The Use of Space at the Late Woodland Shady Grove Site (22-Qu-525)

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THE USE OF SPACE AT THE LATE WOODLAND SHADY GROVE SITE
(22-QU-525)

A Thesis presented in partial fulfillment or requirements for the degree of Master of Arts in the
Department of Sociology and Anthropology
The University of Mississippi

by
STEPHEN HARRIS
28 November 2012
ABSTRACT

Very little previous work has been done at the Late Woodland Shady Grove site. This thesis will examine and reconfirm some of the previous conclusions about this site's placement within the temporal framework of the Northern Yazoo Basin. The Late Woodland and Mississippian occupations of the site used the same space in decidedly different ways. How the use of space has changed through time will be examined from several different perspectives, including geophysical survey and the intra-site distribution of artifacts.
ACKNOWLEDGMENTS

I would like to thank the members of my committee, Dr. Jay Johnson, Dr. Matthew Murray, and Dr. Edward Sisson; without whose guidance this project would not have been possible.
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CHAPTER 1- PROJECT OVERVIEW

The Shady Grove site (22-Qu-525) is located in the northwest delta region of Mississippi, a few miles south of the small town of Marks. It is situated on the natural levee of the present day course of the Coldwater River. Two mounds were associated with the site, a large flat top Mississippian mound and a small conical mound, which may have been a rare Late Woodland construction. Brain (1968) suggests a third, smaller platform mound, however this was not reported earlier by Phillips, Ford, and Griffin (1951:322) and no evidence of it can be seen today. The small conical mound was destroyed in 1971. The site also features what Phillips (1970:270) referred to as a Tchula Lake shell midden. This is a circular deposit of mussel shell approximately 200 meters across, and is associated with the Late Woodland period. More details on this shell ring will be given in Chapter 2. The shell ring is clearly visible in an aerial photograph of the site (Figure 1.2). The geophysical survey has revealed a circular ditch surrounding the site, beneath the Tchula Lake shell ring. A possible inner embankment was also identified in this survey.

There is evidence of limited use going back as far as the Late Archaic period. Poverty Point period projectile points have been found in the area. Connaway (1981) suggests that there was a brief Early Woodland occupation while Brain (1968) suggests there may have been a Middle Woodland occupation. However, the main occupation of the site was during the Late Woodland period. There is a wealth of Baytown ceramics on the surface which are spread across the entire site. Limited amounts of Mississippian wares can be found near the remaining platform mound. The previous excavations focused on burial pits which produced over 90 burials, along with several complete pots which certainly date to the Mississippian period.
Figure 1.1
Significant Sites in the Yazoo Basin.
Very little previous work has actually been done at the Shady Grove site and even less has been published. Previous work is limited to several non-systematic surface collections, limited excavations, and a very limited geophysical survey. This has resulted in two short journal articles and one academic thesis. Surface collections were made in 1941 by James Griffin and Mott Davis and again in 1968 by Jeffrey Brain. The first excavations were done in 1975 by John Connaway and Sam Brookes. More recent excavations were made in 2009 by the Mississippi Department of Archives and History and The University of Southern Mississippi.

This thesis will examine and re-confirm some of the conclusions made during previous work. Two research goals will be addressed:

1) Site chronology and placement within pre-described cultural framework for the Northern Yazoo Basin.

2) Intra-site spatial organization and how this has changed.

Previous work has indicated, through ceramic analysis, that the dominant occupation of the Shady Grove site took place during the Late Woodland period with a later Mississippian period component. I will determine the site's placement within the temporal framework proposed by Philip Phillips, as well as identifying distinct areas of use. As this thesis will show, these two cultural components appear to have used the same space in decidedly different ways. This thesis aims to determine how each culture used the site and how that use has changed through time. Identifying these changes can inform us about the ritual and ideological landscapes during the Late Woodland period. These changes were quite significant and may challenge our preconceived ideas about the Late Woodland as a good gray culture (Williams 1963:297).

These topics have not been sufficiently addressed in previous research. Griffin’s and Brain’s non-systematic surface collection were not controlled enough by today’s standards. Griffin gave no consideration to spatial distribution, and Brain only collected the decorated sherds, completely ignoring the plain types. John Connaway’s 1971 excavations and the Department of Archives and History’s 2009 excavations revealed a great deal more information.
However this information is not adequate to accurately examine the chronological positions of the Shady Groves occupations in relation to the spatial organization. The previous excavations were focused predominantly on Mississippian burials and not on the Late Woodland primary occupation. In order to determine a more specific chronology and spatial distribution of both the Late Woodland and the Mississippian occupations new field work must be undertaken.

Several research methods were used including geophysical mapping, artifact densities, and excavations. The analysis of surface collected artifacts has allowed for placement within the chronological framework. The distribution of these artifacts has indicated several distinct areas of use for the Late Woodland and the Mississippian periods. A multi-instrument geophysical survey revealed multiple unique sub-surface features, including midden pits, Mississippian house remnants, a ditch, and possibly an embankment. These features help in the identification of distinct spatial organizations for each occupation within this site. Identification of these features is done by excavation and relation to surface artifact distributions. The broad view provided by both the artifact density maps and the geophysical survey reveal significant changes in the physical, ideological, and ritual landscapes during the Late Woodland period.

Chapter 1 of this thesis is intended to give a brief overview of the research problem as well as the organization of the site and its components and features. Chapter 2 will give a detailed account of the previous work done at the Shady Grove. It will go on to describe relevant phases in the Northern Yazoo Basin. The Shady Grove site has some unusual feature for the area, including an apparent ditch/embankment as well as a circular shell deposit. Similar features can be found in other areas of the Southeast and a section about how these features are created and used in other areas will be useful to our understanding of Shady Grove.

Chapter 3 will describe the methods used for fieldwork. Information about how the various geophysical instruments work, as well as how they were deployed will be given. A brief description of the methodology used for both surface collection as well as excavation and analysis is also given.
Figure 1.2
This aerial image shows all above-surface features as well as the locations of the 2009 and 2011 excavations.
Chapter 4 reports on the results of the fieldwork. The surface collection produced a large amount of ceramic and some lithic artifacts. A description of each artifact category will be presented as well as representative photographs of each type. The artifact distributions were mapped and these maps will be presented in this chapter along with the statistical information associated with the surface collection. Maps showing geophysical survey results as well as the features identified will be presented. Finally the data from the excavation of a 1x1 test unit as well as the excavation of a trench will be presented. Artifact counts, stratigraphy, and photographs will be presented along with a brief discussion.

The final Chapter will begin with a comparison of features found at Shady Grove to similar features found at other sites in the Southeast. A brief discussion of the distribution of the surface material will then be presented. The chapter will conclude with a brief section on how these results are relevant to the larger picture as well as directions for future research at Shady Grove.
CHAPTER 2- BACKGROUND AND CULTURE HISTORY

**Previous Work at Shady Grove**

There has been very little previous work at the Shady Grove site. Mott Davis and James Griffin visited the site for Phillips, Fords, and Griffin in 1941 as part of their Lower Mississippi Survey published in 1951. Jeffrey Brain did a limited surface collection in 1968. It was not until 1975 that excavations were undertaken by John Connaway and Sam Brookes. These limited excavations were in response to the landowners destruction of the conical mound. The site was not examined again until 2009 when archaeologists from the University of Southern Mississippi excavated burials in an attempt to relocate John Connaway’s 1975 excavations.

**Phillips, Ford, and Griffin- 1941**

The first visitation by an archaeologist was in 1941. Mott Davis and James Griffin visited the site in their survey of the Lower Mississippi Valley. They commented that this was “one of the most prolific village sites I have ever seen” (Davis and Griffin 1941). They collected 3,059 sherds from the village site and near the large mound. They commented that it was mostly Baytown ceramics but that there was some Mississippian near the mound. A single Marksville Incised sherd was found. Because of the presence of the Marksville Incised sherd, they believed the site had significant cultural depth, and wanted to return for excavations, which never happened. It was also noted that there was mussel shell concentrated into localized areas. They measured the two mounds. The small one was 1.5m high with a diameter of 18m, the larger rectangular, flat-topped mound measured 35x50m at the base, and 20x25m at the top;
with a height of 6m. The site was designated a small ceremonial center in their 1951 publication (Phillips, Ford, and Griffin 1951:322).

**Jeffrey Brain- 1968**

Jeffrey Brain worked at the site in 1968. He did a limited surface collection, and provided a hand-drawn map. Based on this surface collection, he separated Shady Grove into three distinct components. Surface collection area 1 was near Mound A. This area constituted the Mississippian component, as well as Deasonville. Area 2 was east of the road near the small conical mound. This area was Deasonville. Brain suggested that the small mound was associated with this component and was not Mississippian. Area 3 was east of the road and north of area 2. Brain comments that this area was possibly Tchefuncte and if it were not for the Mulberry Creek Cord-Marked, it would be a separate site. Both areas 1 and 2 contained shell, while no mention of shell was made for area 3. A total of 122 sherds were recorded. Brain records three mounds, where Griffin only recorded two. He measured Mound A to be 20 feet high, Mound B was 5 feet high, and a third mound was between the two at three feet high.

**John Connaway and Sam Brookes- 1981**

The small conical mound was leveled in 1975. John Connaway and Sam Brookes were able to excavate for two days before plowing resumed. A total of three units were dug. A 5’x5’ unit was opened at 25S-10E. This unit showed shell midden to a depth of 2’, followed by dark soil to 3’. Mulberry Creek Cord-Marked and Baytown Plain sherds were found. A second 2’x2’ unit was dug at 23S-CL. This unit contained shell midden down to 2.2’, a few inches of dark soil, followed by sterile yellow sand. Baytown sherds were found in this unit as well. The final unit dug was 6’x6’ at 10S-10E. This unit was dug into a disturbed burial at the surface. A mass burial containing five individuals was uncovered. The center-most burial was a cremation. The
remaining burials were spread across the unit, suggesting the burning of secondary bundle burials. Along with the burials was a sandstone pipe and a chunkey stone. Both were burned along with the burials. More secondary burials protruded from the eastern and western walls. The burials were likely intrusive Mississippian period burials. This is evidenced by the pipe, chunkey stone, and a var. Neeley’s Ferry effigy pot which was rescued by Danny Barron, a collector, during leveling. The small mound likely dates to the Baytown Period, as no Mississippian artifacts were found in the midden (Connaway 1975; Connaway 1981).

John Connaway suggests that, based on projectile points found in the area, the site was used during the Poverty Point, Baytown, and Mississippian Periods. Ceramics at the site indicate a brief Tchula presence, as well as Baytown and Mississippian (Connaway 1975; Connaway 1981). Samples for radiocarbon dates were obtained from mussel shells from the 5’x5’ unit during Connaway’s 1975 excavations. These dates suggested the site was occupied as early as 600 BC until as late as AD 1450. The site may have been continuously occupied from the Early Woodland or Late Archaic until the Late Mississippian period (Scott 2011:16).

Stacy Scott-2009

In 2009-2010, Stacy Scott from the University of Southern Mississippi and John Connaway from the Mississippi Department of Archives and History undertook excavations at the Shady Grove site. The purpose was to re-locate and remove the remaining burials found in Connaway’s 1975 excavations. The first set of burials could not be located. However, a second burial pit was located further to the east. This pit, known as Burial 43 yielded 78 individuals. There were 12 Mississippi Plain, var. Neeley’s Ferry vessels associated with the burials. These all indicate a Mississippian period burial. Stacy Scott used these burials to examine the sociopolitical structure of small chiefdoms, as well as mortuary practices in the Mississippi Delta region during the Mississippian period. Her research suggests that there are similarities between mortuary regimes across the Delta region but that the sociopolitical organization of small
chiefdoms can vary greatly (Scott 2011:62).

**Culture History of the Yazoo Basin**

One goal of this thesis is to place the Shady Grove site more securely within the chronological framework presented by Phillips (1970). This section will provide the background information necessary to do so. It will focus specifically on the cultures and phases found during the Woodland and Mississippian periods in the Yazoo Basin and surrounding areas. Some definitions may be useful, as the meaning of phases can be different in different contexts. According to O’Brien, Lyman, and Cogswell (2002:442) a phase can be three things.

“First they can be classes, which means that the members of a phase share unique traits-phrased as some abstraction (historical types) such as Phillips, Ford, and Griffins pottery types-none of which is shared with members of any other phase. Second, phases can be groups, which means that the actual members of a phase are more similar to one another-again measured in terms of abstractions (historical types)- than any one is to a member of another phase. Third, phases can be historical accidents formed on a loose, ad hoc basis.”

Janet Ford (1988:62) suggests a definition similar to O’Brien’s second type of phase:

“An archaeological unit possessing traits sufficiently characteristic to distinguish it from all other units similarly conceived, whether of the same culture, spatially limited to a locality or region, and chronologically limited to a relatively brief interval of time.”

For the purposes of this literature review, it will suffice to know that a phase is a smaller, more specific unit of classification than a culture which shares traits with other phases within the same over arching culture.

In the Southeast the term period can refer to both a division of time, as well as a cultural horizon. In the sense that a period is a cultural horizon, the term refers to a unit classification in which its members all share common traits. For instance, the Mississippian period, refers to a group which utilizes maize, has shell-tempered pottery, and takes part in the Southern Cult.
These characteristics may be met at different times in different areas. Because the division of period was based on cultural characteristics, which could vary temporally in different areas, period boundaries do not match phase boundaries in two spatially distant areas (O’Brian et al. 2002:438).

Figure 2.1
Culture History of the Yazoo Basin. (Scott 2009:15).
Tchula/Tchefuncte

Tchula is an Early Woodland “period designation proposed by Phillips, with division of its components into Tchefuncte culture in the south and Lake Cormorant culture in the north” (Ford 1990:103). In a further division, sites in the Upper Yazoo along the Tennessee-Mississippi state line, were called Turkey Ridge phase, with sites north of Greenwood called the Norman phase, which was intermediate between the Turkey Ridge and Tuscola phase further south (Ford 1990:103).

Griffin (1986:40) states, “Tchula was regarded as a central and northern Mississippi variant of Tchefuncte with Tchefuncte-like and Alexander pottery, perhaps mounds, a little copper, a little fabric impressed pottery and so forth. It also was regarded as roughly equivalent in time to some part of Adena, Baumer, Black Sand, and Red Ocher in the north. Now we can attribute a time span of about 500 BC to 1 BC for the Tchula period.”

However, Rolingson and Mainfort (2002:22) propose a date of 600 BC to 200 BC for Tchula period in the central Mississippi valley. They point to radiocarbon dates of 100-200 BC from the Burkett site and dates of 220 ± 90 BC and AD 85 ± 100 from the Boyd site (Rolingson and Mainfort 2002:22).

The presence of pottery is traditionally the dividing factor between Late Archaic and Early Woodland. However, Poverty Point had ceramics but there is no evidence for the widespread use of ceramics. The Tchula period is usually recognized by the presence of Cormorant Cord Impressed or Twin Lakes Fabric Marked ceramics.

Tchula period subsistence is varied. Wild plants were used and the seeds recovered do not meet the minimum size for domestication to have taken place. Rolingson and Mainfort (2002:23) suggest that what floral remains have been recovered from Tchula sites, specifically the Boyd site, have been “incompletely reported and not abundant.” While at site 23-MI-605 Chenopodium has been recovered in amounts which suggest “that it may have been economically important.
to some populations in the Central Mississippi Valley by 1500 BC” (Rolingson and Mainfort 2002:23). Faunal remains recovered from Morton Shell Mound, indicate that clam was used but the amount of nutritional value is thought to be minimal. At the same site, Morton Shell Mound, deer, geese, turtle, alligator, and fish, made up the majority of the diet (Kidder 2002:71). Shenkel (Kidder 2002:71) suggests that Tchula people along the coast, at Big Oak Island and Little Oak Island, were specialized hunter-fisher-gatherers, who tailored their food intake to their specific environment.

In the Yazoo Basin, Tchula mound building is rare. Initially there were several small conical mounds attributed to the Cormorant culture in the Tallahatchie and Sunflower areas, along with the north Mississippi uplands (McNutt 1996:171). Phillips subsequently removed these mounds from Cormorant phase, believing that the ceramics found in the mounds were accidentally included as part of the mound fill, and that the mounds were built by a later group. However Janet Ford (1990:114) suggests that Tchula cultures did construct mounds in north Mississippi. Ford (1990) presents convincing evidence in favor of Cormorant mound building. She points out that whole, Cormorant phase pots found in several mounds indicates that it is not likely they were accidentally included in the mound fill.

The Tidwell site (22-LA-517) had a mound measuring 7.5 feet high and 50 feet long. When excavated several complete or near complete pots, of the Twin Lakes Punctated, var. Tidwell, and Cormorant Cord Impressed, var. Cormorant, were found. Var. Cormorant featured red filming on the interior (Ford 1990:107-108).

The McCarter site (22-PA-502) featured a small mound 35 feet in diameter and 53 inches high. A copper pan pipe was found which is traditionally thought to have been a Marksville period artifact. However, the ceramics do not have any indication of Marksville influence. Two whole as well as one nearly whole vessels were recovered. One was identified as Twin Lakes Punctated, var. Hopson and the other as Twin Lakes, var. Twin lakes. Both types indicate a Tchula period construction of the mound, however the inclusion of the Marksville style pan pipe suggest that it was late in the Tchula period (Ford 1990:108-109).
The Tyson mound (22-LA-673) measured 9 feet high and 45 feet in diameter. This site yielded several types of ceramic including Cormorant Cord Impressed, var. Cormorant, Withers Fabric Impressed, var. Withers, as well as interior and exterior red filmed var. Cormorant sherds (Ford 1990:109-111).

These sites all included whole or nearly whole pots dating to the Tchula period within the mounds. It is unlikely that they were not intentionally included during the mound construction. They were not associated with any individual skeletons. The mounds themselves were constructed in single building episodes and contain very few other sherds. All of this suggests that the mounds were built during the Cormorant phase of the Tchula period (Ford 1990:114).

**Marksville**

Marksville is a Middle Woodland period designation, used to describe the Marksville culture in the Lower Mississippi Valley, and is contemporaneous with the Hopewellian culture in the upper Midwest (Rolingson and Mainfort 2002:23). The Marksville period is divided into two sub-periods, Early Marksville (AD 1-200) which is associated with the Marksville culture of Louisiana, and Late Marksville (AD 200-400) which in the lower Yazoo Basin is called Issaquena culture (McNutt 1996:171). Phillips (1970:545) also includes the Paxton phase which is contemporary with Issaquena except that it does not contain any of the markers used for designating Issaquena. There are several phases in the Early Marksville period in the Upper Yazoo Basin, these include the Twin Lakes phase and the Dorr phase with the Prairie phase and the Porter Bayou in the Late Marksville period (McNutt 1996:171).

Marksville culture is characterized by an increase in mound building, mound burials, and Hopewellian iconography (Kidder 2002:72-72). The evidence for Hopewellian influence is the presence of certain ceramic motifs, platform pipes, and objects made of copper, and galena (Gibson and Shenkel 1988:14). The Marksville type site is located in Marksville, La. It consists of five mounds enclosed by a C-shaped embankment with the end of the C ending at the river
banks. Three of the mounds are conical, and two are flat topped platform mounds. To both the north and south are smaller circular embankments. Gibson and Shenkel (1988:17) suggest that while there are some aspects of Hopewellian influence in Marksville period sites, there is also a distinctive local character to the ritual and burial practices. They support the idea that Marksville culture is a continuation of earlier Tchefuncte culture with the addition of a few Hopewellian aspects. They do not deny that many artifacts are imported from the North, possibly even from Hopewell itself. However, they suggest that exotic goods were being circulated in Louisiana for centuries before Hopewell’s ascent; the new feature is their inclusion in burials.

Traditionally, Marksville is thought to be heavily influenced and inferior to Hopewell culture. Toth states,

“In short, most elements of the mortuary procedures found in various combinations in the early Marksville mounds of the Lower Valley can be traced to Hopewellian contexts in the Illinois Valley- but only in disjointed bits and pieces, not as a unified whole” (Rolingson and Mainfort 2002:24).

He is suggesting that in Hopewellian society, a level of shared, universal belief was reached regionally, which was not reached in Marksville and that the Marksville florescence was attributable to diffusion or even direct contact with Hopewell. Rolingson and Mainfort (2002:24) claim otherwise. They suggest that Marksville developed before and independently of Hopewell, They base this claim of the fact that mound building has a much longer history in the South than in the Illinois Valley. They suggest that conical burial mounds dating to the Tchula period, large platform mounds, and earthen enclosures, all predate similar uses in the north.

Marksville phase ceramics are derived from earlier Tchula styles and the two pastes can not be differentiated. Marksville designation is based on differences in vessel shape and function as well as differences in decoration (Kidder 2002:73). Kidder (2002:73) indicates that decoration of Marksville ceramics, including bird effigies, curvilinear designs, stamping and U-shaped incisions, suggest ties with Hopewell. There is a sharp increase in the use of exotic materials during the Early Marksville period. Exotic materials include: mica, bituminous shale, limonite,
galena, pearls, copper, and greenstone (Kidder 2002:74). Marksville sites are usually quite small, 1-2 hectares, in the form of widely spread hamlets, with no identifiable site plan. Earthworks include circular embankments whose ends terminate at the river bank, conical burial mounds, and low platform mounds. Marksville sites usually feature only one conical mound per site.

**Twin Lakes Phase**

The Twin Lakes phase is the first of two Early Marksville phases used by Phillips in the Upper Yazoo Basin. This phase has been confidently dis-proven since 1970 and is generally no longer used. Since it was part of Phillip’s (1970) framework I have included it. It is centered on the eastern margin of the Upper Yazoo Basin, mainly in the Tallahatchie, Little Tallahatchie, and Coldwater River drainages. The designation of Twin Lakes as a phase is partially based on data reported by Phillips from the Womack site (22-Ya-1). Radiocarbon dates from the Womack site suggested a date of AD 70 ±100 to AD 670 ±80 (Ford 1988:62; Koehler 1966:63). Other evidence for an Early Marksville designation for the Twin Lakes phase is the co-occurrence of sand-tempered ceramics with types which feature Early Marksville decoration styles. Ford (1988:63) suggests that many of the sites from which the evidence in favor of a Twin Lakes phase was derived are multi-component sites in which sherds were collected through surface collecting. She states that this assumes co-occurrence. According to Ford (1981:58-71; 1988:64) there is no regional relationship between time and temper in North Mississippi. Examination of surface treatments suggest a very high range of variation. When temper is not used to define the Twin Lakes phase, there is little else left to distinguish it. The designation of Twin lakes phase as Early Marksville was also based on ceramics from the Twin Lakes site. Some sherds featured a cross-hatched rim, which is a common feature of Marksville pottery. However no Marksville Stamped or Marksville Incised decorations were present. Based on these data, Ford (1988:67) suggests that there is not sufficient evidence to designate Twin Lakes as a phase, because it does not meet the two criteria of a phase; evidence that it represents a contemporaneous population and that there is a uniform complex of artifacts.
The final straw for the Twin lakes phase was the Batesville Mounds report by Johnson (2001). In the excavations at Batesville it was determined that Mound B was a pure Early Woodland component while the South Village area was Marksville. If, in fact, the Twin Lakes phase ceramics were Marksville then they should be found in the South Village rather than Mound B. However, the sand tempered and Twin Lakes Punctated types were found predominantly in Mound B while Cord-Marked and other Marksville types were found in the South Village. This suggests that the Twin Lakes phase was in fact an Early Woodland phase rather than a Marksville phase. It has now been subsumed by the Early Woodland Tidwell phase as proposed by Weinstein (1991).

**Dorr Phase**

The Dorr Phase is the second Early Marksville period phase in the Upper Yazoo Basin. This phase represents the height of Hopewellian influence on the Upper Yazoo Basin. Hopewell traits are found in ceramic technology, lithic technology, and mortuary practices (Morgan 1997:110). A beginning date of 80 BC (±150) can be inferred from the Tchula/ Early Marksville horizon at the Martin #1 site (22-Tu-533) (Morgan 1997:110). A second date of AD 170 (±100) from the Dickerson site (22-Co-502) is also relevant (Morgan 1997:110).


**Prairie Phase**

The Prairie phase is the Late Marksville phase for the Uppers Yazoo. It shows great
continuity with the previous Dorr phase. Very little Hopewellian influence is found at Prairie phase sites, a common attribute of Late Marksville Period sites. Ceramic indicators are: Baytown Plain, var. Satartia, Churupa Punctated, Evansville Punctated, Indian Bay Stamped, Larto Red, Marksville Incised, vars. Yokena and Steel Bayou, Marksville Stamped, vars. Manny, Newsome, and Troyville, Mulberry Creek Cord-Marked, var. Porter Bayou, and Withers Fabric Marked (Morgan 1997:118).

Baytown/Coles Creek

The Late Woodland period is usually divided into two cultures: Baytown and Coles Creek. The beginning of the Late Woodland period is defined by the introduction of Baytown ceramics, about the year 400 AD. This was a time of cultural change but not, as commonly believed, a time of decline (Anderson and Mainfort 2002:14). Baytown culture is divided into several phases in the Yazoo Basin. Phillips (1970:546) uses the Deasonville and Bayland phases, in the Southern Yazoo, and the Coahoma phase in the Northern Yazoo. Coles Creek culture developed around AD 700-800 and lasts until replaced by Mississippian culture around AD 1200 (Kidder 1992:147; 2002:81). In the Southern Yazoo, Coles Creek is divided into the Aden, Kings Crossing, and Crippen Point phases. The Coles Creek culture did not influence the Northern Yazoo to the same extent that it did the Southern Yazoo. The Coahoma phase lasted for a longer time in the north and was replaced by the very similar Peabody phase. It was during these periods that the bow and arrow was introduced, leading to an increase in warfare. Mound complexes were also continuously occupied. A larger amount of food was cultivated. There was also an increase in population size.

Deasonville Phase

The Deasonville phase lasted from AD 470-600. These dates are based on C-14 dates from the Lake George site (22-Yz-557) (Williams and Brain 1983:346). It was centered
mainly in the southern Yazoo Basin, the northern most boundary being about Greenwood, Ms. Deasonville sites are recorded further to the east. However, the Phillips survey did not include that area. Phillips (1970:549) suggests that the Deasonville sites in the Yazoo Basin are predominantly located along the eastern edges of the Basin; and the Yazoo Basin is located along the western edge of the Deasonville distribution. Ceramic markers include Mulberry Creek Cord Marked, *var. Edwards*, Baytown Plain, *var. Reed*, and Larto Red, *var. Larto*; which are all commonly found throughout the Baytown period. Ceramic markers more specifically Deasonville include, Alligator Incised, *var. Oxbow*, French Fork Incised, Salomon Brushed, Woodville Zoned Red, and most importantly, Coles Creek Incised, *var. Hunt* (Phillips 1970:907). Most Deasonville ceramics are clay or grog tempered.

Deasonville is one of the few phases which can be identified by characteristics other than purely ceramics (Phillips 1970:907; Williams and Brain 1983:364).

Deasonville sites frequently feature a unique style of stone choppers; sometimes referenced as “Mound C” scrapers or simply Deasonville choppers. Phillips (1970:268, 272, 341) suggests that this type of tool can be used as a Deasonville diagnostic. Other non-ceramic indicators include Gary Stemmed, *var. Maybon*, and Collins projectile points (Williams and Brain 1983:364).

Deasonville sites in the Lower Yazoo are almost always associated “with shell middens, which are often disposed in a circular arrangement of individual middens” (Phillips 1970:549).
Phillips calls this deposition pattern the Tchula Lake pattern, named after the Tchula Lake site (20-O-9). These shell rings are approximately 200 meters across, and are made of individual depositions of shell, through cultivation appear as a continuous ring. Phillips suggests that the individual concentrations of shell may correlate to individual households within a camp circle. See Figure 2.2 for a site drawing of a Tchula Lake ring taken from Phillips (1970). This type of village pattern is strongly correlated with the Deasonville phase, nearly all Deasonville sites are arranged this way, while very little shell is used in either the preceding or following phases (Phillips 1970:907; Morgan 1997:124).

Mound building during the Deasonville phase is rare. However there are a few possibilities of conical mounds including: Clark’s Ferry (22-Yz-597) Shellwood (22-Yz-600) Pete Clark (22-Yz-571) and Cold Lake (22-Hu-525). See Figure 1.1. None of these mounds can be positively identified as Deasonville due to the lack of excavation. Certainly, there is less mound building than in the preceding Marksville period, and the following Coles Creek period.

**Bayland Phase**

The Bayland phase is the only other Baytown Period phase in the southern half of the Yazoo Basin. It is often thought of as transitional between the Deasonville Phase and the Aden phase of the Coles Creek culture. It has been included in the Baytown Period because of similarities in the ceramic assemblage to Deasonville, rather than adding it to the Coles Creek Period. The type site for the Bayland phase is the Lake George site (22-Yz-557). Excavations at the Lake George site produced radiocarbon dates suggesting a transition from Deasonville to Bayland occurred approximately AD 590, additional dates suggested AD 620-640, with a terminal date of AD 700-720, and the introduction of Coles Creek Aden phase ceramics (Williams and Brain 1983:346).

Bayland ceramics are similar to both Deasonville and Coles Creek. Dominant types include Coles Creek Incised, *vars. Chase, Stoner, and Wade*, French Fork Incised, *var. Wilzone*, Larto Red, *var. Silver Creek*, Mulberry Creek Cord-Marked, *var. Smith Creek*, and Baytown
Plain, *var. Sharfit*. Non ceramic markers include Deasonville choppers, and Collins and Enola projectile points.

It is during the Bayland phase that mound construction for other than burial purposes is thought to begin. The lack of burials and the low profile of Mound C, at the Lake George site suggest ceremonial function (Morgan 1997:128). However this has not been confirmed at other sites.

**Coahoma Phase**

The Coahoma phase is the Baytown period reflection of Deasonville in the Northern Yazoo Basin. Coahoma stretches from Greenwood, Ms, about Memphis. Phillips suggests (1970:905) that the Coahoma phase lasted from the time that Marksville ceramics died out until the time that Mississippian ceramics were introduced, lasting approximately from AD 300-1000. This is the only Baytown phase in the Northern Yazoo, and spans the entire Baytown Period.

Coahoma phase ceramics are quite similar to Deasonville in the southern Yazoo, with a few exceptions. Mulberry Creek Cord Marked is the dominant type, with a lesser amount of Baytown Plain. Minorities include Larto Red, Alligator Incised, *vars. Oxbow* and *Alligator*, Salomon Brushed, Withers Fabric Marked, and Indian Bay Stamped. French Fork Incised, Woodville Zoned Red, Chevalier Stamped, and Yates Net Impressed are found, but very infrequently. The Coahoma ceramics are similar to Deasonville, with the exception of absence of Coles Creek, *var. Hunt*.

The association between shell middens and the Deasonville phase does not carry north to the Coahoma phase. There are only a very few Coahoma sites which have any amount of shell. See Figure 1.1. The McGregor (18-N-8) and Eastland (18-N-9) sites on the Sunflower River (Phillips 1970:907) and the Shady Grove (22-Qu-525) and Acree (16-N-1) sites, (Connaway 1981) are unique in their use of shellfish.

Mound-building is also quite rare during the Coahoma phase but is not unheard of. Phillips (1970:907) suggests that the Barbee (15-O-2) Boykin Bayou (17-M-14) Buford (17-O-1)
and Marlow Cemetery (18-N-2) sites all have conical mounds associated with them. Connaway (1981) adds the Shady Grove site (22-Qu-525) to this very exclusive list. Of the 83 Coahoma sites in the Northern Yazoo, only 5 sites have verified or potential mound-building episodes. See Figure 1.1. In all cases that have rectangular platform mounds present, there are later occupations to which these mounds may be ascribed (Phillips1970:907).

The Coahoma phase is the predominant phase in the Baytown Period in the Northern Yazoo Basin but it is still described more by what it is not than by what it is. It does not have the Coles Creek influenced ceramics and the shell middens of the contemporary Deasonville and later Aden phase further south. It does not have the Marksville ceramic types, Hopewllian influence, and the propensity for mound-building of the Dorr phase of the Marksville Period.

Coles Creek

Typically, the Coles Creek period lasted from the late Late Woodland period (AD 700-800) through the Early Mississippian period (AD 1200) (Kidder 1992:147). Due to Coles Creek architectural styles and use of space, they are more closely associated to Early Mississippian cultures than they are to Late Woodland cultures.

The Coles Creek period is divided into several phases: Coles Creek, Coastal Coles Creek, Plum Bayou. Plum Bayou is found further west in Arkansas, and Coastal Coles Creek is found further south; neither is relevant to our study in the Yazoo Basin. Phillips (1970) uses the Aden and Kings Crossing phases to represent Coles Creek period culture in the lower Yazoo. In the Upper Yazoo, Phillips creates the Peabody phase, however this phase is questionable based on the fact that the evidence for the phase could be mixed with artifacts from an earlier phase, the Coahoma Baytown phase (McNutt 1996:175). McNutt is skeptical that classic Coles Creek culture penetrated to the Upper Yazoo Basin (McNutt 1996:176). He bases this skepticism on the fact that classic ceramic decorations, mound-and-plaza complexes, and maize agriculture are not present in the Upper Yazoo.
There were lots of changes during the Coles Creek period. Population increased, reflected in larger, more concentrated sites (Kidder 2002:86). The use of mounds shifted from mortuary uses to structures for religious and individual use, reflecting a new hierarchy. Mounds were also constructed around a central plaza, this occurring before the Mississippian period (Kidder 2002:88). Wall trenches were also used in house construction. Radio-carbon dates of wall trenches at the Bobo site date to 1060 ±90 BP, as well as dates of 1075 ±85 BP at the Barner site (McNutt 1996:176). Mound construction was no longer in single building episodes, but rather mounds were enlarged vertically and horizontally periodically. Platform mounds were often built over a preexisting mortuary area, suggesting some type of mortuary use. Early Coles Creek settlements were small and widely distributed, by middle Coles Creek period settlements were larger and closer to mound centers. By AD 1000-1200, there were few non-mound settlements, but the ones that did exist were larger (Kidder 2002:87). The decrease in rural communities could be attributable to an increase in warfare but there is no direct evidence to support this. Kidder (2002:89) suggests that regionally no single Coles Creek mound complex was significantly bigger or more dominant than any other. Agriculture was not a major part of the Coles Creek diet even though maize was available (Kidder 1992:147). In a later publication, Kidder (2002:89) restates that Coles Creek culture was not dependent on cultivated crops, but did utilize them, in combination with wild plants. McNutts (1996:175) belief that the Coles Creek culture was not in the Upper Yazoo Basin was partially based on the idea that maize agriculture was not present in the area, implying that Coles Creek culture did cultivate a significant amount of maize This seems contradictory to what Kidder says about the importance of maize.

**Aden Phase**

The Aden phase is the first representation of the Coles Creek culture in the southern portion of the Yazoo Basin, the northern most occurrence being the Winterville site near Greenville. This phase is thought of as “Classic Coles Creek “ (Phillips 1970:555). It lasted from the end of the Bayland phase until the beginning of Kings Crossing phase, with dates of
approximately AD 700-1050. The early date is based on the transition from Bayland to Aden phase ceramics at the Lake George site and the late date marks the beginning of the Crippen Point phase at both Lake George and Winterville.

Aden phase ceramics are influenced by Coles Creek from Louisiana but also retain some of their Bayland characteristics. Ceramic types include Baytown Plain, var. Valley Park, Chevalier Stamped, var. Chevalier, Coles Creek Incised, vars. Coles Creek, Campbellsville, Chase, Ely, Macedonia, and Wade, Evansville Punctated, var. Rhinehart, Mazique Incised, var. Mazique, and Mulberry Creek Cord Marked, var. Smith Creek. There is no representation of the Louisiana Coles Creek varieties of Ponchartrain Check Stamped (Phillips 1970:555).

Mound-building becomes a prominent feature of Aden phase sites. Rectangular platform mounds are found at 12 of the 22 Aden phase sites in the Southern Yazoo with 5 of these being positively linked to the Aden phase (Phillips 1970:555). It is during this time that there is a demonstrable site plan, usually consisting of multiple temple mounds arranged around a plaza. This is frequently found in Coles Creek sites in Louisiana, but only arrives in the Southern Yazoo by the Aden phase.

**Kings Crossing Phase**

The Kings Crossing phase is the second Coles Creek phase in the lower Yazoo Basin. The use of the Coles Creek, Avoyelles, Mazique, French Fork ceramic types is continued. Additional types include Baytown Plain, var. Vicksburg, Avoyelles Punctated, var. Kearney, Beldeau Incised, var. Beldeau, Carter Engraved, vars. Mudlake and Shellbluff, Coles Creek Incised, vars. Blakely, Greenhouse, and Mott, Evansville Punctated, var. Rhinehart, French Fork Incised, var. McNutt, and Mazique Incised, var. Kings Point. These ceramic types suggest a strong continuity from the previous Aden phase.

**Crippen Point**

The Crippen Point phase is the final Coles Creek phase in the southern Yazoo Basin
before Mississippian culture develops. This phase features an increase in the number and size of mounds constructed, as well as a reorganizing of site layout. Mound use also changes from non-residential to residential. Ceramic indicators for this phase are many and include Avoyelles Punctated, *vars. Dupree* and *Tatum*, Beldeau Incised, *var. Bell Bayou*, Chevalier Stamped, *vars. Lulu* and *Perry*, Baytown Plain, *var. Addis*, Plaquemine Brushed, Old Town Red, *var. Cahokia*, Powell Plain, Ramey Incised, and Tippets Incised. It is during this phase that shell tempered ceramics are first introduced to the Yazoo Basin.

**Peabody Phase**

The Peabody phase is the closest the Northern Yazoo comes to a Coles Creek phase. This phase is truly a Baytown culture site placed in the Coles Creek Period, as the Coles Creek culture did not penetrate into the Northern Yazoo Basin. Philip Phillips even admits that the Peabody phase is not a strong phase, and suggests that it could have been called Coahoma II, inferring a continuity in that of the 28 Peabody sites, 20 have an earlier Coahoma component (Phillips 1970:917).

The ceramic assemblage of the Peabody phase, as described by Phillips, consists of a higher ratio of Baytown over Mulberry Creek Cord-Marked, lower amounts of Larto Red, and minority categories of Coles Creek Incised, Chevalier Stamped, and Baytown Plain with an in-sloping incised rim. He notes that the ceramic types Withers Fabric Marked and Indian Bay Stamped are not present, distinguishing it from the Coahoma assemblage. Sam Brookes (1980) has retooled the definition of Peabody ceramics. He suggests that Phillips assertion that Baytown Plain dominates Mulberry Creek Cord-Marked in the Peabody phase is wrong. The absence of Withers fabric Marked and Indian Bay Stamped is inconsequential as a Peabody marker, as they were not present in the preceding Coahoma phase, but were Marksville Period types. Brookes goes on to create the Coles Creek, *var. Barner*, and Shellwood Cord Impressed, *var. Big Creek*, to describe the Baytown variety with the in-sloping rim, and the Coles Creek variety with cord marking rather than incised lines, both of which now serve as Peabody phase markers. The types
Officer Punctated and Keo Incised can also be included as Peabody phase markers. Non-ceramic markers include Edwards Stemmed, Gary, *var. Maybon*, and Collins projectile points. Alba and Scallorn point types have been found in limited quantities, made of exotic cherts.

**Mississippian Period**

The Mississippian period in the Yazoo Basin lasted from about AD 1200-1700. The first signs of its introduction in the area are the shell tempered ceramics of the Crippen Point phase of the lower Yazoo dating to about AD 1000. Direct contact with Cahokia marks the beginning of the Mississippian period, and is thought to have taken place about AD 1200. Evidence for direct contact takes the form of ceramic types previously only seen at Cahokia such as, Cahokia Cord marked, Powell Plain, Ramey Incised, and Tippets.

It is during the Mississippian period that hierarchical settlement structures are first evident. The sites of the Mississippian period are organized into major ceremonial centers, minor ceremonial centers, small settlements, and special use sites. Social structure is also hierarchical. This is evidenced by site layout as well as in mortuary practices. Palisade walls are frequently used, both as defense structures, and as a means of retaining ceremonial exclusivity. The increased warfare suggests that smaller sites were subjected to the will of the chiefs at larger, more powerful sites. Agriculture becomes the main subsistence activity during the Mississippian period.

During the Mississippian period phases appear to be based more on geographical separation rather than temporal separation. Because of the fragmented and localized nature of Mississippian society, there are many phases in the Yazoo Basin. In the lower Basin these include: Winterville, Lake George, Wasp Lake, and Russel. These southern phases are not relevant to this thesis, so further details will not be given. In the northern Basin phases include: Buford, Walls, Kent, Quitman, Hushpukena-Oliver, and Parchman. The Buford, Walls, and Kent phases are also outside the Sunflower and Tallahatchie drainages, so more detailed descriptions
will not be necessary.

**Quitman Phase**

This phase is composed of those sites in the Tallahatchie drainage which have shell tempered ceramics. Phillips (1970:941) suggests that the ceramic assemblages at these small number of sites are inadequate to positively assign to other phases. The assemblage is typologically similar to the Hushpuckena-Oliver phase to the west, but geographically they fit better in the Parchman phase. Because of this discrepancy he creates a new phase. Brain (1983:283) suggests that since these sites contain no European artifacts, this phase may have died out before contact. Phillips places the Shady Grove site in this phase.

**Hushpuckena-Oliver Phase**

The Hushpuckena-Oliver phase is centered in the Sunflower and Bogue Phalia drainages between Geenville and Clarksdale. This phase is contemporaneous, yet unrelated, to the Wasp Lake phase to the south. The Hushpuckena-Oliver phase was originally two phases. The earlier Hushpuckena phase and a later Oliver phase, however there is not enough spatial evidence to substantiate the later Oliver phase, as all evidence for this phase comes from one site, the Oliver site (16-N-6). Ceramic indicators include the dominance of Mississippi plain over Bell Plain and Barton Incised over Parkin Punctated, the occasional occurrence of Barton Incised, *var. Kent*, and Walls Engraved, and large amounts of Old Town Red and other painted types (Morgan 1997:156). Phillips (1970:942) suggests that this ceramic assemblage represents a breakdown of the Mississippian ceramic tradition, and may indicate a mixing of local groups. The mixing of local groups is likely due to the breakup and reformation of local tribes after contact.

**Parchman Phase**

The Parchman phase is located between Clarksdale and Tunica, east of the Mississippi river. The phase represents the Mississippian period in the upper Sunflower drainage, beginning
about AD 1000 and terminating around AD 1700 (Morgan 1997:159). These dates are supplied by C-14 dates at several sites.

Rectangular flat top mounds are associated with the Parchman phase. Parchman phase mounds are located at Carson (15-N-6) Parchman Place (15-N-5) Salomon (15-O-1) Dundee (14-O-8) and West (14-O-10). Connaway (1981) also includes Mound A at the Shady Grove site (22-Qu-525).

The ceramics of the Parchman phase are similar to those of the Kent phase to the west. Equal amounts of Mississippi Plain, *var. Neeley's Ferry* and Bell Plain, more Barton Incised than Parkin Punctated, and the inclusion of Walls Engraved, *var. Hull* rather than *var. Walls* all differentiate it from Kent phase ceramics.

**Circular Features Found in the Southeast**

The Shady Grove site features both a ditch, and a circular shell midden. (See figure 2.3) Similar features are found at other sites in the Southeast. This portion of the literature review will examine where, how, and why, these features are created and used at other sites. These features are grouped into two types, the circular embankments of the Adena and Hopewellian influenced sites; and the Late Archaic period shell rings along the Gulf and Atlantic coasts.

**Earthen Embankments**

The Marksville site (16-Av-1) is the Marksville period type site in Louisiana which dates to about 100 BC. It features multiple mounds and several types of enclosures. The main enclosure encompasses most of the site including the mounds and is approximately 530m across. In typical Marksville fashion, both ends terminate at the river bank, forming a half circle rather than a full circle. There are several smaller full circles, about 250m in diameter, which are
Figure 2.3
This image shows the circular ditch as well as the Tchula Lake shell ring at Shady Grove.
located on the outside, near the entrances of the main enclosure. These enclosures all feature an embankment and a ditch. The ditches are located about 20m outside the embankment and are more likely borrow ditches rather than a purposely built ditch. They are usually significantly wider than they are deep and the width is very inconsistent. Jones and Kuttruff (1998:53) suggest that the prehistoric people at Marksville only removed the uppermost and easiest soils when building the embankments. This differs from the ditch at the Shady Grove site. At Shady Grove the ditch is a consistent width. The sides are quite steep suggesting that the main goal of the ditch was not the removal of soil for an embankment. The ends likely do not terminate at the river bank. The large mound at Shady Grove, Mound A, is certainly outside the ditch, but this mound probably dates to the Mississippian period and was likely built after the ditch was already filled. The smaller conical mound, which was destroyed in 1975, was most likely inside the ditch. The exact location of both the eastern extent of the ditch and the location of the conical mound remain unknown. However, if the ends of the ditch are projected to the east, an approximate extent of the ditch can be estimated. The University of Southern Mississippi excavations from 2010 are easily inside the ditch, suggesting that Mound B was also inside the ditch.

Within the lower Yazoo Basin there are three sites which feature circular embankments. These sites are Spanish Fort (22-Sh-502) Little Spanish Fort (22-Sh-522) and Leist (22-Sh-520). See Figures 2.1 and 2.4. These three sites all feature the half-circle embankment style of a Marksville period site. The embankment at Spanish Fort is 590m in diameter, while the embankment at Little Spanish Fort is 640m in diameter. At both sites the embankment terminates at the riverbank rather than forming a complete circle. These sites also contain a borrow ditch outside the embankment, which is of similar size and shape as the embankment, only inverted. Little Spanish Fort does have breaks in the embankment but there are no breaks in the ditch. Edwin Jackson (1998) suggests that the enclosure at the Little Spanish Fort site does indeed date to the Early Marksville period. This evidence is based on radiocarbon dates taken from the embankment. He goes on to suggest that because there is not a large amount of Marksville period artifacts from within the circle, there was not likely a large resident population (Clay
Without a large resident population, the labor needed for construction must have come from outside the site (Mainfort and Sullivan 1998:9). Jackson (1998:217) suggests that the three embankments in the lower Yazoo are not associated with the known Marksville centers of occupation. These embankment sites are on the periphery and may have been used more for linking socially distant groups than for the ritual activities of a local population. This idea is based on Berle Clays model of Adena ritual behavior in the Ohio valley (Clay 1998). In this model, the locations of Adena ceremonial sites are “compromise locations”, or locations which are spatially between different allied local groups. Ed Jackson also points to Mainfort and Sullivan (1998:7) idea that “while the enclosure may have served as a focal point for sacred or secular activities after construction, the act of construction- imposing an artificial structure on the natural world- ultimately may have been the intended goal.”

The Pinson mound group (40-Md-1) located in Tennessee, is also a Hopewellian influenced mound center. It features 12 mounds, five of which are rectangular platform mounds, as well as an earthen embankment (Thunen 1998:57). The major occupation of the site dates to around 100 BC to AD 300. This embankment differs from other Middle Woodland enclosures in the Lower Mississippi Valley in that it forms a complete circle rather than the semi-circular arrangement typical at Marksville period sites. The embankment is 181m in diameter and encloses an area of about 17 acres. This enclosure is located on a small peninsula overlooking the Forked Deer River. The location on the peninsula suggests this enclosure was intended to be a restricted area. Thunen (1998:64) suggests that the embankment was built in two episodes. The first was the arc style embankment typical of Middle Woodland enclosures. A second episode enhanced the natural bluffline on the southern portion, nearest the river, to complete the circle. This second building episode may have taken place immediately after the first or at a later time. The enhanced bluffline gives the illusion of a high wall from the outside, increasing the sense of isolation and restriction (Thunen 1998:64).

The Early Woodland (400 BC- AD 250) Adena cultures of the Ohio River Valley, also constructed circular embankments as well as ditches surrounding some of their village sites.
While the Adena and the Late Woodland phases of the Yazoo Basin are separated greatly, both spatially and temporally, circular embankments may have been used in similar ways. William Webb and Charles Snow (Webb and Snow 1945) formed the first ideas about Adena site types in the 1930’s and 40’s. He points out four types of features commonly found on Adena sites. These are the burial mound, circular paired-post structures, ceremonial circular embankments, and large circular ditches around suspected village sites. Webb and Snow proposed two models for Adena settlement. The C&O model suggests that Adena groups were dispersed, and burial mounds were the focus of the domestic unit. In this model each mound is the central focus of a village or small group of villages. Modern archaeologists have not been able to locate these outlying villages.

Webb’s second model, the Elkhorn model, suggests that there was a large local population living at or near a central mound complex. The domestic portion of these sites was kept separate from the ceremonial portion. Berle Clay (1998) has suggested that both of these models are incorrect. In Clays model the mound complexes are not the center of a group territory, but are rather at the edges; the area where two group territories meet. These ceremonial centers act to reinforce alliances and trade between different groups. The large mound complexes with multiple mounds are centers between two groups which maintained a fairly stable relationship. In this stable environment, mounds could continue to be built for longer periods of time. In the unstable areas, mound construction was interrupted. Therefore single or smaller groups of mounds are found.

Clay (1998:18) goes on to suggest that in many cases the ritual landscape has changed, one ritual aspect has been superimposed over another. For instance, paired post circles can sometimes be found beneath a ceremonial circle, both of which are beneath a large mound. This suggests that the same ceremonial space was used for different ritual behaviors and that these behaviors changed drastically through time. Clay (1998:19) suggests that these changes may be linked to Adena instability and that groups may have gone through cycles in which ritual behaviors were differentially expressed.
Shellfish Deposits

Before the geophysical survey was completed and the ditch identified, the surface shell ring at Shady Grove was the most prominent feature. This shell ring closely follows Philip Phillips Tchula Lake depositional pattern. See Figure 2.2. In this village pattern, freshwater mussel shell is deposited in individual dumping areas, which form a roughly circular arrangement. Each dumping area may belong to a separate household within the larger village. Overtime, the cultivation of these features has caused the individual shell middens to meld together to form a continuous ring. At the Tchula Lake site (22-Ho-546) there remains, at least at the time of Philip Phillips survey, a portion of a shell midden which was uncultivated. This small section of the midden, nearest the river, was about 1 meter high. This suggests that at one point the individual shell middens at these types of sites may have been quite high. Phillips (1970:270) goes on to suggest that the middle of these features was usually void of shell and other artifacts. This is consistent with what was found at Shady Grove.

Figure 2.4
The deposition of shell in circular patterns is certainly nothing new in the Southeast. Archaeologists have identified Late Archaic period shell rings along the Gulf and Atlantic coasts from North and South Carolina, Georgia, and Florida, all the way west to Louisiana. These structures can range in diameter from 30-250 meters, and can be as high as 6 meters. These structures are usually made of saltwater shellfish, such as oysters, clams, and periwinkles, rather than the freshwater mussels used in the Tchula Lake depositions. The debate regarding their formation/use is ongoing. Hypothesis ranging from ceremonial feasting, meeting and gaming centers, torture chambers, water storage, fish weirs, and simply deposition of daily refuse have all been suggested. Most explanations for the formation of these rings fall under one of three models.

1) Gradual Accumulation- The gradual accumulation model suggests that the shell was simply a part of the daily diet (Marquardt 2010; Trinkley 1997). The refuse was discarded in pits around the houses, which were arranged in a circular pattern. As the pits filled up, the houses were rebuilt on top of the growing pile of refuse. Eventually the individual household refuse piles grew to form a continuous ring (Thompson 2007; Saunders 2004; Marquardt 2010). The inclusion of ceramics, tools, and faunal remains in the shell may indicate the refuse was a result of daily life rather than ceremonial feasting. Deposition which occurred rather slowly could also indicate a more gradual accumulation of refuse through daily life. Midden pits at some sites have been located under the rings. However, pits in the rings themselves have proven more difficult to identify because of the undifferentiated matrix.

2) Ceremonial Model- The ceremonial model suggests that the shell rings formed through the deposition of refuse from ceremonial feasting (Russo and Heide 2001; Russo 2004; Saunders 2004). This model is based on evidence which suggests that the rings were deposited very quickly. Some rings feature deep deposits of undifferentiated shell, with very little soil or crushed shell included. A rapid deposition would not allow for wind and water borne soils to form. Shell
that was quickly covered by other shell, which was not lived upon would also tend to be whole rather than crushed. This model also suggests that the lack of ceramic and other daily refuse type artifacts at some shell rings indicate that these rings had a special use. In the ceremonial model, shell accumulated is a result of feasting activities. It is thought that feasting acted as a prestige building activity in trans-egalitarian societies. This could explain why the height of the actual shell ring is different at different areas on the same ring. In a feasting scenario, the more shell consumed and deposited on the ring, the higher the status. Russo (2004) suggests that shell rings may have been both a ceremonial center as well as a place of daily living. He examines Archaic shell rings as a representation of the social equality or lack there of. He suggests that the shape of the ring relates to the level of equality. A U-shaped ring would represent a more unequal social structure than a complete circular form. These ceremonial models seem to fit very well with the evidence presented, however, it is important to remember that large undifferentiated deposits of shell do not automatically mean feasting was involved. Marquardt (2010) has suggested that shell could accumulate quickly for other reasons besides feasting. He points to large scale processing of shellfish, either for storage or for trade. He also points to ethnographic evidence for similar structures created from these non-feasting activities (Marquardt 2010:555). The deposits could also be secondary deposition in which the shell accumulated elsewhere and was re-deposited as a ring. This could also account for the appearance of a rapid deposition.

3)  **Developmental Model**- The developmental model has recently been put forth by Victor Thompson (2007). He suggests that the function of shell rings may have changed through time. His model begins with the gradual accumulation model, in which shell is deposited as a by-product of daily life. As the shell builds up, the residences move from on top of the shell to the center of the circle. Finally, the ring ceases being a residential area and begins to take on ceremonial activities. This model tries to account for the differences in ring activity areas. Some rings contain midden deposits in the center and others do not. Thompson suggests that this is because these rings are at different stages in the developmental models life cycle. He
is also careful to point out that these rings do not necessarily form in a linear time-line. This model suggests that the function of shell rings may not be as simple as either of the two previous models.
CHAPTER 3- METHODS

In order to understand how the use of space has changed through time at the Shady Grove site, I will need three types of data. First a controlled surface collection and artifact analysis will reveal Shady Groves placement within the culture historical context of the Northern Yazoo Basin. Artifactual data from the surface collection will be a powerful determinant of intra-site use patterns, as well as identifying cultural components. Second geophysical remote sensing will reveal the relationships between features as well as determine which areas of the site will require further examination. Several geophysical techniques will be employed including magnetic gradiometry, conductivity, and magnetic susceptibility. Excavations will be used to both evaluate interpretations of the geophysical survey results as well as gain a measure of temporal control. This chapter will discuss the details of the surface collection and artifact analysis. Then a review the geophysical techniques, their advantages and disadvantages, and the methods used for data processing. The layout of the site, grid points, datums, and GPS coordinates taken will also be explained. Finally, excavation locations and techniques will be presented.

Surface Collection

One of my primary research goals was the placement of Shady Groves two main occupations within the temporal framework provided by Philip Phillips, as well as how theses occupations relate to each other spatially. In order to determine what phases are present a ceramic analysis must be conducted. The previous ceramic assemblages from surface collections are not adequate because they were not collected in a systematic way, so no differences in spatial information can be seen. The ceramics collected during the previous excavations could identify
the phases present, however they can not reveal the spatial relationships between them. In order to answer both of these questions a new controlled surface collection was needed.

Figure 3.1
This image shows the 20 meter grid used for the surface collection, the points for the surface collection, the geophysical zero point, and the two known points used to set up the Total Station.
This systematic surface collection was performed during the winter of 2011. The goals of this collection were two-fold. First, artifact were required for determining cultural components. Second, spatial information was needed so that each cultural component could be plotted and areas of use determined. The geophysical survey required the use of a 40x40m grid. Additional points were added so that the point interval was reduced to 20m. The Northing/Easting coordinate system used for the geophysical survey was continued, as well as a unique Point ID # for each point. Point ID #'s were assigned starting in the north western corner and in increasing fashion from west to east. A surface collection of all artifacts, excluding shell was done at each point. Shell was not collected because it was too fragmented to make collection practical. Artifacts were collected from circular areas 5m in all directions from each point, for a total of 10 minutes. This gives a collection of 20% of the area covered in the geophysical survey. Each point was bagged separately, and the coordinates recorded.

Philip Phillips 1970 “Survey of the Lower Yazoo Basin” has provided the detailed culture historical framework around which all research in the Yazoo Basin is based. With a few exceptions this framework has remained largely unchanged since 1970. The ceramics from the surface collection were sorted and typed according to this typology and phases designated largely based on Phillips conclusions. Williams and Brain’s 1983 “Excavations at the Lake George Site” was also used in artifact analysis.

The second research question relates to the use of space and how this use has changed between the Late Woodland and Mississippian occupations. This was the primary reason for conducting a new surface collection, rather than using the pre-existing ceramic assemblages. In order to answer any question about differences between the two occupations, they first must be delineated. The relationship between the Late Woodland and Mississippian occupations was revealed by using ceramic density maps. These maps indicate which areas within the site were used by which occupation. Changes in the use of space can indicate changes in the ideological and ritual landscapes of Shady Grove peoples. In order to create these maps the ceramics first must be separated into Late Woodland and Mississippian categories. The specifics of these
categories are given in Chapter 4. Density maps were then created using ArcMap 9.3. Maps for each ceramic type individually, as well as maps for combinations of types were made. These maps form the basis of my study on how the use of space has changed at the Shady Grove site.

**Geophysical Survey Methods**

Three types of geophysical data were collected at the Shady Grove site, magnetic gradiometer, magnetic susceptibility, and conductivity. By using multiple instruments a much more comprehensive data set can be obtained. Before any geophysical survey can begin, a grid must be set up. I set up a grid with 40 meter intervals using the Leica Total station. I used a center point with the coordinates N1000, E1000. I set two known points near Mound A so that the total station could be set in free station mode. I labeled them KP#1 and KP#2. These points can be used to recreate my grid, even if the stakes are lost. A Trimble GPS was used to get real world coordinates for these two points with an accuracy of 3cm. Figure 3.1 shows my grid as well as the two known points. I used NAD83 zone 15N for all maps and GPS recordings.

<table>
<thead>
<tr>
<th>Point Name</th>
<th>Grid Coordinates</th>
<th>Easting (meters)</th>
<th>Northing (meters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KP #1</td>
<td>E960/ N880</td>
<td>753,533.781</td>
<td>3,790,725.837</td>
</tr>
<tr>
<td>KP #2</td>
<td>E1000/ N880</td>
<td>753,574.233</td>
<td>3,790,726.547</td>
</tr>
<tr>
<td>Zero Point</td>
<td>E1000/ N1000</td>
<td>753,570.223</td>
<td>3,790,846.380</td>
</tr>
</tbody>
</table>

Because of the high speed with which magnetometry data can be collected, a fairly large area was covered. The EM also showed good results, but because of its slower speed, only a limited area was covered. The entire shell ring west of the road was surveyed with magnetometry, and selected areas were surveyed with the EM. The magnetometry survey covered a total of 26 40x40m grids. This converts to 10.2795 acres. The EM survey covered 11 20x20 meter grids which is a little over an acre. Figure 3.2 shows the entire survey area for both instruments.
Magnetic Gradiometer

A fluxgate magnetic gradiometer measures differences in an object’s magnetic field between two sensors along a vertical axis (Kvamme 2002:212). This type of magnetic gradiometer uses two sensors in a vertical arrangement, separated by a known distance, usually .5 or 1 meter. A reading is taken from both sensors and then the difference between the two relates to the strength of the magnetic field is recorded. The magnetic field of an object falls off at a third power of distance to a target. This means that if a reading of 1 nT is taken from a sensor 1m from a target, then a second sensor will record a reading of $1/2^3=1/8$ nT at a distance of 2m (Kvamme 2002:210). This negates the diurnal effect of the earth’s magnetic field, or the temporal variations in the strength of the earth’s magnetic field. Since fluxgate magnetometry only takes readings along the vertical axis, readings must be taken at regular intervals across the survey area in order to produce an image which will show variation in magnetic signatures along the horizontal axis. These readings are measured in a unit called nanoteslas, or nT. The earth’s magnetic core produces about 30,000 nT at the equator, and 60,000 nT at the magnetic poles (Kvamme 2002:208). This massive magnetic signature is zeroed out before survey work can begin. In an archaeological context, the surrounding surface soils often produce a magnetic signature of about ±5 nT, and archaeological anomalies frequently are as subtle as .5 to .001 nT (Kvamme 2002:208).

Magnetic gradiometers, as with all remote sensing, looks for contrasts. In this case contrasts between the magnetic signature of cultural features and the magnetic signatures of the surrounding soils are recorded. Without contrast, a geophysical survey will reveal nothing. Areas where contrast does occur are called anomalies, they may be cultural features, but they may not. Many types of objects can produce a contrasting magnetic signature. Ferrous metals will have a very strong magnetic signature that often contrasts with the surround soil very strongly. The way that ferrous metals respond to the earth’s magnetic field is called magnetic susceptibility. That is, the ability of a material to reflect the a magnetic field. This produces a very distinct signature
in a magnetic survey; one in which the two extremes, the negative and positive ends on an object stand out very prominently and are aligned to the current poles. This is called a dipole. In most cases these strong anomalies will obscure any smaller subtle contrasts of cultural features in surrounding soils. However, if detection of historic sites is the goal of the survey, then dipolar anomalies will often make sites easily identifiable.

Most soils and clays contain between 1 and 10 percent iron oxides. When soils are heated to high temperatures (600°C) the particles line up with the earth’s magnetic field, permanently capturing it, and will remain long after the earth’s magnetic field has shifted. This is called thermo-remnant magnetism. This property makes magnetometry one of the most useful of the geophysical techniques. Areas that have been burned, such as hearths, kilns, cooking pits, Mississippian period houses, and even ceramics if in high enough concentrations; such as in midden pits, can all be detected.

One final type of cultural feature that can be seen is redeposited soil. As soil ages the metallic particles inherent to all soils align. Topsoils are naturally more magnetic than subsoils. When these soils are moved, the particles become chaotic, producing a different signature than the soils in the surrounding area. In this way soils that have either been moved into an area, such as mound building, or soils which have been moved out of an area, such as ditch digging, will often show small but detectable contrasts. This effect can be exacerbated by topsoils eroding into low areas and off of high areas; a ditch filled with topsoil will show a significant contrast, as will the area surrounding a mound. Human activity also increases soil magnetism. Disposal of food wastes, concentrations of ceramic and lithic materials, and disposal of hearth wastes will all add to the magnetism of a site.

The instrument used for magnetic survey at the Shady Grove site was a Bartington Grad 601 dual fluxgate magnetic gradiometer. This instrument uses two sensor modules, each with two sensors 1m apart. The two sensors are set vertically into a crossbar, which holds a recording unit, to form an “H” shaped apparatus. A small backpack is used to steady the device. Before survey can begin, the instrument must be zeroed. This is done in an area of the site which has a low and
consistent magnetic signature. I used grid point E1000, N1000. Zeroing will cancel out the earth's magnetic field so that only variation from the background will be recorded. The instrument is then passed over the survey area at predefined intervals. The closer the intervals the more detailed the data will be. For this survey I used a .50cm interval along the Y-axis, and a .25cm interval along the X-axis. This is the densest collection that this instrument provides. I used 40X40 meter grids for maximum consistency. The height of the two sensors also affects how deep below the surface the sensors will read. I set these at 63cm from the bottom of the sensor to the bottom of the crossbar.

**Magnetic Susceptibility**

Magnetic susceptibility refers to the ability of any object to respond to a magnetic field. A magnetic field is introduced into the ground and the strength of the induced magnetic field is measured. Magnetometry measures both remnant and induced magnetism. Magnetic susceptibility, however, only measures the induced magnetism. Magnetic susceptibility is measured either as a susceptibility per unit volume (K), or as a mass normalized susceptibility (X) (Dalan 2002:162). Volume susceptibility (K) is a ratio of the volume magnetization induced in a material of susceptibility K by an applied weak magnetic field. Mass susceptibility is equal to the volume susceptibility divided by density and has units of cubic meters per kilogram (Dalan 2002:162).

Because of the way in which topsoils develop enhanced magnetic properties, magnetic susceptibility can effectively be used in identifying subsurface soil properties. Areas which have heightened levels of phosphorus from decaying waste material, as well as areas which have been fired will generally show a higher susceptibility.

The gradiometer results were used to select a portion of the site which as surveyed to record magnetic susceptibility. A Geonics EM38B was used. This instrument measures both magnetic susceptibility as well as conductivity. This instrument does have drawbacks, however.
It is very sensitive to temperature drift when used in the in-phase mode. It also is only effective to a depth of 50cm, with the most effective depth being around 20cm. In areas where cultivation has taken place, this may not be deep enough to penetrate the plowzone. The size of the objects which can be detected is related to the distance between the front and rear sensors. This relationship is about 1/4-1/3 the size of the distance between the two sensors. On the EM38B this distance is 1m, therefore it can only detect objects about 25-30cm or larger in diameter (Dalan 2002:177). I used grid sizes of 20x20m, and an Y-axis interval of 1m.

**Conductivity**

Conductivity is the measure of how well the soil will allow an electric current to pass through it. This measure is counted in a unit called siemens, and in archaeology is usually quantified in millisiemens per meter or mS/m. In this active method an electromagnetic signal is induced into the ground. This causes subsurface material to generate its own slight electromagnetic signal, which is recorded by a second sensor. The instrument must be very sensitive in order to detect differences in the conductivity of soils, which is what it was originally designed to do. Highly conductive objects will give huge return signatures, over loading the machine and distorting results. Unlike magnetometry and magnetic susceptibility, where only ferrous metals will interfere with results, a conductivity survey can be ruined by all metals, including ferrous metals, aluminum, tin cans, and copper. EM can detect contrasts between varying properties of soils. Grain size, composition, and amount of moisture all affect a soils ability to conduct a signal. This can be advantageous for archaeologists as long as they are able to understand the local soil column. EM is particularly good at detecting varying types of moved earth. Ditches, embankments, mounds, and borrow pits will generally show very well in conductivity surveys. The distance between the two sensor again governs the depth to which the instrument is effective. The 1m spacing on the EM38B gives an effective depth of about 50cm for conductivity surveys. I used a Geonics EM38B to collect both magnetic susceptibility and
Figure 3.2
This image shows the geophysical survey area for both the magnetic gradiometer ad the EM.
conductivity simultaneously, and the grid sizes and density were the same.

Excavations

Two excavations were undertaken at the Shady Grove site. See Figure 1.2 for the location of these excavations. In the summer of 2010, a test unit was dug between the road and the river in a relatively high area. The purpose of this excavation was to determine if there was stratigraphy within the midden areas. A second trench was dug in the winter of 2011 through the ditch in order to both evaluate the geophysical results and to determine the construction and composition of the features detected using the geophysical survey instruments.

The test unit dug through the midden, Test Unit #1, was a 1x1m unit, dug in 10cm levels. All material was screened with a 1/4” screen and all artifacts were bagged, including the shell. Each level was mapped and profiles of all four walls were completed. Ceramic analysis was done using Phillips 1970 “Archaeological Survey of the Lower Yazoo Basin”. Faunal remains were identified with the use of Stanley Olsen’s 1968 “Fish, Amphibian and Reptile Remains From Archaeological Sites.” Almost no lithic material was recovered.

The trench through the ditch, Trench #1, was 8m long and 1m wide. Due to time and manpower constraints, this excavation was not dug in levels and most material was not saved. The purpose of this trench was to determine if, in fact, the large circular pattern observed in the geophysical survey results was a ditch, how it was built, and how it was filled in. These questions could be answered effectively without the need to collect and analyze every artifact. Detailed profile drawings of the southern wall were made. Soil samples of approximately 2 gallons were taken from each zone for further testing. A small number of the larger artifacts were collected, and provide some of the largest sherds collected during this project.
CHAPTER 4- RESULTS

This chapter will present the results of the surface collection, artifact analysis, spatial
distribution of ceramics, geophysical survey results, and excavations of both Test Unit #1 and
Trench #1. The artifact assemblage resulting from both the surface collection and the excavations
was massive and included over 10,000 artifacts. The analysis of the artifacts reveals a much
more clear and detailed presentation of site occupation and cultural affiliations. Ceramics were
classified and patterns in their spatial distribution suggest that the two primary occupations
of the site used it in very different ways. The geophysical survey revealed multiple new sub-
surface feature types. These include midden pits, a ditch, and possibly an embankment. These
features were interpreted based on similar features at other sites, and their relationship to surface
artifact distribution. Excavations provided detailed data on the construction, composition, and
de-construction of the ditch, as well as information of the composition and stratigraphy of the
Tchula Lake shell ring.

Artifact Analysis

The surface collection at Shady Grove proved to be very useful in determining
areas of use for each component. Over 10,000 artifacts were collected. Ceramics were by far
the largest category, with 8,092 sherds. There was a small amount of lithic material and several
diagnostic tools. Faunal remains makes up a small portion of the surface collection, this is more
likely due to differential preservation. A total of 404 sherds were recovered from a 1x1 test
unit (TU #1). These sherds were mostly Baytown types, with the addition of a small number of
Mississippi Plain, and a single Marksville Stamped. The sherd counts will be given along with
Ceramics

Identification of ceramics was done using Phillips’ “Archaeological Survey in the Lower Yazoo Basin” (1970) and Williams and Brains “Excavations at the Lake George Site” (1983). The majority of sherds were either plainware or cord-marked, as is typical of Late Woodland sites in the Yazoo Basin. Smaller decorative categories included incised, punctated, brushed, and ridge-pinned. Exterior red slip was the only colored variety. The next section will describe the characteristics used to identify each type as well as a total for each. These totals include both the ceramics from the surface collection and the ceramics from Test Unit #1.

**Alligator Incised, var. Alligator**

This variety of Alligator features parallel incised lines made with a blunt instrument on a clay tempered paste, rather than the haphazard placement found in the *Oxbow* variety. These incisions are often found within the first few inches below the rim. They are frequently found in triangular zones. The sorting criterion for this variety is the non-intersecting incisions. Pinch-marks just below the lip are a frequent rim treatment. The single *var. Alligator* found at Shady Grove was placed into this variety because of the pinch marks found in combination with parallel incised lines. The incised lines are small and made with a pointed instrument rather than a blunt one. However I feel that the pinch-marks are a strong enough indicator for this sherd to be placed in this category.

Alligator Incised, *var. Oxbow*  

Alligator Incised, *var. Oxbow* is an incised, clay tempered type. The temper is similar to that of Baytown Plain, *var. Reed*, though somewhat less coarse. The incisions are placed haphazardly and often crisscross, almost to the point where they appear to have been placed randomly. The incisions are not deep or well formed, at least on the sample from Shady Grove. Williams and Brain (1983:118) suggest otherwise, stating “The incisions themselves tend to be relatively deep and narrow”. Phillips (1970: 39) suggests that *var. Oxbow* was an allover decoration, while *var. Alligator* was confined to the area just below the rim. This treatment can sometimes be found on top of cord-marking. This does not occur in the Shady Grove sample but does suggest a Baytown period temporal position.  

Barton Incised, *var. unspecified*  

Barton Incised is one of the incised versions of Mississippi Plain. Temper is coarse shell and incisions are parallel and deep. Frequently, but not always, these incisions are confined to the rim area of jars. Surprisingly, very few of these sherds were found at Shady Grove. Those that were found were quite thick, very coarsely tempered, with sloppily applied incising.  
(Phillips 1970:43; Williams and Brain 1983:126-133)

Baytown Plain, *var. Thomas*  

This is a sand tempered plainware. Phillips (1970:54) suggests that sand temper is not a significant sorting criteria. However, he also noted that sandier sherds are more common in the Tallahatchie drainage. This does not appear to be the case at Shady Grove. This type may also include small amounts of grog mixed with a sand temper. Most *var. Thomas* rims are plain, but sometimes may include flattening or a small fold. The one *var. Thomas* rim found in the surface collection at Shady Grove was plain.
Baytown Plain, var. unspecified  

This is the most common plainware found at Shady Grove. It is clay or grog tempered, with inclusions ranging in size from very large to very fine. The rough exterior ranges in color from very light tan, to gray, to nearly black. Rims are generally plain and rarely folded to the outside. A small number (4) of these non-folded rims featured incised lips, similar in appearance to the Haynes Bluff rim treatment most frequently found on Bell Plain.

Coles Creek Incised, var. unspecified  

Coles Creek Incised is a clay tempered super-type (Phillips 1970:69). The characteristic sorting criteria is incised, overhanging parallel lines around the rim. The number and arrangement of lines varies greatly between the 11 or so varieties. Circular or triangular punctuations are sometimes found just beneath the incisions. The single example found at the Shady Grove site features a single incised line, which does not overhang, with a row of small punctuations below the line. While not a rim sherd, which is generally needed to sort Coles Creek, it is very close to the rim with just the actual lip missing. The temper is significantly finer than Baytown Plain, var. Reed, and is unlike the temper found on any other sherds from this collection. This type is generally found further south in the Yazoo Basin, as the Coles Creek culture did not penetrate as far north as Shady Grove.

Evansville Punctated, var. unspecified  

This type can be found on all clay tempered punctated wares. Punctations may be made with finger nails, pinching, or another instrument. Arrangement is generally either horizontally or vertically aligned, and is all-over rather than zoned or restricted to the rim. Ridge-pinching, such
as Hollyknowe is excluded from this type. Temper is similar to the Marksville, Baytown, and Coles Creek varieties of Baytown Plain. Shell tempered Evansville Punctated has been separated out into the Parkin Punctated type. This type is distributed throughout the entire lower Yazoo. The sherds from Shady Grove are both clay-tempered, similar to var. Reed, but maybe a little bit finer. One features punctations made by finger while the other has very deep punctations, likely made by a reed or similar instrument.


**French Fork Incised, var. unspecified**  

French Fork Incised covers a very large variety of decorations. Decorative treatments are predominately curvilinear and frequently feature incisions, punctuations, hatching, stippling, and stamping. Often several of these treatments will be found on the same sherd. Temper also varies greatly and can range from Baytown Plain, var. Reed to Valley Park. The distribution of French Fork Incised is the Lower Yazoo Basin. In fact Phillips (1970) says that in his study of the Lower Yazoo was the far northern extent of this type and that it is rarely found north of Greenville. Because of this distribution, I was hesitant to place this single sherd into this type. However, I feel that the decorative qualities of this sherd fit very closely to the French Fork type. The temper is course clay similar to var. Reed. The decorations include a zoned area filled with lightly incised parallel lines, with deeply incised lines as the boundaries. Small, round, deep punctuations occur outside the zoned area. This combination of three distinct zoned surface treatments prompts me to sort this as French Fork Incised. If the Shady Grove site was within the known distribution area for French Fork Incised, I would not hesitate to include this sherd.


**Hollyknowe Ridge Pinched, var. unspecified**  

Hollyknowe Ridge Pinched is decorated with pinched designs made with the thumb and forefinger. These pinch marks are arranged in a linear fashion, usually vertically, which gives it
a ridge-like appearance. This surface treatment is usually an allover treatment but is sometimes confined to triangular areas. Temper can be clay or shell, each having its own variety. In the case of the single Hollyknowe sherd found at Shady Grove, the temper is clay, equivalent to Baytown Plain, var. Reed. This small sherd also features an outward flared rim with diagonally placed pinch marks.

(Phillips 1970:88-89; Williams and Brain 1983:165)

**Larto Red, var. unspecified**  
*n = 51*

This is an overall red slipped, clay tempered plainware. The temper is finer than that of Baytown Plain, var. Reed, and Troyville. Phillips (1970:99) suggests that when decorations occur with red slip, that the red slip should be treated as a mode. Larto Red is concentrated in the eastern portion of the Yazoo Basin, in the Yazoo-Tallahatchie drainage. Phillips (1970:99) states that most of this ceramic type falls into the Baytown period, but can be found earlier or later in some areas.


**Marksville Stamped, var. unspecified**  
*n = 1*

Marksville Stamped types are sorted on the distinctive rocker stamped backgrounds. This design was made using a multi-pointed instrument which was rocked back and forth while the clay was still soft. These stamped areas are usually zoned and separated by U-shaped incisions. Design is predominantly curvilinear. Temper is sandy-grit. This sherd was found in level 3 (20-30cm) in Test Unit #1. It is the only positively identified Marksville type found at the Shady Grove site. It features all three of the attributes used to sort Marksville Stamped; stamping, u-shaped incisions, and sandy paste.

(Johnson et al. 2002:54; Phillips 1970:119-127; Williams and Brain 1983:181-183)
**Mulberry Creek Cord-Marked, var. Edwards**  \( n = 3,227 \)

Mulberry Creek Cord-Marked, *var. Edwards* is a clay or grog tempered ware with cord markings covering most of the exterior surface. The temper is similar to that of Baytown Plain, *var. Reed*, in which inclusions, when present, vary in size. It can almost be considered a plainware rather than a decorated type. The haphazard application of the markings makes size and spacing an unreliable sorting criterion in most cases. Rims are usually folded to the outside, sometimes with cord-markings on the rim, sometimes not. Phillips (1970:135) suggests that the best way to sort this type is by context. *var. Edwards* is the defining type for the Deasonville phase and related Baytown period phases. The distribution of *var. Edwards* is centered on the eastern portion of the Yazoo Basin, specifically the Sunflower and Tallahatchie drainages, but it can be found in smaller quantities far outside this range.

(Johnson et al. 2002:44; Phillips 1970:136-137; Williams and Brain 1983:188-190)

**Mississippi Plain, var. unspecified**  \( n = 526 \)

Mississippi Plain is the primary shell tempered plainware found in the Lower Mississippi Valley. The shell temper in this type is usually medium to coarse grained with the occasional finer grained sherd. Sherd surface is rough, sometimes because little care was made during manufacturing and sometimes because the shell temper leeches out. Rims are generally plain with occasional small incising perpendicular to the vessel face. Color is generally gray. Small lugs and handles are possible but infrequent. One partial handle was found at Shady Grove and was included in the rim category. This type encompasses Phillips, Ford, and Griffins Neeley Ferry type. Phillips included this type as a variety which is sorted mainly by context rather than attributes (Phillips 1970:134-135). In that case, the Mississippi Plain found at Shady Grove would likely be of the *var. Neeley Ferry*. One sherd has a Haynes Bluff rim which is almost always found on a Bell paste. Bell Plain is conspicuously absent from the Shady Grove assemblage being studied.

**Old Town Red, var. unspecified**  

Old Town Red is the red slipped version of Mississippi Plain. The shell temper of this type may be somewhat finer than that of Mississippi Plain, but not as fine as Bell Plain. This type applies to all red slipped, shell tempered plainwares in the Lower Mississippi valley. The type is not further divided based on the size of the shell temper, as is the case with Mississippi Plain and Bell Plain. Phillips (1970:145) points out that Old Town Red is not usually found in site assemblages which contain Bell Plain, suggesting that this redware fills the same ceremonial role as Bell does in other places. With such a broad definition, Old Town Plain can be found throughout the Lower Mississippi valley.  

(Phillips 1970:145; Williams and Brain 1983:191)

**Salomon Brushed, var. Salomon**  

Salomon Brushed features an exterior brushed surface treatment. A multi-pointed instrument was dragged over the surface while still plastic, to produce a combed or brushed effect. This type is related to the Alligator Incised type, and represents the least amount of effort that can be done to produce a decorated effect. Temper can be clay or grog, and is similar to Baytown Plain, var. Reed. Rims will sometimes feature a single row of finger pinching near the lip. The one Salomon Brushed sherd found at Shady Grove, does not feature this mode. Phillips (1970:159) suggests that distribution is mainly in the southern portion of the Yazoo Basin, often found as part of the Deasonville complex.  

(Phillips 1970:158-159; Williams and Brain 1983:203)

**Twin Lakes, var. Crowder**  

This variety features small round punctations in two or three rows located just beneath the rim. It is related to Twin Lakes, var. Twin Lakes, which features linear punctations arranged in a herringbone fashion. The paste is generally sandy. Information on distribution is scant, but it has been found at several sites in the northern Yazoo Basin, with most of them being in the
Tallahatchie and Coldwater drainages. The var. Crowder sherd from Shady Grove is a rim sherd with two rows of small punctations just below the lip. The temper is not sandy, rather it is clay, but not as coarse as var. Reed. This sherd could just as easily be called Baytown Plain, with a distinct rim treatment. However, the sherd looks identical to the one Phillips uses as a type example (1970:166). I feel that the similarities are greater than the differences in this case. (Johnson et al. 2002:44-49; Phillips 1970:165-166; Williams and Brain 1983:205)

**Withers Fabric Marked, var. Twin Lakes**

n = 1

Withers Fabric Marked is an exterior surface treatment in which fabric or matting is pressed into the vessel while still soft. This type can be either clay tempered ware equivalent to Baytown, var. Reed, in which case it is called var. Withers, or it can be sand tempered equivalent to Baytown, var. Thomas, and called var. Twin Lakes. The one sherd found at Shady Grove was of the sand tempered variety. Phillips (1970:175) suggests that the distribution of var. Withers favors the far northern Yazoo Basin, while var. Twin Lakes favors the east-central Yazoo Basin. More specifically the var. Twin Lakes is most frequently found near the confluence of the Tallahatchie and Coldwater rivers. (Johnson et al. 2002:42; Phillips 1970:174-175; Williams and Brain 1983:210)

There were about 20 sherds which could not be identified. These sherds featured unusual decorations, or unusual decoration/temper combinations. Some of the unidentified sherds will be listed below. Some could not be identified based solely on their small size. 1,123 were rejected either for being too small or because they were fractured laterally.

**Unidentified, Clay Temper, Incised**

n = 10

Many of these featured deep incised parallel lines very similar to Alligator Incised, var. Alligator. However they were not included in this type because of their small size; several of these are fingernail size or smaller. The portion of the vessel from which they came or the overall
organization of the design could not be determined, so I was not comfortable placing them into
a type. One of these was incised in the Harrison Bayou fashion, however the incisions were
clearly done after firing. This is an unusual treatment, which I have not encountered before. I was
hesitant to type this sherd as Harrison Bayou, so it ended up here.

**Unidentified, Clay Temper, Rocker Stamped**  
\[ n = 1 \]

A single sherd of this type was found. The paste is sandy, but not as sandy as \textit{var. Thomas}. The decoration is multiple small carefully placed punctations similar to the Marksville Stamped varieties. If this sherd was larger and included some zoning, or sandier temper I would have sorted it as Marksville Stamped. As it is, I think unidentified stamped is the best place for it.

**Unidentified, Shell Temper, Triangular Incised**  
\[ n = 1 \]

This sherd is shell tempered, similar to a somewhat finer tempered Mississippi Plain, but not as fine as Bell Plain and it is not polished. It features an incised line with incised triangular protrusions coming off it. Neither Phillips (1970) nor Williams and Brain (1983) show anything along these lines.

**Fired Clay Bead**  
\[ n = 1 \]

A single fired clay bead was found in level 3 (20-30cm) of Test Unit #1. This small bead is pea sized and spherical. The hole through the center does not appear to have been drilled. It may have been made pre-firing by placing the clay around a small reed or straw. Manufacture of this bead is surprisingly crude, it is only remotely round and the surface is quite rough. Color is dark grayish brown, similar to many of the Baytown Plain, \textit{var. Reed} sherds. This bead was found within the plowzone, so it is not possible to determine when it was made based on its stratigraphic location.
Figure 4.1


Figure 4.2


Figure 4.3


Coles Creek Incised, var. unspecified. R. Surface Collection.


French Fork Incised, var. unspecified. U. Surface Collection.

Hollyknowe Ridge Pinched, var. unspecified. V. Rim. Surface Collection.
Figure 4.4

Larto Red, var. unspecified. W-Y. Surface Collection.

Marksville Stamped, var. unspecified. Z. Rim. Test Unit #1.

Mississippi Plain, var. unspecified. AA-AB. Surface Collection.
Figure 4.5

Mississippi Plain, *var. unspecified*. AC-AG. Surface Collection.

Artifact AE and AF are the same sherd and feature a Haynes Bluff-like rim treatment.
Figure 4.6

Figure 4.7
Figure 4.8
Mulberry Creek Cord-Marked, var. Edwards. AN-AQ, AO-AQ are Rims. Trench #1.
Figure 4.9

Figure 4.10

Old Town Red, *var. unspecified*. AT. Surface Collection.


Withers Fabric Marked, *var. unspecified*. AW. Surface Collection.

Fired Clay Bead. AX. Test Unit #1.
### Table 4.1 Shady Grove Sherd Counts.

<table>
<thead>
<tr>
<th>Ceramic Types</th>
<th>Surface Collection</th>
<th>Test Unit #1</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alligator Incised, <em>var. Alligator</em></td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Alligator Incised, <em>var. Oxbow</em></td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Barton Incised, <em>var. unspecified</em></td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Baytown Plain, <em>var. unspecified</em></td>
<td>3739</td>
<td>150</td>
<td>3889</td>
</tr>
<tr>
<td>Baytown Plain, <em>var. Thomas</em></td>
<td>12</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>Coles Creek Incised, <em>var. unspecified</em></td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Evansville Punctate, <em>var. unspecified</em></td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>French Fork Incised, <em>var. unspecified</em></td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Hollyknowe Ridge Pinched, <em>var. unspecified</em></td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Larto Red, <em>var. unspecified</em></td>
<td>47</td>
<td>4</td>
<td>51</td>
</tr>
<tr>
<td>Marksville Stamped, <em>var. unspecified</em></td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Mississippi Plain, <em>var. unspecified</em></td>
<td>523</td>
<td>3</td>
<td>526</td>
</tr>
<tr>
<td>Mulberry Creek Cord-Marked, <em>var. Edwards</em></td>
<td>2892</td>
<td>335</td>
<td>3227</td>
</tr>
<tr>
<td>Old Town Red, <em>var. unspecified</em></td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Salomon Brushed, <em>var. Salomon</em></td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Twin Lakes, <em>var. Crowder</em></td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Withers Fabric Marked, <em>var. Twin Lakes</em></td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Unidentified Decorated</td>
<td>20</td>
<td>1</td>
<td>21</td>
</tr>
<tr>
<td>Unidentified Fragments</td>
<td>844</td>
<td>279</td>
<td>1123</td>
</tr>
</tbody>
</table>

#### Cultural Components/ Phase Designations

The Shady Grove site clearly shows periodic use for a great deal of time. Connaway (1981:31) suggests there is evidence that the site was used during Poverty Point times. Griffin and Davis (1941) and Brain (1968) suggest a possible Marksville period use. The one thing that everyone is in agreement on is that the main occupation of the site was during the Baytown period with a lesser occupation during the Mississippian period. The surface collection reinforces this assessment. The majority of ceramics are from the Baytown period with a much smaller number from the Mississippian period. The Poverty Point occupation can not be verified either with ceramic or non-ceramic artifacts. The Marksville period use of the site is also not substantiated. Only one Marksville period sherd was found out of the 8,092 sherds collected.
The ceramics found at Shady Grove can be divided into two occupations, a Baytown and a Mississippian. The spatial distribution of both occupations can be plotted and areas of use determined.

**Coahoma Phase**

The Baytown component at the Shady Grove site likely belongs to the Coahoma phase. This phase lasted from the time that Marksville ceramics died out (AD 300) until the development of Mississippian ceramics (AD 1000) (Phillips 1970:905). It is contemporaneous with the Deasonville in the southern Yazoo Basin. The ceramics found at Shady Grove are consistent with the Coahoma phase ceramics rather than Deasonville types. The major types, Baytown Plain and Mulberry Creek Cord-Marked, *var. Edwards*, are the same in both Deasonville and Coahoma. The differences are in the minorities. Deasonville is influenced by Coles Creek culture from the far southern portion of the Yazoo Basin. This influence does not penetrate as far north as the Coahoma phase and is the main difference between the two. Phillips (1970:906) suggests that ceramic minorities for the Coahoma phase include Withers Fabric Marked, Larto Red, Alligator Incised, *vars. Oxbow and Alligator*, and Salomon Brushed. Some sites have produced Indian Bay Stamped, French Fork Incised, Woodville Zoned Red, Chevalier Stamped, and Yates Net Impressed in very small amounts. The Deasonville phase has a similar ceramic assemblage, with the addition of Coles Creek, *var. Hunt*, and a rough type of Baytown plain called, *var. Reed*. The Shady Grove site has not produced a sizable amount of Coles Creek influenced ceramics. Only one Coles Creek sherd was found which was quite small and not the typical arrangement of multiple overhanging lines around the rim. This single sherd featured a single line, non-overhanging, and a row of punctuations beneath; definitely Coles Creek Incised, but not the typical arrangement. Without a significant Coles Creek influenced assemblage, the ceramics at Shady Grove must represent a Coahoma phase occupation. The Baytown Plain, *var. Reed* is sorted based on the size of the clay temper, and it’s general roughness. The Shady
Grove sample was not sorted based on this criteria, all Baytown Plain was simply called *var: Unspecified*. A large proportion of the Baytown Plain does include a coarse temper, however this type of sorting can be quite subjective, and time consuming. For these reasons it was not done.

Mulberry Creek Cord-Marked is distributed east of the Mississippi River, and from north of Memphis, TN to south of Greenville, MS. The main distribution lies in the center from Clarksdale to Cleveland, MS. The highest percentage frequency distribution lies north from Memphis to Clarksdale, with 80%. The proportion of Baytown Plain to Mulberry Creek Cord-Marked is also an important factor in determining Baytown period phase designations in the Yazoo Basin. Phillips (1970:906) and McNutt (1996:274) suggest that one of the distinguishing characteristics between the Coahoma phase and the Deasonville phase is the dominance of Mulberry Creek over Baytown Plain. In the northern Yazoo Basin Mulberry Creek sherds outnumber Baytown Plain by a ratio of 3:1. Around Cleveland, this ratio has dropped to 2:1. Further south, some sites feature Baytown over Mulberry Creek. Phillips (1970:906) suggests that this is representative of a general weakening of the cord and fabric marking traditions in the lower Yazoo Basin. The proportions of Mulberry Creek to Baytown Plain at the Shady Grove site do not fit this general model. The ratio of Mulberry Creek to Baytown Plain for the surface collection was approximately 2:3. According to Phillips (1970) this ratio should be closer to 3:1. Table 4.2 shows the ratios for the surface collection, Test Unit #1, as well as the surface collection done by Phillips, Ford, and Griffin in 1941.

<table>
<thead>
<tr>
<th>Table 4.2 Shady Grove Ceramic Ratios.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Surface Collection</td>
</tr>
<tr>
<td>Mulberry Creek Cord-Marked</td>
</tr>
<tr>
<td>Baytown Plain</td>
</tr>
<tr>
<td>Ratio (approximate)</td>
</tr>
</tbody>
</table>

The test pit assemblage from Shady Grove conforms to the expected ratio of Mulberry Creek to Baytown. However, the surface collection shows a dominance of Baytown Plain over Mulberry Creek. This ratio is more suggestive of Deasonville rather than Coahoma. Phillips,
Ford, and Griffin (1951:82, 87) notes that as the Baytown period came to an end, the amount of Mulberry Creek decreased, and the amount of Baytown Plain increased. This suggests that the surface assemblage falls later in the sequence than the test pit assemblage.

The ceramic assemblage suggests that there is a Coahoma phase occupation at Shady Grove. The ceramics could be either Coahoma or Deasonville, except for the absence of the Coles Creek, var. Hunt, which excludes a major Deasonville occupation of the site. The dominance of Baytown Plain over Mulberry Creek suggests that the site may have been continuously occupied, or had multiple occupations during the Baytown period, with at least one of them being late in the sequence.

**Hushpuckena Phase**

Phillips (1970:941) suggests that markers for the Hushpuckena phase are the dominance of Mississippi Plain over Bell Plain and the dominance of Barton Incised over Parkin Punctated. He also states that Carson Red on Buff is well represented. The Mississippian period ceramics from the surface collection were predominately Mississippi Plain. A total of 529 Mississippian period sherds were collected, and only 3 were not Mississippi Plain. No Bell Plain and no Parkin Punctated were found and only two Barton Incised sherds were found. There was almost no shell tempered redware found, only one piece of Old Town Red and none of the expected Red on White types. The lack of redware is disconcerting, as it should be fairly well represented in a Hushpuckena phase assemblage (Phillips 1970:941). With the exception of the redware, this assemblage is consistent with the Hushpuckena phase, however the sample was not as large as I would have liked.

**Ceramic Conclusions**

The ceramics at Shady Grove suggest that there were two major identifiable occupations,
a Coahoma phase and a Mississippian period occupation, possibly Hushpuckena. There is little
evidence of an earlier Middle Woodland or an intermediary Peabody phase occupation. Brain
(1968) suggested a possible Middle Woodland/Tchefuncte occupation of the site. He based this
on a single Marksville Incised sherd found several hundred meters north of the main village site,
which he suggested should be considered a separate site. The surface collection has not produced
evidence for an earlier occupation, only one other Marksville type sherd was found during the
excavation of Test Unit #1. This lack of Marksville period sherds suggests that if there was a
Middle Woodland occupation, it was not substantial.

     The Peabody phase is the closest thing the Northern Yazoo has to a Coles Creek period
phase. This phase is marked by the occurrence of Coles Creek ceramics in small amounts,
and the dominance of Baytown over Mulberry Creek. While there is a high ratio of Baytown
Plain over Mulberry Creek, there are very few Coles Creek ceramics. Sam Brookes (1980) has
evidence from the Barner site (22-Co-542) which suggests that the ratio of Baytown to Mulberry
Creek is not as strong an indicator as Phillips first thought. He also states that along with several
varieties of Coles Creek types, French Fork Incised, Officer Punctated, and Keno Incised are
good Peabody phase markers. These ceramic types are not found at Shady Grove. Only one
Coles Creek Incised sherd was found during the surface collection. Coles Creek did not have as
much influence in the Northern Yazoo Basin as it did in the south. Even Phillips (Phillips 1970)
admits that the Peabody phase is not a strong phase. This may indicate that either the site was
not occupied during the Peabody phase, or that the Coahoma phase continued for a longer period
of time. The ceramic assemblage suggests that the site was occupied predominantly during the
Coahoma phase, and again in the Early Mississippian period. Ceramic evidence for an earlier
Middle Woodland occupation is unsubstantiated, and evidence for a Coles Creek/ Peabody phase
occupation is inconclusive at this time.
Lithics

Lithic material at Mississippian sites in the Delta is generally pretty sparse. Test Unit #1 produced only 43 pieces of lithic material, mostly shatter. The surface collection was more productive, with 717 pieces of debitage. Besides the debitage, 61 tools of varying types were found including 12 projectile points. The vast majority of lithic material was gravel from the Citronelle formation. This is the closest available source and can sometimes be found on gravel bars in the rivers of the Delta region. Besides the Citronelle, several pieces of Ft. Payne chert were found, including a white fossiliferous type and the more common blue-gray type. This formation outcrops in north Alabama, Tennessee, and northeast Mississippi. A few pieces of Kosciusko quartzite were also found. This raw material is typically grainy, with small quartz inclusions. It outcrops in central Mississippi. Sandstone and petrified wood were also found. Both of these can be found throughout the North Mississippi uplands. Lithic analysis was not a major focus of this project, so only basic information will be presented. The debitage will be presented in table form while descriptions of major diagnostic artifact categories will be given.

Table 4.3  Lithic Artifacts at Shady Grove.

<table>
<thead>
<tr>
<th>Debitage Type</th>
<th>Surface Collection</th>
<th>Test Unit #1</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flakes</td>
<td>361</td>
<td>7</td>
<td>368</td>
</tr>
<tr>
<td>Shatter</td>
<td>123</td>
<td>26</td>
<td>149</td>
</tr>
<tr>
<td>Fire Cracked Rock</td>
<td>132</td>
<td>8</td>
<td>140</td>
</tr>
<tr>
<td>Sandstone</td>
<td>58</td>
<td>2</td>
<td>60</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>674</strong></td>
<td><strong>43</strong></td>
<td><strong>717</strong></td>
</tr>
</tbody>
</table>

Collins Projectile Point

Several of these small projectile points were found during the surface collection. The Collins point is a side notched point with slightly concave or straight base. The blade may be straight or convex. The tips on Collins points may be retouched into a long needle like point. However, none from this sample were recovered. Material type is usually brown chert from the
nearest source. Of the 5 examples from Shady Grove four are made of Citronelle gravel and one is made from Kosciusko quartzite. McGahey (2000:198) suggests that the type is usually heat treated. However, only two of the examples from Shady Grove have been. This type is usually found at Baytown period sites, and may be a marker for the Deasonville and Coahoma phases. The point type is first seen around AD 400-500, and likely represents the first use of the bow and arrow in the Yazoo Basin. The type was replaced by the Madison type around AD 1000. (McGahey 2002:189; Williams and Brain 1983:222)

**Madison Projectile Point**

The small arrow points are triangular in shape with the base usually being straight. The blades may be straight but may also be slightly concave or convex. The blades may have fine pressure flaking on the edges. Material is usually Citronelle pebbles, and is frequently heat treated. All five of the Madisons in this sample are made of Citronelle and only one is not heat treated. This type is sometimes made from small flakes and one example of a Madison point made from a flake was found at Shady Grove. This point type was introduced into Mississippi around the same time as the Collins, however Madison eventually replaced the Collins as the dominate type and continued to be used well into the historic period. Madison is frequently found in association with Mississippian period sites and serves as a diagnostic artifact for this period. (McGahey 2002:200; Williams and Brain 1983:235)

**Unidentified Stemmed Projectile Point**

Two small stemmed projectile points were found during the surface collection which could not be identified but appear to be of the same type. Heavy reworking and poor workmanship make these points difficult to type. About the only thing that can be positively stated is that they feature a stemmed base. The bases are similar to the bases of the Little Bear Creek point type. However, reworking is extensive. The distal ends have been reworked almost
to the point of having a drill-like appearance. They do not feature the rotational wear typical of a drill. Both are heat treated, and one is made of Citronelle while the other is made of an unknown material. Stemmed projectile points of this type can date to the Late Archaic/Poverty Point period through the Middle Woodland period. These points are almost certainly older than the Collins and Madison arrow points. How much older is difficult to determine.

(McGahey 2002:152)

**Blade**

| n = 1 |

A single small blade made from a prepared core was found. It shows use wear along both sides. The material is blue-gray Ft. Payne chert which is not local. It has not been heat treated. Blades are more frequently found in association with Middle Woodland/Marksville period sites than with Baytown period sites. The material is usually exotic; similar examples found at the Batesville site have been made of cherts from Missouri, Illinois, Indiana, Arkansas, and Tennessee.

(Johnson et al. 2002:76)

**Deasonville Choppers**

| n= 3 |

These artifacts, sometimes called “Mound C Scrapers”, are multi-purpose tools. They are generally ovate in shape, sometimes with one end squared off. Typically these choppers are very completely manufactured, with cortex only very rarely left on. Phillips claims that wear patterns suggest they were occasionally hafted, and were used for chopping, cutting, and scraping. The Deasonville choppers are a diagnostic artifact for the Deasonville phase, and can be found at nearly all sites with a Deasonville occupation.

The three choppers found at Shady Grove do not conform exactly to Phillips typology. All three of these artifacts were only partially flaked, unlike Phillips choppers, which were completely flaked. All three suggest different uses as well. Wear on two suggests an actual chopping motion was used, as there are tiny chips in the flaked edges. The third however has a
very smooth, well worn edge, suggesting more of a scraping use. Two are made from Citronelle gravel, while the third is made from a piece of quartz gravel. None are heat treated.

**Hammer-Stones**

n = 21

The Shady Grove site did not yield a large amount of lithic debitage. Because of this, I was not expecting to find many hammer-stones. However, 21 were found in the surface collection. Most of these hammer-stones were simply Citronelle gravel which was heavily pitted at one or both ends. This type of artifact is usually used when knapping, however the large number of hammer-stones and the lack of debitage suggest they may have had an additional use at the Shady Grove site. They may have been used in nut processing or some other unknown activity.
(Williams and Brain 1983:254)

**Nutting Stones**

n = 3

These stones feature a pitted and worn indentation on one side. They were likely used as an anvil in the processing of nuts. Williams and Brain (1983:266) suggest that these artifacts are later and relatively rare. They propose that other methods for nut processing were preferred. Two of these stones are made from sandstone, and the third is made from quartz. All three are broken in half. The sandstone would seem to be a bad choice for nutting stones. This material can be quite soft, and would likely have broken quite easily. Its use suggests that large pieces of Citronelle gravel or quartz were difficult to acquire.
(Williams and Brain 1983:266)
Figure 4.11

Collins Projectile Points. AY-BC. Surface Collection.

Madison Projectile Points. BD-BH. Surface Collection. Artifact BF was made on a flake.
Figure 4.12

Unidentified Stemmed Projectile Points. BI-BJ. Surface Collection.
Prepared Core Blade. BK. Surface Collection.
Deasonville Choppers. BL-BM. Surface Collection.
Lithic Conclusions

A detailed analysis of the lithic artifacts found at Shady Grove was not done. However, some conclusions can be made about the stone artifacts found. The projectile points found reconfirm the ceramic chronology. Both Collins and Madison point types would be expected of a Baytown and Mississippian period occupation. The prepared core blade suggests that there may have been some earlier use of the site, possibly in the Marksville period. However, as with the ceramics, there is no evidence of this being a significant component at this site. The presence of Deasonville Choppers, as well as Kosciusko quartzite suggest some contact with southern groups. The presence of Ft. Payne also indicates some contact with groups to the north and east.

Faunal Material

The surface collection did not produce a large amount of faunal material. Some larger pieces, mainly deer, were collected but the vast majority of faunal remains were likely too fragile to survive cultivation. The under representation of faunal remains in the surface collection can not be remedied at this time. However, Test Unit #1 produced a great deal of faunal material. Material includes riverine and terrestrial resources as well as a great deal of shell. The data from Test Unit #1 suggest that a large portion of the diet was aquatic resources with a lesser amount of mammal. Fish was obviously an important food item. Species found include freshwater drum, catfish, and gar. All three of these were identified by distinctive faunal remains but the majority of the fish remains were not identified. Turtle also played an important role in the diet. Many pieces of turtle shell were found. Deer made up the main portion of the mammal bones found, with a much smaller amount of rodent, possibly squirrel. A table below shows the numbers of bones of each faunal type.
Table 4.4  Shady Grove Faunal Remains.

<table>
<thead>
<tr>
<th></th>
<th>Fish</th>
<th>Reptile</th>
<th>Mammal</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Unit #1</td>
<td>134</td>
<td>73</td>
<td>88</td>
<td>295</td>
</tr>
<tr>
<td>Surface Collection</td>
<td></td>
<td></td>
<td></td>
<td>149</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td>354</td>
</tr>
</tbody>
</table>

**Ceramic Spatial Distributions**

One of the main goals of this thesis was to determine if specific areas of the Shady grove site were used differently at different times. Brain (1968) suggested that Woodland period artifacts were spread across the site, while Mississippian period artifacts were concentrated near Mound A. This was found to be the case. The Woodland period artifacts are spread across the site but not in a haphazard way. They are very much concentrated in a circular pattern, which matches closely to the Tchula Lake shell ring and the ditch. The Woodland ceramics also have their highest concentration near Mound A, the same area in which the Mississippian artifacts are found. This suggests that this area held some significance before the mound was constructed in the Mississippian times. See Figures 4.13-16.

In order to map temporal changes in the spatial distributions of artifacts, the artifacts first must be divided into Woodland and Mississippian period artifacts. Because ceramic types frequently span several periods, by grouping them into artificial categories, the data will contain a natural bias suggesting two separate periods, when in fact there may have been a continuous occupation. This bias can not be avoided when using data this way. Care has been taken to select only ceramic types which are representative of each period. Artifacts which are not typical of the ceramic type have also been excluded. Baytown Plain, *var. unspecified*, the largest type overall, was not included in either category because it has a long period of use, and does not
Figure 4.13  Coahoma Phase Ceramic Distribution.

This image shows the Coahoma phase ceramic distribution. The ditch has been included for spatial reference. The star represents the weighted mean center.
Figure 4.14  Baytown Ceramic Distribution.

This image shows the distribution of only Baytown Plain ceramics. The ditch has been included for spatial reference. The star represents the weighted mean center.
Figure 4.15  Coahoma Phase and Baytown Plain Ceramic Distribution.

This image shows the distribution of both Coahoma phase ceramics and Baytown Plain.
Figure 4.16 Mississippian Period Ceramic Distribution.

This image shows the distribution of all Mississippian period ceramics.
indicate either a specifically Woodland period or Mississippian period occupation. Its distribution however was similar to that of the Coahoma phase ceramics. The ceramic types used in each category are in Table 4.5.

Table 4.5  Period Assignment for Shady Grove Ceramics.

<table>
<thead>
<tr>
<th>Woodland Period</th>
<th>Mississippian Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alligator Incised, <em>var. Alligator</em></td>
<td>Barton Incised, <em>var. unspecified</em></td>
</tr>
<tr>
<td>Alligator Incised, <em>var. Oxbow</em></td>
<td>Mississippi Plain, <em>var. unspecified</em></td>
</tr>
<tr>
<td>French Fork Incised, <em>var. unspecified</em></td>
<td>Old Town Red, <em>var. unspecified</em></td>
</tr>
<tr>
<td>Hollyknowe Ridge Pinched, <em>var. unspecified</em></td>
<td></td>
</tr>
<tr>
<td>Larto Red, <em>var. unspecified</em></td>
<td></td>
</tr>
<tr>
<td>Mulberry Creek Cord-Marked, <em>var. unspecified</em></td>
<td></td>
</tr>
<tr>
<td>Salomon Brushed, <em>var. Salomon</em></td>
<td></td>
</tr>
</tbody>
</table>

In order to quantify the distribution of artifacts across the site, the data was submitted to statistical analysis. In this case correlation was the appropriate statistic. Correlation is a way of comparing the relationship between two variables. The result of a correlation is called the correlation coefficient, and is represented by $r$. This number is always between -1 and 1. A positive number means that as one of the two variables being considered increases so does the second. A correlation coefficient of 0 means that there is no relationship between the two variables and a negative number means that as one variable goes up, the second goes down. The closer to either -1 or 1 a correlation coefficient is, the stronger the relationship.

To test the relationship between the ceramic data at Shady Grove this statistic was used in several different ways. The first thing I wanted to test was the relationship between the Coahoma phase artifacts and Baytown Plain. Baytown Plain was certainly used during the Coahoma phase, in fact it was the dominant ceramic type. However, it was also used, in limited amounts, during the Mississippian period.

A high positive correlation of .835 between the Coahoma phase and the Baytown
ceramics suggests that the two are closely related. As the amount of Coahoma phase ceramics goes up, so does the amount of Baytown Plain. This was exactly what was expected since Baytown Plain is the dominant ceramic type from the Coahoma phase at Shady Grove. A second correlation is then done between the Coahoma phase and the Mississippian ceramics.

<table>
<thead>
<tr>
<th></th>
<th>Baytown</th>
<th>Coahoma</th>
<th>Mississippian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baytown</td>
<td>1</td>
<td>0.835</td>
<td>NA</td>
</tr>
<tr>
<td>Coahoma</td>
<td>0.835</td>
<td>1</td>
<td>0.556</td>
</tr>
<tr>
<td>Mississippian</td>
<td>NA</td>
<td>0.556</td>
<td>1</td>
</tr>
</tbody>
</table>

This correlation again shows a positive relationship between the Coahoma phase and the Mississippian ceramics. The correlation of .556 is not nearly as strong as the .835 correlation of the Coahoma and Baytown. However, this relationship is still quite strong. This was not what was expected. Either a negative or a much lower positive correlation would be expected since the Coahoma and Mississippian periods were temporally separate. This positive correlation between the Coahoma and Mississippian ceramics is likely due to the way in which the two are compared. The first set of correlations was done without regard to spatial distribution. The total amount of Coahoma ceramics was compared to the total amount of Mississippian ceramics from across the entire site. If there are high concentrations of Mississippian ceramics near Mound A, as suggested by Brain (1968) then the two are not necessarily related. By examining the correlation across the entire sample the statistics are skewed. This is in fact the case. The ceramic density maps suggest that both the Coahoma and Mississippian artifacts are found primarily near Mound A. The difference is that the Coahoma phase ceramics have their highest concentration near Mound A but are also found spread across the site, closely following the Tchula Lake shell ring. The Mississippian artifacts are not. The density maps suggest that there is a positive correlation in the southern portion of the site but no correlation in the northern portion of the site. A more area specific statistical analysis is needed.
In order to remedy this, the site must be separated into approximately equal sections, and the correlation done between these sections. This would allow for differences in the spatial distribution of artifacts. The site was separated into 6 roughly equal sections (Figure 4.17). The correlations were done between both Coahoma phase artifacts and Baytown Plain, and Coahoma and Baytown Plain combined and Mississippian period ceramics. When the correlation was done this way, the results more closely match the distribution as shown in the artifact density maps. The Baytown Plain and Coahoma are strongly positively correlated across the site but slightly more so in the southern portion. The Coahoma plus Baytown plain and Mississippian is much less positively correlated. However, there is still a small positive correlation. A general trend however can be seen. The amount of both Coahoma/ Baytown Plain and Mississippian both increase in the southern portion of the site. In the northern portion of the site there is a nearly neutral correlation between the two. This statistical data confirms what the density maps suggest, that the Woodland period artifacts are distributed across the site, with the highest concentration in the southern portion. While the Mississippian period artifacts are concentrated almost exclusively in the southern portion, near the mound.

These results were tested for statistical significance using Students t- test. This test will test whether the relationship between two variables is a true relationship or whether it may be a result of chance. In order to determine if these results were in fact significant, we first must create a hypothesis. This will be done for both the Coahoma and Baytown distributions, as well as the Coahoma + Baytown plain and Mississippian distributions.

**Coahoma/Baytown Hypothesis**

$H^0 = \text{Distribution of Coahoma and Baytown plain are NOT related.}$

$H^1 = \text{Distribution of Coahoma and Baytown plain ARE related.}$

If $\rho \leq a$, we REJECT the Null hypothesis.
Coahoma + Baytown plain /Mississippian

H⁰ = Coahoma + Baytown plain and Mississippian ARE related.

H¹ = Coahoma + Baytown plain and Mississippian are NOT related.

If ρ ≤ a, we REJECT the Null hypothesis.

After hypotheses are made, then the results of the t-test are compared to a, which represents the amount of error we find acceptable. For the social sciences an alpha of .05 is considered accurate. In any case in which ρ is less than .05, we reject the Null hypothesis, or in other words we accept the H¹ research hypothesis. In the case of Shady Grove the H¹ hypothesis was selected for the Coahoma and Baytown plain, suggesting that the distribution of the two are related. For the Coahoma plus Baytown plain and Mississippian, the ρ was less than .05 in sections 1, 2, and 6. Therefore the H⁰ hypothesis was selected, suggesting that the distributions of Coahoma and Mississippian artifacts are NOT related. These are the northern most sections. The southern sections of 3 and 4 however, ρ is less than the a. So the H¹ hypothesis is accepted in these two sections, which suggests that the Coahoma and Mississippian distribution ARE related in these southern two sections. Section 5 contained no Mississippian sherds so a correlation could not be computed.

Figure 4.17 Statistical Sections.
Table 4.7  Sectioned Correlations.

<table>
<thead>
<tr>
<th>Section</th>
<th>Coahoma/ Baytown</th>
<th>$\rho$</th>
<th>$a$</th>
<th>Hypothesis Chosen</th>
<th>Coahoma+ Baytown/ Mississippian</th>
<th>$\rho$</th>
<th>$a$</th>
<th>Hypothesis Chosen</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.719</td>
<td>0.000</td>
<td>0.05</td>
<td>$H^1$</td>
<td>0.092</td>
<td>0.684</td>
<td>0.05</td>
<td>$H^0$</td>
</tr>
<tr>
<td>2</td>
<td>0.841</td>
<td>0.000</td>
<td>0.05</td>
<td>$H^1$</td>
<td>0.355</td>
<td>0.148</td>
<td>0.05</td>
<td>$H^0$</td>
</tr>
<tr>
<td>3</td>
<td>0.853</td>
<td>0.000</td>
<td>0.05</td>
<td>$H^1$</td>
<td>0.527</td>
<td>0.025</td>
<td>0.05</td>
<td>$H^0$</td>
</tr>
<tr>
<td>4</td>
<td>0.914</td>
<td>0.000</td>
<td>0.05</td>
<td>$H^1$</td>
<td>0.601</td>
<td>0.005</td>
<td>0.05</td>
<td>$H^1$</td>
</tr>
<tr>
<td>5</td>
<td>0.731</td>
<td>0.001</td>
<td>0.05</td>
<td>$H^1$</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>6</td>
<td>0.585</td>
<td>0.001</td>
<td>0.05</td>
<td>$H^1$</td>
<td>0.155</td>
<td>0.440</td>
<td>0.05</td>
<td>$H^0$</td>
</tr>
</tbody>
</table>

The final statistic used was simply a weighted mean center for both the Coahoma and Mississippian ceramics. This was done using the Mean Center tool under Spatial Statistics in ArcMap 9.3. Once the weighted mean centers were found, the average distance between these weighted points and every other point containing either Coahoma or Mississippian sherds was found. This was done using the distance to points tool in Hawths Tools. The values for the two average distances were then submitted to a Students T-test to test for significance. In this instance:

$H^0$ = Average distance from the weighted mean center for the Coahoma and Baytown ceramics does NOT differ significantly from the Mississippian average distance from the weighted mean center.

$H^1$ = Average distance from the weighted mean center for the Coahoma and Baytown ceramics DOES differ significantly from the Mississippian average distance from the weighted mean center.

If $\rho \leq a$, we REJECT the Null hypothesis.
This data suggests that there is a significant difference between the average distance between the weighted mean center of the Coahoma distribution and the average distance between the weighted mean center of the Mississippian artifacts. This again confirms what the other statistics and the distribution maps show; that the Coahoma and Mississippian artifacts do in fact have different distributions.

**Geophysical Survey Results**

The geophysical survey was very successful in identifying subsurface features, especially the magnetometry. Several prominent features contrasted very well, including a ditch, extinct river channels, possible pit-like features, and possible Mississippian house floors. Identification of features was done through excavations, as well as previous experience with similar features. The conductivity and magnetic susceptibility survey confirmed the presence of both the outer ditch and a parallel inner feature, possibly an embankment.

**Magnetometry**

The magnetometry survey showed several features. First is an extinct river channel in the northern portion of the survey area (Figure 4.18). This channel runs in an east/west direction, and has a smaller channel running into it in the north western side. Several hundred meters to
the west of the Shady Grove site are several oxbow lakes which are remnant lakes from the Mississippi rivers most eastern channel (Saucier 1994). The channel in the magnetometry survey may run into these lakes, or they may run into the Coldwater River, which is less than 100m to the east. It has not been possible to date these extinct channels definitively. However, the Tchula Lake shell ring is on top of the channel so it can confidently be stated that the channels were not active after about AD 500. It is likely that they were active much earlier.

The second and possibly most significant feature in the magnetometry survey is the ditch. The ditch runs around the site, under the surface shell. The ditch is consistently approximately 5 meters across. Without knowing exactly how far east the ditch goes, precise measurements cannot be obtained. However, based on the direction that the far eastern ends, both in the northern and southern portions of the ditch, where it meets the road, as well as the visible shell on the surface, an estimated extent of the ditch can be made. Including this estimated portion, the ditch has an east/west diameter of 239m, and a north/south diameter of 190m. Using ArcMap, an interior area of the ditch can be calculated at 34,690m², or 8.57 acres. The ditch has an estimated circumference of 685m. The ditch appears to have two openings in the northern portion but, without further testing, this cannot be verified. A trench was dug through this ditch, the results of which will be presented in the excavation portions of this chapter. The magnetometer data also shows what appears to be an inner ring, which parallels the ditch in the south western portion of the circular enclosure. This inner ring is very faint, and may be a natural feature. Further testing will be required to verify or refute its existence.

There are also many pit-like features spread across the site. There are approximately 121 or more of these unidentified features. These features appear as areas of higher magnetivity and show as darker areas in the imagery. Without excavation these cannot be positively identified but similar features at other sites have proven to be midden pits. These features sort into two distinct groups. There is a high, more concentrated distribution of them in the very center of the area inclosed by the ditch and a second distribution along the ditch, both on the interior and exterior.
Figure 4.18  Magnetic Gradiometer Survey.

This image shows the magnetic gradiometer survey along with all feature interpretations.
The features in the center concentration appear to be somewhat larger, about 2-3m in diameter. The features in the outer concentrations are smaller, and range anywhere from less than a meter to 2m in diameter. Many of the features in the outer concentration are arranged in a linear fashion, sometimes with 4 or more features in a line. Without excavation these features cannot be positively identified, however I am quite confident in my interpretation as midden pits.

The final feature set revealed by the magnetometry are possible Mississippian house remnants. These features, which are located in the southern portion of the site, near Mound A, look similar to Mississippian house floors at other sites. Again, without excavations, these features can not be positively identified. Mississippian house floors frequently show very well in magnetometry surveys. The wattle and daub construction of Mississippian houses was frequently burned, either because it needed replacing or because of malicious actions. This burning heated the packed clay floors to the Curie point, capturing the earths magnetic field at that time. This remnant magnetism will show in magnetometry data as a weak dipole, having both a positive and negative magnetic field. At the Shady Grove site, these features are arranged in a semi-circular pattern near the northern base of Mound A.

One final anomaly which should be noted, is the large dipole in the southern portion of the survey. This large white circle, with a black center, indicates a ferrous metal object, which is buried vertically. Its strong magnetic field completely overwhelms any other magnetic signal within its radius. Identification and removal of this object was not attempted.

**Magnetic Susceptibility**

The magnetic susceptibility portion of the EM survey, otherwise known as in-phase, was less productive than the magnetometry but still revealed multiple subsurface features. See Figure 4.19. The ditch revealed by the magnetometry shows very prominently in the in-phase data. This area, which contrasts sharply with the surrounding soils, is full of more magnetic midden material. The extinct river channel, which shows as an area of low magnetivity, is also visible.
Figure 4.19  Magnetic Susceptibility Survey.
This is likely due to higher amounts of sand, which has different magnetic properties. There is also a large unidentified feature in the south east portion of the survey. This area of high magnetic susceptibility is 16m across and square. I would not care to guess what it is without further investigations. Also of interest in the in-phase is the general increase in magnetic susceptibility from north to south. Approximately 50m north of Mound A the ground begins to rise up toward the mound slightly, to a height of about 1m. This higher ground also corresponds to the highest artifact concentration, as revealed by the surface collection, the details of which will be given later. This general north to south increase in magnetic susceptibility, could be due to multiple cultural factors. These factors may include pedogenic enhancement through human activity, as well as increased fired materials (Dalan 2002:163).

Conductivity

The EM survey also included a quad phase component, or Q-phase. As discussed earlier, this technique measures the ability of soil to conduct an electric current. It works well in detecting different subsurface soil types and is frequently used by soil scientists and agriculturalists. In the EM survey at Shady Grove it was able to differentiate several different soil contrasts. See Figure 4.20. Again, the ditch was one of the more prominent features. It is represented by an area of lower conductivity, roughly .10 mS/m lower than the surrounding area, possibly because of the presence of shell within the ditch. The inner ring also shows quite well in the conductivity survey. In the conductivity survey, the inner feature appears to actually be two features, both of which run parallel to the outer ditch. Both inner features are approximately 5m across. One of the inner features corresponds almost exactly with the feature found in the magnetometry survey. These inner features actually show as an area of higher conductivity, as opposed to the outer features lower conductivity. This could be suggestive of a berm rather than a ditch (Clay 2002). Soil characteristics play a large role in any conductivity survey. Grain size, composition, and moisture content will all affect conductivity data. Besides the cultural features
Figure 4.20  Conductivity Survey.
mentioned above, there are several other noticeable soil contrasts. An area of low conductivity, in the 25 mS/m range is located in the far northern portion of the conductivity survey. This area corresponds to the extinct river channel in the magnetometry survey. Its lower conductivity is likely due to changes from silty loam to sandier soils. The amount of moisture each soil will hold also affects conductivity; the smaller grain size allows a soil to hold more water, increasing conductivity. The far southern portion of the survey also has lower conductivity. This area corresponds to the higher ground mentioned earlier. The lower conductivity, which ranges from 34-28 mS/m, is likely due to better drainage of the high ground.

Excavations

Two separate excavations were undertaken in 2011. A test unit was dug on the eastern side of the road. The purpose of this test unit was to determine stratigraphy for the shell ring. The second excavation was a trench through the ditch identified in the geophysical survey. The trench was dug in order to determine construction and composition of the ditch.

Test Unit #1

This 1x1m unit was dug on the eastern side of the road. The area was leveled and cultivated when the small conical mound was bulldozed in 1975. There are disc and chisel plow scars throughout the upper 50cm of cultural deposit. I was hoping to have undisturbed midden material, but this was not the case. See Figures 4.21-23. Ceramics, lithics, and faunal remains are found down to a depth of 120cm below surface, with the highest concentrations of all three at a depth of only 20cm. Soils were silty sand from the surface to about 60cm. At 60cm the soil became sandier, and was deposited in layers as waterlain soils. At a depth of 130cm the soil turned to a sterile hard, dark gray clay. This same clay subsurface can be found across the site, usually no deeper than 200cm. The shell occurred in two distinct zones. The upper zone occurred from about 15-30cm. This zone was dense shell with some soil.
Figure 4.21  Test Unit #1, North Wall

This image shows Test Unit #1, North Wall. Note the dense shell at the top.
Figure 4.22  Test Unit #1, North Wall Profile Drawing
Figure 4.23  Test Unit #1, North Wall Profile Legend.
From 30cm to about 50cm, there was still shell but much less. The second concentration of shell occurred at 50cm down to a depth of 60cm. After this zone the soil became much sandier, and shells and artifacts only occurred sporadically, most likely pulled down from the above zone by bioturbation.

Artifacts were mainly ceramics and faunal with a small amount of lithic debitage. See Tables 4.9-10. Ceramic types included Mulberry Creek Cord- Marked, Baytown Plain, Larto Red, Mississippi Plain, and Marksville Stamped. There was no change in artifact type with depth. The 3:1 ratio of Mulberry Creek to Baytown Plain which is expected at Coahoma phase sites in the area, is found in Test Unit #1 in nearly all levels. See table 5 and 6 below for ceramic and faunal distributions by level. Faunal remains included fish, turtle, and deer. A single small ceramic bead was found in level #3 (20-30cm). A description of this bead was given in the ceramic sections.

This test unit was intended to determine if there was a noticeable cultural change with depth. Unfortunately the stratigraphy was disturbed for most of the cultural deposit by agricultural practices. The shell was distributed in two distinct layers. The upper layer was shell which had been redepited by land leveling and plowing. The lower deposit remains largely undisturbed, with the exception of chisel plowing, which was evidenced by deep linear scars down to a depth of about 50cm. The majority of artifacts were found in the plowzone, those found outside the plowzone were likely moved there by bioturbation. Because of the agricultural disturbance, this unit does not provide clear evidence of cultural change with depth.
Table 4.9  Ceramics by Level for Test Unit #1.

<table>
<thead>
<tr>
<th>Level #</th>
<th>Depth (cm)</th>
<th>Mulberry Creek</th>
<th>Baytown Plain</th>
<th>Mississippi Plain</th>
<th>Larto Red</th>
<th>Marksville Stamped</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0-10</td>
<td>7</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>10-20</td>
<td>90</td>
<td>27</td>
<td>3</td>
<td>3</td>
<td></td>
<td>123</td>
</tr>
<tr>
<td>3</td>
<td>20-30</td>
<td>99</td>
<td>34</td>
<td></td>
<td>1</td>
<td></td>
<td>134</td>
</tr>
<tr>
<td>4</td>
<td>30-40</td>
<td>59</td>
<td>26</td>
<td></td>
<td>1</td>
<td></td>
<td>86</td>
</tr>
<tr>
<td>5</td>
<td>40-50</td>
<td>19</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td>25</td>
</tr>
<tr>
<td>6</td>
<td>50-60</td>
<td>6</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>8</td>
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<td>7</td>
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<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>70-80</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>9</td>
<td>80-90</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>10</td>
<td>90-100</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>100-110</td>
<td>4</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>12</td>
<td>110-120</td>
<td>4</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>293</strong></td>
<td><strong>102</strong></td>
<td><strong>3</strong></td>
<td><strong>4</strong></td>
<td><strong>1</strong></td>
<td><strong>403</strong></td>
</tr>
</tbody>
</table>

Table 4.10  Faunal Remains by Level for Test Unit #1.

<table>
<thead>
<tr>
<th>Level #</th>
<th>Depth (cm)</th>
<th>Mammal</th>
<th>Fish</th>
<th>Reptile</th>
<th>Total</th>
<th>Shell (oz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0-10</td>
<td>6</td>
<td></td>
<td></td>
<td>6</td>
<td>0.81</td>
</tr>
<tr>
<td>2</td>
<td>10-20</td>
<td>7</td>
<td>4</td>
<td>10</td>
<td>21</td>
<td>193.51</td>
</tr>
<tr>
<td>3</td>
<td>20-30</td>
<td>32</td>
<td>73</td>
<td>29</td>
<td>134</td>
<td>466.1</td>
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<tr>
<td>4</td>
<td>30-40</td>
<td>13</td>
<td>17</td>
<td>16</td>
<td>46</td>
<td>164.9</td>
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<tr>
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<td>40-50</td>
<td>10</td>
<td>7</td>
<td>1</td>
<td>18</td>
<td>430.9</td>
</tr>
<tr>
<td>6</td>
<td>50-60</td>
<td>7</td>
<td>7</td>
<td>2</td>
<td>16</td>
<td>261.06</td>
</tr>
<tr>
<td>7</td>
<td>60-70</td>
<td>3</td>
<td>2</td>
<td></td>
<td>5</td>
<td>11.34</td>
</tr>
<tr>
<td>8</td>
<td>70-80</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>6</td>
<td>5.68</td>
</tr>
<tr>
<td>9</td>
<td>80-90</td>
<td>3</td>
<td>9</td>
<td>4</td>
<td>16</td>
<td>9.51</td>
</tr>
<tr>
<td>10</td>
<td>90-100</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>7</td>
<td>12.97</td>
</tr>
<tr>
<td>11</td>
<td>100-110</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>10</td>
<td>16.59</td>
</tr>
<tr>
<td>12</td>
<td>110-120</td>
<td>6</td>
<td>3</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>120-130</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>88</strong></td>
<td><strong>134</strong></td>
<td><strong>73</strong></td>
<td><strong>295</strong></td>
<td><strong>1573.37</strong></td>
</tr>
</tbody>
</table>
Trench #1

During the winter of 2011 a trench (Trench #1) was dug on the western side of the road. The trench was situated to bisect the ditch identified in the magnetometry survey. The purpose was to verify that the ditch was in fact a ditch as well as to gain knowledge of its construction and composition. Unfortunately, time and manpower constraints prevented the excavations from being done in metric levels. The goals of the excavation were achieved by interpreting profiles rather than artifact analysis. See Figures 4.24-26.

The trench itself was 10m long and 1m wide. It was oriented in an east/west direction across the ditch in the south-western portion of the site, near Mound A. This site was chosen because of the strong magnetic signature in the magnetometer survey. Excavation took place along the entire 10m length, until the bottom of the plow-zone was reached. Once through the plow-zone, the ditch was identified, and excavation continued only on the eastern 5m half which contained the ditch. The disc plow-zone went from the surface to a depth of about 18cm, and the chisel plow-zone went to a depth of about 40cm. Below these two zones the soil was undisturbed. Outside the ditch, the soil was sterile from below the plow-zone to the subsoil, suggesting that except for features dug into the prehistoric surface, the sites stratigraphy has been destroyed by agricultural practices. Below the plow-zone, inside the ditch was a zone of dense shell, approximately 20 cm thick. This zone of dense shell contained mostly shell with some soil. The Tchula Lake site (22-Ho-546) also features a shell ring. A portion of this ring has remained uncultivated and stands almost a meter high. The shell in the ditch may have been this high at some point before cultivation spread it across the site. The main portion of the ditch fill consisted of darker midden soil and some shell. This midden zone was about 70cm deep. Below the ditch fill were several layers of water deposited silty-sand which had likely accumulated at the bottom of the ditch before it was filled. These water-lain zones contained no shell and no artifacts. The maximum depth of the trench was 150cm, at which point the hard clay subsoil was reached. The ditch itself went down to a depth of 147cm below surface and was likely dug prehistorically.
until the subsoil was reached, at which point the digging would have become extremely difficult. Excavated soil was not screened, however large artifacts were saved when they were found. These artifacts consisted of some very large pieces of Mulberry Creek Cord-Marked, and some large pieces of deer bone. These sherds may be larger than other sherds because of a collecting bias; I only collected the pieces I saw while digging or possibly because they were found below the plow-zone. The lack of artifacts in the lower water deposited zones makes it difficult to determine when the ditch was dug. All that can be said was that the ditch was dug sometime before or during the Coahoma phase. After digging, the ditch was maintained for a period of time, in which approximately 28cm of water-lain soils were deposited. The fact that only Mulberry Creek Cord-Marked sherds were found is likely an indication that the ditch was at least filled during the Coahoma phase. There remains the possibility that the ditch was filled at a later time with soils containing Coahoma phase artifacts, however the existence of the shell cap over the ditch, which almost certainly dates to the Coahoma phase, negates this possibility. The fill consists of several larger zones of midden material with shell throughout. The shell is frequently aligned in a similar fashion, suggesting a basket loading type of deposition. This indicates that the fill was deposited quickly, rather than over a long period of time. About 20cm below the bottom of the shell cap, there is a very small zone of water-lain soil, in the ditch fill. This could indicate that the ditch was filled, then either a pause in the filling took place or a flooding episode of some type occurred, after which filling resumed.
Figure 4.24  Trench #1, South Wall Profile Drawing.
Figure 4.25  Trench #1, South Wall, Left Side Photo.
Figure 4.26  Trench #1, South Wall, Right Side Photo.
CHAPTER 5- DISCUSSION/ CONCLUSIONS

This final chapter will discuss the conclusions which can be made about the Shady Grove site. Several points will be discussed. First the artifacts collected during the surface collection, namely the ceramics, will be used to place the site within the temporal framework used by Philip Phillips. Second the ditch/ embankment will be compared to other similar features found in the Southeast. Third the shell, and how it may have accumulated, will be discussed in light of similar features found along the Atlantic and Gulf coasts. Finally, the intra-site distribution of artifacts will be discussed as well as what this implies about the ideological landscape at the end of the Late Woodland period.

Placement within Temporal Framework

The Shady Grove site is a Coahoma phase site, which features some very Deasonville like attributes. The ceramics at Shady Grove suggest Coahoma, while the shell ring suggests Deasonville. The ceramic assemblage consists of a majority of Baytown plain, with Mulberry Creek Cord Marked making up the second most numerous ceramic type. This is atypical for a Coahoma phase site as far north as Shady Grove is. Mulberry Creek should outnumber Baytown plain by 3:1. However, as discussed earlier in Chapter 4, this may be to the result of a longer use of the site into the later Peabody phase and possibly later. The lack of the Coles Creek var. hunt, as well as its northern location out of the generally accepted range of Deasonville phase sites, make this site a strong candidate for the Coahoma phase. The later Mississippian period artifacts suggest that the site was again or still occupied in the earlier part of the Mississippian period. The lack of any polychrome ceramics suggests that
this was not a Late Mississippian period site. Brain’s (1968) surface collection, suggest that there may have been an Early or Middle Woodland occupation of the site. However, very little evidence of an early occupation was found during the surface collection or in the 1x1m test unit. A total of only two possible Middle Woodland artifacts, a single Marksville Stamped sherd, and a single prepared core blade, were the only supporting evidence of an earlier use of the site. It is possible that there was an earlier habitation of the site, but it certainly did not have a significant population. Two possible Archaic stemmed points were found during the surface collection which represent the earliest artifacts identified from the surface collection. Connaway (1981) notes that Poverty Point projectile points have been found in the surrounding area. However, there is again very little supporting evidence to suggest that Shady Grove had a significant residential population this early.

While the ceramics suggest a Coahoma phase occupation, the shell suggests a Deasonville occupation. The Tchula Lake shell ring is strongly associated with the Deasonville phase. In fact most Deasonville sites in the Yazoo Basin have shell rings associated with them (Phillips 1970:549) while very few other Coahoma sites are associated with shell. This suggests that either Shady Grove was in fact a Deasonville site, or interaction between the northern Coahoma phase sites and more southern Deasonville phase sites was strong. Since there is no evidence of a direct Deasonville occupation, the latter must be assumed. In the case of Shady Grove, I believe there is a blending of the two phases; a case in which it is not quite the typical Coahoma phase, and not quite the typical Deasonville phase.

**Intra-site Distribution of Artifacts**

Several conclusions may be made about the spatial distribution of ceramics across the Shady Grove site. Most importantly is the distribution of Coahoma phase ceramics in connection to both the ditch and the Tchula Lake shell ring. This reinforces the idea that the ditch, as well as the shell ring, was Coahoma. The strong statistical association between the Coahoma phase
artifacts and the Baytown Plain and their concurrent distribution across the site suggest that both the ditch as well as the Tchula Lake shell ring are both Late Woodland constructions. This association is also quite likely for the many possible midden pits identified under the shell ring in the magnetic survey. The Mississippian artifacts are concentrated near the large mound and are not spread across the site. This suggests that they were deposited in two separate episodes, or that some cultural factor limited their deposition to the mound area. The association of the Mississippian ceramics with the probable Mississippian house floors identified in the magnetometer image supports this identification. This stark difference in the distribution of both artifacts and subsurface features identified in the magnetic survey indicate that this same space was used drastically differently at different times. The sheer quantity and variety of Late Woodland artifacts found suggest that this was a village site and that the village was arranged in a circular pattern. The Mississippian artifact distributions concentration on the platform mound area indicates that there was a substantial change in the intra-site settlement patterns which may be interpreted as resulting from changes in the socio-political organization between the Late Woodland and the Mississippian periods. While the circular arrangement of the Late Woodland village site certainly does not indicate an egalitarian society, the move away from this type of village pattern to a distribution more focused on the elites, mound structure may suggest that inequalities are becoming more pronounced. Clearly there was a change in the ideology at Shady Grove which took place sometime between the Late Woodland and the Mississippian periods. This shift in ideology reduced the importance of the circular village arrangement of the Tchula Lake pattern and shifted the focus of the village to the elite mound. This ideological shift re-confirms what we already know about increased inequalities which are taking place during the emergent Mississippian period (Anderson and Sassaman 2012). As with the filling of the ditch, changes in the physical landscape are representative of changes in the ritual/ceremonial and ideological landscapes.

The highest concentration of both ceramic types are found in the southern portion of the site. This indicates that this area may have held some significance during the time of deposition
for both ceramic types, suggesting some level of continuity. Connaway (1981) suggests a possible continuous occupation from the Early Woodland to the Late Mississippian, so continuity between the Late Woodland and Early Mississippian is certainly plausible. The larger than expected amount of Baytown plain found during the surface collection may also indicate that the site was used for a longer period of time that was originally suspected. The use of the Baytown plain ceramic type certainly did not stop as soon as the Late Woodland period ended, but its use continued into the later Peabody phase and into the Mississippian period.

The data collected for this thesis suggest that the Shady Grove site was an important site in the area for a substantial amount of time. The site was at least periodically visited as early as the Middle Woodland, probably even earlier, continuing into the Mississippian period. The main occupation however was during the Coahoma phase of the Late Woodland period. Any site occupied for such a long time and used by such a diverse array of cultures will no doubt go through some significant changes. Shady Grove is no exception. Changes in the physical landscape, identified through a variety of means, including geophysics and artifact distributions, indicate some major shifts in both the ritual/ceremonial and ideological landscapes have indeed taken place at Shady Grove.

Shell Ring

The models used to explain the construction of Archaic period shell rings found along the Gulf and Atlantic coasts can also be adapted to explain the deposition of shell at Shady Grove. The Tchula Lake shell ring at Shady Grove fits nicely with the gradual accumulation model. This model, (Marquardt 2010; Trinkley 1997), suggests that the ring accumulated gradually as a result of daily refuse disposal. In this model the houses of the village are arranged in a circular pattern. Shellfish is harvested as apart of the daily diet. The shell is disposed of around the houses, at first in pits, and later simply in piles. As the refuse accumulates the houses are rebuilt on top of the shell. Eventually the shell grows to form a continuous ring. The shell at the Shady Grove site
appears to fit this model quite well. The aerial photographs do show the shell is distributed in multiple concentrations arranged in a circular pattern. From the ground these concentrations look continuous, however they are indeed separate concentrations. Phillips (1970:270) speculates that these individual concentrations may belong to separate family units within a village.

The shell ring at Shady Grove has a wealth of artifacts associated with it, including large amounts of ceramics, some lithic debitage, complete lithic tools, as well as faunal remains from both mammals and fish. The geophysical survey data also show a large number of possible pit-like features beneath the shell deposits, closely following both the interior and exterior sides of the ditch. According to the gradual accumulation model used for Archaic shell rings on the coast, there should be evidence of daily activity refuse within the shell deposits themselves. The shell deposits at Shady Grove have been obliterated by cultivation, so the presence of artifacts actually within the shell heaps can not be determined. However it is safe to say that the distribution of Woodland artifacts closely follows the distribution of shell across the site. The presence of daily refuse and the distribution of midden pits identified in the magnetic gradiometer survey both suggest a deposition similar to those outlined by the gradual accumulation model for Archaic sites along the coasts.

The opposing ceremonial model of shell accumulation on the Atlantic coast uses the lack of daily artifacts to suggest that these sites are special use sites. The undifferentiated deposits within these rings suggests that they were deposited very quickly, and these sites were likely not the location of daily activities. The Shady Grove site with its large amount of artifacts, which are closely associated with the shell deposits does not seem to fit this ceremonial model. That is not to say that the shell was not deposited because of ceremonial activity, such as feasting, in the same location that daily activities were taking place, it just means that the Shady Grove site did not serve a purely ceremonial function.
The ditch at the Shady Grove site is the most obvious feature identified in the geophysical survey. This is the first time that a ditch has been associated with a Coahoma site in the Yazoo Basin. However, there are other instances of ditch/embankment combinations during the Woodland period. These types of constructions are sometimes found at Hopewell influenced or Marksville period sites like at the Pinson site in Tennessee, Little Spanish Fort in the southern Yazoo Basin, or the Marksville site itself in Louisiana. While these sites do have some similarities to the Shady Grove site, there are also many differences.

The Shady Grove site does not have an embankment, only a ditch. There may have been an embankment at one time but cultivation has destroyed all remaining traces of it. The inner ring identified in the magnetic gradiometer and EM surveys may yet prove to be the remnants of an embankment, however this feature requires further investigation in order to be positively identified. The ditch at Shady Grove does not appear to have been an accidental by-product of embankment building though. The width is pretty consistently 5m across. The average depth is unknown, but it was down to the subsoil in Trench #1, for a depth of 147cm, and may be the same throughout. The circle marked by the ditch is 190m north/south, and about 239m east/west. The exact eastern boundary is unknown, however the northern and southern ends of the eastern most portion are beginning to close. Therefore it appears that the ditch forms a circular feature, rather than the ends terminating at the river bank. The ditch encompasses an area of 33,258m², or approximately 8.2 acres.

The ditch is the first circular earthwork identified at a Late Woodland site in the Northern Yazoo. It may be easier to explain what this feature is not, rather than what it is. This ditch is not a Marksville period earthwork. There is almost no evidence for significant Marksville period occupation at Shady Grove. A total of three Marksville period artifacts have been found, one Marksville Stamped sherd from Test Unit #1, one Marksville Incised sherd from Phillips, Ford, and Griffin’s 1947 survey, and a single prepared core blade, which may be of Middle Woodland
origin. The ditch itself is dissimilar to most Marksville earthworks. Marksville period earthworks usually consist of a U-shaped or semi-circular earthwork, in which the ends terminate at a riverbank. The Shady Grove ditch and likely a corresponding embankment, if there was such a structure, is most likely circular, or nearly circular, rather than arc-shaped. These earthworks can be significantly larger than the one at Shady Grove; the Marksville site’s earthwork is 530m across, more than double the size of Shady Grove (Jones and Kuttruff 1998:37). The ditch at Marksville is not a specially constructed ditch, rather it is a borrow ditch made during the construction of the embankment (Jones and Kuttruff 1998:52). This ditch is much wider and shallower than the one at Shady Grove. Due to its consistent width and depth, the Shady Grove ditch was not likely a borrow ditch. The Pinson site, does feature a complete circular earthwork. However, this Middle Woodland site was most likely constructed as the typical semi-circular embankment, but was later modified to form a complete circle (Thunen 1998:66). Since the shape of the ditch is unlike the Middle Woodland structures and there is a lack of Marksville period artifacts, I think it can safely be stated that the ditch at Shady Grove is not a Marksville period construction.

I have been unable to find any other mention of a ditch surrounding a Late Woodland site in the Yazoo Basin. As such it is difficult to determine its use or purpose. Most archaeologist consider enclosures to have had a ceremonial purpose or to have been used as communal meeting places (Clay 1998; Thunen 1998; Clark 2004). One line of evidence for this is the lack of daily artifacts. Marksville, Old Stone Fort, Pinson, Spanish Fort, Leist, and Little Spanish Fort all produced very little artifactual evidence from within the enclosures (Mainfort and Sullivan 1998; Jackson 1998). This is not the case at Shady Grove. The surface collection produced a great deal of artifacts, mainly from the area surrounding the ditch. The center of the site did not produce as much as the ditch area. However, I would certainly not call it void of artifacts. Cultivation likely had a large impact on the distribution of artifacts across the site. Still there is a general correspondence between the artifacts concentrations, the ditch, and the Tchula Lake shell midden. The large amounts of ceramics and lithics indicate that this was not a special function
ceremonial site; this was almost certainly a site where people lived. Phillips (1970:549) suggests that the distribution of the Deasonville phase extends far to the east of the Yazoo Basin and that those sites that are found in the Yazoo Basin are likely the far western edge of Deasonville distribution. From this distribution he infers that Deasonville is mainly an upland culture and that the sites in the Yazoo Basin are likely seasonal occupations. Ed Jackson (1998), suggests that Spanish Fort, Little Spanish Fort, and Leist were enclosure sites on the periphery of Middle Woodland groups. These sites served as meeting places in which socially distant groups could be brought together (Jackson 1998:217). Evidence for this is the lack of a large resident population. It may seem plausible that Shady Grove represents a meeting place between the Deasonville seasonal occupation of the Yazoo Basin and the Eastern uplands, similar to the way in which Middle Woodland groups built circular features at the meeting places between groups. However, there seems to be enough ceramic and lithic refuse to say that there was indeed a fairly large resident population during the Late Woodland. Whatever the function of the ditch at Shady Grove, it does not seem to follow any of the existing models for earthwork construction during the Middle Woodland period.

While the exact function of the ditch remains a mystery, it can likely be assumed that the construction or use of the ditch was at least in part ceremonial. The excavation of Trench #1 suggested that this ditch went through several stages. First the ditch was dug and maintained for an unknown period of time. During this period of maintenance, 28cm of water lain soils were allowed to accumulate at the bottom of the ditch. After this period, the ditch was filled with midden material rather quickly in several episodes. These filling episodes likely were not separated by a great amount of time, as there is very little evidence of water-lain soils in the midden portion of the ditch fill. The filled ditch was then capped with a layer made predominantly of mussel shells. The filling or deconstruction of the ditch is significant. At some point the inhabitants of Shady Grove decided to undo the work which their forefathers had done in the construction of the ditch. This clearly indicates a significant change in the ritual/ceremonial landscape at this time.
Whatever the function of the ditch, the filling of the ditch indicates that the presence of a ditch/embankment was no longer an important aspect of their ritual landscape. In fact just the opposite may be true. The filling of the ditch may indicate a rejection of the previous ritual behaviors in favor of something else. In the same way that the pagan landmarks were destroyed or re-purposed across Europe with the introduction of Christianity, the ditch may have been filled in an effort to erase the memory of previous behaviors. The presence of the Tchula Lake shell ring on top of the filled ditch indicates that this change must have taken place before the end of the Late Woodland period. This modification of the physical landscape indicates that significant changes in the ritual/ceremonial landscape were taking place during the Late Woodland period.

The construction and subsequent deconstruction of this ditch required a considerable investment of manpower. The amount of soil moved is less than the Mississippian mound, however the construction of this ditch was no small feat. Using the measurements that Griffin and Davis made during their 1941 visit to the site, volumes for both the Mississippian mound and the Late Woodland conical mound can be estimated. Using the dimensions of the ditch which were revealed by the trench, as well as the length of the ditch as a complete circle, a volumetric measure of the soil moved in ditch construction can be estimated. In 1941 the Mississippian mound had a basal dimension of 35x50 meters with the top being 20x25m, and a height of 6 meters. Using the formula for a truncated rectangular pyramid, a volume of approximately 6,370 cubic meters is calculated. The volume of the ditch can be calculated using a formula for an elliptical cylinder, and then halved. The measure distance tool in ArcMap can be used to measure the approximate distance around the ditch as revealed by the magnetic survey. Thus the ditch measures 685 meters around. Using the depth of 1.5 meters and the width of 3 meters as revealed by the trench, a volume of 2,417 cubic meters is estimated. A rough estimate of the volume of the conical mound can be calculated at only 127 cubic meters. The volume of soil moved during the construction of the ditch is 1/3 that moved during construction of the Mississippian mound. However, both represent significant investments in labor. Not only was the construction of the ditch a major act of modification, but the filling of the ditch also represents an equally impressive
investment of labor.

Table 5.1  Estimated Mound Volumes.

<table>
<thead>
<tr>
<th></th>
<th>Formula</th>
<th>Dimensions (meters)</th>
<th>Volume (cubic meters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mound A</td>
<td>V = h/3 (AT + √(AT x AB) + AB)</td>
<td>AT=25x20 AB=35x50   h=6</td>
<td>6,370</td>
</tr>
<tr>
<td>Mound B</td>
<td>V = 1/3 Π r²h</td>
<td>r=9 h=1.5</td>
<td>127</td>
</tr>
<tr>
<td>Ditch</td>
<td>V = Π A x B x h /2</td>
<td>A=1.5 B=3 h=685</td>
<td>2,417</td>
</tr>
</tbody>
</table>

Previous evidence of Late Woodland mound constructions are represented by a very small number of conical mounds, the Baytown culture has never been thought of as prolific mound builders. Of the 83 Coahoma phase sites in the Northern Yazoo Basin, only five, including Shady Grove have mounds which can be attributed to the Late Woodland period. Since mound building is often equated with a robust ceremonial complex, the Late Woodland is frequently considered a time of decline or simply as a transitional period between the Hopewell influenced Middle Woodland and the Mississippian periods. This clearly is not the case. The evidence from Shady Grove suggests that the conical mound only represents a very small portion of the landscape modifications taking place during the Late Woodland period. These activities are much less obvious than the Mississippian period mound construction, but are no less significant. Geophysical survey has revealed these hidden cultural constructions to be a prominent feature on the landscape at one time and a significant investment in labor nearly on par with the monumental construction of the Mississippian platform mounds. The construction of a circular ditch and embankment illustrates that the Late Woodland had a ceremonial complex just as robust as the earlier Middle Woodland and should no longer be thought of as just a good gray culture.
Future Work

Shady Grove represents an excellent opportunity for archaeologists to investigate a myriad of research topics pertaining to the Late Woodland and Mississippian periods. The geophysical survey has revealed many subsurface deposits which are deep enough to be untouched by modern agricultural practices. These features including midden pits and house remnants could be very useful in understanding the faunal and floral species exploited by prehistoric people. The preservation of organic material at Shady Grove is in most instances exceptional.

Several features at Shady Grove located in the geophysical survey have yet to be positively identified. These include midden pits in both the inner and outer portions of the ringed enclosure, Mississippian house remnants, the possible inner embankment, and possible openings in the northern portion of the ditch. Investigation of these features would reveal much about the construction episodes as well as site function and chronology. The inner ring and inner distribution of midden pits are of particular interest to me. If this ring does in fact turn out to be an interior embankment it could change the interpretation of site function. The size of this feature is unlike any other earthwork in the Lower Mississippi Valley. It is probably too small to surround a village, even a small one. The village instead would have surrounded this feature, which in turn surrounds the inner concentration of midden pits. The inner concentration of midden pits is larger than the outer distribution and could represent a totally different type of feature. They may be communal cooking pits or large hearths. This could have significance for ceremonial activities or feasting activities. Without further excavations these thoughts are purely speculative.

Victor Thompsons (2007) developmental model of shell ring construction at Archaic sites along the Atlantic and Gulf coasts which suggests that most shell rings began as daily village sites. As the shell piles up it becomes a monumental structure, which is then in turn used primarily for ceremonial activities. Shady Grove may have followed a similar, although
somewhat reversed model. As evidenced by the ditch, the site may have first been used for ceremonial purposes, and only later was a village occupied following the circle defined by the ditch. This type of model would make it very difficult to differentiate between when the site was used for which activity. This model suggests that site formation may not be as straightforward as either the gradual accumulation model or the ceremonial model suggest. However, investigation of the two inner features would certainly provide data which might resolve this issue.

Of even greater interest is the relationship between Shady Grove and other Coahoma and Deasonville sites. The presence of the rare Late Woodland conical mound and the ditch suggests that Shady Grove may have been atypical for this region in regards to its ceremonial activities. Further research at other Late Woodland sites, particularly those which feature the Tchula Lake shell ring would be needed to determine whether the Shady Grove pattern is atypical of the Late Woodland in the northern Yazoo Basin. Geophysical survey at other Tchula Lake shell rings, Coahoma phase sites, and Deasonville sites would reveal whether Shady Grove is part of a distinct Late Woodland pattern or is unique in its construction of circular earthworks. Whether Shady Grove proves to be unique in the Northern Yazoo Basin or not, it certainly represents a good example of how landscape modifications revealed by geophysical survey can change our perception of a culture.

At Shady Grove the geophysical survey or the surface artifact distributions alone could not have revealed the landscape changes taking place between the Late Woodland and Mississippian periods. The two worked to complement each other. This methodology of multi-instrument geophysical survey and controlled surface collection could be used as a model for investigating spatial changes between separate occupations. The identification of sub-surface features through their relationship to surface artifact distribution can be especially useful at sites in which cultivation has destroyed much of the near surface integrity of a site. The intra-site distribution of both artifacts and sub-surface features can reveal much about the socio-political organization and ideological landscapes at prehistoric sites.
LIST OF REFERENCES
Anderson, David and Robert Mainfort Jr, eds.

Anderson, David and Kenneth Sassaman
2012 Recent Developments in Southeastern Archaeology: From Colonization to Complexity.

Brain, Jeffrey
1968 Shady Grove Sherd Counts and Map. Lower Mississippi Survey Archives Online. Http://www.rla.unc.edu/lms/Sites/Tier_16-20/16-p/16-P_pg_06.jpg

Brookes, Samuel O.

Clark, John E.

Clay, Berle
1998 The Essential Features of Adena Ritual and their Implications. Southeastern Archaeology 17(1).


Connaway, John


Dalan, Rinita

Davis, Squire and James Griffin
1941 Central Mississippi Valley Archaeological Survey Sherd Count. Lower Mississippi Survey Archives Online. Http://www.rla.unc.edu/lms/Sites/Tier_16-20/16-p/16-P_pg_05.jpg.
Ford, Janet


Gibson, Jon L. and Richard Shenkel

Griffin, James B.

Jackson, Edwin

Johnson, Jay K.

Johnson, Jay K., Gena M. Aleo, Rodney T. Stuart, and John Sullivan

Jones, Dennis, and Carl Kuttruff

Kidder, Tristram R.

Koehler, Thomas

Kvamme, Kenneth

Mainfort, Robert C. Jr. (editor)
1988 Middle Woodland Settlement and Ceremonialism in the Mid-South and Lower Mississippi Valley. Archaeological Report #22, Mississippi Department of Archives and History, Jackson.

Mainfort, Robert C., and Lynee P. Sullivan (editors)

Mainfort, Robert Jr. and Lynne Sullivan

Marquardt, William

McGahey, Samuel

McNutt, Charles H.

Morgan, David

O’Brien, Michael, Lee Lyman and James Cogswell

Phillips, Philip

Phillips, Philip, James Ford, and James Griffin

Rolingson, Martha Ann, and Robert C. Mainfort

Russo, Michael

Russo, Michael and Gregory Heide
2001 Shell Rings in the Southeast US. Antiquity 75:491-492.

Saucier, R. T.
1994 Geomorphology and Quaternary Geological History of the Lower Mississippi. Vicksburg, Mississippi: U.S. Army Engineer Waterways Experiment Station.

Saunders, Rebecca

Scott, Stacy Ann
2011 Shady Grove Site (22Qu525) Quitman County, Mississippi: Analysis of Demographics and Mortuary Practices. Masters Thesis, Department of Anthropology, The University of Southern Mississippi.

Thompson, Victor

Thunen, Robert
Trinkley, Michael
1997 The Gradual Accumulation Theory: The Lighthouse Point and Stratton Place Shell Rings. From South Carolina Archaeology Week poster, “Shell Rings of the Late Archaic.” South Carolina Institute of Archaeology, University of South Carolina, Columbia.

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      -Worked extensively with paleo period camp site and multi bison kill site

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      -Familiarized with Mississippi Delta region archaeology

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      -Test unit and trench excavations
      -Systematic surface collection
      -Analysis of 10,000+ artifacts

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Mississippi Archaeological Association