ARCHEOLOGICAL SURVEY AND TESTING ALONG BOONE CREEK, LOUISIANA ARMY AMMUNITION PLANT, WEBSTER PARISH, LOUISIANA

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Investigations were carried out as part of a continuing effort to deal with cultural resources that may be affected by the RDX expansion program. Survey located six sites that have only prehistoric components, two sites with both historic and prehistoric components. Two prehistoric sites (16WE108 and 16WE129) have a likelihood of yielding information important to prehistory. One historic site (16WE198) is also likely to yield information important to history. In addition two cemeteries and an oil well were also investigated. Both of which may be eligible to the National Register of Historic Places.

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ABSTRACT

In Summer 1987, investigations were carried out at the Louisiana Army Ammunition Plant in Webster Parish, Louisiana, as part of a continuing effort to deal with cultural resources that may be affected by activities associated with the RDX Expansion Program. The fieldwork involved: (1) manual testing to assess the National Register eligibility of 18 prehistoric and 4 historic sites located during previous surveys; and (2) pedestrian survey of ca. 400 acres to locate sites in this previously unexamined area.

The testing of the prehistoric sites, which entailed the excavation of 292 0.5x0.5-m test pits, revealed that all of the sites are diffuse cultural deposits reflective of nonintensive use. The data suggest that most date, at least in part, to the Caddoan and/or late Archaic periods. Only one site rests in fluvial deposits; the others appear to occur in a variable-thickness mantle of colluvium. Evaluation of the data indicates that two of the sites, 16WE108 and 16WE129, have a greater likelihood of yielding information important to understanding the prehistory of the project region, and thus these two sites are judged to be eligible for listing on the National Register of Historic Places. The other prehistoric sites contain cultural deposits that are relatively sparse, that are relatively thin, that have limited datable remains, and/or that are substantially disturbed; these sites are considered to be ineligible for listing on the National Register.

The testing of the historic sites revealed that one is an early twentieth-century trash dump, one is a late nineteenth/early twentieth-century tenant house, one is a late nineteenth/early twentieth-century housesite and mill-gin complex, and one is the late nineteenth/early twentieth-century housesite of a Black minister. The last of these, 16WE198, is relatively intact and contains important information on turn-of-the-century lifeways; thus, 16WE198 is judged to be eligible for listing on the National Register of Historic Places. The other three historic sites are too disturbed or contain insufficient information to be considered eligible for listing on the National Register.

The survey located or revisited six sites that have only prehistoric components, four sites with only historic components, and two sites with both prehistoric and historic components. All of the prehistoric sites are diffuse cultural deposits on prominences along Boone Creek or its tributaries; one is considered to be potentially eligible for listing on the National Register. The historic sites consist of two cemeteries, two housesites, one site related to oil exploration, and one site of uncertain function; the two cemeteries and possibly the oil well are considered potentially eligible for listing on the National Register.

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The fieldwork could not have been completed as efficiently as it was without the diligent efforts of the crew. We would like to thank Mr. Wayne A. Chesser, Ms. Kim E. Coberly, Mr. Rene Gonzales, Ms. Catherine Peterson, Mr. Joseph M. Sanchez, Mr. Gary Shaw, Ms. Deborah Smith, Ms. Abby Treece, Mr. Daniel Brookshire, Mr. Randy Nathan, and Mr. Thomas Bianchi, who served as the geomorphologist. Also, Mr. Elton R. Prewitt lent his vast experience and expertise in identifying the methods by which the sites could be tested. All of these steadfast scientists endured heat, humidity, redbugs, and seas of poison ivy to define and understand the archeological resources of the Plant.

Finally, special thanks goes to the laboratory and office staff of Prewitt and Associates, Inc. Ms. Jeanine Seay and Ms. Deborah Smith processed, catalogued, and generally facilitated the analysis of the cultural materials recovered from the Plant sites. Ms. Ellen Atha deftly illustrated selected artifacts. Ms. Sandy Hannum drafted all report figures. Ms. Carolyn LeMaster and Ms. Linda Nance Foster completed the immense task of report typing and production. Without their assistance, this report would not be a reality.

CHAPTER 1

INTRODUCTION

by Ross C. Fields

This report describes cultural resources investigations carried out by Prewitt and Associates, Inc. during Summer 1987 at the Louisiana Army Ammunition Plant in northwestern Louisiana. The Plant is a ca. 15,000-acre facility that is located in southern Webster Parish and extreme eastern Bossier Parish, southwest of the town of Minden and east of Shreveport and Bossier City (Fig. 1). This project was conducted under contract with the Fort Worth District Corps of Engineers (Delivery Order No. 12 for Contract No. DACW63-86-D-0010) and is part of the continuing effort by the Plant to deal with cultural resources in advance of construction and other activities associated with the planned RDX Expansion Program.

The bulk of the efforts reported here focused on archeological testing at 18 prehistoric and 4 historic sites found during recent surveys (Driskell and Howard 1988; see Chapter 3). The testing revealed that one of the historic sites also has a prehistoric component, and thus a total of 19 prehistoric sites were investigated. The goal of this testing was to gather sufficient information to allow judgments as to whether or not these sites are eligible for listing on the National Register of Historic Places. A second task included within this project consisted of survey of a small number of additional acres (ca. 400) that will be impacted by the RDX Expansion Program; the goal of this survey was to produce an inventory of the archeological and historical sites that occur in this small area. As described in Chapter 5, these two tasks were carried out by a 12-person field crew, a geomorphologist, and an historian over a 23-day fieldwork period.

This report consists of nine chapters. Chapters 2-4 provide background information on the environment, archeology, and history of the project area; this information is drawn, in part, from recent survey reports for the Plant (Driskell and Howard 1988; Kelley et al. 1988). Chapter 5 describes and discusses the objectives and methods of the project and evaluates the approaches used. Chapter 6 presents the results of and recommendations resulting from the limited survey work done. Chapters 7 and 8 constitute the bulk of the body of the report and describe in detail the testing efforts and the results of these efforts. Chapter 9 synthesizes information from previous sections to produce assessments of National Register-eligibility for the tested sites and recommendations for future work at these sites. Finally, the three appendices to the report provide the raw data resulting from sedimentological analyses for several sites and descriptions of the prehistoric and historic artifacts recovered during the testing.

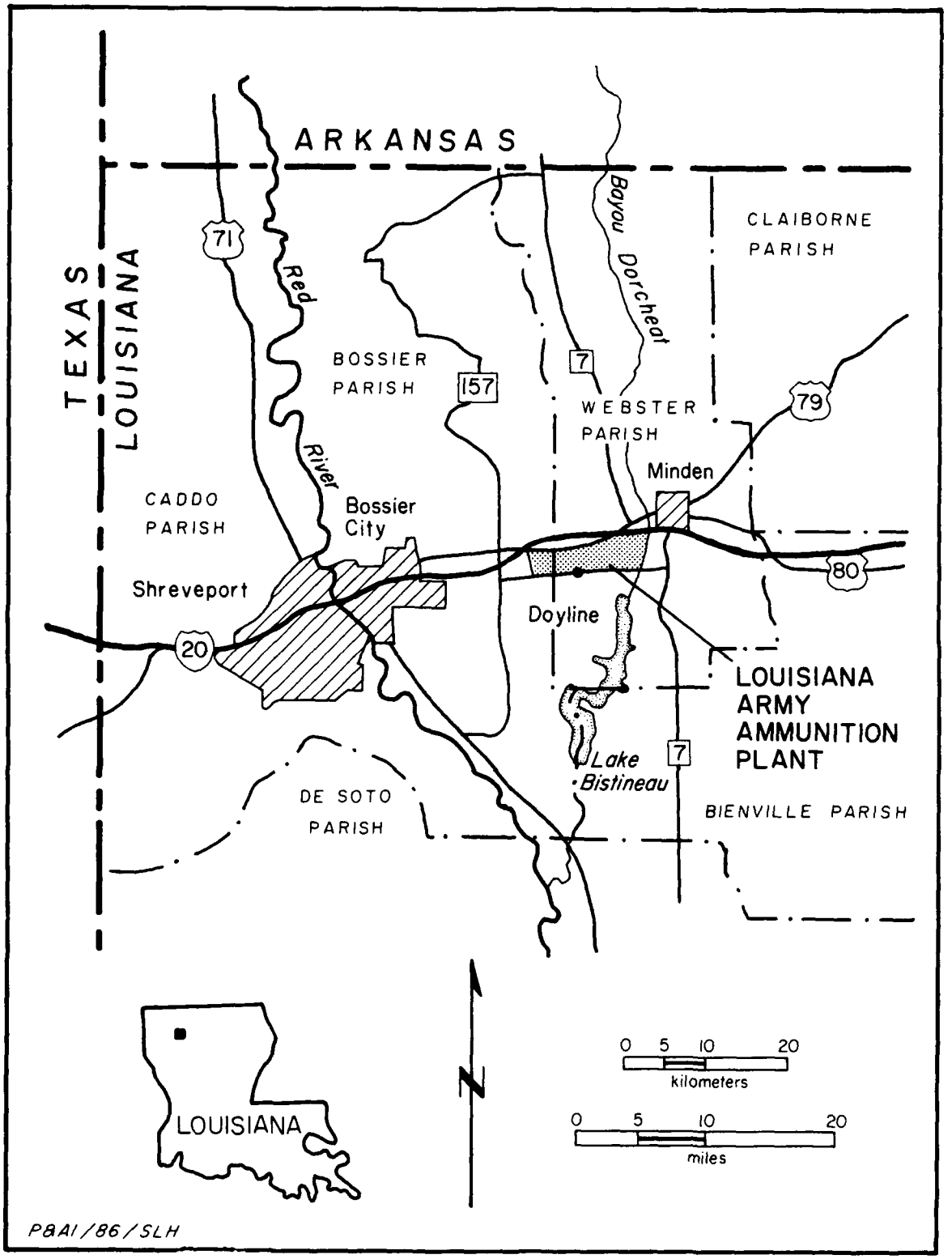

Figure 1. General location map.

CHAPTER 2

ENVIRONMENTAL SETTING

by Margaret A. Howard and Ross C. Fields

This chapter presents a description and discussion of the environmental setting of the Louisiana Army Ammunition Plant area. Topics addressed are geology and geomorphology, hydrology, flora, fauna, and climate. The objective of this chapter is to identify not only environmental parameters that may have affected how humans used the project area but also aspects of the environment that may have affected the archeological record of that use.

Geology and Geomorphology

The Louisiana Army Ammunition Plant lies on the gently rolling West Gulf Coastal Plain, ca. 30 km east of the modern course of the Red River and immediately west of Bayou Dorcheat, a major tributary to the Red River. The West Gulf Coastal Plain in this area consists predominantly of a series of northeastward-dipping geologic units that were deposited during the Tertiary Period as the coast prograded seaward and a series of fluvial deposits reflecting sedimentation by the Red River during the Pleistocene Epoch (Martin et al. 1954:11).

The Tertiary deposits that outcrop closest to the project area belong to the Eocene-age Wilcox and Claiborne groups (Martin et al. 1954:11-12; Jones 1959; U.S. Army Corps of Engineers, Fort Worth District 1987:3-12 through 3-14). These units underlie and do not outcrop in the immediate project area, which is composed of sediments dating to the Pleistocene and later. Rather, the older Wilcox Group formations outcrop only to the west of Clark Bayou and the project area as a small island of uplifted deposits overlapped by Pleistocene deposits of the Red River; the younger Claiborne Group formations also outcrop just west of Clark Bayou, but they occur at the surface primarily east of Bayou Dorcheat where they are expressed by a mature physiography of rolling, dissected hills. In Webster Parish, Bayou Dorcheat marks, or nearly so, the eastern extent of the intact Pleistocene floodplain deposits of the Red River (Martin et al. 1954:Plate 2).

The earliest of these Tertiary formations, the undifferentiated Wilcox Group, consists of up to 170 m of micaceous sandy silts, sands, and clays containing lignite and calcareous sandstone (Jones 1959:20-22). Overlying these materials is the Carrizo Sand, which consists of up to ca. 45 m of fine- to coarse-grained, light gray to brownish gray, massive sand (U.S. Army Corps of Engineers, Fort Worth District 1987:3-15). Above the Carrizo is the Cane River Formation, which consists of 30 to 90 m of interbedded clay and sand. Above this is the the Sparta Sand consisting of up to 75 m of massive to thin-bedded, gray to buff, fine- to medium-grained sand containing interbeds of clay or shale, common lignite and other organic materials, and occasional gravels. The overlying Cook Mountain Formation consists of 30 to 60 m of primarily gray, calcareous, sandy, glauconitic clay. In the Sabine Uplift area of northeastern Texas, a comparable sequence of formations is interpreted as reflecting the following depositional environments, from the bottom up: fluvial-deltaic, fluvial, deltaic, deltaic overlain by fluvial, and marine (Kaiser 1986:5).

As noted above, the near-surface geologic units that comprise the immediate area of the Louisiana Army Ammunition Plant consist of a series of deposits that were laid down as floodplains of the Red River during the Pleistocene Epoch. Four such units -- termed the Williana, Bentley, Montgomery, and Prairie terraces -- were originally defined for the coastal plain of Louisiana (Fisk 1939), and several researchers (Martin et al. 1954; Jones 1959; Louisiana Geological Survey 1984) have mapped these units for the project area. While there is agreement that only deposits that can be correlated with the more-recent Montgomery and Prairie terraces occur within the Louisiana Army Ammunition Plant, there is disagreement about the relative extent of these two units (Kelley et al. 1988:5). This disagreement extends well beyond the area discussed here, and, indeed, the debate as to the number of coastal terraces actually present, their extents, their origins, and their ages continues to this day (e.g., Mossa and Autin 1986; Paul Heinrich, personal communication 1988). Because of this, no attempt is made here to distinguish between Montgomery and Prairie terrace deposits within the project area. Suffice it to say that, as a group, these units, which reflect deposition during and before the mid-Wisconsin Stage (Mossa and Autin 1986:16-17; Paul Heinrich, personal communication 1988), consist of ca. 10 to 50 m of basal gravels and sands that grade upward into sandy silts, silts, and clays; colors range from gray, buff, and brown to orange and dark red (Martin et al. 1954:104-105; U.S. Army Corps of Engineers, Fort Worth District 1987:3-16). The importance of these Pleistocene sediments in terms of the archeology of the area, in addition to the fact that gravels from these Red River deposits probably served as a source of raw materials for the manufacture of chipped stone tools, lies in the fact that they may have been reworked and redeposited by fluvial, colluvial, and eolian processes during the Holocene to become the host deposits for the archeological remains of the area.

Based on recent geomorphological research in eastern Texas and western Louisiana (e.g., Gunn and Brown 1982; Bianchi 1984; Heinrich 1986; Perttula et al. 1986; Espey, Huston and Associates, Inc. 1987; Fields and Heinrich 1987a, 1987b; Mandel 1987; Bousman and Fields 1987; Ensor and Carlson 1988; Fields et al. 1988), it is assumed that the surficial mantle of unconsolidated sediments that blankets the project area reflects Holocene colluvial and/or eolian deposition in the uplands and alluvial deposition along streams. The common occurrence of siliceous pebbles in the upland sand mantle (see Chapter 7) suggests that colluvial processes have played a larger role than eolian processes in the deposition of these sediments. How these Holocene deposits vary in thickness across the landscape in the Louisiana Army Ammunition Plant project area is poorly documented. The excavations conducted during this project (see Chapter 7), however, suggest that the Holocene alluvium on floodplains may reach substantial thicknesses and that the Holocene colluvium in the uplands varies from a few tens of centimeters to well over a meter in thickness. The occurrence of these Holocene deposits suggests that the project area has the potential to contain stratified archeological sites and that certain kinds of paleoenvironmental information may be recoverable. Identification of just what these surficial deposits rest on remains problematical, although it is assumed here that the oxidized, pedogenically altered sandy loams and sands that underlie the little-altered surficial deposits are a distinct depositional unit dating no later than the late Pleistocene-early Holocene. These lower deposits could be the weathered upper part of the Pleistocene Red River deposits or any of a number of colluvial or alluvial deposits of reworked Prairie or Montgomery terrace sediments. Clearly, this is a question that needs attention.

Hydrology

The project area lies within the Red River drainage west of Bayou Dorcheat, a major left-bank tributary of the Red River with a floodplain up to 3.2 km wide in the area adjoining the Plant. The current investigations were conducted along the mainstem and tributaries of Boone Creek (Fig. 2a), a right-bank tributary of Bayou Dorcheat, which drains the center of the Plant and flows into the Bayou about 1.6 km south of the Plant. The Boone Creek floodplain varies from 175 to 350 m wide in the Plant; the wider floodplain areas are characterized by numerous interconnecting sloughs that hold water except during dry periods (Fig. 2b).

The modern Red River system in northwestern Louisiana differs greatly from its appearance in the early nineteenth century, when explorers found it clogged by an immense log jam known as the Great Raft (Freeman [and Custis 1806?]:3-13). Tributaries like Bayou Dorcheat flowed at considerably higher levels than they do today. Lake Bistineau, a modern-day artificial lake about 3.2 km south of the Plant on Bayou Dorcheat, was a natural lake in the early nineteenth century and may have been three times its current size (Lafon 1806). The raft was removed by the 1830s (see Chapter 4).

Another local feature of hydrologic interest is a salt spring near the head of Lake Bistineau. This spring was the location of a salt production site for late Caddo Indians and for the Confederacy during the Civil War (Swanton 1946:268, 302; Cook 1963; Brown 1981: 3-6; Heartfield et al. 1984:2-15).

Flora

The modern vegetation of the Plant has been affected by land-use practices in the nineteenth and twentieth centuries. Clearing of the forest for agriculture began in the 1850s, and around the turn of the century, an extensive area was clear-cut for lumber production (Kelley et al. 1988:8). By 1939, about two-fifths of the Plant area had been cleared (Heartfield et al. 1984:3-2 to 3-3). Although the forest has grown back over much of this area, continued timber harvesting and land management practices have resulted in a shift of the dominant species; however, the original range of species is still preserved (Heartfield et al. 1984:2-3).

The presettlement vegetation of the project area fell into two classes (Fig. 3): pine-oak flatwoods and bottomland hardwoods (Delcourt 1976; Heartfield, Price and Greene, Inc. 1979b:2-12). Pine-oak flatwoods were found in more-upland areas, and hardwoods occurred under conditions of greater soil moisture (Heartfield et al. 1984:2-3). The pine-oak flatwoods was a community of longleaf, shortleaf, and loblolly pines (Pinus palustris, P. echinata, and P. taeda), codominant with red and white oaks (Quercus falcata and Q. alba). Minor constituents included sweetgum (Liquidambar styraciflua), dogwood (Cornus florida), locust (Robinia spp.), maple (Acer spp.), and sassafras (Sassafras albidum). The bottomland hardwood community had as major components ironwood (Ostrya virginiana), white oak, hickory (Carya spp.), sweetgum, beech (Fagus grandifolia), bay (Persea borbonia), holly (Ilex spp.), maple, and sassafras. Cypress (Taxodium distichum) was found in periodically inundated areas. Trees used to record bearings in the Webster Parish survey of 1873 show that these species persisted in the Plant area in the late nineteenth century (Bryan 1988: 10-11).

Figure 2. Environmental photographs. (a) sand bar on Boone Creek; site 16WE129 is on far bank; (b) floodplain slough and adjacent rise containing site 16WE193.

Figure 3. Environmental photographs. (a) pine-oak flatwoods with an open understory at site 16WE213; (b) bottomland hardwoods with a moderately open understory at 16WE191.

Understory vegetation in the two forest communities consisted of a number of low shrubs and vines. Common species today are yaupon (Ilex vomitoria), American holly (Ilex opaca), American beautyberry (Callicarpa americana), arrow-wood (Viburnum dentatum), blackberries (Rubus spp.), grapes (Vitis spp.), greenbriars (Smilax spp.), dwarf palm (Sabal minor), and sumacs (Toxicodendron radicans, T. quercifolium, and T. vernix).

These upland pine forests may have been of considerable antiquity, as documented by the pollen record. Although the Southern Evergreen Forest saw a shift in the middle Holocene from xeric species of oak and hickory to southern pine, this plant community has remained intact on upland interfluves of the Gulf Coastal Plain since the late Wisconsin glacial/interglacial cycle, with changes in the dominance of constituent community types due to subtle changes in effective precipitation and fire frequency (Delcourt and Delcourt 1985:13, 20).

The prehistoric use of plants for foods and other purposes is not well known, although the presence of grinding tools throughout the Archaic suggests that vegetal foods comprised a significant part of the diet. For the later portion of prehistory, Swanton (1946:292) lists a number of wild plants used by the Caddo for food: acorns, nuts of various kinds, persimmons, plums, wild cherries, mulberries, strawberries, blackberries, and wild grapes. Cultivated foods included corn, beans, squash, sunflowers, and tobacco, most of which were not native to the area.

Fauna

Blair's (1950) Austroriparian biotic province characterizes the modern fauna in the project area; it includes, among others, the common mammals oppossum (Didelphis virginiana), swamp rabbit (Sylvilagus aquaticus), cottontail rabbit (Sylvilagus floridanus), black squirrel (Sciurus niger), southern flying squirrel (Glaucomys volans), white-footed mouse (Peromyscus leucopus), marsh rice rat (Oryzomys palustris), cotton hispid rat (Sigmodon hispidus), and eastern wood rat (Neotoma floridana). Other mammals found in this part of Louisiana (Lowery 1974) include black bear (Ursus americanus), white-tailed deer (Odocoileus virginiana), wolf (Canis rufus), red fox (Vulpes fulva), beaver (Castor canadensis), raccoon (Procyon lotor), skunk (Mephitis mephitis), otter (Lutra canadensis), and mink (Mustela vison).

Birds native to this part of Louisiana include geese (Anser albifrons and Chen spp.); black, pintail, and teal ducks (Anas rubripes, A. acuta, and A. carolinensis); canvasback duck (Aythya valisineria); and wild turkeys (Meleagris gallopavo). Common reptiles are water snakes (Natrix spp.), southern copperheads (Agkistrodon contortrix contortrix), and western cottonmouth (Agkistrodon piscivorus leucostoma). Typical amphibians include alligator (Alligator mississippiensis) and various species of turtles and frogs. Common fish in area streams are gar (Lepisosteus spp.), buffalo fish (Ictiobus spp.), catfish (Ictalurus spp.), sunfish (Lepomis spp.), crappie (Pomoxis spp.), shiners (Notropis spp.), and other small fish such as minnows (species names from Kelley et al. 1988:9-11).

Although the use of animals by Paleoindian and Archaic cultures is poorly known, for the later prehistoric period Swanton (1946:292) lists a number of wild animals used by the Caddo for food: deer, bison, bear, rabbit, wild turkeys, geese, ducks, partridges, cranes, quail, snakes, and fish.

Climate

The modern climate of the project area is classified as humid subtropical. The relative humidity is generally high, maintaining a level of 60% or more over most of the year. The prevailing winds are southerly in the summer, while in the winter they alternate between warm, moist southerly winds and cold, dry northerly winds. The annual precipitation averages 48 inches (122 cm), most falling during the passage of winter or spring continental cold fronts. Precipitation during the summer and early fall usually occurs in the form of afternoon thunderstorms. Maximum temperatures rise above 90° F (32° C) on an average of 103 days per year, and minimum temperatures fall below freezing on an average of 43 days per year. The frost-free period averages 220 days per year (Chaffin et al. 1959:3; Heartfield et al. 1984:2-2 to 2-3; Kelley et al. 1988:7-8).

The climate of the southeastern United States over the last 12,000 years can be reconstructed to some extent from pollen records, alluvial sediments, and faunal remains. During the early Holocene (ca. 10,500 to 6500 B.C.), the postglacial environment was generally cool-temperate and mesic, as shown in the pollen record by the expansion of mixed coniferous/broadleaf deciduous tree species throughout the mid latitudes (Delcourt and Delcourt 1985:19). Gunn (1982:117-118) sees intermittent resurgences of glacial climate continuing into the Holocene, creating mesic periods that may be related to major cultural changes.

In the middle Holocene (6500 to 2000 B.C.), the Hypsithermal Interval was a period of higher temperatures across the midwestern United States, reflected on the north Gulf Coastal Plain by a warm and wet climate which promoted dispersal of coastal plain species into more-inland environments (Delcourt and Delcourt 1985:20). However, Gunn (1982:117) suggests that the Hypsithermal in the lower Mississippi Valley was not wet, at least not in the season of the year appropriate to benefit vegetation. He sees evidence in deep sea cores of a shift from winter to summer moisture, with dry spring seasons becoming most common (Gunn 1982:114-116).

The late Holocene (2000 B.C. to present) has been a period of minor cooling, with vegetation adjustments in climatically sensitive areas of the southeastern United States (Delcourt and Delcourt 1985:20-21). One notable climatic fluctuation was a slight increase in aridity during the twelfth through fourteenth centuries A.D., as seen in pollen and alluvial sediments in northeast Texas and southeast Oklahoma (Bruseth et al. 1987:44-46). This dry period was experienced across the southeastern United States and may have contributed to cultural changes seen in a number of areas at about that time (Bruseth et al. 1987:45). While the project area is likely to have been affected to some degree by these environmental changes, the most extreme climatic variations would have been ameliorated by the relatively high elevation of northwestern Louisiana above the coastal plain and by the forest that covers the area (see Gunn 1982:117; Bruseth et al. 1987:43).

CHAPTER 3

ARCHEOLOGICAL BACKGROUND

by Eloise F. Gadus and Margaret A. Howard

This chapter provides an overview of the archeological background of the Louisiana Army Ammunition Plant area. The first section describes the previous investigations in the region. The second section presents a general discussion of the cultural history.

Previous Investigations

Located in northwestern Louisiana approximately 50 km east of Shreveport, the Louisiana Army Ammunition Plant can be placed within the southern portion of the Great Bend region of the Red River. This region has been a focal point for the study of prehistoric and historic Caddoan culture, as well as pre-Caddoan cultures, since just before the turn of the century. The parishes of Bossier, Webster, Red River, Claiborne, and Bienville, which surround the project area, have received some of that archeological attention.

The first archeological work done in the Louisiana portion of the Great Bend was carried out by T. P. Hotchkiss (1873), who explored several prehistoric burials located near Wallace Lake in Caddo Parish. His findings were reported by the Smithsonian Institution. Just after the turn of the century, C. B. Moore, who is famous for his explorations of many major mound sites throughout the southeastern United States, made a foray into the Red River valley of Louisiana and Arkansas using his steamboat, the Gopher. Among the sites Moore explored were the Gahagan and Mounds Plantation sites in Red River and Caddo parishes, respectively (Thomas et al. 1980). Moore's excavations were recounted in two publications of the Journal of the Academy of Natural Sciences of Philadelphia (Moore 1912, 1913). The work of both Hotchkiss and Moore established the initial archeological emphasis on the exploration and description of large mound and village sites scattered along the Red River.

During the 1920s and 1930s, little work was done in the area. Only Winslow Walker of the Bureau of American Ethnology made a contribution during this period by excavating an historic Caddo site south of the town of Natchitoches and comparing artifacts found there with northern Louisiana types (Walker 1935). But, by the late 1930s and into the 1950s, a period of intensive archeological investigations focused on the valley sites and mound centers had begun. The emphasis of this work turned from simple description to questions of chronology and cultural history (Thomas et al. 1980:17). Clarence H. Webb, Monroe Dodd, and Robert L. Fulton investigated such sites as Gahagan in Red River Parish (Webb and Dodd 1939), Bellevue in Bossier Parish (Fulton and Webb 1953), Belcher in Caddo Parish (Webb 1959), Smithport Landing in De Soto Parish (Webb 1963), and numerous Bossier Focus components in Bossier, Caddo, and De Soto parishes (Webb 1948a). From these sites, Webb and his coworkers established a ceramic chronological sequence for northwestern Louisiana and made relational comparisons to the cultures of adjacent regions, such as Coles Creek of the Lower Mississippi Valley and the Caddo of Arkansas and eastern Texas (H. Davis 1970).

The 1960s and early 1970s saw the inception of an explanatory period and the development of a new approach to archeology emphasizing the investigation of the patterns of past

human behavior and the processes of change within cultures (Willey and Sabloff 1980:188). Incorporating these ideas, investigators in northwestern Louisiana such as Gregory (1965) and Gibson (1969) began to explore questions concerning the relationships between culture and environment. Also, a wider range of archeological problems began to be explored. For example, Webb addressed the problem of early human presence in the northwestern Louisiana portion of the Red River valley through the excavation of the John Pearce Site, a San Patrice site in Caddo Parish (Webb et al. 1971), in addition to continuing his research on the Caddo by excavations at the Mounds Plantation Site located in Caddo Parish (Webb and McKinney 1975). All of this previous work began to come together through the extensive summaries of archeological data within the Red River valley as compiled by Gregory (1967), H. Davis (1970), and Wyckoff (1971).

The late 1970s and 1980s saw a flood of projects undertaken to comply with federal legislation concerning the treatment of cultural resources. These projects were most often related to construction or lignite prospecting projects. Webb (1975, 1976) undertook several survey projects related to construction projects in and around the City of Shreveport. Other such projects in Shreveport or in Bossier Parish were done by Weinstein and Burden (1976), Goodson et al. (1979), and Dickson (1979). Heartfield et al. (1977) and the company of Heartfield, Price, and Greene, Inc. (1979a, 1979b, 1980a, 1980b, 1982, 1985) executed many survey projects in Bossier, Claiborne, and Bienville parishes during this time. Another survey that encompassed portions of Webster and Claiborne parishes was done by Price (1977). Most of these surveys added to the body of data on site location. By doing so, one of their major contributions was to record and explore sites that occur in the uplands surrounding the Red River. Such sites have traditionally been overlooked due to their unimposing form, yet they are critical to any understanding of cultural patterning in the region. Occasionally, site survey has led to testing and excavation. Such recent studies have been undertaken at the J. C. Montgomery Site in Webster Parish (Webb et al. 1977) and the Hanna Site in Red River Parish (Thomas et al. 1980), which produced important information on the early Archaic and Caddoan cultures of the Red River and its environs.

The first investigations undertaken specifically at the Louisiana Army Ammunition Plant were done in 1983 by Bennett (1984), who was contracted to survey 350 acres located in the central portion of the Plant. He recorded the historic Van Arsdale Cemetery, a prehistoric flake scatter, and one isolated dart point. His work was later incorporated into a cultural resources management plan drawn up for the Plant by Heartfield et al. (1984). Extensive surveys of portions of the Plant slated for timber sales or facility construction were undertaken in 1987 by Prewitt and Associates, Inc. (Driskell and Howard 1988) and Coastal Environments, Inc. (Kelley et al. 1988). These surveys covered some 3,600 acres and resulted in the recording of 39 sites with historic components and 26 sites with prehistoric components. As part of one of these projects (Driskell and Howard 1988), two historic sites were tested to assess National Register of Historic Places eligibility. The testing project reported in this volume is the second assessment phase effort dealing with these recently recorded sites.

Cultural History

The cultural history of the Louisiana Army Ammunition Plant region is described here using five broad temporal divisions: Paleoindian, Archaic, Pre-Caddoan Ceramic, Caddoan, and Historic Indian.

Paleoindian Period

The Paleoindian period in the State of Louisiana is represented chiefly by scattered surface finds of diagnostic projectile points; Paleoindian points have been recovered from subsurface contexts at the John Pearce Site (Webb et al. 1971:7), but they may be associated with later materials. The surface finds are on landforms of Tertiary and Quaternary age in the northwestern part of the State (Webb 1948b:230; Gagliano and Gregory 1965:63; Haag 1971:5). Contemporaneous sites in the southern part of the State have likely been eroded away or are deeply buried under alluvium less than 5,000 years old (Haag 1978:2). Louisiana Paleoindian points are tentatively dated prior to 8000 B.C. by analogy to similar finds in datable contexts to the west.

The earliest Paleoindian finds are Clovis and Scottsbluff points made of nonlocal materials such as Texas chert and Arkansas novaculite. These specimens may represent trade, or persons entering the area from the north and west, perhaps in seasonal hunting forays (Gagliano and Gregory 1965:64-70). A limited number of Clovis points have been found in Louisiana; the greater number of Scottsbluff point finds may indicate a population increase or more-frequent forays into Louisiana by Paleoindian groups through time (Gagliano and Gregory 1965:64-70). Scottsbluff points have been found in Bossier and Webster parishes, and Clovis points have been found in Webster Parish (Gagliano and Gregory 1965:65, 70; Webb 1948b:230-231).

Pelican points (Webb 1981:5) are considered to be Paleoindian on the basis of morphology and manufacture but are not precisely dated. They are short and broad-bladed and made of local cherts; they occur in concentration along the uplands bordering the Sabine and Red river drainages. These points may represent an indigenous Paleoindian group, or they may have been manufactured by seasonal occupants, constrained by the small size of the local raw materials. Pelican points have been found in Webster Parish (Gagliano and Gregory 1965:69-71).

San Patrice points have Paleoindian characteristics and appear to date to the late Paleoindian-early Archaic transition (Webb 1946:13-17; Gagliano and Gregory 1965:73). Schambach (1979:26) has suggested that the San Patrice Complex represents the initial regional differentiation of cultures that characterize the Archaic period. This type may be relatively long-lived, as suggested by its presence in surface collections from Archaic sites (Gagliano and Gregory 1965:73; Webb et al. 1971:4).

San Patrice points are numerous, widespread, and mostly made of local materials; they may be the first evidence of indigenous populations in Louisiana. Most San Patrice sites are found on small streams that drain the uplands or on the margins of upland terraces overlooking river valleys or the large lakes or lateral streams that flow into the valleys (Webb et al. 1971:44). San Patrice points are often found with Albany scrapers, a distinctive side-notched scraper (Webb 1981:5). The John Pearce Site in Caddo Parish, about 47 km southwest of the Plant, contains a San Patrice component and may have been a base camp for small bands, possibly extended family groups (Webb et al. 1971:42). Bossier Parish has yielded San Patrice points and Albany scrapers in surface collections from the Nolan McMullen Farm Site in Bossier Parish just north of the Plant (Kelley et al. 1988:21, 23).

Archaic Period

Prior to the beginning of the Archaic period around 8000 B.C., the climate in the southeastern United States was cool-temperate and mesic, as indicated by a broad expanse of mixed deciduous forest documented in pollen records (Delcourt and Delcourt 1985:16, 19). From 8000 to 6500 B.C., precipitation decreased, seasonal temperature variations became more extreme, and prairie vegetation expanded (Aten 1983:136). Between 6500 and 3000 B.C., the climate became more warm and temperate, and coastal plain species dispersed into more-inland environments (Delcourt and Delcourt 1985:19). It was during this period of climatic change that Archaic cultures were established.

The early and middle Archaic periods in northwestern Louisiana are poorly understood; evidence of occupation in the region during these periods is widespread but not abundant in any one location (Haag 1971:10; Story 1981:143). The current understanding of the culture history of these periods is limited in part because geomorphic processes have not promoted the preservation or ready identification of Archaic components. For example, slowly accreting landforms during this time period may not have preserved stratified deposits (Story 1981:144), or surfaces of sufficient age to contain Archaic deposits may have been eroded away or deeply buried. Also, regional cultures differentiated due to variation in local environmental conditions (Wyckoff 1971:15), and a common artifact sequence is difficult to distinguish. Perhaps the greatest limiting factor is that few Archaic components in the Red River basin have been excavated, analyzed, and reported (Neuman 1984:82; Schambach 1982:5).

An Archaic cultural sequence is not available for the Louisiana part of the Red River basin. Cultural sequences for this period from other areas are general and preliminary, based often on horizontal differentiation of components within sites. Some general statements can be made about lifeways and diagnostic artifacts during the early and middle Archaic, however. Story (1981:143) notes that Archaic sites in east Texas have an increased diversity of tool types and are more varied from one locale to another. New Archaic tool types in Louisiana include adzes, choppers, and tools made by grinding, pecking, and polishing; mortars, pestles, and mealing stones indicate an increase in the use of plant foods (Neuman 1984:77, 79).

In terms of diagnostic artifacts, Johnson (1962:268-269) sees in east Texas Archaic dart points a progression from a side-notched and expanding-base tradition to straight and contracting stems. At the Resch Site in Harrison County, Texas, about 100 km west-southwest of the Plant, Webb (Webb et al. 1969:88-94, 99) found Palmillas, Yarbrough, Yantis, Kent, and Ellis dart points associated with a stratigraphically distinct middle Archaic occupation that may represent harvesting of nuts. In west-central Arkansas, Schambach (1970:376-396) has proposed two middle Archaic phases with associated dart points: the Tom's Brook Phase (Johnson points) and the Crystal Mountain Phase (Big Sandy points). The Tom's Brook Phase may represent a riverine adaptation (Kelley et al. 1988: 23). Johnson points have been recovered from the Nolan McMullen Farm Site north of the Plant in Bossier Parish (Kelley et al. 1988:23).

The late Archaic period in northwestern Louisiana is better known, perhaps because it was a period of population expansion across the southeastern United States, beginning around 3000 B.C. (Schambach 1982:5; Kelley et al. 1988:23). Story (1981:144) notes that late Archaic sites in east Texas are more numerous and larger or longer occupied and

suggests that a population increase could have resulted in constraints on the size of group territories, increased definition of social groups, and focusing of patterns of exploitation. In west-central Arkansas, Schambach (1970:376-396) has proposed two late Archaic phases with associated dart points: the White Oak Phase (Williams points) and the Dorcheat Phase (Bulverde and Evans points). A Bulverde dart point has been found on the surface of a site on the west side of the Plant (Kelley et al. 1988:71); late Archaic dart points also have been recovered from the Nolan McMullen Farm Site north of the Plant in Bossier Parish (Kelley et al. 1988:24). Gary and Kent are also among the dart points diagnostic of this period, although they persist into later periods (Neuman 1970:15); a Gary point has been found on a site in the south-central area of the Plant (Bennett 1984:11).

Toward the end of the late Archaic period between 1500 and 500 B.C., influence is seen in northwestern Louisiana and the Great Bend of the Red River from Poverty Point, a major cultural center 180 km east of the Plant in northeastern Louisiana (Webb 1982). Schambach (1982:5) suggests that trade goods on sites in the Great Bend region indicate that this area was part of the Poverty Point interaction sphere but that, because the principal diagnostic artifacts of this culture (i.e., baked clay objects [Webb 1968:303]) are not present, groups in the area did not adopt typical Poverty Point lifeways. In addition to the Gary and Kent dart point types, Pontchartrain and Delhi dart points are diagnostic of Poverty Point occupations; Pontchartrain points have been found around Lake Bistineau just southeast of the Plant area (Webb 1981:9). The Nolan McMullen Farm Site just north of the Plant in Bossier Parish has produced a red jasper owl effigy bead identified to this culture (Webb 1982a:58).

Pre-Caddoan Ceramic Period

The end of the Archaic period, with its cultural florescence in northern Louisiana as represented by the Poverty Point manifestation, is marked by the extensive utilization of ceramic vessels by prehistoric cultures. The technical innovation of pottery may not in itself represent any major changes from the established Archaic patterns of subsistence, settlement, or social organization, however. Yet because pottery is easily mutable, it has become for archeologists a medium through which cultural changes can be easily recognized and recorded. Within the northwestern Louisiana region, the development of the early pottery-using cultures is not well defined, but they are understood to be the local basis upon which later ceramic traditions, such as that of the Caddoan cultures, were established (Wyckoff 1971:35-36).

Early ceramics in the northwestern Louisiana area are plain with bone and sand-clay tempering (Wyckoff 1971:18). These ceramics may be related to the type Williams Plain, which is a marker type of the Fourche Maline culture defined for the Arkansas drainage of the northern Ouachita Mountains (Bell and Baerreis 1951:19-27). Bell (1980) defines the early period of the Fourche Maline to range from 250 B.C. to A.D. 90. Like the Fourche Maline, early ceramic-using cultures of northwestern Louisiana still retained the semi-nomadic lifeways of their Archaic predecessors (Wyckoff 1971). Changes in subsistence, settlement, and social patterns of these hunter-gatherers were influenced by cultures of the Lower Mississippi Valley. These influences were probably exerted through trade in ideas and materials which flowed both ways, producing distinctive cultural expressions in both Louisiana regions.

The earliest Lower Mississippi Valley culture to leave a tentative mark on northwestern Louisiana, other than the late Archaic Poverty Point culture, was the Tchefuncte culture. The Tchefuncte culture was originally defined for the coastal zone and the south-central portion of Louisiana (Ford and Quimby 1945). It has been dated to between 500 B.C. and A.D. 300 (Neuman 1984). This culture is thought to represent a seminomadic hunting and gathering orientation similar to that of the Fourche Maline but with an emphasis on coastal or riverine resources (Neuman 1984). Its associated pottery complex has been characterized by Ford and Quimby (1945) as being a soft, low-fired ware with poorly welded coils, tetrapodal bases, and clay tempering. While the pottery introduces decoration by incising, punctations, and pinching, Tchefuncte pottery types appear infrequently with the early ceramics of northwestern Louisiana. One site adjacent to the northwestern Louisiana region that does have a Tchefuncte component is the Resch Site in Harrison County, Texas (Webb et al. 1969). Although the Tchefuncte component is mixed with later ceramics at this site, its occurrence demonstrates the early influence of Lower Mississippi Valley cultures along the periphery of northwestern Louisiana. The Resch Site also produced ceramics attributable to the Marksville culture of the Lower Mississippi Valley.

Marksville culture is characterized by the occurrence of burial mounds, exotic trade goods, and the possible beginning of horticulture. The date ranges for the culture are A.D. 1 to 400 (Toth 1979:190). The emphasis in Marksville on the burial of the dead may represent the first recognizable development of social stratification in the region. The use of exotic trade goods as burial offerings may also demonstrate differential social status (Greber 1979). Exotic burial goods also indicate that the Marksville culture participated in an extensive trade network (Neuman 1984:167). Copper artifacts possibly originating from the Ohio Hopewell have been recovered from Marksville sites. Marksville ceramics, which are distinctively decorated with incised and stamped designs that sometimes form raptorial birds or ducks, have been found within Ohio Hopewell burial mounds. In addition, ideas and technology may have passed along the trade routes. One such technology may have been that of horticulture. The Marksville type site, located in Avoyelles Parish of southeastern Louisiana, is reported by Fowke (1928) to have produced remains of corn and squash.

The Marksville manifestation in northwestern Louisiana above Natchitoches is represented by a handful of small conical burial mound sites situated along the upland terraces and valley escarpments of the Red River or along lateral lakes near the river valley (Webb 1982b:255-256). Webb has placed this group of burial mound sites under the rubric of the Bellevue Focus. The type site is the Bellevue Mound located along Bodcau Bayou in Bossier Parish. This mound contained one flexed burial without grave goods; however, sherds were recovered from the mound fill. James B. Griffin's analysis of these sherds, as reported by Fulton and Webb (1953), indicates that those few that are decorated most closely resemble Marksville types. Bellevue Mound is typical of the focus in that most sites have little or no associated midden or village debris. These facts, coupled with the small number of these sites and the smattering of Marksville ceramics, led Webb (1982b) to suggest that, although northwestern Louisiana had entered into this early mound-builder stage, it retained the flavor of the local Archaic cultures with prevalent but not intensive contact with Lower Mississippi Valley cultures such as Marksville.

The first widespread ceramic-using culture to spread into northwestern Louisiana was the Coles Creek culture (Webb and Gregory 1986:3). This culture developed in southwestern Louisiana and the lower Red River drainage. It also has affinities to the somewhat contemporaneous Troyville culture of the Lower Mississippi Valley (Neuman 1984). As such, Coles

Creek has been placed within the time range of A.D. 800 to 1000 by Wyckoff (1971:25, 26) based on a limited number of absolute dates. This time frame is consistent with Willey's (1966) Temple Mound I period, which attempts to demonstrate the increasing social complexity of these groups as marked by the development of mound centers and presumably the centralization of authority.

Coles Creek can be characterized as having relatively large ceremonial/civic centers composed of flat-topped mounds surrounding a central plaza (Neuman 1984:212). The flat-topped mounds are thought to have supported temples or possibly the houses of priest-chiefs. The ceremonial/civic centers were supported by associated villages and hamlets whose inhabitants are thought to have made a living by practicing some horticulture and exploiting local resources. The practice of horticulture has not been well defined for Coles Creek, but it has been suggested that its beginnings are present in the culture (Wyckoff 1971:36; Neuman 1984:213-214). An example of a Coles Creek mound complex in northwestern Louisiana is the Mounds Plantation Site located on a relict channel of the Red River ca. 18 km north of Shreveport (Webb and McKinney 1975). In addition to this mound site, nonmound village sites also exist. Examples of such early village sites are the Smithport Landing and Williams Point sites in DeSoto Parish and the Colbert Place and the Matthews Site in Bienville Parish (Webb 1963:185; Thomas et al. 1980). These sites, unlike the mound complexes which are located in the valley of the Red River, occur on the hills surrounding the valley or on lakes and tributary streams.

All of the sites cited above as having Coles Creek components also have early Caddoan components. Some investigators believe that pure Coles Creek sites are not found farther north than Natchitoches (Gregory 1980). If this is coupled with the fact that Coles Creek appears to be contemporaneous with a fully developed early Caddoan manifestation (Wyckoff 1971:34-35), then it may be suggested that Coles Creek is not the single antecedent from which Caddoan culture developed, but only one factor in a complex interaction of people, ideas, and environment.

Caddoan Period

The Caddoan culture developed in what is now the four-state area of southwestern Arkansas, eastern Texas, northwestern Louisiana, and southeastern Oklahoma. It was the westernmost extent of the broader Mississippian cultural tradition which had its inception in the Lower Mississippi Valley. That tradition was based on an economy of intensive maize horticulture, a stratified politico-religious social structure, and the maintenance of an extensive trade network. Portions of this cultural base are postulated to have been borrowed from Mesoamerica (Neuman 1984:255); however, regional expressions of the tradition, such as the Caddo, also built on indigenous cultural elements. As discussed above, semisedentary groups probably practicing limited horticulture and participating in a regional trade network were in place in the Caddoan area by Marksville times. The exact mechanisms by which these indigenous elements were altered or intensified to become the Caddoan culture are not well understood.

The earliest Caddoan manifestation along the Red River has been labeled the Alto Focus (E. Davis 1970:40-41). The Alto Focus incorporates many of the Coles Creek characteristics, such as certain ceramic designs, temple mound construction, and the practice of horticulture; however, distinguishing traits also appear. For example, an elaboration of

arrow point technology takes place so that variation in design is seen. Archeologists have placed the type names Colbert, Hayes, Washita, and Homan on these new variations in arrow point design (Webb 1963:179-180; Neuman 1970:15). Additionally, vessel forms such as the carinated bowl and the bottle occur for the first time. Also, vessel decoration by fine engraving with a red pigment filler is a purely Caddoan trait (Neuman 1984:219). Mound centers became larger and more elaborate; shaft burial pits dug through the completed mounds replace the premound burials seen in Marksville and Coles Creek (Neuman 1984:235). It has been suggested that traits such as the shaft graves and the introduction of new vessel forms had their ultimate origin in Mesoamerica (Neuman 1984). Such traits may attest to the wide sphere of interaction participated in by the Alto Focus Caddo.

Dates for the Alto Focus have been estimated to range between A.D. 1000 and 1250 by Webb (1983:230), but the initial date may be pushed back to A.D. 800 by the radiocarbon dates from the Mounds Plantation Site in Caddo Parish (Webb and McKinney 1975:72). This is supported by the dates from the George C. Davis Site in Cherokee County, Texas (Story and Valastro 1977) and the Hanna Site in Red River Parish (Thomas et al. 1980). The Mounds Plantation Site (Webb and McKinney 1975) and the Gahagan Site (Webb and Dodd 1939) are two examples of Alto mound complexes located on the Red River floodplain in northwestern Louisiana. Nonmound sites in the same general area include Smithport Landing in De Soto Parish (Webb 1963) and the Colbert and Greer sites (Webb 1963:184-185). Mound sites of the Focus appear to be restricted to the floodplain or immediate valley edge. On the other hand, nonmound village sites have a wider distribution along lakes and tributary streams (Webb 1963:184-185). Gregory (1980) states that the distribution of Alto sites outside of the main river valleys appears to be a break from the Coles Creek site distribution in that Coles Creek sites appear to be restricted to riverine or lacustrine environments. Although the difference may be due to sampling error, it may point to settlement change that is related to an intensification of maize horticulture.

The possible intensification of maize horticulture and the high ceremonialism associated with the Alto Focus experienced a florescence in the Great Bend region in the Haley Focus (Wyckoff 1971:81-84). The Haley Focus corresponds to the beginning of the middle Caddo period, or the early part of the Bossier Focus as dated by Webb (1983). It ranges in date from A.D. 1200 to 1400 (Wyckoff 1971:74). The only mound center associated with this focus in northwestern Louisiana is the Belcher Mound I Site in Caddo Parish. Webb (1959: 189) states that Belcher Mound I does not exhibit the full elaboration of the expression that occurs in related sites located to the northwest in Arkansas and Oklahoma. These related foci are the Spiro and Sanders foci. Consequently, during this time period there appears to have been a shift in emphasis in the development of Caddoan culture to the upper Red and Arkansas river valleys. This shift may be the result of the participation of the Sanders and Spiro foci in the full Southern Cult ceremonialism that spread outward from the cultures of the Mississippi Valley at that time (Wyckoff 1971). The Haley Focus does not display all of the Southern Cult symbolism found in these other foci; rather, it can be seen as an elaboration of the ceremonialism of the Alto Focus and appears to have retained much of the Alto settlement and subsistence orientation (Webb 1959:198-199).

The late middle Caddoan manifestation in northwestern Louisiana was defined by Webb and Kreiger (Webb 1948a) as the Bossier Focus. The suggested date range is A.D. 1400 to 1500 (Wyckoff 1971:117). This focus encompasses a number of small village or hamlet sites in the uplands surrounding the Red River valley. Fifteen of these sites have been identified in the parishes surrounding the Louisiana Army Ammunition Plant project area (Wyckoff 1971:120). Some of these are the Sinner, Pease, Maddox, Colbert, and Greer sites (Webb

1948a). What distinguished the Bossier Focus sites from their antecedents in the Alto and Haley foci was the curtailment of mound building. Only five mound sites are known for this focus (Wyckoff 1971:120). Two of these are Belcher II and the Vanceville sites. These mounds are located in Caddo and Bossier parishes, respectively (Webb 1948a). Along with this relative infrequency of mound centers, there appears to have been an interruption in the trade network through which many exotic artifacts found their way into mound burials. Rather, when burial goods do occur, they appear to be of local materials (Webb 1948a).

The breakdown of the mound centers in the Bossier Focus has been postulated to be an economic response to the effect of climatic change (Wyckoff 1971:118). Baerreis and Bryson (1965a, 1965b) attempt to demonstrate the existence of a drying trend that began by A.D. 1450. Bruseth et al. (1987:46) present corroborative evidence for such a change, suggesting an intensification in the drying trend in the twelfth and thirteenth centuries. This trend may have affected crop output, thereby placing a strain on the political and religious structure and resulting in fewer and less-elaborate mounds and burials (Wyckoff 1971: 118).

By the time of the late prehistoric Caddoan cultural manifestations, there was a reemergence of mound centers in the Great Bend region. This late Caddo period has been dated to A.D. 1500 to 1700 (Wyckoff 1971:164). The most significant site of this period in northwestern Louisiana is the Belcher Mound Site in Caddo Parish. From components III and IV at the site, Webb (1959) defined the Belcher Focus. This focus definitely has its antecedents in the other northwestern Louisiana Caddoan foci. In fact, Wyckoff (1971:167) states that the Bossier and Belcher foci may be partially contemporaneous, as indicated by shared ceramic types. The Belcher Focus also appears to have borrowed from the Alto and Haley foci by a renewed emphasis on mound construction and a reorientation of Caddoan cultural development toward the Red River valley (Wyckoff 1971:167). There also was a return to some of the burial ceremonialism seen in the Haley Focus. Trade items in burials indicate relatively intensive interaction once again with Caddoan groups in Oklahoma and Arkansas and with other cultures of the southeastern United States. However, even with renewed trade ties, Wyckoff (1971) suggests that the cultures represented by the foci of the late Caddo period retained a distinctive regionalism. This regionalism characterized the Caddoan culture that was encountered by the Euro-Americans who began to explore the area during the historic period that followed.

Historic Indians

The beginning of the historic contact period in Louisiana is marked by the exploration of LaSalle in 1682; DeSoto's 1540 entrada had little effect on the native Indian populations, except for their reduction due to disease (Smith et al. 1983:223). Several Indian groups inhabited northwestern Louisiana in the early historic period; foremost among these were the Caddo.

The Kadohadacho Confederacy of Caddoan linguistic stock lived in a concentration of villages near the Great Bend of the Red River early in the seventeenth century (Swanton 1942:Figure 1); one of these villages may be represented by a cluster of late Caddo sites south of Fulton, Arkansas, at the Spirit Lake locality. Schambach (1982:10) places these sites in the Chakanina Phase, marked by the historic Indian ceramic types Natchitoches Engraved and Keno Trailed. Between 1788 and 1790, the Kadohadacho moved south into

Louisiana after severe raids by the Osage (Swanton 1942:70-71, 93). This probably is the location where they were living when Freeman and Custis encountered them in 1806 (Freeman and Custis 1806, in Swanton 1942:77-79). They later moved from their territory west of the Red River into Texas according to the terms of a treaty signed in 1835 (Swanton 1942:74, 89-92).

Another Caddo group that occupied northwestern Louisiana is the Yatasi, who were reported by Tonti to be living near the Red River about 80 km north of Natchitoches in 1690 (Swanton 1942:75, 1946:211). A cluster of sites around Chamard Lake appears to have been associated with this group (Webb and Gregory 1986:34-35). The Yatasi suffered from conflicts with the Chickasaw and split into two groups around 1717, one living with the Kadohadacho to the north and the other with the Natchitoches (another Caddo group) at a post near the present-day city of that name (Swanton 1942:10, 57, 1946:161). They remained in this area until the 1830s, when they moved west with the Kadohadacho (Swanton 1946:211).

The Adaes are another Caddo group that were found in the early historic period west of the Red River near Natchitoches (Swanton 1946:83), about 95 km south of the Plant. A number of sites that have historic materials and historic Caddoan ceramics and that may represent villages of the Adaes have been recorded in this area (Wyckoff 1971:205; Webb and Gregory 1986:31). Limited excavations have been conducted at Presidio de los Adaes, a provincial capital of Spanish Texas between 1723 and 1773 which housed some of the Adaes of the Caddo Confederacy (Gregory 1974). The ceramic assemblage is dominated by bone-tempered Indian ceramics, with a small percentage of European ceramics (Neuman 1984:292). The Adaes probably left Louisiana at the same time as the other Caddo groups (Swanton 1946:84).

Several agricultural Indian groups of the Muskhogean language stock lived in the vicinity of the Plant in the nineteenth century, having moved west into Louisiana from Alabama and Mississippi. The Choctaw came west from the State of Mississippi in the 1830s (Swanton 1946:122). In the late nineteenth century, a Choctaw village was reported below the present-day Lake Bistineau dam, about 25 km south of the Plant (Harris and Hulse 1886, in Heartfield et al. 1984:2-16). A band of Coushatta (also spelled Koasati) emigrated from Alabama to northwestern Louisiana in the 1790s (Swanton 1946:145). An 1834 map by H. S. Tanner shows a Coushatta village on the Red River north of Lake Bodcau (Heartfield, Price and Greene, Inc. 1979b:3-9). In 1806, Freeman and Custis ([1806?]:3, 11-23) found a Coushatta village south of Lake Bistineau, perhaps near the modern town of Coushatta about 57 km south of the Plant (Swanton 1946:145; Heartfield, Price and Greene, Inc. 1979b:3-9).

The identification of historic contact-period archeological sites is sometimes difficult because few European artifacts may be preserved on such sites; later in the historic period, the artifacts on Indian sites may not differ greatly from those found at contemporaneous Euro-American settlements. As of 1983, no contact-period archeological sites had been identified in Bossier or Webster parishes (Smith et al. 1983:26), although the Louisiana State Historic Preservation Officer's office reports that six Coushatta Indian sites (16BO185 through 16BO188, 16BO204, and 16BO205) have been recorded in Bossier Parish since 1983. Kelley et al. (1988:27) note that most of the historically documented villages in northwestern Louisiana are on the Red River floodplain (see also Webb and Gregory 1986: 27); it seems likely that any historic Indian village sites in the Plant, if such exist, will be found along major streamways such as Bayou Dorcheat (see also Heartfield et al. 1984:5-3).

CHAPTER 4

HISTORICAL BACKGROUND

by Martha Doty Freeman

Culturally and geographically, the Louisiana Army Ammunition Plant area lies within the boundaries of what has been described in the vernacular as the "flat woods," a "narrow strip of land, extending from Lake Bintenau [sic] on the south to the Arkansas line on the north, including the eastern border of Bossier and the western border of Webster Parish" (Longino 1930:129). The flat woods area is generally covered with dense forest interspersed with small farms. One local historian has described the region as being "especially adapted for growing cotton and raising vegetables, and cattle grow fat on the vegetation growing in the woods and the grasses of the old fields lying in disuse since the Civil War" (Longino 1930:129).

In broad cultural and geographical terms, the project area lies within the boundaries of what has been designated as the North Louisiana Upland Frontier (Cook 1984:23) or North Central Louisiana Hill Country (Trout 1964:6), a region lying between the Red and Ouachita rivers and crisscrossed by bayous and lakes, some of which are part of the Red River system (Fig. 4). Exploration of this area of Louisiana may have occurred as early as the seventeenth century, but the region remained unmapped in any detail until the late eighteenth century, when it became the focus of attention from French populations who had settled on the upper Red River north and west of present-day Shreveport and at Campti near the 1714 settlement of Natchitoches.

As the French and other Europeans entered the area, they found the territory crisscrossed with numerous Indian trails, many of which were subsequently mapped in 1812 (Darby 1816). At that time, Darby indicated a trail that began at the Coushatta village just above the future site of Shreveport and went north a few miles before dividing into two forks, one of which, the "Ouachatta Path," led around the north end of Lake Bodcau. At this point, the Path forked again, one branch extending down the west side of Lake Bistineau. The two forks rejoined and continued south to the present location of Ringgold, early location of cattle pens belonging to Francois Grappe. Just north of this point, a second great Indian trail branched slightly to the east and led due north through the hills to the hot springs on the Ouachita (Southern Publishing Company 1890:313-314). Trails such as these connected Indian settlements, among which were the Coushatta village which Freeman and Custis ([1806?]:3, 11-23) found south of Lake Bistineau in 1806, a Coushatta village on the Red River north of Lake Bodcau which appears on an 1834 map by H. S. Tanner (Heartfield, Price and Greene, Inc. 1979b:3-9), and a Choctaw village which was reported below the present-day Lake Bistineau dam in the late nineteenth century (Harris and Hulse 1886 in Heartfield et al. 1984:2-16).

The region was first exploited for its pasturage by French entering from the south and, after the Louisiana Purchase (1803) and Adams-Onis Treaty (1819) which settled disputes about the boundaries of Louisiana Territory, by Anglo-American frontiersmen who approached the hill country from the south, northwest, and northeast. Settlement was rapid

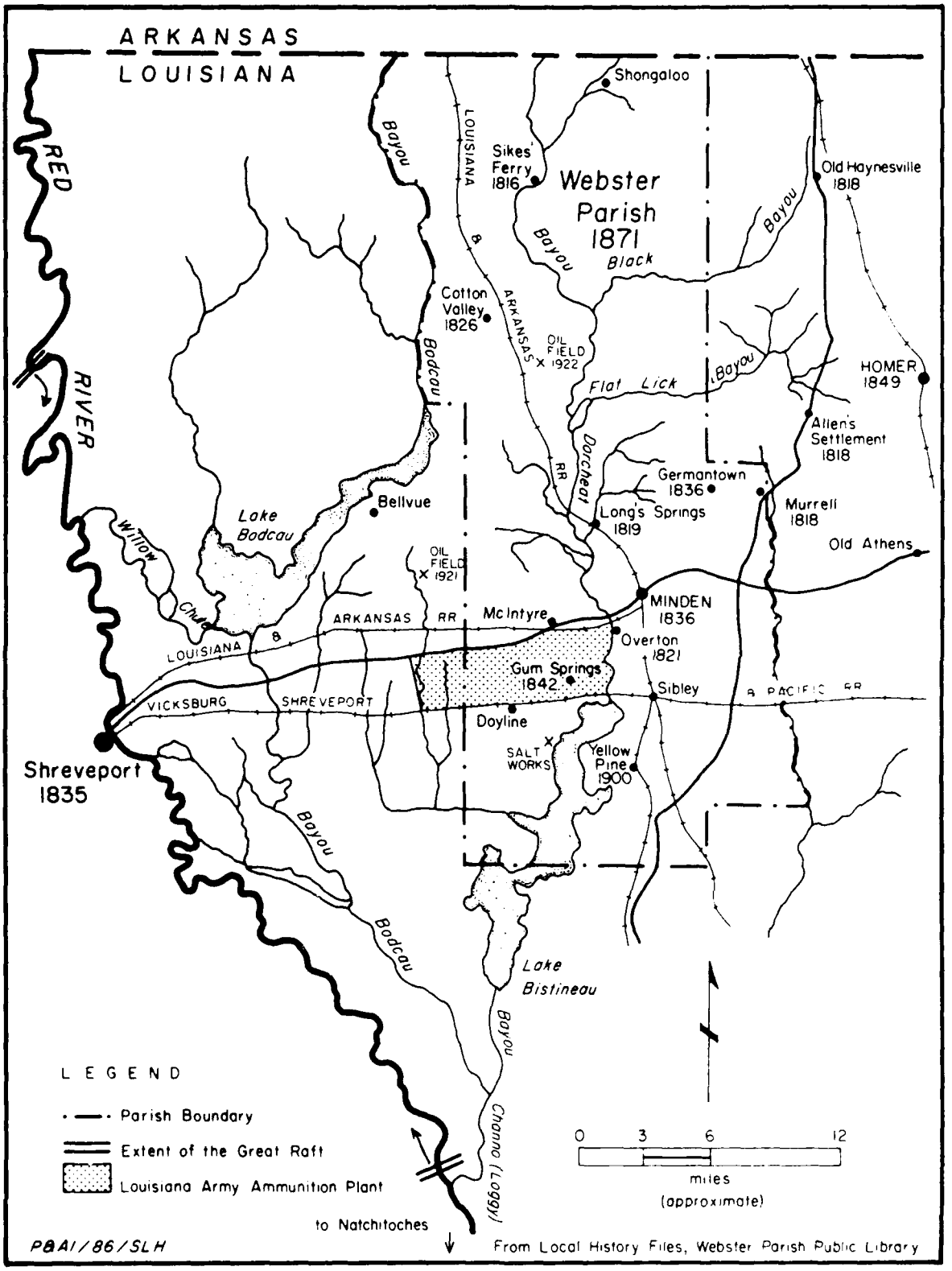

Figure 4. Historic map, 1811-1941.

after the initial removal of the Red River Raft* in the late 1830s and the opening of lands for homesteading by the United States government. Until the Civil War, the project area was typified by a combination of sizable plantations encompassing up to 1,000 acres and small farms which ranged in size from 40 to 160 acres. Following the War, the more substantial agricultural operations disappeared and large tracts were subdivided, often within family groups. In the eastern portion of the Plant, cotton remained the primary cash crop until World War II, and the area experienced intensive agricultural exploitation by both resident farmers on small tracts and absentee landowners (many of whom had reassembled sizable holdings after 1900) until 1941 when it was acquired by the United States government. In the western portion along Clark Bayou, wholesale exploitation of timber products occurred between ca. 1891 and 1909, after which small tracts were sold to Blacks who practiced small-scale subsistence farming through the 1930s.

The North Louisiana Upland, 1682-1810

Verifiable information about the exploration of what is now the North Louisiana Upland is lacking, with scholars debating whether or not the first Europeans to venture into the region were members of the Hernando de Soto expedition, which may have traveled through the area between present-day Florida and Louisiana between 1539 and 1542.** Historians agree that Robert Cavalier Sieur de la Salle explored the Mississippi River from the Great Lakes region to its mouth in 1682 and claimed all the land drained by it for Louis XIV of France (Trout 1964:6). Survivors of the La Salle expedition are believed to have visited the present-day area of Natchitoches in 1687, and Sieur Henri de Tonti, in search of La Salle's group, reached the vicinity of present-day Texarkana in 1689 (Humphreys 1984:75). A decade later, French explorers Bienville and St. Denis explored the Red River on the western border of the North Central Louisiana Hill Country and the Ouachita River on the east, as well as a number of tributaries originating in the Hill Country, after which various French groups established missions, trading posts, and small settlements along the two rivers. One of the most important of these was a post in Natchitoches from which trading parties to the Caddo and other tribes fanned out in every direction after 1714 (Jefferson 1904:15; Trout 1964:6; Humphreys 1984:75). French control of north-central Louisiana was interrupted in 1762, when Spain acquired Louisiana west of the Mississippi River by the Treaty of Fountainbleau. However, France regained ownership in 1800 by the Treaty of San Ildefonso (Humphreys 1984:73).

Intense examination of the vicinity of the present-day project area by Anglo-Americans occurred after the Louisiana Purchase of 1803 because President Thomas Jefferson was

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*The Red River Raft was a conglomerate mass of "logjams and driftwood fused by accumulations of mud, sand, and other debris" (Humphreys 1984:76). In time, the mass became so large that it choked the main route of the river, creating an impassable barrier to navigation and forcing the flow of water that would normally run in the river channel down into bayous, inlets, and low areas. For a history of the Great Raft and of efforts to destroy it, see Humphreys (1984).

**Humphreys (1984:74-75) maintains that, following De Soto's death, his men continued to travel west, crossing the Red River near present-day Texarkana.

interested in collecting information about Louisiana which might aid in establishing its boundaries. On November 14, 1803, he made a report to Congress that pointed out the deficiencies of current knowledge, and four months later, the Committee on Commerce and Manufactures made a report expressing the view that exploration of the Red and Arkansas rivers would provide the most useful information. As a result of the report, Jefferson wrote William Dunbar, a Mississippi scientist, asking him to head an expedition up the Red River. The expedition was postponed, however, due to the movements of hostile Osage Indians in northern Louisiana, and a group instead ascended the Black or Washita River in 1804 (Cox 1904:152-156).

On May 25, 1805, Jefferson directed Dunbar to ascend the Red River to its source. Contact was made with Dr. John Sibley, a Revolutionary War veteran from North Carolina and recent arrival in Natchitoches whose notes on Louisiana Indians would later become ethnographic classics. Sibley endeavored to secure the good will of the Indians living along the river by distributing $3,000 worth of merchandise to them, and he wrote reports on April 2 and April 10, 1805 (U.S. President 1806:102-103; Rowland 1930:164), describing the territory above Natchitoches which he had heard about from residents who apparently were sufficiently familiar with the Lake Bistineau vicinity to describe it in some detail:

> The country above the head of lake Bistino, is highly spoken of, as well the high lands, as the river bottom. There are falling into the river and lake in the vicinity, some handsome streams of clear wholesome water from towards Washita, one in particular called bayau Badkah by the Indians, which is boatable at some seasons; this bayau passes through a long, narrow, and rich prairie, on which my informant says, 500 families might be desirably settled. . . . [U.S. President 1806: 103].

On June 2, 1806, an expedition led by Freeman and Custis left Natchitoches, and on June 7, they camped about 45 miles above the post at the highest Anglo-American settlement on the Red River. Four days later, they reached a portion of the Great Raft, which they described as rising "nearly three feet above the water and [being] covered with bushes and weeds." Trees which comprised the raft included cottonwood, cypress, and red cedar, and they lay so close together that people could walk over them (Freeman [and Custis 1806?]: 3-13).

At this point, the party was overtaken by an individual named Talapoon, a guide and interpreter familiar with the upland frontier of Louisiana who would lead the party "as far as the Panis nation. . . ." Talapoon took the group across another portion of the raft to the point where "a branch of the [Red] river, or a bayou ran rapidly in from the north." Here, M. Touline,* whose herds and herdsmen were located on the west side of Lake Bistineau, advised the party to leave the main channel of the Red and ascend the alternate

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*M. Touline, who had been born in the Caddo Nation and appears to have traded with them, probably was Monsieur Francois "Touline" Grappe (Steely 1982:24) for whom Grappe's Bluff on the Red River near Campti (Cook 1984:42) was named.

route up Bayou Datche [Dorcheat].* Freeman and Custis took Touline's advice and, after traveling up the Bayou, which they speculated would become the principal channel of the Red River, entered a lake which the Indians called Big Broth, and then a lake approximately 2 miles wide which they understood extended 70 miles in a northerly direction. The west side of the lake was low, covered with cypress and bushes about 2 miles inland. The party could see that, while the normal depth of the lake was 2 to 6 ft, vestiges of a flood revealed that the water level was sometimes 10 ft higher (Freeman [and Custis 1806?]:15-16).

Touline hired an Indian guide for the party who was to take them through the intricate system of lakes and bayous. This guide was able to lead them through a bayou and then the margin of "a handsome prairie; the surface of the land was four feet higher than the water in the bayou, the soil rich, and the grass high and luxuriant. There was a border near the bayou of trees, thinly scattered, consisting of oaks, some of which were very large" (Freeman [and Custis 1806?]:17-18). Leaving the prairie, the group then passed through a bayou, and after four days, they reentered the Red River above the raft, having followed a circuitous passage of approximately 98 miles during 14 days (Freeman [and Custis 1806?]:18-19).

A comparison of maps and reports published between 1805 and 1810 suggests the rapidity with which information about the area was being accumulated and disseminated by scientists and explorers such as Sibley, Freeman, and Custis. Bmi. Lafon's 1806 "Carte General du Territoire D'Orleans Comprenant aussi la Floride Occidentale et une portion du Territoire du Mississippi" (Fig. 5) seems to designate Lake Bistineau and Bayou Dorcheat as the main route to the Red River, a path described by Sibley on April 10, 1805: "[T]he lake [Bistineau] is about 60 miles long, and lays nearly parallel with the river, from the upper end of which it communicates again with the river, by a bayau called Daichet [Dorcheat], about 40 miles above the upper end of the raft" (U.S. President 1806:102). A mere four years later, the travels of Zebulon Pike resulted in the publication of a more accurate map (Fig. 6) which showed the route explored by Freeman and Custis in 1806 when they left the Red River via Bayou Channo, entered the south end of Lake Bistineau, left Bistineau via Bayou Bodcau, and reentered the Red River through Willow Chute.

Eventually, Freeman and Custis followed the Red River some 600 miles. The report that resulted from their trip indirectly stimulated the development by Anglo-Americans of a portion of northern Louisiana that had been used for grazing by the French during the late eighteenth and early nineteenth centuries. Within two decades, American frontiersmen from South Carolina, Tennessee, and Arkansas had occupied much of the area between the Washita and Red rivers and had established sporadic settlements in the hills north and east of the project area.

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*This was the bayou which drained out of Lake Bistineau. Some early reports called it Bayou Channo. However, Freeman and Custis noted that the Indians called it Datche, "which in their language, signifies a gap eaten by a bear in a log, from the circumstances of the first Indian who passed this way, seeing a bear gnawing a log at this place" (Freeman [and Custis 1806?]:15).

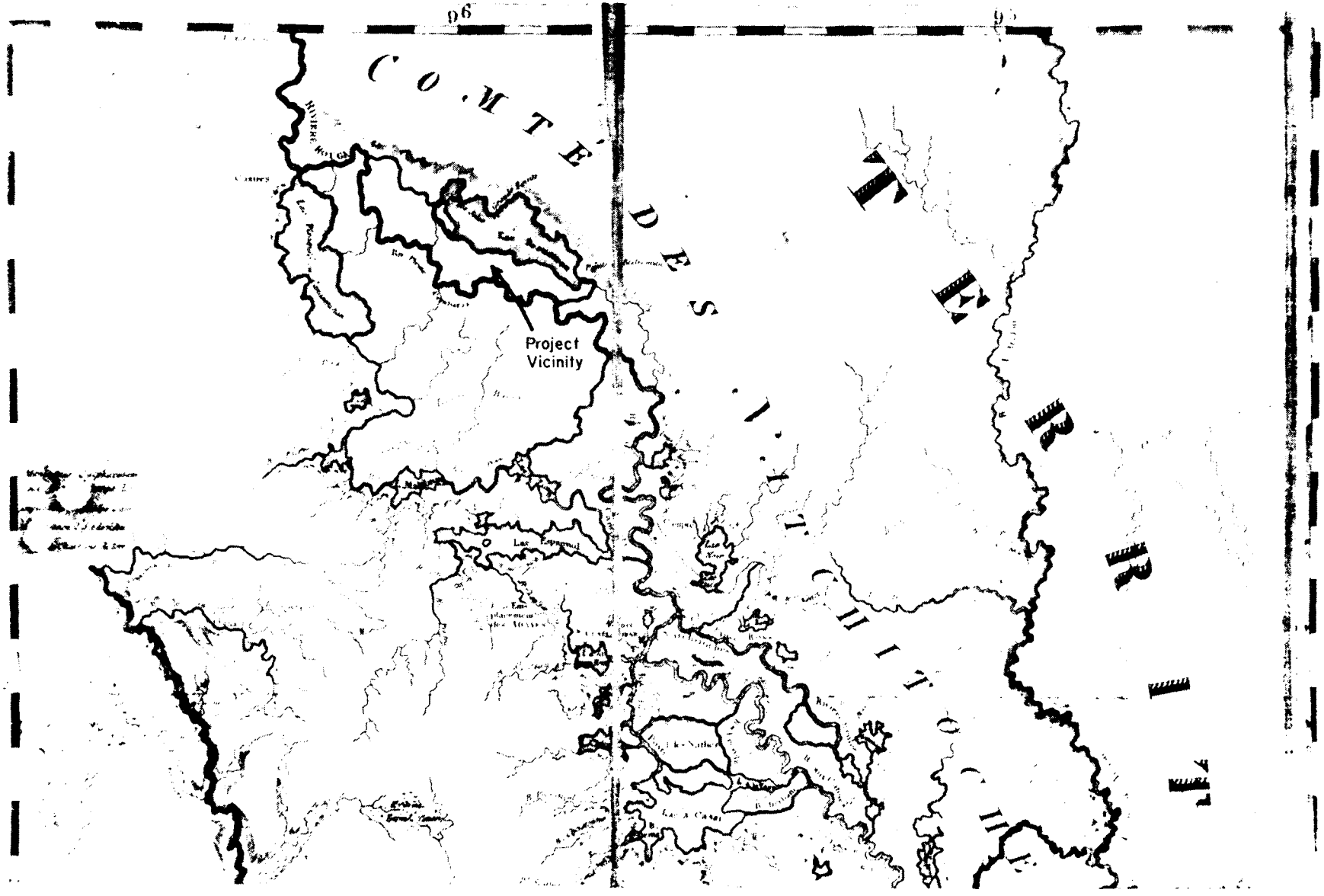

Figure 5. Bmi. Lafon. Carte Generale du Territoire D'Orleans . . . 1806.
Courtesy of Barker Texas History Center, The University of Texas at Austin.

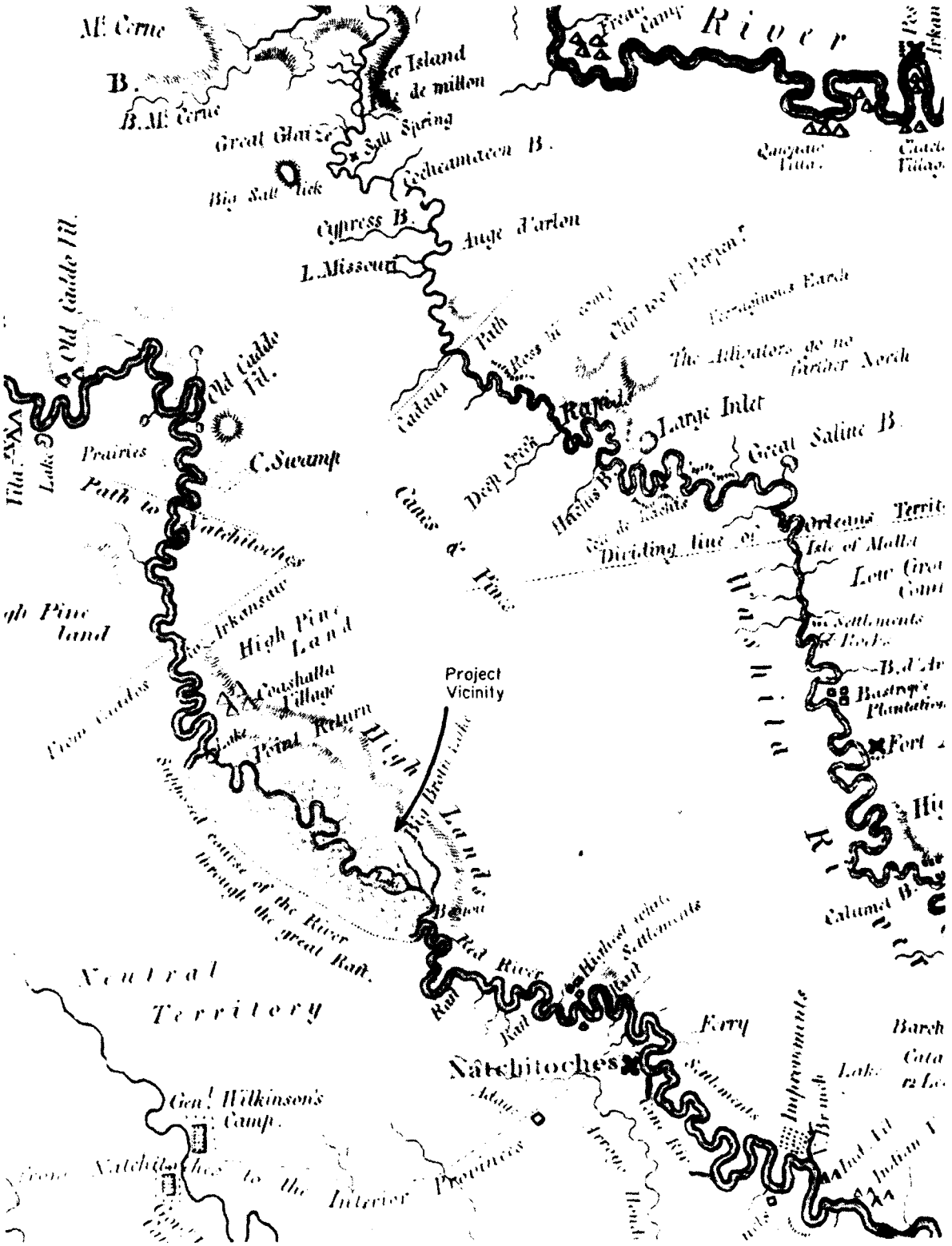

Figure 6. Z. M. Pike. The First Part of Capt. Pike's Chart of the Internal Part of Louisiana. 1810. (Courtesy of Barker Texas History Center, The University of Texas at Austin.)

The North Louisiana Upland, 1811-1828

Despite barriers to immigration and settlement in the North Louisiana Upland created by inadequate transportation routes, flooding caused by the Red River Raft, and the presence of both hostile Osage Indians and Spanish in northeastern Texas who carefully monitored Anglo-American movements in Louisiana, the immigrant tide increased after 1811 and then became a flood. A number of families traveled through the area as they headed for fertile prairie lands located in present-day southwestern Arkansas near the point where the Sulphur River joined the Red; others migrated first to the vicinity of present-day Monroe on the Ouachita River and then traveled overland to the west where they settled in the hilly regions of present-day Union, Ouachita, Jackson, and Lincoln parishes. In many cases, ministers and lay people associated with the Baptist and Methodist churches were in the forefront of immigration; they often shared a common political, cultural, and social background as well.

According to Cook (1984:27-30), initial immigration into the North Louisiana Upland by individuals and families who intended to settle there occurred in about 1811 when Isaac Alden from New York or Ohio traveled up the Red River to present-day Webster Parish and settled 8 miles northeast of Minden on the Hunter's Trace, an Indian trail that ran from Natchitoches to Hot Springs, Arkansas. The following year, families from South Carolina traveled up the Ouachita River to Ft. Miro (Monroe), then turned west to the hill country where they settled in the vicinity of Lincoln Parish, eastern Union Parish, and the Ouachita-Jackson parish line. This wave was followed by 1815 with families from Georgia who settled in present-day Jackson Parish.

Simultaneously, the area around Lake Bistineau, Bayou Dorcheat, and Bayou Bodcau continued to be the location of immigrant activity. Because of the barrier created by the Red River Raft, major waterways other than the Red River remained the preferred alternate routes for families traveling north. The Claiborne Wrights from Carthage, Tennessee, who were headed for southwestern Arkansas, are believed to have used the Lake Bistineau route before joining "an old man by the name of Berry . . . and a man by the name of Moris May" at Long Prairie, and then an Indian trader (Col. Mabbit) and some two to three white families who were living at Pecan Point farther up the Red River (Wright n.d.:34-37; Steely 1982:24-31). Presumably, the individuals and families already present on the River had also used the Lake Bistineau route at an earlier date.

Information sent home to families probably spurred interest in the hill country, as did publications describing Lake Bistineau, Bayou Dorcheat, and northern Louisiana by William Darby (1816) and H. M. Brackenridge (1817:107, 108), who speculated about the impact of the Red River on the bayou and lake country to the east. In addition, Colonel William Clark, who had made an expedition to Arkansas Territory and the upper Red River valley, wrote enthusiastically of the Long Prairie area. As a result, John Murrell from Carthage, Tennessee (origination point for the Claiborne Wright family as well), traveled up the Red River, through Lake Bistineau, then up the Red to Long Prairie in early 1818. Discouraged by an apparently unhealthy river climate, however, the Murrells retraced their steps and settled near pioneer Isaac Alden between the present-day towns of Minden and Homer (Cook 1984:28-30).

If settlement in northern Louisiana was encouraged by promotional literature of the period, it also received a boost from the Panic of 1819, an economic fiasco that was

followed by a six-year-long depression. Farmers everywhere were faced with financial catastrophe, with the result that many of them moved west to begin again (Cook 1984:31). During this period, Newitt Drew, a native of Virginia and resident of middle Tennessee, traveled to Camden, Arkansas, northwestern Louisiana on Black Bayou, and finally to Bayou Dorcheat at Lake Bistineau where he built a sawmill and gristmill. Perhaps encouraged by the number of immigrants using the Lake Bistineau route around the Red River Raft, Drew planned and promoted a town named Overton which eventually became the most important port on Lake Bistineau. It was the shipping facility for numerous cotton bales produced in the hills to the north after 1825, the destination point for the region's first public road built from Russellville to Overton in 1829, and, in 1836, the seat for Claiborne Parish, created in 1828 out of the northern half of the older Natchitoches Parish (Cook 1984:32, 42).

The vicinity of present-day Minden received the first of many permanent settlers in ca. 1822 when a gunsmith named Deck built a home there. However, the focus of settlement remained in the hills to the north and northeast where immigrants clustered near John Murrell's home to create the community of Allen's Settlement (Cook 1984:33). A number of these immigrants were led by Baptist ministers such as James Brinson from Tennessee (like the Claiborne Wright family and John Murrell, from near Carthage), who, with Elder John Impson, extended his mission work to the communities at Flat Lick and the Murrell home in 1822. By the late 1820s, the area was sufficiently populated to attract the attention of Louisiana historian Francois-Xavier Martin, who wrote: "Between lake Bistineau and tributary streams of the Washita is a new and extensive settlement, which has grown up within a few years, called Allen's settlement. The land is second rate upland, finely watered and well adapted to raising stock" (1882:20).

1828-1860: Internal Improvements and Early Agricultural Development

The first three decades of the nineteenth century in the Louisiana Hill Country were typified by exploration, a change in political hegemony, and the development of early settlements populated by related families from the Upper South (predominantly from Middle Tennessee) who also shared common religious and political backgrounds. Settlement, where it did occur, persisted despite transportation difficulties as immigrants sought and found alternatives to overland and water routes commonly used in other parts of the country.

The trickle of population quickly increased, however, in the late 1820s when the government became sufficiently interested in internal improvements to fund their construction. The first significant improvement was construction of a federal road called Military Road No. 11 which linked Fort Jesup west of Natchitoches with military outposts in Arkansas Territory (Cook 1984:43). The second, more difficult, and costly improvement was the removal of the Red River Raft.* Both programs resulted from the government's interest in executing a program to remove Choctaw Indians from northern Louisiana and to supply the

*For an account of the history of efforts to remove the Raft, see Humphreys (1984). An assessment of the impact of the Raft and of its removal on areas as distant as Lake Bistineau can be found in Long (1841:2-22).

military personnel involved in that removal (Humphreys 1984:82).* Certainly, all these factors working together -- the removal of Choctaw Indians, construction of a major road, and improvement of the navigable qualities of the Red River -- did much to account for the waves of immigrants who flocked to Claiborne Parish between the 1830s and 1860.

While Humphreys (1984:88) has noted that one of the effects of the removal of the raft between 1833 and 1838 was drainage of the raft region and the opening of an estimated million and a half acres of farmland which the United States government then sold to settlers for considerable profit, the advantages of Lake Bistineau and Bayou Dorcheat for water transportation apparently remained intact. According to accounts that describe the commercial development of the region between 1835 and the Civil War, the flow of water through Bayou Dorcheat and the level of water in Lake Bistineau were sufficient to support the shipping activities that developed after slaves were introduced to the area, cotton became the dominant crop, and facilities were needed to transport farm products south to markets in Natchitoches and New Orleans.

With the success of water transportation and increase in agricultural production, the locus of development in what is now Webster Parish appears to have gradually shifted from the hilly regions north and northeast of Lake Bistineau to the area of Overton, a small settlement which was founded in 1825 and functioned as the parish seat between 1836 and 1846 (Pipes 1970:2; The Minden Press-Herald, April 29, 1974:6B), and Minden, location of a town platted by Charles H. Veeder in 1835 (The Minden Press-Herald, April 29, 1974:6B). Until the Civil War, what might be defined as a commercial strip ran for almost a mile along the east side of Bayou Dorcheat. On the south end of the strip approximately one-half mile west of Overton was a ferry owned by Elkin Jones. North of the ferry were Jones's warehouses and offices, together with those owned by other Minden and New Orleans merchants and the landing stages that comprised the Lower Landing. To the north, the Middle Landing was the location of warehouses belonging to Josiah Wilson. Approximately one-half mile north of Wilson's unsuccessful keelboat landing was the Upper Landing, also known as Murrell's Point,** where another group of warehouses and landing stages were located (Webster Parish Centennial, Inc. 1971; The Minden Press-Herald, April 29, 1974:6B). According to some historians (The Minden Press-Herald, February 17, 1975:n.p.), this point was located approximately 75 yards below the Dixie highway bridge (site of a bridge originally constructed in 1857) on Bayou Dorcheat.

Apparently, Bayou Dorcheat was sufficiently deep and wide to accommodate numerous steamboats, among which were Weeswing and Wheel of Fortune (Wren 1975), Blue Wing (cargo),

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*The 1820s also saw the development of a trail running east-west from present-day Monroe to Shreveport. Cook speculates that the road may have been "an extension of a part of a network developed by Jean Baptiste Filhiol, Commandant of the Ouachita country under Don Esteban Miro, Spanish Military governor of Louisiana." Cook remarks that the eastern portion of the road was heavily used in the 1820s. Eventually, it became a wagon road, then a stage route, and finally the route for telegraph wires in the 1850s. It roughly paralleled today's U.S. Highway 80 and Interstate 20 (Cook 1984:45).

**This may have been the point identified by Meyer et al. (1916:9) as "Crichtons Landing."

Danube (cargo and passenger), Rosa Bland (freighter), Bonita and Bill Butler (sternwheelers), Morning Light (sidewheeler), and Jewell, Marie Louise, Alexandria, Shamrock, and Moonstone (unspecified types and functions) (Campbell 1962:8-9). Some of these boats loaded at one landing or another on Bayou Dorcheat and then made the trip south through Lake Bistineau, Loggy Bayou (Bayou Channo), the Red River, and on to New Orleans. Others went no farther than Loggy Bayou, where the cargo was transferred to a cargo boat such as the Danube (The Minden Press-Herald, February 17, 1975:n.p.).

The bulk of the cargo that was transported out of the Minden-Overton ports was cotton, a highly profitable crop which was cultivated in the 1820s in the hilly country north of Minden, increasingly produced after the introduction of slave labor and the dominant crop between 1840 and 1860, when larger numbers of slaves made the establishment of plantations possible. No plantation owners in present-day Webster Parish could be classified as major holders when assessed on a statewide level, the average holding being two to nine individuals (Southern Publishing Company 1890:657). According to the 1850 census, there were 2,522 slaves in what would become Webster Parish, and only 39.3% of the White population were slaveholders. Nevertheless, this population was sufficient to produce 2,483 bales of cotton in 1850. Ten years later, production totaled 18,983 bales, and the local economy had so evolved from the subsistence farming patterns of the first three decades that it could not be sustained without slave labor (Webster Parish Centennial, Inc. 1971).

1861-1890: The Civil War and Reconstruction

As in most areas of the agricultural South, the Civil War had a devastating effect on the North Central Louisiana Hill Country. While few, if any, skirmishes occurred in present-day Webster Parish, war-time activities depleted the working White male population and immigration to the area slowed, thus further affecting the available work force (Fig. 7). Following the War, large-scale agricultural development slowed dramatically because the absence of slave labor prohibited the production levels achieved before 1865. Increased immigration of displaced Whites from Southern states placed additional burdens on the economic system so that significant economic recovery in Webster Parish did not occur until a decade after the War.

While little fighting actually occurred in Bossier or Claiborne parishes,* both entities contributed considerable manpower to the conflict. Claiborne Parish sent 13 companies totaling more than 1,800 men, and 2 companies -- the Minden Blues and the Minden Rangers -- were organized early in the conflict. A factory in Minden produced 1,000 pairs of cotton cards per month, and as many as three divisions under Generals J. H. Forney, Camille Polignac, and Thomas Churchill were quartered east of town in the winter of 1864-1865 (Hunt 1985:4). Southwest of Minden, in the eastern portion of what now constitutes the Louisiana Army Ammunition Plant, Gum Springs is thought to have become the billet for a Mississippi regiment where men drilled, marched, and prepared for Confederate service. Once part of a

*Claiborne Parish was created from Natchitoches in 1828. Bossier Parish, in which the project area originally was located, was created from Claiborne in 1843. Webster Parish was created in 1871 from parts of Claiborne, Bossier, and Bienville parishes (U.S. Work Projects Administration 1939:18, 43, 59, 68, 85-86, 88, 115).

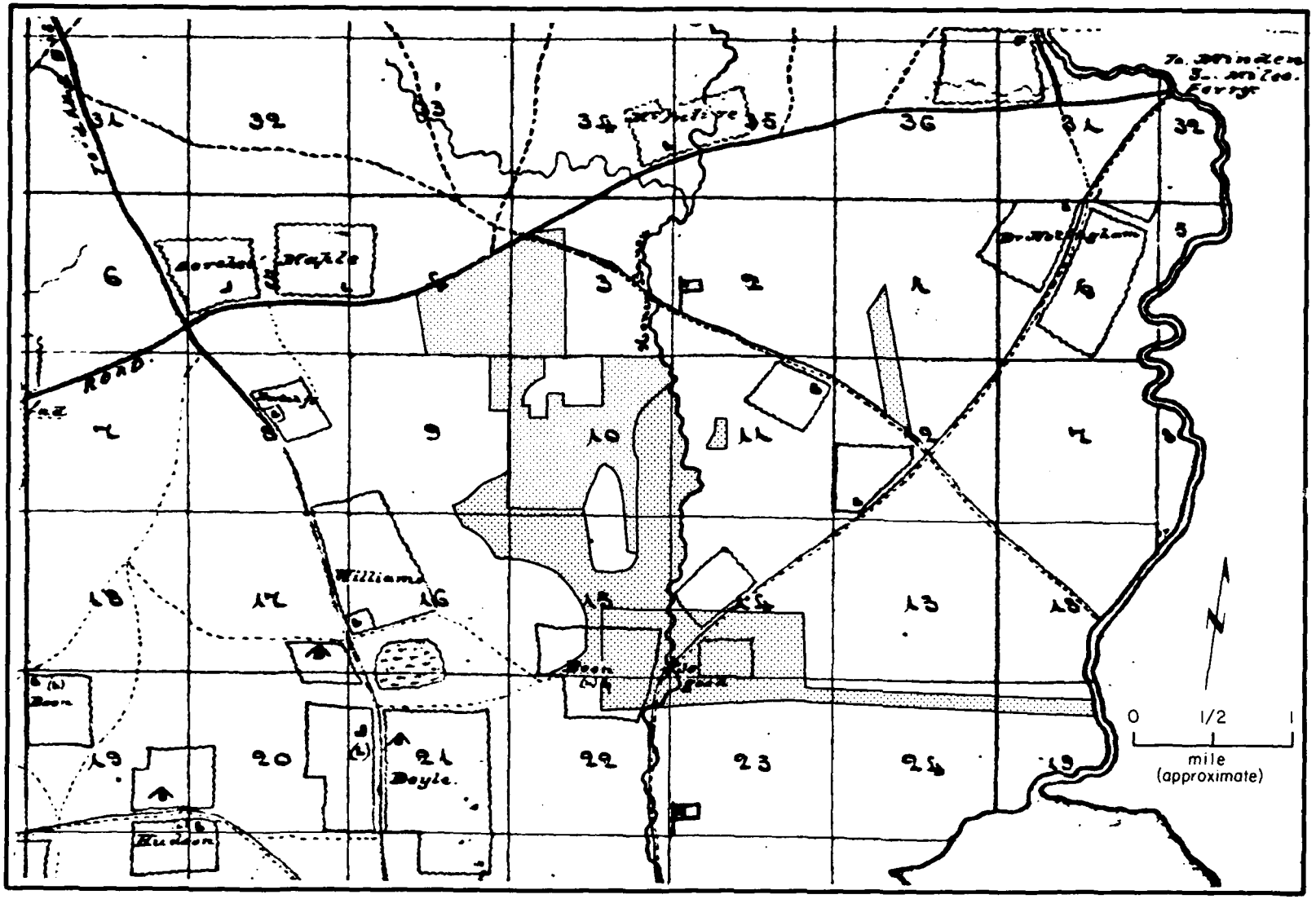

Figure 7. Map of Bossier Parish ca. 1863 (U.S. National Archives and Records Center). Shading indicates areas surveyed by Prewitt and Associates, Inc. in 1986-1987.

plantation owned by George Hearne, who had moved from Marengo County, Alabama, Gum Springs was a source of clear water where Hearne built a church and school as early as 1842 (Longino n.d.:1).

Following the War, Louisiana became something of a stopping-off place for westward-moving families from Georgia, Alabama, Tennessee, North Carolina, Mississippi, Virginia, and Kentucky (Trout 1964:7). Simultaneously, the picture of land ownership by resident populations changed, as manumitted Blacks acquired parcels of rural land and began to farm again. A general pattern developed in which the prosperity of the pre-Civil War period was gone, many large landholdings were subdivided into significantly smaller tracts on which subsistence farming was practiced, but agriculture remained the mainstay of the Parish economy. By 1880, approximately 42,402 acres (ca. 13% of the total land available) were in cultivation in Webster Parish, of which 16,401 acres were devoted to cotton, 14,824 acres to corn, 385 acres to sweet potatoes, and 120 acres to sugar cane. Production figures for cotton products totaled 6,255 bales (an average of 0.38 bale per acre), 543 pounds of seed cotton, and 181 pounds of cotton lint (Southern Publishing Company 1890:655).

The generally stagnate economic character of the Webster Parish area was relieved after 1883 by the construction of a number of railroad lines which opened new markets for farm produce and thus gave new impetus to agriculture. The first of these lines, the Vicksburg, Shreveport and Pacific Railway (known originally as the Vicksburg, Shreveport and Texas Railroad), ran on the southern edge of the present-day Plant site and extended from Monroe on the Ouachita River to Shreveport on the Red River. This was followed in 1885 by the Minden Tap which connected Minden with Sibley (a stop on the Vicksburg, Shreveport and Pacific Railway), and the Louisiana and Arkansas Railroad Company which extended its line from Hope, Arkansas, to Springhill, Louisiana, and then to Minden in 1899 (Trout 1964:7). Predictably, agricultural production increased significantly; in 1890, 53,270 acres were cultivated, and 19,420 acres of cotton produced 15,010 bales, while 17,000 acres of corn produced 160,000 bushels (Southern Publishing Company 1890:655).

1891-1941: The Economy Diversifies

If Webster Parish never again saw the agricultural prosperity of the pre-Civil War era despite the stimulus provided by improved rail transportation, the area did benefit from the slower, steadier increase in productivity that typified the area during the early twentieth century. The number of acres planted in cotton and corn in 1909 had increased to ca. 24,000 and 29,000 respectively, in spite of the negative effects of a drought that occurred after 1889. In addition, farmers experimented with the production of some new crops such as peanuts. But corn and cotton remained mainstays, despite the fact that corn was not a particularly important money crop (Meyer et al. 1916:9, 10, 12; Webster Parish Centennial, Inc. 1971).

Rail transportation opened new markets and stimulated the growth of small towns such as Doyline, which became trade centers for the Parish's large rural population. In addition, railroads made possible the large-scale harvesting of timber products. Major cutting efforts began in the 1890s when much of the Parish was thickly forested in pine, oak, gum, and other hardwoods. Construction of sawmills after that date, however, quickly drained the local labor supply and depleted the area's forest products so that, by 1925, there were practically no virgin stands of pine. In the 1930s, conservation efforts became a first

priority as soil depletion and erosion due to farming and clearcutting reached a crisis stage (Meyer et al. 1916:6; Trout 1964:8; Webster Parish Centennial, Inc. 1971).

A third event that had a major impact on agricultural productivity and general parish-wide prosperity in the early twentieth century was the discovery of oil and gas deposits. Wildcat drilling began as early as 1904; the first producing wells were brought in a decade later when the Crichton Field in Red River Parish was opened. Production in the Hill Country began with the opening of the Bellevue Field in Bossier Parish and the Haynesville-Homer Field in Claiborne Parish in 1921. Cotton Valley opened in Webster Parish in 1923 (Trout 1964:8).

The presence of railroads and sawmills and availability of income from the development of mineral resources had a negative effect on agricultural productivity by World War II. Trout (1964:8) has remarked that:

> . . . the coming of the railroads and sawmills may be said to have marked the end of the pioneer period in the historical development of the North Central Louisiana Hill Country. The discovery of oil and natural gas hastened the end of the period of maximum land utilization for agriculture and initiated the beginning of the present period of rural decline, characterized by depopulation and return of much land to forest and pasture.

Not all parts of Webster Parish were equally and negatively affected by this technological and economic change. Many rural areas, especially those where there was little or no mineral production or where agricultural communities were able to utilize modern technologies to practice subsistence-level farming, seemed relatively unchanged from the late nineteenth century. In other cases, where individuals owned a number of large tracts, the production of minerals on some properties subsidized the continued agricultural use of other properties. By World War II, the area of Webster Parish southwest of Minden was a patchwork of small towns which served nearby farms ranging in size from ca. 40 to 160 acres. Crops, in order of volume, included cotton, corn, and oats. Some cattle were raised, but hogs remained the most common livestock.

1941-Present

In the mid nineteenth century, the event that had the greatest impact on the economic, social, and cultural life of Webster Parish was the Civil War. Eighty years later, a war thousands of miles away threatened to disrupt major patterns of life in the Parish once again as northern Louisiana became a center for military and military-related activities. Some of these activities were less disruptive than others and included a series of large-scale war games that occurred throughout the Parish and across the State. Hundreds of thousands of acres were leased to provide space for troop movements of the 2nd Armored Division, commanded by General George Patton. In other cases, the government acquired land for use during the war, such as that on Caney Lake 4 miles north of Minden where the Corps of Engineers installed a bombing range on August 22, 1941 (Webster Parish Centennial, Inc. 1971).

The war-time project with the greatest impact on Webster Parish involved the acquisition of almost 16,000 acres ca. 10 miles west of Minden between the towns of McIntyre on

the north and Doyline on the south, and lying between Bayous Dorcheat and Bodcau. The property was to be used by the War Department for the construction and operation of a munitions complex. Progress on the project occurred with unusual speed, the first announcements occurring on May 30, 1941, and White House approval being given for the $30,000,000 plant on June 4. By July 4, 15,500 acres of farm and timberland had been condemned; four months later, almost all vestiges of historic human occupation had been erased as earth-moving equipment leveled the terrain and ca. 90 abandoned structures were sold and moved off the tract (The Minden Herald, May 30, June 6, July 4, September 19, November 7, 1941).

The effect on the resident population west of Bayou Dorcheat was devastating. Approximately 300 families had to be relocated at a time when rural land was at a premium and difficult to purchase. Small communities adjacent to the Plant site experienced social and economic dislocation as populations they had relied on were removed, new populations associated with construction on the site moved in, and access was seriously impaired as roads were cut off or rerouted. Finally, while the number of long-term jobs that the Parish had hoped would be provided to a community still suffering the effects of the Great Depression never materialized, the use of common laborers to build the Plant resulted in a shortage of farm labor, and local farmers began to fear that they would not be able to harvest crops (Webster Parish Centennial, Inc. 1971).

The loss of land that resulted from government actions in Webster Parish in the early 1940s presaged a general change in agricultural trends during the next three decades. By the late 1960s, a dramatic shift had occurred from cotton to trees, cattle, and dairy products as 71% of the land area in the Parish had become commercial forest land, 13% was pastureland, and only 6% was cropland. Within a few years, only several hundred acres of cotton were being cultivated, and trees were being harvested in a landscape where cotton was once king (Webster Parish Centennial, Inc. 1971).

Summary of Regional Research

As a result of the regional historical research, it was determined that the strategic location of the study area relative to the Red River, Lake Bistineau, and Bayous Dorcheat and Bodcau created a potential for archeological evidence of historic activity during a span of ca. 175 years. Without question, the strongest factor affecting the exploration and settlement of the project area has been the Red River. Because of the size and density of the Red River Raft, a phenomenon which choked the river centuries before the earliest European exploration and was not finally removed until 1837 (Humphreys 1984:91), periodic flooding occurred on Bayou Dorcheat, Lake Bistineau, and Bayou Bodcau where Freeman and Custis ([1806?]:16) remarked that floodwaters sometimes rose 10 ft above normal levels. Prairies such as those west of Bayou Dorcheat probably were subjected to periodic flooding, making them less desirable as areas of permanent settlement.

Until the mid nineteenth century, the project area remained on the periphery of European and Anglo-American exploration. French traveling north from the eighteenth-century settlements of Natchitoches and Campti to trade with the Caddo skirted the area as they moved up Bayou Channo, Lake Bistineau, and up either Bayou Bodcau or Bayou Dorcheat to rejoin the Red River above the Raft. Similarly, Anglo-Americans heading for fertile prairies in southwestern Arkansas used the Lake Bistineau route, eventually creating maps which indicate a familiarity with the various waterways but little specific knowledge of the terrestrial area in between.

Beginning in about 1811, the hilly region north of the project area began to fill with yeoman farmers and hunters from the Upper South, many of them from the vicinity of Lebanon, Tennessee. Initially, they practiced subsistence-level farming and constructed homes which have been described as consisting of small straight poles notched down "bird trap" style. Floors were "mauled dirt," created when the earth was pounded with a wooden maul. Repeated applications of dirt and water were successively mauled, resulting in an interior floor level several inches higher than the ground level outside. A final layer of clay and sand was then applied which had a cementlike consistency when it dried. Chimneys were constructed using the "mud cat" method wherein a chimney frame was built along similar lines to the walls of the house and then covered with mud cats. Clay was mixed with water and worked to the consistency of heavy batter, rolled together with a handful of cured grass or dry Spanish moss, and then made into a "cat" which measured ca. 16 inches long and 4 inches thick in the middle (Pipes 1970:2).

A subsistence economy predominated, with settlers gathering wild fruits and honey, growing some cane, and fabricating cloth from a small amount of cultivated cotton which was then dyed using roots and bark (Pipes 1970:2). Some cattle were kept, but hogs were the preferred livestock.

The dominant population in the area was comprised of Upper South farmers, a group which most cultural geographers have characterized as working without slaves, preferring to raise corn and wheat, practicing generalized grain and open-range livestock economy, and living in dispersed hamlets often comprised of related families who were members of evangelical Protestant denominations (Jordan 1967:667; Newton 1974:152). By the late 1820s, however, this group had introduced slaves to the Hill Country and had begun commercial production of cotton, perhaps exhibiting Fred Kniffen's broader view of Upper South society in which some elements of plantation culture were embraced (1968:139). In the Hill Country of Webster Parish, the resulting upland plantation might have been characterized by farms which included log houses and barns converted, with affluence, to "I" houses standing in close proximity to big frame transverse-crib barns, respectively (Kniffen 1965:574).

The introduction of slaves and the development of cotton culture in the Hill Country north of the project area eventually resulted in the development of the bayou and lake region adjoining it on the east, as a series of landings and communities such as Overton and Minden were constructed to accommodate the cotton trade. This economic development, in turn, seems to have attracted agriculturalists from other states, so that the population became increasingly diversified after the United States government opened it to homesteading in the late 1830s. By the early 1840s, Southerners such as George Hearne from Alabama and Dr. Alexander McIntyre from Mississippi, who preferred the lower, flatter lands adjoining Bayou Dorcheat to the hilly country to the north, had established sizable plantations in and adjoining the project area. These Lower South immigrants were joined in 1854 by William D. Van Arsdale [Vanarsdale, Vanarsdell] from Kentucky, who owned ca. 40 slaves by the outbreak of the Civil War and farmed more than 1,000 acres in the Plant site; and Captain Downs Brewster Doyle, a native of White County, Tennessee, who patented land in the 1850s, developed a plantation, and founded the community which became Doyline.

While a number of early settlers in what became known as the "Flat Woods" were slaveholding plantation owners, others followed another equally distinctive pattern. An examination of the cemetery records from the Richardson Cemetery in Section 11, T18N R10W, and collection of data from local informants and a published genealogy, for example, reveals that much of the land in Sections 2, 11, and 12 was settled by nonslaveholding, Lower South

families who participated in what cultural geographers have labeled "chain migrations." Typical of these families were the Richardsons and Walkers who shared many of the cultural traits that cultural geographers commonly have ascribed to immigrants from the Upland South: (1) dispersed settlement; (2) kin-structured dispersed hamlets; (3) dispersed central-place functions such as scattered churches, stores, schools, cemeteries, and mills; (4) a generalized stockman-farmer-hunter economy; (5) log construction; (6) commonly held ideas about modular construction; and (7) an evangelical, atomistic Protestantism and a tendency for each community to acquire control of its own affairs (Newton 1987:141-142). Many of these traits were carried by interrelated families who moved westward together in successive migrations. Once in place, they constructed what one cultural geographer has termed a landscape of the "customary order," the features of which included dispersed settlement, "scattered churches and cemeteries, a seemingly uncouth countryside, rambling ridge roads, and irregular fields. After emancipation of the slaves, there were added black hamlets centered (like those of the whites) on the little church of the local group" (Newton 1987:144).

While insufficient research has been completed concerning the pre-1870s agricultural practices and productions of the eastern portion of the Louisiana Army Ammunition Plant, largely because of the designated geographical focus of archeological surveys to date, the few data that have been collected suggest that the vicinity east of Boone Creek may represent a cultural landscape and history that are distinctive from areas in the central portion of the Plant. These distinctions may have become blurred following the Civil War which disrupted, but did not destroy, the fundamentally agricultural nature of the economy of Webster Parish in general and the Plant area in particular. Indeed, with the breakup of the large Van Arsdale Plantation in Sections 10 and 15, the entire eastern half of the Plant may have been more homogenous insofar as land ownership and sizes of agricultural units were concerned.

For the first time in the history of the project area, Black populations owned significant amounts of acreage, particularly in the western portion of the Plant. Initially, some of the acreages were sizable. However, by the beginning of the twentieth century, the average size of farms owned by Blacks and Whites was probably in the range of 100 acres, and most of the population had reverted to a subsistence-level economy centered on the production of cotton as a cash crop. This pattern appears to have persisted, despite the construction of a railroad on the south and a major highway on the north, until 1941 when the property was acquired by the government.

CHAPTER 5

OBJECTIVES AND METHODS

by Ross C. Fields, L. Wayne Klement, and Martha Doty Freeman

This chapter consists of five parts. The first outlines the goals and objectives of the project, the second and third describe the methods used in the survey and testing, the fourth describes the methods used in the laboratory processing of the materials collected during the project, and the fifth evaluates the strategies and techniques employed.

Goals and Objectives

This project consisted of two main tasks. The first, and lesser in terms of effort, involved pedestrian survey of ca. 400 acres (see Fig. 8, Chapter 6). The objective of this effort was to effectively cover the areas to be surveyed and locate any cultural resources contained in them. Also, this effort was intended to gather sufficient information on site size, depth, content, integrity, and, in the case of historic sites, age and associations to allow preliminary assessments of eligibility for listing on the National Register of Historic Places to be made.

The second project task, comprising the bulk of the efforts, consisted of testing at 18 prehistoric and 4 historic sites (see Fig. 8, Chapter 6); a prehistoric component was discovered at one of the historic sites during testing, bringing the total number of prehistoric components investigated to 19. These 22 sites were found during a late 1986-early 1987 survey of parts of the Plant (Driskell and Howard 1988). The objective of this testing was to gather sufficient information to allow full and confident assessments of National Register-eligibility to be made. Given that the cultural remains at all of these 22 sites are archeological, the field efforts were intended to determine the information yield potential of each resource by documenting its size, depth, integrity, and contents. Critical issues to be resolved in studying site contents included: (1) whether or not materials suitable for absolute dating, such as charcoal and soil humates, were present; (2) whether or not cultural features were present; (3) whether or not preserved botanical and faunal remains were present; (4) whether or not isolable cultural components were present; and (5) whether or not the cultural remains were present in sufficient quantity to allow meaningful interpretation.

Survey Methods

The field survey of approximately 405 acres contained within Survey Tracts 9 and 10 was accomplished chiefly by a four-person crew. This survey required 26 person-days to complete and was carried out concurrent with the testing during July and August 1987. During the survey, three historic sites, five prehistoric sites, and two sites containing both historic and prehistoric components were identified and recorded; additionally, two previously recorded sites (16WE77 and 16WE128) were revisited. Another previously recorded site, 16WE115, is located within a previously surveyed portion of Survey Tract 10 but was

not revisited as the site had been tested not long before the survey was undertaken (Driskell and Howard 1988).

The pedestrian survey was carried out by walking transects across the areas to be covered, with the transects generally spaced at ca. 25-m intervals. The transects were not necessarily oriented along specific compass bearings, rather they were aligned to cross, parallel, or bisect identifiable landforms or cultural features, such as roads. Where possible, the areas were covered using linear transects, although frequently it was not possible to walk in straight lines due to the dense vegetation; therefore, zigzag transects were often used to maneuver through the dense brush.

The few areas within the survey units with good ground surface visibility, such as cutbanks, animal burrows, roadcuts, pipeline cuts, and eroded and disturbed areas, were examined for cultural materials; only two sites, both historic, were located by visible surface evidence. As has been demonstrated during previous surveys at the Plant, intensive shovel testing is required to locate prehistoric sites. This proved to be the case during this survey as well, with all of the prehistoric components exhibiting only subsurface evidence. Within Survey Tracts 9 and 10 (ca. 405 acres), approximately 136 shovel tests were excavated, or an average of 1 shovel test per 3 acres. These tests were located primarily on a judgmental basis, with most of the tests excavated in settings shown by the previous surveys to have high site densities (i.e., on prominences along the stream-courses); upland areas removed from the major streams were tested at a lower intensity. All of the matrix excavated from the shovel tests was screened through 1/4-inch-mesh hardware cloth, and all of the cultural materials recovered were bagged by shovel test and level.

When a site was discovered, several shovel tests (usually six) were excavated to determine the thickness of the cultural deposits and to obtain estimates of the site size. All archeological sites were recorded on State of Louisiana Site Record Forms, and all sites were given trinomial designations assigned by the State of Louisiana Division of Archaeology. Color slides and black-and-white photographs were taken at each site, and a photograph log was maintained. Sites were plotted on USGS 7.5' topographic maps. Additional documentation containing site information and survey information is included in a daily journal maintained by the survey crew chief.

Prior to the fieldwork, several possible historic site locations were identified from the available historic maps, including a 1916 Soil Conservation Service soil map, a 1937 highway map, and a 1939 aerial map of the Plant site. A few of these sites were located during the survey based on surface and/or subsurface evidence, but not all of the sites shown on these maps could be located even though a diligent attempt was made to find them. Furthermore, the general locations of some of these possible sites have been extensively disturbed by the construction of roads, pipelines, plant facilities, etc., and it is likely that a number of the historic sites that show up on the historic maps of the Plant area have been destroyed, removed, or covered over.

At the conclusion of fieldwork, the historian revisited several of the historic sites and conducted site-specific research for all of the sites with historic components. Research consisted of a reexamination of the 1939 aerial photograph of the Plant, compilation of a legal abstract for the property on which each site was located, and examination of the appropriate tax assessor's records in the Webster Parish Courthouse and population and agricultural censuses from 1850 to 1900. An inventory of the Richardson Cemetery

resulted in the identification of a number of former residents in and near the project area and made possible the location of their obituaries in local newspapers on microfilm or in original format at the Webster Parish Public Library in Minden. Former residents of the present-day Plant site were interviewed concerning their families and the locations of housesites within and adjoining the survey area. A current Plant employee who is knowledgeable about oil field technology revisited 16WE215 and provided information helpful in interpreting the various site features. Finally, the collections of the Shreveport Public Library, Louisiana Collection, were used with the intent of obtaining information about families interred at the Richardson Cemetery.

Testing Methods

The general approach used to retrieve the information needed from the 22 sites without causing substantial disturbance to them involved manually excavating 0.5x0.5-m test pits systematically along perpendicular axes across each site. The first step in this procedure consisted of grid layout, which was accomplished using a compass and metric tape. In most cases, two or more perpendicular grid lines were established, often intersecting in the presumed center of the site. These lines were oriented to transect the long and short axes of the site and/or to connect site areas while limiting the clearing of vegetation. In general, clearing of the dense underbrush that covers most of the sites was kept to a minimum; in one case (16WE198), clearing was accomplished by Plant personnel using a bush hog.

After the grid was established, a 0.5x0.5-m test pit was excavated in the presumed center of each site. Extending out along the gridlines from this initial pit, additional pits were placed to define the site limits and document horizontal variation in the cultural remains. In some cases, generally on the larger sites, the test pits were excavated at consistent intervals of 10 or 20 m; on the smaller and/or more irregularly shaped sites, the test pits were situated at variable intervals to insure that all parts of the site were sampled. A total of 273 test pits were excavated at the 18 prehistoric sites, ranging from a low of 8 pits at two sites to a high of 37 pits at one site (Table 1). At the four historic sites, a total of 33 0.5x0.5-m test pits were excavated.

In addition to these small test pits, other approaches were employed to investigate the historic sites (see Table 1). At 16WE198, three backhoe trenches were dug to investigate three depressions that were thought to be cultural features. These trenches were 2.5 to 3.4 m long and 1.1 to 1.4 m deep; one wall of each trench was cleaned, and a 1-m section of the profile was drawn. At another of the historic sites (16WE114), the work involved the manual clearing and mapping of a ca. 18-m^2 area that was found to contain a surficial to shallowly buried scatter of bricks and other artifacts. At a third historic site (16WE113), a collection of all surficially exposed artifacts was made, as such materials constitute the entire site. Finally, the fieldwork at 16WE185, which was judged to be substantially disturbed based on the surface evidence, consisted of the excavation of 12 shovel tests (ca. 18x36 cm) and of 3 profile cuts into spoil piles to document the extent of the disturbance (see Chapter 8).

The test pits and shovel tests at the 22 sites were excavated in 10-cm-thick arbitrary levels measured from the modern ground surface; all excavated soil was screened through 1/4-inch-mesh hardware cloth, and all materials caught on the screen except for modern

TABLE 1

SUMMARY OF THE TEST EXCAVATIONS

Site	Area (m^2)	Number of Test Pits	Mean Depth of Test Pits (cm)	Volume Excavated (m^3)	Other Activities
PREHISTORIC SITES:					
16WE107	2,510	14	69	2.400	Surface collection
16WE108, Area A	1,890	15	65	2.425	-
Area B	410	6	55	0.825	-
Area C	2,200	16	58	2.300	-
16WE116	1,170	13	60	1.940	-
16WE117	1,650	8	70	1.400	-
16WE118	40	9	59	1.325	-
16WE119	330	8	69	1.375	-
16WE121/122	5,370	25	50	3.125	-
16WE123	1,840	14	47	1.625	-
16WE126, Area A	210	4	68	0.675	-
Area B	50	7	59	1.025	-
Area C	1,840	15	69	2.600	-
Other	-	4	28	0.275	-
16WE127	1,160	11	77	2.125	-
16WE129	4,000	12	58	1.750	-
16WE190	?	22	63	3.475	-
16WE191	?	16	48	1.938	-
16WE192	410	14	74	2.575	-
16WE193	1,240	12	76	2.275	-
16WE195	?	13	64	2.075	-
16WE196	2,200	15	45	1.700	-
HISTORIC SITES:					
16WE113	15	5	20	0.250	Surface collection
16WE114*	980	17	32	1.375	Surface clearing and mapping
16WE185, Area A	5,400	10**	32**	0.205	Profile cut
Area B	300	2**	45**	0.059	Profile cuts (N = 2)
16WE198	3,850	11	25	0.750	Backhoe trench excavation (N = 3)

*A prehistoric component, with an area of 2,030 m^2, was found here during testing of the historic component.

**18x36-cm shovel tests were substituted for test pits.

organic materials and ferrous concretions were saved for possible analysis. The pits were excavated to the compact subsoil, presumed to represent pre-Holocene deposits, whenever practical in the small excavation units. When this compact subsoil was not reached at a reasonable depth (ca. 1 m or less), the pits were excavated until multiple levels lacking cultural materials were encountered. The mean test pit depth at the prehistoric sites ranged from 45 to 77 cm; at the historic sites, the mean test pit depth ranged from 20 to 45 cm (see Table 1). The total volume of soil removed from the test pits at the prehistoric sites was ca. 41 m^3, ranging from a low of ca. 1.3 m^3 to a high of ca. 5.5 m^3 per site (see Table 1).

Upon completion of the test pit excavations, five other major tasks were undertaken at each site by the field crews. First, stratigraphic descriptions were made of the sediments observed in all of the test pits; these descriptions were done using the geologically neutral concept of "zone" (Gary et al. 1972:80) and include standard information on soil texture, Munsell color, consistence, structure, inclusions, and boundaries (Soil Survey Staff 1962, 1975; Olson 1981). Second, ca. 1-pint sediment samples were collected in 10-cm vertical increments from continuous columns on the walls of two or more test pits at each site; normally, the pits chosen for sampling provided an upslope-downslope transect across the site. Third, because of the absence of charcoal suitable for radiocarbon dating in the tested sites, bulk sediment samples for possible humate dating were collected from each site; these large samples were collected from the walls of the deepest test pits at the sites, usually to sample the upper, middle, and lower portions of the deposits. Fourth, all sites were mapped using a compass, a metric stadia rod, and a hand-held level. Many of the sites can be located on recent Corps of Engineers' maps of the Plant (1 inch = 30 ft, 1-ft contour interval), and the excavation units at these sites were simply plotted onto these maps. For the 10 sites located outside of the areas shown on these maps, this effort involved obtaining sufficient information using compass bearings and paced distances to relate the excavations to the site topography. The elevations on these 10 sites were reckoned from arbitrary datum points and were plotted in 0.5- and 1-m contour intervals. In contrast to the consistent level of accuracy on the Corps of Engineers' maps, the maps made by the field crews were most accurate in the immediate site area, treating offsite areas in a more impressionistic manner. The final testing task consisted of backfilling all of the excavations; this was accomplished manually. These field tasks at the 22 sites were accomplished by two to three four-person crews over a 23-day fieldwork period (250 person-days).

While stratigraphic descriptions and sediment sampling were carried out by the field crews, comparable, and in part overlapping, efforts were also undertaken by the Project Geomorphologist during a six-day visit to the project area. These efforts involved reviewing the sediment descriptions prepared by the field crews, augmenting the descriptions where necessary, and collecting a limited number of additional sediment samples; these additional samples were taken as grab samples from specific zones rather than continuous samples at constant intervals. At 16WE108, the Project Geomorphologist enlarged several of the 0.5x0.5-m test pits to facilitate examination of the site stratigraphy. Finally, this task involved selecting sediment samples for grain size analysis and submitting these to the Soils Laboratory at the University of Wisconsin - Milwaukee. Because the grain size analysis was not as fruitful as had been hoped, it is not discussed in detail in this report (see Appendix A).

Laboratory Methods

Upon completion of the fieldwork, all materials collected were returned to the laboratory at the offices of Prewitt and Associates, Inc. in Austin, Texas. The laboratory processing of these materials consisted chiefly of washing all of the artifacts and labeling them in India ink with the site number and a lot number indicating provenience. Also, all photographs were catalogued at this time. This involved labeling each 35-mm color slide frame with the site number, a unique catalog number, and a description. Black-and-white 35-mm negatives were labeled in ink with the site number and a catalog number and placed in an envelope bearing a contact print and a typed photograph description. The final part of the laboratory effort involved organizing all collections, notes, and maps resulting from this project to be submitted to the Williamson Museum at Northwestern State University in Natchitoches, Louisiana for curation.

Evaluation of the Testing Approach

The approach used in testing the 22 sites, that is excavating small test pits spaced at intervals across the sites, proved to be generally effective in yielding the kinds of information needed to make assessments of information yield potential. This approach was particularly useful in determining site size, providing an overall picture of site content, and documenting horizontal variation in the cultural remains.

There are several drawbacks to such an approach, however. First, isolated, small test pits are not an effective way to locate or identify cultural features, a conclusion that is both intuitively obvious given the limited exposures offered by such test pits and strongly suggested by the inability to discover features during the testing project reported here. Second, small test pits by themselves are inappropriate for sampling deposits that lie more than about 1 m below the modern ground surface, as excavating in such small spaces to great depths is not feasible. Third, the approach used provides such a limited view of the natural deposits on and within which the archeological materials occur that it is difficult to reconstruct very fully or precisely the geomorphic histories of the landforms containing the sites. Fourth and finally, this approach can result in the collection of limited amounts of cultural materials, particularly when dealing with diffuse cultural deposits, and this introduces uncertainty as to the representativeness of the samples recovered. That this may be a problem for sites at the Plant is demonstrated by the fact that some sites yielded particular artifact groups (e.g., ceramics) during the survey but not during testing, while other sites yielded such artifacts during testing but not survey.

While the problem of the representativeness of the samples recovered is not one that can be solved easily short of implementing extremely intensive and probably cost-prohibitive testing programs, the other three problems could be solved reasonably by employing backhoe trenches to create both deep and laterally extensive exposures within the sites. Such trenches would maximize the chances of finding cultural features, create access to deeply buried deposits that might contain significant archeological remains, and provide sufficient exposures to allow the relationships between depositional units to be determined. The advantages of mechanical trenching, in combination with manual testing, far outweigh the potential information loss that might result from such trenching. Of course, one practical consideration that may limit the use of this approach in some areas of the

Louisiana Army Ammunition Plant is the difficulty of gaining access to heavily wooded sites with a backhoe. This problem notwithstanding, it is recommended that an approach combining manual and mechanical efforts be considered in designing future cultural resources efforts at the Plant.

CHAPTER 6

RESULTS OF THE SURVEY

by L. Wayne Klement, Martha Doty Freeman, and Ross C. Fields

As noted earlier, a minor part of this project involved pedestrian survey of ca. 400 acres that will be impacted during upcoming development and that had not been examined during any of the recent surveys. This chapter deals with the results of this survey effort; the methods used to accomplish the survey are described in Chapter 5. The first part of this chapter presents descriptions of the survey tracts covered; the second section presents site descriptions; and the final section summarizes assessments of the resources recorded.

Survey Tract Descriptions

Survey Tract 9

Survey Tract 9 is located in the eastern half of the Louisiana Army Ammunition Plant (Fig. 8). This tract is situated east of Boone Creek and Survey Tract 1 (Driskell and Howard 1988) and adjacent to the "Explosives Disposal Area-Exploding Pit." Survey Tract 9 covers an area of approximately 22 acres. The vegetation in this tract consists of dense pine and mixed hardwood forest; the understory vegetation consists of briars, weeds, vines, forbs, poison oak/ivy, and other plants. The understory vegetation is light to moderately dense across much of the western portion of the survey tract, but it is relatively dense in some of the eastern areas of the tract. The topography consists primarily of uplands that slope gently down to an intermittent tributary of Boone Creek; the tributary bounds the survey tract on the south and drains to the southwest into Boone Creek. Modern disturbances observed in Tract 9 include those associated with the construction of the "Explosives Disposal Area" and disturbances from previous logging.

One archeological site was identified and recorded in Survey Tract 9. This site is the Richardson Cemetery (16WE211), an historic cemetery dating from the late nineteenth century through the mid twentieth century.

Survey Tract 10

Survey Tract 10 is located in the eastern half of the Louisiana Army Ammunition Plant, east of the main entrance and west of Boone Creek (see Fig. 8); it is bounded by Boone Creek on the east and lies adjacent to portions of Survey Tracts 1 and 7 (Driskell and Howard 1988). Survey Tract 10 covers an area of approximately 383 acres. The vegetation in this tract consists mainly of moderate to dense pine and mixed hardwood forest, with pine predominating except along the creek bottoms. A small part of the tract has a light understory, but a large portion contains moderately dense to very dense understory vegetation consisting of briars, weeds, vines, forbs, poison oak/ivy, yaupon, and others. The

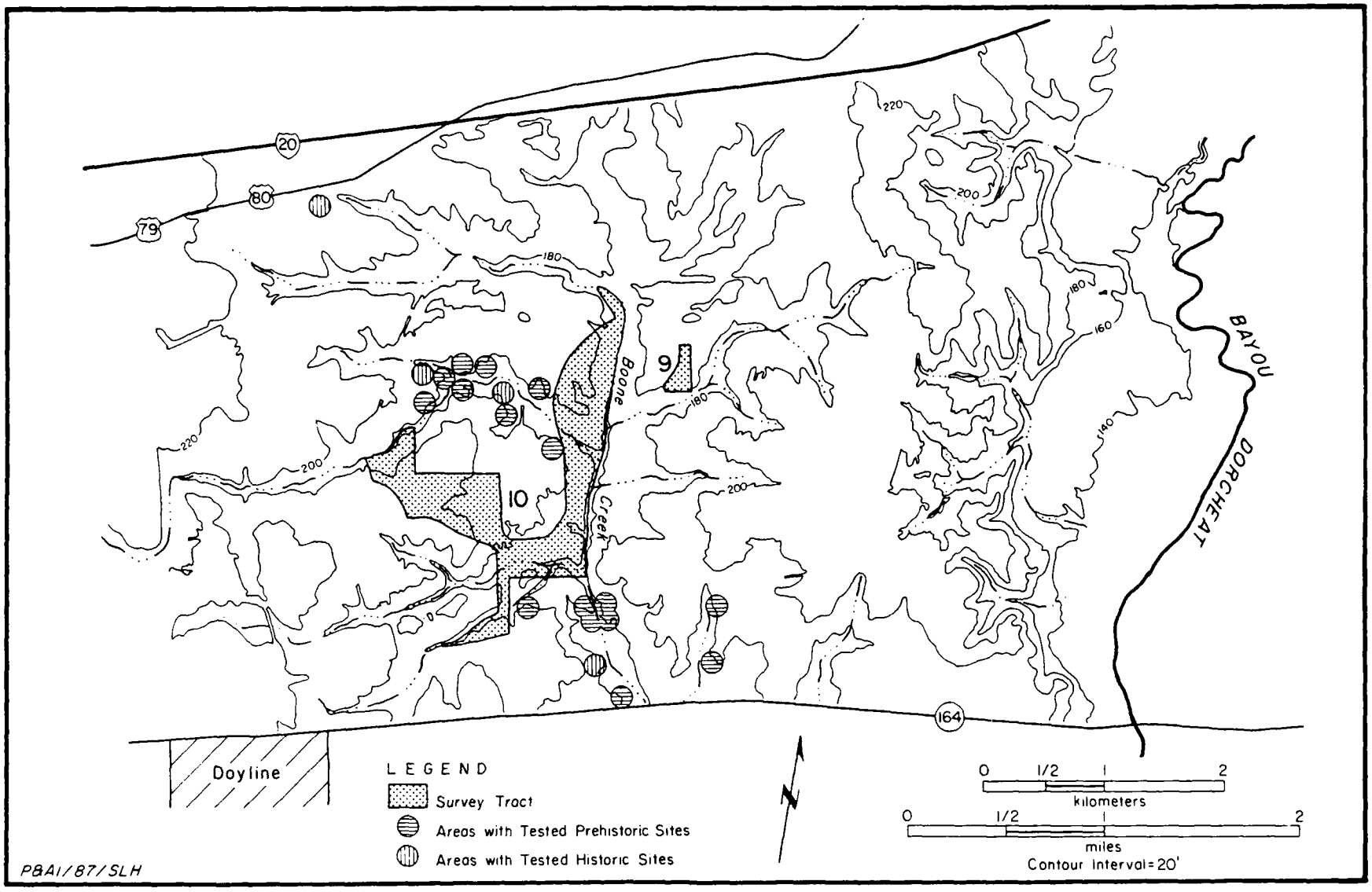

Figure 8. Project area map.

topography in this survey tract consists of flat to undulating uplands (some upland areas contain fairly extensive natural mound fields) which slope gently to moderately to several drainages that transect and border the tract. These drainag s are tributaries to Boone Creek and flow generally eastward; Boone Creek flows to the soutn along the eastern edge of Survey Tract 10. Most of the prehistoric sites located during the survey were found along the upland margins and the summits of interfluves that overlook Boone Creek and its tributaries. Disturbances noted in this tract include minor and major earthmoving associated with previous land clearing, logging and replanting, and the construction of roads, railroads, pipelines, powerlines, and other Plant facilities. Additionally, Boone Creek has been channelized, and manmade levees have been constructed along the new creek channel.

Nine sites were identified and recorded in Survey Tract 10; these include two historic sites (16WE212 and 16WE217), five prehistoric sites (16WE213, 16WE214, 16WE218, 16WE219, and 16WE220), and two sites that contain both historic and prehistoric components (16WE215 and 16WE216). Of the sites with historic components, none include any standing structures, although one, 16WE215, does have a concrete feature that is reported to be associated with early twentieth-century oil well drilling. The other historic sites are artifact scatters, some of which are evident on the surface and some of which are not. All of the prehistoric sites recorded in this tract were located only through subsurface testing, as no prehistoric cultural materials were observed on the surface. In addition to these nine newly recorded sites in Survey Tract 10, two previously recorded sites, 16WE77 and 16WE128, were visited. Site 16WE77 is the Van Arsdale Cemetery, which was recorded during 1984 (Bennett 1984). Site 16WE128 is a prehistoric site that was recorded in 1986 (Driskell and Howard 1988); this site was found to extend eastward into the present survey area, and thus the site boundaries were extended as a result of the survey reported here.

Site Descriptions

16WE77

Description: Site 16WE77 is the historic Van Arsdale Cemetery. This site was originally recorded during a survey at the Louisiana Army Ammunition Plant by W. J. Bennett (1984). The cemetery is situated in the south-central portion of Survey Tract 10, ca. 75 m north of Victory Road and ca. 425 m east of Fourth Street. It is located on a gently sloping interfluve that overlooks an intermittent tributary of Boone Creek to the north. The location of the Van Arsdale Cemetery is shown on the 1981 USGS Doyline, La. 7.5' topographic sheet. The cemetery measures approximately 13x13 m and has a chain-link fence around its perimeter.

The cemetery appears to contain 13 graves, 12 of which are clearly marked with headstones (some of these also have footstones); one possible grave is marked by a footstone and a large cedar tree. The southeastern portion of the cemetery appears to be vacant since no headstones or footstones are present; however, the possibility of unmarked graves in this area should not be dismissed. Only one of the headstones is marked; it is the gravestone of Grandison V. Van Arsdale (died 1918) and his wife Clara Jackson Van Arsdale (died 1917). This site does not show evidence of major disturbance.

Site History: The legal history of 16WE77 is t. same as that for 16WE212 (see below) through September 27, 1890, when R. W. Mabry of Claiborne Parish sold ca. 240 acres

comprised of the W½ SW¼ of Section 10; and the N½ NW¼ and SE¼ NW¼ of Section 15, T18N, R10W, to A. J. Pennington. Pennington then held the property on which the Van Arsdale Cemetery eventually was located until October 23, 1903, when he conveyed the E½ NW¼ of Section 15 and the SE¼ NE¼ of Section 16 to Grandison Van Arsdale (Webster Parish Conveyance Record* 13:214). From that date on, the legal history of 16WE77 once again became identical to that of 16WE212.

For most of its history, the Van Arsdale Cemetery was located on land owned and/or occupied by members of the Van Arsdale family. Of all the graves that have stone markers, only one identifies interred individuals, specifically: Grandison Van Arsale [sic], who died on August 17, 1918; and his wife, Clara Jackson Van Arsale [sic], who died on October 20, 1917. An interview with a granddaughter of Grandison and Clara Van Arsdale revealed that other individuals interred at the cemetery include Mariah Van Arsdale Harris, a daughter; William Van Arsdale, a son; Candy Van Arsdale, a brother; E. H. Fuller, a grandson of Mariah Van Arsdale Harris; a second, unidentified grandchild of Harris; and a baby who was not a member of the Van Arsdale family but was the child of people who lived on the Van Arsdale place.

Assessment: Deed records and grave markers indicate that the Van Arsdale Cemetery dates from the World War I period when Grandison and Clara Van Arsdale were interred there. The site is not the location of significant landscape features or funerary art; however, the information gathered to date suggests that the Van Arsdales were an important Black family in the eastern portion of the Plant who may have come to the area as slaves and who later accumulated a sizable amount of property which they farmed until 1941. Other sites that are known to have been associated with the Van Arsdales were so badly disturbed by the government after 1941 that they cannot be considered eligible for listing on the National Register of Historic Places. As a result, the Van Arsdale Cemetery remains the most intact and least disturbed site on the Plant that is associated with this Black family. It is recommended, therefore, that the Cemetery be considered potentially eligible for listing on the National Register. A final, more-complete assessment should be made as additional historical research is carried out at the Plant. Such additional research will contribute information concerning the historical development of the area as a whole and thus the relative importance of the Van Arsdale family.

16WE128

Description: Site 16WE128 is a prehistoric site that was identified and recorded during a 1986 survey at the Louisiana Army Ammunition Plant (Driskell and Howard 1988). During the survey reported here, shovel tests excavated east of the originally recorded portion of the site revealed additional cultural materials, and thus the boundaries of the site were extended. The site is situated in the northeast portions of Survey Tracts 1 and 10, ca. 75 m south of Burma Road, ca. 50 m east of a railroad embankment, and ca. 35 m south of a small tributary of Boone Creek. Originally, the site was found to occupy a small oval rise on an interfluve overlooking the Boone Creek tributary; during the recent

*Conveyance Record is abbreviated to CR in all subsequent references.

survey, the site was found to extend farther east along the interfluve. As presently defined, the site is estimated to cover an area of approximately 50x100 m.

Four shovel tests were excavated in the site area; only one was positive. A single edge-modified angular chunk of chert was recovered from 20-40 cm below the modern ground surface. The soils observed while excavating the shovel tests consist of gray, tan, and orangish silty loams overlying mottled, orangish clayey loams. The ground surface visibility at the site is very poor. The surface evidence suggests that this site is somewhat disturbed.

Assessment: Site 16WE128 appears to have a very low density scatter of cultural materials and to exhibit some surface disturbance. Because of this, the site is judged to have a low information yield potential and to be ineligible for listing on the National Register.

16WE211

Description: Site 16WE211 is the Richardson Cemetery. The cemetery is situated in the northeast corner of Survey Tract 9, east of the "Explosives Disposal Area-Exploding Pit," and is located on the eastern flank of an interfluve that slopes gently to the southeast toward an unnamed tributary of Boone Creek. The Richardson Cemetery is shown on the 1981 USGS Minden South, La. 7.5' topographic sheet. The cemetery has a chain-link fence measuring ca. 18x18 m around its perimeter, but the total site area, which includes a well that may be associated with the cemetery, is ca. 20x35 m.

The cemetery contains 45 marked graves, some of which have cast concrete headstones and footstones and some of which have granite headstones and footstones. Twenty-six of the marked graves bear inscriptions on the headstones, while the remaining 19 are plain and bear no dates or inscriptions. The earliest grave observed dates to 1881 and the most recent to 1974. Portions of the cemetery appear to be vacant; however, the possibility that some unmarked graves may exist should not be overlooked. An additional cultural feature observed in the immediate vicinity of the cemetery is a possible capped well or cistern. It is constructed of mortar and brick, measures approximately 2 m in diameter, and is located about 15 m north of the northeastern corner of the cemetery. This site does not exhibit any substantial disturbance.

Site History: Richardson Cemetery is located in the SE¼ NW¼ of Section 11, T18N, R10W, a 39.9-acre tract that was patented to Hezekiah Hall of Bossier Parish* on September 1, 1849 (Webster Parish Abstract of Government and State Entries:67-68). Bossier and Webster parish records kept between 1849, when Hall acquired the property, and the 1880s when resident Sanders Richardson conveyed a one-half interest in it to a Minden investor, Alfred Goodwill (Webster Parish CR 4:339), are so contradictory that it is

*Present-day Webster Parish was created from a portion of Bossier Parish on February 27, 1871 (Louisiana Historical Records Survey 1939:138). Site 16WE211 and all other sites discussed in this report are located in the portion which became Webster Parish.

impossible to reconstruct a legal abstract. There is no conveyance from Hall to a second party recorded in any of the original or transcribed records of either Webster or Bossier parishes, and various legal instruments that purport to convey the property describe it as being the SE¼ E½ NE¼ of Section 11 in a power of attorney assignment, but the SE¼ E½ NW¼ in a deed from the attorney to another party in 1875 (Bossier Parish CR 1:222, CR 4:268; Webster Parish CR 2:126, 127). What is verifiable is that one of Sanders Richardson's sons, Montgomery Thomas, was born in the Gum Springs Community of which 16WE211 was a part on either September 21, 1853 (Webster Signal, September 14, 1900:1), or February 21, 1853 (Sibley 1962:42).

It is possible, therefore, that Richardson acquired the SE¼ NW¼ of Section 11 directly from Hezekiah Hall. By 1860, he owned ca. 100 improved acres and ca. 170 unimproved acres worth $2,700 and farming implements and machinery worth $175. He owned 4 horses, 3 asses or mules, 5 milch cows, 4 working oxen, 8 other cattle, and 25 [35?] swine. He had raised 670 bushels of Indian corn, ca. 21 bales of ginned cotton (400-pound average), sweet potatoes, and 100 pounds of butter. He described himself as being a planter whose personal estate was worth ca. $4,000 (U.S. Bureau of the Census 1860a, 1860b).

Richardson was born in September 1810 (U.S. Bureau of the Census 1900) in Anson County, North Carolina, to John and Mary (Stokes) Richardson who then moved to Twiggs County, Georgia, by the early 1830s. There, Sanders married Lucinda Outlaw on July 15, 1830. They had eight children, then decided to move to Louisiana with two of Lucinda's sisters who had married brothers -- John and Jacob Pearce. The Pearce families settled near Dubberly, Louisiana, where they remained, and the Richardsons continued on to Mt. Lebanon where they lived two years and a daughter was born. Finally, they moved to the present location of the Louisiana Army Ammunition Plant where a relative noted they built a double-pen log house (Sibley 1962:6-7, 20, 21).

By 1882, Sanders Richardson's property was described in the Webster Parish Tax Assessor's records as encompassing 190 acres comprised of the NE¼ SW¼, S½ NW¼ (cemetery site), SW¼ NE¼, and the NW¼ SW¼ of Section 11, T18N, R10W, excluding 10 acres that had been sold previously. There is some debate concerning the location of his home on the property, with one relative referring to the Richardson Cemetery as lying "back of the house" in an indeterminate area (Sibley 1962:21), and another relative specifying that the house was no more than one-half mile due east of the Cemetery (Wheless 1987). Visual inspection of the area in October 1987 revealed the existence of a mature oak tree and numerous crepe myrtle bushes approximately one-half mile east of the Cemetery.

By the 1880s, Richardson appears to have had some difficulties holding onto his land. On February 27, 1885, he conveyed a half interest in his property and one gin stand to Minden investor, A. Goodwill (Webster Parish CR 4:339); 12 years later, Richardson's two sons, James S. and M. T. Richardson, quitclaimed their interest in their father's 190 acres to Goodwill. They acknowledged that their father had received a payment from Goodwill earlier and that he was residing on the land as one of Goodwill's tenants. They noted further that, in their conveyance, 1 acre had been reserved to the Richardson family for a cemetery (Webster Parish CR 8:739-841).

Richardson subsequently lost his remaining half interest when it was sold to Alfred Goodwill by the Webster Parish sheriff on March 9, 1898 (Webster Parish CR 9:172). However, the 1900 census makes it clear that Richardson continued to live on the property as a tenant.

Alfred Goodwill died and his heirs decided to partition the property in his estate. Recipient of Lot No. 3, which included the land on which the Richardson Cemetery was located, was Donald Goodwill (Webster Parish CR 28:94-100), who immediately sold 190 acres of his inheritance to Charles M. Roberts on August 23, 1917 (Webster Parish CR 28:310). The following year, Roberts sold the SE¼ NW¼ of Section 11 to Calvin C. Walker whose parents, Christopher Columbus and Louvisa Lovedy Baten Walker, lived on their farm in the SE¼ SW¼ of Section 2, T18N, R10W (Webster Parish CR 29:462; Succession Record No. 631).

According to two witnesses, the Walkers' land was in woods and unfenced when they bought it. Shortly after he acquired the land around the Cemetery, however, Walker borrowed $400 from The Minden Building and Loan Association. He built a house and barn, dug a well, and built a fence around a portion of the land. In 1918, he also cut and removed the timber, and in 1918-1919, he put a portion of the land in cultivation and a portion in pasture. By 1925, he had enclosed the entire 40 acres in fence and had 24 acres in cultivation and 16 in pasture. There, he and his wife resided continuously between 1918 and 1941, cultivating and harvesting cotton, corn, and other agricultural products. Occupation ceased only after the tract was acquired by the United States government on November 18, 1941 (Webster Parish CR 30:222-224; CR 152:182-183, 475-476).

Assessment: According to deed records, affidavits, and data derived from gravestones (Table 2), the Richardson Cemetery or Graveyard was the location of interments by at least the late 1870s. An affidavit suggests that the 40 acres surrounding the Cemetery remained wooded and unimproved until 1918 when Calvin C. and Ella (Wheless) Walker purchased and cleared them. According to one informant (Wheless 1987), the Walkers built a four-room box-and-strip house on the west side of the road leading to the Cemetery from the north. A pasture located east of the Cemetery road was the site of the Walkers' grist and cane mill. In later years, Walker's aunt, Jeannette Clay Baten McCord, moved in with the family and they added a porch, room, and shed room which may have functioned as a kitchen.

Under most circumstances, cemeteries are not considered to be eligible for listing on the National Register of Historic Places unless they fulfill certain landscape or associational requirements. While the Richardson Cemetery does not display noteworthy landscape features or funerary art, it is the interment site for individuals who were among the earliest settlers in the Plant area and who may have contributed to its historical development between ca. 1850 and 1941. No other cultural resources associated with these individuals have been positively verified and recorded at this time. For these reasons, the Richardson Cemetery is considered to be potentially eligible for listing on the National Register. As for the Van Arsdale Cemetery, a more complete assessment of associational significance will be possible following the completion of additional research aimed at tracing the historical development of the Plant area in general.

16WE212

Description: Site 16WE212 is an historic site situated in the western portion of Survey Tract 10; it consists of a possible historic structure location or trash dump. The site is ca. 40 m east of Fourth Street and ca. 50 m north of Victory Road; it is located on the flat summit of an interfluve. The original size of the site is unknown; the present site size is estimated to be 50x50 m.

TABLE 2

RICHARDSON CEMETERY INTERMENTS, BIOGRAPHICAL INFORMATION

Burial Number	Description
1-8	Unidentified graves marked by headstones provided by the Louisiana Army Ammunition Plant.
9	Ludie Richardson, daughter of M. T. and Anna V. Richardson. Age 17 yrs. Lucinda Richardson, born ca. 1886, was the granddaughter of Sanders and Lucinda (Outlaw) Richardson and the daughter of Montgomery Thomas Richardson and his second wife, Anna Virginia Franks (Sibley 1962:42).
10	Lucinda Outlaw Richardson, wife of Sanders Richardson, March 11, 1811-February 2, 1882. Lucinda Outlaw Richardson, the daughter of John and Elizabeth (Evans) Outlaw, was born in Georgia. She married Sanders Richardson in Twiggs County, Georgia, on July 15, 1830, and they moved to Louisiana in the late 1840s. Eventually, she bore 10 children: Peter, Benjamin Milton, Mary Camilla, Nancy Elizabeth, James Sanders, Sidney Hartwell, Jeremiah Dawson, Ruth Caroline, Lydia Frances, and Montgomery Thomas Richardson (Sibley 1962:20, 50).
11	Sanders Richardson, September 1, 1810-January 9, 1903. Sanders Richardson, son of John and Mary (Stokes) Richardson, was born in Anson County, North Carolina. The family moved to Twiggs County, Georgia, and Richardson married Lucinda Outlaw on July 15, 1830. In the late 1840s, the Sanders Richardson family moved to Louisiana and settled on the present site of the Louisiana Army Ammunition Plant. On February 25, 1872, Sanders and Lucinda were charter members of the Antioch Baptist Church (Sibley 1962:20, 21; Walker n.d.).
12	Mary C. Walker, wife of Sanders Richardson, February 10, 1838-March 8, 1923. Following the death of his first wife, Lucinda Outlaw Richardson, Sanders Richardson married Marcy C. Walker in 1883, and she "cared for him in his old age" (Sibley 1962:21). Mary Catherine Walker was the daughter of Benjamin and Emeline (DeLoach) Walker (Wheless n.d.). In 1918 her nephew, Calvin Clay Walker, bought the 40 acres on which the Richardson Cemetery was located. One of her brothers, Christopher Columbus Walker, lived north of the Cemetery in the SE¼ SW¼ of Section 2, T18N, R10W (Webster Parish Succession Record No. 631) with his wife, Lou Baten Walker (Walker 1987). A second brother, Napoleon Bonaparte Walker, lived immediately north of Christopher Columbus Walker (Walker 1987) with his wife, Louvisa Lovedy Baten (Wheless n.d.).
13	Jeannette C. Baten, wife of Rev. Jno. L[orenzo] McCord, April 27, 1858-February 6, 1929. Jeannette Clay Baten McCord, born in Coffee County, Alabama, was the daughter of Catherine Matilda (Lunsford) and Thomas James Baten. Sanders Richardson was her great uncle (Sibley 1962:6-8). She lived with her nephew, Calvin Clay Walker, near Richardson Cemetery until she died (Wheless 1987).

Table 2, continued

Burial Number	Description
14	Eunica Dorris, May 17, 1808-July 29, 1881.
15	W. T. Tabor, December 2, 1829-January 6, 1896 [January 3, 1898].
16	Rosie C. Tabor, January 10, 1839-June 27, 1892. Rosa C. (Austin) Tabor was the wife of William T. Tabor (Sibley 1962:12). Her great-uncle was Sanders Richardson.
17	Ben F. Richardson, July 25, 1867-February 26, 1946. Benjamin Ford Richardson was the son of Peter and Martha (Ford) Richardson and the grandson of Sanders and Lucinda (Outlaw) Richardson. He married Lilla May Talton on October 15, 1890 (Sibley 1962:20, 22-23).
18	Lilla May, wife of B. F. Richardson, November 29, 1870-March 18, 1927. Lilla May Talton was born in Dubberly, Louisiana (The Webster Signal, March 17, 1927:7), and married Benjamin Ford Richardson on October 15, 1890. Her grandmother was Penelope (Outlaw) Pearce, who was the sister of Benjamin Ford Richardson's grandmother, Lucinda (Outlaw) Richardson (Sibley 1962:20, 22-23, 50).
19	Peter Richardson, May 22, 1831-April 16, 1915. Peter Richardson, son of Sanders and Lucinda (Outlaw) Richardson, married Martha Ford on June 24, 1858. On May 20, 1863, he enrolled in Company B (Grays), Louisiana Infantry, Bossier Parish, Louisiana. He was taken prisoner during the Civil War, then paroled in Shreveport on June 14, 1865 (Sibley 1962:20, 22, 65).
20	Luther L., son of B. F. and L. M. Richardson, January 5, 1900-October 5, 1902. Luther Longino Richardson, great-grandson of Sanders and Lucinda (Outlaw) Richardson (Sibley 1962:20, 22-23), probably was named for Minden's well-beloved doctor, Luther Longino, who published a description in 1930 of the "Flat Woods" area in which the Richardson and other families lived.
21	Martha Ann, wife of Peter Richardson, January 25, 1839-October 11, 1909. Martha Ann (Ford) Richardson was born in Alabama. Her parents were Mr. and Mrs. James Ford who had patented the NE¼ of Section 9, T18N, R10W on March 7, 1850, and the SW¼ SW¼ of Section 10 on July 11, 1851. The family lived on their property until 1885 when they sold out to Leary and Crichton (Bryan et al. 1988:45, 46).
22	"Mother" Anna V. Richardson, died April 11, 1911, age 54. Anna Virginia Franks was born at Woodland, Bossier Parish, Louisiana, on March 22, 1858, and married Montgomery Thomas Richardson in 1883. After the death of her husband in 1900 at the home of his father, Sanders Richardson, Anna Richardson moved to Little Rock, Arkansas. She died there and her remains were shipped to Minden and interred in the Richardson Cemetery (The Signal-Democrat, May 5, 1911:4; Sibley 1962:42).

Table 2, continued

Burial Number	Description
23	"Father" M. T. Richardson, died August 29, 1900, age 47. Montgomery Thomas Richardson was the youngest son of Sanders and Lucinda (Outlaw) Richardson. He married twice, first to Mary Hendricks in 1874, and then to Anna Virginia Franks in 1883. He died in his father's home, which is believed to have stood approximately one-half mile east of the Richardson Cemetery (The Signal-Democrat, September 14, 1900:1; Sibley 1962:42; Wheless 1987).
24-26	Unidentified graves marked by headstones provided by the Louisiana Army Ammunition Plant.
27	Miles Alfred, son of Warren and Sarah C. Wart, January 31, 1879-December 12, 1882.
28	Lillie Estelle, daughter of Warren and Sarah C. Wart, July 7, 1881-December 16, 1882.
29	Unidentified graves marked by headstones provided by the Louisiana Army Ammunition Plant.
30	Sarah Catherine, wife of Warren Wart, April 17, 1847-May 8, 1907.
31	Warren Wart - CO I - 4 MO CAV - CSA.
32	Martin: Fannie Richardson, August 5, 1850-August 12, 1879. James Franklin, October 25, 1847-February 15, 1926. Lydia Frances Richardson, daughter of Sanders and Lucinda (Outlaw) Richardson, was born at Mt. Lebanon, Louisiana, shortly before the family moved to the present location of the Louisiana Army Ammunition Plant. On August 5, 1875, she married James Martin in Panola County, Texas (Sibley 1962:40).
33	Bennett L., son of C. P. and M. L. Thompson, May 29, 1892-September 26, 1892. Bennett Liewald Thompson was the son of Charles Puckett and Matilda (Liewald) Thompson, the grandson of Mary Camilla (Richardson) and Montgomery Bonaparte Thompson, and the great-grandson of Sanders and Lucinda (Outlaw) Richardson (Sibley 1962:20, 26).
34	Charles S., son of C. P. and M. L. Thompson, October 5, 1889-October 26, 1889. For information about the family of Charles Stuart Thompson, see No. 33.
35-41	Unidentified graves marked by headstones provided by the Louisiana Army Ammunition Plant.
42	Lawson M. Gray, December 22, 1889-October 18, 1918.
43	John T. Gray, January 22, 1886-June 15, 1926.

Table 2, continued

Burial Number	Description
44	Janie E. Gray, April 10, 1922-May 10, 1974.

Other possible graves: Mary E. Hendricks Richardson, first wife of Montgomery Thomas Richardson, married in 1873; Tommie, son of Warren and Sarah Wart, September 10, 1885-November 1885 (Sibley 1962:22).

Four shovel tests were excavated in the general site area; two revealed historic materials, while the other two did not. The materials recovered consist of 1 piece of manganese-decolorized glass, 2 clear glass fragments, 1 brown glass fragment, 1 aqua glass fragment, 1 piece of white earthenware, and ca. 65 rusted metal fragments (probably a rusted tin can). These artifacts were recovered at depths of 0-20 cm below the ground surface, with most of the materials coming from a shovel test excavated near a circular depression. This depression measures approximately 4x5 m in diameter and is about 1.5 m deep; this may be a filled-in cistern or well, or perhaps a root cellar. No other features or structural remains were observed at the site. The soils observed during the subsurface testing consist of silty loams overlying clayey silt loams. The ground surface visibility across the site area is very poor.

The area in which 16WE212 is located appears to have been disturbed extensively, probably as a result of recent and past clearing and/or logging activities; the site also may have been disturbed by structure demolition when the land was acquired by the government.

Site History: Site 16WE212 is located in the NW¼ NW¼ of Section 15, T18N, R10W, and is part of a 79.67-acre tract that was patented to Sidney R. Lister on February 18, 1850 (Webster Parish Abstract of Government and State Entries:69-70). Lister held the tract and an additional 400 acres until August 31, 1854, when he sold it to W. D. Van Arsdale for $2,700 (Bossier Parish CR 1:153).

Biographical details concerning Van Arsdale's activities have been provided by Bryan et al. (1988:44-45) and Klement et al. (1988:63-64). Following Van Arsdale's death in the 1860s, his heirs partitioned his estate and Ahasurious [sic] Van Arsdale drew Lot No. 1, a 240-acre parcel that included the NW¼ NW¼ of Section 15. He then sold the land to Catherine Van Arsdale who deeded it to A. B. Van Arsdale for $500 on October 7, 1874. A. B. Van Arsdale, in turn, held the property for six years, at which point he failed to pay taxes due and the sheriff soil it to Shrock & Sons of Goodman, Mississippi, for $400 (Bossier Parish CR 1:704; CR 2:589-594; Webster Parish CR 1:695; CR 39:478).

On January 10, 1888, Shrock & Sons of Attala, Mississippi, sold 240 acres to R. W. Mabry; two years later Mabry, a resident of Claiborne Parish, sold the land to A. J. Pennington (Webster Parish CR 5:365-366; CR 7:490-491). Pennington then conveyed 120 acres of his land, including the NW¼ NW¼ of Section 15, to J. E. Pevy, who conveyed the same tract to Grandison Van Arsdale on November 18, 1899 (Webster Parish CR 7:616-617; CR 9:694-695).

Grandison and Clara Jackson Van Arsdale occupied the property until their deaths during World War I, at which point their 13 children inherited a total of 240 acres comprised of the E½ NW¼ and the NW¼ NW¼ of Section 15, the SE¼ NE¼ of Section 16, and the W½ SW¼ of Section 10, T18N, R10W. By 1925, however, the heirs had failed to pay the taxes on the property, and it was sold to John N. Sandlin, who represented Webster Parish in Congress. In 1926, Sandlin sold a half interest in the land to Thomas W. and Josie Swayze Robertson and the other half interest to the Van Arsdale heirs. The Robertsons, who were residents of Caddo Parish, sold their half interest to Lucius Van Arsdale, and the other heirs sold their half interest to him in October 1928 (Webster Parish District Court Case No. 3489; CR 69:77; CR 74:69; CR 81:465-467, 467-468).

Assessment: A descendant of the Van Arsdale family recalls that while there were no family homes in the vicinity of 16WE212, children of Grandison and Clara Van Arsdale built their homes at various other places on the family's property. Tom Van Arsdale, for example, built his home and syrup mill southeast of the intersection of Fourth Street and Java Road, Lucius Van Arsdale built a home just south of the water tower adjacent to Fourth Street, Charles Van Arsdale was located north of Lucius, and Clemmie Van Arsdale's home was near the Cemetery (Calloway 1987). Evidence of most of these housesites is apparent on a 1916 Webster Parish soil survey map (fieldwork completed 1914; Meyer et al. 1916) and/or 1939 aerial photograph of the area.

Repeated archeological survey has not revealed the presence of historic artifacts in the area in which informants and historic photographs indicate Tom Van Arsdale's improvements were located. Furthermore, neither the 1916 soil survey map nor the 1937 Webster Parish highway map (Louisiana Highway Commission 1937) positively indicate the presence of a structure at 16WE212, and the area was a plowed field in 1939. Direct and circumstantial evidence all seem to suggest, therefore, several possibilities: (1) 16WE212 represents a dump or some other nonresidential site associated with the as-yet-unrecorded Tom Van Arsdale housesite; (2) 16WE212 represents the remnants of a tenant house or some other secondary structure on Tom Van Arsdale's land which was occupied after the Webster Parish soil survey map was compiled in 1914 and was destroyed by the time the 1937 highway map was published; and (3) the actual site of Tom Van Arsdale's home has been so disturbed that the archeological evidence for its presence has been destroyed. Site 16WE212 is not considered to be eligible for listing on the National Register of Historic Places due to its disturbed condition and lack of significant associations.

16WE213

Description: Site 16WE213 is a low-density prehistoric artifact scatter situated in the southernmost portion of Survey Tract 10, ca. 425 m west of the present Sewage Disposal Facility. It is located along the northern extent of an interfluve overlooking a tributary of Boone Creek, and the northwest portion of the site lies directly adjacent to the tributary. The site covers an area of approximately 75x140 m, with the site boundaries defined on the basis of shovel test results and topography.

Six shovel tests were excavated in the immediate site area, all of which contained cultural materials. The artifacts recovered consist of three secondary chert flakes, two tertiary chert flakes, one tertiary chalcedony flake, and one split pebble; these materials were recovered at depths of 20-100 cm below the ground surface. No surface artifacts were

observed as the ground surface visibility is generally very poor. The soils observed while excavating the shovel tests consist of gray and tan silty sands and sandy silts overlying orangish clayey loams. This site exhibits no evidence of major disturbance.

Assessment: Site 16WE213 appears to have a relatively substantial scatter of cultural remains in fairly thick Holocene deposits. As suggested by the testing efforts reported elsewhere in this volume, such sites have the potential to yield information that is important to understanding the aboriginal use of the uplands west of Bayou Dorcheat and east of the Red River. While such diffuse sites may pose certain interpretive problems, they may contain significant information about prehistoric settlement and subsistence systems. Because of this, site 16WE213 is considered to be potentially eligible for listing on the National Register of Historic Places.

16WE214

Description: Site 16WE214 is a low-density prehistoric artifact scatter situated in the eastern portion of Survey Tract 10, near the eastern boundary of the tract; it is ca. 90 m west of Boone Creek and ca. 125 m north of an unnamed tributary to Boone Creek. The site is located on an interfluve that lies adjacent to an abandoned creek channel or slough, possibly an old channel of Boone Creek. The site covers an area of approximately 75x100 m, based on shovel test results and topography.

Six shovel tests were excavated at the site; three yielded cultural materials. Recovered were two secondary chert flakes, two tertiary chalcedony flakes, one secondary chalcedony flake, and two small fire-cracked rocks. The thickness of the cultural deposits appears to be fairly consistent across the site, as all of the artifacts were found at depths of 0-20 cm below the ground surface. The soils observed consist primarily of tan and orangish silty sands and silt loams overlying orangish clayey silt loams. The ground surface visibility is very poor. This site exhibits no evidence of major disturbance.

Assessment: Site 16WE214 appears to be a low-density, thin scatter of cultural remains. While apparently undisturbed, these cultural deposits are too sparse and lack sufficient thickness to have a high information yield potential; 16WE214 is judged to be ineligible for listing on the National Register.

16WE215

Description: This is a multicomponent site. The prehistoric component contains a very light artifact scatter; an oil well with associated earthen holding ponds/sludge pits and an historic artifact scatter represent the historic component. It is situated in the eastern portion of Survey Tract 10, ca. 125 m west of Boone Creek and ca. 250 m north of an unnamed tributary to Boone Creek. The site occupies the eastern flank of an interfluve that slopes gently to moderately towards the Boone Creek floodplain. The site is estimated to cover an area of 100x100 m, based on shovel test results and the extent of the historic component.

Six shovel tests were excavated in the general site area; four of these tests were positive, with three containing historic materials and two containing prehistoric materials. The historic artifacts recovered consist of 1 bolt, 2 cut nail fragments, 4 metal fragments, and 13 pieces of wall plaster; additionally, 1 piece of glazed brick(?) was collected from a surface scatter of bricks. Other surface historic artifacts observed include a large-diameter metal cable, several 55-gallon metal drums, and a few tin cans. The only prehistoric artifacts found are a primary chert chip and a secondary quartzite flake; no prehistoric materials were observed on the surface as the ground surface visibility is generally poor. All of the cultural materials recovered from the site, both historic and prehistoric, were found at depths of 0-20 cm below the ground surface. The soils observed consist primarily of tan and orangish silty sands and silty loams overlying orangish clayey loams. While the historic component shows no evidence of major disturbance, the prehistoric component probably has been substantially disturbed by the historic activities.

The most obvious cultural features associated with the historic component are a square, subsurface concrete box and two earthen holding ponds or sludge pits. According to an informant (Cox 1987), these features are associated with a twentieth-century oil well drilling operation. The subsurface concrete box measures approximately 3 m across and has a circular hole 50-60 cm in diameter in the bottom. The two earthen holding ponds or sludge pits measure approximately 5x20 m and 10x15 m, and the perimeters of the two features are surrounded by earthen berms.

Site History: Site 16WE215 is located in the NE¼ SE¼ of Section 10, T18N, R10W, part of a 159.2-acre tract that was sold to Sidney R. Lister per Military Warrant 55212 on February 18, 1850, and patented by him on March 10, 1851. The land was then combined with 320 additional acres and sold to W. D. Van Arsdale on September 9, 1854, in a transaction that conveyed the SW¼, the E½ NE¼, SW¼ NE¼, W½ SE¼, and NE¼ SE¼ of Section 10, and the N½ NW¼ of Section 15, T18N, R10W (Webster Parish Abstract of Government and State Entries:67-68; Bossier Parish CR 1:153).

Following Van Arsdale's death in the 1860s, his estate was divided among his heirs, and a 360-acre portion which included the NE¼ SE¼ was conveyed to Ellen J. Brown, Ambros [sic] J. Van Arsdale, William M. Van Arsdale, and minors Anna B. and William B. Van Arsdale in December 1867 (Bossier Parish CR 2:589-594).

The following year, three of the four heirs, through their agent, Lucius Van Arsdale, sold their interest in their 360-acre portion to James Ford. Several months later, Ford sold the three-quarter's interest to W. B. Van Arsdale who then owned a one hundred percent interest in the land (Bossier Parish CR 2:654-655).

Van Arsdale apparently was unable to pay the taxes on the property, and so the State Auditor sold it to investor John E. Loye on July 16, 1874. Loye held the land until January 22, 1886, when he sold it and numerous other tracts to his partner, John Chaffe of New Orleans. Following Chaffe's death, his heirs deeded the land back to Loye in January 1889; following Loye's death, his executor sold ca. 300 acres, including the NE¼ SE¼ of Section 10, to local resident Dr. T. J. Tabor for $299.50 (Webster Parish CR 1:693-694; CR 4:494-498; CR 7:769-770).

Tabor held the land for a little more than a year and then sold 160 acres of it to Leary and Crichton, a Minden commercial firm, in October 1896. Shortly thereafter, J. N.

Wheless purchased ca. 120 acres comprised of the S½ NE¼ and the NE¼ SE¼ of Section 10, T18N, R10W. He then held it for six years and resold it to Thomas Crichton on January 7, 1908 (Webster Parish CR 8:475; CR 12:443; CR 16:524).

Crichton and, later, his heirs owned the land until November 20, 1923, when a trustee sold the NE¼ SE¼ of Section 10 to Luther Pipes. Luther and Pearl (Baker) Pipes held the property until 1941, with one brief interlude when they exchanged and then reexchanged property with the William E. Perkins family in 1936-1937 (see site 16WE217; Webster Parish CR 61:403; CR 111:486; CR 120:237).

Site 16WE215, which is an industrial feature, dates from the 1930s when the Pipes gave a five-year oil and gas lease to R. G. Houser, commencing on February 6, 1935. Houser, in turn, assigned the lease to O. G. Collins the same day; Collins assigned to Gillette Hill of Houston, Texas, on February 17, 1936, and Hill assigned his interest to Tide Water Oil Company of Oklahoma on April 6 (Webster Parish CR 88:519; CR 101:274; CR 106:167-172, 542-547; CR 107:469-473). Tide Water, in turn, agreed to pay any profits from the Pipes lease to the Federal Land Bank of New Orleans which held a first mortgage on the Pipes property (Webster Parish CR 111:88-89).

Examination of a map of oil properties on the Plant and analysis of the site with a Plant employee who is knowledgeable about oil field technology revealed that 16WE215 is the location of an oil well test hole. At least 10 distinct features remain clearly visible at the site and include the location of a subterranean, concrete-lined pit measuring approximately 7 ft deep and 10 ft in interior diameter. At the bottom of the pit is a plugged oil well opening. South of the well and adjacent to it is the concrete foundation for a steam engine that was used to power the drill at the well. A third feature is the outlet in the cement lining to the test hole, which functioned as an outlet for the mud ejected from the well hole during drilling. The mud then flowed down a narrow earthen channel into the fifth feature, a mud-holding pit. Sludge from the bottom of the pit was sucked out by a pump and spewed into another feature, a large catchment basin, the edges of which were raised to create a berm which represents the outer edges of the site. When the spewing sludge fell back after the pump at the mud-holding pit was turned off, the falling sludge eroded out a portion of the embankment at the mud pit and created another feature. Other features observed include two water pits that were used to hold fresh water for the steam engine. Also present are numerous large metal cans that had held caustic materials. Large openings in their sides were cut by oil field workers, who then added water to the dry caustic material to make a caustic liquid that flowed out a valved pipe in the end of the can and combined with the drilling mud so that the mud could be reused in the drill hole (Cox 1987).

Assessment: Site 16WE215 is the location of an exploratory oil well that was drilled, probably in the late 1930s, by the Tide Water Oil Company on land belonging to Luther Pipes. The site is in good condition, and most of the features that comprise it appear to be in an excellent state of preservation. At the present time, the significance of sites associated with the development of the oil industry in northwestern Louisiana is imperfectly understood, making it difficult to ascribe a level of significance to the site or to ascertain whether or not it is National Register eligible.

The prehistoric component at this site is quite diffuse and shallowly buried. Because of this, it is judged to have a low information yield potential and to be ineligible for listing on the National Register.

16WE216

Description: Site 16WE216 is a multicomponent site; a very light artifact scatter comprises the prehistoric component, and a housesite represents the historic component. It is situated in the eastern portion of Survey Tract 10, ca. 325 m west of Boone Creek and ca. 400 m north of an unnamed tributary to Boone Creek. The site is located in a flat upland area that slopes very gently eastward toward an intermittent drainage. The size of the site is estimated to be 50x60 m, based primarily on shovel test results.

Six shovel tests were excavated in the general site area; five were positive, with four yielding historic materials and one yielding a prehistoric artifact. The historic artifacts recovered consist of two manganese-decolorized glass fragments, two brown glass fragments, one clear glass fragment, one light green tinted glass fragment, one white earthenware sherd, two wire nails, and two metal fragments. The single prehistoric artifact is a tertiary chert flake. One artifact, the historic whiteware sherd, was found on the surface next to a shovel test, but no other surficial materials were noted as the ground surface visibility is very poor. The historic materials were found at depths of 0-40 cm below the modern ground surface; the prehistoric artifact was recovered at 40-60 cm below the surface. The soils observed while excavating the shovel tests consist primarily of tan to orangish silty sands and silty loams overlying orangish clayey silt loams. The area in which site 16WE216 is located appears to be somewhat disturbed. This disturbance may have resulted from past logging and/or clearing activities, or the site may have been bulldozed when the land was acquired by the government.

While no historic structural remains or features were observed, an overgrown historic road runs approximately east-west along the northern edge of the site. Additionally, both the road and a possible housesite are shown at this location on the 1916 Webster Parish soil survey map (fieldwork completed 1914; Meyer et al. 1916).

Site History: Site 16WE216 is located in the NE¼ SE¼ of Section 10, T18N, R10W. The history of its ownership is identical to that of 16WE215.

Assessment: Artifacts recovered at 16WE216, a housesite shown on the 1916 soil survey map of Webster Parish, suggest that the site was occupied during the early twentieth century. Deed and tax records indicate that most owners during the history of the tract were residents of Minden (Leary and Crichton, John C. Loye) or residents of other sites (Dr. T. J. Tabor), with the exception of Jacob Nathaniel Wheless, who owned the property from 1902 to 1908.

Wheless, who was married to Elizabeth McIntyre and had a place in Evergreen Community before moving to the present location of the Plant (Wheless 1987), was listed in the Webster Parish Tax Rolls for 1905 as owning 120 acres comprised of the S½ NE¼ and the NE¼ SE¼ of Section 10, T18N, R10W; one horse; four cattle; six hogs; a clock; and one wagon. The script in which the record was written is unclear, but it seems to imply that Wheless also had a gin, an assumption that a grandson indicates is unlikely (Wheless 1987).

Wheless apparently moved to Texas in 1908 but returned by November 1909 when the local paper reported that the family "have moved back to their old home in ward three" (The Webster Signal, November 5, 1909:1). The timing of the move and return, occurring as they did after Wheless sold his property to Thomas Crichton on January 7, 1908 (Webster Parish

CR 16:524), suggests that Wheless arranged with Crichton to live on the land in Section 10, perhaps as a tenant. His house stood until at least World War I when it was depicted on a soil survey map of Webster Parish (Meyer et al. 1916).

At the present time, the site does not appear to be eligible for listing on the National Register of Historic Places. It was not occupied at any time by individuals of local, state, or national significance, and its disturbed archeological condition makes it unlikely that it would be able to provide sufficient information to answer meaningful research questions.

The prehistoric component at this site appears to be very diffuse and probably has been disturbed by the historic occupation and historic land-clearing activities. It is judged to have a low information yield potential and to be ineligible for listing on the National Register of Historic Places.

16WE217

Description: Site 16WE217 is an historic housesite with an associated artifact scatter. It is situated in the eastern portion of Survey Tract 10, ca. 200 m west of Boone Creek and ca. 250 m south of an unnamed tributary to Boone Creek. The site occupies the eastern flank of an interfluve that slopes gently to moderately toward the Boone Creek floodplain. The size of the site is estimated to be 60x80 m, based primarily on shovel test results and the extent of the surficial cultural materials.

The three shovel tests excavated at the site all contained historic artifacts: three clear glass fragments, three wire nails, and six small brick fragments or burned clay nodules. These materials were found at depths of 0-40 cm below the modern ground surface. Additionally, two brick fragments and a clear glass bottle were collected from the surface of the site. The soils observed while excavating the shovel tests consist primarily of tan to orangish brown silty sands and silty loams overlying orangish clayey silt loams. Although the ground surface visibility is generally poor, numerous historic artifacts were observed on the surface; these include several galvanized wash tubs, galvanized buckets, tin cans, cut-up 55-gallon drums, an enamelware tea kettle, sheet metal, wire mesh fencing, fence posts, a metal pipe fragment, a clear glass bottle, and various bricks, including "No.1 SAVAGE" bricks, "ACME EVERLAST" bricks (firebrick?), and plain bricks. Most of the bricks observed are concentrated in two adjacent brick piles, which may represent chimney rubble. This site shows no clear evidence of having been bulldozed when the government acquired the land, and there is no evidence of major disturbance.

Site History: Site 16WE217 is located in the SE¼ SE¼ of Section 10, T18N, R10W, a 39.8-acre tract that was sold to Jeff Smith as a homestead entry on November 22, 1887, but canceled on April 25, 1902. The land remained legally unclaimed until June 5, 1919, when it was patented to Luther Pipes pursuant to an Act of Congress dated May 20, 1862, "To Secure Homesteads to Actual Settlers on the Public Domain" (Webster Parish Abstract of Government and State Entries:67-68; CR 37:353-354).

Pipes eventually purchased the NE¼ SE¼ of Section 10 (Webster Parish CR 61:403) so that he held the entire E½ SE¼ by 1923. He then retained possession of the land until

1941, except for a brief one-year hiatus when he made a land trade with William F. Perkins in 1936-1937 (Webster Parish CR 111:486; CR 120:237; CR 133:393-394; CR 152:326).

Tax records and information from informants indicate that there is more to the history of 16WE217 than what can be inferred from the deed records. For example, while the tax records for 1890 and 1900 are not specific, they indicate that Jefferson Smith, who originally homesteaded the land, lived in Ward 3 and had made improvements on public land. Furthermore, local residents recall that when Luther Pipes patented the property, there was a small, rude, one-room log structure on the property to which the Pipes added substantial improvements (Walker 1987). One informant remembered that Pipes may have displaced an individual named Ed Stephens, who had never actually owned the land but who had lived on and used it prior to 1919 (Walker 1987). It seems clear, therefore, that while Pipes was the occupant of longest duration, the location of his home at 16WE217 may have been occupied as early as the late 1880s.

The Pipeses also were especially remembered by their neighbors because they played the violin and guitar at all the local dances, many of which were held at their home and later at Turner Harville's store nearby. They were remembered, too, because of the time in the 1930s when they swapped their agricultural land in Webster Parish for a store owned by the Perkins family in Texas. Apparently, the Pipeses decided that they would like to run a store, and the Perkinses thought that country life would be more desirable. They swapped land and business in 1936, but decided within a year that they had been happier in their old homes and traded back.

Assessment: Site 16WE217 is a housesite that was probably occupied by various families from the late 1800s through the mid 1900s. The site exhibits no surficial evidence of substantial disturbance. Given that the property was occupied by the Pipeses at least until the late 1930s, however, it is likely that structures were still standing when the Government acquired the property in the 1940s; thus, it is possible that the site was bulldozed and is more highly disturbed than the surface evidence suggests. Because of this potential disturbance and the fact that the bulk of the cultural materials observed clearly relate to occupations dating to just before the Government acquired the property, it appears unlikely that cultural remains of the greatest potential importance (i.e., those relating to the poorly documented nineteenth-century occupations) could be isolated from the more-recent materials. For these reasons, 16WE217 is considered to have a low information yield potential and to be ineligible for listing on the National Register of Historic Places.

16WE218

Description: This is a low-density prehistoric artifact scatter situated in the southeastern portion of Survey Tract 10, ca. 200 m west of Boone Creek and ca. 200 m north of Victory Road. The site is situated on an interfluve that overlooks a small intermittent tributary to Boone Creek approximately 50 m to the south and the Boone Creek floodplain to the east. The site covers an area of approximately 30x40 m, with the boundaries defined on the basis of shovel test results and topography.

Six shovel tests were excavated at the site, with three yielding cultural materials. The materials recovered consist of two secondary chert flakes, one tertiary chalcedony

flake, one split pebble, and two fire-cracked rocks. These materials were found at depths of 30-60 cm below the modern ground surface. The soils observed consist primarily of tan and orangish silty sands and silty loams overlying orangish clayey silt loams. The ground surface visibility is poor. The area in which site 16WE218 is located appears to be somewhat disturbed.

Assessment: Site 16WE218 is a low-density scatter of cultural remains. Because of the scarcity of artifacts and the disturbance evident in the site area, 16WE218 is judged to have a low information yield potential and to be ineligible for listing on the National Register.

16WE219

Description: Site 16WE219 is a low-density prehistoric artifact scatter located in the southeastern portion of Survey Tract 10, ca. 300 m west of Boone Creek and ca. 150 m south of Victory Road. It is situated on an oval rise, measuring ca. 14x20 m, on the Boone Creek floodplain ca. 40 m north of an unnamed tributary to Boone Creek.

Two shovel tests were excavated at the site, both of which contained cultural materials; the site was defined on the basis of topography. One chert core and one secondary chert flake were recovered from depths of 0-40 cm below the modern ground surface. The soils observed consist primarily of tan silty loams overlying mottled, orangish silty loams. The ground surface visibility across the site is poor. The surface of site 16WE219 appears to have been disturbed by logging activities.

Assessment: As do the other sites, 16WE219 has a very sparse scatter of cultural remains which limits the information that could be gained from further work; in addition, it is somewhat disturbed. For these reasons, 16WE219 is judged to be ineligible for listing on the National Register of Historic Places.

16WE220

Description: Site 16WE220 is a low-density prehistoric artifact scatter located in the southeastern portion of Survey Tract 10, ca. 425 m west of Boone Creek and ca. 200 m west-southwest of the confluence of two intermittent tributaries to Boone Creek. This site, located approximately 250 m south of Victory Road, occupies the summit of an interfluve formed by the two intermittent tributaries to Boone Creek. The site covers an area of approximately 30x20 m, with the boundaries defined on the basis of shovel test results and topography.

Six shovel tests were excavated in the general site area; three contained cultural materials. The artifacts recovered consist of two secondary chert flakes, one primary chert flake, one corticate chert chip, one secondary quartzite flake, and one sandy clay paste sherd with grog temper found at depths of 0-40 cm below the modern ground surface. The soils observed while excavating the shovel tests consist of tan silty loams overlying mottled tan and yellowish silty loams. The ground surface visibility is poor. Site 16WE220 exhibits no major disturbances.

Assessment: Site 16WE220 has diffuse cultural deposits and thus is considered to have a low information yield potential. It is judged to be ineligible for listing on the National Register.

Summary of Assessments

Of the 12 cultural resources recorded or visited during this survey, 6 have only prehistoric components, 4 have only historic components, and 2 have both prehistoric and historic components. All eight of the sites yielding prehistoric materials -- 16WE128, 16WE213, 16WE214, 16WE215, 16WE216, 16WE218, 16WE219, and 16WE220 -- have sparse cultural deposits, with densities ranging from one to slightly over two artifacts per positive shovel test. Of the 42 shovel tests excavated at these sites, 21 yielded artifacts or fire-cracked rocks. A total of 32 such cultural items were recovered from these tests. Two of the prehistoric sites (16WE214 and 16WE215) appear to have cultural deposits extending to depths of no more than 20 cm below the modern ground surface. At five sites (16WE128, 16WE216, 16WE218, 16WE219, and 16WE220), cultural materials were found to depths of 40 to 60 cm. A single site, 16WE213, appears to have thick cultural deposits extending to a depth of 100 cm below the surface.

The survey data suggest that one of these eight sites, 16WE213, has a higher information yield potential than the others. This is based on the existence of relatively thick deposits at 16WE213, which increases the likelihood that stratified cultural remains and thus isolable components are present, and the fact that all six of the tests at this site yielded artifacts, which indicates that productive cultural deposits may be relatively extensive at 16WE213. Site 16WE213 is judged to be potentially eligible for listing on the National Register of Historic Places. The other seven prehistoric sites have relatively thin and relatively diffuse cultural deposits, and they are less likely to yield interpretable bodies of information on prehistoric adaptations. These seven sites are considered to be ineligible for listing on the National Register.

The six sites recorded or visited during this survey that have historic components consist of two cemeteries (16WE77 and 16WE211), two housesites (16WE216 and 16WE217), one site relating to oil exploration (16WE215), and one site that may be the location of a farmstead, a tenant house, or a trash dump (16WE212). One of the cemeteries, 16WE77, dates to the early twentieth century and is associated with the Van Arsdales, a Black family important in the nineteenth- and twentieth-century history of the Plant area. The other cemetery, 16WE211, dates from at least the 1870s to the 1970s and is associated with the Richardsons, one of the earliest families to settle in the area. While cemeteries are not normally considered to be eligible for listing on the National Register of Historic Places, both 16WE77 and 16WE211 are judged to be potentially eligible because of their possible associations. More-complete assessments of these sites must await additional research into the general historical development of the Plant area and the specific importance of the families associated with these two cemeteries.

One of the two housesites, 16WE216, dates to the early part of the twentieth century; because it exhibits disturbance and lacks association with significant persons, it is judged to be ineligible for listing on the National Register of Historic Places. The second housesite, 16WE217, may have been occupied as early as the 1880s and continued in use until the 1940s. While the site may be relatively undisturbed, it is unlikely that

archeological deposits relating to the early occupation (i.e., those with the greatest information yield potential) could be isolated from the later deposits, and thus, given the lack of association with significant persons, the site is not eligible for listing on the National Register.

Of the two remaining historic sites, 16WE215 consists of the remains of an oil well drilling operation probably dating to the late 1930s. While the site appears to be in an excellent state of preservation, the significance of such industrial sites, particularly those of such recent age, in the history of the project region remains to be determined; for this reason, the National Register eligibility of 16WE215 is unknown. Finally, 16WE212 is an historic site for which the function remains unclear; it may have been the early twentieth-century housesite of a member of the Van Arsdale family, a trash dump on the Van Arsdale property, or a tenant house. Because the site is in a disturbed condition, is of uncertain function, and is not associated with significant persons, it is judged to be ineligible for listing on the National Register of Historic Places.

CHAPTER 7

PREHISTORIC SITE DESCRIPTIONS

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This chapter presents descriptions and discussions of the prehistoric sites tested during this project (see Fig. 8). Included are the 18 sites originally scheduled for testing, as well as one site (16WE114) at which a prehistoric component was found during testing of an historic component. Two of these sites -- 16WE121 and 16WE122 -- were found to conjoin and are discussed as a single site. The topics addressed are site setting, the work accomplished, sediments and stratigraphy, site extent and depth, materials recovered, and discussion of components. This chapter closes with a section summarizing and comparing the prehistoric sites. Assessments of the eligibility of these sites for listing on the National Register of Historic Places are discussed in Chapter 9.

16WE107

Setting

Site 16WE107 is located on a prominent knoll on an interfluve at the edge of the floodplain of Boone Creek. The elevation of the knoll is 165 ft above mean sea level. The present channel of Boone Creek is approximately 63 m west of the knoll. A slough, which may be a relict channel of the creek, cuts along the southwestern edge of the knoll. Vegetation cover is restricted to the southern half of the knoll, where it consists of a mixed pine and hardwood forest. The extremely dense understory in this area restricts access to this portion of the knoll. The surrounding floodplain exhibits the same kind of forest vegetation, but patches free of the dense understory thicket can be found. These relatively clear patches occupy low-lying, relatively wet portions of the floodplain. The northern half of the knoll lies in a cleared powerline right-of-way, and its vegetation is restricted to a short grass cover.

The clearing for the powerline right-of-way on the north half of the knoll runs perpendicular to the north-south axis of the site. The construction and maintenance of the powerline appear to have caused extensive damage to the upper soil zones in this area. A large eroded area occurs on the western slope, and bulldozer tracks run the length of the right-of-way. At the edge of the clearing, large trees have been uprooted and pushed into the forest, thereby making access to the southern half of the knoll difficult. In addition, the northern edge of the knoll may have been truncated by the construction of railroad tracks which run parallel to and 40 m north of the powerline. These disturbances appear to have substantially affected the integrity of the cultural remains in the northern portion of the site.

Work Accomplished

The testing of 16WE107 was accomplished by the excavation of 14 test pits placed along a grid oriented to the cardinal directions (Fig. 9). One north-south grid line was placed along the long axis of the knoll, while two east-west lines crossed perpendicular to this main axis. The test pits ranged in depth from 20 to 100 cm, with the average being 69 cm. The total volume of fill excavated was 2.400 m^3. In addition, a controlled surface collection was made to recover information on the extent of the site in the eroded areas of the powerline right-of-way. Each artifact recovered from the surface was plotted on the site map and bagged separately.

Sediments and Stratigraphy

The typical profile at 16WE107, represented by Test Pit 1 on the crest of the knoll, consists of three zones: Zone 1, 0-14 cm, dark yellowish brown (10YR 4/2) sandy loam*; Zone 2, 14-45 cm, grayish orange (10YR 7/4) sandy loam; and Zone 3, 45-70+ cm, light brown (5YR 5/6) loamy sand with grayish orange (10YR 7/4) mottles. The soils in all three zones are structureless, although Zone 3 typically has a firm consistence while Zones 1 and 2 are loose to very friable. Zones 1 and 2 appear to represent Holocene colluvium, while Zone 3 is assumed to be older sediments, possibly Pleistocene Red River floodplain deposits or colluvium derived from such alluvial sediments.

Moving to the south of Test Pit 1 along the top of the knoll, the little-altered surficial unit occurs to depths of 50-60 cm as far as Test Pit 8 (see Fig. 9). Downslope of Test Pit 8 to the south and east, Zones 1 and 2 occur to depths of 75-90 cm in Test Pits 10-13. In Test Pits 8 and 12, the upper ca. 20 cm of Zone 2 (13-43 cm in Test Pit 8 and 10-25 cm in Test Pit 12) is distinctly darker (10YR 5/4) than the sediments above and beneath, perhaps representing a buried A horizon or culturally enriched zone. The three test pits on the eastern flank of the site, Test Pits 2, 4, and 14, have sediments similar to those described above, but in all three the deposits appear to be laminated; this suggests that this part of the site has been disturbed and the sediments recently redeposited.

Site Extent and Depth

The horizontal extent of the remaining portion of 16WE107, as defined by the extent of the knoll and the low artifact frequencies in the southernmost and easternmost units (Test Pits 4, 11, 13, and 14), is 80 m north-south by 40 m east-west at the north end of the site. Moving to the south, the site constricts to 20 m east-west, causing the distribution of the cultural debris to take on the shape of an elongated "L." The site has an overall

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*Where laboratory data on sediment texture are available (16WE107, 16WE108, 16WE119, and 16WE129; see Appendix A), terminology consistent with the lab results is used; for the other sites, the terminology used in the field recording is employed.

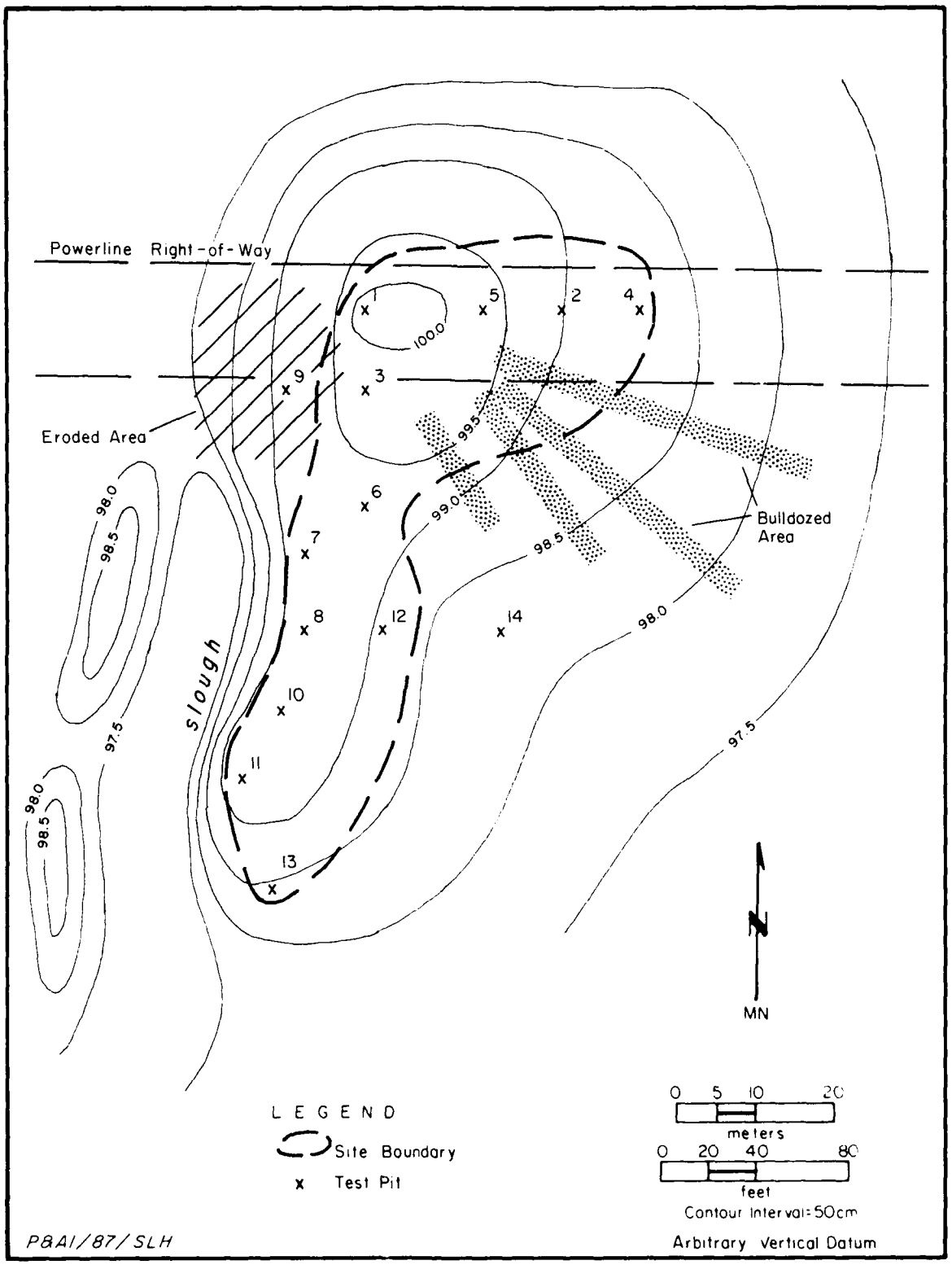

Figure 9. 16WE107 site map.

area of 2,510 m^2. The base of the "L" extends into the powerline right-of-way. The arm of the "L" hugs the edge of the knoll where the landform drops down to the Boone Creek slough to the west. Three of the four units with the highest frequencies of cultural materials (Test Pits 3, 8, and 10) are in the portion of the site that directly overlooks this slough; the fourth unit, Test Pit 2, is on the eastern side of the knoll, away from the slough. As noted above, the slough cuts into the western flank of the knoll. The arm of the "L" comprises the southern half of the site. The cultural deposits in this southern area remain intact beneath the heavy forest cover.

The vertical extent of the site varies somewhat between the two areas described above. In the northern half of the site, cultural materials occur at depths of 0 to 50 cm below the surface, while in the southern half, cultural materials occur at depths of 0 to 80 cm. From the site as a whole, however, 89% of all of the cultural items came from 0 to 50 cm below the surface (Table 3), and it is clear that the most productive cultural deposits are no more than 50 cm in thickness. The small percentage of artifacts in the lower levels in the southern half of the site may be the result of bioturbation. That this may be the case is suggested by: (1) Zone 3 has a higher clay content in the northern site area than in the south, thus inhibiting the downward movement of artifacts in the northern portion of the site; and (2) all of the larger artifacts (i.e., sherds, cores, and bifaces), which may be relatively immobile, were recovered from between 10 and 40 cm below the surface.

Materials Recovered

A total of 67 cultural items were recovered from the sediments and surface of 16WE107. Nine of the artifacts came from the surface: four pieces of unmodified debitage, two biface fragments, one plain grog-tempered sherd, one fire-cracked rock, and one quartzite manuport. The occurrence of these artifacts in eroded and bulldozed parts of the knoll demonstrates that portions of the site were disturbed by construction of the powerline.

Fifty-eight cultural items were recovered from the test pits: 45 pieces of unmodified debitage, 1 dart point, 1 biface, 1 edge-modified flake, 2 cores, 1 worked hematite fragment, 1 fire-cracked rock, and 6 potsherds (see Table 3 and Appendix B). The unmodified debitage from the site consists predominantly of chert (53%) and chalcedony (35%), with silicified wood (2%) and other lithic materials (10%) occurring less frequently. Of the debitage, 61% are flakes, 29% are chips, and 10% are angular chunks. Less than half of the flakes and chips (36%) retain some cortex. The dart point exhibits an expanding stem and is made of a local pebble chert. The complete biface was made by working the edges of a flat quartz cobble. It too is thought to be local materia' vever, the biface fragments are composed of nonlocal red chalcedony. One was brok- itially, possibly as a result of a manufacture error, while the other was broken by end-snock fracture. Two of the potsherds are vessel rims. One of these rims is similar to the types Pennington Punctate-Incised, Pineland Punctated-Incised, or Canton Incised. The other rim, although very small, displays characteristics of Maddox Brushed.

TABLE 3

DISTRIBUTION OF CULTURAL MATERIALS AT 16WE107

		Levels										
Test Pit		1	2	3	4	5	6	7	8	9	10	Totals
1		-	1D 1T	-	-	1D	-	-				3
2		1D	1D	4D 1C	-	4D	-	-				11
3		2D	1D	-	3D	1T	-	-				7
4		1D	-	-	2D	-	-					3
5		-	-	1P	-	-	-					1
6		-	-	1D	-	-	-					1
7		-	-	-	-	-	-					0
8		1T	2D 3C	1C	1D 1C	2D	-	1D	1D	-	-	13
9		-	-									0
10		1D	-	1D	3D	1D	2D	-	1D	-	-	9
11		2D	-	-	-	1D	-	-	-			3
12		-	1F 1L	1T	-	-	-	-	1D			4
13		-	-	1D	1D	1D	-	-	-			3
14		-	-	-	-	-	-	-	-	-	-	0
Totals:	#	8	11	11	11	11	2	1	3	0	0	58
	%	13.8	19.0	19.0	19.0	19.0	3.4	1.7	5.2	0	0	

D = unmodified debitage
C = ceramic
T = other flaked artifact
F = fire-cracked rock
L = other lithic
P = dart point

Discussion of Components

Eleven of the 14 test pits at this site yielded cultural materials. The density* of the cultural remains at 16WE107 is 21 items/m^2 (39 items/m^3). While no quantitative comparisons of artifact densities between the Plant sites and sites outside of the immediate project area are offered here, it seems intuitively obvious that densities such as that seen at 16WE107, indeed at all of the Plant sites, are low and that such diffuse scatters of cultural materials reflect short-lived and nonintensive site usage.

As discussed above, the vast majority of the artifacts were recovered from 0 to 50 cm below the surface, and this may suggest that multiple components are represented. A horizontal division of the site can be achieved by separating it into disturbed and undisturbed portions. The northern half of the site, situated in the powerline right-of-way, produced a dart point, a bifacial tool, a rim sherd similar to Maddox Brushed, a core, and 21 pieces of unmodified debitage. All are in disturbed or redeposited contexts except for the dart point, the core, and possibly two pieces of debitage. The dart point, suggesting an Archaic or Pre-Caddoan Ceramic component, came from 20-30 cm in Test Pit 5. While the deposits exposed in this pit appeared relatively undisturbed given its position in the northern portion of the site, the extent of obvious disturbance elsewhere in this area virtually precludes the possibility that intact cultural deposits relating to a preceramic component exist here.

In the southern portion of the site, a reasonably undisturbed concentration of cultural materials exists in the vicinity of Test Pits 8, 10, and 12. This concentration is approximately 10 m in diameter and extends to a depth of *ca.* 50 cm. The artifacts recovered from this area consist of: 5 sherds, one of which is punctated-incised; a core; an edge-modified flake; a worked hematite fragment; 11 pieces of unmodified debitage; and a piece of fire-cracked rock. This concentration may be definable stratigraphically by the possible organically enriched soil zone observed in Test Pits 8 and 12. This concentration may represent an incipient cultural midden or activity area.

Placing this concentration within an approximate time range is problematical because of the scarceness of temporally diagnostic artifacts. The occurrence of the sherd bearing similarities to the Pennington Punctated-Incised, Canton Incised, or Pineland Punctated-Incised types, does suggest, though, that these materials reflect occupations dating to the early to middle Caddoan Alto or Haley foci.

In summary, on the basis of the limited evidence presented above, 16WE107 appears to have both an Archaic/Pre-Caddoan Ceramic and an early to middle Caddoan component. The former, which is based on the recovery of an expanding-stem dart point, appears to be extensively disturbed. The Caddoan component, however, may be represented by an incipient

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*The density figures given in this chapter are considered to be liberal in that all cultural materials (fire-cracked rocks and manuports as well as artifacts) are counted. Neither the volumetric nor the areal density calculations include the test pits that, although within the site boundaries, did not yield cultural materials. The volumetric density figures used do not include the lower, sterile levels of the test pits that yielded artifacts.

midden which, while small, may be intact. A second Caddoan component, relating to the middle to late Caddoan Bossier Focus (Neuman 1970), may be indicated by the single Maddox Brushed sherd; however, this specimen was found in the badly disturbed powerline right-of-way, and there is no evidence that such late cultural deposits remain intact at the site.

16WE108

Setting

Site 16WE108 can be separated into three areas based on topography and the distribution of artifacts. Areas A and B are situated on small knolls formed by the erosion of the interfluve to the north and east (Fig. 10). Area C is situated on an interfluve just south of the other areas. This interfluve is separated from the other areas by a small intermittent stream which flows to the west where it empties into a prechannelization meander of Boone Creek. The present-day channel of the creek is approximately 40 m west of the site. The elevation of the site ranges from 160 to 165 ft above mean sea level.

The vegetation that now covers Areas A and B consists of a pine and mixed hardwood forest with an open understory of hardwood shrubs. The vegetation in Area C is composed mainly of mature planted pines with a thick understory of hardwood shrubs. The tree-planting may have disturbed the cultural remains in Area C. In addition, the southern edge of Area C may have been truncated by the construction of the railroad tracks that now border the southern end of the site. Areas A and B appear to be relatively undisturbed.

Work Accomplished

The testing of the three areas of 16WE108 was accomplished by the excavation of 37 test pits. Of these, 15 were excavated in Area A, 6 in Area B, and 16 in Area C (see Fig. 10). The test pits for all three areas were placed on the same grid system, which was oriented to the cardinal directions. These 37 pits ranged from 40 to 100 cm in depth, averaging 60 cm. The volume of fill excavated was 2.425 m^3 in Area A, 0.825 m^3 in Area B, and 2.300 m^3 in Area A. A total of 5.550 m^3 was excavated in testing the site as a whole.

Sediments and Stratigraphy

The two units on the upper part of the Area A knoll, Test Pits 5 and 12, exhibit similar profiles, with the only differences being in the thickness of some of the zones. In these profiles, Zone I (7-12 cm thick) is a brown (10YR 4/3) loamy sand that is structureless and very friable and that has a clear, wavy lower boundary; this zone is rich in organic matter. Underlying Zone 1 is Zone 2 (15-25 cm thick), which is a yellowish brown (10YR 5/4) sandy loam that is structureless and very friable and that has a gradual, wavy lower boundary. Zone 3 (30-40 cm thick) is a brownish yellow (10YR 6/8) sandy loam with many distinct very pale brown (10YR 7/3) mottles; this zone is structureless and very friable. Zone 3 has a clear, wavy lower boundary that is marked by a diffuse pebble line

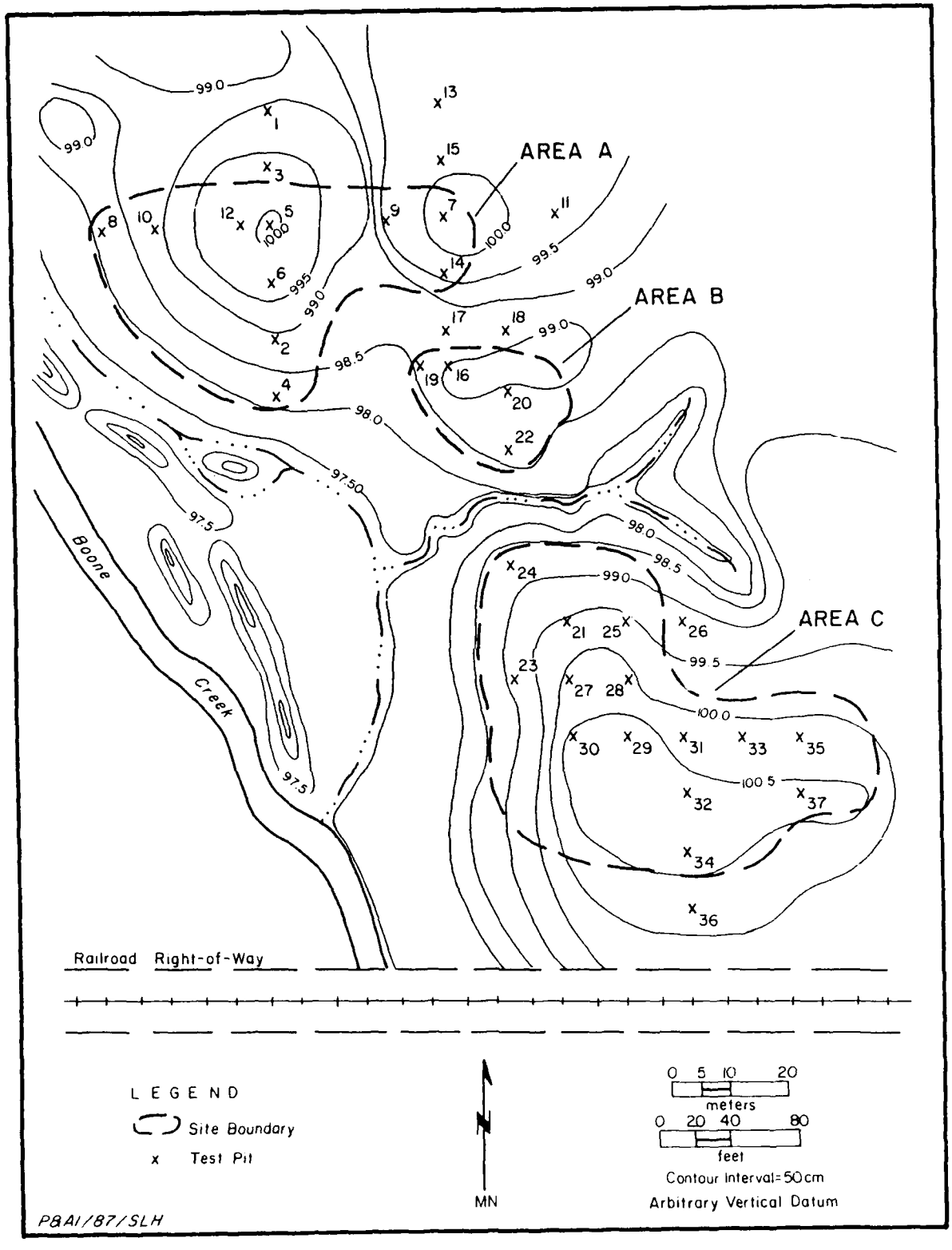

Figure 10. 16WE108 site map.

in both Test Pit 5 and Test Pit 12. The lowermost zone, Zone 4 (40+ cm thick), is a reddish yellow (7.5YR 6/8) loamy sand that, while structureless, has a firm consistence; a diffuse pebble line occurs at a depth of 80-85 cm in this zone in Test Pit 5. The upper three zones in this part of the site are interpreted as Holocene colluvium, while Zone 4 probably represents colluvial and/or alluvial deposits dating to the late Pleistocene-early Holocene or earlier.

Most of the test pits on the upper portions of the interfluves on which the site rests exhibit profiles comparable to that described above, except that in some units Zones 2 and 3 could not be differentiated. This apparently colluvial unit is of variable thickness across the site. In the eastern part of Area A, it varies from 40 cm thick in Test Pit 11 to 70 cm thick in Test Pit 7; in the western part of Area A, it is 60-80 cm thick in Test Pits 2, 3, 5, 6, and 12. In Area B, it ranges from a thickness of 30 cm in Test Pits 16 and 17 to 90+ cm in Test Pit 22; the relatively great thickness of the colluvium in Test Pit 22 may be due to erosion of the earlier deposits adjacent to Area B by the small intermittent stream that separates Areas B and C. In Area C, this upper unit is relatively thin, being less than 60 cm in Test Pits 25, 27, 28, 30, 31, 32, 33, 35, and 36. This unit reaches its maximum thickness in Area C (70-80 cm) in Test Pits 23 and 29.

Several of the test pits on the middle to lower slopes of the Area A interfluve exhibit profiles different from that described above. For example, in Test Pit 10 six zones were recognized: Zone 1, 0-7 cm, brown (10YR 4/3) sandy loam; Zone 2, 7-32 cm, brown (10YR 5/3) sandy loam; Zone 3, 32-67 cm, yellowish brown (10YR 5/5) sandy loam with a diffuse pebble line at ca. 43 cm; Zone 4, 67-102 cm, dark yellowish brown (10YR 4/6) loamy sand; Zone 5, 102-137 cm, yellowish brown (10YR 5/6) loamy sand with many very pale brown (10YR 7/3) mottles; and Zone 6, 137-167+ cm, brownish yellow (10YR 6/8) sand. The soils in all of these zones are structureless, and the consistence of the sediments ranges from loose (Zone 6) to friable (Zone 5). The lowermost of these zones was interpreted based on field observations as a Holocene fluviatile deposit of Boone Creek, while Zones 1-4 appear to be colluvium from upslope to the east; the origin of Zone 5 is uncertain.

Site Extent and Depth

All three areas at 16WE108 are generally well defined by topography and decreasing artifact frequencies. Area A, which is situated on the southern half of the northernmost floodplain rise with an arm extending eastward onto the adjoining interfluve edge, is bounded on the west and south by an abandoned channel of Boone Creek; to the north, east, and southeast, it is defined by the absence or near-absence of cultural remains in Test Pits 1, 3, 11, 13, 15, 17, and 18 (Table 4, see Fig. 10). The dimensions of Area A are 35 m north-south by 60 m east-west, covering ca. 1,890 m^2.

Area B is situated on the southwestern portion of a small floodplain rise in the central part of the site, just north of the intermittent stream (see Fig. 10). Area B is bounded on the south and east by this stream, on the west by the Boone Creek floodplain, and on the north by the very low artifact frequencies in Test Pits 17 and 18 (see Table 4). The dimensions of Area B are 18 m north-south by 25 m east-west, covering ca. 410 m^2.

The majority of Area C is situated on top of the interfluve at the south end of the site, but this area also extends down the western and northern slopes toward Boone Creek

TABLE 4

DISTRIBUTION OF CULTURAL MATERIALS AT 16WE108

	Levels										
Test Pit	1	2	3	4	5	6	7	8	9	10	Totals
AREA A											
1	-	-	-	-	-						0
2	-	1D	1D 1C	-	-	1C	-				4
3	-	-	-	-	-	-	-				0
4	-	1D	5D	1L	-	-					7
5	1D	3D	-	1D 5C	1C 1F	1D 1C 1T	-	-	-	-	15
6	-	1F 4D	2D	-	2D 2F	1D	1D	1D	-		14
7	-	-	1T 2D 1C	1D 1C	1D 1C	1D 1F	-	-			10
8	-	1D	-	-	-	-					1
9	1C	1D	1C	1D 1M	-	-					5
10	1D	2D	-	-	-	2D					5
11	-	-	-	-							0
12	1D	1T 2D	1D	1D	1F	-	1D	2D			10
13	-	-	-	-	-						0
14	-	1D	1D	-	1D						3
15	-	-	-	-	-	-	-	-	-	-	0
Subtotals: #	4	18	16	12	10	9	2	3	0	0	74
%	5.4	24.3	21.6	16.2	13.5	12.2	2.7	4.1	0	0	

C = ceramic
D = unmodified debitage
F = fire-cracked rock
L = other lithic
M = manuport
T = other flaked artifact

Table 4, continued

Test Pit		Levels 1	2	3	4	5	6	7	8	9	10	Totals
AREA B												
16		1D	-	1D	-							2
17		-	-	-	-							0
18		-	1D	-	-	-						1
19		-	1D	3D 1F	-	-	1F	-				6
20		-	1C	-	-							1
22		1C	1C	2D	1C	-	-	-	-	-		6
		-	-	1C	-	-	-	-	-	-		-
Subtotals	#	2	4	8	1	0	1	0	0	0		16
	%	12.5	25.0	50.0	6.3	0	6.3	0	0	0		
AREA C												
21		1D 1T	1D	-	-	-	-	-				3
23		-	-	2D 1C 1F	-	1D	3D	-	-			8
24		1D	-	-	-							1
25		-	1D	-	-							1
26		-	-	-	-							0
27		2D	-	-	-	-	-					2
28		1D	1T	1D	-	-	-	-				3
29		2D	1D 1C	-	2T	1D	-	1D	-	-		8
30		-	1D	-	-							1
31		1D	2T 2D	1D	-	-	-					6
32		-	3D	1D	-	-	-					4
33		1D	1D	1D	1D	-	-					4
34		1T 1D 1C	5D	-	1D	-	2D					11

Table 4, continued

		Levels									
Test Pit		1	2	3	4	5	6	7	8	9	10	Totals
35		2D	1D	-	-							3
36		1D	1D	-	-	-	-					2
37		4D	1D	-	-	-	-	-	-	-		5
Subtotals:	#	20	22	8	4	2	5	1	0	0		62
	%	32.3	35.5	12.9	6.5	3.2	8.1	1.6	0	0		

and the intermittent tributary (see Fig. 10). Area C is bounded on the west and north by the Boone Creek floodplain and the tributary, on the east by the extent of the interfluve summit, and on the south by the extent of the interfluve and the railroad tracks. The dimensions of Area C are 50 m north-south by 60 m east-west, covering ca. 2,200 m^2.

The vertical extent of the cultural materials varies between the three areas, with cultural remains occurring at 0 to 80 cm in Area A, 0 to 60 cm in Area B, and 0 to 70 cm in Area C (see Table 4). Area A clearly has the thickest cultural deposits, with the test pits on the top of the rise (Test Pits 5, 6, and 12) and the summit of the adjacent interfluve (Test Pit 7) consistently yielding artifacts to depths of 60 to 80 cm; the slopes bordering these landforms appear to have thinner and more diffuse archeological deposits. In Area B, the deposits appear to be quite thin, with 88% of the cultural items occurring at 0 to 30 cm. Area C also appears to have generally thin deposits, with most of the cultural materials (68%) occurring at depths no greater than 20 cm; the occurrence of a sparse artifact scatter to depths of 60-70 cm on the summit of the interfluve (Test Pits 29 and 34), does suggest, however, that this part of Area C has thicker deposits than the surrounding slopes.

Ma s Recovered

The numbers of cultural items recovered in each area are: 74 from Area A, 16 from Area B, and 62 from Area C (see Table 4). The collection consists of 109 pieces of unmodified debitage, 1 biface fragment, 7 pieces of edge-modified debitage, 2 cores, 1 manuport, 1 pitted stone, 9 fire-cracked rocks, and 22 potsherds. Unmodified debitage makes up over 50% of the cultural materials recovered from each area of the site. The unmodified debitage from 16WE108 consists of 60% flakes, 25% chips, and 15% angular chunks; 62% is of chert, 20% is of quartzite, 10% is of chalcedony, 2% is of silicified wood, and 6% is of other lithic materials. More than half of the flakes and chips (55%) are corticate. The edge-modified debitage was recovered from Areas A and C, where it comprises not more than 5% of the artifact sample. Area C also produced one biface fragment and two core fragments. No projectile points were recovered from 16WE108. Nonchipped lithic materials recovered from 16WE108 consist of one chert cobble classed as a manuport and one pitted stone composed of ferruginous sandstone. Both of these items were found in Area A.

Ceramics were recovered from all three areas of 16WE108; 64% of the sherds came from Area A, 23% came from Area B, and 14% came from Area C. There are 18 plain sherds of a sandy clay paste with grog temper in this ceramic sample; fifteen of these are body sherds, and three are rims. One rim came from Level 6 in Test Pit 2 at Area A. The two remaining plain rim sherds came from Level 1 in Test Pit 9 (Area A) and Level 3 in Test Pit 22 (Area B).

The four decorated sherds in the sample are composed of similar paste and temper as the plain sherds. Two of these decorated sherds are rims, both of which were recovered from Area A (Level 6 in Test Pit 5 and Level 3 in Test Pit 7). These decorated rim sherds are reminiscent of Davis Incised and Maddox Engraved (see Appendix B). Of the remaining two decorated sherds, one is a brushed body sherd and the other is an incised carinated shoulder fragment. They are from Area A (Level 4 in Test Pit 5) and Area C (Level 2 in Test Pit 29), respectively.

The rims discussed above are too small to give a definitive idea of vessel form, but they do suggest that small bowls or jars are represented. Also, the incised carinated body fragment suggests that medium-sized carinated bowls were utilized at the site. Based on the rims and distinctive sherds like the carinated fragment, it is estimated that the ceramic sample at 16WE108 represents at least seven vessels.

Discussion of Components

Thirty of the 37 test pits excavated at 16WE108 yielded cultural remains. The densities of the cultural materials at 16WE108 are 30 items/m^2 (54 items/m^3) in Area A, 13 items/m^2 (38 items/m^3) in Area B, and 17 items/m^2 (54 items/m^3) in Area C. The overall density figure for the site is 20 items/m^2 (52 items/m^3). These densities are considered to be low and to reflect nonintensive site usage.

As described above, the majority of the cultural remains occur in the upper 30 cm in all three areas. However, the test pit data indicate that a significant number of artifacts extend to 60 cm below the surface in Area A. The thickness of the deposits in Area A suggests that at least this part of 16WE108 has multiple components. This possibility is supported by the stratigraphic position of the sherds from Area A, some of which are similar to known types. For instance, the incised sherd recovered from Level 6 of Test Pit 5 bears some similarity to Davis Incised. Davis Incised falls within the early Caddoan Alto-Haley foci and is related to the Troyville and Coles Creek complexes of central Louisiana described by Ford (1951). In Level 3 of Test Pit 7, a sherd likened to Maddox Engraved was recovered. Maddox Engraved is a Bossier Focus type assigned to the middle to late Caddoan period by Webb (1948a). Consequently, it appears that the earlier ceramics, perhaps reflecting an early Caddoan occupation, occur in the deeper concentration of artifacts in Area A while the later ceramics, reflecting a middle to late Caddoan occupation, occur in the upper 30 cm of the site.

Given the small number of artifacts recovered from the site, it is difficult to assess horizontal patterning in the cultural remains. However, a simple pattern does emerge from a scrutiny of the test pit data. Specifically, each area has only two to four test pits that produced relatively numerous artifacts. These are Test Pits 5-7 and 12 in Area A, Test Pits 19 and 22 in Area B, and Test Pits 23, 29, and 34 in Area C. Tests radiating out

from these pits usually show a marked and progressive decrease in artifact number. Yet, there was no indication in the soil that cultural features (e.g., pits or hearths) occur in these parts of the site. These may represent either the centers of activity areas on the site or simply loci of refuse disposal.

16WE114

Setting

Site 16WE114, at which a prehistoric component was discovered during testing of an historic component (see Chapter 8), is located on a gentle interfluve slope ranging in elevation from 179 to 182 ft above mean sea level. The wooded site area overlooks Boone Creek tributaries which join ca. 100 m to the north and east of the site. Mature second-growth pines comprise the overstory vegetation; the site is relatively clear of understory growth except for a poison ivy ground cover. The site surface exhibits no evidence of major disturbances, although it is likely that the site has suffered from erosion and land alteration brought on by historic land clearing and the destruction of the house that once stood on the site.

Work Accomplished

Seventeen test pits were excavated along a grid oriented to the cardinal directions (Fig. 11). To define the limits of the site (primarily the historic component), six test pits were excavated along the east-west axis of the grid and eight pits along the north-south axis. One unit was placed in the southwestern quadrant and two in the northwestern quadrant, near the maximum surface scatter of historic materials; one of these was excavated in a depression that was judged to be a possible filled well. The 16 test pits which penetrated the prehistoric component ranged from 10 to 60 cm in depth, averaging 32 cm. A total of 1.250 m^3 of soil was excavated in the prehistoric component.

Sediments and Stratigraphy

The typical profile at 16WE114, represented by Test Pit 2, consists of three zones: Zone 1, 0-7 cm, grayish brown (10YR 5/2) very fine sand, structureless, loose consistence; Zone 2, 7-42 cm, very pale brown (10YR 7/4) very fine sand, structureless, very friable; and Zone 3, 42-50+ cm, brownish yellow (10YR 6/8) silty very fine sand with increased clay, structureless to slightly platy, friable to firm. Zones 1 and 2 are interpreted as a Holocene deposit, probably colluvial in origin, while Zone 3 appears to be an older deposit of unknown origin.

The surficial unit is fairly thin across the site. It is thinnest in Test Pits 10, 12, and 15 in the south-central site area, where it reaches a maximum thickness of only 10 cm. It is thickest, 55 cm, in Test Pit 6 on the downslope, northern part of the site. Elsewhere, this unit ranges from 14 to 42 cm in thickness.

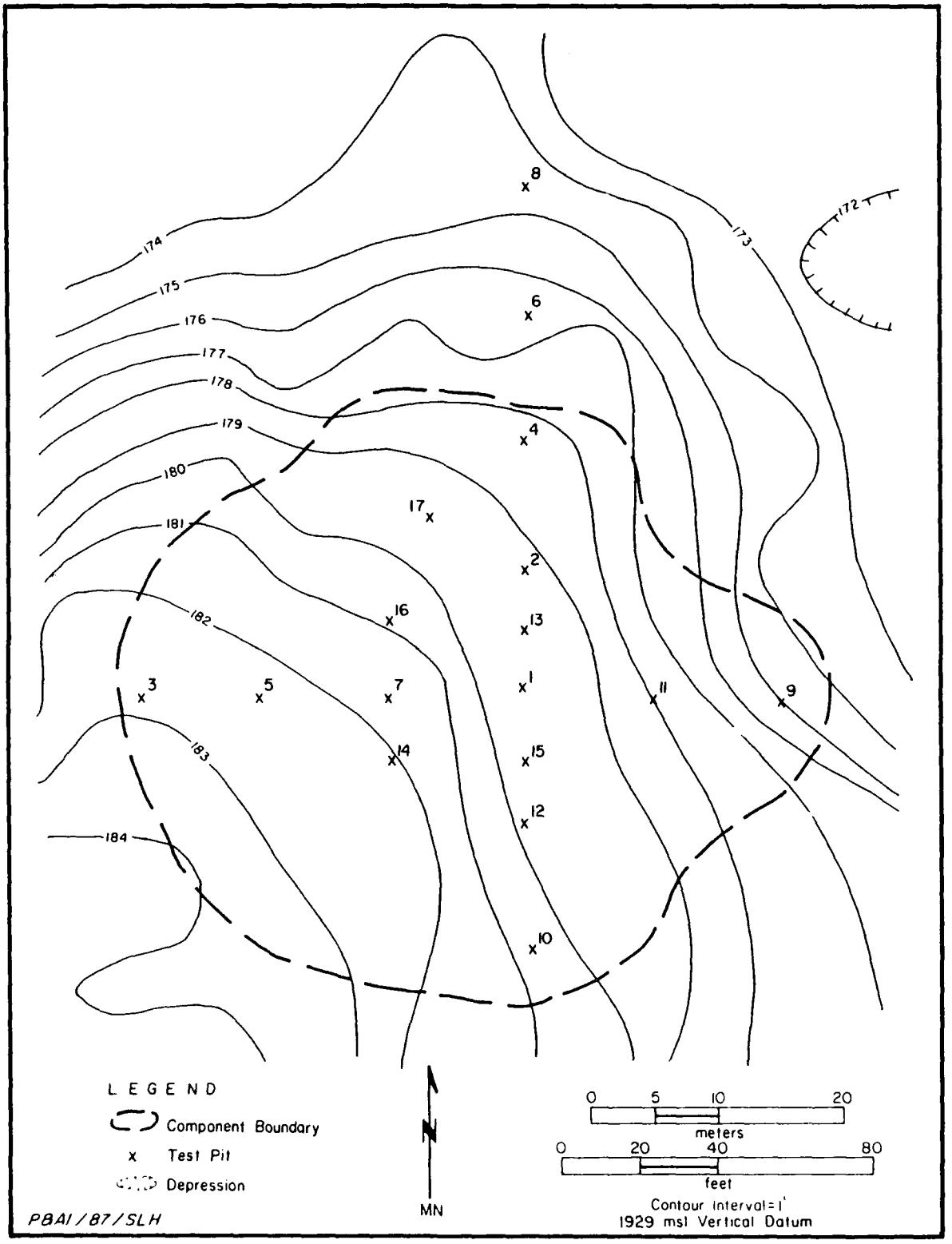

Figure 11. 16WE114 site map showing prehistoric component.

Site Extent and Depth

The prehistoric component at 16WE114 is twice the size of the historic component. It is defined by the absence or near-absence of artifacts in Test Pits 6 and 8 on the north, Test Pits 9 and 11 on the east, Test Pits 10 and 12 on the south, and Test Pits 3, 5, and 7 on the west. It has an area of 2,030 m^2 and extends 50 m north-south by 48 m east-west (see Fig. 11). Thus, the prehistoric component encompasses the southern two-thirds of the area of the historic component, including the housesite. The prehistoric component may slightly overlap the northeastern edge of 16WE123. While there is no definite break between these two sites, the artifact density in the area of overlap diminishes distinctly, suggesting that they are separate sites.

The vertical extent of the prehistoric component is similar to that of the historic component in that the main concentration of cultural materials is between 0 and 20 cm below the surface (Table 5). However, the maximum vertical extent of the prehistoric remains differs somewhat in that one test pit (Test Pit 2) yielded artifacts to the relatively great depth of 40 cm.

Materials Recovered

A total of 46 prehistoric artifacts or other cultural materials were recovered from 16WE114 (see Table 5). These consist of 37 pieces of unmodified debitage, 1 biface fragment, 2 edge-modified flakes, 4 fire-cracked rocks, and 2 ceramics. The unmodified debitage consists of 68% flakes, 22% chips, and 11% angular chunks; 43% is of quartzite, 27% is of chalcedony, 24% is of chert, and 6% is of other lithic materials. No worked silicified wood was recovered. Almost three-fourths of the flakes and chips are decorticate, with the remaining 27% retaining some cortex. The biface fragment is composed of a dark red quartzite and shows only moderate modification on a stream-rolled pebble. Both of the ceramics are plain sandy clay paste body sherds. The small size of these sherds (i.e., 2 to 3 cm in diameter) precludes typological identification, and as such they cannot be considered very diagnostic.

Discussion of Components

Eleven of the 16 test pits in the prehistoric component at 16WE114 yielded prehistoric cultural materials. The density of the cultural remains is 17 items/m^2 (80 items/m^3). This density is sufficiently low to be considered reflective of nonintensive site usage. This interpretation is supported by the small size of the prehistoric component.

There is one main horizontal concentration of prehistoric artifacts at 16WE114. This concentration is defined by Test Pits 1, 2, 4, and 13. It is located approximately 5 m east of the historic brick scatter and well depression. This places the concentration on the eastern edge of the interfluve on which the site rests and east of the bulk of the historic materials. This concentration is 20 m north-south by 5 m east-west. The cultural materials recovered from the concentration were found mainly at depths of 30 cm or less.

TABLE 5

DISTRIBUTION OF PREHISTORIC CULTURAL MATERIALS AT 16WE114

		Levels						
Test Pit		1	2	3	4	5	6	Totals
1		1C 1F 1T 1D	1T 2D	2D				9
2		2D	2D	3D	1T 1F 7D	-		16
3		1F 1D	-					2
4		3D	2D	2D	-	-		7
5		1D	-					1
6		-	-	-	-	-	-	0
7		-	-	-				0
8		-	-	-	-			0
9		-	-	2D	-			2
10		-	1D					1
11		-	-					0
12		1D						1
13		1C 2D	1D	-	-			4
14		-	2D	-				2
15		1F						1
16		-	-	-	-	-	-	0
Totals	#	17	11	9	9	0	0	46
	%	37.0	23.9	19.6	19.6	0	0	

C = ceramic
D = unmodified debitage
F = fire-cracked rock
T = other flaked artifact

No diagnostic artifacts were recovered from this concentration, but the characteristics of the plain sherds fit within the parameters of the total Plant ceramic sample, which is judged here to reflect Caddoan occupations. Consequently, the prehistoric component at 16WE114 can be given only a general chronological placement within the Caddoan period, which dates from A.D. 800 to 1700.

16WE116

Setting

Site 16WE116 lies on and between two rises on a gradually sloping interfluve; a tributary to Boone Creek lies about 40 m to the southwest. The crest of the northern rise is about 186 ft above mean sea level, and the southern rise is slightly lower at an elevation of 183 ft. Mature pine-oak forest vegetation covers the site, with thick undergrowth typical of a disturbed area. Several old sawn tree stumps are evident, and it is likely that the site has been logged in the past. An old road trace leads from a paved road south to the site and then fades out. The undergrowth masks the surface topography in the immediate vicinity of the site.

Work Accomplished

Seven test pits were excavated along a grid line oriented across the center of the two rises (Fig. 12). Six additional test pits were excavated on two grid lines running perpendicular to the main grid line across the center of each rise. The test pits were dug to depths ranging from 40 to 117 cm, or an average depth of 60 cm. A total of 1.940 m^3 of fill was excavated.

Sediments and Stratigraphy

The typical profile at 16WE116, represented by Test Pit 1, consists of three zones: Zone 1, 0-5 cm, dark grayish brown (10YR 4/2) silty very fine sand with occasional pebbles, structureless, loose consistence; Zone 2, 5-20 cm, yellowish brown (10YR 5/4) silty very fine sand with common fine dark grayish brown (10YR 4/2) mottles, slightly clayey, structureless, very friable; and Zone 3, 20-80+ cm, yellowish brown (10YR 5/8) silty very fine sand with occasional pebbles and common fine light yellowish brown (10YR 6/4) mottles, structureless, friable. All three of these zones may be Holocene colluvium. In one unit, Test Pit 2, a fourth zone was identified. At a depth of 110-117+ cm, this zone consists of white (10YR 8/2) silt loam with common coarse brownish yellow (10YR 6/6) mottles, weak subangular blocky structure, and firm consistence. This zone may be a deposit substantially older than the little-altered surficial sediments, but the origin of this deposit and its age remain unknown.

With a contrasting basal unit identified only in one test pit, it is not possible to discuss how the surficial colluvial(?) unit varies in thickness across the site. The soil

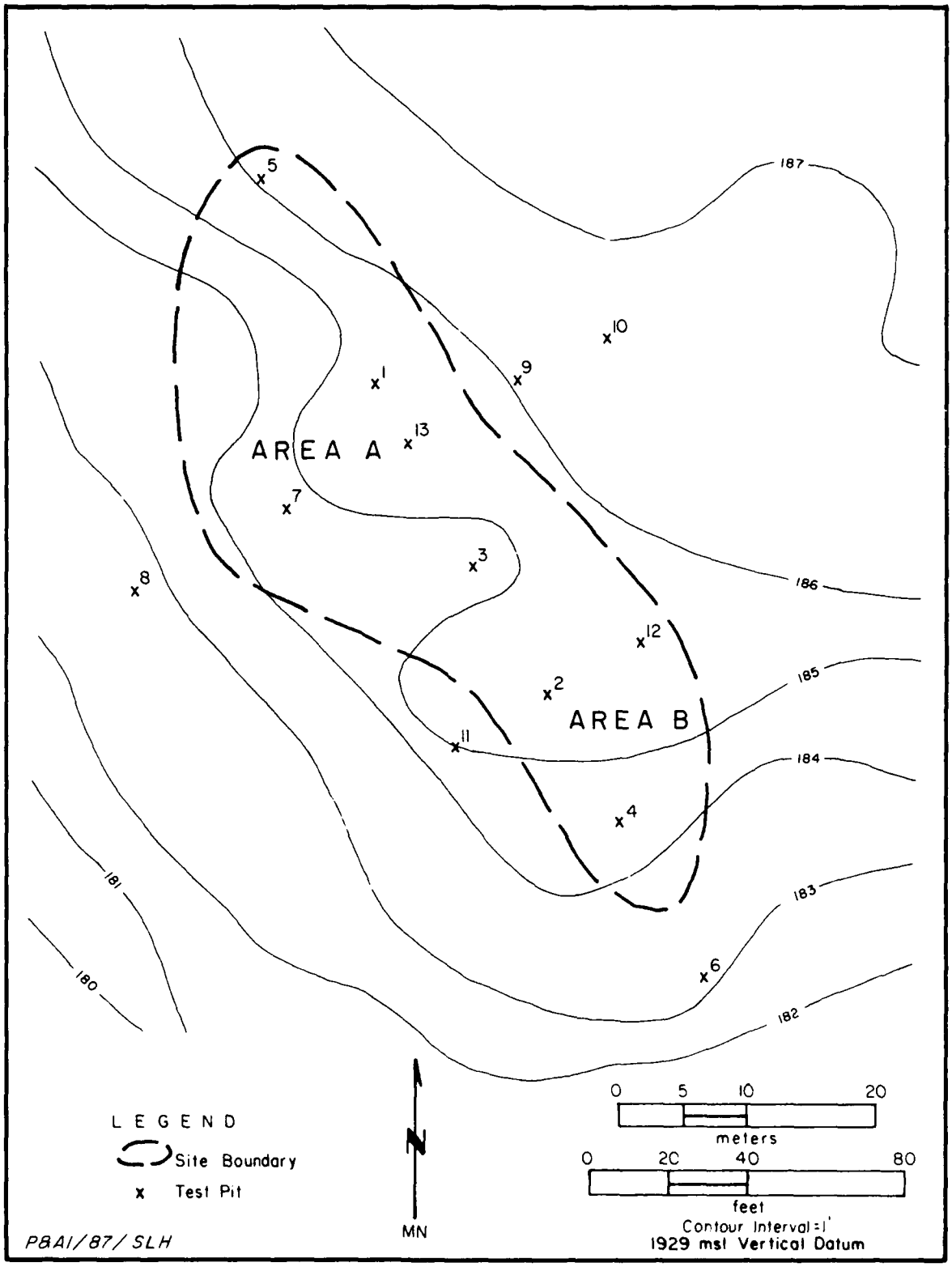

Figure 12. 16WE116 site map.

zones observed in the Holocene deposits are generally thickest on the tops of the two rises on which the site rests, however, and it seems likely that the colluvium is thickest in these parts of the site. As shown by Test Pit 2, these deposits exceed 1 m in thickness in certain areas.

Site Extent and Depth

The site measures approximately 65 m north-northwest to south-southeast by about 23 m east-northeast to west-southwest, an area of 1,170 m^2. The limits of the site were defined on the basis of diminishing artifact frequencies in the test pits, although the extent of the site fits well with the topography of the site area. A relatively steep slope marks the southeastern boundary, where Test Pit 6 did not yield any artifacts (see Fig. 12). To the east, the interfluve is fairly flat, and artifacts were few to absent in Test Pits 9, 10, and 12. Test Pit 5 to the north had only one flake and is separated from the main site area by a low area, while on the west, Test Pits 8 and 11 had no artifacts.

The site was divided into two areas, corresponding to the two rises. On the southern rise (Area B), cultural materials were found at depths of 0 to 100 cm, although they occur most consistently at 0-60 cm (Table 6). The cultural deposits on the northern rise (Area A) are shallower, reaching a maximum depth of only 70 cm with a concentration of artifacts above 60 cm. In both areas, the pits located in the central parts of the rises (Test Pits 1 and 2) yielded cultural materials to the greatest depths (see Table 6).

Materials Recovered

Forty-two prehistoric artifacts or other cultural items were recovered in the excavations at 16WE116: 38 pieces of unmodified debitage, 1 edge-modified flake, 1 core, and 2 fire-cracked rocks. The debitage consists of 25 flakes, 4 chips, and 9 angular chunks; 61% is of chert, 29% is of chalcedony, and 10% is of quartzite. Just over half of the flakes and chips (52%) are corticate. None of the prehistoric artifacts are time-diagnostic. One historic ceramic sherd was found in Level 1 of Test Pit 7, near a sawn tree stump; this type of pottery dates between the late eighteenth century and the first half of the nineteenth century (see Appendix C).

Discussion of Components

Eight of the 13 test pits at 16WE116 yielded cultural remains. The density of the cultural materials is 21 items/m^2 (42 items/m^3). This low figure suggests that the site was used in a nonintensive fashion. This conclusion is clearly supported by the limited area encompassed by the test pits yielding relatively numerous artifacts. The cultural materials at 16WE116 are concentrated on the crests of the two rises, as sampled by Test Pits 1, 2, 4, and 13. The density of the cultural materials is slightly greater in Area B on the southern rise (28/m^2; 49/m^3) than in Area A on the northern rise (17/m^2; 42/m^3).

TABLE 6

DISTRIBUTION OF CULTURAL MATERIALS AT 16WE116

		Levels												
Test Pit		1	2	3	4	5	6	7	8	9	10	11	12	Totals
AREA A														
1		-	2D	1D	-	4D 1T	1D 1T	1D	-	-				11
3		-	-	-	1D	-	-							1
5		1D	-	-	-	-								1
7		(1X)	1D	-	-	-								1 (2)
8		-	-	-	-									0
9		-	-	-	-									0
10		-	-	-	-									0
13		1D	2D	1F	-	2D	1D	-	-	—				7
Totals:	#	2	5	2	1	7	3	1	0	0				21
	%	9.5	23.8	9.5	4.8	33.3	14.3	4.8	0	0				
AREA B														
2		-	-	-	-	4D	4D	-	4D	-	1D	-	-	13
4		-	2D	1D	3D	-	-							6
6		-	-	-	-	-								0
11		-	-	-	-	-								0
12		1F	-	1D	-	-	-	-	-	—	—	—	—	2
Totals:	#	1	2	2	3	4	4	0	4	0	1	0	0	21
	%	4.8	9.5	9.5	14.3	19.0	19.0	0	19.0	0	4.8	0	0	

D = unmodified debitage
F = fire-cracked rock
T = other flaked artifact
X = other

() = not included in artifact count (historic, recent)

The vertical distributions of the artifacts differ between the two rises as well. On the northern rise in Area A, two concentrations of artifacts are evident, one between 10 and 30 cm and one between 40 and 60 cm (see Table 6); the maximum depth of the cultural deposits here is 70 cm. On the southern rise in Area B, artifacts are relatively numerous between 10 and 60 cm and between 70 and 80 cm; cultural materials were found up to 100 cm deep on this rise. The thickness of the cultural deposits on the two rises and the occurrence of two vertically discrete concentrations of artifacts in Test Pit 1 suggest that multiple components are represented at 16WE116. However, the sparseness of the cultural remains and the lack of temporally diagnostic artifacts make the isolation and dating of components problematical. The absence of ceramics may date the site to the Archaic period, but such an assessment would be rather speculative given the limited information obtained from the site.

The single historic ceramic sherd at the site dates between the late eighteenth century and the middle nineteenth century (see Appendix C). This specimen probably represents infrequent use of this area by Anglo settlers in the middle nineteenth century. While Caddo and Coushatta Indian groups were present in the region through the 1830s and Choctaw groups through the 1880s, their camps were most commonly located along major streams (Webb and Gregory 1986:27; see Chapter 3). Anglo occupation of the area began around the 1820s and was well established by the 1850s when individuals like William Van Arsdale lived in the vicinity of 16WE116 (see Chapter 4). In addition, there is other evidence of limited Anglo use of the immediate site area, including several old sawn tree stumps and an old road trace.

16WE117

Setting

This site is situated on the nose of an interfluve that projects toward the confluence of two tributaries to Boone Creek, 35 m to the east. The maximum elevation at the west end of the site is 186 ft above mean sea level. The site is sheltered by a forest overstory of pine and hardwoods.

Disturbance from several sources has affected the cultural deposits at 16WE117. A buried gas pipeline bisects the site, and a buried sewer line bounds it on the west. The two pipelines likely have destroyed any cultural deposits within their rights-of-way. Part of the eastern site area has been disturbed by a 5-m-wide area of bulldozer spoil running along the east side of the pipeline clearing. In the remainder of the eastern part of the site, the understory vegetation is sparse, and the site appears to be undisturbed. Below the east edge of the site, channelization along the Boone Creek tributary has produced discontinuous levee piles up to 2 m tall. The western part of the site is covered by dense understory vegetation, and the hummocky, uneven ground surface indicates that this area has been disturbed. Evidence of disturbance is yet more abundant continuing westward, and adjacent to the east side of the sewer line clearing, an area of bulldozer spoil about 10 m wide marks the western boundary of the site.

Work Accomplished

Eight test pits were excavated at the site: four along an east-west line running through the center of the site, three on a north-south line bisecting the eastern part of the site, and one northeast of the intersection of the two grid lines (Fig. 13). The test pits ranged from 30 to 100 cm deep, with an average depth of 70 cm. A total of 1.400 m^3 of fill was excavated.

Sediments and Stratigraphy

The typical profile at 16WE117, as represented by Test Pit 7, consists of only two zones: Zone 1, 0-15 cm, very dark grayish brown (10YR 3/2) very fine sand, structureless, loose consistence; and Zone 2, 15-105+ cm, brownish yellow (10YR 6/6) silty very fine sand, slightly clayey, structureless, friable. Both zones may well be Holocene colluvium. Upslope in Test Pit 3, this surficial unit is underlain by a reddish brown (5YR 5/6) silt loam with moderate subangular blocky structure and slightly hard consistence. This pedogenically altered deposit appears to be substantially older than the overlying sediments and may be Pleistocene alluvium or colluvium.

While the full thickness of the Holocene deposits across the site cannot be gauged accurately, it is clear that the surficial unit is thickest on the downslope, streamward portion of the interfluve. It is in excess of 1 m thick on the top of the eastern part of the interfluve and at least 60-70 cm thick on the lower slopes.

Site Extent and Depth

The horizontal extent of the site is 35 m north-south by 60 m east-west, an area of 1,650 m^2. The limits of the site are defined by diminishing artifact frequencies and disturbances that bound the portion of the interfluve on which the site rests. Although all eight test pits were positive, low artifact frequencies were encountered in Test Pit 2 on the east, Test Pit 4 on the west, and Test Pit 5 on the north (see Fig. 13). To the south, the area between Test Pit 6 and the paved road ca. 40 m away is disturbed and did not warrant testing. The western boundary of the site is defined by an extensive disturbed area adjacent to the sewer line. Areas beyond Test Pits 2 and 5 are in the floodplain of the Boone Creek tributary, and this, along with low artifact frequencies in these units, suggests that the site is confined to the interfluve summit. This conclusion is further supported by the fact that the two units with the greatest numbers of artifacts (Test Pits 1 and 7) were on the crest of the interfluve.

The maximum thickness of the cultural deposits at 16WE117 ranges from 20 to 90 cm. The units with the thickest deposits (Test Pits 1, 6, and 7), yielding materials to depths of 60 to 90 cm, are on the interfluve summit in the eastern part of the site (Table 7). Upslope to the west, Test Pits 3 and 4 yielded cultural materials only to depths of 30 to 50 cm. Likewise, units downslope to the north (Test Pits 5 and 8) and east (Test Pit 2) contained artifacts to depths of only 20 to 50 cm (see Table 7).

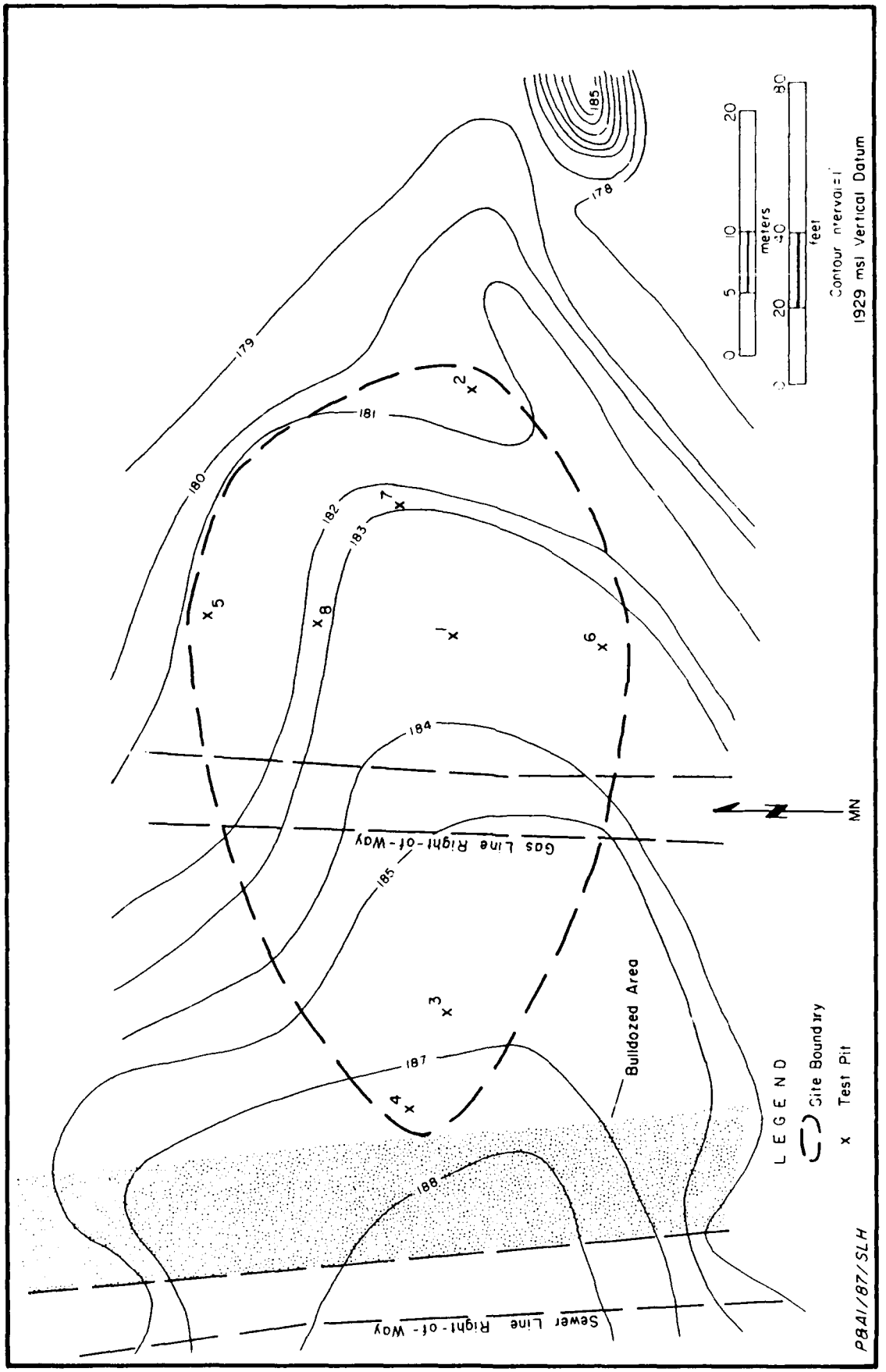

Figure 13. 16WE117 site map.

TABLE 7

DISTRIBUTION OF CULTURAL MATERIALS AT 16WE117

		Levels										
Test Pit		1	2	3	4	5	6	7	8	9	10	Totals
1		-	1D	3D	1F 3D	1T	1F 2D	1T 1D	-	1D	-	15
2		-	1D	-	-	1D	-	-				2
3		-	1P 3D	1P 2D	-	2D	-					9
4		-	-	1T 1M 1D								3
5		-	1D	-	-	-	-					1
6		-	1T 1D	1D	2D	1T	1T	-	-			7
7		-	2D	2D	2D	1D	2F 2D	2D	1D	1T 1D	-	16
8		-	1D	-	1D	2F	-					4
Totals	#	0	12	12	9	8	8	4	1	3		57
	%	0	21.1	21.1	15.8	14.0	14.0	7.0	1.8	5.3		

D = unmodified debitage
M = manuport
T = other flaked artifact
F = fire-cracked rock
P = dart point

Materials Recovered

Fifty-seven artifacts or other cultural items were recovered from the test pits at 16WE117: 41 pieces of unmodified debitage, 2 dart points, 1 small biface fragment, 4 pieces of edge-modified debitage, 2 cores, 1 manuport, and 6 fire-cracked rocks. The debitage consists of 51% flakes, 29% chips, and 20% angular chunks; 34% is of chert, 41% is of chalcedony, 20% is of quartzite, and 5% is of silicified wood. About one-third of the flakes and chips (36%) retain cortex. One of the dart points has a straight stem and is of chert; the other has an expanding stem and is made of chalcedony. The two dart points

are unityped but have affinities to the Kent and Gary types; they may date to the late Archaic or Pre-Caddoan Ceramic periods. The manuport is a large chert cobble ca. 15 cm in diameter.

Discussion of Components

All eight test pits at the site were positive, with a density of 29 items/m^2 (52 items/m^3). This density is low and suggests that the occupations of 16WE117 were nonintensive and short-lived. The artifacts recovered at the site are concentrated at the crest of the interfluve in the eastern part of the site in Test Pits 1, 6, and 7. Given that Test Pits 1 and 7 yielded cultural materials to a depth of 90 cm, it seems certain that multiple components are represented. Two concentrations are suggested in the vertical distributions of the artifacts in these test pits, one between 10 and 40 cm and one between 60 and 70 cm; these concentrations support the notion of multicomponency. No time-diagnostic artifacts were recovered from these pits, however, and thus the components represented cannot be assessed temporally. The eastern part of the site yielded 33 pieces of unmodified debitage, 1 distal biface fragment, 3 pieces of edge-modified debitage, 2 cores, and 6 fire-cracked rocks.

The western part of the site, as represented by Test Pits 3 and 4, has shallow, disturbed deposits. In Test Pit 3, a sediment zone interpreted as a Pleistocene deposit appeared at 32 cm, but artifacts were found as deep as 50 cm; the walls of the unit showed clearly that some of this lower zone had been churned up into the overlying zone, and one of the dart points found in this test pit was oriented vertically. Most of the artifacts found in these two test pits occurred at depths of 10 to 30 cm, and this is the probable thickness of the cultural zone in this part of the site. The western part of the site yielded eight pieces of unmodified debitage, two dart points, one edge-modified angular chunk, and one large chert cobble. The two dart points and the lack of ceramics suggest that Archaic period occupations may be represented, although the sparseness of the cultural remains makes temporal assessment difficult.

16WE118

Setting

This site is located on a small rise on an interfluve projecting onto the floodplain of a tributary of Boone Creek. The top of the rise is ca. 50 m southeast of the tributary. The rise sits at an approximate elevation of 185 ft above mean sea level. The rise and the surrounding floodplain support a mixed pine and hardwood forest which has a fairly open understory composed of hardwood shrubs. Disturbances at the site are confined to the rise slopes, which may have experienced some erosion. In addition, the surface in the northwestern corner of the rise exhibits extensive disturbance by rodent burrowing.

Work Accomplished

Nine test pits were excavated at 16WE118 (Fig. 14). These tests were placed across the rise along a grid oriented to the cardinal directions. Seven test pits were dug on top of the rise or on its slopes. Two tests were placed off the rise to examine the surrounding floodplain. The depth of the test pits ranged from 30 to 80 cm, and the average depth was 59 cm. In all, a total of 1.325 m^3 of the site was excavated.

Sediments and Stratigraphy

The typical profile on the rise containing the site, as represented by Test Pit 1, consists of three zones: Zone 1, 0-5 cm, grayish brown (10YR 5/2) very fine sand with many gray (10YR 5/1) and pale brown (10YR 6/3) mottles, structureless, loose consistence; Zone 2, 5-25 cm, yellowish brown (10YR 5/4) silty very fine sand, structureless, very friable; and Zone 3, 25-55+ cm, yellowish brown (10YR 5/8) silty very fine sand, slightly clayey, structureless, very friable. All of these zones are probably of Holocene age, and they may be colluvial in origin. Test Pits 2 and 4, located on the floodplain adjacent to the rise, exhibit different profiles: Zone 1, 0-5 cm, grayish brown (10YR 5/2) very fine sand, structureless, loose consistence; Zone 2, 5-30 cm, light yellowish brown (10YR 6/4) silty very fine sand, structureless, very friable; and Zone 3, 30-40+ cm, strong brown (7.5YR 5/6) silty very fine sand, very weak angular blocky structure, friable. The upper two zones are probably recent fluvial deposits of the Boone Creek tributary a short distance to the south, while the lowermost zone may represent older Holocene or Pleistocene alluvium.

The full thickness of the Holocene deposits on the eroded interfluve that contains the cultural materials remains to be determined. The seven test pits on this rise all have little-altered sandy sediments at least 50 cm thick, however, and one pit has at least 80 cm of probable Holocene colluvium.

Site Extent and Depth

The horizontal extent of 16WE118 is 10 m north-south by 5 m east-west, covering an area of 40 m^2. The site limits are defined by the lack of artifacts in Test Pit 9 to the west, Test Pit 3 to the north, Test Pit 2 to the east, and Test Pit 4 to the south (see Fig. 14). Cultural materials were found at depths of 0 to 70 cm at the site, but the majority of artifacts were recovered from 30 to 70 cm below surface (Table 8).

Materials Recovered

Only 10 prehistoric artifacts were recovered from 16WE118 (see Table 8). These consist of six pieces of unmodified debitage, one fire-cracked rock, and three plain potsherds. The debitage consists of three flakes, two chips, and one angular chunk; five are of chert and one is of chalcedony. Two specimens are corticate. The three plain sherds are made of a sandy clay paste and are not large enough or distinctive enough to be typed.

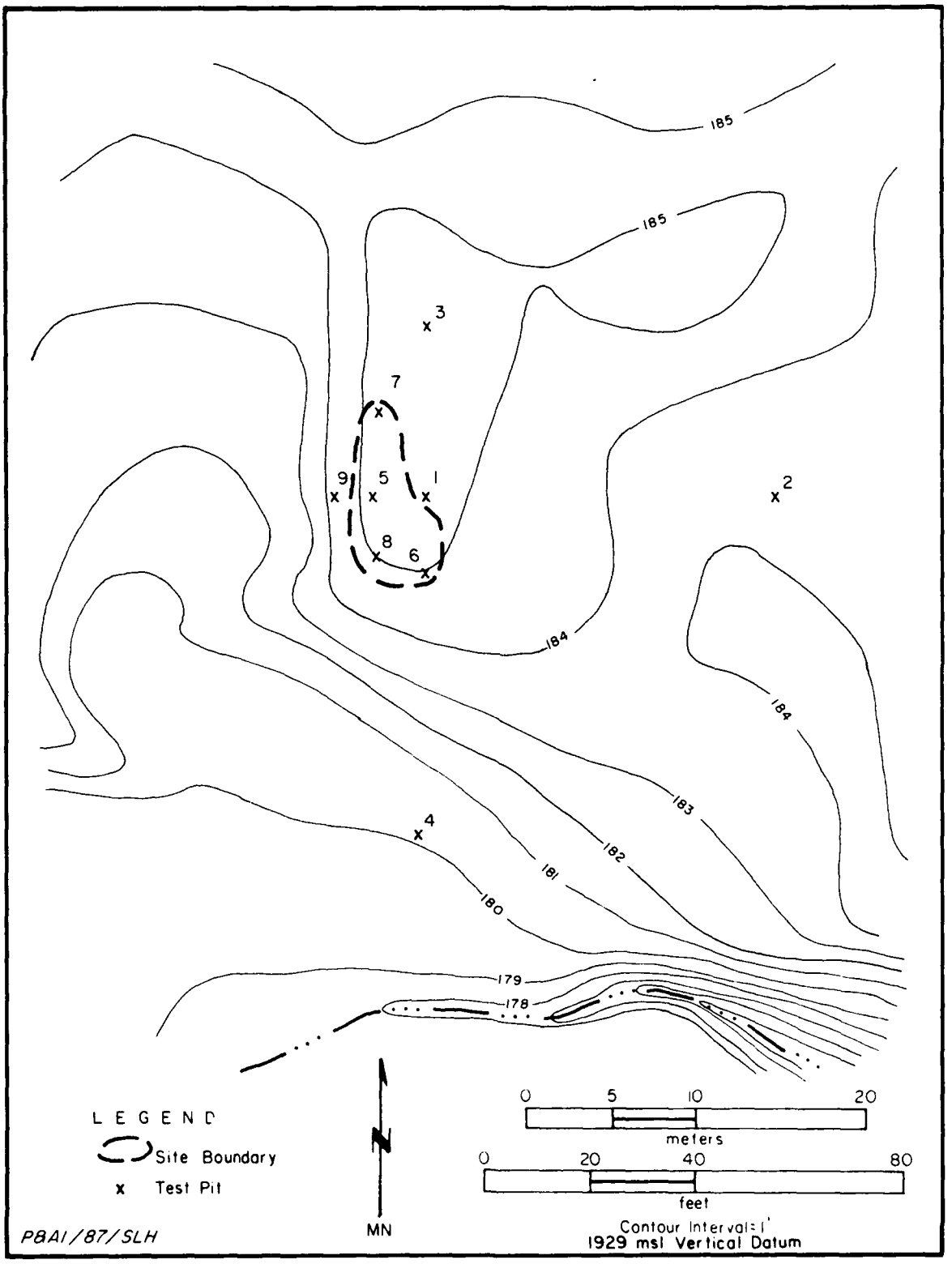

Figure 14. 16WE118 site map.

TABLE 8

DISTRIBUTION OF CULTURAL MATERIALS AT 16WE118

		Levels								
Test Pit		1	2	3	4	5	6	7	8	Totals
1		-	-	-	-	2D	-			2
2		-	-	-	-	-				0
3		-	-	-	-	-				0
4		-	-	-						0
5		-	-	-	2D	-	-	1F 2C	-	5
6		-	-	-	1C	-	-	-		1
7		(1X)	1D	-	-	-	-			1 (2)
8		-	-	-	1D	-	-	-		1
9		-	-	-	-	-	-	—	—	0
Totals:	#	1	1	0	4	2	0	3	0	10
	%	9.1	9.1	0	36.4	18.2	0	27.3	0	

D = unmodified debitage
F = fire-cracked rock
C = ceramic
X = other

() = not included in artifact count (historic, recent)

However, they do fit well within the Plant ceramic sample as a whole, which is judged to reflect Caddoan occupations (see Appendix B). A pipe stem fragment was also recovered. It is a molded, glazed, kaolin specimen of a common form that dates to the nineteenth century; it may represent either an historic aboriginal or nonaboriginal presence at the site.

Discussion of Components

Five of the nine test pits at this site yielded cultural remains. Both the small size of the site and the very low density of the cultural materials (9 items/m^2; 20 items/m^3) indicate that 16WE118 was used in a nonintensive fashion on a very short term basis. The few artifacts recovered do suggest, however, that multiple occupations may be represented. The prehistoric materials may be placed generally within the Caddoan period based on the ceramics recovered; a more specific temporal assessment cannot be made at this time. All

of the prehistoric artifacts, except for one flake, were recovered from 30 to 70 cm below the surface, and thus the prehistoric component appears to be buried.

The historic occupation at the site is represented by the one pipe stem fragment. The style of the stem dates it to the first through third quarters of the nineteenth century. The stem was recovered from the uppermost level of Test Pit 7, thereby placing it well above most of the prehistoric materials. Its isolated occurrence may indicate a specialized utilization of the floodplain rise by either an historic aboriginal group or by non-aboriginal settlers. It should be noted, however, that Test Pit 7 was in an area of extensive rodent disturbance, and it is possible that this pipe stem had been displaced from lower levels.

16WE119

Setting

This site is situated on a small rise within the floodplain of a tributary of Boone Creek. The rise is 30 m east of the tributary channel. Large manmade levees separate the tributary from the rise. Today these levees probably protect the rise from erosion caused by flooding. As such, the site shows little sign of any disturbances. Vegetation across the site and in the adjoining floodplain consists of a mixed pine and hardwood forest with an open understory composed mainly of sparse hardwood shrubs and some grasses. The top of the rise sits at an elevation of approximately 175 ft above mean sea level.

Work Accomplished

Eight test pits were excavated at 16WE119 (Fig. 15). These pits were placed along north-south and east-west grid lines that separate the site into quadrants. The test pits were excavated to an average depth of 69 cm, ranging from 40 to 110 cm in depth. In all, the volume of fill excavated from 16WE119 was 1.375 m^3.

Sediments and Stratigraphy

The three excavation units that lie near the crest of the knoll and that yielded the most abundant cultural remains have a similar profile, as represented by Test Pit 1, consisting of only two zones: Zone 1, 0-5 cm, very dark grayish brown (10YR 3/2) very fine sand, structureless, loose consistence; and Zone 2, 5-105+ cm, dark yellowish brown (10YR 4/4) silty very fine sand, slightly clayey, structureless, friable. The lack of evidence of any sedimentary structures suggests that the knoll containing the site is colluvial in origin. Thus, this knoll is probably a remnant of an interfluve isolated by erosion. In Test Pits 2, 4, and 6 on the flanks of the knoll, Zones 1 and 2 as described above are relatively thin (ca. 40 cm) and are underlain by 20+ cm of a yellowish brown (10YR 5/8) and light gray (10YR 7/1) mottled silty very fine sand with a noticeably higher clay content and a firm consistence. The origin and age of this lower unit is unknown. Finally, Test

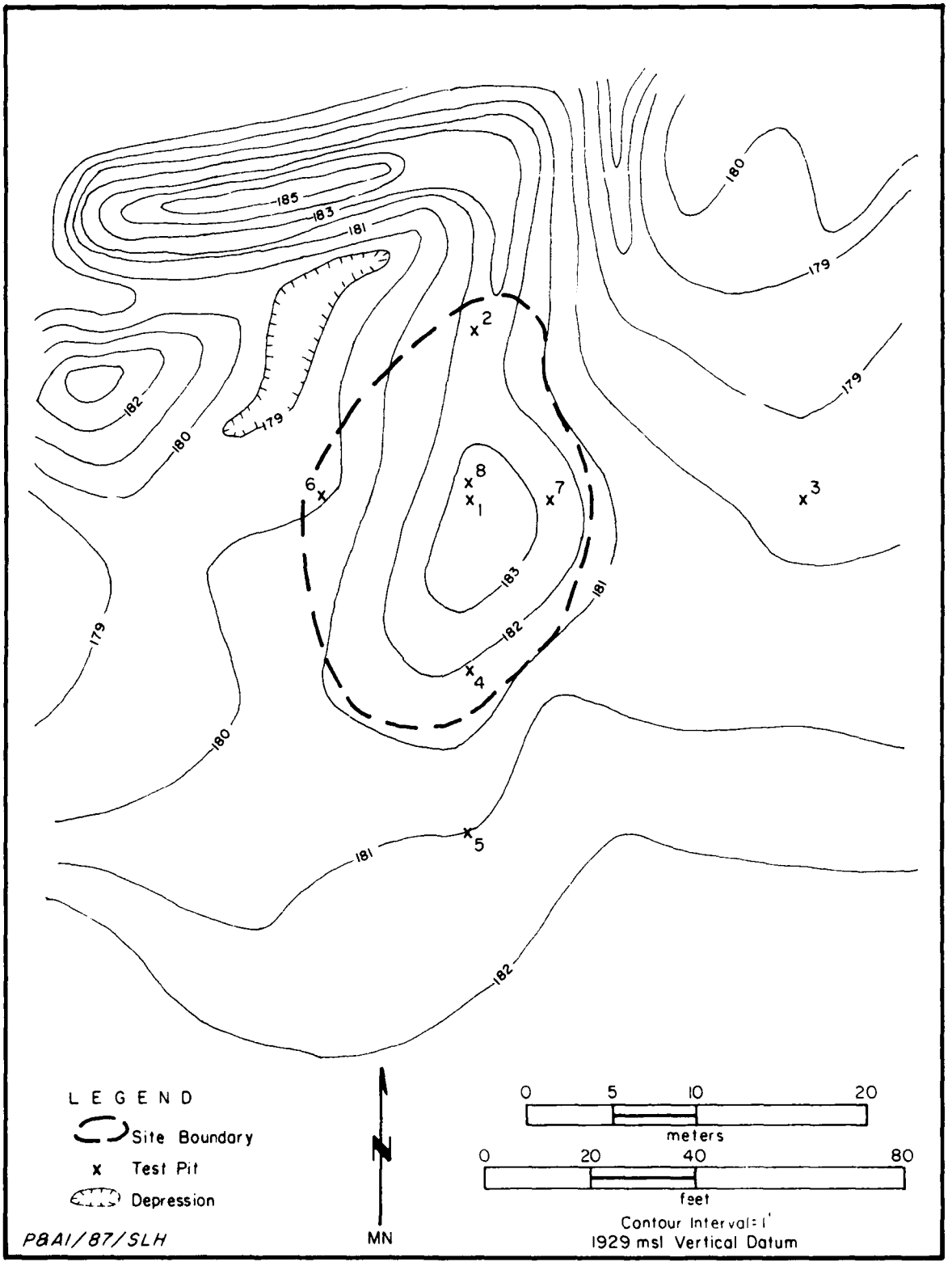

Figure 15. 16WE119 site map.

Pits 3 and 5 on the floodplain adjacent to the knoll exhibit a different set of deposits consisting of 40+ cm of white (10YR 8/2) to reddish brown (5YR 3/4) mottled, laminated silt loam with firm consistence; these sediments are clearly Holocene fluvial deposits.

While the full thickness of the Holocene colluvium on the top of the knoll is not known, it is clear that it exceeds 1 m. This unit, which bears the cultural remains, thins downslope around the margins of the knoll.

Site Extent and Depth

Site 16WE119 is well-defined topographically and by diminishing artifact frequencies. It is surrounded on the east and south by the floodplain of the Boone Creek tributary, and two units placed in these areas (Test Pits 3 and 5) contained no artifacts (see Fig. 15). The western boundary was placed just beyond Test Pit 6, which directly adjoins the floodplain and yielded only two artifacts. On the north, the rise containing the site abuts a manmade levee. The site measures 25 m north-south by 17 m east-west, covering an area of 330 m^2.

Artifacts were recovered as deep as 90 to 100 cm below the surface in Test Pits 1 and 8 on the top of the rise (Table 9). In Test Pit 1, cultural materials occurred most commonly at 50 to 100 cm; artifacts occurred throughout the upper 90 cm of Test Pit 8. Around the periphery of the rise, the cultural deposits are thinner, occurring to depths of 20 to 30 cm in Test Pits 2 and 4 and 70 cm in Test Pit 6 (see Table 9).

Materials Recovered

A total of 41 artifacts or other cultural remains were recovered from the test pits at 16WE119 (see Table 9). These consist of 33 pieces of unmodified debitage, 1 dart point, 1 unshaped bifacially worked flake, and 6 fire-cracked rocks. The unmodified debitage consists of 61% flakes, 15% chips, and 24% angular debris; 45% is of chert, 18% is of chalcedony, 27% is of quartzite, 6% is of silicified wood, and 4% is of other lithic materials. Over one-third (36%) of the flakes and chips retain some cortex. The dart point is a small thick point with an expanding stem, convex base, and beveled blade. It is composed of a light red chalcedony.

Discussion of Components

Six of the eight test pits at this site yielded cultural remains. The density of the cultural materials in these pits is 27 items/m^2 (42 items/m^3). This figure, like those for the other sites tested during this project, is low and is judged to reflect nonintensive and short-term usage of the site.

The vertical distributions of the cultural materials in the test pits appear to indicate the existence of multiple components. All three of the test pits on the top or

TABLE 9

DISTRIBUTION OF CULTURAL MATERIALS AT 16WE119

		Levels											
Test Pit		1	2	3	4	5	6	7	8	9	10	11	Totals
1		-	-	1D	-	-	1D	2D 1T	-	1D 1P	1D	-	8
2		-	2D	2D	-	-	-						4
3		-	-	-	-								0
4		1D	3D 1F	-	-								5
5		-	-	-	-								0
6		-	-	-	-	-	1F	1D					2
7		-	1D	4D	1D	-	-	-	3F 1D	-			10
8		1D	2D	1D	1F 3D	-	1D	1D	1D	1D	-		12
		—	—	—	—	—	—	—	—	—	—	—	—
Totals:	#	2	9	8	5	0	3	5	5	3	1	0	41
	%	4.9	22.0	19.5	12.2	0	7.3	12.2	12.2	7.3	2.4		

D = unmodified debitage
F = fire-cracked rock
T = other flaked artifact
P = dart point

upper slopes of the rise (Test Pits 1, 7, and 8) have bimodal artifact distributions, with 50% of the specimens from these units occurring at depths of 0 to 40 cm and 50% occurring at 50 to 100 cm (see Table 9).

The deeper concentration of materials yielded the Archaic dart point and the bifacially worked flake along with 10 pieces of unmodified debitage and 4 fire-cracked rocks. While the paucity of artifacts is a problem, it is tempting to speculate that these materials reflect a discrete Preceramic occupation. The upper concentration of materials yielded 14 pieces of unmodified debitage and 1 fire-cracked rock, but no diagnostic artifacts. If the temporal assessment of the lower concentration is correct, these upper materials may reflect a subsequent late Archaic occupation or, more likely, a Pre-Caddoan Ceramic or Caddoan occupation.

16WE121/122

This site occurs on two parts of an interfluve -- a narrow projection and a gentle slope -- that were considered as individual sites in the survey phase. Testing within and between these areas of the interfluve determined that the cultural deposits are continuous and similar in content. For this reason, they are described here as one site.

Setting

Site 16WE121/122 is located on the eastern edge of an interfluve that overlooks the floodplain of a tributary of Boone Creek, which flows 200 m to the northeast of the site. It includes two areas, a narrow projection at the southern end, designated 16WE121, and a gentle slope at the north end, designated 16WE122, and the area between them. The elevation of the combined site area ranges from 180 to 186 ft above mean sea level. The vegetation differs between the two areas. The southern part is covered by a mixed pine hardwood forest with a relatively open understory of hardwood shrubs and a ground surface covered with pine needles and leaf litter. The northern area also is covered by a mixed pine hardwood forest, but the area above the 184-ft contour interval supports a pine plantation with an understory of high grasses. Disturbance to the site appears to be minimal, with some erosion along the sloping east edge of the interfluve indicated by thin soils encountered in testing.

Work Accomplished

Twenty-five test pits were excavated at 16WE121/122. These were placed along two separate but connecting grid systems (Fig. 16). The test pits on the 16WE121 grid are distinguished by the letter "A" following the test pit number, while the test pits of the 16WE122 grid are labeled with "B" following the test pit number. The grid systems were oriented to the cardinal directions. The depth of the test pits ranged from 20 to 110 cm, with the average depth being 50 cm. The total volume of fill excavated at 16WE121/122 was 3.125 m^3.

Sediments and Stratigraphy

All of the test pits at 16WE121/122 exhibit a profile consisting of three zones, as seen in Test Pit 1A: Zone 1, 0-7 cm, grayish brown (10YR 5/2) very fine sand with many gray (10YR 5/1) and pale brown (10YR 6/3) mottles, structureless, loose consistence; Zone 2, 7-27 cm, pale brown (10YR 6/3) to strong brown (7.5YR 5/6) very fine sand, structureless, very friable to friable; and Zone 3, 27-37+ cm, strong brown (7.5YR 5/8) very fine sand with increasing clay, slightly platy structure, friable to firm. Toward the north end of the site, the zones thicken and are somewhat more mottled, as represented by Test Pit 1B: Zone 1, 0-6 cm, grayish brown (10YR 5/2) very fine sand with many gray (10YR 5/1) and pale brown (10YR 6/3) mottles, structureless, loose consistence; Zone 2, 6-35 cm, yellowish brown (10YR 5/4) very fine sand, structureless, very friable; and Zone 3, 35-76+ cm, strong

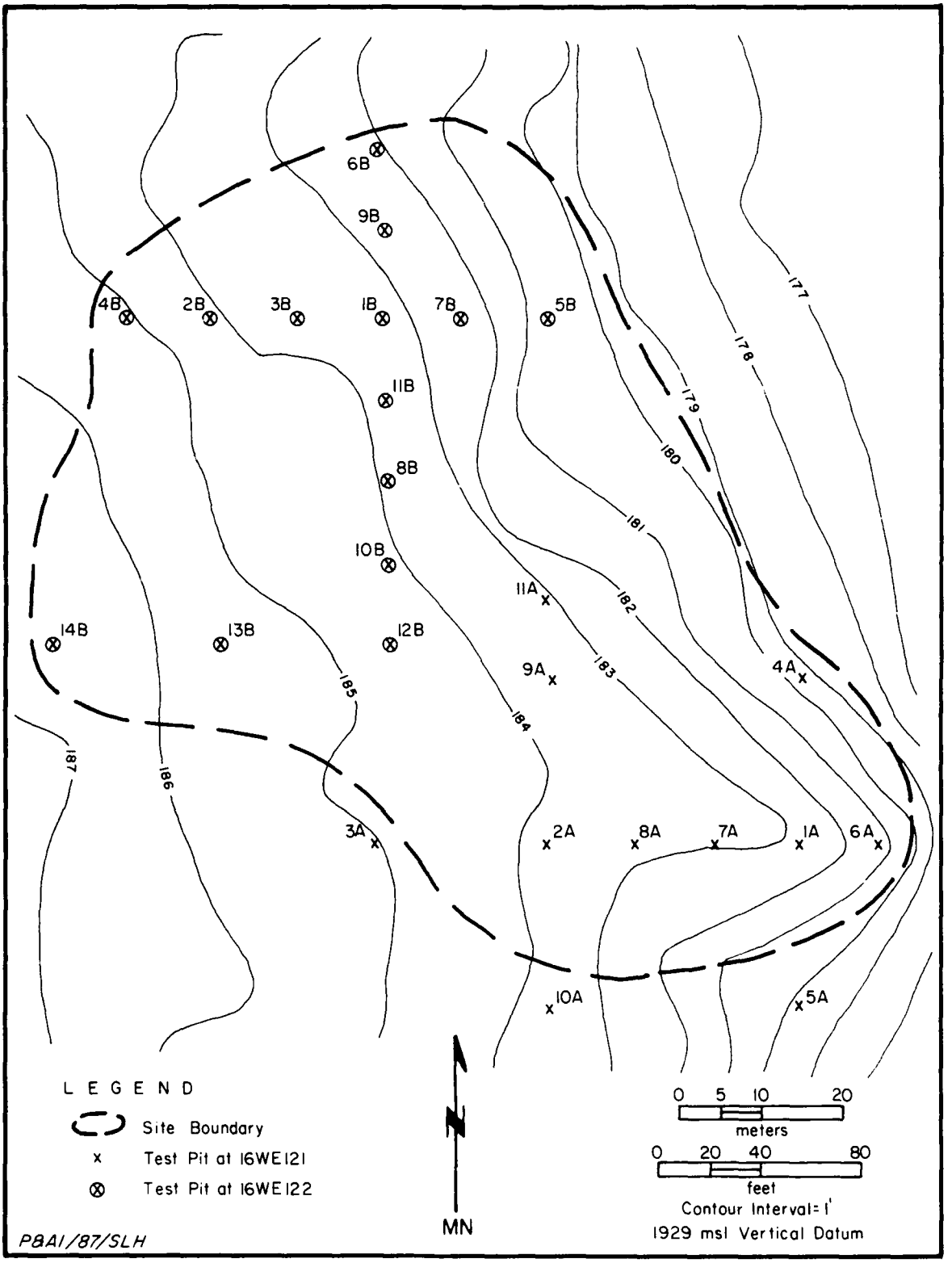

Figure 16. 16WE121/122 site map.

brown (7.5YR 5/8) very fine sand with many brown (7.5YR 5/4) and reddish yellow (7.5YR 7/6) mottles. The little-altered sediments in Zones 1 and 2 are probably Holocene colluvium, while the Zone 3 sediments are most likely colluvium or alluvium dating no later than the early Holocene.

The surficial unit varies in thickness across the site, although it is generally thin. Test pits on the lower part of the interfluve slope have the thinnest deposits, ranging from a thickness of 8 cm in Test Pit 5B to 17 cm in Test Pit 4A. Slightly upslope, the probable colluvial layer increases, attaining a thickness of 35 cm in Test Pits 1B, 8B, and 9B, and ranging up to 52 cm in Test Pit 1A. The deepest Holocene deposits are found on the relatively level upper surface of the interfluve, reaching a thickness of 70 cm in Test Pit 13B, 100 cm in Test Pit 12B, and over 110 cm in Test Pit 7A.

Site Extent and Depth

The horizontal extent of 16WE121/122 is 104 m north-south by 109 m east-west; the site has an area of 5,370 m^2. It is bounded by topography and by diminishing artifact frequencies. On the east, the edge of the interfluve bounds the site and is emphasized by low artifact frequencies in Test Pits 1A, 6A, and 5B. To the north, Test Pit 6B yielded only one artifact, and to the west, Test Pits 4B, 14B, and 3A yielded few to no artifacts. On the south, Test Pits 10A and 5A were negative.

The cultural deposits in the southern part of the site (16WE121; Test Pits 1A through 11A) are relatively thin. Although they range from 20 to 100 cm in thickness (Table 10), all but three units yielded materials from a cultural zone occurring at 0-40 cm below the ground surface. The single pit with thick cultural deposits (Test Pit 7A) yielded artifacts at depths of 10 to 100 cm. A similar vertical distribution of artifacts was found in the northern part of the site (16WE122; Test Pits 1B through 14B), where most of the cultural remains (72%) were found at depths of 40 cm or less (see Table 10). Only three units (Test Pits 1B, 12B, and 13B) contained deeper cultural materials, and one unit (Test Pit 12B) yielded fair quantities of materials to 80 cm. In this unit, the cultural deposit appears to occur chiefly at 20 to 80 cm (see Table 10).

Materials Recovered

A total of 114 artifacts or other cultural items were recovered from the test pits excavated at 16WE121/122 (see Table 10). These consist of 77 pieces of unmodified debitage, 1 dart point, 1 shaped biface, 1 unshaped bifacially worked specimen, 1 biface fragment, 15 pieces of edge-modified debitage, 1 core, 1 battered pebble, and 16 fire-cracked rocks. The unmodified debitage at the site consists of 69% flakes, 21% chips, and 10% angular debris; 44% is of chert, 35% is of quartzite, 16% is of chalcedony, and 4% is of silicified wood. The percentage of chalcedony in the debitage is relatively low. Around 70% of the flakes and chips retain some cortex. The dart point can be characterized as small with expanding stem and convex base. It is made from a tan chert. Although it is not typeable, it is suggestive of an occupation dating to the Archaic or Pre-Caddoan Ceramic period. The biface is composed of the same tan chert as the point. It is triangular in outline, lenticular in cross section, and retains cortex on both faces. The

unshaped biface is a ferruginous sandstone cobble with limited bifacial flaking, and the biface fragment is a chalcedony biface tip removed during flaking. The battered pebble is of quartzite. One interesting aspect of the artifacts recovered is the relatively high percentage of edge-modified debitage in the sample.

Discussion of Components

Twenty-two of the 25 test pits at this site contained cultural materials. The density of cultural remains at 16WE121/122 is 21 items/m^2 (58 items/m^3). The density is slightly higher in the southern part of the site (16WE121; 25 items/m^2, 63 items/m^3) than in the northern part (16WE122; 19 items/m^2, 54 items/m^3). As with the other tested sites, such densities are considered to reflect nonintensive occupations of the site.

Three horizontal concentrations of artifacts appear to be present at 16WE121/122, all of which are located on the relatively level upper surface of the interfluve. The southernmost of these was sampled by Test Pit 7A. This test pit produced a variety of artifacts extending from 10 to 100 cm below the ground surface, with most of the materials (64% of the unit total) occurring between 30 and 60 cm. While the thickness of these deposits certainly suggests that multiple components are represented, no temporally diagnostic artifacts were recovered to help date this part of the site.

The second horizontal concentration is in the middle of the site and is represented by Test Pits 9A, 12B, and 13B. Test Pits 12B and 13B produced 12 pieces of unmodified debitage, 1 biface fragment, 3 edge-modified flakes, 1 core, 1 battered pebble, and 9 fire-cracked rocks. The majority of these materials (88%) came from depths of 30 to 80 cm. Test Pit 9A yielded a fair number of cultural items, including one dart point, although these remains occurred at shallower depths than did those in Test Pits 12B and 13B. The dart point suggests that this concentration of cultural materials dates at least in part to the Archaic or Pre-Caddoan Ceramic period. Additionally, the relatively thick cultural deposits in Test Pits 12B and 13B suggest that multiple components may be represented.

The third horizontal concentration is in the north-central part of the site and is represented by Test Pits 2B, 3B, 8B, and 11B. These tests produced 20 pieces of unmodified debitage, 5 pieces of edge-modified debitage, and 1 fire-cracked rock. All of these materials were recovered at depths of 40 cm or less. That these cultural deposits are not thicker suggests that multiple components may not be represented in this part of the site; however, the lack of temporally diagnostic artifacts prevents a temporal assessment.

16WE123

Setting

Site 16WE123 is located on the northern projection of an interfluve that bounds the western edge of the floodplain of a tributary of Boone Creek. The tributary channel is approximately 200 m east of the site. The site sits at an elevation of 184 ft above mean sea level. The vegetation on the site consists of planted pines with a few interspersed

TABLE 10

DISTRIBUTION OF CULTURAL MATERIALS AT 16WE121/122

		Levels											
Test Pit		1	2	3	4	5	6	7	8	9	10	11	Totals
16WE121													
1A		-	-	-	1D	1F	-						2
2A		1D	1T	-	-								2
3A		-	-	-	-								0
4A		1F	1D	-									2
5A		-	-	-	-								0
6A		1D	2D	1D	-	-							4
7A		-	1D	1D	1T 3D	3F 4D	1T 4D	1D	2D	1T	3D	-	25
8A		-	1D	-	-	-							1
9A		1T 1D	1T 2D 1P	1F 4D	-	-							11
10A		-	-	-	-								0
11A		-	1D	-	1T	-							2
Totals:	#	5	11	7	6	8	5	1	2	1	3	0	49
	%	10.2	22.4	14.3	12.2	16.3	10.2	2.0	4.1	2.0	6.1	0	
16WE122													
1B		-	-	-	-	-	2D	-	-				2
2B		1T 1F 1D	1T 2D	2D	1D	-	-						9
3B		1T 3D	1T 1D	-	-	-	-						6
4B		1D	-										1
5B		1D	-										1
6B		-	1D	-									1

D = unmodified debitage
F = fire-cracked rock
T = other flaked artifact
L = other lithic

Table 10, continued

		Levels											
Test Pit		1	2	3	4	5	6	7	8	9	10	11	Totals
7B		1D	1T	-	-								2
8B		1T 1D	1D	1D	1D								5
9B		-	-	2D	-	-							2
10B		-	1T	-									1
11B		-	1D	5D	-								6
12B		2D	-	3D	2D	2F 1T 2D	1T 2D	1T 1F	1T 1D	-	-		19
13B		-	1F	3F	-	1T 1F 1L	1F	-					8
14B		1D	-	-	1D	-	—	—	—	—	—		2
Totals:	#	15	11	16	5	8	6	2	2	0	0		65
	%	23.1	16.9	24.6	7.7	12.3	9.2	3.1	3.1	0	0		

hardwoods. These tall pines cause the forest understory to be relatively open. The understory is composed of hardwood shrubs with a dense ground cover of poison ivy. Disturbances to the site are not obvious, but some disturbance may have resulted from the tree planting and cultivation.

Work Accomplished

The testing of 16WE123 was accomplished by the excavation of 14 test pits. These pits were placed across the site on a grid oriented to the cardinal directions (Fig. 17). The north-south grid line crossed the eastern edge of the landform, while the east-west line cut perpendicular to the eastern slope of the interfluve. The depth of these test pits ranged from 20 to 80 cm below the surface; the average depth was 47 cm. A total volume of 1.625 m^3 of fill was excavated from these 14 test pits.

Sediments and Stratigraphy

All of the test pits at this site exhibit a consistent profile consisting of three zones, as represented by Test Pit 12: Zone 1, 0-7 cm, dark grayish brown (10YR 4/2) very

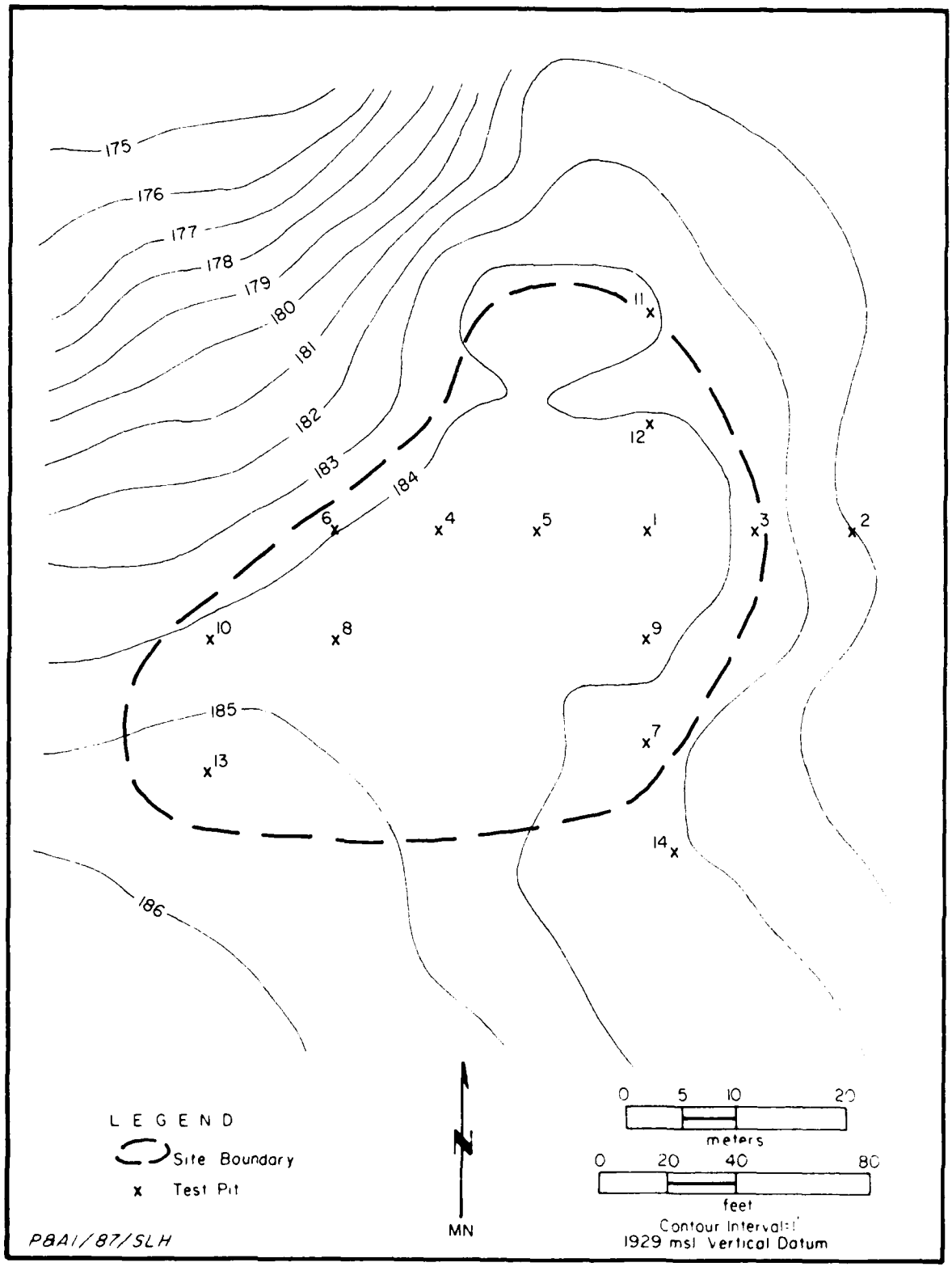

Figure 17. 16WE123 site map.

fine sand, structureless, loose; Zone 2, 7-42 cm, yellow (10YR 8/6) very fine sand, structureless, very friable; and Zone 3, 42-50+ cm, yellowish red (5YR 5/6) very fine sand with increasing clay, weak platy structure, friable to firm. Zones 1 and 2 are probably Holocene colluvium, and Zone 3 is an older deposit that may be Pleistocene alluvium or colluvium.

The surficial unit is consistently thin across most of the site. In most of the units, it varies in thickness from 26 cm (Test Pit 10) to 46 cm (Test Pits 4 and 14). It is only 14 cm thick in Test Pit 6, and it reaches a maximum thickness in excess of 80 cm in Test Pit 1.

Site Extent and Depth

The horizontal dimensions of 16WE123 are 50 m north-south by 55 m east-west, encompassing an area of 1,840 m^2. The site is defined topographically and by diminishing artifact frequencies. It is defined on the east by the absence of artifacts in Test Pit 2, on the south by the absence of artifacts in Test Pits 7 and 14, on the west by the very low artifact frequencies in Test Pits 10 and 13, and on the north by the steep interfluve slope and the absence of artifacts in Test Pit 11. As noted, the northeastern portion of 16WE123 appears to overlap slightly with the prehistoric component at 16WE114, but this area of overlap has low densities of cultural materials, and the two appear to be distinct.

The test pits at 16WE123 yielded cultural remains at depths of 0 to 60 cm below the surface (Table 11). Most of the materials (81%) were found at depths of 30 cm or less, however, and it is clear that the cultural deposits over most of the site are no more than 30 or 40 cm thick. The only exception may be the area around Test Pit 1, where artifacts were found consistently to a depth of at least 50 cm.

Materials Recovered

A total of 36 artifacts or other cultural items were recovered from the test pits excavated at 16WE123 (see Table 11). These consist of 32 pieces of unmodified debitage, 1 edge-modified flake, and 3 fire-cracked rocks. No temporally diagnostic artifacts were recovered during the testing; however, an unfinished [illegible]nt was recovered from the site during the survey (Driskell and Fields 1988:144). The unmodified debitage consists of 72% flakes and 28% chips; 56% is of chert, 28% is of chalcedony, 12% is of quartzite, and 4% is of other lithic materials. Less than half of the flakes and chips (44%) retain some cortex.

Discussion of Components

Ten of the 14 test pits at this site yielded cultural materials. The density of the cultural remains at 16WE123 is 14 items/m^2 (42 items/m^3). This density indicates that the site was used in a nonintensive fashion. Only one horizontal concentration of materials appears to be present at 16WE123. This concentration, which is sampled by Test Pits 1 and

TABLE 11

DISTRIBUTION OF CULTURAL MATERIALS AT 16WE123

		Levels								
Test Pit		1	2	3	4	5	6	7	8	Totals
1		4D	1D	1F 2D	1D	2D	1D	-	-	12
2		-	-	-	-					0
3		1D	1D	-	-	-				2
4		-	2D	-	1D	-				3
5		1D	-	1D	-					2
6		1D	1F							2
7		-	-	-	-	-				0
8		-	-	3D	-	-				3
9		-	-	-	-	-	1F			1
10		1D	-	-						1
11		-	-	-	-					0
12		1D	1D	1T 4D	1D	-				8
13		1D	-	1D	-					2
14		-	-	-	-	-	—	—	—	0
Totals:	#	10	6	13	3	2	2	0	0	36
	%	27.8	16.7	36.1	8.3	5.6	5.6	0	0	

D = unmodified debitage
F = fire-cracked rock
T = other flaked artifact

12, extends not less than 10 m north-south along the eastern edge of the interfluve, just above where it begins to slope down toward the floodplain. The concentration produced 18 pieces of unmodified debitage, the single edge-modified flake found at the site, and 1 fire-cracked rock. The bulk of the cultural deposits in this part of the site are no more than 40 cm thick, although Test Pit 1 may have deposits as thick as 60 cm. While deposits of this thickness may suggest the presence of multiple components, the paucity of the cultural remains and the lack of temporally diagnostic artifacts prevent a confident assessment.

16WE126

Setting

This site lies on the eastern edge of an interfluve that projects between two intermittent tributaries to Boone Creek. The tributary 40 m south of the site is much larger than the shallow gully that is adjacent to the north end of the site, but both have running water. The elevation of the site ranges from 177 to 183 ft above mean sea level. The site is covered with a mixed pine-hardwood forest; the undergrowth is relatively open, but a dense, viney vegetation is present over the western part of the site. This vegetation may indicate that part of the site has been disturbed, but no other evidence of disturbance was noted.

Site 16WE126 is composed of three areas; Areas A and B are fairly small, while Area C is considerably larger (Fig. 18). Area A is at the north end of the site on a narrow projection of the interfluve that rises 2 to 3 ft above the surrounding interfluve slope. The small gully that runs across the north end of the site effectively bounds this landform to the east. Area B is a rise just east of the base of the interfluve slope; it stands only about 1 ft above the floodplain and may be a remnant of the interfluve that has been cut off by stream erosion. Area C is situated at the south end of the site at a point where the interfluve rises relatively steeply from the floodplain south and east of the site.

Work Accomplished

A total of 30 test pits were excavated at the site: 4 in Area A, 7 in Area B, 15 in Area C, and 4 in the floodplain between the three site areas (see Fig. 18). The main grid lines form an "L" shape aligned to the cardinal directions and crossing the staked center points of Areas B and C. Auxiliary grid lines were placed perpendicular to the main grid lines to cross Area A and to provide additional horizontal control in Areas B and C.

The test pits varied greatly in depth. In Area A, the four test pits ranged from 50 to 80 cm deep, with an average depth of 68 cm. The seven test pits in Area B ranged from 30 to 110 cm deep, with an average depth of 59 cm. The Area C test pits ranged from 40 to 100 cm deep, with an average depth of 69 cm. The four test pits excavated in the floodplain were shallow, reaching depths of only 20 to 30 cm and having an average depth of 28 cm. A total of 4.575 m^3 was excavated at 16WE126: 0.675 m^3 in Area A, 1.025 m^3 in Area B, 2.600 m^3 in Area C, and 0.275 m^3 in the floodplain areas.

Sediments and Stratigraphy

In spite of the fact that this site consists of three separate areas, a single profile characterizes the sediments occurring on the interfluves in Areas A-C, as represented by Test Pit 1 in Area B: Zone 1, 0-5 cm, brown (10YR 5/3) very fine sand, structureless, loose consistence; Zone 2, 5-25 cm, yellowish brown (10YR 5/4) silty very fine sand, structureless, very friable; Zone 3, 25-55 cm, very pale brown (10YR 7/4) silty very fine

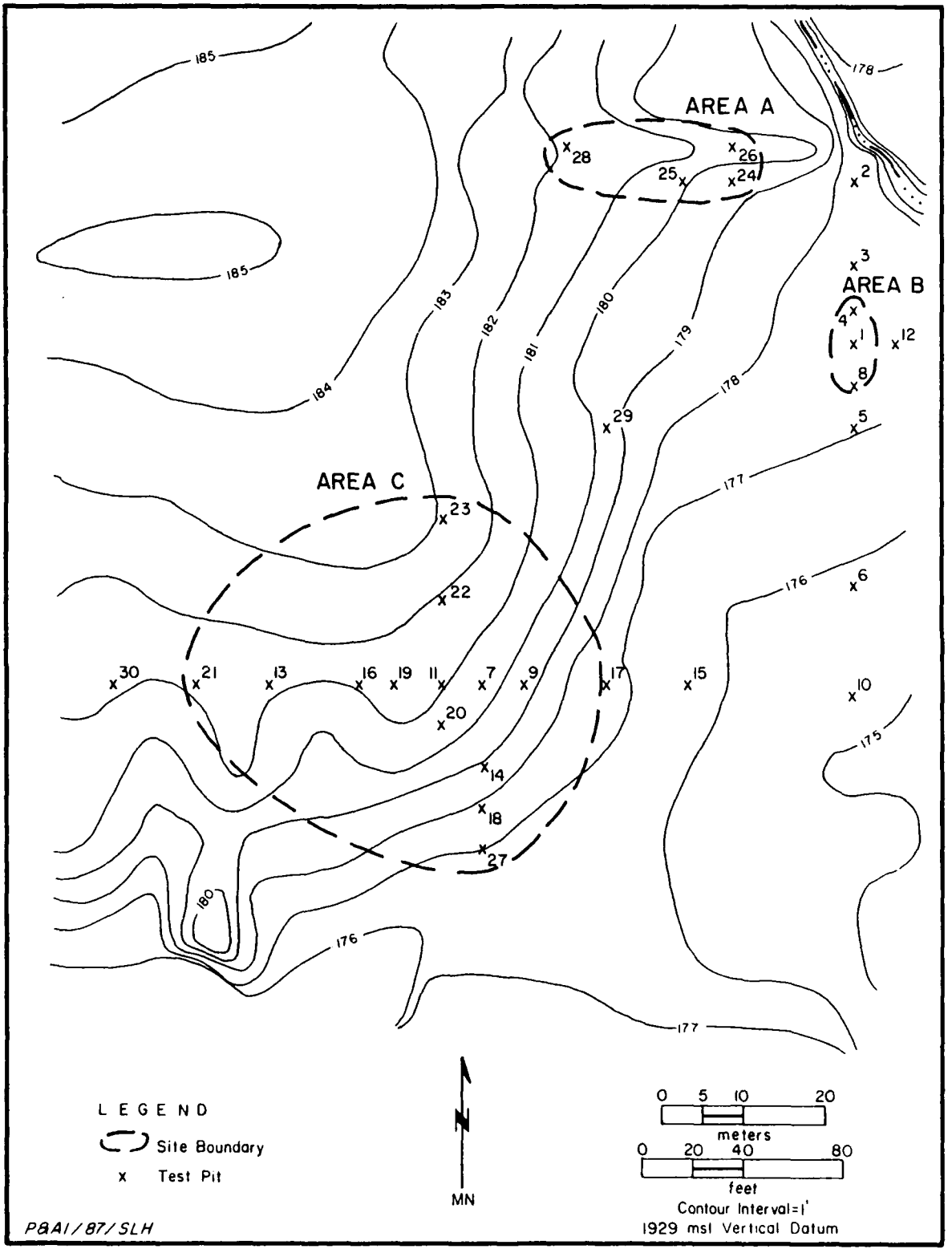

Figure 18. 16WE126 site map. Boundaries of area B were defined in part by the results of survey shovel tests.

sand, structureless, very friable; Zone 4, 55-95 cm, very pale brown (10YR 7/4) silty very fine sand with many brownish yellow (10YR 6/6) mottles, structureless, very friable; and Zone 5, 95-100+ cm, light brownish gray (10YR 6/2) silty very fine sand with many strong brown (7.5YR 5/8) mottles, indeterminate structure, friable to firm. Zones 1-4 may be Holocene colluvium, while Zone 5 may be a zone of mixing between the colluvium above and whatever deposits underlie the interfluve. The only significant variation noted in this profile across the site occurred in the upslope portion of Area C, where Zones 2 and 3 could not be distinguished from each other. Also, in Test Pit 9 in the eastern portion of Area C, the contact between Zones 4 and 5 appears to be marked by an erosional surface.

Within Area A, the surficial unit varies in thickness from 43 cm in Test Pit 28 upslope to 60-73 cm in the downslope test pits. In Area B, the probable Holocene colluvium is thickest (95 cm) in Test Pit 1 on the crest of the knoll and thins to 42-54 cm in Test Pits 4 and 8 on the knoll flanks. In Area C, the surficial unit is consistently 55-65 cm thick in the central portion (Test Pits 7, 9, 11, 16, 19, 20, 22, and 23) and 42-46 cm thick in the western portion (Test Pits 13, 21, and 30). The downslope parts of this area have both the thinnest (21 cm in Test Pit 27) and the thickest (78 cm in Test Pit 14) Holocene colluvial deposits.

Site Extent and Depth

The site is oval and measures 100 m northeast-southwest by 50 m northwest-southeast, covering an area of 3,927 m^2. However, this figure includes a floodplain area in the center of the site which did not yield cultural materials (see Fig. 18). A more representative measure of the extent of the cultural deposits is obtained by calculating the dimensions of each site area. Area A measures 10 m north-south by 27 m east-west and covers an area of 210 m^2. Area B is 12 m north-south by 5 m east-west and covers an area of 50 m^2. Area C is the largest part of the site and is 46 m north-south by 51 m east-west, an area of 1,840 m^2. The sum of the site areas is 2,100 m^2.

The site boundaries are defined on the basis of artifact distributions and topography. The boundaries of Area A are set on a topographic basis for the most part, as the artifact scatter is quite diffuse. The northern, eastern, and southern limits of this area correspond to a relatively steep drop in elevation, while the western boundary is set just beyond Test Pit 28, which yielded only one artifact. Area B yielded so few artifacts that the results of the survey-phase shovel testing can be used to best delimit the extent of the area. These shovel tests were near Test Pits 1 and 8. The site boundary as shown includes positive Test Pit 4 and the two shovel tests and is somewhat smaller than the landform that Area B rests on. Area C is partially defined on the basis of diminishing artifact frequencies. It is delimited on the east, south, and west by the absence or near-absence of artifacts in Test Pits 17, 27, and 30. The north side of the site is not well defined, as Test Pit 23 on the northern periphery of the currently defined site area yielded 10 cultural items. The site may extend farther to the north and northwest onto the upper surface of the interfluve, but the dense vegetation in these areas hindered a complete definition of the site in this direction. However, other similar sites in this area (e.g., 16WE121/122) were found to be limited to the interfluve margin overlooking the floodplain so, by analogy, 16WE126 is unlikely to extend much farther to the north or northwest.

The depth to which the cultural remains occur varies greatly across the site (Table 12). In Area A, cultural materials extended to 50 cm in three of the four test pits; the fourth test pit is on the western periphery of the site and yielded cultural materials only in the uppermost 10 cm. The cultural remains in Area B are so sparse that it is difficult to determine the thickness of the deposits; the single positive test pit yielded an artifact between 10 and 20 cm, as did one of the survey-phase shovel tests, but the second of the two initial shovel tests yielded artifacts to a depth of 50 cm. Area C yielded sufficient cultural materials to provide a good estimate of the thickness of the cultural deposits in this part of the site; the maximum depth ranges from 10 to 90 cm across the site, with a number of the pits yielding materials to at least 70 cm (see Table 12).

Materials Recovered

A total of 89 artifacts or other cultural items were recovered from 16WE126 during the testing program: 13 from Area A, 1 from Area B, and 75 from Area C (see Table 12). The chipped stone artifacts consist of 74 pieces of unmodified debitage, 1 dart point, 1 biface fragment, 1 uniface, 4 pieces of edge-modified debitage, and 1 core. The dart point has an expanding stem and is made of chert. The uniface is fashioned on the distal part of a broken expanding-stem dart point of chalcedony that has ground stem edges and is strongly reminiscent of some early Archaic forms. The unmodified debitage consists of 69% flakes, 22% chips, and 9% angular chunks; 49% is of chert, 26% is of chalcedony, 23% is of quartzite, and 3% is of other materials. Almost half of the flakes and chips (48%) are corticate. In addition to these artifacts, one battered cobble, one manuport, and five fire-cracked rocks were recovered; the manuport is a ferruginous sandstone chunk. Although none were found during the testing, two ceramic sherds were recovered from the site during the survey. Both are grog-tempered, sandy clay paste body sherds (Driskell and Fields 1988: 144-145) which initially were identified to the late Caddo period. However, the paste and design motifs on these specimens are typical of the type Holly Fine Engraved, which is associated with the early Caddo Alto Focus in northwestern Louisiana (Neuman 1970:15).

Discussion of Components

Of the 30 test pits excavated at the site, 18 were positive. Eighty-nine artifacts or other cultural items were recovered from these test pits, for an overall density of 20 items $m/^2$ (40 items/m^3). This density is judged to reflect nonintensive usage of the site.

Area A was tested with four pits, all of which were positive. Thirteen cultural items were recovered from these test pits; the density of the cultural remains is 13 items/m^2 (33 items/m^3). These materials consist of 11 flakes, 1 angular chunk, and 1 fire-cracked rock. All of these were found above 50 cm. In the vertical distribution of the artifacts, density peaks occur at 0 to 10 cm, 20 to 30 cm, and 40 to 50 cm, but it is difficult to assert that these are significant when the sample is so small; thus, it is unknown if these materials reflect multiple components. Due to the lack of time-diagnostic artifacts, the age of the component or components in Area A is unknown.

Area B was investigated with seven test pits; one was positive, yielding a single artifact at 10 to 20 cm. During the survey, one grog-tempered sherd and two fire-cracked

rocks were found at depths of less than 50 cm. Clearly, the cultural deposits in Area B are extremely sparse and fairly thin. They can be dated at least in part to the early Caddoan Alto Focus by the sherd.

Area C contains the most extensive and densest cultural deposits at the site. Of the 15 test pits excavated in this area, 13 were positive. The density of the cultural remains here is 23 items $m/^2$ (42 items/m^3). The materials found consist of 61 pieces of unmodified debitage, 1 dart point, 1 biface fragment, 1 uniface, 1 battered stone, 4 pieces of edge-modified debitage, 1 core, 1 manuport, and 4 fire-cracked rocks. In addition, one ceramic sherd was among the artifacts recovered from this area during the survey.

The core of Area C is on the mid to upper part of the interfluve and includes Test Pits 7, 9, 11, 13, 14, 16, 19, 22, and 23. This area has cultural deposits to depths of ca. 70 cm, and the subsoil was reached at around that same depth. The vertical distribution of the cultural materials in this area shows density peaks between 20 and 40 cm and between 50 and 70 cm. The upper concentration consists of 25 pieces of unmodified debitage and 1 piece of edge-modified debitage, while the lower concentration yielded 6 pieces of unmodified debitage, 1 biface fragment, 1 uniface, 1 core, 1 battered stone, and 2 fire-cracked rocks. No time-diagnostic artifacts were found in these test pits, although the uniface is a reworked early Archaic dart point. In general, the depth and distribution of the materials in the core of Area C make it probable that multiple components are represented, but these cannot be identified with certainty or dated given the information currently available.

All of the time-diagnostic artifacts in Area C came from the peripheral area on the lower slopes of the interfluve, where the cultural deposits and the depth to the subsoil are around 20 to 45 cm. The test pits sampling this peripheral area are Test Pits 18, 20, 21, and 27. The materials recovered here consist of 13 pieces of unmodified debitage, 1 dart point, and 1 piece of edge-modified debitage. In addition, this area yielded one ceramic sherd during the survey. The two temporally diagnostic artifacts came from roughly equivalent levels, the dart point from 20 to 30 cm in Test Pit 21 and the Alto Focus sherd from 10 to 20 cm in Shovel Test 6 in the vicinity of Test Pit 18. These two artifacts suggest that Pre-Caddoan and Early Caddoan components are present in this part of the site, but the thinness of the cultural deposits here precludes isolation of these components.

16WE127

Setting

This site is located on the streamward edge of a sloping interfluve 30 m southwest of a tributary to Boone Creek. The elevation of the site ranges from 181 to 184 ft above mean sea level, rising from east to west. A shallow gully cuts into the interfluve just south of the site boundary, giving the site the appearance of a small knoll above the floodplain. The area is densely forested in pine and hardwoods, with an understory of saplings, vines, and low forbs. No evidence of disturbance was observed in the vicinity of the site, with the exception of an overgrown road that leads past a hunter's blind just beyond the western boundary of the site. About 140 m west of the site is an ammunition assembly complex, but the construction of this facility does not appear to have affected the site.

TABLE 12

DISTRIBUTION OF CULTURAL MATERIALS AT 16WE126

		Levels											
Test Pit		1	2	3	4	5	6	7	8	9	10	11	Totals
AREA A													
24		2D	-	1D	-	1D	-	-					4
25		-	-	1D	1D	1F	-	-					3
26		-	2D	2D	-	1D	-	-	-				5
28		1D	-	-	-	-	—	—	—				1
Subtotals	#	3	2	4	1	3	0	0	0				13
	%	23.1	15.4	30.8	7.7	23.1	0	0	0				
AREA B													
1		-	-	-	-	-	-	-	-	-	-	-	0
2		-	-	-									0
3		-	-	-	-	-							0
4		-	1D	-	-	-	-	-					1
5		-	-	-									0
8		-	-	-	-	-	-						0
12		-	-	-	-	-	-	—	—	—	—	—	0
Subtotals	#	0	1	0	0	0	0	0	0	0	0	0	1
	%	-	100	0	0	0	0	0	0	0	0	0	
AREA C													
7		-	-	2D	-	1M	1D	-					4
9		3D	-	-	1T 1D	-	-	-	-	1F	-		6
11		-	1T 1D	-	1D	-	-	-	-				3

D = unmodified debitage
M = manuport
T = other flaked artifact
F = fire-cracked rock
L = other lithic
P = dart point

Table 12, continued

Test Pit		Levels 1	2	3	4	5	6	7	8	9	10	11	Totals
13		-	-	1D	-	-	1D	1D	-	-			3
14		-	-	1T	-	-	1F 1D	-	-				3
16		-	-	-	-	-	1T	-					1
17		-	-	-	-								0
18		-	-	2D	3D	-	-	-					5
19		1D	1D	2D	-	-	1T	1F 1D					7
20		-	1T 1D	3D	-	-	-						5
21		-	2D	1P	1D	-	-						4
22		2D	3D	10D	5D	1D	-	1T 1L	-	-			23
23		4D	-	2D	1D	1F 1D	-	1D					10
27		1D	-	-	-								1
30		-	-	-	-	-	—	—	—	—	—		0
Subtotals	#	11	10	24	13	4	6	6	0	1	0		75
	%	14.7	13.3	32.0	17.3	5.3	8.0	8.0	0	1.3	0		
OTHER													
6		-	-	-									0
10		-	-	-									0
15		-	-	-									0
29		-	-	-									0
Subtotals		0	0	0									0

Work Accomplished

Eleven test pits were excavated at the site (Fig. 19). The main grid line was oriented north-south across the staked center point of the site, and two supplementary grid lines were oriented perpendicular to this main line and to the slope on the northern and southern ends of the site. The test pits ranged from 50 to 110 cm in depth, with an average depth of 77 cm. A total of 2.125 m^3 was excavated.

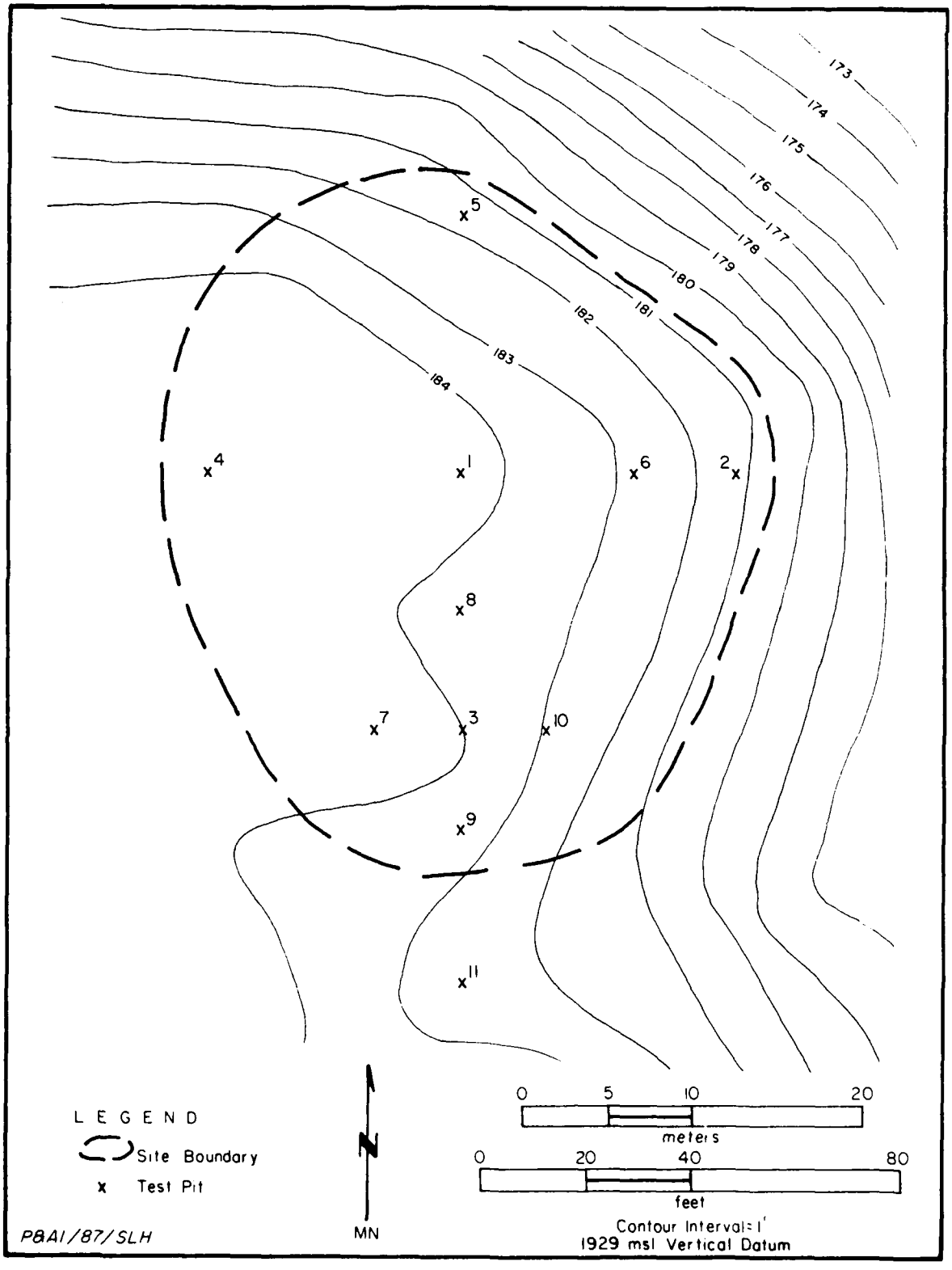

Figure 19. 16WE127 site map.

Sediments and Stratigraphy

All of the test pits at 16WE127 exhibit a consistent profile, as represented by Test Pit 1: Zone 1, 0-5 cm, dark grayish brown (10YR 4/2) very fine sand, structureless, very friable; Zone 2, 5-40 cm, yellowish brown (10YR 5/4) very fine sand, structureless, very friable; Zone 3, 40-65 cm, yellow (10YR 7/6) silty very fine sand, structureless, friable; and Zone 4, 65-85+ cm, strong brown (7.5YR 5/7) silty very fine sand, slightly clayey, indeterminate structure, friable to firm. Zones 1-3 are probably Holocene colluvium, while Zone 4 is an older deposit, probably alluvium or colluvium that dates no later than the early Holocene.

The little-altered surficial unit is of moderate thickness across most of the site. It is thinnest in upslope (36 cm in Test Pit 4) and downslope (41-50 cm in Test Pits 2, 5, and 6) parts of the site; it reaches its maximum thickness of ca. 90 cm in Test Pits 3 and 7 in the southern part of the site. Elsewhere, thicknesses range from 53 to 68 cm.

Site Extent and Depth

The site measures 41 m north-south by 36 m east-west, and the total site area is 1,160 m^2. The site boundaries are defined on the basis of artifact distributions and surface topography. The site is delimited on the north and east by the steep interfluve slope and on the south and west by the absence or near-absence of artifacts in Test Pits 11 and 4 (see Fig. 19). The cultural deposits appear to be limited to an area of relatively thick soils on the crest of the interfluve.

The maximum depth of the cultural deposits below the modern ground surface ranges from 10 to 90 cm (Table 13). Most units yielded materials to at least 50 cm, and three units contained artifacts to depths of 70 to 90 cm.

Materials Recovered

A total of 36 artifacts or other cultural items were recovered in the testing of 16WE127: 30 pieces of unmodified debitage, 1 dart point fragment, 1 biface, 1 small biface fragment, 1 edge-modified flake, and 2 fire-cracked rocks (see Table 13). The debitage consists of 22 flakes, 5 chips, and 3 angular fragments; it is mostly of chert (80%), with smaller quantities of chalcedony (10%) and quartzite (10%). Almost half of the flakes and chips (44%) retain some cortex. The dart point is made of chert and has a slightly contracting stem; it may be a manufacturing failure. The biface is of petrified wood and appears to have been utilized.

Discussion of Components

Of the 11 test pits excavated at the site, 9 were positive; the density of the cultural remains in these pits is 16 items/m^2 (31 items/m^3). This low density characterizes the occupations of the site as being very nonintensive.

TABLE 13

DISTRIBUTION OF CULTURAL MATERIALS AT 16WE127

		Levels											
Test Pit		1	2	3	4	5	6	7	8	9	10	11	Totals
1		-	1T 1D	2D	-	-	-	-	-				4
2		-	-	2D	1F	1D	-						4
3		-	1T 1D	1D	-	2D	1D	1D	2D	1F 1T 1D	-	-	12
4		1D	-	-	-	-							1
5		-	-	-	1D	-	-						1
6		1D	-	-	1D	-	2D	1D	-				5
7		1D	-	-	-	-	1D	-	1D	-	-		3
8		-	-	-	-	2D	-	-					2
9		-	1D	-	-	1P 2D	-	-	-	-			4
10		-	-	-	-	-	-	-	-				0
11		-	-	-	-	-	-	-	-	-	-	-	0
Totals	#	3	5	5	3	8	4	2	3	3	0	0	36
	%	8.3	13.9	13.9	8.3	22.2	11.1	5.6	8.3	8.3	0	0	

D = unmodified debitage
P = dart point
F = fire-cracked rock
T = other flaked artifact

The thickest and densest cultural deposits occur on the east side of the site, as sampled by Test Pit 3. The vertical distribution of the materials in this pit shows two density peaks, which are roughly reflected in the distribution of the materials from the site as a whole; these occur at 10 to 30 cm and at 40 to 90 cm. The only potentially diagnostic artifact is a single dart point fragment, which was recovered from the lower concentration of cultural materials. This dart point, the thickness of the deposits in the eastern part of the site, and the artifact distributions suggest that multiple components may be represented, with the lower materials perhaps reflecting Archaic or Pre-Caddoan Ceramic occupations and the upper materials reflecting Caddoan or Pre-Caddoan Ceramic occupations. The artifacts are too sparse and the diagnostic items are too few, however, to allow such a conclusion to be drawn with much certainty.

16WE129

Setting

This site lies on a floodplain rise and on the nose of an adjacent interfluve located in the bend of a tributary to Boone Creek; the tributary channel adjoins the site to the south and southwest. The elevation of the crest of the rise is 173 ft above mean sea level, and the highest point on the interfluve is 176 ft above mean sea level. A low area between these rises may be a relict channel of the Boone Creek tributary. To the east, a shallow gully drains into the creek, and north of it, an ephemeral drainage disappears into the floodplain. Mixed pine-oak woodland covers the site, with an open understory of saplings, low grasses, and forbs.

The main source of disturbance to 16WE129 is an elevated transmission line which runs north-south along the western boundary of the site. The powerline right-of-way clearing is 20 to 25 m wide and featureless; construction appears to have obliterated the natural landforms in this right-of-way. A bulldozed berm adjoins the clearing on the east side; another bulldozer spoil pile extends into the woods at the northern end of the site. Minor disturbance has occurred in a low area between the rise and the interfluve where some large trees were felled as the creek cut eastward at a bend; their limbs have disturbed the ground surface to a limited extent.

Work Accomplished

Twelve test pits were excavated at the site (Fig. 20). Five pits were placed along a north-northwest to south-southeast grid line that bisected both the rise and the nose of the interfluve; seven pits were placed on two lines running perpendicular to the mai.. grid line, one each on the rise and the interfluve. The test pits ranged from 30 to 120 cm in depth; the average depth was 58 cm. A total of 1.750 m^3 was excavated.

Sediments and Stratigraphy

As noted above, 16WE129 occupies two distinct landforms, with the northern part of the site resting on a sloping interfluve and the southern site area on a floodplain rise. The sediments comprising these two areas are distinctly different, as are the origins of these two landforms. Test Pit 1 on the interfluve exhibits a profile consisting of four zones: Zone 1, 0-5 cm, very dark grayish brown (10YR 3/2) fine sandy loam, structureless, loose; Zone 2, 5-30 cm, dark yellowish brown (10YR 4/4) fine sandy loam with many brownish yellow (10YR 6/6) mottles, structureless, friable; Zone 3, 30-55 cm, very pale brown (10YR 6/4) to yellowish brown (10YR 5/6) fine sandy loam, structureless, friable; and Zone 4, 55-70+ cm, strong brown (7.5YR 5/8) loamy sand, slightly clayey, structureless, firm. Zones 1-3 appear to be Holocene colluvium while Zone 4 may be Pleistocene colluvium or alluvium. All of the test pits in this part of the site, except Test Pit 11, show profiles similar to Test Pit 1; the Holocene colluvium is thinnest (18 cm) in Test Pit 4 and thickest (55 cm) in Test Pit 1. The sediments observed in Test Pit 11 resemble those comprising the flood-

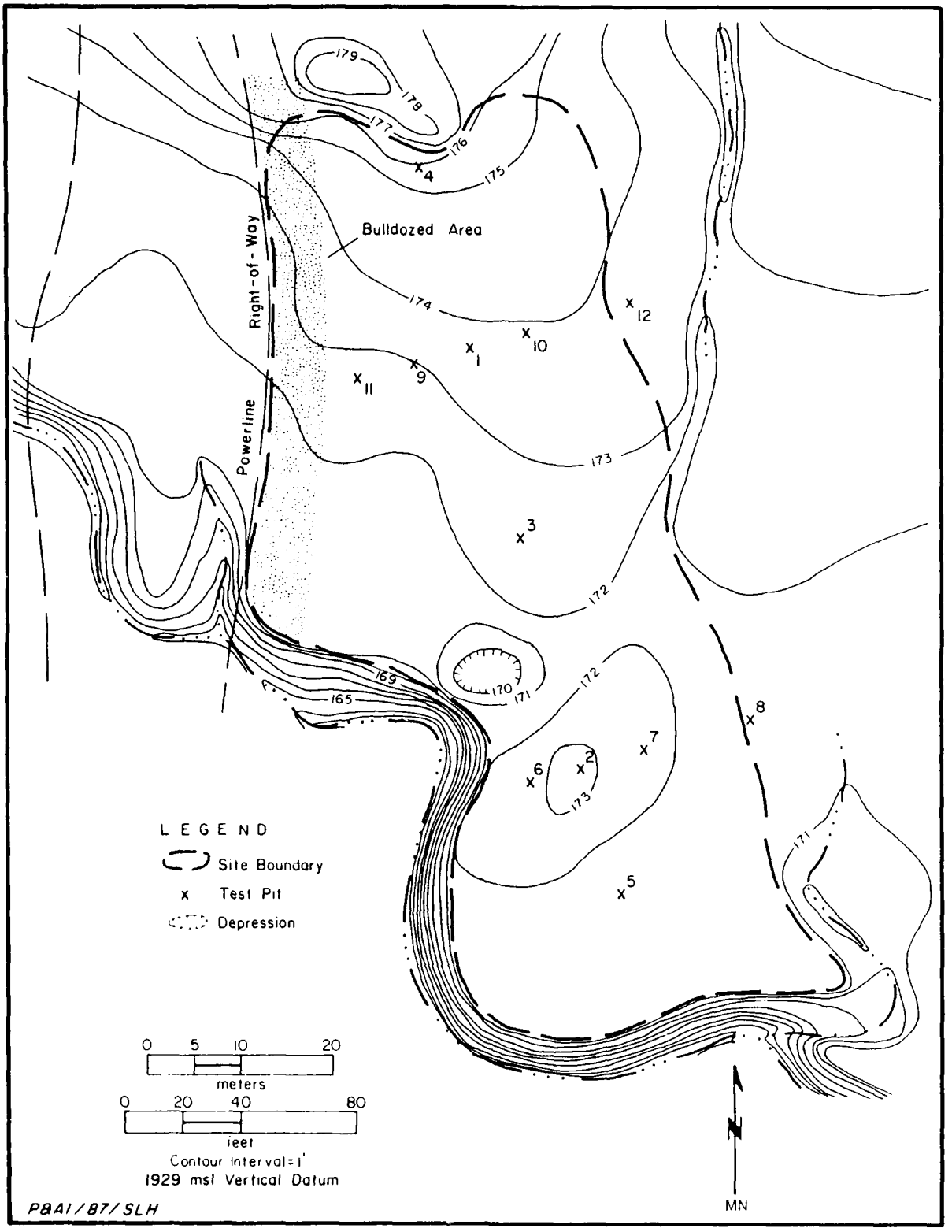

Figure 20. 16WE129 site map.

plain knoll to the south and probably represent a fluvial drape over the eroded lower interfluve slope.

The floodplain knoll that comprises the southern part of the site, which rises ca. 0.7 m above the surrounding floodplain surface, consists of little-altered Holocene fluviatile deposits and probably represents a remnant of a levee or sand bar deposited by the Boone Creek tributary that borders the site on the west. The profile exhibited by Test Pit 2 on the crest of this knoll consists of four zones: Zone 1, 0-10 cm, very dark grayish brown (10YR 3/2) loamy sand, structureless, loose consistence; Zone 2, 10-50 cm, dark yellowish brown (10YR 3/6) loamy sand, structureless, very friable; Zone 3, 50-90 cm, dark yellowish brown (10YR 4/6) loamy sand with many very pale brown (10YR 8/3) mottles, structureless, very friable; and Zone 4, 90-110+ cm, very pale brown (10YR 8/3) loamy sand, structureless, loose consistence. The darkness of Zones 1-3 is unusual in the sediments observed during this project, suggesting that the sediments in this part of 16WE129 were organically enriched as a result of the aboriginal occupations (i.e., an anthrosol). All of the sediments exposed by Test Pit 2 appear to date to the mid to late Holocene (see below).

The profiles of Test Pits 5 and 7 on the southern and eastern lower slopes of the knoll are similar to that of Test Pit 2, except that the possible anthrosol is thinner (40-45 cm) here than on the knoll crest. Test Pit 6, on the western flank of the knoll, does not contain any evidence of the possible anthrosol, and the sediments here contain numerous gravels and are laminated and clearly fluviatile. Finally, Test Pit 8, which lies on the floodplain east of the knoll, contains 30+ cm of heavily mottled, gray to pale brown, silty sediments that clearly reflect fluvial deposition. This, along with the current topography of the surrounding floodplain and the course of the Boone Creek tributary, suggest that the creek at one time may have flowed in a channel between the interfluve to the north and the knoll to the south. In short, 16WE129 is unique among the sites tested during this project because it rests in both fluvial and colluvial deposits, with the fluvial deposits apparently being stratified, and it contains a possible anthrosol that allows radiocarbon dating of soil humates (see below).

Site Extent and Depth

The site measures 100 m north-northwest to south-southeast by 40 m west-southwest to east-northeast (see Fig. 20). The irregularly shaped site area covers some 4,000 m^2. The boundaries of the site are defined by topography, disturbance, and artifact distributions. On the east, Test Pits 8 and 12, placed just west of shallow gullies incised into the flat floodplain surface, were negative. On the south and southwest, meanders of the Boone Creek tributary bound the site. On the west, a powerline appears to have disturbed any cultural deposits in the clearing below it. To the north, a bulldozer pile marks disturbance related to the powerline, and very thin cultural deposits resting on possible Pleistocene bedrock were found in Test Pit 4.

The depth to which cultural materials occur in the site is extremely variable, probably due to differences in thickness of the Holocene sediments (Table 14). On the floodplain rise, artifacts were found to a maximum depth of 30 cm in one test pit, to 40-50 cm in two pits, and to 110 cm in one unit; this latter pit may not have reached the bottom of the site. On the interfluve to the north, cultural deposits generally were thinner, extending to a depth of only 20 cm in one unit and reaching a maximum depth of just 70 cm.

TABLE 14

DISTRIBUTION OF CULTURAL MATERIALS AT 16WE129

		Levels												
Test Pit		1	2	3	4	5	6	7	8	9	10	11	12	Totals
FLOODPLAIN RISE														
2		1T	1C 1D	1D	2T 1D	1P 2F	2F	1F 1D	3D	1D	1D	1T 1D	-	21
5		-	1D	-	-	2D	-	-						3
6		1T	2D	1T 1D	-	-								5
7		-	1D	-	1D	-	-							2
8		-	-	-	—	—	—	—	—	—	—	—	—	0
Subtotals	#	2	6	3	4	5	2	2	3	1	1	2	0	31
	%	6.5	19.4	9.7	12.9	16.1	6.5	6.5	9.7	3.2	3.2	6.5		
INTERFLUVE														
1		2D	2D	1T 1D	2F 2D	1D	-	-						11
3		-	-	-	-	-								0
4		1F 3D	1F	-										5
9		2D	3D	1T 2D	-	-								8
10		1T	2D	4D	-	-								7
11		1T	-	1D	2D	-	2D	1D	-	-				7
12		-	-	-	—	—	—	—	—	—				0
Subtotals	#	10	8	10	6	1	2	1	0	0				38
	%	26.3	21.1	26.3	15.8	2.6	5.3	2.6	0	0				

D = unmodified debitage
C = ceramic
T = other flaked artifact
F = fire-cracked rock
P = dart point

Materials Recovered

Sixty-nine artifacts or other cultural items were recovered in the testing program at 16WE129. These consist of 48 pieces of unmodified debitage, 1 dart point fragment, 1 unshaped bifacially worked flake, 3 biface fragments, 3 pieces of edge-modified debitage, 3 cores, 1 ceramic sherd, and 9 fire-cracked rocks (see Table 14). The debitage consists of 29 flakes, 12 chips, and 7 angular chunks; 27% is of chert, 46% is of chalcedony, 4% is of silicified wood, and 23% is of quartzite. Just over one-third (37%) of the flakes and chips retain some cortex. The dart point fragment lacks a stem and is untyped; it is made of a silicified conglomerate. One of the bifaces is an unshaped ironstone nodule that has been bifacially worked; the other two are biface fragments of chert and chalcedony that represent manufacturing failures. The ceramic is a grog-tempered plain body sherd.

Discussion of Components

Nine of the 12 test pits excavated at the site were positive; most of the artifacts were found in test pits on the crests of the landforms. The overall density of the cultural remains is 31 items/m^2 (64 items/m^3); the density figure for the portion of the site on the interfluve (30 items/m^2; 76 items/m^3) differs little from that for the part of the site on the floodplain rise (31 items/m^2; 54 items/m^3). These densities are judged to reflect nonintensive usage of the site.

Because the two parts of 16WE129 are on separate and distinct landforms, they can be discussed best individually. The portion of the site on the floodplain rise appears to have thick cultural deposits centered on the top of the rise. Cultural materials occur more or less consistently to a depth of 110 cm in Test Pit 2 here, and there is the possibility that more-deeply buried remains lie beneath this pit. The thickness of the cultural deposits in Test Pit 2 certainly suggests that multiple components are represented. The recovery of a grog-tempered sherd at 10-20 cm in Test Pit 2 and a grog-tempered incised rim sherd with similarities to the Hickory Fine Engraved type at 30-40 cm in one of the survey-phase shovel tests near Test Pit 2 (Driskell and Fields 1988:145) suggests that the materials in the upper portion of this part of the site date to one or more early Caddoan occupations. Given this assessment and the occurrence of a dart point at 40-50 cm in Test Pit 2, it is surmised that the middle and lower deposits reflect occupations during the Pre-Caddoan Ceramic period and perhaps the Archaic period. Radiocarbon assays on soil humate samples from the 10-30-cm and 50-70-cm levels of this test pit yielded calibrated one-sigma date ranges (Stuiver and Reimer 1986) of A.D. 1420-1670 (Beta-23189) and A.D. 230-592 (Beta-23190), respectively. Although the upper date is later than anticipated for an early to middle Caddoan occupation, these dates generally correspond with the components identified by the artifacts.

Components are not as easy to identify on the interfluve to the north, as sampled best by Test Pit 11, partly because no time-diagnostic artifacts were found in this area of the site. The vertical distribution of the cultural materials in Test Pit 11 does show three density peaks (at 0-10 cm, 20-40 cm, and 50-70 cm), however, and this does suggest that multiple components are represented.

16WE190

Setting

This site rests on the streamward edge of a bench which lies 10 to 60 m east of a tributary to Boone Creek. The elevation of the site is approximately 160 ft above mean sea level. The sloping interfluve surface above the edge of the bench is relatively steep at the north end but becomes more gentle toward the south as it nears the stream. The tributary is narrow and incised about 1 m deep into the floodplain; it may carry water only during the wet season. Shallow sloughs cross this floodplain, which held standing water in January when the site was discovered, particularly in a 1-m-deep depression at the back of the floodplain near the north end of the site.

An overstory of pine-oak woodland stands on the site; it is more open than the forest cover found on many of the tested sites. Underbrush is not dense except at the south end of the site, suggesting that the site surface has seen little recent disturbance. Just north of the site, a 2-m-high dirt berm marks the disturbed area associated with a railroad track.

Work Accomplished

Twenty-two test pits were excavated at 16WE190 (Fig. 21). The main grid line parallels the edge of the bench in the northern part of the site; seven test pits were excavated along this line. Perpendicular to this grid line, eight additional lines were placed, and a total of 15 test pits were excavated along these lines. Test pit depths ranged from 40 to 90 cm; the average depth was 63 cm. A total of 3.475 m^3 of fill was excavated.

Sediments and Stratigraphy

The typical profile at 16WE190 is represented by Test Pit 14, just above the streamward edge of the bench. Three zones were identified: Zone 1, 0-26 cm, very pale brown (10YR 7/4) coarse to fine sand with occasional pebbles; Zone 2, 26-80 cm, yellowish brown (10YR 5/4) coarse to medium sand with occasional pebbles; and Zone 3, 80-90+ cm, yellowish red (5YR 5/6) clayey coarse to medium sand with occasional pebbles and very pale brown (10YR 7/4) mottles. The siliceous pebbles increase in number and size with depth. The soils in all three zones are structureless, but the upper two zones are friable while the lowest zone is firm. Zones 1 and 2 are probably Holocene colluvium, while Zone 3 may be older fluvial or colluvial deposits.

The little-altered surficial sediments are thickest in the northern part of the site on the streamward edge of the bench, where they reach depths of up to 1 m. These sediments thin upslope to the east, where they are only 40 to 50 cm thick as seen in Test Pit 9. To the south, there is a general thinning of the sandy loams; clayey sediments were encountered at depths of only 60 cm in Test Pit 19, 50 cm in Test Pit 21, and 40 cm in Test Pit 20.

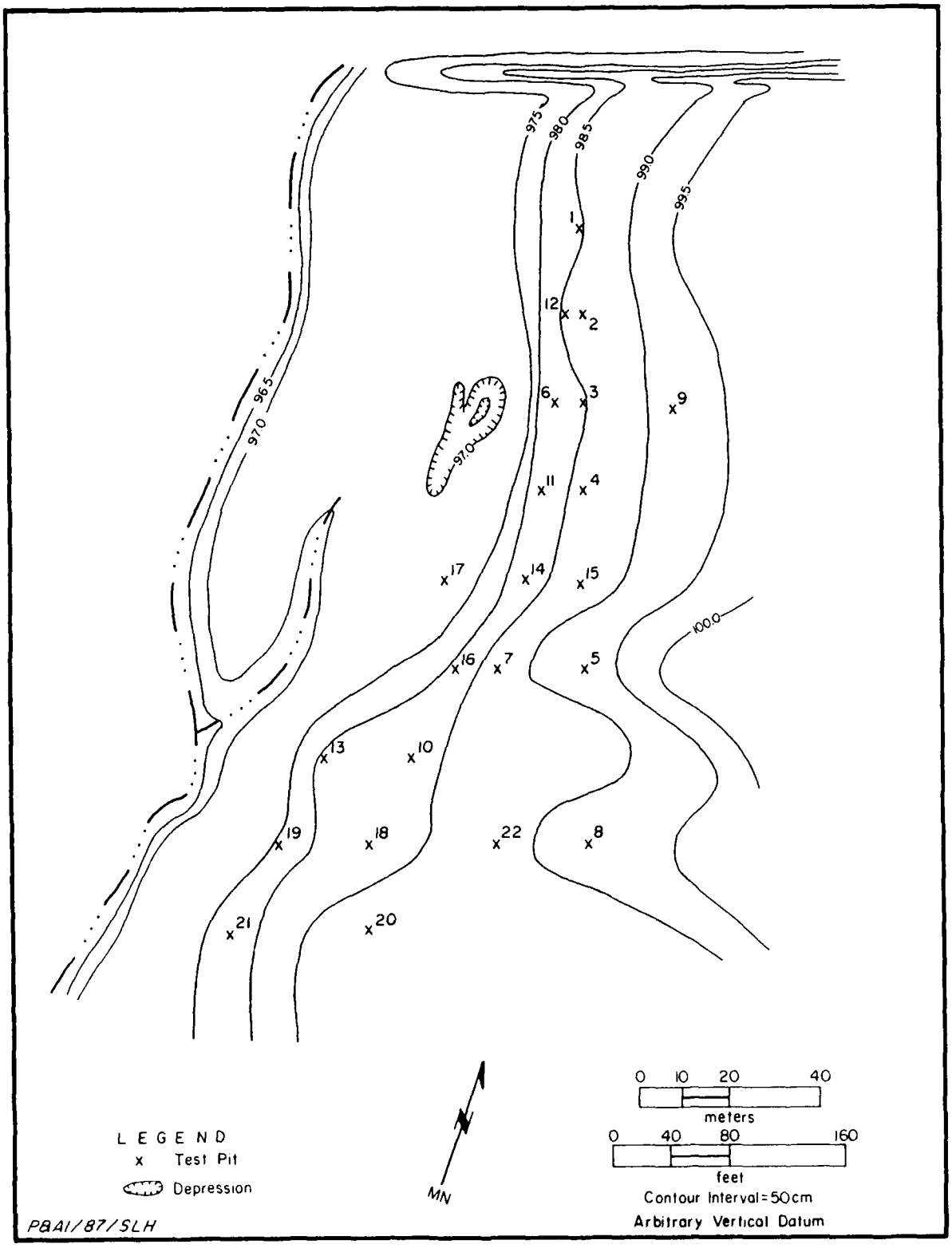

Figure 21. 16WE190 site map.

Site Extent and Depth

Cultural materials were found within an area measuring approximately 200 m north-south by 10 to 80 m east-west, covering about 6,500 m^2. However, the extent of such a diffuse deposit is difficult to determine, so no site boundary is indicated on Figure 21. On the west, a relatively steep drop-off marks the edge of the floodplain, where Test Pit 17 verified that the floodplain sediments are clays devoid of cultural materials. On the north, a dirt berm associated with a railroad track marks the edge of the undisturbed area. The east side of the site is delimited to some extent by the absence or near-absence of artifacts in Test Pits 2, 4, 5, 8, 9, and 15. Some diffuse cultural materials were found in the southernmost units (Test Pits 20 and 21), but the ground surface drops in this direction toward an unranked drainage entering the floodplain from the east.

The thickness of the cultural deposits is difficult to determine due to the sparseness of the cultural remains. No artifacts were found below 70 cm in any test pit, however, and most occurred above 50 cm (Table 15). In two test pits, the only artifacts were found in the first 10 cm of the deposit.

Materials Recovered

Nine artifacts or other cultural items were found at the site; these consist of six pieces of unmodified debitage, one edge-modified flake, one core, and one fire-cracked rock (see Table 15). The debitage consists of four flakes and two chips; two are of chert, two are of chalcedony, one is of quartzite, and one is of quartz. Half of the flakes and chips are corticate. No time-diagnostic artifacts were found. In addition to the prehistoric materials, two pieces of rusted sheet iron were found in Level 2 of Test Pit 11.

Discussion of Components

Of the 22 test pits excavated at this site, 8 were positive. The density of the cultural materials at 16WE190 is 5 items/m^2 (12 items/m^3). This extremely low density suggests site usage of extremely limited intensity, duration, and frequency. While the occurrence of artifacts at variable depths across the site may suggest multicomponency, the cultural remains are too sparse to allow any substantive interpretation of the site history.

16WE191

Setting

This site is located on a dissected interfluve overlooking the floodplain of a tributary of Boone Creek to the west. The western edge of the site lies 10 to 20 m east of the tributary, at an elevation of about 170 ft above mean sea level. Gullies cut eastward into

TABLE 15

DISTRIBUTION OF CULTURAL MATERIALS AT 16WE190

		Levels									
Test Pit		1	2	3	4	5	6	7	8	9	Totals
1		-	-	-	-	1F	-	-	-	-	1
2		-	-	-	-	-	-	-	-	-	0
3		-	-	-	-	-	-	-	-		0
4		-	-	-	-	-	-	-			0
5		-	-	-	-	-	-				0
6		-	-	-	-	-	-	-	-		0
7		-	-	-	-	-	-				0
8		1D	-	-	-						1
9		-	-	-	-						0
10		-	-	-	-						0
11		-	(2X)	1D	-	-	-				1
12		-	-	-	-	-					0
13		-	-	-	-	1D	-	-			1
14		-	-	-	-	1D	-	1T	-	-	2
15		-	-	-	-	-	-	-	-		0
16		-	-	-	-	-					0
17		-	-	-	-	-					0
18		1D	-	-	-	-	-				1
19		-	-	-	-	-	-				0
20		-	-	1D	-	-	-				1
21		-	-	-	-	1T	-				1
22		-	-	-	-	-	-	-	-	-	0
Totals	#	2	0	2	0	4	0	1	0	0	9
	%	22.2	0	22.2	0	44.4	0	11.1	0	0	

D = unmodified debitage
T = other flaked artifact
F = fire-cracked rock
X = other anything

() = not included in artifact counts (historic, recent)

the interfluve at two points within the site, creating a series of three knolls in which cultural deposits were found. The interfluve rises steeply from the floodplain toward the east and is estimated to be about 180 ft above mean sea level at the highest point of the site. North of the site, the terrain drops gradually to a drainage entering the floodplain from the east. The area is covered with a dense forest of pine and hardwoods, with a dense understory of saplings, grasses, and forbs. A firebreak road runs east-west about 50 m south of the site, but the site area appears to be undisturbed.

Work Accomplished

Sixteen test pits were excavated (Fig. 22). Six were placed along a north-south grid line running along the crest of the three knolls, and 10 pits were placed on east-west grid lines oriented perpendicular to the main grid line. The test pits ranged from 10 to 70 cm in depth, with the average depth being 48 cm. A total of 1.938 m^3 of fill was excavated.

Sediments and Stratigraphy

The typical profile at 16WE191 is represented by Test Pit 7, which is located at the crest of a knoll. It consists of three zones: Zone 1, 0-30 cm, brown (10YR 5/3) silty very fine sand; Zone 2, 30-55 cm, very pale brown (10YR 7/4) silty very fine sand with few yellowish brown (10YR 5/8) mottles; and Zone 3, 55-70+ cm, strong brown (7.5YR 5/6) clayey, silty very fine sand. The soils in all three zones are structureless, but Zones 1 and 2 are very friable while Zone 3 is firm in consistence. The upper two zones may be Holocene colluvium; Zone 3 is an older deposit, possibly Pleistocene alluvium or colluvium.

The surficial unit is thickest on the crest of the knoll, where it occurs to a depth of over 70 cm in Test Pit 1. It thins gradually to the west, as seen in Test Pits 14 and 15 beyond the eastern boundary of the site where Zone 3 was reached at 38 and 42 cm. The little-altered surficial sediments also thin toward the streamward edge of the interfluve above the floodplain, ranging from 36 cm in thickness in Test Pit 5 to as little as 15 cm in Test Pit 4 and 7 cm in Test Pit 10. The topography of the Zone 3 surface is visible in Test Pits 4, 10, 11, and 12; it follows the surface topography but dips more sharply toward the creek, suggesting that Holocene colluvial sediments have filled in this area.

Site Extent and Depth

Cultural materials were found within an area measuring approximately 150 m north-south by 25 to 50 m east-west and covering an area of about 4,800 m^2. However, the extent of such a diffuse deposit is difficult to determine, so no site boundaries are indicated on Figure 22. On the west, a relatively steep drop-off marks the edge of the floodplain, and Test Pit 13 verified that the floodplain does not contain cultural materials. A drop in elevation on the south side of the site and the occurrence of only 10 cm of Holocene deposits in Test Pit 10 suggest that cultural materials extend no farther in this direction. The lack of artifacts in Test Pits 9, 14, 15, and 16 suggests an eastern boundary for the site, while on the north, a gentle slope drops to an unranked drainage entering the

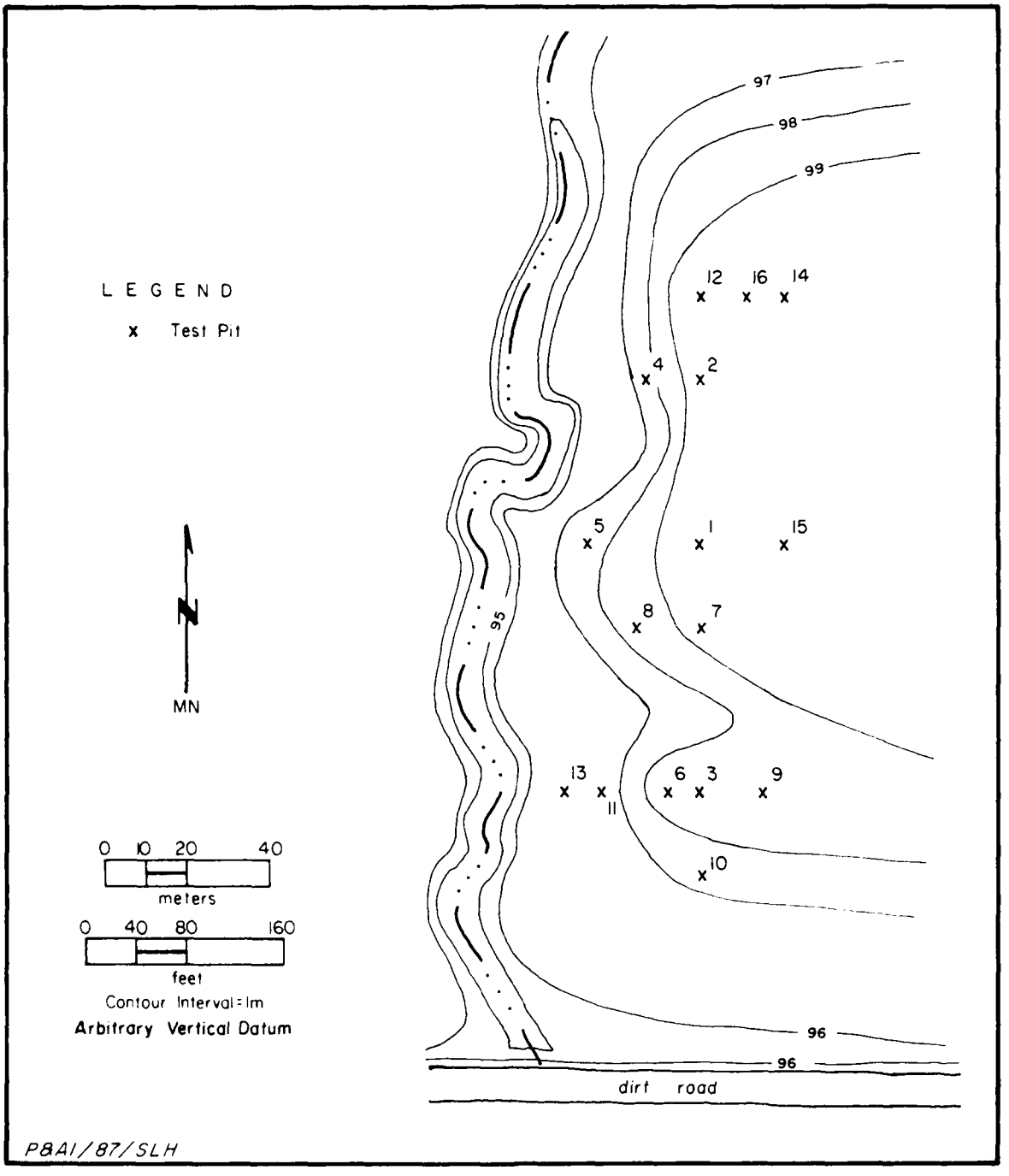

Figure 22. 16WE191 site map.

floodplain from the east. The maximum depth to which cultural materials occurred in the test pits ranges from 10 to 50 cm, with all but one of the five positive units yielding cultural materials to at least 40 cm (Table 16).

TABLE 16

DISTRIBUTION OF CULTURAL MATERIALS AT 16WE191

		Levels							
Test Pit		1	2	3	4	5	6	7	Totals
1		-	-	-	-	-	-	-	0
2		-	-	-	-	-	-	-	0
3		-	1D	-	1D	-			2
4		-	-	-					0
5		1T	-	-	-				1
6		-	1F 1D	1T	-	1F	-*		4
7		-	-	-	-	-	-	-	0
8		-	-	-					0
9		-	-	-	-	-	-		0
10		-							0
11		-	-	-	-	1F	-	-	1
12		1T	-	-	1D	-	-	-	2
13		-							0
14		-	-	-	-	-			0
15		-	-	-	-				0
16		-	-	-	-	-	—	—	0
Totals	#	2	3	1	2	2	0	0	10
	%	20	30	10	20	20	0	0	

*Test pit was actually dug to 55 cm.

D = unmodified debitage
F = fire-cracked rock
T = other flaked artifact

Materials Recovered

Ten artifacts or other cultural items were recovered in testing 16WE191: four pieces of unmodified debitage, one distal biface fragment, two edge-modified flakes, and three fire-cracked rocks (see Table 16). The debitage consists of one flake, two chips, and one angular chunk; one each is of chert and quartzite, and two are of quartz. No chalcedony debitage was recovered, but the distal biface fragment and one of the utilized flakes are made of this material. Two-thirds of the flakes and chips are corticate. No time-diagnostic artifacts were recovered during the testing, but two ceramic sherds were found in the survey investigations. These are grog-tempered and decorated with punctations and applique (Driskell and Fields 1988:144-145) and resemble the types Sinner Linear Punctated and Pease Brushed Incised (Suhm and Jelks 1962:119, 143).

Discussion of Components

Artifacts were found on or near the crests of the three knolls of the site. The greatest concentration is in Test Pits 3 and 6 on the southernmost knoll; however, the entire cultural deposit is very diffuse. Of the 16 test pits excavated at the site, only 5 were positive. The density of the cultural materials in these test pits is 8 items/m^2 (21 items/m^3), suggesting very nonintensive site usage.

The 10 cultural items found during testing were evenly distributed between 0 and 50 cm below the ground surface, with no obvious vertical concentrations. This distribution may suggest that multiple components are represented, but the sparseness of the artifacts prevents a confident assessment. The ceramics recovered during the survey suggest that, at the least, a middle to late Caddoan Bossier Focus component is present.

16WE192

Setting

This site is located on a gently sloping interfluve southeast of the confluence of two tributaries to Boone Creek. The elevation of the site ranges from ca. 190 ft above mean sea level on the south to 180 ft on the north. The Boone Creek tributaries are equidistant from the site at 80 m to the north and west; both carried running water in all seasons when the site was visited. A dense forest of pine and hardwoods covers the site, with a moderately open understory of low grasses and forbs. On the southern edge of the site, an area of dense brush corresponds with a fallen smooth-wire fence; these may mark the edge of an old field or pasture. A glass fragment was found in the first level of one of the test pits, providing additional evidence of historic occupation and/or disturbance to the area.

Work Accomplished

Fourteen test pits were excavated at the site, most along north-south and east-west grid lines crossing at the center of the site (Fig. 23); a few were placed near the center of the site off of the two main grid lines. The north-south grid line runs perpendicular to the northern slope of the interfluve, while the east-west grid line crosses the top of the interfluve and extends down its western slope. The test pit depths ranged from 60 to 90 cm; the average depth was 74 cm. A total of 2.575 m^3 of fill was excavated at 16WE192.

Sediments and Stratigraphy

The typical profile at 16WE192 is represented by Test Pit 3, which is located at the northern end of the site. Four zones are identified: Zone 1, 0-20 cm, dark brown (10YR 4/3) coarse to fine sand with occasional pebbles; Zone 2, 20-35 cm, light yellowish brown (10YR 6/4) coarse to medium sand with occasional pebbles; Zone 3, 35-80 cm, very pale brown (10YR 7/4) coarse to medium sand with many yellow (10YR 7/8) mottles and occasional pebbles; and Zone 4, 80-90+ cm, strong brown (7.5YR 5/8) clayey coarse to medium sand with occasional pebbles. The siliceous pebbles increase in number and size with depth. All of the soils are structureless; the upper three zones are friable, while the lowest has a firm consistence. Zones 1-3 are probably Holocene in age and colluvial in origin; Zone 4 appears to be an older deposit and may be colluvium or alluvium.

The little-altered surficial unit is around 70 cm thick across the slope to the east and west of Test Pit 3, as indicated by Test Pits 9 and 10. These sediments thin downslope to the north toward the stream, as seen in Test Pit 11 where they are only 48 cm thick. They also thin upslope to the south and are only 36 cm thick in Test Pit 6.

Site Extent and Depth

The site measures 37 m north-south by 14 m east-west, covering an area of 410 m^2 (see Fig. 23). The site boundaries are defined on the basis of artifact distributions. Negative Test Pits 5, 6, 7, 9, 10, 11, and 12 bound the site on the north, south, east, and west. The maximum depth to which the cultural materials occur is fairly consistent across the site, with all of the positive units yielding materials to 40 to 60 cm (Table 17).

Materials Recovered

Sixteen artifacts were recovered in testing: 11 pieces of unmodified debitage, 2 edge-modified flakes, 2 cores, and 1 ceramic sherd (see Table 17). The unmodified debitage consists of nine flakes and two angular chunks; three are of chert, six are of chalcedony, and two are of quartzite. One-third of the debitage flakes and chips are corticate. The ceramic is a bone-tempered, incised body sherd typical of the Pease Brushed-Incised type.

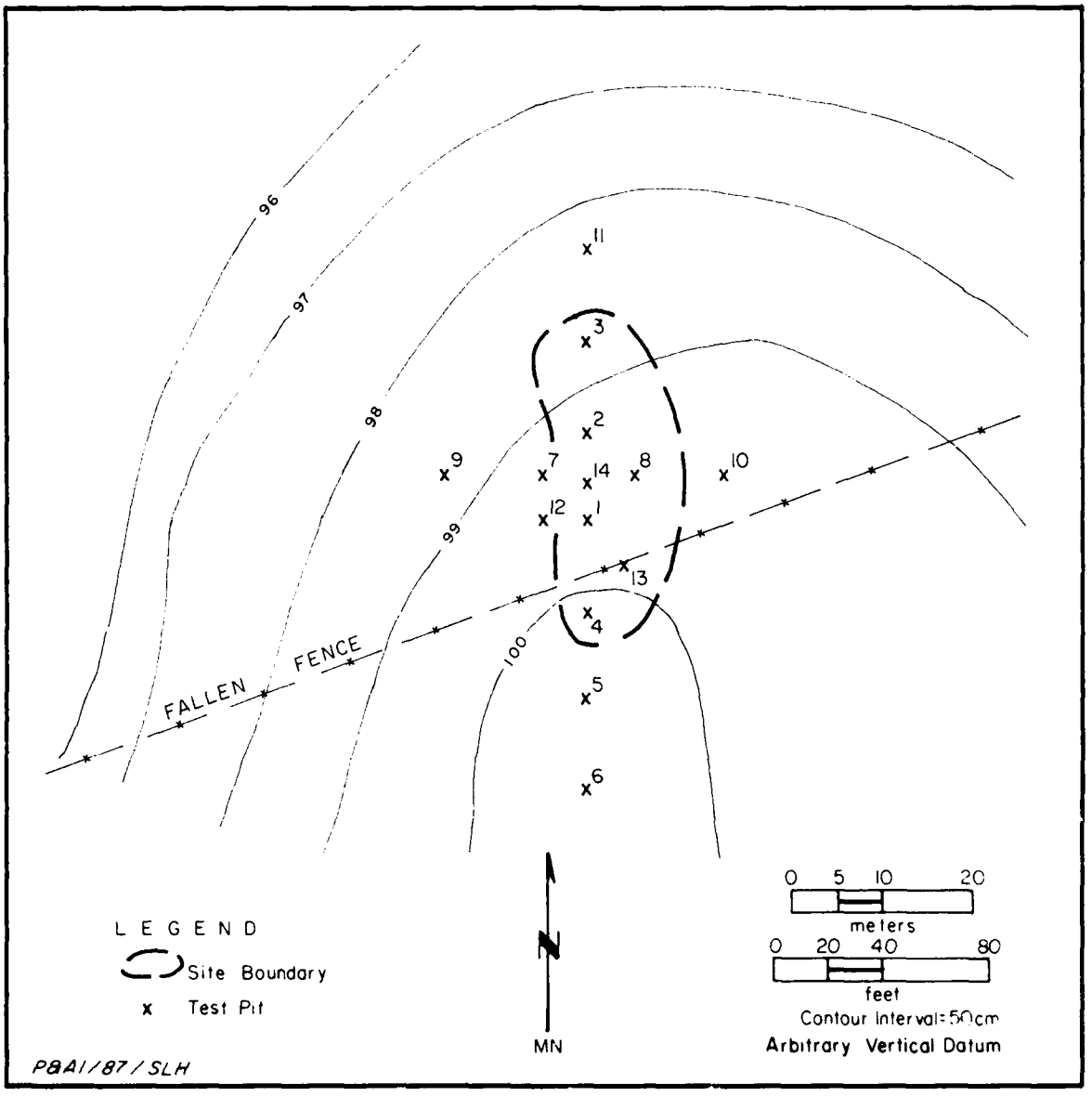

Figure 23. 16WE192 site map.

Discussion of Components

Of the 14 test pits excavated at the site, 7 were positive. The density of the cultural remains is 9 items/m^2 (19 items/m^3), which suggests extremely limited usage of the site. Artifacts were found between the surface and 60 cm, with the highest densities occurring at 0 to 10 cm and 40 to 50 cm. This distribution suggests that multiple components may be represented, but with so few artifacts, it is difficult to make a confident assessment. The recovery of the Pease Brushed-Incised sherd does indicate that, at the least, a middle to late Caddoan Bossier Focus occupation may be represented.

TABLE 17

DISTRIBUTION OF CULTURAL MATERIALS AT 16WE192

		Levels									
Test Pit		1	2	3	4	5	6	7	8	9	Totals
1		1C	2D	-	-	1D	-	-	-		4
2		2D	-	1T	1D	-	-	-	-		4
3		-	-	-	-	1T	-	-	-	-	1
4		-	-	-	-	1D	-	-			1
5		(1X)	-	-	-	-	-	-	-		0
6		-	-	-	-	-	-				0
7		-	-	-	-	-	-	-			0
8		-	-	-	-	3D	-	-			3
9		-	-	-	-	-	-	-			0
10		-	-	-	-	-	-	-			0
11		-	-	-	-	-	-	-			0
12		-	-	-	-	-	-	-			0
13		-	-	-	-	-	1T 1D	-	-		2
14		-	-	-	1T	-	-	-	—	—	1
Totals	#	3	2	1	2	6	2	0	0	0	16
	%	18.8	12.5	6.3	12.5	37.5	12.5	0	0	0	

C = ceramic
D = unmodified debitage
T = other flaked artifact
X = other

() = not included in artifact counts (historic, recent)

16WE193

Setting

This site is located on a floodplain rise 50 m west of Boone Creek. Cultural materials were found on the highest point of the rise, which is about 160 feet above mean sea level. Deep sloughs adjoin the site area on the west and northwest; to the northeast is a low area that is inundated during wet weather. The entire floodplain is honeycombed with deep sloughs representing abandoned channels of Boone Creek. The present course of the creek has been deeply incised into the landscape by channelization, which has produced levees up to 2 m high.

Dense riparian woodland covers the site, with a greater percentage of hardwoods than more upland settings within the project area. The understory is fairly open and consists of saplings, vines, and low grasses and forbs. No disturbance to the site area is apparent in the vegetation, soil profiles, or topography. However, a partially cleared corridor 35 m south of the site runs from a sewage plant to Boone Creek; installation of the buried pipe may have resulted in some disturbance to the site.

Work Accomplished

Twelve test pits were excavated at the site; seven of these were located along the main grid line which runs north-south across the high point of the rise (Fig. 24). Two shorter grid lines, along which five test pits were placed, are roughly perpendicular to the main line, one at each end of the rise. The depth of the test pits ranged from 50 to 140 cm; the average depth was 76 cm. A total of 2.275 m^3 of fill was excavated.

Sediments and Stratigraphy

The typical profile at 16WE193 is represented by Test Pit 6 at the south end of the site. Three zones are identified: Zone 1, 0-35 cm, yellowish brown (10YR 5/6) silty very fine sand; Zone 2, 35-65 cm, yellowish brown (10YR 5/8) silty very fine sand with common very pale brown (10YR 7/4) mottles; and Zone 3, 65-80+ cm, strong brown (7.5YR 5/8) clayey, silty very fine sand. The soils in all three zones are structureless; the upper two zones are friable, and the lowest zone has a firm consistence. While the topographic position of the site suggests that at least the upper two zones could be alluvial, no evidence supporting this interpretation was observed in the test pit profiles. If these sediments are not alluvial, then this site may have had a geomorphic history comparable to the more-upland sites tested during this project, with the surficial sediments perhaps representing Holocene colluvium and the basal unit being an older deposit. If so, then this landform must be an interfluve remnant isolated by the meandering of Boone Creek.

The little-altered surficial sediments are thinnest on the crest of the rise and thicken dramatically toward the edges of the landform. Test Pit 6 is located in an area of moderately thin (65 cm) surficial sediments, but they are even thinner (30 cm) in Test Pit

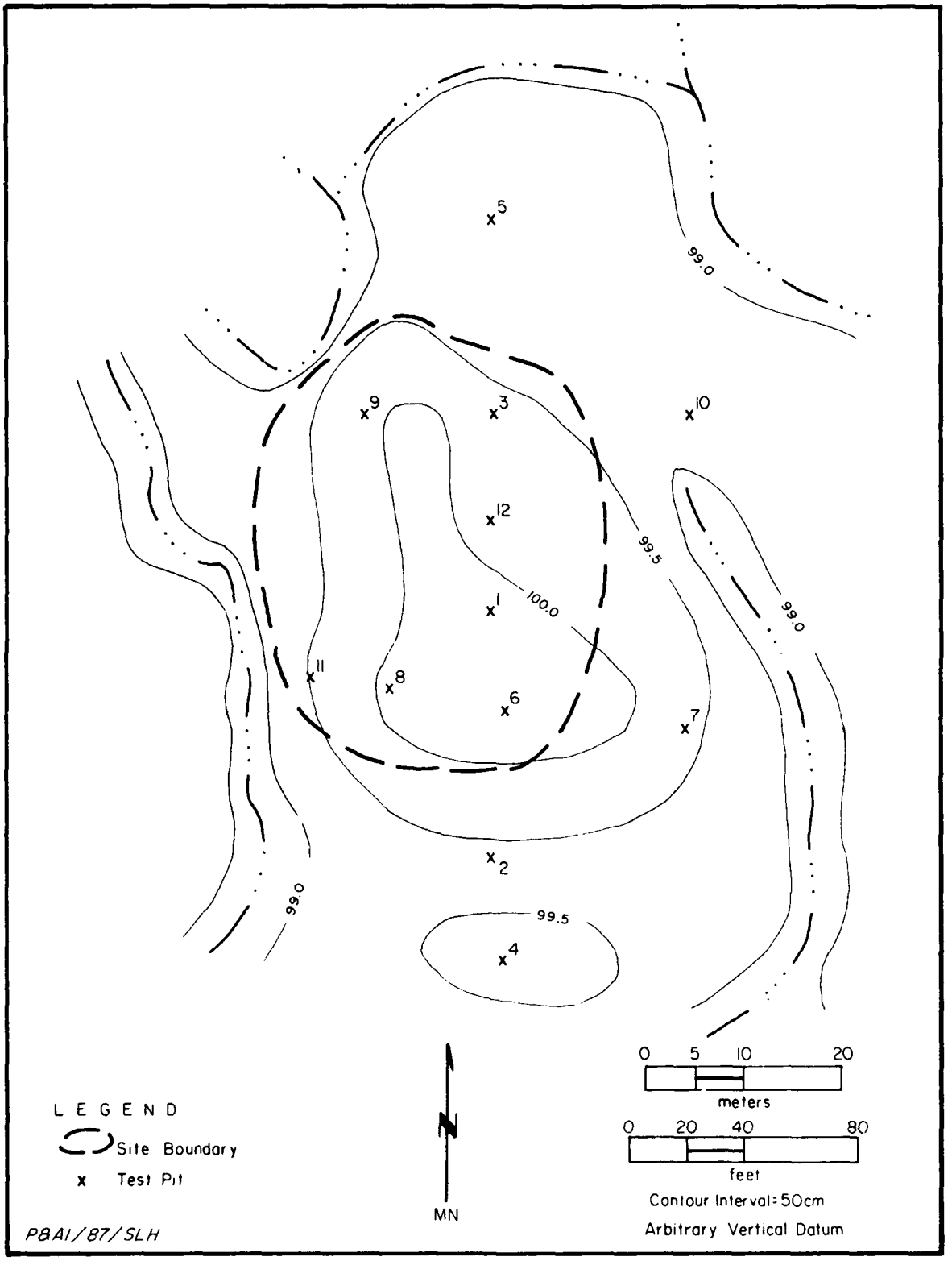

Figure 24. 16WE193 site map.

8 located 11 m to the west. On the northern periphery of the site, these deposits were over 140 cm thick in Test Pit 3. Thick sands were also found in Test Pits 4 and 7 beyond the southern boundary of the site. In a periodically inundated area north of the site, Test Pits 5 and 10 show deep reddish brown (5YR 3/4) staining throughout the profile.

Site Extent and Depth

The site measures 44 m north-south by 36 m east-west and covers an area of approximately 1,240 m^2. The site boundaries are defined on the basis of artifact distributions and topography. The northern boundary lies at a drop-off to a low area which may once have been a slough; Test Pits 5 and 10 verified that this area is periodically inundated and contains no cultural deposits. The eastern and southern site boundaries are established by the absence of artifacts in Test Pits 2, 4, and 7 and correspond to a slight drop in elevation on the top of the floodplain rise. The western site boundary is marked by two sloughs and a low area.

The maximum depth at which cultural materials were found is 120 cm, but the cultural deposit is as shallow as 10 cm in one test pit (Table 18). Three of the six positive units yielded materials to depths of at least 60 cm, and two units contained artifacts to at least 100 cm.

Materials Recovered

Nineteen artifacts or other cultural items were recovered at the site: 10 pieces of unmodified debitage, 1 dart point, 1 biface, 3 pieces of edge-modified debitage, and 4 fire-cracked rocks (see Table 18). The unmodified debitage consists of seven flakes and three chips; most are of chert (n = 4) or quartzite (n = 3), but two are of chalcedony and one is of petrified wood. Thirty percent of the flakes and chips are corticate. The dart point has an expanding stem and is made of chalcedony; it may be assigned to the Ellis type. The biface is triangular, planoconvex, and is made of chalcedony; it appears to have been used.

Discussion of Components

Six of the 12 test pits excavated at the site were positive. Most of the artifacts (79%) were found in Test Pits 3, 9, and 12 in a small area 20 m in diameter on the north end of the site. The density of the cultural materials in the positive test pits is 13 items/m^2 (19 items/m^3), which is judged to reflect very nonintensive site usage.

Cultural materials were found to 120 cm below the surface, with a concentration of artifacts between 30 and 70 cm. The thickness of the cultural deposits suggests that multiple components may be represented at this site, although the sparseness of the artifacts makes a confident assessment difficult. The Ellis dart point was recovered from between 60 and 70 cm deep and suggests that the site dates at least in part to the late Archaic or Pre-Caddoan Ceramic period.

TABLE 18

DISTRIBUTION OF CULTURAL MATERIALS AT 16WE193

Test Pit		Level 1	2	3	4	5	6	7	8	9	10	11	12	13	14	Totals
1		1D	-	-	-	-	-	-								1
2		-	-	-	-	-	-	-								0
3		-	1D	1T	1F	-	-	1D	-	1T	-	-	1T	-	-	6
4		-	-	-	-	-	-	-								0
5		-	-	-	-	-	-									0
6		-	-	-	-	-	1F 1D	-	-							2
7		-	-	-	-	-										0
8		-	-	-	-	1F	-	-								1
9		-	-	-	1F 1D	-	1D	1P	1D	-	1T					6
10		-	-	-	-	-										0
11		-	-	-	-	-	-	-								0
12		1D	-	-	-	2D	-	-	-	—	—	—	—	—	—	3
Totals	#	2	1	1	3	3	3	2	1	1	1	0	1	0	0	19
	%	10.5	5.3	5.3	15.8	15.8	15.8	10.5	5.3	5.3	5.3	0	5.3	0	0	

D = unmodified debitage; P = dart point; T = other flaked artifact; F = fire-cracked rock

16WE195

Setting

This site is located on a floodplain rise 80 m west of Boone Creek. Deep sloughs cut the rise to the east and west, a shallow slough bounds the rise on the south, and a drop in elevation forms the northern boundary. The floodplain in the vicinity of the site is crosscut by sloughs and has a number of other rises that were tested during the survey and found not to contain cultural materials. The elevation of the site is about 160 ft above mean sea level. It is covered by a dense overstory of pine and hardwoods and an open understory of saplings, low grasses, and forbs. While an overhead transmission line runs east-west in a clearing about 60 m north of the northern site boundary, there is no evidence of disturbance to the immediate site area.

Work Accomplished

Thirteen test pits were excavated at the site; most were along north-south and east-west grid lines crossing at the highest point of the rise, and two were east of the main grid line at the northern end of the site (Fig. 25). The test pits ranged from 30 to 120 cm deep, with an average depth of 64 cm. A single test pit was placed on the floodplain rise to the east of the site; it was excavated to 40 cm and yielded one flake in the 10-to-20-cm level. This rise had been tested twice during the survey to depths of 60 and 70 cm, yielding no artifacts. The density of the artifacts on this landform is very low, so it and Test Pit 14 are not considered to be part of the site area. A total of 2.075 m^3 of fill was excavated in and near 16WE195.

Sediments and Stratigraphy

The typical profile at 16WE195 is represented by Test Pit 1, which is located on the crest of the rise. Two zones are identified: Zone 1, 0-32 cm, dark yellowish brown (10YR 4/6) silty very fine sand; and Zone 2, 32-90+ cm, brownish yellow (10YR 6/6) silty very fine sand with yellow (10YR 8/6) mottles increasing with depth. Both zones lack soil structure; the upper zone is friable, while the lower zone is firm. Both zones appear to be colluvium since no evidence of fluviatile sediments was seen in the test pit profiles, and the lack of significant pedogenic alteration suggests that these deposits date to the Holocene; the mottling in the lower part of Zone 2 may reflect the precipitation of iron from groundwater, indicating proximity to the contact with a comparatively impermeable subsoil beneath Zone 2. The occurrence of colluvial deposits on this landform suggests that the knoll is an interfluve remnant cut off by erosion.

The surficial sediments are thin on top of the rise and thicken considerably toward the edges of the landform. Mottling was encountered at depths of around 40 cm in Test Pits 1, 5, 7, and 9 on the crest of the rise, but it was found much deeper on the east and west slopes of the rise as in Test Pit 3 (94 cm) and Test Pit 8 (70+ cm).

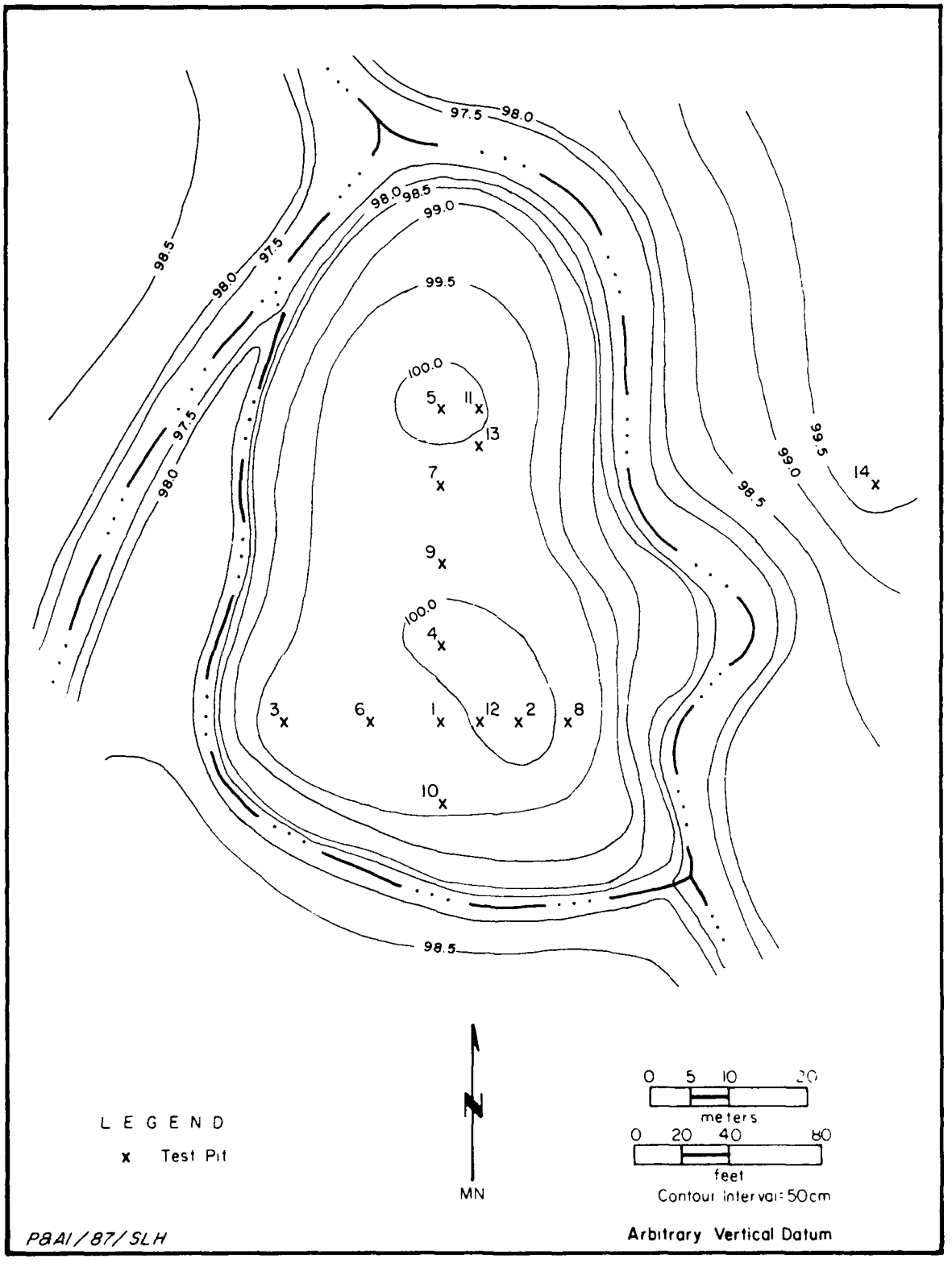

Figure 25. 16WE195 site map.

Site Extent and Depth

Cultural materials were found within an area measuring approximately 50 m north-northwest to south-southeast by 10 m east-northeast to west-southwest and covering an area of approximately 350 m^2. However, the extent of such a diffuse deposit is difficult to determine, so no site boundaries are indicated on Figure 25. In general, the absence of artifacts in Test Pits 8, 11, and 13 delimits the site on the east; similarly, Test Pits 1, 3, 6, and 10 delineate the extent of the cultural deposits on the south and west. The western and northern boundaries may conform to the highest elevation of the rise (see Fig. 25), because cultural materials were found to be limited to that area on the east and south.

The maximum depth to which cultural materials were found in the test pits was 40 cm (Table 19). The cultural deposit at the site is clearly thin and shallowly buried.

Materials Recovered

A scant five artifacts were found at 16WE195: one flake and four chips. Four are chert and one is chalcedony; three of the chips retain some cortex. No time-diagnostic artifacts have been recovered from the site. One additional tertiary chert flake was recovered from Test Pit 14 to the east of the site.

Discussion of Components

Four of the 13 test pits excavated at the site were positive, with a density of 5 items/m^2 (22 items/m^3). This figure clearly reflects limited usage of 16WE195. The five artifacts were found between the surface and 40 cm. The thinness of the cultural deposit and the sparseness of artifacts suggest that no more than a single component may be represented here; however, the lack of time-diagnostic artifacts prevents a temporal assessment.

16WE196

Setting

This site is located on the northeastern toe of an interfluve adjacent to the floodplain of Boone Creek. The elevation of this interfluve varies from 155 to 160 ft above mean sea level. It is bounded on the north and east by sloughs that flow into Boone Creek and may be old channels of Boone Creek. The present-day channel of Boone Creek is ca. 150 m northeast of the site.

The vegetation on the site consists of planted pines with an open understory of grasses and a few hardwood shrubs. Disturbance to the site may have occurred as a result of pine cultivation and/or slope erosion. Shallow soils encountered in many of the test

TABLE 19

DISTRIBUTION OF CULTURAL MATERIALS AT 16WE195

Test Pit		Levels 1	2	3	4	5	6	7	8	9	10	11	12	Totals
1		-	-	-	-	-	-	-	-	-				0
2		-	1D	-	-	-	-	-	-	-				1
3		-	-	-	-	-	-	-	-	-	-	-	-	0
4		-	-	-	-	-	-	-						0
5		-	-	-	1D	-	-							1
6		-	-	-										0
7		1D	-	-	-	-	-	-						1
8		-	-	-	-	-	-	-						0
9		-	-	-	-	-								0
10		-	-	-	-									0
11		-	-	-	-									0
12		-	2D	-	-	-	-							2
13		-	-	-	-									0
14*		-	1D*	-	-	—	—	—	—	—	—	—	—	1*
Totals	#	1	3	0	1	0	0	0	0	0	0	0	0	5
	%	20	60	0	20	0	0	0	0	0	0	0	0	

D = unmodified debitage

*outside of 16WE195, not included in artifact count

pits on the slopes of the interfluve may point to such erosion. Additional disturbance was noted to the southwest of the site, where a deep, linear borrow pit runs parallel to the road on the north side.

Work Accomplished

A total volume of 1.700 m^3 of fill was excavated from 15 test pits at 16WE196 (Fig. 26). These pits were placed on a grid system oriented to the cardinal directions. A north-south grid line crossed the site parallel to the eastern slope of the interfluve,

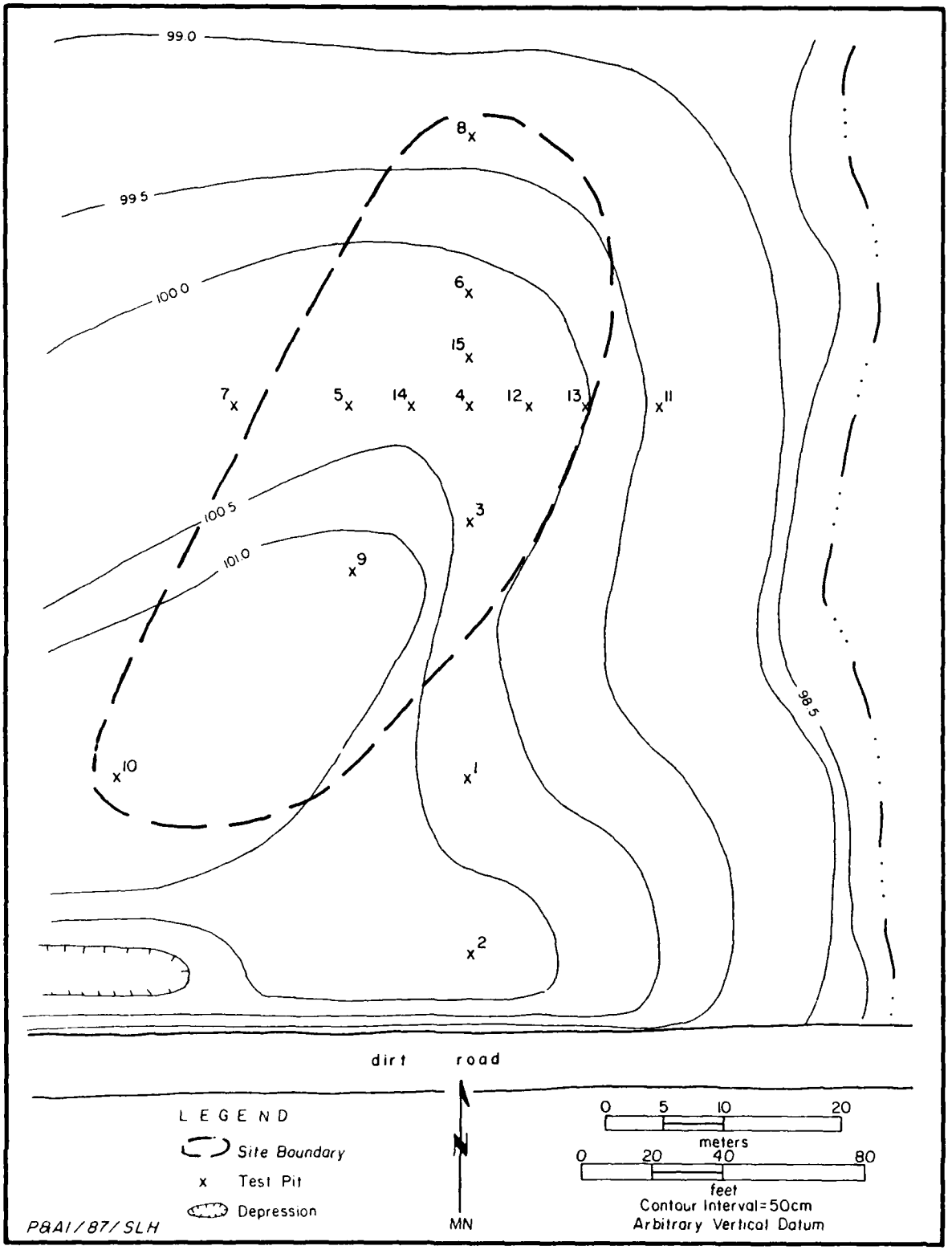

Figure 26. 16WE196 site map.

while an east-west line of tests was placed perpendicular to the eastern edge across the toe of the interfluve to explore a concentration of artifacts encountered along the north-south line. Additional tests were placed off of these two grid lines where needed to help define the site boundaries. The depth of test pits ranged from 10 to 80 cm below the surface, with the average depth being 45 cm.

Sediments and Stratigraphy

The typical profile at 16WE196 is represented by Test Pit 13 at the toe of the interfluve. Three zones are identified: Zone 1, 0-21 cm, yellowish brown (10YR 5/4) silty very fine sand; Zone 2, 21-60 cm, yellow (10YR 7/6) silty very fine sand with yellowish brown (10YR 5/8) mottles increasing with depth; and Zone 3, 60+ cm, strong brown (7.5YR 5/8) clayey, silty very fine sand. While all of the zones are structureless, the lowest zone has a firm consistence in contrast to the friable consistence of the upper two zones. The upper two zones may be Holocene colluvium, while the lower zone is an older deposit, perhaps Pleistocene alluvium or colluvium.

The little-altered surficial unit thins rapidly upslope from the main site area, being 30 cm thick in Test Pits 5 and 14, 20 cm thick in Test Pit 9, and 10 cm thick in Test Pit 7. Farther upslope, it is 30 cm thick in Test Pit 10. The surficial sediments also thin to the south near the toe of the interfluve; Zone 3 was encountered at a depth of 20 cm in Test Pits 1 and 2. In the main site area at the northern toe of the interfluve, the surficial unit is 60 to 80+ cm thick as seen in Test Pits 4, 6, 8, 11, 13 and 15. A fourth sedimentary zone was identified in a cutbank just west of the site, extending from ca. 60 to 100+ cm below the ground surface and consisting of firm white clay; this appears to be a bedrock unit that underlies Zone 3.

Site Extent and Depth

The horizontal dimensions of 16WE196 are 66 m north-south by 27 m east-west, covering an area of 1,750 m^2. The site is delimited on the north and east by sloughs, and Test Pits 1, 2, and 11 demonstrate that the cultural deposits do not extend down the interfluve slope to the east. On the south and southwest, the site is bounded by disturbance associated with a dirt road, and Test Pit 10 yielded only three artifacts in thin sands. The western extent of the site is delimited by the absence of artifacts in Test Pit 7. The vertical site extent ranges from 20 to 70 cm below the ground surface, with five of the nine positive units yielding cultural materials to at least 50 cm (Table 20).

Materials Recovered

A total of 27 artifacts or other cultural items were recovered from the 15 tests dug at 16WE196 (see Table 20). These consist of 18 pieces of unmodified debitage, 1 uniface, 1 silicified wood manuport, and 6 potsherds. The unmodified debitage from the site consists of 13 flakes and 5 angular chunks; 44% is of chert, 17% is of quartzite, 28% is of chalcedony, and 11% is of silicified wood. Only 31% of the unmodified debitage retains some cortex.

TABLE 20

DISTRIBUTION OF CULTURAL MATERIALS AT 16WE196

		Levels								
Test Pit		1	2	3	4	5	6	7	8	Totals
1		-	-							0
2		-	-							0
3		-	-	-	-	-				0
4		-	-	1C	1D	-	1C			3
5		1C 1D	1D	2C 1D	-					6
6		-	-	-	1M	-	1D	-		2
7		-								0
8		-	-	-	1D	1D	-	1D	-	3
9		1D	1D							2
10		1D	2D	-						3
11		-	-	-	-	-	-			0
12		-	-	-	-	-	-			0
13		-	1C	-	-	1D	-			2
14		-	1D	-	-					1
15		1D	-	-	1U 1D	2D	-			5
Totals:	#	5	6	4	5	4	2	1	0	27
	%	18.5	22.2	14.8	18.5	14.8	7.4	3.7	0	

C = ceramic
U = uniface
D = unmodified debitage
M = manuport

The six sherds recovered from the site are plain with a sandy clay paste and grog temper. Four of these are body sherds, and two are rims. Both rims are straight with rounded lips. Their small size precludes any determination of vessel shape or rim diameter. All of the sherds in this sample are small (not more than 4 cm in diameter) and untypeable; however, two brushed body sherds recovered from this site during the survey bear similarities to the Belcher Ridged and Karnack Brushed-Incised types (Driskell and Fields 1988:145). These sherds suggest that the site may be attributable to the Bossier Focus of the middle to late Caddo period of northwestern Louisiana.

Discussion of Components

Nine of the 15 test pits excavated at 16WE196 yielded cultural materials. The density of the cultural remains is 12 items/m^2 (28 items/m^3), which is judged to reflect nonintensive occupations.

The core site area, defined by Test Pits 4, 5, 6, 13, 14, and 15, covers an area of only 300 m^2. Over two-thirds (70%) of the artifacts recovered from the site came from this area. These consist of all of the potsherds (including the 2 recovered during the survey), the silicified wood manuport, the uniface, and 11 pieces of debitage. Beyond this core area, the test pits produced only two to three pieces of debitage per pit.

Most (89%) of the cultural materials found at the site occurred at depths of 50 cm or less. Three units did produce artifacts deeper than this (60-70 cm), however, and the vertical distribution of the cultural remains suggests that multiple components may be represented. The paucity of artifacts makes temporal assessment difficult, but the two sherds recovered during the survey suggest that at least part of the site occupation dates to the middle to late Caddoan Bossier Focus.

Summary and Conclusions

This chapter has reported on the results of the testing of 19 prehistoric archeological sites, 18 that were originally scheduled for work and 1 that was discovered to have a prehistoric component during testing of the historic component, at the Louisiana Army Ammunition Plant. Two of these sites -- 16WE121 and 16WE122 -- were found to conjoin and are discussed as a single site. Testing was accomplished through the excavation of 290 0.5x0.5-m test pits situated to define the horizontal and vertical limits of each site and to evaluate the contents of the sites. The number of test pits per site ranges from a low of 8 units at two sites to a high of 37 units at one site (see Table 1); the average number of test pits per site is 16 (s = 8). Where feasible, these small pits were excavated to the compact subsoil. The mean test pit depth per site ranges from 45 to 77 cm (see Table 1), with the average mean depth being 60 cm (s = 12). A total of 42.603 m^3 of sediment was excavated from these pits; the volume per site ranges from 1.325 to 5.550 m^3 (see Table 1), with the mean per site being 2.367 m^3 (s = 1.156).

These investigations suggest that all but one of the sites are contained in a variable-thickness mantle of Holocene colluvium; the one clear exception is 16WE129, part of which occurs in fluvial deposits adjacent to a tributary to Boone Creek. The cultural deposits vary in maximum extent below the modern ground surface from 40 to 120 cm (Table 21), with the average maximum extent being 79 cm (s = 23). The mean maximum depth per site ranges from 21 to 65 cm (see Table 24, Chapter 8), with the average being 44 cm (s = 12). While the current sizes of the sites are in part the result of postoccupational geomorphic processes, the data do suggest that most of these sites are of limited size. The range in site size is 40 to 5,370 m^2 (see Table 1), and the average size is 2,037 m^2 (s = 1,540). While most of these sites have likely been disturbed to some extent by bioturbation and historic logging and/or cultivation, the only sites that exhibit any obvious substantial disturbance are 16WE107 and 16WE117, parts of which have been destroyed by powerline or pipeline construction and maintenance.

TABLE 21

SUMMARY OF THE VERTICAL EXTENT OF THE CULTURAL DEPOSITS

Site Number	Maximum Depth (cm)	Mean Depth (cm)
16WE107	80	54
16WE108	80	39
16WE114	40	21
16WE116	100	46
16WE117	90	55
16WE118	70	44
16WE119	100	65
16WE121/122	100	36
16WE123	60	34
16WE126	90	49
16WE127	90	52
16WE129	110	48
16WE190	70	38
16WE191	50	38
16WE192	60	49
16WE193	120	65
16WE195	40	23
16WE196	70	42

These excavations yielded a modest collection of artifacts and other cultural materials (Table 22). No cultural features were identified, although middenlike deposits were encountered at two sites, 16WE107 and 16WE129. The artifacts recovered consist of 42 ceramic sherds, 9 dart points, 19 bifaces, 2 shaped unifaces, 47 pieces of edge-modified debitage, 15 cores, 628 pieces of unmodified debitage, and 4 ground, battered or striated stones. The nonartifactual materials found consist of 5 manuports and 73 fire-cracked rocks that appear to have been humanly transported onto the sites. All of the ceramics have a clayey or sandy clay paste and fit comfortably within the Caddoan ceramic tradition; most (n = 35) are plain, while the remainder show decoration by incising, brushing, engraving, or punctating. The only projectile points recovered are dart points. Of the eight complete or nearly complete points, five have expanding stems, two have contracting stems, and one has a straight stem; five of the dart points are of chert, three are of chalcedony, and one is of a silicified conglomerate. The other chipped stone tools consist predominantly of edge-modified debitage. Most of the bifaces are fragmentary and appear to be manufacturing failures, some of which were subsequently utilized; the more-distinctive of the two shaped unifaces is a reworked early Archaic dart point. The small collection of cores consists entirely of specimens that retain some cortex and that clearly are stream-rolled pebbles or cobbles; all but one are of chert or quartzite, and none are of chalcedony. The unmodified debitage consists predominantly of flakes, with chips and angular chunks occurring in smaller percentages; almost one-half is of chert, and the bulk of the remainder consists of comparable percentages of chalcedony and quartzite. Most of the

TABLE 22

SUMMARY OF PREHISTORIC CULTURAL MATERIALS RECOVERED

Site Number	Ceramics	Dart Points	Bifaces	Unifaces	Edge-modified Debitage	Cores	Unmodified Debitage	Other Artifacts/ Manuports	Fire-cracked Rocks	Density of Cultural Materials #/m²	#/m³
16WE107	7	1	3	-	1	2	49	2	2	21	39
16WE108	22	-	1	-	7	2	109	2	9	20	52
16WE114	2	-	1	-	2	-	37	-	4	17	80
16WE116	-	-	-	-	1	1	38	-	2	21	42
16WE117	-	2	1	-	4	2	41	1	6	29	52
16WE118	3	-	-	-	-	-	6	-	1	9	20
16WE119	-	1	1	-	-	-	33	-	6	27	42
16WE121/122	-	1	3	-	15	1	77	1	16	21	58
16WE123	-	-	-	-	1	-	32	-	3	14	42
16WE126	-	1	1	1	4	1	74	2	5	20	40
16WE127	-	1	2	-	1	-	30	-	2	16	31
16WE129	1	1	4	-	3	3	48	-	9	31	64
16WE190	-	-	-	-	1	1	6	-	1	5	12
16WE191	-	-	1	-	2	-	4	-	3	8	21
16WE192	1	-	-	-	2	2	11	-	-	9	19
16WE193	-	1	1	-	3	-	10	-	4	13	19
16WE195	-	-	-	-	-	-	5	-	-	5	22
16WE196	6	-	-	1	-	-	18	1	-	12	28
Totals:	42	9	19	2	47	15	628	9	73		

debitage lacks cortex, and most is quite small. The only nonflaked lithic artifacts recovered from the tested sites are two battered pebbles, one pitted stone, and a piece of striated hematite.

Based on the small number of artifacts found at the 19 prehistoric sites, it is clear that all of these sites have diffuse cultural deposits. The density of the cultural items varies from 5 to 31/m^2, or 12 to 80/m^3 (see Table 22). The highest density encountered at the 18 prehistoric sites originally scheduled for testing is 31 items/m^2 (64 items/m^3) at 16WE129. The mean density of the cultural materials at the 19 sites is 17 items/m^2 (s = 8), or 38 items/m^3 (s = 18). These low overall densities and the apparent lack of features suggest that these sites were used in a nonintensive fashion. The occupations surely were short-lived, by small groups of people, and involved limited ranges of activities. Such an interpretation is supported by the fact that, at most of the sites, most of the cultural remains occur in areas of limited size.

The thickness of the cultural deposits at most sites, as described above, and the fact that most of the sites appear to occur in colluvial depositional settings suggest that many of the tested sites are multicomponent. Temporal assessment of these ephemeral occupations is problematical, however, because of the number and nature of the diagnostic artifacts they produced. Most of the sites yielded few time-diagnostic items, and most of the artifacts that can be considered diagnostic, such as the dart points and the ceramics, either exhibit attributes that do not fit neatly into existing types or are too small to be typed confidently. In addition, there is some reason to suspect that small, limited-function sites such as these may not contain the full range of artifact types commonly considered to be time diagnostic. For these reasons, no attempt is made here to assign these sites to absolute chronological units, other than the general assessments offered below and in discussing each site above. Unfortunately, this limits the usefulness of these data for addressing most of the important research questions for the region, as outlined in Chapter 9.

Of the 19 tested sites, 9 produced ceramics either during this project or during the preceding survey. These sites are 16WE107, 16WE108, 16WE114, 16WE118, 16WE126, 16WE129, 16WE191, 16WE192, and 16WE196. Sites 16WE114 and 16WE118 produced only plain Caddoan ceramics, and thus these can be dated in part to the Caddo Period, A.D. 800-1700. The other seven sites produced decorated ceramics that bear similarities to established types. Specifically, sites 16WE107, 16WE108, 16WE126, and 16WE129 yielded sherds reminiscent of such Alto-Haley foci (A.D. 800-1200) types as Pennington Punctated-Incised, Davis Incised, Holly Engraved, and Hickory Engraved. Sites 16WE107 and 16WE108 also produced sherds attributable to the Bossier-Belcher foci (A.D. 1200-1600). These late ceramics consist of the types Maddox Brushed and Maddox Engraved. In addition, sites 16WE191, 16WE192 and 16WE196 produced ceramics suggestive of such Bossier-Belcher types as Peased Brushed-Incised, Sinner Linear Punctated, and Belcher Ridged-Pinched or Karnack Brushed-Incised. While some of the Alto sherds may have affinities to Coles Creek types, other early ceramic cultures such as Tchefuncte, Marksville, or Troyville do not appear to be represented within the ceramic sample from the tested sites. Also, no historic Caddoan ceramic types are represented in the sample.

Ten dart points were recovered from nine of the sites during testing or survey. These sites are 16WE107, 16WE117, 16WE119, 16WE121, 16WE123, 16WE126, 16WE127, 16WE129, and 16WE193. Unfortunately, only one can be placed within an existing type with much confidence. That one specimen, from 16WE193, is typed as Ellis and is suggestive of a late

Archaic or Pre-Caddoan Ceramic occupation. While the remaining nine dart points are untypeable, it is felt, based on their stratigraphic positions and the geomorphic settings in which the sites occur, that most of these points may reflect occupations during the late Archaic and/or Pre-Caddoan Ceramic periods. However, the absence of Gary dart points, which are typically abundant during these periods, from the tested sites may contradict this notion. A cautionary note is inserted here concerning the possible curation of dart points by late prehistoric peoples; it may be that some of these points reflect just such an activity in Caddoan contexts. Also, it is possible that some of the points reflect occupations predating the late Archaic; of note in this regard is the recovery of an early Archaic dart point reworked into a scraper from 16WE126.

Putting time aside for a moment and considering the sites as cultural units, some indication of similarities and dissimilarities in site activities can be gained by examining the material culture assemblages; however, the small number of items recovered limits the recognition of most general patterns. In particular, seven sites -- 16WE118, 16WE190, 16WE191, 16WE192, 16WE193, 16WE195, and 16WE196 -- yielded such small samples of artifacts that quantitative analyses of them only serve to point out the biases inherent in the small samples. Although these sites are included in the data presentation here, they are not considered in the following discussion.

Ceramics were recovered from testing at only seven sites, but at two of them, 16WE107 and 16WE108, ceramics constitute 10% or more of the total assemblage (see Table 22); clearly, activities involving the use of ceramic containers, such as cooking and other camp maintenance tasks, were relatively important at these sites. Interestingly, dart points and bifaces do not exhibit highly variable percentages in the sites in which they occur (see Table 22), suggesting a measure of similarity between these sites in terms of the production and use of bifacial tools. Edge-modified debitage is evenly distributed among the sites, with the exception of 16WE121/122 where 13% of the assemblage consists of this type of artifact (see Table 22); this suggests that some differences may exist in the nature of the site activities. Fire-cracked rocks constitute a significant part, 11% or more (see Table 22), of the collections at only four of the sites -- 16WE117, 16WE119, 16WE121/122, 16WE129 -- suggesting that some sites may have seen more processing of animal or vegetal foods than others.

The ratio of unmodified debitage to formal tools -- dart points, bifaces, and unifaces -- for the entire collection is 21:1. This figure seems low relative to other sites in the region, supporting the notion that, as a group, these sites represent specialized activities. Nine of the sites yielded tools and sufficient sample sizes to calculate individual debitage to tool ratios. Although these ratios are generally low, there is a considerable range in ratios among these sites. For eight sites, the ratios are 37:1 or lower. Two sites -- 16WE127 and 16WE129 -- have the lowest debitage to tool ratios at 10:1, suggesting a very limited range of activities. In contrast, site 16WE108 has a ratio of 109:1, considerably higher than any of the other eight sites. This supports other indications that 16WE108 was the locale of more-generalized occupations involving a broader range of activities.

The distribution of the unmodified debitage categories among the sites (Table 23) also shows some interesting patterns. The hypothesis that two distinct chipped stone technologies are represented by the lithics from the tested sites (see Appendix B) is generally substantiated in a site-by-site analysis. Specifically, sites 16WE107, 16WE117, and 16WE129 have relatively high percentages of chalcedony and low percentages of corticate

TABLE 23

SUMMARY OF UNMODIFIED DEBITAGE ATTRIBUTES

Site Number	TYPE				RAW MATERIAL				CORTEX CATEGORY*			
	Flakes		Chips/ Chunks		Chalcedony		Other Materials		Corticate		Decorticate	
	#	%	#	%	#	%	#	%	#	%	#	%
16WE107	30	61	19	39	17	35	32	65	16	36	28	64
16WE108	65	60	44	40	11	10	98	90	51	55	41	45
16WE114	25	68	12	32	10	27	27	73	9	27	24	73
16WE116	25	66	13	34	11	29	27	71	15	52	14	48
16WE117	21	51	20	49	17	41	24	59	12	36	21	64
16WE118	3	50	3	50	1	17	5	83	2	40	3	60
16WE119	20	61	13	39	6	18	27	82	9	36	16	64
16WE121/122	53	69	24	31	12	16	65	84	48	70	21	30
16WE123	23	72	9	28	9	28	23	72	14	44	18	56
16WE126	51	69	23	31	19	26	55	74	32	48	35	52
16WE127	22	73	8	27	3	10	27	90	12	44	15	56
16WE129	29	60	19	40	22	46	26	54	15	37	26	63
16WE190	4	67	2	33	2	33	4	67	3	50	3	50
16WE191	1	25	3	75	-	-	4	100	2	67	1	33
16WE192	9	82	2	18	6	55	5	45	3	33	6	67
16WE193	7	70	3	30	2	20	8	80	3	30	7	70
16WE195	2	33	4	67	1	17	5	83	3	50	3	50
16WE196	13	72	5	28	5	28	13	72	4	31	9	69
Totals:	403		226		154		475		253		291	

*The site totals are lower than those for debitage type and raw material because cortex category was not determined for angular chunks (see Appendix B).

debitage, suggesting that lithic reduction at these sites focused on the final stages of tool production and/or tool rejuvenation using nonlocal materials that had been initially reduced elsewhere. Conversely, sites 16WE108 and 16WE121/122 have low percentages of chalcedony and high percentages of corticate debitage, indicating a technology focusing on the full reduction sequence using local raw materials. At only one site (16WE119) were low

percentages of both chalcedony and corticate debitage found, contrary to what would be expected under the above hypothesis.

In conclusion, the testing of the 19 prehistoric sites at the Louisiana Army Ammunition Plant yielded sparse but tantalizing information on the aboriginal use of the uplands east of the Red River. While the testing data alone do not allow much in the way of substantive interpretation, they do point out that, if sufficient artifactual and other information can be recovered, these sites may contribute significantly to a better understanding of the prehistory of the Plant area.

CHAPTER 8

HISTORIC SITE DESCRIPTIONS

by Jack M. Jackson, Eloise F. Gadus, and Margaret A. Howard

This chapter consists of descriptions of the four historic sites tested during this project. Paralleling the descriptions of the prehistoric sites, the topics addressed are site setting, work accomplished, sediments and stratigraphy, site extent and depth, materials recovered, cultural features, and conclusions reached. Unlike the sections dealing with the prehistoric sites, the historic site descriptions contain a summary of the documentary and informant data pertaining to each site. Because the historic sites are few in number and each is quite unlike the other, this chapter does not contain a concluding section providing intersite comparisons, as is contained in Chapter 7. Assessments of the eligibility of these sites for listing on the National Register of Historic Places are discussed in Chapter 9.

16WE113

Setting

Site 16WE113 is located on a broad interfluve overlooking an intermittent tributary of Boone Creek. It is 190 ft above mean sea level and is located in a heavily wooded area 150 m north of one paved road and 80 m east of another. Although an old roadbed runs north-south through the woods just west of the site, there is no indication of disturbance.

History

This site is located on a 39.8-acre tract that was patented to James Ford on July 11, 1851. Ford acquired the adjoining tract to the north a short time later, and it appears that the two tracts were utilized as one contiguous piece of land until 1942 when they were acquired by the federal government. Ford was living in this vicinity by 1860, when the federal census indicates that he was a neighbor of W. D. Van Arsdell [sic]. The Ford cotton plantation eventually encompassed 240 acres, although the exact location of his home on those acres remains to be determined. Ford retained ownership of these two tracts until December 2, 1885, when he sold them to Leary and Crichton, a Minden-based partnership composed of W. Penn Leary and Thomas Crichton, both from Georgia (Webster Parish CR 4:617; Southern Publishing Company 1890:680, 689). In 1904 Crichton sold the tracts to Paul Brown of Webster Parish, and in 1917 Brown resold the properties to Crichton; the land then was sold by Crichton to C. S. Allen seven years later. Unable to pay his note or taxes, Allen lost the property, and it was sold to T. A. Glass, who sold it to the federal government on January 14, 1942 (Webster Parish CR 13:550; CR 27:312; CR 108:459, 460-461; CR 154:9-14; Klement et al. 1988:61).

Work Accomplished

A grid oriented to the cardinal directions was set up with the east-west baseline running just south of the surface artifact scatter that originally defined the site. Figure 27 illustrates the locations of the scatter of artifacts on the surface and the five test pits excavated. Each of the pits was dug to a depth of 20 cm below the surface; a total of 0.250 m^3 of fill was excavated. The old roadbed was examined by Test Pit 4. Test Pits 1 and 3 were placed in the area of the artifact scatter; however, no cultural materials were recovered from any of the test pits. All of the artifacts on the surface were collected and are described in Appendix C.

Sediments and Stratigraphy

Because the exavations at 16WE113 were very shallow, they revealed little about the site sediments. The typical profile, as represented in Test Pit 1, consists of two zones: Zone 1, 0-8 cm, very dark grayish brown (10YR 3/2) very fine sand, structureless, loose consistence; and Zone 2, 8-20 cm, brownish yellow (10YR 6/6) silty very fine sand, slightly clayey, structureless, friable. Both of these units may be Holocene colluvium.

Site Extent and Depth

The surface artifact scatter defined a roughly elliptical area with an area of 15 m^2. Based on the negative results in five test pits, the site appears to have no subsurface component.

Materials Recovered

Three vessels of enameled pressed steel, usually called graniteware, were recovered (see Appendix C). These represent a kettle and two basins. A small camp stove, a fragment of a galvanized washtub, three large metal cans, and five unidentified metal fragments were also gleaned from the surface. All of these items were manufactured during the last quarter of the nineteenth century or later.

Discussion of Components

It appears that site 16WE113 is a single-component, perhaps even a single-incident, site. Several of the utilitarian items discarded here are well-used and missing essential parts, indicating that they were intentionally discarded. Given the normal lag seen between the manufacturing date and the discard date for such items as the kettle and basins, one would expect these materials to have been discarded here sometime in the first quarter of the twentieth century and perhaps as late as the late 1930s. No function other than a refuse disposal area can be attributed to this site. Given its location next to an

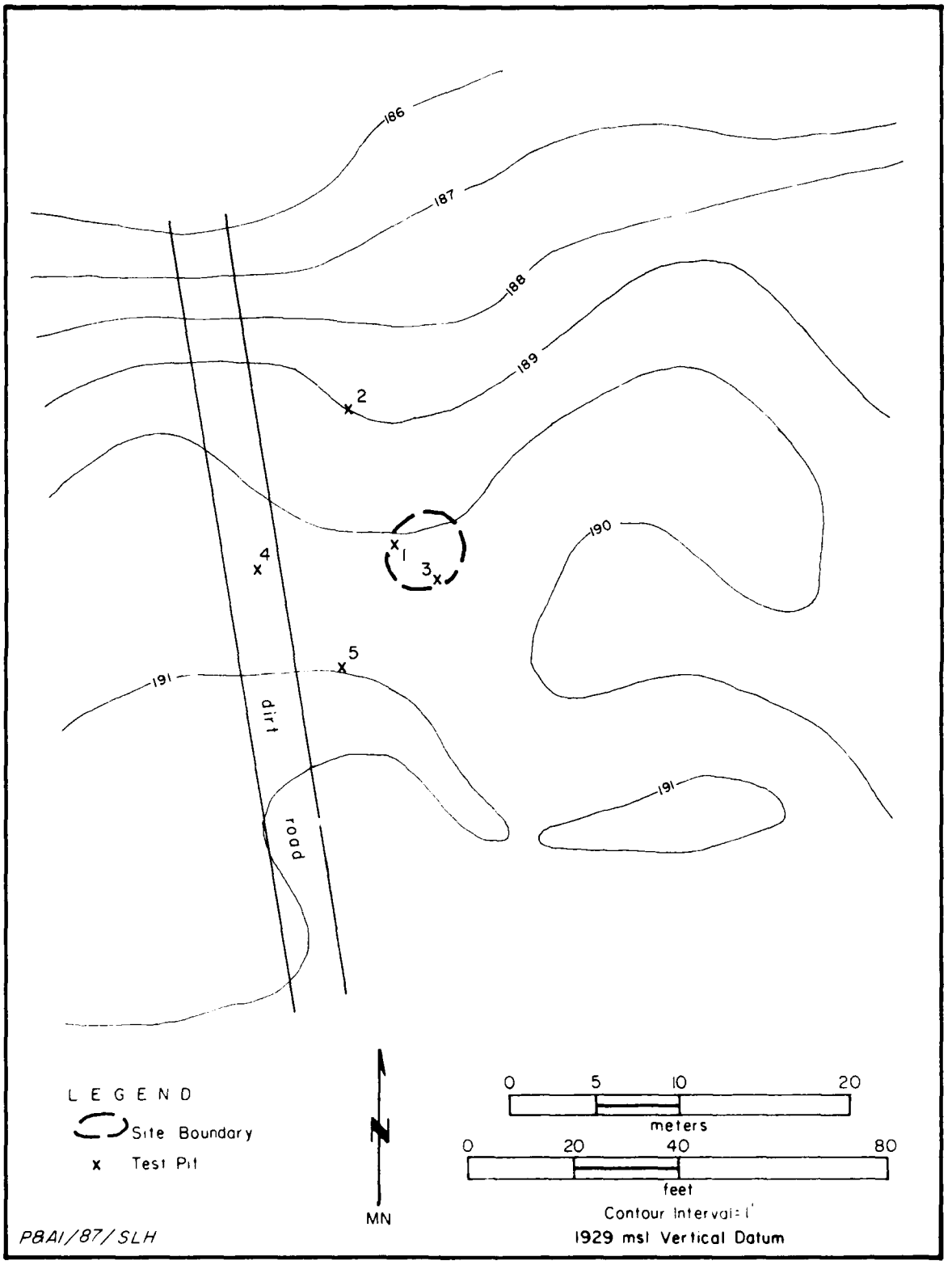

Figure 27. 16WE113 site map. Extent of site is based on surface artifact scatter.

old roadbed, it is difficult to associate this trash dump with a specific occupation, although it probably dates to the period of time when the property was owned by Brown, Crichton, Allen, or Glass.

16WE114

Setting

Site 16WE114 is located on a low interfluve slope ranging in elevation from 179 to 182 ft above mean sea level. The wooded area overlooks two Boone Creek tributaries to the north and west; the confluence of these tributaries lies about 100 m west of the site. Mature secondary growth pines compose the overstory vegetation. The site is relatively clear of understory growth except for a dense poison ivy ground cover. A 10-m^2, 20-cm-deep, U-shaped bulldozer scar in the southern part of the site indicates that it has been extensively disturbed.

History

This site is located on a tract of 159.2 acres which was located and purchased by Elijah Hudson in 1848. About a year later, Hudson sold the property to S. R. Lister at a price suggesting that some improvements might have been made (Webster Parish Abstract of Government and State Entries:67-68; Bossier Parish CR 1:56-57, 153). Lister was also the owner of several other parcels in this immediate area. He sold all of them to W. D. Van Arsdale in 1855 (Bossier Parish CR 1:153). After his death, this parcel was part of 360 acres inherited by Van Arsdale's sister, Ellen Brown, and her children, who lost the property in a tax seizure in 1873. John C. Loye bought the property at that time. Twenty years later, Loye sold a 120-acre parcel, on which 16WE114 is located, to a Doyline storekeeper, A. B. Fisher (Bossier Parish CR 2:654-655; Webster Parish CR 1:627-628, 693-694; Webster Parish CR 7:190). Fisher retained the property until 1921 when he was adjudged bankrupt, and the property was sold to D. W. and Alice Stewart. George M. Hearn bought the land from the Stewarts and was the owner of record when the federal government took the property in 1942 (Webster Parish CR 47:623-624, 625-627; CR 55:260; CR 82:432; CR 110:262-263; CR 155:203; Klement et al. 1988:62).

Work Accomplished

Seventeen test pits were excavated along a grid oriented to the cardinal directions (Fig. 28). The most concentrated area of artifacts and a possible well depression are located just inside the northwestern quadrant of this grid. To define the limits of the site, six test units were excavated along the east-west axis of the grid and eight units along the north-south axis. One unit was placed in the southwestern quadrant and two in the northwestern quadrant, near the densest part of the surface scatter. One of these was excavated in a depression which appeared to be the filled mouth of a well. The test pits were excavated to depths ranging from 10 to 60 cm, with the average depth being 32 cm. In

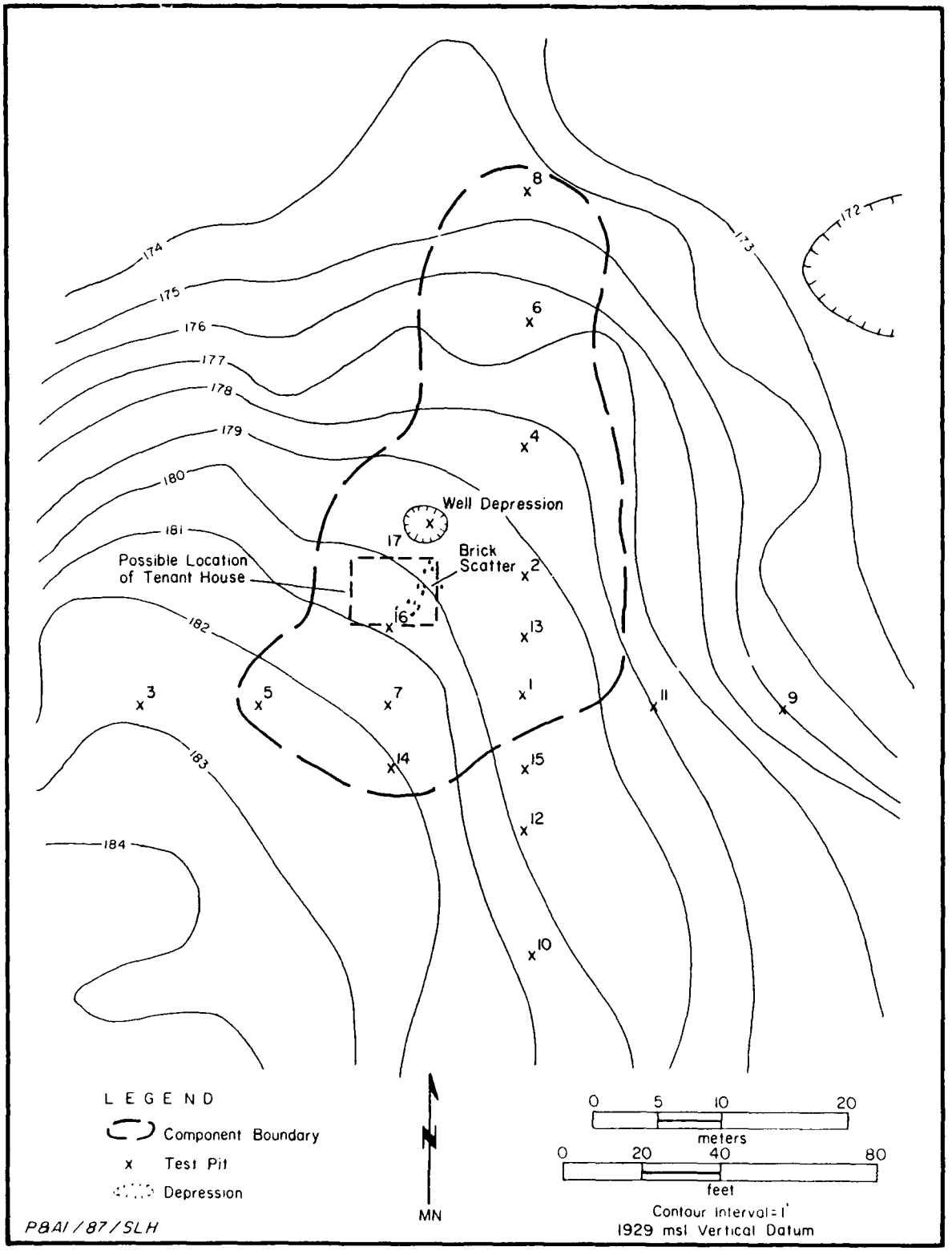

Figure 28. 16WE114 site map showing historic component.

all, 1.375 m^3 of fill was removed from the test pits. In addition to the excavation of test pits, the efforts at 16WE114 involved the removal of a superficial soil and humus layer from a brick and artifact scatter that was exposed on the site surface; after clearing, this scatter was mapped and the artifacts collected, including a sample of the bricks (see Fig. 28).

Sediments and Stratigraphy

The sediments at 16WE114 have been described in Chapter 7 and are summarized here. The typical profile, as represented by Test Pit 2, consists of three zones: Zone 1, 0-7 cm, grayish brown (10YR 5/2) very fine sand, structureless, loose consistence; Zone 2, 7-42 cm, very pale brown (10YR 7/4) very fine sand, structureless, very friable; and Zone 3, 42-50+ cm, brownish yellow (10YR 6/8) silty very fine sand with increased clay, structureless to slightly platy, friable to firm. Zones 1 and 2 are interpreted as Holocene deposits, probably colluvial in origin, while Zone 3 appears to be an older deposit of unknown origin. Zones 1 and 2, which contain most of the historic cultural materials, are fairly thin across the site, ranging from ca. 10 cm in the south-central site area to up to 55 cm in the downslope, northern part of the site.

Site Extent and Depth

The historic component at 16WE114 measures about 49 m north-south and 27 m east-west at its widest extent near the top of the slope at the south end of the site. The area of this component is 980 m^2. The cultural deposits over most of the site are thin and shallowly buried, occurring chiefly at depths of 0 to 30 cm (Table 24). The cultural deposits in the well depression are assuredly much deeper, however, as seen in Test Pit 17.

Materials Recovered

Small fragments of badly rusted sheet metal comprise the most common artifacts recovered from the historic component at 16WE114; 45% of the materials recovered are of this type (see Appendix C). The bricks found at the site are all of a low-fired, hand-molded variety usually associated with houses built before rail transport made commercial bricks generally available. However, the other chronologically diagnostic artifacts suggest that these bricks may have been recycled here and that the house was erected between 1890 and 1900. The nails recovered are particularly suggestive of this. More wire nails were recovered than cut nails. One would commonly expect a nineteenth-century house repaired or remodeled in the twentieth century to have a majority of cut nails. The numbers here suggest a house erected with wire nails and some recycled cut nails. The domestic artifacts recovered reinforce the general impression of a late nineteenth- to early twentieth-century occupation.

The 25 ceramic sherds recovered are generally suggestive of consumers purchasing the cheapest wares available and using dishes long after the glaze was badly crazed and the body beneath stained dark. The three sherds of porcelaneous stoneware that were recovered

TABLE 24

DISTRIBUTION OF HISTORIC CULTURAL MATERIALS AT 16WE114

Test Pit		Levels 1	2	3	4	5	6	Totals
1		6B 7D 7M	4D 5M	-				29
2		3D 8M	-	-	-	-		11
3		1D	-					1
4		8B 24D	2B 4D	1B 3D	-	-		42
5		2D	-					2
6		2B 3D	3D	-	-	-	-	8
7		8B 8D 10M	5B 2D 2M	2D 1M				38
8		1D	-	-	-			1
9		-	-	-	-			0
10		-	-					0
11		-	-					0
12		-						0
13		4B 17D 13M	2B 4D 3M	-	1B 1D 1M			46
14		-	-	-				0
15		-						0
16		7B 2M	-	-				9
17		2D	5B 19M	4B	8B 10D 47M	5D 30M	-	130
Totals:	#	143	60	11	68	35	0	317
	%	44.9	19.0	3.5	21.5	11.1	0	

B = building materials; D = domestic artifacts; M = metal artifacts.

appear to be from toys rather than more-durable tableware. The bottle glass recovered is dominated by colorless sherds, suggesting a post-1918 occupation. The site also yielded parts of a cast-iron wood-burning range of the type popular during the last decade of the nineteenth century and no longer offered by Sears, Roebuck in their 1909 catalog. This is perhaps the most narrowly time-diagnostic item in the collection, indicating an initial occupation between perhaps 1890 and 1905. A whiffletree hook and a harness ring were recovered, indicating that horses were used here. No automotive artifacts were recovered. This again reinforces the impression of a turn-of-the-century occupation. A detailed description of the artifacts is given in Appendix C.

Cultural Features

Two features found in close proximity to one another in the south-central part of the site may indicate the location of the tenant house. A 2.5x6-m brick and artifact scatter was observed within one end of the U-shaped bulldozer scar. Removal of the humus layer revealed a 1x2-m area of yellow and orange burned clay, believed to mark the location of the house's fireplace, within the larger scatter. Artifacts observed in the scatter include window glass fragments, stove parts, and brick fragments.

About 1.5 m to the north of the burned clay feature and just beyond the north end of the bulldozer scar, a depression measuring 2.5x3.25 m in diameter and about 30 cm deep may mark the location of a well. This depression was examined by Test Pit 17. The sediments observed in the test pit were loose and disturbed and appear to be relatively recent fill. About 30 cm below the ground surface, bricks were found in the east, south, and north walls of the test pit, probably at the level of the original well collar. A considerable amount of building materials and domestic debris were recovered from this test pit; consequently, it is surmised that the house rubble was pushed into the well when the site was cleared.

Discussion of Components

The historic component at 16WE114 appears to be best interpreted as a tenant farm residence built shortly after A. B. Fisher acquired this property as a separate parcel of 120 acres in 1893. The use of hand-molded bricks and cut nails suggests that a small house was erected using materials recycled from an earlier structure. Because it is clear that Fisher was a Doyline merchant, it seems reasonable to suggest that the structure that stood on this site was erected as a tenant house. It is difficult to say from the materials collected how long the house was used, but the number of colorless bottle sherds, which are diagnostic of post-1918 occupation, suggests that the house may have been occupied until well after World War I. However, the lack of any automotive artifacts suggests an earlier abandonment. It is clear, however, that the house was standing and bulldozed into the well, probably when the federal government acquired the property in 1942.

16WE185

Setting

As established during the survey (Driskell and Howard 1988), 16WE185 is the site of a nineteenth-century mill-gin complex and a house. Both structures were located on the same tract of land, but some 200 m apart (Fig. 29). Area A, the housesite, is located on a level interfluve at an elevation of about 180 ft above mean sea level, 220 m west of Boone Creek. A large oak tree on the northern edge of the site and several crepe myrtles in the eastern part of the site probably were present when the site was occupied. The secondary growth of trees is mixed pine and hardwoods, with a fairly dense understory of creepers, greenbriars, and other species indicative of disturbance. An old roadbed or bulldozer path bisects the wooded site area from northwest to southeast; spoil piles are found on both sides of this path. The oak tree at the northern end of the path has a pedestal of earth around it, indicating that the original ground surface may have been several inches to perhaps a foot higher than the current surface. Improved roads adjoin the site area to the east and south, and a cleared area to the north of the site is a filled-in pond.

Area B, the presumed location of the gin-mill complex, is located about 200 m northeast of the housesite on the edge of the Boone Creek floodplain at an elevation of about 155 ft above mean sea level. The cultural materials here occur on a slope that is the streamward edge of a landfilled area which contains computer tapes and other recent items. Bordering the dump is a large, deep pond that drains into a gully bisecting the small site area. A few sloughs cross the undisturbed floodplain to the northwest of the site. On the floodplain, there is a mature overstory of mixed hardwoods; the dump area to the west is densely overgrown with saplings and brush.

History

The full legal history of the property on which this site is found is described by Freeman in a previous survey report (Klement et al. 1988:72-73); only the essential elements are restated here. The site is located on a 39.83-acre tract patented by John Morney Crawford on December 5, 1840. Nine years later when the property was sold to William F. Boon, it was stated in the deed that a mill was located on the property (Bossier Parish CR 2:724-725). Sometime between 1849 and 1887 when he sold the property, Boon is presumed to have built a home which was later occupied by Dr. Thomas J. Tabor, a physician and former editor of The Minden Democrat (Webster Parish CR 4:753). Tabor operated a cotton gin which may have been located at the site of the 1849 mill; however, this could not be established firmly. When Tabor died in 1903, this portion of his property went to his widow and remained in the family until the late 1930s (Webster Parish CR 13:232). It is presumed that the home was occupied until that time. The absentee owners during the next few years may have rented the old Boon-Tabor home to tenants. It is likely that the structures were destroyed shortly after the government acquired the property in December 1941.

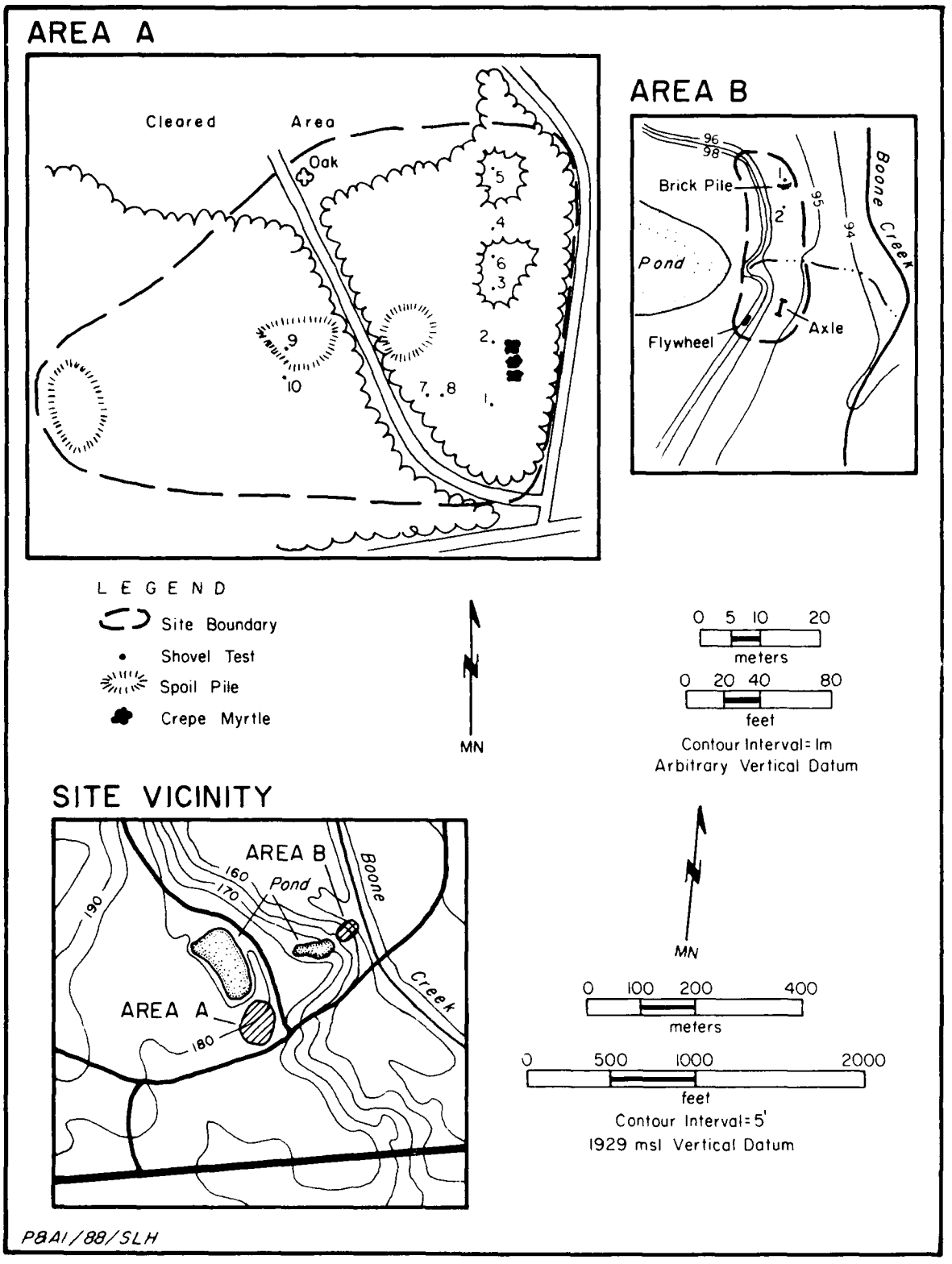

Figure 29. 16WE185 site map.

Work Accomplished

Because of the obviously disturbed condition of this site, shovel tests rather than test pits were excavated to try to identify any areas that might have intact cultural deposits and that might warrant formal testing. In Area A, a north-south baseline was laid out just to the west of the crepe myrtle trees that were judged as probably marking the location of the housesite (see Fig. 29); six 18x36-cm shovel tests were dug at various intervals along a 40-m segment of this line. Four other shovel tests were excavated in or near spoil piles west of the grid line to obtain a sample of artifacts from the spoil. Most of the shovel tests were terminated at 30 cm, but one was dug to 25 cm and another to 50 cm. The average depth of the shovel tests was 32 cm. A total of 0.205 m^3 of fill was excavated in shovel testing Area A. In addition to the testing, a profile was cut into one of the spoil piles to determine the composition of the deposit. Because this testing did not reveal any substantial cultural deposits that were not disturbed, no test pits were excavated in Area A.

In Area B, two shovel tests were excavated on the floodplain margin near a brick pile exposed on the surface. The tests reached depths of 30 and 60 cm; a total of 0.059 m^3 of fill was excavated. In addition, two profiles were cut into the side of the slope to ascertain whether it was a manmade levee for an historic millpond or was a product of recent land-surface modification. Also, an intensive surface reconnaissance was made of the area around the site and the floodplain upstream from it to search for evidence of a millrace, pond, dam, or other features that may have been associated with the mill; however, none were located.

Sediments and Stratigraphy

The natural sediment profile at 16WE185 is poorly known because very little of the site area has undisturbed sediments. In Area A, none of the shovel tests found an A horizon, supporting visual evidence that the upper part of the profile has been stripped off. A profile cut in one of the spoil piles in Area A reached a partly developed A horizon beneath it, so the natural soil profile may be preserved beneath the spoil piles. In Area B, shovel tests were placed in disturbed sediments in the side of a large dump deposit. A partly developed, obviously recent A horizon was reached from 60-65 cm below this deposit in one of two profiles cut in Area B.

Site Extent and Depth

The boundaries of Area A are defined on the basis of the extent of disturbance and artifact distributions. The wooded site area has been disrupted by bulldozing, and it is surrounded by areas of extensive disturbance related to roads and clearings on the north, east, and south where any remaining cultural deposits would have been destroyed. A diffuse historic artifact scatter was found within the wooded area, concentrated in and near the spoil piles in the central and western parts of the site. The wooded area is about 60 m north-south and 90 m east-west; the total area is estimated to be about 5,400 m^2.

The thickness of the cultural deposit in Area A is difficult to determine, as the A horizon has been removed over much of the site area by bulldozing. Artifact recovery from shovel tests was minimal, with the exception of Shovel Tests 7 and 9 and the profile cut, which were placed in or near spoil piles. The depth of cultural materials in Shovel Tests 2-4, 7, and 8 was no greater than 20 cm below the ground surface. The spoil piles yielded deeper cultural materials; however, these were not in situ, as established through the profile cut which revealed a tumbled mass of bricks, window glass, and other artifacts lying at various angles on a surface from which the A horizon had been removed. Shovel Test 9, placed in a spoil pile, was the only test dug deeper than 30 cm, and it was culturally sterile below that level.

The boundaries of Area B are defined on the basis of the extent of historic materials exposed on the ground surface. The resulting site area is 30 m north-south by 10 m east-west, or a total site area of 300 m^2; however, there is considerable doubt that the materials exposed on the surface are in situ. One profile was cut near a large steel flywheel -- presumably relating to the gin or mill that once stood here -- that was found embedded in the slope. The profile indicates that this artifact lies in a recent secondary deposit ca. 0.6 m above a buried A horizon probably representing the premodern ground surface. In the second profile cut made in the steep slope, aluminum soft drink cans of the extruded-base variety were found at a depth of over 1 m; at least this section of the slope is less than 25 years old. Two shovel tests were excavated near a pile of bricks on the surface of the slope. Shovel Test 1 yielded charcoal and metal fragments to a depth of 60 cm, but a second test only 5 m away yielded no such materials or other building debris. In short, although cultural materials are present at this location, they seem to be completely displaced.

Materials Recovered

A total of 904 artifacts were recovered in testing 16WE185 (see Appendix C). In Area A, 41 artifacts were recovered, 21 from test pits (Table 25) and 20 from the spoil heap profile cut. The majority of these are building materials; both handmade, low-fired bricks and commercial pressed bricks were found, as were wire nails and cut nails. The window glass recovered here exhibits the variability and general thinness usually associated with mid-nineteenth-century windows. The domestic artifacts, such as a canning jar bail and rim sherd and a scalloped rim sherd from a kerosene lamp chimney, also are consistent with the chronology established by the archival research.

In Area B, 863 artifacts were recovered from the supposed mill-gin complex area. All but four of these are small unidentified metal fragments from one shovel test. This test also yielded 51.5 g of wood charcoal which is not included in the artifact count. The total weight of the metal fragments is 486.8 g, giving an average weight per fragment of 0.6 g. This test also yielded a single wire nail and the corner of a commercial pressed brick, neither of which could be associated with the ruins of a nineteenth-century mill or cotton gin. The second test yielded only two small fragments of burned bone.

TABLE 25

DISTRIBUTION OF CULTURAL MATERIALS AT 16WE185

Shovel Test		Levels 1	2	3	4	5	6	Totals
AREA A								
1		-	-	-				0
2		-	1D	-				1
3		-	1B	-				1
4		-	2B	-				2
5		-	-	-*				0
6		-	-	-				0
7		5B 2D	1B	-				8
8		-	1M	-				1
9		2D	2B 1M	1B 1D 1M	-	-		8
10		-	-	-	-	-		0
Subtotals:	#	9	9	3	0	0		21
	%	42.9	42.9	14.3	0	0		
AREA B								
1		541M	2B 279M	16M	15M	5M	3M	861
2		-	2D	-	-	-	-	2
Subtotals:	#	541	283	16	15	5	3	863
	%	62.7	32.8	1.9	1.7	0.6	0.3	

B = building materials; D = domestic artifacts; M = metal artifacts.

*Excavated to 25 cm.

Discussion of Components

Six of the 10 shovel tests excavated in Area A were positive. Although the artifacts recovered suggest that Area A was the site of the nineteenth-century Boon-Tabor house, most of the site deposits appear to have been disrupted or removed. The spoil piles that remain on the site contain the majority of the cultural materials, but their volume cannot account for the large volume of soil apparently removed from the surface. The very meager and disturbed deposits remaining are of doubtful research value.

The two shovel tests excavated in Area B were both positive, although the materials recovered from them do not clearly relate to the mill or gin that may once have stood there. Several artifacts found on the surface do appear, however, to have been part of the mill and/or gin. The testing done at Area B renders it doubtful that the present-day pond is a relic of the historic millpond or that any of the cultural deposits are in situ. Additional reconnaissance of the floodplain of Boone Creek failed to yield any other preserved features or deposits.

16WE198

Setting

This site is located in a level upland area in the northern portion of the project area, at an elevation of about 210 ft above mean sea level. A dirt road runs along the western edge of the site, leading north and east to an intermittent tributary to Boone Creek. A grove of crepe myrtles which appear to have been planted along a walkway and a mature overstory of mixed hardwoods shade much of the site. Several other trees present on the site probably were planted; cedars and a chinaberry tree are imported species, while a dogwood, a large pin oak, and a locust are native to the area but have grown to an unusually large size. There is relatively little understory growth aside from a few creepers and other vines and abundant poison ivy. Some jonquils were noted during the survey but were not visible at the time the site was tested. There is no evidence of substantial disturbance to this site. Three depressions present on the site seem to be features associated with the historic occupation, as does the slight rise which marks the former house location.

History

This site is located on a 162.04-acre tract patented to Rial A. Lancaster on January 3, 1856. The month following issuance of the patent, this tract and two parcels adjoining on the east and west were purchased by E. A. Clemmons of Harrison County, Texas. Clemmons sold the property to D. B. Dupree of Fannin County, Texas, who, in turn, sold the land to a Bossier Parish resident, W. E. Hamilton. The patent documents suggest that the property may have been occupied from March 10, 1851, when Lancaster became the assignee of Alvin Burrows (Klement et al. 1988:83-84). The Lancaster home would have been built in 1851 or slightly later and occupied by Lancaster until 1856. It would have been vacant or

tenant-occupied for three years when the property was owned by Texans, then perhaps reoccupied by a local owner, W. E. Hamilton, after January 10, 1859 (Webster Paris CR 55:105; Bossier Parish CR 1:188, 273).

At an undetermined time before 1874, W. E. Hamilton became a resident of Shreveport in Caddo Parish. In any case, he was living there when he sold the property "known as the Lancaster place" (Webster Parish CR 2:200) containing 320 acres to Lewis Rawlston and Cobb Carter of Webster Parish. Lewis Rawlston was Black and the minister at the nearby St. Matthew Church. He purchased Carter's interest in the property on December 18, 1880 (Webster Parish CR 3:340). The property remained intact until after the deaths of Lewis Rawlston and his wife, Rosanna. They are presumed to have died sometime during the 1890s because the heirs brought suit for partition of the estate in 1898.

As a result of the partition, the 100-acre tract upon which 16WE198 is located was inherited by L. M. C. Rawlston, the son of Lewis and Rosanna (Webster Parish CR 9:89-91), who subsequently lost it in a bankruptcy action in 1899. For a period of about two years, the land was owned by L. S. Kronenberg, from whom G. C. Rawlston purchased it (Webster Parish CR 9:521-522; CR 11:318-319). According to a 1941 affidavit sworn by Peter Applewhite, an 80-year-old resident of the parish, Lewis Rawlston's house and gin were located on the tract where 16WE198 is located (Webster Parish CR 153:189-190). Applewhite stated that the place was farmed by the senior Rawlston and by G. C. Rawlston until the younger Rawlston's death in 1910. A tenant renting from Gifford Rawlston, another son of Lewis Rawlston, occupied the place for three additional years, after which the property was for a time abandoned and the improvements went to ruin. In the early 1930s, the farm was again operated by a tenant for about three years. It was said by Applewhite that this tenant built a house on the property, but it was unclear whether this house was erected on the site of the Lewis Rawlston home or elsewhere. After this tenant left, the improvements again went to ruin or were removed (Klement et al. 1988:84).

In summary, the documentary evidence suggests that three possible occupations may have occurred at 16WE198: (1) the antebellum Lancaster-Hamilton occupation from the 1850s to the 1870s; (2) the Rawlston occupation from ca. 1880 to the 1930s; and/or (3) the Henry Parker occupation from 1933 to 1936. There appear to have been no standing structures at 16WE198 when the government acquired the property, so the site may not have been bulldozed as were most of the other historic sites in the project area.

Work Accomplished

The site area and vicinity were mowed with a bush hog to facilitate the identification of surface features. A north-south grid line was laid out across the rise which is the supposed house location in the center of the site; an east-west baseline was laid out perpendicular to it and parallel to the northern edge of the rise. Ten test pits were dug along these lines to determine the site extent; an additional test pit was excavated at the eastern edge of the rise to better identify the location of the house (Fig. 30). A total of 0.750 m^3 of soil was hand-excavated in these pits. The test pits ranged from 20 to 30 cm deep, with an average depth of 25 cm. Additionally, three short backhoe trenches were dug into the edges of three depressions found on the site. These trenches ranged from 2.5 to 3.4 m in length and from 1.1 to 1.4 m in maximum depth. They were profiled and recorded to assess the probable function of these features.

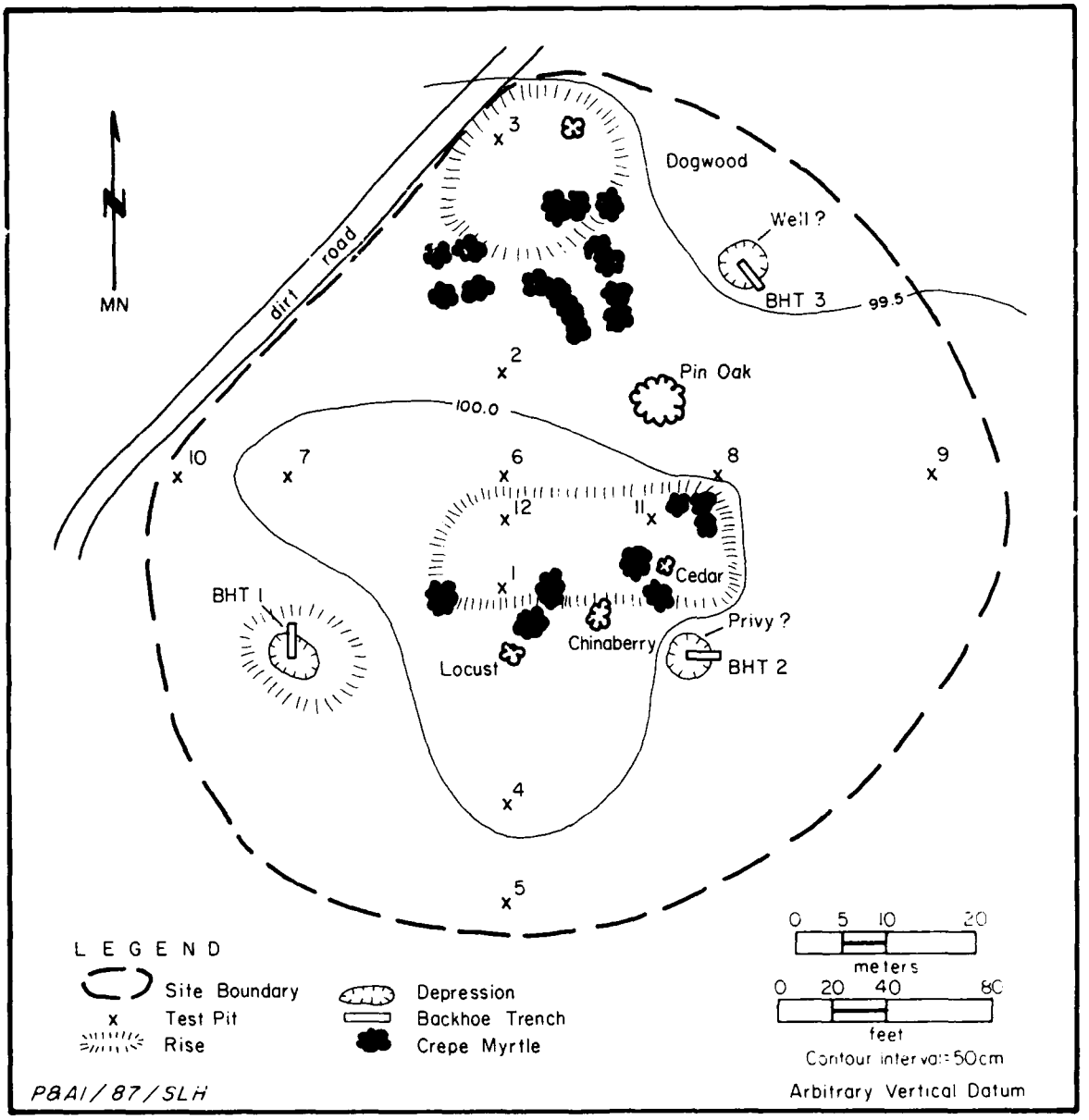

Figure 30. 16WE198 site map.

Sediments and Stratigraphy

The typical profile at 16WE198 is represented by Backhoe Trench 1 in the southwest part of the site and consists of three zones: Zone 1, 0-40 cm, dark grayish brown (10YR 4/2) silt loam, abrupt boundary; Zone 2, 40-85 cm, brownish yellow (10YR 6/6) loam, clear boundary; and Zone 3, 85-110+ cm, strong brown (7.5YR 5/8) clay with many fine light gray (10YR 7/1) mottles and 2-to-20-mm-thick vertical channels of white (7.5YR 8/0) fine quartz sand and silt. Zone 1 is structureless and has a loose consistence, while Zone 2 has an

angular blocky structure. Zone 3 has a moderate to strongly developed subangular blocky structure, with prominent throughflow features between peds. Zone 1 appears to represent Holocene colluvium, while Zones 2 and 3 represent older sediments, possibly Pleistocene Red River floodplain deposits. Cultural materials are limited to Zone 1. These zones are described further under Cultural Features.

Site Extent and Depth

The site boundaries are defined on the basis of artifact distributions and the occurrence of historic features and domestic vegetation. The site measures 70 m north-south by 70 m east-west and covers an area of 3,850 m^2. The site is bounded on the west by a dirt road; a small rise marks the northern site boundary. Boundaries on the east and south are set just beyond Test Pits 5 and 9, which yielded relatively few artifacts (Table 26).

The cultural remains are most abundant in the vicinity of the rise on which the house sat. The sheet refuse deposit across the site appears to be confined largely to the upper 20 cm of soil, but in Test Pits 4, 5, and 11, artifacts occurred to depths of 25-30 cm. These test pits are on the house mound and near the southern boundary of the site. As might be expected, buried features investigated with backhoe trenches yielded artifacts at greater depths, up to 40 cm deep in Backhoe Trench 3.

Materials Recovered

A total of 1,241 artifacts were recovered from 16WE198 (see Appendix C), the vast majority from the 12 test pits (see Table 26). Building materials include 1,024 brick fragments, 81 nails, and 41 sherds of window glass; thus, the total number of building-related artifacts is 122 if the bricks are discounted. Ninety-four other artifacts were collected, most representing domestic activities: 45 glass fragments, 20 ceramic sherds, 1 ceramic button, 18 metal artifacts or fragments, 1 piece of slate, 3 fire-cracked rocks, 5 bone fragments, and 1 mussel shell. One prehistoric artifact, a biface fragment, was also recovered. The great number of small brick fragments present is due to the fact that the bricks found at the site were fired at low temperatures and are very friable. All seem to have been hand-molded and fired in the open rather than in a kiln. No fragments of commercial pressed bricks were found. This alone would tend to indicate an antebellum building date. The nails recovered reinforce this impression; all 81 are cut nails. Not a single wire nail or fragment was recovered. The window glass exhibits the general thinness and variability expected with windows found in nineteenth-century homes. The complete absence of wire nails strongly suggests that neither twentieth-century repairs nor a twentieth-century rebuilding took place here.

Several other artifacts contribute additional time-diagnostic information as well as functional data. Among the glass sherds, there is a distinctive body sherd bearing a scroll design which has been identified as a fragment of a scroll flask dating to the middle of the nineteenth century (McKearin and Wilson 1978:422). This is the only artifact in the sample that is indicative of an occupation before 1874. The base of a bottle from Backhoe Trench 2 bears a maker's mark that dates it between 1863 and 1891. In addition, the glass sample is dominated by unbleached bottle sherds, indicating that most were of

TABLE 26

DISTRIBUTION OF CULTURAL MATERIALS AT 16WE198

Test Pit	Levels 1	2	3	Totals
1	87B 5D 8M 1P	56B 13D 1M	-*	171
2	54B	29B 2D	-	85
3	1B	-	-	1
4	12B 3D	12B 4D	1B*	32
5	-	3D	2D	5
6	38B 2D	10B 2M	-	52
7	-	3B		3
8	9B 12D	2B 10D		33
9	2B 1D	-	-*	3
10	4B 2D	6B 2D 1M		15
11	204B 1D	141B 3D	120B*	469
12	157B 3M	192B 6D 1M		359
Totals: #	606	499	123	1,228
%	49.3	40.6	10.0	

B = building materials; D = domestic artifacts; M = metal artifacts; P = prehistoric artifact.

*Excavated to 25 cm.

nineteenth-century origin. Among the ceramic artifacts, some sherds from heavy utilitarian alkaline-glazed stonewares and a sherd from a sponge-decorated stoneware dish also strongly suggest occupation in the third quarter of the nineteenth century (Miller 1980:4, 28; Greer 1981). The single prehistoric artifact is a distal dart point fragment (see Appendix B) that may have been collected by the historic inhabitants of the site.

Cultural Features

Five features were observed at 16WE198: two rises and three depressions. The largest rise is interpreted as a house mound and is located in the center of the site. It is about 25 m east-west by 10 m north-south, about 20 cm high, and roughly rectangular. Test Pits 1 and 11 were positioned near the western and eastern ends of this rise; they yielded considerable quantities of brick fragments which may represent chimney falls. A smaller rise about 15 m in diameter and 10 to 30 cm high on the northern periphery of the site was investigated by Test Pit 3. This test pit yielded only one artifact (a brick fragment), and the function of the smaller rise remains unknown.

Three depressions were investigated with backhoe trenches. To the southwest of the main rise, Backhoe Trench 1 was placed in an oblong, 5x3-m depression which is about 40 cm deep and is near the western margin of a 10-cm berm. The profile of this trench (Fig. 31) shows several disturbed zones within Zone 1 of the typical soil profile. Zone 1a in Backhoe Trench 1 is a dark grayish brown (10YR 4/2) silt loam typical of undisturbed Zone 1 sediments across the site. Zone 1b is a light brown (7.5YR 6/4) silt loam, while Zone 1c is a pinkish gray (7.5YR 7/2) silt loam. Zone 1b yielded one brick fragment, but no other cultural materials were found within the depression and there was no evidence of burning, so it does not appear to be a trash pit. Zones 1b and 1c are interpreted as disturbed zones resulting from natural causes such as a tree fall; the presence of a berm on the east side of the depression supports this conclusion.

Backhoe Trench 2 was excavated into a 5-m-wide, 50-cm-deep depression located immediately southeast of the main rise. The profile of this trench (see Fig. 31) shows two intrusive zones within typical undisturbed Zone 1 sediments (designated Zone 1a). Zone 1b in Backhoe Trench 2 is a pinkish gray (7.5YR 7/2) silt loam found toward the periphery of the depression. Zone 1c is a pink (7.5YR 8/6) silt loam; the abrupt lower boundary of this zone slopes steeply toward the center of the depression. A large piece of strap iron was found embedded within this zone. Both the location of the depression and the steep angle of the cultural zones found in it suggest that it was a privy pit; the strap iron may have functioned to hold together floor boards over the pit. A wine bottle base dated to 1863-1891 (Wilson 1981:115) was recovered from this context.

Backhoe Trench 3 was placed in a 5-m-diameter, 50-cm-deep depression in the northeastern part of the site. Three cultural zones were found within Zone 1 of the typical undisturbed soil profile (see Fig. 31). Zone 1b in Backhoe Trench 3 is a brown (7.5YR 5/2) clay loam; Zone 1c is a pinkish gray (7.5YR 7/2) silt loam containing fragments of metal, charcoal, and glass; and Zone 1d is a strong brown (7.5YR 4/6) clay. All of these cultural zones have abrupt boundaries; a rotary water pump impeller was found at the contact between Zones 1c and 1d. The steep incline of the cultural zones toward the center of the depression and the nature and location of the cultural materials indicate that this depression is a filled well.

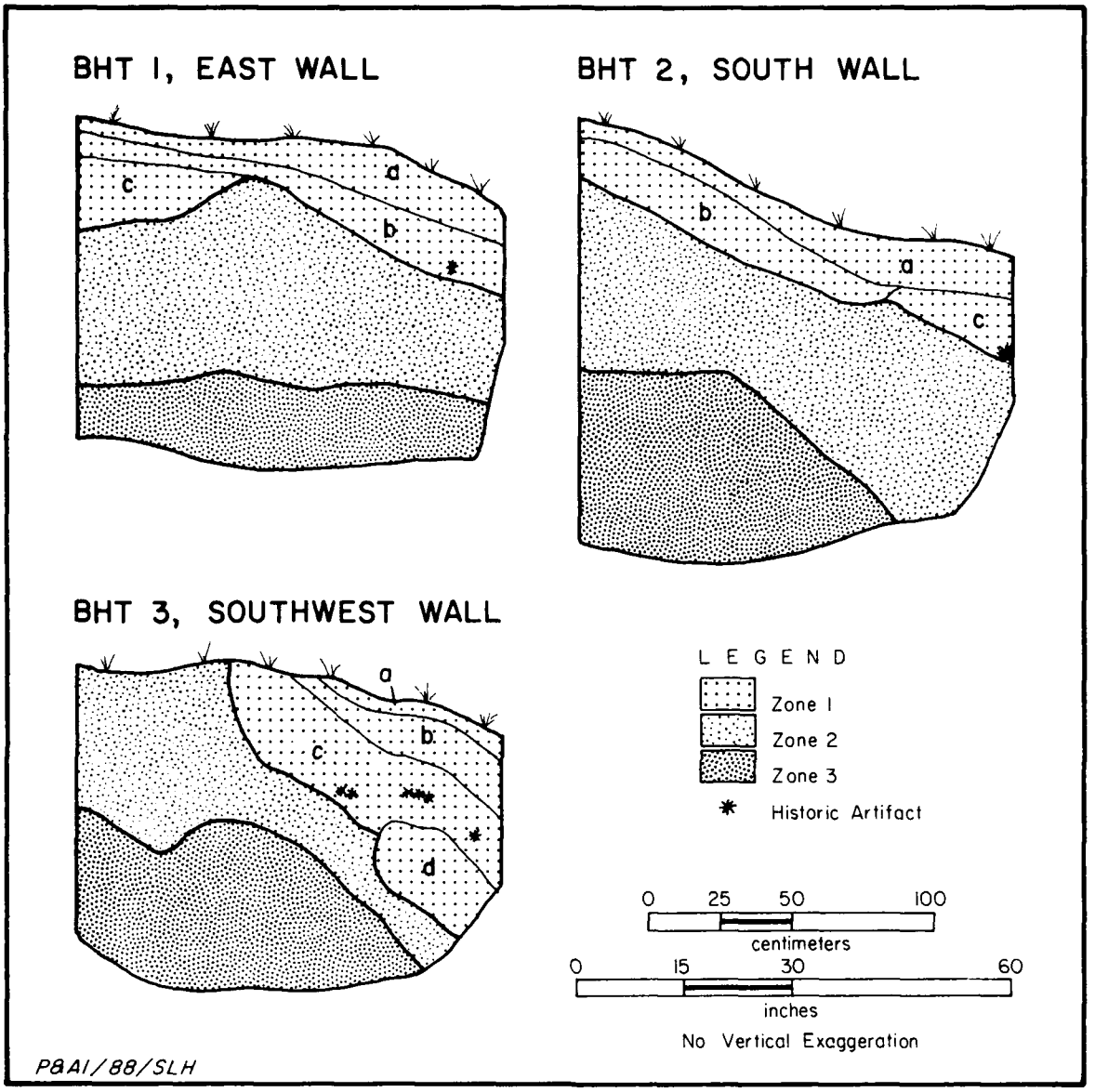

Figure 31. Backhoe trench profiles at 16WE198.

Discussion of Components

All 12 of the test pits excavated at 16WE198 were positive; however, a considerable percentage of the artifacts are brick fragments. The greatest frequency of artifacts was encountered in the immediate vicinity of the house mound, and the bulk of the materials appear to represent in situ primary or secondary cultural deposits. Artifacts other than brick fragments are closely associated with this feature. Brick fragments appear to be widely dispersed about the site, although they are particularly abundant in two areas.

Specifically, in Test Pits 1 and 11, the bricks were abundant enough to suggest that chimneys once stood at these locations.

It seems clear that this site is the location of the Rawlston home occupied from 1874 to the early 1900s. There is some indication, but no definite evidence, that the 1851 Lancaster residence was located here as well. There is no evidence of an occupation in the 1930s. Although it is difficult to draw any conclusions on this matter from negative evidence, it does not appear that the Henry Parker home was at this location.

CHAPTER 9

ASSESSMENTS AND RECOMMENDATIONS FOR THE TESTED SITES

by Ross C. Fields

Cultural resources are eligible for listing on the National Register of Historic Places, and thus worthy of avoidance, protection, or mitigation through data recovery, if they are significant in American history, architecture, archeology, engineering, or culture (U.S. Department of the Interior, National Park Service, National Register Division 1982:1). Significant properties are those that:

> possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:
>
> A. that are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> B. that are associated with the lives of persons significant in our past; or
>
> C. that embody the distinctive characteristics of a type, period, or method of construction, or that represent the works of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> D. that have yielded or may be likely to yield information important in prehistory or history. [U.S. Department of the Interior, National Park Service, National Register Division 1982:1]

This chapter assesses the 22 prehistoric and historic sites tested during this project in terms of these four criteria and provides rationales for these assessments. The first section deals with the prehistoric sites, while the second deals with the historic sites. National Register assessments of the sites located during the survey portion of this project are presented in Chapter 6.

Prehistoric Sites

Of the four National Register criteria listed above, Criterion D is the one that applies to prehistoric resources. The key task, then, in undertaking National Register assessments of prehistoric sites is evaluating their information yield potential. Of course, such evaluations must be made in consideration of research problems that are of importance in the study region.

For the Louisiana Army Ammunition Plant area, these important problems are of the most basic kind. As discussed in Chapter 3, northwestern Louisiana has a long, varied, and complex history of use by human groups. Archeological investigations of this prehistory

have occurred sporadically over the last century, yet many questions remain to be answered. This is due, at least in part, to the fact that most of the substantive investigations have focused on the more spectacular archeological manifestations that occur along the major watercourses such as the Red River. In addition, greater attention needs to be given to understanding the geomorphology of the region, for such studies provide essential information on how sites formed, the environments in which sites formed, and the histories of sites after they were formed.

As Chapter 3 describes, it is known or reasonably surmised that northwestern Louisiana has an archeological record that is at least 10,000 years long, that the Paleoindian and Archaic inhabitants of the region were hunters and gatherers with a broad-based economy and fluctuating population densities, that the area was affected to some extent by the late Archaic and pre-Caddoan political developments at Poverty Point and elsewhere in the Lower Mississippi Valley, and that the region was occupied for the last 1,000 years of prehistory by agricultural Caddoan groups who established sizable communities and ceremonial centers along the major rivers. The details of this outline, particularly as they apply to upland areas such as at the Louisiana Army Ammunition Plant, are poorly known, however. For example, some major research questions that remain unanswered for the project area are:

(1) Were there any indigenous Paleoindian peoples in northwestern Louisiana?

(2) Did the economic basis of the cultures represented by San Patrice occupations differ from the economy of Paleoindian groups?

(3) Were Archaic groups highly mobile foragers, or were they logistically organized collectors?

(4) Did a late Archaic population increase result in increased definition of cultural groups and territory boundaries?

(5) What was the nature and extent of the involvement by local Archaic groups in the cultural developments at Poverty Point?

(6) To what extent were the Archaic lifeways of local groups affected by Lower Mississippi Valley cultures such as Marksville and Troyville?

(7) When, if ever, did cultigens begin to play a role in the subsistence activities carried out at sites in the uplands east of the Red River?

(8) Is there evidence in the Plant area that Coles Creek was antecedent to Caddo?

(9) Is there any evidence that decreased ceremonialism during the middle Caddoan period led to changes in how Caddo groups used upland areas?

(10) Did the Great Raft on the Red River affect aboriginal usage of the uplands?

(11) Were historic Indian occupations limited to the major streamways, or did they occur in the uplands as well?

(12) Is there any evidence that Indians of different cultural groups, such as the Caddo and the Choctaw, joined together under the stressful conditions of the early historic period?

Unfortunately, the current testing program has not yielded information that can be used to address these questions in a substantive fashion. The greatest limitation of the data recovered arises from the inability to precisely date the sites. The emphases in future research at the Plant, then, must be to determine when during prehistory the area was occupied or used, what kinds of activities are represented in these upland sites, and how these activities fit within larger systems of settlement in the Great Bend region. Given the limited amount of substantive data currently available from the Plant area, sites of one time period are no more or less important than sites of another time period, and thus the only qualities that a site must possess to be considered valuable are: (1) it must be datable, either absolutely or relatively; (2) it must have cultural remains that are isolable into components or reasonably discrete periods of occupation; (3) it must have sufficient quantities of cultural materials to allow reasonable interpretation; and (4) it must not be substantially disturbed. As the data from the region begin to accumulate, other factors undoubtedly will play a role in evaluating site importance. Among the most important of these will likely be site age (i.e., at some point, the existing data base probably will become biased toward Caddoan and late Archaic sites) and site function (e.g., nonintensively used sites vs. village sites).

In terms of dating, the investigations reported here suggest that the application of absolute chronometric methods may be problematical at most of the sites in the Plant. Charcoal-bearing features were not found, and even scattered nonfeature charcoal is sparse. Other potentially datable organic materials, such as bones, also occur in small amounts. The radiocarbon dating of soil humates, as attempted at 16WE129, holds some promise of providing chronological controls, but further work is needed to evaluate the accuracy and precision of such dates from sites in the Plant area; furthermore, it is clear that not all sites in the area have sufficiently humate-rich soils to permit this dating technique to be used. Finally, thermoluminescence dating of ceramics may prove to be a useful way to date some components, but this approach clearly is limited to the latter portion of the prehistoric period.

Relative dating is certainly feasible for sites in the Plant area, assuming that sufficient quantities of diagnostic artifacts can be recovered. As with thermoluminescence dating, however, this approach will be most effective in dealing with Caddoan and Pre-Caddoan Ceramic components since these are the time periods that have been most intensively investigated to date and for which the best-controlled data sets exist; since relatively little information from excavated Archaic and Paleoindian contexts exists, it will be difficult to date some sites based solely on projectile point typology. In sum, the sites at the Louisiana Army Ammunition Plant that are rated most highly in terms of the criterion of dating potential are those that have yielded relatively abundant time-diagnostic artifacts or that have soils rich enough in humates to suggest that radiocarbon dating may be feasible (see below).

In terms of the second criterion for evaluating sites, the testing data suggest that components may be most clearly isolated at sites that are in relatively active depositional settings. Landforms that have aggraded little over the last few thousand years are poor settings for finding prehistoric sites with discrete, isolable components, unless of course the cultural remains at a given location represent but a single occupation. While many of the tested sites at the Plant have sufficiently sparse cultural remains to suggest that limited occupations are represented, most also have sufficiently thick cultural deposits to suggest that the remains represent more than single occupations. Given this, it is argued here that the sites that rate most highly under this second criterion are those with th-

thickest cultural deposits (see below). It is stressed, however, that the limited geomorphological investigations conducted to date provide a very preliminary picture of the geomorphic processes that have shaped the landscape of the Plant area, and much work remains to be done before the geomorphic settings of most of the prehistoric sites in the area can be fully and confidently determined.

The third site evaluation criterion, that dealing with obtaining sufficient samples to allow interpretation, may be the most problematical for the sites tested so far at the Louisiana Army Ammunition Plant because, as a group, these sites have diffuse deposits of cultural materials. While there is no doubt that understanding such low-density sites is critical to understanding overall settlement systems, there is a very real concern that many such sites may not yield enough data to allow them to be interpreted within these systems. As discussed below, since all of the tested sites described here are considered to reflect nonintensive usage, the sites that are rated most highly under this criterion are those that have relatively abundant cultural remains; the sites with extremely low densities of materials are considered to be below the threshold of interpretability.

The final criterion for site evaluation deals with the integrity of the cultural remains. While most, if not all, of these sites surely have been disturbed to some extent by bioturbation, it is assumed here that this disturbance factor has not necessarily destroyed all of the cultural patterning present in the deposits. The most obviously harmful disturbance to the sites has resulted from major earthmoving, such as that associated with the construction of roads, railroads, powerlines, and pipelines.

With the bases for the four site evaluation criteria established, it is appropriate to review all the prehistoric sites tested during this project. As shown in Table 22, most of the prehistoric sites yielded limited data allowing them to be dated. Five sites (16WE116, 16WE123, 16WE190, 16WE191, and 16WE195) produced no time-diagnostic artifacts, and six other sites (16WE119, 16WE121/122, 16WE126, 16WE127, 16WE192, and 16WE193) produced no more than one temporally diagnostic item apiece. These 11 sites are judged to have a low potential for dating (Table 27). The other seven tested sites each yielded multiple time-diagnostic artifacts, with 16WE129 also yielding radiocarbon dates on soil humates, and are considered to have a high potential to be dated (see Table 27).

In terms of the second criterion, two sites (16WE114 and 16WE195) clearly have very thin cultural deposits, six sites (16WE118, 16WE123, 16WE190, 16WE191, 16WE192, and 16WE196) have thin to moderately thin deposits, eight sites (16WE107, 16WE108, 16WE116, 16WE117, 16WE119, 16WE121/122, 16WE126, and 16WE127) have moderately thick to thick deposits, and two sites (16WE129 and 16WE193) clearly have thick deposits (see Table 21). The eight sites in the two first groups (i.e., those with relatively thin cultural deposits) are judged to have a limited potential to allow components to be isolated. The 10 sites with relatively thick cultural deposits have a greater likelihood of containing isolable components (see Table 27).

As noted above, all of these sites have low densities of cultural materials reflecting low-intensity usage. Eight sites (16WE107, 16WE108, 16WE116, 16WE117, 16WE119, 16WE121/122, 16WE126, and 16WE129), however, have densities higher than the average (see Table 22), and these eight are judged to be most likely to yield interpretable quantities of artifacts and other cultural remains (see Table 27). The remaining 10 sites have relatively low densities and probably would present substantial problems in terms of interpretation.

TABLE 27

PREHISTORIC SITE ASSESSMENTS

Site Number	Potential for Dating	Thickness of Cultural Deposits	Density of of Cultural Materials	Major Disturbance	National Register Assessment
16WE107	High	Thick	High	Yes	Ineligible
16WE108	High	Thick	High	-	Eligible
16WE114	High	Thin	Low	-	Ineligible
16WE116	Low	Thick	High	-	Ineligible
16WE117	High	Thick	High	Yes	Ineligible
16WE118	High	Thin	Low	-	Ineligible
16WE119	Low	Thick	High	-	Ineligible
16WE121/122	Low	Thick	High	-	Ineligible
16WE123	Low	Thin	Low	-	Ineligible
16WE126	Low	Thick	High	-	Ineligible
16WE127	Low	Thick	Low	-	Ineligible
16WE129	High	Thick	High	-	Eligible
16WE190	Low	Thin	Low	-	Ineligible
16WE191	Low	Thin	Low	-	Ineligible
16WE192	Low	Thin	Low	-	Ineligible
16WE193	Low	Thick	Low	-	Ineligible
16WE195	Low	Thin	Low	-	Ineligible
16WE196	High	Thin	Low	-	Ineligible

Finally, only two of the sites (16WE107 and 16WE117) appear to have been substantially disturbed (see Table 27). In both cases, major portions of the sites have been destroyed by earthmoving.

From Table 27, it is clear that two of the prehistoric sites tested during this project have the greatest potential to yield important information that will contribute to a better understanding of the prehistory of the Louisiana Army Ammunition Plant area. These are 16WE108 (especially Area A) and 16WE129. Both have relatively thick cultural deposits that are potentially datable and that contain sufficient densities of materials to enable interpretation; in addition, both sites appear to have reasonable integrity. Sites 16WE108 and 16WE129 are assessed as being eligible for listing on the National Register of

Historic Places. In contrast, none of the other 16 sites rate highly under all four of the assessment criteria shown in Table 27, and thus these 16 sites are judged to be ineligible for listing on the National Register.

It is recommended that, if 16WE108 and 16WE129 cannot be avoided or protected from disturbance or destruction, these two sites be subjected to mitigation through data recovery. This data recovery effort should involve (1) backhoe trenching on and around both sites to aid in sediment sampling and geomorphic assessment and (2) manual excavation of a single block unit at each site. At 16WE108, a series of east-west backhoe trenches should be excavated from the Boone Creek floodplain eastward across the interfluve containing Area A, and then upslope to the east beyond the site limits. These trenches should be excavated well into the basal Pleistocene deposits. Recording the stratigraphy observed and collecting sediment samples at 10-cm vertical intervals from at least one column in each trench should require ca. five person-days of effort. It is recommended that the manual excavations at 16WE108 focus on Area A and that a single large unit be placed in the central part of this area, near Test Pits 5, 6, and 12. Given the sparseness of the cultural remains (24 artifacts/m^3 in Test Pits 5, 6, and 12), this block unit will have to be fairly large to allow the recovery of a sufficient quantity of cultural information to allow interpretation. For example, an 8x8-m unit excavated to an average depth of 80 cm would yield a sample of only ca. 1,200 artifacts, and a 12x12-m unit would yield only about 2,800 specimens. In view of the limited size of the crest of the Area A interfluve, it probably will not be feasible to remove more than ca. 150 m^2 in this block unit. Using this as a maximum areal figure and assuming an average depth of 80 cm, it is estimated that the excavations at 16WE108 will yield no more than 3,000 artifacts and will require ca. 240 person-days of effort to complete.

At 16WE129, a series of north-south backhoe trenches should be excavated from the Boone Creek floodplain on the south, across the floodplain knoll, and across the interfluve on which the northern part of the site rests. Recording the sediments observed and collecting sediment samples at 10-cm vertical intervals from these trenches should require ca. five person-days of effort. It is recommended that the manual excavations at 16WE129 focus on the floodplain rise in the southern part of the site. Since the full thickness of the Holocene deposits on this landform is unknown, it is difficult to provide guidelines on the size of the unit and artifact recovery. Nonetheless, it is clear that the area with the most concentrated cultural remains (i.e., the area around Test Pit 2) is of limited size, probably covering no more than 50 m^2. A block unit of this size should yield ca. 4,200 cultural items above a depth of 120 cm, with the deposits below 120 cm yielding an unknown number of specimens. A 50-m^2 unit should require 120 person-days of effort to excavate to a depth of 120 cm; the amount of effort required to sample the deposits below 120 cm obviously would depend on the depth to which the Holocene deposits extend.

Historic Sites

All four of the National Register of Historic Places assessment criteria can be applied to historic sites. Criterion C, however, which deals chiefly with architectural properties, clearly does not apply to the four sites tested during this project since none have standing structures. Also, Criterion A is unlikely to apply since there is no evidence that any of the four sites are associated with historically important events. Criterion B, dealing with importance due to association with significant persons, may apply

only to site 16WE185, since this site was occupied by individuals who played prominent roles in the nineteenth-century historical development of the Plant area. The single criterion that applies to all four sites is Criterion D, which assesses significance based on information yield potential. Because the tested historic sites are few in number and each is distinct in terms of function and the nature of the archeological remains, they are discussed individually below.

Site 16WE113 is a trash dump dating to the first quarter of the twentieth century. No associated housesite exists at 16WE113, and given its small size and its location next to an old roadbed, it is likely that the site represents a single trash dumping episode. No subsurface cultural deposits were found here, and all artifacts observed were collected for analysis. Site 16WE113 is judged to be ineligible for listing on the National Register of Historic Places because of its recent date, its uncertain associations, and its lack of intact deposits.

Site 16WE114 appears to be the bulldozed remains of a tenant house that may have been built at the end of the nineteenth century and occupied until at least the third decade of the twentieth century. The cultural features found consist of a probable filled well and a brick scatter that may represent a stove flue. The site yielded a modest artifact collection consisting mostly of rusted sheet metal but also containing cut and wire nails, ceramics, glass, stove parts, and harness fittings. These materials were found in both surface and subsurface contexts. While the remains of such humble occupations can be enlightening, site 16WE114 is judged to be ineligible for listing on the National Register because the site has clearly been disturbed, probably by bulldozing when the federal government acquired the property in the 1940s, and the site does not promise to yield any more information than has been gained already from the testing.

Site 16WE185 consists of the remains of the Boon-Tabor housesite (Area A) and gin-mill complex (Area B). The housesite may have been occupied as early as the mid nineteenth century and was probably used well into the twentieth century; the gin-mill complex appears to date chiefly to the second half of the nineteenth century. This site exhibits abundant evidence of disturbance resulting from bulldozing, road construction, and landfilling. The relatively limited fieldwork at this site documented this disturbance and yielded a modest collection of bricks, rusted metal fragments, wire and cut nails, window glass, and various domestic artifacts. The cultural materials at this site occur in surface and subsurface contexts, as well as in recently redeposited fill. Because the site is so extensively disturbed, it is not eligible for listing on the National Register of Historic Places.

Site 16WE198 is a housesite dating probably from the 1870s to the 1910s. It was occupied by a Black minister of the nearby St. Matthew Church and subsequently by members of his family. The cultural features identified consist of a privy pit, a well, and two probable chimney locations. In addition, the site supports abundant domestic vegetation. The work at this site yielded a sizable artifact collection consisting mostly of brick fragments, but also containing cut nails, window glass, ceramics, bottle glass, various other domestic items, stove parts, water pump parts, and harness hardware. The feature data and the artifact distributional data suggest that, unlike most of the other historic sites at the Louisiana Army Ammunition Plant, site 16WE198 may not have been bulldozed when the federal government acquired the property; because of this, the site appears to be relatively intact. Site 16WE198 is judged to be eligible for listing on the National Register of Historic Places because of the integrity of the cultural deposits, the temporal discreteness of the site occupation, and the association of the site with a particular

family of known ethnicity, occupation, and social status. Site 16WE198 promises to reveal important information on the lifeways of late nineteenth/early twentieth-century Black residents of the Plant area. If this site cannot be avoided or protected from disturbance, it should be subjected to mitigation through data recovery. The focus of the data recovery efforts should be the excavation of additional small test pits to better define the house and other features and to augment the existing sample of the material culture. It is estimated that this additional sampling could be accomplished using no more than 50 0.5x0.5-m test pits excavated to an average depth of 25 cm; ca. 17 person-days of effort would be required for this task. Also, additional trenching of the privy and mechanical scraping of peripheral portions of the site may reveal trash disposal areas that could yield information on material culture and site structure. It is recommended that ca. 15 person-days of effort be alloted to searching for and investigating such features.

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APPENDIX A: Grain Size Data for Analyzed Sediment Samples

by Ross C. Fields

INTRODUCTION

Granulometric analysis was performed on selected sediment samples from four of the tested sites, with most of the efforts focusing on one upland site (16WE108) and one lowland site (16WE129). This analysis was performed by the State Soils Lab at the University of Wisconsin-Milwaukee. The coarse fractions were analyzed using sieve screens, while the fine fractions were analyzed using the hydrometer method. The raw percentage data are presented in phi units (Table 28).

TABLE 28

GRAIN SIZE DISTRIBUTIONS (% by weight)

Provenience and Depth*	Phi Scale -2.0	1.0	2.0	2.5	3.0	3.5	4.0	4.5	5.0	6.0	7.0	8.0	8.0
16WE107													
Test Pit 1													
Zone 2, 25 cm	-	-	6.3	24.5	13.1	14.8	21.5	10.9	1.8	1.2	1.6	2.4	2.0
Zone 3, 55 cm	-	0.6	5.8	12.6	14.0	15.8	21.2	17.6	2.1	4.8	2.1	0.9	2.4
16WE108													
Test Pit 5													
Zone 1/2, 11 cm	-	0.4	4.0	13.7	16.2	13.9	19.4	18.1	4.5	4.5	3.2	1.3	0.6
Zone 2, 20 cm	-	0.4	3.9	11.2	12.9	16.2	21.0	20.3	3.8	4.1	3.4	1.7	1.0
Zone 3, 32 cm	-	0.4	3.6	10.6	12.2	16.1	22.9	20.1	3.1	5.5	2.7	1.7	1.0
Zone 3, 40 cm	-	0.4	3.9	11.4	12.4	18.3	22.7	19.1	3.1	3.7	2.5	1.8	0.6
Zone 3, 50 cm	-	0.4	3.6	9.5	11.3	14.9	20.6	24.2	3.6	6.3	2.4	1.2	2.0
Zone 3, 68 cm	-	0.6	4.3	10.0	11.8	18.8	21.0	20.4	3.4	5.7	1.3	1.0	1.7
Zone 4, 72 cm	-	0.8	6.5	11.7	12.7	15.5	20.2	18.3	3.6	4.3	2.6	1.3	2.6
Zone 4, 85 cm	-	0.2	6.3	12.6	13.2	15.0	18.0	20.2	2.8	3.8	2.8	1.7	3.5
Test Pit 8													
Zone 2, 15 cm	-	1.0	4.5	11.4	17.9	22.4	21.7	16.5	1.7	1.3	0.6	0.4	0.6
Zone 3, 40 cm	-	0.6	7.0	13.0	13.0	14.3	18.0	20.8	3.4	3.4	3.1	2.0	1.4
Test Pit 10													
Zone 2, 10 cm	-	0.9	6.6	13.7	15.4	8.4	21.6	23.1	3.4	3.7	2.3	1.0	-
Zone 2/3, 20 cm	-	0.8	5.6	13.3	13.7	16.1	20.1	20.7	3.3	2.7	2.1	1.2	0.3
Zone 3, 30 cm	-	0.6	6.3	13.3	13.5	15.3	19.0	22.6	2.9	2.9	1.9	1.0	0.6
Zone 3, 40 cm	-	0.6	5.6	13.1	13.7	16.1	19.7	21.5	3.1	2.8	1.9	1.2	0.6
Zone 3, 50 cm	0.4	0.6	6.5	12.6	14.3	15.5	19.3	22.2	2.8	2.5	1.5	1.2	0.6
Zone 4, 60 cm	-	0.6	6.1	13.2	14.2	15.6	20.2	21.1	2.7	3.0	1.2	1.5	0.6

*Depths are approximate.

Table 28, continued

Provenience and Depth	Phi Scale -2.0	1.0	2.0	2.5	3.0	3.5	4.0	4.5	5.0	6.0	7.0	8.0	8.0
Zone 4, 70 cm	-	0.8	6.2	14.0	14.6	16.0	20.0	20.7	1.4	3.4	1.1	1.1	0.6
Zone 5, 115 cm	-	1.1	10.2	17.4	16.3	21.5	20.0	9.3	0.8	1.2	0.7	0.7	0.8
Zone 6, 137 cm	-	3.8	32.2	26.2	15.9	9.5	7.0	5.0	0.1	0.1	0.1	0.1	0.1
Test Pit 12													
Zone 1/2, 12 cm	-	0.4	4.0	9.9	13.7	19.1	24.9	17.9	2.8	4.2	1.7	1.4	-
Zone 2, 20 cm	-	0.6	4.2	10.4	13.6	18.0	22.2	20.8	3.1	4.0	1.2	0.9	0.9
Zone 3, 31 cm	-	0.6	4.3	10.3	12.6	15.7	21.9	23.5	1.7	4.5	2.1	2.1	0.7
Zone 3, 41 cm	-	0.6	4.4	11.3	12.7	16.1	22.5	20.7	3.2	3.9	1.9	1.6	1.0
Zone 3, 50 cm	-	0.6	4.9	11.2	12.9	15.7	20.6	22.2	3.1	3.1	2.0	2.0	1.7
Zone 4, 60 cm	-	0.2	5.4	11.8	14.6	19.4	26.7	12.2	2.2	2.0	2.0	0.9	2.6
16WE119													
Test Pit 1, Zone 2	-	1.6	2.1	6.4	14.6	21.0	19.2	19.7	4.2	4.2	3.5	1.8	1.8
16WE129													
Test Pit 1													
Zone 2, 15 cm	0.4	0.4	4.6	17.3	15.8	12.7	16.8	21.1	2.9	2.2	3.2	1.3	1.3
Zone 3, 40 cm	0.8	0.2	4.2	16.6	16.0	15.0	16.8	19.8	2.4	2.7	2.4	1.2	1.8
Zone 4, 55 cm	-	0.2	6.5	16.1	16.3	17.1	25.8	9.4	2.9	0.4	0.4	0.5	4.5
Test Pit 2													
Zone 2, 15 cm	-	0.2	5.2	27.7	20.3	10.4	13.5	17.7	1.4	2.3	0.9	0.5	-
Zone 2, 35 cm	-	-	5.5	29.6	19.3	10.1	12.4	16.6	1.4	2.3	0.9	1.4	0.4
Zone 3, 55 cm	-	0.4	5.3	28.5	25.8	9.1	10.4	14.8	1.0	1.4	1.2	1.0	1.0
Zone 3, 75 cm	-	0.2	4.8	27.9	23.8	8.4	10.6	18.6	1.5	1.8	1.3	1.3	0.8
Zone 3/4, 95 cm	-	-	3.8	28.0	25.6	9.5	9.9	18.9	0.9	1.6	0.2	0.9	0.7
Zone 4, 115 cm	-	-	2.5	25.5	36.1	8.4	8.6	16.4	0.9	0.4	0.4	0.8	-

APPENDIX B: Descriptions of the Materials Recovered from the Prehistoric Sites

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Eloise F. Gadus,

and

Ross C. Fields

INTRODUCTION

This appendix describes the materials recovered in testing the 18 prehistoric sites at the Louisiana Army Ammunition Plant. Incorporated into these descriptions are a small number of prehistoric artifacts found during the testing of two of the historic sites, 16WE114 and 16WE198. This appendix consists of three main parts. The first deals with the ceramic artifacts; the second deals with the chipped stone artifacts; and the third deals with the nonchipped lithic artifacts and the nonartifactual lithic materials.

CERAMICS

A total of 42 potsherds were recovered from seven of the tested sites (Table 29). Of these, 35 (83%) are plain and 7 (17%) show signs of decoration. The small size and fragmentary nature of this collection preclude the definite placement of these sherds within established types. Therefore, technological attributes have been used to classify the sherds. Where possible, an effort has been made to point out resemblances to established types. The descriptive classes used rely heavily on decorative technique in combination with such attributes as vessel part, temper, color, thickness, rim shape, and possible vessel shape. In terms of the latter attribute, only suggestions as to vessel shape can be made since many of the specimens are quite small. To assess temper type and paste characteristics, the surfaces and fresh breaks on all sherds were examined under 30x magnification.

Plain

Thirty-five undecorated sherds were recovered from six of the seven sites that produced ceramics (see Table 29). Included are specimens with a sandy clay paste (sand grains visible under 30x magnification) and specimens with a clay paste (no sand grains visible). Visible grog tempering occurs in 68% of this group, crosscutting the two paste categories. The remainder of the sherds do not contain obvious temper; all of these have a sandy clay paste. Exterior colors on these sherds range from cream to orange to dark gray; core colors are gray to black. Sherd thickness ranges from 4.8 to 7.8 mm, with the average being 6.5 mm.

Of these 35 sherds, 5 are rims. These rims are characterized by a tapered form with either a flat or rounded lip (Fig. 32a-c). Three of the five are large enough to determine the rim orientation; one each is inverted, everted, and straight (see Hart 1982 for rim type definitions). The sherds are too small to allow the orifice diameter to be measured, but the overall shape and thickness of the specimens suggest small to medium-sized vessels. One of these vessels appears to have been a weakly carinated bowl (see Fig. 32c).

The small size of the plain sherds does not afford easy placement of these specimens within established types since such small sherds may have been part of decorated vessels. However, all sherds in this plain ware sample would fit within the definition of Smithport Plain as described by Webb (1963:151; see also, Suhm and Jelks 1962:145-146). They are distinct from Williams Plain (Brown 1971:42-58) in that they are thinner and more carefully manufactured.

TABLE 29

PROVENIENCE OF CERAMICS

Site Number	Plain	Incised	Zoned Punctated-Incised	Engraved	Brushed	Total
16WE107	5	-	1	-	1	7
16WE108	18	2	-	1	1	22
16WE114	2	-	-	-	-	2
16WE118	3	-	-	-	-	3
16WE129	1	-	-	-	-	1
16WE192	-	1	-	-	-	1
16WE196	6	-	-	-	-	6
Totals:	35	3	1	1	2	42
Percent	83%	7%	2%	2%	5%	

Incised

Three incised sherds were recovered (see Table 29). These specimens have a sandy clay paste; two exhibit grog temper, and one has bone temper. All have gray to dark gray exteriors and gray cores. The sherd thickness ranges from 6.3 to 7.7 mm. One grog-tempered sherd is a rim with two parallel incisions which appear to have encircled the rim ca. 8.2 mm below the lip (Fig. 32d). These incisions are finely executed and have been smoothed. The rim form is tapered with a flat lip. The rim orientation, orifice diameter, and vessel shape are not discernible. Horizontal incising occurs commonly on such defined Caddoan types as Crockett Curvilinear Incised, Davis Incised, East Incised, and Kiam Incised (Suhm and Jelks 1962:31-36, 41-42, 89-90); it also occurs commonly on Coles Creek pottery types (Phillips et al. 1951). The second grog-tempered incised sherd is a body fragment that appears to be from a slightly carinated or shouldered vessel (Fig. 32e). Such a shape can be found within such types as Dunkin Incised (Suhm and Jelks 1962:37-38); however, the few eroded incisions on this piece make it difficult to identify typologically. The third incised sherd is a bone tempered body sherd with incisions placed at right angles to each other (Fig. 32f). This incising technique is reminiscent of Pease Brushed-Incised or Dunkin Incised (Suhm and Jelks 1962:119-120).

Punctated-Incised

One rim sherd with punctations zoned by incised lines was found (see Table 29). This sherd has a sandy clay paste and is grog tempered. The exterior is buff to gray, while the core is gray. The sherd thickness is 7.8 mm. One element of the decoration consists of a field of punctations which extends downward from the lip (Fig. 33a). The punctations are

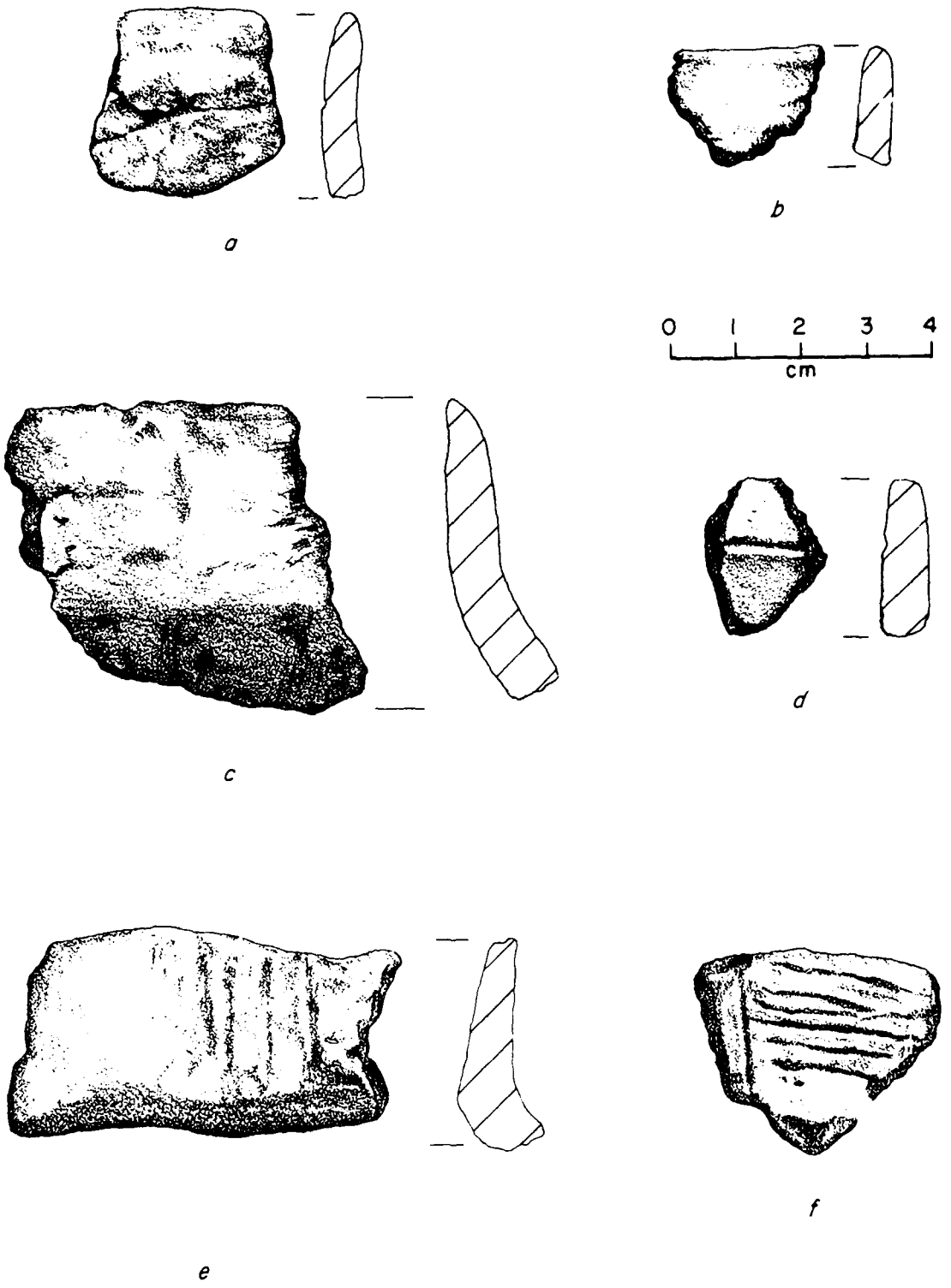


Figure 32. Sherds. (a-c) plain rim sherds, 16WE108; (d) incised rim sherd, 16WE108; (e) incised body sherd, 16WE108; (f) incised body sherd, 16WE192.

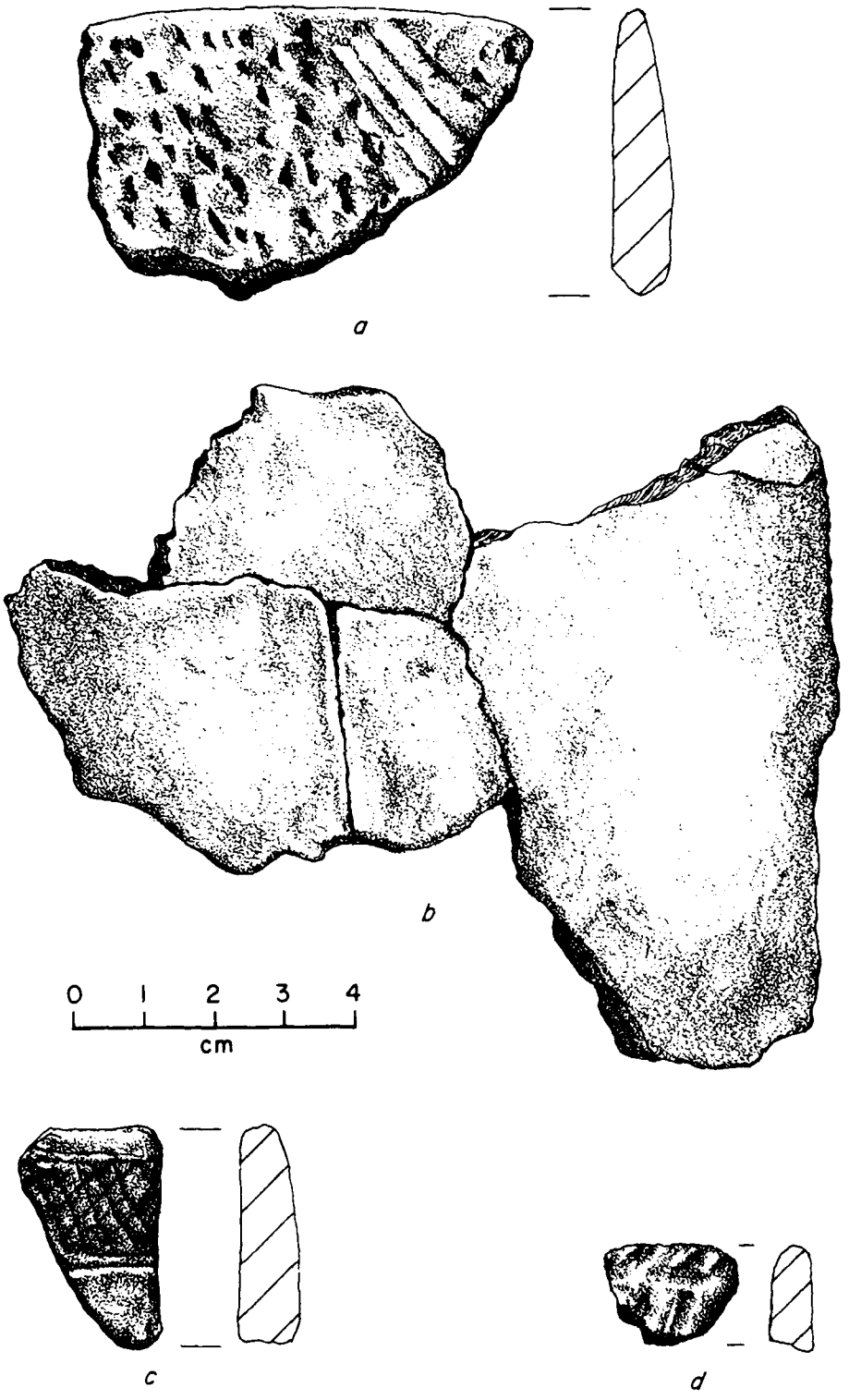


Figure 33. Sherds. (a) punctated-incised rim sherd from 16WE107; (b) reconstructable vessel section from 16WE107; (c) engraved rim sherd from 16WE108; (d) brushed rim sherd from 16WE107.

small and appear to have been executed with a sharpened implement. The fields of punctations are separated by a set of four parallel, diagonal incised lines extending down from the lip. The rim is tapered, has a rounded lip, and has a slightly everted orientation. While the rim sherd by itself does not allow the vessel shape to be determined, several large plain body sherds from the same provenience appear to be from the same vessel as the rim (based on similarities in color, paste, and temper), and all together, these sherds suggest a medium-sized to large cylindrical or conical jar (Fig. 33b). In terms of the decoration and apparent vessel shape, this punctated-incised sherd is reminiscent of Caddoan types such as Canton Incised and Pineland Punctated-Incised (Suhm and Jelks 1962: 23-24, 103-104; Jelks 1965:119). Webb (1983:194) also states that a "sloppy kind" of Pennington Punctated-Incised has been found on early Bossier Focus sites which is suggestive of Avoyelles Punctate, a Plaquemine ceramic type of Central Louisiana.

Engraved

A single engraved rim sherd was found (see Table 29). This specimen exhibits a clay paste with grog temper. The exterior color is light gray, and the core color is also gray. The sherd thickness is 7.8 mm. The decoration consists of an engraved, cross-hatched band that encircles the rim 4.6 mm below the lip (Fig. 33c). The engraved band is 14.6 mm wide. This rim is not tapered, has a flat lip, and has a slightly everted orientation. While the vessel shape cannot be fully determined based on this small specimen, it appears to be from a vessel with a restricted orifice, perhaps a bottle. This sherd is reminiscent of ceramics typed as Maddox Engraved (Suhm and Jelks 1962:99-100).

Brushed

Brushed pottery is represented by two sherds in this collection (see Table 29). Both have a sandy clay paste. One is grog tempered; the other exhibits no obvious temper. Exterior and core colors range from buff to black. Sherd thickness ranges from 6.3 to 6.7 mm. The brushing was executed in vertical strokes on at least one specimen; the orientation of the brushing is not discernible on the other. One specimen appears to have been smoothed after the brushing technique was applied. The single rim in this group is notched around the outer edge of the lip, with the brushing starting just below the lip (Fig. 33d). Similar notching is illustrated for the type Maddox Brushed (Webb 1948:115). This rim sherd is not tapered and has a rounded lip. This sherd is too small to allow the other rim characteristics to be determined. Vessel form cannot be ascertained fully for any of these sherds.

Summary and Conclusions

Chronological placement of this ceramic sample must be based on the sherds' affinities to established types as suggested in the above descriptions. As such, the placement can be considered only tentative. Nonetheless, an attempt at chronological placement is important because it provides an essential first step to understanding the cultural affiliation of these sites and provides a basis for the generation of testable hypotheses concerning those affiliations.

The plain ware, while comprising 83% of the sherds recovered, is inherently the most problematic in terms of its use as a chronological indicator. The small size of the sample (35 sherds from 6 sites) and the generally small size of the sherds make type placement difficult. However, the overall characteristics of the paste, temper, and suggested vessel form of these sherds would easily fit within a prehistoric Caddoan assemblage. Thus, these plain sherds can at least be placed within the general Caddoan period, which is projected to have existed from approximately A.D. 800 to 1700 (see Chapter 3).

The decorated ceramics are the best chronological indicators recovered from the Plant sites. Yet again, they comprise an extremely small sample of only seven sherds. The types suggested by these sherds' characteristics appear to represent two ceramic complexes within the prehistoric Caddoan period, as already established by the plain ware. These two complexes are the Alto and Bossier foci. The Alto Focus is the earlier of the two and was originally defined by Newell and Krieger (1949) at the George C. Davis Site in Cherokee County, Texas. Webb (1948, 1963) expanded that definition to sites such as Smithport Landing, Greer, and Colbert, to name just a few, all of which are in the northwestern Louisiana region.

The suggested date range of the Alto Focus is A.D. 800 to 1250 (see Chapter 3). As such, it represents a transition from the late Woodland Coles Creek and Troyville cultures. This transition is reflected by the fact that many of the attributes of Alto pottery types are also found in Coles Creek types. Both Webb (1983) and Thomas et al. (1980) suggest that the similarities between Alto and Coles Creek types may be due to the Alto potters' continued imitation of Lower Mississippi Valley motifs. Elements of the contemporary Plaquemine cultures of central Louisiana also appear in Alto ceramics (Webb 1983; Thomas et al. 1980). But, again, the influence may be in trade of ideas that led to imitation rather than any kind of movement of people.

Alto and related types that are suggested by the decorated ceramics in this collection are Davis Incised, Crockett Curvilinear Incised, Kiam Incised, and East Incised. These types are suggested quite tentatively by one incised rim.

The second ceramic complex represented in the sample relates to the Bossier Focus. The Bossier Focus was defined by Webb (1948) and is represented at over 40 sites located in Bossier, Red River, Caddo, De Soto, Natchitoches, and Lincoln parishes of northwestern Louisiana. Like the Alto Focus, it is related to contemporaneous Caddo foci in east Texas and southwest Arkansas. These relationships are seen in similarities of ceramic decorative motifs. The Bossier Focus has been suggested by Wyckoff (1971:121) to range between A.D. 1400 and 1600. An early part of the Bossier Focus has been added by Webb (1983:230) to range from A.D. 1250 to 1350. This early Bossier Focus exists as a transitional period from the antecedent Alto Focus and can be classified as the Haley Focus. As such, early Bossier ceramics incorporate both Alto and Haley ceramic influences.

Pottery types attributed to this early part of the Bossier Focus as suggested by the ceramics in this sample are Maddox Engraved, Dunkin Incised, and a poorly executed Pennington Punctated-Incised. Also suggested are Maydelle Incised and Canton Incised, which are related east Texas types. All of these types are possibly suggested by two of the incised sherds, the punctated-incised sherd, and the only engraved sherd in this sample. Middle to late Bossier types are represented by the one Pease Brushed-Incised sherd and two possible Maddox Brushed or Bossier Brushed sherds. The breakdown of types into early, middle, or late Bossier follows Webb (1983). His determinations are based on differences in the

relative frequencies of sherds from dated sites, although it should be pointed out that all Bossier types occur with some regularity at those sites.

In summary, this ceramic sample can be attributed to the Caddoan period. Decorated sherds within the sample further suggest a placement within the Alto and Bossier foci of that period. The date range of these foci is A.D. 800 to 1500.

CHIPPED STONE ARTIFACTS

A total of 721 chipped stone artifacts were recovered during the testing: 9 dart points, 20 bifaces and biface fragments, 2 shaped unifaces, 47 pieces of edge-modified debitage, 15 cores, and 628 pieces of unmodified debitage (Table 30). The classification presented here is essentially a functional one based on gross morphology, with a secondary consideration of technological attributes.

TABLE 30

PROVENIENCE OF CHIPPED STONE ARTIFACTS

Site Number	Dart Points	Bifaces and Biface Fragments	Unifaces	Edge-Modified Debitage	Cores	Unmodified Debitage	Total
16WE107	1	3	-	1	2	49	56
16WE108	-	1	-	7	2	109	119
16WE114	-	1	-	2	-	37	40
16WE116	-	-	-	1	1	38	40
16WE117	2	1	-	4	2	41	50
16WE118	-	-	-	-	-	6	6
16WE119	1	1	-	-	-	33	35
16WE121/122	1	3	-	15	1	77	97
16WE123	-	-	-	1	-	32	33
16WE126	1	1	1	4	1	74	82
16WE127	1	2	-	1	-	30	34
16WE129	1	4	-	3	3	48	59
16WE190	-	-	-	1	1	5	7
16WE191	-	1	-	2	-	4	7
16WE192	-	-	-	2	2	11	15
16WE193	1	1	-	3	-	10	15
16WE195	-	-	-	-	-	6	6
16WE196	-	-	1	-	-	18	19
16WE198	-	1	-	-	-	-	1
Totals:	9	20	2	47	15	628*	721

*Total does not include one chip from 16WE190 which was inadvertently excluded from the debitage analysis.

The raw materials identified in this collection are chert, chalcedony, quartzite, silicified wood, and other rocks (e.g., ferruginous sandstone, ironstone, and quartz). Chert is defined as a cryptocrystalline siliceous rock and is distinguished from chalcedony by its opaqueness. Colors range from strong brown to red and black. Cortex is preserved on many specimens, showing their origin as stream-rolled gravels.

Chalcedony is employed here as a macroscopic classification for translucent chert, not in the sense of the geologic term for a particular microscopic texture and structure. Colors of the chalcedony specimens include white, pink, red, gray, purple, strong brown, and black; some specimens contain sponge spicules (Dr. Robert Folk, personal communication 1987). Texture ranges from glassy to gritty. The colors, mottling, and texture of these artifacts are within the range of variation of novaculite from the Ouachita Mountains in the comparative collection at the Texas Archeological Research Laboratory at The University of Texas at Austin. However, identification of these specimens as novaculite is problematic. Weinstein and Kelley (1984:92-93) consider the traditional macroscopic characteristics of novaculite to be translucence, white/gray/pink color, and coarse texture. In a petrographic analysis of the Arkansas Novaculite Formation, Sholes (1978:62) defines novaculite as chert that is translucent only on thin edges, is even textured, has a gritty fracture surface, and is characterized by a predominance of microquartz over chalcedony. According to Sholes (1978:v, 63, 67) most novaculite is white, gray, or black, but some is stained purple, yellow, or red by manganese oxides or iron oxides; sponge spicules are a common fossil inclusion. There is a wide range of definitions of novaculite (e.g. Sholes 1978:59-62), but the most common criteria are microscopic texture and structure. These properties can only be determined with analytical techniques beyond the scope of the current analysis.

Quartzite is used here for specimens that are of opaque crystalline quartz in which individual grains can be readily distinguished. Colors range from pale red to dark reddish brown, with rare specimens of strong brown color. Many of the quartzite artifacts retain cortex, showing their origin as stream-rolled gravels.

Silicified wood, ferruginous sandstone, ironstone, and quartz occur in small numbers in this collection. All are distinctive material types that are readily recognized. These materials are probably derived from local stream-rolled gravels or from authigenic sandstones/ironstones in the Pleistocene deposits that underlie the project area.

The defining criteria and attributes recorded for each chipped stone analytical category are described under the heading for that category. In general, the artifacts were sorted on a macroscopic basis and then examined under 10x binocular magnification to affirm the sorting criteria.

Dart Points

Dart points are defined here as thick, stemmed bifaces. Six measures have been recorded for these specimens using an analytical scheme suggested by Prewitt (n.d.). The first three of these measures -- maximum length, maximum blade width, and maximum thickness -- are self-explanatory. The fourth, haft length, is measured on notched specimens from the base to the greatest extent of the notch toward the distal tip; on contracting-stem specimens, haft length is measured from the base to where a noticeable flare toward the

shoulders begins. The fifth metric attribute, neck width, is measured on expanding-stem specimens at the narrowest point above the base; on contracting-stem specimens, it is measured at the point where a noticeable flare toward the shoulders begins. Finally, base width is measured on expanding-stem points at the widest part of the stem and on contracting-stem specimens at the point of a noticeable break toward the base.

Nine dart points were recovered during the testing (see Table 30). The attributes recorded for these are summarized in Table 31. One additional dart point that has been reworked into a scraper is described below with the shaped unifaces.

TABLE 31

SUMMARY OF DART POINT ATTRIBUTES

Site Number	Material	Maximum Length	Haft Length	Maximum Blade Width	Neck Width	Base Width	Maximum Thickness	Beveled Blade
16WE107	chert	32	10	19	12	18	9	0
16WE117	chert	-	10	24	15	13	8	0
16WE117	chalcedony	60	18	30	23	-	12	0
16WE119	chalcedony	41	14	27	15	20	11	+
16WE121/122	chert	40	15	23	14	18	10	0
16WE126	chert	38	12	22	13	17	9	0
16WE127	chert	-	8	20	12	11	8*	0
16WE129	unknown	-	-	42	-	-	13*	0
16WE193	chalcedony	45	10	28	14	28	7	+

All measurements are in millimeters; - = specimen fragmentary, data not available; * = specimen fragmentary, may not be maximum thickness

One-third of the dart points are of chalcedony, while almost two-thirds are of chert. A single specimen from 16WE129 is of an unusual opaque white material with small (1-3 mm) reddish brown inclusions and small to large (up to 20 mm) very dark gray inclusions veined with white. This material has a somewhat glassy appearance and fractures conchoidally; it may be a silicified conglomerate from the Ouachita Mountains of southwestern Arkansas (Dr. Robert Folk, personal communication 1987; see Sholes 1978:89-93). The chert dart points range from 32 to 40 mm in maximum dimension; their small size and the presence of cortex on the faces of a few specimens suggest that they were made from locally occurring pebbles or cobbles. The chalcedony dart points are somewhat larger in maximum dimension (41 to 60 mm) and lack cortex. These may have have been made from tabular novaculite that occurs in the Ouachita Mountains or perhaps from pebbles or cobbles that occur in point bars in the project region (Kelley 1984:585).

Four of the dart points are similar in morphology and are discussed as a group; these specimens are from 16WE107, 16WE119, 16WE121, and 16WE126. All are small, thick points with bulbar, expanding stems and convex bases (Fig. 34a-d). Maximum lengths range from 32

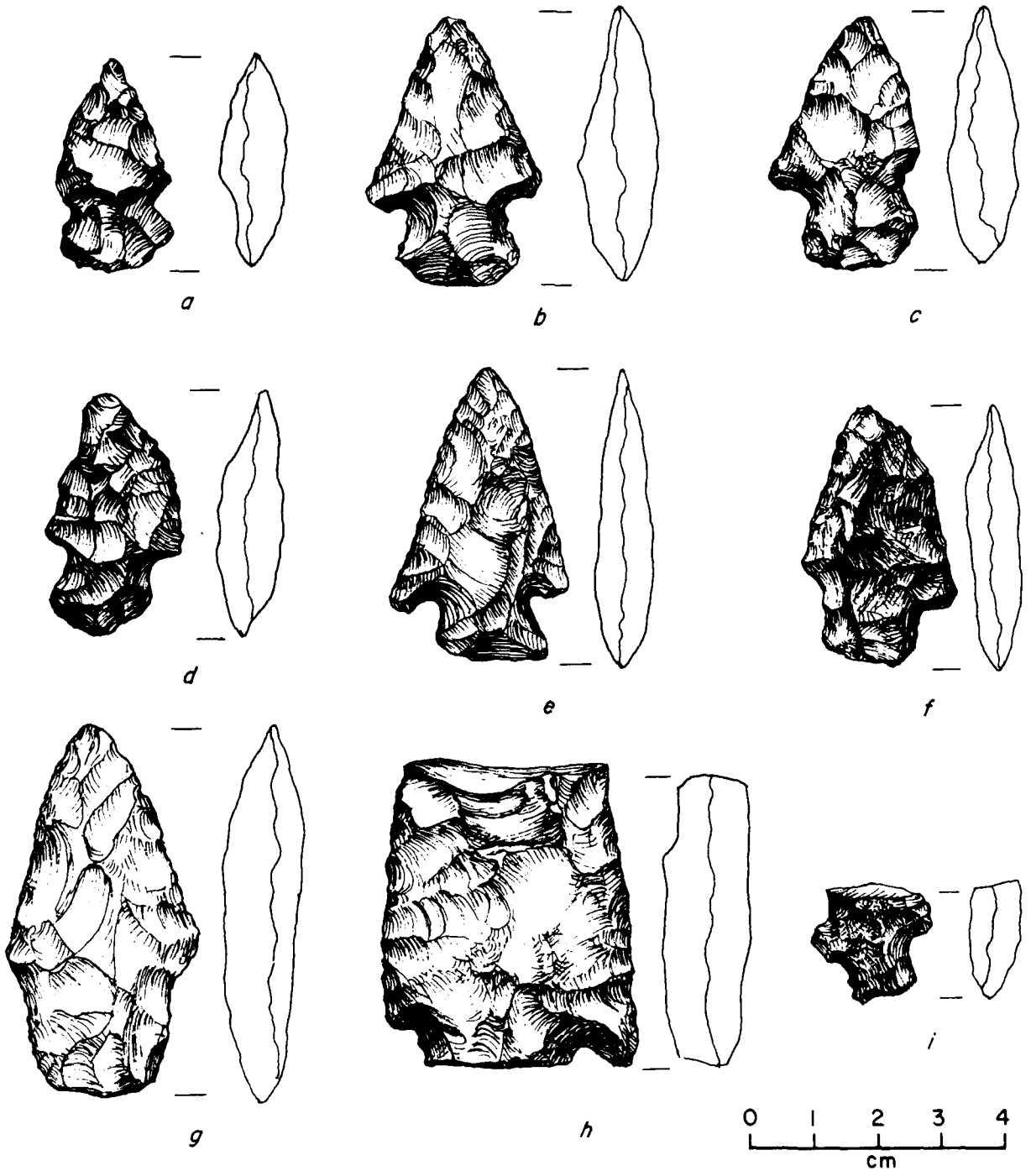


Figure 34. Dart Points. (a) expanding-stem dart point, 16WE107; (b) expanding-stem dart point, 16WE119; (c) expanding-stem dart point, 16WE121; (d) expanding-stem dart point, 16WE126; (e) Ellis dart point, 16WE193; (f) rectangular-stem dart point, 16WE117; (g) contracting-stem dart point, 16WE117; (h) untyped dart point, 16WE129; (i) dart point manufacturing failure, 16WE127.

to 41 mm; haft lengths are from 31% to 38% of the total length. Maximum blade width is the most variable attribute, ranging from 19 to 27 mm. The shoulders are generally square; the point from 16WE119 has a beveled blade. The stems are expanding, with neck widths ranging from 12 to 15 mm and base widths from 17 to 20 mm. The bases of the specimens are strongly convex, with square to rounded corners. Three of these specimens are of strong brown chert, and the fourth is of yellow and light red chalcedony. Typologically, these dart points resemble specimens typed as Trinity (Suhm and Jelks 1962:253) and Ellis (Webb et al. 1969:49, 51-52), although the resemblances are not strong enough to allow these points to be typed.

A single dart point from 16WE193 (Fig. 34e) fits within the Ellis type (Suhm and Jelks 1962:187-188; Webb 1981:9), although it is more finely made than other Ellis points identified in nearby areas (Rolingson and Schambach 1981:81, 96). This corner-notched point has an expanding stem and a straight base; the shoulders are barbed, and the blade is beveled. It is of chalcedony that is faintly striped in pale red, pinkish gray, gray, and light yellowish brown. Webb (1981:9) dates the Ellis type to the late Archaic and Pre-Caddoan Ceramic periods.

Two untyped and dissimilar dart points were found in adjacent levels at 16WE117. The first is of dark reddish gray chert that may have been heat-treated. It has a rectangular stem and a straight base; the shoulders are square (Fig. 34f). This specimen shows some similarities to the Kent type (Suhm and Jelks 1962:199-200), particularly to the phalba variety (Johnson 1962:167-168), but it is not typed as such. The second dart point from 16WE117 is of light gray chalcedony with a single black band. It has a broad blade with small square shoulders and a broad contracting stem with a convex base (Fig. 34g). The width of the stem excludes it from the Gary type, although the form has some similarity to the gary variety of that type (Schambach 1982:174). It resembles to some extent the quinlan variety of the Kent type (Johnson 1962:167-168); however, it is not typed as such.

One large, untyped dart point of silicified conglomerate was found at 16WE129 (Fig. 34h). It lacks the stem and the distal tip. The maximum dimension of the specimen is 59 mm, and the complete point probably was considerably larger. The fractures on this specimen are typical of those that result from use for prying (Tomka 1986:11-12). The square shoulders and large size of this tool are suggestive of the Pogo (Suhm and Jelks 1962:163-164) and Stone Square Stemmed (Chapman 1975:257) types, as well as a specimen from southeastern Oklahoma identified to the Morhiss type (Wyckoff 1967:29, 34); such large, stemmed bifaces have broad temporal and geographic ranges.

The smallest dart point was found at 16WE127 (Fig. 34i); it is identified as a dart point based on its thickness. The distal tip has been removed by an end-shock fracture (Crabtree 1972:60) that may have occurred during manufacture (Glenn Goode, personal communication 1987). The material is a red chert, with cortex visible on one face of the specimen. The stem is slightly contracting, and the base is straight. A protrusion on one shoulder appears to be a fortuitous result of manufacture rather than a purposeful creation. This specimen is interpreted as a dart point manufacturing failure.

Bifaces and Biface Fragments

Twenty chipped stone artifacts are bifacially flaked but not stemmed (see Table 30). These have been separated into five groups: shaped bifaces, unshaped bifacially modified

specimens, triangular biface fragments, rounded biface fragments, and other biface fragments. The edges of all of these were examined under 16x binocular magnification.

Shaped Bifaces

Three complete shaped bifaces were found, one each from 16WE121, 16WE127, and 16WE193. The specimen from 16WE121 is small, triangular in shape, and lenticular in cross section (Fig. 35a); it is 24 mm long, 24 mm wide, and 7 mm thick. It was manufactured on a flat, thin pebble of strong brown chert and retains cortex over large parts of both faces. The lateral margins of this biface are sinuous, while the basal edge is straight. This specimen may have been abandoned during manufacture due to the failure to remove the cortical areas from the interiors of the faces.

The complete biface from 16WE127 is oval in shape and lenticular in cross section (Fig. 35b); it measures 46 mm long, 36 mm wide, and 17 mm thick. This specimen is of silicified wood that ranges in color from strong brown to reddish yellow to yellow. On both faces, areas from 15 to 26 mm in maximum dimension remain unworked, indicating that the raw material was a flat, thin pebble. The edges of this biface are sinuous, but one end has a crushed edge that appears to have been used. In addition, a 16-mm-long section of one lateral edge has been smoothed.

The complete biface from 16WE193 is a small, roughly triangular, pointed specimen that is planoconvex in cross section (Fig. 35c). It is 37 mm long, 16 mm wide, and 6 mm thick. This specimen is of chalcedony banded with gray, yellowish brown, and very pale brown. The planar face is mostly unmodified and is partially cortical; the tip and one lateral edge have been flaked. The convex face of the biface is completely flaked, with a prominent ridge running down the center. One lateral edge and the base are sinuous and appear not to have been used; the other lateral edge is straight, has step fractures on both faces, and appears to have been used.

Unshaped Bifacially Modified Specimens

Five chipped stone artifacts have bifacial flaking but have not been substantially shaped. Four of these are pebbles or cobbles, while the fifth is a flake. Three of the pebbles/cobbles have been worked along no more than one-quarter of their margins and may, in fact, be cores. The other cobble and the flake are more extensively modified. The pebbles/cobbles are from 16WE107, 16WE114, 16WE122, and 16WE129; the flake is from 16WE119.

The specimen from 16WE107 is a light yellowish brown quartzite cobble that has been worked extensively along two edges (Fig. 35d). It is 74 mm long, 65 mm wide, and 18 mm thick. It is rectangular in cross section. The two unmodified edges indicate that the raw material was a flat, stream-rolled cobble. On one edge, a series of five flakes have been removed in an attempt at bifacial reduction, or perhaps to obtain flakes. The opposite edge is bifacially worked, with flake scars up to 14 mm long extending across the face and smaller scars up to 9 mm long occurring along the edge. This edge is straight but somewhat serrated in plan view; it does not appear to have been extensively utilized.

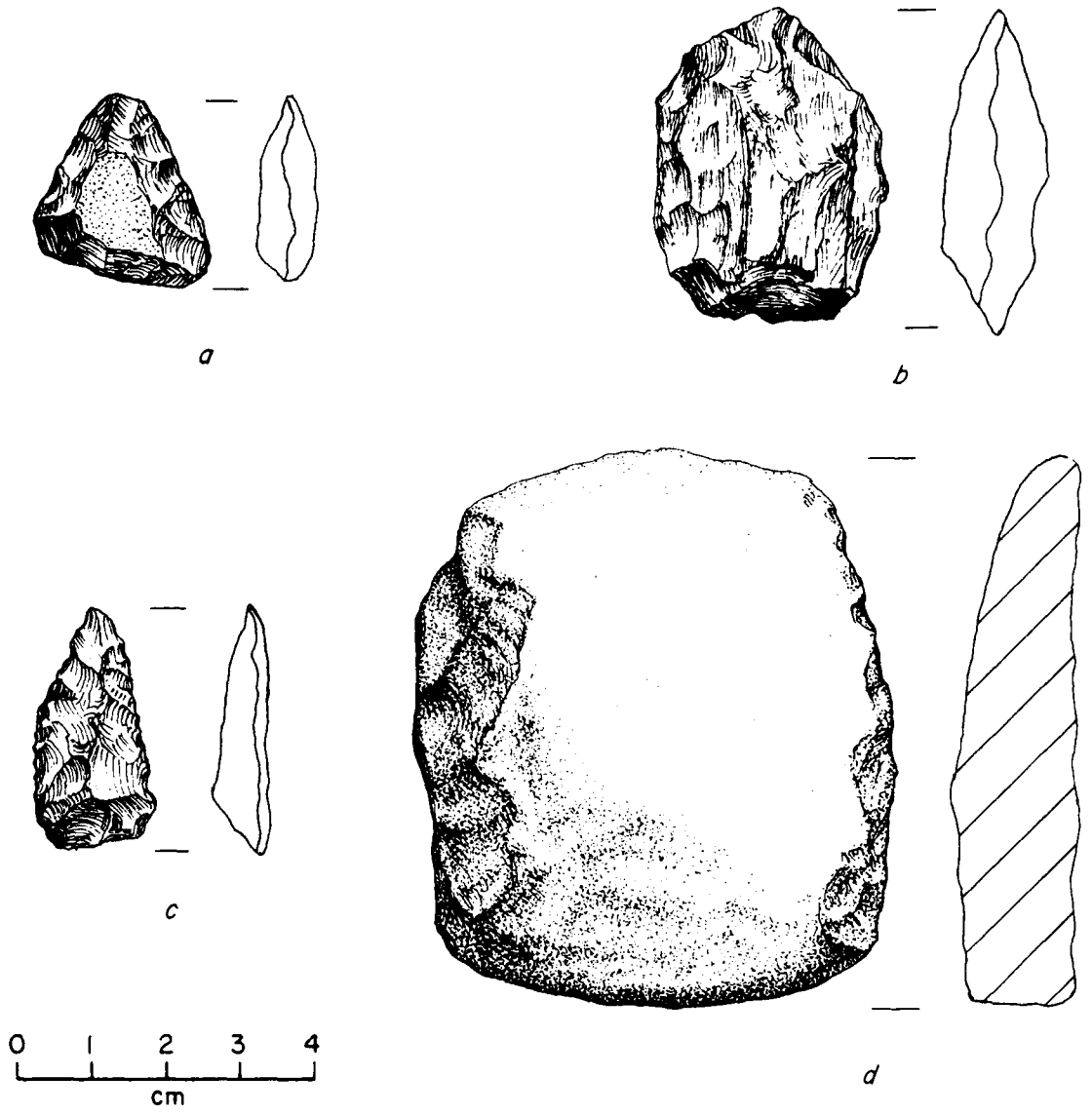


Figure 35. Bifaces. (a) triangular biface, 16WE121; (b) oval biface, 16WE127; (c) triangular biface, 16WE193; (d) bifacially shaped cobble, 16WE107.

The specimen from 16WE114 is a dark red quartzite pebble that shows moderate modification. It is 22 mm long, 20 mm wide, and 8 mm thick. It is planoconvex in cross section, and the planar face has been completely flaked; the convex face has been flaked along one edge across about one-third of the face. The remainder of this face consists of rounded pebble cortex. The bifacial edge is sinuous and shows little evidence of use.

The specimen from 16WE122 is a cobble-sized piece of ferruginous sandstone that has limited bifacial flaking. It is 102 mm long, 86 mm wide, and 29 mm thick. The specimen is irregular in shape and rectangular in cross section. One margin has been flaked in two places; on one end of this edge, one large flake has been removed, while on the other end, a 34-mm-long sinuous edge has been created by the removal of two large flakes on opposite faces. The resulting edge does not appear to have been utilized.

The specimen from 16WE129 is a cobble-sized piece of ironstone that has bifacial flaking along one short margin. This specimen is 112 mm long, 92 mm wide, and 31 mm thick; it is triangular in shape and rectangular in cross section. This item is rounded on one margin and appears to be naturally fractured on two other margins. This piece of ironstone streaks red, especially when moistened, but it shows no evidence of having been used as a source of pigment. One margin 37 mm long has been bifacially flaked. Two flakes have been removed from one face, perhaps to create a platform for a series of five flakes removed from the opposing face. The resulting edge is fairly sinuous and somewhat dulled, although the dulling may be due to the softness of the material rather than utilization.

The unshaped bifacially modified item from 16WE119 is a tertiary flake that has been worked on the end opposite the platform. It is of pale red chert and measures 28 mm long, 15 mm wide, and 7 mm thick. The modification consists of bifacial flaking to form a projection. This projection and the adjacent edges are smoothed, and an area 9 mm below the projection on both margins appears to be crushed. This specimen may have been used as a drill or reamer.

Triangular Biface Fragments

This group consists of three triangular biface fragments, one each from 16WE107, 16WE129, and 16WE198 (an historic site). Two specimens are relatively thick and may be preforms, while the third is thin and is probably a distal dart point fragment. The specimen from 16WE107 is 29 mm wide and 12 mm thick; it is of pale red chalcedony. Several flaws are visible in the material, and it is fractured tangentially to the long axis. The flake scars are fairly large, and although the edges are straight, they appear to lack retouch. This is probably a manufacturing failure.

The specimen from 16WE129 may also be a manufacturing failure. It is 25 mm wide and 12 mm thick; it is of chalcedony banded with reddish yellow, red, and light gray. One lateral margin has cortex along two-thirds of its length. The medial break is a lateral snap fracture (Tomka 1986:9, 11). All of the flake scars are fairly large and the edges are sinuous, although one edge does have an area of retouch ca. 6 mm in length suggesting that this item saw some utilization.

The specimen from 16WE198 appears to be a distal dart point fragment. It is 27 mm wide and 8 mm thick. It is of grayish red purple to grayish pink chalcedony, with dusky yellow inclusions evident on one face. Both faces have parallel pressure flake scars and are retouched along their margins. Lateral snap fractures occur on the distal and medial portions of the specimen.

Rounded Biface Fragments

This group consists of two biface fragments with rounded margins. Both appear to be the proximal portions of bifaces. One specimen, from 16WE108, is a portion of an ovate or rectangular biface. It is 24 mm wide and 7 mm thick, and it is of dark red and strong brown banded chert. Cortex on the base and one face attest to to its origin as a stream-rolled pebble. The cortical base served as the platform for the flake from which the item was made. The platform is preserved, but the ventral and dorsal faces of the flake have been thinned by pressure flaking. The medial fracture is blocky and irregular and follows several flaws in the chert. The lateral edges are fairly sinuous, but one edge shows an area of edge damage ca. 10 mm long. This specimen appears to be a biface that was broken during use.

The second specimen, from 16WE129, is 26 mm wide and 9 mm thick. The slightly contracting lateral edges suggest that this is from a triangular biface. It is of dark red chert. Although most of the flake scars are fairly large, the edges are straight and retouched along ca. 40% of their length. The medial break is a perverse fracture (Crabtree 1972:82-83). This is probably a manufacturing failure.

Other Biface Fragments

This group consists of seven small fragments. Three are distal fragments from 16WE107, 16WE117, and 16WE191; they are of reddish yellow and red chalcedony. Each is less than 16 mm in length, and all are broken by end-shock fractures (Crabtree 1972:60-61). Two other fragments, from 16WE122 and 16WE127, are biface-edge flakes and were produced when a flake removal near the distal tip of a biface removed the tip. They are of pale brown and white chalcedony. The specimens do not exceed 11 mm in maximum dimension. Two lateral biface fragments were recovered from 16WE126 and 16WE129. These have curved, but not pointed, edges that are 11 and 16 mm in length. They are of red and gray chalcedony and may have come from bifaces broken during manufacture.

Shaped Unifaces

Two chipped stone artifacts, both of which have been substantially shaped, are in this group (see Table 30). The edges on these specimens were examined under 16x and 40x binocular magnification, and the edge angles were measured with a contact goniometer. One, from 16WE126, is a dart point stem that has been reworked along its distal margin to form a steep edge with an angle of 60-70° (Fig. 36a). This specimen is 18 mm long, 25 mm wide, and 8 mm thick; the reworked edge is 18 mm long and convex. It is of mottled dark gray chalcedony. The dart point, while it cannot be typed, had an expanding stem with a concave base and well-ground edges and probably dates to the early Archaic period. Webb (Webb et al. 1971; Webb 1981:6) has dated similar forms to the San Patrice complex, but uncertainty about the date of retouching on this specimen precludes a temporal assignment.

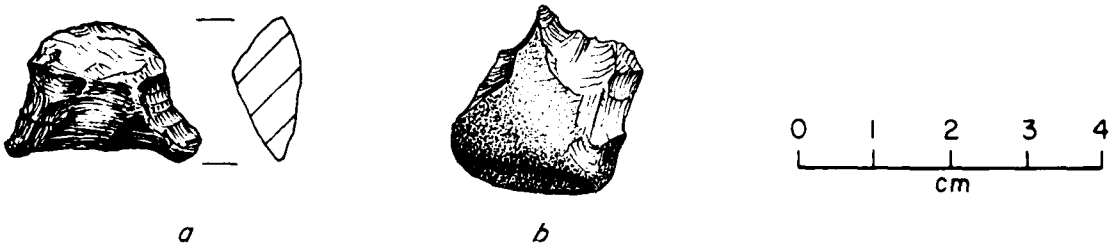


Figure 36. Shaped Uniface and Graver. (a) dart point stem reworked into a uniface, 16WE126; (b) graver, 16WE108.

The second item in this group, from 16WE196, is fashioned from a reddish yellow chert pebble. This specimen is 13 mm long, 19 mm wide, and 5 mm thick. It is planoconvex in cross section, and the worked face appears to consist of a flake scar. The margin opposite the unifacially shaped edge is broken along flaws in the material, possibly from use. The shaped edge is 17 mm long and convex; the edge angle varies from 65° to 75°. The steepest part of this edge is a highly polished remnant about 6 mm long in the middle of the edge.

Edge-modified Debitage

A total of 47 pieces of debitage have edge modification that is visible macroscopically or under low-power (10x) magnification (see Table 30). This edge modification consists of regular and discrete microflaking situated along the margins of flakes, chips, and angular chunks. No attempt has been made to distinguish intentionally prepared edges from those modified through use. It is presumed that both are represented, although it is clear that all of these are tools of expediency and that none required much effort in production.

Of the edge-modified debitage, 81% (n = 38) are flakes, 13% (n = 6) are chips, and 6% (n = 3) are angular chunks. This percentage of flakes is higher than the percentage of flakes in the unmodified debitage (64%), suggesting that flakes may have been chosen relatively frequently for use as expedient tools. This would stand to reason since flakes may have provided better-quality, more-usable edges than chips and angular chunks. A chi-square test on this distribution did not yield a significant result (level of significance = .01), however, and thus this difference is not a very marked one.

Raw material type may also have been a factor in the selection of pieces of debitage for expedient tools. Specifically, the highly siliceous cherts and chalcedonies comprise 95% of the edge-modified specimens, while quartzite, which exhibits a larger and coarser crystalline structure, accounts for only 3% of the collection and silicified wood does not occur at all. This contrasts with the figures for the unmodified debitage, where 78% of the specimens are of chert or chalcedony and 21% are of quartzite or silicified wood. While it is possible that these differences are in part a result of the greater difficulty of identifying edge modification on the coarser-grained materials, it does seem likely that fine-grained materials with sharp edges may have been selected in choosing debitage for use

as expedient tools. As above, however, a chi-square test on this distribution did not yield a significant result.

A third factor in the selection of debitage for such tools may have been size. Within the edge-modified specimens, 57% are 1-2 cm in maximum dimension, 31% are 2-3 cm, and 11% are 3-4 cm. While the pattern in these percentages is similar to that in the unmodified debitage (see below), the samples are different in that 9% of the unmodified specimens are smaller than 1 cm and only 18% are larger than 2 cm. Clearly, medium and large pieces of debitage were chosen relatively frequently for these tools. A chi-square test on this distribution yielded a significant result, and the value for Pearson's contingency coefficient for this test is moderate (C = .20).

One piece of the edge-modified debitage stands out from the rest morphologically and presumably functionally. This specimen, from 16WE108, is a flake with a 3-mm-long projection which exhibits microflaking and some polish on the tip of the projection (Fig. 36b); functionally, this item is classed as a graver. All of the other pieces of edge-modified debitage have straight to slightly convex or concave edges and are presumed to have been used for cutting or light scraping.

Cores

A total of 15 cores were found on 9 of the 18 prehistoric sites tested (see Table 30). Table 32 summarizes the attributes recorded for these specimens. Over one-half (53%) are of chert, two-fifths (40%) are of quartzite, and a single specimen (7%) is of ironstone; no chalcedony cores were found. All of the cores retain some cortex, and most have considerable amounts of cortex and thus give some indication of the approximate sizes of the gravels that were being exploited. The maximum dimensions of the cortex-retaining specimens range from 25 to 66 mm, averaging 41 mm (s = 15). Five specimens are not included in this calculation because they are largely decorticate and thus do not accurately reflect the original gravel/cobble dimensions. The number of flake scars on these cores is generally small, ranging from three to eight. Eleven specimens have five or fewer scars; both of the cores with more than five flake scars are from 16WE129. The number of flake scars does not appear to be related to raw material type. Several of these cores are simply tested pebbles.

Unmodified Debitage

A total of 628 pieces of unmodified debitage were recovered during the testing. Most of these are flakes (n = 403, 64%), with fewer chips (n = 140, 22%), and angular chunks (n = 85, 14%). As used here, flakes are pieces of debitage with whole or fragmentary platforms, chips have single interior surfaces but lack platforms or bulbs of percussion, and angular chunks lack single interior surfaces (i.e., they are blocky) and have no discernible flake characteristics.

A detailed analysis of this body of artifacts is presented here. Four attributes were recorded for the flakes in this analysis: dorsal cortex, platform type, size, and raw material type. Dorsal cortex was recorded using four categories: (1) primary -- cortex

TABLE 32

SUMMARY OF CORE ATTRIBUTES

Site Number	Raw Material	Maximum Dimension (mm)	Number of Major Flake Scars
16WE107	quartzite	55	5
16WE107	chert	-	-
16WE108	quartzite	66	4
16WE108	chert	43	5
16WE116	chert	25	3
16WE117	chert	26	3
16WE117	quartzite	35	4
16WE122	chert	-	5
16WE126	quartzite	-	-
16WE129	ironstone	-	4
16WE129	chert	28	7
16WE129	chert	30	8
16WE190	quartzite	60	3
16WE192	quartzite	-	5
16WE192	chert	38	5

over the entire dorsal surface; (2) secondary, greater than 50% -- cortex over more than 50% but less than 100% of the dorsal surface; (3) secondary, less than 50% -- cortex over less than 50% but more than 0% of the dorsal surface; and (4) tertiary -- cortex lacking on the dorsal surface. Platform type was recorded using five categories: (1) cortical -- some cortex on the platform; (2) single facet -- platform consisting of a single flake scar; (3) multiple facet -- platform consisting of multiple flake scars; (4) crushed -- platform removed in flake detachment but the point of impact discernible; and (5) ground -- single-facet and multiple-facet platforms prepared by grinding prior to flake detachment. Some flakes with broken platforms could not be assigned to any of the above categories. The identification of platform type was accomplished under 16x to 20x magnification, where necessary. Flake size is defined as the maximum flake dimension, which usually is along the longitudinal axis. Flakes with broken terminations were not measured. These measurements were made using a bull's-eye diagram. The final attribute, raw material type, was recorded using the categories described earlier in this appendix.

Two attributes were recorded for the chips. The first, dorsal cortex, was recorded as corticate (retaining some cortex) and decorticate (retaining no cortex). The second attribute is raw material type. Only raw material type was recorded for the angular chunks.

Almost one-half of the debitage is of chert, one-quarter is of chalcedony, and one-fifth is of quartzite; silicified wood and other materials comprise a small percentage of the collection. As Table 33 and Figure 37 show, these materials are not distributed evenly among the dorsal cortex flake categories. Most notably, chert and quartzite occur in comparable percentages among the flake categories, while a relatively large percentage of

TABLE 33

FREQUENCY OF FLAKES BY RAW MATERIAL TYPE, DORSAL CORTEX CATEGORY, AND SIZE

	Chert		Chalcedony		Quartzite		Silicified Wood		Other		Totals
	#	%	#	%	#	%	#	%	#	%	
DORSAL CORTEX CATEGORY:											
Primary	10	5	-	0	8	11	1	14	-	0	19
Secondary >50%	35	18	4	4	12	16	1	14	1	14	53
Secondary <50%	86	43	99	87	37	49	2	29	5	71	229
Tertiary	68	34	11	10	19	25	3	43	1	14	102
Totals	199	100	114	101	76	101	7	100	7	99	403
SIZE:											
< 1 cm	12	7	13	17	3	5	-	-	-	-	28
1-2 cm	127	77	52	68	46	74	2	29	6	86	233
2-3 cm	21	13	8	11	11	18	4	57	1	14	45
3-4 cm	6	4	3	4	2	3	1	14	-	-	12
Totals:	166	101	76	100	62	100	7	100	7	100	318

the chalcedony specimens are tertiary flakes. A chi-square test on this distribution yielded a significant result (significance level = .01), and the value for Pearson's contingency coefficient for this test is moderately high (C = .38 out of .82). This suggests that a high proportion of the chalcedony debitage resulted from the late stages of formal tool production, while relatively more initial reduction is represented by the chert and quartzite debitage. Perhaps chalcedony was more intensively reduced because it was a better quality or more predictable material; also, this difference may be a function of different sources for the materials, with the chert and quartzite coming from small-sized local gravels and the chalcedony being brought into the area in initially reduced form (Kelley 1984:585-587). That this latter explanation may play a role in the differences between the raw materials is supported by the second part of Table 33 which shows that, while a relatively large percentage of the chalcedony flakes are extremely small (i.e., less than 1 cm), the differences in size between the materials are not marked. This conclusion is supported by the fact that a chi-square test on this distribution did not yield a significant result. In short, the existence of a correlation between raw material and cortex category and the lack of a correlation between material and flake size suggest that some of the material classified here as chalcedony was brought into the project area after initial reduction; this would stand to reason if some of this material is tabular novaculite obtained from the Ouachita Mountains.

The differences between the raw material categories are reflected further in the chip and angular chunk debitage groups. In the chips, large percentages of the chert (71%) and quartzite (67%) specimens are corticate relative to the chalcedony (13%). In the angular

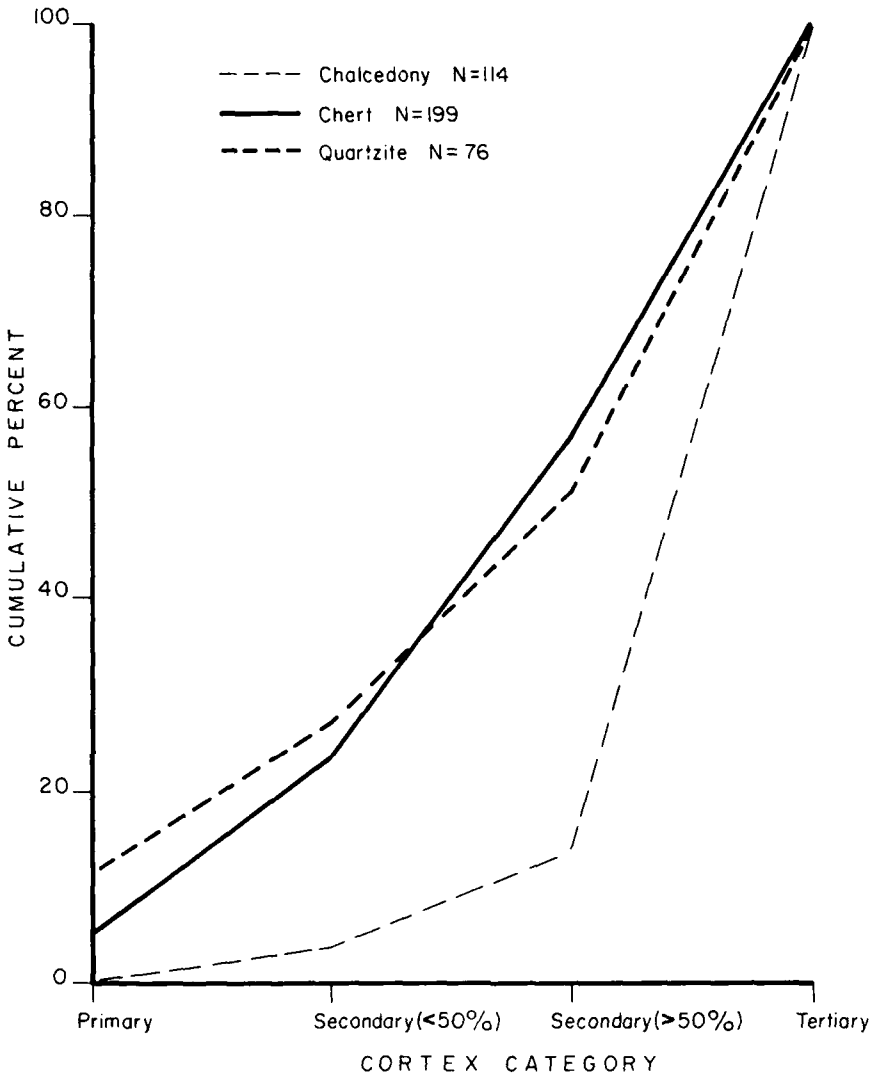


Figure 37. Cumulative frequency of flakes by raw material from tested sites.

chunks, large percentages are chert (51%) or quartzite (26%) and a low percentage is chalcedony (11%); as noted by Weinstein and Kelley (1984:91), angular chunks are probably mostly related to the initial stages of tool manufacture or core selection.

Clearly, most of the flakes in this collection lack cortex on their dorsal surfaces. Not surprisingly, the cortex categories generally correlate with flake size (Table 34). Large percentages of the flakes less than 2 cm in maximum dimension are tertiary, while relatively large percentages of the flakes larger than this are primary or secondary. A chi-square test on this distribution yielded a significant result (level of significance = .01), and the value of the contingency coefficient for this test is moderate (C = .24 out of .82). While this pattern may be somewhat skewed by the fact that almost three-quarters

TABLE 34

FREQUENCY OF FLAKES BY SIZE AND DORSAL CORTEX CATEGORY

	<1 cm		1-2 cm		2-3 cm		3-4 cm		
	#	%	#	%	#	%	#	%	Totals
Primary	1	4	8	3	4	9	2	17	15
Secondary >50%	1	4	28	12	7	16	7	58	43
Secondary <50%	5	18	64	27	16	36	1	8	86
Tertiary	21	75	133	57	18	40	2	17	174
Totals:	28	101	233	99	45	101	12	100	318

of the specimens are in one size category (1-2 cm), it is clear that decreasing amounts of cortex and decreasing size are correlated. This is consistent with a reductive technology oriented at least in part toward the production of bifacial tools from pebble- and cobble-sized gravels. Based on the conclusions reached above concerning the chalcedony debitage and on the evidence presented by the cores and the formal tools in this collection, it is presumed that this gravel-reduction technology exploited primarily cherts and quartzites.

The technologies represented by the chipped stone debitage are further elucidated by an examination of the attribute of platform type. Table 35 shows that relatively few of the flakes with cortical and single-facet platforms are of chalcedony and that high percentages of these flakes retain dorsal cortex; in addition, cortical platform flakes are relatively large. In contrast, flakes with multiple-facet, crushed, or ground platforms tend to have high percentages of chalcedony, to be primarily decorticate, and to be small. Chi-square tests on the three distributions shown in Table 35, or collapsed versions thereof, yielded statistically significant results (level of significance = .01), and the values of the contingency coefficients for all three tests are moderate (C = .23 out of .82, .29 out of .87, and .25 out of .82). All together, these data indicate that much of the initial reduction represented in the collection occurred on small chert and quartzite gravels, probably obtained locally, while a relatively high proportion of the later stages of reduction focused on the higher-quality materials classed here as chalcedony.

Summary of the Chipped Stone Artifacts

Due to the small size of the chipped stone collection, it is considered here as a unit, although it comes from 20 sites. There is some evidence that the collection represents a number of time periods. The chipped stone time-diagnostic artifacts are Archaic or Pre-Caddoan Ceramic; however, the ceramics from the tested sites are dated to the early and late Caddo periods when arrow points were in use (Neuman 1970:15). The absence in this collection of arrow points and Gary dart points which are typical of the ceramic periods is striking. It may indicate that the ceramic sites were occupied briefly and/or were the locales of limited, specific tasks that did not include hunting. It also

TABLE 35

FREQUENCY OF FLAKES BY PLATFORM TYPE, RAW MATERIAL, DORSAL CORTEX CATEGORY, AND SIZE

Attribute Category	PLATFORM TYPE: Cortical #	Cortical %	Single Facet #	Single Facet %	Multiple Facet #	Multiple Facet %	Crushed #	Crushed %	Ground #	Ground %	Totals
RAW MATERIAL:											
Chert	22	58	64	53	58	49	10	36	32	48	186
Chalcedony	4	11	22	18	43	36	9	32	24	36	102
Silicified Wood	3	8	2	2	1	1	0	-	1	2	7
Quartzite	8	21	27	23	17	14	9	32	9	14	70
Other	1	3	5	4	0	-	0	-	0	-	6
Totals:	38	101	120	100	119	100	28	100	66	100	371
DORSAL CORTEX CATEGORY:											
Primary	2	5	9	8	3	3	1	4	3	5	18
Secondary (>50%)	7	18	22	18	14	12	3	11	5	8	51
Secondary (<50%)	18	47	35	29	24	20	6	21	10	15	93
Tertiary	11	29	54	45	78	66	18	64	48	73	209
Totals:	38	99	120	100	119	101	28	100	66	101	371
SIZE:*											
< 1 cm	2	6	7	7	4	4	4	16	9	18	26
1-2 cm	20	59	73	76	76	80	20	80	32	64	221
2-3 cm	10	29	12	13	11	12	1	4	7	14	41
3-4 cm	2	6	4	4	4	4	0	-	2	4	12
Totals:	34	100	96	100	95	100	25	100	50	100	300

*Does not include 71 flakes that are broken.

may reflect a sampling problem, given the small numbers of artifacts left at sites which were occupied briefly. The absence of early Archaic chipped stone diagnostics is also notable and may be related to the age of the landforms in the project area.

Two technologies are represented by the chipped stone collection. One is based on the reduction of locally available pebbles of chert and quartzite ranging from 2.5 to 7 cm in maximum dimension to produce flakes or tools. The evidence for this technology lies in the abundance of chert and quartzite debitage, the predominance of cortical specimens in this debitage, and the slightly larger size of the debitage of these materials. The other technology is based on final reduction, resharpening, and/or rejuvenation of chalcedony

artifacts. Initial reduction in this technology appears to have taken place away from the sites as cortical debitage is rare. Chalcedony is overrepresented in the finished tools, which are 48% chalcedony, 32% chert, and 7% quartzite, compared to the debitage which is 25% chalcedony, 49% chert, and 21% quartzite. Also, chalcedony tools are somewhat larger than tools of chert or quartzite. It cannot be determined whether the chalcedony technology represents importation of this material in partially reduced form from more-distant sources such as the Ouachita Mountains, or whether chalcedony was obtained and initially reduced at other off-site locations such as the gravel bars of major streams. However, the generally greater size of the chalcedony tools suggests that they were made from larger source materials than the chert and quartzite tools. The tested sites produced insufficient amounts of debitage to determine whether these technologies were separated in time or were contemporaneous, although there are notable differences in the percentages of raw materials and cortical debitage between the sites (see Chapter 7).

OTHER LITHIC MATERIALS

This section deals with the nonchipped lithic artifacts and the nonartifactual, but presumably cultural, lithic materials. These are described under four headings: Miscellaneous Artifacts, Manuports, Fire-cracked Rocks, and Miscellaneous Rocks.

Miscellaneous Artifacts

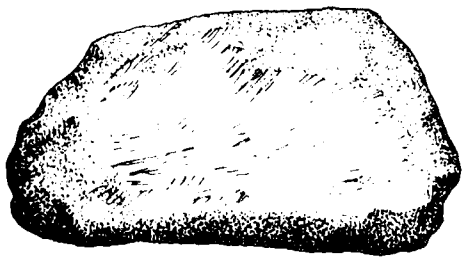
Four nonchipped stone artifacts were found during the testing (Table 36): a pitted stone, a worked hematite fragment, and two battered pebbles. The pitted stone, from 16WE108, is a triangular, ferruginous sandstone slab that measures 16x22x6 cm; it weighs 4 kg. The slab margins do not appear to have been shaped; both faces of the slab have highly smoothed areas, and one face also exhibits a large oval pit measuring 3.3x2.8x0.5 cm. Under magnification, the quartz grains on the surface of the pit appear to be jagged and unabraded, while the grains on the surfaces of the smoothed areas appear to have been abraded to a uniform height. These differences most likely are due to the effects of battering vs. grinding. The portion of the stone with the pit probably functioned as an anvil for some kind of crushing activity, while the portion of the stone with the smoothed areas probably served as a platform on which vegetal materials were ground. Such tools have been documented frequently on archeological sites in northwestern Louisiana (e.g., Webb 1948:133; Johnson 1961:256; Webb et al. 1969:70).

The hematite artifact, from 16WE107, is a flat, rectangular concretion that has been striated (Fig. 38). This item, which has been split longitudinally, measures 5.8x3.0x0.7 cm and weighs 21 g. The striations occur on the outer surface of the split concretion. There appear to be two sets of striations on the stone. One set runs across the stone at an angle of 40° for a distance of 2.1 cm; the second set crosscuts the first, running for a distance of 2.5 cm along the long axis of the stone. Some polishing is evident on the edges of the striations. These striations may be the result of scraping across the hematite with a hard, sharp object, such as a flake. It is possible that the hematite was scraped away to be used as pigment. The length, location, and spacing of the striations make these markings distinct from the kinds of markings created by rodent gnawing and often seen on soft lithics and ceramics in archeological sites.

TABLE 36

PROVENIENCE OF OTHER LITHIC MATERIALS

Site Number	Miscellaneous Artifacts	Manuports	Fire-Cracked Rocks	Miscellaneous Rocks	Totals
16WE107	1	1	2	1	5
16WE108	1	1	9	19	30
16WE114	-	-	4	-	4
16WE116	-	-	2	10	12
16WE117	-	1	6	11	18
16WE118	-	-	1	-	1
16WE119	-	-	6	5	11
16WE121/122	1	-	16	28	45
16WE123	-	-	3	-	3
16WE126	1	1	5	4	11
16WE127	-	-	2	3	5
16WE129	-	-	9	19	28
16WE190	-	-	1	-	1
16WE191	-	-	3	-	3
16WE192	-	-	-	-	0
16WE193	-	-	4	-	4
16WE195	-	-	-	-	0
16WE196	-	1	-	-	1
16WE198	-	-	-	-	0
Totals:	4	5	73	100	182



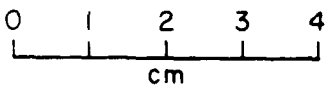


Figure 38. Striated hematite, 16WE107.

The two battered pebbles, both of quartzite, were recovered from 16WE122 and 16WE126. The pebbles are roughly rectangular in shape. The specimen from 16WE122 measures 5.5x2.8x1.2 cm and weighs 44 g. Battering occurs on the two opposite ends of the stone; these battered areas are no larger than 1 cm^2. The specimen from 16WE126 measures 3.8x3.5x1.2 cm and weighs 29 g. This pebble shows pitting and battering on all of its edges. The edges also have fracture facets suggesting breakage during battering. The modification on these pebbles suggests that they may have been used as hammerstones. That similar-sized unmodified pebbles occur in the tested sites indicates that the selection of these two items for use as tools was opportunistic.

Manuports

Included in this group are five large, unmodified (or little-modified) rocks that, based on their anomalously large sizes, must have been transported onto the archeological sites and deposited there by humans (see Table 36). These cobble-sized rocks range in weight from 185 to 5,800 g and in maximum dimension from 6 to 18 cm. The smallest of these is more than twice as large as the pebbles that occur commonly in the sites. It is presumed that these items were brought onto the sites to be used as raw materials in chipped stone tool manufacture, as anvils, or as tools for percussion or pulverizing. The attributes of these specimens are summarized in Table 37.

TABLE 37

SUMMARY OF MANUPORT ATTRIBUTES

Site	Raw Material	Weight	Size
16WE107	quartzite	741 g	12x10x4 cm
16WE108	chert	185 g	7x6x3 cm
16WE117	chert	5,800 g	16x18x13 cm
16WE126	ferruginous sandstone	586 g	9x8x4 cm
16WE196	silicified wood	1,400 g	12x8x7 cm

Fire-cracked Rocks

In sorting through the many siliceous pebbles that were recovered from the 1/4-inch screen during the testing, it became obvious that a substantial percentage of these rocks appeared burned. The characteristics used to distinguish these possibly burned rocks from the unburned ones are angular fracturing, crazing, potlidding, and the presence of a chalky white cortex with a pink to red tint. After the initial sort of these materials, however, it became clear that many of these possibly burned rocks are no different in terms of size than the unburned rocks and that the vast majority of both groups are small pebbles. It is

difficult to imagine that such small rocks were intentionally burned as a result of the aboriginal occupations of these sites. This is not to say, however, that some of the larger rocks do not represent intentional modification; indeed, a modest number of the possibly burned rocks are certainly anomalous in terms of size, and these are good candidates for burned rocks associated with the aboriginal occupations.

In an effort to evaluate whether or not size is a good criterion for distinguishing intentionally burned rocks from incidentally burned ones, all of the siliceous pebbles from Area A at 16WE108 were sorted as to whether or not they appear to be burned and into two size classes, those that passed through a 1/2-inch screen (maximum dimension less than 1.8 cm) and those that did not (maximum dimension greater than 1.8 cm). Then the distributions of these four categories were plotted, by mean weight per level, for all of the test pits at the site (combined) to discern similarities and/or differences that might contribute to the interpretability of these materials. As Figure 39 shows, the small burned rocks and the small pebbles have generally similar distributions, with both increasing gradually in abundance down to Level 7 and then decreasing in abundance below this; the only difference between these two distributions is that the small burned rocks exhibit a frequency peak in Level 4 while the small pebbles do not. Disregarding this small Level 4 peak, the similarity in these distributions suggests that the small burned rocks are not cultural, or at least that they were not burned intentionally. The distribution of the large pebbles is grossly similar to those of the small pebbles and the small burned rocks in that it displays its highest peak in Level 7. It differs from the small rock distributions, however, in that it shows abundant large pebbles in Level 8, it has a secondary peak in Level 5, and the rate of increase in abundance with depth is much higher than it is for the small rock categories. This distribution suggests that, overall, many of the large pebbles are natural rather than cultural. Of the four graphs illustrated in Figure 39, the one for the large burned rocks is the most disparate; this graph displays a notable peak in abundance in Level 6 and a small peak in Level 2. That the large burned rocks occur most commonly at depths shallower than the highest concentrations of small burned rocks and small pebbles suggests that the large burned rocks were deposited by a different process than the small rocks; it is reasonable to surmise that this may have been a cultural process, perhaps the introduction of rocks for use in hearths. On the other hand, no such rock hearths were identified during the testing, and the co-occurrence in Level 6 of the large burned rock peak and a distinct valley in the distribution of the large pebbles suggests a noncultural interpretation, i.e., that a relatively high proportion of the naturally occurring large pebbles in Level 6 became burned incidental to the aboriginal occupations (e.g., as a result of forest fires). Another possible explanation is that these large pebbles are naturally occurring and that they became burned as a result of more-intensive cultural activities at the time that level was deposited, but that the burning was largely fortuitous and did not entail intentional placement of the pebbles into hearths.

Clearly, this is a question that cannot be resolved with the data gathered during this testing project. Suffice it to say that these siliceous pebbles, both burned and unburned, are a potentially important source of information that may contribute to the interpretation of these diffuse cultural deposits. Adequate exploration of this topic will likely have to await the collection of substantially more information from one or more sites in the project area, such as that resulting from an intensive excavation project. Because of the problematical nature of interpreting the possibly burned rocks recovered during this project, a conservative stance has been taken in tabulating these materials for this

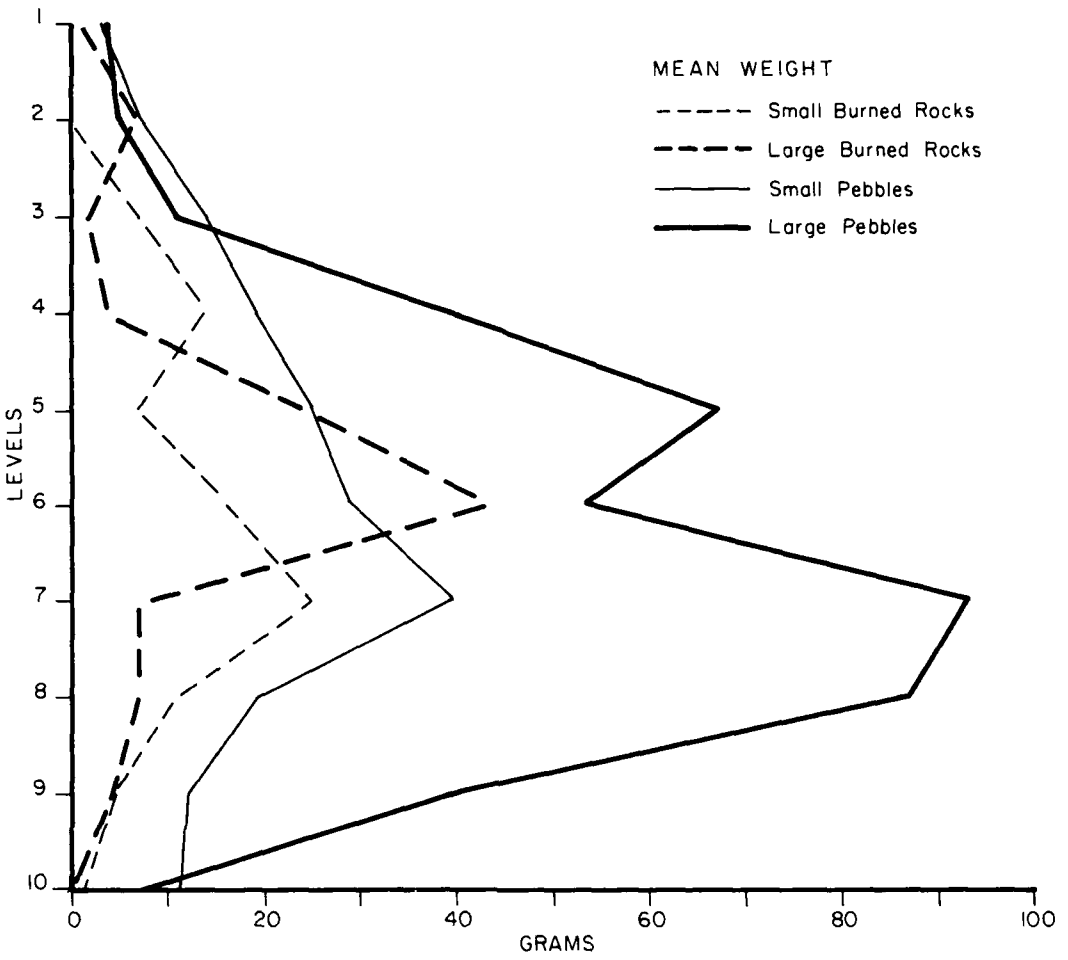


Figure 39. 16WE108, Area A, vertical distribution of burned rocks and unburned pebbles.

appendix. Specifically, the tallies shown in Table 36 include only those specimens that are most likely to represent intentionally burned rocks, i.e., only the largest pebbles (those that did not pass through a 1-inch screen and thus have a maximum dimension greater than 3.6 cm) and that show signs of burning. Table 36 shows that such items are not abundant in the tested sites.

Miscellaneous Rocks

This category consists of 100 rock fragments that, while not clearly modified and not sufficiently large to be classed as manuports, are of a size and/or material suggesting that they have been culturally introduced (see Table 36). Most of these are ferruginous sandstone or hematite/limonite, with nonferruginous sandstone and silicified wood occurring in smaller amounts (Table 38). These materials are of limited interpretive potential in this collection.

TABLE 38

SUMMARY OF MISCELLANEOUS ROCKS

Site Number	Ferruginous Sandstone #	Ferruginous Sandstone wt.	Other Sandstone #	Other Sandstone wt.	Hematite/ Limonite #	Hematite/ Limonite wt.	Silicified Wood #	Silicified Wood wt.
16WE107	-	-	-	-	-	-	1	23.5 g
16WE108	4	53.5 g	1	7.0 g	14	64.4 g	-	-
16WE116	2	82.0 g	3	9.0 g	5	17.5 g	-	-
16WE117	2	9.4 g	3	10.6 g	6	26.5 g	-	-
16WE119	1	3.5 g	2	4.0 g	1	8.0 g	1	11.5 g
16WE121/122	24	148.5 g	2	14.0 g	1	8.0 g	1	53.5 g
16WE126	-	-	-	-	4	8.5 g	-	-
16WE127	1	17.0 g	-	-	2	15.5 g	-	-
16WE129	9	76.0 g	4	103.5 g	5	28.5 g	1	19.0 g
Totals:	43	389.9 g	15	148.1 g	38	176.9 g	4	107.5 g

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APPENDIX C: Descriptions of the Historic Materials Recovered

Jack M. Jackson

INTRODUCTION

This appendix contains descriptions of the materials recovered in testing the four historic sites, 16WE113, 16WE114, 16WE185, and 16WE198. A short section at the end of the appendix describes the small number of historic-period artifacts recovered during the test excavations at the prehistoric sites.

16WE113

All of the artifacts found on the surface at this site were collected and are described below. The absence of subsurface remains suggests that site 16WE113 is a small, perhaps single-incident, dump. The metal items that have survived here are chronologically diagnostic of a period of manufacture in the last years of the nineteenth century or the first quarter of the twentieth century. Given the common assumptions about the time lag between manufacture and disposal (Hill 1982:317), it is speculated that these items were dumped at the site during the 1930s after several years of use.

Metal Graniteware

Three of the objects recovered from 16WE113 are steel vessels finished with baked enamel. Such items have come to be referred to as graniteware by collectors; however, this is only one of the names under which the ware was originally marketed (Vogelzang and Welch 1981:6). The process of enameling ironware was known in Europe as early as the eighteenth century, but such wares only became common in the United States after 1870 when cast iron pots began to be mass produced. By 1897, Sears, Roebuck was selling a large assortment of utilitarian items made from stamped steel with enameled finish. Both stamped steel and cast iron vessels have come to be known as graniteware. Although some items made in this manner are still available today, most cooking vessels began to be made of aluminum after the introduction of that material in 1930 (Vogelzang and Welch 1981:22).

One of these graniteware items is a 2-gallon-capacity kettle of stamped steel finished with gray mottled enamel. The kettle is 9.5 inches in diameter and 6.25 inches tall, from the base to the lip. This specimen is badly rusted. The bottom has detached, the lid and handle are missing, and the spout is crushed. Such a large-capacity kettle is pictured by Vogelzang and Welch (1981:118, row 2 #3). The missing parts suggest that the vessel was deposited at 16WE113 as a discard.

The second graniteware item, also finished with gray enamel, is a round basin 10 inches in diameter, with an 0.75-inch lip all around, and about 3 inches deep. This is the size and type of basin that was normally sold around the turn of the century with a pitcher as a washstand set (Sears, Roebuck and Co., Inc. 1897). This specimen is badly rusted with most of the lip and the bottom gone.

The third graniteware item is a round basin 5 inches deep and 16 inches in diameter finished in a speckled pattern of gray-blue enamel. This type of basin was most often sold

as a dishpan. This specimen bears no labels or trademarks; it is badly rusted with the entire bottom and portions of the sides missing.

Other Metal Objects

Two fragments of a galvanized steel camp stove were found. The base is 2.25 inches high and 8.5 inches in diameter. Enough of it remains to show that the stove was round; the arrangement of supports in the base suggests that a kerosene burner was once attached. The cylindrical top is 12 inches tall with two rectangular extensions riveted onto the main body forming a boxlike extension at the top of the cylinder. The top portion of the stove is both crushed and badly rusted. However, as with the kettle described above, it is clear that several parts are missing.

The fifth item recovered from 16WE113 also is in two pieces. It is a 1-gallon paint or syrup pail 8.75 inches tall. Circular anchors for a bail handle are attached to each side. One of these anchors is still attached to the larger fragment of the can. The other appears on a fragment of rusted metal that would not otherwise be recognizable as a part of this item. This can has a double seam on one side, indicating that it was made after 1889 (Rock 1984:106).

The sixth item is a 1-pound coffee(?) tin 4.5 inches tall and 5 inches in diameter. No label remains, but the base is stamped with the "CANCO" trademark enclosed in an oval. The specimen is rusted and somewhat distorted from crushing.

The seventh item is a large fragment of a can 6 inches in diameter and at least 7 inches tall. This is a lap-seamed can with a lapped stamped base. This process for making cans was patented in 1847 and was rarely used after the double-seamed can was introduced (Rock 1984:102).

The eighth item is a fragment from a galvanized steel washtub, representing about half of the upper rim with one attached handle. The entire lower body of the tub is rusted away. The 1897 Sears, Roebuck catalog offered both the traditional wooden tubs and these recently introduced metal tubs. Such tubs were in common use from about 1895 until they were supplanted by automatic washing machines introduced in the late 1940s.

In addition to the items described above, five fragments of rusted metal that cannot be functionally identified with confidence were recovered from 16WE113.

16WE114

All of the artifacts recovered from the test pits and a sample of artifacts from the site surface are described here. The predominance of bricks and domestic artifacts indicates that this is a housesite. The number of colorless bottle sherds are evidence of occupation in the first half of the twentieth century.

Building Materials

Bricks

The sample of bricks collected from this site (Table 39) are of a low-fired, hand-molded type which exhibits a pronounced raked appearance along one surface where the excess clay was cut off of the top of the box mold. Bricks of this type were usually made on or near the construction site and fired on the surface in a wood fire. As discussed below, this sort of brick is normally expected at sites where houses were erected before the railroad made commercial pressed bricks generally available. The small amount of bricks found in the scatter at 16WE114 seem to have been part of a stove flue constructed of recycled bricks. Neither the other artifacts nor the archival materials support an early building date. A total of 24 brick fragments were collected. Four of these are relatively large fragments taken as a sample from the scatter. Some large fragments were also recovered from Test Pit 17 excavated in a well depression adjacent to the brick scatter.

TABLE 39

PROVENIENCE OF BUILDING MATERIALS AT 16WE114

	Brick Fragments	Cut Nails	Wire Nails	Window Glass	Totals
Test Pit 1	5	1	-	-	6
Test Pit 4	1	3	6	1	11
Test Pit 6	2	0	-	-	2
Test Pit 7	2	5	6	-	13
Test Pit 13	2	2	3	-	7
Test Pit 16	2	2	3	-	7
Test Pit 17	6	-	11	-	17
Brick Scatter	4 (sample)	-	-	17	21
Totals:	24	13	29	18	84

Nails

Both cut and wire nails were recovered from this site (see Table 39). Cut nails are still made today, but they were generally supplanted by wire nails between 1890 and 1900. Thus, the mix of nails recovered, 13 cut nails and 29 wire nails, presents a somewhat unusual proportion. One would normally expect the majority of the nails from a nineteenth-century house to be cut nails, with a minority of wire nails indicating later repairs or remodeling. The above proportion suggests a house built with cheaper wire nails and some recycled cut nails. Most of these nails are very badly rusted.

Window Glass

A total of 18 sherds of window glass were recovered (see Table 39). One of these came from Test Pit 4, while the others were recovered from the brick scatter. These sherds are all relatively thick and uniform with a light green color when viewed edge-on.

Domestic Artifacts

Glass

A total of 78 sherds of bottle and tableware glass were recovered (Table 40). One of these is a cork-stoppered bottle neck that has turned slightly purple in the sun. This occurs when manganese was used as the decolorant in the glassmaking process. Before 1880, most bottle glass was made in the colors that naturally occur in the process. Between 1880 and 1918, manganese was used as the decolorant agent (Baugher-Perlin 1982:261). The lip of this bottle was applied to a mold-blown bottle. Thus, the color alone would date this bottle to 1880-1918, while the applied lip would suggest that the bottle dates to the earlier half of this time period.

TABLE 40

PROVENIENCE OF BOTTLE AND TABLEWARE GLASS AT 16WE114

Test Pit	Manganese Decolored	Color-less	Color-less, Fused	Light Green	Blue, Fused	Amber	Amber, Fused	Pressed Glass	Total
1	1	3	3	1	-	1	-	-	9
2	1	1	1	-	-	-	-	-	3
3	-	-	-	-	-	-	-	-	0
4	2	13	2	1	1	4	2	-	25
5	-	1	1	-	-	-	-	-	2
6	1	1	1	-	-	1	-	-	4
7	1	-	-	-	-	6	-	-	7
8-12	-	-	-	-	-	-	-	-	0
13	-	10	-	-	-	4	1	-	15
14-16	-	-	-	-	-	-	-	-	0
17	1	8	-	-	-	-	-	4	13
Totals:	7	37	8	2	1	16	3	4	78

Most of the other glass sherds do not exhibit diagnostic characteristics other than color. Forty-five of the bottle sherds recovered, or over half, are colorless, suggesting

that there was a significant occupation at the site after 1918. Twelve sherds exhibit some surface fusing indicating that they were burned after breakage.

Four of the glass sherds are from a rather ornate pressed glass dish of the sort that was fashionable around the turn of the century (Sears, Roebuck and Co., Inc. 1897, 1909). These sherds came from Test Pit 17 in the well depression.

Ceramics

A total of 25 sherds of historic ceramics were recovered from 16WE114 (Table 41). Fifteen of these are plain white earthenware sherds. The glaze on all of these fragments is badly crazed, and some vessels appear to have been used for a considerable time after the glaze had crazed imparting a gray or brown crackled appearance to the sherds (Worthy 1982:334). Although ceramics of this sort are not chronologically diagnostic, except in a very broad way, they do indicate that the occupants of this site purchased the cheapest available dishes and used them long after they would have been discarded as unsightly in more prosperous households.

TABLE 41

PROVENIENCE OF CERAMIC ARTIFACTS AT 16WE114

Ceramic Type	Test Pit 1	Test Pit 4	Test Pit 6	Test Pit 7	Test Pit 8	Test Pit 13	Test Pit 17	Total
White earthenware	2	4	1	3	-	3	2	15
Stoneware, brown decal	-	1	-	-	-	2	-	3
Stoneware, striped bowl	-	-	-	-	-	1	-	1
Stoneware, plain white	-	1	-	1	-	-	-	2
Utilitarian stoneware	-	-	1	-	-	-	-	1
Porcelaneous stoneware	-	-	-	-	1	-	2	3
Totals:	2	6	2	4	1	6	4	25

Three sherds from a white stoneware dinner service with a medium brown decalcomania decoration were recovered. Decal decoration appeared in the late nineteenth century, but most of the early designs were multicolored floral patterns (Sears, Roebuck and Co., Inc. 1897, 1909). These sherds appear to be from dishes made after World War I.

One sherd from a stoneware bowl with a white interior and a blue striped exterior was recovered from Test Pit 13. The bodies of such bowls were striped with a slip while being turned on a lathe. This technique came into use in the late eighteenth century and was popular throughout the nineteenth and early twentieth centuries (Miller 1980:28). Two sherds of plain white stoneware were also recovered. Both the striped bowl and this plain stoneware were slightly more expensive than earthenware.

One sherd from a heavy jug or bowl of industrially made utilitarian stoneware was recovered. This vessel had a dark brown slip-glazed interior and exterior over a light tan body. Such vessels were common both in the last quarter of the nineteenth and the first quarter of the twentieth centuries (Worthy 1982:336-37).

Three very small and highly convoluted sherds of porcelaneous stoneware were recovered. The very thinness and complex shape of these sherds suggests that they are fragments of toys rather than dishes. Two are unglazed or matte finished. Ceramic doll heads were often made of this type of material.

Metal Artifacts

The bulk of the artifacts recovered from this site consist of 143 unidentified fragments of metal. Most of these are thin flat fragments of the type that results from the deterioration of metal food tins, but the very poor condition of these items precludes any confident assignment of function. These fragments were found in Test Pits 1 (n = 12), 2 (n = 5), 7 (n = 13), 13 (n = 17), 16 (n = 2), and 17 (n = 94).

Nine other metal artifacts recovered from the site merit description. Four of these are kitchen related, two are horse furniture, and three are ammunition items. Two fragments of an elaborately embossed cast iron stove (Fig. 40a-b) were found on the surface near Test Pit 17. These fragments are from a wood-burning stove made during the last quarter of the nineteenth century. The Sears, Roebuck catalogs for 1897 and 1900 offered both cast iron ranges and enameled steel ranges with nickel-plated cast iron parts. The 1909 Sears, Roebuck catalog no longer offered cast iron stoves. Both pieces exhibit the elaborately decorated surfaces typical of late Victorian taste. Two halves of a wood-burning range lid lifter were recovered from Test Pit 17 (Fig. 40c).

The two items of horse furniture consist of a harness ring from the brick scatter and a whiffletree hook from Test Pit 2. The iron hook is 5.5 inches long and 1 inch wide at the base (Fig. 40d). The harness ring is 1 inch in diameter and made of steel.

Three of the metal artifacts are brass ammunition cases. One, from Test Pit 17 excavated in the well depression, is the base of a 12-gauge shotgun shell marked "Winchester no. 12 Repeater." These reloadable shotgun shell casings were offered in the Sears, Roebuck catalog of 1897 for 49 cents per 100. They were not offered in the 1909 catalog. Two fragments of a .45-caliber revolver cartridge were found in Test Pit 2. This item is marked on the base "U.M.C. 45 COLT." The U.M.C. mark was used by the Union Metallic Cartridge Co. of Bridgeport, Connecticut, from 1867 until it merged with Remington in 1911 (White and Munhall 1963:148). The .45-caliber Colt revolver was introduced in 1873 (Barnes 1980:187). Thus, this item can be dated to a period between 1873 and 1911.

Faunal Material

A single tooth, perhaps from a deer, was recovered from Test Pit 7.

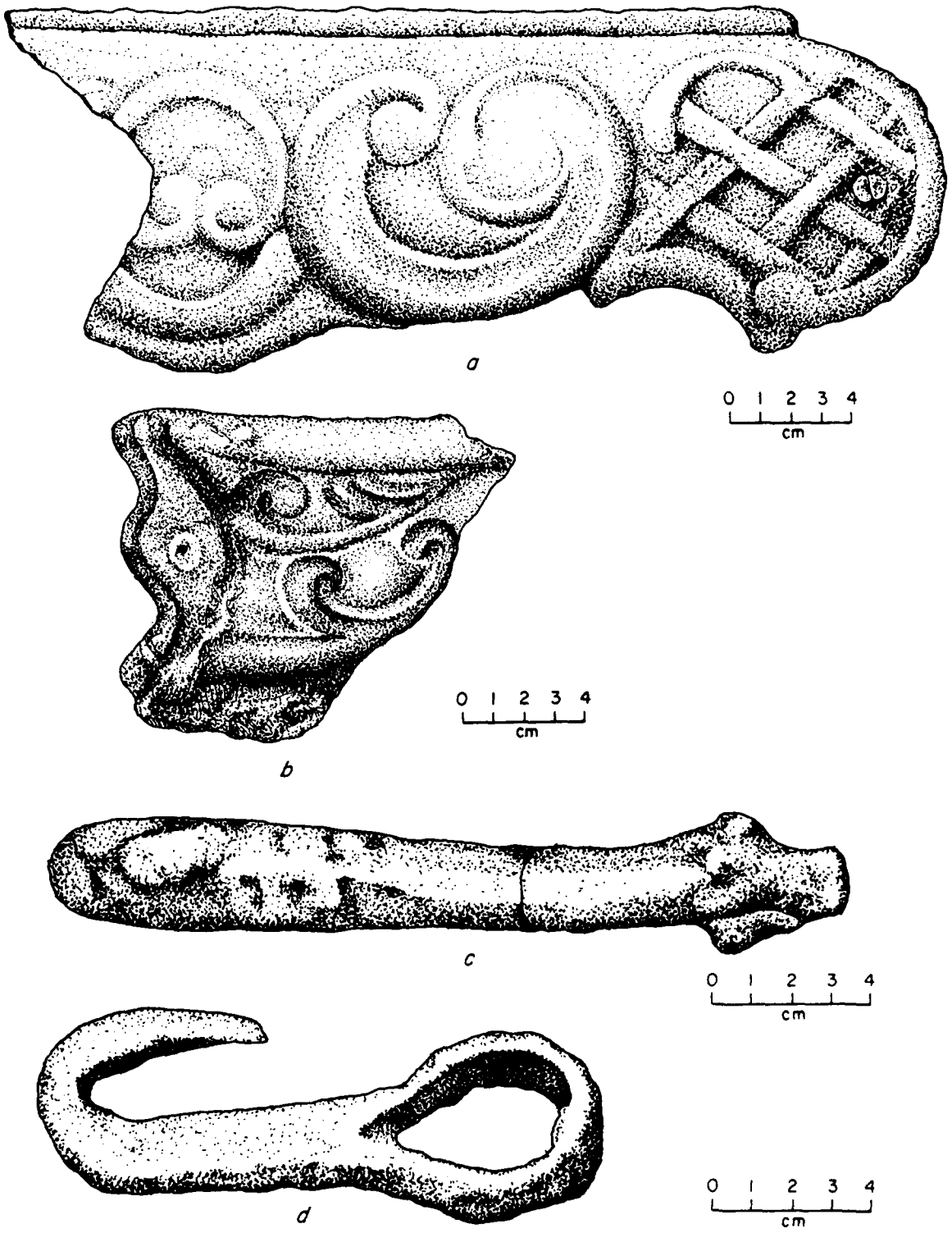

Figure 40. Artifacts Recovered from 16WE114. (a-b) fragments of embossed cast iron stove; (c) wood-burning range lid lifter; (d) whiffletree hook.

Lithic Materials

Two tabular fragments of dark gray slate of the type used for chalk boards were recovered from Test Pits 3 and 13.

16WE185

Site 16WE185 was tested in two spatially distinct areas. Area A was indicated by archival research to have been a residential site, while Area B, located some 200 m away, is presumed to be the site of a mill and gin. Because of this diversity of supposed function, the artifacts are described in two sets, preserving that functional difference.

Area A, Building Materials

Bricks

A large quantity of bricks was observed in the profile of a bulldozer spoil pile in Area A. A grab sample of these bricks was obtained and consists of two distinct types. A few dark red, commercially made, pressed bricks are present. The majority of the bricks observed, however, are bright orange-red, hand-molded bricks with one scored or cut surface. These bricks are relatively low fired and consequently exhibit somewhat eroded faces; most are broken. Because of the disturbed, redeposited nature of the spoil heap from which these bricks were taken, it is difficult to determine if a single repaired chimney or multiple structural features, such as foundation piers or stove flues, are represented by the debris. In addition to the bricks obtained from the spoil pile, some small fragments of low-fired bricks and mortar were recovered from the shovel tests. Table 42 gives the provenience of these materials.

TABLE 42

PROVENIENCE OF BUILDING MATERIALS AT 16WE185, AREA A

Unit	Brick and Mortar	Window Glass	Cut Nails	Wire Nails
Spoil Heap Profile	2	14	1	-
Shovel Test 3	-	1	-	-
Shovel Test 4	2	-	-	-
Shovel Test 7	2	4	-	-
Shovel Test 9	1	-	-	2
Totals:	7	19	1	2

Nails

Three nails were recovered, a 3-inch-long cut nail and two wire nails. The cut nail came from the spoil heap; the wire nails were found in Shovel Test 9 (see Table 42).

Window Glass

Nineteen fragments of window glass were recovered from Area A (see Table 42). Fourteen were found in the spoil heap, suggesting that the entire structure was bulldozed and that this location may not reflect the exact location of the structure.

Area A, Domestic Artifacts

Glass

Four glass bottle sherds and one glass jar sherd were recovered. Two of the bottle sherds show some fusing, indicating that they were burned after the vessel was broken, but otherwise these are not diagnostic. One of the bottle sherds came from the spoil heap, and one each came from Shovel Tests 2, 7, and 9. Also recovered from Shovel Test 7 was a rim sherd from a wide-mouth canning jar of the type sealed with a rubber "O" ring and a metal bale over a glass lid. This type of preserving jar was invented in the late 1860s (Stewart and Cosentino 1976:55; Baugher-Perlin 1982:276). Such jars were in common usage between 1880 and 1920.

A single scalloped rim sherd from a kerosene lamp chimney came from Shovel Test 9. Kerosene lamps were common during the second half of the nineteenth century and were still widely used in rural homes until the late 1930s. Scalloped-top chimneys such as this were still shown in the Sears, Roebuck catalog for 1909.

Ceramics

A single flat body sherd of porcelaneous stoneware was recovered in Shovel Test 9. Highly vitrified wares of this sort were uncommon before the late 1880s (Worthy 1982:337).

Metal

A steel file with a mill profile and bastard surface, 8.5 inches long including the tang, was recovered from the spoil heap profile. Such files, still readily available, were common hardware items in the late nineteenth century (Spivey 1979:161-162).

A rusty, flattened metal can originally 2.75 inches in diameter and 4.5 inches tall was recovered from the spoil heap profile. It is of the double-seam type first produced in 1889 (Rock 1984:106) and still in common use today.

A metal wire bail from a glass canning jar of the type discussed above was recovered in Shovel Test 8. These items first appeared in the 1860s, became common during the 1880s, and were still used during the first quarter of the twentieth century.

The only other metal artifacts recovered in this area were an oval of badly rusted metal which is not functionally identifiable and a shoe or boot eyelet, both from Shovel Test 9.

Area B, Artifacts

Only two shovel tests were placed in Area B. One of these was culturally sterile except for two burned bone fragments. A great deal of artifactual materials were recovered from the other test (Table 43), but only two items could be identified functionally. One is a wire nail, and the other is a corner of a commercially made pressed brick. The rest of the materials from this test pit consist of wood charcoal and small fragments of sheet metal.

TABLE 43

INVENTORY OF MATERIALS FROM SHOVEL TEST 1 AT 16WE185, AREA B

Level	Metal Fragments, #	Metal Fragments, Weight (g)	Charcoal, Weight (g)	Other Artifacts
0-10 cm	541	316.3	35.0	
10-20 cm	279	140.4	16.5	wire nail, brick fragment
20-30 cm	16	14.2	-	
30-40 cm	15	10.6	-	
40-50 cm	5	3.5	-	
50-60 cm	3	1.8	-	
Totals:	859	486.8	51.5	

16WE198

The descriptions of the materials recovered from 16WE198 are presented under two headings. First, the building materials are discussed, focusing on the location of the dwelling at the site and its probable building date. Other artifacts, including both domestic items and other portable items, are then discussed.

Building Materials

Bricks

A large number of brick fragments were recovered at this site. Most are quite small and irregularly shaped. Even the larger fragments exhibit badly eroded faces. The bricks are all uniformly low fired and are probably all hand molded. No fragments identifiable as commercially made pressed bricks are present in the sample. The color of these bricks varies from a rather dull red to a bright orange-red; most have a high sand content. Thus, it seems reasonable to suggest that all of these bricks were locally made and that their low-fired softness is a result of having been surface fired in an open wood fire rather than in a kiln. The use of such locally prepared materials would suggest that the house was erected before commercial bricks were available via railroad. A total of 1,024 individual fragments were recovered (Table 44). These weigh a total of 6.1 kg. A whole brick of this type weighs roughly 2 kg, so the total materials recovered amount to the equivalent of three bricks. Obviously, most of the fragments are quite small.

TABLE 44

PROVENIENCE OF BUILDING MATERIALS AT 16WE198

Unit	Brick Fragments #	Brick Fragments Weight (g)	Cut Nails	Window Glass
Test Pit 1	110	1421	30	3
Test Pit 2	81	232	1	1
Test Pit 3	1	15	-	-
Test Pit 4	25	105	-	-
Test Pit 6	22	35	16	10
Test Pit 7	3	2	-	-
Test Pit 8	7	7	2	2
Test Pit 9	2	1	-	-
Test Pit 10	2	7	-	8
Test Pit 11	446	3313	14	5
Test Pit 12	320	375	18	11
Backhoe Trench 1	2	72	-	-
Backhoe Trench 2	2	434	-	-
Backhoe Trench 3	1	41	-	1
Totals:	1024	6060	81	41

Nails

All complete and fragmentary nails recovered from the site are of the cut variety. Although this type of machine-cut nail is still available in hardware stores today, it was

generally supplanted by cheaper wire nails between 1890 and 1900. The complete absence of wire nails from the sample of 81 obtained from the site (see Table 44) suggests strongly that the house here was erected in the nineteenth century and neither repaired nor remodeled after the turn of the century.

Window Glass

A total of 41 fragments of window glass were recovered (see Table 44). All are a pale green when viewed edge-on. Most are somewhat thinner than the standard window glass used currently and exhibit some variation in thickness. This again suggests a house erected in the nineteenth century.

Discussion

A cursory examination of Table 44 indicates that, although only Test Pit 5 completely lacked building materials, Test Pits 1, 2, 6, 11, and 12 yielded much greater concentrations of these remains than did the others. These five test pits define an oval about 20 m long and perhaps 15 m wide. This rough oval, oriented with its long axis east-west, seems to have been the site of a wood-walled house with one or more chimneys erected in the middle nineteenth century, before commercial bricks were generally available.

Domestic and Other Artifacts

Glass

Forty-two bottle sherds and three tableware sherds were recovered at 16WE198. The majority of these are body sherds from small bottles without diagnostic features other than color. Two of the sherds are chronologically diagnostic.

One amber bottle base bears the impressed mark "D.O.C." which has been dated elsewhere (Wilson 1981:115) between 1863 and 1891. This bottle is 3.5 inches in diameter and has a very slight kick-up at the base.

An aquamarine sherd from Test Pit 4 bearing a scroll design is also datable to the middle nineteenth century. It seems to have come from a distinctive scroll flask which is of a type described and dated by McKearin and Wilson (1978:422).

Sherds from two thick-walled panel bottles and the neck of an amber molded snuff bottle were collected. The established chronology of these bottle types is consistent with an occupation as early as 1850; however, both are still found today.

Three sherds of heavy-textured pressed-glass tableware were recovered from Test Pit 8. All are colorless and typical of the elaborately decorated glassware favored by consumers in the late Victorian period (Sears, Roebuck and Co., Inc. 1897).

The color distribution of the glass vessel sherds also suggests a nineteenth century assembledge. Table 45 shows that the naturally derived, unbleached glass colors (amber, dark green, and light green) predominate.

TABLE 45

PROVENIENCE OF BOTTLE GLASS AT 16WE198

Unit	Amber	Dark Green	Light Green	Yellow	Aqua	Purple	Clear
Test Pit 1	3	4	-	1	-	1	2
Test Pit 2	-	1	-	-	-	-	-
Test Pit 4	1	-	1	-	1	-	-
Test Pit 5	-	3	2	-	-	-	-
Test Pit 6	1	-	1	-	-	-	-
Test Pit 8	8	-	2	-	-	-	-
Test Pit 9	1	-	-	-	-	-	-
Test Pit 11	-	-	1	-	-	-	-
Test Pit 12	1	-	3	-	-	-	1
Backhoe Trench 2	1	-	-	-	-	-	-
Backhoe Trench 3	2	-	-	-	-	-	-
Totals:	18	8	10	1	1	1	3

Ceramics

Twenty vessel sherds and a single ceramic button were recovered at 16WE198 (Table 46). The analysis and description here uses the method and typology developed by Worthy (1982). The following types are represented: alkaline-glazed stoneware folk pottery, yellow-glazed earthenware, white earthenware, white stoneware, sponge-decorated stoneware, white porcelaneous stoneware, and decal-decorated porcelaneous stoneware. Some of these have chronological implications, others do not.

Traditional alkaline-glazed utilitarian stonewares are generally part of the material culture of the Southern Frontier and usually disappeared from the local market as soon as industrial wares of the same large forms became available via railroad. The four sherds recovered from this site exhibit a dark gray body and a rough gray-green slip glaze usually termed alkaline glazed (Burrison 1975; Greer 1981). The four sherds are too small to allow the type of vessel to be determined, but the specimens indicate walls consistent with a large jug or pitcher.

The white earthenware, the white stoneware, and the yellow-glazed earthenware are not particularly chronologically useful in this context; however, the sherd of sponge-decorated stoneware is significant. This rather thin sherd has a cream-colored body and a white glaze, and one side is sponge or "spatter" decorated with light blue glaze. The glaze is not crazed, indicating that the piece was matured at high temperature (Worthy 1982:337).

TABLE 46

PROVENIENCE OF CERAMIC ARTIFACTS AT 16WE198

Type	Test Pit 1	Test Pit 2	Test Pit 4	Test Pit 8	Test Pit 10	Test Pit 11	Backhoe Trench 1
Alkaline-glazed stoneware	-	-	-	4	-	-	-
Yellow-glazed earthenware	-	-	-	-	1	-	-
White earthenware	-	-	4	1	1	-	1
White stoneware	-	1	-	1	2	-	-
Sponge-decorated stoneware	1	-	-	-	-	-	-
White porcelaneous stoneware	2	-	-	-	-	-	-
Decal-decorated porcelaneous stoneware	-	-	-	-	-	-	1*
Ceramic button	-	-	-	-	-	1	-
Totals:	3	1	4	6	4	1	2

*Surface near backhoe trench.

Such tableware was made during the second and third quarters of the nineteenth century (Miller 1980:4,28).

Porcelaneous stoneware is naturally white bodied and highly vitrified but opaque (Miller 1980). Such wares became generally available after 1888 and soon became the standard for hotel and restaurant use. Half of an undecorated saucer and another smaller sherd of this material were recovered from Test Pit 1. A third sherd of this material with a multicolor decal decoration was found on the surface near Backhoe Trench 1. Decal decorations featuring small floral patterns were fashionable in the late nineteenth century. Such a pattern, called the "bijou," is featured in the Sears, Roebuck catalog for 1897.

The final ceramic artifact recovered is a white button from Test Pit 11 (see Table 46). It has four holes and a countersunk center and measures 1.1 cm in diameter.

Metal

A total of 18 metal artifacts were recovered from various contexts at 16WE198. Thirteen of these are small fragments having no functionally or chronologically diagnostic characteristics which were found in Test Pit 1 (n = 7), Test Pit 6 (n = 2), Test Pit 10 (n = 1), and Test Pit 12 (n = 3). The other five are described below.

The first of these is an irregularly shaped sheet of cast iron from Test Pit 1. It measures 4.75 inches by 13 inches and appears to be a wall section from a wood-burning stove (Fig. 41a). The second metal artifact, also from Test Pit 1, is a 1-inch-diameter

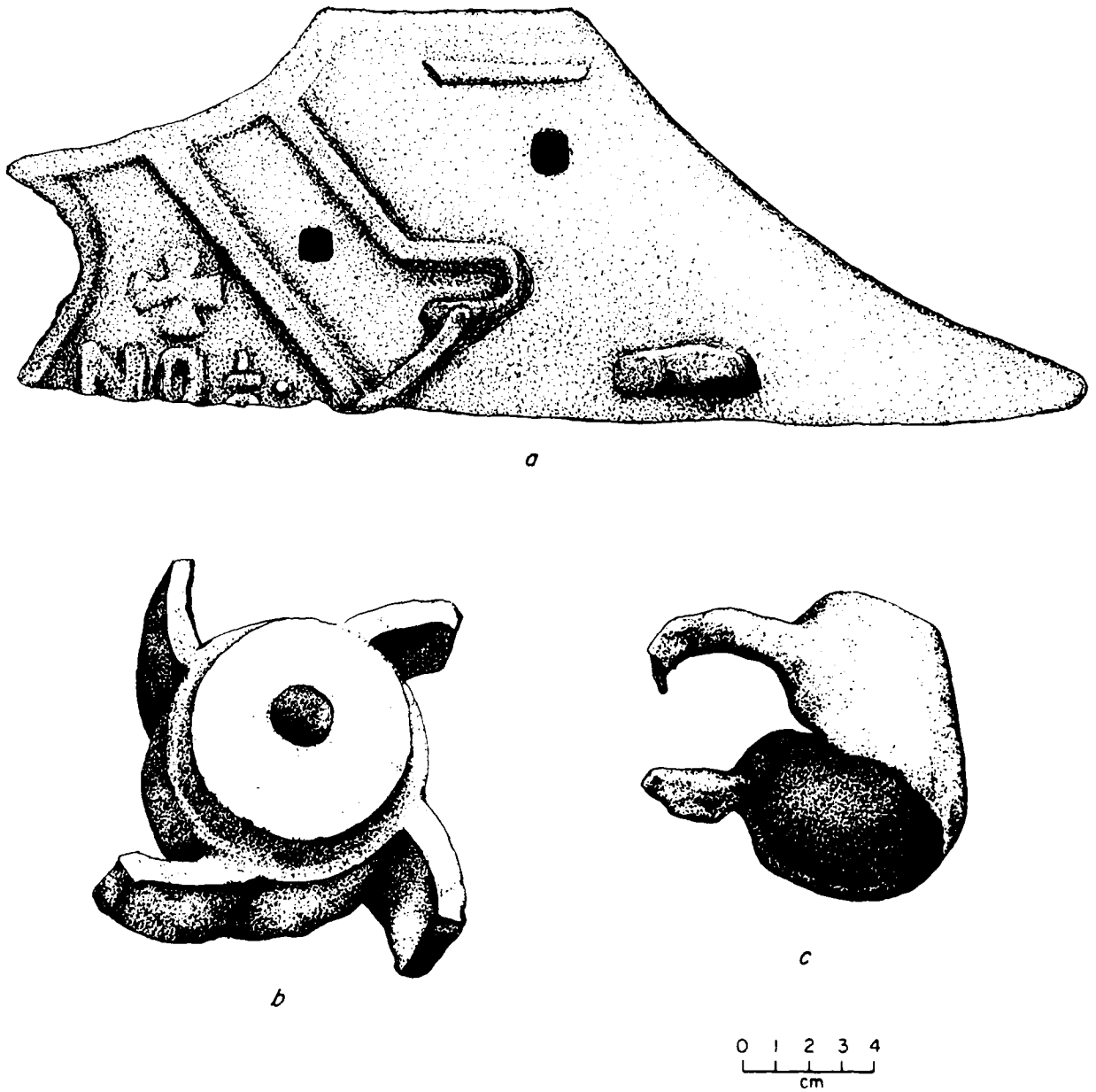

Figure 41. Artifacts Recovered from 16WE198. (a) fragment of cast iron stove; (b) pump impeller; (c) whiffletree fitting.

brass ring. Rings of this sort were frequently used with sewn items and often functioned as curtain rings or as hangers for potholders and the like. The third distinctive metal item is a round lead ball 0.3 inches in diameter, or the size of standard #5 buckshot, recovered from Test Pit 12.

Two large metal artifacts were recovered from Backhoe Trench 3, which was excavated to determine the function of a depression north of the house area. A pump impeller (Fig. 41b) 6-1/2 inches in diameter with a 1-inch shaft opening was recovered from this trench. The first four-vaned centrifugal pump was introduced in Boston in 1818. Curved vanes were added by 1839, and such pumps were exhibited in the 1851 Crystal Palace exposition and "created a sensation" there (Finch 1948:34). Diffusion vanes were added to this basic four-vaned design in 1875, but such pumps were not commercially available until 1893 (Finch 1948:32-35). The impeller recovered has four curved vanes but lacks diffusion vanes. Thus, it was probably made during the second half of the nineteenth century and was part of a water pump.

The second large metal artifact recovered from Backhoe Trench 3 is the center fitting from a whiffletree (Fig. 41c). Sometimes termed doubletree or singletree, depending on how many animals were harnessed, this length of wood connected the harness to the wagon or plow. The center metal fitting recovered was used to attach the whiffletree to the vehicle.

Lithics

One tabular fragment of dark gray slate, such as that used in the nineteenth and early twentieth centuries by school children, was recovered from Test Pit 1. Three other angular stone fragments which show some evidence of burning were also recovered. Although no specific functional significance can be assigned to these three items at this time, they are retained as part of the curated collection. One of these stones came from Test Pit 1 and the other two from Test Pit 11.

Faunal Remains

Five bone fragments were recovered. Most exhibit some evidence of burning and are likely to represent kitchen refuse from the historic occupation. All are too small for confident species identification, but at least two are of a size consistent with poultry. Two of these bone fragments were found in Test Pit 1, and the other three were found in Test Pit 8. A single very small mussel shell, less than 1/2-inch long, was recovered from Test Pit 12. The very small size of this specimen renders its role as food refuse somewhat problematic.

OTHER SITES

16WE108

A heavy wire cruciform end from a roll of barbed wire and the cross piece that once closed off the roll were found on the surface at this site. Both probably relate to the same fence-mending event.

16WE116

A single sherd of white stoneware with a blue shell-edge decoration was recovered from the surface. Ceramics of this sort are generally Staffordshire wares imported in quantity between the late eighteenth and middle nineteenth centuries (Miller 1980:27).

16WE118

A ceramic pipe stem (Fig. 42) recovered from Level 1 in Test Pit 7 is a fragment of a molded kaolin pipe with a thin reddish brown slip glaze. The outer diameter of the stem is 0.5 inch, and the diameter of the stem hole is 0.25 inch. Such pipes were in common usage during the mid nineteenth century, although they first appeared somewhat earlier and continued to be used somewhat later. They occur in both aboriginal (Hudgins 1986:45) and nonaboriginal (Jackson 1986:23) contexts.

Figure 42. Molded pipe stem from 16WE118.

16WE123

Two sherds of plain white earthenware and six glass artifacts were recovered from this site. One of these, from Level 2 in Test Pit 11, is a 1-cm-diameter, molded, light blue milk glass button with four holes. Four sherds of amber bottle glass, with corners suggesting a snuff bottle shape, were recovered from Level 1 in Test Pit 5, Level 1 in Test Pit 6, and Level 1 in Test Pit 11. A single colorless sherd of bottle glass came from Level 1 in Test Pit 6.

16WE190

Two fragments of metal that could not be functionally classified were recovered in Level 2 in Test Pit 11.

16WE196

Two sherds of colorless bottle glass were found in Level 1 of Test Pit 5 and Level 3 of Test Pit 8. A .38-caliber revolver cartridge without a head stamp was encountered, also in Level 3 of Test Pit 8, while a spent lead slug of roughly this size but badly distorted was recovered from Level 2 of Test Pit 11.

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