	Heating
1	178	F-3	midden	complete	tertiary	corticate	plat prep	16	f-g quartzite	dark gray	local	not heated
1	181	F-3	midden	distal	tertiary	na	indet	18	f-g quartzite	yellowish gray	local	heat treated
1	141	F-61	off midden	distal	tertiary	na	indet	16	f-g quartzite	reddish brown	local	heat treated
1	19	F-8	off midden	proximal	tertiary	corticate	core prep	21	c-g quartzite	reddish brown	local	heat treated
1	19	F-8	off midden	angular debris	tertiary	na	angular debris	13	f-g chert	gray	nonlocal	indet.
1	128	F-8	off midden	distal	tertiary	na	core prep	17	f-g chert	red w. bands	local	not heated
1	128	F-8	off midden	complete	secondary	single	core prep	14	f-g chert	yellowish brown	local	not heated
1	128	F-8	off midden	complete	tertiary	single	notching	13	f-g quartzite	reddish brown	local	heat treated
1	128	F-8	off midden	complete	tertiary	single	plat prep	19	f-g quartzite	reddish brown	local	heat treated
1	128	F-8	off midden	proximal	tertiary	three+	biface manuf	15	m-g quartzite	reddish brown	local	heat treated
1	128	F-8	off midden	distal	secondary	na	indet	17	f-g quartzite	reddish brown	local	heat treated
1	128	F-8	off midden	medial	tertiary	na	indet	11	f-g chert	gray w/ white spiral	local	not heated
1	128	F-8	off midden	distal	primary	na	plat prep	11	f-g chert	yellowish brown	local	not heated
1	128	F-8	off midden	complete	primary	single	core prep	24	f-g quartzite	reddish brown	local	heat treated
1	128	F-8	off midden	proximal	tertiary	single	core prep	19	f-g quartzite	dark gray	local	indet.
1	135	F-8	off midden	proximal	secondary	single	core prep	16	f-g quartzite	light reddish brown	local	heat treated

Table 5-25. *(Continued)*

Area	Lot No.	Feature No.	Subarea	Complete	Cortex Category	Platform Faceting	Flake Type	Max. Dim.	Raw Material	Color	origin	Heating
1	135	F-8	off midden	distal	tertiary	na	indet	13	f-g chert	red	local	not heated
1	135	F-8	off midden	angular debris	secondary	na	angular debris	25	f-g quartzite	reddish brown	local	heat treated
1	135	F-8	off midden	proximal	primary	single	core prep	19	c-g quartzite	reddish brown	local	ident.
1	135	F-8	off midden	complete	tertiary	corticate	core prep	16	f-g quartzite	reddish brown	local	heat treated
1	135	F-8	off midden	complete	secondary	single	core prep	18	f-g quartzite	reddish brown	local	heat treated
1	135	F-8	off midden	complete	tertiary	single	core prep	13	silicif. wood	poorly silicified	local	not heated
2	552	203	structure	complete	primary	single	plat prep	19	f-g chert	yellow brown	local	not heated
2	838	205	structure	proximal	tertiary	three	plat prep	7	f-g quartzite	yellowish gray	local	not heated
2	550	205	structure	complete	tertiary	single	uniface man.	12	m-g quartzite	pink	local	not heated
2	548	207	structure	complete	tertiary	single	core prep	28	f-g chert	black	nonlocal	not heated
2	548	207	structure	complete	tertiary	three	plat prep	18	f-g chert	black	nonlocal	not heated
2	545	214	off midden	complete	secondary	three	biface manuf	31	f-g quartzite	yellowish	local	heat treated
2	842	218	off midden	angular debris	tertiary	na	angular debris	7	silicif. wood	tan	local	not heated
2	942	218	off midden	distal	primary	na	indet	7	sandstone	red	local	not heated
2	812	231	structure	distal	tertiary	na	indet	6	silicif. wood	milk white	local	not heated
2	565	321	structure	medial	primary	na	core prep	20	f-g quartzite	dark gray	local	heat treated
2	561	325	structure	medial	tertiary	na	indet.	8	f-g quartzite	yellowish gray	local	heat treated
2	286	F-4	midden	complete	secondary	three+	biface manuf	38	f-g chert	tan	local	not heated
2	286	F-4	midden	proximal	secondary	single	core prep	19	f-g quartzite	dark brown	local	heat treated
2	286	F-4	midden	proximal	primary	single	core prep	20	silicif. wood	light brown	local	not heated

Table 5-25. *(Continued)*

Area	Lot No.	Feature No.	Subarea	Complete	Cortex Category	Platform Faceting	Flake Type	Max. Dim.	Raw Material	Color	origin	Heating
2	286	F-4	midden	complete	secondary	three+	core prep	24	f-g quartzite	light red-brown	local	heat treated
2	286	F-4	midden	proximal	tertiary	single	biface manuf	16	f-g quartzite	reddish brown	local	heat treated
2	286	F4	midden	complete	secondary	single	core prep	27	silicif. wood	reddish brown	local	not heated
2	286	F-4	midden	complete	secondary	single	plat prep	12	silicif. wood	reddish brown	local	not heated
2	286	F-4	midden	complete	tertiary	corticate	indet	9	siliciL wood	reddish brown	local	not heated
21	286	F-4	midden	angular debris	secondary	na	angular debris	6	silicif. wood	reddish brown	local	not heated
2	286	F-4	midden	complete	tertiary	corticate	plat prep	5	silicif. wood	reddish brown	local	not heated
2	286	F-4	midden	angular debris	tertiary	na	angular debris	6	f-g quartzite	reddish brown	local	heat treated
2	286	F-4	midden	complete	tertiary	corticate	core prep	31	f-g quartzite	reddish brown	local	heat treated
2	286	F4	midden	distal	primary	na	indet	39	f-g chert	brown	local	not heated
3	820	338	midden	proximal	tertiary	single	core prep	8	f-g quartzite	yellowish gray	local	heat treated
3	820	338	midden	complete	tertiary	single	rejuvenation	7	silicif. wood	light brown	local	not heated
3	806	343	midden	distal	tertiary	na	resharp. flake	10	f-g quartzite	brownish-gray	local	heat treated
3	557	343	midden	distal	tertiary	na	biface thin	22	silicif. wood	light tan	local	not heated
3	557	343	midden	complete	tertiary	three+	bif. reduction	17	m-g quartzite	red	local	heat treated
3	557	343	midden	proximal	tertiary	three	biface thin	12	f-g quartzite	reddish brown	local	heat treated

Table 5-25. *(Continued)*

Area	Lot No.	Feature No.	Subarea	Complete	Cortex Category	Platform Faceting	Flake Type	Max. Dim.	Raw Material	Color	origin	Heating
3	557	343	midden	medial	tertiary	na	tool rejuv.	9	silicif. wood	reddish brown	local	not heated
3	558	346	structure	complete	secondary	three+	bladelet	23	f-g chert	tan	local	not heated
3	560	366	midden	angular debris	tertiary	na	indet.	9	f-g quartzite	reddish brown	local	not heated
3	560	366	midden	proximal	tertiary	single	plat prep	7	f-g quartzite	reddish brown	local	heat treated
3	560	366	midden	medial	tertiary	na	plat prep	8	f-g quartzite	reddish brown	local	heat treated
3	560	366	midden	complete	secondary	single	plat prep	16	m-g quartzite	reddish brown	local	not heated
3	839	372	off midden	angular debris	tertiary	na	indet.	14	fer. sandstone	red	local	not heated
3	562	379	structure	medial	tertiary	na	indet.	12	f-g chert	reddish brown	local	not heated
3	567	380	structure	complete	secondary	corticate	indet.	29	silicif. wood	red-yellow banded	local	not heated
3	563	387	structure	medial	tertiary	na	biface manuf.	18	novaculite	light gray	nonlocal	not heated
3	240	F-17	off midden	complete	tertiary	three+	indet.	8	f-g quartzite	reddish brown	local	heat treated
3	290	F-2	midden	complete	tertiary	three	indet	26	novaculite	light gray	nonlocal	not heated
3	290	F-2	midden	complete	secondary	single	plat prep	18	f-g chert	white	local	not heated
3	291	F-5	midden	distal	tertiary	na	indet	11	f-g quartzite	reddish brown	local	heat treated
3	288	F-5	midden	angular debris	secondary	na	angular debris	21	f-g quartzite	reddish brown	local	heat treated
3	288	F-5	midden	medial	tertiary	na	biface thin	16	f-g quartzite	dark gray	local	heat treated
8	765	801	midden	distal	tertiary	na	indet.	102	basalt	dark gray	local	not heated

Table 5-25. *(Continued)*

Area	Lot No.	Feature No.	Subarea	Complete	Cortex Category	Platform Faceting	Flake Type	Max. Dim.	Raw Material	Color	origin	Heating
8	796	806	midden	angular debris	tertiary	na	angular debris	10	f-g quartzite	reddish brown	local	heat treated
8	858	814	structure	proximal	tertiary	two	core prep	20	f-g quartzite	reddish brown	local	heat treated
8	858	814	structure	medial	secondary	na	core prep	27	f-g quartzite	yellowish gray	local	heat treated
8	792	820	structure	medial	secondary	na	indet.	6	f-g quartzite	reddish brown	local	heat treated
8	775	821	structure	distal	secondary	na	core reduction	25	f-g quartzite	reddish brown	local	heat treated
8	756	828	structure	proximal	secondary	single	core prep	30	f-g quartzite	reddish brown	local	heat treated
8	760	832	structure	complete	secondary	single	plat prep	15	f-g chert	burgundy	local	not heat treated
8	770	835	structure	distal	tertiary	na	biface manuf	22	f-g quartzite	dark gray	local	heat treated
8	761	840	structure	complete	tertiary	three	plat prep/tool,rej.	13	f-g quartzite	yellowish gray	local	heat treated
8	764	845	structure	proximal	secondary	single	core reduction	34	f-g quartzite	yellowish gray	local	heat treated
8	764	845	structure	proximal	tertiary	three	plat prep	10	f-g quartzite	yellowish gray	local	heat treated
8	764	845	structure	complete	secondary	single	plat prep	14	f-g chert	yellow brown	local	not heat treated

Table 5-26. Tools from Residential Areas.

Area	Lot No.	Feature No.	Subarea	Complete	Category	Material	Color	Heating	Remarks
1	517	1-176	midden	proximal	f-g chert	red	local	not heated	AP blank
1	510	1-231	midden		f-g quartzite	reddish brown	local	heat treated	heat spall
1	491	1-130	off midden	compl	f-g chert	yellowish brown	local	not heated	Bassett
1	59	F-3	midden	compl	f-g quartzite	yellowish gray	local	heat treated	Perdiz
3	566	F-317	structure	compl	f-g quartzite	yellowish pink	local	heat treated	Yarbrough
3	561	F-325	structure	compl	silicif. wood	local	not	heated	biface
3	557	F-343	midden	proximal	f-g quartzite	yellowish pink	local	heat treated	Wells
2	549	F-210	structure	compl	f-g quartzite	local	heat	treated	metate/nutting stone
2	553	F-206	structure	compl	silicif. wood	light brown	local	not heated	Harvey/Mineola biface
2	286	F-4	midden	compl	f-g quartzite	reddish brown	local	heated	expedient tool
8	853	F-810	midden	compl	quartzite	tan	local	not heated	harnmerstone
8	795	F- 827	structure	stem	f-g chert	dark gray	nonlocal	indet.	Yarbrough
8	756	F-828	structure	frag.	f-g quartzite	dark reddish gray	local	heat treated	Core

compl = complete

Table 5-27. Lithic Raw Materials in Artifacts from Residential Contexts at The Pilgrim's Pride Site.

	Subarea			
Raw Material	midden	off midden	structure	Grand Total
c-g quartzite	1	3	0	4
f-g chert	9	9	9	27
f-g quartzite	25	20	16	61
fer. sandstone	1	1	0	2
m-g chert	1	0	0	1
m-g quartzite	5	3	1	9
novaculite	1	0	1	2
quartzite	1	0	0	1
sandstone	0	1	0	1
silicif. Wood	9	3	6	18
Grand Total	53	40	33	126

Area III has the highest percentage of tertiary debitage (n=17, 77%), followed by Area I (n=39, 71%). The lowest percentages of tertiary debitage are found in Area VIII (n=6, 46%).

The distribution of raw material types by area also indicates some interesting differences. The highest raw material type richness is evident in Area I with seven types, followed by Area III with six types, and Areas II and VIII, with five and four types, respectively. The effect of sample size is clearly notable on these richness figures, however. The highest percentages of quartzite (fine to coarse-grained) occur in Area VIII (69%), followed by Area III (48%), and Area I (47%). Only 40% of the artifacts from Area II were of quartzite. Chert artifacts are most common in Area 1 (28%), followed by Area II and Area VIII at 19%. Silicified wood is most common in Area II (33%).

The distribution of raw materials origins by area also indicates that Area I is different from the other three residential areas. A total of 15.5% of the specimens from Area I are of non-local raw materials (n=9). The percentages of non-local raw materials in Areas II, III, and VIII ranges from 7%, 8%, and 6%, respectively.

The highest proportions of heat-treated materials occur in Area VIII (n=11, 69%), while the lowest are seen in Area II (n=9, 35%). Areas I and III have identical proportions of heat-treated specimens (48%, respectively). Areas I, II, and VIII also have similar proportions of core/platform preparation flakes (44%, 48%, and 46%, respectively). The smallest proportion of core/platform preparation flakes comes from Area III (n=5, 23%). This area also has the highest proportion of bifacial reduction flakes (n=5, 20%).

The distribution of the 126 lithic artifacts by sub-area indicates that 53 (42%) were recovered from midden contexts (see Table 5-27). In addition, 40 (32%) artifacts are from off-midden contexts, while only about 26% (n=33) of the small collection comes from structures. Interestingly, of the 11 tools recovered from features at the Pilgrim's Pride site, six (54%) were found in structures. These tools include the two

Yarbrough points, the two Harvey/Mineola bifaces, the mano, and the core. Tools from midden contexts consist of the manufacture-broken arrow point blank, the Perdiz point, the Wells point, the small edge-modified flake, the hammerstone, and the heat spall. A single specimen, the complete Bassett point, was recovered from an off-midden context.

A review of the distribution of cortex categories by recovery context indicates that tertiary flakes tend to be more common in midden (67%) and off-midden (67.5%) contexts compared to structures (56%). This pattern may be indicative of within-structure floor maintenance activities, such as sweeping of the dirt floor. There is no difference in the proportions of heat-treated specimens between the three associational contexts. And, fine-grained quartzite and chert debitage are as likely to be found within structures as they are to be found in midden areas.

In summary, significant differences seem to exist between the four residential areas from which chipped and/or ground-battered stone artifacts were recovered. These differences may signal variability in the age of the materials recovered from across the site. Little difference was noted between midden, off-midden, and structure contexts. It is interesting, however, that slightly more than half of the tools from features recovered from the Pilgrim's Pride site came from structure areas.

TITUS PHASE LITHIC ARTIFACTS

In addition to the tools and lithic debris from Titus phase features discussed by Steve A. Tomka, there are a small number of other chipped stone tools from various residential contexts that comprise the Titus phase chipped and ground stone tool assemblage. This includes stemmed arrow points of the Perdiz and Bassett types, expedient flake tools, perforators, end and side scrapers, two bifaces, and an assortment of ground stone tools, primarily celts and a few grinding implements.

Projectile Points

In all the various excavations and surface collections across the Pilgrim's Pride site, only 10 arrow points—complete or fragmentary—have been found in Titus phase residential areas (Table 5-28). More arrow points (n=18) were included as funerary offerings in the Area V/VI cemetery (see Chapter 6, this volume). The very low density of arrow points in Titus phase contexts—and indeed the low frequency of formal hafted tools and projectile points in post-A.D. 1300 Caddo archeological contexts here and at many other sites in the region (cf. Walters 2003:18)—is likely the result of a "decreased reliance on the procurement of large quantities of hunted resources over a short time" (Tomka 2001:222). In this case of the Late Caddo Titus phase, an agricultural way of life relying more on maize supplemented with smaller game, may have reduced the need for stone-tipped projectiles since larger game were not frequently taken, and bone and wood tips may have been more commonly used for taking other and smaller game (e.g., Ellis 1997). These smaller quantities of hunted resources could readily be processed with efficient expedient flake tools with their sharp edges, rather than with formal bifacially-retouched flaked and hafted tools (Tomka 2001:212, 222; Odell 2002:253, 255).

The 10 arrow points include six Perdiz points from three residential areas (Figure 5-32a, c-d, f-g and Figure 5-33a-b), a Bassett point from Area I, two corner-notched and barbed points from Area VIII, and an unidentifiable stemmed fragment from N610 E500 (a surface collection transect, see Chapter 4, this volume). The corner-notched points are probably Scallorn, *var. Sattler* tools (cf. Brown 1996; Skinner et al.

Table 5-28. Arrow Points.

Provenience	Type	L	W	Th	SW	RM	RS	S	EG
Area I									
F. 3, 20 cm	Perdiz	21.0	9.0	4.0	4.6	QTZ			
F. 1-130	Bassett	19.0	14.5	2.6	2.4	y-b C			
U22, 10-20	Perdiz	24.0	11.0	3.0	–	y-b C			
U24, 10-20	Perdiz	–	9.0	1.8	2.3	QTZ		+	
Area III									
General	Perdiz	19.2	12.8	3.4	6.8	QTZ	+	+	
General	Perdiz	19.1	11.7	3.9	4.9	QTZ			
Area VIII									
N690E580	corner-notched	–	18.0	3.8	5.7	OG		+	
General	corner-notched	–	12.5	4.1	4.4	NOV		+	
Miscellaneous									
N610E500	unidentified	–	11.0	2.5	–	OG			
N655E640	Perdiz (?)	16.5	10.4	4.1	5.9	OG			

Key: L = length; W = width; Th = thickness; SW = stem width; RM = raw material; RS = resharpened; S = serrated; EG = edge-grinding; QTZ = quartzite; C = chert; OG = ogallala quartzite; NOV = novaculite

1969), a Late Caddo variety. They were broken along the stem, but they probably were expanding stems, with the barbs reaching down almost the length of the stems themselves (see Figure 5-32f-g).

The only non-local lithic raw material in these arrow points is a novaculite used for the manufacture of one of the corner-notched points. The other Titus phase arrow points are made from local materials, primarily quartzite (70%), as well as a yellowish-brown chert (20%) (see Table 5-28).

The Perdiz and Bassett points are well-represented in Titus phase contexts dating only before ca. A.D. 1600, and perhaps even before ca. A.D. 1550,

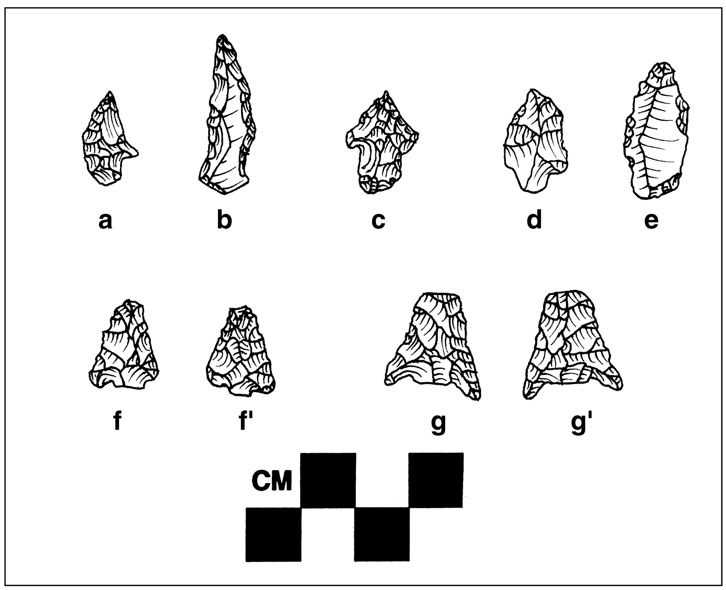


Figure 5-32. Titus phase chipped stone tools: a, c-d, Perdiz points; b, perforator; e, arrow point preform; f-g, corner-notched points. Provenience: a, Area II, N655 E640; b, Area II, N664 E656; c-e, Area III surface; f, Area VIII surface; g, Area VIII, N690 E580.

based on the seriation of the funerary offerings from burials at a number of Titus phase cemeteries in the Big Cypress Creek basin (see Perttula 1992: Appendix A). This is consistent with the calibrated radiocarbon dates from residential contexts at the Pilgrim's Pride site (see Chapter 4, this volume). The vast majority of arrow points from the Area V/VI cemetery were also Perdiz arrow points.

One arrow point preform was collected from the surface of Area III, and is the best available evidence that the arrow points were actually manufactured on-site. The preform is on a non-local brownish-gray chert, and is ovoid-shaped with only marginal edge retouching (sae Figure 5-32e).

Titus phase arrow points are dispersed across a ca. 100 x 50 m area in and around Areas I and II, the main parts of the residential areas (Figure 5-34). Celts, another common Titus phase lithic tool, are primarily also found in the same general areas.

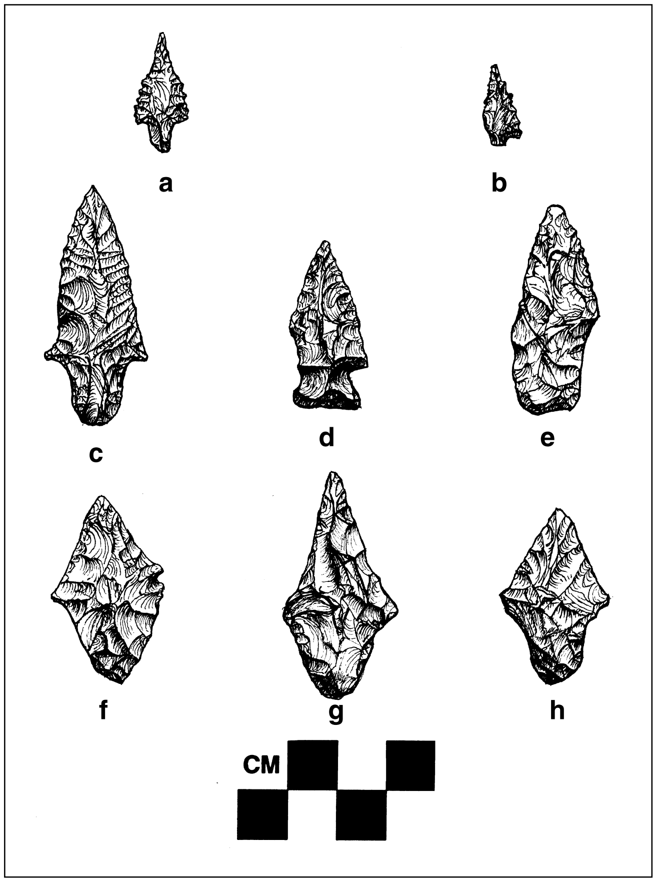


Figure 5-33. Arrow points and dart points from test excavations, Area I-III: a-b, Perdiz points; c, e-h, Gary points; d, side-notched dart point. Provenience: a, Unit 24, 10-20 cm; b, Unit 22, 10-20 cm; c, Unit 17, 0-10 cm; d, Unit 23, 30-40 cm; e, N615 E500; f, Unit 22, 10-20 cm; g, Unit 20, 0-10 cm; h, Unit 5, 20-30 cm

Bifaces and Bifacial Tools

Only two bifaces are from demonstrable Titus phase contexts (see Table 5-33, below), and these are from Unit 10 and Unit 23 in the Area II test excavations (see Chapter 4, this volume). No other bifaces have been found in Titus phase archeological deposits in the different residential areas; three bifaces, including a beveled knive made of Florence A chert (see Chapter 6, this volume), were among the funerary objects in three Titus phase burials in the Area V/VI cemetery.

The two bifaces are Ogallala quartzite preform and preform fragments, not parts of completed tools. It is doubtful that the bifaces were destined for projectile point manufacture since Late Caddo arrow points were made only from flakes of various shapes and sizes. Instead, the preforms may have been intended for use as large knives or bifacial scraping implements.

Flake Tools

Table 5-29 lists all of the flake tools found in residential areas at the Pilgrim's Pride site (Figure 5-35). These tools were used for cutting and shaving tasks, drilling/perforating, graving, as well as scraping soft hide materials, mainly as expedient tools rather than formal retouched and hafted flake tools. Expedient flake tools with lateral or distal edge wear (and only minimal retouching, if at all) comprise about 70% of the flake tools from the site (see Figure 5-35a-b); several of these also have denticulated lateral edges (perhaps for

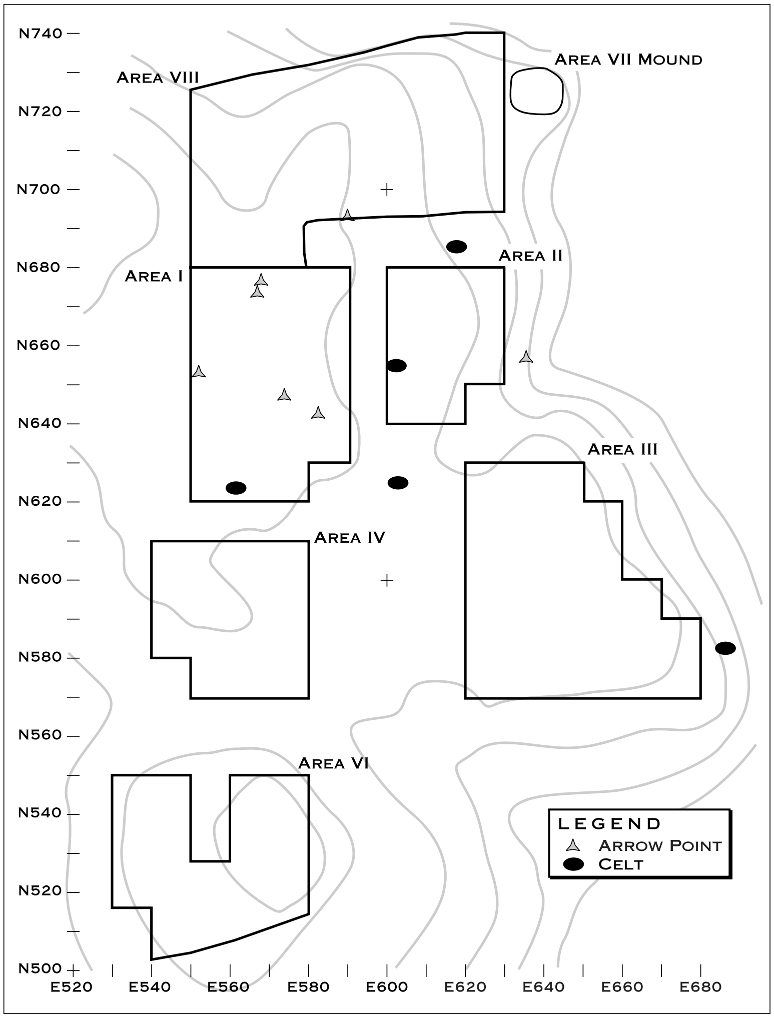


Figure 5-34. Distribution of Titus phase arrow points and celts at the Pilgrim's Pride site.

light sawing activities) or graver spurs (see Table 5-29), indicating they were used for more than just cutting activities. There are also unifacially chipped gouges (n=2, Figure 5-36a-a'), perforators (n=2), a denticulate (see Figure 5-35e), side scrapers (n=2), end scrapers (n=3), end-side scrapers (n=3)—including two with graver spurs—and a bifacially chipped scraper (see Figure 5-35c-d, f-g). Expedient tools were more likely to be on local materials (55%), particularly the unilateral and bilaterally-used pieces, as are the unifacial gouges and the perforating tools. The scraping tools, by contrast, are primarily on non-local materials (67%).

Since most of the flake tools in Table 5-29 are from surface contexts (either from surface collections or from the surface of machine-scraped areas), it is uncertain how many of them are actually part of the Titus phase lithic tool assemblage. Tomka's analysis in this chapter of the lithics from 63 Titus phase feature in each of the residential areas identified only one expedient flake tool, so it seems clear that these sorts of tools are not a particularly common part of the chipped stone tools at the site. From the test excavations in the residential areas, and various surface collections, there are seven flake tools in Area I and Area II that may also comprise additional Titus phase chipped stone flake tools: perforators (n=2), an end scraper and a side scraper in Area II, two expedient flake tools, and a denticulate. About 71% of these tools are on non-local cherts and novaculite.

More than half of the flake tools found at the site are made from non-local lithic raw materials, particularly novaculite and various cherts from Red River gravels and Ouachita Mountain sources (Table 5-30). Other non-local lithic materials from the same sources include jasper and chalcedony. These materials are fine-grained, and flakes made from these materials would have had a naturally sharp, but brittle, edge useful for the cutting, shaving, graving, and piercing of soft animal materials. Scraping was apparently also done using these fine-grained materials (see Table 5-29).

Local materials represent 48% of the flake tools (see Table 5-30), and the most abundant local materials used were coarse-grained quartzite, a fine-grained Ogallala quartzite, and petrified wood. These materials were more durable, with duller edges than the fine-grained cherts and novaculite, and would likely have been employed more for shredding and scraping activities on plant remains and hard animal remains, but they were apparently also used for cutting, since there are a number of expedient flake tools (i.e., un-retouched flakes) among the flake tools made of local lithic materials.

The contrast in the selection of local lithic raw materials as opposed to high-quality non-local lithics for different functional tasks is readily apparent in the proportion of local lithic raw materials used for bifacial tool production (i.e., projectile points) compared to local lithics used for flake tool manufacture (see Table 5-30). Ninety percent of the bifaces from the Pilgrim's Pride site are made on local lithics, compared to only 48% of the flake tools. Furthermore, while 10% of the bifaces are on non-local lithics, 52% of the flake tools are on these non-local materials.

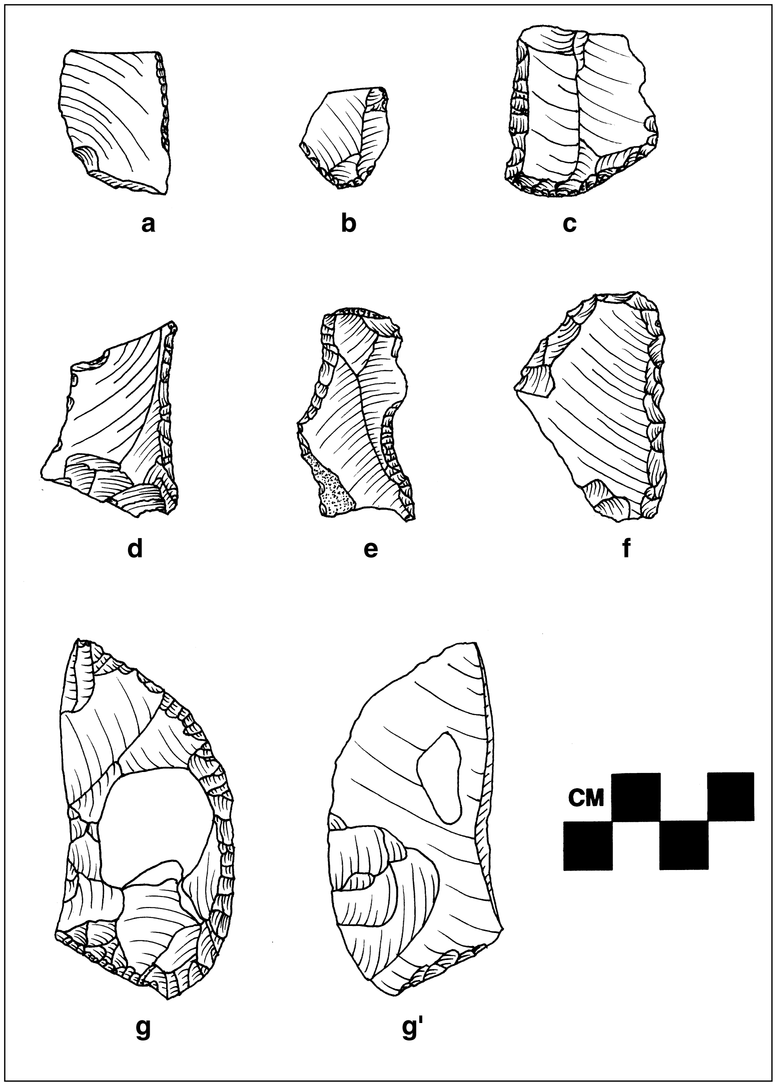


Figure 5-35. Flake tools: a-b, expedient flake tools; c, end-side scraper; d, side scraper; e, denticulate; f, bilateral expedient flake tool; g, end and side scraper, with bifacial bit. Provenience: a, Area I, N624 E550; b, Area VII, Unit 7-01, 80-90 cm; c, Area II surface; d-e, Area III surface; f, Area VIII surface; g, Area III, N586 E653.

Ground Stone Tools

A number of ground stone tools were found in various contexts at the Pilgrim's Pride site, including in features of likely Titus phase age, from test excavations in Areas I, II, III, and VIII, and on the surface (Table 5-31). Further on in this chapter, Mark Walters discusses the ground stone tools found on the surface in Area VIII during the last round of investigations at the site, and we consider the remainder of the non-Titus phase ground stone tools there. The ground stone tools from likely Titus phase residential contexts include four celts or celt fragments (see Figure 5-36e); two manos (see Figure 5-36d); one hammerstone; a pitted stone; an abrader; and a grinding slab/pitted stone. These tools would have been used for woodworking, grinding and crushing plant remains (i.e., seeds, shells, and grains) with hand-held tools and on flat and hard grinding surfaces; chipped stone tool manufacture (in the case of the hammerstone); and tool shaft sharpening, abrading tool edges, and other repetitive tasks with the one small abrader from Area II (see Table 5-31). With the exception of the hammerstone, which is a durable and coarse-grained quartzite, the other ground stone tools were manufactured from a local ferruginous sandstone.

Table 5-29. Flake Tools.

Area/Provenience	Tool type	Raw Material	L	W	Th
I					
Unit 13, 0-10 cm	distal-lateral expedient flake tool	grayish-brown chert	25	15	5.0
Unit 13, 40-50 cm	side scraper	grayish-brown chert	–	23	7.0
Unit 24, 10-20 cm	perforator/graver	grayish-brown chert	13	11	3.0
E and W of Unit 7	unifacial gouge	petrified wood	–	61	21
N620-640 E560	unifacial end scraper	quartzite	34.5	29	9.2
N620-640 E560	unifacial gouge	ferruginous sandstone	65	35	19.6
N624 E550	bifacially retouched flake tool	novaculite	28+	22.5	7.0
N670 E560	unilateral expedient flake tool and graver	novaculite	–	25.5	6.0
General	bilateral expedient flake tool	quartzite	22	19	4.0
General	bilateral expedient flake tool	novaculite	24.6	22.5	3.6
II					
Unit 1, 10-20 cm	end scraper	novaculite	–	20	5
Unit 12, 10-20 cm	bilateral expedient flake tool	Ogallala quartzite	19	20	3
Unit 16, 20-30 cm	end scraper	brown chert	–	29	7
Unit 23, 10-20 cm	side scraper	Woodford chert	–	27	5
Unit 23, 30-40 cm	unilateral expedient flake tool	petrified wood	22	23	5
N660 E620	unilateral expedient flake tool	novaculite	21	17	3
General	end-side scraper/graver spur	dark grayish-brown chert	35.1	31.7	6.9
III					
Unit 5, 20-30 cm	bilateral expedient flake tool	petrified wood	20	35	4
Unit 6, 10-20 cm	denticulate	gray chert	34	15	4.0
N570 E600	bifacial scraper bit, possible gouge	quartzite	49+	33.5	11.5
N586 E653	end-side scraper and graver	gray chert	75	40+	5.6
N590 E680	end-side scraper	novaculite	29.5	27	6.7
N590 E680	unilateral expedient flake tool	Ogallala quartzite	20	17	4
General	unilateral expedient flake tool	Ogallala quartzite	35.5	19.0	8.0
General	bilateral expedient flake tool	Big Fork chert	45	23	5.3
General	bilateral expedient flake tool	light gray chert	38.8	22	8.4

Table 5-29. *(Continued)*

Area/Provenience	Tool type	Raw Material	L	W	Th
VIII					
S. of Unit 19	distal expedient flake tool	gray chert	38	28	3
East knoll	unilateral expedient flake tool	Ogallala quartzite	30	19	4.5
East knoll	unilateral expedient flake tool	grayish-brown chert	–	18.8	3.2
East knoll	unilateral expedient flake tool	quartzite	–	22	3.8
East knoll	bilateral expedient flake tool	quartzite	33	19	3.9
East knoll	unilateral expedient flake tool	petrified wood	29.5	31	4.5
East knoll	unilateral expedient flake tool	novaculite	13+	17.5	2.5
General	unilateral expedient flake tool	novaculite	26+	24.5	3.8
General	unilateral expedient flake tool and denticulate	quartzite	18+	22	3.6
General	unilateral expedient flake tool	chalcedony	27	13.2	3.9
General	bilateral expedient flake tool	quartzite	45	31.9	13.3
IX					
General	expedient flake tool, bifacial working edge	petrified wood	21+	19	7.4
General	expedient flake tool, unilateral	jasper	18+	13	2.5
Miscellaneous					
N600 E500	distal and lateral expedient flake tool	yellowish-red chert	25	13	2.5
N600 E?	distal retouched piece	quartzite	–	–	–
N610 E500	unilateral expedient flake tool	novaculite	22	17	3
N650 E500	distal retouched flake tool	petrified wood	38	18	9
N650 E?	bilateral expedient flake tool and denticulate	gray chert	20	17	3
N664 E656	perforator	quartzite	28.6	8.7	3.9

None of these ground stone tools are found in incontrovertible Titus phase contexts—that is, they are from general archeological deposits, not sealed features (see Table 5-31). However, their association with the Titus phase occupation is based on (1) the known manufacture and use of petaloid-shaped celts by Late Caddo groups, and (2) the recovery of ground stone tools from hand-excavated archeological deposits dominated by Late Caddo Titus phase ceramic sherds (and features).

Ground stone tools are not particularly common in likely Titus phase contexts at the Pilgrim's Pride site (n=11), but they are actually more common than arrow points (n=10) in the same archeological deposits.

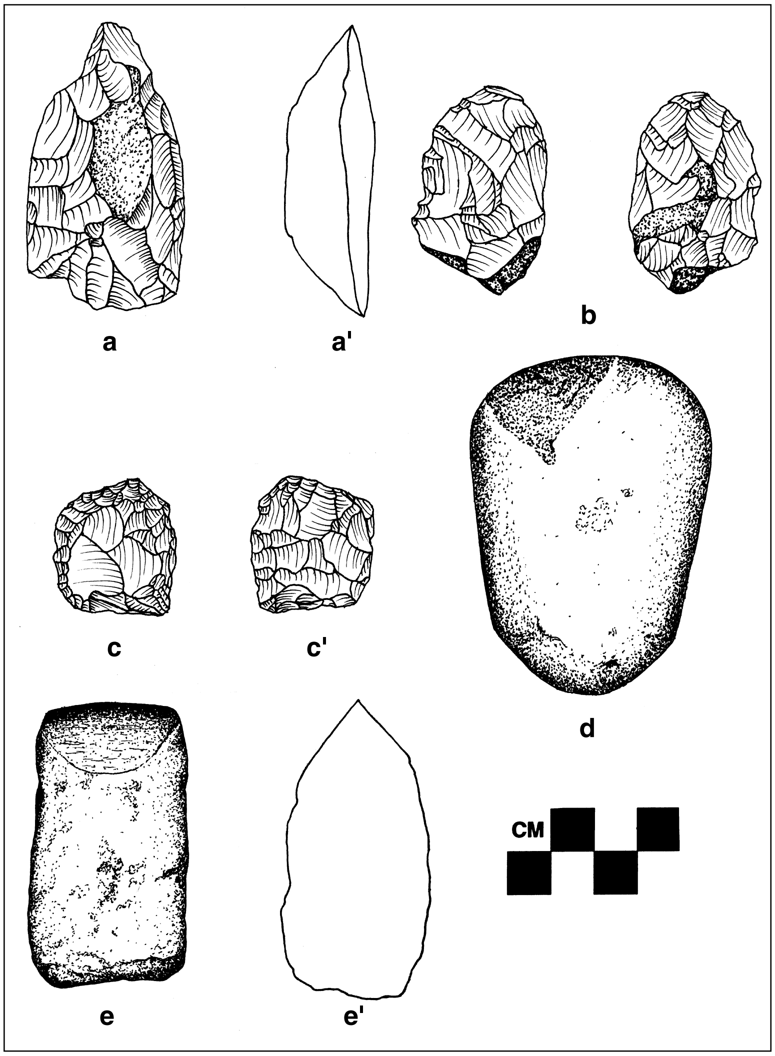


Figure 5-36. Chipped and ground stone tools: a, gouge; b-c, bifaces; d, mano; e, celt. Provenience: a, Area I, N620-640 E560; b, Area VIII, east knoll; c, Area III, N590 E680; d, Area III, N604 E625; e, Area IV, N580 E590.

The abrader has 2-3 abraded grooves on both surfaces of the tool. The grooves are apparently the product of repetitive grooved grinding motions, probably the product of repeated grinding of wooden tool shafts and wooden tool tips/points.

The House 1 mano has a flat grinding surface on only one face of the cobble; it was otherwise unmodified. The Area II mano also has a grinding area on one surface, and the ferruginous sandstone cobble was only modified from grinding use. The small grinding areas on both tools suggest they were used—in combination with grinding slabs or basins—to crush and grind plant foods into flour or meal.

The grinding slabs are from Area I and Area III (see Table 5-31); the latter slab also has two medium-sized pits or depressions on one surface, probably the evidence of repeated cracking of hardwood nut shells. The slabs are relatively thin, with flat to shallow concave grinding surfaces on one or both slab surface. In addition to grinding platforms, these slabs would have been well-suited for use as hot stone slabs or griddles to bake corn flour or meal into loaves. A further indication of their multi-purpose utility is the Area III grinding slab (with grinding areas on both surfaces) with the aforementioned two shallow pits along the edges of the grinding basin.

The Area II pitted stone has only a single, centrally placed pit or depression. The remainder of the ferruginous sandstone slab is unmodified.

The rounded quartzite hammerstone in Area I has crushing/pecking marks on opposite ends of the cobble, but no edge facets. Presumably the hammerstone was employed in the early stages of lithic manufacture, namely to remove cortex and initially reduce cobbles and pebbles to obtain usable flakes for tools, both expedient and formal.

Table 5-30. The Use of Lithic Raw Materials in Flake Tools vs. Bifaces.

Raw Materials	Flake tools	Bifaces
Local materials		
Coarse-grained quartzite	19.6%	46%
Ogallala quartzite	8.7%	26%
Petrified wood	13.0%	14%
Local cherts	4.3%	4%
Ferruginous sandstone	2.2%	–
Non-local materials		
Non-local cherts	28.3%	4%
Novaculite	19.6%	6%
Jasper	2.2%	–
Chalcedony	2.2%	–
Totals	46	50

Table 5-31. Ground Stone Tools from Titus Phase Contexts at The Pilgrim's Pride Site.

Provenience	Tool Form	Raw Material	L	W	Th	Comments
Area I						
U22, 10-20	Grinding slab	FSS	83+	56+	29	
U24, 0-20	Hammerstone	Quartzite	60	47	32	
House I area	Mano	FSS	60	47	25	
Area II						
U1, 0-10	Mano	FSS	–	74	29	
U1, 10-20	Pitted stone	FSS	89	80	35	one pit, 22 x 1 mm
U23, 0-10	abrader	FSS	52	37	13	
N645E600	Celt fragment	Greenstone	43+	31	31	
Area III						
U4, 20-30	Grinding slab/ Pitted stone	FSS	119	108	43	two pits, 20-21mm in diameter; 2-3 mm in depth
Area VIII						
N685E616	Celt preform	Hatton tuff	73	46	33	
General site						
N580E590	Celt	Hatton tuff	67	36	32	bit width, 30.0 mm; bit height, 18.0 mm
?	Celt	Hatton tuff	–	–	35	

Celts

Celts were probably woodworking tools, used for girdling trees and cutting and shaping larger pieces of wood or timbers, primarily for use in house construction. Celts found on Caddo sites in northeastern Texas are almost always made from non-local materials, namely metamorphic rocks from Ouachita Mountains and Red River gravel sources. One obvious production center for celts, including the petaloid style found on Titus phase sites, is the Sam Kaufman site (41RR16) (see Skinner et al. 1969). There, several large caches of celts in various stages of manufacture have been found and documented, and the abundance of celt flaking debris indicates celts were commonly produced at this large McCurtain phase community center.

At the Pilgrim's Pride site, one celt was found in Fea. 8, a Titus phase burial feature in one of the residential areas (Area I, see Chapter 4, this volume). It is a petaloid-shaped celt made from Hatton Tuff (see Banks and Winter 1975; Banks 1990), a dense and very hard Ouachita Mountains metamorphic rock with distinctive white inclusions. It has a slightly tapered poll end that is abraded and crushed, with a convex and double beveled bit; polish along the bit extends approximately 22 mm towards the poll end. The bit end is 25 mm in width and 19.5 mm in length (see Figure 6-41a). The celt's body has been pecked and abraded for shaping the tool, but any polishing is restricted to the bit itself. In comparison with other celts from burial features, the heavy abrasion/crushing along the poll end, and the short length (64.5 mm) of the Fea. 8 celt suggests it was heavily used and reworked/resharpened before it was included as a funerary object in this burial interment.

There were four other Titus phase style celts or celt fragments found across the site (see Figure 5-34). Including the one found with Fea. 8, four of the five celts are near or within Areas I and II, with the remaining piece recovered from the surface at the eastern end of Area III. Only the one celt in Area II is not made of Hatton Tuff (see Table 5-31); it is made from a green stone, probably a dense siliceous shale.

The celt preform in Area VIII has flat poll and bit ends, with abrading and pecking marks. There is a polished bit end, and the bit end has a large flake fractured off it, indicating that the preform was broken during on-site manufacture. Presumably the celt preform had been shaped at a non-local manufacturing locale, and then traded/exchanged with the Titus phase occupants of the Pilgrim's Pride site. A knapper there managed to break the piece. The Area II celt fragment has a rounded and tapered poll end, and the body is polished, suggesting it was a finished tool before it was apparently broken during use.

One of the celts from miscellaneous contexts (N580 E 590) has a flat polled end, but the bit is bifacial, and was ground and polished (see Figure 5-36e). The bit angle is 70º, and the bit is 30 mm in width. The body of the celt was pecked to shape, but not polished. The other (see Table 5-29) is only a mid-section fragment, but apparently from a finished tool, since the surface of the tool has been well-polished.

Lithic Artifacts from Earlier Paleoindian, Archaic, and Woodland Period Use of The Pilgrim's Pride Site

The Pilgrim's Pride site was occupied a number of times prior to the extensive Late Caddoan period, Titus phase village established there shortly after A.D. 1400, including in Paleoindian, Archaic, and Woodland eras. The evidence for site occupation in these earlier times comes from the chipped and ground stone tools found across the site in varying numbers (Figure 5-37). Because of the nature of much of the archeological investigations here (i.e., heavy machinery scraping/grading), much of this evidence comes from tools found on the surface, rather than in excavated contexts.

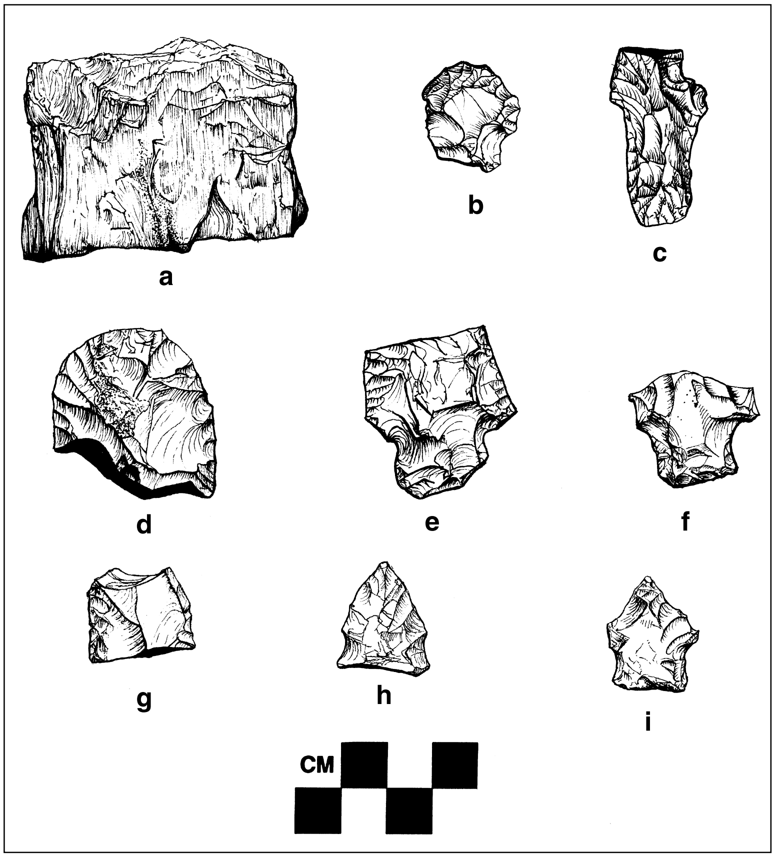


Figure 5-37. Examples of pre-Caddo periods chipped stone tools at the Pilgrim's Pride site: a, gouge; b, side-notched dart point; c, Wells point; d, biface preform; e, Calf Creek point; f, possible Gary or Kent point; g, expedient flake tool; h, side-notched dart point; i, parallel stemmed dart point. Provenience: a, N660 E560; b, d, Unit 23, 30-40 cm; c, surface east or west of Unit 7; e-f, N670 E610; g, Unit 2, 30-40 cm; h, general site surface; i, Unit 13, 30-40 cm.

However, enough is known about the kinds and ages of Paleoindian, Archaic, and Woodland period tools in northeastern Texas sites (e.g., Story 1990; Perttula 1995; Turner and Hester 1993; Webb et al. 1969, 1971) that one can be fairly confident in the identification of such earlier tools from surface or shallowly buried contexts at the Pilgrim's Pride site.

There are 90 dart points from across the Pilgrim's Pride site, with the highest densities in Area III (n=25) and Area II (n=14) (Table 5-32) (Figure 5-38). These points document a periodic use of the site since early Paleoindian or Clovis times, from ca. 11500-11000 years B.P. (Bousman et al. 2004:48), to as late as the Woodland period some 1200 years ago. Most of the projectile points, however, appear to be of Late Archaic and Woodland period ages, and include such types as Bulverde, Dawson, Elam, Ellis, Gary, Kent, and Williams. The absence of these points from Area V/VI, Area VII, and Area VIII suggests that these areas were probably occupied prior to ca. 3000-4000 B.P., while the other intra-site areas were periodically used in Paleoindian, Archaic, and Woodland periods. Significantly, six of the eight Paleoindian points from the site are from those same three areas: Area V/VI (n=2), Area VII (n=2), and Area VIII (n=2) (see Figure 5-38).

Other kinds of known Archaic tools (i.e., gouges and polished axes) are mainly found in areas of the site away from the densest concentrations of dart points (Figure 5-39). These tools were recovered in the western part of Area I, the northern part of Area II, and just south and east of Area IV. The absence of a spatial association between the dart points and the heavy woodworking tools suggests some spatial division in activities during the principal Archaic occupations of the site, with dart point concentrations marking habitation locales, and the other tools more specific work/task areas.

There are eight Paleoindian-style projectile points in the assemblage. These were found in Area I, Area II, Area V/VI, Area VII, and Area VIII (see Figure 5-38), and include Clovis, San Patrice, Dalton, and Big Sandy types, as well as several untyped lanceolates. The San Patrice point and one of the lanceolates were made from local brown and brownish-yellow cherts, but the others are made of non-local lithics. These

Table 5-32. Dart points.

Provenience	Type	L	W	Th	SW	RM	RS	S	EG
Area I									
U14, 60-70	Gary	33.0	13.0	5.0	–	QTZ	+		
U14, 60-70	Gary	21.0	16.0	6.0	12.8	QTZ			
U14, 60-70	Wells	70.0	26.0	9.0	17.0	QTZ			
U22, 10-20	Gary	35.0	22.0	7.0	14.0	QTZ			
N630E550	Gary	31.0	19.4	6.1	16.0	NOV			
N640E590	Side-notched	28.9	23.1	6.9	22.2	NOV	+		+
N660E560	Wells	–	–	9.0	17.0	QTZ			
N680E560	Gary	32.0	27.5	6.0	16.2	b C	+		
General	Williams (?)	58.0	26.5	11.5	18.0	OG	+		
General	parallel-stemmed	26+	19.4	7.7	17.8	NOV			
General	Gary	–	31.0	7.4	20.1	QTZ	+		
Area II									
U1, 10-20	Gary	33.0	21.0	6.5	14.0	OG			
U2, 20-30	parallel stemmed	–	–	7.0	–	QTZ			
U2, 30-40	Kent	38.0	21.0	8.0	14.0	QTZ	+		
U2, 30-40	Bulverde	–	28.0	8.0	19.0	y-b C			
U2, 30-40	Elam	25.0	19.0	4.2	14.0	NOV	+		
U23, 20-30	parallel stemmed	39.0	21.0	8.0	17.0	PW			
U23, 20-30	parallel stemmed, corner-notched	34.0	19.0	5.4	–	PW			
U23, 30-40	side-notched	22.0	21.0	7.7	–	SSh			
N650E630	Gary	42.0	20.0	8.9	15.5	QTZ			
N670E610	Calf Creek	32.0+	30.0	7.7	–	QTZ	+		
N680E610	Gary	38.1	22.4	8.9	20.0	CS/SS	+		
General	Gary	53.0	19.5	9.2	–	NOV	+		
General	Gary	–	–	8.2	20.2	QTZ			
General	Clovis	–	22.7	5.2	–	g C			+
Area III									
U5, 20-30	Gary	38.0	23.0	8.0	18.0	QTZ			
U6, 20-30	Gary	35.0	22.0	7.0	22.0	PW			
Fea. 317	Yarbrough	44.0	22.0	10.0	16.0	QTZ			
Fea. 343	Wells	–	19.0	8.0	17.0	QTZ			
N570E680	Gary	40.0	16.0	9.0	13.8	y b C			
N580E650	expanding stem	–	25.0	5.6	20.0	PW	+		

Table 5-32. *(Continued)*

Provenience	Type	L	W	Th	SW	RM	RS	S	EG
N580E650	Kent	35.0	15.0	9.0	11.0	y b C			
N590E675	Elam (?)	31.5	22.0	7.3	18.0	QTZ	+		
N590E680	expanding stem, convex base	31.0	25.2	7.7	18.9	OG	+		
N594E650	Gary	30.0	21.5	8.0	14.5	QTZ			
N595E646	Dawson (?)	45.9+	18.0	7.9	14.5	lbg C	+		
N600E670	Gary	34.5	22.2	6.7	14.3	QTZ	+		
N600E670	expanding stem, concave base	46.3+	31.0	8.7	17.7	QTZ	+		
General	Yarbrough	38.5+	25.2	11.5	15.0	QTZ	+		
General	Yarbrough	36.0	19.2	7.0	13.8	QTZ			
General	Edgewood (?)	–	24.0	5.9	12.3	dgb C	+		
General	Ellis	26.6	18.7	4.9	12.0	dg C	+		
General	Kent	35.0	20.0	6.7	14.0	b C	+		
General	Gary	38.8	23.1	8.2	15.0	QTZ			
General	Gary	53.0	27.0	10.5	15.2	NOV			
General	Gary	40.2	24.4	8.4	19.0	NOV	+		
General	Gary	42.0	23.0	7.7	15.6	QTZ	+		
General	Gary	46.8+	32.0	13.0	19.3	QTZ			
General	Gary	44.9	24.0	6.9	14.0	QTZ	+		
General	parallel stemmed	45.4	18.8	8.4	15.4	lg C	+		
Area IV									
N600E550	Gary	38.0	25.0	8.7	18.2	QTZ			
N610E540	Gary	34.0+	28.5	8.5	18.0	OG			
Area V/VI									
N521E560	Lanceolate	–	22.9	6.0	–	dg C	+		
N526E553	Dalton	47.2	22.5	6.0	–	BF C	+		+
N527E559	expanding stem, flat base	–	28.9	7.4	22.0	BF C	+		
N531E563	parallel stemmed	–	17.0	6.0	14.1	NOV			
N533E538	side-notched, flat base	41.5	19.0	9.4	17.2	NOV	+		
General	parallel stemmed	39.0+	19.0	7.0	–	OG			
General	expanding stem, flat base	53.0	29.5	9.0	17.5	OG	+		

Table 5-32. *(Continued)*

Provenience	Type	L	W	Th	SW	RM	RS	S	EG
General	expanding stem, flat base	–	23.1	8.0	14.2	QTZ			
Area VII									
F. 74, 123-170	San Patrice	21.9	22.2	9.2	17.0	b C	+		+
U7-01, 90-93	Calf Creek	–	–	–	–	db chert			
Surface	Lanceolate	34.9	22.0	5.7	–	dgb C	+		+
Surface	Wells	–	24.0	8.9	14.0	QTZ	+		
Area VIII									
Fea. 827	Yarbrough	–	–	–	–	dg C			
N714E599	Lanceolate	23.0	22.6	7.7	–	BF C	+		+
N716E590	Lanceolate	39.3	25.0	6.8	–	b-y C	+	+	+
E. knoll	parallel-stemmed	39.2	19.8	7.9	13.0	r C	+		
E. knoll	Yarbrough	46.0	23.2	6.4	16.5	QTZ	+		
General	parallel-stemmed	–	26.2	6.5	14.2	QTZ			
General	Yarbrough	38.2+	22.1	8.8	15.5	OG	+		
General	expanding stem, concave base	–	–	5.6	10.5	QTZ			
General	expanding stem, flat base	54.0	30.5	12.0	16.0	OG	+		
Area IX									
General	expanding stem, concave base	–	–	5.6	13.3	b-g C			
General	expanding stem, concave base	–	–	6.1	–	NOV			
General	expanding stem, flat base	–	–	7.6	–	NOV			
General	Gary	39.0	21.7	6.4	16.0	b C	+		
Miscellaneous									
U17, 30-40	Dawson	43.0	17.0	7.0	14.0	QTZ			
U20, 0-10	Gary	–	–	–	–	NOV			
U20, 0-10	Gary	46.0	23.0	8.0	16.5	QTZ			
N580E600	parallel stemmed	27.0+	19.0	5.6	12.0	b C	+		
N600E680	parallel-stemmed, flat base	69.0	24.5+	8.9	–	QTZ			

Table 5-32. *(Continued)*

Provenience	Type	L	W	Th	SW	RM	RS	S	EG
N605E670	Gary	35.0+	22.0	10.0	17.8	QTZ			
N610E583	Gary	39.8	20.5	7.9	16.8	OG	+		
N615E500	Gary	49.0	20.0	7.0	12.0	QTZ			
N676E642	parallel-stemmed, concave base	38.0+	17.4	6.9	15.7	OG	+		
N710E660	Calf Creek	31.0+	33.2	6.7	17.5	NOV	+	+	
N745E635	Elam (?)	28.2	22.9	9.1	17.0	QTZ	+		
General	Gary	37.0	18.0	7.0	13.0	QTZ			
General	side-notched	24.0	20.0	16.0	7.0	NOV	+		

Measurements in mm; QTZ= quartzite; NOV= novaculite; bC= brown chert; OG= Ogallala quartzite; b-g C=brownish-gray chert; r C= red chert; b-y C=brownish-yellow chert; dg C=dark gray chert; db C= dark brown chert; SW = stem width; RM = raw material; RS = resharpened; S = serrated; EG = edge grinding

include Ouachita Mountains and Red River gravel sources of Big Fork chert (n=2) and novaculite (n=2); the sources of the other cherts—dark grayish-brown, dark gray, and gray colors—may be the same.

The oldest Paleoindian point is a Clovis fragment from Area II, made of a gray, lustrous chert (Figure 5-40a). The basal fragment has a single flute on both faces, and the flute widths range from 7.2-8.4 mm; flute lengths are at least 12.2-13.4 mm, but the flutes are actually longer than these measurements because the transverse fracture on the blade cut across the top part of the flutes. The broken basal piece also has a recognizable burin on one lateral edge. Other pertinent measurements (cf. Meltzer and Bever 1995) are a basal concavity of 1.9 mm and a basal width of 21.9 mm.

Dalton points apparently were made and used between about 10500-10000 years ago, in Late Paleoindian times, and the discovery of a Dalton point at the Pilgrim's Pride site is consistent with its known distribution in Texas (Bousman et al. 2004) and locales to the north and east in the Trans-Mississippi South. There is an extensively resharpened and fluted Dalton point and drill from Area V. It has a deep basal concavity (4.4 mm) and prominent ears (including one with a stream-rolled cortex on it) (see Figure 5-40d). It is made from a black Big Fork chert.

Another resharpened Big Fork chert lanceolate point was collected from Area VIII. The blade had been resharpened into a bifacial scraping edge, probably after it had been broken from earlier uses, because the scraping edge begins just above the lateral grinding (see Figure 5-40g). The lanceolate has parallel stems. The San Patrice point from Area VII also has a blade resharpened bifacial scraper bit (Figure 5-41a). There are cortical remnants on both ears of the deeply concave base. Bousman et al. (2004:60) suggest that San Patrice points date from ca. 10300-9000 B.P., partially contemporaneous but also later than Dalton points.

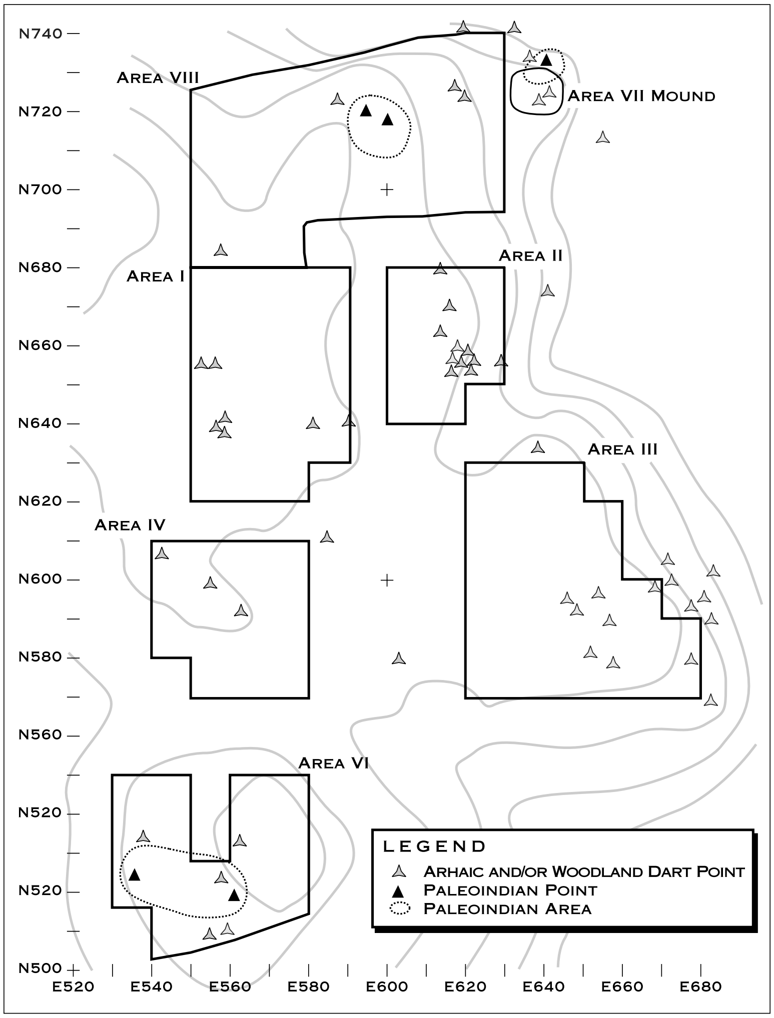


Figure 5-38. Distribution of Paleoindian, Archaic, and/or Woodland period dart points at the Pilgrim's Pride site.

One lanceolate point mid-section from Area V has parallel flaking across the blade, and remnants of lateral grinding (see Figure 5-40d). It is made from a dark gray chert with bluish-gray inclusions, and the point was broken by an impact fracture on its obverse face; there is also a potlid fracture on this face.

The two untyped lanceolates from Area VII and Area VIII have broad haft and basal widths, but very shallow basal concavities; they also have basal and lateral grinding (see Figure 5-40e-f). The points resemble the parallel-sided stem category of lanceolates identified by Bousman et al. (2004: Figure 2.18) from Late Paleoindian archeological deposits at the Wilson-Leonard site in Central Texas. One is made of a local brownish-yellow chert (see Figure 5-40f) and the other is a lustrous dark grayish-brown chert (see Figure 5-40e). The blades on both are resharpened down to the top of the lateral stem grinding, and there is a burin on the blade of the Area VII point.

The last Paleoindian point is an extensively resharpened and side-notched Big Sandy point, made from gray novaculite, found in Area I. There is lateral and basal grinding on the stem, and the blade has been resharpened into a bifacial scraper (see Figure 5-41b). There is also a remnant of a small flute or basal thinning flake on the stem (see Figure 5-41b').

The remainder of the dart points at the Pilgrim's Pride site are stemmed forms, with either expanding (see Figures 5-33d, 5-37b, e-f, h, and 5-41b-i), parallel (Figure 5-42a-h, see also Figure 5-37i), or contracting stems (Figure 5-43a-e, see also Figure 5-33c, f-h); these were made and used in Middle Archaic, Late Archaic, and Woodland period times, or between ca. 6000-1200 years ago. The expanding stem forms are also thought to be the oldest of the Archaic points in the collection, followed by those with parallel or straight stems, and finally by the contracting stem dart points. These ubiquitous points are apparently the last dart points made, during Woodland period times, and were seemingly rapidly replaced by stemmed arrow points around A.D. 600-700.

The most common projectile point types are the Gary (n=31), Yarbrough (n=6), Wells (n=4), Kent (n=3), Elam (n=3), and Calf Creek (n=3) forms. The Gary and Kent points are Late Archaic and Woodland temporal diagnostics, the Wells points probably date to the Late Archaic (based on the high percentage made on local raw materials, although Thurmond [1990a] and Turner and Hester [1993], among others, consider them to be Early Archaic forms), as do the Elam points, while Yarbrough points were made in both Middle and Late Archaic times, ca. 5000-3000 years ago (see Fields et al. 1997; Perttula and Ricklis 2004). Other projectile points (see Table 5-32) identified in the chipped stone tools include Williams (n=1), Ellis (n=1), and Bulverde (n=1) types.

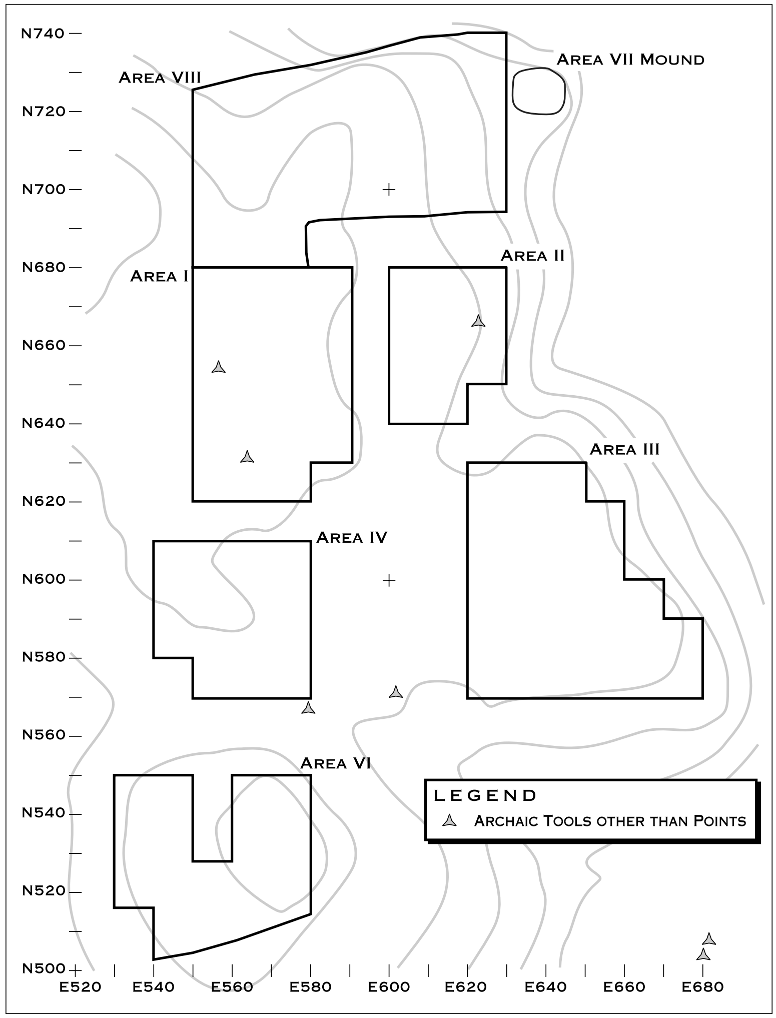


Figure 5-39. Distribution of other Archaic tools at the Pilgrim's Pride site.

The Gary points from the Pilgrim's Pride site fall into three groups based on consistent differences in stem width: (a) 12.0-15.0 mm stem width (n=10); (b) 15.1-17.0 mm (n=8); and (c) 17.6-22.0 mm (n=10). These groups are probably comparable to the three varieties defined by Schambach (1982: Tables 7-2 to 7-4), from thinnest to thickest, *var. Camden*, *var. LeFlore*, and *var. Gary*. Fortunately for us, these differences in stem width thickness apparently also reflect temporal differences (as well as changes in hafting), as these contracting stem points became thinner and narrower at the stem through time. The oldest and thickest Gary point, *var. Gary*, may have been made about 2800-2400 years ago; the intermediate form, *var. LeFlore*, was a popular point style between ca. 2400-1700 years ago; the *var. Camden*, the narrowest style, was made around 1700-1200 years ago (see Schambach 1982, 1998).

On this basis, there are some interesting differences across the site in which variety of Gary point has been found. For instance, only the *var. Gary* (n=2) form has been collected from Area IV, but all three varieties are present in roughly equal numbers in Area I and II. In Area III, however, while all three varieties are present, the *var. Camden* form is the most common (n=5/11), compared to two *var. LeFlore*, and four *var. Gary* points. These spatial patterns suggest an extensive use of all parts of the Pilgrim's Pride between ca. 2800-1200 years ago, but with slightly different spatial foci in settlement choices through this almost two millennia period.

There are a considerable number of untyped dart points, probably of Late Archaic age, that have relatively narrow parallel stems with flat to slightly concave bases (n=12) (see Figures 5-37i

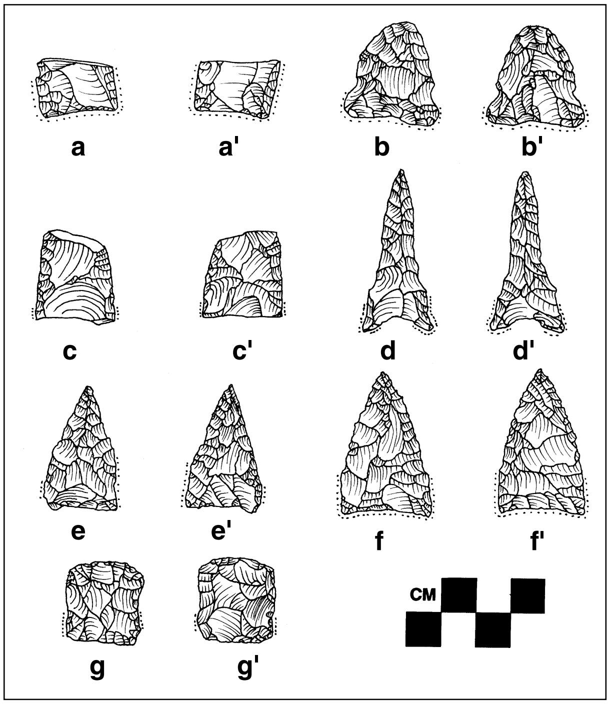


Figure 5-40. Paleoindian points from the Pilgrim's Pride site: a, Clovis; b, Big Sandy; c, e-g, untyped lanceolates; d, Dalton. Provenience: a, Area II surface; b, Area III, N590 E680; c, Area V, N521 E560; d, Area V, N526 E533; e, Area VII surface, north of mound; f, Area VIII, N716 E590; g, Area VIII, N714 E599.

and 5-42a, d, f) as well as expanding stem forms with broad bases and small barbs (see Figure 5-41c, e, h-i) Most of these dart points also have resharpened blades.

With the exception of three Archaic style side-notched dart points, with broad stems and shallow notches (see Figure 5-37b, h and Figure 5-41f), and several of the Calf Creek points, that are made on non-local lithic raw materials, in general the other Middle-Late Archaic and Woodland period projectile points are overwhelmingly made on local quartzites, cherts, and petrified wood. The remaining 77 Archaic and Woodland dart points are predominantly manufactured from local quartzites (60%), followed by non-local materials (24.7%), local cherts (10.4%), and petrified wood (5.2%). By way of comparison, keep in mind that 75% of the Paleoindian projectile points are made from non-local materials. Among the largest groups of points, 81% of the Gary points are on local materials, especially quartzite; 100% of the Wells points are made from local quartzite; 83% of the Yarbrough points are on local quartzites; 55% of the expanding stem dart points are on local quartzite; as are 42% of the parallel stemmed points. Local cherts were primarily restricted to Kent (67%) and Bulverde points, while petrified wood was selected for point manufacture only in 3% of the Gary points, 9% of the expanding stem darts, and 16.7% of the parallel stem points.

Only 14% of the bifaces at the Pilgrim's Pride site are fragments of completed tools, probably knives or large hafted bifacial scrapers. The remainder of the bifaces are the discarded fragments of bifacial tool manufacturing failures, most likely stemmed bifacial dart projectile points (see Figures 5-36b-c and 5-37d). These manufacturing failures were relatively thick

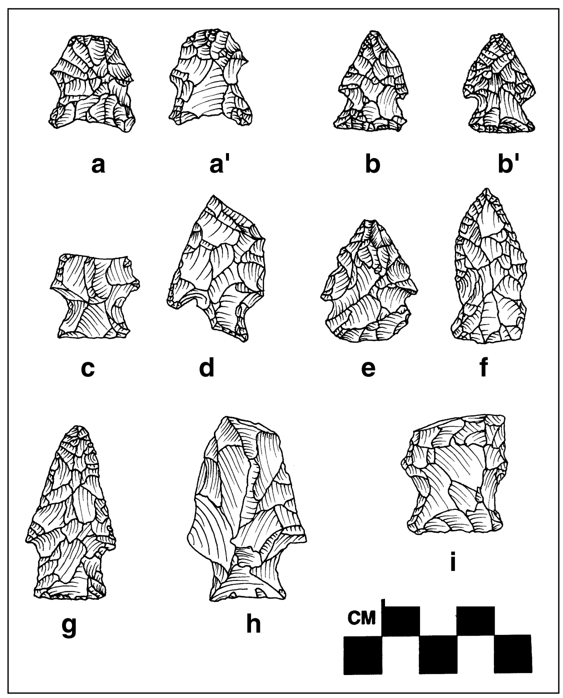


Figure 5-41. San Patrice and other expanding stem dart points: a, San Patrice; b, Ellis; c, expanding stem; d, Edgewood; e, expanding stem; f, side-notched; g, Yarbrough; h, expanding stem; i, expanding stem. Provenience: a, Area VII, Fea. 74, 123-170 cm; b, d, Area III surface; c, Area V/VI surface; e, Area III, N590 E680; f, Area V/VI, N533 E538; g, Area VIII, east knoll; h, Area III, N600 E670; I, Area V/VI, N527 E559.

bifaces, thinned to some extent and initially shaped by primarily hard hammer flaking, with sinuous edges, and with most cobble cortex removed by knapping before they were broken during further attempts at thinning and shaping of the pieces (Table 5-33).

The thicker bifaces tended to be more than 15 mm thick, and about 50% were unbroken when they were discarded, because thicker knots of material could not be removed. All of the thick bifaces are on local materials—indicating likely on-site knapping activities—as is the case for indeterminate biface fragments, thin bifaces, and the one bifacial tool with a beveled bifacial bit (see Table 5-33). This tool, from Area II, has a steep (50º) bifacially chipped and retouched bit at one end of the piece; the generally ovoid-shaped tool has been bifacially chipped, and there is a lateral fracture at the other end of the tool.

Most of the bifacial tools and tool fragments are on non-local lithic raw materials (57%). These materials occur at an even higher percentage than

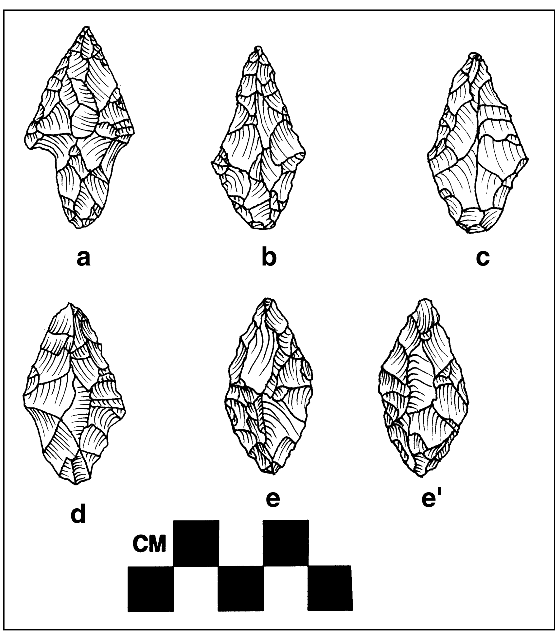


Figure 5-43. Gary points. Provenience: a, Area III surface; b, Area IV, N610 E583; c, Area II, N680 E610; d, Area IX surface; e, Area I surface.

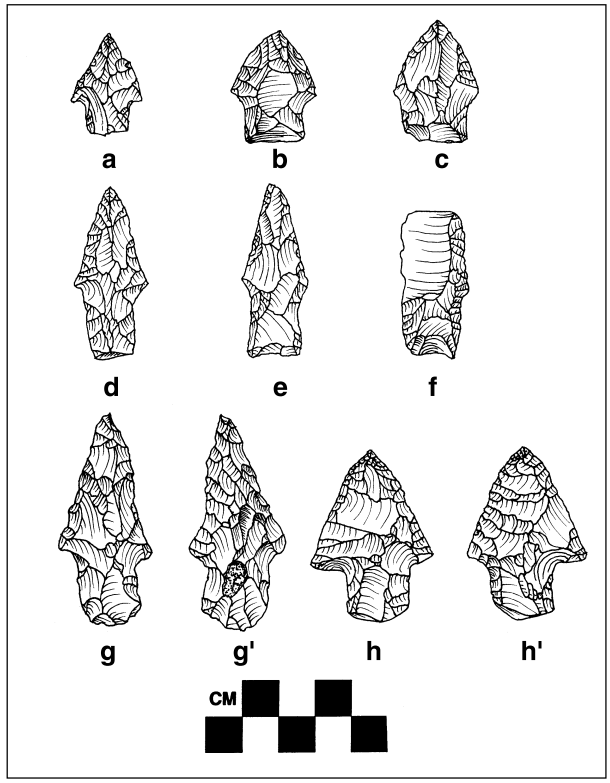


Figure 5-42. Parallel stemmed points: a, parallel stemmed; b, Elam; c, Elam; d, parallel stemmed; e, Dawson; f, parallel stemmed; g, Williams; h, possible Calf Creek. Provenience: a, N580 E600; b, N745 E635; c, Area III, N590 E675; d, Area III surface; e, Area III, N595 E646; f, Area II, N676 E642; g, Area I surface; h, N710 E660.

is the case for the dart points as a group, of which 32% are on non-local lithics. Most notably, however, the dart points that have the highest proportions of non-local materials are Paleoindian to Middle Archaic examples, including Calf Creek (67%), Big Sandy and other side-notched points (100%), and Dalton, untyped lanceolates, and Clovis points (71%). Perhaps these bifacial tool fragments are from these much earlier Archaic and/or Paleoindian occupations.

Only four flake tools were recovered in the deeper archeological deposits (30+ cm bs) in Area I, Area II, and Area III that are apparently associated with the pre-Caddo occupations—probably mainly of Late Archaic and Woodland period ages—of the site. These four tools (see Table 5-29) include a side scraper, an end scraper, and two expedient flake tools (one with unilateral and the other with bilateral use wear).

Table 5-33. Bifaces and Biface Preforms.

Area/Provenience	Tool type	Raw Material	L	W	Th
I					
N660 E560	bifacial tool fragment	novaculite	–	–	4.8
N670-680 E550	bifacial tool fragment	white chert	–	31	9.4
General	thick biface	quartzite	44	29	15.0
General	biface preform	quartzite	39	21	10.0
General	thick biface	quartzite	35	22	14
II					
Unit 8, 20-30 cm	biface preform fragment	Ogallala quartzite	–	26	9
Unit 8, 20-30 cm	biface preform fragment	Ogallala quartzite	–	20	8
Unit 10, 10-20 cm	biface preform	Ogallala quartzite	42	30	12
Unit 16, 20-30 cm	biface preform	quartzite	37	24	11
Unit 23, 10-20 cm	biface preform fragment	Ogallala quartzite	–	–	–
Unit 23, 20-30 cm	biface preform fragment	quartzite	–	26	11
Unit 23, 30-40 cm	biface preform tip frag.	quartzite	–	–	7.7
Unit 23, 30-40 cm	biface preform fragment	quartzite	–	–	12.8
Unit 23, 40-50 cm	biface preform	reddish-yellow chert	34	23	9
N668 E630	biface fragment	quartzite	–	38.5	9.0
N670 E610	thick biface fragment	quartzite	–	35	10.5
General	thin biface	Ogallala quartzite	55	25	8.2
General	bifacial tool/beveled bit	quartzite	75.5+	21	6.9
General	bifacial tool fragment	quartzite	–	32	9.4
General	thin biface	Ogallala quartzite	45	20.5	8.0
General	biface fragment	quartzite	31+	26.5	9.2
III					
N570 E600	thick biface fragment	petrified wood	32+	40	15.0
N570 E630	bifacial tool	light gray chert	25.5	17.4	7.9
N580 E650	bifacial fragment	quartzite	–	–	6.9
N580 E680	biface fragment	petrified wood	–	24	11
N590 E680	thick biface	Ogallala quartzite	37	27	10.3
N610 E655	thick biface fragment	Ogallala quartzite	40+	37.2	13.6
General	thick biface	quartzite	41	26	15.0
General	bifacial tool fragment	novaculite	–	24	8.2
General	biface preform	quartzite	37.2	24.2	11.5
V					
N525 E559	thick biface	Ogallala quartzite	65	33	23
N532 E580	thick biface	petrified wood	31+	36	15.5
N536 E580	thick biface	petrified wood	58+	44	18

Table 5-33. *(Continued)*

Area/Provenience	Tool type	Raw Material	L	W	Th
VIII					
N740 E620	biface preform fragment	Ogallala quartzite	–	27	9.1
East knoll	thick biface	Ogallala quartzite	48	30	13
S. of Unit 19	biface preform fragment	quartzite	–	44	12
S. of Unit 19	biface preform	Ogallala quartzite	48	30	12
S. of Unit 19	thick biface	petrified wood	46	35	15
IX					
General	thin biface/knive	Ogallala quartzite	–	20	5.6
Miscellaneous					
N585 E510	thick biface	quartzite	50	33	16
N600 E693	thick biface fragment	quartzite	–	–	14.9
N600 E?	bifacial tool fragment	quartzite	–	–	–
N600 E?	biface preform fragment	novaculite	–	–	8
N600 E?	thick biface fragment	petrified wood	–	–	13
N600 E?	biface preform fragment	yellowish-brown chert	–	–	8.7
N650 E650	thin biface	petrified wood	37	31	8.8
General	biface tip	quartzite	–	–	–
General	thick biface fragment	quartzite	–	34	22
General	biface preform	quartzite	36	29	11
General	biface preform	quartzite	44	39	13

Measurements in mm

Seventy-five percent of these are on local lithic raw materials, quite a contrast to the flake tools from the Titus phase occupation, which are dominated by non-local lithic raw material use.

Most of the other flake tools are probably also from these earlier occupations, although the available provenience data are not sufficient to make that case. Perhaps the best examples of these earlier flake tools are the unifacial chipped gouges and larger flake scrapers. The possible chipped gouge in Area III was made from a large heat-treated hard hammer quartzite flake. It has uniform edge retouching and a 32.5 mm and bifacially chipped bit. One of the largest scraping tools was collected from the surface of Area III (N586 E653). It is an end and side scraper made from a hard hammer flake of gray, non-local chert (see Figure 35g). The tool has a 75+ mm long area of unifacial steep retouch (70º) and a graver spur on one edge, as well as bifacial scraper retouch on another edge.

Not including numerous ground stone tools from Area VIII discussed by Walters (see below), there are 22 ground stone tools in the collections that are likely from pre-Caddo and earlier archeological contexts (Table 5-34). They are found in the principal site areas, but are most frequent in Area III. As mentioned earlier, the dart points in Area III (see Figure 5-38) are dominated by Woodland and Late Archaic period forms (see Table 5-32).

The ground stone tools from these presumed earlier contexts are dominated by woodworking and plant grinding tools. They include four pitted stones, three axes or axe fragments, three gouges with polished and/or chipped surfaces, two manos (see Figure 5-36d), three manos with small pits/depressions, two grinding slabs, two metates, and two grinding basins. In Area V, there were two hard hammer hematite flakes with polished dorsal surfaces (see Table 5-34); these obviously had been removed from a polished ground stone tool, probably an axe or gouge. The flakes may have been removed from such tools during resharpening.

The complete polished axe from Area III has a notch below the flat poll end, rather than a central groove, suggesting it had been hafted differently than most polished axes. The bifacial bit has been chipped to shape/use, rather than polished. The grooved axe (N500 E680) was broken along the groove; the tool was not polished. The Area I fragment, from 50-60 cm bs, was also broken along the its mid-section, probably during use. It is polished on both faces and has a flat poll end.

One of the distinctive wood-working gouges has chipped and polished surfaces on one face, while the other (on the opposing face to the working bit) has been polished but not flaked (see Figure 5-36a-a'). It has a 54.0 mm wide and unifacial bit, with a 30º edge angle. The Area VIII gouge was broken across the medial part of the tool. The other (Area I) gouge has a 34.0 mm wide unifacial bit. The gouges are made from hematite and ferruginous sandstone, very durable local raw materials.

Grinding slabs were found in Area I and Area III (see Table 5-34). Grinding basins and metates occur in pre-Caddo contexts in Area III, Area V, and Area VIII; these are areas with Late Archaic and earlier Archaic and Paleoindian contexts, at least as based on identified projectile points in these areas. These tools are on large slabs of ferruginous sandstone and coarse-grained quartzite, ranging from 153-233 mm in length and 128-153+ mm in width. They have shallow (>10 mm) basin-shaped grinding areas, usually on only one surface of the slab, and the grinding areas have pecking marks, indicating they were formed by percussive force, as well as repetitive back-and-forth grinding motions. The grinding basins cover 80-90% of one slab surface.

One grinding basin from Area V (see Table 5-34) had been flaked and pecked along its margins (as part of shaping of the slab), and had deep (>25 mm) pecked basins on both surfaces of a ferruginous sandstone slab. The deep basin along the margins of the broken ground stone tool suggests that it had functioned as a mortar where durable plant materials were crushed and pulverized with a pestle within a confined area (i.e., confined by a basket placed over the deep basin) on the slab. The presence of metates, grinding basins, and grinding basin/mortar tools in earlier pre-Caddo contexts at the Pilgrim's Pride site suggest the intensive processing of plant materials in those eras.

GROUNDSTONE TOOLS FROM AREA VIII

Mark Walters

Fifteen ground stone tools were collected from Area VIII during the March 1999 monitoring of construction activities in this residential area of the Pilgrim's Pride site. Because these tools were collected from general contexts (i.e., from backdirt or along a scraped area), rather from a known and demonstrably in situ context, this discussion will focus solely on the character of the ground stone tools themselves rather than a consideration of their temporal and spatial associations, which are unknown. However, it is presumed that these tools probably relate to prehistoric occupations well predating the Titus phase residential use of Area VIII, instead likely dating to Archaic times (see Tomka, Chapter 5, this volume). Included in the Area VIII ground stone tools are one metate, one pitted stone, five pitted stone/manos, seven battered stones or hammerstones, and a hematite grooved axe.

Table 5-34. Ground stone tools from earlier occupations at the Pilgrim's Pride site.

Provenience	Tool Form	Raw Material	L	W	Th	Comments
Area I						
U13, 40-50	Grinding slab	FSS	108	63	17	
U13, 50-60	Axe fragment	Hematite	–	49	10.5	bit width, 48.0 mm
N620-640E560	Gouge	FSS	65	35	19.0	bit width, 34.0 mm; bit height, 23.0 mm
General	Mano	FSS	59+	34	17	
Area II						
U2, 30-40	Mano/Pitted stone	Hematite	75	80	34	one pit, 24 x 1 mm
U16, 30-40	Pitted stone/ Mano	Quartzite	86	76	41	one pit, 13 x 1 mm
N670E630	Pitted Stone/Mano	FSS	53+	58	40	one pit, 16 x 2 mm
Area III						
N580E650	Grinding slab	Hematite	148	138	45	
N594E665	Metate	FSS	153	128	75	
N600E660	Metate	Quartzite	153	131	76	
N604E625	Mano	Quartzite	79	56	34	
General	Axe	Hematite	88	66	33	
General	Pitted stone	FSS	88	74	66	two pits, 21-23 mm in diameter; 2 mm depth
Area V						
N523E554	Unknown	Hematite	51-55	32-34	9-14	two flakes from a polished groundstone tool
N532E574	Grinding basin	FSS	167+	153+		
Area VIII						
N730E610	Grinding basin	FSS	233	146	82-107	
General	Gouge frag.	Hematite	43+	25	5	
General site						
N500E680	Grooved axe	FSS	99+	84+	37	
N570?, 70 cm	Gouge	Hematite	122	55	34	bit width, 54.0 mm; bit height, 29.0 mm
N580?	Pitted stone	Quartzite	152	64	53	two pits, 21-26 mm in diameter, 1-2 mm in depth
?	Pitted stone	FSS	116	88	31	two pits, 27 mm in diameter, 3 mm depth
?	Pitted stone	FSS	95	87	46	two pits, 29-33 mm in diameter; 4 mm depth

FSS = ferruginous sandstone

The 15 ground stone tools are on sedimentary rocks, which are the result of the weathering of older rocks that formed through mechanical, chemical, or organic processes. The raw materials are characterized by parallel or bedded structures, and the individual grains show considerable variation in size and composition. When particles of quartz—varying in size from 0.02-2.0 mm—become consolidated, the material is called sandstone. The cementing material can vary in both amount and character, with the primary cementing material being silica; others include calcium carbonate, clay, iron oxide, and calcium sulfate. Those raw materials with the greatest variation in color contain iron oxide. Oxidation occurs when oxygen combines with iron to form iron oxide (hematite) or limonite.

The metate (Figure 5-44) is made from a fine-grained ferruginous sandstone weighing 1625 g and 200 x 250 x 120 mm in size; it is a maximum of 57 mm thick. One surface is concave and unaltered, but the other surface is convex with a smooth to polished surface (50 x 50 mm in size) from the back and forth grinding motions of a mano or smaller grinding stone.

The single pitted stone is a triangular-shaped piece of fine-grained ferruginous sandstone 160 x 110 x 100 mm in length, width, and thickness; it weighs 950 g. The large pitted stone has two circular depressions on one surface (Figure 5-45), and three on the opposing surface. The pitted depressions range from 12.6-32 mm in diameter and 5-11.5 mm in depth. The lack of pulverized grains, the absence of linear striations, and no difference in color between the pit and the stone's surface suggests that bipolar flaking formed these pits, not nut cracking.

The five pitted stones/manos are rectangular in shape with smoothed abraded/striated areas with small smoothed depressions and/or pitted areas. These tools were probably used to grind small seeds or pulverize relatively soft tissues (cf. Adams 2002). All are made of ferruginous sandstone, and range in size from 56-92 x 47-75 x 32-43 mm in length, width, and thickness; they weigh from 225-650 g. The pitted depressions on two of the tools are 15-17 mm in diameter and only 2 mm in depth.

The circular to relatively flat battered stones or hammerstones have battered/crushed and/or smoothed surfaces, and weigh between 325-650 g. They are made of a fine-grained siltstone.

Figure 5-44. Area VIII metate.

A single Late Archaic style hematite grooved axe (cf. Story 1990:Figure 32) was collected from Area VIII (Figure 5-46). It measures 87 x 52 mm in length and width. This tool has a hard outer crust—commonly seen on hematite tools—with striated linear use marks, a battered poll end, and a well-shaped bifacial bit.

LITHIC DEBRIS

In Tomka's analysis (earlier in Chapter 5) of the lithic debris from Titus phase features, he found that the vast majority (more than 89%) of the lithic debris was of local raw materials, including fine-grained quartzite (i.e., Ogallala quartzite, 49%), petrified wood (14.4%), coarse-grained quartzite (10.8%), several colors of chert (i.e., red, tan, yellowish-brown, brown, and reddish-brown, 12.6%), and ferruginous sandstone (2.7%). The remainder of the lithic debris in those features, almost 11% of the lithic debris assemblage, was from non-local sources, probably Ouachita Mountains and Red River gravel sources (e.g., Bruseth and Perttula 1981; Banks 1990; Mallouf 1976). These non-local raw materials were all fine-grained cherts (9%) or novaculite (1.8%).

Figure 5-45. Area VIII pitted stone.

Examining lithic debris from other contexts at the Pilgrim's Pride site provides further evidence for the relatively extensive use of non-local lithic raw materials (Table 5-35) in Late Caddo Titus phase times. Pertinent here, however, is that this archeological data permits comparisons with the acquisition and use of non-local lithic raw materials in earlier, pre-A.D. 800 occupations at the site.

Late Caddo archeological deposits in Area I excavations units (Unit 7, 13-14, 22, and 24) have 17.3% non-local raw materials represented in the lithic debris. These include Big Fork chert, dark brown chert, gray chert, claystone/siltstone, and novaculite. By comparison, the deeper deposits (30-80 cm bs) in Units 13, 14, and 22 with Woodland and Archaic projectile points have only 9.7% non-local lithic debris, although the debris is probably from the same sources.

In Area II (Units 2, 8, 16, and 23), the Late Caddo archeological deposits (n=75) have 8% non-local lithic debris, with novaculite, claystone/siltstone (from Red River gravels), and Big Fork chert. In Unit 1 in Area II, 10.6% of the lithic debris (n=47) in Titus phase deposits are from non-local materials.

Figure 5-46. Area VIII grooved axe.

Non-local lithic debris is less common in the deeper and earlier deposits (n=280) in Area II, where it accounts for only 3.9% of the sample; novaculite comprises more than 60% of the non-local materials in these deposits. The principal local raw materials in the lithic debris are coarse-grained quartzite (67%), fine-grained quartzite (19%), and petrified wood (3.6%), with a few pieces of ferruginous sandstone (2.1%), probably a by-product of the manufacture and shaping of ground stone tools.

About 18% of the lithic debris in Late Caddo archeological deposits (n=94) in

Table 5-35. Non-local Lithic Raw Materials in The Pilgrim's Pride Site Lithic Debris.

Non-local lithic raw material	Titus phase context	pre-A.D. 800 contexts
Gray chert	x	x
Dark gray chert	x	
White chert	x	x
Big Fork chert	x	x
Bluish-gray chert		x
Grayish-black chert	x	
Dark brownish-gray chert	x	
Dark brown chert	x	x
Grayish-brown chert	x	x
Novaculite	x	x
Claystone/siltstone	x	x

Area III units (Units 3-6, 9, and 25) are of non-local materials, with novaculite the principal non-local source (6%). Other non-local materials in these deposits are Big Fork chert, grayish-brown chert, gray chert, dark gray chert, dark brownish-gray chert, and dark brown chert. In the deeper deposits (20-40 cm) here, 12% of the lithic debris (n=90) is of apparent non-local origin; novaculite is again the principal non-local material.

In Area VIII (Unit 19), the lithic debris (n=19) in the deeper archeological deposits (30-60 cm bs) are dominated by coarse-grained quartzite (63%) and Ogallala quartzite (10.5%). The only other local material is a yellowish-brown chert (5.3%). Non-local lithic raw materials are abundant here (21%), more so than in the Titus phase features, and includes novaculite, a grayish-brown chert, and a gray chert. The shallower Late Caddo deposits have only five pieces of lithic debris, but 60% are from non-local sources.

In each part of the Pilgrim's Pride site, we have documented that the use of non-local lithics was more prevalent in Late Caddo Titus phase residential contexts (and in the Area V/VI funerary offerings, see Chapter 6, this volume) than it was in the earlier Woodland and Archaic occupations in those same areas. Nevertheless, there was a considerable diversity in the use of such materials within the site, as between 8-60% of the lithic debris from those contexts are from non-local raw material sources along the Red River and/or Ouachita Mountains, probably at least 100 km to the north. Earlier groups relied more heavily on local quartzite, petrified wood, and chert resources, and non-local raw materials comprise between 4-21% of the lithic debris; the highest densities of non-local debris is in the probable Middle Archaic component in Area VIII.

CHAPTER 6

The Titus Phase Cemetery, Area V/VI, at The Pilgrim's Pride Site (41CP304)

Timothy K. Perttula

INTRODUCTION

Area V/VI is situated on the highest natural rise (330 feet amsl) on the Pilgrim's Pride site (see Figure 4-1). Keller and Horizon Environmental Services conducted no excavations in this area because it had a large brush and log pile on it. At the time of our later investigations, the brush pile remained on the rise, but we removed it with the aid of the bulldozer so we could explore the archeological deposits on the rise. Bulldozer and backhoe stripping of approximately 1750 m^2 identified a discrete Late Caddoan period Titus phase cemetery on the southern part of the rise (Figure 6-1). A total of 19 individual burials were identified and excavated in the Pilgrim's Pride cemetery, and these burials are distributed in three roughly north-south rows (Figure 6-2) over an area of about 25 x 19 m. The southernmost burial (Fea. 70) was exposed in a recently excavated road cutbank.

The fact that one burial (Fea. 70) was exposed in the road cutbank leaves open the possibility that there were more burial features in the cemetery, and that some may have been removed and destroyed during the construction of the 30 m wide road bed. We found no evidence of this during the data recovery work, or in our earlier work in the Walker Creek complex (Perttula and Nelson 1998a, 1999a), although one burial feature was exposed in limited excavations at 41CP317, about 40 m from the Area V/VI cemetery. It may be worth noting that a similar Titus phase cemetery at the Alex Justiss site (41TT13)—with 24 burial features—covered a 22 x 17 m area (Rogers et al. 2003: Figure 10).

The burial pits are oriented roughly east-west (Figures 6-3 and 6-4), as with other Titus phase cemeteries (see Turner 1978, 1992; Thurmond 1990a), with the head facing west, and the majority of the pits were excavated from 20-60 cm into a dense reddish-gray B-horizon clay; when these burials were exposed, these were marked by a dense red clay fill. Based on the acidic fine sandy loam soils at the Pilgrim's Pride site, it was considered doubtful that any human skeletal remains would be preserved in grave pits, and such proved generally to be the case. In fact, the majority of the burials did not contain any

Figure 6-1. Hand and machine-aided excavations underway in Area V/VI Titus phase cemetery, looking southwest.

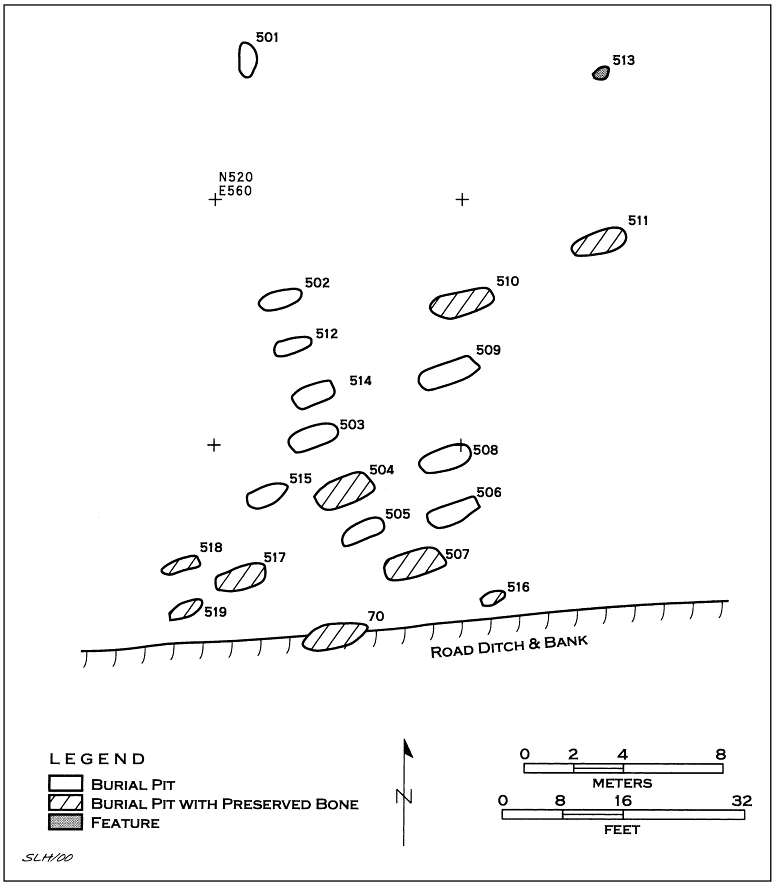


Figure 6-2. Plan of the Area V/VI cemetery and individual burial features.

preserved human remains (see Figure 6-2), and in the few burials that did have human remains, the evidence consisted of very poorly preserved skeletal elements and teeth (see Wilson, Chapter 7, this volume).

As will be discussed below, the burials were accompanied by different kinds of funerary objects, including ceramic vessels (carinated bowls, compound bowls, jars, and bottles), celts, clay pipes, arrow points, bifaces, and other assorted items. An inventory of the funerary objects recovered from the Titus phase cemetery includes 137 vessels, some of which (from the shallower burials disturbed by raking and other construction activities) were fragmentary, four celts, one clay pipe from Fea. 503, 18 arrow points, three bifaces (including a beveled knife from Fea. 509), four smoothed stones, one mano, green glauconitic clay pigment, and a piece of petrified wood with quartz crystals. Based on the funerary objects and the size and depth of the burial pits, there appear to be primarily two different kinds of burials at the site: (a) those in deep pits with celts, arrow points, and ceramic vessels (probably adult males) and (b) shallower and smaller pits with ceramic vessels (probably adult females). We will return to a consideration of the mortuary patterning of the burial interments at the Pilgrim's Pride site, and what they may mean about the social character of the individuals that were buried in the cemetery as well as the Caddo's still living (see Chesson 2001; Silverman and Small 2002), after we present archeological information about each of the burial features, including the kind and placement of associated funerary objects.

Figure 6-3. Looking south at the southern end of the Titus phase cemetery in Area V/VI; 41CP317 is in the background, on the other side of the recently constructed road bed.

The excavation of three 1 x 1 m units (Unit 100, N540 E540; Unit 101, N545

E570; and Unit 102, N530 E570) in Area V/VI, as well as the scraping and shovel skimming work, indicate that there is little to no Titus phase habitation debris on this rise. In fact, the three units recovered a grand total of 12 pieces of lithic debris and three plain sherds. The sherds came from 30-40 cm bs, but most of the lithic debris was found between 50-100 cm bs in the deep sandy sediments on the rise. As much as the top 65 cm of the sediments had been disturbed by the creation of a large brush pile on the rise, and this material was scraped away by the bulldozer. Sediments underneath the disturbed zone included a light brown sandy loam overlying a light brown sandy loam with clay mottles. The clay B-horizon was encountered at 108 cm bs in Unit 100.

As part of the excavations of the burial and grave goods, a Caddo Nation of Oklahoma tribal member on the field crew conducted the necessary ceremonies as laid out by the Nation's Repatriation Committee. The few human remains (if there were any preserved), the funerary objects, and any associated sediments, were kept together in a sturdy box during the analysis phase of the project. These materials have since been returned to the Caddo Nation of Oklahoma for permanent disposition after the analyses were completed, and as part of preparing the collections for long-term curation carried out by the Caddo Nation at our request, as this was the wish of Mr. Lonnie "Bo" Pilgrim, the owner of the collection and also the property owner.

a

b

Figure 6-4. Different views of the excavations in the Area V/VI cemetery: a, completed excavations, with north-south rows of burial pits excavated into the clay B-horizon; b, excavations and recording of Fea. 507 in progress.

BURIAL FEATURES

The Titus phase burial features from the Pilgrim's Pride site appear to be the interments of single individuals. The position and orientation of the limited amount of preserved human remains in the burials indicates that the deceased Caddo individuals were laid in the grave in an extended supine position, with their heads at the eastern end of the burial pit and facing west towards the setting sun. Our discussion of each of the burial features includes the size and depth of the burial pit as well as its orientation, the character of the burial fill, and the placement of the funerary objects in the feature and around the body.

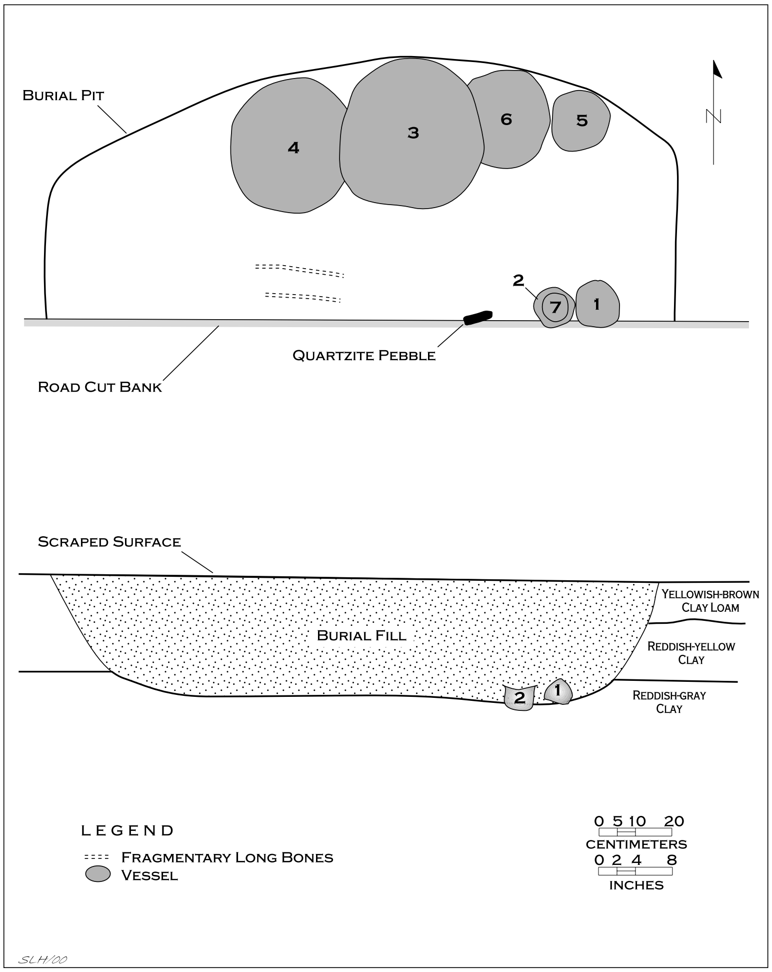


Figure 6-5. Plan and profile of Fea. 70.

Feature 70

This burial feature is the southernmost of the burials in the Area V/VI cemetery (see Figure 6-2). It was exposed in the cutbank of a recently constructed road that circled the site, and it is apparent that the southern part of the burial pit had been cut away in that construction (Figure 6-5).

The visible top of Fea. 70 was 99.768 m in elevation, about 60 cm below the original ground surface and the depth this part of the Area V/VI rise had been scraped to when burial features began to be exposed across the landform. The burial pit extended to 99.308 m, and the pit had gently sloping sides and was 1.73 m in apparent length; the remaining portions of the pit were a maximum of 73 cm in width across the central part of the feature (see Figure 6-5). The pit extended through at least three different B-horizon zones, including a yellowish-brown clay loam, a reddish-yellow clay, and a reddish-gray clay; the latter clay is probably the source of the red clay fill noted in several of the burial features. The burial pit fill was a relatively soft and loose reddish-brown loam that must have come from higher up in the Area V/VI sediments.

In the burial pit itself, extremely fragmentary long bone pieces were noted in the southern part, about 20 cm south of Vessel 4, a large Ripley Engraved, *var. Walkers Creek* carinated bowl (see Appendix VII, Vol. II). The funerary objects remaining in the pit were placed in two rows along what must have been the legs and arms of the deceased individual. The northern row of objects was comprised—from west to east—of two large Ripley Engraved carinated bowls (Vessels 3 and 4), a plain bowl (Vessel 6), and a Maydelle Incised jar (Vessel 5) near the head area. On the other side of the body were three more ceramic vessels, one (Vessel 7) being a pigment jar placed inside a plain compound bowl (Vessel 2). The third vessel on the south side of the body is an engraved bottle (Vessel 1), customarily placed near the head. A quartzite pebble polishing stone was also placed on this side of the deceased (see Figure 6-5). Because of the placement of funerary objects in rows running along most of the body of Titus phase burials, we suspect that several other ceramic vessels had been placed along the southern side of the body, but had been removed during road construction.

Feature 501

Fea. 501 was marked by several concentrations of sherds at the far northern part of the cemetery (see Figure 6-2), at a depth of 99.517 m, about 0.9 m below the ground surface. There were no preserved human remains associated with the feature, only a scattering of fragmentary vessels that must have been disturbed and displaced to an unknown extent by the deep raking carried out by the Pilgrim's Pride Corporation when they cleared the Pilgrim's Pride site of trees and brush in the summer of 1998 (see discussion in Chapter 4, this volume).

In the case of Fea. 501, the remnants of the burial were marked by three sherd concentrations and two stray sherds (Figure 6-6) over a ca. 60 x 50 cm area (Figure 6-6), and with a basal depth of 99.437 m. These concentrations included fragments from three different vessels. The first sherd concentration primarily had sherds from a Ripley Engraved carinated bowl, and sherd B was also part of that vessel. Vessel 2 sherds were present in sherd concentration 1 and 2, along with sherd A (see Figure 6-6) and this vessel is a large La Rue Neck Banded jar. Sherd concentration 3 was an engraved compound bowl.

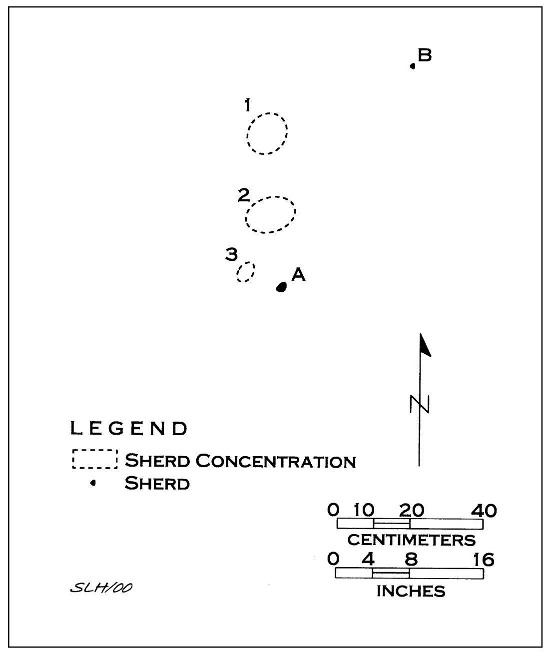


Figure 6-6. Plan of Fea. 501.

Fea. 502 had also been disturbed by the raking operations that had displaced Fea. 501. There were several sherd concentrations from fragmentary vessels exposed at 99.665 m elevation, about 80 cm bs, over a 67 x 30 cm area (Figure 6-7). Upon exposure, the vessels rested at 99.455-99.535 m, between 93-101 cm bs.

The four sherd concentrations had a general east-west orientation like the other better-preserved burials in the cemetery, suggesting they were also in a burial pit, even though there were no preserved human remains. The head must have been near sherd concentrations C and D (see Figure 6-7) because they both contained sherds from an engraved bottle (Vessel 1). Sherd concentration C also contained sherds from two fragmentary carinated bowls, one plain (Vessel 3) and the other a Ripley Engraved vessel (Vessel 2). Near what may have been the feet of the individual buried in Fea. 502 was sherd concentration B, representing a plain bowl (Vessel 4). In the general area of the mid-section was sherd concentration A (see Figure 6-7). Upon exposure, these sherds were seen to belong to an almost complete plain carinated bowl (Vessel 5) that had been tipped sideways by some unknown disturbance. This vessel rested at 99.455 m, apparently deep enough to escape some of the raking disturbances that fragmented the rest of the vessels in Fea. 502.

Feature 503

This burial feature is one of the two largest (along with Fea. 504) burial pits in the Pilgrim's Pride site cemetery. The pit measures 230 x 115 cm east-west and north-south, respectively (Figure 6-8). The top of the feature was exposed at 99.708 m, and its maximum depth was 99.488 m, almost 1 m bs.

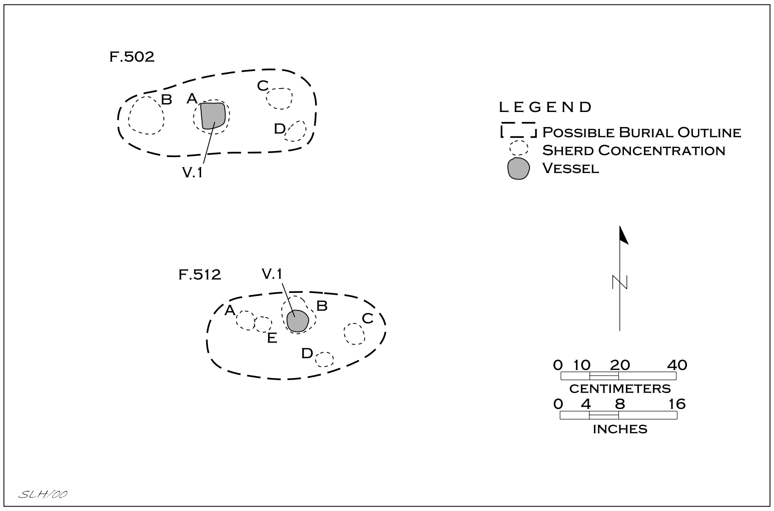


Figure 6-7. Plan of Fea. 502 and Fea. 512.

The floor of the burial pit was a compact reddish-yellow and red clay, and the fill in the pit was a strong brown sandy clay. The walls of the pit were less distinct, but were followed by relying on differences in soil compactness and the location of exposed funerary objects on or immediately above the floor. There were no human remains preserved in Fea. 503.

A variety of funerary objects were placed in the burial pit, whole and/or crushed vessels along the northern and southern walls of the pit, a clay elbow pipe, and chipped and ground stone lithic tools (see Figure 6-8). With the exception of Vessel 1, a large Ripley Engraved compound bowl, the other funerary objects rested on the floor of Fea. 503. Vessel 1 rested from 3-9 cm above the floor, and must have been placed in the burial after the pit began to be filled with sediments, covering the deceased and the other funerary objects.

On the northern side of the burial pit were three vessels, a Ripley Engraved olla (Vessel 2), a Ripley Engraved compound bowl (Vessel 4), and a plain compound bowl (Vessel 6); the latter may have been placed near the head area. There were six vessels along the south side of the body area, beginning with a plain and miniature compound bowl (Vessel 5) by the head area, followed by four

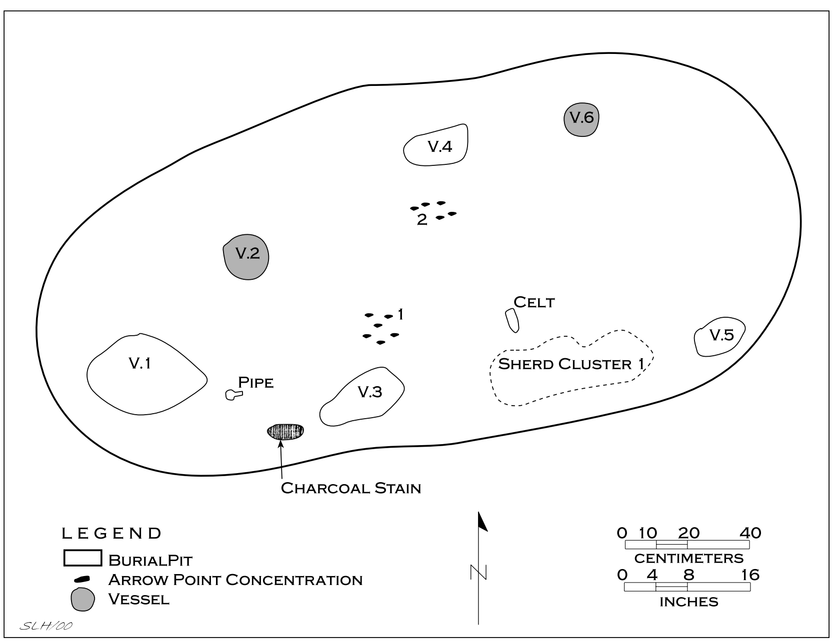


Figure 6-8. Plan of Fea. 503.

vessels in sherd cluster 1, and a Ripley Engraved compound bowl (Vessel 3; there were red pigment clays inside this vessel) by what may have been the lower leg (see Figure 6-8). The four vessels in sherd cluster 1 include a Pease Brushed-Incised jar (Vessel 10), a Ripley Engraved compound bowl (Vessel 9), a plain compound bowl (Vessel 8), and a plain carinated bowl (Vessel 7). The last vessel was the aforementioned Ripley Engraved compound bowl (Vessel 1) in the foot area of the grave. Between Vessel 1 and Vessel 3 was a clay elbow pipe, and there was also a 10 x 5 cm charcoal stain about 10 cm from Vessel 3 (see Figure 6-8).

A ground stone celt rested on the floor a short distance north of sherd cluster 1, perhaps in the waist area. There were also two distinct clusters (10 x 10 cm and 13 x 5 cm in area) of stemmed arrow points resting in what was probably the body's mid-section and upper leg regions (see Figure 6-8). The points all pointed in the same westerly direction, and may have been part of two different quivers of stone-tipped arrows placed in the burial pit.

Feature 504

This burial pit may have been one of the first burials interred in the Pilgrim's Pride cemetery, perhaps as the head of a paramount lineage (cf. Rogers et al. 2003:21-22), and it was certainly the largest burial feature and contained the most abundant and elaborate funerary offerings, including some offerings that suggest they are part of a flint knappers kit. There were a few small pieces of human skeletal remains in Fea. 504 (Figure 6-9), possibly part of the arm and leg bones (see Chapter 7, this volume).

The burial feature is 257 x 149 cm in length and width, and the visible top of the feature was at 99.644 m. The pit extended to 99.204 m, about 1.2 m bs, and had sloping walls at its west end, but vertical walls along the eastern end of the feature. The feature fill was a distinctive red (2.5YR 4/6 and 10R 4/6) clay, and this is one of nine different interments in the Pilgrim's Pride site cemetery with a red clay fill in the burial pit. There was also a distinctive light gray silty material that lined the floor of the burial pit; two of the Titus phase burials at the contemporaneous Mockingbird site had the same gray silty material deposited on the floor of the grave (Perttula et al. 1998:21).

Most of the funerary offerings were placed near what was probably the waist and feet of this individual (see Figure 6-9), on the floor of the pit, and this included many ceramic vessels (either crushed or broken in place) as well as chipped and ground stone tools,

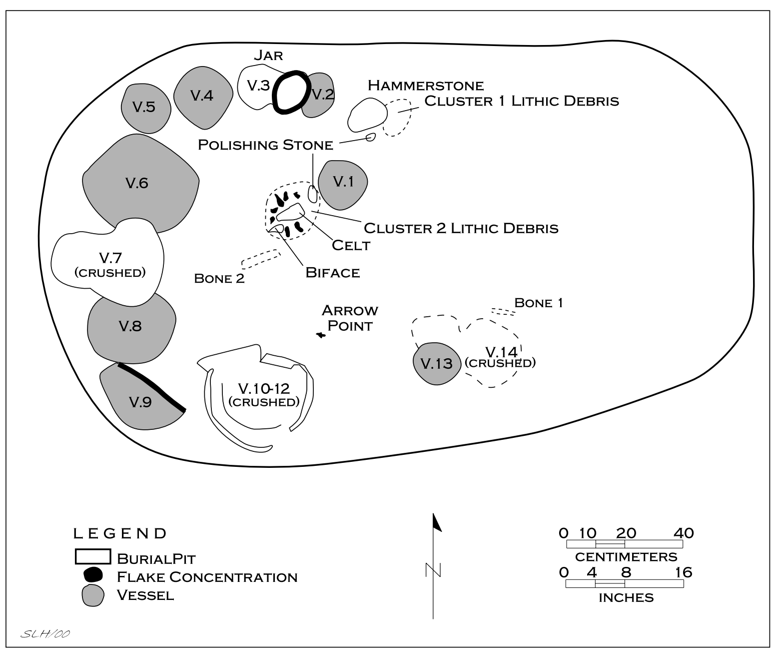


Figure 6-9. Plan of Fea. 504.

two polishing stones, a mano/hammerstone, and two clusters of lithic debris; most of the lithic debris was from non-local raw materials. These two clusters were about 10-15 cm in diameter (see Figure 6-9), and in the area of the body's mid-section; the spatial integrity of these materials and their position in the grave suggests that the lithic debris and other items may have been in small leather bags or pouches. One arrow point was found 10-15 cm from Vessel 10 (see Figure 6-9).

An engraved bottle (Vessel 14) was placed near the apparent head area, next to a deep and plain bowl (Vessel 13) along the southern side of the burial feature. Also along the southern side of the body were two compound bowls, one (Vessel 12) inside the other (Vessel 10). The small vessel was plain and the larger compound bowl was a Ripley Engraved vessel. On the north side of the body, in addition to one of the lithic artifact clusters, were three more vessels (see Figure 6-9). This was a bowl with rim peaks (Vessel 2), a Bullard Brushed jar (Vessel 3), and a Ripley Engraved bowl (Vessel 4). In what may have been the body's waist area was another Ripley Engraved vessel, a carinated bowl (Vessel 1). The second cluster of lithic artifacts was placed to the side of this vessel (see Figure 6-9).

Elevations taken on the vessels placed in the foot area of the grave suggests they may have been piled and/or closely stacked in the pit; basal elevations of Vessels 5-9 vary by as much as 5 cm. The deeper-lying vessels were Vessels 6 and 7, with Vessels 5, 8, and 9 lying 2, 4, and 5 cm above the first two vessels placed in the foot area. These funerary offerings include two engraved and red-slipped compound bowls (Vessel 5 and Vessel 8), a large and plain carinated bowl (Vessel 6), a Ripley Engraved carinated bowl (Vessel 9), and a Pease Brushed-Incised jar (Vessel 7) in the central part of the small stack (see Figure 6-9).

Table 6-1. Radiocarbon Dates from the Cemetery Area at The Pilgrim's Pride Site (41CP304).

Beta #	Provenience	Calibrated Age(s)	Calibrated Age Range, 1 sigma	Calibrated Age Range, 2 sigma	Relative Contribution to to Probabilities
133239	F. 504, V. 7	A.D. 1415	A.D. 1401-1435		1.00
				A.D. 1312-1351	0.15
				A.D. 1387-1448	0.85
133240	F. 518, V.3	A.D. 1473		A.D. 1443-1517	0.71
				A.D. 1586-1623	0.29
			A.D. 1435-1530		0.57
			A.D. 1534-1635		0.43

Thick and well-preserved organic residues scraped from Vessel 7, a large punctated-brushed Pease Brushed-Incised jar, were submitted to Beta Analytic, Inc. for AMS dating. The calibrated intercept of the residue sample is A.D. 1415, and at one sigma, the calibrated age range is A.D. 1401-1435 (Table 6-1), early in the Titus phase, and perhaps from one of the earliest burial features in the Pilgrim's Pride cemetery. The two sigma calibrated age range is A.D. 1312-1448, with the highest probability distribution (0.85) falling between A.D. 1387-1448 (see Table 6-1).

Feature 505

This burial feature lies a short distance south of Fea. 504 (see Figure 6-2). It did not have a red clay fill, and was identified when a vessel (Vessel 1) was discovered during the scraping operations. Fea. 505 was exposed at a relatively shallow 99.668 m, about 78 cm bs, and the base of the grave lay at 99.558 m in elevation. The floor, and the funerary objects, rests on a red clay, but the feature fill was a light yellowish-brown sandy clay with strong brown sandy clay mottles.

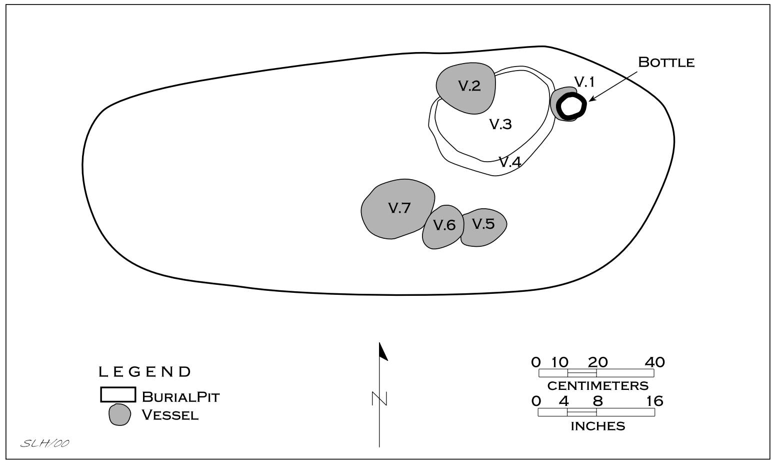


Figure 6-10. Plan of Fea. 505.

The burial pit is approximately 2 m in length and a maximum of 85 cm in width near its upper part; it tapers to 60 cm in width near the foot of the grave (Figure 6-10). There are no preserved human remains in this burial.

There are seven vessels in Fea. 505. The one bottle (Vessel 1, Ripley Engraved) is on the north side of the pit, near the head area, and there are three others on that side, perhaps overlapping the chest and right arm of the deceased (see Figure 6-10). These include a large Ripley Engraved carinated bowl (Vessel 4) that had two other vessels stacked inside and resting on it. These latter vessels are quite distinctive: a Ripley Engraved, *var. Xena* compound bowl (Vessel 3) and a lip notched carinated bowl (Vessel 2).

On what must have been the southern side of the body resting in the burial pit were another row of three vessels. Their position in the grave suggests they may have been placed inside of the left arm (see Figure 6-10). One is a plain bowl (Vessel 5), a second is a small Ripley Engraved carinated bowl (Vessel 6), and the third is a lip-notched and engraved carinated bowl (Vessel 7).

Feature 506

Fea. 506 is east of Fea. 505, and appears to be in a row of interments that includes Fea. 508, Fea. 509, and Fea. 510 (see Figure 6-2). The burial was marked by a red clay fill, and was exposed at 99.650 m, about 85 cm bs. The pit had nearly vertical walls, was 180 cm in length, and about 52-65 cm in width, tapering near the apparent foot of the grave (Figure 6-11). The bottom of the pit was at 99.35 m.

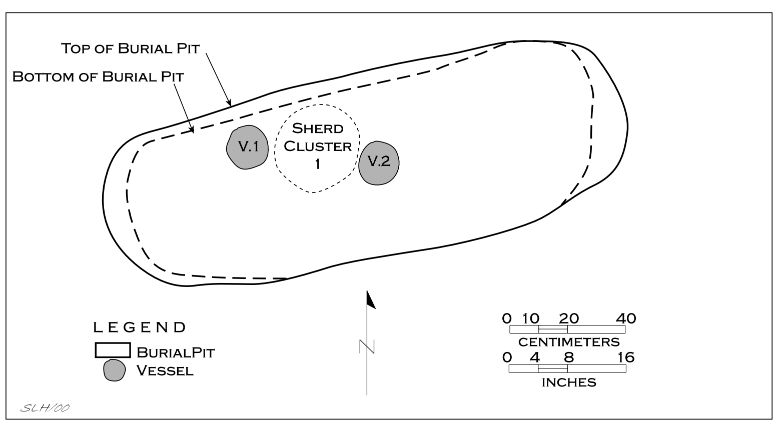


Figure 6-11. Plan of Fea. 506; note the difference in shape of the burial pit from the top to the bottom of the pit.

There were no human remains preserved in Fea. 506, but there were several funerary offerings, all ceramic vessels. These vessels were placed near what would have been the body's mid-section and right lower leg. Vessel 1, a plain jar, was 15 cm above the floor of the burial pit, and must have been placed as an offering sometime after the burial pit began to be filled. Next to it, but on the pit floor, was a sherd cluster that represents three different crushed vessels: two Ripley Engraved carinated bowls (Vessels 4 and 5) and a plain bowl (Vessel 3). These three vessels had been set in the grave next to Vessel 2, a simple undecorated bowl with a distinctive crimped lip.

Feature 507

This burial feature is in the southern part of the cemetery, near the beginning of the two main north-south row of interments and not far south of Fea. 504 and Fea. 505 (see Figure 6-2). The red clay fill of the burial feature was exposed at 99.796 m, and the floor of the burial pit was between 99.236-99.296 m, about 1.15-1.21 m bs. The pit was slightly shallower at its eastern end. Near the bottom of the burial, the fill was much sandier, and it appears that a light brownish-gray and pale brown sandy sediment was used to line the burial floor, which otherwise rested on a dark yellowish-brown clay.

The burial pit was 246 cm in length (roughly east-west) and 84 cm wide near the head area (Figure 6-12). The pit widened around the waist area to 100 cm in width and then widened again to 110 cm near the foot of the grave. There were very poorly preserved human remains in Fea. 507, including parts of the left and right arms, the lower left leg, rib fragments, and portions of the skull (see Chapter 7, this volume).

Funerary objects with this Caddo individual included four ceramic vessels; two small pieces of lithic debris in the burial fill (see Figure 6-12) were incidental burial fill inclusions. All four of the vessels were placed along the right side of the body, with one simple bowl (Vessel 4) resting on the upper right arm, and the others in a row from the waist area to the lower right leg. These vessels included an appliqued bowl (Vessel 3), a Ripley Engraved carinated bowl (Vessel 2), and a small and plain jar (Vessel 1).

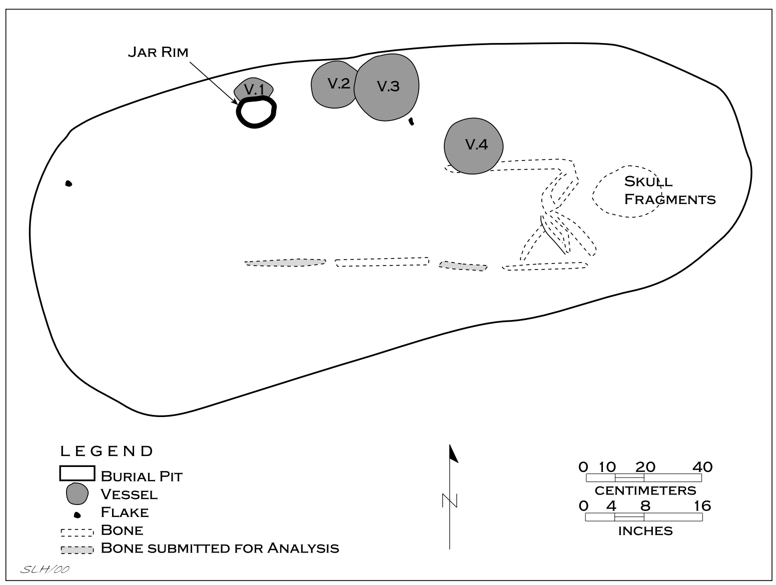


Figure 6-12. Plan of Fea. 507.

Feature 508

Fea. 508 also had a red clay fill. The burial feature was exposed at 99.575 m, about 87 cm bs, and the floor of the burial pit was at 99.335 m. The vessels placed in the burial as funerary objects were crushed and fragmentary, and they lay above the burial pit floor, between 99.445-99.455 m elevation.

The burial pit was 195 cm in length and a maximum of 104 cm in width (Figure 6-13). Mixed in with the red clay fill was a light gray sandy loam sediment; these sediments were not placed as a burial floor lining or cover as with other Pilgrim's Pride site burials in the cemetery. There were three concentrations of sherds from vessels in the burial pit, but there were no preserved human remains.

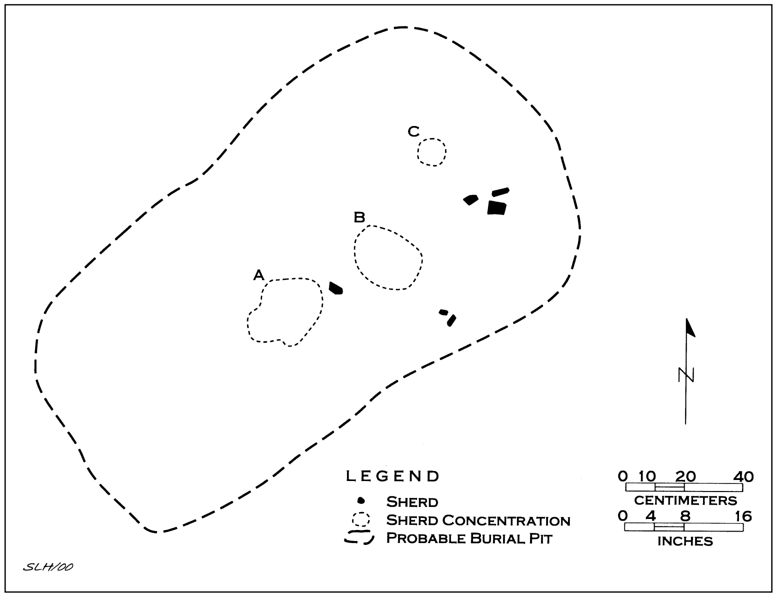


Figure 6-13. Plan of Fea. 508.

The sherd concentrations were in the central part of the grave, and near the likely head and waist areas (see Figure 6-13). Sherd concentration B was a appliqued-punctated jar (Vessel 3), while parts of two different vessels made up sherd concentration A: a plain deep bowl (Vessel 1) and a plain jar (Vessel 2). Parts of both these vessels were also recovered in sherd concentration C near the head, along with a plain compound bowl (Vessel 4) and a plain bowl (Vessel 5). All the vessels except for Vessel 1 are fragmentary.

Feature 509

This burial pit is immediately north of Fea. 508, in the eastern row of burials in the cemetery (see Figure 6-2). Fea. 509 had a red clay fill near the top of the pit, and then again at the base of the burial, with the remainder of the fill a light brown sandy loam. The top of the burial pit was exposed at 99.542 m in elevation, about 90 cm bs, with the floor of the burial at roughly 99.282 m.

There were no human remains preserved in the burial, only concentrations of sherds from broken vessels, several whole vessels, and chipped and ground stone lithic artifacts (Figure 6-14). The burial pit was approximately 145 cm in length and 70 cm in width, slightly tapering at the eastern end of the grave.

The first of the three whole vessels remaining in the burial was a Ripley Engraved bottle (Vessel 1) at the western end of the burial pit (see Figure 6-14). Since bottles tended to be placed in Titus phase burials near the head of the deceased, perhaps the Fea. 509 individual was interred with its head facing east, a most unusual circumstance; there are no human remains in the grave to shed further light on the orientation of the body, however. On the opposite side of the burial from Vessel 1 was a small horizontally incised bowl (Vessel 3); a celt was placed on the floor of the pit near Vessel 3 (see Figure 6-14). Also on the southern side of the burial were two other lithic artifacts: a chunk of petrified wood with naturally embedded quartz crystals, and a beveled knife made from Florence-A chert.

The remainder of the ceramic vessel offerings in Fea. 509 had been placed in a row on the northern side of the burial pit (see Figure 6-14), perhaps along the right side of the body. Vessel 2 is a Ripley Engraved carinated bowl. Sherd concentration A contained the fragmented remains of three vessels: a Maydelle

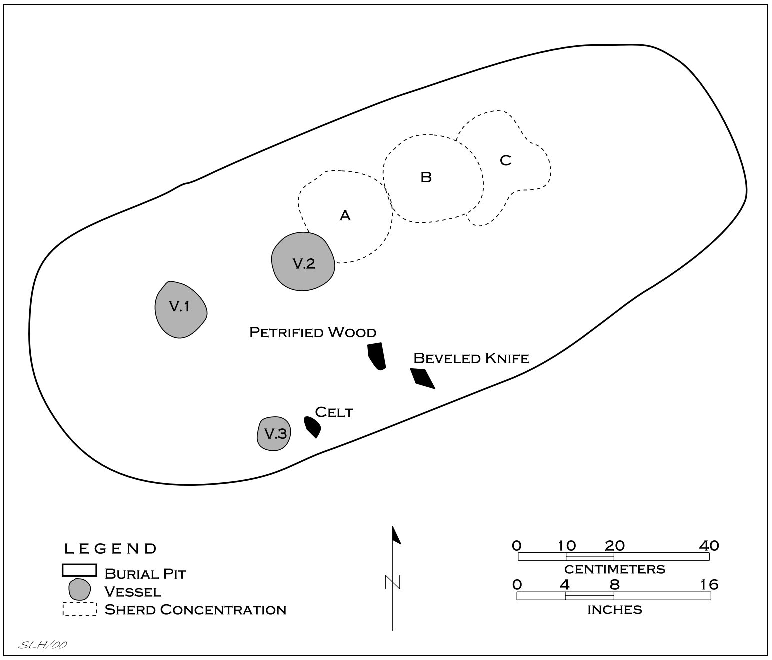


Figure 6-14. Plan of Fea. 509.

Incised jar (Vessel 4), another Ripley Engraved carinated bowl (Vessel 5), and an incised-punctated jar (Vessel 9). Parts of Vessel 5 were also found in sherd concentration B. There were also three other Ripley Engraved carinated bowls in sherd concentration B (Vessels 7, 8, and 10) as well as a plain bowl (Vessel 6). Sherds from Vessels 6-8 were also distributed in sherd concentration C.

Feature 510

Fea. 510 was marked by a red clay fill when it was exposed in the front end loader scraping, at 99.602 m in elevation (about 85 cm bs). It is the northernmost burial pit in the eastern row of burials in the cemetery (see Figure 6-2). The burial pit extended to a depth of 99.242 m, at a zone of reddish-yellow (7.5YR 6/8) and red clay, while most of the burial fill was a strong brown (7.5YR 4/6) clay. It was approximately 230 cm in length and 88 cm in width.

There were a few poorly preserved pieces of human remains in the burial, apparently parts of the right arm and leg of the deceased individual (Figure 6-15). There were a number of funerary offerings in the burial pit, including nine vessels, a mano, and a petrified wood polishing stone. The latter two objects were placed near the head, along the right side of the body, with a Ripley Engraved bottle (Vessel 8) by the left side of the head (see Figure 6-15).

Most of the funerary objects were along the south or left side of the body, extending from the upper chest to the lower feet area. They include a Ripley Engraved bowl (Vessel 7) by the bottle, a cluster of three vessels by the waist—including a Ripley Engraved carinated bowl (Vessel 6), a Ripley Engraved compound bowl (Vessel 9), and a small McKinney Plain jar (Vessel 5)—and two others by the feet. The first vessel

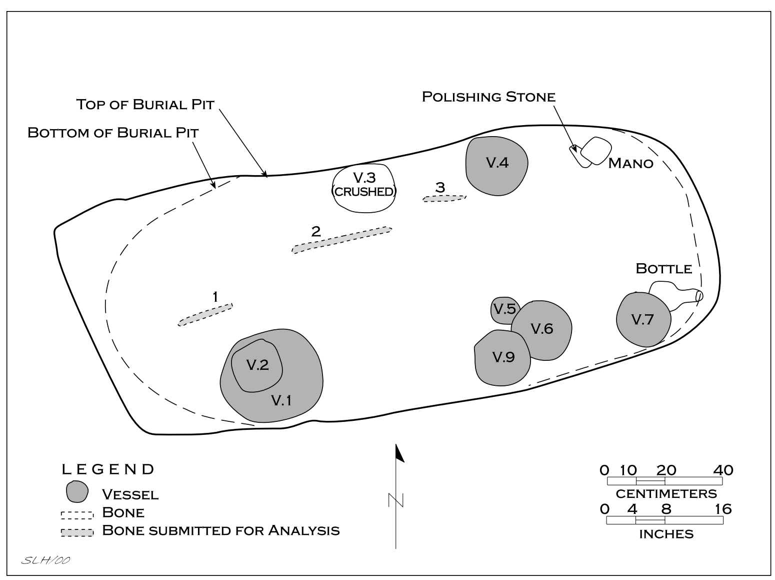


Figure 6-15. Plan of Fea. 510.

(Vessel 2), a La Rue Neck Banded jar, had been placed inside Vessel 1, a large Ripley Engraved carinated bowl (see Figure 6-15). The vessels on the north or right side of the body were along the waist and chest areas, and included an interior engraved bowl (Vessel 4) and a plain bowl with a crimped appliqued fillet below the vessel lip (Vessel 3).

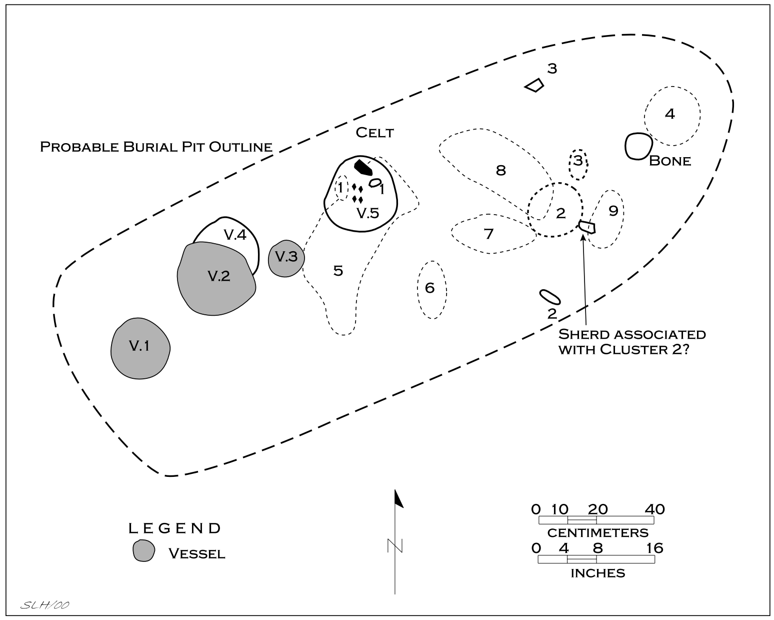


Figure 6-16. Final plan of Fea. 511.

Feature 511

This burial was interred by itself along the eastern margins of the cemetery, about 3 m east of the eastern row of burial pits (see Figure 6-2). It did not have a red clay fill, and was exposed at 99.558 m, about 90 cm bs. The burial appears to have been disturbed because it is marked by numerous sherd concentrations (1-9) as well as several whole vessels (Figure 6-16), but at different depths within the burial pit itself (Figure 6-17). There was a small amount of human remains at the eastern end of the burial pit (see Figure 6-16), and perhaps these are part of the skull of the deceased individual interred in Fea. 511.

The probable burial pit was approximately 200 cm in length and 60-70 cm in width (see Figure 6-16). Funerary offerings in the upper portion of the burial fill (see Figure 6-17) included four vessels, several sherd concentrations, and a ground stone celt in the western and eastern parts of the burial feature. Vessel 1 was a shell-tempered and engraved carinated bowl, and sherds from it were widely distributed across the burial feature in sherd concentrations 3, 8, and 9; the latter two were laying in the lower portion of the burial (see Figure 6-17). Vessel 2 was a Ripley Engraved carinated bowl, as was Vessel 4 (Ripley Engraved, *var. Walkers Creek*) next to it. Vessel 3 is a plain jar. Sherd concentration 1 had sherds from two different vessels, an engraved compound bowl (Vessel 9) and a Maydelle Incised jar (Vessel 10); the remainder of these vessels were in sherd concentration 5 in the lower part of the burial fill. Also in the upper fill were sherds from Vessel 5, a red-slipped carinated bowl, in sherd concentration 2, and Vessel 12, a brushed jar found in pieces in sherd concentration 4 above the head of the burial (see Figure 6-17).

The vessels and sherd concentrations in the lower part of the Fea. 511 burial fill were in what may have been the chest to upper leg areas of the body (see Figure 6-17). The one almost whole vessel was Vessel 5, and there were several stemmed arrow points found inside that red-slipped carinated bowl. Other parts of the vessel were scattered in sherd concentrations 5-7, and 9. Vessel 6, a Ripley Engraved carinated bowl, was in fragments in sherd concentration 5, as were Vessel 8 (Ripley Engraved carinated bowl), and sherds from Vessel 13 (a bowl with a unique combed design). Vessel 7, a plain bowl, was distributed in sherd concentrations 3 and 9, while a plain bottle (Vessel 11) was reconstructed from sherds in sherd concentrations 5 and 6, and from sherd 2 in the upper burial fill (see Figure 6-17).

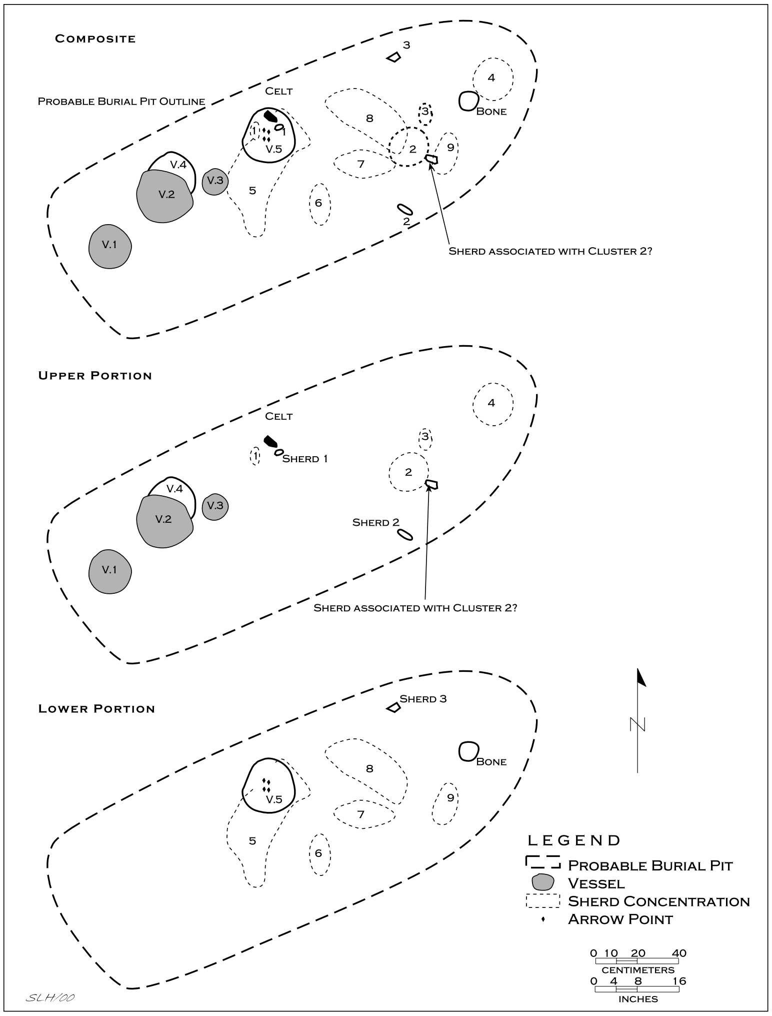


Figure 6-17. Composite plan of Fea. 511, including funerary objects in the upper and lower portions of the burial pit.

Feature 512

Feature 512 is about 1 meter south of Fea. 502 (see Figure 6-7). It had also been disturbed by the soil raking activities that removed trees and brush, and what remained were five sherd concentrations still slightly buried below the scraped surface (99.665 m elevation), about 80 cm below the original ground surface. The sherd concentrations were distributed across a 45 x 30 cm area (see Figure 6-7). There were no preserved human remains in Fea. 512.

The sherd concentrations are from four fragmentary vessels. Vessel 1, a brushed jar, was represented by sherds from both sherd concentrations B and E; most of this jar came from sherd concentration B (see Figure 6-7). Vessels 2 and 4 are Ripley Engraved carinated bowls. Vessel 2 sherds were in sherd concentrations B and D, while those from Vessel 4 were in sherd concentrations B and C. Vessel 3 was a unique red-slipped and appliqued bottle, and the sherds from this very fragmentary vessel came from sherd concentrations A, B, and E (see Figure 6-7). The location of the Vessel 3 bottle at the western end of the apparent burial feature suggests that it has been significantly displaced, since bottles in Titus phase burials tend to have been placed near the head of the deceased, and the heads of the individuals were placed at the eastern end of the burial pits, so that they faced west when they were laid in the grave.

Feature 514

This burial feature is between Fea. 503 and Fea. 512 in the western row of burials in the cemetery (see Figure 6-2). It did not have a red clay fill, and was exposed at 99.533 m, about 91 cm bs. The floor of the burial pit was at 99.243 m.

Fea. 514 was 167 cm in length and 72 cm in width, with rounded and tapering ends (Figure 6-18). The pit fill was a sandy loam, while the floor of the grave was a red clay to clay loam. There were no human remains preserved in this burial.

All the burial offerings—five pottery vessels—were placed near the probable head area of the deceased individual. This includes two different engraved bottles on either side of the head: Vessel 1, a probable Taylor Engraved bottle and Vessel 3, a small Ripley Engraved vessel. This bottle was next to a row of three other vessels that were placed along the southern side of the body, against the burial pit walls (see Figure 6-18). These were a small Ripley Engraved carinated bowl (Vessel 2), an incised bowl (Vessel 4), and an engraved compound bowl (Vessel 5). The small size of the burial pit, as well as the generally small size of the vessels placed in the grave, suggest the individual buried here was a child or juvenile.

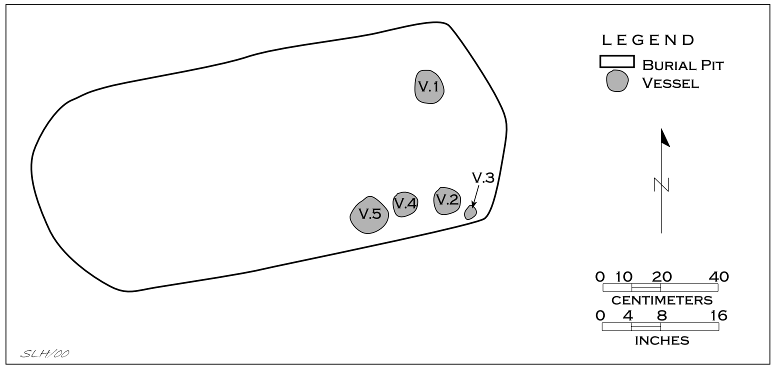


Figure 6-18. Plan of Fea. 514.

Feature 515

Fea. 515 is more oval-shaped than the other burial features in the Pilgrim's Pride cemetery, measuring approximately 145 cm in length and a maximum of 80 cm in width, oriented roughly east-west (Figure 6-19). It lies west of one of the two principal north-south rows of burials, about 1 meter from Fea. 504 (see Figure 6-2).

The burial pit was exposed at 99.742 m, about 70 cm bs, one of the shallower graves in the cemetery. It did not have a red clay fill; instead the fill varied from a brown to yellowish-brown sandy loam. The base of the grave was a red clay, and it lay at 99.542 m.

There were no human remains preserved in Fea. 515. Several funerary offerings were placed in the southeastern part of the grave, probably near the head and chest areas of the deceased (see Figure 6-19). These offerings were four small vessels, all crushed and in fragments. Again, the small size of the burial pit in combination with the small size of the ceramic vessels suggest that Fea. 515 is the burial of a child or juvenile. Vessel 1 was a plain carinated bowl, Vessel 2 was a lip notched jar, placed in the burial after Vessel 1, and there were two vessels mixed together in the area of Vessel 3 on Figure 6-19. The first (Vessel 3) was a grog-tempered La Rue Neck Banded jar and the other (Vessel 4) was a small bone-tempered Mockingbird Punctated jar. Near the center of the burial pit, 10 cm above the floor, was a petrified wood bifacial tool (see Figure 6-19). Its position well above the floor of the grave suggests it probably is not a deliberately placed offering to accompany the deceased.

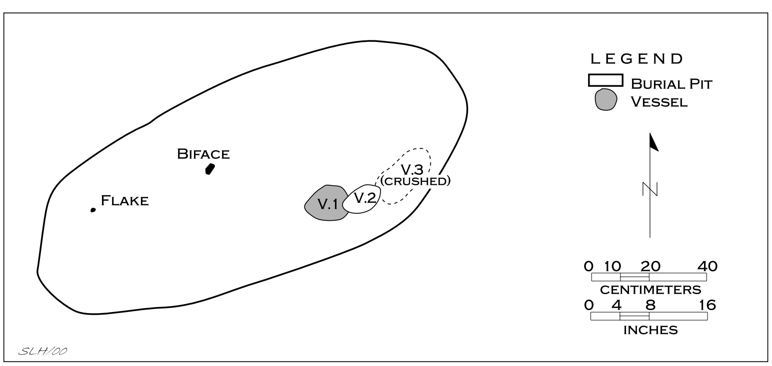


Figure 6-19. Plan of Fea. 515.

Feature 516

Fea. 516 was defined on the basis of a cluster of sherds and fragmentary human remains (primarily children's teeth, see Chapter 7, this volume) in the southern part of the cemetery, about 2 m southeast of Fea. 507 (see Figure 6-2). No burial pit outline could be discerned, and it appears that Fea. 516 is a shallow and disturbed burial.

The remains (Figure 6-20) of the burial feature were encountered between 99.666 m and 99.846 m, about 60-78 cm bs, in a yellowish-brown sandy loam deposit. They covered an area approximately 28 x 40 cm in size.

The children's teeth were mixed with the sherds from two different vessels, and a miscellaneous Ripley Engraved body sherd. One vessel is a plain bowl and the other is an incised bowl.

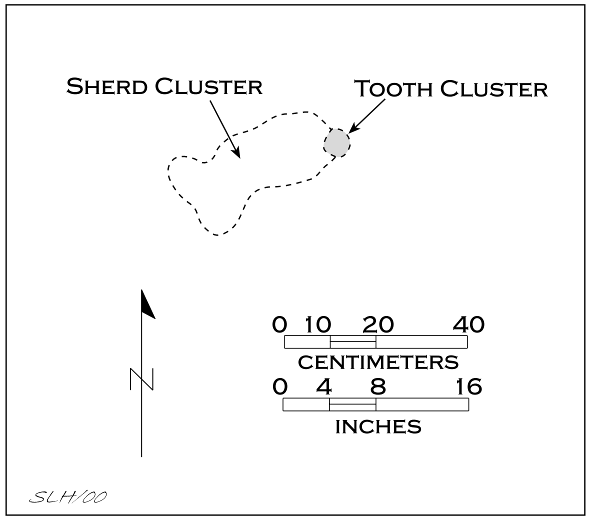


Figure 6-20. Plan of Fea. 516.

Feature 517

Fea. 517 is situated near the apparent western edge of the Titus phase cemetery, about 3 m west of the western row of burial interments, and about 1 m from Fea. 518 and Fea. 519 (see Figure 6-2). These three burials were exposed after a large mound of backdirt and the remnants of the Area V/VI brush pile were removed after all the other burial features had been excavated.

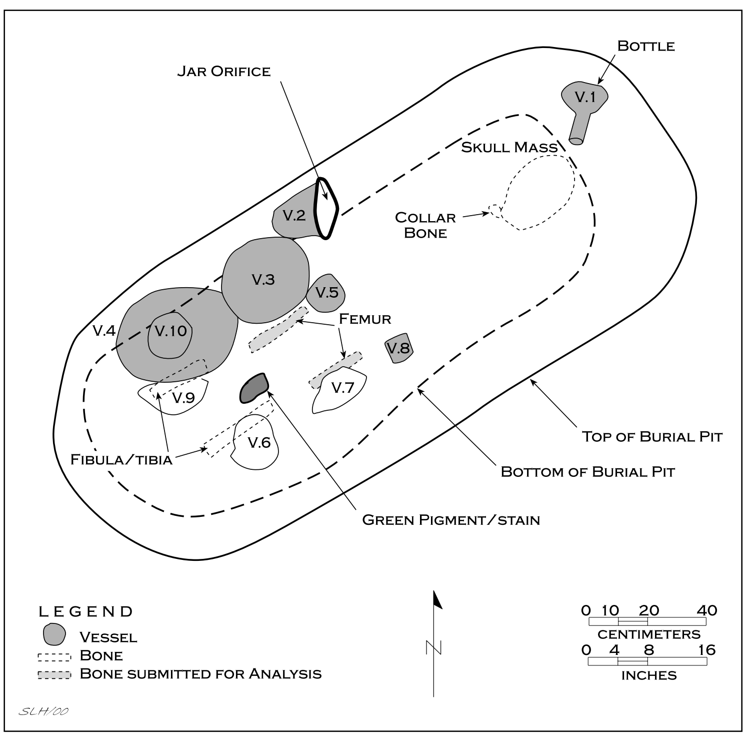


Figure 6-21. Plan of Fea. 517.

The burial pit was marked by a red clay fill, and the top of the pit was encountered at 99.908 m, only about 25-30 cm bs. The pit itself had deep and sloping walls that extended to 99.058 m, more than 1 m bs, but at its top, the pit was 235 cm in length and 100 cm in width (Figure 6-21). Taking into account the sloping pit walls (Figure 6-22), the deepest part of the burial feature was 190 cm in length and 65 cm wide. The preserved human remains, including skull and right and left leg bones, were restricted to the narrower and deeper part of the grave, and this area also had a light gray to white sandy sediment laid down on the bottom of the pit, like with Fea. 504.

Several of the funerary offerings were laid down a few centimeters above the pit floor, and these included a Ripley Engraved bottle (Vessel 1) above the head, and a Karnack Brushed-Incised jar (Vessel 2) above the waist area; Vessels 3 (Ripley Engraved compound bowl) and 4 (Ripley Engraved carinated bowl) were placed along the edge of the deeper part of the grave (see Figure 6-21), next to and overlying the lower legs of the individual. Inside Vessel 4 was a smaller Ripley Engraved carinated bowl (Vessel 10), and portions of a second Ripley Engraved bottle (Vessel 1B) where found lying within Vessel 3.

Figure 6-22. Excavations underway at Fea. 517.

On the floor of the burial pit were several other vessels, green or glauconitic clay pigment, and two arrow points; the arrow points were by Vessel 6, a Bullard Brushed jar, and the lower left leg of the deceased (see Figure 6-21). The green pigment stain was a short distance from Vessel 6. Two other vessels were placed next to the left leg, a Pease Brushed-Incised jar (Vessel 7) and a plain, rim peaked compound bowl (Vessel 8). Vessel 5 was placed along the upper right leg (see Figure 6-21). This was a plain bowl with a green glauconitic clay pigment stain in it.

Feature 518

This burial feature is about 1 m to the north-northwest of Fea. 517, on the western margins of the cemetery. It was marked by a red clay fill, and was first exposed at 99.671 m, about 48 cm below the original ground surface. Most of the feature fill was a dark yellowish-brown (10YR 3/6) clay loam with red and pale brown clay mottles.

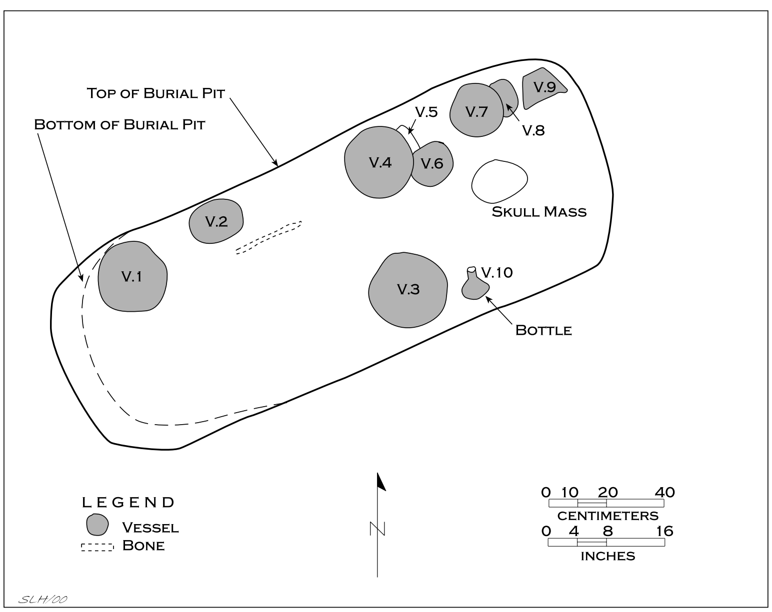


Figure 6-23. Plan of Fea. 518.

The burial pit was 200 cm in length and 70 cm in width, with rounded corners at either end of the grave (Figure 6-23), and primarily vertical walls, except at the western end of the pit. The bottom of the pit was 99.296 m. There were poorly preserved human remains in the grave, including the skull (with a few teeth) and part of the right femur.

Funerary offerings in Fea. 518 are 10 ceramic vessels, mainly placed in a row along the right side of the body from the head area to the feet (see Figure 6-23). On the left side, there were two vessels, including a plain bottle (Vessel 10) by the upper chest or shoulders of the deceased. A Bullard Brushed jar (Vessel 3) was placed by the waist.

In the area around the head, on the right side of the body, there were three vessels. The first is a horizontally brushed jar (Vessel 9), next to a small plain pigment jar (Vessel 8); Vessel 7, a Ripley Engraved carinated bowl rested alongside and partly over Vessel 8 (see Figure 6-23). Three other vessels were placed in the upper chest and shoulder areas, including a Ripley Engraved, *var. Xena* bowl (Vessel 5) and a lip noded bowl (Vessel 6); Vessel 4, a plain carinated bowl, rested over Vessel 5. The last two vessels were placed by the right leg (Vessel 2) or by what would have been the feet area (Vessel 1). Vessel 2 is a Mockingbird Punctated jar and Vessel 1 is a plain deep bowl.

Charred organic remains preserved on the interior of a probable Bullard Brushed jar (Vessel 3) were also submitted for AMS radiocarbon dating. The calibrated intercept is A.D. 1473, with a one sigma age range of A.D. 1443-1623, and a two sigma age range of A.D. 1435-1635 (see Table 6-1).The late 15th century calibrated intercept, and the age ranges with the highest relative probability contributions, suggest that the Fea. 518 burial was interred sometime between the latter half of the 15th century and the first quarter of the 16th century, certainly after Fea. 504 (the other absolute-dated burial in the cemetery), and apparently just before the Moscoso entrada in the early 1540s (see Chapter 2, this volume)

Feature 519

This small burial feature was about 1 m south of Fea. 518 and the same distance to the southwest of Fea. 517 (see Figure 6-2). Fea. 519 was also marked by a dense red clay fill, and the top of the pit was first evident at 99.742 m, about 40 cm bs. The floor of the burial pit was at 99.262, almost 90 cm below what would have been the modern ground surface; the burial pit walls were nearly vertical.

The burial pit measured only 133 cm in length and a maximum of 60 cm in width (Figure 6-24). The human remains preserved in the grave—fragments of the lower jaw—as well as the size of the burial pit and the small size of the vessels—all indicate that Fea. 519 is the burial of a young child. The child's head and body must have been laid in the northern part of the grave, being almost virtually surrounded by funerary offerings (Figure 6-25).

There were 10 different ceramic vessels placed with the small child, as well as a quartzite core/tested cobble that may have been fire-fractured sometime before it was left in the grave. At the head of the grave was an engraved bottle (Vessel 1), and two other vessels (Vessels 5 and 8) may have been placed on either side of the head. Vessel 5 was a Ripley Engraved carinated bowl and Vessel 8 was a small and plain pigment jar. Below the jaw, on the right side of the body of the child, was another Ripley Engraved carinated bowl (Vessel 9).

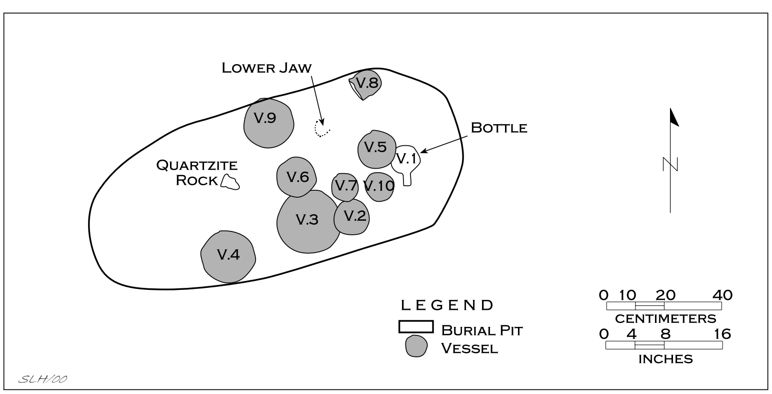


Figure 6-24. Plan of Fea. 519.

Six vessels were placed on and along the left side of the body (see

Figure 6-24), including one (Vessel 4) that may have been set below the child's feet. That vessel was a Mockingbird Punctated jar. The others include a plain carinated bowl (Vessel 10) by the Vessel 1 bottle; two small jars set upon one another (Vessels 2 and 7), both La Rue Neck Banded; and two Ripley Engraved vessels (Vessels 3 and 6). Vessel 3 was a Ripley Engraved, *var. Walkers* Creek carinated bowl and Vessel 6 was a bowl.

Figure 6-25. Funerary objects exposed in Fea. 519.

NON-BURIAL FEATURES

Feature 513

This small feature was exposed in the northern part of Area V/VI (see Figure 6-2), more than 5 m from any of the burial pits in the Pilgrim's Pride cemetery. Initial exposure of the feature suggested that the sherds noted (at 99.189 m elevation, approximately 1.1 m bs) may have been from a vessel, and thus likely to be associated with another burial feature. However, upon exposure, the sherds turned out to include only a plain base sherd and two plain body sherds from two different vessels, and not large vessel sections or whole vessels.

The plain body sherd (5.3 mm thick) from one vessel was tempered with grog, and had a clay paste. The other two sherds also had grog tempering, but the vessel itself had a naturally sandy clay paste. The sherds were from a vessel fired in a reducing environment. The body sherd was 5.4 mm thick, while the base was 9.4 mm in thickness. The base sherd also had a charred organic residue on both interior and exterior vessel surfaces.

BURIAL GROUPINGS

Using differences in the size of the burial pots, the type of burial fill, the kinds of funerary objects placed in the burials (Table 6-2), and their placement with the burials, six burial groups are defined for the burials in the Pilgrim's Pride cemetery (Table 6-3). In each case, even though most of the burial features contained little to no preserved human remains, the groupings are believed to represent the burials of primary and extended individuals. The sex of these individuals is unknown, but the size of the burial pits, along with the few preserved skeletal materials, permit the separation of the burial features into adults and sub-adult (i.e., children and juveniles) categories.

Table 6-2. Funerary Objects in the Area VI/VI Burials.

Burial Feature No.	No. of Vessels	Elbow Pipe	Celt	Biface	Polishing Stone	Mano	Lithic Debris	Chunks	Beveled knife	Arrow point	Arrow point preform	Core	Dart point	Total
70	7				1									8
501	3													3
502	5													5
503	10	1	1				1			11				23
504	13		1	1	2	1	84	1		1	1			105
505	7													7
506	5												1	6
507	4						2							6
508	5													5
509	10		1					1	1					13
510	9		1	1										11
511	13		1							5				19
512	4													4
514	5													5
515	4			1			1							6
516	2													2
517	11									2				13
518	10													10
519	10											1		11
Totals	137	1	4	2	4	2	88	3	1	19	1	1	1	263

Table 6-3. Burial Groupings in the Pilgrim's Pride site cemetery.

Groups	Red Clay fill	Length (m)	Burial sediments	Vessels	Celts	Pipes	Point Clusters	W row	E row
I									
Fea. 504	X	2.57	X	13	X			X	
Fea. 517	X	2.35	X	11					
Fea. 518	X	2.00		10					
II									
Fea. 506	X	1.80		5					X
Fea. 507	X	2.46		4					
Dea. 508	X	1.95		5					X
Fea. 510	X	2.30		9					X
III									
Fea. 509	X	1.45		10	X				X
Fea. 519	X	1.33		10					
IV									
Fea. 503		2.30		10	X	X	X	X	
Fea. 511		2.00		13	X		X		
V									
Fea. 70		1.73		7					
Fea. 505		2.00		7				X	
VI									
Fea. 514		1.67		5				X	
Fea. 515		1.45		4				X	
Fea. 516		UID		2					X

Burial Groups I-III in the cemetery includes nine graves, all with a distinctive red clay fill (see Table 6-3). These burials also tended to have been excavated deeper into the B-horizon clay than the other burial features, and their greater depth and distinctive fill suggests that the use of red clay had some symbolic or mortuary ritual significance that was not recognized during the interment of the Group IV-VI graves. The intercepts from the two calibrated radiocarbon dates from Burial Group I graves—along with the kinds of decorated ceramic vessels and arrow points—suggest they were interred as early as A.D. 1415 and as late as A.D. 1473. The Burial Group IV-VI interments did not have a red clay fill, nor did any of them have distinct sediments lining the floor of burial pits, as did two of the three Burial I graves (see Table 6-3).

Burial Groups I and II are the burials of adults, based primarily on the size (i.e., length) of the graves and the few preserved human remains. They are found in both the east and west rows, as well as in a small cluster at the western end of the cemetery itself (Figure 6-26). Burial Group I had more vessels (11.3 per burial) than did the Burial Group II interments (5.8 per burial); one of them also had a celt as a funerary

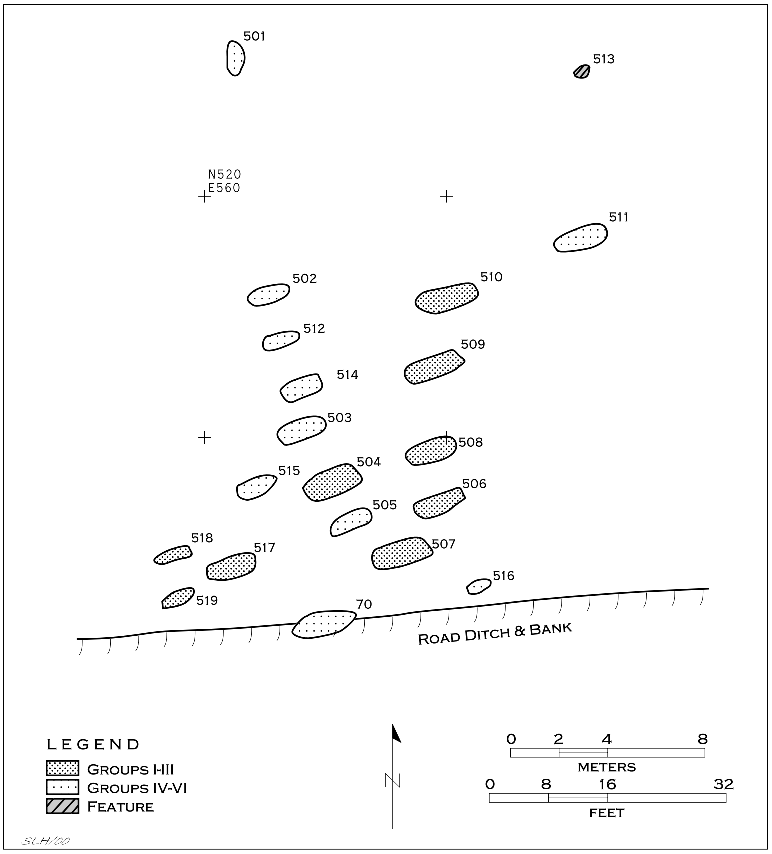


Figure 6-26. Distribution of Burial Group I-III and IV-VI at the Pilgrim's Pride site Titus phase cemetery.

offering. The Burial Group III features are those of children and juveniles, and they contained nearly the same amount of funerary offerings as did the Burial Group I adults (see Table 6-3). None of the Group I, II, or III individuals had pipes or arrow point clusters.

Burial Groups IV and V are also the graves of adults. The two Burial Group IV interments contain many ceramic vessels (i.e., comparable in number to Burial Group I, at 11.5 vessels per burial), as well as celts, an elbow pipe, and arrow point clusters. The Burial Group V individuals had 7 vessels per burial, but no other clusters of distinctive funerary offerings. Burial Group VI appear to represent the graves of children and juvenile individuals—based either on their small size and/or preserved human remains (see Chapter 7, this volume)—but unlike Burial Group III, these particular individuals only had a few ceramic vessels as funerary offerings (see Table 6-3). The Burial Group IV-VI interments occur mainly in the western row of graves, with the notable exception of Fea. 511 at the eastern margins of the cemetery (see Figure 6-26). Burial features Fea. 501, Fea. 502, and Fea. 512 are placed within the broader Burial Group IV-VI graves primarily because they lack the red clay fill of the Burial Group I-III graves and also because of their placement north of Fea. 503 and Fea. 514 (see Figure 6-26). Since they are disturbed burial features, it was not possible to clearly determine if they were the remnants of adult or child/juvenile burials, but the absence of small or miniature vessels suggests they are likely the graves of adults.

There are no calibrated radiocarbon dates from the Burial Group IV-VI interments, and thus their temporal relationship with the Burial Group I-III graves is uncertain. Similarities in the kinds of engraved vessels (and their stylistic motifs) placed in the two broader burial groups may indicate that they may be roughly contemporaneous, or follow closely in time (see below), Burial Group IV-VI being younger in age. Certainly the recovery of Perdiz points in the Burial Group IV features suggests that these burials were probably interred in the 15th or early 16th century.

None of the graves in the Pilgrim's Pride cemetery appear to be those of individuals with a high social rank or elite status, at least based on comparisons with findings from more than 115 known Titus phase cemeteries in northeastern Texas (Perttula and Nelson 1998b; Thurmond 1990a; Turner 1978, 1992). High status individuals have been found in mound contexts, in shaft tombs, as multiple burials, or in graves with

Table 6-4. Vessels in the Area V/VI burials.

Burial Feature No.	No. of Vessels	Deep bowl	Bowl	Jar	CPB	CB	Bt	Olla
70	7	–	1	2	1	2	1	–
501	3	–	–	1	1	1	–	–
502	5	–	1	–	–	3	1	–
503	10	–	–	1	6	2	–	1
504	13	–	3	2	4	3	1	–
505	7	–	1	–	1	4	1	–
506	5	–	2	1	–	2	–	–
507	4	–	2	1	–	1	–	–
508	5	1	1	2	1	–	–	–
509	10	–	2	2	–	5	1	–
510	9	–	3	2	1	2	1	–
511	13	–	2	3	1	6	1	–
512	4	–	–	1	–	2	1	–
514	5	–	1	–	–	2	2	–
515	4	–	–	2	1	1	–	–
516	2	–	2	–	–	–	–	–
517	11	–	1	3	2	3	2	–
518	10	1	2	4	–	2	1	–
519	10	–	1	4	–	4	1	–
Totals	137	2	25	31	19	45	14	1

Key: CPB= compound bowl; CB= carinated bowl; Bt = bottle

many funerary offerings and/or distinctive and exotic offerings (i.e., such as Galt bifaces) (Perttula and Nelson 1998b:381). At the Tuck Carpenter and H. R. Taylor sites, for instance, the Caddo burials identified as being of a high social rank were almost invariably male adults with many funerary offerings (particularly ceramic vessels and arrow point quivers), ranging from 28-47 specimens per grave (Perttula and Nelson 1998b:Table 24).

While the assumption that "abundance and quality of burial goods equate with status" (Cobb 2003:72) may need to be reconsidered as a proxy for status, given the many factors that come into play that could account for the number and kind of funerary offerings placed in the grave by the living (see Chesson 2001:4-7), it does seem to be the case that only a small percentage (ca. 2%) of the Titus phase burials that have been documented in the region meet the criteria for high social rank mentioned above. This strongly implies that only a few Caddo individuals in Titus phase society had access (either in life or in death) to the kinds, number, and variety of funerary offerings that archeologists have documented in cemeteries and individual burial features. From the available evidence at the Pilgrim's Pride site cemetery, none of the burial features appear to be those of individuals of high social status ranking.

What does seem clear in the placement of the burial features, the treatment of the graves, and the kinds of goods placed with the deceased at the Pilgrim's Pride site cemetery is that Fea. 503 (in Burial Group IV) and Fea. 504 (in Burial Group I) are the most distinctive. They are the largest burial features, have high numbers of ceramic vessels and/ or stone tools, and are centrally located (see Figure 6-26) among the two larger (Groups I-III and IV-VI) burial groupings at the site. These particular individuals, probably adult males, may represent the heads of different lineages or extended kin groups (see discussion in Rogers et al. 2003:20-22) that resided at the Pilgrim's Pride site, and ended up being interred in the cemetery. That there may be individuals from two different lineages further suggests that the cemetery may have been used by these different kinship groups over two generations, if not more.

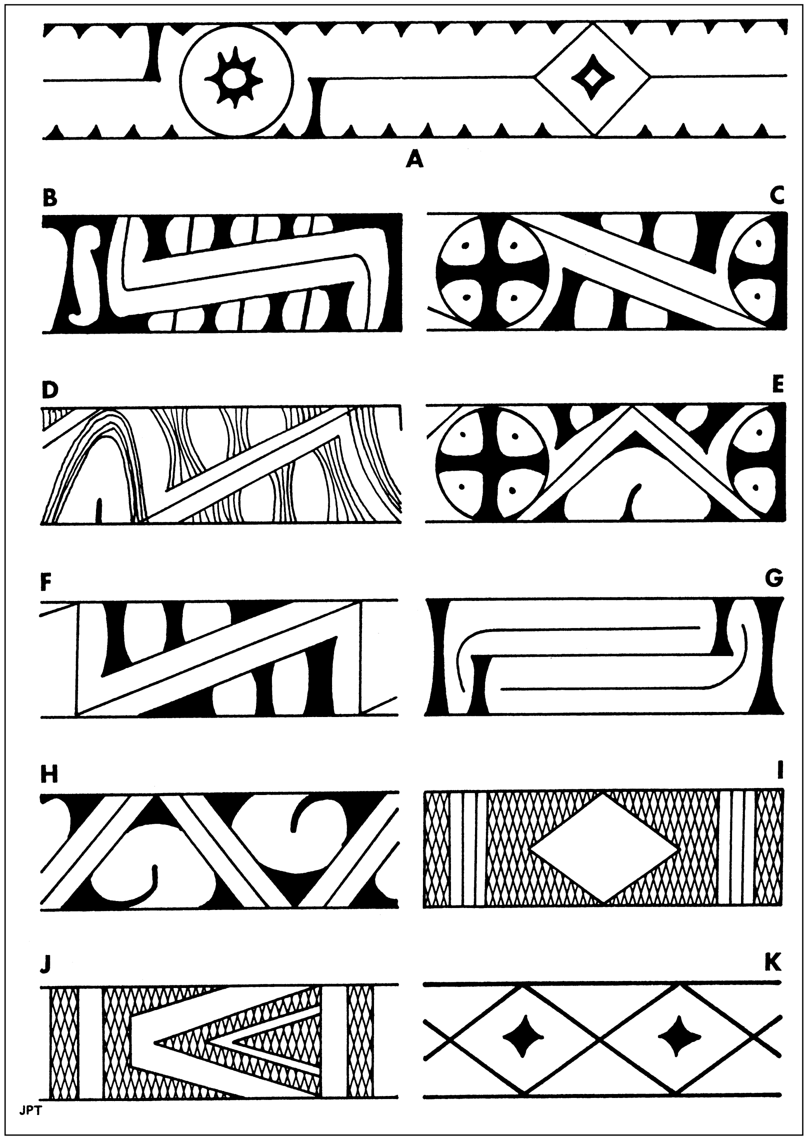


Figure 6-27. Ripley Engraved motifs on carinated bowls and compound bowls (from Thurmond 1990a: Figure 6): a, pendant triangle; b, scroll; c, scroll and circle; d, scroll and semi-circle; e, circle and nested triangle; f, continuous scroll; g, interlocking horizontal scroll; h, alternate nested triangles; i, horizontal diamond; j, bisected diamond; k, interlocking diamond.

FUNERARY OBJECTS

Ceramic Vessels

A total of 137 ceramic vessels were placed as funerary objects in the 19 Area V/VI burials (see Appendix VII, Vol. II). This is 7.2 vessels per burial, with a range of 2-13 vessels in the different burials (Table 6-4). The mean average of ceramic vessel offerings is not much different than other Titus phase cemeteries in the Big Cypress Creek basin (Turner 1978; Thurmond 1990a; Perttula 1992; Perttula et al. 1998), where the mean number of vessels per burial ranges from 4.2-11.0 (Perttula and Nelson 1998b: Table 23); ceramic vessels are the most abundant funerary offering in the burial features at the Pilgrim's Pride site.

Seven of the burials had more than 10 ceramic vessels placed in the burial pits (see Table 6-4), and two burials (Fea. 504 and Fea. 511) had 13 vessels from a range of vessel forms of different shapes and sizes. Most of the burials that had the highest number of ceramic vessels were among the Burial Group I-III graves (see Table 6-3).

Vessel Forms

There are seven different vessel forms in the Pilgrim's Pride site cemetery funerary offerings, including carinated bowls, compound bowls, deep bowls, bowls, bottles, an olla, and jars (or cooking pots); several of the jars are rather small, and probably held pigments, but we did not specifically identify pigment vessels in the Pilgrim's Pride site cemetery vessel assemblage. They were common in the contemporaneous Mockingbird site cemetery, however (Perttula et al. 1998:233-234).

The main ceramic type in the Titus phase cemetery at the site is Ripley Engraved, particularly among the carinated bowls (n=31) and compound bowls (n=8), as well as for many of the decorated bottles. The Ripley Engraved type has a number of distinctive engraved motifs, as defined by Thurmond (1990a), and these motifs are illustrated in Figure 6-27. The engraved motifs on Ripley Engraved carinated bowls and compound bowls have distinctive temporal and spatial distributions, as will be discussed below, that will prove useful in establishing the temporal relationships of individual burials in the cemetery, and the age of the cemetery relative to the settlement of the Pilgrim's Pride site. The spatial distribution of the different Ripley Engraved motifs in Titus phase cemeteries will be key to investigating the affiliation of the Pilgrim's Pride site cemetery with other Titus phase groups in the Big Cypress Creek basin (cf. Perttula et al. 1998:251-253), a subject we will return to in Chapter 11.

The vessel forms in the cemetery occur in several distinct sizes (Figure 6-28), with three sizes of carinated bowls, compound bowls, jars, and bowls, and two sizes of deep bowls and bottles. Among the carinated bowls, vessels have small (less than 0.75 liters), medium (0.8-1.6 liters), and large (2.0-6.0 liters) sizes, and compound bowls have the same volume ranges. The range in jar size is less than 0.7 liters (small), 0.7-1.6 liters (medium), and 2.4-4.0 liters (large). Small bowls are less than 0.6 liters in volume, 0.8-1.5 liters for medium-sized bowls, and the one large bowl is 1.8 liters in volume. This particular vessel (Fea. 510, Vessel 4) stood 11.0 cm high and had a 17.8 cm orifice diameter. The medium-sized deep bowls are 0.7-1.1 liters in volume, compared to 3-5 liters in size for the large deep bowls. The small bottles had volumes between 0.175-0.4 liters, and stood from 8.3-15.3 cm in height. The large bottles stood 20.0-24.0 cm high, and had volumes between 0.8-1.0 liters; the one olla (Fea. 503, Vessel 2) was comparable in size to a small bottle. Three of the four small bottles were funerary offerings in the graves of children/juveniles.

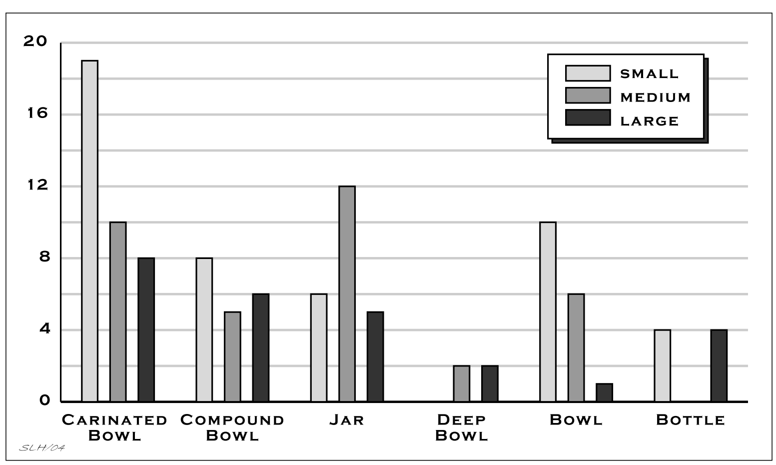


Figure 6-28. Size differences in vessel forms.

Carinated Bowls

This Caddo vessel form is a bowl with two distinctive body sections, the upper (or rim) with a clear expanding or changing contour and an unrestricted orifice, and the lower a symmetrical body with a flat disk base. In many if not all

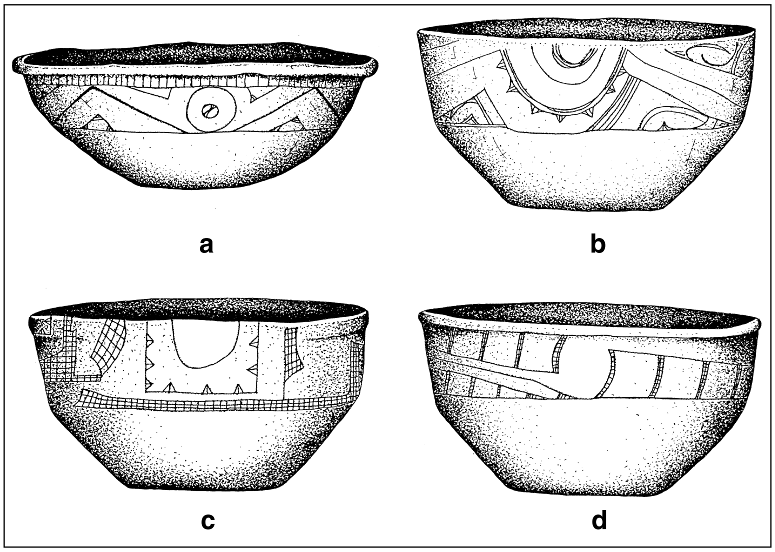


Figure 6-29. Engraved carinated bowls: a, Fea. 511, Vessel 4; b, Fea. 517, Vessel 4; c, Fea. 509, Vessel 8; d, Fea. 510, Vessel 1.

cases, the carinated bowl has a wider diameter (at either the carination or the orifice) than the height of the vessel. Decorated carinated bowls will almost always be decorated only on the upper or rim portion of the carinated bowl (Figures 6-29 and 6-30), although there are engraved carinated bowls documented that have brushing on the vessel body. No such carinated bowls are present at the Pilgrim's Pride site, although there are a few vessels with lip notches (Figure 6-30c, f), and others have distinctive rim peaks around the rim, usually in sets of two or four (see Figure 6-30b).

There are 47 carinated bowls among the Pilgrim's Pride funerary offerings, two found in separate burials in the residential areas of the site and the remainder from the Area V/VI cemetery (Table 6-5). Burial features with high proportions of carinated bowls among the ceramic funerary offerings include Fea. 505 (Burial Group V), Fea. 509 (Burial Group III), and Fea. 511 (Burial Group IV). Carinated bowls account for almost 33% of the vessels in the cemetery.

Almost 20% of the carinated bowls are plain (see Table 6-5 and Figure 6-30a-b), and several of these also have rim peaks. One of the plain carinated bowls has a red-slip on both interior and exterior surfaces (Fea. 511, Vessel 5), and another simply has a single row of tool punctates below the lip of the vessel (see Figure 6-30c). Two others from Fea. 505 have been regularly notched on the lip; one is these was otherwise plain, while the other had vertical engraved panels (see Figure 6-30f). These forms of decoration are

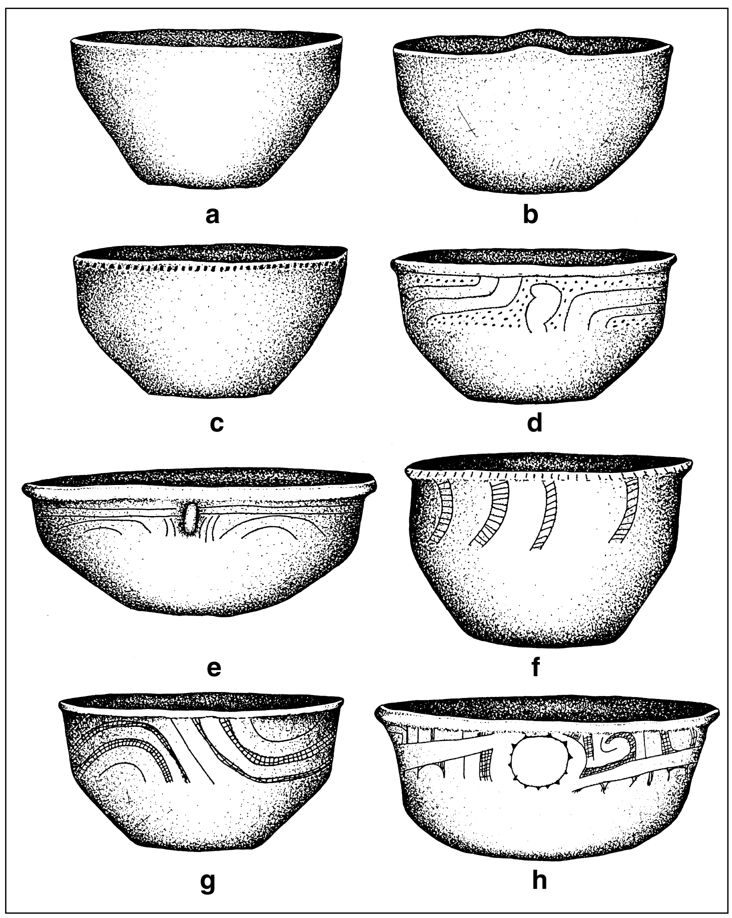


Figure 6-30. Plain, lip notched, and engraved carinated bowls and bowls: a, Fea. 504, Vessel 6; b, Fea. 518, Vessel 4; c, Fea. 517, Vessel 9; d, Fea. 70, Vessel 4; e, Fea. 511, Vessel 1; f, Fea. 505, Vessel 7; g, Fea. 510, Vessel 6; h, Fea. 506, Vessel 5.

Table 6-5. Carinated Bowls from Burial Features.

Fea./Vessel No.	Temper	Firing	Height (cm)	OD (cm)	Liters	Decoration	Comments
Fea. 8, V1	grog-hematite, SP	IND	5.3	10.2	0.3	curvilinear engraved lines	lip nodes
Fea. 67, V1	grog	IND	IND	IND	IND	semi-circular engraved lines	
Fea. 70, V3	grog-hematite	F	IND	IND	IND	Ripley Engraved, var. Walkers Creek	
Fea. 70, V4	grog-hematite	F	13.0	27.5	3.5	Ripley Engraved, var. Walkers Creek	
Fea. 501, V1	grog	B	IND	IND	IND	Ripley Engraved, inter-locking horizontal scroll	
Fea. 502, V2	grog-hematite-bone	F	IND	IND	IND	Ripley Engraved, scroll	
Fea. 502, V3	grog, SP	F	>4.2	16.0	IND	plain	
Fea. 502, V5	grog-hematite	G	11.8	19.3	1.6	plain	
Fea. 503, V5	grog-hematite, SP	B	5.5	12.4	0.34	plain	rim peaks
Fea. 503, V7	grog	G	5.3	10.0	0.3	plain	
Fea. 504, V1	grog	F	7.2	16.5	0.6	Ripley Engraved, continuous scroll	
Fea. 504, V6	grog-hematite	F	17.5	35.0	5.0	plain	
Fea. 504, V9	grog, SP	F	>5.5	31.0	>1.2	Ripley Engraved, continuous scroll	
Fea. 505, V2	grog-bone	G	10.0	20.4	2.0	plain	lip notched
Fea. 505, V4	grog	F	IND	16.0	IND	Ripley Engraved, nested triangle	
Fea. 505, V7	grog, SP	G	12.0	19.3	1.6	vertical engraved panels	lip notched
Fea. 506, V4	grog-bone, SP	F	20.0	30.0	6.0	Ripley Engraved, scroll	
Fea. 506, V5	grog, SP	G	9.0	19.5	1.3	Ripley Engraved, scroll and circle	
Fea. 507, V2	grog	A	IND	IND	IND	Ripley Engraved, nested circles	
Fea. 509, V2	grog, SP	F	8.2	17.0	0.7	Ripley Engraved, inter-locking horizontal scroll	white pigment
Fea. 509, V5	grog, SP	G	8.8	16.3	0.8	Ripley Engraved, inter-locking horizontal scroll	

Table 6-5. *(Continued)*

Fea./Vessel No.	Temper	Firing	Height (cm)	OD (cm)	Liters	Decoration	Comments
Fea. 509, V7	grog, SP	F	7.8	13.0	0.5	Ripley Engraved, semi-circles	
Fea. 509, V8	grog-hematite, SP	F	15.9	32.8	5.9	Ripley Engraved, scroll	red pigment
Fea. 509, V10	grog	F	7.8	14.4	0.6	Ripley Engraved, inter-locking horizontal scroll	
Fea. 510, V1	grog SP	F	15.0	34.0	4.5	Ripley Engraved, continuous scroll	
Fea. 510, V6	grog-hematite, SP	F	>8.9	17.5	>0.7	Ripley Engraved, concentric engraved el.	
Fea. 511, V1	shell	B	IND	IND	IND	concentric-semi-circular engraved/appliqued	Red River chemical group
Fea. 511, V2	grog	F	12.8	26.7	3.0	Ripley Engraved, scroll and nested triangles	white pigment
Fea. 511, V4	grog	F	9.5	19.1	1.0	Ripley Engraved, var. Walkers Creek	
Fea. 511, V5	grog	B	IND	23.0	IND	int./ext. red-slipped	
Fea. 511, V6	grog	F	3.8	12.0	0.3	Ripley Engraved, inter-locking diamonds	white pigment
Fea. 511, V8	bone-grog	B	>7.0	19.5	>0.8	Ripley Engraved, continuous scroll	
Fea. 512, V2	SP	G	IND	17.0	IND	Ripley Engraved, semi-circular scroll	
Fea. 512, V4	grog	B	IND	19.0	>0.5	Ripley Engraved, inter-locking horizontal scroll	lip notched
Fea. 514, V2	grog-hematite	E	7.05	11.3	0.4	Ripley Engraved, alternate nested triangle	
Fea. 514, V5	grog-hematite	F	5.5	12.8	0.4	vertical and diagonal engraved zones	lip nodes
Fea. 515, V1	grog-hematite, SP	F	3.8	9.8	0.2	plain	
Fea. 517, V4	grog-hematite	F	17.3	34.2	5.5	Ripley Engraved, semi-circular and scroll	
Fea. 517, V9	grog-hematite	F	8.4	18.0	0.7	tool punctated below lip	

Table 6-5. *(Continued)*

Fea./Vessel No.	Temper	Firing	Height (cm)	OD (cm)	Liters	Decoration	Comments
Fea. 517, V10	grog-hematite	IND	6.6	15.2	0.5	Ripley Engraved, continuous scroll	
Fea. 518, V4	grog-hematite, SP	F	IND	18.0	IND	plain	rim peaks
Fea. 518, V7	grog	F	6.5	16.9	0.6	Ripley Engraved, scroll and circle	
Fea. 519, V3	grog	F	7.7	19.0	1.0	Ripley Engraved, var. Walkers Creek	
Fea. 519, V5	grog-hematite, SP	F	5.1	14.3	0.4	Ripley Engraved, interlocking horizontal scroll	
Fea. 519, V9	grog	F	7.2	15.2	0.6	Ripley Engraved, nested triangle and semi-circle	
Fea. 519, V10	grog	C	5.4	10.4	0.3	plain	

reminiscent of the appliqued fillets and crimped lips that decorate several of the bowls in the vessel collection (see below).

The remainder of the carinated bowls—in three different sizes—have engraved decorations (see Figure 6-29 and Figure 6-30d-h) on the rim. Most of these are Ripley Engraved vessels with a variety of engraved motifs, including four distinctive Ripley Engraved, *var Walkers Creek* vessels (see Figure 6-29a and Figure 6-30d) vessels; three of the four vessels are from Burial Group IV and V graves (see Table 6-5).

Four of the engraved carinated bowls (9%) have a pigment smeared in the engraved design, three with a white kaolin clay pigment and one with a red hematite-rich clay (see Table 6-5). The pigment-smeared vessels are from only two burials: Fea. 509 (Burial Group III) and Fea. 511 (Burial Group IV).

One of the carinated bowls is shell-tempered, and has a unique concentric-semi-circular engraved design accompanied by two appliqued ridges on the vessel rim (see Figure 6-30e). This vessel is apparently a trade piece, having been manufactured along the Red River by another contemporaneous prehistoric Caddo group, known archeologically as the McCurtain phase. This is the only shell-tempered vessel from any of the 30 burial features in cemetery or residential contexts at the Pilgrim's Pride site.

Compound Bowls

Compound bowls are unrestricted orifice bowl forms with three distinctive body sections, namely the rim (or upper panel), shoulder (or lower panel), and body, with one section usually higher in height than the

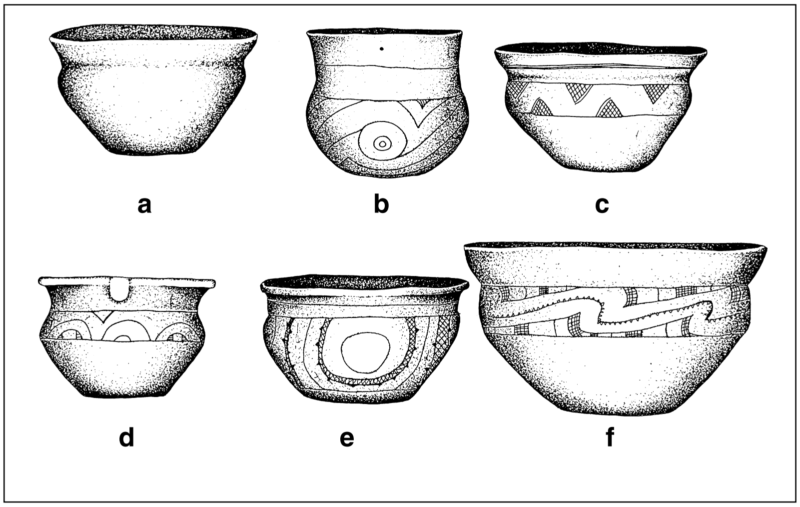


Figure 6-31. Plain and engraved compound bowls: a, Fea. 504, Vessel 12; b, Fea. 4, Vessel 1; c, Fea. 830, Vessel 1; d, Fea. 504, Vessel 5; e, Fea. 503, Vessel 3; f, Fea. 504, Vessel 10.

others (typically the lower body or lower panel, the shouldered section of the vessel), creating a complex contour with a flat disk base (Figure 6-31). The lower panel also tends to have the more complex or elaborate decoration, if the compound bowl has been decorated. There are 21 compound bowls from burial features (Table 6-6), and Fea. 503 (Burial Group IV) and Fea. 504 (Burial Group I) have the highest numbers of this kind of vessel, including at least one large compound bowl per burial. Other burial features with large (greater than 2 liters in volume) compound bowls include Fea. 505, Fea. 517, and Fea. 830; the latter is a burial feature in one of the Titus phase residential areas (see Chapter 4, this volume).

Six (29%) of the compound bowls from five different burial features are plain or undecorated (see Figure 6-31a), and all of these are small vessels (less than 0.6 liters in volume). Another one, from Fea. 515 (Burial Group VI), has a notched lip, like several of the carinated bowls. The others (67% of the compound bowls) have engraved designs, usually found on the lower panel of the vessel (see Figure 6-31b-f). These engraved compound bowls include Ripley Engraved, Ripley Engraved, *var. Xena*, a Taylor Engraved vessel with suspension holes (see Figure 6-31b), and others of indeterminate type. The latter include vessels with large pendant triangles (see Figure 6-31c), another from Fea. 504 with engraved semicircles and triangular elements (see Figure 6-31d; this vessel also had strap handles and was red-slipped), and one from Fea. 511 that only had horizontal engraved lines on the upper and lower rim panels. Finally, a compound bowl from Fea. 501 had engraved triangles

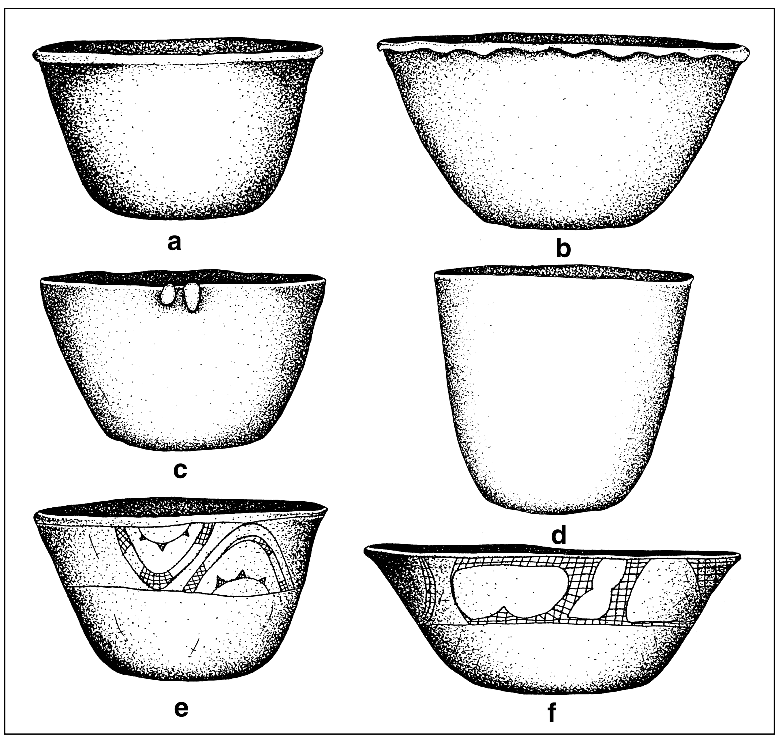


Figure 6-32. Plain and engraved bowls and deep bowls: a, Fea. 70, Vessel 6; b, Fea. 510, Vessel 3; c, Fea. 2, Vessel 1; d, Fea. 518, Vessel 1; e, Fea. 519, Vessel 6; f, Fea. 510, Vessel 7.

Table 6-6. Compound Bowls from Burial Features.

Fea./Vessel No.	Temper	Firing	Height (cm)	OD (cm)	Liters	Decoration	Comments
Fea. 4, V1	grog	F	8.6	9.6	0.6	Taylor Engraved	suspension holes
Fea. 70, V2	grog-hematite	IND	7.2	10.3	0.4	plain	rim peaks
Fea. 501, V3	grog-hematite, SP	F	IND	IND	IND	interior engraved triangles	
Fea. 503, V1	grog, SP	F	IND	32.5	>2.5	Ripley Engraved, scroll and scroll dividers	red pigment
Fea. 503, V3	grog SP	G	8.5	13.2	0.8	Ripley Engraved, concentric circles	rim peaks, lip nodes, white pigment
Fea. 503, V4	grog-hematite	B	9.8	13.0	1.0	Ripley Engraved, engraved ladders and horizontal scroll	
Fea. 503, V6	grog	G	9.5	11.0	0.5	plain	
Fea. 503, V8	grog-hematite	B	11.0	10.5	0.6	plain	rim peaks
Fea. 503, V9	grog, SP	F	>8.5	17.0	1.25	Ripley Engraved, scroll and circle or interlocking horizontal scroll	
Fea. 504, V5	grog	F	9.9	14.1	1.2	engraved semi-circles	red-slipped, strap handles
Fea. 504, V8	grog	F	IND	26.0	>2.0	semi-circles and horizontal engraved zones	
Fea. 504, V10	grog-hematite-organics	F	20.0	31.0	5.0	Ripley Engraved, continuous scroll	
Fea. 504, V12	grog-hematite	G	7.0	9.8	0.4	plain	
Fea. 505, V3	grog-hematite, SP	G	7.6	33.1	2.5	Ripley Engraved, var. Xena	white pigment
Fea. 508, V4	grog-hematite	F	IND	>11.6	IND	plain	
Fea. 510, V9	grog-hematite	F	8.5	18.0	1.2	Ripley Engraved, scroll and negative S divider	
Fea. 511, V9	grog	F	5.9	13.0	0.6	horizontal engraved	white pigment

Table 6-6. *(Continued)*

Fea./Vessel No.	Temper	Firing	Height (cm)	OD (cm)	Liters	Decoration	Comments
Fea. 515, V2	grog-hematite, SP	F	8.1	16.1	0.7	lip notched	
Fea. 517, V3	grog	F	19.0	28.0	4.0-5.0	Ripley Engraved, continuous scroll	
Fea. 517, V8	grog-organics	IND	4.0	10.2	0.2	plain	
Fea. 830, V1	grog-organics	F	13.5	31.0	3.0	large triangular engraved el.	

on the interior of the vessel rim, similar to a vessel from the Harold Williams (41CP10) Titus phase community cemetery (see Turner et al. 2003:Figure 3c).

About 19% of the compound bowls have either white or red clay pigments smeared in the engraved designs, with the white clay pigment predominant. All of these vessels are from Burial IV-VI features (see Table 6-6). One of these (see Figure 6-31e) from Fea. 503 has two rim peaks and small lip nodes. This particular vessel has engraved circles and semi-circles with small pendant triangles, and the vessel bulges at the center of the four concentric circles, but lacks the centrally placed nodes seen on Ripley Engraved, *var. Xena* vessels. The engraved design resembles that seen on Belcher Engraved deep bowls (Webb 1959:Figure 106i).

Deep Bowls

This vessel form has unrestricted orifices and flat disk bases, and they are tall and deep (Figure 6-32d). The vessel heights are greater than the orifice diameters. At the Mockingbird site (41TT550), these vessels were labeled cylindrical vessels (Perttula et al. 1998:216).

There are four deep bowls in the vessel collection, three from cemetery burial features and one from a burial in a Titus phase residential area (Table 6-7). They are found only im Burial Group I-III graves.

Deep bowls are either plain (see Figure 6-32d), very minimally decorated with appliqued nodes (see Figure 6-32c), or have a crenelated lip. They occur only in two sizes, with undecorated and decorated vessels in both size categories.

Bowls

The bowl vessel form refers to a vessel with an unrestricted orifice, one "whose wall contour remains unaltered from the rim to the base" (Klement et al. 1993:203). They have orifice diameters generally greater than the height of the bowl, and they also have flat disk bases (see Figure 6-32a-c, e-f). Including one bowl from a burial in a residential area (see Table 6-7), there are 25 bowls in the Pilgrim's Pride site vessel collection, approximately 18% of all the vessels. Burial features with relatively high numbers of

Table 6-7. Deep Bowls and Bowls from Burial Features.

Fea./Vessel No.	Temper	Firing	Height (cm)	OD (cm)	Liters	Decoration	Comments
Deep Bowls							
Fea. 2, V1	grog	C	>20.0	>32.0	>5.0	appliqued nodes on rim	
Fea. 504, V3	grog	F	8.4	14.6	0.7	plain	
Fea. 508, V1	grog, SP	F	9.0	18.5	1.1	crenelated lip	
Fea. 518, V1	grog, SP	F	18.0	24.5	3.5	plain	
Bowls							
Fea. 2, V2	grog, SP	F	IND	16.5	IND	plain	
Fea. 70, V6	grog-hematite, SP	F	9.0	20.0	1.0	plain	
Fea. 502, V4	grog-organics	F	IND	IND	IND	plain	
Fea. 504, V2	grog-hematite	G	6.5	14.0	0.5	single interior incised line	rim peaks
Fea. 504, V4	grog	F	9.8	17.0	1.5	Ripley Engraved, scroll and circle	
Fea. 505, V5	grog	B	5.7	14.1	0.4	plain	
Fea. 506, V2	grog-hematite-organics, SP	F	4.0	14.3	0.25	crimped or pinched lip	
Fea. 506, V3	grog-hematite	B	>5.2	IND	IND	plain	
Fea. 507, V3	grog	F	9.8	19.0	1.5	appliqued strip at rim	
Fea. 507, V4	grog	B	7.6	15.1	0.9	scalloped lip, red-slipped	
Fea. 508, V5	grog-hematite	G	IND	IND	IND	plain	
Fea. 509, V3	grog-hematite	B	IND	IND	IND	single horizontal incised line on rim	
Fea. 509, V6	grog-hematite, SP	B	9.0	16.5	0.9	plain	
Fea. 510, V3	grog, SP	G	7.0	17.0	0.6	folded and crimped appliqued fillet below lip	

Table 6-7. *(Continued)*

Fea./Vessel No.	Temper	Firing	Height (cm)	OD (cm)	Liters	Decoration	Comments
Fea. 510, V4	grog-hematite	C	11.0	17.8	1.8	interior engraved triangles on rim	
Fea. 510, V7	grog-hematite	F	6.1	16.5	0.6	Ripley Engraved, scroll	
Fea. 511, V7	grog-hematite, SP	G	3.6	10.5	0.2	plain	
Fea. 511, V13	SP	B	IND	IND	IND	horizontal combed lines	
Fea. 514, V4	grog-hematite-bone	F	6.2	9.5	0.3	horizontal, diagonal, and nested triangle incised	
Fea. 516, V1	grog-hematite, SP	F	IND	IND	IND	diagonal lip incised	
Fea. 516, V2	grog-hematite, SP	G	IND	IND	IND	plain	rim peaks
Fea. 517, V5	grog-hematite	C	4.5	11.8	0.3	plain, orange ware inside vessel	green pigment
Fea. 518, V5	grog-hematite	F	7.3	13.5	0.6	Ripley Engraved, var. Xena	rim peaks and appliqued nodes
Fea. 518, V6	grog-hematite-organics	F	8.6	15.8	0.8	lip noded	
Fea. 519, V6	grog	B	8.1	13.4	0.6	engraved semi-circles	

bowls among the funerary offerings are Fea. 506, Fea. 507, and Fea. 510, all Burial Group II adult burial features (see Tables 6-3 and 6-7).

Of the 25 bowls, 40% are plain; they are small or medium-sized vessels (see Figure 6-32a-b). One of these, from Fea. 516, has a series of rim peaks (see Table 6-7). Several other bowls have crimped or pinched lips, or in one case, there is a folded and crimped appliqued fillet placed at and below the lip of the bowl (see Figure 6-32b), and another has an horizontal appliqued strip at the rim (Fea. 507, Vessel 3). These distinctive vessels are only from Burial Group II graves (see Table 6-7). One other bowl from Fea. 507 is red-slipped and has a scalloped lip. Vessel 6 in Fea. 518 has lip nodes only.

Other minimally-decorated bowls include one from Fea. 516, with diagonal incised lines on the lip of the vessel, and two others with decorations on the interior vessel rim. The first, a small bowl from Fea. 504 with rim peaks, has a single horizontal incised line along the rim, and the other (Fea. 510), a large bowl, has a series of engraved triangles on the interior vessel rim (cf. Turner et al. 2003: Figure 3c). One bowl from Fea. 509 has a single horizontal incised line on the rim, and a small bowl from Fea. 514 (see Table 6-7) has two horizontal incised lines on the rim, and these incised lines dip on opposing sides of the vessel, as with Late Caddo effigy vessels, but there are no attached effigies or rim peaks on this vessel.

Four of the bowls have engraved decorations on the exterior rim surface (see Table 6-7) (see Figure 6-32e-f). Two have Ripley Engraved motifs (scroll and scroll and circle), another has engraved semi-circles (see Figure 6-30e), and the last one is a small bowl with a Ripley Engraved, *var. Xena* motif. This vessel also has rim peaks and lip nodes.

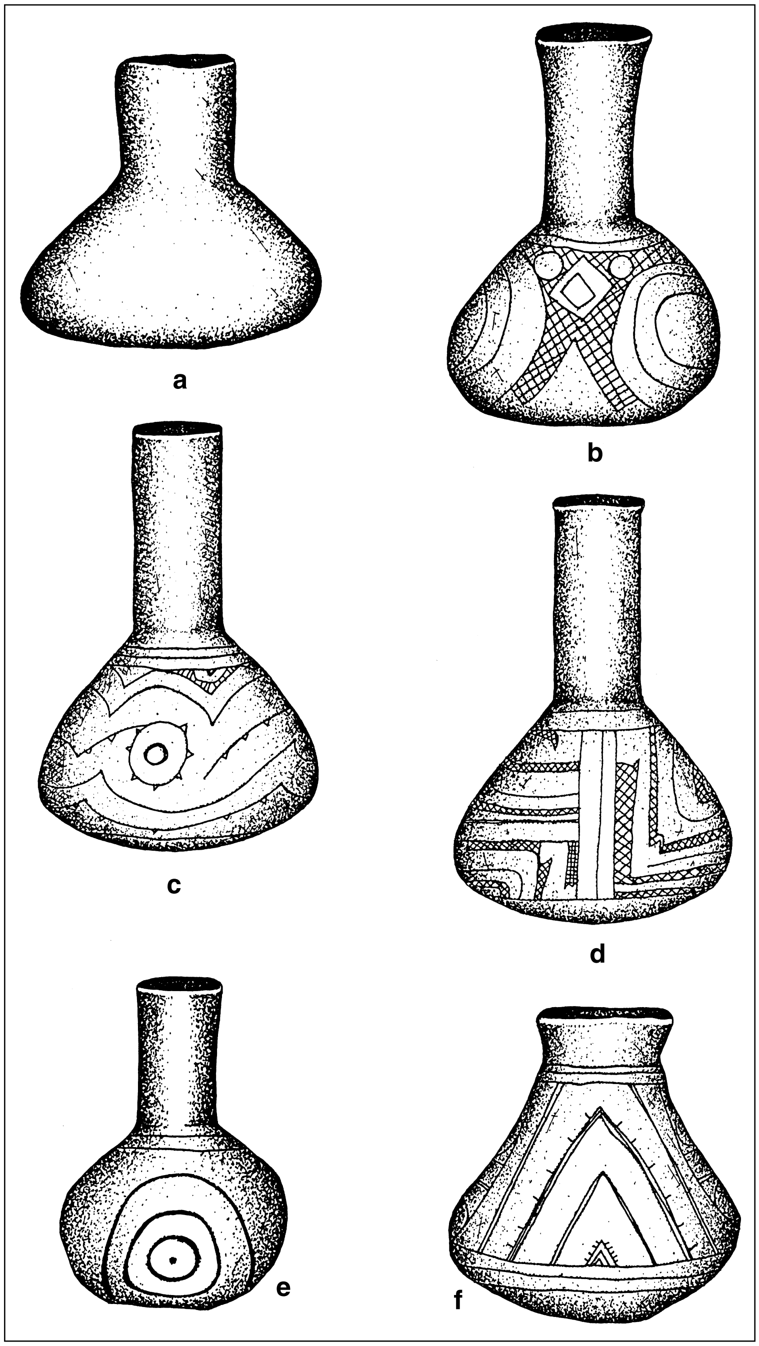


Figure 6-33. Plain and engraved bottles: a, Fea. 518, Vessel 10; b, Fea. 509, Vessel 1; c, Fea. 517, Vessel 1; d, Fea. 510, Vessel 8; e, Fea. 514, Vessel 1; f, Fea. 503, Vessel 2.

Bottles

These vessels are defined by a constricted and narrow-mouthed orifice with a long-necked or cylindrical rim and a body of various bulbous shapes (cf. Suhm and Jelks 1962: Plate 65b-d, f, h-j). The bottles have flat disk bases (Figure 6-33a-e).

Bottles occur in almost all of the burial features, usually being placed near the head of the deceased, and two burials (Fea. 514 and Fea. 517) from two different Burial Groups have two bottles apiece (Table 6-8). There are a total of 15 bottles from burial features, representing 9.6% of the vessels.

Most of the bottles (87%) are decorated with engraved lines, and 33% have had a red clay pigment smeared in the engraved design (see Table 6-8). The exclusive use of red pigments on the bottles, versus the principal use of white pigments on the carinated bowls and compound bowls suggests a contrastive usage of color, perhaps in a ritual sense, in

Table 6-8. Bottles and Ollas from Burial Features.

Fea./Vessel No.	Temper	Firing	Height (cm)	OD (cm)	Liters	Decoration	Comments
Bottles							
Fea. 66, V1	grog-hematite, SP	G	IND	IND	IND	indeterminate engraved zones	red pigment
Fea. 70, V1	grog-organics	F	21.5	5.5	0.9	Ripley Engraved, triangles and circles	
Fea. 502, V1	grog-organics, SP	G	IND	6.0	IND	indeterminate engraved zones	red pigment
Fea. 504, V14	grog-hematite	F	IND	IND	IND	possible Hodges Engraved	
Fea. 505, V1	grog-hematite	B	IND	IND	IND	Ripley Engraved, concentric circles	red pigment
Fea. 509, V1	grog-hematite	B	20.0	5.65	0.8	Ripley Engraved, concentric circles and cross-hatched engraved dividers	
Fea. 510, V8	grog-organics, SP	G	24.0	5.3	1.0	Ripley Engraved, panels with scrolls	red pigment
Fea. 511, V1	grog	G	IND	IND	IND	plain	
Fea. 512, V3	grog, SP	B	IND	IND	IND	appliqued ridge on body	
Fea. 514, V1	grog-hematite	B	14.4	4.2	0.4	probable Taylor Engraved, concentric circles and excised dots	
Fea. 514, V3	grog-hematite	B	9.9	3.4	0.175	Ripley Engraved, circles and semi-circles	red pigment
Fea. 517, V1	grog-hematite	G	22.0	5.0	0.8	Ripley Engraved, scroll and circle	
Fea. 517, V1B	grog	B	IND	IND	IND	Ripley Engraved, scroll and circle	
Fea. 518, V10	grog	B	8.3	3.75	0.2	plain	
Fea. 519, V1	grog	B	15.3	4.2	0.35	engraved semi-circles	
Olla							
Fea. 503, V2	grog	F	13.3	5.9	0.5	Ripley Engraved, nested triangles and semi-circles	red pigment

the manufacture and use of vessels for holding liquids versus those more likely to have been used for the holding and serving of foodstuffs.

These engraved bottles (see Figure 6-33b-e) are primarily from Ripley Engraved bottles, but one with concentric circles and excised dots (see Figure 6-33e) may be from an early version of Taylor Engraved lacking the hooked arms or spirals, and another (see Figure 6-33b) has cross-hatched engraved zones around circular and diamond-shaped zones that is reminiscent of Hodges Engraved. Both of these bottles are from Burial Group I-III features. The other two bottles are plain, and one at least is small in size (see Figure 6-33a).

Olla

The olla form refers to a vessel with a short, squat neck and a small orifice (see Figure 6-33f), along with a generally wide, globular body and a rounded to flat base. The one olla from the Pilgrim's Pride site (see Table 6-8), in a Burial Group IV burial (Fea. 503), has a nested triangle and semi-circular Ripley Engraved motif on the body of the olla, with sets of horizontal engraved lines below the squat neck and just above the base. Red pigment has been smeared in the engraved design on the vessel body.

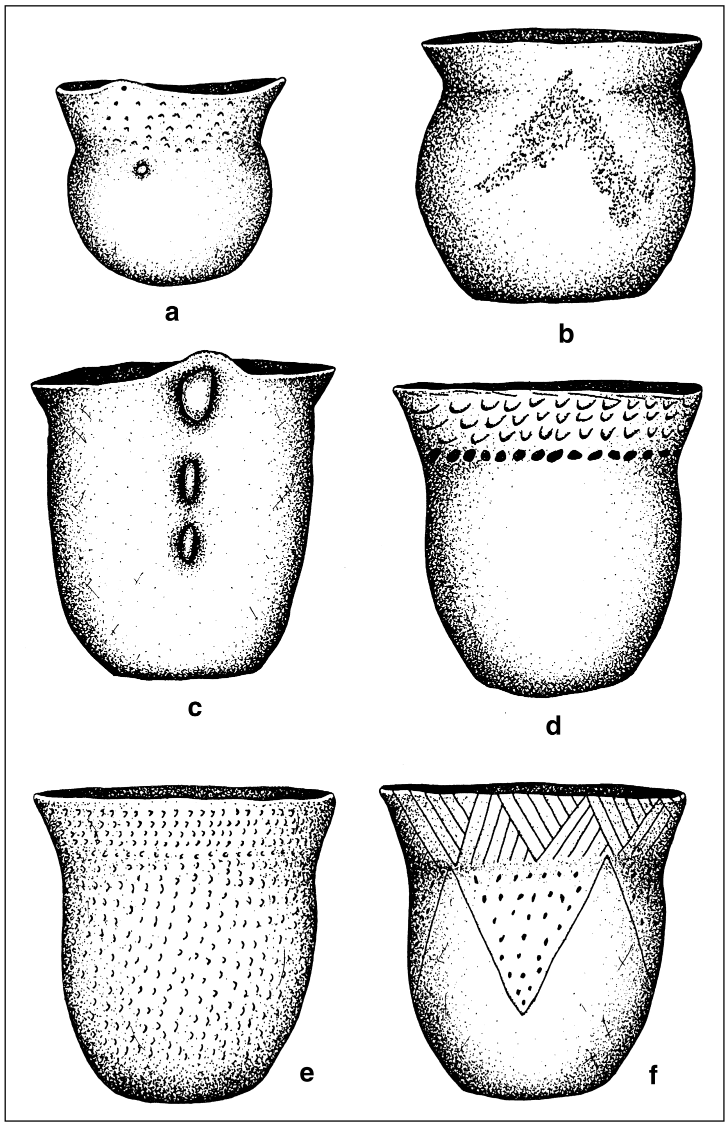


Figure 6-34. Plain and decorated jars: a, Fea. 70, Vessel 7; b, Fea. 507, Vessel 1; c, Fea. 510, Vessel 5; d, Fea. 501, Vessel 2; e, Fea. 6, Vessel 2; f, Fea. 509, Vessel 4.

Jars

Jars, or cooking pots (cf. Turner 1978; Turner et al. 2003), are vessels with a constricted orifice, a height greater than its width, everted rims, and a flat disk base (Figures 6-34 and 6-35). There are 40 jars from the burial features, comprising 47% of the vessels from burials in residential areas and 23% of the vessels in the cemetery burials (Table 6-9). Jars are most abundant in Fea. 517 (Burial Group I), Fea. 518 (Burial Group I), and Fea. 519 (Burial Group III) in the cemetery; the latter is a child/juvenile burial, and the other two are adults.

Only five of the jars are undecorated (see Table 6-9 and Figure 6-34b); two others have plain bodies and/or lower rims, and are probably from plain jars. Most of these vessels are in Burial

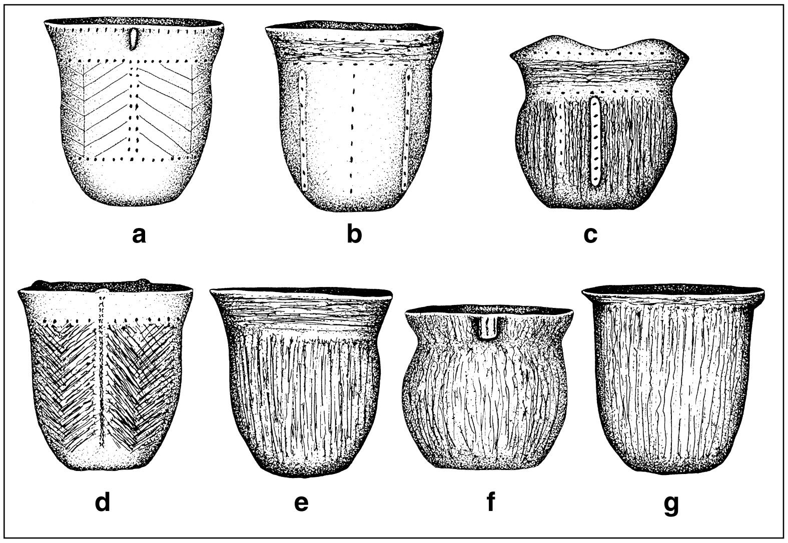


Figure 6-35. Decorated utility ware vessels from the Pilgrim's Pride site cemetery and other burial features: a, Fea. 1-128, Vessel 1; b, Fea. 1-128, Vessel 2; c, Fea. 503, Vessel 10; d, Fea. 504, Vessel 7; e, Fea. 6, Vessel 1; f, Fea. 504, Vessel 3; g, Fea. 517, Vessel 2.

Group I-III features. Two of these (from two different Burial Group I-III graves) may also be pigment jars (see Table 6-9), based on size and shape comparisons with pigment jars from the Mockingbird site (see Perttula et al. 1998:233-234). The remainder of the utility ware jars are decorated in a variety of different ways, either decorated just on the rim (see Figure 6-34a, d) or decorated on both the rim and body (see Figure 6-34e-f and Figure 6-35a-g), although not always with the same decorative methods or elements.

The decorated jars include those with punctated rims (n=4, see Figure 6-34a), pinched rims and bodies (n=1, see Figure 6-34e), and neck banding along the rim (n=6, see Figure 6-34d); these latter are La Rue Neck Banded jars. At least one of the punctated jars has rim peaks and suspension holes (see Figure 6-34a), and may be a pigment vessel. Brushed vessels include those decorated with brushing marks on both the rim and body (see Figure 6-35e-g and Table 6-9), including a Bullard Brushed jar with strap handles from Fea. 504, and a Karnack Brushed-Incised jar from Fea. 517 (see Figure 6-35g). Pease Brushed-Incised jars include several with brushed bodies divided into panels by either appliqued fillets or vertical punctated rows (see Figure 6-35c-d), with brushing and/or rows of punctations on the rim, while others have punctated, incised, and/or appliqued panels on vessel bodies along with punctated or brushed rims (see Figure 6-35a-b).

Four jars from three different burial features have incised-punctated decorations (see Figure 6-34f), and are Maydelle Incised vessels; one of these from Fea. 511 also has rim peaks. One McKinney Plain jar from Fea. 510 has rim peaks, strap handles, and the only decoration is two sets of large appliqued nodes on the vessel body (see Figure 6-34c).

DIFFERENCES IN VESSEL FORMS AND FUNCTIONS

The seven different vessel forms were placed as funerary offerings in varying amounts in the six distinct burial groupings at the Pilgrim's Pride site cemetery (Table 6-10). The overall proportions of vessels in Burial Group I-III are considerably different than the mean number of vessels in Burial Groups IV-VI or Fea. 501, 502, and 512, suggesting changes in mortuary rituals during the use of the cemetery over at least two generations.

Deep bowls and bowls are more common offerings in the Burial I and II graves, while jars (whether large or small in size) are most abundant in Burial Groups I and III, followed by Burial Group IV (see Table 6-10). At the Tuck Carpenter site, bowls were most common in the graves of adolescents and younger children (see Perttula et al. 1998:Table 3; Turner 1992: Appendix), although they were present in the graves

Table 6-9. Jars from Burial Features.

Fea./Vessel No.	Temper	Firing	Height (cm)	OD (cm)	Liters	Decoration	Comments
Fea. 2, V3	grog	G	IND	IND	IND	Pease Brushed-Incised or Bullard Brushed	
Fea. 5, V1	grog	G	>14.5	13.1	1.0	Pease Brushed-Incised	
Fea. 6, V1	grog	A	16.7	17.3	1.6	Bullard Brushed	
Fea. 6, V2	grog	F	12.5	12.0	0.7	Killough Pinched	
Fea. 8, V2	grog, SP	E	20.0	18.8	2.8	incised-punctated-brushed-appliqued, cf. Pease Brushed-Incised	
Fea. 8, V3	grog-hematite	IND	13.4	14.5	1.4	La Rue Neck Banded	
Fea. 9, V1	grog	F	IND	IND	IND	plain body; rim missing	
Fea. 1-128, V1	grog-hematite	B	10.5	11.7	0.6	incised-punctated-appliqued, cf. Pease Brushed-Incised	
Fea. 1-128, V2	grog	B	16.3	13.7	1.3	Pease Brushed-Incised	
Fea. 70, V5	grog	F	IND	IND	IND	Maydelle Incised	
Fea. 70, V7	grog, SP	IND	7.7	8.5	0.2	Mockingbird Punctated	rim peaks and suspension holes
Fea. 501, V2	grog SP	F	IND	25.0	>4.0	La Rue Neck Banded	
Fea. 503, V10	grog, SP	F	IND	17.0	IND	Pease Brushed-Incised	
Fea. 504, V3	bone	G	17.0	15.1	1.5	Bullard Brushed	
Fea. 504, V7	grog-hematite	G	22.8	19.3	3.9	cf. Pease Brushed-Incised	
Fea. 506, V1	grog-hematite	G	IND	17.0	IND	plain body and lower rim	
Fea. 507, V1	grog-hematite	B	11.0	14.0	0.9	plain	
Fea. 508, V2	grog, SP	F	IND	14.6	>0.2	plain	
Fea. 508, V3	grog	B	IND	IND	IND	appliqued-punctated	
Fea. 509, V4	grog, SP	F	20.5	18.8	2.5-3.0	Maydelle Incised	
Fea. 509, V9	grog	G	11.3	12.6	0.7	incised-punctated on rim	
Fea. 510, V2	grog, SP	E	9.5	14.8	0.7	La Rue Neck Banded	

Table 6-9. *(Continued)*

Fea./Vessel No.	Temper	Firing	Height (cm)	OD (cm)	Liters	Decoration	Comments
Fea. 510, V5	grog-hematite, SP	F	15.0	13.0	1.1	McKinney Plain	rim peaks and strap handles
Fea. 511, V3	grog	F	13.0	13.3	0.8	plain	
Fea. 511, V10	grog	B	12.5	13.5	1.1	Maydelle Incised	rim peaks
Fea. 511, V12	bone	G	IND	IND	IND	brushed body	
Fea. 512, V1	grog, SP	G	IND	IND	IND	vertical brushing on body	
Fea. 515, V3	grog, SP	G	IND	13.0	IND	La Rue Neck Banded	
Fea. 515, V4	bone, SP	G	<6.0	IND	IND	Mockingbird Punctated	
Fea. 517, V2	grog-hematite	F	19.0	16.1	2.4	Karnack Brushed-Incised	
Fea. 517, V6	grog	G	16.2	12.1	1.0	Bullard Brushed	
Fea. 517, V7	bone-grog-hematite	F	>21.0	IND	IND	Pease Brushed-Incised	
Fea. 518, V2	grog, SP	B	IND	IND	IND	Mockingbird Punctated	
Fea. 518, V3	grog-hematite, SP	F	IND	IND	IND	Bullard Brushed	
Fea. 518, V8	grog	F	IND	IND	IND	plain	probable pigment vessel
Fea. 518, V9	grog-hematite	F	10.0	12.1	0.67	horizontal brushing on rim	
Fea. 519, V2	grog-hematite	F	10.5	11.2	0.6	La Rue Neck Banded	
Fea. 519, V4	grog	G	IND	IND	IND	Mockingbird Punctated	
Fea. 519, V7	grog-hematite	F	8.0	8.7	0.3	La Rue Neck Banded	miniature vessel
Fea. 519, V8	grog-hematite	G	IND	IND	IND	plain	probable pigment vessel

Table 6-10. Vessel Forms by Burial Groupings.

Burial Groups	Deep Bowl	Bowl	Jar	Compound Bowl	Carinated Bowl	Bottle	Olla
I	0.3*	2.0	3.0	2.0	2.7	1.3	0.0
II	0.25	2.0	1.5	0.5	1.3	0.25	0.0
III	0.0	1.5	3.0	0.0	4.5	1.0	0.0
IV	0.0	1.0	2.0	3.5	4.0	0.5	0.5
V	0.0	1.0	1.0	1.0	3.0	1.0	0.0
VI	0.0	1.0	0.7	0.3	1.0	0.7	0.0
Fea. 501, 502, 512	0.0	0.3	0.7	0.3	2.0	0.7	0.0

*mean no. of vessels per burials in each burial group. Fea. 501, 502, and 512 are associated with Burial Groups IV-VI, but cannot be assigned to a specific burial group because the size of burial pits is not known.

of both adult females and males. Cooking pots were more frequent funerary offerings among adult females and adolescents at Tuck Carpenter, but children also had more jars than did adult males.

The mean no. of compound bowls per burial is highest in Group IV, followed by Burial Group I, while Burial Group III has the highest proportion of carinated bowls, followed by Burial Group IV, the latter having 4.0 carinated bowls per burial. Compound bowls were particularly common in the graves of younger children, adolescents, and adult females at the Tuck Carpenter site, compared to adults at the Pilgrim's Pride site cemetery. Carinated bowls, on the other hand, were most frequent in the graves of adult males at the Tuck Carpenter site, while they seem to be abundant in the graves of both children/juveniles and adults at Pilgrim's Pride (see Table 6-10).

Bottles are, overall, less frequent than the principal vessel forms placed in graves (i.e., carinated bowls, jars, compound bowls, and bowls), with a range of only 0.25-1.3 bottles per grave; the highest number of bottles occur in the Burial Group I graves (see Table 6-10). Each of the burials at the Tuck Carpenter site contained a single bottle.

These vessel form associations by burial groups at the Pilgrim's Pride site cemetery suggest three things: (1) the related and earlier Burial Group I-III graves had more vessels placed as funerary offerings than was the case among the later Burial Group IV-VI graves, whether the burials were adults or juveniles/children; (2) only the Burial Group I and II adults had virtually the full complement of vessel forms included as funerary offerings; and (3) the burials of children/juveniles had more carinated bowls, jars, and bottles than they did compound bowls, which are much more common in the adult burials from both larger burial groupings. From these three things, it seems likely that the needs of the dead—as well as the needs of the living as expressed in the vessels placed in the graves—differed here between adults and children/juveniles, and that these needs changed during the time the Pilgrim's Pride site cemetery was being used by prehistoric Titus phase Caddo peoples. This stands in contrast to the number and range of ceramic vessels placed with the deceased at the Tuck Carpenter site, where "there was a consistent and appropriate set of vessels with provisions that accompanied these Caddo people in the afterlife, regardless of age" (Perttula et al. 1998:29).

The burials in the residential areas of the site, probably mainly from children/juveniles that were buried in and/or near structures, had only 1.7 vessels per burial feature (19 vessels from 11 features), compared to 7.3 vessels in the cemetery. Jars are much more frequent funerary offerings in the non-cemetery burials than they are in the cemetery (47% versus 23% of the total number of vessels), and conversely, carinated bowls and bowls are much more common funerary offerings in cemetery contexts: 33% versus 11% and 18% versus 5%, respectively.

While the preceding discussion of ceramic vessel forms indicates that there are differences in the kinds of vessels placed with adults and children/juveniles at death, are there any basic differences in these vessel forms that suggest they have different functions? Following previous analyses of Titus phase vessel assemblages (see Perttula et al. 1998; Perttula 2000), differences in how vessels were made, tempered, and fired; variations in size and volume (see discussion above); the presence of sooting and charred organic remains adhering to vessel surfaces; surface treatments; and whether they were decorated, can be informative about the intended function and use of the vessels in the Pilgrim's Pride site cemetery. As discussed below, the many and varied vessel forms from the burial features were intended to be used in different ways in life, and in death, and there are subtle hints in temper, paste, surface treatment, firing conditions, and the presence of residues, that make these differences in function apparent. We believe the differences in vessel forms and functions detected in the Pilgrim's Pride cemetery vessels transcend their mortuary context, and can be detected in vessel and sherd assemblages from both residential and mortuary contexts.

Were the vessels from burial features made with the same temper and paste compositions? A total of 15 different temper and paste groups are present among the more than 150 vessels, with grog-tempered and clay pastes representing the primary temper-paste combination (Table 6-11). Other principal temper-paste combinations are grog-hematite-tempered and clay paste (25.7%), grog-tempered and sandy paste (17.1%), and grog-hematite-tempered and sandy paste (12.5%). The one shell-tempered carinated bowl (see Table 6-11) represents a vessel with a non-local temper inclusion, and the vessel is a trade piece from the middle reaches of the Red River; the other 14 temper-paste combinations are local compositions created by the Titus phase potters to meet their ceramic vessel manufacture needs.

The almost exclusive use of grog (i.e., crushed sherds) for temper is one of the defining characteristics of Titus phase pottery, here and in most Titus phase contexts. However, many of the Pilgrim's Pride site vessels have multiple temper inclusions, including hematite, burnt bone, and charred organic materials/wood charcoal, and overall, the vessels in the cemetery have heterogeneous tempers and pastes. Vessel forms with the highest proportions of grog as the sole temper are deep bowls, jars, and carinated bowls (see Table 6-11). The jars and bowls, however, are best represented among the vessel forms without any grog temper (7.5% and 4%, respectively), further documenting the temper-paste heterogeneity.

Bone-tempered vessels are present only in the jars (10%), bowls (4.0%), and carinated bowls (8.7%), either as the sole temper, or in combination with grog, hematite, or a sandy paste (see Table 6-11). These three vessel forms also have a relatively high percentage of vessels made with a naturally sandy paste (32.5-40.0%). By comparison, only 13.3% of the bottles were made with a sandy paste clay. At the contemporaneous Mockingbird site, bone temper was used in more than 40% of the vessels (see Perttula 2000:Table 3), compared to less than 6% of the Pilgrim's Pride site mortuary vessels.

Table 6-11. Temper and Paste Comparisons in the Vessels from the Pilgrim's Pride Cemetery and Other Burial Features.

Temper/Paste	Carinated Bowl	Jar	Bowl	Deep Bowl	Olla	Bottle	Compound Bowl	N
shell	2.2*	–	–	–	–	–	–	1
grog	32.6	35.0	20.0	50.0	100.0	26.7	28.6	47
grog-organics	–	–	4.0	–	–	6.7	9.5	4
grog-organics/ sandy paste	–	–	–	–	–	13.3	–	2
grog/sandy paste	17.4	25.0	8.0	50.0	–	6.7	14.3	26
grog-hematite	21.7	25.0	28.0	–	–	40.0	28.6	39
grog-hematite/ sandy paste	15.2	5.0	24.0	–	–	6.7	14.3	19
grog-hematite-bone	2.2	2.5	4.0	–	–	–	–	3
grog-hematite-organics	–	–	4.0	–	–	–	–	1
grog-hematite-organics/SP	–	–	4.0	–	–	–	4.8	2
bone-grog	4.3	–	–	–	–	–	–	2
bone-grog/ sandy paste	2.2	–	–	–	–	–	–	1
bone	–	5.0	–	–	–	–	–	2
bone/sandy paste	–	2.5	–	–	–	–	–	1
Sandy Paste	2.2	–	4.0	–	–	–	–	2
Totals	46	40	25	4	1	15	21	152

Note: unless indicated as having a sandy paste, the vessel was identified as having a clay paste
*percentage

Crushed hematite pieces were used as a temper in the five principal vessel forms, but not among the deep bowls or the one olla (see Table 6-11). In this case, the use of hematite as a temper was most commonly noted in the bowls (64.0%), compound bowls (47.6%), and bottles (46.7%), but it was still well represented in the carinated bowls (39.1%) and jars (32.5%). As with the differences between the Mockingbird and Pilgrim's Pride vessels in the use of temper, there is a considerable difference between the two in the use of hematite temper. None of the Mockingbird site vessels had hematite temper inclusions, when 41% of the Pilgrim's Pride site vessels did have this kind of temper. These regional differences in temper choices are worth exploring in more detail as other vessel assemblages are studied, because such subtle tempering choices may provide good clues concerning the types of clays that were being selected to make ceramics, but clues relevant to defining geographic boundaries of different Titus phase Caddo groups.

A few bottles (20%), compound bowls (14.3%), and bowls (12.0%) had noticeable inclusions of charred organic remains and pieces of wood charcoal in the paste (see Table 6-11). These occur primarily in vessels that were also tempered only with grog, though why that should be the case is uncertain. What does seem clear is that these few vessels (about 6% of the vessel assemblage) were not fired long enough, or at sufficiently high temperatures, to burn off the organic materials that had not been removed from the clay during its cleaning and preparation, prior to shaping the vessels.

Most of the vessels in the Pilgrim's Pride site cemetery were fired in a reducing environment, more than 93% (Table 6-12). This indicates that the vast majority of the vessels, including fine wares and utility wares, were smothered by fuels and ashes during the firing, limiting their exposure to oxygen during the firing itself, where they were probably fired long enough to produce a durable and sturdy vessel. The almost universal reduced firing of vessels is a consistent and distinctive characteristic of Titus phase ceramic vessels (see Perttula 2000; Perttula et al. 1998). Of those vessels fired in a reducing environment, most of the vessels (with the exception of bottles, see Figure 6-12) were further pulled from the fire and left to cool in the open air; this left many of the vessels with a thin oxidized zone on either exterior and/or interior sections of the paste, producing vessels with a deep brown to chocolate brown color, obviously much preferred in the making of the vessels by Caddo potters. Most of the bottles were fired and cooled in a low oxygen environment, however (see Table 6-12), producing vessels with a dark sooted or smudged exterior surface as well as a dark gray to black interior. Black polished bottles were a common feature of Late Caddo vessel manufacture, as it apparently was at the Pilgrim's Pride site (at least among the vessels placed as funerary objects in the graves).

Table 6-12. Firing Conditions in the Vessels.

Firing Conditions	Carinated Bowl	Jar	Bowl	Deep Bowl	Olla	Bottle	Compound Bowl	N
Oxidizing	2.3*	2.6	–	–	–	–	–	2
Incompletely Oxidized	4.5	5.3	8.0	–	–	–	–	7
Reducing	15.9	15.9	20.0	–	–	53.3	10.5	28
Reducing, but cooled in open air	77.3	76.3	72.0	75.0	100.0	46.7	89.5	109
Totals	44	38	25	4	1	15	19	146

*percentage

Less than 7% of all the vessels were fired in an oxidizing environment (i.e., an open fire), and most of these were a few carinated bowls, bowls, and jars that had been incompletely oxidized during firing (see Table 6-12). For whatever reason, these particular vessels were not completely fired before they were removed from the fire. At the Mockingbird site, more of the jars were incompletely oxidized than the other vessel forms (see Perttula 2000:128), but any differences in firing conditions did not seem to correlate with any differences in cooking techniques or use.

Variation in the surface treatment of the mortuary vessels provides some of the best evidence that the vessel forms were used (and meant to be used) in different ways. Fine wares—such as engraved carinated bowls, compound bowls, and bottles—are the only vessels in the collection that have polished interior and/or exterior vessel surfaces (Table 6-13). None of the jars, bowls, deep bowls, or ollas had a polished surface. Burnishing is more prevalent among each of the vessel forms than is polishing, but again is concentrated on the carinated bowls, compound bowls, bowls, and deep bowls, especially on the engraved wares. Only 7.5% of the jars have exterior burnished surfaces, and these are vessels with decorations limited to the rim, such that the body was left undecorated, but burnished. Both polishing and burnishing forms of surface treatment were primarily designed to enhance the appearance and style of any particular vessel, particularly their engraved designs, and would serve no useful purpose on vessels meant for cooking and other heavy-duty uses, or on vessels meant to be regularly picked up and held.

Table 6-13. Vessel Surface Treatment.

Firing Conditions	Carinated Bowl	Jar	Bowl	Deep Bowl	Olla	Bottle	Compound Bowl	N
Int. polished	–	–	–	–	–	–	4.8*	1
Ext. polished	6.4	–	–	–	–	20.0	14.3	9
Int. burnished	25.5	–	12.0	25.0	–	–	23.8	21
Ext. burnished	55.3	7.5	40.0	50.0	100.0	6.7	38.1	51
Int. smoothed	48.9	55.0	40.0	50.0	–	–	28.6	63
Ext. smoothed	17.0	17.5	24.0	50.0	–	20.0	9.5	28
Int. organic Residues	8.5	32.5	12.0	–	–	6.7	4.8	22
Ext. organic Residues	17.0	27.5	16.0	25.0	–	–	9.5	26
Totals	47	40	25	4	1	15	21	221/153+

*percentage; +numbers total more than 100% because vessels commonly have more than one form of surface treatment, or surface treatments on both vessel surfaces

Jars had the highest percentage of interior vessel smoothing (55%), followed by deep bowls, carinated bowls, and bowls (see Table 6-13), with between 40-50% per vessel class; in the case of the carinated bowls and the compound bowls, the smoothing likely represents degraded or eroded burnished surfaces, while the smoothing was purposeful on the other wares. Smoothing the interior surfaces of utility wares used for cooking and the holding of foods (both hot and cold) would have contributed to better control of thermal shock resistance (Schiffer et al. 1994:210) and lower permeability (in combination with roughened or textured exterior surfaces), resulting in improved heat effectiveness (Rice 1996:148). Roughened or textured exterior surfaces would have been very useful features should such vessels have to have been lifted off the fire, as hands could more readily grip a roughened or brushed surface than one that was smoothed or burnished on vessel exteriors.

Another indication that the utility wares (i.e., the jars, the deep bowls, and many of the bowls) were used differently than the carinated bowls, compound bowls, and bottles is the frequency of organic residues adhering to vessel surfaces (see Table 6-13). Thick charred and sooty residues on interior and exterior rim areas, as well as the upper body surfaces, seems good evidence for their repeated use in cooking over a fire. The locations of charred remains on these parts of utility ware vessels suggest these were "the point of greatest heat when the moisture is removed" (Skibo 1992:152).

The residues on carinated bowls and compound bowls is unlike the thick, sooty residues on cooking vessels. They are thin, with a varnish-like or resin-like appearance and texture, and it is unlikely that these residues represent the remains of cooking evidences. Instead, they may be residues left from the decay of organic materials placed either within the vessels, or organic materials that decayed in the burial pit. Similar residues were noted on about 35% of the carinated bowls from the Mockingbird site (Perttula 2000:Table 3; Perttula et al. 1998:Figure 104a-b).

The vessels had different rim and lip forms, and these taken together are signifiers of the varying uses they were put to. Jars, for instance, are open containers, where foods were processed and cooked. Not too surprisingly, they have everted rims and rounded lips (73%), permitting easy access to the contents of the vessels (Table 6-14). Bottles, with long necks, usually have direct rims; everted neck bottles are rare in Caddo vessel assemblages, although occasionally the rims will have folded lips, as do 37.5% of the bottles from the Pilgrim's Pride site. Flat lips may have made it easier to cap, wrap, or plug the bottle openings.

The only other vessel form where everted rim are common are the compound bowls (see Table 6-14). More than 57% of the compound bowls from the site have everted rims (with either rounded or flat lips), and in a sense, the compound bowls look like large jars, with wide orifices. Obviously this was for ready access of the contents of these distinctive and usually intricately decorated vessels.

The bowls, deep bowls, and carinated bowls, on the other hand, have almost exclusively direct or vertical rims with rounded lips (see Table 6-14). Such standing rims would have served well to keep the contents of these relatively shallow vessels from spilling out, and the rounded lips of these vessels may also have allowed for the pouring of liquids, and further reduced spillage. Several of the bowls and deep bowls have distinctive interior thickened rims (see Table 6-14), and one of the bowls also had an inverted rim and a flat lip. Only the fine ware carinated bowls and compound bowls had exterior thickened rims, and many of these vessels also had lips that were folded to the exterior, further widening the appearance of the vessel orifice. In fact, almost 63% of the carinated bowls have exterior folded lips, as did 47% of the compound bowls. Among the bowls, deep bowls, and jars, only 13-25% of the vessels had exterior folded lips.

Vessel Assemblage Comparisons

How does the vessel assemblage from the Pilgrim's Pride site cemetery compare with other documented Titus phase cemeteries, as well as to other contemporaneous Caddo cemetery vessel assemblages? There are good ethnographic and archeological reasons to presume that the funerary objects placed in the graves of Late Caddo individuals principally represent in a symbolic and material sense the items used by that individual in life, as well as the range of goods needed to accompany the deceased on their journey to the other world (cf. Parsons 1941; Rogers n.d.; Swanton 1942). Consider Fray Casanas' (1927:294) comments in 1691 that the Caddo buried "their dead with all their arms and utensils which each possesses." Here, I consider the kinds of vessel assemblages in Caddo mortuary contexts because ceramic vessels are by far the most common objects placed in Caddo burials, and use this information to assess differences

Table 6-14. Rim and Lip Form.

Rim and Lip forms	Carinated Bowl	Jar	Bowl	Deep Bowl	Olla	Bottle	Compound Bowl
D-RO	17.8*	6.7	26.3	–	100.0	–	–
D-RO, ext. folded	44.4	3.3	15.8	–	–	37.5	26.3
D-RO, ext. folded and Ext. thickened	4.4	–	–	–	–	–	–
D-RO, int. thickened	2.2	–	15.8	50.0	–	–	–
D-FL	8.9	–	15.8	25.0	–	37.5	–
D-FL, ext. folded	8.9	–	10.5	25.0	–	–	–
D-FL, ext. folded and Ext. thickened	2.2	–	–	–	–	–	–
D-Unidentified lip	–	–	–	–	–	12.5	–
EV-RO	6.7	63.3	5.3	–	–	12.5	31.6
EV-RO, ext. folded	2.2	10.0	5.3	–	–	–	15.8
EV-FL	2.2	16.7	–	–	–	–	5.3
EV-FL, ext. folded	–	–	–	–	–	–	5.3
INV-FL	–	–	5.3	–	–	–	–
Unidentified rim-RO	–	–	–	–	–	–	5.3
Unidentified rim-FL, Int. thickened	–	–	–	–	–	–	5.3
Unidentified rim, ext. folded and thickened	–	–	–	–	–	–	5.3
N	45	30	19	4	1	8	19

*percentage; D = direct; EV = everted; INV = inverted; RO = rounded; Fl = flat

among and between Caddo groups in the treatment of the dead, and what these may mean regarding diverse Late Caddo views on life and death.

Caddo ceramic vessels, primarily bowls of various forms, jars, and bottles, held liquids and foods and were used for cooking and serving foods, such as corn and atole, which was a corn gruel pounded into a flour and mixed with water or milk (Chapa and Foster 1997:149, fn. 6), along with tamales (see Swanton 1942:157-158; Chapa and Foster 1997:149). In 1690, Alonso de Leon noted the use of "pots and casserole dishes," filled with beans, corn, and pinole, a dry powder made with powdered corn and sugar (Chapa and Foster 1997:150, fn. 1). Other vessels were reported in historic times to have held incense, body paints/ pigments, and corn meal offerings.

Kelley et al. (1996:92-93; see also Kelley [1997]) note that Caddo mortuary assemblages of vessels along the Red River in Late Caddo contexts are quite similar to one another, but that they "differ markedly from the domestic assemblage." Late Caddo period Belcher (n=149 vessels) and Cedar Grove (n=63 vessels) site mortuary assemblages (Webb 1959; Schambach and Miller 1984), from Northwest Louisiana and Southwest Arkansas, contained comparable percentages of bottles (20-24%), simple bowls (3-11%), carinated bowls (31-37%), and jars (32-39%) (Kelley et al. 1996:Figure 10). By contrast, the domestic ceramic assemblage from the Joe McLelland site, on the Red River in northwestern Louisiana dated ca. A.D. 1650-1710, is dominated by jars (55%) and simple bowls (27%), with much lower proportions of carinated bowls and bottles. Kelley et al. (1996:93) concluded that "the Caddo were selecting the fine-ware bottles and carinated bowls for placement with the dead." As such, Caddo mortuary vessel collections "cannot be considered representative of the total ceramic assemblage."

The ceramic mortuary assemblage from the Pilgrim's Pride site is different than that seen on the Red River Late Caddo cemeteries in the following respects: (1) a lower representation of bottles (including the ollas), at only 10.9%, even though most of the graves had a single bottle, as is the Titus phase custom for burial offerings (note that several of the burials had two bottles as funerary offerings, however); (2) higher frequencies of fine ware carinated bowls and compound bowls (46.7%); and (3) the presence of pigment jars, absent in the Red River collections. On the other hand, the proportions of jars (22.6%) and simple or conical bowls (17.6%) in the Pilgrim's Pride site ceramic assemblage is somewhat comparable to the Red River cemeteries.

The vessel assemblage from the Pilgrim's Pride site can also be compared with seven other Titus phase cemeteries, each containing more than 70 vessels. These are: Tuck Carpenter (n=383), Mattie Gandy (n=79), H. R. Taylor (n=413), Ben McKinney (n=86), A. P. Williams (n=78), Thomas Caldwell (n=88), and J. M. Riley (n=131), all in the Big Cypress Creek basin; in fact, the Tuck Carpenter site cemetery (Turner 1978, 1992) is only a few miles from the Pilgrim's Pride site. Carinated bowls and compound bowls account for about 43-60% of the vessels (46.7% of the vessels from the Pilgrim's Pride site are carinated and compound bowls) Jars consistently comprise about 30% of the Titus phase vessel assemblages, as they did in the Late Caddo sites on the Red River, and bottles, again, are consistent in proportion from one cemetery to another at about 10%.

Ollas and simple bowls are not well represented in the vessel assemblages from these Titus phase cemeteries. At cemeteries that have ollas (either plain or decorated vessels), they only account for 1.5-4.7% of the vessels; at Pilgrim's, the one olla represents 0.7% of the vessel assemblage. With the exception of the Pilgrim's Pride site, and the Mockingbird site on another tributary in the middle part of the Big Cypress Creek basin (Perttula et al. 1998), the other Titus phase cemeteries being considered here with ollas occur only in the Big Cypress subcluster in the Lake O' the Pines areas, implying that perhaps the ollas at the Pilgrim's Pride and Mockingbird sites were acquired in trade and exchange with Titus phase Caddo peoples living to the southeast along Big Cypress Creek.

The proportion of simple bowls in the various cemeteries ranges from 1.2-15.4%, with most of the cemeteries having percentages less than 5.7%. Other Titus phase cemeteries with the highest proportions of simple bowls—Mockingbird and A. P. Williams (41TT4)—also have the lowest percentages of carinated and compound bowls among the Titus phase cemeteries, and the highest percentages of plain vessels.

The prevalence of plain vessels in the ceramic mortuary assemblage at the Pilgrim's Pride site (23.5%) is almost matched by that at the contemporaneous Mockingbird site (19.1%); at the A. P. Williams site, plain vessels comprise 11.5% of the ceramic vessel offerings. This is very different from other nearby and well-studied Titus phase cemeteries, including Horton (41CP20, Cliff 1996); Alex Justiss (41TT13, Rogers et al. 2003), Harold Williams (41CP10, Turner et al. 2003), and Tuck Carpenter (41CP5, Turner 1978). At these cemeteries—all dating after ca. A.D. 1500, and dating as late as the mid- to late 17th century in the case of the Alex Justiss cemetery—plain vessels comprise only 3-8% of the ceramic mortuary assemblages. As a group, 7% of the 530 vessels from these Titus phase cemeteries are plain vessels of various forms.

Basically, there are close similarities between the vessel assemblages from the Pilgrim's Pride site and the Titus phase cemeteries at the Mockingbird, A. P. Williams (on Tankersley Creek), and Tuck Carpenter sites, principally in the relative proportions of Ripley Engraved compound bowls and carinated bowls. At A. P. Williams, for instance, 50% of the sample of Ripley Engraved carinated or compound bowls (n=30) are the compound form. Only at the Mockingbird and Tuck Carpenter sites does the relative proportions of compound Ripley Engraved bowls amount to more than 21%; otherwise, these distinctive Ripley Engraved forms comprise between only 2.6-13.9% of the vessel assemblages in other studied Titus phase cemeteries. In the Pilgrim's Pride cemetery, 13.8% of the vessels are compound bowls.

Fundamental differences in morphology and shape between ceramic vessels have been recognized for many years in Caddo archeological research, and these differences seem to have functional and social connotations (see Early 1995). Late Caddo period ceramic mortuary assemblages also differ considerably from region to region within the Caddoan area in the composition of jars, bottles, bowls, and carinated bowls. In particular, an examination of Late Caddo mortuary vessel assemblages from some 40-50 cemetery sites (and about 3400 vessels) in the Great Bend and Mound Prairie areas on the Red River, the Little River area and Ouachita River area in Southwest Arkansas, the lower Sulphur River, the middle Sabine region, the upper Neches/Angelina river area, and the Pineywoods and Post Oak Savanna Titus phase region disclose consistent differences from area to area among contemporaneous Late Caddo groups (Table 6-15).

As already noted, there is not much difference between contemporaneous Titus phase cemeteries in the character of mortuary ceramic vessel assemblages. This probably indicates the strong shared social, religious, and philosophical beliefs that existed among many Titus phase peoples and communities in the kinds of ceramic vessels important for use in life, and also of need in the after-life, as well as the existence of widespread personal and social contacts between Titus phase peoples. Titus phase mortuary vessel assemblages are distinctive among other prehistoric and early historic Caddo groups. They are uniformly dominated by carinated bowls and compound bowls of various sizes, between about 43-60% of all the vessels (carinated bowls and compound bowls comprise 43.6% of the Pilgrim's Pride vessels, including 46.7% of the vessels in the Area V/VI cemetery), and jars (about 30% of the vessel assemblages). Bottles consistently represent about 10% of Titus phase ceramic mortuary assemblages (10.3% of the vessels at the Pilgrim's Pride site are bottles).

No other contemporaneous Caddo mortuary vessel assemblage from other Caddo groups across the Caddoan archeological area resembles that of the Titus phase. This can only mean that there was a very considerable diversity among Caddo groups in their cultural practices, beliefs, and world-views about what males and females—and adults and children—needed in life, and "needed in the other life" (Swanton 1942:205), and that there were cultural, social, and personal boundaries between Caddo groups not regularly crossed by networks of personal and group contacts.

Titus phase groups obviously had a basic need for food-serving vessels (particularly medium and large carinated bowls), as did their Caddo neighbors in the Neches-Angelina river basins to the south (though

Table 6-15. Late Caddoan Mortuary Vessel Assemblages.

Region	N	Vessel Forms					Reference
		Bottle	Simple Bowl	Carinated Bowl	Seed Jar	Cooking Jar	
Red River, Great Bend	212	23*	5	36	0	36	Webb 1959; Schambach & Miller 1984
Mineral Springs**	91	24	10	37	1	27	Bohannon 1973
Red River, Mound Prairie	690	15	44	13	0	28	Perino 1981, 1983, 1994, 1995 Skinner et al. 1969
Mill Creek***	14	14	36	14	0	36	Webb 1983
Hardman/Helm	63	33	14	30	2	21	Early 1993; Lafferty et al. 2000
Standridge	22	41	9	18	0	32	Early 1988
Wright Patman	36	42	9	6	0	42	Jelks 1961****
Titus Phase	1664	10	9	51	0	30	Thurmond 1990a; Turner 1978; Perttula et al. 1998; TARL*****
Frankston-Allen phase	415	13	55	15	0	17	Shafer 1981; Kleinschmidt 1982; Fields 1995
Toledo Bend	112	27	19	30	0	24	McClurkan et al. 1966; Woodall 1969
Kinsloe Focus	88	20	44	1	0	34	Jones 1968

* percentage
** burials from the Saratoga phase (see also Hoffman 1983)
*** Bossier phase
**** includes vessels from the Knight's Bluff and Sherwin sites
***** includes vessels from the Mockingbird (n=89), Tuck Carpenter (n=383), Mattie Gandy (n=79), H. R. Taylor (n=413), Ben McKinney (n=86), A. P. Williams (n=78), Thomas Caldwell (n=88), J. M. Riley (n=131), and W-S (n=317) sites.

they preferred carinated, globular, and shouldered engraved bowls of the Poynor and Patton Engraved types), and the McCurtain phase Caddo groups in the Mound Prairie area along the middle Red River. Perhaps this was a legacy of feasting behavior, or other cultural activities centered around the consumption of food that was not shared among other Caddo peoples. Among the aforementioned Caddo groups, simple bowls and carinated bowls comprised between 57-70% of the vessels placed in the graves as burial offerings. This was much less the case along the lower Sulphur River, the Great Bend area of the Red River, and in the Ouachita River drainage in Southwest Arkansas, where the proportions of bowls ranged from 15-45% of the vessel assemblages.

Cooking and storage jars are ubiquitous in all Late Caddo mortuary contexts, including that of the Titus phase, where they amount to 17-42% of the mortuary vessel assemblages. This consistent use of jars highlights the importance of cooking and storage vessels for sustaining Caddo agricultural lifeways, as well as insuring that the individual in the grave had enough foodstuffs (placed in the jars) to sustain themselves on their journey (cf. Swanton 1942:204, 210).

Bottles, probably used for holding liquids, corn meal, and offerings, were especially important burial accompaniments for Late Caddo populations living in the Ouachita River basin in southwestern Arkansas (see Early 1988, 1993), the Little River basin, the lower Sulphur River in northeastern Texas, and in cemeteries along the Great Bend of the Red River. Bottles comprised between 23-42% of the ceramic mortuary offerings for these Caddo groups. Significantly, this was not the case among the Titus phase Caddo in the Pineywoods and Post Oak Savanna of northeastern Texas, the Frankston-Allen phase Caddo in East Texas, or the Caddo groups living in the Mound Prairie area of the Red River in Northeast Texas. Among these westernmost Caddo groups, the percentage of bottles among the ceramic mortuary assemblages ranged from only 10-15%, two to three times less than Late Caddo groups living farther to the east and northeast in parts of the Red River basin, the Little River, and the Ouachita River.

In fact, there is a clear inverse relationship in Caddo mortuary contexts from these 40-50 cemeteries across the Caddoan area in the relative proportions of bottles to bowls in the mortuary vessel assemblages; the proportions of jars remain relatively consistent from one assemblage to another. This inverse relationship expresses a basic dichotomy in belief and cultural practices between eastern and western Caddo groups and in the archeological sites associated with the different Caddo groups. This is a dichotomy that further expresses the existence of well-defined social boundaries in Late Caddoan times (and perhaps even into Middle Caddoan period times), and provides insights into the complexity of the Caddo cultural landscape.

Pottery Types in the Assemblage

Among the fine wares left as funerary offerings with the Titus phase Caddo burials, the principal type is Ripley Engraved (see Suhm and Jelks 1962:127-130). Ripley Engraved vessels include carinated bowls, compound bowls, bottles, and several simple or conical bowls, with a variety of engraved motifs (cf. Thurmond 1990a). The only other engraved fine ware types includes two Taylor Engraved vessels, one found in a burial feature (Fea. 4) in one of the Titus phase residential areas, and a possible Hodges Engraved bottle from Fea. 504. Among the utility wares, the decorated types include Maydelle Incised, Pease Brushed-Incised, La Rue Neck Banded, McKinney Plain, Bullard Brushed, Mockingbird Punctated, Karnack Brushed-Incised, and Killough Pinched.

Ripley Engraved

There are 50 Ripley Engraved vessels in the Pilgrim's Pride ceramic assemblage, including as previously mentioned several different vessel forms: carinated bowls (see Table 6-5), compound bowls (see Table 6-6), conical bowls (see Table 6-7), bottles (see Table 6-8), and a single olla (see Table 6-8). Ripley Engraved vessels are the principal ceramic type present as burial objects in the different graves, although it is absent in two burials (Fea. 508 and Fea. 515). Its frequency by grave ranges from 1-6 vessels, with the earlier Burial Groups I-III tending to have the highest numbers of Ripley Engraved vessels; Burial Group IV graves also have numerous Ripley Engraved vessels, including carinated bowls and compound bowls.

There is a diverse assortment of engraved rim and shoulder motifs (following Thurmond [1990a:Figure 6]) in the Ripley Engraved vessels from the Pilgrim's Pride site, especially among the carinated bowls, compound bowls, and simple bowls. The bottles tend to have concentric circles, circles and crosses, as well as triangular elements, cross-hatched panels, semi-circles, and scroll and circle motifs.

In the other Ripley Engraved vessel forms, the principal motifs as defined by Thurmond (1990a, see Figure 6-26) include the interlocking horizontal scroll (n=8 vessels); continuous scroll (n=7 vessels); scroll (n=5 vessels); nested triangles (n=5 vessels); semi-circles (n=5 vessels); and the scroll and circle (n=4) (Table 6-16), and there are many other more unique motifs and engraved elements (that cannot be classified as to type) among these vessel forms (Table 6-17). The predominance of these distinct and easily recognizable motifs, especially the interlocking horizontal scroll motifs at the Pilgrim's Pride site, clearly sets the site apart from almost all the other well-documented Titus phase cemetery vessel assemblages (see Thurmond 1990a), regardless of their subcluster affiliation (see below). Also of significance is the absence of the pendant triangle motif in the Ripley Engraved vessels; this particular motif is more commonly found on Titus phase sites that date after A.D. 1600.

The interlocking horizontal scroll is not a common Ripley Engraved rim motif in Thurmond's (1990a) compilation, found only in percentages ranging between 1-7% at H. R. Taylor (41HS3), Tuck Carpenter, Ben McKinney (41MR12), R. L. Cason (41MX1), Thomas Caldwell Farm, and the Riley Farm (41UR2), but 19% of the Ripley Engraved vessels at the Mockingbird site have this motif, compared to 16% at the Pilgrim's Pride site. With the exception of the Tuck Carpenter, Mockingbird, and Thomas Caldwell sites, these other Titus phase cemeteries occur well east and south of the Pilgrim's Pride site in the Big Cypress and Swauano subclusters. The interlocking horizontal scroll is present, but also in low numbers, in Titus phase Three Basins sub-cluster cemeteries in the upper Sabine River basin (see Perttula et al. 1993), west and southwest of the Pilgrim's Pride site.

The continuous scroll motif on Ripley Engraved vessels (14% of the vessels at the Pilgrim's Pride site) is better represented among Titus phase cemeteries throughout the Big Cypress Creek basin, but again it is most common at the following cemeteries: Tuck Carpenter (40%), A. P. Williams (24%), Thomas Caldwell (24%), and Mockingbird (22%), all in the upper or western reaches of the Big Cypress Creek basin. At Mattie Gandy (41FK4), a Titus phase cemetery at the uppermost reaches of Big Cypress Creek, the continuous scroll motif is also well-represented (29%), but it lacks the scroll and semi-circle motif common at the above-mentioned sites, and the scroll motif (which accounts for only 10% percent of the Ripley Engraved vessels from the Pilgrim's Pride site) accounts for 52% of the vessels from the site.

The scroll motif, one of the more common Ripley Engraved rim motifs at a number of Titus phase cemeteries west, south, and east of the Pilgrim's Pride site, only accounts for 10% percent of the vessels;

Table 6-16. Principal Engraved Rim Motifs on Ripley Engraved Carinated Bowls, Compound Bowls, and Conical Bowls.

Burial #	Rim Motifs							
	IHS	CS	*Xena*	*Walkers Creek*	S	NT	SC	SCI
Burial Grouping I								
Fea. 504		X					X	X
Fea. 517		X						X
Fea. 518			X	X			X	
Burial Grouping II								
Fea. 506							X	
Fea. 510		X			X			
Burial Grouping III								
Fea. 509	X							X
Fea. 519	X			X		X		
Burial Grouping IV								
Fea. 503	X		X		X	X		X
Fea. 511		X		X		X		
Burial Grouping V								
Fea. 70			X					
Fea. 505	X					X		
Burial Grouping VI								
Fea. 514						X		
Miscellaneous								
Fea. 501	X				X			
Fea. 512	X							X

*SCI =scroll and semi-circle; CS = continuous scroll; IHS =interlocking horizontal scroll; S=scroll; SC = scroll and circle; NT=nested triangle; *Xena* =Ripley Engraved, *var. Xena*; *Walkers Creek* =Ripley Engraved, *var. Walkers Creek*

Table 6-17. Other Engraved Motifs in The Pilgrim's Pride Site Carinated Bowls, Compound Bowls, and Conical Bowls.

Motifs
Interior triangle (n=2 vessels), Fea. 501 and Fea. 510
Large pendant triangle (n=1 vessel), Fea. 830
Concentric circles/elements (n=2 vessels), Fea. 503 and Fea. 510
Curvilinear lines/element (n=1 vessel), Fea. 8
Interlocking diamond (n=1 vessel), Fea. 511
Vertical panels (n=1 vessel), Fea. 505
Nested circles (n=1 vessel), Fea. 507
Scroll and rectilinear elements (n=1 vessel), Fea. 509
Horizontal (n=1 vessel), Fea. 511
Vertical and diagonal elements (n=1 vessel), Fea. 514

9% of the Ripley Engraved vessels at the contemporaneous Mockingbird cemetery have this motif. Similar low frequencies occur in several Big Cypress Creek sub-cluster sites, including P. S. Cash (41CP2) on Greasy Creek (7%), H. R. Taylor (7%), and McKinney (14%), but Ripley Engraved vessels at these sites are dominated by the pendant triangle motif, whereas there were no vessels with the pendant triangle motif at the Pilgrim's Pride cemetery and only one pendant triangle rim motif (and not a classic rendition) is present in the Ripley Engraved vessels from the Mockingbird site (see Perttula et al. 1998). At the A. P. Williams cemetery, however, the low frequency of scroll motifs is accompanied by no pendant triangle motifs on Ripley Engraved vessels, much like the vessel assemblage at the Pilgrim's Pride and Mockingbird sites.

Of the 11 better-documented Titus phase cemeteries discussed in Thurmond (1990a), the scroll and semi-circle motif is present, albeit in low frequencies, only at the Tuck Carpenter (3% of the 184 Ripley Engraved vessels with identifiable motifs), A. P. Williams (41TT4; 9%), and the Thomas Caldwell Farm (41TT6; 3%) sites. The scroll and semi-circle motif at the Mockingbird site accounts for 25% of the identifiable Ripley Engraved motifs from the site, compared to 10% at the Pilgrim's Pride site. The Tuck Carpenter, A. P. Williams, and Thomas Caldwell Farm cemeteries are all quite close to the Pilgrim's Pride site; Tuck Carpenter is perhaps the best-known and one of the largest of the Tankersley Creek sub-cluster cemeteries, and not far downstream from the mouth of Walkers Creek and Big Cypress Creek. The Mockingbird site is near the headwaters of Hayes Creek, which drains south into the Hart Creek basin, which enters Big Cypress Creek a few miles north of the Pilgrim's Pride site.

The nested triangle motif on Ripley Engraved vessels also represents 10% of the Pilgrim's Pride vessels from mortuary contexts. Other Titus phase cemeteries with some amount of nested triangle decorations on Ripley Engraved vessels (whether by itself or in association with circles and scrolls and circles) include A. P. Williams (15.1%), Mockingbird (9.4%), Thomas Caldwell (7.9%), P. S. Cash (9.5%), and J. E. Galt (9.1%). By way of comparison, at the Tuck Carpenter site, the nested triangle motif is only present on 1.1% of the Ripley Engraved vessels. This motif has a clear western Titus phase distribution, from the Tankersley Creek sub-cluster sites to the upper reaches of Big Cypress Creek and its tributaries.

With respect to the Titus phase sub-clusters of the Cypress Cluster defined by Thurmond (1990a: Table 62), on the basis of the Ripley Engraved rim motifs, the Pilgrim's Pride site does not comfortably fall within any of them since the interlocking horizontal scroll is the most common engraved motif among the engraved vessels. Nevertheless, examining the entire suite of engraved rim motifs from a number of Titus phase cemeteries in the Big Cypress Creek basin suggests the closest affiliations of the site lie with Late Caddoan period Titus phase groups that lived in the Hart and Tankersley Creek drainages to the immediate west and north (i.e., the Tankersley Creek sub-cluster), and also with Late Caddoan Titus phase groups who used the large community cemetery at the Tuck Carpenter site, located some 25 km south on Dry Creek, a tributary of Big Cypress Creek. Where the Pilgrim's Pride site mortuary ceramics differs from other Tankersley Creek sub-cluster sites, as will be further discussed below, is in the absence of Harleton Appliqued vessels, and no Ripley Engraved vessels with the pendant triangle motif (see Thurmond 1990a:232).

The most unique Ripley Engraved vessels from the Pilgrim's Pride site have been given separate variety names to distinguish them from the other principal motifs, and also to call attention to them in further studies of Titus phase engraved ceramic vessels. They are Ripley Engraved, *var. Xena* (n=2 vessels) and Ripley Engraved, *var. Walkers Creek* (n=4 vessels).

The *var. Xena* vessels (a compound bowl and a simple bowl) are readily distinguished by the prominent appliqued nodes or cones that are a central part of the engraved motif. In the case of the compound bowl, it has a scroll and circle motif, with four sets of circles and appliqued cones spaced across the lower rim panel. The bowl has S-shaped negative scrolls and circular elements between the scrolls; the central part of the circular element are prominent appliqued nodes. These particular Ripley Engraved vessels share stylistic features with Belcher Engraved vessels from the Belcher site (see Webb 1959:122), but instrumental neutron activation analysis of the Fea. 505 (Vessel 3) specimen indicates it was made from northeastern Texas Big Cypress Creek and/or Sabine River basin clays (i.e., Titus chemical group, see Chapter 5, this volume, and below).

The *var. Walkers Creek* Ripley Engraved vessels (all carinated bowls, see Figure 6-27a and Figure 6-28d) are characterized by engraved and punctated/incised elements on the rim panel. In two cases (Fea. 70, Vessel 3 and Fea. 519, Vessel 3), the upper portion of the rim has one or two rows of tool punctations (a punctated panel) about the engraved motif, while another has short vertical incised lines in a panel above the engraved design (Fea. 511, Vessel 4). The fourth vessel has scroll fill elements comprised of small circular tool punctations (Fea. 70, Vessel 4). Instrumental neutron activation analysis of the Fea. 70 (Vessel 3) specimen also indicates it was made from northeastern Texas Big Cypress Creek and/or Sabine River basin clays (i.e., Titus chemical group). Ripley Engraved, *var. Walkers Creek* sherds are present in small amounts in residential contexts at the Pilgrim's Pride site (see Chapter 5, this volume), as well as in residential contexts at the Shelby Mound/Tracy (41CP71) and Rookery Ridge (41UR133) Titus phase sites along Greasy Creek and Kelsey Creek, respectively (Perttula et al. 2004; Mark Parsons, 2003 personal communication).

Taylor Engraved

The two Taylor Engraved vessels are a bottle and a compound bowl. The bottle (Fea. 514, Vessel 1) has three sets of spirals or concentric circles repeated around the vessel body (see Figure 6-31e). The sets of concentric circles also have three concentric lines, and the center of the circle has a small excised dot. The design lacks, however, the hooked arms of the scrolls that typifies Taylor Engraved bottles (see Suhm and Jelks 1962:149). The compound bowl, on the other hand, from Fea. 4 (see Figure 6-31b) has concentric scrolls, with the central part of the scroll having a small circle within a circle that is repeated 3 times. The scroll divider has a negative S element that is also repeated three times around the vessel, both above and below the central circle.

Taylor Engraved vessels are more common funerary offerings in Titus phase sites located in the lower reaches of Big Cypress Creek, in the area of Lake O' the Pines, and in cemeteries that began to be used only after ca. A.D. 1550/1600 (see Thurmond 1990a; Perttula 1992). Other than Ripley Engraved, pendant triangle motif, it is the second most abundant engraved fine ware at the H. R. Taylor site (60/257 vessels) and the McKinney site (n=14/60 vessels), with smaller numbers at the J. M. Riley site (n=7/96 vessels) and the P. S. Cash site (n=3/31 vessels). Fea. 514 at the Pilgrim's Pride site is in one of the later burial groups (Burial Group VI) at the cemetery, and perhaps is the latest interment in that group.

Hodges Engraved

The Hodges Engraved bottle (Fea. 504, Vessel 14) has a cross-hatched and circular motif repeated twice around the bottle, forming a curvilinear cross-hatched or diagonal-filled zone around negative circles, along with vertical cross-hatched and diagonal engraved zones extending towards the base of the bottle. The lower part of this vertical element separates into three narrow engraved zones filled with diagonal or cross-hatched lines (see Figure A-49, Volume II).

Hodges Engraved vessels are not at all common ceramic vessel offerings in Titus phase burials. Thurmond (1990a) reports a total of eight vessels from three Titus phase cemeteries: H. R. Taylor (n=6), J. M. Riley (41UR2, n=1), and McKinney (41MR12, n=1), and in contexts dating after ca. A.D. 1550/1600 (see Perttula 1992: Appendix 1). The one probable Hodges Engraved vessel at the Pilgrim's Pride site may date a good bit earlier than that, however (see Table 6-1).

Maydelle Incised

Maydelle Incised jars were included as grave goods in three of the Pilgrim's Pride site graves. The three Maydelle Incised jars were decorated with diagonally incised lines on the rim, with diagonal or vertical incised lines on the body, extending to within a few cm of the base of the vessel. Two of the vessels were moderate to large in size (1-3.0 liters in volume) (see Table 6-9), and one of these (Fea. 511, Vessel 10) had rim peaks.

Pease Brushed-Incised

Eight Pease Brushed-Incised jars were funerary offerings in seven different burials, including Fea. 2, 5, 8, and 1-128 (two vessels) in residential areas, and Fea. 503, Fea. 504, and Fea. 517 in the Area V/VI cemetery (see Table 6-9). The Pease Brushed-Incised jars are the most common decorated utility ware type at the site.

The primary decorative elements that characterize the Pease Brushed-Incised vessels from the Pilgrim's Pride site include several rows of fingernail punctations on the rim, and at least four to as many as seven body panels of incised lines or tool punctations creating a herringbone motif. The panels themselves are defined by appliquéd fillets, incised lines, or vertical rows of punctations.

La Rue Neck Banded

Six everted rim La Rue Neck Banded jars (3.9% of the vessels) were among the burial vessels placed in five burials (one in a residential area); there were two such jars in Fea. 519 (see Table 6-9). The jars were simply decorated on the rim by the hand-crimping of two or three clay coils and the bodies are plain and unsmoothed. The jars ranged from 0.3 liters to 4+ liters in size.

Neck banded ceramics are not common in Late Caddoan Whelan or Titus phase sites in the Cypress Creek basin (Thurmond 1990a:228). Of some 57 sites described by Thurmond (1990a:135-213) in detail from the basin, only 25 (44%) have any neck banded ceramics, and only in eight of those sites does neck banded pottery amount to more than 2.5% of the ceramic assemblage, namely: Galt (41FK2), 4% of the vessels and 9% of the decorated sherds; Whelan (41MR2), 3% of the vessel batches; Joe Justiss (41MX2), 8% of the vessels; A. P. Williams (41TT4), 2.6% of the vessels; Thomas Caldwell (41TT6), 3.4% of the vessels; Benson's Crossing (41TT110), 5.4% of the rim sherds and 17.6% of the vessels (see also Driggers 1985); Turtle Pond (41TT132), 3% of the decorated sherds; and W. O. Reed (41UR1, 3.3% of the vessels. In fact, at most Whelan or Titus phase sites, the frequencies of neck banding is less than 1%. The distribution of these sites where neck banded ceramics are proportionally more common is mainly in the upper reaches of Big Cypress Creek and its tributaries. Neck banding represents 2.3% of the Mockingbird site vessels (Perttula et al. 1998).

Neck banded ceramics are apparently much more common in Titus phase sites outside the Big Cypress Creek drainage, particularly to the west and southwest. For example, they amount to 3.2% of the decorated sherds from the GG site (41UR136) in the headwaters of Little Cypress Creek (Nelson 1993). In the Dry Creek and Caney Creek localities in the Upper Sabine River drainage, neck banded ceramics in trash middens comprise between about 5-15% of the decorated sherds (Bruseth and Perttula 1981; Perttula et al. 1993); 19% of the 16 vessels at the Goldsmith site (Perttula et al. 1993); and 20% of the 10 vessels from the Sandhill (41WD108) and Spoonbill (41WD109) sites (Bruseth and Perttula 1981:Table 5-10). Unlike the neck banded ceramics from the Pilgrim's Pride site, however, these neck banded jars have appliquéd fillets and chevrons on the rim and body. At the Culpepper site (41HP1) in the upper White Oak Creek basin, 10.2% of the 49 vessels were neck banded, and like the neck banded ceramics from the Upper Sabine River drainage, the vessels also had appliquéd fillets (Scurlock 1962:299, 301).

McKinney Plain

The McKinney Plain jar was placed with the grave goods in Fea. 510. The everted jar was decorated solely with appliquéd fillets that apparently quadrated the vessel from the rim to the base; it also had rim peaks and strap handles (see Table 6-9).

Bullard Brushed

There are four Bullard Brushed jars among the burial offerings in the Pilgrim's Pride cemetery (see Table 6-9). In addition to the multi-directional brushing and roughening of the exterior body surface of these medium to large cooking vessels, the vessels have horizontal brushing marks on the rim.

Mockingbird Punctated

These four everted rim jars were burial goods in four of the Pilgrim's Pride site burials (see Table 6-9). This type, previously subsumed under the term of untyped and miscellaneous utility wares in other analyses of Titus phase ceramics, was first defined at the Mockingbird site (Perttula et al. 1998), but has since been recognized at the Alex Justiss site (Rogers et al. 2003); it is probably present in most Titus phase ceramic mortuary assemblages, however.

The Mockingbird Punctated jars were decorated only on the rim with between two to five well-spaced rows of parallel and horizontal tool punctations. The punctations were placed beginning immediately below the lip, and extend in rows down the rim to the rim/body inflection point. In general, the larger rim punctated jars had four or more rows of punctations on the rim, while the smaller jars had only two or three punctated rows on the rim. The bodies were plain, or at most only roughly smoothed. One of the Mockingbird Punctated jars from Fea. 70 (Vessel 7) also had rim peaks and suspension holes, and may have been used as a pigment jar.

Karnack Brushed-Incised

The one Karnack Brushed-Incised vessel is a large jar from Fea. 517 (see Table 6-9). It has a short and everted rim with horizontal brushing marks, and vertical brushing covering the vessel body. Karnack Brushed-Incised jars are not particularly common among the Titus phase utility wares, occurring in only a few Titus phase cemeteries (see Thurmond 1990a), most notably the late 16th and 17th century H. R. Taylor site (41HS3) in the lower part of the Big Cypress Creek basin.

Killough Pinched

There is a single Killough Pinched jar from Fea. 6, in one of the Titus phase residential areas (see Table 6-9). It has pinched rows of punctations covering the vessel rim and body. This particular Killough Pinched vessel does not have legs, a ring base, or strap handles, as do many Killough Pinched vessels (see Suhm and Jelks 1962:91 and Plate 46a-c).

Killough Pinched vessels have been found in at least three other Titus phase cemeteries, including P. S. Cash (41CP2), Thomas Caldwell (41TT6), and H. R. Taylor (41HS3). They may represent vessels traded from Caddo groups living in the upper Neches and Sabine river basins, where these vessels were apparently manufactured (cf. Suhm and Jelks 1962:91).

Other Vessels

There are also three red-slipped vessels from the Pilgrim's Pride site cemetery: Fea. 507, Vessel 4; Fea. 511, Vessel 5; and Fea. 512, Vessel 3. These vessels—including a simple bowl, a carinated bowl, and a bottle—are plain, with the exception of an appliqued ridge on the body of the Fea. 512 bottle. Turner (1978:35) mentions that one of the bottles in Burial 23 (a burial with two interments) at the Tuck Carpenter site was red-slipped and had a "distinctive four point diamond applique" at the base of the bottle neck. He suggests that it is an example of Avery Engraved, Red (cf. Skinner et al. 1969:42, 44), even though the vessel is not shell-tempered. This particular burial at Tuck Carpenter is among those in the early component, dating sometime prior to A.D. 1520.

Two engraved and grog-tempered compound bowls (Fea. 504, Vessel 5 and Vessel 8) are also red-slipped, and the former also has strap handles (see Figure 6-31d). They both have unique semi-circular engraved motifs, like shell-tempered Avery Engraved vessels with sun symbols and half circles on the lower panel of compound bowls.

There is a distinctive group of 19 ceramic vessels from various burial features that have a notable color, dubbed "Orange Ware" here, used in the same sense as employed by Krieger (2000:132) in his analysis of the ceramic wares at the T. M. Sanders site (41LR2) in Lamar County, Texas. The "Orange Ware" vessels have a red, yellowish-red, or reddish-yellow color on exterior and/or interior vessel surfaces. Of the 19 vessels, 13 are from Burial Groups I-III (17% of the vessels in these groups), only five are from Burial Groups IV-VI (8.3% of the vessels in these groups), and the remaining one vessel is from Fea. 9 in one of the Titus phase residential areas.

A number of the "Orange Ware" vessels are plain bowls, or are bowls with distinctive lip treatments, including lip notching (Fea. 505, Vessel 2), appliqued fillet at the lip (Fea. 507, Vessel 3), or a crenelated lip (Fea. 508, Vessel 1). Two others have decorations on the vessel interior surface, including horizontal incised lines (Fea. 504, Vessel 2) and engraved triangles on the interior of a thickened rim (Fea. 510, Vessel 4). Other decorated "Orange Ware" vessels include a Ripley Engraved bowl with a scroll and circle motif (Fea. 504, Vessel 4), Ripley Engraved, *var. Walkers Creek* carinated bowl (Fea. 70, Vessel 4), and a compound bowl with horizontal engraved lines (Fea. 511, Vessel 9). There are bottles among the "Orange Ware," represented by a bottle neck from Fea. 511 (Vessel 11) and a possible Hodges Engraved bottle from Fea. 504 (Vessel 14). The three "Orange Ware" jars include a Mockingbird Punctated vessel from Fea. 518 (Vessel 2) and two brushed jars from Fea. 518 (Vessel 9) and Fea. 519 (Vessel 7).

Decorated Types and Comparisons Among Titus Phase Sub-clusters

As described above, defined ceramic types represented at the Pilgrim's Pride site include: Ripley Engraved (32.1%), Taylor Engraved or probable Taylor Engraved (1.3%), possible Hodges Engraved (0.6%), Pease Brushed-Incised (5.1%), La Rue Neck Banded (3.9%), Bullard Brushed (2.6%), Mockingbird Punctated (2.6%), Maydelle Incised (1.9%), McKinney Plain (0.6%), Karnack Brushed-Incised (0.6%), and Killough Pinched (0.6%). From a perusal of Thurmond (1990a), Perttula et al. (1998), Rogers et al. (2003), and Turner (1978), it is apparent that most of these types are all relatively common ceramic types in Titus phase mortuary assemblages throughout the Big Cypress Creek basin, especially the Ripley Engraved type, but their relative presence/absence and relative proportions at other Titus phase sites has proven useful in previous analyses in assessing the relationships (stylistic and social) between the various Titus phase Caddo groups (i.e., sub-clusters, as defined by Thurmond [1990a]). Of course, the strength of these relationships is based on the following assumption: the more similar any two or more Titus phase assemblages are with respect to the presence and relative proportions of certain decorated types (both the engraved fine wares and the utility wares, which have different kinds of body and rim decorations), and decorative motifs and elements, the closer their social interaction. Close social interaction implies "intermarriage, economic exchange, joint participation in ceremonies and visitation" (Thurmond 1990a:222) between constituent Caddo groups (e.g., Story and Creel 1982).

The utility wares from the Pilgrim's Pride site and Titus phase sub-cluster sites are informative about these possible social and stylistic relationships. The utility wares at the Pilgrim's Pride site are dominated by Pease Brushed-Incised, La Rue Neck Banded, Bullard Brushed, and Maydelle Incised. According to Thurmond (1990a:Table 62), Maydelle Incised is a common utility vessel principally in the Three Basins and Tankersley Creek sub-clusters, but brushed wares in the Three Basins sub-cluster amount to less than 5% of the utility wares, but conversely 20-30% in the Tankersley Creek sub-cluster. At the Pilgrim's Pride site, 38% of the jars have some brushing, either as the principal or secondary decorative element. Brushed utility wares are apparently even more common in the easternmost Titus phase sub-clusters (the Swauano and Big Cypress Creek sub-clusters), downstream from the Pilgrim's Pride site. As previously discussed, La Rue Neck Banded is most common in Three Basins sub-cluster Titus phase sites, and in certain western Tankersley Creek sub-cluster components. On that basis alone, there appears to have been relatively close social interaction between the Caddo peoples at the Pilgrim's Pride site and Three Basins sub-cluster sites, the closest of these sub-cluster sites being located not far to the northwest on Blundell Creek and farther to the west on the headwaters of Big Cypress Creek (see Thurmond 1990a:Figure 35).

The occurrence and relative frequency of Pease Brushed-Incised at the Pilgrim's Pride site is also of interest because Thurmond (1990a:228) had previously suggested that Pease Brushed-Incised "drops out almost entirely" in the Titus phase, and is replaced by utility vessel types like Bullard Brushed and Harleton Applique. Only four vessels of Bullard Brushed are in the Pilgrim's Pride site ceramic assemblage, and Harleton Applique is absent. As Perttula et al. (1998) had noted in their consideration of the cultural affiliations of the Mockingbird site cemetery, where Pease Brushed-Incised vessels were also common, this could suggest that the Mockingbird site dated early in the Titus phase, or indeed could date to the preceding Whelan phase if Thurmond's (1990a:228) assemblage characterizations were relevant in this context. The consistent set of calibrated radiocarbon dates obtained from Mockingbird—ranging at one sigma from cal A.D. 1430 to cal A.D. 1602—clearly established that the Mockingbird site was used as a cemetery during much of the Titus phase, however. This is also the case for the Pilgrim's Pride site cemetery, which appears to be generally contemporaneous with the Mockingbird site burials. Perhaps then, the frequency of Pease Brushed-Incised jars is simply another indication that the Caddo groups living in the middle reaches of Big Cypress Creek used different kinds of utility wares than other sites of contemporaneous Titus phase groups that may have already been incorporated into the four existing Titus phase sub-clusters. That is to say, although Thurmond (1990a) recognized four sub-clusters in the Titus phase, there is every reason to believe that other sub-clusters of Caddo sites/cemeteries are present within the Big Cypress Creek watershed, whose vessel assemblages are composed of a different set of fine wares and utility wares because of local stylistic-social and functional needs.

The low diversity in the engraved types present at the Pilgrim's Pride site—overwhelmingly Ripley Engraved, with one or two examples of Taylor Engraved and Hodges Engraved—is consistent with the site having considerable cultural affiliations with prehistoric Caddo groups subsumed under both the Tankersley Creek and Three Basins sub-clusters. The other sub-clusters (see Thurmond 1990a:232) have a broader range of engraved types, particularly Taylor Engraved, Bailey Engraved, Simms Engraved, Wilder Engraved, and Avery Engraved, among many others. Another factor to take into consideration is the absence of the pendant triangle motif at the Pilgrim's Pride site, since it is rare to absent in both of those sub-clusters as well, but quite common in the Swauano and Big Cypress Creek sub-clusters. The absence of the pendant triangle motif in these sub-clusters may also be related to the age of these Titus phase sub-clusters (see discussion in Perttula 1992), as the motif seems to have become popular for Titus phase potters primarily after ca. A.D. 1600.

There is one problem to note concerning the relationship of the Pilgrim's Pride site occupation to the Titus phase sub-clusters of the Cypress Cluster (Thurmond 1990a: Table 62), since these are defined primarily on the basis of decorated fine wares and utility wares. On the basis of the Ripley Engraved rim motifs, the Pilgrim's Pride site does not closely share engraved rims motifs with any of the Titus phase cemeteries since the interlocking horizontal scroll is the most common engraved motif among the engraved vessels. The most common Ripley Engraved rim motifs in the Three Basins and Tankersley Creek sub-clusters include the scroll, scroll and circle, and the continuous scroll, and these account for only 10%, 8%, and 14%, respectively, of the Ripley Engraved rim motifs at the Pilgrim's Pride site. Indeed, none of the sub-clusters have large numbers of Ripley Engraved bowls with the interlocking horizontal scroll, or for that matter have many Ripley Engraved vessels with the nested triangle and semi-circle motifs, as was discussed above. The Pilgrim's Pride site has a unique constellation of engraved ceramic vessels that were included as funerary offerings, and in fact, other Titus phase cemeteries that were used prior to A.D. 1600 also have relatively unique combinations of engraved fine wares, irrespective of their location within the Titus phase heartland.

Taking into account, then, the entire suite of engraved rim motifs from a number of Titus phase cemeteries in the Big Cypress Creek basin as compared to the predominant motifs at the Pilgrim's Pride site, and the fact that the utility wares here are comprised principally of Pease Brushed-Incised, Mockingbird Punctated jars, Maydelle Incised, and La Rue Neck Banded, I suggest that the closest affiliations of the Pilgrim's Pride site lie with Late Caddoan period Titus phase groups that lived along Big Cypress Creek in the vicinity of where Walkers Creek, Hart Creek, and Tankersley Creek enter the valley. This is to the immediate west and north of the site. There clearly are also cultural relationships with the Titus phase groups who used the large community cemetery at the Tuck Carpenter site, located some 10 km south on Dry Creek, another tributary of Big Cypress Creek. The utility wares point more specifically to Titus phase groups to the west, north, and farther to the southwest (ca. 30 km) along western tributaries of Big Cypress Creek and its headwaters. The Pilgrim's Pride site, and probably other Titus phase sites in the immediate vicinity (e.g., Cliff 1996), apparently represents part of another local but separate Titus phase community from those subsumed under the sub-cluster groupings proposed by Thurmond (1990a). It is not too surprising, then, that the Pilgrim's Pride site is situated near the westernmost extent of the Titus phase heartland in the Big Cypress Creek watershed, and that only a few large Titus phase sites and cemeteries occur farther upstream in the basin or in the adjoining Sabine River basin.

Instrumental Neutron Activation Analysis of Vessel Ceramics from the Titus Phase Cemetery

James Cogswell, Hector Neff, Michael Glascock, and Timothy K. Perttula

A total of seven sherds from different vessels in six burials in the Titus phase cemetery at the Pilgrim's Pride site were also subjected to instrumental neutron activation analysis (INAA), in addition to a number of sherds from residential contexts (see Chapter 5, also Cogswell et al. 2000). For comparative purposes, four sherds from vessels at the Titus phase Horton cemetery (41CP20), about 2 km west of the Pilgrim's Pride site, were also analyzed to determine their chemical composition and probable production locales (Table 6-18). Chapter 5 discusses in more detail the methods and procedures employed by the University of Missouri Research Reactor in the INAA work.

The INAA analyses indicate that the vessels found in mortuary contexts at the Pilgrim's Pride and Horton sites were made from two different clay sources: the Titus and Cypress-2 chemical groups (Table 6-19). The Titus chemical group clay source (or sources) is the most abundant in these two Titus phase cemeteries, as it is at the Mockingbird site (Perttula et al. 1998) and Alex Justiss site (Rogers et al. 2003) cemeteries elsewhere in the Big Cypress Creek basin.

Table 6-18. Inventory of INAA Sherds From the Titus Phase Cemetery at 41CP304, and from Titus Phase Burials at The Horton Site (41CP20).

Sample No.	Feature No./Vessel No.	Descriptions
41CP304		
TKP 109	Fea. 511, V. 1	shell-tempered red-slipped, concentric and semi-circular engraved motif
TKP 111	Fea. 70, V. 3	Ripley Engraved, var. Walkers Creek
TKP 113	Fea. 511, V. 5	Plain red-slipped carinated bowl
TKP 115	Fea. 505, V. 3	engraved carinated bowl with panels and 4 nodes
TKP 116	Fea. 509, Sherd Conc. 1A	punctated-incised jar
TKP 117	Fea. 504, V. 7	parallel brushed vessel body sherd
TKP 118	Fea. 519, V. 4	parallel brushed-tool punctated vessel body sherd
41CP20		
TKP 129	Burial 10, V. 2	horizontal brushed jar rim
TKP 130	Burial 4, V. 3	brushed-incised jar rim
TKP 131	Burial 4, V. 10A	Ripley Engraved
TKP 132	Burial 15, V. 7	appliqued jar body sherd

Table 6-19. INAA Results from Camp County, Texas, Titus Phase Burial Contexts.

		Probabilities for Membership in Group		
Sample No.	Chemical Group	Titus	Red River	Rusk
TKP109	Cypress-2	1.301	19.978	0.000
TKP113	Unassigned	0.023	0.000	0.000
TKP115	Titus	72.375	0.000	0.315
TKP116	Titus	71.387	0.000	0.001
TKP117	Cypress-2	0.001	0.000	0.001
TKP118	Titus	90.423	0.003	1.960
TKP129	Titus	80.965	0.195	0.302
TKP130	Titus	16.376	0.000	15.421
TKP131	Titus	77.179	0.000	7.805
TKP132	Titus	99.782	0.222	1.129

One of the Cypress-2 vessels (TKP109) could also belong to the Red River chemical group, at least based on its probability for membership in the Red River group (see Table 6-19). This particular vessel is a unique red-slipped, engraved, appliqued and shell-tempered carinated bowl, and such vessels were commonly made and used in Late Caddo McCurtain phase contexts in Red River basin sites in northeastern Texas and southeastern Oklahoma.

CERAMIC PIPES

A single elbow pipe (Figure 6-36) was among the funerary objects placed in the Fea. 503 burial. The pipe has a sandy paste with small pieces of hematite in it, but there were no obvious temper inclusions. The exterior surface of the pipe had been obviously smoothed, but also eroded along the stem, and there were charred materials preserved on the lip and on the interior of the pipe bowl.

The squat pipe has a large bowl that could have held more smoking material (perhaps tobacco, either wild or domesticated) than the long-stemmed pipes that were made and used in the Caddoan archeological area between ca. A.D. 900-1400; the elbow pipes quickly replaced the more delicate long-stemmed Red River pipes with their small bowls. On the Fea. 503 pipe, the bowl is 24.5 mm in height, with a 32.8 mm orifice diameter, and it has a broad and flat lip. The stem lip is also flat, and thick (4.6 mm), with a stem length of 41 mm. Exterior and interior diameters of the stem are 24.5 mm and 15.1 mm, respectively.

CHIPPED LITHIC TOOLS

Among the chipped stone tools in the Area V/VI funerary offerings are 19 arrow points, one arrow point preform, one dart point, one beveled knife, and two bifaces (see Table 6-2). One of the pieces of lithic debris in cluster 1 in Fea. 504 is also an expedient flake tool. Most of the chipped stone tools were offerings in Fea. 503, Fea. 504, and Fea. 511.

Two of the burials had small caches or quivers of arrow points among the funerary objects. Two of the caches were in Fea. 503, one of five points near what must have been the right hand and the other (with six points) along the lower left leg (see Figure 6-8). The third cache was in Fea. 511, and had five arrow points; these were found resting inside Vessel 5, a red-slipped carinated bowl (see Figures 6-16 and 6-17) that rested along what may have been the right leg near the waist of the individual buried in Fea. 511. Since these were placed inside a vessel, they may not have been in a quiver but simply attached to their cane or wood shafts.

The Fea. 503 arrow points in the two clusters are made from very different lithic raw materials. Those in cluster 1 are either Big Fork chert (a non-

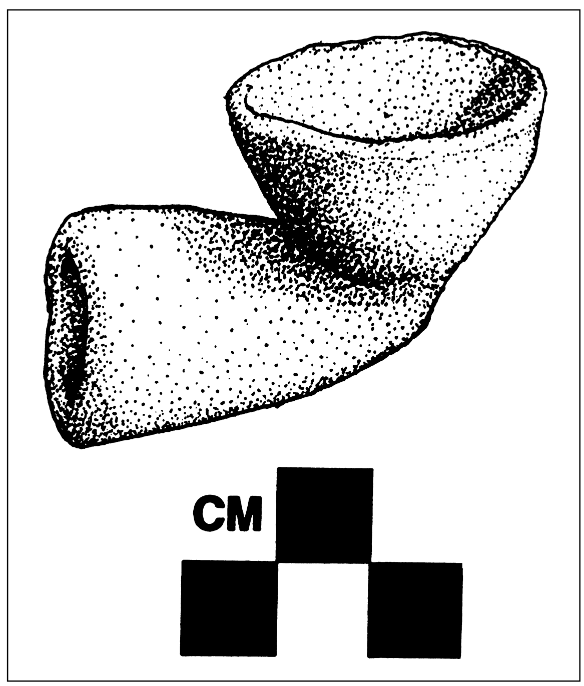


Figure 6-36. Elbow pipe from Fea. 503.

local material) or a local brown chert, both varieties of chert present in lithic debitage clusters in the probable knapping kit in Fea. 504. The cluster 2 arrow points, however, were made from either a reddish-brown local chert or a banded red chert, possibly a red claystone/siltstone from Red River gravel sources (cf. Mallouf 1976). The predominant use of cherts—from both local and non-local sources—for arrow point manufacture at the Pilgrim's Pride site is consistent with Turner's (1978:64) suggestion that the earlier Titus phase points were made on cherts and the later forms (i.e., Maud, Bassett, and Talco) were often manufactured from local quartzites.

The cluster 1 arrow points have narrow stems with flat bases, either slightly contracting or parallel in form (Figure 6-37), occasionally with small barbs. These are Perdiz points, much like the stemmed arrow points at the contemporaneous Mockingbird cemetery (Perttula et al. 1998:Figure 128a, c-e). They are made on thin and narrow decortified flakes (one has cortex on the stem, however, see Figure 6-37a), and are primarily unifacially retouched along the blade and stem; two of the six arrow points in cluster 1 have serrated blades. They range in size from 19.5-26 mm in length and 10.8-12.8 mm in width (Table 6-20).

The cluster 2 Perdiz arrow points in Fea. 503 are slightly larger than those in cluster 1 (see Table 6-20), and they all have serrated blades and small barbs (Figure 6-38). Two of the five points are bifacially-chipped (Figure 6-38b, d), and both of these are made from the red chert/siltstone. They have narrow parallel to contracting stems and flat bases, and were also made from decortified flakes.

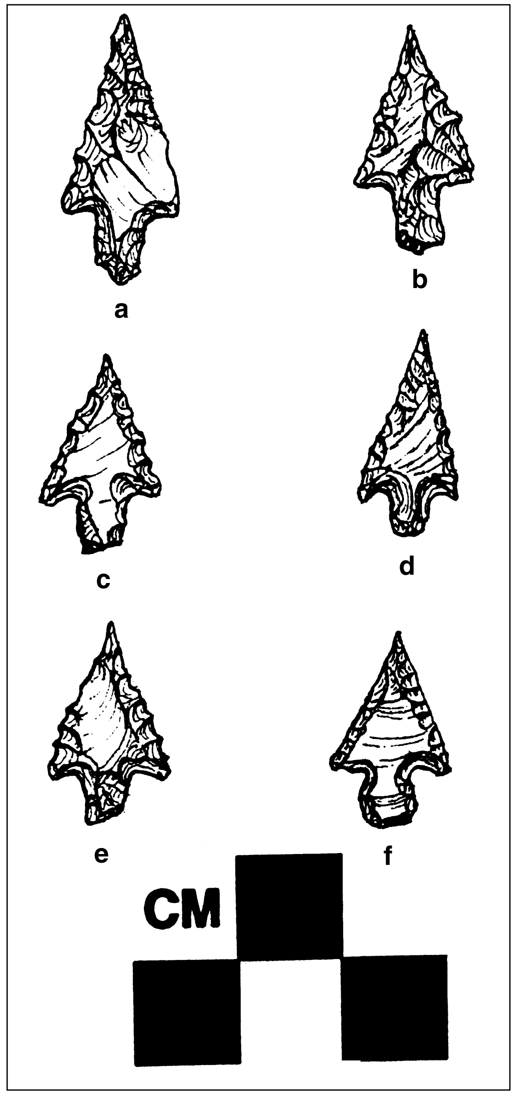


Figure 6-37. Arrow points from cluster 1, Fea. 503.

The five arrow points in Fea. 511 are a more eclectic group than the two Fea. 503 clusters, and two have barely been retouched or pressure-flaked to shape (Figure 6-39b, d). These two were made from novaculite (see Table 6-20), and have rudimentary contracting stems and no barbs. The other three, probably also Perdiz points, are more completely formed and flaked to shape, but only the largest of these (see Figure 6-39c) has been bifacially flaked. It has a broad contracting stem, with small barbs, and was made from Ogallala quartzite. The other two were also made from a heat-treated Ogallala quartzite, and have short and broad contracting stems.

The one arrow point in Fea. 504 was found in the fill, not on the floor of the burial pit, near the lower legs (see Figure 6-9). It is a bifacially-flaked point (17.9 x 11.2 x 3.6 mm in length, width, and thickness, with a 4.9 mm stem width) with side notches and a flat base (Figure 6-40b); the blade is not serrated. It is made from a non-local gray novaculite.

Table 6-20. Arrow Point Attribute Data from Fea. 503 and Fea. 511.

Context	Raw Material	L	W	Th	SW	Se	Flaking	Stem and Barbs
Fea. 503, cluster 1								
	Big Fork	20.4	10.8	3.4	3.8	–	unifacial	narrow contracting stem, small barbs
	Big Fork	26.0	11.4	3.3	4.6	–	bifacial	narrow contracting stem, no barbs
	brown chert	22.0	12.0	2.6	4.4	–	unifacial	narrow contracting stem, no barbs
	Big Fork	20.0	12.0	2.5	4.4	+	unifacial	narrow contracting stem, small barbs
	Big Fork	20.0	12.0	3.1	5.1	–	unifacial	narrow parallel stem, no barbs
	Big Fork	19.5	12.8	2.3	5.1	+	unifacial	narrow parallel stem, no barbs
Fea. 503, cluster 2								
	r-b chert	24.1	16.1	2.8	5.1	+	unifacial	narrow parallel stem, small barbs
	r-b chert	25.0	11.2	2.5	4.6	+	unifacial	narrow contracting stem, small barbs
	red chert	28.1	13.6	3.3	4.4	+	bifacial	narrow parallel stem, small barbs
	red chert	22.7	13.0	2.6	5.1	+	unifacial	narrow parallel stem, small barbs
	red chert	24.9	16.4	3.6	4.6	+	bifacial	narrow parallel to expanding stem, small barbs
Fea. 511								
	Ogallala QTZ	15.4	12.0	2.5	7.1	–	unifacial	broad contracting stem no barbs
	Ogallala QTZ	16.4	10.7	3.6	4.9	–	unifacial	broad contracting stem no barbs
	white NOV	18.2	7.9	3.1	4.9	–	unifacial	narrow contracting stem, no barbs
	white NOV	16.6	13.1	3.3	5.4	–	unifacial	narrow contracting stem, no barbs
	Ogallala QTZ	23.0	14.6	4.9	6.4	–	bifacial	broad contracting stem, small barbs

measurements in mm; QTZ = quartzite; NOV = novaculite; r-b = reddish-brown

Both of the Fea. 517 arrow points were lying next to Vessel 6, a Bullard Brushed jar (see Figure 6-21) near the lower left leg of the individual buried in the feature, one pointing towards the vessel and the other pointing away from it. The first one is a side-notched Washita point (see Figure 6-40d) made from a heat-treated grayish-brown novaculite. It has been fractured along the tip, has a flat base, and the blades have not been serrated. Larger Washita arrow points were among the funerary objects in Burial 19 at the Alex Justiss site (Rogers et al. 2003:Figure 39f-h). The second arrow point was made from a local brown chert flake, and it is only unifacially chipped (see Figure 6-40c). The point has an expanding stem formed by corner-notching, the base is flat, and the blade has been carefully serrated along both edges; the tip is still sharp. Its size is 19.0 mm in length, 12.0 mm in width, and 1.8 mm in thickness; the stem width is 3.8 mm.

Among the cluster 2 lithics in Fea. 504 was the fragment of an arrow point preform made from a brown novaculite. It had been broken during fracture by a transverse blade fracture, and was 14 mm in width and 4.0 mm in thickness. It may have been included in the cluster 2 materials as an additional source of usable fine quality lithics along with a number of pieces of lithic debitage (see below). The cluster 1 flake tool was on a tertiary flake of gray novaculite (see Table 6-21, below). The lithic piece had a 17 mm long area of use-wear/steep edge retouch on the ventral side of the flake.

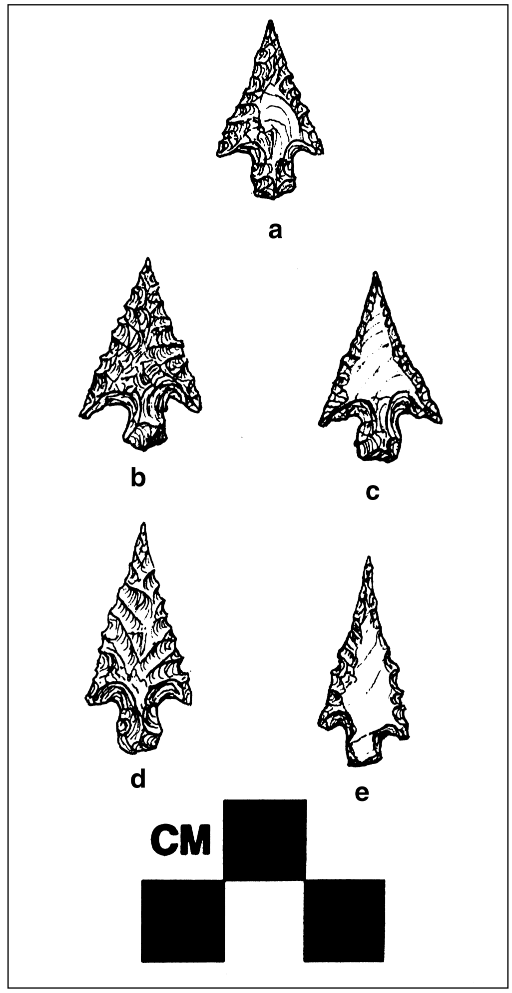


Figure 6-38. Arrow points in cluster 2, Fea. 503.

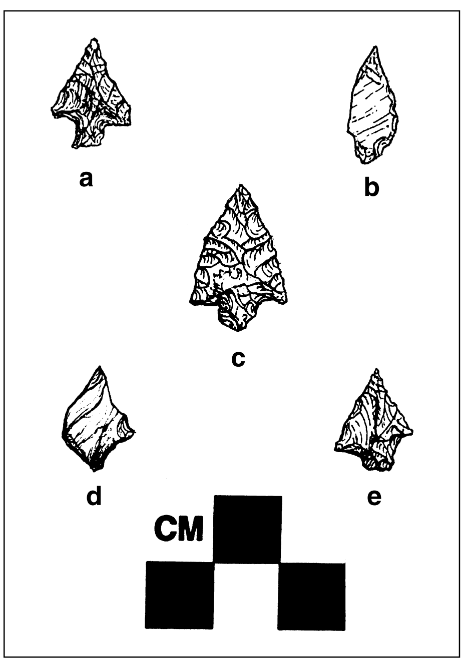


Figure 6-39. Fea. 511 arrow points found inside Vessel 5.

The one Late Archaic style dart point came from just outside the feature fill in Fea. 506, resting along the edge of the pit at 99.65 m elevation. It was not found on the floor of the burial pit, and was likely not a deliberate funerary offering but an accidental inclusion encountered when the burial pit was excavated by the Caddo. The point has an expanding stem and a flat base (see Figure 6-40a), and was made of petrified wood. The blade has been resharpened, but not serrated. It measures 33.0 mm in length, 17.9 mm in width, and 4.4 mm in thickness; the stem width is 12.0 mm.

The beveled knife was placed along the southern margins of the Fea. 509 burial pit, perhaps near the hand of the individual buried in the pit (see Figure 6-14), and near a chunk of petrified wood. The exquisitely chipped knife (Figure 6-41a) was made from an unheated Florence A chert, a lithic raw material whose source is in the Arkansas River basin in northeastern Oklahoma and southeastern Kansas (see Banks 1990). This tool is obviously an import from a southern Plains group, probably the Wichita (see Hawley 2000).

The beveled knife has been steeply beveled along all four working edges of the tool, certainly during use. The initial knapping of the knife used large hard hammer flake removals to shape the tool, as there are large flake scars on both faces (see Figure 6-41a), and pressure flakes along the beveled edges finished the knapping job. The edges of the beveled knife were far from exhausted at the time it was placed in Fea. 509 along with other funerary objects.

One of the bifaces (see Figure 6-41b) was found in a small cluster of lithic debris, a polishing stone, and a celt in the central part of Fea. 504 (see Figure 6-9). These materials may have been placed in a bag near the lower leg of the deceased. The biface was made from a non-heat-treated Ogallala quartzite, and shaped with large hard hammer flakes knapped from both the ventral and dorsal surfaces of the tool. The biface has edge crushing and use-wear damage along three edges of the tool, two on opposite edges near the rounded tip, and the third near the oval-shaped basal portion. The biface was 61 mm long, 30 mm wide, and only 6 mm thick.

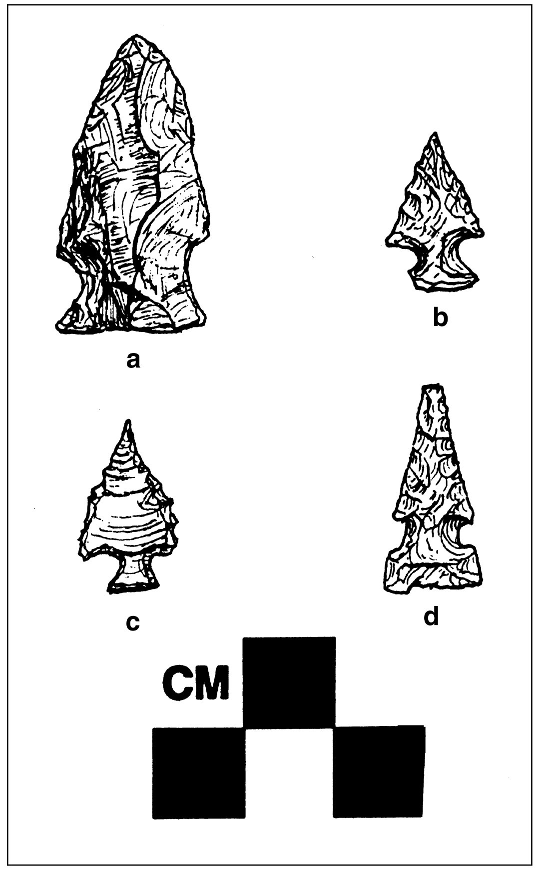


Figure 6-40. Dart point and arrow points from Fea. 504, Fea. 506, and Fea. 517: a, dart point, Fea. 506; b, side-notched arrow point, Fea. 504; c-d, Fea. 517 points.

A Stage 1 biface (33 mm in length, 20 mm wide, and 13 mm thick) was placed in the central part of Fea. 515 (see Figure 6-19), perhaps near what would have been the upper leg of the deceased individual. The biface, made from a strong brown-colored petrified wood, was shaped with hard hammer flaking, and 60% of one surface was still covered with cortex when it was placed in the burial pit (Figure 6-42). One edge of the biface had been bifacially worked, with a steep cross-section, and this edge may have been an effective tool-working edge for the scraping and shredding of relatively soft materials.

LITHIC DEBITAGE

Four miscellaneous pieces of lithic debitage were recovered in the excavation of the feature fill in three burial pits (Fea. 503, Fea. 507, and Fea. 515). However, another 84 pieces were found in two clusters placed on the floor of Fea. 504. There were also two chunks in two different burial features, and a core/tested cobble in a third feature (see Table 6-2). The one piece of debitage in Fea. 503 was recovered from the fill of Vessel 1, a crushed Ripley Engraved compound bowl (see Figure 6-8). It is a cortical piece of heat-treated coarse-grained quartzite about 15 mm in length. There were two pieces of debitage in Fea. 507 (see Figure 6-12), one near Vessel 3 and the other near the foot of the grave. Both are cortical and heat-treated pieces of quartzite, one coarse-grained and the other a fine-grained Ogallala quartzite. The last piece of miscellaneous lithic debitage found in burial feature fill came from Fea. 515, again near the foot of the grave (see Figure 6-19). This was a tertiary piece of heat-treated coarse-grained quartzite.

The Fea. 504 lithic debitage clusters were situated in the northern and central parts of the burial pit (see Figure 6-9), perhaps near the right hand and lower right leg of the individual placed in the pit. These clusters were probably originally within leather bags or pouches that have since decayed, but the overall integrity of the contents does not appear to have been disturbed. The cluster 1 had 74 pieces of lithic debitage, a polished stone, and a hammerstone/ mano. The cluster 2 contained 10 pieces of lithic debitage, a polished stone, a celt, and a biface (see Figure 6-9). These clusters may represent items for a knapper's tool kit, as they include a hammerstone, raw material pieces to work with for making tools, and a bifacial tool that may or may not have been a finished and fully shaped tool.

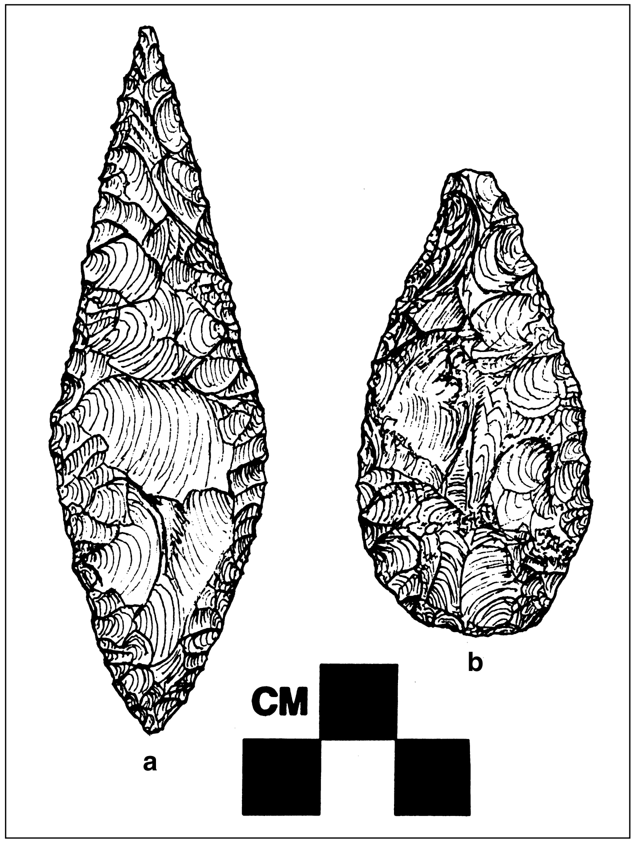


Figure 6-41. Bifaces among the funerary objects: a, beveled knife, Fea. 509; b, Ogallala quartzite biface, Fea. 504.

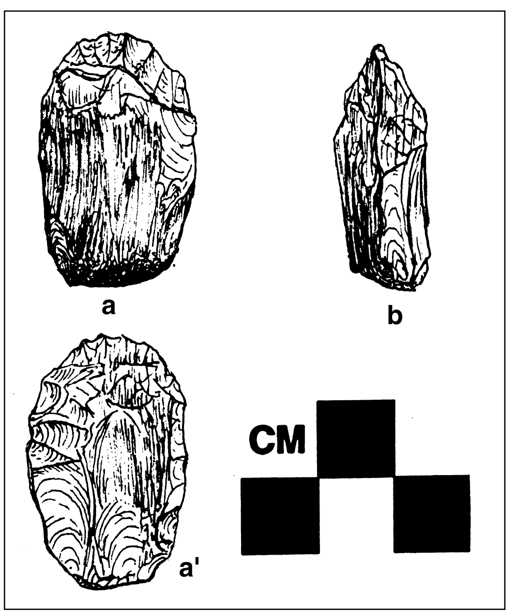


Figure 6-42. Stage 1 petrified wood biface, Fea. 515.

Twelve different varieties of lithic raw materials are represented in the two clusters of lithic debitage (Table 6-21). Those probably from local lithic raw material sources include Variety 1 (a dusky red petrified wood), Variety 4 (a dark yellowish-brown chert), Variety 5 (a brown chert), Variety 7 (a pale brown chert), and Variety 8 (a yellowish-brown chert). These local materials comprise only 20% of the pieces in cluster 1 and 40% of the cluster 2 debitage.

The lithic debitage from likely non-local raw material sources represent 80% of the cluster 1 pieces and 60% of the cluster 2 debitage; these are very high percentages indeed, and indicate that the knapper who made them had ready access to these exotic materials. These raw materials in the debitage include several varieties of Big Fork

Table 6-21. Lithic Debitage in Clusters 1 and 2, Fea. 504.

Raw Material Variety	L	W	Th	Platform facets/grinding	No. of Dorsal flake scars	Flake type/cortex
Cluster 1						
Var. 1	23.0	15.2	3.6	–	–	distal/primary
Var. 2	20.0	10.0	3.6	–	–	chunk/primary
	31.0	18.0	3.1	single/ng	–	complete/primary
Var. 3	31.0	17.0	3.6	multi/g	–	complete/primary
Var. 4	17.0	12.0	3.3	single/ng	–	proximal/primary
Var. 5	21.0	14.0	2.8	single/ng	–	proximal/primary
Var. 6	9.0	5.4	1.8	–	1	chip/secondary
	17.0	12.7	2.0	multi/g	3	complete/tertiary
	15.2	7.7	1.3	–	–	chip/secondary
	26.4	15.1	2.5	multi/ng	4	complete/secondary
Var. 7	23.5	16.0	2.8	multi/ng	2	complete/secondary
	26.0	19.0	4.9	multi/ng	4	complete/secondary
	19.0	12.8	1.5	multi/ng	1	complete/tertiary
	21.0	14.0	4.4	multi/g	3	complete/tertiary
	12.0	13.8	0.9	single/g	4	complete/secondary (cortex only on platform)
Var. 8	8.4	6.4	0.3	–	1	chip/secondary
	22.1	7.8	3.1	–	–	distal/primary*
	16.0	14.5	5.1	multi/ng	1	complete/secondary
	20.4	7.9	2.5	single/ng	1	complete/secondary*
	17.0	11.1	2.9	single/ng	1	complete/secondary
	12.2	10.9	1.8	multi/g	3	proximal/tertiary
	11.5	8.0	2.5	–	1	chip/secondary
Var. 9	28.2	15.0	4.1	multi/g	3	complete/secondary
	23.3	15.0	4.1	single/ng	2	complete/secondary
	19.0	11.9	3.3	multi/ng	-	complete/primary
	13.0	9.5	2.1	–	1	chip/secondary
	12.0	6.2	1.8	–	1	chip/secondary
Var. 10	21.3	10.2	3.8	single/ng	3	complete/tertiary**
	20.0	19.2	4.6	multi/ng	2	complete/secondary
	23.0	12.0	3.3	multi/ng	2	complete/tertiary

Table 6-21. *(Continued)*

Raw Material Variety	L	W	Th	Platform facets/grinding	No. of Dorsal flake scars	Flake type/cortex
	14.0	19.5	5.6	multi/ng	3	complete/secondary
	23.5	16.4	2.8	single/ng	–	complete/primary
	19.0	17.1	3.6	single/ng	3	complete/tertiary
	19.1	15.0	3.8	single/ng	3	complete/tertiary
	19.1	13.8	2.0	single/g	2	complete/secondary
	19.0	8.4	2.1	single/ng	1	proximal/secondary*
Var. 10	18.6	14.7	3.3	single/ng	3	complete/tertiary
	15.9	12.0	4.0	single/ng	-	complete/primary
	19.0	12.2	3.8	single/ng	1	complete/secondary
	18.5	8.4	3.3	multi/ng	2	complete/secondary*
	12.4	12.1	2.6	–	–	chip/primary
Var. 11	24.5	19.0	10.2	–	–	possible core fragment/ secondary
	26.2	17.8	4.1	multi/ng	3	complete/secondary
	17.0	5.3	3.3	multi/ng	1	proximal/tertiary*
	21.0	12.8	3.6	multi/g	2	complete/secondary
	30.5	21.2	3.9	multi/ng	3	complete/secondary
	23.5	19.5	3.2	single/g	2	complete/secondary
	13.0	21.0	4.6	single/ng	1	complete/secondary
	21.8	18.2	4.6	single/g	4	complete/secondary
	24.5	11.5	6.4	–	–	chunk/secondary
	28.0	15.0	4.8	multi/g	4	complete/tertiary
	21.5	11.0	2.8	–	2	proximal/secondary
	18.5	21.2	3.8	–	3	distal/secondary
	20.0	10.2	2.8	single/ng	3	complete/tertiary
	19.2	16.7	2.5	multi/ng	2	complete/secondary
	14.0	15.2	4.1	single/ng	2	complete/tertiary
	18.8	11.5	5.0	multi/ng	2	complete/tertiary
	13.2	16.8	3.3	single/g	3	complete/tertiary
	20.1	15.8	4.6	multi/ng	2	complete/secondary
	11.5	8.6	1.3	multi/ng	2	complete/tertiary
	19.0	14.0	3.6	single/ng	2	complete/tertiary
	15.2	14.1	3.6	multi/g	2	complete/tertiary
	11.5	8.9	2.8	single/g	3	complete/secondary
	10.2	11.5	3.1	–	1	chip/secondary
	14.9	9.7	1.6	–	–	chip/primary
	15.2	10.2	5.1	single/ng	2	complete/tertiary
	12.0	5.6	1.7	–	1	chip/secondary
	16.6	13.6	5.6	–	–	chunk/secondary

Table 6-21. *(Continued)*

Raw Material Variety	L	W	Th	Platform facets/grinding	No. of Dorsal flake scars	Flake type/cortex
	18.0	12.0	3.1	multi/g	3	complete/tertiary
	17.9	12.8	4.1	multi/g	3	complete/tertiary
	9.9	19.0	4.6	single/ng	2	proximal/tertiary
	16.0	14.0	2.0	–	–	chip/tertiary
	21.0	8.1	4.1	multi/g	–	proximal/primary
	18.0	13.6	3.3	–	1	chip/tertiary
Cluster 2						
Var. 4	15.0	14.0	4.0	multi/g	2	complete/secondary
Var. 8	42.0	10.0	4.0	single/ng	5	complete/tertiary
	37.0	12.5	3.0	single/ng	3	complete/secondary
	16.0	17.0	2.0	–	2	chip/tertiary
Var. 11	25.0	22.0	4.9	multi/ng	3	complete/tertiary
	23.0	13.0	3.2	single/ng	2	complete/secondary
	9.0	6.0	2.0	–	–	chip/secondary
Var. 12	35.0	16.0	5.0	single/ng	1	complete/secondary
	31.0	14.0	4.0	single/ng	3	complete/tertiary
	12.0	6.0	4.0	multi/ng	2	proximal/tertiary

* fortuitous blade; ** expedient flake tool; Key: L= length, in mm; W= width, in mm; Th= thickness, in mm; ng= no platform grinding; g= ground platform

chert (Variety 2, Variety 3, and Variety 11), with either black, light olive brown (5Y 5/4), or banded brown/yellowish-brown and black colors (Variety 11), as well as gray novaculite (Variety 10). Probable cherts from non-local Ouachita Mountains sources include a dark grayish-brown chert (Variety 6), a dark gray to bluish-gray chert (Variety 9), and a grayish-brown chert (Variety 12) (see Table 6-21). In cluster 1, Big Fork chert, Variety 11, is the predominant lithic debris raw material (45%), followed by novaculite (19%), while Big Fork chert (30%) and the grayish-brown chert (30%) were the only non-local debitage in cluster 2.

The debitage is not much different in size in either of the two clusters, regardless of the source of the raw material, as size indices (length + width + thickness) range from 28.9-51.6 for the 12 material varieties. Most of the debitage is less than 25 mm in length. The smallest debitage is Variety 6, with the largest sizes among several Big Fork chert varieties (Variety 2 and 3) and Variety 1, a petrified wood. The novaculite size index is 35.2 and the size index for the most common Big Fork chert variety (Variety 11) is 35.6 (see Table 6-21). The pieces also tend to have minimal to only moderate longitudinal curvature, with unground striking platforms.

Most of the debitage is complete: 70% of the cluster 2 pieces and 65% of the cluster 1 pieces (see Table 6-21). None of the cluster 2 debitage is a primary cortical flake, but 50% are secondary flakes. In cluster 1, however, 27% of the local debitage pieces are primary flakes and 15% of the non-local debitage are primary flakes. Furthermore, about 50% of both the local and non-local materials are secondary pieces of debitage (i.e., they have some amount of cortex on their dorsal surface). The high percentage of cortical flakes in the cluster 1 and 2 debitage suggests they were removed from bifacially flaked cores, specifically during knapping to produce usable flakes for tool manufacture, and these complete flakes were deemed suitable to include with the Fea. 504 funerary objects to accompany the deceased (who was perhaps a master knapper) in the afterlife.

The lithic debitage in the two clusters commonly had single and multi-faceted platforms, consistent with core preparation flakes (from core reduction, see Carr and Bradbury [2001:136-137]), as is the moderate number of dorsal flake scars on many of the flakes (see Table 6-21). At least half of the flakes had non-ground platforms, but numerous Big Fork chert (Variety 11) debitage pieces had ground platforms and multi-faceted platforms, suggesting they may have been bifacial thinning flakes. These latter pieces in cluster 2 also had a low frequency of primary flakes (6%), further supporting the idea that this particular group of non-local debitage was from bifacial thinning knapping activities.

The core or tested cobble in Fea. 519 was a possible fire-fractured piece of coarse-grained quartzite found near the western side of the burial pit (see Figure 6-24), probably along the legs of the deceased. The core/tested cobble has no obvious flake platforms, and the few flake scars on it are irregular in shape and orientation; 90% of the 77 x 65 mm piece is cortical, and it is 41 mm thick.

One of the chunks is an unmodified piece (44 x 21.5 x 23 mm in length, width, and thickness) of petrified wood found inside Vessel 7 (a Pease Brushed-Incised jar) in Fea. 504. The other was in Fea. 509 (see Figure 6-14). This chunk was also petrified wood, but it had small quartz crystals naturally embedded into two facets of the raw material; the chunk was 79 x 41 x 15 mm in length, width, and thickness. A similar petrified wood chunk with quartz crystal inclusions was among the funerary offerings in one of the Titus phase Caddo burials at the Mockingbird site (41TT550) (see Perttula et al. 1998:Figure 132c).

GROUND STONE TOOLS

Six of the burial features had ground stone tools as funerary offerings (see Table 6-2). These included four celts, four polishing stones, and two manos, one of which (Fea. 504) may also have been used as a hammerstone. The celts were probably used for wood-working and tree girdling, while the polishing stones may have been employed in polishing finished ceramic vessels. The manos would have been used in conjunction with metates or grinding slabs to grind, crush, and pulverize plant materials.

The four celts from the Area V/VI cemetery are from four separate burial features, each probably those of adult males (see discussion in Perttula et al. 1998:26-29). Three of the four celts are made from Hatton Tuff, and the other (from Fea. 509) is a greenish-gray siliceous shale. These materials are available only in the Ouachita Mountains of southeastern Oklahoma (and in Red River gravels downstream from their bedrock sources; see Banks and Winter 1975:Figure 17). These celts were likely made by Red River Caddo groups, perhaps McCurtain phase Caddo groups living along the Red River near its confluence with the Kiamichi River (see Ferring 1969), then traded/exchanged with Titus phase groups. No flaking debris from celts have been identified in the lithic debitage at the Pilgrim's Pride, so it is virtually certain that the celts were not made on the site.

The celts made from Hatton Tuff are very similar in size and shape (Figure 6-43b-d). They have tapered and flat poll ends, with convex bit profiles and double beveled bits. The celts range from 67-83 mm in length, 33-37 mm in width, and 26-31 mm in thickness; the bits are 30-37 mm in width and 20-21 mm in length. The smaller celt from Fea. 504 (see Figure 6-43d), found in cluster 2 near the waist or lower legs, has been well-polished over all surfaces, with pecking marks visible on two edges below the poll end; on the other two (see Figure 6-43b-c), polishing is restricted to the bit itself, and the other surfaces have been pecked and abraded in shaping the tool. On these two, the tool bit is still sharp, functional, and ready for use, but the Fea. 504 celt bit edge is dulled from use. The Fea. 503 and Fea. 511 celts had been placed near the waist of both deceased individuals, one near the right hand (see Figure 6-16) and the other probably near the left hand (see Figure 6-8).

The greenstone or green siliceous shale celt in Fea. 509 was placed near what would have been the lower left leg (see Figure 6-14). It had a double beveled bit like the other celts in the cemetery, but the poll end is tapered and rounded, with edge and face crushing and abrasion from use (see Figure 6-43e). Polish is restricted to a few small areas on both faces of the tool.

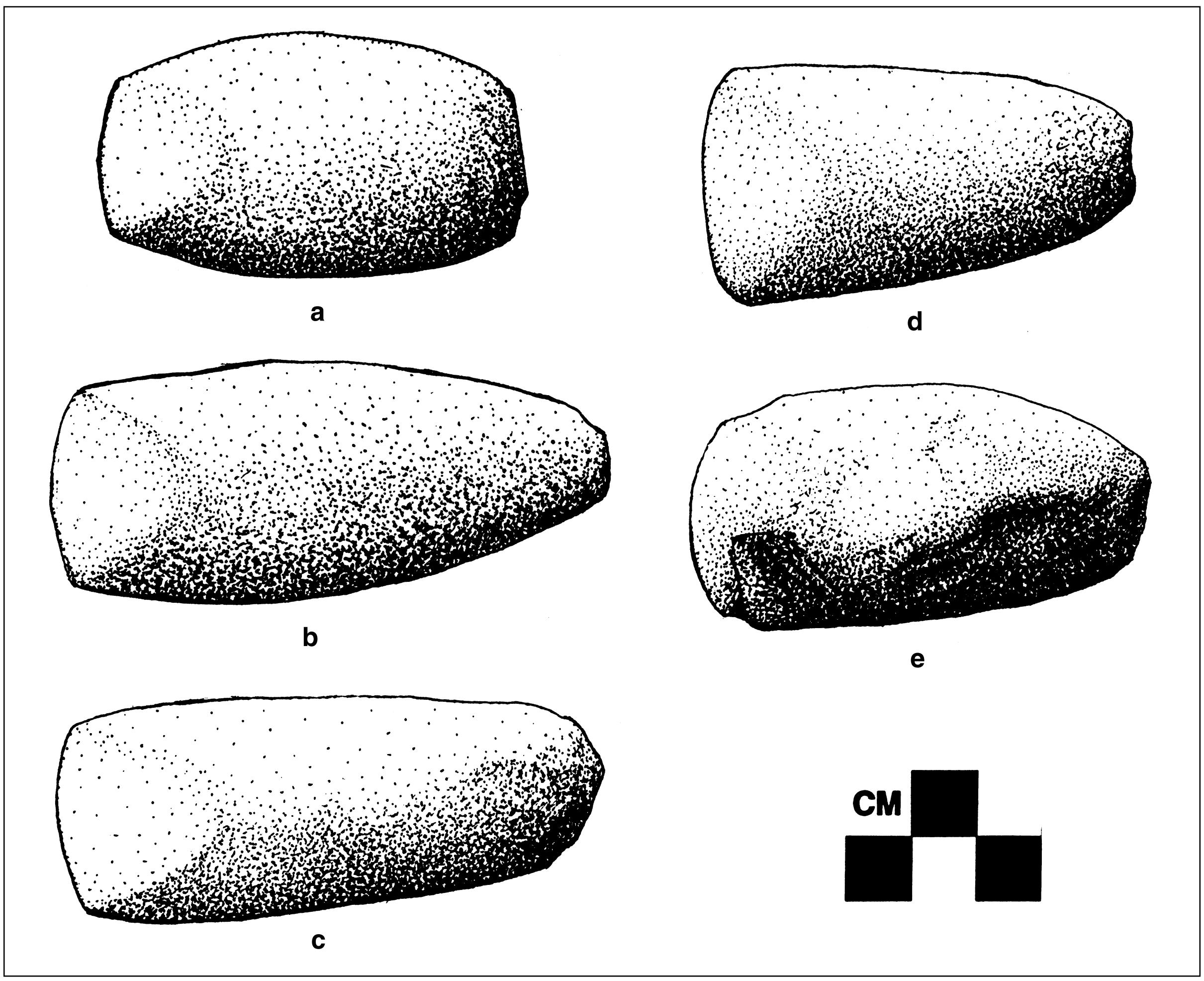


Figure 6-43. Celts from burial features: a, Fea. 8; b, Fea. 511; c, Fea. 503; d, Fea. 504; e, Fea. 509.

In Fea. 504, the mano/hammerstone and one of the polishing stones had been placed in the central part of the burial pit, perhaps in the waist area, next to a small cluster (cluster 1) of lithic debitage (see Figure 6-9). The other polishing stone was among the lithic artifacts in cluster 2, in the central part of the grave, along the lower legs (see Figure 6-9). The mano/hammerstone (of a reddish-gray coarse-grained quartzite) had flat grinding surfaces on both faces, with several areas of minimal edge abrading. On one face, however, there were several large crushing flakes, suggesting its use as a hammerstone or from use of the tool in pulverizing and pounding more durable materials than would have been ground on its two grinding surfaces. It is 117 x 89 x 41 mm in length, width, and thickness. The nearby polishing stone (36 x 28 x 20 mm in length, width, and thickness) was a weak red (7.5R 4/3) quartzite pebble that was polished over all facets and edges of the stone. The polishing stone in cluster 2 was a light grayish-white quartzite (similar to the polishing stone in Fea. 70) pebble that has been smoothed to polished over all facets and edges of the stone. It is 49 mm long, 30 mm wide, and 20 mm in thickness.

The mano and polishing stone in Fea. 510 came from near what would have been the head area of the burial interment (see Figure 6-15). The mano is made from a dense coarse-grained quartzite cobble whose edges have not been abraded or crushed. Both faces of the cobble have flat grinding surfaces that cover 80-90% of either face; the mano is 90 x 82 x 47 mm in length, width, and thickness, and there are remnants of cortex on both faces. The Fea. 510 polishing stone was nestled next to the mano. It is a piece of petrified wood with moderate to extensive amounts of polish on three facets of the once angular chunk; one edge of the chunk is well-rounded from the polishing. On the moderately polished area, the direction of the wood grain on the petrified wood chunk is still apparent, whereas the wood grain direction has been obliterated on the facet with extensive polish. The polishing stone is 90 mm in length, 25 mm wide, and 25 mm in thickness.

The polishing stone in Fea. 70 is a white quartzite pebble 86 mm long, 37 mm wide, and 32 mm thick. It had been placed along the south side of the body, perhaps near the waist (see Figure 6-5). The pebble had two well-polished and rounded facets, while two other facets were unmodified.

CHAPTER 7

Human Skeletal Remains from The Pilgrim's Pride Site (41CP304)

Diane E. Wilson, A. M. Wilson Associates Inc.

INTRODUCTION

The analysis of human remains from the Pilgrim's Pride site (41CP304) was done in order to describe the skeletal material recovered from the site and to compare this data to previously published osteological data from Titus phase and Late Caddoan period burials between the Sulphur and Sabine river drainages. The remains of nine Caddo Indian burials from the Pilgrim's Pride site were recovered and examined for this report (Figure 7-1). The other excavated burials in the cemetery (see Chapter 6, this volume) and the village areas (see Chapter 5, this volume) had no preserved human remains. Like many other human remains from this region of northeastern Texas, these skeletal remains were extremely fragmentary. The osteological examination was conducted using standard techniques outlined in the Texas A&M University, Physical Anthropology Data Form for human remains (Colby et al. n.d.) and those presented in Buikstra and Ubelaker (1994).

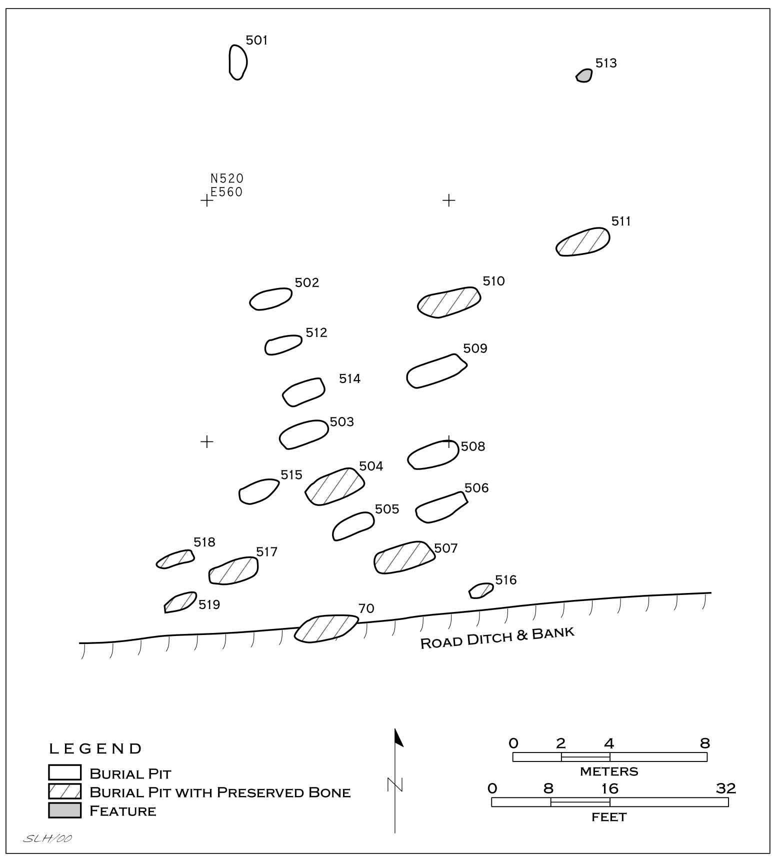


Figure 7-1. Burial Features with Preserved Human Remains at the Pilgrim's Pride site.

The analysis of the human skeletal remains from the Pilgrim's Pride site provides some inventory information of the remains recovered during the excavations, but much of this comes from information gathered in the field during the actual excavations of the burial features (see Chapter 6, this volume). This chapter fully covers issues concerning the state of preservation of the remains, with limited information on the demographic structure of the population, an evaluation of diet and health, and an assessment of their biological affinity. The state of preservation greatly curbed the amount of information that could be gleaned from standard osteological analysis. One difficulty is that there are very few other reports that discuss taphonomy in detail, and thus there is little comparative information. What information is available is often quite disparate in the amount and quality of the information that is provided. Another analytical difficulty arises because of the small sample of human remains from the Pilgrim's Pride site. Thus, results from the analysis are often based on the remains of one burial feature.

INVENTORY

Establishing an inventory of the individuals in the site assemblage is a requirement for osteological analysis. Inventories are descriptions of the human remains present, and are helpful in assessments of preservation, mortuary patterns, post-mortem disturbances, excavation conditions, and soil conditions.

The skeletal remains of nine prehistoric Caddo Indian burial features were submitted to A. M. Wilson Associates, Inc. (Barnstable, Massachusetts) for analysis. Determining the number of individuals per feature from materials submitted to the laboratory was problematic. Only rarely were specific bones identified even in feature contexts (see Chapter 6 for feature descriptions in Area V/VI; see also Appendix III, Volume II) because of the poor preservation. Each of the nine features contained a minimum of one individual. Because the human remains were so fragmentary, it was not possible to determine if more than one individual was represented by these features, although the size and shape of the burial features, as well as the amounts of kind of associated funerary objects, are consistent with single extended supine interments (see Chapter 6, this volume; see also Perttula and Nelson 1998b). Although the lack of bone material from all features supports a minimal number of individuals, this could not be proven. It was assumed that the paucity of material from the nine burials, and that only one bone was represented from Feature 519, indicates the presence of a single interment. Likewise, the similarity in wear patterns on the teeth, which were all that were present from Feature 516, suggested that one individual was represented by this feature. Feature 516 had the only well preserved remains, and contained the crowns of the right mandibular first, second, and third molars, and the left mandibular second and third molars. Other cases were less clear.

The minimum number of individuals from the Pilgrim's Pride site cemetery is therefore assumed to be 19. Only 47 percent of the burials contained any preserved human remains. Typically, Titus phase burials consist of single interments, which offers more evidence for a low number of individuals represented in these feature burials. For example, at the nearby Tuck Carpenter site (41CP5), there were more than 70 burials, all but two of which were single interments (Turner 1978, 1992).

Story et al. (1990) place the Titus phase populations in an adaptation type characterized as Sedentary/Intensive Gardeners. Several expectations result from this characterization, of which only the following can be examined here: that the populations had a high population density and also had an increased utilization of maize and other cultigens. High population densities should be expected; however, poor preservation of human remains makes it difficult to refute this hypothesis at the Pilgrim's Pride site. Aside from preservation, approximations of population size from the minimum number of individuals recovered can be influenced by the type of site examined and the excavation strategy employed.

TAPHONOMY

Taphonomy documents the extent of postmortem destruction to human skeletal remains. It involves an understanding of the process of destruction and dispersal of bone remains, including the extent to which humans cause modification and dispersal of human remains at archeological sites.

Many researchers have noted the poor state of preservation of the human remains at many Caddo sites in Northeast Texas (Burnett and Harmon 1997; Derrick and Steele 1993; Gill-King 1999; Johnson 1962; Westbury 1975, 1978; Wilson and Steele 1996, 1997). Often remains are described as features with little but stains in the soil that indicate the presence of a burial. This situation makes it difficult to reconstruct the original burial positions and forms.

Table 7-1 provides a summary of the inventory data compiled for the Pilgrim's Pride site, and it also indicates an extremely poor state of bone preservation. Very few specific skeletal elements could be distinguished among the bone fragments. All of the feature remains with human bone contained less than 5 percent completion of the human skeleton. No bones were complete, and the bone remains were so fragmentary that it was not possible to confirm identifications of bones made in the field once they were in the laboratory. Even thicker bones—such as the femur and brain case—that tend to decay more slowly in buried environments were, for the most part, unidentifiable. Enamel typically survives better than bone, but only one feature contained dental remains (see Table 7-1).

Table 7-1. Summary of Inventory for the Human Remains from The Pilgrim's Pride Site (41CP304).

Feature No.	Estimated No. of Fragments	Identified Bones	Largest fragment (mm)	No. of bags and their labels
70	73, cortical bone, indeterminate	1 rib fragment	17 x 7	1
504	36, cortical bone, indeterminate	none	19 x 6	2 bags: Bag #1 and Bag #2
507	426+			8 Bags:
	100+ mostly flat bone, indeterminate, some cortical and some cancellous bone, indeterminate	1 complete ossicle (15 x 12); part of the right superior art. Facet of C1; another fragmentary upper cervical vertebra	15 x 12	Skull
	75+ flat bone, indeterminate	none	10 x 10	L chest area
	50+ flat bone, indeterminate	none	9 x 7	R chest area
	39 flat bone, indeterminate	none	9 x 5	L radius and chest area

Table 7-1. *(Continued)*

Feature No.	Estimated No. of Fragments	Identified Bones	Largest fragment (mm)	No. of bags and their labels
	50+ cortical and flat bone, indeterminate	none	10 x 12	R arm
	30 cortical and radius flat bone, indeterminate	none	10 x 3	L ulna and
	35 cortical bone, indeterminate	none	9 x 4	L femur
	44 cortical bone, indeterminate	none	9 x 4	L tibia and fibula
510	113+			3 Bags:
	50+ cortical and flat bone, indeterminate	none	7 x 3	Bag #1
	37 cortical bone, indeterminate	none	11 x 6	Bag #2
	26 cortical bone, indeterminate	none	11 x 6	Bag #3
511	46 cortical bone, indeterminate	none	8 x 6	1
516	5 dental crowns	RM_3, RM_2, RM_1, LM_2, LM_3	–	1
517	472+			5 Bags:
	163 cranial bones, indeterminate	1 occiptal fragment along lambdoidal suture, side indeterminate	32 x 29	Skull fragments
	75+ cortical bone, indeterminate	none	16 x 7	R rib and tibia
	100+ cortical bone, indeterminate	none	22 x 19	R femur
	59+ cortical bone, indeterminate	none	38 x 8	L femur

Table 7-1. *(Continued)*

Feature No.	Estimated No. of Fragments	Identified Bones	Largest fragment (mm)	No. of bags and their labels
	75+ cortical bone,	none	24 x 10	L tibia/fibula
518	117+			2 Bags:
	70+ cranial bone, indeterminate	none	29 x 21	Skull fragments
	47+ cortical bone, indeterminate	none	7 x 5	femur fragments
519	approximately 46 cortical bone, indeterminate	none	3 x 2	1 Bag: lower jaw fragments

When possible, specific taphomic processes were recorded for the human remains examined in this study (Table 7-2). Rarely has this been done for Caddo skeletal remains. Derrick and Steele (1993) noted evidence of rodent gnawing and root etching in the remains from the Tick (41DT6) and Spike (41DT16) sites. Gill-King (1999) attributed destruction of the remains from the Hurricane Hill site (41HP106) to humic soils, recurring wetting and drying, and root etching.

Surface texture is a macroscopic evaluation of collagen leaching. In all cases except Feature 516, which lacked bone, surface textures exhibited extreme loss of collagen (see Table 7-2). Surfaces were chalky and dry in appearance. Most bone was flaking and splintering as it was handled. Much of the original surface features were lost to bone destruction.

Abrasion of the bone surface is also examined macroscopically, but is also aided by the use of a 10X hand lens. Abrasion may be caused by hydraulic or aeolian transport of sediments that erode the bone surface. In all features with the exception of Feature 516, abrasion of the bone surface was extreme. The bone edges were obscured and rounded. In some cases, fine striations were observed on the larger bone fragments.

Staining of the bone remains was mostly diffuse on the bone surface, and mainly the result of sediments (particularly the clay subsoil into which the burials were placed). Some remains exhibited no staining (see Table 7-2). In other cases, such as Feature 70, it was clear that a root had left a very well defined darker-colored stain on the bone. Munsell colors recorded on the bones ranged from dark reddish-brown (2.5YR 2.5/4), reddish-yellow (5YR 6/6 and 7.5YR 6/6), and light red (2.5YR 6/6) (see Table 7-2). Although root etching was not observed on the human remains, rootlets were commonly observed with the bone remains.

While there were no clear signs that the human remains were subject to surface exposure, the remains were very poorly preserved. Behrensmeyer's (1978) bone weathering stages were used as a standard method of evaluation. All bone from the features corresponded to Stage 5, with the original shape of the bone difficult to discern. The bone was falling apart, with numerous splinters that break readily with movement of the remains.

Table 7-2. Summary of Taphonomic Data.

	F. 70	F. 504	F. 507	F. 510	F. 511	F. 516	F. 517	F. 518	F. 519
Breakage pattern	Dry bone, force indet.	Dry bone, force indet.	Dry bone, force indet.	Dry bone, force indet.	Dry bone, force indet.	Only enamel present	Dry bone, force indet.	Dry bone, force indet.	Dry bone, force indet.
Burning	none	none	none	none	none	none	none	none	none
Cut marks	none	none	none	none	none	none	none	none	none
Rodent gnawing	none	none	none	none	none	none	none	none	none
Carnivore chewing	none	none	none	none	none	none	none	none	none
Artiodactyl chewing	none	none	none	none	none	none	none	none	none
Insect activity	none	none	none	none	none	none	none	none	none
Root etching	none	none	none	none	none	none	none	none	none
Warping	none	none	none	none	none	none	none	none	none
Adhering carbonate	none	none	none	none	none	none	none	none	none
Staining	minimal from roots, 2.5YR 2.5/4	none	moder. from sedi-ments, 5YR 6/6	minimal from sedi-ments, 5YR 6/6	minimal from sedi-ments, 7.5YR 6/6	none	minimal from sedi-ments, 5YR 6/6	moder. from sedi-ments, 2.5YR 6/6	moder. from sedi-ments, 2.5YR 2.5/4
Surface texture	extreme collag. loss	ext. collag. loss	ext. collag. loss	ext. collag. loss	ext. collag. loss	–	ext. collag. loss	ext. collag. loss	ext. collag. loss
Behrensmeyer's (1978) bone weathering stage	Stage 5	Stage 5	Stage 5	Stage 5	Stage 5	–	Stage 5	Stage 5	Stage 5
Abrasion	ext.	ext.	ext.	ext.	ext.	–	ext.	ext.	ext.
Longitudinal fracture	ext.	ext.	ext.	ext.	ext.	–	ext.	ext.	ext.

Table 7-2. *(Continued)*

	F. 70	F. 504	F. 507	F. 510	F. 511	F. 516	F. 517	F. 518	F. 519
Transverse fracture	ext.	ext.	ext.	ext.	ext.	–	ext.	ext.	ext.
Curved fracture	ext.	ext.	ext.	ext.	ext.	–	ext.	ext.	ext.
Exfoliation	ext.	ext.	ext.	ext.	ext.	–	ext.	ext.	ext.
Pitting	moder.	ext.	ext.	moder.	minimal	–	moder.	moder.	none
Polish	none	minimal	minimal	none	none	–	minimal	minimal	none

Ext.=extreme; collag=collagen; moder.=moderate; indet.=indeterminate

Note: Often fragments were too small or too eroded to determine the presence or absence of certain taphonomic processes. In this case, observations were recorded as none visible ("none").

Pitting was difficult to observe from the remains, which likely accounts for the difference in the values among the features (see Table 7-2). It is a macroscopic observation that was inhibited by surface erosion and the small size of many of the examined fragments. Pitting is recorded when the surface of the bone is interrupted by pits that are generally assumed to be the result of acid etching. Acids can be found in soil chemicals, gastrointestinal degradation, aeolian transports, or groundwater.

Polish is identified by a sheen created from a fine medium of abrasion. It is observed macroscopically, and is confirmed with the aid of a 10X hand lens. Polish was as difficult to determine as pitting due to surface erosion and the small size of bone fragments. Differences between the features in the state of polish are likely the result of poor preservation (see Table 7-2).

DEMOGRAPHY

Age and sex determinations are a basic component of the analysis of past adaptations. Age and sex differences in activity patterns, diet, health, and mortuary patterns all provide a wealth of information about past lifeways. Almost no standard techniques could be used to evaluate the age and sex of individuals recovered from the burial features at the Pilgrim's Pride site. With two exceptions, it was not possible to determine the age at death of individuals. Feature 516 was estimated to have been a young adult at the time of death due to the presence of erupted but barely worn third molars. Feature 519 had the appearance of the remains of a young child. This determination was made solely on the basis of the size and thickness of the bones that were present. It was not possible to determine the sex of any of the burial features.

DIET[1]

Most bioarcheological studies that assess diet focus on dental remains. This section reviews the dental evidence for subsistence regimes from Feature 516.

Both cultural and natural environment shape the diet of individuals and cultures. A maize-rich diet is one aspect of the prehistoric and early historic Caddo diet that separates them from neighboring hunter-gatherers in Texas. Reliance on maize provides a sticky carbohydrate-rich diet favorable to cariogenic microbial attack. Increased reliance on maize resulted in an increase in cariogenesis and related dental disorders throughout the prehistoric Americas. In studies that compared Archaic and Woodland adaptations with Caddo adaptations, higher caries rates were found in the Caddo populations than in the earlier populations that must have relied more on gathered plant and animal foods (Burnett 1990; Powell 1985; Rose et al. 1984, 1998, 1999).

Dental disorders, attrition, cariogenesis, and pre-mortem tooth loss increase with the age of the individual, so it is important to note the age of individuals in dental studies. Feature 516 was a young Caddo adult at the time of death (see above).

Dental attrition is the natural result of wear and tear on the occlusal surface, and it is increased by a diet high in unprocessed vegetal matter and dietary grit inclusions. Grit is typically introduced through the use of stone grinding slabs or from sand in the environment. Attrition was estimated using Scott's (1979) technique for recording enamel wear on molars. Scott's (1979) technique divides the occlusal surface into quadrants, and is based on summing scores from zero to 10 for each quadrant. Table 7-3 indicates that attrition was relatively low for Feature 516, which is consistent with a relatively young age at death as well as a relatively soft diet without grit inclusions.

The frequency of caries and the caries rate have been used to discriminate between hunter-gatherer populations and maize agriculturists (Rose et al. 1984; Rose and Marks 1985; Turner 1979). That no caries were found in the individual from Feature 516 may be indicative of the young age at death and/or a diet relatively low in maize. Other Late Caddoan period populations from the Red River drainage basin had

Table 7-3. Dental Data from Feature 516.

	Wear	Caries	M-D	B-L	Enamel Hypoplasia	Calculus
RM_3	2	0	11	10	0	0
RM_2	13	0	11	10	0	0
RM_1	20	0	–	–	0	trace, distal and mesial
LM_2	14	0	11	10	0	trace, distal
LM_3	3	0	12	10	0	moderate, mesio-buccal

Wear is given according to Scott's (1979) technique and is a score out of 40. Dental measurmeents are given in mm, with M-D being the mesio-distal measurment and B-L being the bucco-lingual measurment.

means of 0.3 to 3.4 caries per individual according to Burnett's (1990; see also Rose et al. 1999) summary data, while the prehistoric populations from the Sulphur River drainage averaged 6.6 caries per individual. Wilson (1997b) gave a range of 1.0-4.5 for the mean number of caries per individual at three Late Caddo sites in northeastern Texas. The lowest mean was from the Titus phase Alex Justiss site (41TT13), which only had one individual. From Derrick's (n.d.) data from Titus phase sites in the Lake Gilmer project area in Upshur County, Texas, adults averaged 0.75 caries per person, but this again may be the result of small sample size, since there were only four adults in her sample, two of which were young.

BODY SIZE

It was not possible to take standard osteological measurements on the remains from the Pilgrim's Pride site because of the poor preservation of the bone. However, some information was available from the size of the teeth from Feature 516.

Dental measurements are provided in Table 7-3. The poor state of preservation is reflected in the inability to take crown height and root length measurements, since all that was preserved was the enamel from the crown, which was fractured along the cemento-enamel junction. Likewise, it was impossible to take measurements on the mandibular right first molar because it was fractured on the buccal and distal margins. Robusticity, of which dentition is a component, is under genetic control to a certain extent, but is also influenced by the quantity and quality of diet and health. Comparisons with the Cooper Lake data (Wilson and Steele 1997), which primarily represents an earlier Caddo population (i.e., sites were occupied before A.D. 1300; see Fields et al. 1997), indicate that the Caddo individual in Feature 516 at the Pilgrim's Pride site had similarly-sized dental crowns to females and males. The measurements are also similar to those reported by Derrick (n.d.) for an older adolescent/young adult from 41UR109, a Titus phase site at Lake Gilmer.

POPULATION AFFINITIES

It was not possible to determine the presence of genetic markers from the osteological remains from the Pilgrim's Pride site, unfortunately. However, non-metric traits were recorded on the dental remains (Table 7-4).

There is no doubt that the population from the Pilgrim's Pride site was Caddo, but population affinities within the larger Caddoan macro-ethnic unit are poorly known except to say that it is affiliated with other Titus phase sites in the Big Cypress Creek basin. Burnett (1990) suggested that the Caddo peoples living in the Blackland Prairie, Post-Oak Belt, and Mixed Pine (or Pineywoods) forests exhibited different cultural adaptations, although it is unclear how this accounts for the fact that Titus phase populations lived in both the Post-Oak Belt and the Pineywoods. It is not known if the populations would be genetically distinct as well, if indeed these cultural adaptations were different, but Rose et al. (1984) suggested that they should be. In order to address this issue, detailed multivariate analyses of Caddo skeletal remains are needed, such as the work in progress by Lee (n.d.).

PALEOPATHOLOGY AND CULTURAL MODIFICATIONS

It was not possible to determine if pathological insults impacted the skeletons from the Pilgrim's Pride site due to their poor state of preservation. The Caddo Indians practiced several forms of body modification,

Table 7-4. Non-Metric Dental Traits Following Standards Established by Turner et al. (1991).

	RM_1	LM_2	RM_2	LM_3	RM_3
Anterior fovea	2	1	2	3	3
Groove pattern	X	X	X	X	X
Cusp number	5	4	4	6	6
Deflecting wrinkle	0	N/O	0	1	1
Distal trigonid crest	0	0	0	0	0
Protostylid	0	1	N/O	0	1
Cusp 5	0	N/O	N/O	3	2
Cusp 6	0	N/O	N/O	2	1
Cusp 7	N/O	0	N/O	0	0

N/O=not observable

of which cranial modeling is commonly reflected in skeletal remains (see Derrick and Wilson 1997). Unfortunately, the cranial remains were too fragmentary to determine what forms of modeling may have been practiced at the Pilgrim's Pride site.

SUMMARY AND CONCLUSIONS

A minimum of 19 individuals were recovered from the Area V/VI cemetery at the Pilgrim's Pride site (41CP304). It was not possible to determine whether these were from primary single interments or the remains of burials that included more than one individual, although the former is most likely. Of the 19 individual burials, 53 percent had no preserved human remains. Of the nine burials with human remains, the state of preservation was poor, with less than 5 percent of the skeleton preserved per individual. Because of the poor state of preservation, it was not possible to make metric, non-metric, and paleopathological observations on the osteological remains.

The dental metric and non-metric data from Feature 516 may be useful in studies where large data sets are pooled to examine the issues raised pertaining to genetic relationships within the larger Caddo cultural and ethnic system. Preliminary comparisons of the metric data suggest that the individual from Pilgrim's Pride was genetically and/or nutritionally similar to other Titus phase populations. More specific cultural affiliations of the Pilgrim's Pride population within the Caddo culture cannot be adequately addressed due to the poor preservation of the human remains and the small sample size of Titus phase burials from the site. Dental data provide evidence from only one individual about diet, and that individual was a young adult with consequent limited impacts to dental tissue. Through the inclusion of data from the Pilgrim's Pride site human remains, and other sites yet to be studied, only in larger studies of the archeology of the Titus phase will questions of genetic and cultural affiliations be adequately addressed.

EDITOR'S END NOTE

1. In an effort to determine the diet and age of the Late Caddo Titus phase Caddo occupants of the Pilgrim's Pride site, bone samples from three burials (Features 507, 510, and 517) were submitted in May 2000 to Beta Analytic, Inc. for stable carbon isotope analysis and radiocarbon analysis. The Caddo Tribe Repatriation Committee voted on April 13, 2000, to approve the request made by Archeological and Environmental Consultants to conduct these tests, and also requested that at the conclusion of the analysis that we present our findings to them and other interested tribal members at their tribal complex in Binger, Oklahoma, and also to discuss how the results of the analyses will be of benefit to the Caddo people.

Unfortunately, Beta Analytic Inc. informed Archeological & Environmental Consultants on May 13, 2000 (via e-mail from Darden Hood, Director), that the human remains submitted for analysis did not contain any protein or collagen, because of very poor preservation, and consequently it was impossible to complete the proposed analyses. This is not an unusual situation in the very humid environmental conditions of Northeast Texas. Thus, no research results were obtained from this effort on the specific age and diet of the Caddo peoples living—and then buried—at the Pilgrim's Pride site. There are radiocarbon dates from other (non-burial) contexts at the site (see Chapters 4, 6, and 8, this volume), and some plant and animal remains are preserved across the village (see Chapters 9 and 10, this volume) that can be used to address this topic through other means.

CHAPTER 8

The Titus Phase Mound in Area VII

Timothy K. Perttula

INTRODUCTION

Area VII consists of a small earthen mound in the northeastern part of the Pilgrim's Pride site (see Figure 4-1 and 4-2, in the vicinity of N730 E650). Based on our investigations and topographic mapping, the mound appears to have been approximately 6.5 m in diameter and ca. 90 cm in height.

Figure 8-1. Looking north at the suspicious rise in Area VII that turned out to be a Late Caddo Titus phase mound; note recently constructed road along the eastern side of the rise.

The earthen mound had been noted by Bo Nelson during a cursory reconnaissance of the site area prior to the beginning of the Horizon Environmental Services investigations (Figure 8-1), but after the Pilgrim's Pride Corporation had begun developments in the Walker Creek complex, including clearing the project area of trees and underbrush. The rise did not look natural to him, and seemed to resemble several other small and low Late Caddo era mounds recorded in this part of the Big Cypress Creek basin, including 41CP246 and the Tom Hanks (41CP239) mounds in the Walkers and Dry Creek valleys (Figure 8-2), the probable mounds at the Frank Benson site (41TT310, see Perttula and Nelson 2002), and several other mounds in the Lake O' the Pines area downstream along Big Cypress Creek and tributaries.

ARCHEOLOGICAL INVESTIGATIONS IN AREA VII

During Keller's (1998) investigations, a 3 m wide and 14.2 m long trench was cut through the southern part of the mound (Figures 8-3 and 8-4a) using the track hoe, but he concluded that the deposit was a brush pile pushed there in the 1950s and then burned. After cleaning the track hoe trench profile, Keller (1998:5) concluded that:

> The profile provided clear evidence that the elevation was the result of modern cultural activity. Specifically, the elevation was found to be the result of modern brush clearing and burning. The

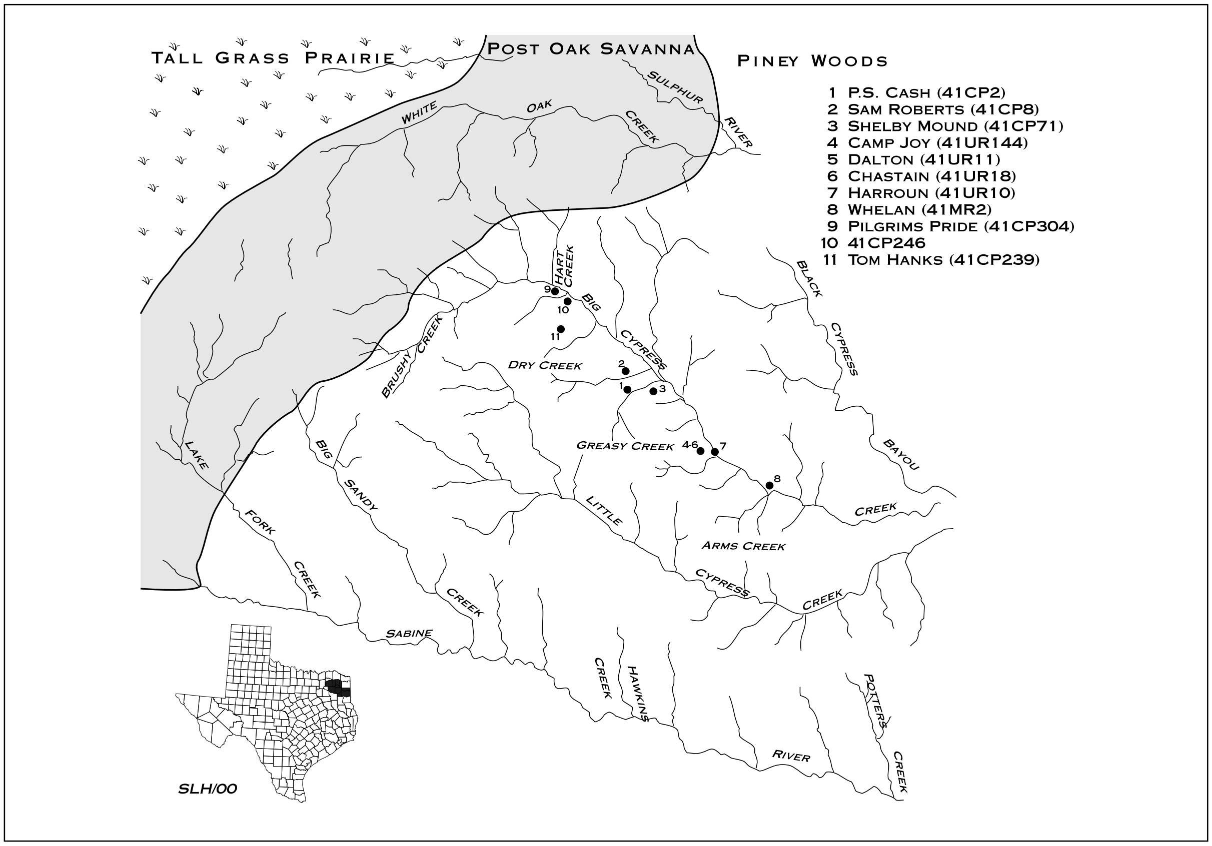


Figure 8-2. Late Caddo Titus phase mounds in the Big Cypress Creek basin of northeastern Texas.

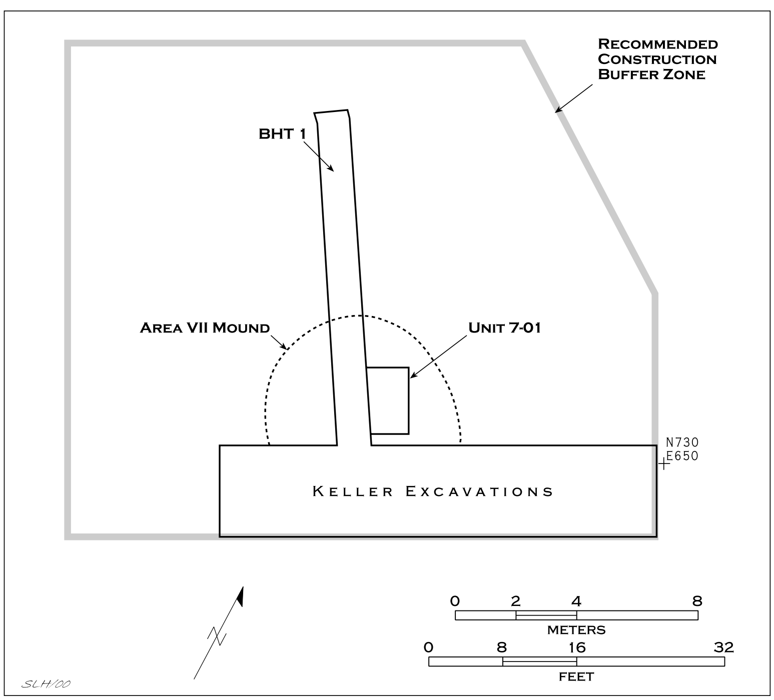


Figure 8-3. Plan of excavations in the Area VII mound at the Pilgrim's Pride mound.

presence of a large void filled with modern tree bark within the disturbed area was the first clue to the elevation's origin. Additional lines of evidence strongly suggesting a modern origin were the presence of soil lamellae in the soils surrounding the disturbance, the absence of such lamellae within the disturbance, and the presence of modern artifacts (i.e., whiteware and glass) within the disturbed area. The presence of brush clearing and burning was well documented by the former landowner, Mrs. Mary Cleamons.

a

b

Figure 8-4. Keller's excavations in the Area VII mound: a, looking west along the track hoe cut; b, cleaned profile along the northern side of the track hoe cut; note dark and light-colored lens in the profile (on either side of the large tree root), and pit at the right side of the profile.

Although Keller (1998) did not provide any detailed descriptions of the profiles in his track hoe cut, when we cleaned the standing profile along the northern side of the track hoe excavations (see Figure 8-4b), the first thing we noticed in the central part of the profile were a series of light and dark-colored lens of sediments. Our detailed cleaning and inspection of the northern profile of the Keller trench showed that there was a discrete lens of distinctively-colored yellow sand buried about 80 cm bs in the mound (Figure 8-5), and this lens did not appear to be either a natural deposit or one created by soil movement in a 1950s-era brush pile; there were dark charcoal-stained sediments above the yellow sand lens (see Figures 8-4b and 8-5). The yellow sand was not similar in color or texture to the A-horizon sediments found elsewhere on the site, and must have been obtained by the Caddo mound-builders from a specific deposit located somewhere else, either on the site or in the near vicinity.

At least one pit could be discerned in the Keller profile that originated from the yellow sand lens (see Figure 8-4b), which by itself indicated that the deposits were not the product of burning a brush pile. Consequently, during the data recovery work in the residential areas, we excavated a 11 m long backhoe trench (BHT 1) perpendicular to Keller's trench (see Figure 8-3) to further investigate the suspected cultural origin of the yellow sand lens.

The profile of the western wall of the backhoe trench indicated that the yellow sand lens (zone 7) was flat-lying and about 4 m in length (Figure 8-6), and of cultural origin; it contained sherds of Ripley Engraved and a few pieces of animal bone, along with charcoal flecks and small amounts of ash. It rested

Figure 8-5. Yellow sand lens (zone 7) in profile of Keller trench and our intersecting backhoe trench; note dark charcoal-stained sediments above the yellow sand lens.

on a buried brown sandy loam E-horizon (zone 8). The deposits above the lens were not disturbed—as would be expected if they were the product of a brush pile—and zones 2 and 3 (see Figure 8-6) were dark grayish-brown to dark reddish-brown deposits of mound fill with significant amounts of charcoal, ash, and some oxidized sand. The mound fill capped the yellow sand lens, and extended only a short distance north of the yellow sand lens, which we believe to be an intentionally-laid house floor deposit. Also exposed in this profile was a pit with a rounded base (Fea. 72), filled with dark brown sandy loam; the pit appears to have originated just above zone 7, perhaps having been dug from an accumulated surface of cultural materials resting atop the zone 7 floor. The pit extended to 120 cm bs, well into the zone 8 E-horizon underneath the structure floor (see Figure 8-6). On the opposite side of the BHT 1 profile, a smaller pit feature (Fea. 73) was defined in the wall profile, originating under Fea. 71 and extending to approximately 110 cm bs. It had a dark brown sandy loam fill, with at least one animal bone noted in the feature fill.

Outside the mound, to the north in the profile, the soil zones appear to be from a deep natural profile of A- and E-horizon sandy loam sediments (zone 8 and 10) overlying an orange clay B-horizon (zone 11 in Figure 8-6).

The eastern wall of the backhoe trench exposed in cross-section a large ash-filled hearth lying about 55-90 cm bs, and an irregular-sized unit (2.6 x 1 m) (Unit 7-01) was excavated adjacent to the backhoe trench (see Figure 8-3) to expose the hearth and any associated features. The hearth (Fea. 71) appears to have been built on the surface of the yellow sand lens or floor, and it was heavily used.

The hearth covers an area approximately 120 x 60 cm in size (Figure 8-7a) at 62 cm bs (where its top is first clearly exposed, although the ash deposits were recognized with some clarity to 55 cm bs), and contains significant deposits of ash, oxidized sand, and charcoal that are a maximum of 40 cm in thickness above the floor it was resting on (Figure 8-8). The ash appears to have accumulated in a basin that was not clay-lined, and the basin itself is marked by oxidized sand deposits. Midden deposits (zone 4B in Figure 8-8)

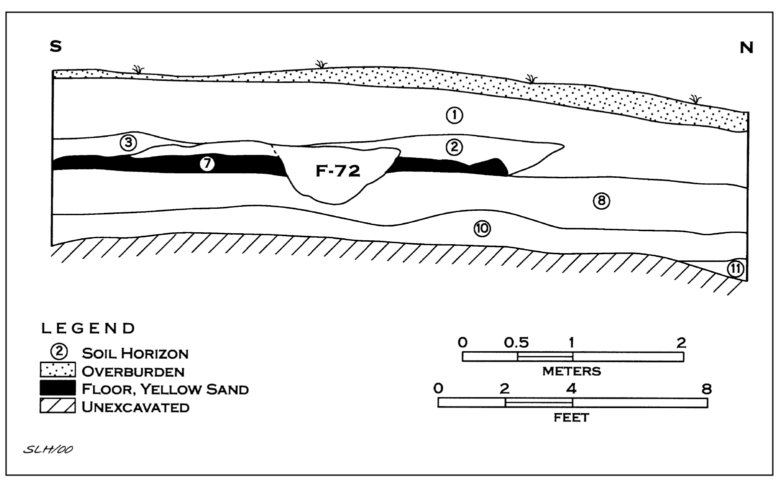


Figure 8-6. Profile of west wall of BHT 1, beginning at the intersection with Keller's track hoe trench.

and a concentration of large pieces of darkened or sooted daub (zone 4C in Figure 8-8) lie to the immediate south of the hearth; most of the bones of a single jack rabbit (see Chapter 10, this volume) were recovered in the midden zone south of the hearth.

Below the hearth and under the yellow sand floor, posts and pits were clearly defined in the buried zone 8 E-horizon sandy loam. These include one support post (Fea. 75), about 28-30 cm in diameter (see Figure 8-7b), that extends to approximately 160 cm bs, more than 70 cm below the house floor; it had a dark brown sandy loam fill. Fea. 76 is a pit about 70 cm in diameter that extends from ca. 80-128 cm bs, and contains ash, charcoal, sherds, and animal bones; it originated underneath zone 7, in an area with some amount of daub and charcoal-stained sediments. The most interesting feature was Fea. 74 (see Figures 8-7b and 8-8), an oblong pit in the central part of Unit 7-01.

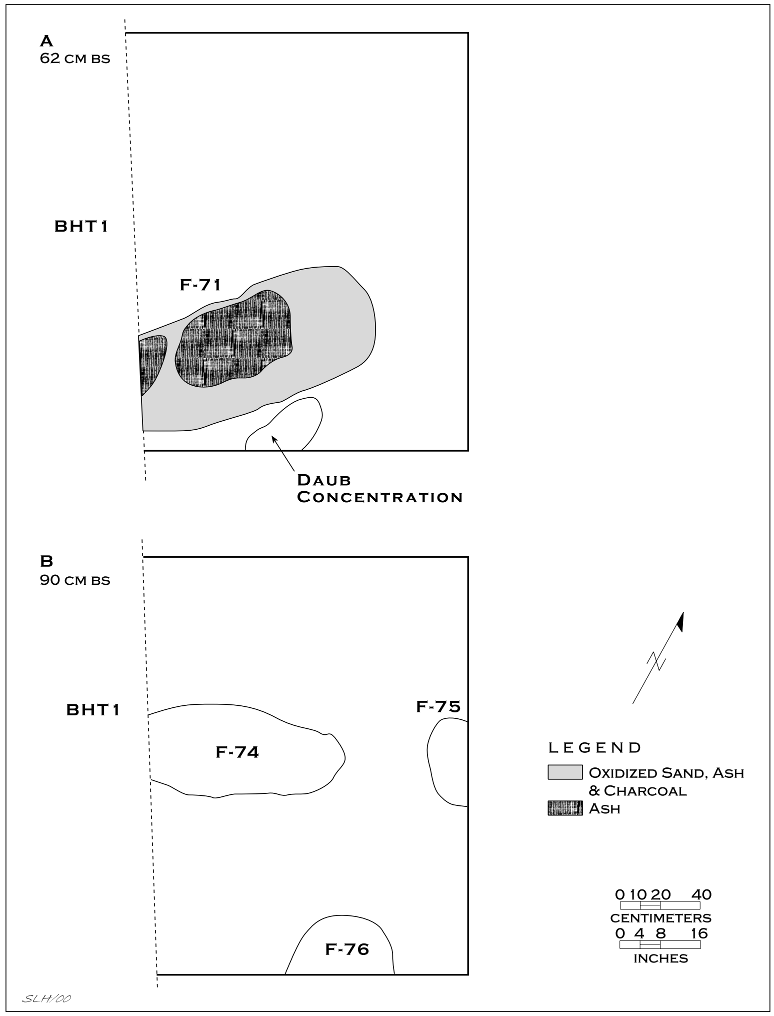


Figure 8-7. Features defined in Unit 7-01, Area VII mound: a, Fea. 71 at 62 cm bs; b, Fea. 74, 75, and 76 at 90 cm bs, underneath the zone 7 floor.

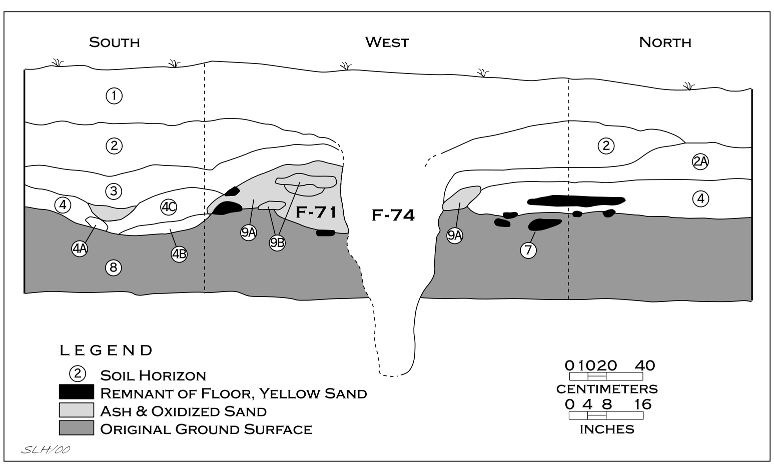


Figure 8-8. Profile of the south, west, and north walls of Unit 7-01; note Fea. 74 post intersecting the Fea. 71 hearth.

There are several zones of mound fill above the yellow sand floor and Fea. 71, including zones 2, 2A, 3, and 4 in Figure 8-8. All have significant amounts of charcoal and ash, particularly zones 2, 2A, and 3. The mound fill is approximately 50-60 cm to 90 cm in thickness overlying the Fea. 71 hearth and the zone 7 floor remnants. The amounts of charcoal and ash in the mound fill suggests that the structure under the mound had been burned after it was abandoned (deposits of ash and charcoal in the top of the Fea. 75 post [zone 5 sediments] suggests the post was pulled prior to the structure being set on fire), but the fire was extinguished by dumping the mound fill over the smoldering fire. The smothering of the fire also darkened the daub pieces that was concentrated near the hearth (possibly part of a clay-lined screen around the hearth?).

In summary, we defined 16 different sediment zones in the Area VII mound excavations, either mound fill zones, discrete feature fills and accumulations of daub and midden deposits, as well as the natural sediments underlying the structure capped by the sand mound (see Figures 8-6 and 8-8). The absence of a buried A-horizon underneath the structure and mound suggests that this horizon was deliberately removed by the Caddo before they laid down the zone 7 structure floor. The zones are as follows:

Mound Sediments

Zone 1, a brown sandy loam with charcoal inclusions
Zone 2, dark brown sandy loam with significant amounts of charcoal pieces
Zone 2a, dark brown sandy loam with significant charcoal chunks and ash; this is a lens that underlies Zone 1, and merges with Zone 2; it is also found underlying Zone 2
Zone 3, dark reddish-brown sandy loam with significant ash and charcoal
Zone 4, dark brown sandy loam with charcoal, but less ash than Zone 3

Discrete cultural deposits within mound, associated with construction and use of a structure

Zone 4A, dark brown sandy loam with charcoal flecks
Zone 4B, black charcoal-stained sandy loam; midden deposits
Zone 4C, mottled dark yellowish-brown sandy loam with significant charcoal concentrations
Zone 7, yellow sand lens, house floor remnants, resting on Zone 8

Feature fills

Zone 5, Fea. 75 fill, a dark brown to black sandy loam with significant amounts of charcoal and some daub noted
Zone 6, Fea. 75 fill, loose dark brown sandy loam
Zone 9A, gray ash, Fea. 71
Zone 9B, grayish-brown ash and oxidized sand, Fea. 71

Natural sediment zones underneath the mound

Zone 8, light brown sandy loam E-horizon
Zone 10, reddish-brown sandy loam; may be the source of the Zone 3 mound fill
Zone 11, orange clay B-horizon, encountered ca. 140 cm bs, and penetrated by Fea. 74 and Fea. 75.

After the structure had been covered by several zones of mound fill gathered in the vicinity of the earthen mound, a large post (Fea. 74) was then excavated by the Late Caddoan period Titus phase people through the mound and the center of the hearth (see Figure 8-8). The post hole had a dark brown to black sandy loam fill with sand and ash lens. The post hole to hold the post or large pole was 80 cm in diameter when first exposed (Figure 8-9), and extended to 170 cm bs, where it had tapered to less than 30 cm in diameter; this is approximately 80 cm below the yellow sand floor. A wood pole about 80 cm in diameter must have stood at least 10-20 feet above the mound.

Historic Caddo rituals concerning the use of tall poles have been discussed by Carter (1995:90-93, 96-99). According to Casanas, who wrote these words in 1691, the Nabedache Caddo erected a pole in their village, and:

> on it hangs a portion of everything they are offering to God. In front of the pole a fire is burning. Near by is a person who looks like a demon. He is the person who offers the incense to God, throwing tobacco and buffalo fat into the fire. The men collect themselves around the blaze; each one takes a handful of smoke and rubs his whole body with it. Each believes that, because of this ceremony, God will grant whatever he may ask—whether it be the death of his enemy or swiftness to run. On other occasions the incense is not offered by burning in this way. In this case a kind of a burned pole is taken and set up by the fire. This pole, and the fat for the incense—which has already been burned—they offer to God.

Whether the Fea. 74 post is an *Itcha kaa-nah* ("that kind of pole" [Carter 1995:92]) is unknown. However, its clear and intimate association with the large ash-filled hearth on the floor of the structure that was burned and covered by an earthen mound indicates that the excavation of the post hole and the erection of the pole in it was part and parcel of the sacred mound construction rituals employed by the Titus phase Caddo peoples at the Pilgrim's Pride site.

Figure 8-9. Fea. 74 cutting through several mound fill zones and Fea. 71, looking west.

AGE OF THE AREA VII MOUND

We knew the Area VII mound at the Pilgrim's Pride site was of Late Caddo Titus phase age because we had found Ripley Engraved sherds in the mound fill and Fea. 71 during the initial profiling of the BHT 1 trench, and numerous Titus phase decorated sherds in the Unit 7-01 excavations. The question was when during the Titus phase occupation at the site was the mound, and the structure it buried, constructed? Were the structure and mound contemporaneous with the residential occupations across the site—and hence was it a significant component in the overall arrangement and planning of the Titus phase community there—or was it built at a time when there was little to no residential use by Caddo peoples?

For that purpose, we first submitted samples of charred *Carya* sp. nutshells and Oak (*Quercus* sp.) wood charcoal from two different contexts in the mound excavations. The charred nutshells were from Fea. 71, the hearth inside the structure buried by the mound, and the Oak wood charcoal came from a concentration of wood charcoal at 70-80 cm bs in Unit 7-01, at or just above the zone 7 floor sediments, and probably part of the burned structure walls that collapsed onto the structure floor when it was set on fire.

The 1 and 2 sigma calibrated age ranges of the two samples are presented in Table 8-1. These indicate that the structure was in use from A.D. 1401-1482, early in the Titus phase, and then set fire sometime after A.D. 1482. The wood charcoal sample (Beta-138851) has intercepts of A.D. 1520, A.D. 1569, and A.D. 1627, with the two earlier intercepts probably the most likely candidates (based on relative probability distributions of the 1 and 2 sigma age ranges) for establishing when the structure was burned. Since it is unlikely that the structure remained standing until A.D. 1569 (some 80 years after the final use of its central hearth), we can further narrow down the temporal candidates among the intercepts to the oldest one: the A.D. 1520 intercept.

Table 8-1. Radiocarbon Dates from the Area VII Mound at the Pilgrim's Pride Site.

Beta #	Provenience	Calibrated Age(s)	Calibrated Age Range, 1 sigma	Calibrated Age Range, 2 sigma	Relative Contribution to to Probabilities
133850	F. 71	A.D. 1436	A.D. 1414-1449		1.00
	Carya nutshell			A.D. 1401-1482	1.00
138851	Unit 7-01,	A.D. 1520,	A.D. 1495-1605		0.83
	70-80 cm	A.D. 1569	A.D. 1613-1636		0.17
	Quercus	A.D. 1627		A.D. 1446-1659	1.00
	wood charcoal				

The A.D. 1520 intercept is still 40 years after the end date of the 2 sigma Fea. 71 calibrated age range (see Table 8-1), still an unreasonable length of time for the structure to have stood in Area VII before it was burned down; the wood would likely have rotted away by then. At 2 sigma, however, the wood charcoal age range begins at A.D. 1446, not long after the calibrated age of the Fea. 71 calibrated date (see Table 8-1). This may be no coincidence, and if not, suggests that the structure use, burning, and burial by the Area VII mound may have all been accomplished in the first half of the 15th century, early in the Titus phase.

A second means we attempted to also help us establish the age of the structure and the Area VII mound was the submittal of 200 g soil samples from zone and feature contexts for OCR dating. We submitted 24 OCR samples from all seven features documented in the excavations and from seven sediment zones, including zone 8 underneath the structure and mound (Table 8-2).

Zone 8 OCR dates range from A.D. 684 to A.D. 1222, and clearly indicate that the sediments underneath the mound had seen pedogenic activity well before either the structure or the overlying earthen mound were used or constructed (see Table 8-2). These sediments—as well as sediments below them (such as zone 10) on the landform—are probably the source of the

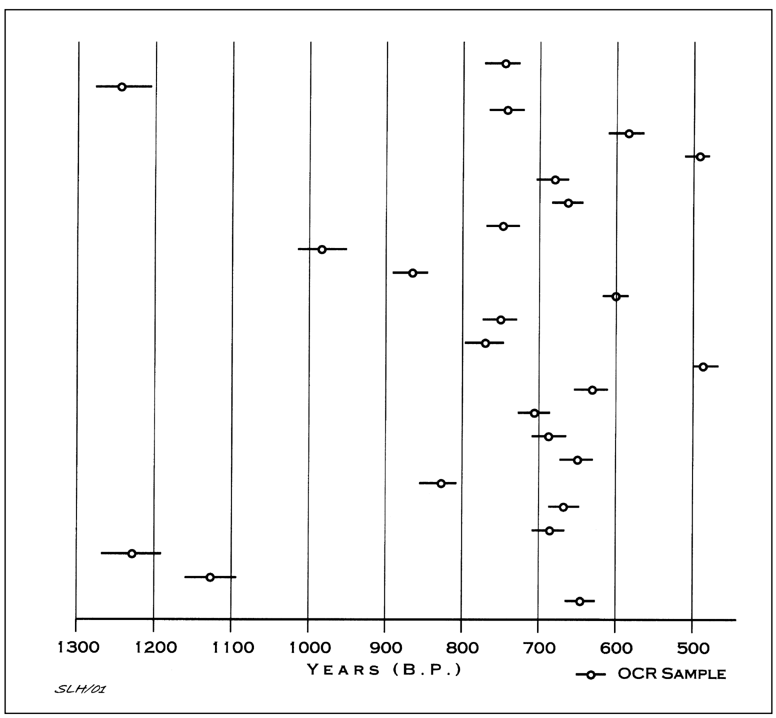


Figure 8-10. OCR dates from the Area VII mound.

Table 8-2. OCR Dates from the Area VII Mound at the Pilgrim's Pride Site (41CP304).

Area	Fea. No./ Zone	OCR Date	SD	Age Range (B.P.)	ACT #
VII	Zone 2	750	22	A.D. 1178-1222	3759
	Zone 2A	664	19	A.D. 1267-1305	3760
	Zone 3	681	20	A.D. 1249-1289	3761
	Zone 4	601	18	A.D. 1331-1367	3756
	Zone 4	743	22	A.D. 1285-1329	3764
	Zone 4	869	26	A.D. 1055-1107	3757
	Zone 4B	496	14	A.D. 1440-1468	3762
	Zone 4B	592	17	A.D. 1341-1375	3763
	Zone 7	987	29	A.D. 934-992	3758
	Zone 7	1127	33	A.D. 790-856	3697
	Zone 7	1243	37	A.D. 670-744	3765
	Zone 8	750	22	A.D. 1178-1222	3766
	Zone 8	1230	36	A.D. 684-756	3698
	F. 71	665	19	A.D. 1266-1304	3747
	F. 71	686	20	A.D. 1244-1284	3746
	F. 72	754	22	A.D. 1174-1218	3755
	F. 72	830	24	A.D. 1096-1144	3748
	F. 73	635	19	A.D. 1296-1334	3752
	F. 74	686	20	A.D. 1244-1284	3750
	F. 75	653	19	A.D. 1278-1316	3749
	F. 76	486	14	A.D. 1450-1478	3753
	F. 76	705	21	A.D. 1224-1266	3751
	F. 76	776	23	A.D. 1151-1197	3754
	F. 77	642	19	A.D. 1289-1327	3696

mound fills in zones 2, 2A, 3, and 4, and thus the OCR dates obtained from those contexts must reflect the age of the sediments where they originated, not their ages when they were deposited atop the burned structure to create the Area VII mound. The zone 2-4 OCR dates range from A.D. 1055-1367 (see Table 8-2), and in fact, most of the OCR dates obtained from the mound excavations fall within that range (Figure 8-10). We can conclude from the zone 2-4 OCR dates that the Area VII mound probably post-dates A.D. 1367, since that is the youngest age for pedogenic activity in the sediments that ended up as mound fill.

Zone 7 OCR dates, taken from the structure floor sediments comprised of a distinctive yellow sand, are also much older than the Titus phase archeological deposits found in and above zone 7 during the excavations. The OCR dates from zone 7 range from A.D. 670-992 (see Table 8-2). These dates are not much different than those from Zone 8, even though the two sediment zones must have come from different sources that probably also had different pedogenic histories.

The most reasonable OCR dates are from Zone 4B, the distinctive and spatially discrete midden deposits found in a few areas that had accumulated on the zone 7 floor and adjacent to the Fea. 71 hearth. These OCR dates range from A.D. 1341-1468 (see Table 8-2), and they partially overlap the previously discussed calibrated radiocarbon dates from the Area VII mound deposits. An OCR date of A.D. 1450-1478 was also obtained from a charcoal-rich fill at the top of Fea. 76 (see Table 8-2), but all the other OCR dates from features are 150 years or more older than their estimated age as based on the calibrated radiocarbon dates and associated Titus phase ceramics.

As with the OCR dates obtained from many of the features in the residential area at the Pilgrim's Pride site (see Chapter 4, this volume), the discrepancy between the OCR dates on features and sediment zones in the Area VII mound and the calibrated radiocarbon ages from cultural deposits in the mound may be accounted for at least in part by the fact that many of the features simply contain the natural (and older) sediments gathered to build the mound, enriched by an occasional sherd, lithic artifact, and some charcoal flecks. That is, the sediments filling the pit features, and comprising the mound sediments, represent the natural sediments on the landform that were dug up when the features and mound fill were excavated by the Caddo. Thus the age of the sediments would more closely approximate the natural pedogenic age of those sediments that were dug up and then placed back in the features and atop the zone 7 floor, more than they would the time when these features and mound fills were actually excavated by the Titus phase Caddo groups that inhabited the site and built the Area VII mound.

However, it is noteworthy that the few OCR samples from contexts with substantial amounts of organic remains in the fill, particularly charcoal stained sediments and zones of charred plant remains, have dates that range from A.D. 1341-1478, with a mean average in range from A.D. 1410-1440, clearly falling in the early part of the Titus phase. The mean age range for the Zone 4B and top of Fea. 76 OCR samples also fall near the radiocarbon calibrated intercept from the Fea. 71 hearth (see Tables 8-1 and 8-2), but at the early end of the 2 sigma calibrated age range for the radiocarbon sample taken just above the zone 7 structure floor.

ARTIFACTS FROM THE AREA VII MOUND

Because of the limited amount of archeological investigations conducted in Area VII, the artifact assemblage from the mound deposits is not large; no artifacts were apparently collected by Keller (1998) during his trenching efforts in the mound. The majority of the artifacts found during our work were pieces of daub from the burned structure, either from the burning of the clay and thatch-covered structure walls, or from clay-lined screens and partitions within the structure itself (Table 8-3). Pieces of daub comprise about 63% of the 807 artifacts from the Area VII mound, followed by plain and decorated sherds at 21%. There are only a few lithic artifacts from the mound excavations, mostly lithic debris, but also including a few chipped stone tools, among them two dart points from contexts that suggest they originated in either the zone 8 or zone 10 deposits underneath the Titus phase structure floor in and immediately above zone 7.

Table 8-3. Artifacts from the Area VII Mound Investigations.

Provenience	LD	Bif	FT	Ochre	DP	Co	PS	DS	Da	BC
Unit 7-01										
0-10 cm	5	–	–	–	–	–	1	–	1	–
10-20 cm	13	1	1	–	–	–	12	7	28	–
20-30 cm	14	–	1	–	–	–	9	7	86	1
30-40 cm	3	–	–	–	–	–	6	3	118	–
40-50 cm	9	–	1	–	–	–	4	6	28	–
50-60 cm	11	–	–	14	–	–	12	7	40	7
60-70 cm	6	–	–	–	–	–	17	4	21	1
70-80 cm	–	–	–	–	–	–	16	9	52	6
80-90 cm	15	–	1	–	–	–	17	10	108*	3
90-100 cm	4	–	–	–	1	1	4	4	14	–
100-105 cm	2	–	–	–	–	–	–	1	–	–
Subtotal	82	1	4	14	1	1	98	58	496	18
BHT 1 profile	1	–	1	–	–	–	3	3	–	–
Fea. 71	2	–	–	–	–	–	7	–	4	–
Fea. 74	2	–	–	–	1	–	–	2	7	–
Fea. 76	–	–	–	–	–	–	1	–	–	–
Totals	87	1	5	14	2	1	109	63	507	18

*includes three pieces of a mud-dauber nest; LD=lithic debris; Bif=biface; FT=flake tool; DP=dart point; Co=core; PS=plain sherd; DS=decorated sherd; Da=daub; BC=burned clay

The highest artifact densities are in the lower part of the mound, particularly between 70-90 cm bs (see Table 8-3). These artifacts were probably discarded inside the structure when it was being occupied and used by an important Caddo individual, since these levels match closely with the deposits associated with, and/or just above, the zone 7 floor sediments. The artifacts found in levels above that, especially those recovered above 50 cm bs (above the top of the ash accumulated in the Fea. 71 hearth), were likely accidentally incorporated in the mound fill from nearby residential deposits used as one of the sources of the mound deposits.

Ceramic Sherds

A total of 172 sherds were recovered from the excavations in the Area VII mound (see Table 8-3).This includes 103 plain body sherds (three from bottles), 54 decorated sherds, five plain rims, nine decorated rim sherds, and one base sherd. The decorated sherds are dominated by fine wares (i.e., engraved and red-slipped burnished and polished vessels), as these comprise 59% of the decorated sherds; utility ware cooking and storage vessels make up the remaining 41% of the Area VII sherds.

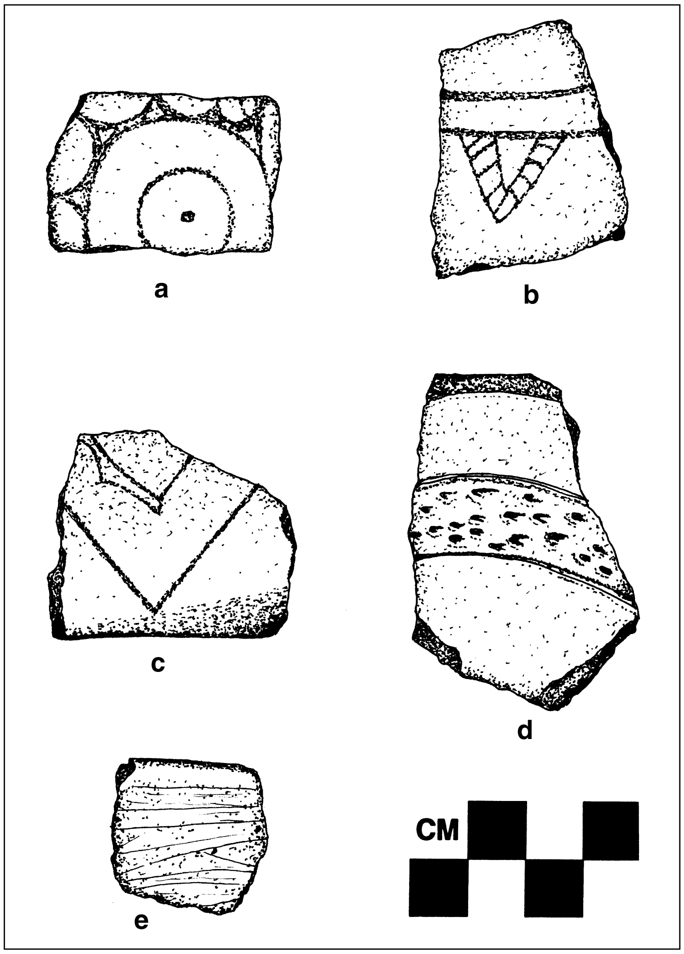


Figure 8-11. Decorated sherds from the Area 7 mound: a, engraved element #24; b, engraved element #13; c, engraved element #47; d, incised-punctated element #4; e, horizontal brushed rim sherd. Provenience: a, Unit 7-01, 40-50 cm; b, backhoe trench backdirt; c, Unit 7-01, 70-80 cm; d, Unit 7-01, 90-100 cm; e, Unit 7-01, 20-30 cm.

The very high percentage of fine ware sherds (Figure 8-11a-c) among the decorated sherds in the assemblage is significantly different from the decorated sherd assemblages in the residential areas at the Pilgrim's Pride site (see Chapter 5, this volume). There, fine wares comprise only between 13.7-33.4% of the decorated sherds. Clearly, the occupants of the structure underneath the Area VII mound had access to more fine wares (and less need for cooking pots?) than did the Caddo peoples living in the Pilgrim's Pride site Titus phase residential areas.

The fine wares here also were composed of plain red-slipped vessel sherds (n=8)—from bowls and carinated bowls—and these account for 21.6% of the fine wares. Plain red-slipped vessels were among the funerary objects in the Area V/VI cemetery (see Chapter 6, this vessel), but they only represent a bit over 2% of the vessels placed with the dead.

The principal engraved elements in the decorated fine wares are scroll motifs from Ripley Engraved carinated bowls (engraved el. #23 and #24, see Figure 8-11a) and sets of parallel engraved lines (el. #5), also probably from scroll motifs on Ripley Engraved vessels. These three engraved elements account for 52% of the engraved sherds. There are another six sherds with sets of horizontal engraved lines along the rim, and immediately under the lip (el. #1 and el. #2).

The less common engraved elements include el. #4 (n=2), el. #14 (n=2), el. #19 (n=1), el. #26 (n=1), el. #28 (n=2), and el. #47 (n=1). Again, these appear to represent portions of scroll motifs seen either on Ripley Engraved carinated bowls or bottles (i.e., el. #28), but el. #47 (see Figure 8-11c) may be from a Ripley Engraved carinated bowl with an alternate nested triangle motif (see Thurmond 1990a:Figure 6h). None of the Ripley Engraved sherds from the Area VII mound have the pendant triangle motif, which is much more commonly seen on Titus phase fine wares made after A.D. 1600 (Perttula 1992; Rogers et al. 2003).

Almost 14% of the engraved sherds from the Area VII mound excavations have either a red or a white pigment smeared in the engraved lines. Another 21% had a red slip on one or both vessel surfaces.

The utility wares are dominated by brushed sherds from cooking jars; they represent 54% of the decorated utility wares. The brushed rims have horizontal brushing on the rim (see Figure 8-11e, brushed el. #3), and there are parallel (probably vertical) brushing marks (brushed el. #1) on 10 sherds. Another brushed sherd (brushed el. #6) has overlapping brushing marks on the body of a jar.

There is also a La Rue Neck Banded rim (n=1) and several sherds with appliqued fillets and nodes (n=3) on jar bodies. Four other utility ware sherds have incised decorations, including two with widely-spaced parallel lines (incised el. #1), one with horizontal incised lines (incised el. #2), and another with apparently diagonal incised lines (incised el. #4). These are probably from Maydelle Incised and Pease Brushed-Incised vessels.

The remainder of the utility ware sherds (n=4) have punctated-incised decorative elements (see Figure 8-11d), with incised zones (either triangular, paneled, or curvilinear) filled with punctations. These too are probably from Maydelle Incised jars.

The ceramics from Area VII are almost exclusively tempered with grog or crushed sherds (Table 8-4). There are a few shell-tempered sherds from vessels that must have been manufactured on the Red River and traded or brought to the Pilgrim's Pride site. The sherds furthermore were overwhelmingly made with a relatively clean clay paste, but about 14-21% of the vessel sherds were made with a naturally sandy clay paste; the highest frequencies of these coarser paste sherds occurs in the plain wares and utility wares. In addition to the primary grog temper inclusion, crushed pieces of burned bone and hematite were also added as aplastics (see Table 8-4). About 2.7-7.6% of the sherds had burned bone as a temper, with higher proportions of bone in the plain wares and utility wares. In the case of hematite, almost 30% of the plain wares have crushed pieces of this lithic material, compared to only 13.5% of the fine wares and 7.7% of the utility wares. Finally, a number of the fine ware sherds from Area VII have noticeable quantities of charred organic materials in the paste (16.2%) (see Table 8-4). This suggests that either the clay selected for the

Table 8-4. Temper Inclusions and Vessel Pastes in the Area VII Ceramics.

Temper/Paste	Plain wares	Utility wares	Fine wares
grog/clay	44.0*	69.0	51.3
grog-organics/clay	4.6	3.8	16.2
grog/sandy paste	16.5	11.5	10.8
grog-hematite/clay	25.7	7.7	10.8
grog-hematite/sandy paste	2.8	–	2.7
grog-hematite-organics/sandy paste	0.9	–	–
grog-bone/clay	4.6	3.8	2.7
grog-bone-organics/clay	0.9	–	–
grog-bone/sandy paste	0.9	3.8	–
shell	0.9	–	5.4
Totals	109	26	37

*percentage

manufacture of the fine ware vessels had not been well-cleaned before it was used for vessel manufacture, leaving pieces of organic materials in the paste, or that the fine ware vessels had not been fired as long, or at the same temperature, as the plain wares and utility wares, and the firing had not been sufficient to burn out all the organic materials in the fine wares. That there are different temper and paste combinations in the Area VII plain ware, utility ware, and fine ware ceramics is likely indicative of the fact that these different temper-paste combinations were probably deliberately selected because of the specific and diverse technological, stylistic, and functional requirements recognized by the Caddo potters for these three wares.

The three wares were also fired differently from each other (Table 8-5). The fine wares were overwhelmingly fired in a reducing environment (72.9%), with most of the vessels then pulled from the fire to cool in a high oxygen environment. Conversely, the plain wares and utility wares were more likely to be fired in an oxidizing environment, with a significant percentage incompletely oxidized during firing (see Table 8-5).

Analysis of the different forms of vessel surface treatment further highlights the different functional and stylistic characteristics of the three wares in the Area VII mound. The burnishing and polishing of vessels is much more abundant in the fine wares than in either the utility wares or plain wares (Table 8-6), although the frequency of burnished and polished sherds in the plain wares indicates that the plain bodies of fine wares were also burnished and/or polished, and such sherds are well represented in the assemblage.

The burnishing and polishing of the interior and exterior surfaces of the fine wares was a means to enhance the appearance of engraved and red-slipped vessels, but served no purpose in the utility wares. In these wares, the principal surface treatment was the smoothing of the interior surface of cooking jars and other kinds of utility ware forms. The smoothing of the interior surfaces of utility wares, along with an overall roughened exterior surface, would have lowered their permeability and increased their heating effectiveness and the ability of the utility wares to better control thermal shock resistance (Perttula et al. 1998:285).

The 14 plain and decorated rims are primarily direct or vertical in orientation (n=11, 79%), with the exception of one everted utility ware rim, and two small rims of uncertain orientation. Lips are rounded (n=11, 79%) or flat (n=3, 21%), and a number of them (n=5) also were folded (or rolled) to the exterior.

Table 8-5. Firing Conditions in the Area VII Ceramics.

Temper/Paste	Plain wares	Utility wares	Fine wares
oxidized	31.5*	40.0	16.2
incompletely oxidized	22.9	20.0	10.8
reduced	21.9	24.0	13.5
reduced, but cooled in the open air	25.7	16.0	59.4
Totals	105	25	37

*percentage

Daub and Burned Clay

Daub and burned clay are abundant in the mound deposits and features (Table 8-7), supporting the notion that the structure buried by the mound sediments had clay and thatch walls, and had been burned

Table 8-6. Surface Treatment in the Area VII Ceramics.

Surface Treatment	Plain wares	Utility wares	Fine wares
int. burnished	16.5*	11.5	45.9
ext. burnished	34.0	–	45.9
int. polished	0.9	–	16.2
ext. polished	5.5	–	21.6
int. smoothed	24.8	46.2	16.2
ext. smoothed	22.9	3.8	21.6
int. scraped	1.8	–	–
ext. scraped	0.9	–	–
Totals	109	26	37

*percentage

before and as it was being capped by the mound. The latter scenario best makes sense of the fact that much of the daub was found well above the structure floor (particularly between 20-60 cm bs); the daub was probably being formed as the structure was burning, and then fell off into the mound sediments as they began to accumulate.

The largest chunks of daub and burned clay were recovered below 70 cm bs in Unit 7-01, near the structure floor. Presumably these pieces fell off the larger timbers and superstructure when they began to burn, and the smaller pieces higher up in the mound came from the walls holding up the roof of the structure. There were also three fragments of mud-dauber nest (2.2 g) near the floor of the burned structure (Unit 7-01, 80-90 cm bs); these must have been attached to one of the walls of the structure at the time it was burned, thus preserving the nests themselves.

Lithic Artifacts

The lithic artifacts from the Area VII mound excavations includes 87 pieces of lithic debris, a core, one bifacial tool fragment, five flake tools, two dart points, and some pieces of hematite/red ochre (see Table 8-3).

The first dart point from the Area VII investigations is the barb of a Middle Archaic Calf Creek point from 90-93 cm bs in Unit 7-01, just below the zone 7 floor sediments. The point was made from a dark brown chert, possible Woodford chert from the Ouachita Mountains and Red River gravel sources. The second is a Late Paleoindian San Patrice point (var. Hope, see Duffield 1963: Figure 4j-n) with a reworked and bifacially chipped scraper bit on the blade. This point was on a local brown chert. The point was found in the deeper fill of Fea. 74 (123-170 cm bs), perhaps put there deliberately, or more likely an accidental inclusion, in the large post, that probably originated in the zone 8 and 10 sediments underneath the Area VII mound. The recovery of these two points in the excavations, as well as other Late Paleoindian and Archaic projectile points in Area VII surface contexts (see Chapter 5, this volume), indicate this part of the site was more commonly used in earlier prehistoric times than most of the rest of the Pilgrim's Pride site.

The bifacial tool fragment is a basal piece to a thin biface (3.1 mm), probably an arrow point preform or a fragmentary arrow point. It was made from a heat-treated novaculite. The expedient flake tools were made from both local quartzite (n=2) and cherts (n=1) as well as probable non-local cherts, namely a dark gray chert (n=2). The latter were recovered from 20-30 cm and 80-90 cm bs. Three of the five flake tools have unilateral use-worn/retouched areas about 18-20 mm in length, and the other two have bilateral use-worn areas between 10-25 mm in effective use length. The latter two expedient tools were on soft

Table 8-7. Daub and Burned Clay from the Area VII Mound.

Depth	Unit 7-01		F. 71		F. 74	
(cm bs)	No.	g	No.	g	No.	g
Daub						
			4	0.8	7	3.9
0-10	1	18.3				
10-20	28	66.1				
20-30	86	177.8				
30-40	118	285.2				
40-50	28	175.0				
50-60	40	192.6				
60-70	21	72.2				
70-80	52	331.3				
80-90	105	379.4				
90-100	14	40.8				
Subtotal	493	1738.7	4	0.8	7	3.9
Burned Clay						
			1	0.2	3	0.1
0-10						
10-20						
20-30						
30-40						
40-50						
50-60	7	16.6				
60-70	2	1.1				
70-80	6	47.6				
80-90	3	104.9				
90-100						
Subtotal	18	170.2	1	0.2	3	0.1

hammer flakes, two others were flake fragments, and the last flake tool (from BHT 1 profile) was on a quartzite hard hammer flake.

The one core is a Ogallala quartzite tested cobble from 90-100 cm bs, below the zone 7 sediments. The lithic debris in the mound deposits includes a wide variety of lithic raw materials of both local and non-local derivation. The principal local raw materials are a coarse-grained quartzite (n=26, 30%), Ogallala quartzite (n=20, 23%), and petrified wood (n=10, 11.5%). Cortical flakes comprise 35-70% of the lithic debris for these three raw materials, and the preponderance of flakes with cortex indicates that these raw materials were initially reduced on site, probably for core and biface preparation knapping. Other lithic debris from local raw materials are hematite (n=1), ferruginous sandstone (n=3), yellowish-red chert (n=1), red chert (n=2), and brown chert (n=1); 75% of these lithic debris pieces are also cortical.

Lithic raw materials of apparently non-local provenance in the Area VII mound are novaculite (n=8), Big Fork chert (n=2, green variety, see Mallouf 1976), claystone/siltstone (n=2), dark brown chert (n=1), grayish-brown chert (n=3), gray chert (n=4), white chert (n=1), and a dark gray chert (n=1). Only 24% of the presumed non-local lithic raw materials have cortical remnants, particularly the Big Fork chert, green variety (two of the three pieces of lithic debris), a good bit less than noted among the local raw materials. These materials were probably brought into the site as blanks or completed tools, and most if not all of the cortex from the cobble sources had already been removed at some other location, probably along the Red River well to the north of the Pilgrim's Pride site, where the gravel sources contain most of these raw materials. About 23% of the Area VII lithic debris is from a probable non-local raw material source, which is a considerably higher proportion than we noted from Titus phase residential contexts (see Chapter 5, this volume). Perhaps the occupants of the structure subsequently buried by the sand mound had preferential access to higher-quality lithic raw materials than did other residences of the site located away from the Area VII mound.

There were also 14 unmodified pieces of hematite/red ochre, weighing 75.2 g, in the 50-60 cm level of the mound deposits. Their purpose or function is unknown, but they were deliberate additions to the mound fill sediments.

Mussel Shells

Because of the well-preserved and rapidly buried condition of the structural and mound deposits in the Pilgrim's Pride mound, there are relatively abundant freshwater mussel shell fragments in these unique and culturally created archeological sediments. The mussel shell fragments were found in the BHT 1 profile, three features (Fea. 71, Fea. 74, and Fea. 76), and in the lower levels (i.e., structure floor contexts) of Unit 7-01 (Table 8-8).

In total, there were 54.2 g of freshwater mussel shell fragments in the Area 7 mound excavations, most being found in the burned house structure buried by the mound deposits; the mussel shells were commonly

Table 8-8. Mussel Shells from the Area VII Mound.

Depth	Unit 7-01	F. 71	F.74	F. 76	BHT 1
		2.5 g	0.5 g	6.7 g	0.3 g
0-10 cm	–				
10-20 cm	0.2 g				
20-30 cm	–				
30-40 cm	–				
40-50 cm	–				
50-60 cm	1.7 g				
60-70 cm	16.4 g				
70-80 cm	11.5 g				
80-90 cm	13.0 g				
90-100 cm	1.3 g				
100-110 cm	0.1 g				
Totals	44.2 g	2.5 g	0.5 g	6.7 g	0.3g

burned as well. The mussel shells include two complete shells (in Fea. 76 and Unit 7-01, 80-90 cm bs) and 19 fragments with identifiable pseudo-cardinal teeth. The preserved mussel shell in the Area VII mound clearly is evidence for the consumption of freshwater mussels by the Titus phase Caddo inhabitants of the Pilgrim's Pride site, and this resource probably served as a tasty supplement to a diet dominated by maize, hickory nut meat and oil, and venison.

Plant and Animal Remains

Wood charcoal and charred *Carya* sp. nutshells were distributed throughout the Area VII mound excavations, including Fea. 71 and Fea. 74. The latter had small amounts of oak wood charcoal and nutshell, while Fea. 71 had a significant amount of nutshell (6.5 g) and a small bit of wood charcoal (porous diffuse hardwood and gum bumelia, see Dering, Chapter 9, this volume). Through the mound deposits, the highest densities by weight of charred plant remains are in the 30-40 cm (7.9 g) and 70-80 cm (17.8 g) levels, suggesting two episodes of structure burning and mound building before the Area VII mound assumed its final shape. The ubiquity of oak wood charcoal from the top to the bottom of the mound deposits further suggests that the wood structure buried below the mound had been built with oak wood logs and posts.

Faunal remains are fairly well preserved in the Area VII mound deposits, particularly in comparison with the archeological deposits in the Titus phase residential areas, and this is likely because of the relatively rapid burial of those deposits by the sand mound fill. Three features (Fea. 71, Fea. 73, and Fea. 74) had fish, large mammal (i.e., deer), and jack rabbit remains among the 40 animal bones recovered during our work, and another 68 animal bones were found in Unit 7-01 (see Schniebs, Chapter 10, this volume). About 75% of the bone came from 70-100 cm bs, just above and/or associated with the zone 7 floor sediments and the zone 4B midden deposits on that floor. The animal species identified in those deposits includes large mammal, jack rabbit, and cottontail rabbit bones.

CONCLUSIONS

Our limited investigations in Area VII at the Pilgrim's Pride site confirmed that the suspicious rise in that area was in fact an earthen mound constructed by Late Caddo Titus phase peoples in the 15th century A.D. The mound was constructed over an important structure that was burned and partially dismantled before the sand mound was erected over it. We do not know what the shape of the structure was that was buried by the mound, because of the very limited investigations we were able to complete here, but based on other structures on and underneath Titus phase mounds, it was likely a circular structure with an extended entranceway (see Chapter 11, this volume). When the mound itself was completed, the final act of mound construction and ritual was the excavation by the Caddo of a large pit that extended from the surface through the center of the central hearth in the now burned and buried structure, and then deep into the subsoil.

The Pilgrim's Pride Corporation has agreed to protect and preserve the Area VII mound within the rendering plant construction area. An approximate 10 m buffer zone around the remaining portions of the mound was recommended where no construction activities would be permitted (see Figure 8-3), and this area has been successfully seeded with grass for landscaping purposes. The excavation areas have been filled in with a sterile red sand and clay mix. It may be necessary for Pilgrim's Pride Corporation to build an concrete embankment along the northern and northeastern side of the buffer zone to limit future erosion, because this area has been already been cut steeply for a road bed encircling the rendering plant area. At the moment, these areas have been well stabilized with a berm of railroad ties.

Chapter 9

Plant Remains from Three Late Caddoan Period Sites in Camp County: Pilgrim's Pride (41CP304), 41CP316, and Shelby Mound (41CP71)

J. Phil Dering

INTRODUCTION

The purpose of this study is to describe macro-botanical remains recovered from three Late Caddoan period (ca. A.D. 1430-1600+) Titus phase sites in Camp County, Texas, particularly from the Pilgrim's Pride site (41CP304). The study also includes plant remains from 41CP316 (see Appendix I, Volume II), and Shelby Mound (41CP71; see Perttula et al. 2004; Dering 2004a, 2004c) on Greasy Creek (another major tributary to Big Cypress Creek, and the site is about 20 km southeast of the Pilgrim's Pride site). We wished to examine in more detail evidence for Caddo plant husbandry and utilization at the three sites in Titus phase times, and if possible, infer local environmental conditions. The data will contribute information regarding the extent of reliance on maize-based agriculture within the western reaches of the Caddoan archeological area, or at least the western reaches of the Titus phase Caddo groups living in the Big Cypress Creek basin.

Site 41CP316 is a small habitation site found during archeological survey investigations (Perttula and Nelson 1998a, 1999a) of the Walker Creek Complex that is located just west of the Pilgrim's Pride site (see Appendix I, Volume II). During construction activities in the Walker Creek complex, a number of pit features of Titus phase age were exposed, and then subsequently excavated during the larger data recovery effort at the Pilgrim's Pride site.

The Shelby Mound site is a large Titus phase village and mound center, one of the main village communities in the Greasy Creek political community (see Chapter 11, this volume; Perttula et al. 2004). It also has extensive habitation deposits distributed between the Shelby mound at the north end of the village and the community cemetery at its southern end. It appears to have been occupied from the 15th century to at least the early 17th century A.D.

The archeobotanical analysis of plant materials from these three sites addresses three research questions pertinent to Caddo subsistence and the recovery of subsistence remains from Caddo sites. These questions have been formulated to assess the nature of the archeobotanical record at the sites, and to address issues of land use during the period that the three Late Caddoan period Titus phase sites were occupied:

1. What is the frequency and abundance of the primary plant resources in the flotation, fine-screen, and coarse-screen samples?

2. How does this data reflect on the importance of these plant resources in Late Caddoan period subsistence?

3. What do the data tell us about local vegetation in the region?

METHODS

A total of 72 flotation samples (totaling 152 liters in pre-processed volume, or 2.1 liters per sample),[1] 40 fine-screen samples from the Keller investigations (see Appendix XIV, Volume II) and 74 1/4-inch or coarse screen samples was examined from the Pilgrim's Pride site (41CP304) (Table 9-1), and two flotation (5 liters, 2.5 liters per sample) and six fine-screen samples were studied from 41CP316. In addition, I scanned 65 coarse-screen samples from the Shelby Mound site (41CP71) for nutshells, seeds, wood charcoal, and maize (Tables 9-2, and 9-3; see also Appendix XV, Volume II).

Table 9-1. Summary of the Plant Remains from the Pilgrim's Pride Site (41CP304).

Area	No. of Features	Taxon	Part	Count	Weight (g)	Sample type*
I	5	Diffuse porous hardwood	Wood	70	2.5	F
	10	Carya sp.	Nut	306	26.7	F
	1	Indeterminate	Wood	6	0.1	F
	7	Zea mays	Cupule	607	5.8	F
	7	Quercus sp.	Wood	136	6.1	F
	2	Salicaceae	Wood	37	0.5	F
	2	Carya sp.	Wood	16	0.5	F
	2	Ilex sp.	Wood	27	0.6	F
	2	Quercus sp.	Acorn	4	0.2	F
I	3	Zea mays	Cupule	5	0.3	FS
	1	Grass	Monocat frag.	84	13.3	FS
	7	Carya sp.	Nut	592	198.6	FS
	8	Indeterminate	Nut	28	0.8	FS
	3	Quercus sp.	Wood	15	0.8	FS
	1	Indeterminate	Wood	2	0.1	FS
	4	Indeterminate hardwood	Wood	18	0.9	FS
I	1	Pinus sp.	Wood	3	0.1	1/4
	2	Salicaceae	Wood	5	0.3	1/4
	18	Carya sp.	Nut	972	80.6	1/4
	9	Quercus sp.	Wood	110	10.4	1/4
Subtotal, Area I: Flotation, Fine Screen and 1/4"				3043	349.2 g	
II	3	Diffuse porous hardwood	Wood	89	10.4	F

Table 9-1. *(Continued)*

Area	No. of Features	Taxon	Part	Count	Weight (g)	Sample type*
II	2	Pinus sp.	Cone	24	14.7	F
	1	Salicaceae	Wood	15	0.2	F
	7	Zea mays	Cupule	437	11.9	F
	2	Zea mays	Kernel	6	0.2	F
	1	Zea mays	Glume	6	0.1	F
	17	Carya sp.	Nut	313	16.6	F
	1	Carya sp.	Wood	13	0.3	F
	12	Quercus sp.	Wood	262	6.6	F
	2	Quercus sp.	Acorn	3	0.2	F
II	11	Carya sp.	Nut	77	8.1	1/4
	8	Quercus sp.	Wood	79	6.5	1/4
Subtotal, Area II: Flotation and 1/4"				1324	75.8 g	
III	11	Zea mays	Cupule	371	4.9	F
	10	Diffuse porous hardwood	Wood	103	4.1	F
	1	Arundinaria gigantea	Culm	25	10.1	F
	2	Diospyros virginia	Wood	21	0.5	F
	1	Bumelia lanuginosa	Wood	4	0.1	F
	1	Salicaceae	Wood	5	0.1	F
	11	Carya sp.	Nut	178	8.4	F
	2	Carya sp.	Wood	12	0.5	F
	5	Quercus sp.	Wood	60	1.1	F
	2	Quercus sp.	Acorn	12	0.2	F
III	4	Carya sp.	Nut	14	0.9	FS
	3	Indeterminate	Nut	11	0.3	FS
	8	Quercus sp.	Wood	69	4.8	FS
	1	Indeterminate	Wood	2	0.1	FS
	1	Indeterminate hardwood	Wood	2	0.1	FS
III	1	Indeterminate hardwood	Wood	6	0.4	1/4
	1	Quercus sp.	Wood	2	0.2	1/4
	1	Carya sp.	Nut	3	0.3	1/4
Subtotal, Area III: Flotation and 1/4"				900	37.1 g	

Table 9-1. *(Continued)*

Area	No. of Features	Taxon	Part	Count	Weight (g)	Sample type*
IV	1	Quercus sp.	Wood	3	0.1	1/4
Subtotal, Area IV: 1/4"				3	0.1 g	
VII	2	Carya sp.	Nut	65	6.6	F
	1	Diffuse porous hardwood	Wood	12	0.1	F
	1	Bumelia lanuginosa	Wood	1	0.1	F
	1	Quercus sp.	Wood	9	0.3	F
	11+	Quercus sp.	Wood	63	26.8	1/4
	1	Diffuse porous hardwood	Wood	22	5.5	1/4
	5	Carya sp.	Nut	17	1.7	1/4
	1	Acer sp.	Wood	3	0.5	1/4
Subtotal, Area VII, Flotation and 1/4"				192	41.6 g	
VIII	1	Indeterminate	Wood	6	0.1	F
	3	Carya sp.	Nut	65	2.3	F
	3	Quercus sp.	Wood	106	7.8	F
	2	Zea mays	Cupule	989	12.2	F
VIII	3	Quercus sp.	Wood	38	3.6	1/4
	2	Indeterminate	Wood	36	5.1	1/4
	4	Carya sp.	Nut	8	0.4	1/4
SUBTOTAL, AREA VIII, Flotation and 1/4"				1248	31.5 g	
IX	1	Carya sp.	Nut	47	2.2	F
	1	Quercus sp.	Wood	9	0.4	F
	1	Indeterminate	Wood	5	0.1	F
	1	Zea mays	Kernel	1	0.1	F
Subtotal, Area IX, Flotation				62	2.8 g	
		Total, All Areas		6772	538.1 g	

* F = flotation sample; FS = fine-screen or 1/16"-inch sample; 1/4= 1/4"-inch sample

Table 9-2. Plant Food Remains from the Shelby Mound Site (41CP71).

Lot	Square	Elev.	Level	Taxon	Part	Count	Weight
2	A	102-101.5	2	Zea mays	Cupule	2	0.1
2	A	102-101.5	2	Carya sp.	Nut	10	1.2
13	A	98.24-97.94	9/10, Segment A	Zea mays	Cupule	3	0.1
13	A	98.24-97.94	9/10, Segment A	Carya sp.	Nut	2	0.2
14	A	97.94	10, Segment A	Carya sp.	Nut	22	2.4
22	B	100-99.5	6	Carya sp.	Nut	1	0.2
25	B	99.5-99.0	7, clay floor	Phaseolus vulgaris	Seed	1	0.1
25	B	99.5-99.0	7. clay floor	Carya sp.	Nut	2	0.3
27	B	98.64-98.55	8. Wedge B	Carya sp.	Nut	3	0.2
32	B	98.32-98.04	9, Wedge B	Zea mays	Cupule	2	0.1
32	B	98.32-98.04	9, Wedge B	Carya sp.	Nut	7	0.3
33	B	98.25-98.03	9, Wedge A	Zea mays	Cupule	1	0.1
34	B	98.03-97.75	9/10, Wedge A	Zea mays	Cupule	2	0.1
34	B	98.03-97.75	9/10, Wedge A	Carya sp.	Nut	3	0.1
35	B	98.04-97.75	9/10, Wedge B	Zea mays	Cupule	1	0.1
35	B	98.04-97.75	9/10, Wedge B	Carya sp.	Nut	5	0.2
47	C	99.5-99.0	7	Carya sp.	Nut	5	0.6
47	C	99.5-99.0	7	Indeterminate	Seed	2	0.3
50	C	99.0-98.5	8, Wedge B	Carya sp.	Nut	24	0.6
51	C	99.0-98.75	8	Carya sp.	Nut	19	0.6
			Total Plant Remains			117	7.9 g

The analysis followed standard archeobotanical laboratory procedures. Each flotation sample is passed through a nested set of screens of 4 mm, 2 mm, and 0.45 mm mesh and examined for charred material, which was then separated for identification. Charred wood caught on the 4 mm and 2 mm mesh screens is separated for weighing, counting, and identification. Carbonized wood from the 4 mm and 2 mm screens (smaller pieces are seldom identifiable) were separated in a grab sample and then identified. The material caught on all of the sieve levels, including the bottom pan, was scanned for floral parts, fruits, and seeds. The carbonized macrobotanical samples collected from excavation screens were sorted and identified. Identification of carbonized wood was accomplished by using the snap technique, examining them at 8 to 45 magnifications with a hand lens or a binocular dissecting microscope, and comparing them to samples in the archeobotanical herbarium at the Department of Anthropology, Texas A&M University, College Station. All seed identifications were made using seed manuals and reference collections at Texas A&M University.

Quantification

In this study, the flotation samples are used to calculate a presence or ubiquity value to describe the quantity of wood and seeds or edible plant parts in the archeological deposits. The *presence or ubiquity*

Table 9-3. Plant Remains from 41CP316.

Lot	Fea.	Taxon	Part	Count	Weight (g)	Liters	Sample Type
3	1	Carya sp.	Nut	11	0.3	–	1/4-inch
2	2	Zea mays	Cupule	3	0.1	3	Flotation
2	2	Carya sp.	Nut	32	1.1	3	Flotation
2	2	Quercus sp.	Wood	17	0.7	3	Flotation
4	2	Carya sp.	Nut	27	2.6	–	1/4-inch
4	2	Quercus sp.	Wood	5	0.4	–	1/4-inch
7	3	Carya sp.	Nut	5	1.7	–	1/4-inch
7	3	Quercus sp.	Wood	17	1.6	–	1/4-inch
6	4	Quercus sp.	Wood	3	0.1	–	1/4-inch
8	5	Carya sp.	Nut	76	13.5	–	1/4-inch
8	5	Zea mays	Kernel	2	0.1	–	1/4-inch
1	6	Quercus sp.	Wood	4	0.2	2	Flotation
1	6	Carya sp.	Nut	12	0.4	2	Flotation
		Total Plant Remains		214	22.8 g		

value is defined as the percentage of *all* analyzed samples in which a particular taxon or plant resource is present. In addition to the maize ubiquity values, I used maize, nutshell, and wood charcoal densities for comparison to the ubiquity values. *Density* is defined as the number or weight of plant parts per unit volume of a flotation sample.

For many reasons, ubiquity measures of plant remains require a sampling strategy that recovers large numbers of samples taken across the geographic expanse of a site. One of the advantages of an ubiquity measure is the fact that it records how widespread a plant resource is across an archeological site. Thus, a high ubiquity value may imply that many households within a village had access to a given plant resource.

It follows that a large number of samples taken from appropriate contexts across a site will provide a more accurate understanding of the intra-site distribution of plant materials than would a small sample. A small sample size will lose the advantage of broad coverage, and weaken the interpretive power of the data. Therefore, both site structure and sample selection will affect inferences made from plant ubiquity values.

Ubiquity is also very sensitive to small sample sizes, and assemblages with fewer than 10 flotation samples suffer from broad swings in percentages. The results are relatively meaningless if, for example, a ubiquity of 50 percent is determined from only four flotation samples (even if those four flotation samples are the only ones available from an archeological site). The vagaries of plant preservation and sample selection bias are best overcome by using relatively large numbers of samples.

Ubiquity measures the extent to which a particular type of plant material is distributed across a site, but it does not measure its abundance. Densities measure abundance, but do not readily account for how widespread the plant material may be. The utilization of both ubiquity and density measures for the archeobotanical analysis should provide a better understanding of the data, allowing for better inferences regarding local plant resource utilization.

RESULTS OF THE PALEOBOTANICAL ANALYSES

Overview of the Archeobotanical Assemblages from the Pilgrim's Pride (41CP304), 41CP316, and Shelby Mound (41CP71) Sites

The assemblage of charred plant remains from the three sites consists of 13 taxa. This includes nine wood types, particularly oak, wild cherry seeds, hickory nuts and oak acorns, and two cultigens, beans and maize (Table 9-4).

All of the flotation, fine-screen, and coarse screen samples from the Pilgrim's Pride site contained identifiable charred plant material (see Table 9-1), with more than 538 g of such material in the overall assemblage. Charred wood occurred in 73.6 percent of all flotation samples, and 81.9 percent contained identifiable fruit or nut parts. Although subsistence remains were abundant, the variety was limited to hickory nutshell, oak acorns, indeterminate nutshell, and maize. The nine wood types are representative of a mixed deciduous hardwood forest (though pine trees must have occurred nearby), and most of the paleobotanical material represents the residue of food processing, heating, and building activities that occurred on the site.

Table 9-5 summarizes the weights of the paleobotanical subsistence remains recovered from the different intra-site areas at the Pilgrim's Pride site. Of the 364.1 g of subsistence plant remains, hickory nutshell accounts for 90 percent by weight, followed by maize (9.8 percent), and a very tiny amount of acorn.

Table 9-4. Plant Taxa Identified in Samples from Shelby Mound (41CP71), Pilgrim's Pride (41CP304), and 41CP316.

Common Name	Scientific Name	Part
Common bean	*Phaseolus vulgaris*	Cotyledon/seed
Giant reed or cane	*Arundinaria gigantea*	Culm/blade
Gum bumelia	*Bumelia lanuginosa*	Wood
Hickory	*Carya* sp.	Wood, nutshell
Holly/yaupon	*Ilex* sp.	Wood
Maize	*Zea mays*	Cupule, kernel
Maple	*Acer sp.*	Wood
Oak	*Quercus* sp.	Wood, acorn
Persimmon, Eastern	*Diospyros virginiana*	Wood
Pine	*Pinus* sp.	Wood, cone
Plum/cherry	*Prunus* sp.	Seed
Walnut	*Juglans* sp.	Wood
Willow/cottonwood	Salicaceae wood type	Wood

Table 9-5. Paleobotanical Subsistence Remains from Areas I-IX at the Pilgrim's Pride Site.

Area	Zea mays*	Carya sp. Nutshell	Indeterminate sp. Nutshell	Quercus sp. Acorn
I	6.1	279.4	0.8	0.2
II	12.2	24.7	0.0	0.2
III	4.9	9.6	0.3	0.2
VII	0.0	8.3	0.0	0.0
VIII	12.2	2.7	0.0	0.0
IX	0.1	2.2	0.0	0.0

*weight in grams

Maize is particularly abundant in features in Area VIII, accounting for 82 percent of the paleobotanical remains there, and is also common in Area II and Area III features. While hickory nutshells are ubiquitous at the Pilgrim's Pride site, they are most abundant in Area I, both in total weight and proportionally, along with Area VII, and hickory nutshells are very common in Areas II and III contexts (see Table 9-5).

As previously mentioned, numerous pieces of wood charcoal, grass, and cane were recovered from features and midden deposits at the Pilgrim's Pride site. Their weights by intra-site area are provided in Table 9-6.

Table 9-6. Wood Charcoal and other Plant Remains from Areas I-IX at The Pilgrim's Pride Site.

	Areas						
Plant Type	I	II	III	IV	VII	VIII	IX
Giant cane	13.3*	0.0	10.1	0.0	0.0	0.0	0.0
Pine, wood	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Pine, cone	0.0	14.7	0.0	0.0	0.0	0.0	0.0
Oak, wood	17.3	13.1	6.1	0.1	27.1	11.4	0.4
Diffuse porous hardwood	2.5	10.4	4.1	0.0	5.6	0.0	0.0
Indeterminate wood	1.1	0.0	0.6	0.0	0.0	5.2	0.1
Willow/cottonwood, wood	0.8	0.2	0.1	0.0	0.0	0.0	0.0
Hickory, wood	0.5	0.3	0.5	0.0	0.0	0.0	0.0
Holly/yaupon wood	0.6	0.0	0.0	0.0	0.0	0.0	0.0
Eastern persimmon, wood	0.0	0.0	0.5	0.0	0.0	0.0	0.0
Maple, wood	0.0	0.0	0.0	0.0	0.5	0.0	0.0
Gum bumelia, wood	0.0	0.0	0.1	0.0	0.1	0.0	0.0

* weight in grams

Oak wood charcoal was prevalent in feature and midden samples across the Pilgrim's Pride site, with lesser amounts of diffuse, porous hardwood charcoal, hickory wood, willow/cottonwood, maple, persimmon, pine, and gum bumelia (see Table 9-6). Large amounts of giant cane were found only in Areas I and III, while the use of pine (wood and cones) was restricted to Areas II and III (see Table 9-6).

The 41CP316 samples yielded a similar assemblage, primarily oak wood, hickory nuts, and some maize cupules (see Table 9-3). The plant assemblage from the Shelby Mound was recovered exclusively from 1/4-inch excavation screens (see Perttula et al. 2004). Despite a bias towards larger fragments, several maize cupules and a common bean fragment were present in the assemblage. As with the other two Titus phase sites, hickory nuts were fairly common in the Shelby Mound samples (see Table 9-2).

Some unusual material was noted in the paleobotanical remains from the three Titus phase sites. The occurrence of *Phaseolus* sp. at the Shelby Mound site is noteworthy because the recovery of the common bean from Caddo sites is rare (see Perttula et al. 1982), most likely due to problems with preservation (Munson et al. 1971). The recovery of numerous charred pine cones from Feature 235 (Figure 9-1) and Feature 231 in Area II at the Pilgrim's Pride site is also unusual; the only other known occurrences of pine cones from Caddo sites in northeastern Texas are two Late Caddo McCurtain phase sites (Rowland Clark, 41RR77, and Pine Cone, 41RR236) on the Red River in Red River County, Texas (Blake 1994; Fritz 1999). The concentration of pine cones in Feature 235 is especially interesting given that the wood charcoal in the feature is comprised only of oak and hickory, not pine, which rules out the incidental introduction of pine cones with fuel wood. Moreover, only one other sample out of the 74 flotation samples from Pilgrim's Pride contained pine wood, but this was from a feature in Area I (see Table 9-6 and Appendix XV, Volume II). Both of the Area II features are smudge pits associated with a Titus phase residential structure location. Analogous features at other Caddo sites often contain charred corn cobs that presumably are the remains of a slow-burning and smoky fire (see Rogers and Perttula 1999, 2004).

The giant reed fragments present in Feature 44 (in Area I) and Feature 395 (Area III) probably represent the remains of discarded structural materials. Feature 44 is a small pit associated with a Titus phase structural location in Area I, while Feature 395 is a smudge pit in an Area III extra-mural midden deposit. Reeds were used extensively in the construction of Caddo storage facilities and housing. For example, the floors of raised storage platforms were composed of reeds, and beds and other secondary furnishings within houses were constructed of reeds (Swanton 1942:148).

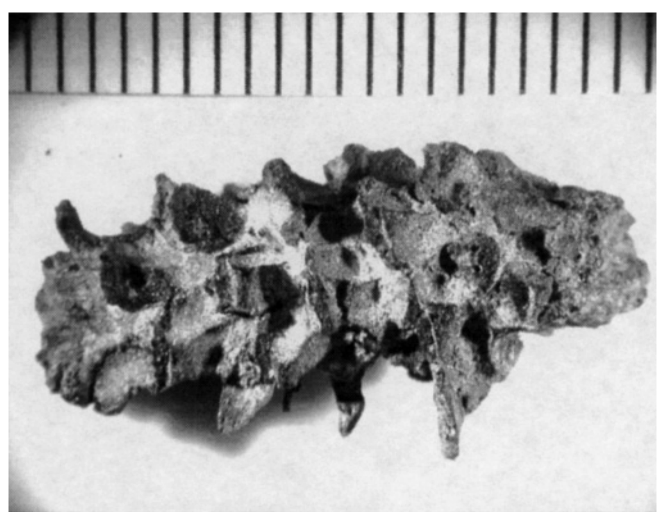


Figure 9-1. Charred pine cone from Feature 235, Pilgrim's Pride site. Scale: each tick equals 1 mm.

Maize

Maize was abundant as well as fairly widespread at the Pilgrim's Pride site. Maize occurred in 41.7 percent of all flotation samples, and a total of 2422 fragments weighing 35.5 g were counted. As previously mentioned, the average density of maize at the Pilgrim's Pride site was 0.15 g per liter, and 15.2 fragments per liter. The plant remains were distributed unevenly among the features in the different residential areas. Of the 72 flotation samples, maize occurred in great abundance in six samples (Table 9-7), and was recovered in smaller amounts in 24 other samples (see Table 9-1).

Table 9-7. Flotation Samples with a High Abundance of Maize at The Pilgrim's Pride Site.

Lot	Feature	Area	Taxon	Part	Weight (g)
794	237	II	Zea mays	Cupule	10.1
792	820	VIII	Zea mays	Cupule	7.7
795	827	VIII	Zea mays	Cupule	4.5
827	395	III	Zea mays	Cupule	3.4
800	114	I	Zea mays	Cupule	2.6
807	1-141	I	Zea mays	Cupule	2.4

The features with the largest amounts of maize appear to be smudge pits with a black charcoal-stained fill; the maize may have been used as fuel (see Chapter 4, this volume). More features within Areas I, II, and VIII—the principal residential areas at the site—contained high concentrations of maize than any other areas at the site. Abundance of maize is particularly notable in Features 237, 820, and 827. No maize was noted in samples from Area VII. In the fine-screen samples, small amounts of maize occurred in Features 39, 50, and 55, all in Area I.

Nutshell Ubiquity and Density at the Pilgrim's Pride Site

Nut fragments closely resembling hickory (or thick-shelled nut fragments) were by far the most abundant of the nut resources in the flotation samples from the Pilgrim's Pride site. Hickory nuts weighing a total of 62.8 g (926 fragments) were recovered from 81.9 percent of the samples. This is 0.41 g per liter or 6.09 fragments per liter. The fine-screen and 1/4-inch samples also contained much nutshell: approximately 1712 nut fragments weighing 243.2 g. Flotation samples with the highest nut weights included Features 71 (Area VII), 1-166 (Area I), 254 (Area II), and 321 (Area III). However, many fine-screen and coarse-screen samples contained greater quantities of nutshell, including Fea. 3, Fea. 1-166, and Fea. 1-210, all in Area I (see Appendix XIV and XV, Volume II).

By contrast, only 8.3 percent of the samples contained small amounts of acorn fragments (see Table 9-1). The quantities were so minute that the material may have been introduced with the oak wood fuel load. Acorns often persist on branches long after they ripen. The use of acorns, however, is much less visible in the archeological record because of the delicate nature of the shell, and because acorn bulk processing is not always associated with heat features (Petruso and Wickens 1984:361).

The abundant nutshell remains reflect an intensive use of forest mast for the rendering of vegetable oil. Hickory nuts were processed by pounding them into fragments and then boiling the pieces in water to dissolve the meat into an oily mass which could then be strained from the shell (Talalay et al. 1984:352). Nut fragments apparently were often recycled as a fuel, for charred nut fragments are quite abundant at archeological sites located within the oak-hickory forests of the eastern United States (see Munson et al. 1971:417).

The widespread and abundant occurrence of nutshells at the Pilgrim's Pride site is an indication that the hickory nut was regularly utilized despite an emphasis on plant production. The vegetable fat and protein rendered from the nuts would provide an excellent complement to maize. In densely populated areas such as the American Bottoms along the Mississippi River near present-day St. Louis, Missouri, nutshell densities decline steadily after the Late Woodland period and during the post-A.D. 900 Mississippian period (Parker 1992:313). For example, in an overview of American Bottoms paleoethnobotany, Johannessen (1984:187) noted that nut-to-wood ratios declined from 2.5:1 during the Archaic period to between 0.4-0.2:1 on archeological sites with evidence of maize-based food production. In a later study in the American Bottoms, Parker (1992:313) also noted that the Mississippian components at the Sponemann site exhibited a nut-to-wood ratio of 0.2:1. These nut-to-wood ratios are a simple measure of the abundance of nut remains relative to the abundance of wood charcoal. When the weight of the nut remains exceeds the weight of wood charcoal, nut-to-wood ratios are greater than 1.0. When the weight of the nut remains is less than the charcoal, nut-to-wood ratios are less than 1.0. In theory, this measure allows for comparison of these two categories of plant remains across several sites in a region, and ultimately across several regions.

In contrast to these sites in the American Bottoms, the nut-to-wood ratio at the Late Caddo Pilgrim's Pride site remained comparatively high at 1.4:1, as determined from the flotation samples. This suggests that hickory nut utilization remained high even in the Late Prehistoric period at most Late Caddo sites. This further implies that the Caddo groups on the western periphery of the Caddoan archeological area (i.e., near and living in the Post Oak Savanna) continued to supplement food production activities with hunting/gathering activities to a greater extent than other larger aboriginal polities in the eastern U.S. Alternatively, the continued high nut-to-wood ratios at the Pilgrim's Pride site may be a result of differences in site structure and regional community organization. For example, hickory nut processing at more complex Mississippian communities may be restricted to outlying communities and the resultant fat, which is virtually invisible in the archeological record, could be shipped in greater quantities to the larger sites for redistribution. Excavation of the larger Mississippian sites to the north and east of the Caddoan archeological area may not detect intensive utilization of hickory nuts.

Wood Resources at the Pilgrim's Pride Site

The charred wood sample suggests the presence of an oak-hickory forest in the immediate vicinity of the Pilgrim's Pride Titus phase village. From flotation, fine-screen, and 1/4-inch samples, wood charcoal was the most abundant of all plant remains, totaling 1500 fragments weighing 109.4 grams. Wood charcoal was present in 73.6 percent of the flotation samples, and approximately 1044 wood fragments weighing 45.8 g were identified; this is 0.3 grams per liter or 6.9 fragments per liter.

Oak was by far the most abundant and widespread of all woods, and 582 fragments, weighing 22.3 g, were present in 40.3 percent of the flotation samples (Table 9-8). A diffuse porous hardwood was noted in 26.4 percent of the samples. Diffuse porous hardwoods are often difficult to identify, and they include

Table 9-8. Wood Ubiquity Values from The Pilgrim's Pride Site.

Diffuse Porous Hardwood	Giant cane	Hickory	Oak	Pine	Willow family	Holly/ yaupon	Indeterminate wood
26.4%	1.4%	6.9%	40.3%	1.4%	5.6%	2.7%	14.9%

many understory types such as dogwood, sweetgum, hawthorns, and wax myrtle. Other wood types were much less widespread, including hickory, which occurred in 6.9 percent of the samples, and willow/cottonwood, which occurred in 5.6 percent of the samples. Other woody material that was recovered in very small quantities included gum bumelia, yaupon, pine, eastern persimmon, and giant cane.

The abundance and ubiquity of oak in the features suggests its widespread use as a fuel. Other woods were not as common, but were probably utilized for specific technological applications. The occasional occurrence of certain wood types suggests their incidental introduction into fires rather than a deliberate selection for fuel. Other structural materials are recycled through hearths, or alternatively, the remains of a burned structure are discarded into pits or trash middens. Discarded tools or the waste generated by tool production could also be discarded into a hearth or midden.

The utilization of many of the wood types in Table 9-8 has been described in ethnohistoric accounts concerning the Caddo Indian peoples. For example, wooden hoes were made of seasoned black walnut (Espinosa 1927:156-157) or perhaps hickory (Swanton 1942:156). Historic documents also note that ritual vessels were fashioned from a "black wood" (Espinosa 1927:161), most likely black walnut. The extensive Caddo utilization of wooden mortars and pestles for food processing is also described in historic documents (Solis 1931:61). Henri Joutel observed in the late 17th century that these mortars were made of tree trunks hollowed out by using hot coals (Foster 1998:221). Gum bumelia, one of the most common and widespread understory shrubs in the eastern half of Texas, bears an edible fruit and exudes an elastic sap that reportedly was utilized as gum by Hispanic populations during the early Historic period in Texas (see Hedrick 1919).

Table 9-9 presents a list of the samples with significantly larger amounts of wood than others. Interestingly, some of the taxa did not occur very frequently in the flotation samples. Large quantities of oak (*Quercus* sp.) are to be expected in the samples; however, giant reed (*Arundinaria gigantea*) was noted in only two of the 72 flotation samples. Because cane was used extensively in the construction of storage facilities and housing, the presence of giant reed in Features 44 and 395 may indicate discarded and burned structural material and/or the presence of structures. For example, the floors of raised storage platforms

Table 9-9. Flotation Samples from Pilgrim's Pride with an Abundance of Wood Charcoal.

Lot	Feature	Area	Taxon	Part	Weight (g)
221	44	I	*Arundinaria gigantea*	Culm	13.3
533	1-210	I	*Quercus* sp.	Wood	10.1
721	254	II	*Quercus* sp.	Wood	10.1
785	809	VIII	*Quercus* sp.	Wood	6.6
790	1-171	I	*Quercus* sp.	Wood	3.0
790	1-171	I	*Ilex* sp.	Wood	2.4
791	828	VIII	*Quercus* sp.	Wood	2.3
801	104	I	Diffuse porous hardwood	Wood	1.7
804	1-167	I	*Quercus* sp.	Wood	1.5
809	219	II	*Quercus* sp.	Wood	1.1
810	204	II	Diffuse porous hardwood	Wood	1.0

were composed of cane, and beds and other secondary furnishings within houses were constructed of cane or "reeds" (Swanton 1942:148).

Ethnohistoric records noted that persimmon was one component of Caddo "orchards" (Swanton 1942:132), but persimmon was certainly available in the forests of the region. Oak wood, most common at the Pilgrim's Pride site, was recovered from several post molds at the Oak Hill Village site (41RK214), and by inference may have been utilized for upright posts in structures (Dering 1999, 2004b; Rogers and Perttula 1999, 2004).

As in the flotation samples, oak dominated the assemblage from the fine-screen and coarse-screen samples. A very small amount of pine wood and willow wood was identified from Feature 1-171, and a very small amount of maple wood came from Area VII. Otherwise, species abundance was quite limited in the screen samples.

SHELBY MOUND (41CP71) AND 41CP316

by Phil Dering and Timothy K. Perttula

The Shelby Mound (41CP71) is part of a large Late Caddoan period Titus phase village or community on Greasy Creek, about 20 km southeast of the Pilgrim's Pride site (Perttula et al. 2004). The mound itself lies at the northern edge of the village, with a very large cemetery (called the Tracy site) at the southern end of the community (Figure 9-2).

Limited excavations were conducted in the mound in the 1980s by Robert L. Turner, Jr. of Pittsburg, Texas, and he kindly allowed us to examine the heretofore unstudied plant remains from this important Titus phase site (see also Dering 2004a, 2004c). Two 10 x 10 foot units were excavated in the mound (Figure 9-3), and we examined the plant remains from the easternmost unit, which was divided into four 5 x 5 foot squares labeled A-D. The units were excavated in 0.5 foot levels, beginning with level 1. This had a bottom elevation of 102.0 ft, and level 2 had a bottom elevation of 101.5 ft., etc.

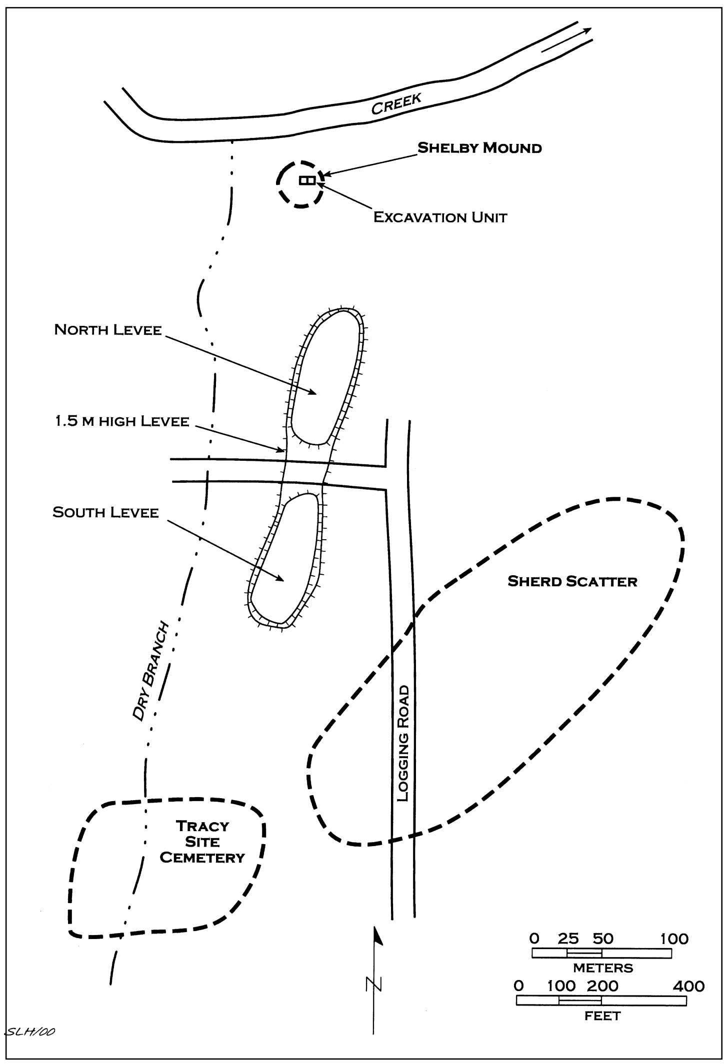


Figure 9-2. Map of the Shelby Mound and Tracy Site (41CP71) on Greasy Creek.

The mound was built with dirt and midden refuse collected from the adjoining village deposits. Available calibrated radiocarbon dates from the Shelby Mound are A.D. 1465-1631 (98.85-98.55 ft. elevation, or about 3.5-4.0 ft. below the top of the mound) from a burned structure in the mound and A.D. 1322-1449 (98.50-98.04 ft. elevation) from lower mound deposits (Perttula and Nelson 2001: Table 3; Perttula et al. 2004).

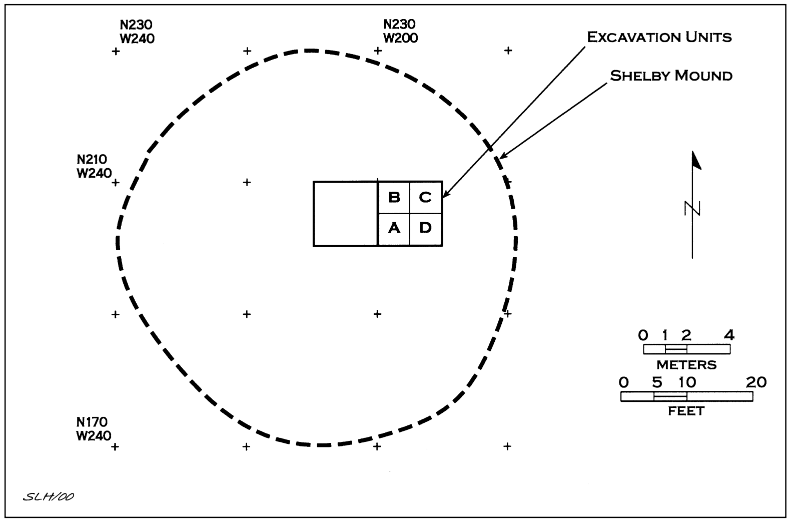


Figure 9-3. Plan Map of the Shelby Mound and Turner Excavation Units.

From the Titus phase deposits in the Shelby Mound, 65 point or 1/4-inch screen-collected samples were scanned for plant material. A total of 10 taxa were identified in the samples (Table 9-10). Cultigens included maize and common bean. Woody taxa included maple, hickory, oak, willow, elm, and pine.

Counts and weights from all samples are recorded in Table 9-2, except for the wood and cane remains to be discussed below. The most common material identified in the samples was wood charcoal, which accounted for 3156 fragments weighing 552.9 grams.

Twelve samples contained hickory nutshell (n=103 fragments weighing 6.9 g). No pecan or acorn fragments were noted in the plant material. Hickory nuts occurred in 18.5 percent of the samples from Squares A, B, and C. Hickory was not very abundant relative to samples recovered from many other Caddo sites in northeastern Texas, but this may be due to recovery bias from the use of large screens. The size of the nutshell and wood fragments suggests that the samples were recovered from coarse excavation screens (1/4-inch), which we happen to know is the case.

Table 9-10. Plant Taxa Identified in Samples from the Shelby Mound (41CP71).

Taxon	Common Name	Plant Part
Acer sp.	Maple	Wood
Arundinaria gigantea	Giant Cane	Cane, culm
Carya sp.	Hickory	Nut, Wood
Indeterminate Hardwood	–	Wood
Phaseolus vulgaris	Common bean	Seed
Pinus sp.	Pine	Wood
Quercus sp.	Oak	Wood
Salix sp.	Willow	Wood
Ulmus sp.	Elm	Wood
Zea mays	Maize	Cupule

Maize cupules weighing 0.6 grams were recovered from six of the samples (see Table 9-2), despite the fact that the material was recovered from coarse screens. Although such a low yield from a Late Caddoan period site may imply a different subsistence regime than documented at the contemporaneous Pilgrim's Pride and Steck (41WD529) Titus phase sites, the excavation and recovery method—coarse-screen collection rather than flotation—almost certainly affected the outcome of the

Figure 9-4. Fragment of charred *Phaseolus vulgaris* cotyledon recovered from 41CP71. Scale: each tick equals 1 mm.

analysis. The single bean fragment was recovered from a clay layer or house floor in Level 7 of Square B. It consisted of about one-half of a cotyledon fragment, or one-quarter of an entire seed. Nevertheless, the material is clearly recognizable as a charred fragment of a common bean (Figure 9-4).

The wood charcoal assemblage from the Shelby Mound site (41CP71) screen samples was comprised of six wood types. If one can assume that the screen samples are somewhat representative of the site wood assemblage, then oak was the most abundant and widespread of the wood types (n=1764 fragments, weighing 283.4 g) (Table 9-11). Interestingly, hickory wood was the second most abundant wood type (n=975 fragments, weighing 210.5 g), an unusual situation for samples that I have examined from Caddo sites in northeastern Texas. Another Titus phase site, the Camp Joy Mound (41UR144) also contained large amounts of hickory wood charcoal (Dering 2001). Pine wood was also fairly widespread and abundant (n=128 fragments, weighing 16.6 g), occurring in nine of the samples (see Table 9-11).

Other woods or plant materials commonly utilized as structural elements include willow wood and giant cane. Giant cane occurred in four samples, one from Square A and three from Square C. All three samples of giant cane in Square C occurred in different levels and did not appear to comprise a concentration of material. Willow wood was fairly common, and 107 fragments weighing 14.7 g were noted from a total of seven samples. A sample labeled post mold from Square A, level 98.3 (see Table 9-11, lot 12) contained two wood types, oak and hickory. This may represent remains of charred wood that fell into the mold after the post was removed, rather than a post.

One of the flotation samples and one of the coarse-screen-collected samples from Titus phase deposits at 41CP316 contained maize (see Table 9-3). Both flotation samples and all six screen samples (see Appendix I, Volume II) contained hickory nutshell, which was abundant and widespread in the features. No acorn fragments and no other seeds were noted in the samples, but oak wood charcoal was present in four of the features (see Table 9-3).

The flotation sample size from 41CP316 is far too small to apply ubiquity values. The data, however, are reasonably consistent with the larger sample from the nearby Pilgrim's Pride site.

Maize Ubiquity in Caddo Sites in Northeastern Texas and at the Pilgrim's Pride site (41CP304)

Because most of the flotation samples were processed from the Pilgrim's Pride site, this site figures most prominently in quantitative assessments and comparisons to other prehistoric sites in northeastern

Table 9-11. Wood and Cane Remains from Shelby Mound (41CP71).

Lot	Square	Elev.	Level	Taxon	Part	Count	Weight
1	A	102.5-102	1	Quercus sp.	Wood	21	6.1
2	A	102-101.5	2	Quercus sp.	Wood	87	26.7
3	A	101.5-101	3	Pinus sp.	Wood	2	0.1
				Ulmus sp.	Wood	57	12.1
4	A	101-100.5	4	Carya sp.	Wood	7	0.8
				Quercus sp.	Wood	42	27.6
				Salix sp.	Wood	3	0.2
5	A	100.5-100	5	Carya sp.	Wood	29	5.1
				Indeterminate Hardwood	Wood	12	0.9
				Quercus sp.	Wood	183	32.1
6	A	100-99.5	6	Carya sp.	Wood	12	2.0
				Pinus sp.	Wood	3	0.5
				Quercus sp.	Wood	152	12.6
7	A	99.5-99	7	Arundinaria gigantea	Culm	1	0.2
8	A	99.5-99	7, clay floor	Carya sp.	Wood	48	12.1
				Quercus sp.	Wood	28	4.4
9	A	99-98.83	8	Quercus sp.	Wood	72	6.3
64	A	99.0-98.5	8	Quercus sp.	Wood	8	0.3
10	A	98.73-98.5	8	Pinus sp.	Wood	7	0.2
				Quercus sp.	Wood	48	9.1
11	A	98.47-98.24	9	Carya sp.	Wood	14	2.1
				Quercus sp.	Wood	37	7.4
12	A	98.3	9, post mold	Carya sp.	Wood	28	1.4
				Quercus sp.	Wood	14	1.8
13	A	98.24-97.94	9/10	Carya sp.	Wood	2	0.1
				Pinus sp.	Wood	13	1.7
				Quercus sp.	Wood	49	4.0
14	A	97.94-97.8	10	Pinus sp.	Wood	4	0.7
				Quercus sp.	Wood	5	0.9
15	A	97.8-97.54	10	Carya sp.	Wood	17	3.8
16	A	97.54-97.25	10/11	Quercus sp.	Wood	15	2.4
17	B	102.5-102	1	Carya sp.	Wood	92	14.5
18	B	102-101.5	2	Carya sp.	Wood	117	20.5
19	B	101.5-101	3	Carya sp.	Wood	60	10.5
20	B	101-100.5	4	Carya sp.	Wood	164	28.6
21	B	100.5-100	5	Carya sp.	Wood	79	12.6

Table 9-11. *(Continued)*

Lot	Square	Elev.	Level	Taxon	Part	Count	Weight
22	B	100-99.5	6	Pinus sp.	Wood	2	0.2
				Quercus sp.	Wood	79	4.6
				Salix sp.	Wood	9	0.8
23	B	99.5-99.0	7	Salix sp.	Wood	9	0.9
24	B	99.0	7	Indeterminate hardwood	Wood	4	0.7
25	B	99.0	7	Carya sp.	Wood	3	0.2
				Pinus sp.	Wood	4	0.4
26	B	98.75	8	Carya sp.	Wood	27	3.2
27	B	98.64-98.55	8	Pinus sp.	Wood	3	0.2
				Quercus sp.	Wood	15	0.9
28	B	98.64	8	Carya sp.	Wood	38	5.8
29	B	98.5	8, Wedge A	Salix sp.	Wood	15	2.3
30	B	98.5-98.25	9, Wedge A	Indeterminate hardwood	Wood	7	0.6
31	B	98.5-98.32	9, Wedge B	Carya sp.	Wood	29	4.3
32	B	98.32-98.04	9, Wedge B	Acer sp.	Wood	1	0.1
				Pinus sp.	Wood	7	0.2
				Quercus sp.	Wood	51	2.9
33	B	98.25-98.03	9, Wedge A	Pinus sp.	Wood	1	0.1
				Quercus sp.	Wood	43	2.7
34	B	98.03-97.75	9/10, Wedge A	Carya sp.	Wood	1	0.1
				Quercus sp.	Wood	10	1.1
35	B	98.04-97.75	9/10, Wedge B	Carya sp.	Wood	2	0.2
				Pinus sp.	Wood	11	0.7
				Quercus sp.	Wood	18	1.2
36	B	97.76-97.56	10, Wedge B	Salix sp.	Wood	31	3.9
37	B	97.75-97.52	10	Carya sp.	Wood	29	5.1
65	B	97.75-97.52	10, Wedge A, post mold	Quercus sp.	Wood	9	2.9
38	B	97.5-97.0	11, Wedge B	Carya sp.	Wood	8	1.9
39	B	97.52-97.2	10/11, Wedge A	Quercus sp.	Wood	26	3.9
40	B	97.28-97.08	11, Wedges A-B	Carya sp.	Wood	7	1.2
41	C	102.5-102	1	Indeterminate hardwood	Wood	24	2.6
42	C	102-101.5	2	Quercus sp.	Wood	28	4.2
44	C	101-100.5	4	Carya sp.	Wood	61	7.6
				Carya sp.	Wood	5	2.5

Table 9-11. *(Continued)*

Lot	Square	Elev.	Level	Taxon	Part	Count	Weight
45	C	100.5-100	5	Arundinaria gigantea	Culm	4	0.3
				Quercus sp.	Wood	53	9.3
				Ulmus sp.	Wood	27	3.6
46	C	100-99.5	6	Arundinaria gigantea	Culm	5	0.6
				Carya sp.	Wood	9	5.5
				Indeterminate Hardwood	Wood	23	4.1
				Salix sp.	Wood	13	2.3
47	C	99.5-99.0	7	Carya sp.	Wood	23	2.4
				Quercus sp.	Wood	17	1.5
48	C	99.0-98.5	8	Indeterminate hardwood	Wood	2	0.2
49	C	99.0-98.5	8, to bottom of level	Arundinaria gigantea	Culm	7	1.1
50	C	99.0-98.5	8, Wedge B	Carya sp.	Wood	2	0.1
				Pinus sp.	Wood	2	0.1
51	C	99.0-98.5	8	Pinus sp.	Wood	4	0.3
52	D	102.5-102	1	Quercus sp.	Wood	32	5.6
53	D	102-101.5	2	Quercus sp.	Wood	92	16.9
54	D	101.5-101	3	Quercus sp.	Wood	37	5.8
55	D	101-100.5	4	Pinus sp.	Wood	40	6.8
				Quercus sp.	Wood	109	19.1
56	D	100.5-100	5	Carya sp.	Wood	23	3.0
				Indeterminate Hardwood	Wood	19	2.4
				Quercus sp.	Wood	49	7.2
57	D	100.0	5, on floor	Indeterminate Hardwood	Wood	2	0.1
58	D	100-99.5	6	Quercus sp.	Wood	113	15.8
59	D	99.5-99.0	7	Quercus sp.	Wood	133	22.0
60	D	99.5-99.0	7, under sterile sand	Indeterminate Hardwood	Wood	1	0.1
61	D	99.0-98.5	8	Carya sp.	Wood	22	2.3
				Pinus sp.	Wood	25	4.4
				Quercus sp.	Wood	12	2.1
62	D	99.0-98.5	8	Carya sp.	Wood	22	3.8
				Quercus sp.	Wood	72	9.5
				Salix sp.	Wood	27	4.3
63	D	99.5-99.0	7, from clay fill	Indeterminate Hardwood	Wood	3	0.2

Texas. Three major plant resources were identified at the Pilgrim's Pride site: acorns, hickory nuts, and maize. Maize ubiquity is commonly used as an indication of dependence on agriculture at an archeological site or for a region or time period. However, maize ubiquity is an imperfect measure for the degree of economic dependence upon plant production, and should be considered as corroborative evidence along with other proxy data sources (i.e., stable carbon isotopic composition of skeletal remains, caries frequencies in teeth, etc.). It is, however, an important indicator of plant production, and complements both technological and bioarcheological data sets.

Plant resource ubiquity values from the Pilgrim's Pride site are presented together with several other Caddo sites in Table 9-12. Hickory nutshell was somewhat more widespread than maize at the Pilgrim's Pride site, but maize did occur in 41.7 percent of the flotation samples, 7.5 percent of the fine-screen samples, and 45.3 percent of the features contained maize. By residential area, ubiquity values ranged from 16.7 percent (Area VIII) to 64.7 percent (Area III).

Table 9-12. Ubiquity Values of Selected Plant Resources from Caddo Sites in Northeastern Texas. The Pilgrim's Pride Site Results Are Highlighted.

Site	Time Period	N	Hickory*	Acorn*	Sumpweed*	Goosefoot*	Maize*
Hurricane Hill	Woodland	42	93.0	0.0	0.0	0.0	2.4
Ray	Woodland-Early Caddoan	20	55.0	20.0	0.0	0.0	15.0
Tick	Early Caddoan	7	85.7	0.0	0.0	0.0	0.0
Spike	Early Caddoan	26	69.2	3.8	0.0	3.8	0.0
Doctors Creek	Early Caddooan	26	100.0	71.4	14.3	9.5	19.1
Thomas	Early Caddoan	41	100.0	76.9	7.7	23.1	7.7
Hurricane Hill	Early Caddoan	96	89.6	0.0	0.0	0.0	14.6
Lawson	Early Caddoan	9	100.0	50.0	0.0	0.0	0.0
Spoonbill I	Early Caddoan	2	100.0	100.0	50**	0.0	50.0
Taddlock	Early Caddoan	24	100.0	100.0	0.0	0.0	100.0
Spider Knoll	Early-Middle Caddoan	26	61.5	0.0	11.5	0.0	7.7
Hudnall-Pirtle	Early-Middle Caddoan	18	61.1	55.6	0.0	0.0	44.4
Spoonbill II	Middle Caddoan	4	75.0	75.0	0.0	25.0	100.0
Hurricane Hill	Middle Caddoan	125	92.8	0.0	0.0	0.0	9.7
Oak Hill	Middle Caddoan	175	77.7	21.1	0.0	2.3	57.7
Roitsch	Middle-Late Caddoan	17	76.5	35.3	0.0	23.5	47.0
Pilgrim's Pride	**Late Caddoan**	**72**	**66.7**	**8.3**	**0.0**	**0.0**	**41.7**
Steck	Late Caddoan	30	100.0	73.0	0.0	0.0	100.0
Peerless Bottoms	Late Caddoan	31	100.0	3.2	0.0	0.0	3.2

* Percentage

** One seed reported to be *Iva annua* var. *macrocarpa*, but the rest are wild type *Iva annua*

Given the vagaries of preservation at upland sites in the region, the 41.7 percent ubiquity value is fairly high. The list of 19 sites in Table 9-12 provides a growing overview of the variation of resource use among Caddo sites on the western periphery of the Caddoan archeological area. Along this western periphery, maize ubiquity values at Caddo sites exhibits wide variation from one area and site to the next. This variation appears to increase through time. Early Caddoan period sites with larger numbers of flotation samples generally have maize ubiquity values that vary from 0-19 percent. Other Early Caddo sites with maize include the Osborn (41WD73) and Grimes (41WD503) sites (see Bruseth and Perttula 1981), but these sites are represented by fewer than five flotation samples.

Along the western periphery of the Caddoan archeological area—in the Post Oak Savanna and Pineywoods of Northeastern Texas—maize ubiquity values at Caddo sites are quite variable from one site to the next. Many Late Caddoan period sites tend to have higher maize ubiquity values than earlier Caddo sites. The presence of cultigens does increase at some Middle Caddoan period sites, but variation among the sites also increases. For example, during the Early to Middle Caddoan period, maize ubiquity varies from 9.7 percent at the Hurricane Hill site (41HP106) to 100 percent at the Spoonbill site (41WD109). One well-sampled Middle Caddo site, Oak Hill Village (41RK214), has a maize ubiquity of 57.7 percent. Another Middle Caddo site with maize is the Hines (41WD450) site (Bruseth and Perttula 1981). However, the site has only one flotation sample, and is not included in Table 9-12.

The maize ubiquity for the Pilgrim's Pride site, 41.7 percent, is lower than the contemporaneous Titus phase Steck site (100 percent), as well as intermediate between the Middle Caddo (ca. A.D. 1150-1400) Oak Hill site (41RK214) and the Late Caddo Peerless Bottoms site (41HP175); this 15th century site contained very little maize. In addition, two Titus phase sites in the Lake Fork Creek drainage, Killebrew (41WD495) and Gilbreath (41WD538) contained only traces of maize. However, only two flotation samples have been processed from each of these sites (see Bruseth and Perttula 1981).

It is clear, however, that plant production was fairly significant at the Pilgrim's Pride site. Is it possible to interpret varying degrees of agricultural dependence from these variable ubiquity values? Stated differently, at what point does the data indicate a significant investment in—hence reliance on—agriculture at a particular site? Assuming that each site was adequately covered by sample selection, maize ubiquity data indicate that the Oak Hill site (Middle Caddoan period), the Pilgrim's Pride site (Late Caddoan period), and the Steck site (Late Caddoan period) in the Sabine River and Big Cypress Creek basins have maize ubiquity values sufficiently high to suggest a significant investment in plant production. By contrast, the Late Caddo Peerless Bottoms site in the upper Sulphur River basin has a maize ubiquity of only 3.2 percent, suggesting that even though maize was present, it was not processed or utilized intensively at this settlement. Ubiquity figures suggest that the general trend through time is an increase in maize production from Woodland and Early Caddoan period sites to Late Caddoan period sites (the stable isotope data summarized by Perttula [1996:321] documents a similar trend in bioarcheological remains). However, there is great spatial variation among sites of the same time period, suggesting that adaptive strategies remained variable throughout the entire prehistoric Caddo occupation of northeastern Texas.

SUMMARY AND CONCLUSIONS

Analysis of plant materials from three Late Caddoan period Titus phase sites, Pilgrim's Pride (41CP304), 41CP316, and Shelby Mound (41CP71), has produced evidence of food production in the form of maize and common bean. The presence of common bean in a sample from the Shelby Mound is noteworthy. Although the importance of beans may be inferred from the Caddo ethnohistoric record (e.g., Swanton

1942), they are seldom observed in archeological deposits from Caddo sites in Northeast Texas (the contemporaneous Steck site in Wood County has common bean; see Perttula et al. 1982).

Charred plant material was abundant in most of the samples from the Pilgrim's Pride site. Wood charcoal averaged 0.3 grams/liter, nutshell averaged 0.41 grams/liter, and maize averaged 0.15 grams/liter in the flotation samples. Although maize was present in 41.7 percent of the flotation samples, the nut-to-wood ratio at the Pilgrim's Pride site was 1.4:1, a fairly high figure for post-A.D. 1400 Eastern Woodlands sites. The implication is that nutshell collection and processing remained fairly important throughout Late Caddoan period times. Nevertheless, maize ubiquity and abundance suggests a fairly strong emphasis on food production at the Pilgrim's Pride site. The flotation and coarse-screen samples from 41CP316 and the Shelby Mound site also suggest that maize was also utilized at these Titus phase settlements, but the recovery methods at Shelby Mound, and the small flotation sample size from 41CP316, prevent detailed subsistence inferences from being made. Late Caddo settlements in the area clearly relied on maize-based food production as a major source of subsistence, but were not as heavily invested in plant food production as some of the much larger regional settlements to the north and east in this part of the Caddoan archeological area.

The paleobotanical data from the Pilgrim's Pride site contribute to a growing body of information on prehistoric and early historic Caddo subsistence. The maize ubiquity values suggest that the settlement made a significant investment in food production, but the relatively high nut-to-wood ratio suggests that foraging remained a significant part of the Late Caddoan period subsistence regime. The data are in keeping with a mixed Titus phase subsistence economy that invested in maize, but retained a hunting-gathering component and a relatively high degree of residential mobility for an agricultural group (cf. Perttula et al. 1982). Caddo subsistence apparently was geographically variable throughout the region, however, and much more information is needed to adequately describe and explore the meaning of this variation.

The identification of pine cones from Feature 231 together with maize cupules presented an interesting problem in plant recognition. Although the whole pine cones and larger cone fragments can be easily distinguished from maize cobs, the smaller fragments, most notably the cone scales, are very difficult to separate from maize bracts/glumes and other small fragments. This discovery should serve as a caution to archeologists and paleobotanical analysts that there is a potential to recover plant material from Caddo features that closely resembles maize, and is indistinguishable from maize at a lower magnification.

Finally, I must address the issue of what is not present in these Late Caddoan period samples, namely any evidence of smaller seeds such as cheno-ams, knotweed, canary grass, sunflower, or sumpweed, many of which are associated with the Eastern Agricultural Complex (Fritz 2000). It is still not clear whether these plants were seldom used, or if factors of preservation and data recovery have affected the assemblages. Possibly it is a combination of both issues because similar results have been obtained from other sites in the region, yet very few sites within the region have been sampled to date for paleobotanical remains, and high variability demands the use of large samples.

The fact that many sites are shallowly buried in upland settings would indicate that poor preservation would have an impact on the plant assemblages. Larger sites with mounds located on finer soils, and with a potential to contain deeply buried cultural deposits, have a much better chance of yielding a more complete archeobotanical record. For example, the common bean fragment from a house floor buried in the mound at the Shelby Mound site (41CP71) demonstrates the potential of a mound site to generate a data set that includes less commonly occurring plant materials. A mound site holds better promise for the recovery of agricultural and other ecological data because plant material has the potential to be protected beneath the overburden of a mound, and because these sites often are occupied more intensively for longer periods of time.

END NOTE

1. (Editor's note). Before beginning the flotation of the various feature samples, the flotation device was tested for its effectiveness using 200 sesame seeds and 200 dill seeds. One hundred of each type of seed was charred separately in a cast iron skillet on an electric range. The seeds were charred and burned, but were removed from the skillet before they became fragmented, and thus could still be easily counted in the flotation sample experiment. Also, 100 of each of the two seed types were left uncharred, straight from the spice jars.

The seeds were divided into four different lots. These separate lots were then placed into four 2-gallon plastic buckets filled with gravelly soils from Bo Nelson's backyard. Then in four separate experiments, each bucket was dumped and continually stirred in the flotation barrel device, while a steady supply of water was added through a pressurized water hose. After about 10 minutes, the samples were removed and the seeds were counted by recovery in the light and heavy flotation fractions.

The results were as follows:

Uncharred seeds:

Sesame seeds: 60 in light fraction (60%); 37 in heavy fraction (37%); 3 not recovered (3%)
Dill seeds: 64 recovered in light fraction (64%); 31 in heavy fraction (31%); 5 not recovered (5%)

Charred seeds:

Sesame seeds: 21 in light fraction (21%); 75 in heavy fraction (75%); 4 not recovered (4%)
Dill seeds: 32 in light fraction (32%); 62 in heavy fraction (62%); 6 not recovered (6%).

Regardless of whether the seeds were charred or not charred, the recovery rate in the flotation device experiments ranged between 94-97% of the seeds. The charred seeds were more likely to be recovered in the heavy fraction than the light fraction, with the opposite results for the uncharred seeds. Nevertheless, the comparable total recovery rates for two different types of small seeds—whether charred or not—indicated that the flotation device used to process the Pilgrim's Pride site flotation samples was more than adequate to recover charred seeds if they were present in archeological contexts.

Chapter 10

Analyses of the Faunal Remains from Residential and Mound Areas

LeeAnna Schniebs

INTRODUCTION

The excavation of the Pilgrim's Pride site (41CP304) in Camp County, Texas, yielded only 239 poorly preserved faunal specimens with a total assemblage weight of 81.58 grams. This sum includes all teeth, bone, and turtle shell fragments. Faunal material was recovered from a general site collection, several excavation units, and numerous features in five different areas in the Late Caddoan period Titus phase component of the site. The following sections discuss the methods employed in the faunal analysis, the results of taxonomic identification and quantification, and distribution of these remains.

METHODOLOGY

All prehistoric vertebrate remains were inventoried and weighed for this analysis, and Excel 5.0 for Windows was used to manipulate the generated data. An Ohaus digital scale, Model CT600-S, was used to record the bone weight of each specimen. All fragments recovered were analyzed by the author using comparative collections on loan from or housed at the Institute of Applied Sciences, Zooarchaeology Laboratory, University of North Texas, Denton, Texas. Occasional supplements were required, using conventional osteological keys such as Olsen (1964), Gilbert (1980), and Schmid (1972). Identifications were made to the most specific category possible depending on the condition of the bone and the available comparative material. Only positive identifications resulted in the assignment of elements to the genus or species level.

The animal bones were inventoried and bagged by personnel from Archeological and Environmental Consultants, LLC after 1/4-inch, fine-screen (1/16-inch), and flotation samples were sorted, then submitted for identification and quantification. Both unidentifiable and identifiable pieces were analyzed in a similar fashion. That is, the same attributes were recorded: taxon, element and portion of that element, anatomical location of the element, condition of the bone, as well as any notes on age, taphonomy, burning, or breakage patterns, and presence of modification, if applicable. Provenience information was also recorded as part of the analysis (see Appendix XVI, Volume II).

Quantification of the assemblage is summarized as both the number of identified specimens per taxon (NISP) and as minimum number of individuals (MNI) for identified elements. MNI estimates were calculated according to the most frequently occurring element, based on symmetry and element portion (Munzel 1986). In the mammalian class, teeth were used whenever possible for MNI assignments. Other attributes used in defining MNI include age (based on tooth eruption and occlusal wear and/or epiphyseal fusion), and the relative sizes of otherwise similar specimens in the comparative collection. In some cases, complete long bones and proximal or distal ends were considered in the MNI evaluations.

The faunal data tables in this chapter are standard species lists with the number of occurrences for each animal. Those specimens regarded as unidentifiable (those coded to only class or order) have been consolidated into a few general categories. Elements of non-diagnostic skeletal value (ribs, vertebrae, and long bone shafts; see Olsen 1964), are coded in an indeterminate category by class and/or size range. For example, specimens counted as "mammal" are from indeterminate-size mammals, and "large mammal" refers to a deer-size mammal. "Indeterminate vertebrate" includes the bones of uncertain class. Recording these specimens in a size category enables the most precise level of observation as the specimen allows. In small samples, taking note of weight and the size categories of non-diagnostic elements broadens the function of the bone assemblage. However, percentages referred to in this chapter are calculated by number of bones (NISP) rather than weight. Weights of specimens by lot number can be found in Appendix XVI (Volume II).

RESULTS

This section describes the vertebrate taxa recovered from the Pilgrim's Pride site (41CP304). Taxonomic classes identified include fish, reptile, and mammal (lagomorpha and artiodactyla). The faunal assemblage is dominated by unidentifiable mammal and large mammal remains. None of the faunal specimens are modified. Number of identified specimens (NISP) and minimum number of individuals (MNI) for each taxon are summarized in Table 10-1, as are weights for each taxon and percentages of site assemblage. The composition of anatomical elements can be found in Table 10-2.

Table 10-1. Summary of Taxonomic Classes in The Pilgrim's Pride Faunal Sample.

Scientific Name	Common Name	NISP	MNI	Percent	Weight (g)
Vertebrata (indeterminate)	Unidentifiable	49	–	20.5	0.70
Osteichthyes	Fish	2	1	0.8	0.06
Testudinae	Turtle	1	–	0.4	0.05
Terrapene ornata	Box turtle	11	1	4.6	3.60
Mammalia	Mammal	77	–	32.2	0.97
Mammalia (large)	Large Mammal	62	–	25.9	25.20
Sylvilagus sp.	Cottontail rabbit	26	1	10.9	38.00
Artiodactyla (medium)	Deer-sized artiodactyl	9	–	3.8	9.00
Odocoileus virginianus	White-tailed deer	2	1	0.8	4.00
	Total	239	4	100.0	81.58

Table 10-2. Composition of Faunal Elements.

Scientific Common	Name	UNID	Teeth	Cranial	Axial	Long	Podials/phx bones	Other
Vertebrata (indeterminate)	Unidentifiable	47	–	–	–	2	–	–
Osteichthyes	Fish	1	–	–	–	–	–	1 sp. process
Testudinae	Turtle	–	–	–	–	–	–	1 shell frag.
Terrapene ornata	Box turtle	–	–	–	–	–	–	11 shell frags.
Mammalia	Mammal	77	–	–	–	–	–	–
Mammalia (large)	Large Mammal	34	1	–	5	22	–	–
Sylvilagus sp.	Cottontail rabbit	–	–	–	15	10	1	–
Artiodactyla (medium)	Deer-sized artiodactyl	–	–	2	1	6	–	–
Odocoileus virginianus	White-tailed deer	–	2	–	–	–	–	–
	Total	159	3	2	21	40	1	13

Note: teeth include enamel and root fragments as well as complete teeth; cranial includes skull elements, mandible, and maxilla fragments; axial includes ribs, vertebta, pelves, and scapulae; long bones include fragments as well as complete long bones; podials/phx includes extreme lower leg bones; other includes a spinous process and shell fragments.

Assemblage Composition

Class Osteichthyes

Order Indeterminate

One unidentifiable element and one spinous process from unidentifiable medium-sized bony fish are present in the faunal sample. One was recovered from Feature 61 in Area I, the northern and westernmost Titus phase residential area at the Pilgrim's Pride site. The other fragment came from a flotation sample taken from Feature 71 in Area VII, the dense ash-filled hearth feature on the house floor buried by the Area VII mound. Both specimens are burned.

The presence of fish remains in the collection is not unusual, as they have been reported from other Titus phase contexts (see Perttula et al. 1983; Froehlich and Froehlich Consulting 2001; Nelson and Perttula 2003a). Fish were used extensively by the Caddo Indians in historic times as well, with no known limitations on variety or size (see Newcomb 1993). They were caught in several ways, employing trotlines:

short lines were hung about a foot apart from a long line, with hooks on each end baited with "dough bait" or meat. The line could be checked several times a day, yielding good-sized fish. The method is almost identical to the one used today in Northeast Texas for fishing.

Class Reptilia

Order Testudinata, Family Emydidae

Box turtle (*Terrapene ornata*) is represented by 11 shell fragments. Ten pieces were recovered from two excavation units in Area II (Units 2 and 16). An additional fragment came from a general collection by Keller (1998) in Area I or II; no more specific provenience information was available. This single specimen is burned. The box turtle prefers plains and prairies, and its range includes the project area. Generally found in sandy areas, it burrows to escape heat; large numbers can often be found after rainstorms (Conant 1975).

Order Testudinata (family indeterminate)

One small shell fragment from an unidentifiable turtle was recovered from Feature 901 in Area IX, another Titus phase residential area west of Area I. The specimen is burned.

Class Mammalia

Order Lagomorpha, Family Leporidae

Cottontail rabbit (*Sylvilagus* sp.) is represented by 26 specimens in Area VII. Most of these came from two levels in Unit 7-01 (70-90 cm bs, n=25), resting on the house floor and/or in associated midden deposits, and an additional fragment was found in Feature 73, a pit in the house floor. Two pieces from Unit 7-01 are burned.

Currently, two species of cottontail inhabit this part of Northeast Texas. The Eastern cottontail (*Sylvilagus floridanus*) prefers heavy brush, strips of forest with open areas, edges of swamps, and weed patches; swamp rabbit (*Sylvilagus aquaticus*) prefers swamps, marshes, and wet bottomlands (Burt and Grossenheider 1980). Osteologically, the swamp rabbit is the largest of the cottontails within its range (Davis 1978).

Order Artiodactyla, Family Cervidae

White-tailed deer (*Odocoileus virginianus*) is represented by two teeth recovered in Area VII, the mound area covering a burned structure. The specimens came from a small midden deposit within the structure, recovered in situ at 83 cm bs. White-tailed deer is found in forests, swamps, and open brushy areas (Burt and Grossenheider 1980). While prehistorically it is possible that other deer species may have been present, the elements found in the Pilgrim's Pride assemblage are from smaller individuals. White-tailed deer are known for their small size, as compared to the larger mule deer of the western United States. At least one individual was present at the site. It was determined to be about seven years old, based on tooth wear.

The nine medium-sized artiodactyl bones recovered in Area II and Area VII are also probably the remains of white-tailed deer. The medium-sized artiodactyl sample consists of six limb bones, tooth socket fragments, and a vertebra fragment. Six pieces are burned. These are most likely the remains of deer rather than pronghorn (*Antilocapra americana).* Both are similar in size, but pronghorn antelope are found in open prairies and sagebrush plains well outside of Northeast Texas (Burt and Grossenheider 1980).

In addition, artiodactyl remains are probably represented in the unidentifiable large mammal category (n=62). Large mammal bones were found in numerous units and features in all areas of the site, in quantities ranging from one to eight. Forty-nine large mammal bones are burned. It is possible that some of the indeterminate mammal bones (n=77) may be artiodactyl as well. All of these specimens are burned.

Indeterminate

Twenty-one percent of the Pilgrim's Pride faunal assemblage is recorded as indeterminate vertebrata (n=49). These bone fragments are indiscernible even at the class level. A large portion of the assemblage was not identifiable at the taxon level, but was separated into size and/or class categories. Indeterminate mammal (n=77) and large mammal remains (n=62) are relatively abundant throughout the small site sample.

Assemblage Condition

In general, the faunal material from the Pilgrim's Pride site is highly fragmented. Taphonomic patterns were absent on the majority of the sample (n=225, Table 10-3). Surface observations include root etching, exfoliation, and abrasion, but percentages are very low. One hundred and eight specimens were recovered from flotation samples taken from features.

Table 10-3. Summary of Taphonomic Patterns.

Scientific Name	Common Name	Absent	Etching	Exfoliation	Etching & Exfoliation	Abraded
Vertebrata (indeterminate)	Unidentifiable	49	–	–	–	–
Osteichthyes	Fish	2	–	–	–	–
Testudinae	Turtle	1	–	–	–	–
Terrapene ornata	Box turtle	11	–	–	–	–
Mammalia	Mammal	77	–	–	–	–
Mammalia (large)	Large Mammal	53	2	5	–	2
Sylvilagus sp.	Cottontail rabbit	22	3	–	1	–
Artiodactyla (medium) artiodactyl	Deer-sized	8	–	1	–	–
Odocoileus virginianus	White-tailed deer	2	–	–	–	–
	Totals	225	5	6	1	2

In addition to weathering, the presence of spiral fracturing in the faunal assemblage was recorded during analysis. Spiral fractures are the result of impact, such as striking a bone with a hammerstone or breaking it on an anvil. It is a common, expedient technique used in bone tool manufacturing (Shelley 1992), bone processing, and refuse disposal. Usually associated with large mammal long bones, spiral fracturing can also occur during trampling, carnivore gnawing, or any other severe impacts not necessarily associated with human activity. Only one specimen is recorded as spirally fractured in the Pilgrim's Pride faunal assemblage, however. The remainder of the large mammal sample is angularly fractured, suggesting bone grease processing. In bone grease processing, the bones are broken into small pieces and boiled in water, commonly held in a ceramic vessel. The floating fat is then skimmed from the top of the vessel. The substance is used for frying and other culinary purposes. This practice has been well documented, and is a method used by many different cultures in North America and elsewhere (Leechman 1950).

Seventy-eight percent of the site sample is burned (n=187), mostly large mammal bone fragments (Table 10-4). This is probably the result of refuse disposal or catastrophic burning rather than from cooking. The distribution of these burned remains can be found in Table 10-5.

Table 10-4. Summary of Burned Faunal Specimens.

Scientific Name	Common Name	None	Charred	Black	White
Vertebrata (indeterminate)	Unidentifiable	–	–	–	49
Osteichthyes	Fish	–	–	1	1
Testudinae	Turtle	–	1	–	–
Terrapene ornata	Box turtle	10	1	–	–
Mammalia	Mammal	–	–	–	77
Mammalia (large)	Large Mammal	13	2	8	39
Sylvilagus sp.	Cottontail rabbit	24	2	–	–
Artiodactyla (medium)	Deer-sized artiodactyl	3	1	–	5
Odocoileus virginianus	White-tailed deer	2	–	–	–
	Total	52	7	9	171

Discussion

Spatial Distribution

The distribution of faunal remains within various areas and analytical units at the Pilgrim's Pride site (41CP304) is summarized in Tables 10-6 and 10-7. This section discusses the faunal samples according to recovery by area, excavation unit (if applicable), or feature number.

Area I

Area I is a Late Caddoan period Titus phase residential area, estimated to date between ca. A.D. 1430-1600 (see Chapter 5, this volume). Thirteen features, one unit (Unit 7; excavated by Keller [1998]), and

Table 10-5. Distribution of Burned Faunal Specimens.

Area	Context	UID*	F	M	LM	D-A	CT	BT	T	Total
I	General				2					2
	Unit 7	7			2					9
	Fea. 8				1					1
	Fea. 11			9	3					12
	Fea. 61		1		5					6
	Fea. 105	2		1	1					4
	Fea. 106	1								1
	Fea. 109				1					1
	Fea. 125	8			2					10
	Fea. 1-126				1					1
	Fea. 1-135			3						3
	Fea. 1-166			4						4
	Fea. 1-171	12		30	1					43
	Fea. 1-210	1								1
	Fea. 1-231			1						1
II	General				2					2
	Unit 16	2				1				3
I or II	General							1		1
III	Fea. 343	4								4
VII	Unit 7-01, 20-30 cm				1	1				2
	Unit 7-01, 50-60 cm				8					8
	Unit 7-01, 60-70 cm				3	1				4
	Unit 7-01, 70-80 cm				7	1				8
	Unit 7-01, 80-90 cm				3	2	2			7
	Unit 7-01, 90-93 cm				1					1
	Fea. 71	7	1	10	3					21
	Fea. 74			15	1					16
IX	Fea. 901	5		4	1				1	11

*UID=unidentifiable Vertebrata; F=fish; M=mammal; LM=large mammal; D-A=deer-sized artiodactyl; CT=cottontail; BT=box turtle; T=turtle

Table 10-6. Summary of Faunal Remains by Area.

Scientific Name	Common Name	Area I	Area II	I/II	III	VII	IX
Vertebrata (indeterminate)	Unidentifiable	31	2	–	4	7	5
Osteichthyes	Fish	1	–	–	–	1	–
Testudinae	Turtle	–	–	–	–	–	1
Terrapene ornata	Box turtle	–	10	1	–	–	–
Mammalia	Mammal	48	–	–	–	25	4
Mammalia (large)	Large Mammal	19	2	–	1	39	1
Sylvilagus sp.	Cottontail rabbit	–	–	–	–	26	–
Artiodactyla (medium)	Deer-sized artiodactyl	–	1	–	–	8	–
Odocoileus virginianus	White-tailed deer	–	–	–	–	2	–
	Total	99	15	1	5	108	11

general excavation contexts yielded a total of 99 faunal specimens. All fragments are burned. Fifty-seven of these pieces were from flotation samples taken from the features. One fish element is the only identifiable fragment. The remainder of the sample consists of indeterminate vertebrata, indeterminate mammal, and large mammal remains. Quantities are minimal, ranging from one to 12 per provenience. The exception is Feature 1-171, which yielded 43 fragments from a flotation sample.

Area II

Area II is also a Titus phase residential area, just to the east of, and contemporaneous with, Area I. Fifteen faunal fragments were recovered in the excavations. Two burned large mammal bones came from a general areal context, and a box turtle shell fragment was found in Unit 2, a shallow midden deposit. The midden area in Unit 16 (10-50 cm bs) yielded nine more box turtle shell fragments, a burned medium-sized artiodactyl element, and two unidentifiable bone fragments.

Area I or II

No provenience information is available for one particular faunal specimen other than a general one from the northern part of the site area. This piece is a single box turtle shell fragment; the piece is burned.

Area III

Five faunal specimens were recovered from flotation samples taken in two features in Area III, also a Titus phase residential area south of Area II. Feature 335 yielded one large mammal bone, and Feature 343 had four burned indeterminate vertebrata fragments.

Table 10-7. Distribution of Faunal Specimens.

Area	Context	UID*	F	M	LM	D-A	CT	BT	T	Total
I	General				2					2
	Unit 7	7			2					9
	Fea. 8				1					1
	Fea. 11			9	3					12
	Fea. 61		1		5					6
	Fea. 105	2		1	1					4
	Fea. 106	1								1
	Fea. 109				1					1
	Fea. 125	8			2					10
	Fea. 1-126				1					1
	Fea. 1-135			3						3
	Fea. 1-166			4						4
	Fea. 1-171	12		30	1					43
	Fea. 1-210	1								1
	Fea. 1-231			1						1
II	General				2					2
	Unit 2							1		1
	Unit 16	2				1		9		12
I or II	General							1		1
III	Fea. 335				1					1
	Fea. 343	4								4
VII	Unit 7-01, 20-30 cm				1	1				2
	Unit 7-01, 50-60 cm				9					9
	Unit 7-01, 60-70 cm				4	2				6
	Unit 7-01, 70-80 cm				8	1	3			12
	Unit 7-01, 80-90 cm				6	2	22			30
	Unit 7-01, 83 cm					4+				4
	Unit 7-01, 90-93 cm				3					3
	Fea. 71	7	1	10	5					23
	Fea. 73				1		26			27
	Fea. 74			15	1					16
IX	Fea. 901	5		4	1				1	11

*UID=unidentifiable Vertebrata; F=fish; M=mammal; LM=large mammal; D-A=deer-sized artiodactyl; CT=cottontail; BT=box turtle; T=turtle
+ includes two white-tailed deer specimens

Area VII

This Late Caddoan period, Titus phase mound is just to the northeast of Area II, and the mound covers a burned structure. A total of 108 faunal specimens were recovered from three features and several levels in one excavation unit.

Feature 71, a hearth on the house floor, yielded 23 fragments, comprised of indeterminate vertebrata, fish, unidentifiable mammal, and large mammal remains. Twenty-one pieces are burned. A single cottontail bone came from Feature 73, a pit on the house floor. Feature 74 is a large post dating after mound construction, and it contained 15 unidentifiable mammal bones and one large mammal bone. All of these pieces are burned.

In Unit 7-01, the upper mound fill (20-30 cm bs) had one burned large mammal and one burned medium artiodactyl bone. Three levels in Unit 7 (50-70 cm bs) are associated with the hearth feature (Feature 71). When combined, a total of 15 specimens were recovered, comprised of large mammal and medium-sized artiodactyl remains. Twelve pieces are burned. Two levels in Unit 7 (70-90 cm bs) are associated with the house floor. Forty-two specimens were recovered, comprised of large mammal (n=14), cottontail (n=25), and medium-sized artiodactyl remains (n=3). Fifteen specimens are burned. The level below the house floor (90-100 cm bs) yielded five large mammal bones; only one fragment is burned. Additionally, two medium-sized artiodactyl remains and the two deer teeth were recovered from 83 cm bs in a small midden deposit within the structure. These are associated with the house floor and Feature 71.

Area IX

Eleven faunal specimens were recovered from a flotation sample taken in Feature 901. This feature is a large pit within a poorly known Titus phase residential area west and southwest of Area VIII. The sample consists of indeterminate vertebrata, unidentifiable turtle, mammal, and large mammal remains. All specimens are burned.

SUMMARY

Because the faunal collection from the Pilgrim's Pride site (41CP304) is so small, it provides no new insights regarding the subsistence strategies of the Late Caddoan period Titus phase people that lived in the village. Previous analyses of Titus phase faunal assemblages noted that they:

> include deer, turkey, cottontail rabbit, jackrabbit, squirrel, and beaver. Turtle and fish were also present, but were relatively uncommon compared to the mammals and birds. Deer and turkey appear to have been the dominant exploitable species (Perttula 1998a:83).

What faunal remains preserved were found in the highest amounts in site Areas I and VII, a residential area and a mound covering a burned structure, respectively. The context of the samples suggest they represent evidence of dietary refuse, reflecting the utilization of available faunal resources—including large game animals—supplemented by fish, turtle, and rabbit. The taxonomic composition is fairly typical of prehistoric Caddo faunal assemblages in Northeast Texas.

CHAPTER 11

Synthesis of the Archeology of The Pilgrim's Pride Site (41CP304)

Timothy K. Perttula

INTRODUCTION

In this chapter, the focus is on a synthesis of what we have learned about the Titus phase occupation of the Pilgrim's Pride site (41CP304) with respect to what is known or not known about the archeological character of Late Caddo societies in the Big Cypress and Sabine River basins of northeastern Texas (see also the recent summary by Perttula [2004:396-406]). As previously discussed in Chapter 5 of this volume, the Pilgrim's Pride site was also occupied at different times during Paleoindian, Archaic, and Woodland periods, but identifiable features, concentrations of artifacts, or isolable archeological deposits dating to these periods could not be determined or defined during our work; consequently, other than a recitation of the kinds of artifacts from these lengthy periods, and the materials that were used in their manufacture, that were found at the site, there is little more that can be said about the early settlement and use of the Pilgrim's Pride site other than that the site was repetitively used by hunting-gathering foragers for millennia.

It is not until the onset of the Titus phase ca. A.D. 1430 that the Pilgrim's Pride site was the scene of a large village settlement of Titus phase Caddo farmers along the western margins of the Titus phase heartland (Figure 11-1). The village was established during a major droughty period (ca. A.D. 1430-1476, see Table 2-3), but apparently flourished for at least 5-6 generations, during both dry and more mesic periods. The site was apparently abandoned in the early 17th century, at least as based on the kinds of temporally diagnostic artifacts found or not found there (e.g., the almost total absence of Talco arrow points and Ripley Engraved vessels with a pendant triangle motif suggests little use of the site after ca. A.D. 1600). Calibrated two sigma radiocarbon dates (see below) from village and mound contexts have age ranges that extend into the mid-17th century, however.

LOCAL COMMUNITY SETTING

The Pilgrim's Pride site is the largest Titus phase component known in this part of the Big Cypress Creek valley. It covers approximately 12 acres, and is characterized by numerous pit features used in the cooking and processing of food stuffs as well as probably for storage of food stuffs, structures, some modicum of intra-site settlement planning, a planned and organized cemetery, as well as an earthen mound built over an important public structure (Figure 11-2). There may have been a plaza area between the various domestic habitation compounds (i.e., Areas I, II, III, VIII, and IX) and the Area V/VI cemetery (see Figure 11-2). The Pilgrim's Pride site was occupied by prehistoric Caddo groups, on and off, for several generations, perhaps as long as 200 years in toto, but not necessarily in large numbers of people as only six structure areas were identified in Areas I-III and VIII. The combination of an extensive settlement, a

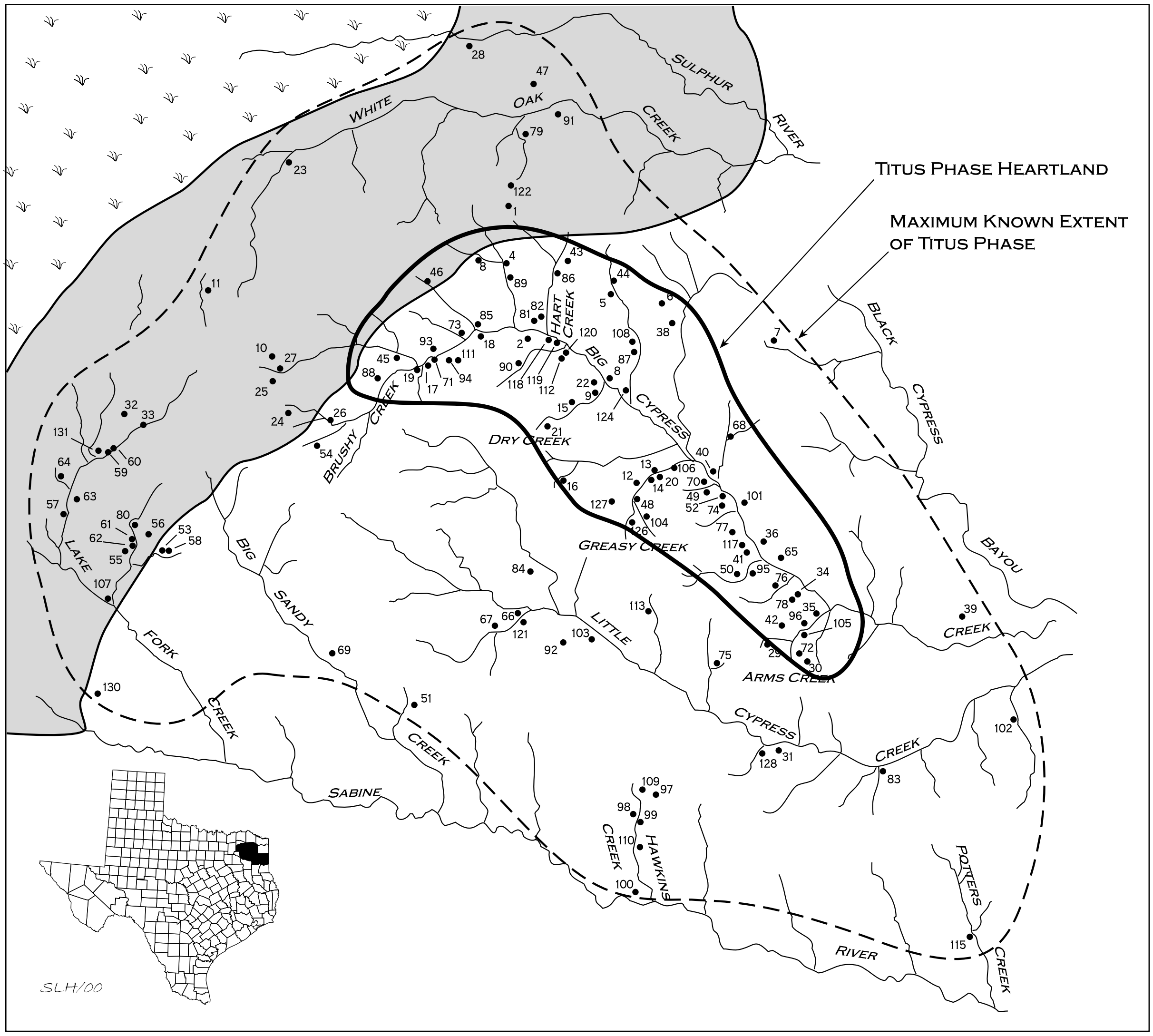


Figure 11-1. The Titus phase in Northeast Texas, including the Titus phase "heartland." Numbered dots represent known Titus phase sites with burials and cemeteries. No. 119 is the Pilgrim's Pride site.

planned cemetery with at least 19 burials, and the Area VII earthen mound all lead me to believe that the site was the nexus for a local Titus phase community of sedentary farmers, one that was centered around the village and mound areas at the Pilgrim's Pride site.

There is a high density of contemporaneous Titus phase components in the immediate vicinity of the Pilgrim's Pride site, about 14-15 sites per square mile based upon the intensive surveys completed in recent years in this part of the Big Cypress Creek valley (Hunt et al. 1996; Perttula and Nelson 1998a, 1999a, 1999b, 1999c; Perttula et al. 1999a, 1999b) (Table 11-1). Other than the Pilgrim's Pride site itself, these components range in size from 0.3 acres to 4.3 acres, and are known to contain habitation features, burials (probably family cemeteries), and other domestic archeological deposits. Most of the sites are apparently single component Titus phase habitation sites in a residentially mobile community, where much of the community lived in dispersed farmsteads that moved from place to place every generation, but the community itself remained strongly anchored to this part of the Big Cypress Creek basin. One site (Red

Honeysuckle, 41CP335) has evidence for a burned structure that may have been covered over with a low sandy mound; other than the burned structure and mound, the site has very little evidence of other associated domestic compounds (Perttula et al. 1999b), and clearly represents a different aspect of the local political community than does the Pilgrim's Pride site.

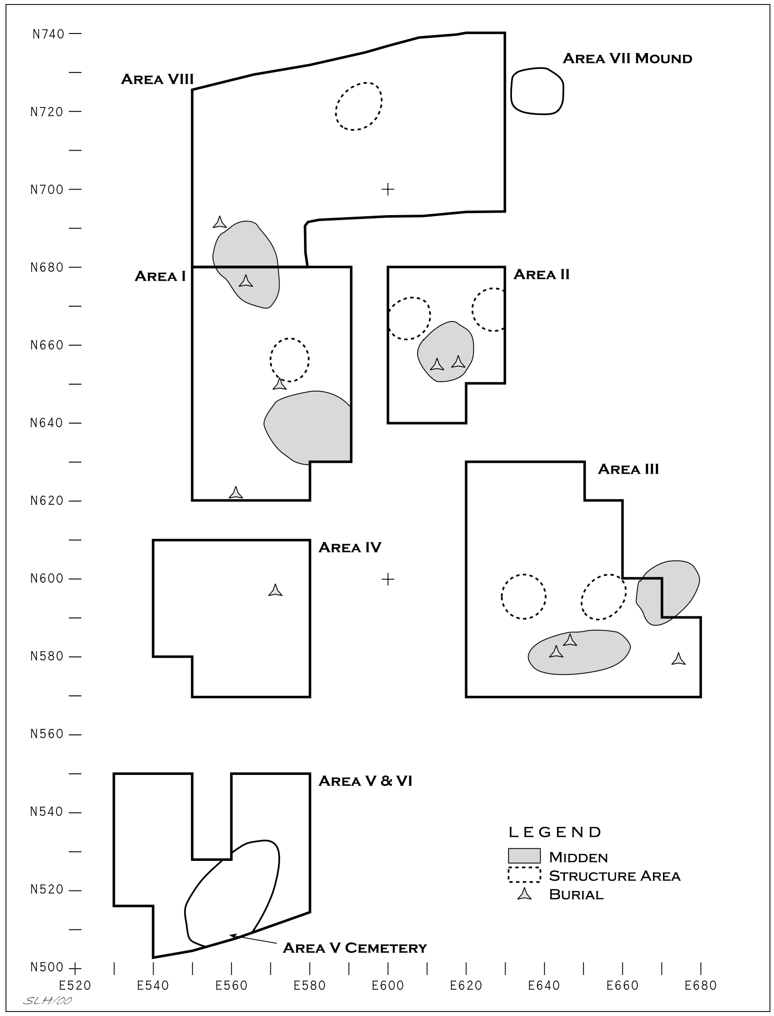


Figure 11-2. The Titus phase settlement at the Pilgrim's Pride site.

Archeological evidence from Titus phase sites and components investigated in and around the Pilgrim's Pride site, and elsewhere in the Big Cypress Creek basin, indicate that many of the components here represent permanent, year-round, settlements of horticultural peoples. The locations that they chose to permanently settle and build structures and other facilities at had to be situated in habitats where suitable sandy soils were nearby that could be worked with simple wood and bone digging tools, and that the land they built their homesteads and communities on had to be well-drained and elevated above the annual floods along Big Cypress Creek and its tributaries. They also had to be in areas where wood and grass was plentiful for house construction and refurbishing, as well as near fresh drinking water. The fact that the Titus phase settlements are not found in any notable spatial clusters around the Pilgrim's Pride site suggests that the many resources that were needed by sedentary Caddo populations to successfully live in the Big Cypress Creek valley could best be exploited by dispersing the groups in a variety of settings.

This dispersed settlement arrangement would have helped lessen the competition for such resources, and not allow for the environmental degradation of suitable habitats by a single large community; this would have been of critical concern in droughty periods for Caddo peoples living along the margins of the Pineywoods, in environmentally risky areas. It would also have permitted the Caddo peoples to take advantage of the diversity in habitats to exploit a number of them, thus insuring that the overall community could survive if there were economic difficulties or failures (i.e., local droughts, flooding, fires) in some habitats but not in most of the others.

In Late Caddo Titus phase times, when the Caddo peoples had a diet that primarily consisted of cultivated plants like maize, beans, and squash (see below), agricultural pursuits must have been of

Table 11-1. Nearby Titus Phase Components.

Trinomial	Site Size (acres)	Comments
41CP20	unknown	planned cemetery
41CP304	12.0	planned cemetery, mound, village
41CP306	2.0	
41CP308	1.2	
41CP309	4.0	
41CP313	0.4	features and midden deposits
41CP314	2.5	
41CP315	1.5	
41CP316	0.3	features
41CP317	1.9	features and at least one burial
41CP318	1.5	
41CP322	0.7	
41CP326	2.5	
41CP328	1.5	
41CP333	4.3	
41CP335	0.3	burned structure, possible mound

particular importance in determining the location of individual farmsteads and hamlets, more so than they were in the Early or Middle Caddoan periods when Caddo peoples were not apparently quite so dependent upon cultivated plants for their diet (or at least that was the case until ca. A.D. 1300/1350, see discussions in Perttula [1996] and Dering [2004b]). How are these constraints reflected in the spatial distribution of Late Caddo Titus phase sites? What we see in this part of the Big Cypress Creek is that the overall settlement pattern was dispersed, in conjunction with a heightened emphasis on situating sites along the secondary streams and the spring-fed branches. These areas may have had more dependable water, or more accessible water, and it is also likely that fields would have been easier to clear along the more open upland forests than if fields had to be located in the more mesic valleys.

There are more Late Caddo Titus phase sites in this part of the Big Cypress Creek basin than sites found during earlier periods, suggesting that the regional population was quite a bit higher during the Late Caddo period (all things being equal, especially the length of time each settlement was occupied), and there are several clusters of settlements that may represent parts of contemporaneous small communities or villages. Other than the Pilgrim's Pride site and surrounding community, there is another such cluster of Titus phase settlements in this part of the Big Cypress Creek basin around the Lower Peach Orchard site (41CP17), about 10 miles upstream from the Pilgrim's Pride site (see Figure 11-1, site no. 18). The site is probably one of the most important one in the mid-reaches of the valley since it had a number of deep shaft tombs as well as extensive settlement deposits (Thurmond 1990a; Perttula 1998a, 2004), and appears to be a village nexus comparable to the Pilgrim's Pride site. Other concentrations of Titus phase sites are noted along Brushy Creek upstream from its confluence with Big Cypress Creek, and in upland/valley margin settings (Perttula and Nelson 2003).

There are other important villages in different Titus phase communities in the Titus phase heartland, and they appear to be situated in similar topographic settings, namely along tributary streams near their confluence with Big Cypress Creek. They are marked by a higher density of permanent settlements around one premier community.

In the case of the Shelby site (41CP71, also known as the Tracy site) on Greasy Creek, the social and political center of the community stretches for several hundred meters along Greasy Creek and a small tributary, with an earthen mound at the northern end of the village and a large cemetery at its southern end (Figure 11-3); domestic village areas are between the mound and the cemetery and cover at least 10-15 acres (Perttula et al. 2004). The Titus phase earthen mound covered a burned structure at the base of the mound, and a second structure had stood on the mound itself, and was then burned and capped with a final sandy fill. The arrangement of mound, domestic areas, and planned cemetery here is essentially duplicated at the Pilgrim's Pride site (see Figure 11-2), although the village areas and the size of the cemetery at the Shelby site are considerably larger. Based on work at the site in 2002, the north levee area at the Shelby site (see Figure 11-3) has thick midden deposits and evidence for several burned structures, implying a more intensive occupation here than was the case in any residential area at the Pilgrim's Pride site.

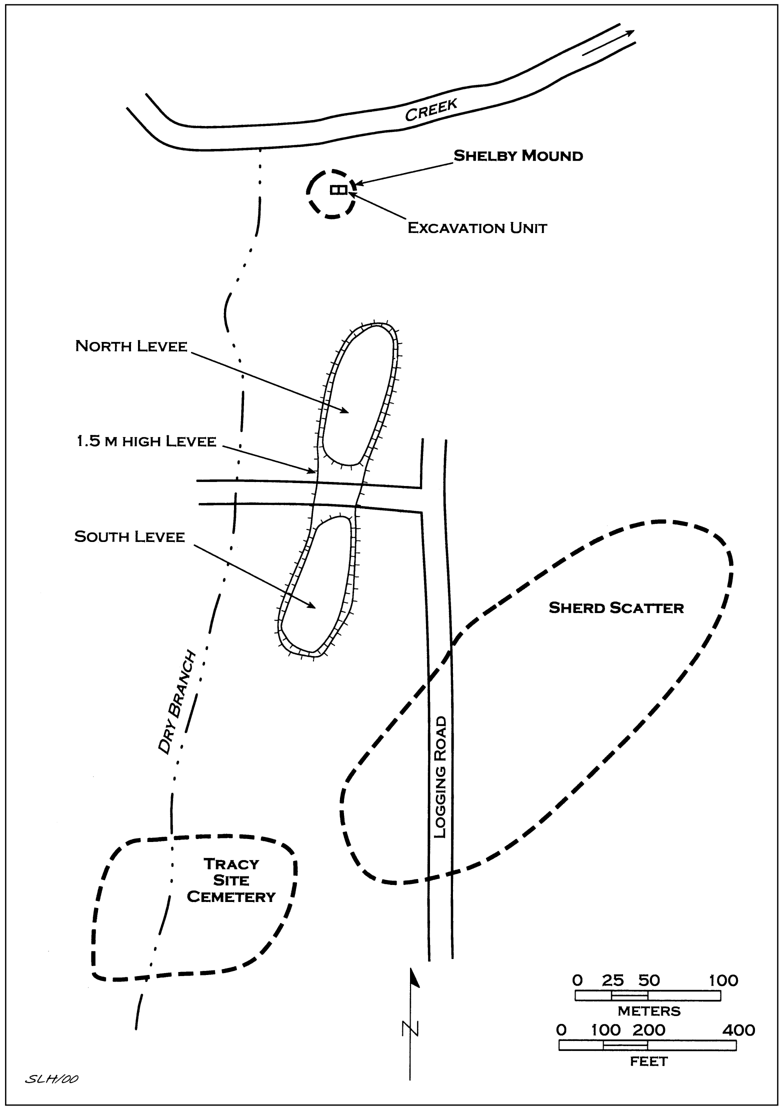


Figure 11-3. The important Titus phase village and political community center at the Shelby site (41CP71) on Greasy Creek.

Another important community nexus in the Titus phase heartland includes the Tuck Carpenter and Harold Williams community cemeteries (see Turner 1978, 1992; Turner et al. 2003) and various domestic settlements (marked by midden deposits and habitation debris) on the lower part of Dry Creek and Swauano Creek; no Titus mounds have been found in this area yet, although the Tom Hanks mound site (41CP239) is located in the upper part of the Dry Creek basin, and may be part of this particular political community. This area is on the first important set of eastward-flowing tributaries to Big Cypress Creek that are downstream from Walkers Creek and the Pilgrim's Pride site (see Figure 11-1). The next downstream Titus phase village community may be centered at the afore-mentioned Greasy Creek community at the Shelby site; there are numerous Titus phase settlements and large cemeteries on Greasy Creek and its tributaries. Also probably part of this particular Caddo community are the Titus phase mound sites (single mounds) on Prairie Creek—only a few miles away from the Shelby site—at the P. S. Cash (41CP2) and Sam Roberts (41CP8) sites.

The next community nexus is in the Meddlin Creek and Big Cypress Creek areas, midway between Greasy Creek and Arms Creek (see Figure 11-1). It includes three or four mound sites, namely Harroun (41UR10), Dalton (41UR11), Chastain (41UR18), and Camp Joy (41UR144), various small domestic settlements in valley and upland settings, along with several large community cemeteries (see below). Here, the community cemeteries are not found in association with the mound centers, as they are in the Greasy Creek Caddo community, but instead are situated along Big Cypress Creek and its tributary streams, presumably in general proximity to the farmsteads dispersed across the countryside.

The last recognizable Titus phase community in the Big Cypress Creek heartland is along Arms Creek and Big Cypress Creek, and includes the community nexus at the Whelan (41MR2) mound site. The Whelan site is on the floodplain of Big Cypress Creek, and there are farmstead settlements along the creek as well as Arms Creek; the larger community cemeteries at H. R. Taylor (41HS3) and Pea Patch (41HS825) are situated a few miles from the Whelan site, near the headwaters of Arms Creek (see Figure 11-1).

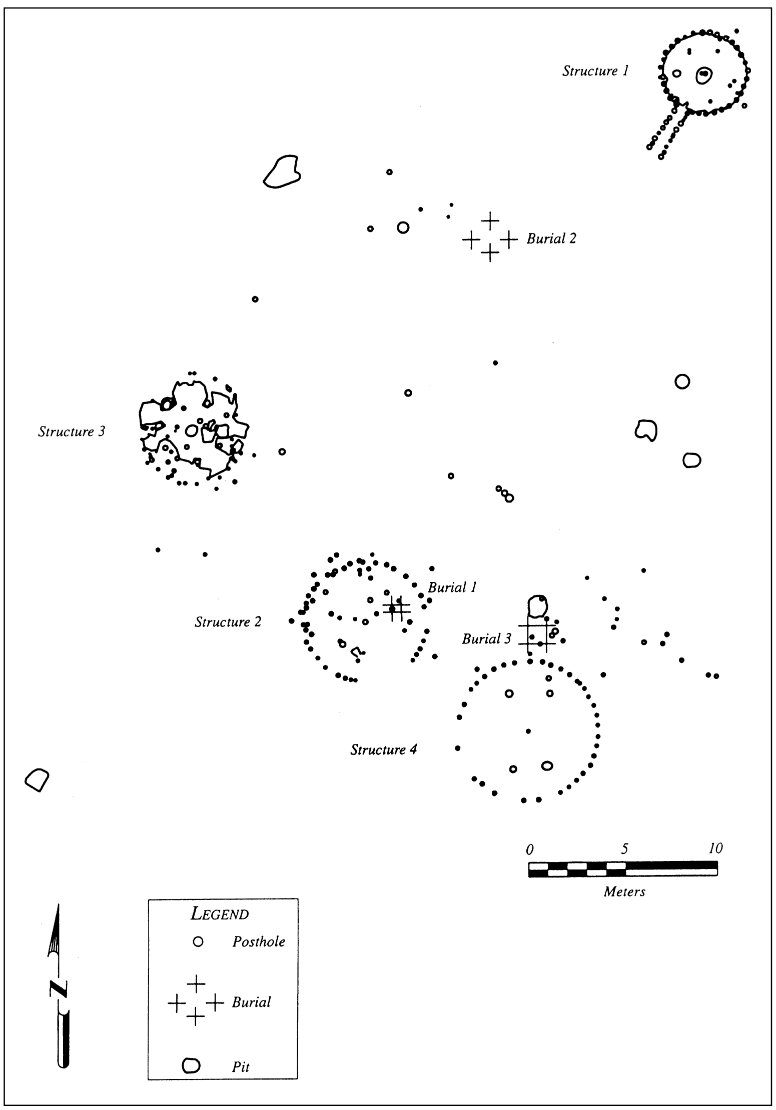


Figure 11-4. The Earspool site (41TT653) Titus phase component (from Galan 1998).

Other than the village centers, how were other Titus phase domestic settlements (i.e., the small settlements recognized by Thurmond [1990a]) organized and laid out spatially? Fortunately, recent excavations at two Titus phase settlements—the Earspool and Rookery Ridge sites (see Galan 1998; Parsons 1998; Sherman et al. 2002)—have provided solid archeological evidence of their character. The settlements appear to have been composed of one to several family units with house midden/daub concentrations and trash midden deposits; many activities occurred outside the house areas, resulting in trash-filled pits, hearths, and posts in these areas. At the Earspool site (41TT653) there were four different circular structures (probably thatched and wattled), one with an extended entranceway that pointed towards the other three houses, that may have been from two temporally different and sequential Titus phase occupations (see Sherman et al. 2002). There was a broad, open area between the houses that may have been a small plaza, and there were clusters of pits along its margins (Figure 11-4). Three burials were present at the site, one child burial inside Structure 2 and adults in two widely separated areas; there apparently was no large family cemetery (i.e., 10-20 burials) at the Earspool site.

The Rookery Ridge site (41UR133) excavations exposed two circular structures and extensive midden deposits (Figure 11-5). The middens were about 15 m south of the one structure with an extended entranceway; the entranceway faced to the north, suggesting that other habitation features besides those excavated by Parsons (1998) were present on the northern part of the alluvial landform along Kelsey Creek. Child and adult burials were present either inside a structure or immediately outside, along the structure walls, but again, there was no larger family cemetery at the site.

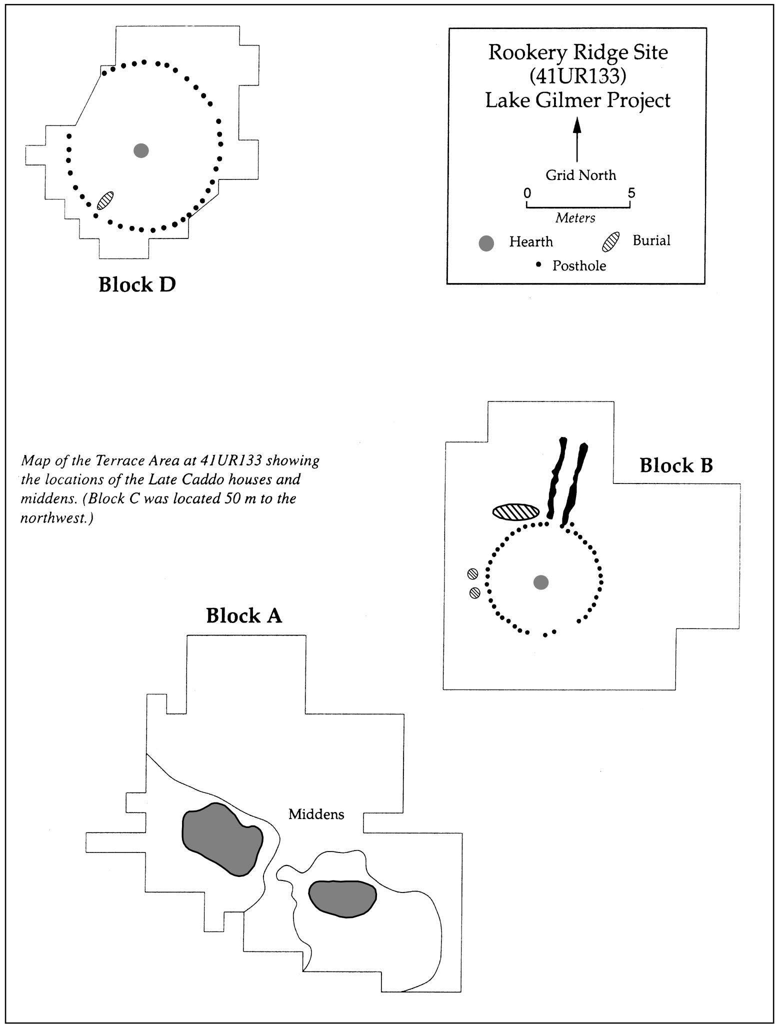


Figure 11-5. The Rookery Ridge site (41UR133) Titus phase component (from Parsons 1998).

Perttula and Nelson (2003:34) have noted that Late Caddo Titus phase sites are more common south of Big Cypress Creek than they are on the north side of the basin (see Figure 11-1), or in other stream valleys (such as Little Cypress Creek, White Oak Creek, or streams in the Lake Fork Creek basin) in the Big Cypress, Sulphur River, and Sabine River basins. Poorly drained and steeper, rockier landforms on the east side of Big Cypress Creek were also apparently not heavily settled by Caddo peoples. Regional settlement data for the Titus phase does suggest that this pattern in the spatial distribution of sites may be part of a much broader trend in the density of Late Caddo sites between the Titus phase "heartland" and outlying areas also occupied by Titus phase Caddo peoples (see Perttula 1998a, 2004; Nelson and Perttula 2003). That trend indicates that Titus phase sites—as well as Titus phase sites with mounds and large community cemeteries—are more common across the landscape from the Brushy Creek to Lake Bob Sandlin dam area downstream along Big Cypress Creek than they are in the Post Oak Savannah immediately north and northeast of Big Cypress Creek (see Figure 11-1).

This distribution strongly suggests that the density of Caddo peoples during the Titus phase was more concentrated in the Big Cypress Creek heartland, including its many southward-flowing and eastward-flowing tributaries, than it was elsewhere across the landscape. Nevertheless, other parts of the Titus phase Caddo homeland were also well settled: two such areas are the Dry Creek and Caney Creek valleys in the upper Lake Fork Creek valley in the Post Oak Savanna (see Figure 11-1) (see also Bruseth 1987; Bruseth and Perttula 1981; Perttula et al. 1993). Here, at sites like Burks (41WD52), Steck (41WD529), Spoonbill (41WD109), or Goldsmith (41WD208), the farmstead occupations have house and trash midden deposits, apparently from two to four structures and nearby family cemeteries with roughly 5-15 individual interments (Perttula 2004:Figure 13.28).

The density of Titus phase settlements along Caney Creek is impressive, with more than 50 components on a ca. 7 km stretch of the creek and the adjacent upland landforms (Figure 11-6). The majority of the sites are in the uplands, rather than in the Caney Creek valley, situated along the upland edge or on smaller tributaries of Caney Creek.

Habitation sites are well dispersed across the landscape, as are the habitation sites with reported cemeteries. However, at least three of the reported cemetery sites appear to be concentrated near the lower part of the basin, and between two of the reported small mound sites (see Figure 11-6); other characteristics of the mound sites are only sketchy, with details suggesting the mounds covered burned structures marked by substantial amounts of daub and burned clay (Mark Walters, 2000 personal communication). The village-mound-large cemetery association noted for Titus phase heartland community centers at the Pilgrim's Pride and Shelby sites seem to be absent in the Caney Creek cluster, although overall population densities from one locale to another may have been comparable.

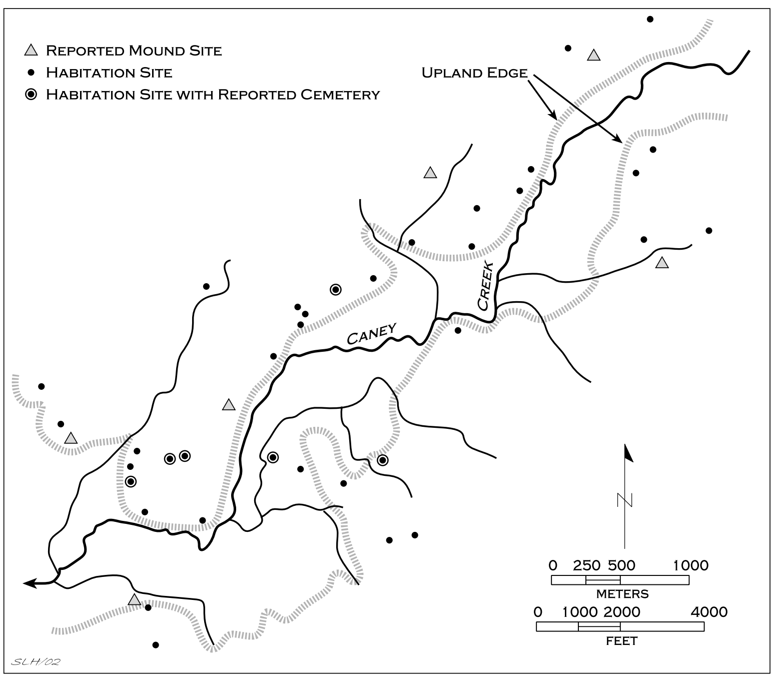


Figure 11-6. Caney Creek cluster of probable Titus phase settlements, in the Lake Fork Creek drainage basin, Wood County, Texas.

AGE OF THE TITUS PHASE

At the present time, there are only seven sites with Titus phase components that have five or more absolute dates (Figure 11-7), including the Pilgrim's Pride site, and only one other is in the general area of the western reaches of the Big Cypress Creek basin: the Underwood site (41CP230) (Nelson and Perttula 2003a). There are a total of 16 Titus phase components that have a reliable set of radiocarbon and OCR dates, and in each case, the maximum age ranges extend from ca. A.D. 1400-1650. In 90% of the sites, the age ranges of the best-dated Titus phase components actually extend from ca. A.D. 1430-1640 (Figure 11-8).

As Table 11-2 shows, radiocarbon dates from Titus phase components consistently range from the early 15th century to the latter part of the 17th century, no longer lending credence to Thurmond's (1990a:225) assertion that "the existing radiocarbon data base from the Cypress basin is unsuitable for use in an interpretation

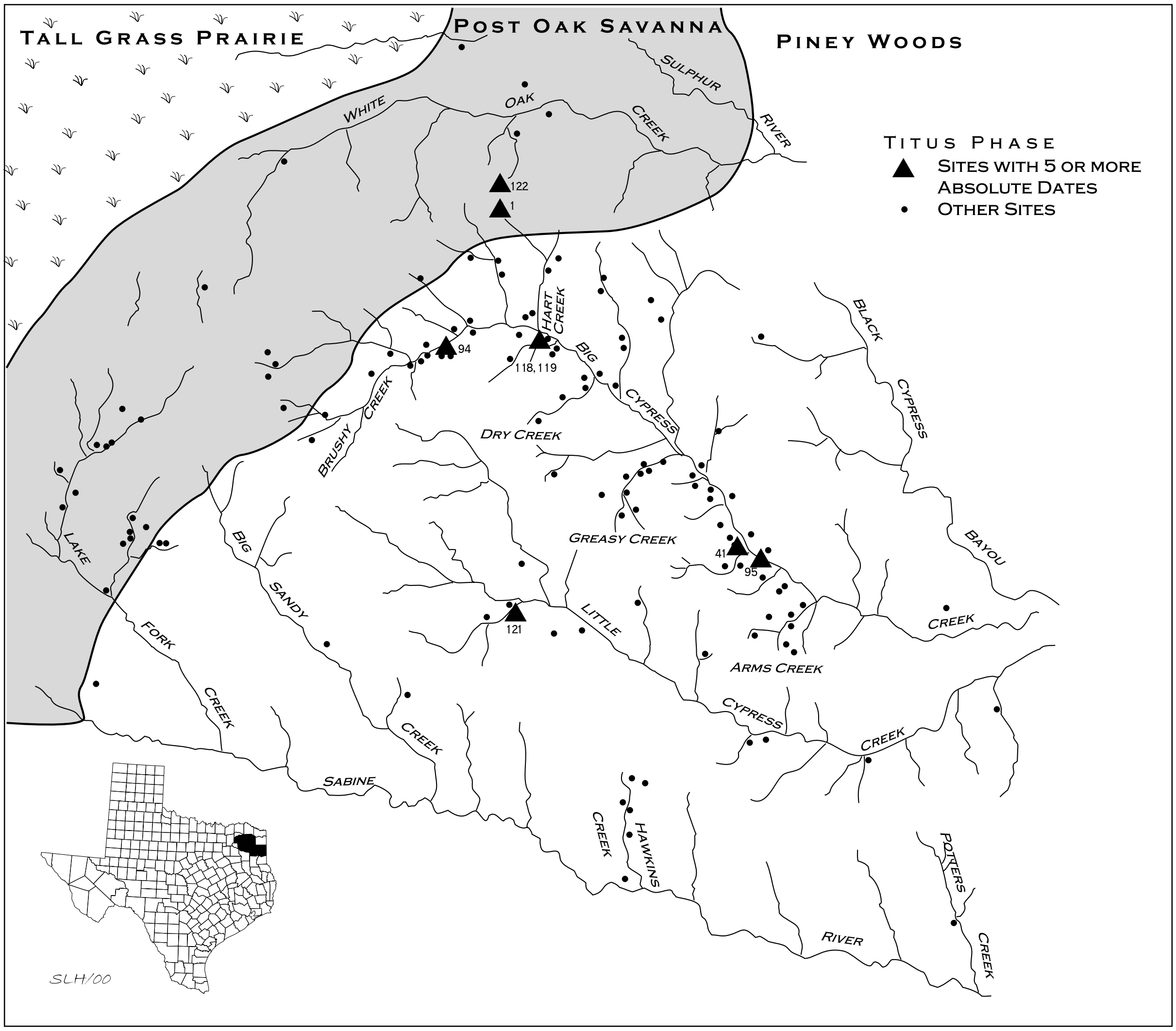


Figure 11-7. Known Titus Phase Sites with 5 or more absolute dates.

of the local culture history," at least with respect to the chronological framework of the Titus phase. The most reasonable (i.e., with probability distributions greater than 0.76) of the numerous recent calibrated radiocarbon dates from a variety of Titus phase domestic, mortuary, and mound contexts (including all three contexts at the Pilgrim's Pride site) consistently span the period from cal A.D. 1430-1680.

Besides the Pilgrim's Pride site, the better-dated Titus phase domestic contexts include habitation areas on the north levee at the Shelby site (A.D. 1390-1635), the Earspool components (A.D. 1415-1660), 41UR118 (A.D. 1430-1679), and Rookery Ridge (A.D. 1435-1679) (see Table 11-2). With respect to the dating of Titus phase burials (primarily the dating of organic residues on ceramic vessels placed as funerary objects in the burials), a Period 3 (estimated by Turner [1978] to date from after ca. A.D. 1550) burial from Tuck Carpenter dates at 1-sigma to cal A.D. 1536-1635, while one dated burial at the Harold Williams site (see Turner et al. 2003) has a calibrated date range of A.D. 1460-1630, and several from the Mockingbird site (Perttula et al. 1998) range from A.D. 1437-1667 (see Table 11-2). At the Alex Justiss site (41TT13), two of three dates on vessel residues range from A.D. 1430-1640 (see Table 11-2), although on other

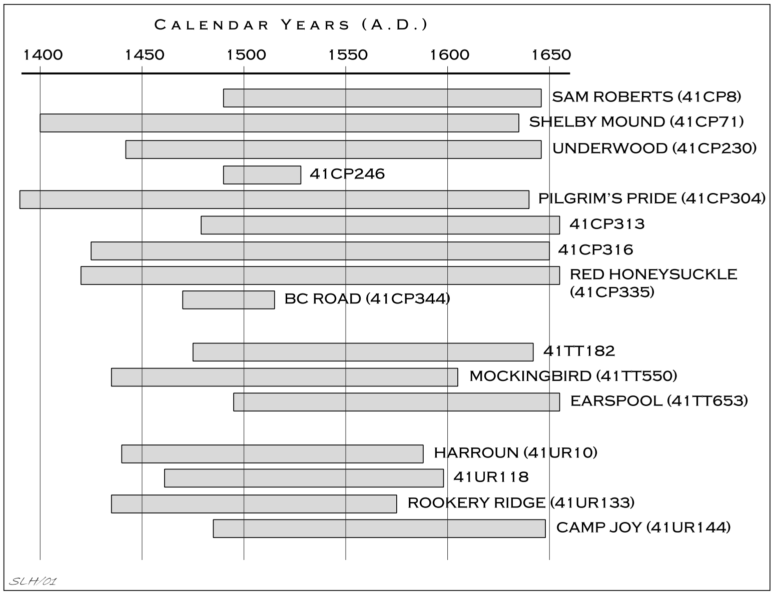


Figure 11-8. Estimated Ages of Titus Phase components from C14 and OCR dates.

grounds, the cemetery there may date to the latter part of the 16th century to the mid-17th century (Rogers et al. 2003). Recently obtained dates from the Titus phase Shelby Mound span the period from A.D. 1322-1631 (with the early end of the temporal span being dubious, but from a sample of charred material from a context below the mound itself), and those from the Pilgrim's Pride site range from A.D. 1414-1636. The Camp Joy Mound has three calibrated dates that span the interval from A.D. 1495-1673 (see Table 11-2), and this may have been one of the latest Titus phase mound constructions.

It is interesting that the radiocarbon dates obtained in the 1960s from what have been characterized as Whelan phase mound sites fall into two clusters: one spanning the period from cal A.D. 1382-1520, and the other spanning the period from cal A.D. 1444-1668. The latter cluster of dates, with two dates from Harroun, and one from Sam Roberts (see Table 11-2), is contemporaneous with those mentioned above from Titus phase domestic and mound-building contexts, although the dates from Harroun have been rejected by Thurmond (1990a:204) on the grounds of their ceramic associations. At Sam Roberts, although there is a Titus phase component in one area of the site and the calibrated date from the sub-mound structure dates to the same period, Thurmond (1990a:144) argues that the mound was built during the preceding Whelan phase because "there is no clearly demonstrated instance of mound building in a Titus phase context." The 16th and 17th century radiocarbon dates from a burned structure in the Camp Joy mound and from several contexts at the Shelby site indicate the temporal context of the Sam Roberts mound can be reevaluated; thus, it seems perfectly reasonable on the grounds of both ceramic and radiocarbon associations that the Sam Roberts mound was built and used by Titus phase Caddo peoples.

The few earlier dates (i.e., with beginning ages in the 14th century) listed in Table 11-2 may be from Whelan phase components, including two radiocarbon dates from a probable Whelan phase domestic context (cal A.D. 1315-1440 and cal A.D. 1395-1427) from the Rookery Ridge site (41UR133) (see Table 11-2). The terrace area at the Rookery Ridge site has a buried, single-component occupation with Pease Brushed-Incised jars, Ripley Engraved vessel sherds with the continuous scroll motif, and a Perdiz arrowpoint (Nichols et al. 1997: Table 17-2). These are characteristic of Period 1 (ca. A.D. 1350-1450) occupations in the Cypress Cluster (Perttula 1992:248 and Table A-2), but could just as easily be included in the early part of the Titus phase on these same stylistic grounds alone since all three ceramic and lithic types were made and used well past ca. A.D. 1450, including well-dated contexts at the Mockingbird and Pilgrim's Pride sites.

In addition to radiocarbon dates (n=88), 16 Titus phase sites have OCR dates from columns and features in habitation areas or columns in mound deposits at the Pilgrim's Pride, Tiddle Lake (41CP246), and Camp Joy mound sites (Table 11-3). Components are dated as early as the first part of the 15th century,

Table 11-2. Titus Phase Radiocarbon Dates.

Site Name/Site Number	Raw Age	Calibrated age range* (A.D.)	Assay No.	Context
Tuck Carpenter/41CP5	360 ± 70	1473-1635	Tx-666	C
Sam Roberts/41CP8	320 ± 60	1490-1649	Tx-199	M
	240 ± 90	1515-1696	Tx-202	M
Harold Williams/41CP10	180 ± 40+	1460-1630	Beta-152353	C
Shelby Mound/41CP71	390 ± 60	1465-1631	Beta-132852	M
	540 ± 60	1322-1449	Beta-132853	M
	510 ± 50	1390-1455	Beta-181792	H
	350 ± 50	1440-1650	Beta-181793	H
	410 ± 50	1420-1635	Beta-181795	H
Underwood/41CP230	460 ± 70	1436-1625	Beta-120069	H
	320 ± 50	1516-1669	Beta-120070	H
Pilgrim's Pride/41CP304	340 ± 50	1485-1633	Beta-125985	H
	360 ± 40	1498-1636	Beta-125986	H
	430 ± 90	1419-1627	Beta-125987	H
	410 ± 30	1442-1613	Beta-132239	H
	180 ± 70++	1431-1626	Beta-132240	H
	320 ± 50	1513-1652	Beta-132241	H
	330 ± 50	1509-1642	Beta-132242	H
	140 ± 60++	1447-1626	Beta-132243	H
	60 ± 60++	1508-1602	Beta-132244	H
	80 ± 60++	1507-1654	Beta-132245	H
	230 ± 50	1650-1680	Beta-132246	H
	540 ± 40	1401-1435	Beta-133239	C
	400 ± 50	1443-1623	Beta-133240	C
	470 ± 40	1414-1449	Beta-138850	M
	380 ± 60	1495-1636	Beta-138851	M
	480 ± 90	1400-1640	Beta-138852	H
	530 ± 70	1405-1445	Beta-138853	H
	370 ± 80	1450-1650	Beta-138855	H
	220 ± 70++	1420-1480	Beta-138856	H
	440 ± 60	1430-1500	Beta-138857	H
	560 ± 60	1325-1430	Beta-138858	H
	370 ± 80	1445-1645	Beta-138859	H
	410 ± 70	1440-1635	Beta-138862	H
	370 ± 70	1440-1635	Beta-138863	H
	380 ± 60	1450-1635	Beta-138867	H
41CP313	310 ± 70	1480-1655	Beta-132855	H
41CP316	470 ± 60	1425-1490	Beta-129980	H
	310 ± 60	1480-1650	Beta-129981	H
Red Honeysuckle/41CP335	410 ± 80	1435-1635	Beta-133241	H
Alex Justiss/41TT13	400 ± 40	1430-1630	Beta-170437	C
	380 ± 40	1440-1640	Beta-170438	C
	550 ± 40	1310-1430	Beta-170439	C

Table 11-2. *(Continued)*

Site Name/Site Number	Raw Age	Calibrated age range* (A.D.)	Assay No.	Context
41TT182	290 ± 120	1465-1680	Beta-44787	H
	320 ± 70	1492-1649	Beta-44789	H
41TT373	440 ± 80	1411-1625	Beta-48886	H
41TT392	320 ± 80	1483-1666	Beta-64977	H
41TT406	470 ± 60	1404-1486	Beta-64982	H
Mockingbird/41TT550	350 ± 60	1507-1654	Beta-99688	C
	460 ± 60	1433-1622	Beta-99689	C
	390 ± 50	1509-1642	Beta-99690	C
	330 ± 60	1508-1667	Beta-99692	C
	450 ± 60	1437-1623	Beta-99693	C
Earspool/41TT653	380 ± 50	1442-1625	Beta-105530	H
	360 ± 50	1436-1624	Beta-105531	H
	460 ± 50	1415-1484	Beta-117271	H
	320 ± 60	1515-1600	Beta-117273	H
	400 ± 40	1442-1504	Beta-117275	H
	440 ± 50	1422-1494	Beta-119001	H
	320 ± 50	1516-1599	Beta-119002	H
	320 ± 50	1516-1599	Beta-119003	H
	420 ± 50	1434-1503	Beta-119006	H
	360 ± 50	1553-1633	Beta-119623	H
	280 ± 40	1626-1667	Beta-119624	H
	380 ± 40	1450-1521	Beta-119625	H
41TT672	430 ± 50	1431-1615	Beta-80432	H
Harroun/41UR10	490 ± 100	1386-1620	Tx-84	M
	265 ± 65	1511-1680	Tx-238	M
	330 ± 110	1444-1668	Tx-239	M
	345 ± 75	1479-1641	Tx-241	M
Dalton/41UR11	480 ± 110	1391-1626	Tx-83	M
41UR118	300 ± 60	1518-1679	Beta-72372	H
	440 ± 40	1430-1483	Beta-90532	H
	400 ± 60	1442-1625	Beta-132010	H
41UR129	403 ± 41	1425-1470	Tx-7990	H
Rookery Ridge/41UR133	266 ± 42	1638-1679	Tx-7994	H
	360 ± 40	1480-1630	Beta-90534	H
	420 ± 50	1435-1495	Beta-117740	H
	540 ± 80	1315-1440	Beta-117741	H
	300 ± 50	1515-1655	Beta-117742	H
	550 ± 50	1395-1425	Beta-117744	H
	430 ± 60	1427-1620	Beta-132011	H
	260 ± 60	1518-1679	Beta-132012	H
Camp Joy/41UR144	390 ± 60	1495-1636	Beta-84435	M
	310 ± 60	1515-1675	Beta-84436	M
	330 ± 70	1502-1673	Beta-145232	M

Table 11-2. *(Continued)*

Site Name/Site Number	Raw Age	Calibrated age range* (A.D.)	Assay No.	Context
S. Lily Creek/41UR279	460 ± 50	1410-1500	Beta-183858	H
Steck/41WD529	480 ± 80	1393-1621	Tx-3473	H

* 1 sigma (see Stuiver and Reimer 1993a, 1993b; Stuiver et al. 1998)
** H = habitation; C = cemetery; M = mound
\+ radiocarbon date on human remains; C13/C12 value of -14.0 o/oo; ++=sample on corn

Table 11-3. Oxidizable Carbon Ratio Dates from Titus Phase Sites*.

Site Name/Number	Calculated OCR Date (BP)	Rounded Date (A.D.)
Shelby Mound/41CP71	317-444 (Unit 1)	1493-1642
	507-514 (Unit 2)	1421-1458
	403-495 (Unit 3)	1441-1559
Underwood/41CP230	458	1475-1505
	476	1455-1490
	550	1388-1415
Tiddle Lake/41CP246	423-460 (n=2)	1477-1539
Pilgrim's Pride/41CP304	486-592 (n=3, Mound)	1341-1478
	Mean age, 511-542 (Village) (n=31)	1408-1439
41CP313	304-331 (n=3)	1610-1655
41CP316	484-538 (n=3)	1396-1480
41CP317	555	1379-1411
Red Honeysuckle/41CP335	514-531 (n=8)	1404-1451
BC Road/41CP344	409-500 (n=14)	1436-1553
Frank Benson/41TT310	365-524 (n=5)	1411-1595
Earspool/41TT653	330	1610-1630
	357	1580-1600
	372	1570-1590
T. P. Bass/41TT837	463	1474-1500
41TT865	368-531 (n=3)	1404-1593
Rookery Ridge/41UR133	291	1650-1670
	319	1620-1640
	547	1385-1415
Camp Joy Mound/41UR144	275-408 (n=4, Zone D)	1530-1683
	288	1654-1670
	289	1640-1670
	379-414 (n=6, Zone C)	1524-1582
	420	1520-1540
South Lily Creek (41UR279)	397-571 (n=3)	1379-1553

*Analyses performed by Archaeology Consulting Team, Essex, Vermont; see Frink 1992, 1994 with ending dates on pedogenic markers that fall as late as A.D. 1642 at the Shelby site, A.D. 1655 at 41CP313 (a habitation area associated with the Pilgrim's Pride site, see Volume II of this report), and A.D. 1660-1683 at the Camp Joy Mound (see Table 11-3).

OCR dates from mound contexts at the Tiddle Lake, Pilgrim's Pride, and Camp Joy Mound sites compare favorably to those obtained from radiocarbon dating of Titus phase mound sites (see Table 11-2): ca. A.D. 1477-1539 at Tiddle Lake, A.D. 1341-1478 from the Area VII mound at the Pilgrim's Pride site, and A.D. 1520-1683 from Camp Joy Mound (see Table 11-3). The OCR dates of A.D. 1411-1595 from the Frank Benson site (41TT310) are from a thick deposit of daub and burned clay that is apparently from a burned structure capped with a sandy mound fill (see Perttula and Nelson 2002). The general contemporaneity of the OCR and radiocarbon samples from these different mound sites provides further confirmation of the fact that Titus phase Caddo peoples (at least in the Big Cypress Creek heartland) were strongly engaged in the construction and use of mounds as places of power and ritual during most, if not all, of the Titus phase.

MORTUARY RITUALS AND BURIAL FEATURES

The Pilgrim's Pride site has one of the 132 known Titus phase cemeteries in northeastern Texas (see Chapter 6, this volume) (see also Figure 11-1). These cemeteries range in size from less than five individuals to as many as 200 burials (Table 11-4), as far as can be determined from the available evidence, and they occur in a variety of settings within the Titus phase area, with a considerable diversity in burial treatment and mortuary offerings (see Perttula and Nelson 1998b:328-401; Rogers et al. 2003:19-22). The Pilgrim's Pride cemetery is part of the site's large village and political community, but the majority of the known Titus phase burials are from the large community cemeteries; these all had more than 70 interments (Table 11-4).

Titus phase cemeteries are particularly common in sites located along Big Cypress Creek itself, followed by other cemeteries on a series of tributaries to Big Cypress Creek (Figure 11-9). The principal tributary creek settings for Titus phase cemeteries are Swauano Creek, Boggy Creek, Dry Creek, Arms Creek, Meddlin Creek, and Greasy Creek. With the exception of the Boggy Creek cemeteries, the Late Caddo communities living on the other tributaries appear to represent recognizable concentrations of settlements, mounds, and community cemeteries that constitute distinct political communities. A political community as used here is

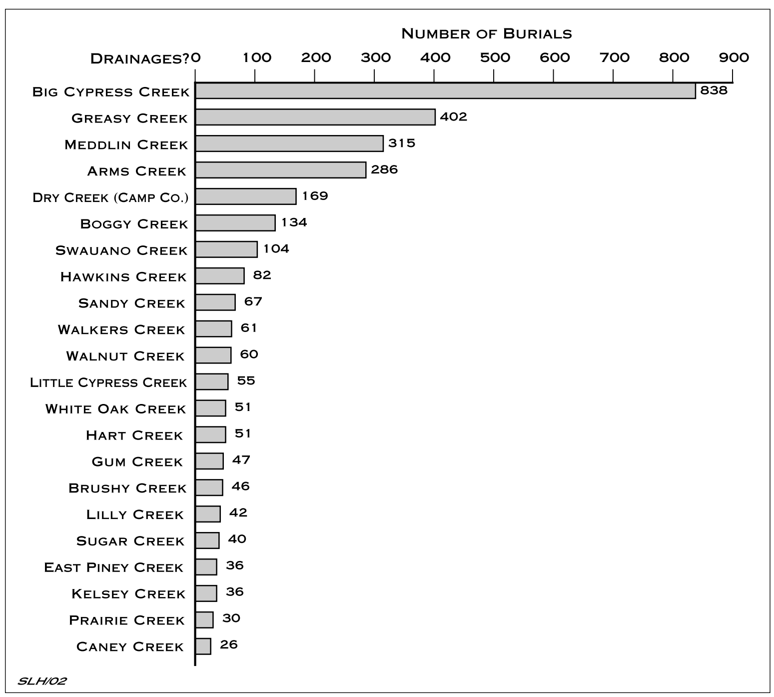


Figure 11-9. Number of recorded burials from Titus phase cemetery sites on different drainages in northeastern Texas.

Table 11-4. Titus Phase Cemeteries.

#	Site Name/Site Number	Interments	Drainage Basin	Reference
1	Mockingbird, (41TT550)	11+	Hayes Creek	Perttula et al. 1998; Kotter et al. 1993
2	Horton (41CP20)	19	Big Cypress Creek	Turner 1978; Hunt et al. 1996
3	A. P. Williams (41TT4)	10	Dragoo Creek	Goldschmidt 1934a; Turner 1978
4	Thomas P. Caldwell (41TT6)	10	Tankersley Creek	Goldschmidt 1934b; Turner 1978
5	Alex Justiss (41TT13)	26+	Swauano Creek	Bell 1981; Turner 1978; Rogers et al. 2003
6	Joe Justiss (41MX2)	11	Boggy Creek	Jackson 1930a; Turner 1978
7	Starrett (41MX4)	1+	Black Cypress Creek	Turner 1978
8	Russell Brothers Farm (41TT7)	25-30+	Big Cypress Creek	Gardner 1930; Turner 1978
9	Harold Williams (41CP10)	95+	Dry Creek	Woodall 1967; Turner 1978; Thurmond 1990a; Perttula et al. 1998; Turner et al. 2003
10	Mattie Gandy (41FK4)	11	Coon Creek	Jackson 1934b; Turner 1978
11	Culpepper (41HP1)	22	Stouts Creek	Scurlock 1962
12	P. S. Cash Farm (41CP2)	9	Greasy Creek	Jackson 1931a; Turner 1978; Thurmond 1990a
13	G. W. Rumsey (41CP3)	5-6+	Greasy Creek	Turner 1978; Thurmond 1990a
14	E. S. Dooley (41CP4)	2+	Greasy Creek	Thurmond 1990a
15	Tuck Carpenter (41CP5)	71+	Dry Creek	Turner 1978, 1992
16	Johns (41CP12)	30	Prairie Creek	Turner 1978
17	R. A. Watts #2 (41CP14)	1+	Big Cypress Creek	Herrington 1979; Thurmond 1990a
18	Lower Peach Orchard (41CP17)	35-45	Big Cypress Creek	Herrington 1979; Thurmond 1990a
19	41CP22	8+	Brushy Creek	Thurmond 1990a
20	Tracy/Shelby Mound (41CP71)	200+	Greasy Creek	Thurmond 1990a; Mitchell 2000
21	41CP76	3	Dry Creek	Turner 1978; Thurmond 1990a
22	Guest (41CP78)	7	Big Cypress Creek	Turner 1978; Turner et al. 2003
23	Jonah C. Atkinson (41FK1)	5	White Oak Creek	Turner 1978

Table 11-4. *(Continued)*

#	Site Name/Site Number	Interments	Drainage Basin	Reference
24	J. E. Galt (41FK2)	5	Brushy Creek	Jackson 1931b; Turner 1978
25	B. J. Connally (41FK5)	2	Big Cypress Creek	Reese 1931; Thurmond 1990a
26	S. P. Brown (41FK6)	1	Brushy Creek	Jackson 1934c
27	P. G. Hightower (41FK7)	3+	Big Cypress Creek	Jackson 1934d; Thurmond 1990a
28	W. A. Ford (41TT2)	3+	Sulphur River	Goldschmidt 1935; Turner 1978
29	W. L. Ormes (41HS1)	1+	Arms Creek	Thurmond 1990a
30	H. R. Taylor (41HS3)	71	Arms Creek	Jackson 1931c; Thurmond 1990a; Turner 1978
31	Keasler (41HS235)	35+	Little Cypress Creek	TARL records
32	Attaway (41HP15)	1	Caney Creek	TARL records
33	41HP26	1	Caney Creek	TARL records
34	Ben McKinney (41MR12)	11+	Big Cypress Creek	Davis and Golden 1960; Turpin et al. 1976; Thurmond 1990a
35	W. M. Dickson (41MR13)	?	Arms Creek	Miller et al. 1951; Thurmond 1990a
36	Pleasure Point (41MR63)	120-140	Big Cypress Creek	Perttula et al. 1996; Gadus and Fields 1996; TARL and COE-FWD records
37	Mims Chapel (41MR74)	20+	Big Cypress Creek	COE-FWD and TARL records
38	R. L. Cason (41MX1)	4	Boggy Creek	Jackson 1930b; Turner 1978
39	Hancock Farm (41MR24)	4	French's Creek	Jackson 1932; TARL records
40	Lone Star Steel (41MX9)	1+	Big Cypress Creek	Miller et al. 1951; Thurmond 1990a
41	Camp Joy Mound (41UR144)	6+	Big Cypress Creek	Turner 1993; Perttula et al. 2001
42	Pea Patch (41HS825)	88+	Arms Creek	THC-OSA and TARL records
43	George L. Keith (41TT11)	7	Hart Creek	Turner 1978; Thurmond 1990
44	Wofford (41TT62)	1+	Swauano Creek	Thurmond 1990
45	41TT111	6-11+	Big Cypress Creek	Thurmond 1990

Table 11-4. *(Continued)*

#	Site Name/Site Number	Interments	Drainage Basin	Reference
46	Fourth Tower B (41TT125)	1+	Blundell Creek	Thurmond 1990
47	Covey (41TT320)	6	White Oak Creek	TARL records
48	W. O. Reed (41UR1)	5	Greasy Creek	Jackson 1931e; Turner 1978; Thurmond 1990a
49	J. M. Riley (41UR2)	18+	Little Creek	Jackson 1931d; Turner 1978; Thurmond 1990a; Mike Turner, 1996 personal communication
50	Henderson-Southall (41UR3)	200+	Meddlin Creek	TARL and COE-FWD records; Perttula et al. 1998
51	S. Blackstone Farm (41UR31)	5	Glade Creek	Pearce 1920; Perttula et al. 1986
52	Gold Star Ballroom (41UR107)	53	Big Cypress Creek	TARL and COE-FWD records
53	J. H. Reese (41WD2)	5	Little Dry Creek	Wilson and Jackson 1930; Turner 1978; Perttula et al. 1993
54	Minnie Garrison (41WD16)	1+	Brushy Creek	Jackson 1930c; Thurmond 1990a
55	41WD19	15	Dry Creek	Skiles et al. 1980; Perttula et al. 1993
56	1972S (41WD44)	2	Dry Creek	Skiles et al. 1980
57	YBS (41WD45)	3	Caney Creek	Skiles et al. 1980
58	M. W. Burks (41WD52)	1+	Little Dry Creek	Perttula et al. 1993, Perttula 1995
59	Sandhill (41WD108)	1	Caney Creek	Bruseth and Perttula 1981
60	Spoonbill (41WD109)	19	Caney Creek	Bruseth and Perttula 1981; Bob Skiles, 1986 personal communication; Mark Walters, 2002 personal communication
61	1973S (41WD206)	2+	Dry Creek	Skiles et al. 1980; Perttula et al. 1993
62	Goldsmith (41WD208)	3	Dry Creek	Perttula et al. 1993
63	Jessie Rogers (41WD533)	1+	Caney Creek	TARL records
64	Gilbreath (41WD538)	5	Glade Creek	Bruseth and Perttula 1981; Bob Skiles, 1986 personal communication
65	Big Oaks (41MR4)	80-120	Big Cypress Creek	TARL and COE-FWD records; Perttula et al. 1996

Table 11-4. *(Continued)*

#	Site Name/Site Number	Interments	Drainage Basin	Reference
66	Lasco (41UR106)	30+	Kelsey Creek	Nichols et al. 1997; Mike Turner, 1996 personal communication
67	41UR109	2+	Kelsey Creek	Bo Nelson, 1996 personal communication
68	West Island (41MX65); also known as Ellison Island	2+	Ellison Creek	Turner 1978; King and Turner 1993
69	Holly Lake Ranch (41WD57)	1+	Holly Creek	Perttula et al. 1986
70	A. C. Riley (41CP7)	2+	Big Cypress Creek	Miller et al. 1951; Thurmond 1990a
71	R. A. Watts #1 (41CP13)	1	Big Cypress Creek	Herrington 1979; Thurmond 1990a
72	J. H. Chadd (41HS2)	1+	Arms Creek	TARL records; Thurmond 1990a
73	Scotty Scott (41TT119)	2+	Big Cypress Creek	Thurmond 1990a
74	41UR32	?	Big Cypress Creek	TARL and COE-FWD records
75	Spider Lilly (41UR143)	60+	Walnut Creek	Perttula et al. 1998; Nelson and Perttula 1997
76	Sandy Creek (41MR122)	67	Sandy Creek	Perttula et al. 1996
77	Cedar Springs (41UR137)	?	Big Cypress Creek	Perttula et al. 1996
78	41MR110	45	Big Cypress Creek	Perttula et al. 1996
79	Lost Indian (41TT643)	33	East Piney Creek	TARL and THC-AD records
80	QLBS (41WD60)	2+	Dry Creek	Skiles et al. 1980
81	41TT716	21+	Big Cypress Creek	Perttula et al. 1998; Nelson and Perttula 1997
82	Stephens Barn (41TT717)	27+	Hart Creek	Perttula et al. 1998; Nelson and Perttula 1997
83	D.C. Washout (41HS577)	6+	Little Cypress Creek	TARL records
84	CK 1 (41UR___)	42	Lilly Creek	Perttula et al. 1998
85	Sandlin Dam (41TT726)	150+	Big Cypress Creek	Perttula et al. 1998; Nelson and Perttula 1997; Perttula and Nelson 2002
86	J. McKay (41TT730)	17+	Hart Creek	Perttula et al. 1998; Nelson and Perttula 1997

Table 11-4. *(Continued)*

#	Site Name/Site Number	Interments	Drainage Basin	Reference
87	Power Plant (41TT727)	27+	Swauano Creek	Perttula et al. 1998; Nelson and Perttula 1997
88	J. Wright (41FK96)	31+	Brushy Creek	Perttula et al. 1998; Nelson and Perttula 1997
89	41TT96	1+	Tankersley Creek	TARL records
90	French-Daily (41CP238)	30+	Walkers Creek	Perttula et al. 1998; Nelson and Perttula 1997
91	Jack Morris (41TT723)	40+	White Oak Creek	Perttula et al. 1998; Nelson and Perttula 1997
92	Sugar Creek (41UR207)	40+	Sugar Creek	Perttula et al. 1998; Nelson and Perttula 1997
93	State Park (41TT725)	30+	Big Cypress Creek	Perttula et al. 1998; Nelson and Perttula 1997
94	Oil-topped (41CP225)	40+	Big Cypress Creek	Perttula et al. 1998; Nelson and Perttula 1997
95	Meddlin Creek (41UR___)	115+	Meddlin Creek	Perttula et al. 1998; Nelson and Perttula 1997
96	Arms Creek (41MR___)	80-120+	Arms Creek	TARL and COE-FWD records
97	Mutt McGrede (41GG53)	25+	Hawkins Creek	Perttula 2000a
98	Teneryville #1 (41GG50)	12+	Hawkins Creek	Perttula 2000a
99	Teneryville #2 (41GG51)	23+	Hawkins Creek	Perttula 2000a
100	Mud Creek (41GG56)	20+	Sabine River	Perttula 2000a
101	Daingerfield Water Intake (41MX28)	20	Big Cypress Creek	TARL and COE-FWD records
102	Peterson Ranch (41HS253)	15-20+	Grays Creek	TARL records
103	Maughan (41UR___)	3	Little Cypress Creek	Turner 1978
104	Keeling (41UR___)	15	S. Greasy Creek	Turner 1978
105	41HS5	5+	Arms Creek	TARL records
106	Couch Mountain (41CP___)	115+	Greasy Creek	THC-OSA records
107	Turbeville (41WD20)	2	Lake Fork Creek	Skiles et al. 1980; Bob D. Skiles, 1996 personal communication
108	Tarp (41TT729)	30+	Swauano Creek	Perttula et al. 1998; Nelson and Perttula 1997
109	Dickson (41GG55)	8	Hawkins Creek	Perttula et al. 1998; Nelson and Perttula 1997
110	Whatley (41GG54)	14	Hawkins Creek	Perttula et al. 1998; Nelson and Perttula 1997

Table 11-4. *(Continued)*

#	Site Name/Site Number	Interments	Drainage Basin	Reference
111	Woody Michener (41CP244)	11+	Big Cypress Creek	Perttula et al. 1998; Nelson and Perttula 1997
112	Coon Hunter or Polk Estates (41CP245)	20-30+	Big Cypress Creek	Perttula et al. 1998
113	Sword (41UR208)	47+	Gum Creek	Perttula et al. 1998; Nelson and Perttula 1997
114	Hoosier School (41WD524)	1+	Caney Creek	Bob Skiles, 1997 personal communication; cemetery related to the Arnold Glen site
115	Tina Resch (41HS14)	20-30+	Potters Creek	Webb et al. 1969; Jones 1968
116	Tom Byrd (41MX___)	1+	Boggy Creek	Mike Turner, 1997 personal communication
117	Jake Martin (41UR12)	3-4+	Big Cypress Creek	Bo Nelson, 1999 personal communication
118	41CP317	1	Walkers Creek	This volume
119	Pilgrim's Pride (41CP304)	30	Big Cypress Creek	This volume
120	41CP350	2+	Big Cypress Creek	Bo Nelson, 1999 personal communication
121	Rookery Ridge (41UR133)	4	Kelsey Creek	Parsons 1998
122	Earspool (41TT653)	3+	Piney Creek	Galan 1998; Sherman et al. 2002
123	Pine Grove (41HS826)	10+	Little Cypress Creek	TARL records
124	W-S (41TT741)	118	Swauano Creek	TARL records
125	Harold Nix (41MX___)	20	Swauano Creek	TARL records
126	Dixon Creek (41UR273)	20+	Greasy Creek	Mitchell 2000; TARL records
127	Redware (41UR272)	30+	Greasy Creek	Mitchell 2000; TARL records
128	Heart Attack Hill (41HS828)	1	Little Cypress Creek	TARL records; Perttula 2000a
129	41WD511	1	Lake Fork Creek	TARL records; Perttula 2000a
130	Gus Bogan (41WD25)	?	Sabine River	TARL records; Perttula 2000a
131	Turquoise (41WD586)	9	Caney Creek	TARL records; Perttula 2000a
132	Peach Orchard Overlook (41CP25)	11+	Big Cypress Creek	Bo Nelson, 1999 personal communication; Wilson et al. 2001

Note: The trinomial site numbers without a suffix numeric designation are sites that have not been recorded due to lack of exact locational information (e.g., 41MX___) a cluster of interrelated settlements and associated cemeteries that are centered on a key site or group of sites distinguished by public architecture (i.e., earthen mounds) and large domestic village areas. The key sites include sites such as Lower Peach Orchard (41CP17) on Big Cypress Creek at Lake Bob Sandlin; Pilgrim's Pride on Walkers Creek; Tom Hanks (41CP239), Harold Williams (41CP10) and Tuck Carpenter (41CP5) on Dry Creek (Turner 1978, 1992); Sam Roberts (41CP8), P. S. Cash (41CP2), and the Shelby (41CP71) sites on Greasy and Prairie creeks; Harroun (41UR10), Dalton (41UR11), Chastain (41UR18), and Camp Joy Mound (41UR144) on Big Cypress Creek and Meddlin Creek; and the Whelan (41MR2), H. R. Taylor (41HS3), and Pea Patch (41HS825) sites on Big Cypress Creek and Arms Creek (see Figure 11-1, see also Perttula 2004: Figures 13.30-13.31).

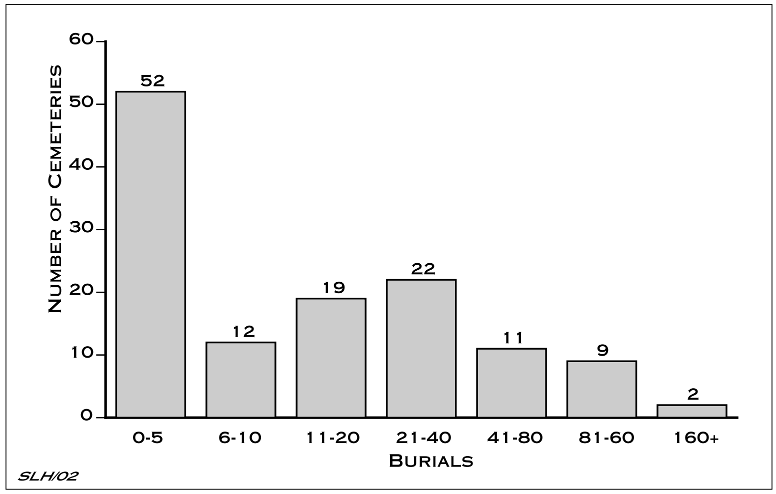


Figure 11-10. Variation in the size of Titus phase cemeteries.

The average Titus phase cemetery contained about 26 individuals, arranged in a number of rows, with little if any overlapping of graves (Perttula and Nelson 1998b:375). There is a considerable variation in the size of the cemeteries, which surely relates not only to the length of time they were used by different families and lineages, but also apparently depending upon if the cemeteries were used by a larger community and not just extended family members. More than 40% of the Titus phase Caddo cemeteries with reliable information on the numbers of burials they contained had less than 5 interments, and another 24% had between 6-20 separate burials (Figure 11-10). Approximately 17% (including the Pilgrim's Pride site) had between 21-40 burials, and 9% had 41-80 graves. Finally, almost another 9% were very large cemeteries with either 81-160 or 160+ separate Caddo burial features. The two largest known Titus phase cemeteries are the Shelby site (41CP71) on Greasy Creek (Thurmond 1990a; Mitchell 2000; Perttula et al. 2004) and the Henderson-Southall site (41UR3) on Meddlin Creek (Perttula et al. 1998; Wilson 1997a); both cemeteries are situated a few miles above the confluence of tributary streams with Big Cypress Creek (see Figure 11-1, nos. 20 and 50).

Including burials found in residential contexts (see Chapter 4, this volume), and the 19 individual extended burials in the Area V/VI cemetery, a total of 30 interments were recognized in the archeological investigations at the Pilgrim's Pride site. In terms of size, the cemetery does not appear to be a community cemetery, but its planned location within the village community, and its internal character, suggest that the Pilgrim's Pride site cemetery was probably used for several generations by the different families and lineages that lived throughout the large village.

Although all the prehistoric Caddo burials in the cemetery are single individuals placed in an extended supine position, with their heads facing west, we were able to recognize six different burial groupings in the cemetery. These were defined on the basis of burial treatment (i.e., distinct burial fills), grave pit size, and the kind and amount of funerary offerings placed with the deceased (Table 11-5).

Table 11-5. Funerary Offerings by Burial Groupings in The Pilgrim's Pride Site Cemetery (41CP304).

Burial Group	Mean No. Vessels	Mean No. Pipes	Mean No. Celts	Mean No. Arrow points	Mean No. other Tools
I	11.3	0.0	0.3	1.0	1.7
II	5.8	0.0	0.0	0.0	0.5
III	10.0	0.0	0.5	0.0	0.5
IV	11.5	0.5	1.0	8.0	0.0
V	7.0	0.0	0.0	0.0	0.5
VI	3.7	0.0	0.0	0.0	0.3
F. 501, 502, 512*	4.0	0.0	0.0	0.0	0.0

*these burials had been disturbed, and although they lacked a red clay fill, and belonged with Burial Groups IV-VI, they could not be assigned to a specific group since burial pit size could not be determined.

The six burial groupings sort readily by character as well as spatially (see Figure 6-26) into two larger groups—based primarily on the use of red clay for burial fill only in Groups I-III. More important adult family members or lineage heads are included in Groups I and IV, and they had the highest numbers of burial offerings, including celts, arrow points, and other chipped and ground stone tools (see Table 11-5). Based on the relative position of the different burial groups in the several rows of burials at the Pilgrim's Pride site, the Group IV-VI burials were later in time (perhaps more than a generation later) than the Group I-III burials. In other ways, however, the mortuary rituals used by the different groups were very much the same through time. That is, the deceased—whether adult or juvenile—were placed on their back in a burial pit that was excavated into the red clay B-horizon, with their heads facing west, or towards the sunset (Perttula and Nelson 1998b:378; Turner 1978:105). They were accompanied primarily by ceramic vessels, placed by the head and along one or both sides of the body (bowls, carinated bowls, jars, and bottles), that probably held foods and liquids. A few individuals—probably adult males and senior family members—had caches of stone-tipped arrow points also placed with them in the grave, along with an occasional ground stone celt or a clay elbow pipe. Other funerary offerings included clay pigments and a few chipped stone tools (such as a beveled knife made from Florence A chert) and caches of lithic debris from non-local raw materials.

Not counting pieces of lithic debris, the 19 burials in the Pilgrim's Pride cemetery had a mean of 8.3 funerary objects per burial (Table 11-6). Approximately 80% of these offerings were ceramic vessels. The frequencies of funerary objects at this cemetery is on the lower end of the scale of burial furnishings when compared to the better documented Titus phase cemeteries listed in Table 11-6. Those cemeteries at the top of the list, including R. L. Cason (41MX1), W. A. Ford (41TT2), Thomas P. Caldwell (41TT6), and Alex Justiss (41TT13), had between 16.8-24.5 funerary objects per burial, with numerous distinctive caches of arrow points accounting for about 50-60% of the items placed with the deceased (see Table 11-6).

Table 11-6. Frequencies of Funerary Objects in Selected Titus Phase Cemeteries.

Site Name	Ceramic Vessels (mean)	Arrow Points	Total Specimens (mean)	No. of burials	Reference
R. L. Cason	9.3	12.8	24.5	4	Thurmond 1990a:Table 37
W. A. Ford	9.3	10.3	20.0	3	Goldschmidt 1935
Thomas P. Caldwell	9.5	8.7	18.9	10	Thurmond 1990a:Table 40
Alex Justiss	7.2	9.4	16.8	28	Bell 1981; Rogers et al. 2003
J. M. Riley	9.9	5.1	16.1	18	Thurmond 1990a:Table 48
J. E. Galt	9.8	0.4	15.2	5	Thurmond 1990a:Table 29
Tuck Carpenter	9.2	4.3	14.8	45	Turner 1978, 1992
H. R. Taylor	8.3	5.1	14.5	71	Thurmond 1990a:Table 35
Ben McKinney	11.0	0.8	13.8	8	Thurmond 1990a:Table 36
Goldsmith	8.3	3.3	13.7	3	Perttula et al. 1993
B. J. Horton	7.5	3.5	13.0	11	Hunt et al. 1996: Appendix F
A. P. Williams	8.8	2.9	12.6	10	Thurmond 1990a:Table 39
W-S	7.1	4.1	11.6	118	TARL records
Spoonbill	8.1	2.6	11.4	7	Walters n.d.
Salt Lick*	6.3	3.0	11.0	4**	McClurkan et al. 1966
P. S. Cash	5.7	4.7	10.9	9	Thurmond 1990a:Table 22
Mattie Gandy	8.2	1.4	10.3	11	Thurmond 1990a:Table 32
Mockingbird	8.1	1.0	10.1	11	Perttula et al. 1998
Joe Justiss	6.2	2.0	8.5	11	Thurmond 1990a:Table 38
W. O. Reed	7.0	1.4	8.4	5	Thurmond 1990a:Table 47
Pilgrim's Pride	6.6	0.9	8.3	19	This volume
Bison, Area B*	5.7	2.1	8.3	15	Woodall 1969
Harold Nix	6.0	1.3	7.5	20	TARL records
Turquoise	4.2	1.7	6.3	9	Walters n.d.
Culpepper	4.9	0.4	5.4	8	Scurlock 1962

* occupations at Toledo Bend Reservoir (middle Sabine River basin) contemporaneous with the Titus phase
** Extended burials only (Burials 7-10)

In the remainder of the 25 cemeteries listed in Table 11-6, including Pilgrim's Pride, ceramic vessels comprise 60-90% of the funerary offerings, and the absolute quantity of funerary offerings is as much as four times lower than has been noted at the four cemeteries dominated by offerings of arrow point caches/quivers. Pilgrim's Pride is at the low end of the scale of total specimens per burial, and it also has one of the lowest number of arrow point cache/quiver offerings, only slightly higher than at the Culpepper (41HP1) and J. E. Galt (41FK2) cemeteries (see Table 11-6), and about the same as at the Mockingbird (41TT550) cemetery.

Titus phase Caddo cemeteries fall readily into two groups: the community cemetery and the family cemetery (see Perttula and Nelson 1998b). The community cemeteries are large and well-planned, with more than 70-80 individuals, and oft times will end up being the final resting place of individuals of higher social status or rank. These very large cemeteries appear to be the result of burials from a number of communities within each of the political communities mentioned above, and show that there was a broad community-wide participation in ceremonial and mortuary rituals.

Currently, there are 13 known Titus phase community cemeteries, 12 on Big Cypress Creek and its principal tributaries (i.e., Arms, Meddlin, Greasy, Boggy, and Dry creeks), and the 13th on Walnut Creek, a tributary to Little Cypress Creek (Figure 11-11). From north to south, the community cemeteries include the Sandlin Dam (41TT726, no. 85 on Figure 11-11); Tuck Carpenter (41CP5, no. 15); Harold Williams (41CP10, no. 9); W-S (41TT741, no. 124); Shelby/Tracy (41CP71, no. 20); Gold Star Ballroom (41UR107, no. 52); Pleasure Point (41MR63, no. 36); Henderson-Southall (41UR3, no. 50); Big Oaks (41MR4, no. 65); Sandy Creek (41MR122, no. 76); Pea Patch (41HS825, no. 42); H. R. Taylor (41HS3, no. 30); and Spider Lilly (41UR143, no. 75) on Walnut Creek.

The community cemeteries are internally organized by space. They may also be differentiated by the placement of high status or socially ranked individuals near the center of various clusters of burials, or in the central part of the cemetery itself (see Perttula 2004:Figure 13.33), as if that individual was a founding member of one of the important Caddo families in the larger community that created and maintained the large cemeteries.

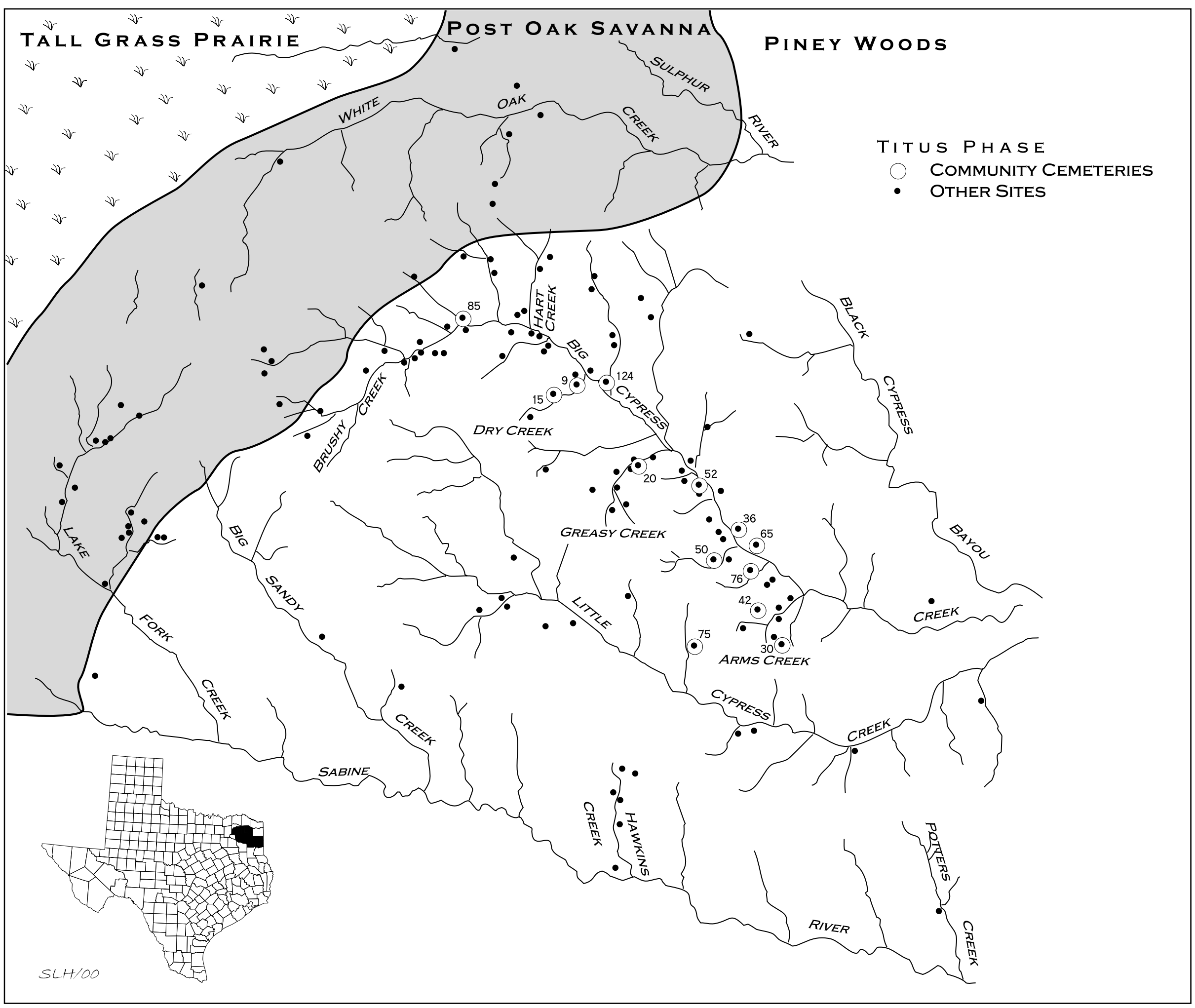


Figure 11-11. Location of Titus phase community cemeteries. Note that cemetery nos. are keyed to Table 11-4.

At the W-S community cemetery site on Swauano Creek (Figure 11-12), there were two different periods of time when the cemetery was apparently being used, and this is evident by the different orientation of certain burials and burial rows; the burials from each period did not overlap. Ripley Engraved vessels are common throughout the cemetery, including a few with the pendant triangle motif, and other recognizable vessel forms include Simms Engraved and Taylor Engraved (primarily from the northern area), as well as Cass Appliqued, again, mainly in the northern cemetery area. One distinctive vessel (Burial 68) in the northern cemetery area was a double-tiered engraved vessel with suspension holes. This vessel form (complete with double rows of suspension holes) may be a variety of Natchitoches Engraved (cf. Weinstein et al. 2003:285, 289); similar vessels have been documented in a collection from the J. M. Riley site (41UR2) and from an unknown Titus phase site in the Buddy Jones Collection (Gregg County Museum). In the southern part of the cemetery (south of the dashed line on Figure 11-12), probably the earliest episode of cemetery use, the burials were oriented northeast-southwest. The remainder of the younger burials in the cemetery are in rough and closely-packed east-west aligned rows.

Although the available documentation on the burials is somewhat scanty (notes and selected individual burial maps on file at the Texas Archeological Research Laboratory, The University of Texas at Austin), information on the range of funerary offerings from the two different periods of cemetery use does shed some light on differences in mortuary ritual at a large Titus phase cemetery. First, the earlier burials in the southern part of the W-S cemetery tended to have more ceramic vessels and caches of Talco arrow points than did the later and larger northern part of the cemetery. Three different burials (1, 6, and 90) had more than 14 vessels placed as offerings with the deceased); none of the burials on the northern part of the cemetery had that many vessel offerings. Three other burials (8, 26, and 71) each had more than 30 Talco arrow points in the graves, compared to only one burial (47) in the northern part of the cemetery (see Figure 11-12); however, Talco points themselves are found in more graves in the youngest part of the cemetery, whether they

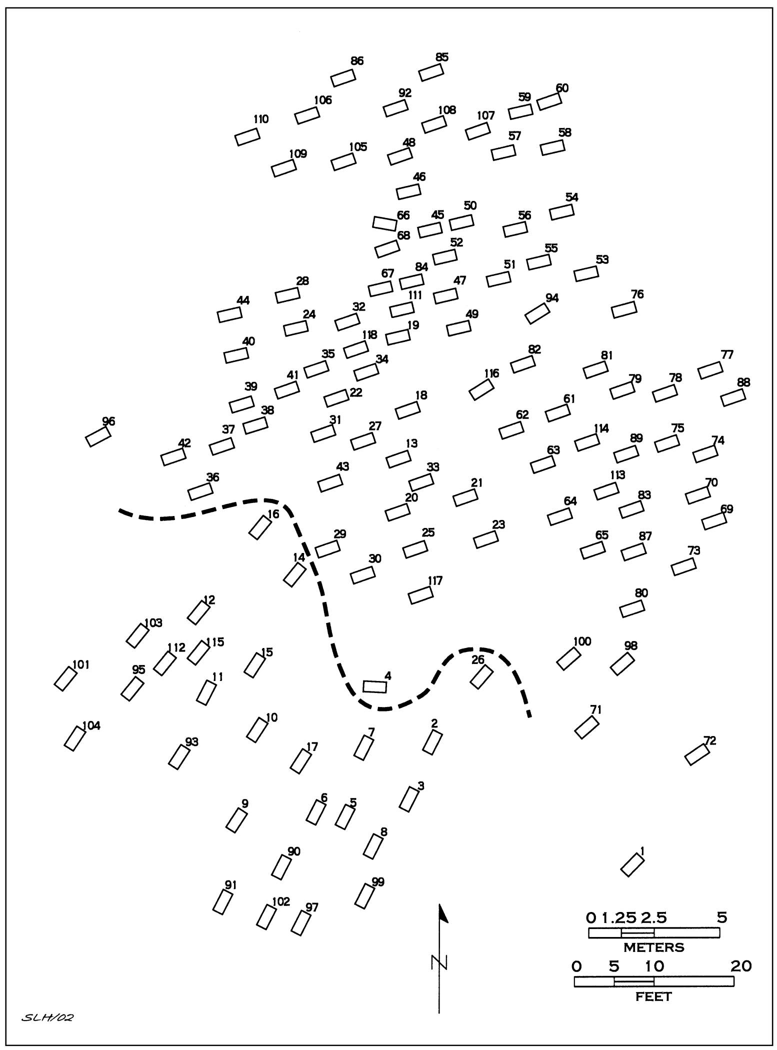


Figure 11-12. The community cemetery at the W-S site on Swauano Creek in Titus County, Texas; this is site no. 124 on Figure 11-11.

occurred in large caches or not. Second, the one burial (16) with marine shell beads and ceramic earspools is also found in the southern and earlier cemetery area. Third, five burials (37, 44, 47, 63, and 99) at the W-S cemetery had clay pipes as funerary offerings, and 80% of them are in the northern cemetery area (see Figure 11-12). Finally, four burials (55, 62, 74, and 90) had large chipped blades, probably Galt bifaces, and three of these are in the northern and younger cemetery area.

At the Shelby site (41CP71; the cemetery area has also been referred to as the Tracy site, see Mitchell [2000] and Thurmond [1990a:58]), the available documentation (see Mitchell 2000; TARL files) indicates that the many burial rows of interments had a roughly east-west orientation (Figure 11-13), similar to the youngest burials in the northern part of the W-S site community cemetery; four burials (116-119) are more northeast-southwest in orientation. A total of 119 burial pits had been mapped by one of the diggers when the Shelby site was being looted, but apparently more burials had been excavated in the cemetery besides those mapped on Figure 11-13 (Bo Nelson, 2002 personal communication).

Mitchell (2000) indicates that not all the burials at the Shelby site were single, extended interments. Some apparently held multiple individuals, and several of the Caddo burials had been placed in deep and probable shaft tombs; signs of the looted shaft tombs are still visible at the cemetery. Notes on file at TARL also indicate that there was a large concentration of daub in the area of the later plotting of Burial 117 (see Figure 11-13), and it is possible that this particular burial had been placed in the floor of a deliberately burned Caddo structure. This burial is also significant because in it were two 9 ft. long red cedar poles, a rare find indeed. The cedar poles may be the preserved remnants of a wood litter upon which Burial 117 would have rested. One cannot think of a wood litter on a prehistoric Caddo site without considering the cedar pole burial litters in the Great Mortuary at the Spiro site (see Brown 1996), as these were among the most laden with exotic marine shell artifacts, embossed copper plates, and other rare Southeastern ceremonial complex artifacts. While not as spectacular as the litter burials from Spiro, this litter burial at the Shelby site was said

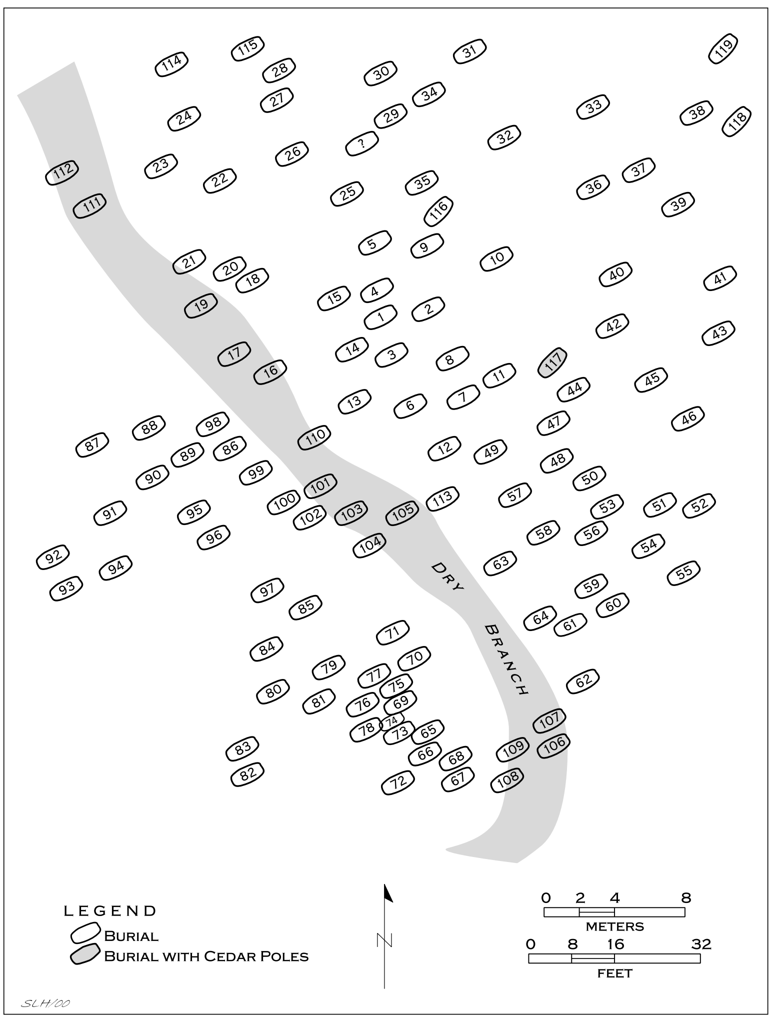


Figure 11-13. The Titus phase community cemetery at the Shelby site (41CP71); this is site no. 20 on Figure 11-11.

to contain five whole ceramic vessels, 22 arrow points, and many sherds from an uncertain number of other vessels (Mitchell 2000). One of the vessels was described as a tri-colored (red, yellow, and tan) bowl, which sounds very much like a lower Mississippi Valley Carson Red-on-buff, *var. Olmond* vessel (Phillips 1970:63) or a Hatinu Engraved vessel seen in vessel collections from the Hatchel (41BW3), Clements (41CS25), and Foster (see Weinstein et al. 2003: Figures 106 and 107) sites.

Other notable burials at the Shelby site had ceramic earspools, rarely found in contexts other than those of the social elite, and at least three large (20 cm) black Big Fork chert blades came from burials (Mitchell 2000). Finally, one burial (not identified by burial no.) was accompanied by a very large cache of 120 arrow points, 117 of which were Talco, along with celts, hammerstones, axes, and a bannerstone (Mitchell 2000). These kinds of funerary objects placed by the Caddo with the deceased at the Shelby site are very much indicative of high-status Titus phase burials (see Perttula 2004:401; Thurmond 1990a:235).

The family cemeteries are generally found in the immediate proximity to a farmstead or hamlet, and they contain few interments by comparison to the much larger community cemeteries. They seem to have had about 10-20 individuals in cemeteries along the western margins of the Titus phase area and between 20-40 individuals in the Titus phase heartland along Big Cypress Creek, suggesting intra-areal differences in population densities and the social organization of extended families and lineages.

Burials within the family cemeteries included single extended inhumations within a patterned arrangement of burials in rows, sometimes aligned east-west and other time in roughly north-south rows (Figures 11-14 and 11-15). Burial pit sizes, funerary offerings, and preserved human remains suggest the majority of the burials in the family cemeteries are adult males and females.

Grave good associations and burial treatment of Caddo peoples in Titus phase family cemeteries do not show much evidence among these individuals for differential status or social rank. According to Thurmond (1990a:235-236), artifact associations in family cemeteries differ only by age and sex:

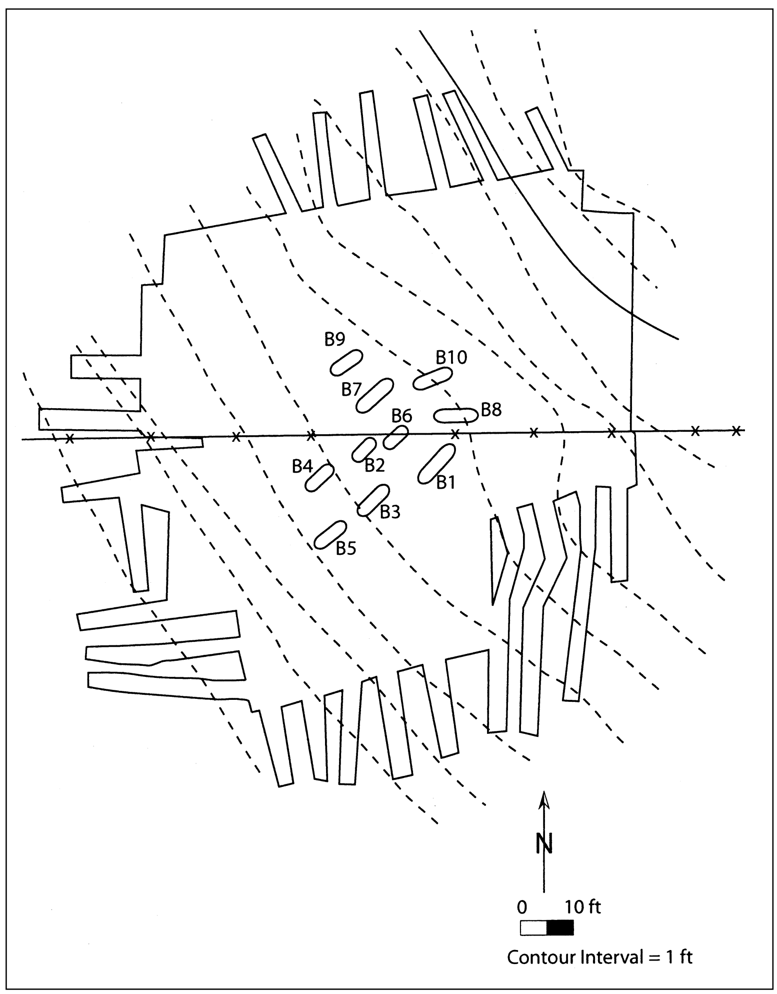


Figure 11-14. Map of the 1934 excavations at the Thomas Caldwell site (41TT6) on Tankersley Creek.

> Adolescents were buried with more offerings than children or infants, and with fewer offerings than adults. The graves of males often contain clusters of arrow points in patterns suggesting quivers of arrows, and those of females contain polishing stones or more numerous pottery vessels. Items of exotic material. . . are extremely rare. The occurrence of graves containing very large numbers of artifacts is also quite limited.

There are a number of burials found in Titus phase cemeteries that are clearly those of important people, either adult members of the social elite, individual community leaders, or even heads of paramount lineages (as recently suggested by Maynard B. Cliff, see Rogers et al. [2003:21-22]). They received special treatment at death, including having unique and rare artifacts placed with them in the burial pits, just as they must have during their lives (Table 11-7). None of the burials at the Pilgrim's Pride site have been identified as those of the Caddo social elite in that community.

Notable Caddo burials in Titus phase contexts include shaft tombs at three sites, two on Big Cypress Creek and the third on Greasy Creek; burials in two mounds on Big Cypress Creek; at least seven sites on Big Cypress Creek and its tributaries with large chipped Galt-style bifaces; 17 burials at nine different sites on tributaries of Big Cypress Creek with individuals buried with large numbers of grave goods; and four burials from three different sites on tributaries to Big Cypress Creek and White Oak Creek that had double extended supine burials with quantities of grave goods (see Table 11-7). These unique burials are from Caddo peoples in different Titus phase political communities that must have had considerable power and authority, at least in their own community. Such burials are rare, certainly comprising less than 2% of the Titus phase population at any one time, and probably less than that given the spotty record of complete burial documentation on many of the Titus phase cemeteries listed in Table 11-4.

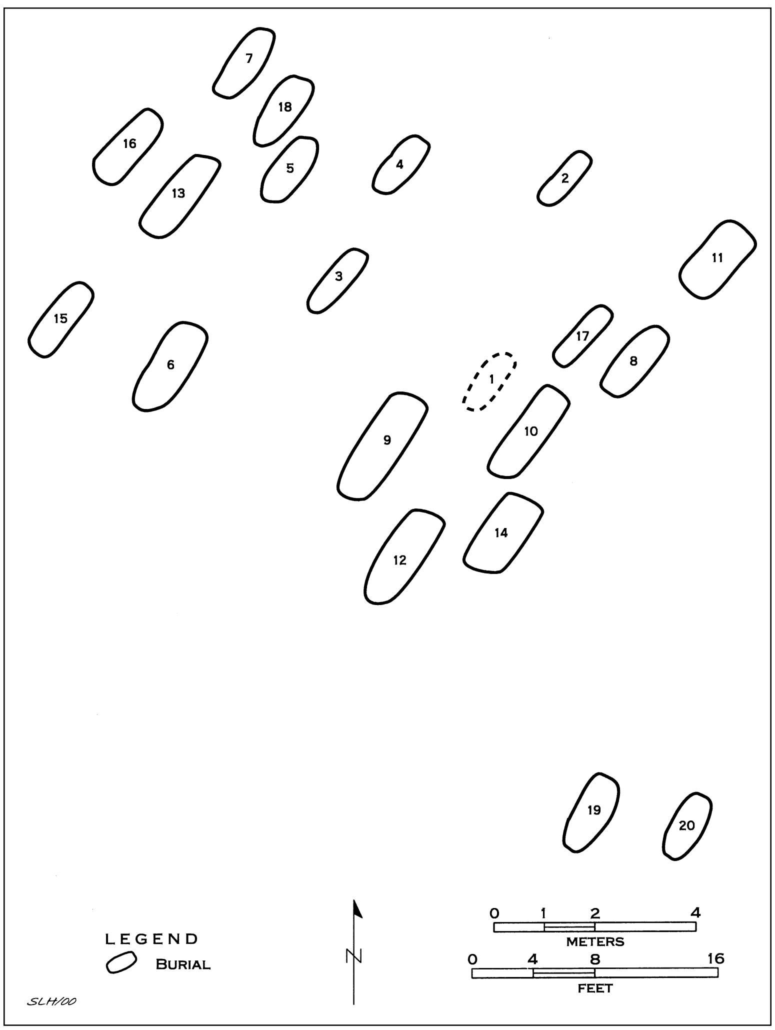


Figure 11-15. The Titus phase cemetery at the Harold Nix site, in the Swauano Creek drainage, Morris County, Texas.

Some 20 Titus phase sites have notable burials (Figure 11-16). Of those 20, quite a few are large community cemeteries, including the Pleasure Point, Shelby/Tracy, H. R. Taylor, Spider Lilly, Tuck Carpenter, and the Harold Williams sites (see Figure 11-11). Others are in the same general area as the

Table 11-7. Notable Burials from Titus Phase Cemeteries and Kind of Mortuary Treatment.

Site	Burial No.	Burial Treatment	Total Spec.	Total Arrow	Total Vessels	Reference
I Burial in Shaft Tomb						
Lower Peach Orchard	N/A	5-6 shaft tombs; Multiple interments	N/A	N/A	N/A	Thurmond 1990a
Pleasure Point	N/A	shaft tomb; multiple interments	N/A	N/A	N/A	Perttula 1995
Shelby/Tracy	N/A	shaft tomb; multiple interments; one with cedar poles; Galt bifaces	N/A	50-60	100+	Mitchell 2000; TARL records
II Burial in Mounds						
Camp Joy	N/A	burials on mound platform	N/A	N/A	N/A	Turner 1993; Perttula and Nelson 2001
Peach Orchard Overlook	N/A	11 burials in mound	N/A	N/A	N/A	Perttula 2000a
III Burials with large chipped Galt bifaces						
Galt	3	extended supine	28	N/A	14	Thurmond 1990a
Pleasure Point	N/A	burial position unknown	9	3	4	Perttula 1995
H. R. Taylor	54	extended supine	15	0	12	Thurmond 1990a
Spider Lilly	N/A	extended supine	N/A	N/A	N/A	Perttula et al. 1998
French-Daily	N/A	extended supine	N/A	N/A	N/A	Perttula et al. 1998
Mutt McGrede	N/A	extended supine	N/A	N/A	N/A	Perttula et al. 1998
Sword	N/A	extended supine; two large bifaces	N/A	N/A	15	Perttula et al. 1998
IV Extended Supine Burials with Large Quantities of Grave Goods						
Caldwell	1	extended supine	37	25	8	Thurmond 1990a
Caldwell	4	extended supine	35	25	9	Thurmond 1990a
Tuck Carpenter	1	extended supine	35	21	13	Turner 1978, 1992
	19	extended supine; female*; also with Galt biface	47	30	12	Turner 1978, 1992
H. R. Taylor	2	extended supine; male**	41	29	8	Thurmond 1990a
	11	extended supine; male	28	20	8	Thurmond 1990a
	12	extended supine; male	29	20	8	Thurmond 1990a
	59	extended supine; male	39	28	11	Thurmond 1990a

Table 11-7. *(Continued)*

Site	Burial No.	Burial Treatment	Total Spec.	Total Arrow	Total Vessels	Reference
Joe Justiss	4	extended supine	46	29	12	Thurmond 1990a
P. S. Cash	3	extended supine	37	31	6	Thurmond 1990a
J. M. Riley	4	extended supine	38	22	14	Thurmond 1990a
	11	extended supine	47	22	15	Thurmond 1990a
	15	extended supine	31	24	7	Thurmond 1990a
Harold Williams***	N/A	extended supine	190+	170	17	Perttula et al. 1998
Spider Lilly	N/A	extended supine	30+	27	N/A	Perttula et al. 1998
	N/A	extended supine	34+	34	N/A	Perttula et al. 1998
B. J. Horton	3	extended supine	40	20	7	Hunt et al. 1996
Bison, Area B****	4	extended supine; male	35	26	8	Woodall 1969
V Double Extended Supine Burials with Quantities of Grave Goods						
Tuck Carpenter	21	double extended supine; male and indeterminate	30	11	17	Turner 1978, 1992
	23	double extended supine; indeterminate and adolescent	36	22	11	Turner 1978, 1992
H. R. Taylor	45	double extended supine; probable male and female	72	23	26	Thurmond 1990a
Lost Indian	N/A	double extended supine	27+	N/A	26	Perttula et al. 1998

* sex assignments based on an examination of human skeletal remains (Turner 1978, 1992)
** sex assignments based only on the range and kind of grave goods in burials (Thurmond 1990a)
*** information from Carson Kennedy (1986 personal communication)
**** from Caddo cemetery contemporaneous with the Titus phase at Toledo Bend Reservoir on the Sabine River

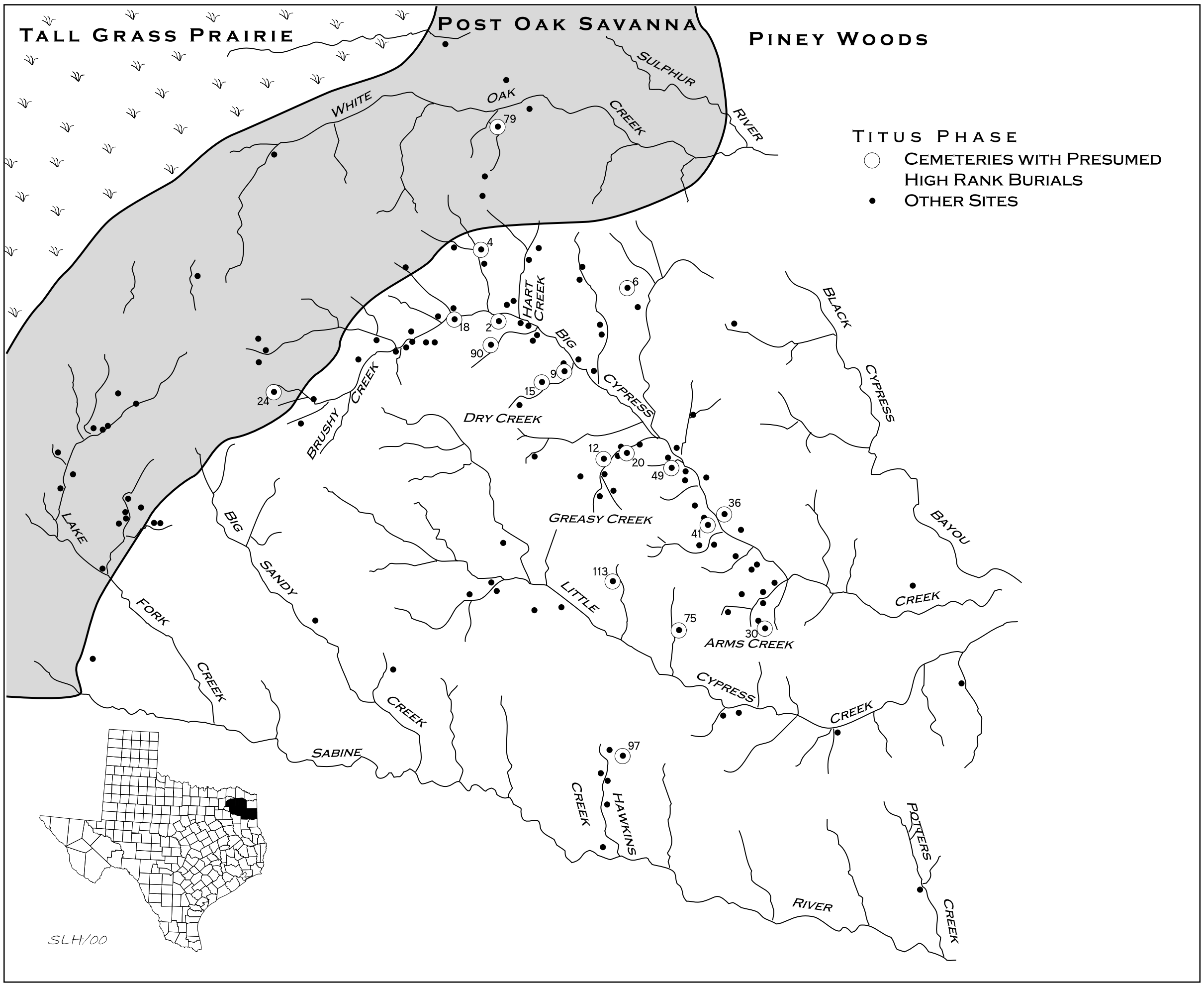


Figure 11-16. Distribution of Titus phase cemeteries with burials of individuals of presumed high social rank. Note that nos. on map correspond to sites listed in Table 11-4.

various political community centers we have discussed along the larger eastward and southern-flowing tributaries to Big Cypress Creek.

These important burials are found concentrated along Big Cypress Creek and its tributaries in the Pineywoods, from near the headwaters of Brushy Creek to the lower reaches of Big Cypress Creek in the Lake O' the Pines dam area (see Figure 11-16). Two of the sites with notable Titus phase Caddo burials are on tributaries to Little Cypress Creek, another is on Hawkins Creek in the Sabine River basin, and one other is on a northward-flowing tributary to White Oak Creek. Only 10% of these particular sites are in the Post Oak Savanna, with the remaining 90% in the Pineywoods. This focused distribution across the cultural landscape of the burial places of notable Caddo peoples is a further reminder that this particular area had a regionally complex socio-political organization during Titus phase times (Perttula 2004:401; Story 1990:339-340).

Seriation analysis of ceramic vessels and arrow point styles from Titus phase burials and cemetery sites (see Perttula 1992: Appendix A; Turner 1978) suggest that most of the notable Caddo burials listed in Table 11-16, and the large community cemeteries, date after the early 16th century, and lasted until at least the early to mid-17th century. The Pilgrim's Pride site was occupied at the same time, and also may have been abandoned about the same time that most of the large community cemeteries were no longer being used by Caddo peoples in the Big Cypress Creek basin. I have previously suggested that this abandonment was "a reflection of reduced social complexity and the scope of community integration, perhaps accompanied by a spatial coalescence and/or decrease in settlement density" (Perttula 1998a:82).

MOUND-BUILDING: CONSTRUCTION AND USE OF MOUNDS BY THE TITUS PHASE SOCIAL ELITE

In a general summary of mound-building in prehistoric times by Caddo peoples, Barnes and Perttula (1999:6) noted that construction of ceremonial mound centers by the Caddo began about A.D. 800, and over the next 900 years "these mound centers became increasingly larger and more complex, under the apparent direction of a Caddoan chiefdom elite." During the 16th and 17th centuries, population losses due to the introduction of European epidemic diseases may have led to the gradual cessation of ceremonial mound construction, and by ca. A.D. 1700, all Caddo ceremonial mound centers were abandoned, and mounds were no longer built and used by the Caddo peoples.

Caddo mounds were apparently usually near or at the center of the larger villages or political communities, and on the larger rivers (such as the Red River) the mounds were integral parts of what Perttula (1992) called Caddo "towns." As Early (2000:126) notes, the mounds and the community centers they were found on were the focus of mortuary and ritual activities for Caddo peoples. The mounds became permanent markers on the cultural landscape, because they were associated with specific rituals, events, and peoples, and they made "a powerful social and political statement. They serve equally well to reinforce the positions of important people and social groups, to mark territories, [and] to underscore common group identity" (Milner 2004:305).

How the mounds were constructed and used in Late Caddo times among Caddo communities on smaller streams and tributaries to the larger rivers, such as Big Cypress Creek, particularly among the Titus phase Caddo, is not as well known because it was once thought that mound-building in the Late Caddoan period in the Pineywoods and Post Oak Savanna ceased between roughly A.D. 1400 and A.D. 1500/1550 (Thurmond 1990a; Perttula 1989, 1993a, 1994, 1995). With continued archeological research activities, and expanded dating of mound features and archeological deposits, there are currently 11 known Titus phase mounds in the Big Cypress Creek basin and the heartland of the Titus phase (see Perttula 2004: Figure 13.30), including the small mound at the Pilgrim's Pride site. Other Titus phase mounds may have been constructed and used by Caddo peoples in the upper Sabine River basin (see Figure 11-6).

The radiocarbon dates from the Harroun (41UR10), Dalton (41UR11), Sam Roberts (41CP8), Shelby (41CP71), Pilgrim's Pride (41CP304), and Camp Joy (41UR144) mounds cover a broader span of time, however, than A.D. 1400-1500/1550, but fall into two clusters, one (at 1-sigma) ranging from cal. A.D. 1385-1520, and the other between cal A.D. 1444-1668 (Table 11-8). It is suspected that most of the mound-building activities represented in the various mound sites took place during most, if not all, of the Titus phase.

In the group of 16 dated Titus phase components mentioned above (see Table 11-2 and Figure 11-8) are several Titus phase mounds besides the Camp Joy Mound, including Sam Roberts (41CP8) near Lake O' the Pines, Shelby Mound at the Tracy site on Greasy Creek (41CP71), 41CP246, Pilgrim's Pride (41CP304), and Harroun, not far from the Camp Joy Mound site but inundated. Table 11-8 lists radiocarbon

Table 11-8. Titus Phase Radiocarbon Dates from Earthen Mounds in the Northeast Texas Pineywoods and Post Oak Savannah.

Site	Provenience	Lab No.	^{14}C Age (B.P.)	Corrected Age (B.P.)*	Calibrated Age (1-sigma)**	Reference
CP8	submound structure, charred pole in md. fill	Tx-199	320 ± 60	320 ± 72	A.D. 1490-1605 (0.76) A.D. 1613-1649 (0.24)	Tunnell 1959; Pearson et al. 1965
	submound structure, charred pole in md. fill	Tx-202	240 ± 90	240 ± 99	A.D. 1724-1816 (0.34) A.D. 1621-1696 (0.29) A.D. 1515-1592 (0.24)	Tunnell 1959; Pearson et al. 1965
CP71	98.85-98.55 Elev., burned Structure	Beta-132852	390 ± 60	370 ± 60 (-26.3 ‰)	A.D. 1559-1631 (0.54) A.D. 1465-1524 (0.46)	Perttula et al. 2004
	98.5-98.04 Elevation	Beta-132853	540 ± 60	520 ± 60 (-26.0 ‰)	A.D. 1343-1449 (0.86) A.D. 1322-1340 (0.14)	Perttula et al. 2004
CP304	Fea. 71	Beta-138850	470 ± 40	480 ± 40 (-24.4 ‰)	A.D. 1414-1449 (1.00)	this volume
	Unit 7-01, 70-80 cm	Beta-138851	380 ± 60	340 ± 60 (-27.5 ‰)	A.D. 1495-1605 (0.83) A.D. 1613-1636 (0.17)	this volume
UR10	House 4 under Md. D	Tx-84	490 ± 100	490 ± 108	A.D. 1385-1515 (0.72) A.D. 1311-1352 (0.17) A.D. 1593-1620 (0.10)	Jelks and Tunnell 1959; Tamers et al. 1964
	Md. B fill	Tx-238	265 ± 65	265 ± 76	A.D. 1511-1599 (0.39) A.D. 1616-1680 (0.34) A.D. 1756-1804 (0.20)	Jelks and Tunnell 1959; Pearson et al. 1966
UR10	Md. C fill	Tx-239	330 ± 110	330 ± 117	A.D. 1444-1668 (0.98)	Jelks and Tunnell 1959; Pearson et al. 1966

Table 11-8. *(Continued)*

Site	Provenience	Lab No.	^{14}C Age (B.P.)	Corrected Age (B.P.)*	Calibrated Age (1-sigma)**	Reference
	Md. C fill	Tx-240	555 ± 70	555 ± 81	A.D. 1382-1437 (0.56) A.D. 1308-1357 (0.44)	Jelks and Tunnell 1959; Pearson et al. 1966
	House 4, beam above floor, Md. D	Tx-241	345 ± 75	345 ± 85	A.D. 1479-1641 (1.00)	Jelks and Tunnell 1959; Pearson et al. 1966
UR11	latest of 2 structures under Md [House B]	Tx-83	480 ± 110	480 ± 117	A.D. 1391-1520 (0.68) A.D. 1571-1626 (0.21) A.D. 1316-1346 (0.11)	Davis and Gipson 1960; Tamers et al. 1964
UR144	Fea. 1, burned lens at contact between md. fills (Zone D)	Beta-84435	390 ± 60	340 ± 60 (-28.3 ‰)	A.D. 1495-1605 (0.83) A.D. 1613-1636 (0.17)	Perttula and Nelson 2001
	Fea. 1 burned Lens (Zone D)	Beta-84436	310 ± 60	270 ± 60 (-27.4 ‰)	A.D. 1515-1592 (0.42) A.D. 1621-1675 (0.39)	Perttula and Nelson 2001
	Zone A, 84-86 cm	Beta-145232	330 ± 70	280 ± 70 (-27.9 ‰)	A.D. 1502-1603 (0.53) A.D. 1614-1673 (0.35)	Perttula and Nelson 2001
	Zone D, 71-74 cm	Beta-145233	180 ± 60	130 ± 60 (-28.0 ‰)	A.D. 1683-1745 (0.37)	Perttula and Nelson 2001

* Age not calibrated; delta ^{13}C values in parenthesis. Assays on nutshell and wood charcoal lacking delta ^{13}C values use the value estimates for fractionation correction suggested by Stuiver and Reimer (1993a:Table 1), namely -25.0 o/oo. These particular assays have standard deviations that include an error in the estimated delta ^{13}C.

** Calibrations use bidecadal record of Stuiver and Reimer (1993a, 1993b), using CALIB 3.03c, Test 10; probability distributions are in parentheses.

samples from all the Titus phase mounds. OCR dates from the Tiddle Lake mound site (41CP246) range from 420-460 B.P. or A.D. 1490-1530 (see Table 11-3).

In general, the calibrated radiocarbon ages from these Titus phase mounds indicate they are contemporaneous with the construction of the mound at the Pilgrim's Pride site. At the Harroun site, for instance, House 4 (Mound D), the most probable calibrated age ranges of this burned house (Jelks and Tunnell 1959: Figure 10) are cal A.D. 1386-1515 and A.D. 1479-1641 (see Table 11-8). The uppermost burned structure at the Shelby Mound has a calibrated age range of A.D. 1465-1631, approximately the same age range as the burned structure in the mound at the Pilgrim's Pride site (see Table 11-8). The calibrated age ranges from the Dalton and Sam Roberts sites are comparable to the others.

Only the one date (Tx-240) from Mound C at Harroun, on woody charcoal from mound fill (Thurmond 1990a: Table 59), suggests that the mound was built prior to the initiation of the Titus phase. It may be significant that Mound C is the only one of the four mounds at Harroun that has evidence of two sequent structures, suggesting a lengthier period of use than the other mounds, and a period of construction and use that perhaps began in the late 14th-early 15th century. However, the other assay from Mound C has a calibrated range of A.D. 1444-1668, solidly in the Titus phase.

It does appear to be the case that only a small number of Late Caddoan period Titus phase mound sites are known in the region (see Perttula 2004: Figure 13.30), ranging from one to four small mounds per site. They are unlike the types of mound complexes typically constructed in the major river valleys at this time (Story 1990).

Pineywoods mounds built by the Caddo were sub-structural mounds; no pyramidal platform or burial mounds are known for this time period. Sub-structural mounds are restricted to mounds that cap a burned circular structure (Figure 11-17) that was constructed on the ground surface or in a small, shallow pit. In at least two instances, the mounds contained sequent structures, but the "structures originated at higher levels in the mound[s] due to occupational accumulations of soil and ash, and not the result of any deliberate capping" (Thurmond 1990a:168). At the Camp Joy Mound, the 2.3 meter high mound apparently had two tiers (Turner 1993), the latest tier capping a burned structure (marked by a 7 cm thick charcoal lens) dated to cal A.D. 1495-1605 (see Table 11-8 and Perttula and Nelson 2001).

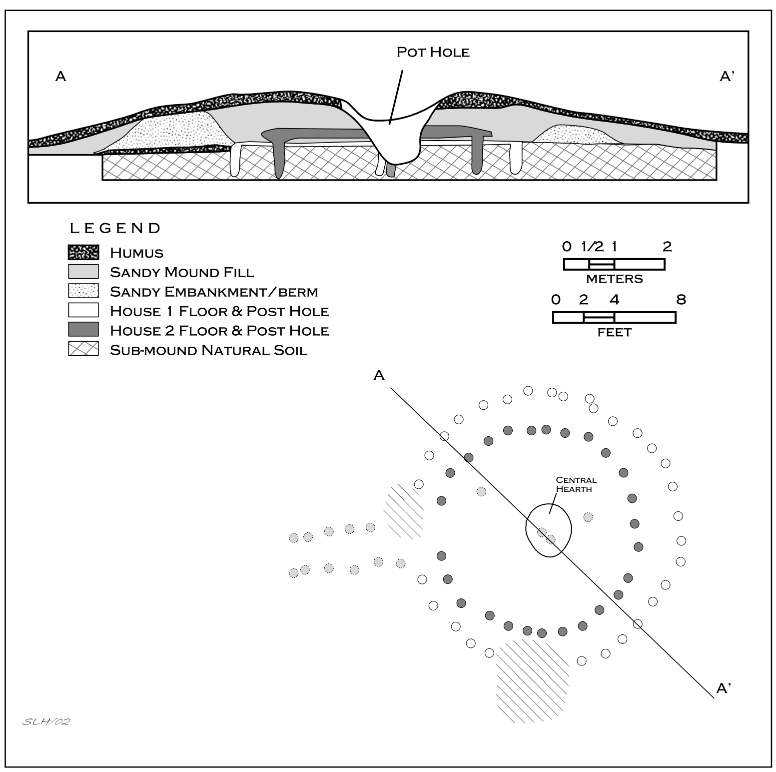


Figure 11-17. Mound C profile at the Harroun site (41UR10).

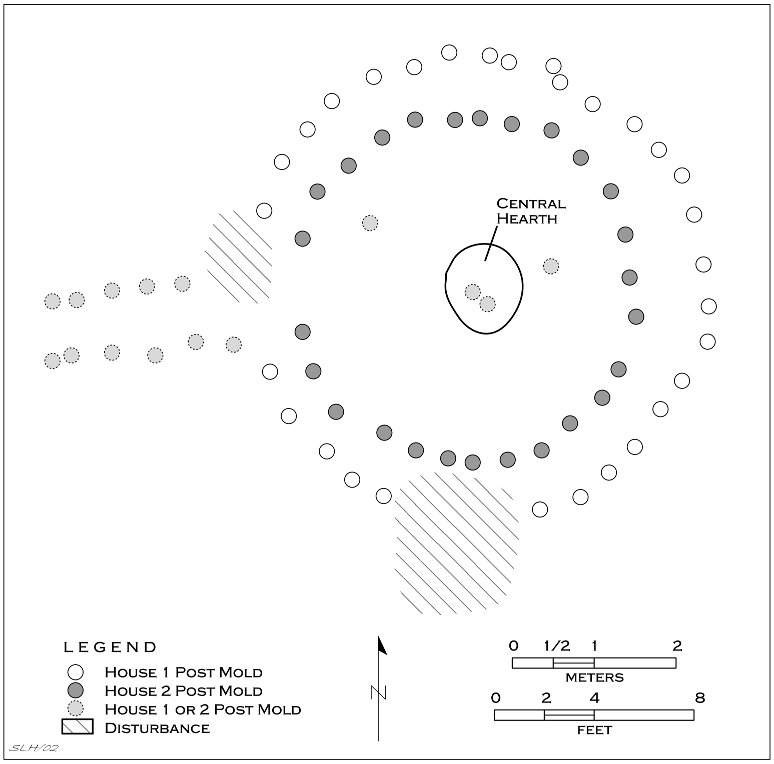


Figure 11-18. Plan of the structures in Mound C at the Harroun site (41UR10).

The structures that were capped by the mound, or built at higher levels in the mound itself (as at Harroun), were circular, with extended entranceways facing west, and with central hearths (Figures 11-18 and 11-19). They were partially dismantled and burned, then capped with sediments. Again at the Harroun site, the structures were built inside large circular pits, and there were obvious soil berms around the enclosing pit and the structure (see Figure 11-17). A standing structure with berms around it would look like the structure was literally buried (or partially buried) in the mound itself (cf. Schambach 1996). At the Dalton site, two temporally sequent circular structures (with clay-lined floors) of slightly different sizes (see Figure 11-19) were both built and used within the same shallow pit; when the second one was burned and destroyed, it and the surrounding pit were buried by a sandy mound fill to a depth of 80 cm (Davis and Gipson 1960:17-19; Thurmond 1990a:210). At the Whelan site, one of the mounds had four temporally sequent structures that ranged from 5.2-6.4 meters in diameter (Thurmond 1990a:168).

Exactly what triggered the dismantling and burning of the structures, or their capping with mound sediments, at the Titus phase community centers is not clear, but given the generally close association between the mound places and the community cemeteries (many of which held the burials of members of the social elite, including lineage heads), it seems plausible that the house destruction and mound building episodes occurred after the death and burial of a leader or a member of the social elite. However, these elite individuals were buried with their peers and kin-affiliated relations in the community cemetery, not in the mound itself, and thus in essence the mound-building rituals of the Titus phase Caddo consisted of "public building-oriented ceremonialism" (Schambach 1996:41), such that the mounds "contain the remains of important buildings rather than important people."

Thurmond (1990a:234-235) suggests that the locations of Late Caddoan period mounds in the Big Cypress Creek basin appear to be associated with clusters of contemporaneous settlements, cemeteries, and limited use areas, "and it is therefore possible that these concentrations of components represent the archeological manifestation of. . . Cypress cluster constituent groups during the [preceding] Whelan phase." A similar association has been noted for Caddo mounds and settlements in the Middle Sabine river basin (Perttula 1989, 1994; Rogers and Perttula 2004). As I discussed above with respect to the identification of different political communities within the Titus phase, I think Thurmond's (1990a) suggestion is a good one, with the exception that the mound-building in the Big Cypress Creek basin primarily—if not exclusively—

took place in Titus phase times rather than in the Whelan phase (ca. A.D. 1350-1450).

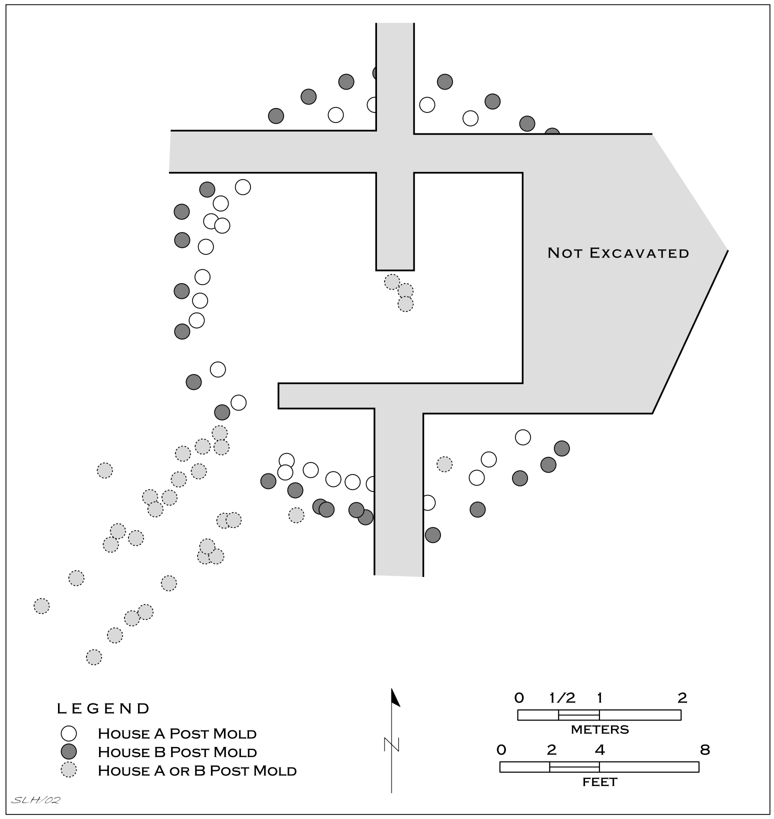


Figure 11-19. Plan of the structures at the Dalton site (41UR11).

With respect to the different political communities or constituent groups that may have existed among the Caddo after ca. A.D. 1430 in the Big Cypress basin, there are several key differences in the mound sites in the "heartland" that hint at the socio-political diversity that was present in the various Titus phase communities. The first obvious difference is in the number of mounds on a site: the Harroun (41UR10) and Whelan (41MR2) sites each have four mounds, while the other sites have only one. We should note, however, that the proximity of the Chastain (41UR18), Dalton (41UR11), and Camp Joy Mound (41UR144) sites to each other on a prominent upland landform (the three mound sites are each within 250-500 m of each other) overlooking Meddlin Creek and Big Cypress Creek probably is evidence of a single large Titus phase mound and community center, not three disparate and unrelated sites.

It is especially notable that the only multiple mound centers known in the Titus phase are all situated in the lower reaches of Big Cypress Creek, in the Lake O' the Pines area (see Perttula 2004:Figure 13.30), while the other single mound sites are found some distance upstream. I expect these differences in the complexity of the various mound sites are a reflection of differences in the power and authority that each political community had within the Titus phase heartland, as the construction of earthen mounds express that power and authority in visible and tangible ways (cf. Payne 2002:195). It may well also be the case that the Lake O' the Pines area, with its most important centers, was also home to the highest densities of Titus phase Caddo peoples, as the size of each political community's population would also be evidence of their chiefly power.

Another difference between the mound centers, as alluded to in earlier discussions of political communities in this chapter, is whether or not the mound center is a discrete part of a larger planned village. In the case of the Pilgrim's Pride and Shelby mound sites, the one earthen mound at each site was situated at the northern end of a large (+10 acres) village community (see Figures 11-2 and 11-3).

At the P. S. Cash site (41CP2), the one mound was 400 m north of a small associated cemetery, and no obvious habitation areas were noted by Jackson (1931a), but there are extensive Titus phase habitation deposits immediately across Greasy Creek at the E. S. Dooley Farm (41CP4) (see Thurmond 1990a:139

and Figure 17). The Sam Roberts site had a single 1.1 m tall mound that capped a burned circular structure (Tunnell 1959:4-7). There was a ca. 200 square meter midden deposit on the northeastern side of the mound, but much more extensive habitation areas 200 m east of the mound itself. According to Thurmond (1990a:144), these habitation areas had "dark brown greasy soil. . . [and l]arge dark outlines associated with concentrations of wattle-impressed daub [that] may mark the locations of structures." The two habitation areas were each 70-100 meters in diameter.

In the immediate area of the Dalton, Chastain, and Camp Joy mound sites, there are extensive Titus phase habitation areas. These occur either on the mound sites themselves (as with the Chastain site, with a 15,000 square meter habitation area, see Thurmond 1990a:212), or in nearby and associated domestic settlements. These include Sam Gray #1 (41UR9), Jake Martin (41UR12, Titus phase burials have been looted from the site in recent years), Watkins (41UR13), Sam Gray #2 (41UR14), Cunliffe (41UR15), and Mosquito Hollow (41UR16) sites (Thurmond 1990a: Figure 27; Burson and Cliff 2000).

The single mound at the Tiddle Lake mound site (41CP246) has no obvious associated habitation deposits, although there are numerous Titus phase settlements on nearby upland landforms, including sites recorded in the Walker Creek complex. The only habitation area at the Whelan site was a ca. 2000 square meter archeological deposit southeast of Mound A and near Big Cypress Creek (Thurmond 1990a:16). The other three mounds lay to the east and northwest. The small habitation area contained one 7.9 m household structure and an elevated 3.1 m granary structure. No habitation deposits were identified at the Harroun site, only four small mounds spread out along Big Cypress Creek (Jelks and Tunnell 1959; Thurmond 1990a: Figure 27).

This dichotomy between mound and habitation associations on Titus phase mounds, with the main multi-mound centers at the Harroun and Whelan sites having little if no associated habitation debris, while most of the other mounds did, leads me to suspect that there were fundamental and measurable differences in the complexity (if not wealth and prestige) of the different political communities in the heartland. For most of the communities, the ritual, power, and authority of the elite leaders had not been divorced from the populations living in the communities, especially those living in and near the largest villages. This intimate relationship—as seen by the placement of mounds across the landscape—between the community and its leaders was not duplicated in Titus phase Caddo communities living along the lower Big Cypress Creek basin and near the eastern margins of the settlement distribution of the Titus phase (see Figure 11-1). Here, the community mound centers were basically kept separate from domestic affairs and were focused more exclusively on ritual activities and the control of ritual knowledge. Those leaders that lived at the Harroun and Whelan sites may have gained their prestige and authority through their control of ritual affairs (cf. Potter 2000:301).

Although the Whelan site had only a small habitation area, a very large assemblage of pottery sherds (more than 14,000 in all) were recovered in the excavations, including a dense midden with thousands of sherds and numerous animal bone fragments inside the one non-mound structure (Davis 1958:42-48, 65-66; Thurmond 1990a:168). This particular structure (Structure 2) was just southeast of Mound A, and next to a probable granary (perhaps under chiefly control). Thurmond (1990a:168) suggests that the midden "derives from use of the structure for trash disposal after its abandonment (but while it was yet standing), as the deposit was entirely within its perimeter." These archeological deposits have the markings of public feasting activities (see Hayden 2001: Table 2.1), and ritual feasting events have been noted at Early and Middle Caddoan period mounds in East Texas and southwestern Arkansas (Perttula 2004:386; Scott and Jackson 1998). It is likely that a series of repetitive rituals centered on communal feasting took place here (with the end result being a large midden refuse deposit), and probably also in the series of four structures eventually buried in nearby Mound A. Such feasting activities would certainly have served to help establish and preserve Titus phase inter-community alliances and integration. Furthermore, the Caddo community that was hosting the public feasting activities could well have "gained a measure of prestige that could be translated as a source of political influence for individual village headmen" (Knight 2001:327). Visualized in this matter, it is no coincidence that the scene of repeated public feasting activities by the Titus phase Caddo would be situated in the largest community mound centers.

TITUS PHASE SUBSISTENCE

Titus phase subsistence remains have primarily been recovered to date from a few sites in the upper Sabine River and upper Big Cypress Creek basins, rather at the western edge of its settlement distribution (Perttula 1993a, see Figure 11-1), although this is changing with new studies of sites in the Little Cypress Creek (Froehlich and Froehlich Consulting 2001) and Greasy Creek drainages. However, well-preserved subsistence remains are known from a number of other sites of this age in northeastern Texas that have as yet received little professional attention (Perttula 1993b; Thurmond 1990a), and Titus phase trash middens and well-preserved pit features (as in Areas I and II at the Pilgrim's Pride site, see Chapter 4, this volume), once located and studied, will undoubtedly contribute new and important information on the subsistence practices of these Caddo peoples.

Floral evidence from trash midden deposits suggests that the tropical cultigen maize (*Zea mays* L.) is a dietary staple, and domesticated beans (*Phaseolus vulgaris*) were also an important food source. Nuts and seeds were also gathered, but they appear to have been of lesser importance in the Titus phase than they were between ca. A.D. 900-1350 (Crane 1982; Perttula and Bruseth 1983; Perttula et al. 1982), although Dering (Chapter 9, this volume) makes a strong argument that the diet of Titus phase Caddo peoples was a mixture of cultivated foods and gathered wild plants, especially hardwood mast (see also Dering 2004a, 2004c). In fact, the subsistence evidence from Titus phase Caddo sites in the Pineywoods and Post Oak Savanna, as well as elsewhere in the Caddoan archeological area after ca. A.D. 1400, suggests the rather successful development of a Caddo maize-based economy by about this time (Fritz 1990:421, 425; Dering 2004b), hence my earlier use of the term "agricultural chiefdom" when referring to the Titus phase communities. As noted earlier in the discussion of Late Holocene environmental changes, the Late Caddo agricultural lifeway probably was flourishing in parts of northeastern Texas (likely those areas with the highest agricultural potential) at least in part due to quite adequate growing season rainfall from the late 14th century through the first quarter of the 15th century, the last quarter of the 15th century and the first quarter of the 16th century, the mid-16th century (A.D. 1539-1572), and then again in the early 17th century (see Chapter 2, this volume). During droughty periods (see Table 2-3) that sometimes lasted for several years, the effects of the droughts must have been localized, because there is a general continuity of Titus phase settlement across many parts of the Sabine and Big Cypress Creek basins that suggests crops were successfully grown and harvested even in these droughty periods. The long-term storage of plant foods and seed stock—perhaps in above-ground granaries like the one apparently identified at the Whelan site (Davis 1958:34-35; Thurmond 1990a:168)—also would have helped to offset losses from poor or failed harvests.

Among the more common vertebrate species identified in Titus phase trash middens include deer, turkey, cottontail rabbit, jackrabbit, squirrel, small rodents, and beaver, along with the domestic dog (Table 11-9). Two Titus phase sites in the Little Cypress Creek basin also have bison skeletal remains (see Table

Table 11-9. Titus Phase Faunas.

Fauna	Shelby Md. CP71*	Underwood CP230	Pilgrim's CP304	Burks WD52	Goldsmith WD208	Steck WD529	Galt FK4	Kelsey Creek Dam UR118	Rookery Ridge UR133	Earspool TT653
channel catfish				X				X		
freshwater drum	X	X								
gar		X							X	
small fish	X					X				X
medium fish	X	X	X							
alligator									X	
frog or toad	X					X			X	
snake						X			X	
lizard									X	
snapping turtle				X						
box turtle	X	X	X	X	X					X
mud turtle								X	X	
aquatic turtle									X	
painted turtle		X								
turtle	X		X	X		X	X	X	X	X
turkey	X	X		X	X	X	X		X	
owl						X				
american avocet								X	X	
goose									X	
duck/goose									X	
wood duck									X	
small bird	X									
medium bird	X									X
large bird	X									X

Table 11-9. *(Continued)*

Fauna	Shelby Md. CP71*	Underwood CP230	Pilgrim's CP304	Burks WD52	Goldsmith WD208	Steck WD529	Galt FK4	Kelsey Creek Dam UR118	Rookery Ridge UR133	Earspool TT653
cottontail rabbit	X	X	X			X				X
jackrabbit						X		X	X	
rabbit				X			X	X	X	X
small rodent	X	X			X	X		X	X	X
squirrel	X	X				X	X		X	X
fox squirrel		X								
ground squirrel									X	
pine vole	X									
opossum									X	
beaver						X				
raccoon	X	X					X		X	X
deer	X	X	X	X	X	X	X	X	X	X
bison								X	X	
dog		X			X	X	X		X	X
NISP	4007	387	239	163	114	585	N/D	790	ca. 10,000	702

11-9), indicating the exploitation of prairie habitats to the northwest and west of Caddo settlements in the Pineywoods. The occurrence of bison in prehistoric Caddo faunal assemblages is otherwise quite rare in Northeast Texas sites. It is likely that small herds of bison roamed the tall-grass prairie in Late Holocene times, although it would have been a considerable trek to the tall-grass prairies in the upper Sulphur River basin (see Figure 11-1) for Titus phase hunters who did not yet have any horses. The high density of arrow points and scraping tools, as well as signs of intensive arrow point manufacture, at the Earspool site (41TT653) in the White Oak Creek basin (Sherman et al. 2002) suggest that this particular Caddo population was intensively exploiting large game animals, including deer and bison. The meat from any bison kills was likely processed at the kill site, with bones discarded there, to lighten the transport load on the trek back from the tall-grass prairie to the site; no bones from very large mammals (greater than 125 kg live weight) were recovered at the Earspool site (Sherman et al. 2002:233; see also Table 11-9).

Turtle and fish were also present and obviously gathered and eaten (see Table 11-9), but they were apparently relatively uncommon compared to the mammals and birds in Titus phase diets, although this may be due in part to sampling problems and the limited use of flotation and fine-screening to recover the smaller animal bones. Fish and turtles were relatively abundant at the Shelby site on Greasy Creek and the Underwood site on Big Cypress Creek, however, including gar, freshwater drum, and small and medium-sized bony fish (see Nelson and Perttula 2003a:32-33). In general, deer and turkey appear to have been the dominant exploitable species (Perttula et al. 1982, 1993), but a wide range of animal foods were exploited and consumed by Titus phase peoples for meat, as well as tools and other accoutrements (i.e., sinew, hides).

The largest and perhaps most representative faunal assemblage from Titus phase contexts is from the Rookery Ridge site (41UR133) in the Little Cypress Creek basin (see Table 11-9). Among the faunal remains are four species of birds—including migratory fowl and turkey—rodents, lizards, fish, alligator, much turtle (emydids and box turtle), 12 mammal species, and dog/coyote. Froehlich and Froehlich Consulting (2001:14) note the intensive use of deer at the Rookery Ridge site, indicating that "60 to 90% of the material recovered [here]" is probably from the processing and consumption of white-tailed deer. However, much of the processing of deer did not take place on the site, but perhaps at the kill site. The birds in the faunal assemblage are relatively large in size, and much of it is waterfowl. Other aquatic resources that were exploited by this Titus phase group include gar and catfish, and alligator. Despite flotation and fine-screening, fish remains comprise less than 3% of the identifiable remains from the site.

At the Shelby site (Perttula et al. 2004), the same range of faunal remains were found in a large collection (+4000 specimens) from midden deposits in village and mound contexts (see Table 11-9). They included several kinds of fish and reptiles (especially turtle), turkey and a range of other birds of various sizes, and seven mammal species, among them deer, raccoon, rabbit, and squirrels (see also Schniebs 2004). These remains are consistent with a diet that relied on large game animals for meat and protein, supplemented by fish, turkey, rabbit, and other small mammals.

The examination of bioarcheological remains is, unfortunately, still less informative about the subsistence character of the Titus phase populations than what has been gleaned from the recovery of faunal and floral remains, although this too is changing because of new bioarcheological studies supplemented by selective stable isotope analyses . This overall situation is primarily due to the fact that there are only relatively small samples of human remains that have been analyzed to date (Burnett 1990:402-408). Based on admittedly limited bioarchaeological evidence, principally the low frequency of dental caries and porotic hyperostosis, Burnett (1990:405, 408) suggested some years ago that the Late Caddoan period inhabitants of the Cypress/Upper Sabine and the Middle Sabine basins in northeastern Texas consumed little to no maize, and "were not dependent upon a maize-rich diet." The lack of infections, such as osteoarthritis and osteoporosis, in these same Late Caddoan period samples, while again rather small, may also be indicative of both a different lifestyle and workload than prehistoric Caddo residents on the Red River, as well as a high measure of adaptive success (Burnett 1990:404).

More recent bioarcheological studies from Titus phase burials and cemeteries are refining, supplementing, and challenging the interpretations of Burnett (1990). For instance, at the Alex Justiss site, while the caries rate is relatively low (even on those individuals where stable isotope analyses indicated these individuals consumed a considerable amount of maize as part of their diet), at 1.2 caries per individual for those that had caries (Rutenberg 2003:55 and Table 7), a number of the individuals (50% of those with preserved dentition) had signs of enamel hypoplasia in their teeth. The hypoplasia is evidence that this Titus phase Caddo population had been experiencing nutritional stress, such as disease, anemia, or malnutrition (Rutenberg 2003:56).

Wilson (1997a) noted that there was a high frequency of caries in two burials from the Henderson-Southall site (41UR3), a Titus phase habitation site on Meddlin Creek in the Lake O' the Pines area (no. 50 on Figure 11-1). The frequency "is typical for maize agriculturists. . . caries are the result of bacterial attack resulting from carbohydrates adhering to the dental matrix. A maize-based diet provides a high carbohydrate diet" (Wilson 1997a:5). At the Shelby site (41CP71), Wilson (2002:5, 2004) determined that the frequency of caries (3.0 per individual) was comparable to other Late Caddoan period agricultural populations along the Red River (a range of 1.0-4.5, see Wilson 1997b). Furthermore, one of the Titus phase male Caddo individuals at the site had evidence of porotic hyperostosis (Wilson 2002:7-8). This paleopathological condition is considered a likely result of iron deficiency anemia caused by nutritional deficiency.

As part of a recent study of the Titus phase component at the Harold Williams site (41CP10) on Dry Creek, Turner et al. (2003) obtained a radiocarbon date from collagen preserved in long bone fragments from Grave N, an adult. The intercept of the radiocarbon age of the remains with the calibration curve was A.D. 1500, with a 2 sigma calibrated age range of A.D. 1440-1640 (Beta-152353). The 13C/12C ratio of the collagen in the long bone was -14.0 ‰. This isotope value suggests that the Titus phase Caddo individual buried in Grave N had a maize-rich diet. Following Schoeninger et al. (2000:69), a stable isotope value of -14.0 ‰ indicates a diet of 50% C_4 species (including maize and other grasses, as well as bison). They further point out that if such an individual was consuming quantities of fish as dietary protein, then the individual "could have eaten significantly more maize; the negative [stable carbon isotope] values for aquatic fauna would offset the less negative maize values."

Comparable isotope values (Figure 11-20) have been obtained from other Late Caddo and post-1650 Caddo burials along the Red River in northeastern Texas, southwestern Arkansas, and northwestern Louisiana (Perttula 1996:321). This includes individuals buried at the Roitsch, Holdeman, Rowland Clark, Roden, Cedar Grove, Belcher, and Joe Clark sites (see Rose et al. 1998; Perttula 1998b:Table 1; Tine and Tieszen 1997). Those values on collagen range from -14.8 ± 1.35 ‰ (n=28) from ca. A.D. 1450-1650 Caddo sites and -14.2 ± 1.17 ‰ (n=18) from protohistoric Caddo sites. In comparing these Caddo stable isotope values to other generally contemporaneous agricultural populations, such as Cahokia and the American Bottoms along the Mississippi River (Hedman et al. 2002); Iroquois sites in Ontario, Canada (Harrison and Katzenberg 2003); Central Mexico; the Maya region in Guatemala; or coastal Ecuador (Smalley and Blake 2003:Table 2) in South America, the latter agricultural populations had more enriched isotope values that ranged between -7.0 ‰ to -11.7 ‰. These populations had very high maize diets, actually about 15-50% higher than did the Titus phase Caddo and other Late Caddoan groups along the Red

River. So while we may be fairly confident that maize was an essential part of the Titus phase Caddo diet, as it was for other Late Caddo groups, it was nowhere near as intensive a reliance as it was for many other aboriginal groups in North America, central America, or even South America. There was a flexibility or resilience in the Titus phase diet, that is highlighted by the mixture of wild and domesticated plants that J. Phil Dering discussed earlier in this volume (see Chapter 9).

Stable carbon isotope analyses from the late 16th and 17th century Alex Justiss cemetery (41TT13) produced some intriguing results concerning the importance of maize consumption in Titus phase diets (Rogers et al. 2003:57-59), at least at this one site. Half of the 10 burials, including three adults, one juvenile, and one child, that were examined in the isotope analysis had values (-13.2 ‰ to -15.9 ‰, see Rogers et al. 2003: Table 8) that suggest that maize comprised between 37-56% (cf. Schoeninger et al. 2000) of the diet for these individuals. The other five burials had isotope values that fell between -21.5 ‰ and -22.7 ‰. These values are consistent with a non-maize diet, or at least a diet where maize consumption was less than 15% of the diet (Rogers et al. 2003:57). These very contradictory stable isotope results on individuals from the same Late Caddo Titus phase cemetery may suggest that two different populations were interred there, "one in which maize played a prominent role in diet and one in which it did not" (Rogers et al. 2003:59). Rogers et al. (2003:59) go on to speculate that the non-maize-eating population may have originated to the northwest of the site, which presumably means along the Red River west of the McCurtain phase Caddo populations, although contemporaneous Plains Village populations in that area also had maize-rich diets (see Drass 1998), lessening the likelihood that populations in that area contributed in any way to the Titus phase cemetery at the Alex Justiss site.

Another possibility that may account for the widely divergent stable isotope readings from the Alex Justiss site is that certain individuals in the same Caddo population of different status and gender may have had less reliance on maize than others (cf. Ambrose et al. 2003:223). This possibility appears unlikely because all the individuals (both maize and non-maize diets) were buried in the same cemetery, and apparently received the same forms of burial treatment. In a contemporaneous Fort Ancient population in the Ohio River basin, Greenlee (2001:234-235) noted a similar case of considerable intra-community stable isotope variation. She suggested that "some individuals continued to live in the region for a considerable time after maize farming was established," essentially arguing that with dietary changes associated with maize cultivation, some individuals changed their diet, and others did not, but through increased reproductive fitness, the maize farmers eventually replaced those that had not changed their diets.

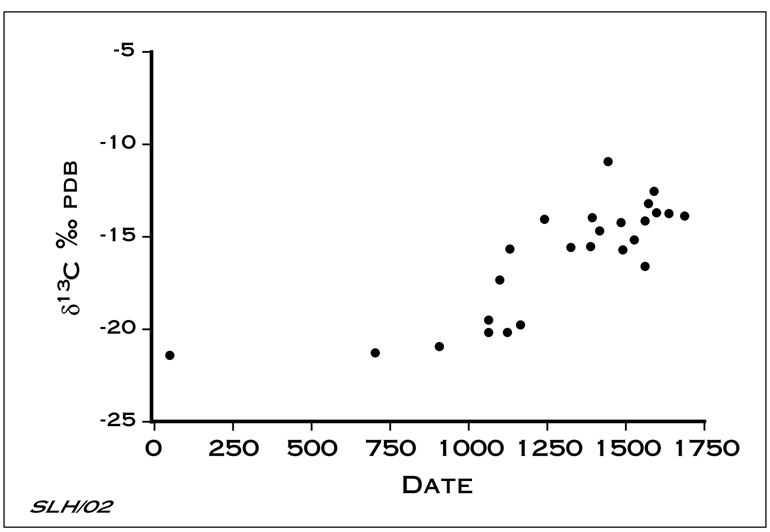


Figure 11-20. Stable carbon isotope values from sites in the Caddoan area, ca. A.D. 1-1750.

Other means of measuring the importance and intensity of use of maize to the diet of the Late Caddo Titus phase peoples is to examine the stable isotope values obtained on the charred organic residues preserved on vessels and vessel sherds (cf. Beehr and Ambrose

2004). Samples taken from vessels at the Pilgrim's Pride site (see Chapter 6, this volume), the Mockingbird site (Rogers 1998; Perttula et al. 1998), and the Alex Justiss site (Rogers et al. 2003: Appendix H), however, have stable carbon isotope values well within the range of non-maize plants such as trees (and their products, including hardwood nutshells) and shrubs, rather than values consistent with the use of ceramic vessels for the cooking of maize. Residue studies conducted by Malainey (2003) suggest that animal products (such as animals with a slight to moderately high fat content) and very high fat content plant foods (such as nutshells and hickory nut oils) were prepared from Titus phase vessels at the Alex Justiss site.

TITUS PHASE CERAMIC ASSEMBLAGES

Titus phase ceramic assemblages are diverse, with a wide range of both engraved fine wares and utility ware vessels (see Thurmond 1990a) of many shapes and sizes to meet every day and ritual needs of the Caddo peoples. This diversity extends even to the range of stylistic motifs employed on the most prevalent type, namely Ripley Engraved, as Thurmond (1990a: Figure 6) has identified 10 distinct rim motifs found just on the carinated bowls, bowls, and compound bowls, and it is likely that there are more distinctive rim motifs yet to be identified in vessel assemblages. Ripley Engraved bottles may have even more diverse body decorations than the bowls, but specific varieties have yet to be defined, due at least in part to the stylistic complexity and uniqueness of many of the engraved motifs on bottles.

This stylistic and functional diversity in Titus phase ceramics is a counterpoint to the social and cultural diversity that probably existed among Titus phase Caddo groups. The Titus phase itself is of sufficient geographic area and time depth (ca. 250 years) that we know it refers to a number of distinctive socio-cultural groups, not a single Caddo group; these groups or communities were surely related and/or affiliated by kinship, marriage, and social interaction. The ceramics from Titus phase sites provide an excellent avenue for addressing questions of interaction and social affiliations that may have existed among the likely many different Titus phase socio-cultural groups. Thurmond (1985:196, 1990a) has already laid the foundation for such investigations by defining sub-clusters within the Late Caddoan period Cypress Cluster, as has Perttula (1992: Appendix A) through recognition of temporal periods and seven sub-phases for the Cypress Cluster. More intensive radiocarbon dating of habitation and mortuary contexts (as well as other forms of dating that may have better temporal resolution[1]), in conjunction with detailed analyses of changes in ceramic styles and vessel forms, and bioarcheological studies of populations (cf. Lee 1999).

In vessel assemblages from 17 different Titus phase cemeteries in the Titus phase heartland (Table 11-10), there are clear east to west differences in the types of utility wares (i.e., plain vessels, utility jars with punctated rims, La Rue Neck Banded, Harleton Appliqued, and Bullard Brushed) that are prevalent in each area, as well as differences in the popularity of various Ripley Engraved motifs, and the distribution of other engraved fine wares like Simms Engraved, Taylor Engraved, and Bailey Engraved. Although there is some spatial overlap in this east-west division between fine wares and utility wares, that division on the ground apparently lay between Dry Creek and Prairie/Greasy creeks (Perttula 2002b: Figures 7-25 and 7-26). This western area of Titus phase ceramics includes the area along Big Cypress Creek and its tributaries from Dry Creek north and west to the headwaters of the basin; the Pilgrim's Pride site is part of this western Titus phase ceramic tradition. Other sites that are part of this ceramic tradition include J. E. Galt (41FK2), Mattie Gandy (41FK4), Tuck Carpenter (41CP5), A. P. Williams (41TT4), Thomas Caldwell (41TT6), W. O. Reed (41UR1), and Mockingbird (41TT550).

Table 11-10. Vessels from Titus Phase Cemeteries.

Type/Form	CP2	CP5	CP304	FK2	FK4	HP1	HS3	MR12	MX1
Ripley Engraved									
carinated bowl	19	151	31	22	38	17	135	31	17
compound bowl	2	41	9		4		7	5	
conical bowl		2	4			1			
bottle		14	9	3	4		9		
jar		4				1	3		
olla			1						
Wilder Engraved									
bottle	1	17		1	3		14	1	1
jar		4					1		
olla							4	1	
compound bowl									
Avery Engraved		4	1	7	1	3	1		
Glassell Engraved		1					5		
Johns Engraved		1							
Poynor Engraved		1							
Simms Engraved		2				2	2	2	1
Taylor Engraved	3		2			7	60	14	1
Bailey Engraved									
bottle	4						7	4	3
olla	2								
Belcher Engraved							13	1	
Hatchel Engraved							1		
Hodges Engraved			1			2	6	1	
Bowie Engraved							1		
Womack Engraved						3			
Keno Trailed					1	1			
Belcher Ridged							2		
Cowhide Stamped							1		
Clements Brushed									
Harleton Appliqued	2	10		4	9		22	11	3
Cass Appliqued	1	6					6	1	
Pease Brushed-Incised		2	6				1		
La Rue/Nash Neck banded		4	6	2	1	5	7		
Bullard Brushed	3	13	5				29	4	2
Maydelle Incised	1	8	4				7	3	1
Killough Pinched	1		1				1		
Karnack Brushed-Incised	1		1				27		
Untyped Utility Jar*	5	53	12	2	11		21	5	2
effigy bowl		10	1		1		2		
noded bowl	1	4			1		2		
Chalice		1			1				
Plain									
carinated bowl		7	10		5		6		
compound bowl		1	5				1		1
conical bowl	1	5	17				1		
bottle		6	1					1	
olla							1	1	
jar		8	5				6		
Pigment vessel			3						
N	47	380	135	41	79	42	413	86	32

Table 11-10. *(Continued)*

Type/Form	MX2	Nix	TT4	TT6	TT7	TT550	UR1	UR2	Totals
Ripley Engraved									
carinated bowl	30	35	15	37	79	25	3	61	746
compound bowl	1	4	15	1	27	9	2	3	130
conical bowl	1	2	5		2	3	1	1	22
bottle	1	11	7	4	13	5		3	83
jar			1	1	6			1	17
olla		1				1		3	6
Wilder Engraved									
bottle	4		1	4	4			5	56
jar					1			2	8
olla					1				6
compound bowl								1	1
Avery Engraved					3		2	1	24
Glassell Engraved									6
Johns Engraved				1		1		1	4
Poynor Engraved					1		1		3
Simms Engraved	1	2			2	2		3	19
Taylor Engraved	3				1			7	98
Bailey Engraved									
bottle		2							20
olla								1	3
Belcher Engraved								1	15
Hatchel Engraved									1
Hodges Engraved								2	12
Bowie Engraved								1	2
Womack Engraved									3
Keno Trailed									2
Belcher Ridged									1
Cowhide Stamped									2
Clements Brushed					2				2
Harleton Appliqued	3	3	2	1	8			13	91
Cass Appliqued	1	1			1			2	19
Pease Brushed-Incised			8	2	3	5	3		30
La Rue/Nash Neck banded	2	5	2	3	4	2	1	2	46
Bullard Brushed	3		2	3	10	1	4	8	87
Maydelle Incised	2	2	1		4	7	1	1	42
Killough Pinched				2					5
Karnack Brushed-Incised								2	31
Untyped Utility Jar *	1	15	7	18	22	10	4	5	193
effigy bowl			1	1	4			1	21
noded bowl			1		3				12
Chalice									2
Plain									
carinated bowl	2		3	5	10	6	1		55
compound bowl			1	1	1				11
conical bowl			5	4		6	4		43
bottle					3	1	3		15
olla	1								3
jar					7	4			30
Pigment vessel						4			7
N	56	83	78	88	222	89	30	131	2035

* untyped utility jars include those decorated with combinations of incised, punctated, and/or brushed elements, including rows of rim punctations (cf. Mockingbird Punctated, see Perttula et al. 1998). Note: The Harold Nix site does not have a State of Texas trinomial; it is located in Morris County, Texas (no. 125 on Table 11-4).

The eastern ceramic tradition within the Titus phase includes sites from the Prairie and Greasy creek areas and Big Cypress Creek downstream to the Lake O' the Pines area. Important sites there include P. S. Cash (41CP2), H. R. Taylor (41TT550), J. M. Riley (41UR2), Ben McKinney (41MR12), R. L. Cason (41MX1), the Harold Nix site in Morris County, and Joe Justiss (41MX2) (see Table 11-10). The Russell Brothers Farm (41TT7, no. 8 on Figure 11-1) on Big Cypress Creek has features of both the western and eastern ceramic traditions (see Table 11-10).

The two broad ceramic traditions within the Titus phase are dominated by Ripley Engraved, as it accounts for 49% of the vessels from the 17 cemetery sites (see Table 11-10); most of these are carinated bowls and compound bowls. Other important fine wares include Wilder Engraved (3.5%) bottles, and Taylor Engraved (4.8%). Avery Engraved accounts for just over 1% of the engraved fine wares, but these vessels (found primarily in the western sites) were trade wares from Red River Caddo groups, as are the few Glassell Engraved, Belcher Engraved, and Bowie Engraved vessels; the latter are more prevalent in eastern ceramic tradition Titus phase sites (see Table 11-10). Among the utility wares, untyped utility jars (those with an assortment of simple punctated, incised, brushed, and appliqued decorations on the rim and/or the body of vessels) are abundant, accounting for 9.5% of the vessels, as are Harleton Appliqued (4.5%), Bullard Brushed (4.3%), La Rue Neck Banded (2.3%), Maydelle Incised (2.1%), and Karnack Brushed-Incised (1.5%). Plain vessels in a variety of vessel forms comprise a significant portion (8.1%) of the vessels from these Titus phase cemeteries (see Table 11-10).

In simplest terms, the western ceramic tradition of the Titus phase Caddo is marked by higher proportions of plain wares, untyped utility jars (included rim punctated Mockingbird Punctated vessels, see Suhm and Jelks [1962: Plates 79d-k] for other minimally decorated jars in Titus phase sites), and La Rue Neck Banded in the utility wares, and Ripley Engraved vessels with the scroll, continuous scroll, scroll and semi-circle, horizontal diamond, and bisected diamond motifs. Titus phase sites outside of the Big Cypress Creek basin (e.g., Three Basins subcluster sites in the upper Sabine and White Oak Creek basins) also have many attributes of the western Titus phase ceramic tradition. Eastern ceramic tradition Titus phase sites have proportionally more Harleton Appliqued vessels in the utility wares, as well as more Bullard Brushed and Karnack Brushed-Incised jars. In the Ripley Engraved vessels, the principal motifs include the pendant triangle, and the interlocking horizontal scroll. Other important fine wares in the eastern tradition sites include Taylor Engraved, Simms Engraved, and Bailey Engraved (see Table 11-10). In general, the eastern ceramic tradition Titus phase sites contain more trade wares from Belcher phase Caddo groups that lived to the east along the Red River (see Figure 2-8) below the Great Bend, while trade wares in the western ceramic tradition Titus phase sites are more commonly from McCurtain phase Caddo groups living along the mid-reaches of the Red River (see Figure 2-8).

These basic differences in the two ceramic traditions within the Titus phase suggest a dichotomy in belief and cultural practices between the eastern and western Titus phase Caddo groups, as well as in styles of expression, that was of long-standing (perhaps for 150-200 years, and 7-8 generations). That dichotomy further suggests that there were well-defined social boundaries between the different Titus phase communities in the Big Cypress Creek basin and that the cultural landscape across the Titus phase heartland and hinterlands was complex and dynamic. Nevertheless, the sharing of a variety of Ripley Engraved motifs across the many different communities (in fact, the nested triangle and scroll motifs are relatively equally common in both eastern and western Titus phase ceramic traditions), and the basic similarity in much of the utility wares from one area to another, point to considerable intra-areal interaction and contact between each of the Titus phase communities.

Decorated sherd assemblages from Titus phase sites in the Big Cypress Creek, upper Sabine, and White Oak Creek basins also show considerable differences from east to west, with some additional diversity gleaned from the sherds. This is particularly the case in the proportions of brushed pottery, neck banded wares, red-slipped fine wares, and the percentage of wet paste decorated pottery (Table 11-11).

Brushed pottery is much more common in eastern ceramic tradition sites than it is in the western Titus ceramic tradition, accounting for more than 70% of all the decorated sherds in sites such as Isadore Segal (41MR1), Whelan (41MR2), Sam Gray (41UR14), and the Chastain (41UR18) sites in the lower reaches of Big Cypress Creek at Lake O' the Pines. Other Titus phase sites in the Prairie/Greasy creeks area have assemblages where brushed sherds comprise 43-53% of all the decorated wares (see Table 11-11). Conversely, in the upper reaches of the Big Cypress Creek basin and in Titus phase sites in the upper Sabine River basin, brushed pottery represents no more than 1-14% of the decorated sherds, while neck banded pottery (La Rue Neck Banded)[2] is quite a bit more abundant in these western ceramic tradition sites than it is in eastern ceramic tradition sites (see Table 11-11). In sites such as 41WD51 and Steck (41WD529), 14.5-25.5% of all the decorated pottery is neck banded, compared to less than 3% in Lake O' the Pines Titus phase sites. However, even in the western Titus ceramic tradition, neck banded pottery is not uniformly common, as sites at Lake Bob Sandlin and the Pilgrim's Pride site have neck banded sherd percentages that range from 0.4-5.5% of all the decorated pottery. In fact, outside of the upper Sabine River basin sites and the Underwood site (41CP230) at Lake Bob Sandlin, neck banded pottery is rare in Titus phase domestic contexts across the Big Cypress Creek basin. Simple appliqued vessels (of the McKinney Plain type) are also uniquely well-represented in the upper Sabine River basin sites, accounting for 5.2-24% of the decorated sherds at 41WD51, Steck, and the Burks site (41WD52) (see Table 11-11), as well as 7% of the sherds at 41UR136 in the upper basin of Little Cypress Creek. Elsewhere in Titus phase sites in the Big and Little Cypress Creek basins, appliqued sherds from domestic contexts comprise only between 0.4-3.5% of the decorated wares.

Plain red-slipped vessels (typically bowls and carinated bowls, see Chapter 6, this volume) are another distinctive aspect of the western Titus phase ceramic tradition. It accounts for 16.9-24.3% of the decorated sherds from sites along Dry and Little Dry Creek in the upper Sabine River basin (see Table 11-11), 13.4% of the sherds from the Underwood site (41CP230) on Lake Bob Sandlin and Big Cypress Creek, and 6.1-7.2% of the decorated sherds at the Ear Spool and Pilgrim's Pride sites, respectively. In Middle Caddoan period times, sites in these same areas also had red-slipped wares in abundance (see Nelson and Turner 1997; Perttula and Cruse 1997). None of the eastern Titus ceramic tradition sites listed in Table 11-11 have more than 5% red-slipped sherds, and usually much less than 5%; no more than 3% of the decorated sherds in Titus phase components at Lake O' the Pines are from red-slipped vessels.

Bottom line, the decorated sherd assemblages from these different Titus phase sites at first glance look relatively homogeneous from one to another because the same pottery types and methods of decorative treatment are represented in each of them, and all are seemingly dominated by Ripley Engraved vessels (also an easily recognized type). However, more detailed comparisons of the proportions of the different types and the different decorative methods belie that homogeneity, and speak instead of considerable local and intra-areal diversity in (1) the use of brushed and neck banded utility wares from east to west by Caddo peoples, (2) the reliance on wet-paste decorations in western tradition Titus phase sites, including those on Little Cypress Creek, and (3) the manufacture of red-slipped vessels as another kind of distinctive fine ware for western tradition Titus phase Caddo to use in the serving of foods and liquids. All these differences, in conjunction with similar information from whole vessel assemblages, provide good clues to the stylistic and cultural affiliations of the different Titus phase communities in northeastern Texas.

Table 11-11. Decorated Sherd Assemblages from Selected Titus Phase Sites.

Decorative Method	Sam Roberts (41CP8)	Shelby Md. (41CP71)	Underwood (41CP230)	Tom Hanks Md. (41CP239)
Engraved	348	196	175	38
Engraved-Appliqued				
Engraved-Punctated		4		
Red-slipped	31	51	138	2
Incised	296	58	162	6
Punctated	113	40	101	7
Punctated-Incised	12	7	13	1
Pinched	5			
Appliqued	27	4	16	3
Appliqued-Incised	2	2	3	1
Appliqued-Incised-Punctated				1
Appliqued-Punctated				
Neck banded	5	7	56	4
Brushed	658	499	279	96
Brushed-Appliqued		17	2	
Brushed-Appliqued-Incised			2	
Brushed-Appliqued-Punctated				
Brushed-Appliqued-Incised-Punctated				
Brushed-Incised	20	7	58	2
Brushed-Punctated	24	49	18	
Brushed-Punctated-Incised			6	
Trailed		1		
Ridged				
N	1541	942	1029	163

Decorative Method	Pilgrim's (41CP304)	Isadore Segal (41MR1)	Whelan (41MR2)	Dalton (41UR11)
Engraved	765	164	769	80
Engraved-Appliqued				
Engraved-Punctated	3			
Red-slipped	278	5	120	30
Incised	534	30	327	109
Punctated	247	24	150	43

Table 11-11. *(Continued)*

Decorative Method	Pilgrim's (41CP304)	Isadore Segal (41MR1)	Whelan (41MR2)	Dalton (41UR11)
Punctated-Incised	98	5		26
Pinched	1	10		21
Appliqued	24	11	154	3
Appliqued-Incised	8	8		
Appliqued-Incised-Punctated				
Appliqued-Punctated	4	7		
Neck banded	90	3	12	
Brushed	1570	1550	6117	431
Brushed-Appliqued	25	34		
Brushed-Appliqued-Incised				
Brushed-Appliqued-Punctated	8			
Brushed-Appliqued-Incised-Punctated				
Brushed-Incised	120		407	70
Brushed-Punctated	80	99		41
Brushed-Punctated-Incised	8			
Trailed				14
Ridged		22		
N	3863	1972	8056	868

Decorative Method	Sam Gray (41UR14)	W. S. Chastain (41UR18)	Lasco (41UR106)	(41UR118)
Engraved	50	90	45	62
Engraved-Appliqued				
Engraved-Punctated				
Red-slipped	12	22		
Incised	29	32	47	26
Punctated	17	23	30	43
Punctated-Incised	6		6	6
Pinched	7		2	
Appliqued	1	5	8	3
Appliqued-Incised				
Appliqued-Incised-Punctated		1		

Table 11-11. *(Continued)*

Decorative Method	Sam Gray (41UR14)	W. S. Chastain (41UR18)	Lasco (41UR106)	(41UR118)
Appliqued-Punctated				
Neck banded			1	1
Brushed	514	485	85	166
Brushed-Appliqued				
Brushed-Appliqued-Incised				
Brushed-Appliqued-Punctated				
Brushed-Appliqued-Incised-Punctated				
Brushed-Incised	38	37		
Brushed-Punctated	33	26	5	10
Brushed-Punctated-Incised				
Trailed				
Ridged				
N	707	721	229	317

Decorative Method	GG (41UR136)	Gopher Run (41TT28)	Turtle Pond (41TT132)	Ear Spool (41TT653)
Engraved	49	263	243	247
Engraved-Appliqued				1
Engraved-Punctated				
Red-slipped				100
Incised	40	284	243	188
Punctated	31	179	69	179
Punctated-Incised	3			59
Pinched				
Appliqued	18	14	35	28
Appliqued-Incised	4			8
Appliqued-Incised-Punctated				5
Appliqued-Punctated				8
Neck banded	8	3	34	19
Brushed	101	172	521	709
Brushed-Appliqued	3			12
Brushed-Appliqued-Incised				3

Table 11-11. *(Continued)*

Decorative Method	GG (41UR136)	Gopher Run (41TT28)	Turtle Pond (41TT132)	Ear Spool (41TT653)
Brushed-Appliqued-Punctated				
Brushed-Appliqued-Incised-Punctated				1
Brushed-Incised	1			45
Brushed-Punctated				17
Brushed-Punctated-Incised	1			2
Trailed				2
Ridged				
N	259	815	1145	1633

Decorative Method	Q-3 (41WD51)	Burks (41WD52)	Steck (41WD529)
Engraved	188	227	394
Engraved-Appliqued			
Engraved-Punctated		1	
Red-slipped		199	154
Incised	13	138	19
Punctated		24	28
Punctated-Incised		8	1
Pinched			
Appliqued	98	43	105
Appliqued-Incised		4	
Appliqued-Incised-Punctated			
Appliqued-Punctated		3	
Neck banded	103	35	134
Brushed	2	113	81
Brushed-Appliqued		3	2
Brushed-Appliqued-Incised			
Brushed-Appliqued-Punctated			
Brushed-Appliqued-Incised-Punctated			
Brushed-Incised		19	
Brushed-Punctated		1	4

Table 11-11. *(Continued)*

Decorative Method	Q-3 (41WD51)	Burks (41WD52)	Steck (41WD529)
Brushed-Punctated-Incised			
Trailed		2	
Ridged			
N	404	820	922

CHEMICAL ANALYSIS OF TITUS PHASE SHERDS

More than 115 sherds from a variety of Titus phase sites and contexts have been submitted over the past several years for instrumental neutron activation analysis (INAA) to the Missouri University Research Reactor (MURR) to obtain evidence for prehistoric Caddo trade and exchange, and to define manufacturing locales for Titus phase ceramics. The determination of chemical compositional groups for the prehistoric and early historic Caddo sample as a whole is based on a current data base of more than 740 samples from northeastern Texas, northwestern Louisiana, southwestern Arkansas, and eastern Oklahoma (Cogswell et al. 2000: Table 1; Descantes et al. 2003a: Table 2; Neff and Glascock 2000:Table 1; Perttula et al. 2003; Perttula 2002a). The INAA was conducted by MURR following standard procedures of sample preparation and data analysis summarized in Cogswell et al. (2000) and Neff and Glascock (2000) (see also Chapter 5, this volume).

Twelve different chemical compositional groups have been defined in the Caddo ceramics subjected to INAA. There are three principal chemical groups: Titus[3], Red River, and Rusk, and they account for more than 60% of all the sherds (including those currently unassigned to a chemical compositional group, of which there are 19%). More than 335 sherds have been assigned to the Titus chemical group. Biplots of potassium and sodium (Neff and Glascock 2000:6 and Figure 4) suggested that the groups:

> do not represent single, localized sources but rather source zones that subsume a number of individual clay sources. The continuum of compositional variation that connects the three main compositional groups may correspond to a geographical cline from north to south, the chemical variation along this cline being related partly to higher rainfall and consequent chemical weathering in locations closer to the Gulf Coast (Neff and Glascock 2000:6).

About 92% of the Titus phase sherds in the current INAA database are assigned to the Titus chemical compositional group and source zone (Table 11-12; see also Table 5-17 and Perttula [2002a: Figure 5.2]), including one Taylor Engraved sherd found on a ca. A.D. 1600-1700 site more than 150 miles to the west on a Central Texas bison hunting camp (Perttula et al. 2003:19-20). The Titus chemical group currently includes Caddo sherd samples from archeological sites throughout Northeast Texas, but this chemical group is most abundant in the Big Cypress Creek and Sabine River basins in the region (see Figure 5-29).

Analyses of the INAA data base from northeastern Texas also indicates that Caddo vessels made in the Titus chemical group area by Titus phase Caddo peoples were probably traded to other Caddo groups in the

Table 11-12. Ceramic Chemical Group Assignments for Titus Phase Sites.

	Chemical Groups				
Site No.	Titus	Cypress-1	Cypress-2	Rusk	Red River
41CP20	3	–	–	–	–
41CP25	6	–	–	–	–
41CP71	10	–	–	–	–
41CP230	7	–	–	–	–
41CP239	2	–	–	–	1
41CP257	1	–	–	–	–
41CP304	13	–	3	–	–
41CP313	1	–	–	–	–
41MR63	4	–	–	–	–
41MR122	1	–	–	–	–
41MR174	2	–	–	1	–
41MR201	1	–	–	–	–
41MR219	2	–	–	–	–
41MX57	2	–	–	–	–
41TT13	7	1	–	–	–
41TT550	8	–	–	–	–
41TT653	4	–	–	–	–
41TT718	6	1	–	–	–
41TT730	2	–	–	–	–
41UR2	2	–	–	–	–
41UR3	3	–	–	–	–
41UR133	4	1	–	1	–
41UR136	3	–	–	–	–
41WD51	5	–	–	–	–
41WD52	7	–	–	–	–
41WD208	3	–	–	–	–
41WD524	1	–	–	–	–
Totals	110	3	3	2	1

Sulphur and Red River to the north as well as in the Angelina River basin to the south (Perttula 2002a; Perttula et al. 2003). Long-distance exchange of Titus chemical group vessels has also been documented in a 16th and 17th century Caddo site in southwestern Arkansas (Lafferty et al. 2000) and 15-17th century Plains Village sites in southern Kansas (Perttula 2002a; Perttula et al. 2002).

Two sherds from different Titus phase sites in the Big Cypress and Little Cypress Creek basins are assigned to the Rusk chemical group and source zone. This chemical group is known almost exclusively from Early to Late Caddoan period ceramics on sites found on the south side of the Sabine River, as well as in numerous sites in the Angelina and Attoyac stream basins. These Rusk chemical group sherds on Titus phase sites appear to be from vessels manufactured by Caddo groups living outside the Big Cypress Creek basin, and traded/exchanged with kin or trading parties that lived in the Titus phase heartland.

The one Red River chemical group sherd from 41CP239 (see Table 11-12) is from a shell-tempered Hodges Engraved vessel. This sample is clearly from a vessel traded by a Red River Caddo potter or community to a Titus phase group living at least 60-90 miles away in the Big Cypress Creek basin. Other shell-tempered Hodges Engraved vessel sherds have also been documented at another Titus phase site along Brushy Creek in the Big Cypress Creek basin (Nelson and Perttula 2003:20 and Figure 4).

A few sherds from three Titus phase sites are assigned to the Cypress-1 and Cypress-2 chemical compositional groups and source zones (see Table 11-12). Chemically, biplots differentiate these groups from both the Titus and Rusk groups (Descantes et al. 2003b: Figure 2 and Tables 1 and 5). Overall, the distribution of sites with Cypress-1 and Cypress-2 vessel sherds have a more western orientation (i.e., in the western Titus phase ceramic tradition) than does the Titus chemical compositional group (see Figure 5-29), and it is likely that these are from vessels that were manufactured from clays obtained in the western part of the Big Cypress Creek basin, and traded downstream to groups living in the Titus phase heartland. In Late Caddoan period times, a Cypress-1 vessel sherd has also been recovered from a Frankston phase site (41NA235) along Naconiche Creek in the Attoyac Bayou basin in East Texas. This area was home in historic times to the Naconichi Caddo, a little-known Caddo group (Campbell 1996:922).

END NOTES

1. With calibrated radiocarbon dates on annual plant remains, our best outcome relying on 2 sigma age ranges is to have a 100-200 year resolution for any one time. Thus, most of the calibrated radiocarbon dates from a phase that may have lasted only 250-300 years will considerably overlap. Temporally constrained models (see Nicholls and Jones 2001) may be appropriately applied if there is stratigraphic evidence from particular sites that suggests samples are from an historical sequence rather than from a set of contemporaneous features. In an innovative analysis in the American Southwest that may be applicable to northeastern Texas Caddo sites, Gregory and Diehl (2002:204-206) relied on extensive radiocarbon dating in combination with measured fluoride content of animal bone from the fill of pits and structures to develop detailed chronological arrangements of hundreds of features, linking the relative fluoride chronology to calibrated radiocarbon dates from fluoride-dated features.

2. The inverse relationship in the proportion of brushed and neck banded ceramic utility wares in eastern and western Titus phase ceramic traditions may be related to their overall functional ability as cooking pots. Experiments discussed by Hensler and Blinman (2002:370-371) suggest that neck banded (or corrugated) pottery was more effective compared to plain pottery vessels in controlling boil over of the vessel contents because of the heat loss created by the neck banding of the upper vessel rim; as they note (Hensler and Blinman 2002:370), the textured rim surface functioned "as a radiator cutting back on the loss of food as a result of uncontrollable boiling." Furthermore, neck banded vessels appear to stand up better than plain pottery to the cumulative effects of heat shock, since the corrugated surface better helps "relieve the stress of differential expansion" (Hensler and Blinman 2002:370). In Caddo economies more dependent upon agricultural crops, and where the boiling of processed plant foods in ceramic vessels was also critical, the adoption of neck banded pottery would have had demonstrable benefits in lowering the costs of household cooking, and in lowering pottery production costs, since neck banded pottery also appears to have a long use-life because of their heat-shock resistance.

Since brushed pottery vessels also have a textured surface, they would have been able to transfer heat better than plain-surface pottery when used in the cooking of food stuffs in jars of various sizes. The rough-textured brushed vessels would also have facilitated the lifting and grasping of vessels that were sometimes rather large in size. James Corbin (1998 personal communication) has also suggested that the brushing of Caddo vessels would have promoted the more even drying of the vessels, thus insuring more successful firings of this particular utility ware. It would be interesting to compare the functional effectiveness of neck banded vs. brushed ceramics from western and eastern Titus phase Caddo sites, as they may provide part of the explanation as to why brushed ceramics were a principal utility ware on eastern sites and some western ceramic tradition sites, and neck banded ceramics were the principal utility ware in only some western Titus phase sites.

3. The names assigned to the chemical groups are considered provisional and descriptive, and are based primarily on the county names where the group was first recognized. They do not necessarily signify the provenance of the sherds. Thus, sherds from the Titus chemical group are not necessarily from sites in Titus County, Texas, or from sites occupied during the Titus phase.

Chapter 12

Summary and Conclusions

Timothy K. Perttula

The Pilgrim's Pride site (41CP304) is an important prehistoric Caddo archeological site in the Big Cypress Creek valley in Camp County, Texas, being situated in the Pineywoods of northeastern Texas. The site was first identified in 1998 during an archeological survey for a proposed Pilgrim's Pride poultry processing plant in their several thousand acre Walker Creek complex (Murin 1998a, 1998b; Perttula and Nelson 1998a). The size and apparent complexity of the Pilgrim's Pride site were evident even then, as midden deposits and large numbers of artifacts covered approximately 12 acres of a prominent upland landform overlooking the Big Cypress Creek valley. It was apparently the most prominent aboriginal Caddo site in the immediate area and for several miles both upstream and downstream from it.

It soon became apparent that the Pilgrim's Pride site would be adversely effected by proposed construction activities associated with the development of the Pilgrim's Pride poultry processing plant, as it was not possible to move the proposed plant facilities to minimize the construction activities. That determination under Section 106 of the National Historic Preservation Act launched the archeological investigations that have been reported on in this two volume report. The archeological work was started by Horizon Environmental Services, Inc. (Horizon), and then, at the request of the Pilgrim's Pride Corporation, Archeological and Environmental Consultants (now Archeological & Environmental Consultants, LLC) was brought on board to work on the project in the fall of 1998. We completed, in the winter and early spring of 1999, the extensive excavations of the Pilgrim's Pride site initiated by Horizon. Our work focused primarily on the large-scale use of heavy machinery (small bulldozers, backhoes, and front-end loaders) of domestic and mortuary areas in the large Titus phase (ca. A.D. 1430-1600) village component (Figure 12-1). As an adjunct, limited investigations were undertaken in a suspicious rise at the northern end of the village, and this work indicated that the rise was in fact an earthen mound built over a Titus phase structure that had been burned and partially dismantled before it was buried by 2-3 ft. of sand fill. That mound (in Area VII, see Chapter 8, this volume) has been set aside and preserved by the Pilgrim's Pride Corporation within the Walker Creek complex.

During our archeological investigations at the Pilgrim's Pride site, several members of the crew were Caddo Nation of Oklahoma members, and they were part of all aspects of the work, including identifying and excavating features in domestic areas as well as excavating and recording Caddo burial features in the Area V/VI cemetery (see Chapter 6, this volume). We also worked closely with the Historic Preservation Program at the Caddo Nation during the course of the project, and developed strong working relationships with the Caddo Nation that continue to today.

The prehistoric Caddo occupation at the Pilgrim's Pride site began during the latter part of the Mississippi period, around A.D. 1400. These Caddo peoples were contemporaneous with various Plaquemine,

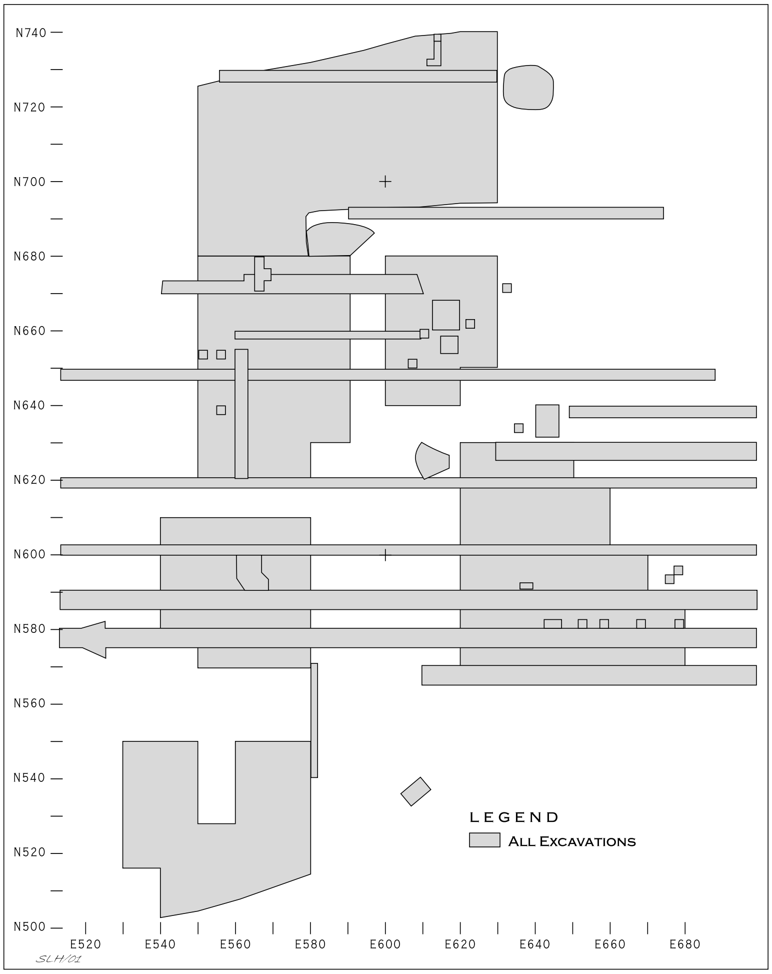


Figure 12-1. Composite map of hand and machine-excavated areas at the Pilgrim's Pride site (41CP304).

Middle Mississippian, and South Appalachian aboriginal groups living across eastern North America (Figure 12-2), and they were a strong and powerful group of peoples (e.g., Early 2000; Perttula 2002; Calloway 2003:105-110). They were farmers, as were other Mississippian groups, living in dispersed communities, and they were active traders, as we know from the wide distribution outside the Caddoan archeological area of decorated Titus phase pottery. The Titus phase Caddo groups in the Big Cypress Creek basin were perhaps the most populous and socially complex of the many Caddo societies living in Texas at that time, and they were the westernmost aboriginal group that was socio-politically akin to middle and late Mississippian polities in the broader southeastern U.S. region (Figure 12-3).

The Titus phase Caddo communities in the heartland of the Big Cypress Creek basin were experiencing rapid and sustained population growth during times of fluctuating climatic conditions in the 15th and 16th centuries. These dynamic farming communities dealt with climatic and subsistence stresses by effecting new means of holding their societies together, boldly coming together into several stronger communities centered around the establishment of larger mound centers and villages at key nexuses in the Big Cypress Creek basin. In the words of Sabo (2003: 444-445), "Caddo history as enacted. . . history is neither mute nor static; it is a dynamic component of Caddo culture that people use today—just as their ancestors did in times past—to shape identities and transfer those identities from generation to generation, even in the face of disruption and loss."

The Pilgrim's Pride site is one of these newly created larger and community-centered Caddo mound and village settlements, places where the most important and life-giving ceremonies, rituals, and decisions were made by the social and political elite that guided and organized the changing Titus phase societies living along Big Cypress Creek. Smaller farming households were dispersed for several miles around the Pilgrim's Pride site. Life here was organized around the rhythm of planting and harvesting the cultivated plants, men hunting large game, the rituals and ceremonies of the seasons, and daily life in the household and village settlements. At the Pilgrim's Pride site, the village in Areas I, II, III, VIII, and IX is marked by the posthole-marked remnants of domestic structures, midden deposits, and large clusters of outdoor pits

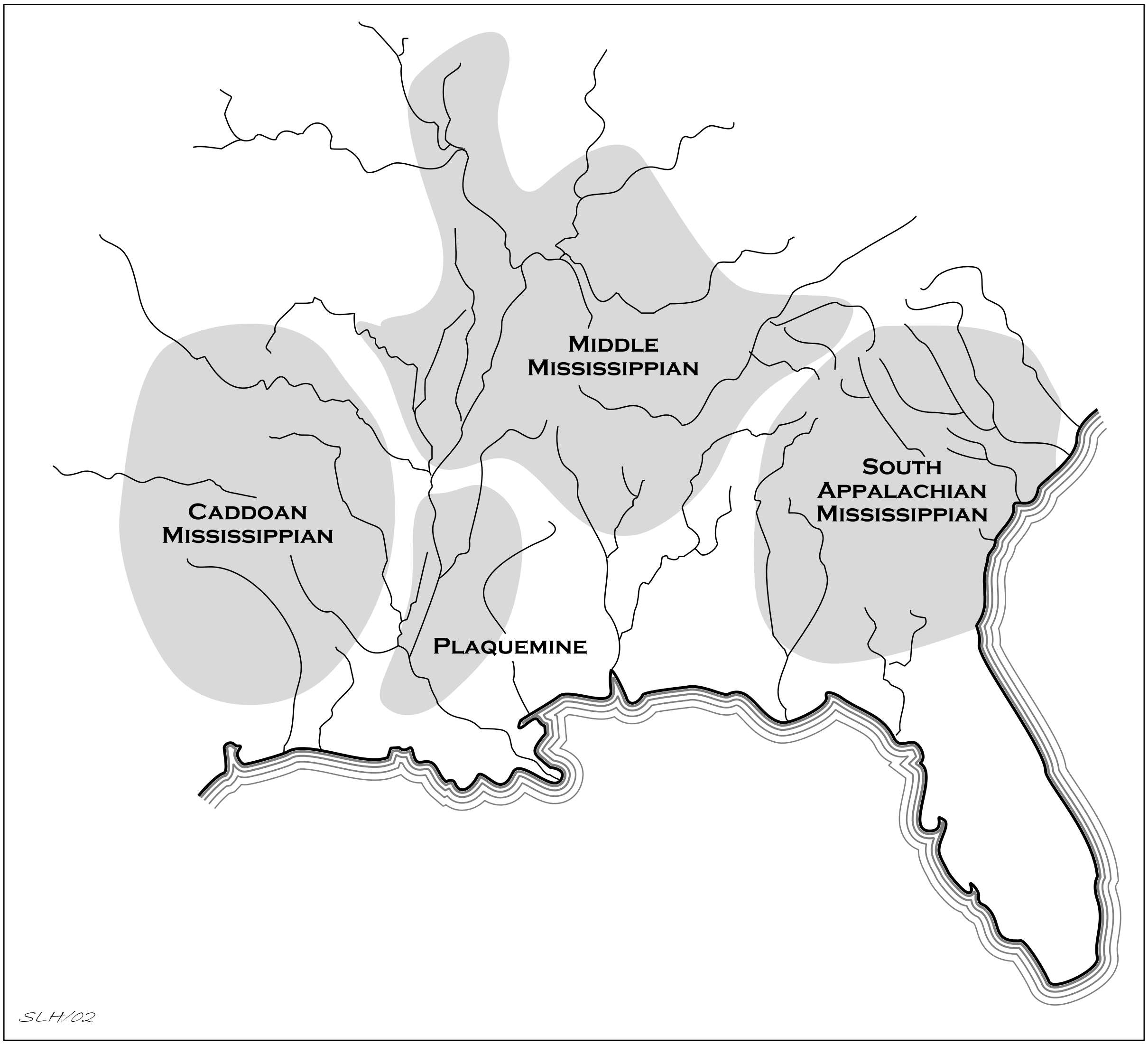


Figure 12-2. The distribution of the main Mississippian groups in eastern North America, after Fagan (1995:437).

used in the cooking and processing of food stuffs, as well as the broken and discarded pieces of fine ware and utility ware ceramics, chipped stone tools, and fragments of wood-working tools.

When their life's race was run, the Titus phase Caddo peoples that had lived at the Pilgrim's Pride site were laid to rest in a sacred cemetery plot (in Area V/VI) that had been set up and maintained for at least 2 generations in an area directly opposite from the Area VII mound (the seat of political authority in the village) and at some distance (both symbolically and in life) from the domestic compounds. Caddo children that died at a young age were kept close to the living, as they were buried beneath and/or near the household they had probably been born and raised in. The deceased men, women, and children were buried in moving ceremonies that lasted several days, and they were accompanied by various offerings placed in the graves that were meant to help them in their journeys to the afterlife.

Change came again to the Caddo peoples living in the Big Cypress Creek basin when a few European explorers and colonizers came to the area periodically in the 16th and 17th centuries. If Europeans were

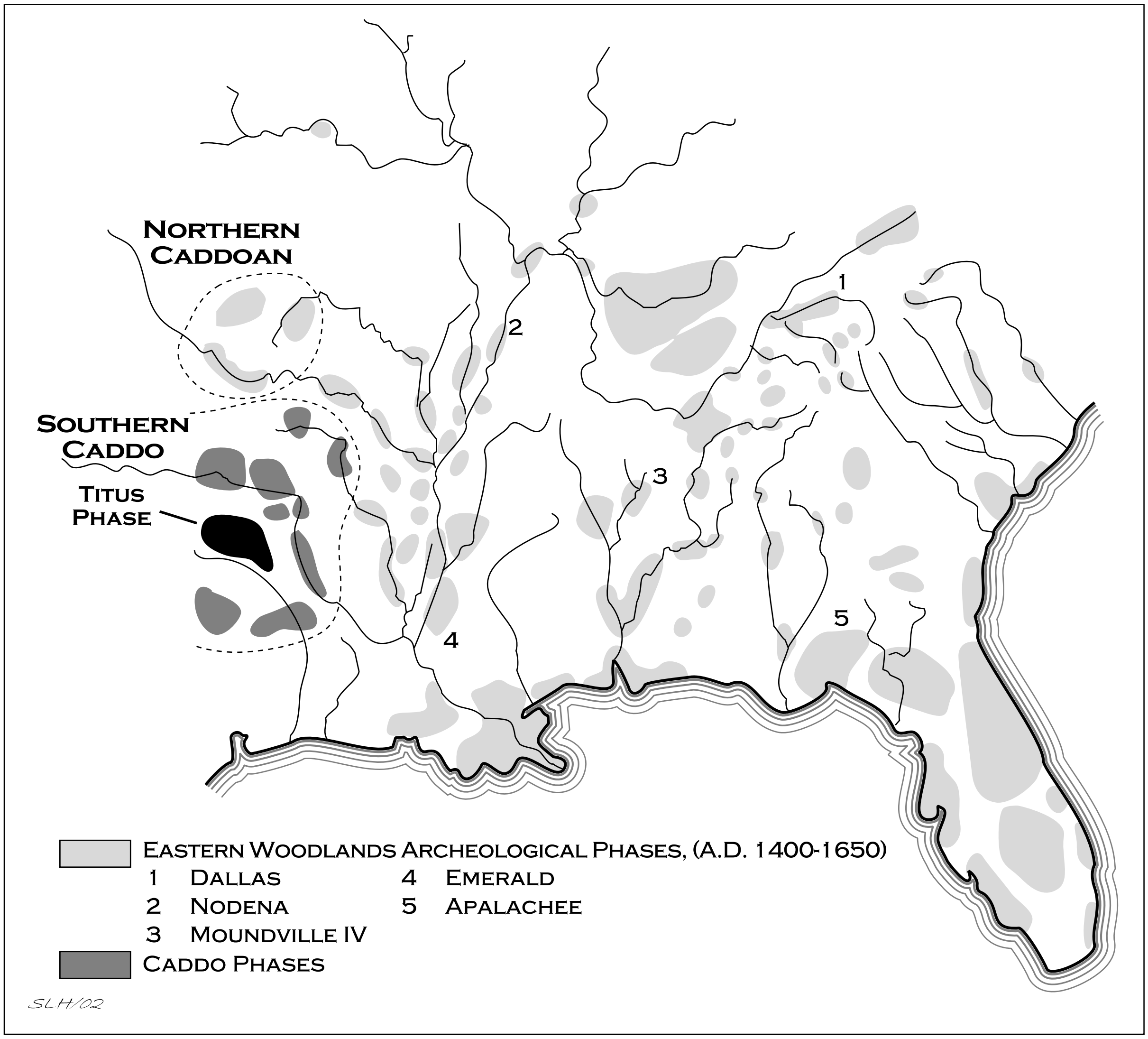


Figure 12-3. Eastern Woodlands archeological phases contemporaneous with the Titus phase, including other phases in the Southern Caddo area, based on Milner et al. (2001: Figure 2.2).

ever at the Pilgrim's Pride site while it was occupied by the Titus phase Caddo (ca. A.D. 1430-1600), they left nary a trace. When the more permanent European settlement of the Big Cypress Creek country began in the early 19th century, the Caddo had left this part of northeastern Texas some years before, and the Pilgrim's Pride site was seemingly forgotten. But, through the actions and investigations of a dedicated group of archeologists, businessmen, State and Federal agencies, and the Caddo peoples themselves, the proud history of the Caddo peoples at that time and place has come alive again.

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