Archaeological Report No. 20

PREHISTORIC SETTLEMENT PATTERNS IN CLAY COUNTY, MISSISSIPPI

JOHN THOMAS SPARKS

MISSISSIPPI DEPARTMENT OF ARCHIVES AND HISTORY
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Patricia Kay Galloway
Series Editor

Elbert R. Hilliard
Director

Cover Illustration: Pine Tree biface type reduction sequences from Clay County, bifaces from sites (top row) 22-Cl-619, 22-Cl-660, 22-Cl-777, 22-Cl-740, 22-Cl-621; (middle row) 22-Cl-791, 22-Cl-598, 22-Cl-619, 22-Cl-737, 22-Cl-616; (bottom row) 22-Cl-634, 22-Cl-522, 22-Cl-788. Scale: .95 cm = 1 cm.
Photo courtesy John M. Connaway.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

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To my friends and family, I extend my thanks for encouragement and putting up with long hours and missed appointments.

PREHISTORIC SETTLEMENT PATTERNS
IN CLAY COUNTY, MISSISSIPPI

CHAPTER 1

INTRODUCTION

Chang (1968:3) points out two important factors that are relevant to the analysis of prehistoric settlement patterns in Clay County. Not only is a settlement pattern a spatial relationship between contemporary groups of people; it also must account for the change in this spatial relationship through time. The end product of settlement analysis is not the definition of the pattern but a "socio/cultural model for a given archaeological community" (Chang 1968:5).

Previous work in Clay County has suggested that sites are not randomly distributed throughout physiographic zones and that discernable patterns exist. The relationship between physiographic location and site assemblage has been investigated in previous reports. The Line Creek report (Johnson *et al.* 1984) investigated sites far removed from the lithic source, and in the Columbus Lake lithic analysis Phillips (1983) explored the relationship between site function and lithic assemblage at sites near lithic sources. These two works study the extremes in the county, the far east near the Tombigbee River and the far west in the uplands. For the purpose of the present study, a larger site universe was needed in order to test the idea that the trends suggested in these earlier studies are representative of the entire county. This study used the database from a cultural resource survey of Clay County (Figure 1-1) conducted by Samuel O. Brookes and John Connaway of the Mississippi Department of Archives and History in 1979. The Brookes/Connaway survey recovered several thousand artifacts from over 250 sites and over 450 components, making a large, if unwieldy, database.

Geology

Most geological formations in Clay County are Cretaceous sediments which were deposited in shallow, near-shore seas, which sometimes had major rivers flowing into them. The characteristics of the shoreline controlled the nature of the deposits. When major rivers flowed into the depositional area, clays, sands, and gravels were deposited; when no major rivers flowed into the depositional area, chalks and lime were deposited (Stephenson and Monroe 1940:250, 253).

Although the Tuscaloosa formation is outside of Clay County except in basal formations of Eutaw sands, it is important to the natural resource base in Clay County. The Tuscaloosa formation was formed off a shoreline that was cut by high energy streams that brought gravel from chert-bearing Mississippian limestones in the hills. These gravels are angular to subangular and include small rounded quartz pebbles. The gravels from the Tuscaloosa formation from outside the county traveled down small streams that flowed into the Tombigbee River, resulting in gravel bars that became the nearest source of local lithic material in the Clay County area (Berquist 1943:50).

The next geologic zone to the west is the Eutaw formation, the oldest in Clay County. Like the Tuscaloosa formation, these deposits resulted from a shoreline cut by high energy streams, but the Eutaw formation lacks the gravels characteristic of the Tuscaloosa formation (Stephenson and Monroe 1940:252). This formation forms the basal deposits in the Tombigbee basin and the Tombigbee Bluffs (Berquist 1943:14-18). The Selma Chalk formation is encountered a few miles west of the Tombigbee River. It is described as relatively flat or gently rolling chalky limestone prairie. Because of the easily eroded nature of this deposit, occasional bald spots or "blow outs" occur, exposing the chalk (Berquist 1943:18).

The Ripley formation is encountered to the west of the flat to rolling hills. Between the time of deposition of the Selma Chalk and the Ripley sands, major rivers must have opened up along the coast. Rivers did not cut the entire coastline, however, for chalk continued to be deposited to the south of the Ripley formation. The Ripley formation, characterized by "gray to greenish-gray fine

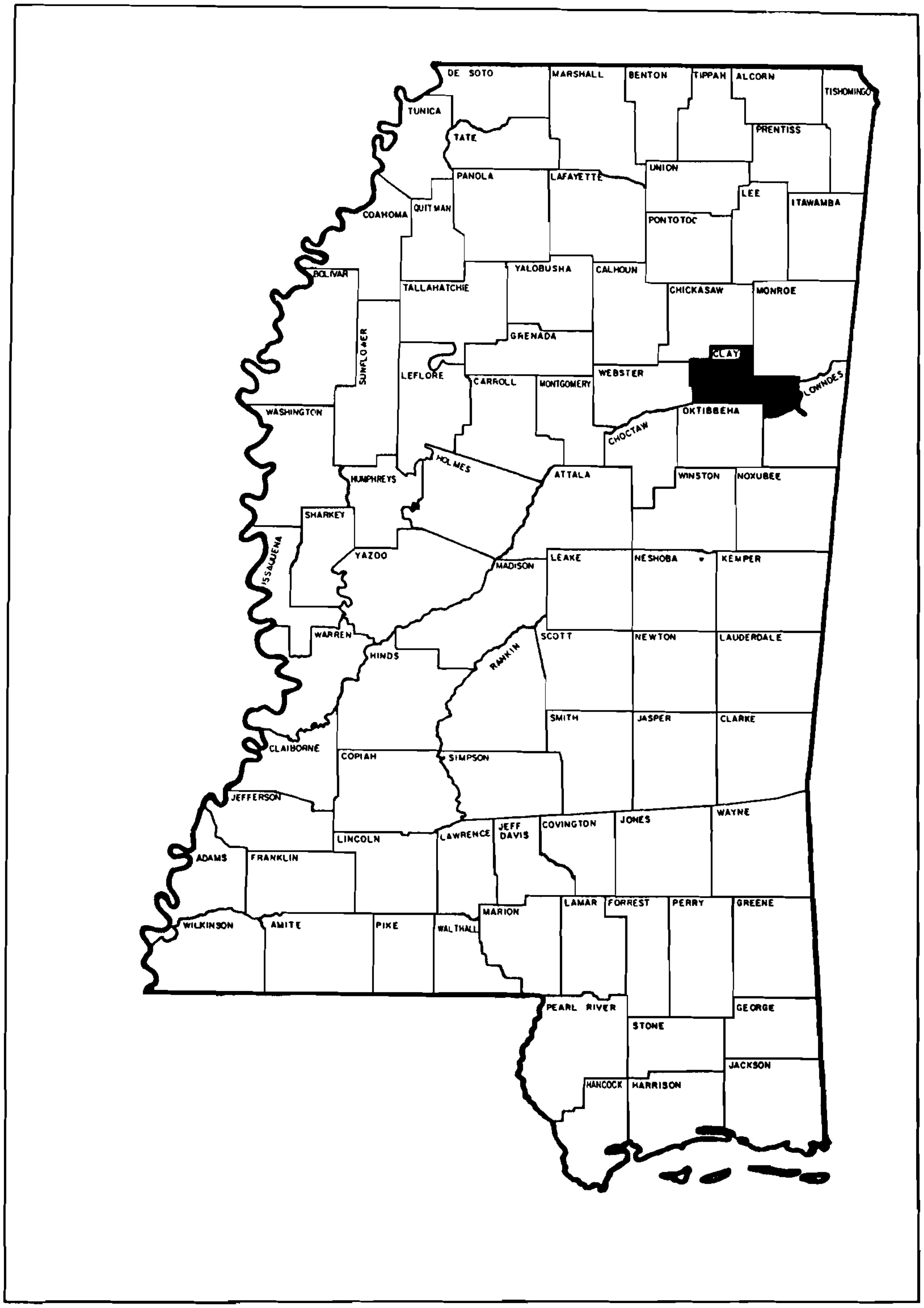

Figure 1-1. Location of Clay County, Mississippi.

grained glauconitic and slightly micaceous sand, clay and sandy chalk" (Berquist 1943:32), forms the eastern half of the Pontotoc Ridge.

The western side of the Pontotoc Ridge gives evidence of a receded coastline, once again devoid of high energy rivers, where a relatively sandy chalk deposit containing phosphatic pellets was formed. This is the Prairie Bluff chalk formation, the last deposit during the Cretaceous period in Clay County. An erosional sequence resulting in a peneplain marked the end of the Cretaceous. Other deposits are all Eocene.

Porters Creek clay, part of the Flatwoods region, occurs in the extreme western part of the county. This deposit is characterized by "dark to tan clay with abundant forminifera in calcareous basal part and the remainder somewhat micaceous and sandy" (Berquist 1943:46).

In the Selma Chalk region, sand and clay terraces occur which were laid down by Pliocene and Pleistocene streams. These appear on the northern banks of east flowing streams and on the eastern banks of south flowing streams. The underlying geologic formations control the nature of the soils. The Leeper–Griffith soil association occurs on large floodplains of streams draining the prairie. These are non–acid soils in the Chuquatonchee, Houlka, and Tibbee Creek floodplains, making up twenty percent of the county. The second bottomland soil association is Mathiston–Urbo–Una, composed of poorly drained acid soils in the large bottoms of streams draining the Pontotoc Ridge. Ten percent of the county is of these soils, primarily in the Line and Sun Creek bottoms. The floodplains of Town Creek and the Tombigbee River make up the final floodplain soil association, Belden–Bigbee. These are acid soils, either poorly drained or excessively drained, and make up five percent of the county (U.S.D.A. 1976:2–3).

The Selma formation underlies the two upland prairie soil associations, which are divided on the basis of the thickness of the soil over the chalk and the topography of the area. The Kipling–Okolona–Brooksville association is poorly to well drained soils on broad flats. These soils are fairly thick, with subsoils extending nearly a meter into the chalk. This association makes up twenty percent of the county. The shallow soils on ridge tops and side slopes make up the Binnsville–Chalk outcrop–Demopolis association, which covers only two percent of the county (U.S.D.A. 1976:2–4). Although both of these soil associations make up the prairie, the distinction between the deep and shallow soils was important in site location.

Three similar soil associations make up portions of the Flatwoods, Pontotoc Ridge, and Tombigbee Bluffs. On the eastern side of the Pontotoc Ridge is the Smithdale–Ruston association. Making up five percent of the county, these are well drained soils on ridge tops and side slopes. The Sweatman–Smithdale association makes up the Tombigbee Bluffs in the eastern portion of the county. Characterized by narrow ridge tops and side slopes, these soils compose three percent of the county. The poorly drained soils of the Wilcox–Mayhew–Ozan association make up the western slope of the Pontotoc Ridge, portions of the Flatwoods, and small patches of soils in the Lower Line and Tibbee Creek bottoms. These small islands in the bottoms skew the sample somewhat but not a great deal. In all, eight percent of the county is Wilcox–Mayhew–Ozan soils (U.S.D.A. 1976:4–5).

One soil association, making up 27 percent of the county, is characterized by a well developed fragipan, a characteristic of old soils. The Ora–Prentiss–Longview soils are well to poorly drained soils on ridge tops and stream terraces (U.S.D.A. 1976:5).

For the purpose of this study, generalized divisions of the county are appropriate. Because a soil association is nearly exclusive to one physiographic zone (Figure 1–2), the assignment to one soil association is a *de facto* assignment to a physiographic zone. Also, all sites in the study could be assigned to a soil association.

The resources available for exploitation vary among the physiographic zones. It is suspected that these zones would have been able to support different techno–economic systems and subsystems. The Line Creek data show an apparent relationship between the physiographic zone and the chronological position of sites (Johnson *et al.* 1984:73–74). Because of the large number of sites and the wide

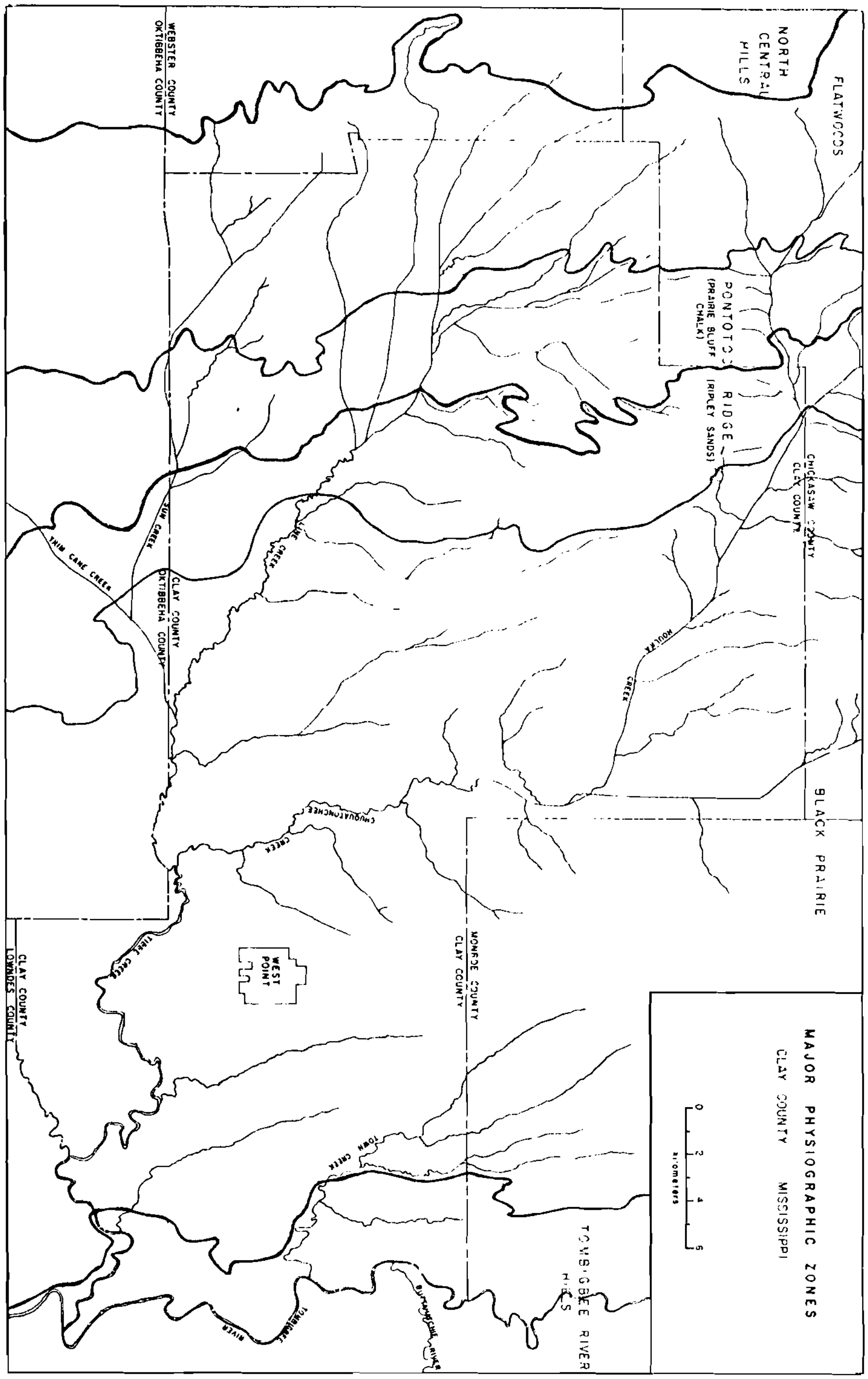

Figure 1-2. Major physiographic zones, Clay County, Mississippi.

time range represented, the data from the Clay County survey make a good test for the relationship between physiographic zones and the chronological position of sites.

Summary of Culture Periods

Fine scale subdivision of the eastern Mississippi chronology is sometimes difficult. The time from the first aboriginal habitation of North America to European contact, therefore, has been divided traditionally into several arbitrary phases and periods.

Paleo Indian Period (1400 BC–8000 BC)

The Paleo Indian period in the central Tombigbee–Clay County region is poorly represented. Individual specimens of Paleo points are reported, but a well documented, stratified Paleo site has yet to be discovered. The eight feet of Holocene deposits in the Line Creek bottom (Johnson *et al.* 1984:18), for example, have buried any Paleo sites beyond the reach of surface survey.

The subsistence system of Paleo Indian culture is believed to have been based on hunting of the Pleistocene megafauna and gathering. Sites to the west, north, and south support this conclusion, and it is within reason that the elusive Paleo peoples did the same in the southeast. With the extinction of the megafauna, subsistence practices shifted to the hunting of smaller game such as deer. This shift marks the change into the Archaic period.

Early Archaic (8000 BC–6000 BC)

The Early Archaic sites in the Clay County sample are defined by the occurrence of specific point types: Dalton, Greenbriar, Lost Lake, Plevna, Decatur, Jude, Pine Tree, LeCroy, and Big Sandy. The inclusion of Dalton in the Early Archaic has come under question. Brookes (pers. comm.), using the Hester site data, has argued that the Dalton points should be classified as Late Paleo.

From the Gainesville data, Jenkins (1982:22) has speculated that Early Archaic people were organized in small, band level groups of conjugal or extended families.

Middle Archaic (6000 BC–3000 BC)

The presence of any one of three point types at a site is used to define Middle Archaic components: Eva, Morrow Mountain, and Benton. It seems that most of the points in Middle Archaic components are put in provisional categories. Jenkins (1982:22) discussed the problems of defining the component, which result from confusion in the classification of non–distinctive points.

Some speculate that Middle Archaic sites were temporarily inhabited, but the thick midden mounds at the Barnes Mound (Blakeman 1975), the East Aberdeen site (Rafferty *et al.* 1980), and the Vaughn Mound site (Atkinson 1974), all in eastern Mississippi, suggest longer term occupation.

Late Archaic (3000 BC–2000 BC)

The Late Archaic component sites in the Tombigbee valley have the same classification problems as the Middle Archaic sites. The presence of certain point types and the absence of Gulf Formational ceramics are the markers for the Late Archaic. The Bear Creek, Flint Creek, and Tombigbee Stemmed points found in the MDAH survey are markers of Late Archaic and Gulf Formational times.

Gulf Formational (2000 BC–AD 100)

The appearance of ceramics in the southeast generally marks the division between Archaic and Woodland times. The transitional period is Gulf Formational. The earliest pottery in the Tombigbee basin is the fiber tempered "Wheeler series" ceramics. Whether called Wheeler (Haag 1939), Orange (Willey 1949), or simply fiber tempered, this pottery is characterized as a fairly crude ware which is either plain or decorated. Alexander series wares (Haag 1939, 1942) are included in this time period. Jenkins (1981:18–19) divides the Gulf Formational into the Broken Pumpkin Creek phase, which is characterized by crude Wheeler wares, and the Henson Springs phase, in which the Alexander wares are the major type.

Along with the beginning of ceramics, the Gulf Formational period marks the first occurrence of exotic cultigens. Corn found at Bat Cave has been dated to 1800 BC. A date of 912 BC ± 250 was obtained from wood found at the lowest "maize level" (Yarnell 1976:268). Corn from the Davis 2 mound in central Ohio gave a date of 280 BC ± 140 (Yarnell 1976:268) and 400 BC ± 140 (Struever and Vickery 1973:1199). Coprolites from Salt Cave have given two dates for squash: 620 BC ± 140 (Yarnell 1976:268) and 400 BC ± 140 (Struever and Vickery 1973:1203).

Woodland (AD 100–AD 900)

In the Tombigbee valley, the Woodland period has been divided into three units. These units are named for the Miller series ceramics first described by Jennings in the 1930s. Problems have arisen in determining the time period for sites with limited samples. A useful graphic description of the fluctuation in the popularity of a specific trait in relation to other traits is a group of "battleship" diagrams. The greater the width of the curve, the higher the proportion of the whole the trait represents at that point on the time line. For example, if Saltillo Fabric Impressed makes up 50 percent of the decorated ceramics in an assemblage at a specific point in time, all other types have to be divided into the remaining 50 percent. Through time, the fluctuation in the popularity of Saltillo Fabric Impressed will create a unimodal, "battleship" curve. The divisions between the Miller periods and the boundaries between Gulf Formational and Woodland and between Woodland and Mississippian can be visualized as horizontal lines across these curves of popularity of the ceramics in the Tombigbee Valley. These boundaries are, of course, arbitrary and subject to revision. In a sample like the MDAH Clay County one, placing assemblages along the time continuum is nearly impossible. In fact, unless a statistically valid sample makes up the study universe, the exact location of a site on such a diagram cannot be determined.

Miller I (100 BC–AD 300)

Caldwell has placed Miller I sites within the Hopewell interaction sphere (Caldwell 1964). Not all Miller I sites as now defined were influenced by Ohio Hopewell. Changes in this influence mark phase distinctions within Miller I.

The earliest phase is the Bynum Phase (100 BC–AD 1). The appearance of Saltillo Fabric Impressed and Baldwin Plain ceramics with Hopewellian artifacts marks this phase. The Pharr Phase (AD 1–AD 200) has the same local ceramics but lacks the Hopewell artifacts. In the last Miller I phase, Craig's Landing (AD 200–AD 300), Saltillo Fabric Impressed still dominates but Furrs Cord Marked has appeared. Marksville Stamped, *var. Manny* is associated with this time period (Jenkins 1981:22).

Miller II (AD 300–AD 600)

Furrs Cord Marked gradually replaces Saltillo Fabric Impressed as the predominant decorated ceramic type during the Miller II period. In the Early Miller II Phase (AD 300–AD 450), Furrs

Cord Marked is the majority ware and there is more plain ware than Saltillo Fabric Impressed. In the Late Miller II Phase, or Turkey Paw Phase, plain ceramics predominate, while there is a low frequency of Furrs Cord Marked. Withers Fabric Marked and Saltillo Fabric Impressed, *var. China Bluff* also outweigh Furrs Cord Marked (Jenkins 1981:23).

It has been suggested that during this period thermal reduction replaces bipolar flaking as the dominant lithic technology (Ensor 1981). However, as noted in the Columbus Lake study, the idea of "thermal reduction" is under some suspicion (Phillips 1983:63–65).

Miller III (AD 600–AD 1100)

The predominance of grog tempered ceramics over sand tempered wares marks the beginning of the Miller III period. The major pottery types that occur in the Miller III period, Tishomingo Plain, Tishomingo Cord Marked, and Gainesville Fabric Impressed, have been renamed to Mulberry Creek Cord Marked, Baytown Plain, and Withers Fabric Marked, respectively, after Jenkins (1981:87–89) recognized the similarity between these types and those described in the Lower Valley. The Baytown Plain, *var. Tishomingo* designation differentiates the Tombigbee Valley types from the Lower Valley types. Since Baytown Plain, *var. Tishomingo* does not encompass all of Tishomingo Plain's characteristics, however, some former Tishomingo Plain must be classified as Baytown Plain, *var. unspecified* (Johnson *et al.* 1984:42). The predominance of grog tempered over sand tempered wares marks the beginning of the Early Miller III or Vienna subphase (AD 600–AD 900). Baldwin Plain and Mulberry Creek Cord Marked make up most of the assemblage during this time. Associated types are Withers Fabric Marked, Wheeler Check Stamped, Yates Net Impressed, and Alligator Incised. During the Middle Miller III or Cofferdam subphase (AD 900–AD 1000), Mulberry Creek Cord Marked predominates and Baytown Plain and Withers Fabric Marked are secondary wares. Some characteristics of a Cofferdam subphase site are heavy use of river mussel, bell shaped storage pits, presence of corn, and flexed burial in refuse pits (Blakeman *et al.* 1976). The Late Miller III subphase, Catfish Bend (AD 900–AD 1000), is not temporally but spatially different from the Cofferdam subphase. At sites of this subphase, plain ceramics are equal in proportion to decorated ceramics. Jenkins has proposed a terminal Miller III subphase, Gainesville (AD 1000–AD 1100), which adds Mississippian traits to those characteristic of the Middle and Late Miller III. Grog tempered wares predominate, while a few shell tempered wares occur. House forms seem to change to rectangular during this period (Jenkins 1982:24). During all the Miller III subphases there is evidence of corn agriculture (Atkinson *et al.* 1980:211). Madison and/or Hamilton points, which suggest the use of the bow and arrow, appear in the Miller III period.

Middle Mississippian

The predominance of shell tempered ware marks the beginning of the Mississippian period. Marshall (1973) derived four phases for the western side of the Tombigbee watershed from the Lyon's Bluff data. The Tibbee Creek Phase is a mature Mississippian culture with the characteristic globular, loop handled jars. O'Byam Incised is also from this phase. The Lyon's Bluff phase has Mound Place-like incised wares and ceramics with effigy appendages. During the Sorrells Phase, Mississippian civilization begins to decline and ceramics characteristic of the Alabama Burial Urn culture begin to occur. Nodena ceramics increase, as do pinched and punctated wares. The final phase at Lyon's Bluff is the Mhoon phase. Along with the live shell tempered wares, fossil shell wares appear. Wares with Bell Plain-like paste disappear from the assemblage and ceramic workmanship becomes poor. This component at Lyon's Bluff is similar to the Chickasaw sites near Tupelo, Mississippi.

From the Moundville data to the east of the Tombigbee, Steponaitis described five phases. The West Jefferson Phase (AD 900–AD 1050) corresponds with the Catfish Bend and Gainesville subphases of the Miller III period. This phase, as described by Steponaitis (1980:271), is characterized by fairly small sites without contemporary mounds. Data from 1-Je-32 suggests at least two types of sites: small, seasonal, short-term occupation sites of about .03 hectare (.07413 acre) and larger sites of about .09 to .50 hectare (.2224-1.2355 acre) (O'Hear 1975). The West Jefferson component at Moundville appears to be one of these larger sites (Steponaitis 1980:271). West Jefferson peoples relied mainly on wild foods and had limited agriculture (Jenkins and Nielson 1974:159-161). Steponaitis (1980:273) interprets the lack of mounds or elaborate burials from West Jefferson components as characterizing an egalitarian social and political organization.

The ceramics of the West Jefferson phase are essentially the same as those of the Catfish Bend and Gainesville phases. Shell tempered ceramics begin to dominate the assemblage (Steponaitis 1980:272).

Major changes occurred between the West Jefferson phase and the Moundville I phase (AD 1050-AD 1250), when maize becomes extremely abundant in the remains (Steponaitis 1980:273). In a change from the earlier West Jefferson settlement organization (O'Hear 1975), most of the population lived in dispersed farmsteads which were probably year-round settlements (Steponaitis 1980:274).

Subsistence and settlement patterns remained constant into the Moundville II and III periods (AD 1250-AD 1550) except at the Moundville site. In this case a local center expanded in size and apparent importance. The varied subsistence base is exemplified by the presence of corn cobs, fish and animal bones, and wild plant remains at Moundville (Sheldon 1974:4-5).

At the height of the Moundville III phase, the settlement organization apparently was divided into a three tiered hierarchy of large regional centers (Moundville), local centers with one mound, and subordinate farmsteads and hamlets.

The Mississippian decline is evident in the fact that historic Indians were not pyramidal mound builders and lacked "Mississippian aboriginal traits" (Sheldon 1974:12). Termination of mature Mississippian is accepted as about AD 1500 (Sheldon 1974:12, 32). The increased hunting of deer for trade with Europeans may have changed the settlement pattern from large river bank settlements to small isolated homesteads (Sheldon 1974:11, 12).

This abandonment of regional and local centers marks the Alabama River Phase (AD 1550-AD 1700). Elaborate mortuary practices seem to be replaced by single interment. Steponaitis (1980:280) suggests that once again the society had reverted to an egalitarian organization. The Alabama River ceramics of this time are distinctive in the central Tombigbee valley (Sheldon 1974).

Chickasaw

Data on Chickasaw life are derived from Adair's (1775) accounts and the work in the 1940s by Jennings. Major differences exist between the mound building Middle Mississippian and the non-mound building Chickasaw. The Chickasaw sites near present-day Tupelo, Mississippi, occur on the chalk bluffs on the south side of east flowing streams and the west side of south flowing streams. Haag (1951:27) estimated that the population of this area declined by 80 percent from AD 1540 to AD 1700.

The most striking element of the Chickasaw ceramics is the "filleted" rim on Wilson Plain paste (Jennings 1941:175). As Jennings described it, it is a "beaded (by punctating or incising) fillet below the lip on the outside of the vessel" (Jennings 1941:175). Illustrations (Jennings 1941: Pl. 3i,a) are remarkably similar to the specimens found by the MDAH survey, the Chickasaw survey (Stubbs 1983), and the Line Creek Survey (Johnson *et al.* 1984). Other characteristics of Chickasaw ceramics are the "vertical loop and the strap handles, also the horizontal rim lugs" (Jennings 1941:176).

Previous Archaeological Research

Archaeological research in northeast Mississippi has been almost entirely the result of federally funded construction projects. The earliest project in the region was the survey and excavation associated with the construction of Pickwick Reservoir (Webb and DeJarnette 1942). While this work gave a general outline of the chronology of the area, the specifics of the culture sequence in Pickwick relate more closely to areas within the Tennessee River drainage than the Tombigbee drainage. The baseline ceramic chronology for northeast Mississippi was established by Jennings (1941), using data derived from survey and excavation along the route of the Natchez Trace Parkway to the south and west of Pickwick. During the late 1940s and early 1950s, Cotter conducted several excavations along the route of the Trace. One of the sites excavated was the Bynum Mounds in Chickasaw County (Cotter and Corbett 1951). Data recovered allowed a refinement of the sequence proposed by Jennings. The Pharr Mounds in Prentiss County were also excavated by a Park Service archaeologist (Bohannon 1972).

Because of the nature of the excavated sites, the Park Service chronology concentrated on the Woodland and Late Mississippian periods. Jennings (1941) outlined the Miller sequence for the Woodland period, breaking it into three numbered phases based on a ceramic continuum which began with sand tempered, fabric impressed wares, developed into sand tempered, cord marked wares, and ended in grog tempered, cord marked wares. This continuum was divided into four phases by Rucker (1974). Jenkins (1981) returned to the three phases of Jennings and defined ten subphases.

The earliest full scale excavation in the area was conducted at the Cofferdam site. The primary occupation at Cofferdam dates to the Late Miller III phase. In 1979, Mississippi State University excavated the Kellogg Village site under a contract with the U.S. Army Corps of Engineers. Kellogg was a multi-component site with deposits up to one meter deep. Archaic, Miller II, Miller III, and Moundville I components were present (Atkinson *et al.* 1980). Archaic features at Kellogg, including an Archaic cremation that was the first found in the Upper Central Tombigbee, represented a seasonal occupation site. Archaic trade networks, represented by exotic goods from the Gulf Coast and elsewhere, were also expressed at Kellogg (Atkinson *et al.* 1980:261).

The Miller III component at the Kellogg Village site was an important part of the site. The lack of typical Miller III triangular points suggests that the bow and arrow had not as yet been in use. Connection with the Marksville cultures of the Lower Valley is suggested by the presence of Marksville Incised sherds. Sturgeon remains suggest spring or summer occupation and nut remains suggest fall or early winter occupation.

The Yarbrough site, excavated in 1981 by the University of Alabama, was a small habitation site on a natural levee of Tibbee Creek. The site dated from Early Archaic through Late Mississippian. The Archaic occupation at Yarbrough had been disturbed, and the Early Archaic age of the site was revealed only by the presence of Big Sandy and other point types (Solis and Walling 1982:37). The Gulf Formational stage was represented at the site by Wheeler and Alexander series ceramics. Two sherds classified as St. John's Incised suggested some sort of contact with northern Florida. Flint Creek and Little Bear Creek points were recovered in association with the Alexander ceramics (Solis and Walling 1982).

The Woodland component at the Yarbrough site was also badly disturbed, and no Woodland features were found intact. Woodland occupation was documented by the presence of Saltillo Fabric Impressed, Furrs Cord Marked, and Baldwin Plain ceramics. The proportions of the types within the assemblage suggested Miller II occupation (Solis and Walling 1982:44).

The Late Mississippian component at Yarbrough has been interpreted as a small one- or two-family agricultural settlement (Solis and Walling 1982:67). This site model is consistent with current ideas about the Late Mississippian economic and social system. The suspected economic base of the Mississippian component was one of diversified procurement guarding against the risks of a single source agricultural system (Solis and Walling 1982).

In 1976–1977, Mississippi State University conducted excavations at the Tibbee Creek site in Lowndes County, Mississippi. This site was occupied from Early Gulf Formational times through the Early Mississippian. The Miller III portions of the site produced the most material, including a structure, several burials, and appreciable faunal remains (O'Hear *et al.* 1981:241).

In the late 1960s, Mississippi State University conducted a field school at the Lyon's Bluff site. This site, located near the confluence of Chuquatonchee and Line Creeks, represented a major Middle Mississippian stockaded village and mounds with a Late Mississippian component (Marshall 1973).

In 1983, Phillips made an intensive restudy of the gravel industry at three sites in the Columbus Lake area: Cofferdam, Tibbee Creek, and the Kellogg Village sites. All were on the first terrace of the Tombigbee River and near the gravel source. Phillips investigated the impact of the changing nature of the techno-economic systems and subsystems on the lithic assemblage. Specifically, he discussed the relationship between the function of a site and the nature of the biface reduction trajectory. Short term occupation sites should have short trajecterie (little assemblage variation) and longer term occupation sites should have longer trajectories or greater assemblage variation. Trajectory length was also linked to possible site function. Short term occupation/lithic procurement sites were expected to produce short trajectories with a high proportion of early stage flakes. Short term, non-lithic procurement sites were expected to have a short trajectory with a small proportion of early stage flakes and a higher proportion of maintenance flakes. On the other hand, the expected biface trajectory at long term occupation sites should have encompassed all stages of biface reduction (Johnson and Raspet 1980; Morgan and Raspet 1979; Phillips 1983).

In the Columbus Lake area, Phillips found that as the function of the site changed through time, the lithic assemblage also changed. During the Archaic period it is suggested that the first terrace sites were lithic procurement sites rather than residential sites (Phillips 1983:78). The short term, intermittent occupation resulted in a lithic assemblage with a large proportion of both early stage flakes and unfinished bifaces. In later periods variety in the lithic assemblage increased, suggesting increasingly longer term occupation.

In the spring of 1983, the Center for Archaeological Research, University of Mississippi, conducted an archaeological survey of the Line Creek watershed (Johnson *et al.* 1984) which studied an area of the county not included in the Tennessee-Tombigbee Waterway work. Because this area was located in the uplands away from the river, it expanded the database for reconstruction of the prehistory of the Central Tombigbee Valley.

Analysis of data from the Line Creek sites revealed settlement patterns sensitive to time and physiographic zone. This effect was suspected to be due to fluctuation in the subsistence system and a change in the environmental needs of the group. The earlier work in the area contributed to the model of expected patterns. Because of the nature of the MDAH Clay County survey, most sites were found in the large bottoms. Also the survey tended to find more large sites than small. The non-random distribution of sites vis-a-vis physiographic zones found in the Line Creek survey was expected to hold for the rest of the county as well. The suggested relationship between proximity to lithic sources and length of reduction trajectories was also expected to hold. It was assumed, further, that the Middle Mississippian sites should occur in the large bottoms in the southern part of the county and the Late Mississippian sites in the upland prairie in the northern part of the county.

CHAPTER 2

DESCRIPTION OF THE DATABASE

Descriptive analysis of the archaeological material collected by the Mississippi Department of Archives and History Clay County survey is basic to further interpretive procedures. Both lithic and ceramic data were available for study.

Lithics

Comparability was one of the major concerns of this work, so the classification key (Figure 2-1) used for the bifaces is similar to the one used in the Line Creek report (Johnson *et al.* 1984) and the Columbus Lake lithics analysis (Phillips 1983). The occurrence of "choppers" posed some problems in the analysis because of the difficulty in defining a finished specimen. Since the level of completion is an important attribute in the biface key, the choppers had to be eliminated from the analysis universe on the basis of a distinctive wear pattern.

The MDAH sample included 812 finished bifaces that were eventually put into thirty-seven point categories. In the initial analysis, Brookes classified the Early Archaic points into ten categories. For further analysis, this study used Cambron and Hulse 1975, Faulkner and McCollough 1973, Ensor 1981, and Atkinson *et al.* 1980 to define twenty-six other categories which sufficed to classify the remaining finished points. Later some of the categories were found to be repetitious, but they were retained to indicate the presence of variants having no apparent temporal significance.

Existing categories were not sufficient for the entire point inventory; therefore, the "point type cluster" was employed. Faulkner and McCollough (1973:88) describe the cluster as "specimens with shared attributes that may mark horizons." They are, however, only provisional combinations of possible historic types. Ensor (1981:89) also applied point type clusters in his study of the finished bifaces from the Gainesville Lake area. In the present study clusters were useful in defining both a tradition (a diachronic distribution) and a horizon (a synchronic distribution).

The use of provisional types in this study had two functions. In the first part of the analysis, all the bifaces were put into intuitive categories and given "provisional type" numbers. These numbers are included in the following descriptions for clarity. In some cases, bifaces would not fit into previously described point types or clusters, and the original numbers given at the beginning of the analysis remained the only way to describe them. In some cases, an intuitive type would fit a cluster description but did not fit any of the published illustrations. The original numbers are given in order to distinguish these from the illustrated ones. Provisional type 17 is an example of this.

Biface Categories

Point Type: Quad
Sample: 1
Chronological Position: Paleo-Indian
References: Cambron and Hulse 1975:107; Bell 1960:80
Provenience: 613-1 (Site 22-Cl-613, one example)

Measurements	N	Mean	S.D.
Length	0	-	-
Width	1	32.0	-
Thickness	1	11.0	-

Description: This point is medium size lanceolate with concave ground base. This specimen is on Fort Payne chert.

Point Type: Dalton
Sample: 6
Chronological Position: Early Archaic; Late Paleo-Indian
References: Cambron and Hulse 1975:37-39; Brookes 1979
Provenience: 535-1; 562-1; 660-2; 749-1; 791-1

Measurements	N	Mean	S.D.
Length	4	35.5	1.00
Width	4	21.5	2.52
Thickness	5	5.4	0.55

Description: These points are very well made with a ground concave base and sides. All five of the specimens are on Tuscaloosa gravel, and four are heat treated.

Point Type: Plevna
Sample: 4
Chronological Position: Early Archaic
References: Cambron and Hulse 1975:106; Dejarnette, Kurjack, and Cambron 1962:66, Brookes 1979:135
Provenience: 620-1; 621-1; 625-2

Measurements	N	Mean	S.D.
Length	2	38.5	4.9
Width	2	21.5	0.7
Thickness	4	7.3	0.5

Description: This category is characterized by deep corner notches and a ground convex base. Two of the specimens were made of thermally altered Tuscaloosa gravel; one was reworked into an end scraper. The third is made of Fort Payne chert and the last is on milky quartzite.

Point Type: LeCroy
Sample: 1
Chronological Position: Early Archaic
Reference: Cambron and Hulse 1975:77
Provenience: 761-1

Measurements	N	Mean	S.D.
Length	1	30.0	-
Width	1	20.0	-
Thickness	1	7.0	-

Description: The LeCroy point is small with resharpened-serrated edges and a concave base. It is similar in outline to the Dalton but, it is much thicker and of poorer workmanship.

Point Type: Greenbriar
Sample: 7
Chronological Position: Early Archaic
References: Cambron and Hulse 1975:38–39; Lewis and Kneberg 1958:5–11; Bell 1960:50; Brookes *et al.* 1974:6–9; Brookes 1979:33–34
Provenience: 545–1; 606B–1; 625–1; 660–1; 691–1; 735–1; 794–1

Measurements	N	Mean	S.D.
Length	1	16.0	-
Width	5	19.6	2.7
Thickness	7	6.4	0.8

Description: Small points on thermally altered, red Tuscaloosa gravel. This point is characterized by shallow side notches and straight to concave ground bases. Resharpening techniques vary, creating both rhomboid and biconvex cross sections.

Point Type: Jude
Sample: 6
Chronological Position: Early Archaic
References: Cambron and Hulse 1975:71; Brookes 1979:34
Provenience: 566–1; 620–1; 621–1; 625–1; 660–2

Measurements	N	Mean	S.D.
Length	1	29.0	-
Width	4	20.3	3.3
Thickness	6	6.0	0.6

Description: These are small, straight to slightly expanding based points with grinding. Five specimens are made of thermally altered Tuscaloosa gravel; one is of Tallahatta quartzite.

Point Type: Big Sandy
Sample: 13
Chronological Position: Early Archaic
References: Kneberg 1956:25; Lewis and Kneberg 1956; 34–37; Bell 1960:8; Cambron and Hulse 1975:14–17
Provenience: 562–1; 621–1; 625–1; 660–1; 674–1; 734–1; 736–1; 745–1; 754–1; 779–1; 791–1; 794–1; 801–1

Measurements	N	Mean	S.D.
Length	1	312.0	-
Width	12	19.8	2.7
Thickness	13	6.9	0.9

Description: The Big Sandy points are well made with grinding on base and notches. Eleven are of thermally altered Tuscaloosa gravel ranging in color from yellow to deep red. Two are of unaltered Tuscaloosa gravel.

BIFACE KEY

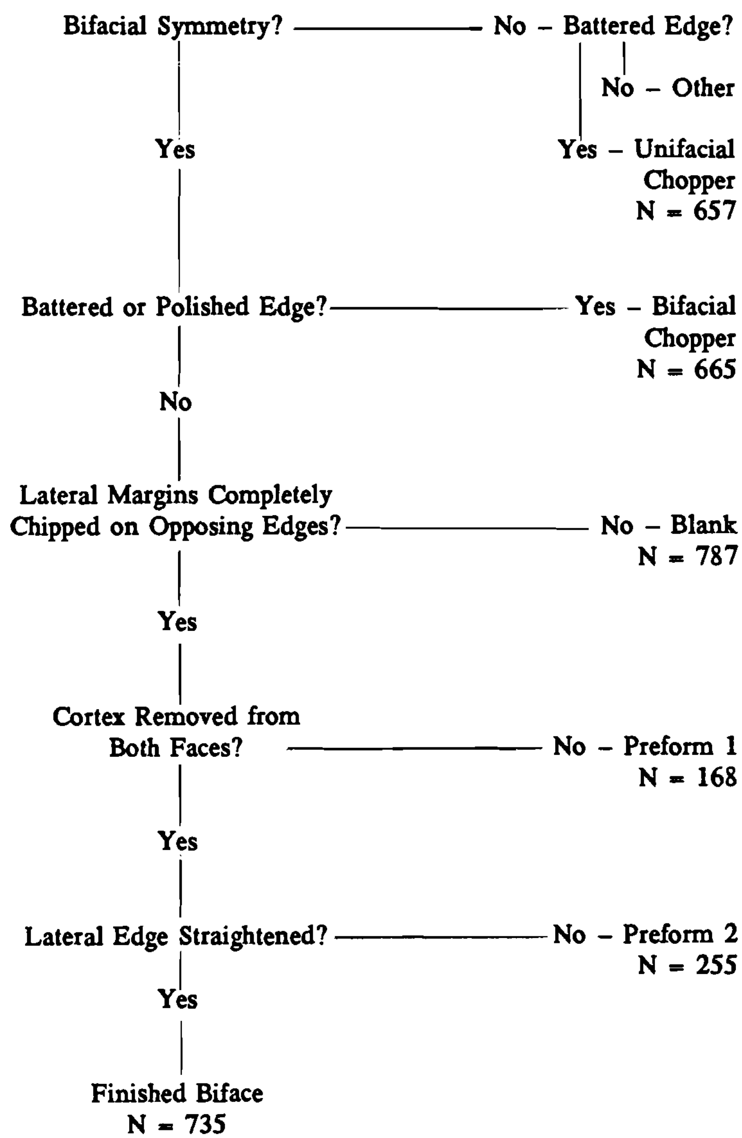

Figure 2-1. Lightline Lake biface key.

Point Type: Lost Lake
Sample: 11
Chronological Position: Early Archaic
Reference: Cambron and Hulse 1975:83
Provenience: 566–1; 660–2; 745–1; 726–1; 619–1; 656–2; 768–1; 598–1; 768–1

Measurements	N	Mean	S.D.
Length	7	39.9	12.6
Width	8	21.5	5.1
Thickness	11	7.5	2.7

Description: The Lost Lake points are medium to large with corner notches and rhomboid cross section. The bases are slightly concave to slightly convex and ground. Stem sides are ground. All specimens are made from thermally altered Tuscaloosa gravel. All of the complete specimens have extensive resharpening.

Point Type: Decatur
Sample: 43
Chronological Position: Early Archaic
References: Cambron and Hulse 1975:41; Bell 1960:28; Brookes 1979:36
Provenience: 566–1; 593–1; 610–1; 618–1; 619–8; 620–1; 621–2; 625–9; 656–3; 660–5; 667–1; 723–1; 730–1; 734–1; 736–1; 745–1; 753–1; 760–1; 777–1; 791–2

Measurements	N	Mean	S.D.
Length	14	40.0	12.1
Width	32	24.9	4.2
Thickness	43	6.0	1.3

Description: The Decatur points are medium to large with corner notches. Some specimens have the "fracture base" but it is by no means universal. All but four are made from thermally altered Tuscaloosa gravel. The others are on Fort Payne chert. Resharpening techniques vary, creating both rhomboid and biconvex cross sections. Sixteen have been reworked into end scrapers.

Point Type: Pine Tree
Sample: 60
Chronological Position: Early Archaic
References: Cambron 1957:18; Cambron and Hulse 1975:104–105; Brookes 1979:38
Provenience: 519–1; 522–2; 535–1; 545–1; 591–1; 592–1; 602–1; 604–1; 613–1; 614–1; 616–2; 619–3; 621–2; 631–1; 633–1; 634–1; 656–2; 660–5; 672–1; 706–1; 717–3; 734–3; 735–1; 737–1; 740–2; 745–2; 750–1; 753–1; 759–1; 777–6; 778–3; 780–1; 788–2; 824–2; 829–1

Measurements	N	Mean	S.D.
Length	25	37.9	12.7
Width	41	24.3	4.8
Thickness	60	7.1	1.2

Description: These points are large corner notched points of heated Tuscaloosa gravel, Fort Payne chert, or an unidentified green chert. Base and stem edges are ground. Four are of Fort Payne chert and one of unidentified green chert. Nine of the points are reworked into end scrapers. One was of Fort Payne chert, eight of thermally altered Tuscaloosa gravel.

Point Type: Unidentified Early Archaic
Sample: 55
Chronological Position: Early Archaic
Provenience: 561-1; 562-1; 580-1; 585-3; 587-1; 595-2; 609-1; 611-1; 619-7; 620-3; 621-5; 625-3; 629-1; 631-1; 632-1; 635-1; 638-1; 648-1; 650-1; 656-1; 658-2; 660-8; 667-1; 693-1; 708-1; 710-1; 714-1; 730-1; 734-1; 736-1; 737-1; 741-1; 750-1; 765-1; 768-1; 785-1; 798-1; 815-1
Description: Redefinition of the lithic artifact base in the Tombigbee was not a primary aim of this study. Therefore, temporal definitions of bifaces were broad, while some could not be assigned to a specific point type but had attributes associated with specific times. Fifty-five bifaces fell into this category for reasons including grinding of the point base, flaking technique, and quality of workmanship.

Cluster: Benton
Sample: 23
Chronological Position: Middle Archaic
Reference: Cambron and Hulse 1975:12-13
Provenience: 601-1; 604-2; 620-1; 629-1; 637-1; 648-2; 656-1; 684-2; 695-1; 691-1; 710-1; 725-1; 739-1; 768-1; 777-1; 794-4; 815-1

Measurements	N	Mean	S.D.
Length	3	51.0	4.6
Width	13	31.0	6.3
Thickness	23	8.0	1.8

Description: Points in the Benton Cluster are well made, large, and usually made of Fort Payne chert. Eighteen were of Fort Payne chert; four were of Tuscaloosa gravel. Stem modification created a very short stemmed or slightly corner notched point with an expanding to slightly contracting stem. Only two of the Benton Cluster points were whole; thirteen had lateral snaps, three showed thermal failure, and one exhibited reworking on the distal end. One point of Fort Payne chert had only one shoulder.

Cluster: Eva
Sample: 19
Chronological Position: Middle Archaic
Reference: Cambron and Hulse 1975:48
Provenience: 608-1; 616B-1; 619-1; 620-1; 621-1; 625-1; 642-1; 654-1; 660-1; 671-1; 679-3; 710-1; 726-1; 765-2; 777-1; 782-1

Measurements	N	Mean	S.D.
Length	4	38.5	5.2
Width	17	32.2	5.7
Thickness	19	8.5	2.0

Description: These points are basally notched and have wide blades. Three are on dark grey Fort Payne chert, and the rest are on red, thermally altered Tuscaloosa gravel.

Point Type: Morrow Mountain (Provisional type 15)
Sample: 17
Chronological Position: Middle Archaic
Reference: Cambron and Hulse 1975:89–91
Provenience: 601–1; 616B–1; 620–1; 630–1; 634–1; 643–1; 648–1; 660–2; 672–1; 679–1; 694–1; 718–1; 745–1; 777–2; 787–1

Measurements	N	Mean	S.D.
Length	2	52.0	2.8
Width	13	26.0	6.6
Thickness	17	9.6	1.2

Description: Bases are similar to the Gary cluster points, but the shoulders are straight. Three are of Fort Payne chert; one is of unaltered Tuscaloosa gravel; the rest are of red, thermally altered Tuscaloosa gravel. The difference between these points and those in Morrow Mountain (Provisional type 16) is that type 16 has light serration.

Point Type: Morrow Mountain (Provisional type 16)
Sample: 6
Chronological Position: Middle Archaic
Reference: Cambron and Hulse 1975:89–91
Provenience: 616B–1; 625–1; 682–1; 694–1; 696–1; 794–1

Measurements	N	Mean	S.D.
Length	5	57.4	8.3
Width	6	22.8	23.4
Thickness	6	9.7	1.8

Description: These points are medium to large with contracting stems and tapering shoulders. Three are made of thermally altered Tuscaloosa gravel, one of Fort Payne chert, and two of unheated yellow Tuscaloosa gravel. Four show signs of resharpening and light serration.

Point Type: Mud Creek
Sample: 21
Chronological Position: Late Archaic
Reference: Cambron and Hulse 1975:94
Provenience: 600–1; 602–1; 603–1; 613–1; 616–1; 616B–2; 619–1; 621–1; 648–1; 656–1; 660–1; 670–1; 682–1; 688–1; 719–2; 723–1; 740–1; 745–1; 799–1

Measurements	N	Mean	S.D.
Length	7	46.3	8.0
Width	21	21.8	4.1
Thickness	21	9.3	1.7

Description: These points are poorly made and exhibit shallow side notching and expanding stems. All specimens are thermally altered, dark red to red gravel.

Cluster: Wade
Sample: 7
Chronological Position: Late Archaic, Early Woodland
Reference: Cambron and Hulse 1975:122
Provenience: 609–2; 663–1; 679–1; 697–1; 786–2

Measurements	N	Mean	S.D.
Length	1	49.0	–
Width	5	35.4	2.8
Thickness	7	9.6	2.1

Description: Members of the Wade cluster are deeply barbed, relatively short points with expanding to straight stems. Three are made of thermally altered Tuscaloosa gravel, one of unaltered gravel.

Point Type: Flint Creek, Ensor Class 83
Sample: 3
Chronological Position: Late Archaic, Early Woodland
References: Cambron and Hulse 1975:51; Ensor 1981: Fig. 22
Provenience: 612–1; 614–1; 700–1

Measurements	N	Mean	S.D.
Length	0	–	–
Width	3	30.0	1.0
Thickness	3	7.3	1.5

Description: These are extremely well made, medium sized points on thermally altered Tuscaloosa gravel. They have bulbous stems and are barbed.

Cluster: Flint Creek
Point Type: Provisional Type 32, Ensor Class 72
Sample: 6
Chronological Position: Late Archaic, Early Woodland
References: Cambron and Hulse 1975:51–52; Ensor 1981: Fig. 21
Provenience: 625–1; 630–1; 633–1; 672–1; 686–1; 714–1

Measurements	N	Mean	S.D.
Length	4	49.3	5.0
Width	4	27.8	5.3
Thickness	6	9.8	1.8

Description: These are well made points with barbed shoulders and expanding base. All are made of thermally altered Tuscaloosa gravel. The dividing criterion for this class is fine re-sharpening by flaking on both sides of the point. The major difference between these points and Provisional Type 32 is the quality of workmanship.

Cluster: Flint Creek
Point Type: Provisional Type 31, Ensor Class 69
Sample: 51
Chronological Position: Late Archaic, Early Woodland
References: Cambron and Hulse 1975:51–52; Ensor 1981: Fig. 20
Provenience: 600–1; 616B–4; 620–1; 621–1; 625–1; 626–1; 630–2; 631–1; 634–1; 638–1; 647–1; 653–1; 655–1; 656–1; 657–1; 660–10; 672–1; 679–1; 680–1; 682–1; 685–1; 686–1; 687–1; 688–1; 691–1; 692–1; 694–3; 718–2; 718B–1; 723–1; 750–1; 760–1; 777–3

Measurements	N	Mean	S.D.
Length	22	52.5	7.6
Width	50	24.5	4.1
Thickness	50	9.5	1.5

Description: These are medium sized, fairly well-made points. With the exception of two, all are made of heated Tuscaloosa gravel. The others are made of grey chert. Many of these points have cortex either on the base or the blade and would have been classified as unfinished bifaces were it not for the hafting elements. The straight stem is the distinguishing characteristic between this type and Provisional Types 33 and 34.

Cluster: Flint Creek
Point Type: Provisional Type 33, Ensor Class 69
Sample: 18
Chronological Position: Late Archaic, Early Woodland
References: Cambron and Hulse 1975:51–52; Ensor 1981: Fig. 20
Provenience: 573–1; 601–2; 616–1; 616B–1; 621–1; 630B–1; 654–1; 660–1; 694–2; 712–1; 714–1; 725–1; 739–1; 777–3

Measurements	N	Mean	S.D.
Length	9	47.3	5.7
Width	18	24.5	3.8
Thickness	18	9.2	1.3

Description: These are fairly well made points with bulbous bases and weak shoulders. Some are lightly serrated. All are on Tuscaloosa gravel of various shades of red and lustrous yellow.

Cluster: Flint Creek
Point Type: Provisional Type 34, Ensor Class 70
Sample: 29
Chronological Position: Late Archaic, Early Woodland
References: Cambron and Hulse 1975:51–52; Ensor 1981: Fig. 21
Provenience: 600–2; 601–1; 613–1; 614–1; 619–1; 620–1; 622–1; 625–1; 626B–1; 627–1 638–1; 660–3; 672–1; 679–1; 694–1; 708–1; 711–1; 723–1; 726–1; 739–1; 745–1; 770–1; 777–2; 791–1; 815–1

Measurements	N	Mean	S.D.
Length	12	46.1	8.2
Width	24	28.1	4.2
Thickness	29	9.1	1.1

Description: Points of this type are similar to Provisional Type 33 but have barbed shoulders and are more crudely made. Some have cortex on the base or the blade and would have been classified as unfinished bifaces if the key had been followed without question. Five are of thermally altered yellow Tuscaloosa gravel and twenty-four are of red Tuscaloosa gravel. Some have light serration.

Cluster: Gary
Point Type: Provisional Type 14
Sample: 33
Chronological Position: Gulf Formational–Miller III
References: Newell and Krieger 1949:164–165; Bell 1958:28; Cambron and Hulse 1975:57
Provenience: 601–3; 603–1; 609–1; 616B–1; 620–1; 621–1; 622–2; 625–2; 642–1; 660–1; 679–1; 688–1; 709–1; 712–1; 718B–1; 732–1; 739–1; 740–2; 745–5; 751–1; 754–2; 777–1; 800–1

Measurements	N	Mean	S.D.
Length	5	48.6	13.3
Width	31	26.6	4.7
Thickness	33	9.7	1.9

Description: All but one of these points are made of Tuscaloosa gravel and most are thermally altered. Because of the long temporal range of these points they were of little use in defining the chronological position of sites. The quality of the workmanship of these points is fairly poor to very poor. On some the cortex is not completely removed and, once again, if it were not for the hafting elements, they would have been classified as unfinished bifaces.

Cluster: Tombigbee Stemmed
Point Type: Provisional Type 26, Ensor Class 58
Sample: 4
Chronological Position: Middle Woodland
Reference: Ensor 1981: Fig. 19
Provenience: 603–1; 614–1; 660–1; 777–1

Measurements	N	Mean	S.D.
Length	4	63.0	10.6
Width	4	21.8	2.6
Thickness	4	9.5	1.7

Description: These are poorly worked points similar to those of the Tombigbee Stemmed cluster. All are fairly crude and made from thermally altered Tuscaloosa gravel.

Cluster: Tombigbee Stemmed
Point Type: Provisional Type 28, Ensor Class 39
Sample: 6
Chronological Position: Middle Woodland
Reference: Ensor 1981: Fig. 16
Provenience: 602–1; 648–1; 760–2; 791–1; 815–1

Measurements	N	Mean	S.D.
Length	1	65.0	–
Width	6	33.5	7.2
Thickness	6	10.6	2.0

Description: These are medium to large points with square bases and barbs. They are fairly thin and all are of heated Tuscaloosa gravel.

Cluster: Tombigbee Stemmed
Point Type: Provisional Type 25, Ensor Class 56
Sample: 15
Chronological Position: Middle Woodland
Reference: Ensor 1981: Fig. 19
Provenience: 601–1; 619–1; 634–1; 670–1; 674–1; 679–1; 692–1; 697–1; 723–1; 739–1; 745–1; 761–1; 777–1; 805–1

Measurements	N	Mean	S.D.
Length	8	44.8	5.0
Width	13	27.2	4.7
Thickness	15	9.3	1.4

Description: These are small to medium sized points with square stems. Three are on Fort Payne chert while the rest are made of heated Tuscaloosa gravel and are various shades of red and yellow.

Cluster: Tombigbee Stemmed
Point Type: Provisional Type 27, Ensor Class 57
Sample: 27
Chronological Position: Middle Woodland
Reference: Ensor 1981: Fig. 19
Provenience: 600–1; 609–1; 613–1; 616–1; 616B–2; 619–1; 620–3; 620B–1; 630–1; 660–4; 672–1; 678–1; 679–1; 694–1; 700–2; 723–1; 725–1; 740–1; 777–1; 784–1

Measurements	N	Mean	S.D.
Length	23	57.9	9.6
Width	27	21.4	2.9
Thickness	27	10.2	1.9

Description: The points in this cluster are very crude, medium sized and made of heat treated Tuscaloosa gravel. They are relatively long and narrow, with some being almost cylindrical. All have square stems and very weak shoulders. Some have cortex on the base.

Cluster: Tombigbee Stemmed
Point Type: Provisional Type 29, Ensor Class 55
Sample: 115
Chronological Position: Middle Woodland
Reference: Ensor 1981: Fig. 18
Provenience: 600–2; 601–3; 602–1; 603–2; 605–1; 610–1; 611–1; 612–1; 613–3; 614–1; 616B–13; 619–1; 620–2; 621–1; 622–3; 624–1; 626–1; 628–1; 630–2; 631–1; 634–3; 635–1; 637–1; 642–1; 647–1; 648–5; 649–1; 660–7; 670–1; 679–7; 682–3; 687–1; 688–1; 693–1; 694–3; 712–1; 714–1; 716–1; 718–6; 723–1; 724–1; 725–1; 739–2; 745–5; 748–1; 752–1; 768–1; 777–10; 785–1; 803–1; 815–2; 825–1

Measurements	N	Mean	S.D.
Length	40	45.1	7.9
Width	92	24.8	4.1
Thickness	115	9.6	1.9

Description: These are very crude medium to small points. Most are of heat treated Tuscaloosa gravels; two are made of Fort Payne chert. Extensive hinge fractures and apparent disregard for symmetry are this cluster's main features. The base of this type is generally square with straight shoulders. Many have cortex on the point face or the base.

Cluster: Tombigbee Stemmed
Point Type: Provisional Type 22, Ensor Class 60
Sample: 2
Chronological Position: Middle Woodland
Reference: Ensor 1981: Fig. 20
Provenience: 649–1; 651–1

Measurements	N	Mean	S.D.
Length	0	–	–
Width	0	–	–
Thickness	2	11.5	0.7

Description: These points have only one shoulder and are of medium size. All are on heat treated Tuscaloosa gravel.

Point Type: Provisional Type 13
Sample: 21
Chronological Position: Unknown
Provenience: 601–1; 606B–1; 608–1; 613–1; 616B–3; 625–1; 660–2; 679–1; 686–1; 709–1; 715–1; 723–1; 765–1; 777–4; 816–1

Measurements	N	Mean	S.D.
Length	6	51.0	4.4
Width	13	28.5	4.9
Thickness	21	9.0	1.8

Description: These points have contracting stems with pronounced barbs. Two of these are on Fort Payne chert, while the rest are on red to lustrous yellow Tuscaloosa gravel. Two of the red points have been worked into burins or drills.

Cluster: Tombigbee Stemmed
Point Type: Provisional Type 17
Sample: 10
Chronological Position: Middle Woodland
Provenience: 609-1; 616B-1; 636-1; 660-1; 670-1; 714-1; 737-1; 745-1; 768-1; 805-1

Measurements	N	Mean	S.D.
Length	3	56.3	5.0
Width	8	29.3	5.2
Thickness	10	10.4	1.6

Description: A group of unusual points with crooked stems were found in the Clay County inventory. They are similar to Tombigbee Stemmed and have cortex on the base in some cases. All are made of Tuscaloosa gravel; six of these show thermal alteration.

Point Type: Provisional Type 15
Sample: 15
Chronological Position: Unknown
Provenience: 601-1; 620-1; 621-1; 643-1; 644-1; 673-1; 713-1; 714-1; 726-1; 734-1; 740-1; 745-1; 759-1; 766-1; 777-1

Measurements	N	Mean	S.D.
Length	8	46.1	6.7
Width	10	31.1	3.2
Thickness	15	9.3	1.6

Description: These are fragmentary corner notched points with fairly wide blades. The missing elements make further classification impossible. Two are of dark Fort Payne chert; one is of yellow, unaltered Tuscaloosa gravel.

Point Type: Provisional type 19
Sample: 2
Chronological Position: Unknown
Provenience: 613-1; 754-1

Measurements	N	Mean	S.D.
Length	2	31.0	5.7
Width	2	12.5	0.7
Thickness	2	6.0	1.4

Description: These are two small, very well made spikes. One is of red heat treated Tuscaloosa gravel and the other is of yellow lustrous gravel.

Point Type: Provisional Type 18; Ensor Class 113
Sample: 6
Reference: Ensor 1980: Fig. 30
Provenience: 601–1; 612–1; 625–1; 704–1; 714–1; 745–1

Measurements	N	Mean	S.D.
Length	3	31.7	5.5
Width	6	18.5	4.3
Thickness	6	7.0	0.9

Description: These are small points on heat treated Tuscaloosa gravel. They have concave bases on tapered shoulders that resemble fish tails. No basal grinding is evident.

Point Type: Provisional Type 21, Ensor Class 30, Atkinson Class F
Sample: 5
Chronological Position: Miller III
References: Atkinson *et al.* 1980: Plate 6; Ensor 1981: Fig. 16
Provenience: 561–1; 613–1; 616B–1; 621–1; 759–1

Measurements	N	Mean	S.D.
Length	2	16.5	16.3
Width	5	20.1	3.1
Thickness	5	8.2	2.4

Description: These points have shallow side notching and concave bases. They are similar to Class F in the Kellogg Village report (Atkinson *et al.* 1980). All are made of red, thermally altered Tuscaloosa gravel.

Point Type: Provisional type 20, Ensor Class 34, Atkinson Class E
Sample: 8
Chronological Position: Miller III
References: Ensor 1980: Fig. 16; Atkinson *et al.* 1980: Plate 6
Provenience: 601–1; 616B–2; 620–1; 621–1; 691–1; 694–1; 719–1

Measurements	N	Mean	S.D.
Length	5	43.6	6.3
Width	8	17.3	0.7
Thickness	8	8.3	1.3

Description: This type of point is medium sized with shallow side notches and a straight base. They are similar to Class E found at Kellogg. All are made of red, thermally altered Tuscaloosa gravel.

Point Type: Madison and Hamilton
Sample: 94
Chronological Position: Miller III – Mississippian
Reference: Cambron and Hulse 1975:84 and 64

Provenience: 601–4; 602–1; 605–4; 606–2; 610–1; 616–1; 619–1; 620–20; 621–3; 625–5; 634–1; 637–2; 639–1; 648–2; 651–1; 654–1; 656–2; 660–2; 664–1; 665–1; 668–1; 670–1; 672–1; 674–1; 675–1; 679–1; 690–1; 695–1; 705–1; 711–1; 718–1; 718B–1; 720–1; 726–1; 727–2; 735–1; 738–1; 742–1; 743–3; 745–5; 752–1; 755–1; 783–2; 785–2; 793–1; 794–1; 816–1; 818–2

Measurements	N	Mean	S.D.
Length	37	21.9	5.7
Width	75	15.4	3.2
Thickness	94	4.6	1.8

Description: The Madison and Hamilton points are small and triangular with slightly incurvate to excurvate sides. Since the temporal distinction between Hamilton and Madison is apparently insignificant, they have been combined for this study. All were made from thermally altered Tuscaloosa gravel.

Other Worked Lithic Artifacts

A total of 1253 pieces of ground sandstone were recovered, most of which were fragments of nutting stones. The MDAH survey found thirty–eight flaked sandstone artifacts. The majority of the flaked sandstone was a coarse grey material. Some specimens were made of the orange/red ferrous stone which is local.

There were 556 quartzite pebbles that showed pitting and battering and were classified as hammerstones. Larger than sand–size quartz is rare in the Mississippi and adjacent Alabama Tuscaloosa Formation (Stephenson and Moore 1940:37). Futato (1983:12), however, has found small but consistent amounts of metaquartzite in Alabama gravel deposits.

Artifacts which had a battered working edge and extensive step fracture were classified as choppers. The step fracturing occurred either on the side or the working edge of the tool. Similar examples are illustrated in the Kellogg report (Atkinson *et al.* 1980:270) and are classified as "unifacial and bifacial adze/scrapers." All examples in the MDAH survey material are Tuscaloosa gravel; most are not thermally altered.

In the present work the core category consisted of those lithic artifacts that had flakes removed but did not fit into any of the other lithic categories. In all 723 specimens from the survey were classified as cores.

Flakes made up the largest group of artifacts collected by Brookes and Connaway. It has been demonstrated that the lithic industry in Clay County was based primarily on the Tuscaloosa gravel (Johnson *et al.* 1984; Phillips 1983). Johnson and Raspet (1980) developed a classification key for a gravel based lithic reduction trajectory, and a similar key was used in the Line Creek study (Johnson *et al.* 1984) and the Columbus Lake study (Phillips 1983). This key was also used in the Clay County study because of similar resource bases and technology. Also, a comparison with the other Clay County materials was one of the objectives of this work.

The vertical axis in Table 2–1 represents the platform configuration of the flakes and the horizontal axis is the percentage of cortex of the dorsal surface. In a biface industry based on gravel, the first flakes removed from the rock should have cortex on the platform. Therefore, a flake with cortex on its platform suggests early stage removal (Johnson *et al.* 1984:45). As biface production proceeds, progressively less cortex will be on the dorsal surface and the platform will increase in complexity (Johnson *et al.* 1984:45).

Platform	Dorsal Cortex		
	> 75%	75% - 0%	0%
Missing	DB1 625	DB2 1266	DB3 1455
Cortex	DB4 O = 313 E = 172.32 +	DB5 O = 306 E = 322.09 -	DB6 O = 381 E = 505.58 -
< 2 Facets	DB7 O = 411 E = 512.50 -	DB8 O = 1006 E = 957.90 +	DB9 O = 1557 E = 1503.60 +
> 2 Facets	DB10 O = 17 E = 56.18 -	DB11 O = 73 E = 105.00 -	DB12 O = 236 E = 164.82 +

Table 2-1: Flake classification, total sample.

Debitage categories 1 through 3 have been left out of the analysis because one of the two classificatory characteristics is missing, namely the striking platform. If there were no relationship between the vertical and horizontal variables, the value E would be expected. The difference between the observed (O) and the expected is represented by the + or -. The cell in which the observed value is greater than the expected falls along the principal diagonal. To Johnson (1983) this is consistent with a gravel based industry.

Ceramics

Fiber Tempered Ceramics

The MDAH survey recovered 158 fiber tempered sherds from thirty-five sites. Most of these sherds were badly weathered. It was therefore difficult to place Wheeler types in varieties. It seems sufficient at this time to assign the fiber tempered sherds to Wheeler Plain (Haag 1939, 1942; Sears and Griffin 1952). In the Gainesville report, Jenkins recognized a distinction between Wheeler Plain, *var. Noxubee* and Wheeler Plain, *var. Wheeler.* The difference between the two varieties is that *Noxubee* has more sand than *Wheeler.* Jenkins (1981:167) says that these two are indistinguishable except in the most extreme cases.

One sherd did not fit into the current varieties of the Wheeler Punctate type and was classed as unspecified. The decoration of this sherd is cane impressions forming circles .5 cm in diameter. A cluster of three of these impressions appears on the sherd.

A Wheeler Punctate, *var. Dancy* (Jenkins 1981:169) sherd was found at site 22-Cl-816. The decoration on this sherd consists of four rows of small punctations resembling a dentate stamp. This sherd is very similar to the one illustrated in the Gainesville report (Jenkins 1981: Fig. 56a).

One sherd is characterized by apparently randomly incised lines on Wheeler paste. Both this sherd and the one Wheeler Punctate, *var. unspecified* sherd described above are from the same site.

Wheeler Plain, *var. unspecified*	153
Wheeler Punctate, *var. unspecified*	3
Wheeler Punctate, *var. Dancy*	1
Wheeler Incised, *var. unspecified*	1

Sand Tempered Wares

Sand tempered wares made up the majority of the recovered sherds (3363). Most of these were Baldwin Plain, *var. unspecified*. Stubbs (1983) classified the sand tempered plain sherds with Late Mississippian rims as Baldwin Plain, *var. Ridge*. That classification is employed here. A few Alexander sherds showed an unusual decoration of small cane punctations. One sherd also had incised lines that formed zones of punctations. This sherd is believed to be Santa Rosa Punctate, *var. unspecified*, and is similar to one illustrated in the Gainesville report (Jenkins 1981: Fig. 28J). Two sherds showed an unusual decoration for the area. Both have very sandy paste and are brick red. Just below the rim is a single row of cane punctations that almost pierce the vessel wall.

Alexander Incised, *var. unspecified*	227
Alexander Pinched, *var. unspecified*	3
Alexander Incised, *var. Kellogg*	1
Santa Rosa Punctate, *var. unspecified*	1
Saltillo Fabric Marked, *var. unspecified*	67
Furrs Cord Marked, *var. unspecified*	541
Baldin Plain, *var. Ridge*	10
Baldwin plain, *var. unspecified*	2513

Grog Tempered Ware

The majority of the 2217 grog tempered sherds were either Baytown Plain *var. unspecified* or Mulberry Creek Cord Marked, *var. unspecified*. Three other types of grog tempered wares are represented in the MDAH sample: Marksville Incised, Coles Creek Incised, and Yonaba Roughened.

One sherd from site 22-Cl-816 defied classification. It is a rim sherd from a five or six sided vessel. The sherd is one of its corners. A single incised line appears below the rim and a single diagonal incised line is evident on each of the visible sides. It was tentatively classified as Marksville Incised, *var. unspecified* because the incised lines are *ca.* 2 mm wide.

Yonaba Roughened, *var. Yonaba* is described as a Chickasaw type (Stubbs 1983) from the Tupelo area. It is fairly crude in execution with large pieces of grog in the paste.

Baytown Plain, *var. Tishomingo*	1308
Baytown Plain, *var. unspecified*	352
Mulberry Creek Cord Marked, *var. unspecified*	547
Marksville Incised, *var. unspecified*	4
Coles Creek Incised, *var. unspecified*	1
Yonaba Roughened, *var. Yonaba*	4

Bone/Limestone Tempered Ware

MDAH found eleven small sherds that had either bone or limestone temper. All were so badly weathered that any surface treatment that may have existed had been destroyed.

Shell Tempered Ware

Very few of the shell tempered ceramics in the MDAH sample are decorated and the majority are small, very weathered sherds. A few sherds showing distinctive features (loop handles, abstract effigy heads/appendages, applique handles, and filleted rims) were recovered from some of the larger sites and the Chickasaw sites. Thus, the large categories, Bell Plain, *var. unspecified*, Mississippi Plain, *var. unspecified*, and Wilson Plain, *var. unspecified*, encompass most of the shell tempered sherds. The distinction between the shell tempered plain sherds was based on the size of the shell particles, the quality of the paste, and whether live or fossil shell was used. Bell Plain is described as having fine shell temper and usually showing a polished surface. Mississippian Plain, on the other hand, has large shell inclusions and is not polished (Phillips 1970:58, 130; Jenkins 1981:63, 70). Wilson Plain has fossil shell temper and is thought to be Late Mississippian or Chickasaw (Stubbs 1983). Those sherds that had leached shell or were in a very weathered state could not be classified to a specific type, and they were included in an unspecified shell tempered category.

Unspecified shell tempered	611
Wilson Plain, *var. unspecified*	35
Bell Plain, *var. unspecified*	114
Mississippian Plain, *var. unspecified*	68
Alabama River Applique, *var. unspecified*	7
Moundville Incised, *var. unspecified*	2

CHAPTER 3

ANALYSIS OF DATA

If physiographic zones had nothing to do with the settlement patterns in Clay County, it would be expected that sites would be randomly dispersed throughout the county, but since the ecological zones have different resources, one would expect environmental trends in the settlement patterns. Therefore, it was not unexpected when the Line Creek data showed that the sites in that area form physiographically sensitive settlement patterns (Johnson *et al.* 1984:73). The next step was to determine if this occurs throughout the county.

The initial analysis tested whether the sites were randomly dispersed throughout the county or not. The physiographic zones in the county account for differing amounts of its surface area, and this would affect the expected values on Table 3-1. The formula for these expected values is:

$$E = P \times T$$

where E is the expected value, P is the proportion of the county occupied by a physiographic zone, and T is the total number of sites. The Yates' corrected chi-square value is 88.05 with 8 degrees of freedom. Greater than expected values occur in the Prairie Bottoms and the thin soiled Prairie; expected values occur on the west slope of the Pontotoc Ridge; and less than expected values occur in all other areas. Most of the deviation from random is from the zone with fragipan soils, the Prairie Bottoms, and the east slope of the Pontotoc Ridge. Thus the null hypothesis of random distribution can be rejected with a 99% confidence level.

Physiographic Zone	%	Observed	Expected
Prairie Bottoms	20	84	46.60
Pontotoc Ridge Bottoms	10	7	23.30
Tombigbee Basin	5	6	11.65
Thick Soiled Prairie	20	40	46.60
Thin Soiled Prairie	2	7	4.66
East Slope Pontotoc Ridge	5	2	11.65
Tombigbee Bluffs	3	2	6.99
West Slope Pontotoc Ridge and Flatwoods	8	19	18.64
Terrace and Uplands with Fragipan	27	16	62.91

Chi-square = 88.05

Table 3-1: Sites by physiographic zone.

An important factor to keep in mind is that definite biases exist in the data base. The Brookes and Connaway survey was not intended to be a random sample of the county but rather a survey to locate National Register quality sites. Not only is the site sample biased, but the material collected from these sites is biased. Because of the goals of the survey, Brookes and Connaway solicited site locations from local collectors (Brookes pers. comm.) who directed them to sites from which surface collections had already been made. Collectors tend to collect the whole points and unusual artifacts and leave debitage, small sherds, and broken points. Even on sites visited by Brookes and

Connaway, random surface collections were not taken, but representative samples of artifacts were collected (Brookes pers. comm.).

As a result of these biases, the exact numbers in the following analysis do not necessarily reflect the archaeological reality, but because of the uniform method of collection and the large number of sites and artifacts, general trends seen in the data are suspected to be valid. As Binford (1979:487) notes in his Eskimo studies, the function of a site drastically affects the artifact assemblage. Large residential sites with long-term, nearly year-round habitation would have a different lithic assemblage than small temporary procurement sites. A long-term site should have a nearly complete artifact assemblage that shows any change in the technology of the people. On the other hand, a limited use site would have a smaller proportion of the total artifact assemblage. Binford (1979:489) suggests that if the function of a procurement site does not change through time, any change in the importance of that procurement strategy will not be evident.

Size I		Size II		Size III	
Acres	%	Acres	%	Acres	%
1	11.2	2	31.8	7	1.3
		3	18.0	8	1.7
		4	16.3	9	2.1
		5	6.9	10	0.9
		6	5.2	11*	0.4
				12	2.1
				13	0.9
				16	0.9
				27	0.4

Table 3-2: Site size - Relative Frequency.

Site size was determined by using the original soil maps used in the survey and a dot grid. Because of the scale of the maps, one acre was the lowest site size measurable, and thus sites smaller than one acre are in the one acre or less category. Sites were then divided into three groups on the basis of size. Table 3-2 shows the relative frequencies of the sizes of sites. A sharp increase in frequency occurs between sites of one acre or less and two acre sites. Also there is a sharp decrease in frequency between the six acre sites and the larger than six acre sites. These three groups became the size units: less than or equal to 1 acre, 2-6 acres, and greater than 6 acres.

For all size sites (Table 3-3) a fairly high proportion of sites occurs in the large Prairie Bottoms and the terraces and upland prairie with fragipan soils. Because of the survey techniques, it was expected that few sites would occur on the Tombigbee Bluffs, within the Tombigbee Basin, or on the east slope of the Pontotoc Ridge. Small procurement sites of either completely nomadic people or belonging to a base camp/procurement site organization should occur throughout the county. The distribution of small sites is in fact seemingly random. Most of these sites occur on either the large Prairie Bottoms or the terraces and uplands with fragipan soils. Sites larger than one acre and smaller than six acres are distributed nearly randomly throughout the physiographic zones as well. It was expected that most of the sites in the county would fall in the less than or equal to one acre category, but the vast majority of the sites were from two to six acres. A possible explanation for this is that most of the sites were multi-component. Small components overlapped, creating sites that appeared much larger than any of the individual components.

Physiographic Zone	Size <=1	2-6	>6
Prairie Bottoms	12	67	5
Pontotoc Ridge Bottoms	3	4	0
Tombigbee Basin	1	5	0
Thick Soiled Prairie	1	31	8
Thin Soiled Prairie	0	3	4
East Slope Pontotoc Ridge	0	2	0
Tombigbee Bluffs	0	2	0
West Slope Pontotoc Ridge and Flatwoods	2	12	5
Terrace and Uplands with Fragipan	7	56	3

Table 3-3: Sites by size by physiographic zone.

As site size increases, procurement sites and small single component sites begin to drop out of the sample. What is left are the base camps, residential sites, and large multi-component sites. Further observations to be made on the basis of site size are less obvious. One abnormality occurs in the bottoms draining the Pontotoc Ridge. This zone makes up ten percent of the county, and only two percent of the medium sized sites are in this area. Expected values occur, however, for large sites in the Prairie Bottoms. Twenty-seven percent of the large sites were expected to be on the terraces and uplands with fragipan soils, but only twelve percent are observed. Large sites occur in much higher than expected numbers in the prairie uplands, the thin soiled prairie, and the west slope of the Pontotoc Ridge. The deviation from random occurs in different physiographic zones for medium and large sites. In two to six acre sites, the major deviation is in the large bottoms draining the Black Prairie, whereas in sites larger than six acres this deviation is on the thin soiled prairie upland. The sites on this soil are exclusively Chickasaw sites. Pre-Chickasaw large sites do not deviate significantly from a random distribution. No small Chickasaw sites of one acre or less were found.

Component Description

Because of the nature of the surface collections, intrasite distribution of activity areas could not be determined, so the component as a whole became the smallest unit of analysis in this study.

One problem that became apparent only after the second stage analysis had begun was the multi-component nature of many of the sites. The change in the settlement system that began to be suggested by changes in the settlement pattern through time was a very important part of this work. Multi-component sites could either be eliminated or the temporally separate components could be taken as separate analysis units. Eliminating all the multi-component sites would also eliminate a great deal of the database, so the components of the sites were used as separate units.

This leads to further complications. Although many time markers have been defined in Southeastern prehistory, archaeological material from many of the sites used here was not definitely associated with one time period. In fact, arbitrary time categorization in itself was not useful in this work. In order to be useful, time categories had to coincide with techno-economic periods. For this reason, broad time definitions were used where narrower ones were impossible.

The Early Archaic culture has been well documented (Brookes 1979). Mississippian material, early and late, has also been defined (Steponaitis 1980; Sheldon 1974; Jennings 1941; Stubbs 1983). The Woodland Period, however, is somewhat vague. Exactly what constitutes Miller I, Miller II, or Miller III hinges on certain percentages of various types of ceramics. Since one hundred percent samples were not collected in this study, a multi-component Miller I through Miller III site in a plowed field would escape accurate definition.

To counter this definition problem, percentages of specific temper classes were not used. Simple occurrence of grog tempered ceramics was taken as a grog tempered site. Likewise, if Furrs Cord Marked and shell tempered ceramics were found at a site, then the site would be in both the Furrs Cord Marked and the shell tempered site models. If a site had only one type of ceramics, however, it was assumed that this site was a single component site.

Single Component Sites

Once it was determined that the sites were not randomly distributed throughout the physiographic zones, further groupings of sites could be tested to determine where the deviation occurs. Of the 233 sites studied, fifty-three could be defined as single component sites. These sites are broken down by time and physiographic zone in Table 3-4.

Physiographic Zone	EA	LA	MA	GF	MI	MII	MIII	MS	CH
Prairie Bottoms	1	1	1	1	1	1	5	0	0
Pontotoc Ridge Bottoms	0	0	0	0	1	0	0	1	0
Tombigbee Basin	0	0	0	0	0	0	0	2	0
Thick Soiled Prairie	5	0	1	0	0	0	1	1	1
Thin Soiled Prairie	0	0	0	0	0	0	0	0	6
East Slope Pontotoc Ridge	0	0	0	0	0	0	0	0	0
Tombigbee Bluffs	0	0	0	0	0	1	0	0	0
West Slope Pontotoc Ridge and Flatwoods	2	0	0	0	0	1	1	0	0
Terrace and Uplands with Fragipan	3	0	0	2	0	2	10	1	0

Table 3-4: Single component sites by physiographic zone.

Eleven sites were single component, Early Archaic sites. No daub was recovered from these sites and only one had any Tallahatta quartzite. It is interesting to note that all of these sites had choppers. From the paucity of artifacts and their location, all appear to be temporary procurement sites.

Only one site could be classified as single component Middle Archaic. This site had no choppers, daub, or quartzite and was located over 8.9 miles from the Tombigbee Basin.

Two sites were single component Late Archaic. One is located in the large bottoms draining the prairie and the other is in the upland prairie. These two sites may represent two types of sites. Although they are almost the same distance from the Tombigbee Basin, their assemblages have striking differences. The bottomland site has a large amount of sandstone and no quartzite. The proportion of early stage debitage from this site was .5882. The upland site has very little sandstone or quartzite and no early stage debitage.

Three sites are single component Gulf Formational. Their distances and proportion of early stage debitage are 5.25km/.0000, 19km/.3809, 28km/.3500. That the closest site to the gravel source has no early stage debitage is an apparent indication of sampling error. The site farthest from the river and the one closest to the river are similar in all characteristics except distance and proportion of early stage debitage. Both appear to be small procurement sites.

Two sites are single component Miller I. The majority of the decorated ceramics from these sites is Saltillo Fabric Marked. Neither had daub, choppers, or Tallahatta quartzite. One is in the large bottoms draining the prairie and is about 3.2 miles from the Tombigbee Basin. The other is in the large bottoms draining the Pontotoc Ridge and is about 11 miles from the river basin. The proportion of early stage debitage for the closer site is .7500 and for the farther site is .6250. Samples from both sites, however, are very small.

The five single component Miller II sites fit well into the distance from source/proportion of early stage debitage model. The two closest sites are 2 miles and 1.3 miles from the river and have proportions of early stage debitage of .3333 and .6176. The farther sites have no early stage debitage.

The largest group of single component sites are Miller III. Most occur on terrace soils or in the large bottoms draining the prairie. Eight choppers from five sites and daub from one site were recovered.

Five small sites could be classified as single component Middle Mississippian. This classification is tentative because all had weathered, undecorated sherds in their assemblages. Phase definition is not possible with this type of sherd. The sites that are classified as Middle Mississippian have no non-Mississippian artifacts and do have some definite Middle Mississippian ceramics, effigy appendages, and strap handles.

Seven of the nine Chickasaw sites were single component. None had choppers or Tallahatta quartzite. All these sites have similar artifact assemblages and are located on the thin soiled upland prairie on the bluffs above Houlka Creek.

All of the single component sites with the exception of the Chickasaw sites appear to be small, temporary procurement sites. They have similar locations and assemblages. The Chickasaw sites, however, show a radical shift in settlement pattern. The Chickasaw lived in an area which was avoided by earlier people.

Multi-Component Sites

Because most of the sites in the sample are multi-component, a true view of the county is not complete without examining these sites. It appears that a good location in Early Archaic times was a good location in Miller II times. In all, over 400 components from Clay County are defined in multi-component configurations.

Paleo Indian Period

The MDAH survey located only one site that had a Paleo component. Site 22-Cl-595, a multi-component site, is classified as "Paleo" on its site card. In the analysis of the material at the university lab, one other site was classified as having a Paleo component. A possible Quad point of grey chert was found at site 22-Cl-613. With only two components in the sample universe from the Paleo Indian Period, the development of a testable model for the time is impossible. It is possible to say that Clay County was occupied during the pre-Archaic period but the nature of that occupation is unknown.

Early Archaic

MDAH found seventy-seven sites that had Early Archaic points. The presence of these points defined the component. As with most of the components in the survey, they are part of multi-component sites and thus their analysis is limited.

If the Early Archaic sites were randomly dispersed throughout the county and throughout the county's physiographic zones, the expected distribution would be equal to the percentage of the county that a zone represents. For example, since 20% of the county is prairie bottom, it would be expected that 20% of the Early Archaic sites would occur in this area. The observed frequency, however, is 33.8%. Higher than expected values are on the prairie bottoms, upland prairie, and terraces, while less than expected values are on bottoms draining the Pontotoc Ridge, the Tombigbee Basin, thin soiled upland prairie, both sides of the Pontotoc Ridge, and the Tombigbee Bluffs. For all the Early Archaic components, the distribution among the physiographic zones is not random. Table 3-5 shows this distribution. With a Yates' corrected chi-square value of 21.38, the hypothesis of random distribution can be rejected.

Physiographic Zone	Expected	Observed	Chi-Sq
Prairie Bottoms	15.2	26	6.98
Pontotoc Ridge Bottoms	7.6	0	6.63
Tombigbee Basin	3.8	0	2.87
Thick Soiled Prairie	15.2	20	1.22
Thin Soiled Prairie	1.52	0	0.68
East Slope Pontotoc Ridge	3.8	1	1.39
Tombigbee Bluffs	2.28	0	1.39
West Slope Pontotoc Ridge and Flatwoods	6.08	6	0.03
Terrace and Uplands with Fragipan	20.52	23	0.19

Chi-Square 21.38

Table 3-5: Early Archaic sites by physiographic zone.

Not only is this pattern not random; in the light of present ideas about Early Archaic settlement patterns it is expected. The Early Archaic settlement pattern was controlled by a diffused economy (Cleland 1976:69) in which the expected model is one of large sites in the bottoms and small procurement sites throughout the area.

Early Archaic sites were divided into two groups: those with more than the mean number of Early Archaic (12) points and those with fewer. Ten sites were classified as large sites and 66 sites as small sites. As expected, the large sites are in the Tibbee Creek bottom and the bottom at the confluence of Line, Chuquatonchee, and Tibbee Creeks. The importance of the confluence area will become more evident as the discussion by time period goes on.

In order to counter some of the sample bias, all Early Archaic sites were included in Table 3-6. This table shows the sites broken down by size and physiographic zone. With a Yates' corrected chi-square value of 2.06 and four degrees of freedom, the hypothesis that the two variables are independent cannot be rejected. Most of the deviation from random occurs in large sites on the upland thick soiled prairie. Less than one site is expected to occur here, but two of the large sites do. The expected and observed values for all the other cells are essentially the same.

Physiographic Zone	< 12	> 12	Total
Prairie Bottoms	22	4	26
Thick Soiled Prairie	18	2	20
East Slope Pontotoc Ridge	1	0	1
West Slope Pontotoc Ridge and Flatwoods	4	2	6
Terrace and Uplands with Fragipan	21	2	23
Total	66	10	76

Chi-Square 2.06

Table 3-6: Early Archaic components by size and zone.

Middle Archaic

The presence of any of three point types, Morrow Mountain, Benton, and Eva, defined the Middle Archaic component (Cambron and Hulse 1975:89–91, 12–13, 48). Admittedly these are very limited criteria for a component definition; however, definitive Middle Archaic artifacts are limited in the sample. Twenty-eight sites in seven physiographic zones have Middle Archaic components (Table 3–7). As with most of the components in this study, it was not unexpected that most of the sites occur in the large bottoms draining the prairie.

Physiographic Zone	Expected	Observed	Chi-Sq
Prairie Bottoms	5.6	18	25.28
Pontotoc Ridge Bottoms	2.8	0	1.89
Tombigbee Basin	1.4	0	0.58
Thick Soiled Prairie	5.6	3	0.78
Thin Soiled Prairie	0.56	0	0.01
East Slope Pontotoc Ridge	1.4	0	0.18
Tombigbee Bluffs	0.84	0	0.14
West Slope Pontotoc Ridge and Flatwoods	2.24	0	1.35
Terrace and Uplands with Fragipan	7.56	7	0.00

Chi-Square 30.21

Table 3–7: Middle Archaic sites by physiographic zone.

It is likely that the small number of Middle Archaic components is due not to their absence from the county but to the confusion in the definition of Middle Archaic in the Tombigbee Valley. Also, some Middle Archaic sites are probably buried and were not found by the survey. Because the Brookes/Connaway survey relied heavily on site location data from amateurs (Brookes, pers. comm.) and Middle Archaic artifacts are prized by collectors, those Middle Archaic artifacts collected by the MDAH survey were the "non-collectables" or the few missed ones.

Late Archaic

Defining the Late Archaic components in Clay County was not as simple as defining the earlier components. The major Late Archaic point types in the Brookes/Connaway survey, Flint Creek, Wade, and Mud Creek (Cambron and Hulse 1975), overlap into the Gulf Formational period. Therefore the presence or absence of these point types at a site was not enough to define the Late Archaic.

The presence of Wheeler or Alexander series ceramics defines a Gulf Formational component at a site (Willey 1949). Thus, if a site had any of the abovementioned point types but lacked any Gulf Formational ceramics, a Late Archaic component was defined. Table 3–8 shows all the Late Archaic sites divided by physiographic zones. With a Yates' corrected chi-square value of 51.02, the hypothesis of random distribution can be rejected. Most of the deviation occurs in the large prairie bottoms and on the terraces and uplands with fragipan soils. The large value on the prairie bottoms is consistent with the Early and Middle Archaic components, but the small proportion of sites on the terraces and uplands with fragipan soils is a major change from the past.

Physiographic Zone	Expected	Observed	Chi-Sq
Prairie Bottoms	11.8	34	39.90
Pontotoc Ridge Bottoms	5.9	1	3.28
Tombigbee Basin	2.95	1	0.71
Thick Soiled Prairie	11.8	12	0.01
Thin Soiled Prairie	1.18	0	0.39
East Slope Pontotoc Ridge	2.95	0	2.03
Tombigbee Bluffs	1.77	0	0.91
West Slope Pontotoc Ridge and Flatwoods	4.72	3	0.32
Terrace and Uplands with Fragipan	15.93	8	3.47

Chi-Square 51.02

Table 3-8: Late Archaic sites by physiographic zone.

Table 3-9 shows the relationship between site size expressed in relation to the mean number of Late Archaic projectile points and physiographic zones. With a Yates' corrected chi-square value of only 1.37 the hypothesis that the two variables are independent cannot be rejected. It can be speculated that physiographic zone has little to do with site size. During the Archaic period the settlement patterns in Clay County were fairly consistent. Large sites were exclusively in the large bottoms, and the small sites were scattered throughout the county. It is interesting to note that no large base camp sites were found in the uplands of the county. This corresponds well with the Line Creek data in that no large sites were found in the upper Line Creek drainage even though a large portion of this area was surveyed.

Physiographic Zone	< 2.1	> 2.1	Total
Prairie Bottoms	27	7	34
Pontotoc Ridge Bottoms	1	0	1
Tombigbee Basin	1	0	1
Thick Soiled Prairie	8	4	12
West Slope Pontotoc Ridge and Flatwoods	2	1	3
Terrace and Uplands with Fragipan	7	1	8
Total	46	13	59

Chi-Square 1.37

Table 3-9: Late Archaic sites by size by physiographic zone.

Gulf Formational

The development of or the introduction of ceramic technology marks a major division in the chronology of the Southeast, that between Archaic non-ceramic and Woodland ceramic. No matter how this period is divided and labeled, the presence of fiber tempered, Wheeler series ceramics (Haag 1942; Sears and Griffin 1950) and/or sand tempered Alexander series ceramics (Haag 1942) are the defining criteria. In this study the distinction between the Broken Pumpkin Creek and Henson Springs phases of the Transitional Archaic Woodland (Jenkins 1981:18-19) was not used because of the limited nature of the sample. Table 3–10 shows the distribution of all Gulf Formational sites through the physiographic zones. During the Archaic period, more sites than expected occur on the thick soiled prairie, but during the Gulf Formational period this value is less than expected. With a Yates' corrected chi–square value of 22.3, the hypothesis that the Gulf Formational sites are randomly dispersed can be rejected. Most of the deviation from expected occurs in the large bottoms draining the prairie. This pattern holds for most of the time periods and is expected here.

Physiographic Zone	Expected	Observed	Chi–Sq
Prairie Bottoms	10.2	24	17.34
Pontotoc Ridge Bottoms	5.1	2	1.33
Tombigbee Basin	2.55	1	0.43
Thick Soiled Prairie	10.2	5	2.16
Thin Soiled Prairie	1.02	0	0.27
East Slope Pontotoc Ridge	2.55	2	0.00
Tombigbee Bluffs	1.53	0	0.69
West Slope Pontotoc Ridge and Flatwoods	4.08	3	0.08
Terrace and Uplands with Fragipan	13.77	14	0.00

Chi–Square 22.30

Table 3–10: Gulf Formational sites by physiographic zone.

Thirty–five of the sites had less than the mean number of Gulf Formational sherds (3.1) and sixteen had more (Table 3–11). With a Yates' corrected chi–square value of only 2.17 the hypothesis that the physiographic zone and site size variables are independent cannot be rejected. Most of the small sites are on either the prairie bottoms or the terrace and uplands with fragipan soils. This could be a reflection of the sample bias rather than the real proportions. Although Gulf Formational sites occur on all but two of the physiographic zones, their relative proportions may be somewhat different from the table. It is interesting to note where sites do not occur. The thin soiled prairie is unoccupied until Chickasaw times.

Physiographic Zone	< 3.1	> 3.1	Total
Prairie Bottoms	10	14	24
Pontotoc Ridge Bottoms	0	2	2
Tombigbee Basin	0	1	1
Thick Soiled Prairie	3	2	5
East Slope Pontotoc Ridge	0	2	2
West Slope Pontotoc Ridge and Flatwoods	0	3	3
Terrace and Uplands with Fragipan	3	11	14
Total	16	35	51

Chi–Square 2.17

Table 3–11: Gulf Formational sites by size by physiographic zone.

Miller I

None of the multi–component sites in the Brookes/Connaway survey had Saltillo Fabric Impressed as the majority ware, the major criterion for Miller I (Jennings 1941; Cotter and Corbett 1951; Cotter 1950; Koehler 1966). Twenty–seven sites had some Saltillo Fabric Impressed ceramics. Four of these are on the Town Creek drainage; twelve are in the Tibbee Creek drainage. No Saltillo Fabric Impressed sherds were found in the Houlka Creek drainage, in the northern part of the county. Table 3–12 shows the proportional distribution of the sites with Saltillo Fabric Impressed sherds in each of the nine physiographic zones.

Physiographic Zone	Expected	Observed	Chi–Sq
Prairie Bottoms	5.4	11	4.82
Pontotoc Ridge Bottoms	2.3	3	0.01
Tombigbee Basin	1.35	0	0.54
Thick Soiled Prairie	5.4	3	0.62
Thin Soiled Prairie	0.05	0	0.05
East Slope Pontotoc Ridge	1.35	1	0.02
Tombigbee Bluffs	0.81	0	0.12
West Slope Pontotoc Ridge and Flatwoods	2.16	2	0.05
Terrace and Uplands with Fragipan	7.29	7	0.01

Chi–Square 6.29

Table 3–12: Sites with Saltillo Fabric Impressed ceramics by physiographic zone.

Miller I components have been defined in the past by the relative proportion of certain ceramic types in the sample. For such a determination it is necessary to have a total or at least a random sample. The MDAH survey was a surface collection, and the percentage of a specific sherd type in the assemblage may or may not be representative of the total site assemblage. Thus the implications drawn from the presence of Saltillo Fabric Impressed at a multi–component site are about that ceramic type and not necessarily about Miller I.

Miller II

Miller II components are also hard to define with complete certainty. In the surface collection, the ratio of Furrs Cord Marked to Saltillo Fabric Impressed or Mulberry Creek Cord Marked is almost meaningless. In the survey data and the model of the Miller sequence itself, exclusively Miller II time markers are rare to nonexistent. Thus, an exclusively Miller II site can not be quantitatively differentiated from a multi–component, Miller I/Miller II site. Therefore, although it ranges from Late Miller I to Early Miller III (Jenkins *et al.* 1981:132), Furrs Cord Marked is used here as a Miller II marker. Of course, inclusion of all sites with Furrs Cord Marked ceramics will skew the data somewhat, but this is unavoidable.

Of the fifty–nine sites that had Furrs Cord Marked ware, five were deleted from the Miller II category because of the large proportion of Mulberry Creek Cord Marked to Furrs Cord Marked. For example, site 22–Cl–821 had two Furrs Cord Marked sherds but fifty–nine Mulberry Creek Cord Marked sherds. These deletions left fifty–four sites that could be classified comfortably as Miller II.

Physiographic Zone	Expected	Observed	Chi-Sq
Prairie Bottoms	10.8	21	8.71
Pontotoc Ridge Bottoms	5.4	2	1.56
Tombigbee Basin	2.7	1	0.53
Thick Soiled Prairie	10.8	5	2.60
Thin Soiled Prairie	1.08	0	0.31
East Slope Pontotoc Ridge	2.7	2	0.01
Tombigbee Bluffs	1.62	1	0.01
West Slope Pontotoc Ridge and Flatwoods	4.32	6	0.32
Terrace and Uplands with Fragipan	14.58	16	0.06

Chi-Square 14.11

Table 3-13: Miller II sites by physiographic zone.

The dispersal of Miller II sites throughout the physiographic zones is shown in Table 3-13. Miller II people do not seem to have had the aversion to certain soils that people in the past had had. Miller II sites are found in all the other physiographic zones with higher percentages than on the prairie bottoms and the terraces and uplands with fragipan soils. The relationship between site size (greater or less than the mean number of Miller II sherds) and physiographic location is seen on Table 3-14. With a Yates' corrected chi-square value of 3.51, the hypothesis that the variables are independent cannot be rejected. Some patterns in the table are evident, however. The tendency for fewer than expected small sites and more than expected large sites on the large bottoms draining the prairie continues. Also, it should be noted that no large Miller II sites occur in terraces and uplands with fragipan soils.

Physiographic Zone	< 8.9	> 8.9	Total
Prairie Bottoms	11	10	21
Pontotoc Ridge Bottoms	2	0	2
Tombigbee Basin	0	1	1
Thick Soiled Prairie	5	0	5
East Slope Pontotoc Ridge	1	1	2
Tombigbee Bluffs	1	0	1
West Slope Pontotoc Ridge and Flatwoods	5	1	6
Terrace and Uplands with Fragipan	12	4	16
Total	37	17	54

Chi-Square 3.51

Table 3-14: Miller II sites by size by physiographic zone.

Miller III

The appearance of grog tempered ceramics has, in the past, marked the point where Miller II becomes III (Jennings 1944; Cotter and Corbett 1951). In the Gainesville area, grog tempered wares make up 30% of the Late Miller II subphase assemblage (Jenkins *et al.* 1981:24). Since these subdivisions are arbitrary (Ford 1954:4) and are concerned with the time continuum rather than separate entities, either position can be and is valid. For this study the occurrence of grog tempered ceramics defined a Miller II component.

Ninety-seven sites produced grog tempered ceramics. Of these, twenty-four had less than the mean number of grog tempered sherds (15.7) and seventy-three had more than the mean. Both of these size categories are broken down by physiographic zone in Table 3-15. It is interesting to note that there are no large Miller III sites in the large bottoms draining the Pontotoc Ridge. It was found that with a Yates' corrected chi-square value of only 1.82, the hypothesis that size and location are independent could not be rejected.

Physiographic Zone	< 15.7	> 15.7	Total
Prairie Bottoms	26	9	35
Pontotoc Ridge Bottoms	3	0	3
Thick Soiled Prairie	10	5	15
East Slope Pontotoc Ridge	0	1	1
West Slope Pontotoc Ridge and Flatwoods	7	2	9
Terrace and Uplands with Fragipan	27	7	34
Total	73	24	97

Chi-Square 1.82

Table 3-15: Miller III sites by size by physiographic zone.

Analyzing site distribution regardless of size, the hypothesis that the sites are randomly distributed throughout the county can be rejected with a Yates' corrected chi-square value of 27.88 (Table 3-16). As with most of the periods, most of the deviation occurs in the large bottoms draining the prairie. Even if this row is left out, however, enough deviation occurs in the other physiographic zones for a significant chi-square value. As with Gulf Formational, less than expected values occur in the thick soiled prairie. Also increased occupation of the terraces and uplands with fragipan soils occurs in the Miller III period.

Physiographic Zone	Expected	Observed	Chi-Sq
Prairie Bottoms	19.4	35	11.75
Pontotoc Ridge Bottoms	9.7	3	3.96
Tombigbee Basin	4.85	0	3.90
Thick Soiled Prairie	19.4	15	0.78
Thin Soiled Prairie	1.94	0	1.07
East Slope Pontotoc Ridge	4.85	1	2.31
Tombigbee Bluffs	2.91	0	2.00
West Slope Pontotoc Ridge and Flatwoods	7.76	9	0.07
Terrace and Uplands with Fragipan	26.19	34	2.04

Chi-Square 27.88

Table 3-16: Miller III sites by physiographic zone.

Middle Mississippian

The survey found fifty-six sites that had Middle Mississippian components. These components were defined either by the occurrence of Middle Mississippian ceramics or by information on the site cards. Table 3-17 shows the distribution of all the components by physiographic zone. With a Yates' corrected chi-square value of 13.89, the hypothesis that the components are randomly distributed cannot be rejected. The pattern of distribution is similar to the earlier Miller III period, but there are some exceptions. The major change is on the terraces and uplands with fragipan soils. In Miller III times more than the expected number of sites occur in this area, while in Middle Mississippian times the expected and observed values are virtually the same.

Physiographic Zone	Expected	Observed	Chi-Sq
Prairie Bottoms	11.2	22	9.47
Pontotoc Ridge Bottoms	5.6	2	1.71
Tombigbee Basin	2.8	3	0.03
Thick Soiled Prairie	11.2	8	0.65
Thin Soiled Prairie	1.12	0	0.34
East Slope Pontotoc Ridge	2.8	1	0.60
Tombigbee Bluffs	1.68	0	0.83
West Slope Pontotoc Ridge and Flatwoods	4.48	6	0.23
Terrace and Uplands with Fragipan	15.12	14	0.03

Chi-Square 13.89

Table 3-17: Middle Mississippian sites by physiographic zone.

The relationship between the site size in terms of the mean number of shell-tempered sherds and physiographic zone is seen in Table 3-18. With a Yates' corrected chi-square value of 1.18, the hypothesis of independent variables cannot be rejected. The only anomaly in the table occurs in the cell for large site/east side of the Pontotoc Ridge. One large Middle Mississippian site occurs in this area. This seemingly violates the expected model of sites usually being located in the large bottoms draining the prairie. Although this could be sample error, the model may need some reevaluation.

Physiographic Zone	< 9.1	> 9.1	Total
Prairie Bottoms	18	4	22
Pontotoc Ridge Bottoms	2	0	2
Tombigbee Basin	3	0	3
Thick Soiled Prairie	6	2	8
East Slope Pontotoc Ridge	0	1	1
West Slope Pontotoc Ridge and Flatwoods	6	0	6
Terrace and Uplands with Fragipan	11	3	14
Total	46	10	56

Chi-Square 1.18

Table 3-18: Middle Mississippian sites by size by physiographic zone.

Chickasaw

Nine sites had Chickasaw components (Table 3–19), identified by their ceramic assemblage. Initial classification of seven of these sites was done by the Brookes/Connaway analysis. John Stubbs confirmed the ceramics as Chickasaw by comparing them to the sherds from the Chickasaw Survey near Tupelo, Mississippi. The remaining two sites were classified as Chickasaw because of the occurrence of either Yonaba Roughened sherds or the distinctive "fillet" rim on Wilson paste. Only two of the Chickasaw sites are part of multi–component sites. To illustrate the drastic change in the settlement pattern in Chickasaw times, all nine components are included in the table. The sites that occur on the thin soiled upland prairie are the single component sites.

Physiographic Zone	Expected	Observed	Chi–Sq
Prairie Bottoms	1.8	0	0.94
Pontotoc Ridge Bottoms	0.9	0	0.18
Tombigbee Basin	0.45	0	0.01
Thick Soiled Prairie	1.8	1	0.05
Thin Soiled Prairie	0.18	7	221.90
East Slope Pontotoc Ridge	0.45	0	0.01
Tombigbee Bluffs	0.27	0	0.26
West Slope Pontotoc Ridge and Flatwoods	0.72	0	0.07
Terrace and Uplands with Fragipan	2.43	1	0.36

Chi–Square 223.72

Table 3–19: Chickasaw sites by physiographic zone.

Lithic Analysis

After the sites as a whole had been analyzed, the next stage was to study the lithics from the sites. These artifacts were divided to two groups, debitage and bifaces. Also, raw material was studied.

The utilization of different lithic resources changes through time in the Tombigbee Valley (Table 3–20). Although only 589 of the total bifaces could be assigned to specific time periods narrow enough to test this, patterns are evident. Because some points, such as Madison, span several time periods, it was necessary to collapse the periods somewhat. The heaviest utilization of thermally altered Tuscaloosa gravel occurs during the Early Archaic period. If individual Early Archaic points are examined, however, all fit this pattern except the Dalton points, most of which are made of unaltered gravel. The Middle Archaic points from the Clay County data tend to fit into a model of heavy utilization of Fort Payne chert (Futato 1983). Nearly half of the Benton points are made of Fort Payne chert. During later periods the use of thermally altered Tuscaloosa gravel rises to a fairly constant level. Affecting this percentage is the large number of Tombigbee Stemmed cluster points which are made of thermally altered gravel.

		Chert Type				
Period	Ft. P	UH Grvl	H Grvl	T Qutz	Other	Total
Paleo	N = 1 R% = 1.0	0 .00	0 .00	0 .00	0 .00	1
E A	N = 2 R% = .01	7 .05	137 .92	2 .01	1 .01	149
M A	N = 10 R% = .26	3 .08	24 .63	0 .00	1 .03	38
LA/GF	N = 0 R% = .00	21 .16	102 .82	2 .02	0 .00	125
MI/MII	N = 0 R% = .00	50 .27	132 .73	0 .00	0 .00	182
MIII MMS Chic	N = 0 R% = .00	11 .12	83 .88	0 .00	0 .00	94
Total	13	92	478	4	2	589

Table 3-20: Chert type by period.

The proportion of all the early stage debitage in the Line Creek survey was .3354 (Johnson *et al.* 1984:6), while in the Columbus Lakes lithic analysis (Phillips 1983:88) the proportion of early stage debitage for all times was .5454. The Line Creek data comes from an area at least 13.3 miles from the Tombigbee River, while the Columbus Lake sites are located on the first terrace of the river. This suggests that distance from the gravel source affects the assemblage. The data from the MDAH survey substantiates this.

Because many of the sites found in the MDAH survey are represented by only a few flakes, the distance from the gravel source broken down by the proportion of early stage debitage lost some of its meaning. To counter this, all the sites were grouped by distance from the gravel source into units of approximately 20% of the site universe. Generalizations derived from the data from these "zones of sites" are more easily supported because of the larger number of specimens in the analysis units.

Zone	Dist	Prop.	Total
1 = 0.0	km - 5.75 km	.6090	977
2 = 5.8	km - 11.50 km	.6196	1083
3 = 12.1	km - 19.90 km	.5307	1076
4 = 19.95	km - 21.80 km	.5029	688
5 = 21.9	km - 43.00 km	.4916	476

Table 3-21: Proportion early stage flakes by distance.

Table 3-21 illustrates that as distance from the gravel increases, the proportion of early stage debitage generally decreases. This tendency, however, is not uniform and suggests that other factors were at work in determining the nature of the lithic assemblage. Since a natural break occurs between zones 2 and 3 in terms of proportion, the boundary between the near and far sites was drawn at this point.

Size	Near	Far
< = 1	N = 26	N = 5
	P = .5217	P = .5545
	T = 115	T = 202
2 - 6	N = 77	N = 105
	P = .6177	P = .5122
	T = 1567	T = 1804
> 6	N = 11	N = 14
	P = .6296	P = .4915
	T = 387	T = 234

Where: N = Number of sites; P = Proportion of early stage debitage; T = Total number of flakes

Table 3-22: Flakes by distance by site size.

Table 3-22 shows the debitage broken down by size and distance from the gravel source. The observed values do not follow the expected values exactly. Small sites near the river have a slightly smaller proportion of early stage debitage than the small sites farther from the river. This could be explained by sample error, or it may be that lithic procurement was not a function of all the small sites near the river. As the distance from the river increases, the pattern of early stage debitage follows the expected model: the proportion of early stage debitage decreases as distance increases.

When the near sites are viewed as a unit, the proportion of early stage debitage increases with the size of the site. A possible explanation is that there are small non-lithic procurement sites within the near site category. As the size of the near sites increases, these small non-lithic sites drop out and large residential sites are included. From previous work in the area, it is expected that residential sites would have longer biface trajectories (Phillips 1983:75). The debitage from the sites farther from the river shows some patterning, but the change from the small sites to the large sites is less than five percent and could be explained by sampling error.

A major factor in the lithic assemblage is the change through time in the settlement system resulting in a change in the type of lithic utilization at sites. In the Columbus Lake data this change is evident in the proportion of early stage debitage recovered. The proportions found at the large first terrace sites were: Archaic, .678; Miller I, .521; Miller II, .455; Miller III, .491; and Mississippian, .385. These changes in the proportion of early debitage reflect a change in the function of the sites. Therefore, it seems that Archaic sites on the first terrace were involved in lithic procurement, while first terrace Mississippian sites were primary habitation sites (Phillips 1983:71, 72).

In Table 3-23 the proportion of early stage debitage is shown broken down by time period. Because of the limited number of single component sites and the limited collection, no generalizations about patterning can be drawn from these data, but some inferences can be made.

All of the Chickasaw sites are fairly far from the gravel, while some of the Middle Mississippian sites are fairly close. If distance was the only determinate for debitage characteristics, it would then

Early Archaic	Prop = .6378 E = 162 T = 254 N = 11
Middle Archaic	Prop = .7308 E = 19 T = 26 N = 1
Late Archaic	Prop = .5882 E = 10 T = 7 N = 2
Gulf Formational	Prop = .3810 E = 8 T = 21 N = 3
Miller I	Prop = .6750 E = 27 T = 40 N = 2
Miller II	Prop = .5581 E = 24 T = 43 N = 5
Miller III	Prop = .5531 E = 99 T = 179 N = 17
Middle Mississippian	Prop = .5667 E = 34 T = 60 N = 5
Chickasaw	Prop = .6333 E = 19 T = 30 N = 7

Table 3-23: Flakes by time, single component sites.

be expected that the Middle Mississippian sites would have more early stage flakes than would the Chickasaw sites. The opposite, however, is true. Again, absolute numbers are deceiving, but this may suggest that there is a change in site function through time. All the Chickasaw sites are clustered in the central Houlka Creek area, while the Middle Mississippian sites are scattered throughout the Tibbee Creek drainage. A possible explanation for the deviation from expected in the early stage debitage analysis is that the Chickasaw sample is from only one type of site, while the Middle Mississippian sample is from a variety of site types. Whereas the Middle Mississippian settlement system included specialized activity sites, residential sites, and procurement sites near resources, the Chickasaw system was made up of mostly all-purpose sites central to many ecosystems. The Line Creek data suggests this too, because the Chickasaw sites there were located where several ecological zones could be exploited (Johnson and Sparks 1983).

The MDAH survey recovered 2610 bifacially worked artifacts. Of these, 665 are choppers, leaving 1945 in the universe of bifaces. The proportion of finished bifaces in this sample is .3779. This synchronic figure is lower than the .4786 in the Columbus Lake data. A major sampling bias must be discussed here. As mentioned above, the sample is undoubtedly skewed by removal of finished artifacts by collectors. As with the flakes, absolute numbers may be too biased for analysis, but the relationship of finished tools to unfinished tools is testable. For comparison purposes the divisions used in the debitage analysis were used in the biface analysis.

Even allowing for the sampling errors in the data, there is a dramatic change in the proportion of finished bifaces found in the near and far sites (Table 3-24). As expected, the sites closer to the gravel source contain a lower percentage of finished tools than those farther from the lithic source. This pattern holds for all sizes of sites. When site size is included in the analysis, the pattern becomes more complex. At small sites there is a 26 percent increase in the proportion of finished tools from the near sites to the far sites. Comparable increases occur at the larger sites, 20 percent and 26 percent. These differences cannot be explained away as sampling bias. Distance from the gravel source is a definite determining factor in the biface assemblage.

Size	Near	Far
<= 1	F = 7	F = 47
	B = 24	B = 83
	P = .2917	P = .5663
	N = 5	N = 21
2 - 6	F = 237	F = 301
	B = 829	B = 623
	P = .2859	P = .4831
	N = 77	N = 105
> 6	F = 96	F = 46
	B = 302	B = 80
	P = .3179	P = .5750
	N = 11	N = 14

Where: F = Finished bifaces; B = Total bifaces; P = Proportion of total bifaces; N = Number of sites

Table 3-24: Bifaces by distance by site size.

Taking the near sites as a unit, size does not seem to affect the proportion of finished bifaces. The 2.6 percent change in the proportion of finished bifaces from the small to the large sites can be expected by sampling error. Also, the nine percent change in the proportion of finished bifaces that occurs in the far sites is felt to be too small to counter the sampling error.

Table 3–25 shows the proportion of finished bifaces through time at single component sites. Multi–component sites are excluded from this table because unfinished bifaces could not be assigned to specific time periods. Only the Early Archaic and the Miller III sites even approach expected values. It is felt that too few specimens exist in this subsample to give usable data.

Period	Finished	Total	Proportion	Sites
Early Archaic	22	69	.3188	11
Middle Archaic	2	2	1.000	1
Late Archaic	5	10	.5000	2
Gulf Formational	0	3	.0000	3
Miller I	1	7	.1429	2
Miller II	0	1	.0000	5
Miller III	15	35	.4286	17
Middle Mississippian	2	15	.1333	5
Chickasaw	0	0	.0000	7

Table 3–25: Bifaces by time.

Conclusions

The analysis of the Clay County survey data supported some of the initial hypotheses and raised questions about others. The Line Creek data suggested that sites have settlement patterns sensitive to physiographic zone, and this study found this to be true throughout the county. The change in these patterns through time is dramatic (Table 3–26). The Early Archaic pattern is one that is compatible with the diffused economic model of Cleland (1976:61), but it is not an exact fit. During the Early Archaic, large sites generally occur in the large bottoms draining the prairie, while small sites occur in most regions of the county. It is suspected that the large sites in the prairie bottoms were not year–round settlements because of extensive spring flooding of these areas (U.S.D.A. 1976). The few large sites in physiographic zones other than the prairie bottoms suggest seasonal variation in settlement. If the bottoms are flooded in the late winter and spring and few large sites occur in other places, then it can be suggested that during the dry seasons Early Archaic people were exploiting the prairie bottoms from both large and small sites. During the wet season, people were driven out of the bottoms and had to use the prairie, the terraces, and the uplands. Other areas which have no large sites may not have been able to support large concentrations of people. If the "climatic optimum" created warmer and drier winters and springs, the large bottoms may not have flooded as they do now. Because of the nature of the study, however, this question could not be addressed. The "river extraction" idea put forth in the Gainesville Lake report (Jenkins 1982), in which Early Archaic life centered on bottom-land resource utilization, appears to present only a partial picture of Early Archaic life. In Clay County about thirty percent of the Early Archaic sites are in the prairie uplands and about thirty percent occur on the stream terraces and uplands with fragipan soils. Only about a third of the sites are in the prairie bottoms and none occur in the Pontotoc Ridge bottoms.

Physiographic Zone	EA	LA	MA	GF	MI	MII	MIII	MS	CH
Prairie Bottoms	+	+	+	+	+	+	+	+	–
Pontotoc Ridge Bottoms	–	–	–	–	+	–	–	–	–
Tombigbee Basin	–	–	–	–	–	–	–	–	–
Thick Soiled Prairie	+	–	+	–	–	–	–	–	–
Thin Soiled Prairie	–	–	–	–	–	–	–	–	+
East Slope Pontotoc Ridge	–	–	–	–	–	–	–	–	–
Tombigbee Bluffs	–	–	–	–	–	–	–	–	–
West Slope Pontotoc Ridge and Flatwoods	–	–	–	–	–	+	+	+	–
Terrace and Uplands with Fragipan	+	–	–	+	–	+	+	–	–

Table 3–26: Expected/Observed values by time and zone.

As the Archaic period progressed, there was an apparent increase in the use of the large prairie bottoms and a decrease in the use of the terraces and uplands. Half of the large Late Archaic sites occur in the large prairie bottoms.

With the beginning of ceramics some changes in settlement pattern should be expected. Some of the Archaic trends do continue into the Gulf Formational period. The gradual decrease in the occupation of the thick soiled prairie reached lower than expected values by this time. A slight increase in occupation of the terraces began. The beginning of agriculture may be the reason this occurred. Major changes in the settlement patterns that become more pronounced later start during Gulf Formational times. Similar patterns with more exploitation of the prairie bottoms are seen in the Gainesville Lake data (Jenkins 1982). An increase in the variety of the physiographic zones in which small sites are found suggests that the diffused economic model of Cleland (1976) continues, even though evidence shows that agricultural plants are beginning to be used (Yarnell 1976:268). It could be that the Gulf Formational people are using the bottoms for limited agriculture while still remaining dependent on other food sources.

The trend of more sites in the bottoms continues into the Miller II period. The increase in the number of sites on the Pontotoc Ridge suggests a change in the kind rather than the intensity of the exploitation.

During the Miller III period the settlement pattern begins to change to that which culminates during the Mississippian period. No large Miller III sites are found in the bottoms draining the Pontotoc Ridge, no small sites are on the east slope of the Pontotoc Ridge, and there is an increase in the settlement of the terraces. In fact, for the first time there are more sites on the terraces than in the prairie bottoms. Such a pattern could be explained by the suspected increase in agriculture. For example, the stream terraces may have been better suited for prehistoric farming techniques than the floodplains. Sites occur in all but two of the nine physiographic zones of the county during the Miller III period, suggesting that the diffused exploitation characteristic of the Archaic period continued along with the developing new pattern.

The Archaic pattern slowly disappeared, probably as a result of the increased importance of agriculture. With the Mississippian period came an increase in the utilization of limited environmental zones. Most Middle Mississippian sites are confined to either the prairie bottoms or the terraces.

There is continued use of the uplands, however, which suggests that the idea of total dependence on farming may be faulty. The small sites on the Pontotoc Ridge may be the small farmsteads predicted by Steponaitis (1980).

With the decline of the Mississippian came the most dramatic settlement change in Clay County. With the possible exception of two, Chickasaw sites are single component, located in a physiographic zone that had been avoided in the past. The settlement pattern for the Chickasaw in Clay County is similar to that in Lee County (Stubbs 1983). The reason for locations of Late Mississippian sites in the Line Creek drainage (Johnson *et al.* 1984), and why the Lee County Chickasaw and the Clay County Chickasaw chose to live on the thin soiled, upland prairie could be that they had gone back to a varied subsistence base (Johnson and Sparks 1983).

Cleland's hypothesis of the progression of focal and diffused economies does not appear to explain everything about the settlement patterns found in Clay County. As a general trend this model is supported, but no evidence was found to suggest exclusively focal or diffused economic organization. For example, even though most of the Middle Mississippian sites occur in the large prairie bottoms, small sites continue in all but two of the nine physiographic zones.

The lithic analysis of the Clay County survey serves as a confirmation of hypotheses resulting from earlier studies. Distance from source does affect the nature of the lithic assemblage, but Johnson found (1983) that it was not the only factor. The tables above reflect the effect of site type and group mobility on the lithic assemblage. The multi-component nature of some sites had to be taken into account in the lithic analysis. The bifaces from the Clay County survey support the findings of the debitage analysis but they did not fit exactly into the biface production model developed earlier (Johnson *et al.* 1984; Phillips 1983). This was, however, probably due to the nature of the sample.

Finally, the settlement patterns in Clay County are seen to change through time as the needs of the societies changed. Defining settlement distribution in the county is only a first step toward explaining the complex motivations and interrelated systems that resulted in the pattern.

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