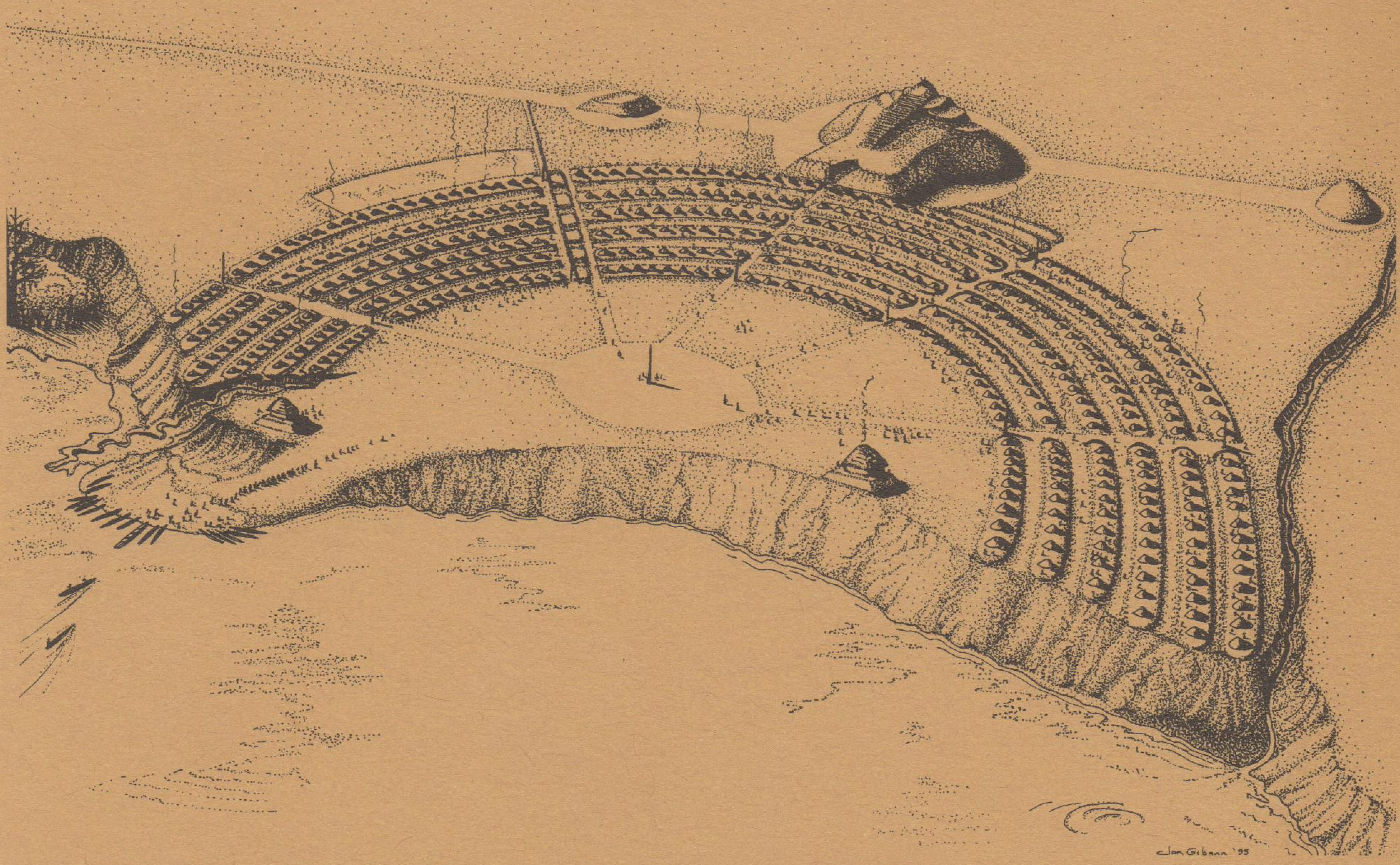
Archaeological Report No. 29

Raw Materials and Exchange in the Mid-South

Proceedings of the 16th Annual Mid-South Archaeological Conference

Jackson, Mississippi—June 3 and 4, 1995

Edited by Evan Peacock and Samuel O. Brookes



Mississippi Department of Archives and History
in cooperation with the U.S. Forest Service
Jackson, Mississippi
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Introduction

Evan Peacock and Samuel O. Brookes

Theories come and theories go: methods vary, techniques wax and wane in popularity, and even the faces change over the years. As far as we can determine, there are only two constants in the archaeology of the Mid-South in particular and the Southeast in general: really, really bad dancing at SEAC social functions, and "stuff." It is the "stuff" that interests us; the artifacts that provide us with answers (if we are lucky and work hard), more questions (if we are really lucky and work really hard), and at least the semblance of an excuse to go to meetings and try on our dancin' shoes. It is this "stuff" that makes up the nuts and bolts of the archaeology of raw materials and exchange; it is this "stuff" that has provided the impetus for these proceedings.

Exchange is easily one of the more eclectic topics in archaeology, involving considerations of culture areas and boundaries, social stratification, economics, technology, transport, and a host of other issues. For this reason, we have welcomed a wide range of papers that examine the topic from a variety of scales, from the very local to the intercontinental. We have also been fairly liberal with what constitutes the "Mid-South," since drawing arbitrary boundaries is antithetical to what exchange itself is all about. The topic has been one of great interest to archaeologists historically and, to judge by a number of fine volumes that have recently appeared, continues to be so. We hope that this volume will contain a little something for everyone who shares that interest.

The 16th Annual Mid-South Archaeological Conference was held in Jackson, Mississippi, on June 3 and 4, 1995. It was hosted by the USDA Forest Service; this publication is a joint venture between that agency and the Mississippi Department of Archives and History. This linking of state and federal resources to disseminate scientific information sets a healthy precedent for Mississippi, while the quality of the information itself continues a trend set in earlier Mid-South conferences. These "mini-conferences," as Ian Brown refers to them in this volume, provide an avenue for the exchange of another kind of "stuff" that is increasingly difficult to include in larger venues: the raw data upon which theories are built, upon which new techniques can be tried, and behind which some of those new faces tend to pop up. One constant theme in previous publications on raw materials and exchange is a plea for more data; we have tried to respond to that plea by gathering these papers together for publication. We are pleased to be able to provide a vehicle for the research reported herein, and we hope that you enjoy the ride.

Acknowledgements

We would like to thank the participants of the 1995 Mid-South Archaeological Conference, especially those who submitted their papers to us for publication. We would like to thank Eugene Futato for allowing us to include his paper, which was presented at an earlier Mid-South. We would like to thank the following museums for allowing us to reproduce the plates used in Ian Brown's paper: Joslyn Art Museum, Nebraska, and the Peabody Museum of Archaeology and Ethnology, Massachusetts.

We would like to thank the USDA Forest Service, National Forests in Mississippi, and the Mississippi Department of Archives and History for making publication of these papers possible. The meeting was held at the Old Capitol Museum and the War Memorial Building Auditorium in Jackson, and we would like to thank Donna Dye and Denise Miller for helping to arrange those meeting places. Marilyn Brookes helped with the local arrangements for the meeting. Finally, we would like to thank Pat Galloway and Julie Bullock for their assistance in getting this volume into its final format.

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Use and Avoidance of Kosciusko Quartzite in Prehistoric Mississippi Flaked Stone Assemblages

Samuel O. McGahey

Kosciusko quartzite, which was apparently known and available to aboriginals from the Clovis period through all subsequent prehistoric periods, seems on the basis of currently available information to have been rarely used prior to the terminal Early Archaic period. At that time the occurrence of Kosciusko quartzite artifacts became very common at sites near the surface manifestation of the Kosciusko formation. With the end of the Early Archaic period it was again rarely exploited until the time of the introduction of the bow in the Late Woodland period, when it reemerged as a major raw material near the outcrops where it was used for the manufacture of Collins- and Madison-type arrowheads. This article focuses primarily on the use of Kosciusko quartzite in flaked stone technologies during the earlier end of the time spectrum, because the relevant data have been recorded in a much more consistent fashion than for the later Woodland cultures.

The most remarkable example of prehistoric preference for and avoidance of a specific type of raw material of which the writer is aware is that of Kosciusko Quartzite. To anyone who has spent much time examining artifact collections from areas near the Kosciusko formation, the situation is immediately apparent.

The Kosciusko Formation

The Kosciusko formation extends from the Mississippi-Tennessee border at Marshall and Benton counties, Mississippi, southward through the counties of Tate, Panola, Lafayette, Grenada, Carroll, Holmes, Attala, Leake, Scott, Neshoba, Newton, Jasper, Lauderdale, and Clarke, where it enters Alabama (Figure 1.1). The occurrence of quartzite is sporadic over the area that is mapped as Kosciusko formation (Mississippi Geological Survey 1969), and no effort has been made to map the outcrops or near-surface occurrences of the material. It would

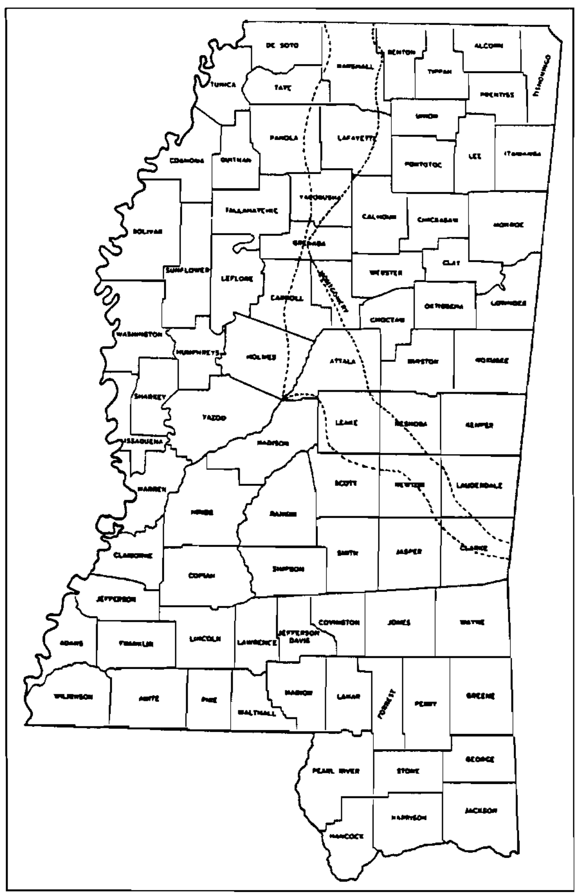

Figure 1.1. Approximate extent of the Kosciusko formation.

appear from casual observation that knappable material is scarce even when one succeeds in finding an outcrop.

The Kosciusko formation is upper Middle Eocene, having been deposited around 42 million years ago, and is named for outcrops near the town of Kosciusko in Attala County, Mississippi. It is temporally equivalent to the Sparta formation of Louisiana and Texas. It outcrops in an irregular belt that averages eighty-five feet thick and eight miles in width in Clarke County and reaches a maximum width of twenty miles and a thickness of four hundred feet in Attala and Holmes Counties (Thomas 1942).

The formation is non-marine and is composed primarily of fine grained sands and clays with some shale and gravel. The most distinctive aspect of the formation is ledges or boulders of quartzitic material (Thomas 1942). Quartzite deposits that are substantially more localized than those cited above are known to be present in Grenada, Carroll, Leake, and Neshoba Counties (Thomas 1942). Another deposit has recently been discovered in Yalobusha County (Peacock 1995).

Kosciusko Quartzite

The most abundant reported source of Kosciusko quartzite is in Attala County, where large masses up to five feet in thickness are available at various locations. Beds of quartzite may be composed of separate bands of the material a foot or more in thickness. The individual layers are separated by bands of sand or silt (Parks et al. 1963:69). In Attala County it is

> most commonly found near the tops of hills and on the hillsides. It is present (1) in nearly horizontal beds (in situ), (2) as masses of large, fragmental remnant boulders, (3) as a local aggregation in colluvial materials, and (4) as isolated boulders of various shapes and sizes scattered over the hillslopes (Parks et al. 1963:69).

What is termed the "quartzitic rock" of the Kosciusko formation consists of both siliceous sandstone and siliceous siltstone, with the siliceous siltstone being the most abundant (Parks et al. 1963:69).

There are two known varieties of knappable Kosciusko quartzite. One is generally coarser grained and ranges in color from near white to extremely light gray with small, reddish inclusions. This variety is seldom seen in prehistoric assemblages, although it is easily worked after heat treating; it is what is referred to above as siliceous sandstone. The other, which was more commonly used and constitutes all but a minute portion of the Kosciusko material on archaeological sites, is generally a mottled light to medium gray in color (5Y 6/1), with some red, and varies greatly in knapping suitability. Workable material has an extremely fine-grained texture, where individual grains are usually invisible to the naked eye, so it is commonly mistaken for chert. This is the material referred to above as siliceous siltstone. After heat treatment it can be successfully knapped without difficulty. In most instances heat treating does not alter the original colors, but occasionally a specimen will turn red.

There are abundant suggestions from the surface distributions of early stage debitage that significant quantities of workable material must have existed at one time at or near where the Little Tallahatchie, Yocona, and Yalobusha rivers cut through the Kosciusko formation. The Big Black and the Yockanookany rivers also traverse the Kosciusko formation, and their drainage areas may yet reveal a similar pattern. Figure 1.2 indicates the counties in Mississippi where diagnostic flaked stone artifacts of Kosciusko quartzite have been reported. Use of this material in Tennessee and Alabama is currently unknown to the writer with the exception of one large Pine Tree point from eastern Shelby County, Tennessee (Figure 1.3, specimen F; Lauro 1995:22).

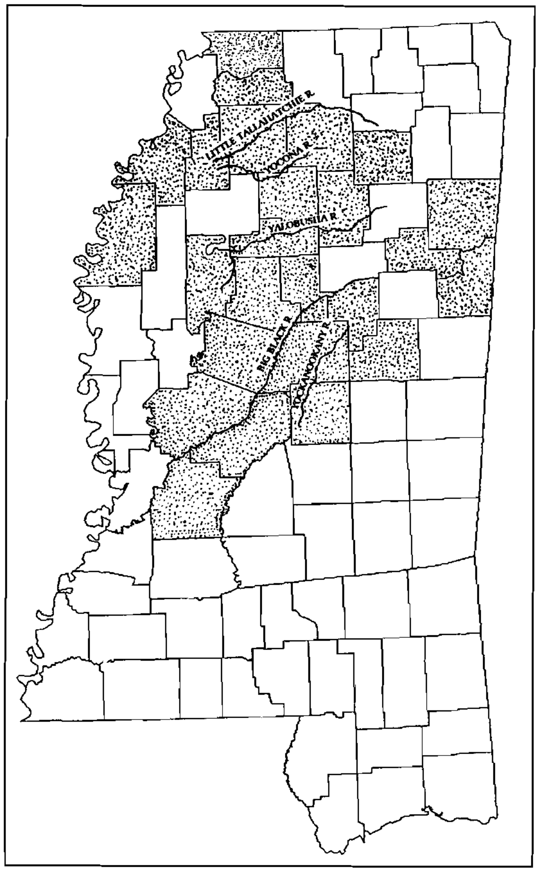

Figure 1.2. Mississippi counties where Kosciusko quartzite artifacts have been reported.

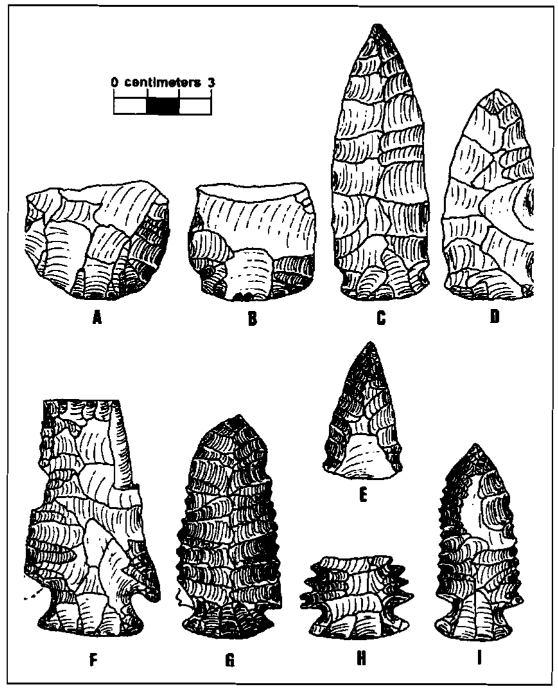

Figure 1.3. Pine Tree points of Kosciusko quartzite: A–E are preforms.

Raw Material Preference and Distribution

Beginning in the late '60s, staff archaeologists of the Mississippi Department of Archives and History working in north-central and northwest Mississippi began to keep records of raw material preferences (primarily of the Paleo-Indian/Early Archaic era) that we observed in private collections. The notation of raw material began as part of an early lithic recording project, the aims of which were to take advantage of private collections of known provenience in order to plot the geographical and chronological distributions of the various forms of Paleo-Indian and Early Archaic tools within the state. This seemed feasible because such tools were usually a minimal part of any large collection. This inventory now consists of over 4,000 projectile points and several hundred unifaces. Kosciusko Quartzite was so strikingly different from the other raw material that it was easy to identify.

The most noticeable use of the quartzite occurs in the manufacture of Collins and Madison points. Collins points, which are probably the earliest type of arrow point in the area, are apparently confined mostly to the late Woodland period. Madison points also seem to have their origin in the Late Woodland period but last well into the Mississippian period. Most surface associations of Kosciusko quartzite Madison points with ceramics have been with Late Woodland types, and thus far no associations with Mississippian period ceramic types have been noted. While it is possible that Madison points of this material lasted into the Mississippian period, apparently they were not a part of Mississippian material culture. Several individuals with large collections have thousands of arrow points of this material, and in areas near the Kosciusko formation, many Late Woodland sites have yielded predominantly or exclusively Kosciusko quartzite points. Detailed recording of this quantity of material was not attempted because of the time that would have been required. The era preceding the introduction of Collins points, presumably the first arrow point type in the area, saw essentially no use of the material; for thousands of years it was apparently avoided, with its use seldom seen from the Middle Woodland back to the beginning of the Middle Archaic period.

What is thought to be the terminal Early Archaic period witnessed the predominant early use of Kosciusko quartzite: the makers and users of Pine Tree points seem actually to have preferred it in areas that are presumed to have been near outcrops. Table 1.1 lists the projectile points of the material from the pre-

Table 1.1. Chronological and geographical data for pre-arrow point artifacts of Kosciusko quartzite recorded for Mississippi.

County	Clovis	Cold-water	Dalton	Pine Tree	Green-briar	Other Early Archaic	Uniface	Benton	Other Middle Archaic	Pont-char-train	Other Late Archaic	Wood-land
Attala	—	—	—	—	—	—	3	1	—	1	3	1
Bolivar	—	—	—	—	—	—	—	—	—	—	—	1
Calhoun	—	1	—	2	—	1	3	—	—	—	—	—
Carroll	1	—	—	—	—	—	1	1	1	—	—	—
Clay	—	—	—	4	1	—	—	—	—	—	—	—
Coahoma	—	—	—	—	—	—	—	—	1	—	—	—
Grenada	—	—	—	16	1	—	3	—	—	—	—	—
Hinds	—	—	—	—	—	—	1	—	—	—	—	—
Lafayette	—	—	1	22	—	—	3	—	1	—	—	—
Leake	—	—	—	3	—	—	3	—	—	—	—	—
Lowndes	—	—	—	3	—	—	—	—	—	—	—	—
Madison	—	—	—	—	—	—	1	—	—	—	—	—
Monroe	—	—	—	3	—	—	—	—	—	—	—	—
Montgomery	—	—	—	3	—	—	—	—	1	—	—	—
Panola	—	—	—	11	—	—	—	—	—	1	—	—
Pontotoc	—	—	—	3	—	—	—	—	—	—	—	—
Quitman	—	—	—	1	—	1	—	—	—	—	—	—
Tallahatchie	—	—	—	—	—	—	—	—	2	—	—	—
Tate	—	—	—	—	—	—	1	—	—	—	—	—
Yalobusha	—	—	—	11	—	1	—	—	—	—	—	—
Yazoo	1	—	—	—	—	—	—	—	—	—	—	1
Enid Res. (Panola or Yalobusha)	—	1	1	1	—	—	—	—	—	—	—	—
Grenada Res. (Grenada or Yalobusha)	—	—	—	65	—	3	2	—	—	—	—	—

arrow point periods that have been recorded thus far; examples are illustrated in Figures 1.3 through 1.6, while other flaked stone artifacts are shown in Figures 1.7 and 1.8. Of the 156 Early Archaic point specimens recorded, 148 (95%) are Pine Tree points (Figures 1.3, 1.5 and 1.6), a remarkable statistic. Six Paleo-Indian quartzite points have been recorded (Figure 1.4 A, B, and C), as have eight Early Archaic types other than Pine Tree (Figure 1.4 D through K). Seven Middle Archaic (Figure 1.9) and eight Late Archaic through Middle Woodland quartzite points (Figure 1.10) have also been recorded. The unifaces illustrated in Figure 1.7 and the smooth-sided adzes shown in Figure 1.8 almost certainly represent some part or parts of the Paleo-Indian to Early Archaic era, although this remains to be conclusively demonstrated. Various non-flaked tools of Kosciusko quartzite have not been considered in this study. There are, however, examples of hammerstones, celts, adzes, and metates that have been ground smooth. It is not known at present if these items are also restricted primarily to certain periods. As was previously stated, statistics for Late Woodland period flaked stone diagnostic artifacts have not been collected, but suffice it to say they are overwhelming.

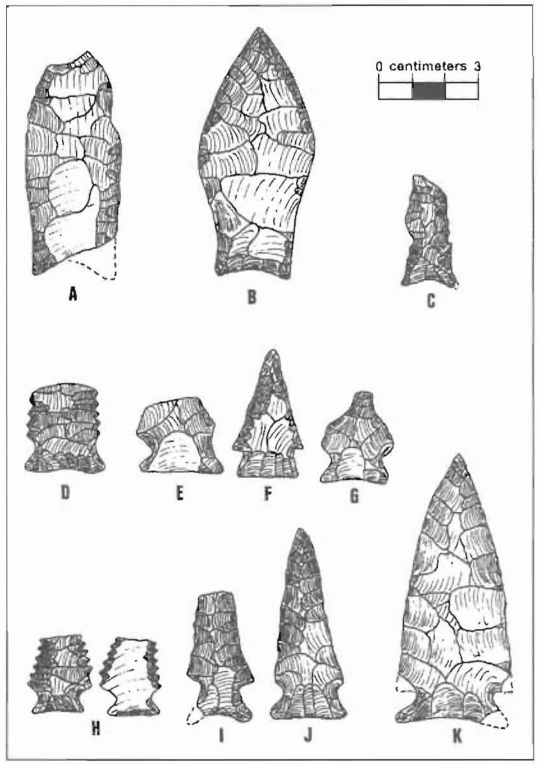

Figure 1.4. Paleo-Indian and Early Archaic (non-Pine Tree) projectile points of Kosciusko quartzite: A=Clovis, B=Coldwater, C=Dalton, D=Greenbriar, E–K=Unclassified.

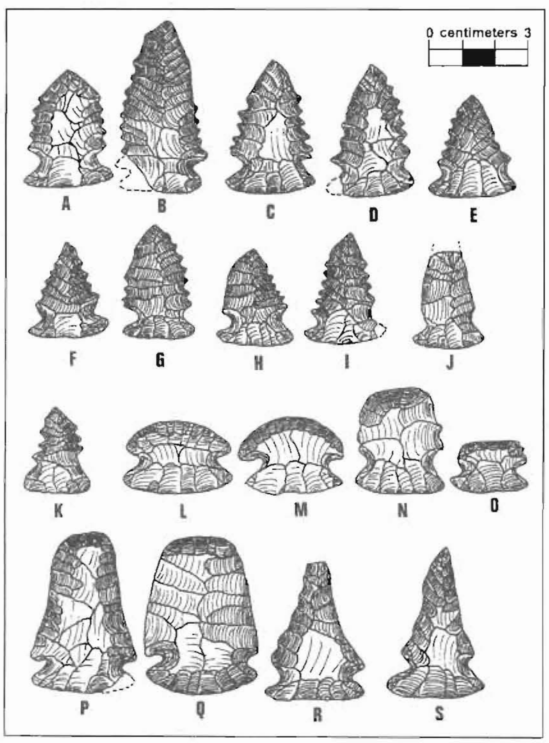

Figure 1.5. Pine Tree points of Kosciusko quartzite.

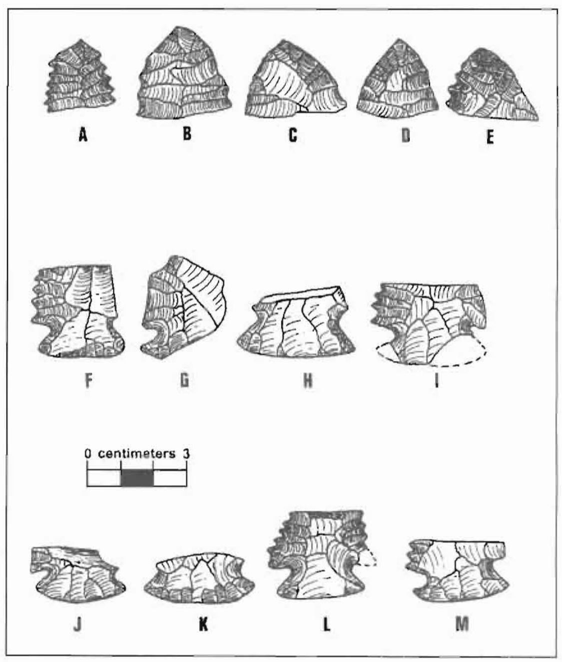

Figure 1.6. Additional Pine Tree points of Kosciusko quartzite.

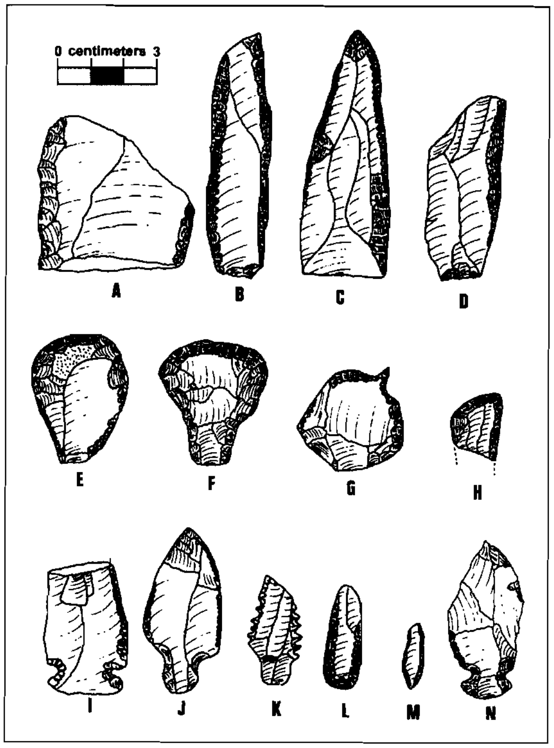

Figure 1.7. Unifacial tools of Kosciusko quartzite.

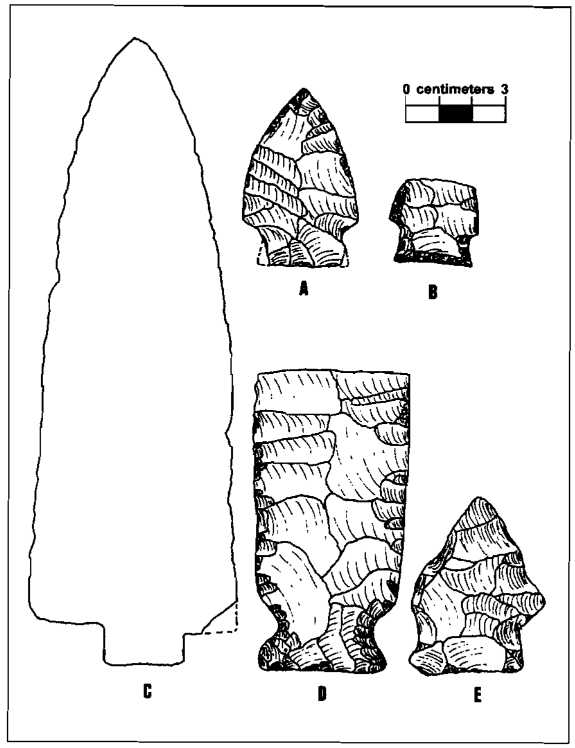

Figure 1.9. Middle Archaic points of Kosciusko quartzite.

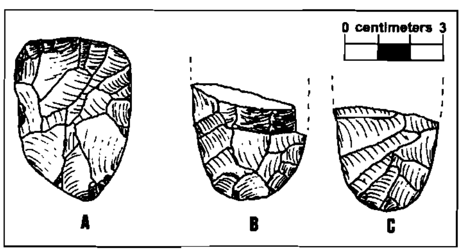

Figure 1.8. Smooth-sided adzes of Kosciusko quartzite.

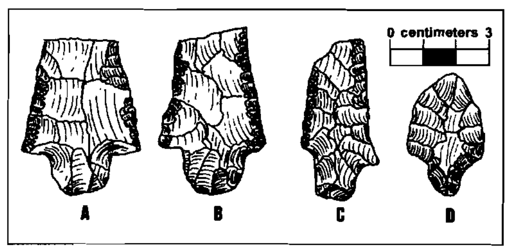

Figure 1.10. Late Archaic (A–C) and Woodland (D) points of Kosciusko quartzite.

Figures 1.11 through 1.14 illustrate the known distribution of Kosciusko quartzite projectile points prior to the introduction of arrow points. The data presented on these maps represent primarily artifacts appearing in private collections. Based on the current sample it seems apparent that at no time was the material extensively used or traded at great distances from the Kosciusko formation outcrops. There are Pine Tree Points of this material in Clay, Monroe, Lowndes, and Pontotoc Counties in northeast Mississippi. There is also a respectable showing of the type on the eastern braided stream surface of the Yazoo Basin in Panola and Quitman Counties, but little (one preform, possibly for the Pine Tree type) is seen on the western braided stream surface, although these surfaces are separated by only a few miles of more recent meander belt formation. Most of the specimens recorded by this study were collected from the exposed shorelines of the north-central Mississippi flood control lakes of Sardis, Enid, and Grenada. Although thousands of artifacts collected from Arkabutla, a fourth lake, have been examined, only one preform (probably for a Pine Tree Point) and one uniface were seen. Arkabutla is not that far removed from the Kosciusko formation, yet Kosciusko quartzite seems to have been used seldom in that area. The

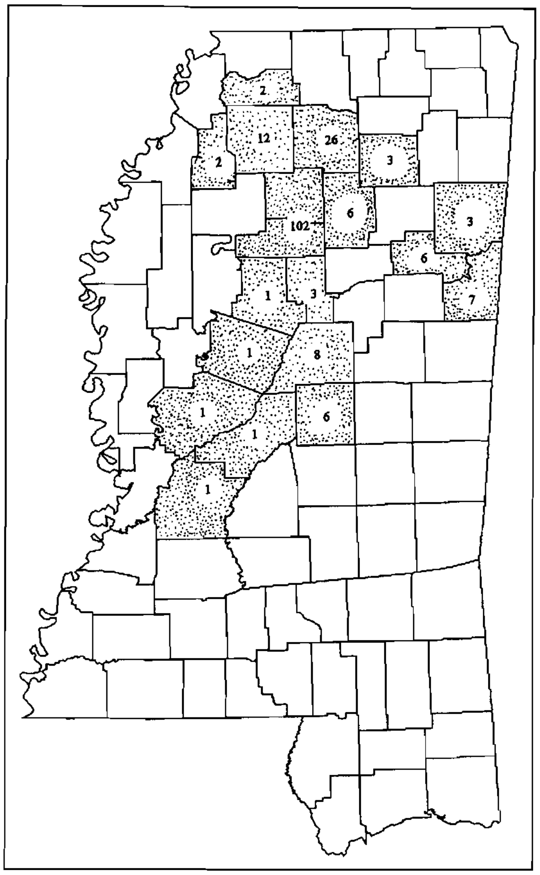

Figure 1.11. Known distribution of Kosciusko quartzite artifacts of the Paleo-Indian–Early Archaic era.

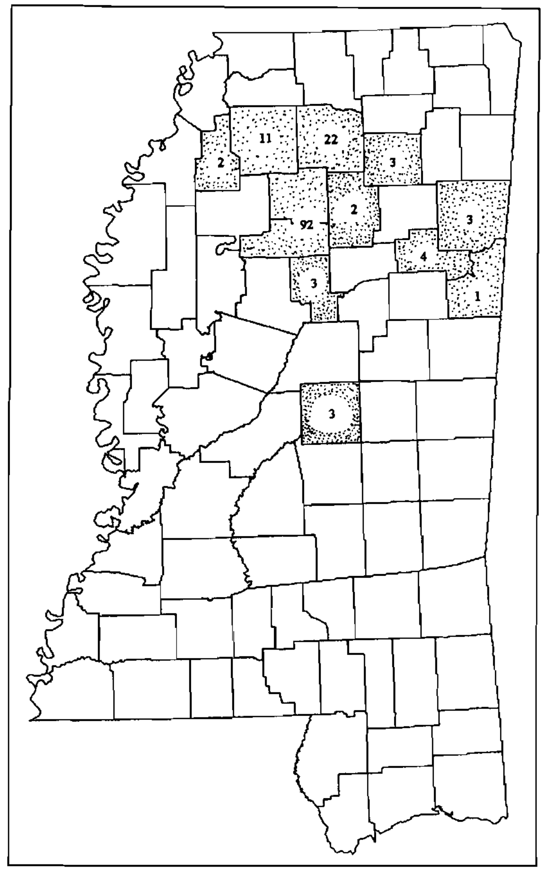

Figure 1.12. Known distribution of Kosciusko quartzite Pine Tree points.

other lakes are on or near the outcrops, and sources for the material may have been immediately at hand.

The peculiar spatial and temporal distribution of Kosciusko quartzite artifacts calls for an explanation. Two general explanations have been suggested: cultural and environmental. Apparently Kosciusko quartzite of flakeable quality was never abundant and only one probable quarry site has been recorded to date (Peacock 1995), so there may have been relatively few accessible sources; these could have been alternately exposed (primarily during the two peak periods of use) and concealed (during periods when it was seldom used) by natural phenomena. Channel changes could have occurred in the courses of major streams whereby exposed bed or bank deposits of Kosciusko quartzite became isolated and largely forgotten or even silted over. The three outcrops containing knappable material of which the writer is personally aware are not in such settings, however, but instead are at elevations that would have precluded their having been obscured by such natural forces (cf. Peacock 1995). Since this paper was presented in 1995, another alternative environmental explanation has come to my attention. In a paper by Brookes and Reams (1996:7), the hypothesis is presented that drought conditions during the Hypsithermal, which they consider to have begun as early as 6500 B.C., brought on a desiccated and relatively denuded land surface that eroded severely when it did rain because of its inability to hold the topsoil. This set of circumstances would have resulted in many of the formerly available gravel sources in streams being silted over and eventually covered with vegetation. According to Brookes and Reams, the resultant rela-

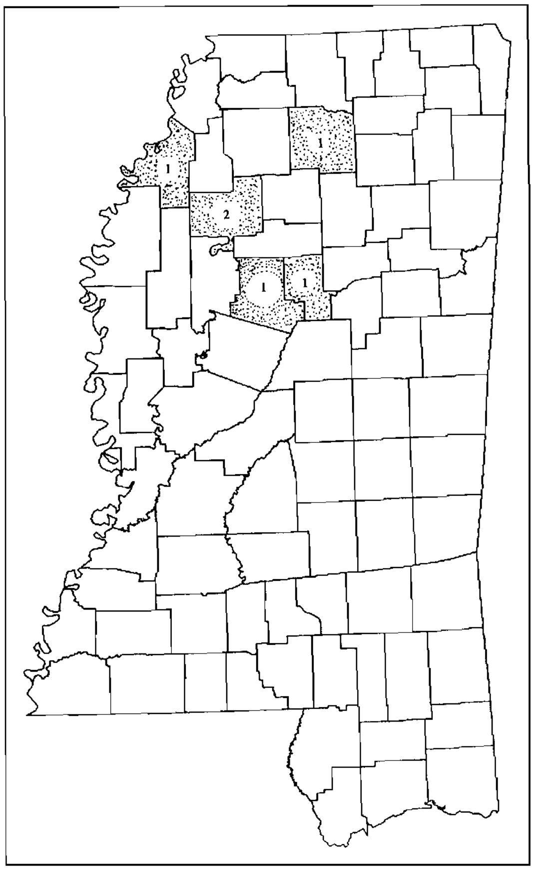

Figure 1.13. Known distribution of Middle Archaic artifacts of Kosciusko quartzite.

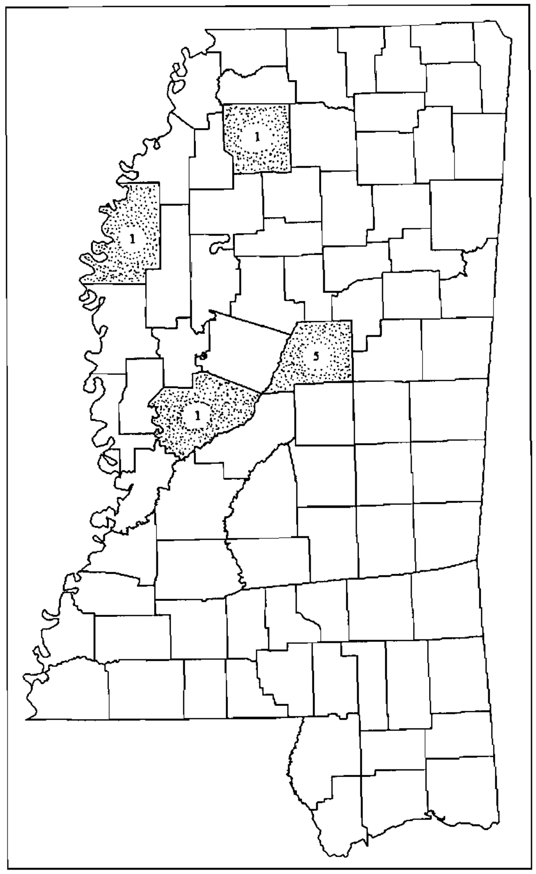

Figure 1.14. Known distribution of Late Archaic and Woodland artifacts of Kosciusko quartzite.

tive scarcity of gravel chert in much of the area would have made materials at higher elevations on ridge tops, such as Kosciusko quartzite, much more valuable than they had been previously. With the end of the Hypsithermal, the gravel bars would presumably have reemerged and the need or demand for quartzite would have been lessened. It appears from analysis of the Pine Tree points that there may have been considerable stress on the population(s) who made and used them. Most specimens have been heavily utilized and were frequently recycled for use in various functions, as is obvious from a glance at Figures 1.4–1.6. Many examples, such as specimens F through K of Figure 1.5, have obviously been repeatedly resharpened. Specimens L through Q of the same figure have been recycled as end scrapers, while specimens F, G, H, J, and L seem to have been used in a wedging operation. Although a statistical analysis has not been performed, the Pine Tree type seems to have been retained much longer than examples of other Early Archaic types, with much greater effort being expended to extend its life as a tool.

As far as is known at present, there were no environmental disruptions of the severity or magnitude of the Hypsithermal in the Late Woodland period. In view of the perceived relative scarcity of knappable quantities of Kosciusko quartzite, it seems logical to ask if perhaps most of the deposits with the potential for yielding large flakes or blades were exhausted with the end of the Early Archaic, but that there were other deposits that yielded abundant material sufficient in size for the manufacture of the much smaller arrow points.

The cultural alternative must also be considered. Could it be that during the peak-use periods, groups living near the outcrops were forced to use the material (even if it may have been considered inferior) because they had limited access to other knappable material such as pre-loess gravel cherts? Such restrictions could have arisen due to social turmoil or perhaps the disruption of trade routes. I have suggested previously (McGahey 1992:304) that there may have been a cultural divide during the Dalton period and perhaps later, running basically north-south in the Yazoo Basin, where a western culture, possibly affiliated with northeast Arkansas, met people with an eastern orientation. If this were true, the same forces may have been at work at the end of the Early Archaic period, with the frontier this time further east in the Loess Bluffs area. This alternative seems unlikely, since pre-loess gravel chert is abundant just to the west of the Kosciusko formation over much of the middle latitudes of the formation, and in many situations may have been nearly adjacent to the outcrops. Also to be considered is the possibility that the "Pine Tree People" preferred material that had to be quarried, as will be discussed in the next section.

Although environmental explanations for the Late Woodland period peak in the use of Kosciusko quartzite are not readily apparent, it is known that this era was also one of environmental stress. The population had grown to the carrying capacity of the environment in many parts of the eastern woodlands, and agriculture had not yet been fully developed (Rose et al. 1984:415). The stress is evident in many sites from skeletal analyses that conclude that there were nutritional deficiencies and increased violence. The Austin site (22-Tu-549), a Late Woodland (Baytown) site in Tunica County, Mississippi, is a good example of both the nutritional problems and the violence. Several individuals found at that palisaded site had died after being shot with arrows tipped with small corner- or side-notched arrowheads. The site inhabitants suffered from a variety of illnesses that seem to have stemmed from dietary problems (Ross-Stallings 1991). At the nearby Late Woodland Bonds site (22-Tu-530), a double burial was excavated where both (headless) individuals had been killed by the same method (Connaway and McGahey 1970:8). Skeletal remains from the Bonds site also exhibit evidence of problems that seem to have resulted from poor nutrition (Ross-Stallings 1989:10). Turner (1986:132) discusses arrow point wounds to an individual in the Late Woodland (Miller III) component at site 22-Lo-860 in Lowndes County, Mississippi. In site 1-Pi-61 in nearby Pickens County, Alabama, burials from a Late Woodland context were also reported with arrow point wounds (Cole et al. 1982:238).

It seems likely, in view of the above cited evidence, that access to many of life's necessities may have been increasingly limited during this stressful time. This may well have included gravel chert deposits, therefore causing a reassessment of the potential of the long-avoided Kosciusko quartzite deposits.

There may also be a technological explanation. Kosciusko quartzite, based on the limited personal experience of the writer, is much easier to heat treat successfully than pre-loess gravel chert (the other readily available flaking material in the area). This may have been a more important consideration to the makers of Pine Tree points than to other early inhabitants of the area, or they may have simply been the first to recognize its potential for heat treating. This would not explain, however, why the material again practically ceased to be used with the beginning of the Middle Archaic.

Pine Tree Points and the Kirk Cluster

One of the main opportunities presented by the Pine Tree–Kosciusko quartzite connection is to take a new look at the problem of the abuse of the "Kirk Cluster" concept, previously discussed by Samuel O. Brookes in his excellent article "The Kirk Point that Ate the Eastern United States" (Brookes 1985). The Pine Tree point is thought, on the basis of stratigraphy at the Hester site (22-Mo-569), to be a terminal

Early Archaic type. According to Brookes (1985:28), the type appears to have a northeastern origin and is indistinguishable from the apparently much earlier Charleston Corner-Notched point documented by Broyles (1971:56–57) for West Virginia. Pine Tree points seem, on the basis of current knowledge, to be a distinctly different form from the other projectile point/knives with which they have been mistakenly linked in the so-called "Kirk Cluster" (most commonly Lost Lake and Decatur). They tend to be of a different raw material, and apparently quarried material such as Kosciusko quartzite was preferred over gravel cherts (Brookes 1985:28). Pine Tree points are resharpened bifacially rather than by the beveling of edges such as is the case with Lost Lake and Decatur points. They are strongly serrated and are frequently reworked or recycled into end scrapers (Figure 1.5 L–Q). Lost Lake points are never reworked or recycled in this manner. Pine Tree points usually have corner or side notches and heavily ground bases that are well thinned. Parallel pressure flaking reaches to or near the mid-point on many specimens (Figure 1.4 B–I). They were resharpened repeatedly, and many may have been discarded after having been exhausted. They also rarely, if ever, exhibit the "drill" form commonly found on other points of the corner-notched tradition of this area such as the Lost Lake type. Decatur points, the other major "Kirk Cluster" type of this area, also exhibit major differences with Pine Tree points. Decaturs were resharpened by the beveling technique, are largely of different materials (none are made of Kosciusko quartzite), and their geographical distribution is considerably different from the other two types. The peculiar raw material selection by Pine Tree point makers reported in this study, together with the significantly different technology exhibited in the manufacture, use, and recycling of the type, confirm Brookes' contention that the "Kirk cluster" must be used with caution.

Conclusions

Since the use of Kosciusko quartzite is apparently overwhelmingly confined to three projectile point types (Pine Tree, of the terminal Early Archaic period; Collins and Madison of the Late Woodland-Mississippian period), the potential for using debitage resulting from the reduction sequence of these diagnostic types for analysis is obvious. It is probable that the debitage came either from arrow point manufacture (Collins or Madison) or from the manufacture of Pine Tree points. Debitage should therefore be easily distinguishable and should be of considerable utility in making chronological determinations in the absence of diagnostics, where the material is present in sufficient quantity. Preforms should also be diagnostic, with Pine Tree preforms at any stage, whether whole, broken or fragmentary, being much larger than those of arrow points. Kosciusko quartzite is so overwhelmingly associated with the Pine Tree point type that early lithic-era unifaces and smooth-sided adzes made from the material are almost certainly from the Pine Tree tool kit.

The questions presented by the peculiar chronological distribution of Kosciusko quartzite use remain unanswered. While answers to these questions may never be known with certainty, seeking those answers seems worthwhile. Considerable progress in the resolution of the problem may be gained from the discovery and investigation of outcrops and quarries and in the recognition and consistent reporting of diagnostics and debitage of Kosciusko quartzite by those who encounter it. Hopefully this paper has served to point out that raw material preferences in diagnostic lithic artifacts are significant and should be conscientiously reported.

Acknowledgements

I wish to thank Sam Brookes and Evan Peacock for their assistance in many aspects of the preparation of this paper and Mrs. Frances Jones who, with the staff at Cottonlandia Museum, assisted me with access to specimens on exhibit in the museum. John Connaway and Keith Baca did the photography for slides used in the presentation. Jim Lauro called my attention to the existence in Tennessee of at least one Pine Tree point of Kosciusko quartzite, and David Dockery and Steve Ingram of the Mississippi Bureau of Geology were helpful in examining quartzite specimens and in offering other welcome comments and advice. Finally, thanks are due to Joe Giliberti and Scott McCoy for technical assistance in completing the maps and Table 1.1.

2

A Study of Lithic Material Distributions in the Assemblages of Aboriginal Sites on the Kisatchie National Forest

Timothy P. Phillips

Several different types of lithic materials have been identified in the assemblages of prehistoric sites in the uplands of central Louisiana. The results of an analysis of material distributions in 96 assemblages from sites in the Kisatchie National Forest are presented. The data are used to identify source areas and preferential raw material use.

INTRODUCTION

Research conducted over the last 20 years in the uplands of central Louisiana has provided evidence for the prehistoric use of locally procured lithic materials (Anderson et al. 1988; Campbell and Weed 1986; Gregory et al. 1989; Heinrich 1983, 1984, 1988; Phillips 1995a, 1995b; Phillips and Haikey 1991; Phillips and Willingham 1990). High site frequencies are found in the uplands where these materials originate (Anderson et al. 1989; Campbell and Weed 1986; Gibson 1977; Phillips and Willingham 1990; Phillips 1988; Servello 1983; Thomas et al. 1982; Willingham and Phillips 1987). This evidence suggests that the settlement systems of the area were tethered to the lithic sources (Taylor 1964). It is hypothesized that groups of sites having assemblages composed of high proportions of a particular type of raw material are located near a source or sources of that raw material. With analysis of a sufficient number of lithic assemblages, the source areas for particular raw materials can thus be isolated. When the distribution of materials in the assemblages does not reflect local availability, it may be assumed that some materials were being preferentially used at those sites.

The observations presented here on the preferential use of particular raw materials are preliminary. Many of the upland sites cannot be given a temporal assignment due to the lack of diagnostic artifacts. While it is recognized that a general Archaic settlement/subsistence pattern had a long duration in the area (Cantley and Kern 1984; Gibson 1978; Servello 1983), the inability to date many assemblages securely means that different lithic procurement/use strategies might be represented in any particular artifact sample. This lack of temporal control is a difficult problem that prevents definitive statements about the exploitation of lithic resources being made at this time.

Further limitations are set by the current state of knowledge concerning raw material availability in central Louisiana. Assessments of the preferential use of materials should be based upon a firm understanding of the lithic landscape of an area (Blanton 1984), including knowledge of each material's geological distribution and the attributes governing its use. The current data on the lithic resource structure of central Louisiana, as provided by Brassieur (1983), Gunn and Brown (1982), Heinrich (1983, 1984, 1988), Phillips (1995a), and Phillips and Haikey (1991), are limited in this regard.

Methods

The Heritage Resources Program of the Kisatchie National Forest (KNF) has resulted in the recording of a large number of prehistoric sites. Many of these contain few cultural remains. Phillips (1988) observed that non-representative sampling of sparse assemblages in a tornado-damaged area of southeastern Winn Parish resulted in the inaccurate classification of sites, in turn biasing a study of the spatial distribution of components. In order to reduce biases related to sample size, lithic assemblages of less than 20 artifacts have been excluded from this study.

Lithics from the 96 sites used were sorted and tabulated by type. Sorting was conducted with the aid of a 10x power hand lens and was based on observable physical attributes, including color, texture, morphological features and fracturing properties. These attributes have been used by other researchers in determining the types of raw materials used by prehistoric groups (e.g., Stallings 1989).

Descriptions of Raw Materials

Heinrich (1984) petrologically analyzed samples of gravel chert, Eagle Hill chert, silicified wood, friable silicified wood, petrified palmwood, Catahoula sedimentary quartzite, Fleming gravel chert, and Fleming opal. These materials have been previously identified in assemblages from upland sites in central Louisiana (Brassieur 1983; Gibson 1968; Phillips 1995b; Phillips and Haikey 1991). Three additional materials not described by Heinrich are also used in this study. These are red chert, banded chert, and white quartzite: all have been reported in assemblages from the KNF (Phillips 1995b; Phillips and Haikey 1991). The following general descriptions are based on examination of artifacts from Forest Service collections.

Red Chert

Red chert appears to occur in small proportions in the local Citronelle gravel deposits (Autin 1993). Observations of the distribution of red chert in local gravel pits indicate that it comprises from less than three percent to as much as eight percent of the deposits. It is distinguishable from heat-treated Citronelle gravel by the lack of thermal alteration attributes: for example, the interior of the cobbles exhibits a uniform red color throughout with no gradation from the exterior to the interior such as is observed when gravel chert is heat-treated (Stallings 1989). Polishing produces smooth, lustrous, red surfaces while flaking produces smooth surfaces and sharp edges. A full range of chipped stone tools can be manufactured from this material with normal reduction methods.

Red chert is a fine-grained, micro-crystalline, metamorphic rock with moderately good conchoidal fracturing properties. The presence of internal faults causes more hinge-fractured flakes and blocky debris than is normally the case with gravel chert. Cobbles range from three to five centimeters in diameter. Exterior colors are various shades of dark brown and red. Overall, its distribution in site assemblages indicates that it was a resource of minor importance, but a higher proportion in some assemblages on the KNF suggests that it was preferentially used at those locations (Phillips 1995b; Phillips and Haikey 1991).

Banded Chert

Banded chert makes up a minor proportion (up to five percent volume) of the local Citronelle deposits. It is a metamorphic, micro-crystalline chert that is distinguished from gravel chert by the presence of two or more differing interior colors (recorded using a Munsell color chart). Primary interior colors are brown, yellow, and red, with an infrequent occurrence of green and black. Color boundaries are sharp with no obvious mixing. Banded chert has good to excellent fracturing properties that result in the production of smooth surfaces, sharp edges, and pronounced bulbs of percussion. It can be worked into a full range of chipped stone tools with normal reduction methods. Some Archaic projectile points made from this material have been identified in assemblages from the KNF (Phillips and Haikey 1991).

White Quartzite

White quartzite is another material present in the Citronelle gravel deposits. Small gravel bars of white quartzite have been observed in the streams of the northern and central portions of the Winn Ranger District. These gravel bars appear to have been secondarily deposited from exposed and eroded local Eocene deposits (Huner 1939). Cobbles in stream beds range between two and four centimeters in diameter.

White quartzite is very hard and dense. It contains massive, fibrous quartz crystals and exhibits poor conchoidal fracturing properties. Fractured surfaces have rough and grainy textures due to fracturing across the individual quartz crystals. Striking platforms and bulbs of percussion are normally diffuse and flake edges are rough and uneven (Baker 1976). Interior colors are usually yellowish-white, off-white, and white. The reddish and pink interior colors sometimes observed are the result of iron oxide residues absorbed from the strong brown and red clays of the area.

Raw Material Distributions on the Kisatchie National Forest

The assemblages from 96 sites on the KNF have been analyzed. These sites are dispersed across four of the six districts present on the forest (Catahoula, Evangeline, Kisatchie, and Vernon). Figure 2.1 shows the locations of these districts while Table 2.1 shows the number of sites per district used in this study. Raw material distributions and extrapolated source areas are discussed for each district.

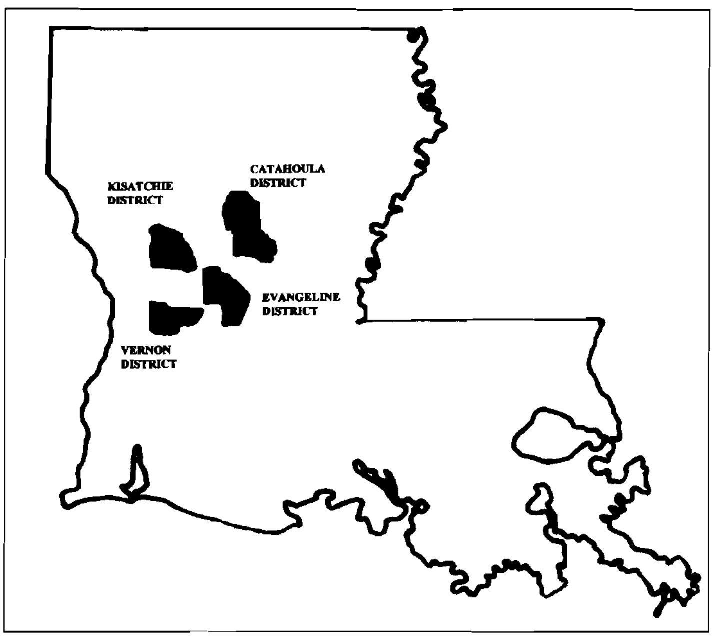

Figure 2.1. Location of Kisatchie National Forest, Louisiana.

Table 2.1. Number of sites per Ranger District used in lithic distribution study, Kisatchie National Forest.

Ranger District	Number of Sites
Catahoula	20
Evangeline	22
Kisatchie	22
Vernon	32
Total:	96

Catahoula Ranger District—Raw Material Distributions and Lithic Source Areas

Table 2.2 shows the distribution of the various raw materials in assemblages on the Catahoula District. Gravel chert is the primary material represented, making up over 72 percent of the total for all the assemblages. The high end of the range for the use of gravel chert is 94 percent at 16-Gr-263, and the low end is 21.3 percent at 16-Gr-380. At those sites where it comprises a low proportion of the assemblages, silicified wood and Catahoula sedimentary quartzite are the majority materials represented.

Silicified wood of all types was evidently of secondary importance at most sites. It averages only 3.5 percent of the total lithics from all assemblages, ranging from zero to a high of 33.9 percent at 16-Gr-380. The variable distribution of silicified wood suggests that it may have been preferentially used at some sites.

Catahoula sedimentary quartzite also appears to have been a secondary resource in most cases. It comprises just over eight percent of the total lithics on the Catahoula District; however, it ranges from

Table 2.2. Catahoula Ranger District raw material distributions.

Site Number	Gravel Chert	Silicified Wood	Catahoula Sed. Quartzite	Red Chert	Fleming Opal	Fleming Chert	Banded Chert	White Quartzite	Other	Total
16-Gr-172	410	7	8	27	0	1	13	2	13	481
16-Gr-180	143	2	2	31	0	0	8	0	19	205
16-Gr-213	29	0	1	5	0	0	0	6	1	42
16-Gr-220	22	2	0	4	0	0	3	0	2	33
16-Gr-222	16	13	18	3	0	0	9	2	0	61
16-Gr-230	22	0	1	1	0	0	1	0	9	34
16-Gr-234	119	0	6	10	0	0	8	0	12	155
16-Gr-238	56	0	0	2	0	0	7	0	1	66
16-Gr-239	84	1	4	0	0	0	10	1	3	103
16-Gr-246	37	0	0	9	0	2	0	0	3	51
16-Gr-248	17	1	0	2	0	0	0	0	0	20
16-Gr-263	34	0	1	0	0	0	0	0	1	36
16-Gr-269	38	0	1	2	0	1	0	0	0	42
16-Gr-274	18	0	0	3	0	0	1	0	0	22
16-Gr-290	43	0	0	2	0	0	4	0	1	50
16-Gr-291	18	1	3	0	0	0	1	0	0	23
16-Gr-292	57	0	0	7	0	0	2	0	3	69
16-Gr-330	9	0	25	2	0	0	0	0	0	36
16-Gr-353	115	2	39	10	0	0	0	0	0	166
16-Gr-380	22	35	36	5	0	0	2	0	3	103
Total:	1309	64	145	125	0	4	69	11	71	1798
Mean:	72.8	3.5	8.1	7	0	0.2	3.8	0.6	3.9	

zero to a high of 69.4 percent at 16-Gr-330. This variable distribution is suggestive of preferential use at some of the sites.

The overall distribution of red chert indicates that it was of minor importance: it averaged seven percent of the total lithics analyzed, with a range of zero to a high of 17.6 percent at 16-Gr-246. The variability in its distribution may be due to preference, or it may reflect non-uniform availability. Autin et al. (1993) observed that the proportion of red chert in Citronelle deposits along the Red River increases upstream. The resolution of this problem awaits more thorough geological studies.

The other types of materials identified comprise only minor proportions of the analyzed assemblages. Fleming opal, Fleming gravel chert, and white quartzite each make up less than one percent of the total for the district, while banded chert makes up 3.8 percent and unidentified materials make up 3.9 percent. Their proportions in the assemblages appear to be representative of their distribution in the local Citronelle gravel deposits.

Figure 2.2 shows the locations of sites containing 70 percent or more gravel chert in their assemblages. The distribution of the sites suggests that the sources for gravel chert are concentrated in the southern portion of the district along the perennial streams that flow through the area. Deposits of the

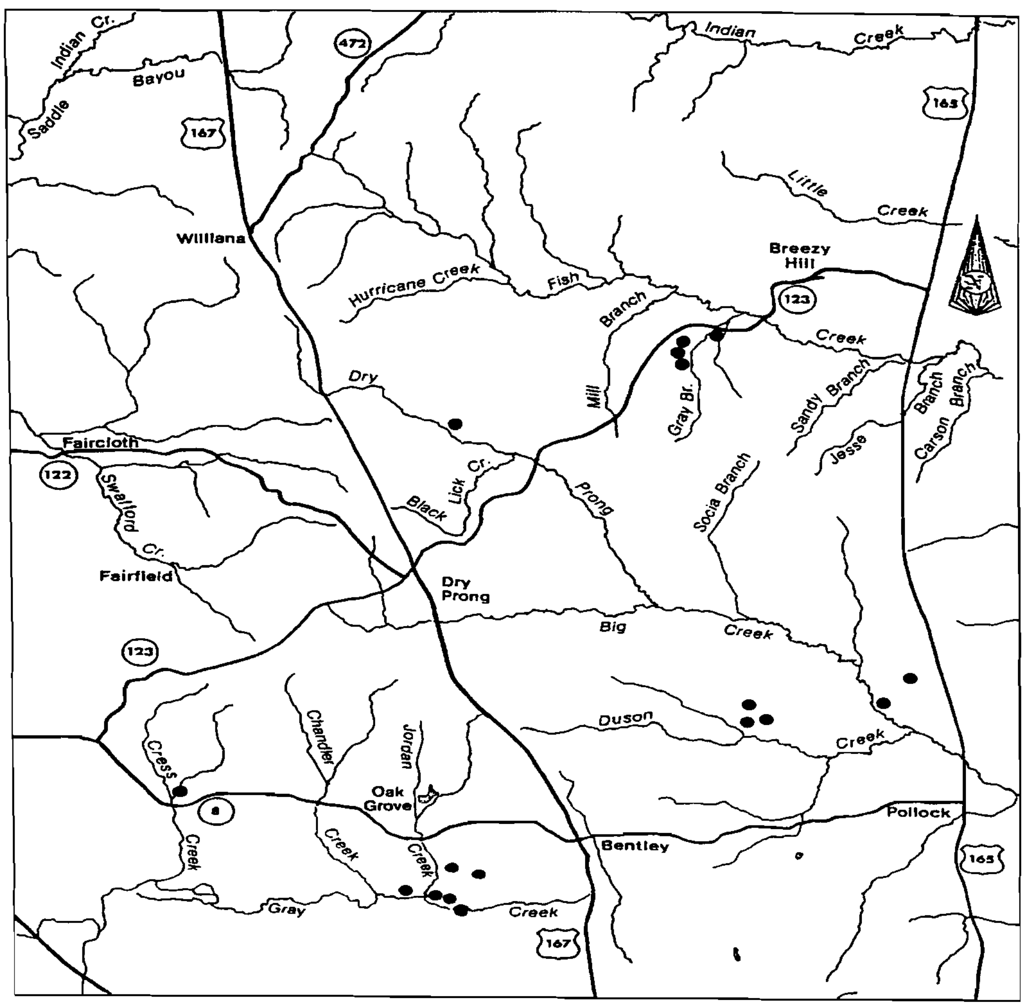

Figure 2.2. Catahoula Ranger District sites with 70 percent or more gravel chert.

Quaternary Upland Complex that contain Citronelle gravel deposits are located in this portion of the district (Autin 1993).

Sites 16-Gr-222 and 16-Gr-380 contain higher than expected proportions of silicified wood in their assemblages (26.2 and 34 percent respectively). These sites are located in the central portion of the district between Fish Creek and Big Creek (Figure 2.3). Other sites have recently been recorded in this part of the district that also contain 25 percent or more silicified wood. Both silicified wood and friable silicified wood are present in the geological deposits exposed by Fish Creek and its tributary drainages.

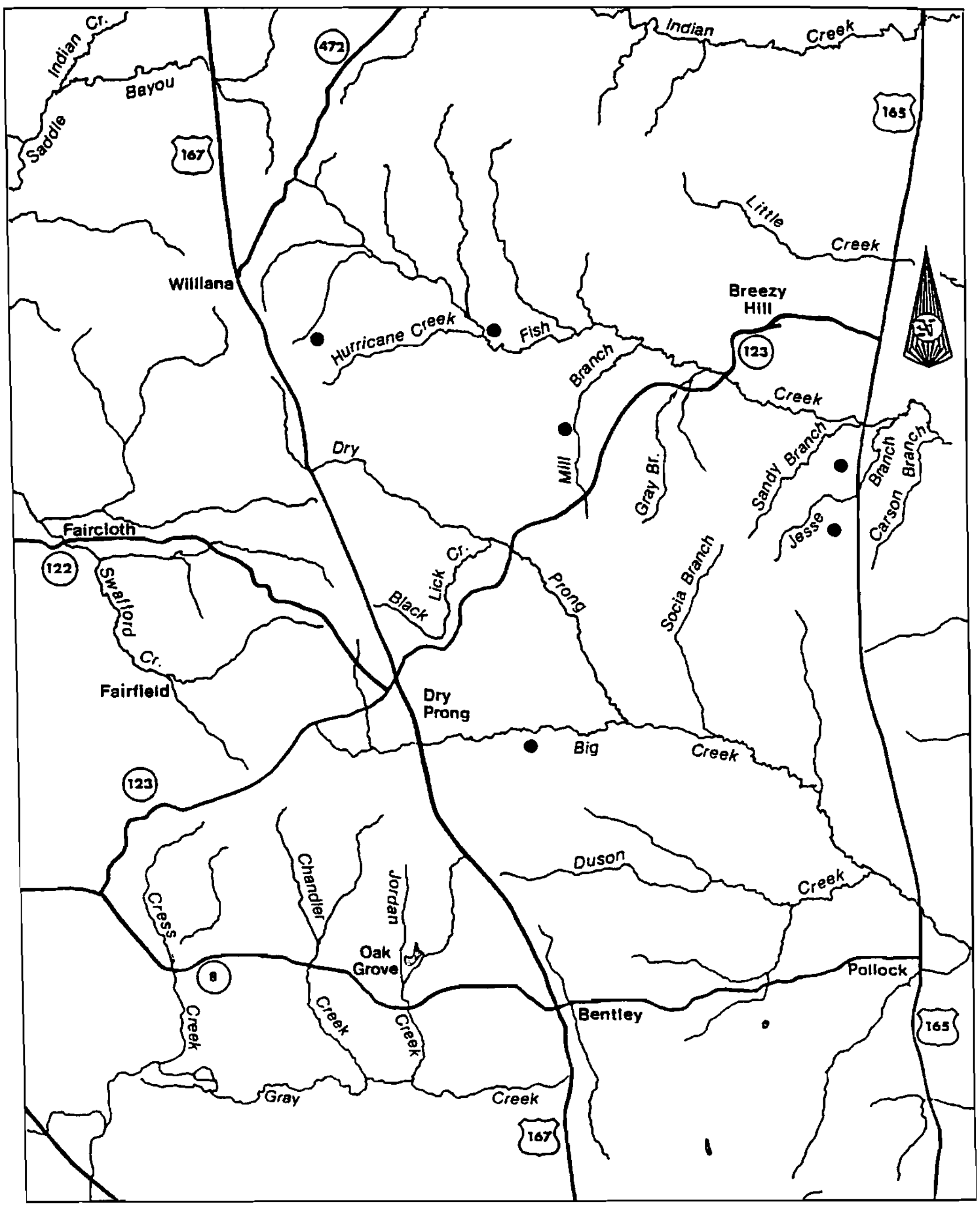

Figure 2.3. Catahoula Ranger District sites with 25 percent or more silicified wood.

This area is part of the Quaternary Upland Complex (Autin et al. 1993) that is comparable to Fisk's (1940) Williana Terrace formation.

Sites containing high proportions of Catahoula sedimentary quartzite are also located in the central portion of the district (Figure 2.4), indicating that the source or sources for this raw material are the same as for silicified wood. Other sites found in the area after this analysis was completed also contained moderate to high proportions of Catahoula sedimentary quartzite (Phillips 1995b). This assignment of source area corresponds with Fisk's (1938) observation of the material along the west side of Little River.

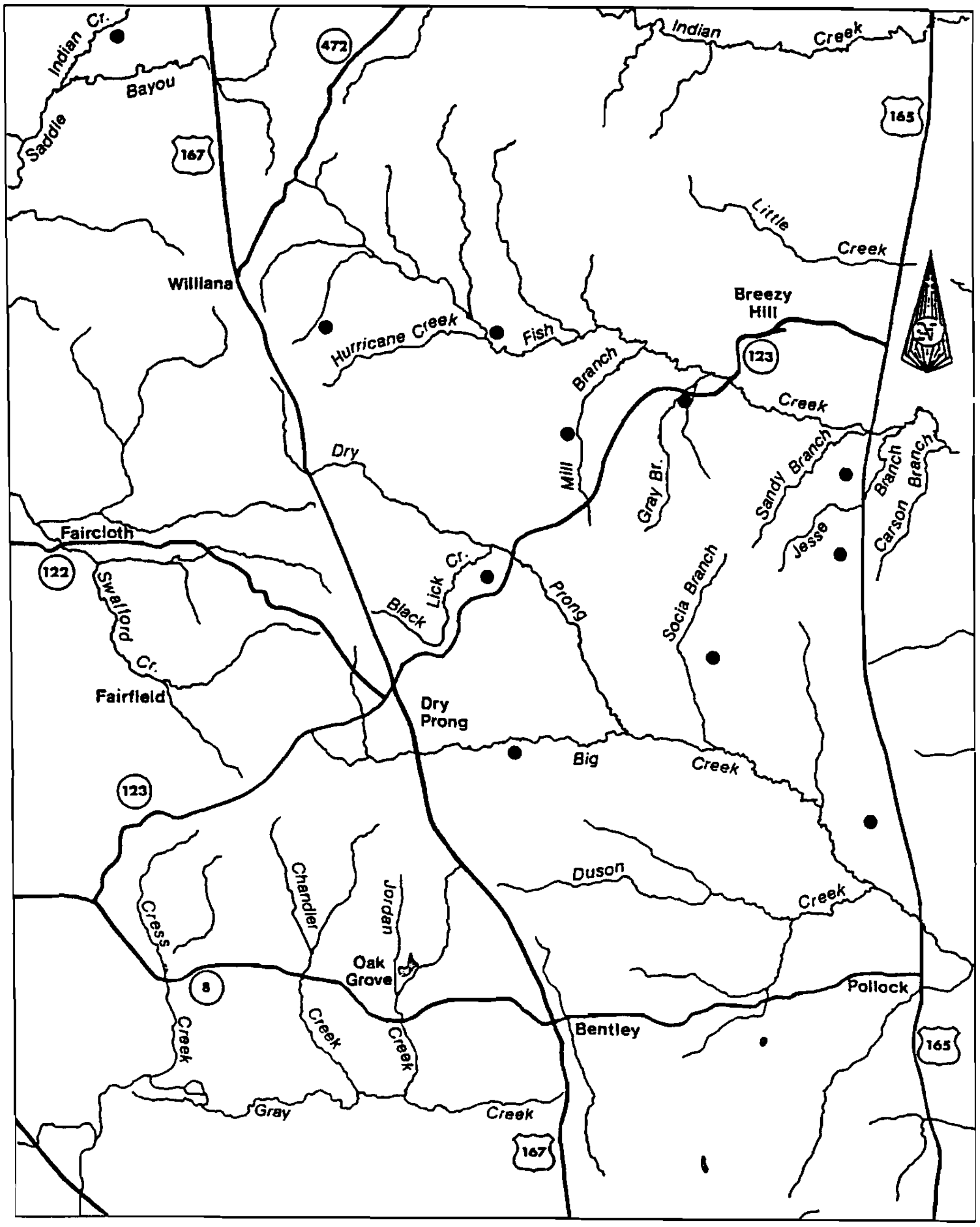

Figure 2.4. Catahoula Ranger District sites with 25 percent or more Catahoula sedimentary quartzite.

Evangeline Ranger District—Raw Material Distributions and Lithic Source Areas

Table 2.3 presents the distribution of the various types of raw material identified in assemblages from the Evangeline District. Gravel chert is the primary material represented, averaging 82.5 percent of the total lithics and ranging from a low of 58 percent at 16-Ra-420 to highs of 90.6 and 100 percent at 16-Ra-478 and 16-Ra-556, respectively. Variability in its distribution may be due to non-uniform abundance in the local Citronelle gravel deposits and/or the preferential use of other raw materials. The distribution of red chert may also reflect these two factors. It averages 8.5 percent of the total lithics and ranges from zero to 25.8 percent at 16-Ra-420.

The other types of material identified represent small proportions of the site assemblages. Fleming opal is absent, while Catahoula sedimentary quartzite makes up 0.1 percent, silicified wood 0.3 percent,

Table 2.3. Evangeline Ranger District raw material distributions.

Site Number	Gravel Chert	Silicified Wood	Catahoula Sed. Quartzite	Red Chert	Fleming Opal	Fleming Chert	Banded Chert	White Quartzite	Other	Total
16-Ra-59	32	0	1	3	0	0	2	0	0	38
16-Ra-177	100	0	0	7	0	3	5	0	0	115
16-Ra-331	151	2	0	20	0	1	8	3	3	188
16-Ra-380	39	0	0	5	0	0	5	0	0	49
16-Ra-386	74	0	0	7	0	0	5	1	1	88
16-Ra-391	42	0	0	6	0	0	3	0	0	51
16-Ra-395	164	0	0	17	0	4	6	0	0	191
16-Ra-420	18	0	0	8	0	0	1	1	1	29
16-Ra-423	36	0	0	7	0	1	3	0	0	47
16-Ra-436	22	0	0	4	0	0	1	0	0	27
16-Ra-442	25	0	0	1	0	0	3	0	0	29
16-Ra-443	139	1	0	14	0	1	22	0	0	177
16-Ra-472	42	0	0	6	0	0	0	0	0	48
16-Ra-478	29	0	0	1	0	0	1	0	0	31
16-Ra-486	22	0	0	7	0	0	0	0	0	29
16-Ra-489	20	0	0	1	0	0	2	0	0	23
16-Ra-514	32	0	0	4	0	0	2	0	0	38
16-Ra-526	22	0	2	2	0	0	2	0	0	28
16-Ra-555	294	2	0	22	0	0	16	1	1	336
16-Ra-556	25	0	0	0	0	0	0	0	0	25
16-Ra-557	65	0	0	8	0	0	6	0	0	79
16-Ra-568	1	0	31	0	0	0	7	5	5	405
Total:	1749	6	3	181	0	10	100	11	11	2071
Mean:	82.5	0.3	0.1	8.5	0	0.5	4.7	0.5	2.8	

Fleming gravel chert and white quartzite 0.5 percent, and banded chert 4.7 percent of the total lithics represented. The proportions of these materials appear to be the product of their distribution in the local Citronelle gravel deposits.

Figure 2.5 shows the distribution of sites containing 70 percent or more gravel chert in their assemblages. They are located along perennial streams that flow through the northern part of the district. Miocene and Plio-Pleistocene deposits containing Citronelle gravel are exposed in this part of the district (John Novosad, Soil Scientist, KNF, personal communication, 1990). Phillips (1989) observed a "dendritic" site distribution pattern that conforms with these perennial streams.

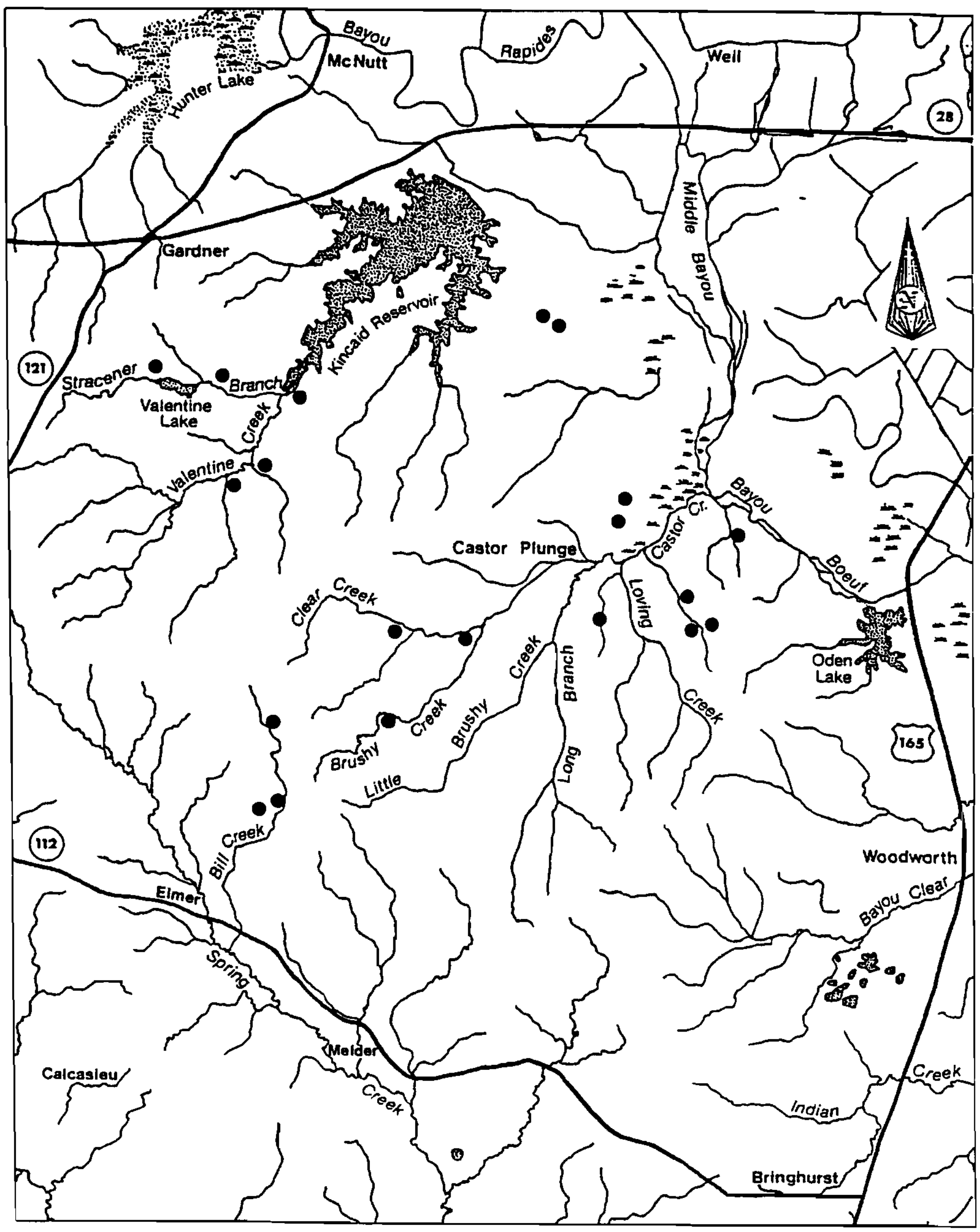

Figure 2.5. Evangeline Ranger District sites with 70 percent or more gravel chert.

Kisatchie Ranger District—Raw Material Distributions and Lithic Source Areas

Table 2.4 shows the distribution of the various raw materials identified from sites on the Kisatchie Ranger District. Gravel chert is the primary material represented, averaging 57.24 percent of the total lithics and ranging from 20.4 percent at 16-Na-395 to 72.7 and 86.9 percent at 16-Na-324 and 16-Na-323, respectively. The variability between assemblages in the proportions of gravel chert suggests that the source or sources of these materials were located at a sufficient distance to make the use of other materials, such as Catahoula sedimentary quartzite and silicified wood, worthwhile. This supports the hypothesis that one type of material will be replaced by another as distance to the original material's source increases.

Table 2.4. Kisatchie Ranger District raw material distributions.

Site Number	Gravel Chert	Silicified Wood	Catahoula Sed. Quartzite	Red Chert	Fleming Opal	Fleming Chert	Banded Chert	White Quartzite	Other	Total
16-Na-121	21	0	0	7	0	0	0	0	0	28
16-Na-137	37	2	1	7	0	0	0	0	0	47
16-Na-138	15	24	8	1	0	0	2	0	0	50
16-Na-152	64	20	23	6	0	3	0	0	2	118
16-Na-161	61	9	3	18	0	0	0	2	2	95
16-Na-163	10	16	16	0	0	0	0	0	0	42
16-Na-166	32	61	4	4	0	0	1	1	0	103
16-Na-168	10	7	0	1	2	0	0	0	0	20
16-Na-315	267	15	6	47	0	0	0	0	7	342
16-Na-320	19	18	4	3	0	0	0	0	0	44
16-Na-322	20	7	0	3	0	0	2	0	0	32
16-Na-323	20	2	0	1	0	0	0	0	0	23
16-Na-324	123	6	0	20	0	0	13	0	7	169
16-Na-325	16	4	399	1	0	0	2	1	0	423
16-Na-332	41	14	0	6	0	0	1	0	0	62
16-Na-336	35	5	0	4	0	0	0	0	2	46
16-Na-337	36	104	0	2	0	0	0	0	4	146
16-Na-363	19	5	0	3	0	0	0	0	1	29
16-Na-365	13	3	2	3	0	0	0	0	0	22
16-Na-378	17	4	1	0	0	0	0	0	0	23
16-Na-384	15	2	0	3	0	0	0	0	0	21
16-Na-395	10	0	39	0	0	0	0	0	0	49
Total:	901	328	506	140	2	3	25	4	2	1934
Mean:	57.2	20.8	9.3	8.9	0.1	0.2	1.6	0.3	1.6	

Silicified wood was a secondary resource, comprising 20.8 percent of the total lithics. It ranges from zero to a high of 71.2 percent of the assemblage from 16-Na-337. Its variable distribution within the assemblages indicates probable preferential use at some sites.

Catahoula sedimentary quartzite was also a secondary resource. It makes up 11.5 percent of the total lithics and ranges from zero to 61.9 and 79.6 percent of the assemblages from 16-Na-325 and 16-Na-395, respectively. The high proportions of this material at some sites indicate preferential use at those locations. Some of these sites contain evidence of Late Paleo-Indian and Early Archaic period occupation (Phillips and Haikey 1991).

Other types of material were evidently of minor importance. Red chert makes up 8.9 percent of the total, while Fleming opal and Fleming gravel chert each comprise 0.1 percent. Their distribution in the assemblages appears to be a product of their distribution in the local lithic deposits.

Gravel chert, silicified wood, and Catahoula sedimentary quartzite exhibit unexpected patterns of occurrence. While gravel chert is the primary material represented, its total abundance of 57.24 percent is low as compared to the other districts that are known to have sources of this material: the total on those districts is over 70 percent. Both Catahoula sedimentary quartzite and silicified wood occur in elevated proportions as compared to assemblages from the other districts. They are especially well represented at sites 16-Na-166, 16-Na-325, 16-Na-337, and 16-Na-395: combined they make up over 50 percent of the total for those sites.

Figure 2.6 shows the locations of sites where gravel chert represents more than 60 percent of the raw materials. More than half of these sites are clustered in the western half of the district, and a reduced

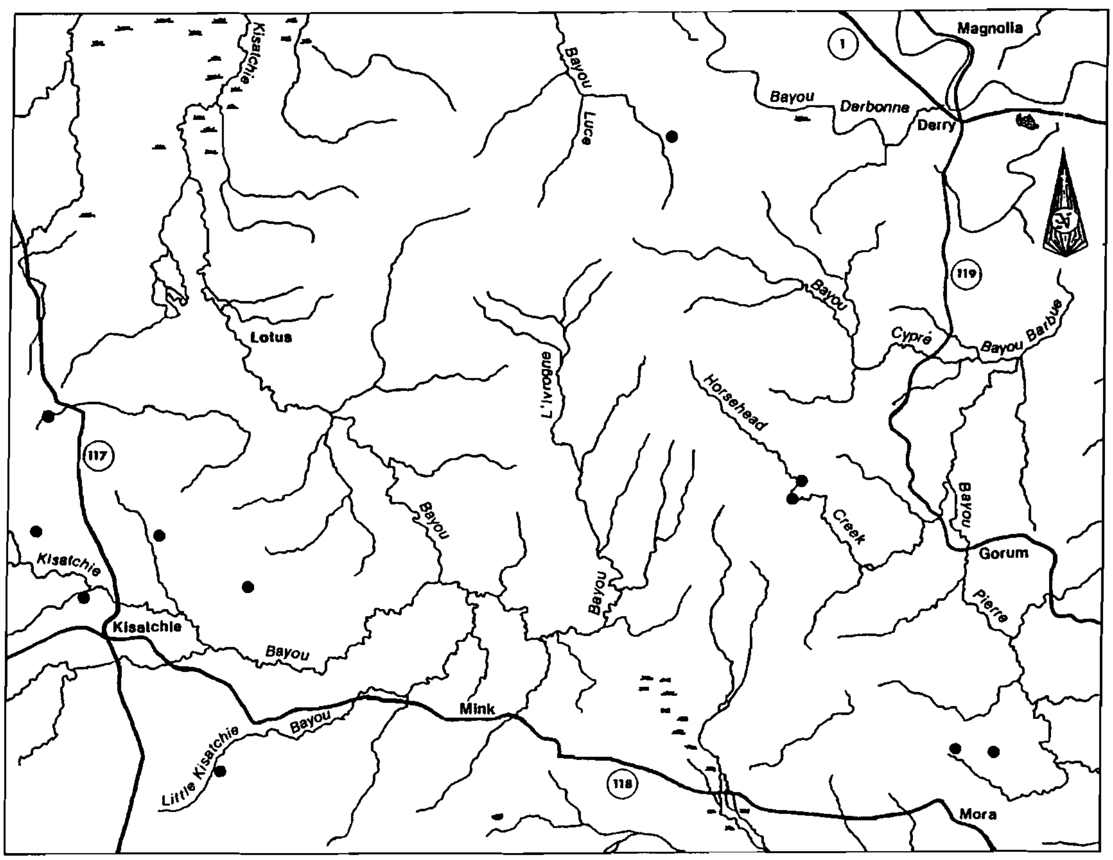

Figure 2.6. Kisatchie Ranger District sites with 60 percent or more gravel chert.

incidence of gravel chert is observable on a west-to-east basis. This suggests that the source or sources of the gravel chert used on the district are located to the west. An inter-fluvial divide is located roughly west of the district in the Peason Ridge area of the Fort Polk Military Reservation. Streams flowing out of that area have exposed Citronelle gravel deposits, and these appear to have been the source of the gravel chert used on the Kisatchie Ranger District.

Figure 2.7 shows the locations of sites that contain greater than 50 percent Catahoula sedimentary quartzite and silicified wood combined. These sites are located primarily in the southern and eastern portions of the district on exposed Oligocene and Miocene deposits. Bara (1971) observed the frequent occurrence of silicified wood in the Catahoula and Fleming formations exposed in the Red Dirt Wildlife Management Preserve. Perennial streams flowing through the district appear to have exposed geological beds containing these materials.

Phillips (1989) observed that, as the distance from a source of a material increases in an area that contains a variety of lithic raw materials, the original material will gradually be replaced by other types of stone that become increasingly easy to procure in relative terms. The same type of distance/falloff relationship that appears to be expressed in the use of gravel chert, silicified wood, and Catahoula sedimentary quartzite on the Kisatchie Ranger District has been observed in the use of other types of resources in other areas (Plog and Hill 1971; Wood 1978). The distribution of gravel chert, silicified wood, and Catahoula sedimentary quartzite on the district indicates that the replacement hypothesis has merit (Phillips 1989).

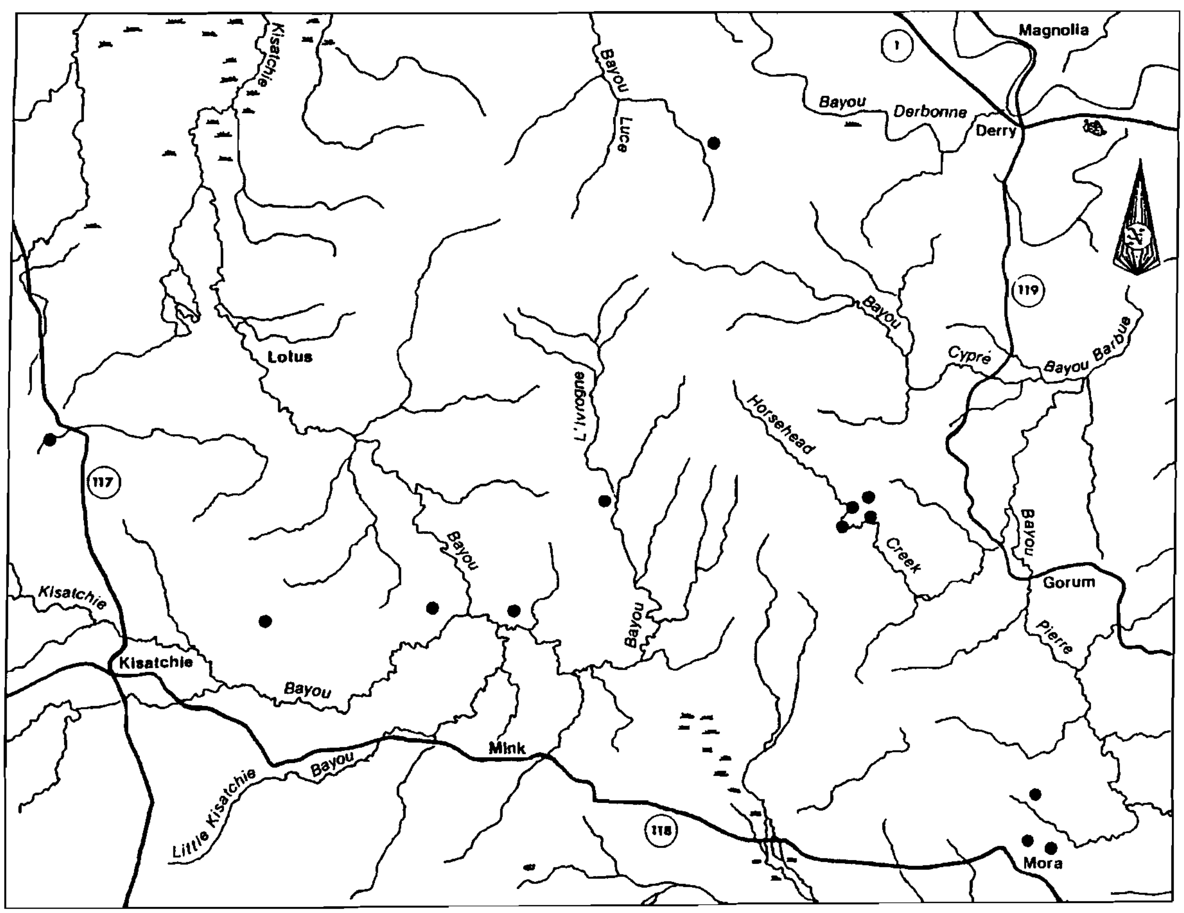

Figure 2.7. Kisatchie Ranger District sites with 50 percent or more Catahoula sedimentary quartzite and silicified wood.

Vernon Ranger District—Raw Material Distributions and Lithic Source Areas

Table 2.5 shows the distribution of raw materials in assemblages from the Vernon Ranger District. Gravel chert is the primary material represented. It comprises 86.8 percent of the total lithics and ranges from 71.8 percent at 16-Vn-887 to 96.9 percent at 16-Vn-882. The variability in its occurrence appears to be the result of both its uneven distribution in the local Citronelle gravel deposits and the preferential use of other raw materials at some of the sites.

The use of all types of silicified wood on the district was minimal. It averages only 0.5 percent of the artifacts in all 32 assemblages analyzed. This low incidence was unexpected, since silicified wood was observed in assemblages from the Peason Ridge area of the nearby Fort Polk Military Reservation (Brassieur 1983). The known use of this material in a nearby area suggests that its virtual absence on the district is due to the abundance of local gravel chert deposits and the better knapping quality of gravel chert as compared to silicified wood.

Catahoula sedimentary quartzite is virtually absent at sites on the district, comprising only 0.1 percent of the total lithics. This low incidence suggests a lack of sources for this material in the area.

The distribution of red chert on the district is unusual. It comprises 10.9 percent of the total lithics and ranges from zero to a high of 28.1 percent at 16-Vn-887: in 14 of the 32 assemblages analyzed, it comprises twelve percent or more of the total. This distribution suggests that it was preferentially used at some sites, since the proportions are higher than would be expected in terms of natural occurrence within the local Citronelle gravel deposits.

Other types of materials appear to be represented in proportion to their natural occurrence. Fleming opal, Fleming gravel chert, banded chert, and white quartzite range from 0.1 to 1.3 percent of the total lithics.

Many of the deep, stratified sites located in west-central Louisiana are located on gently sloping topographic features at the margins of perennial streams (Campbell and Weed 1986; Cantley and Kern 1984; Gibson 1977; Johnson et al. 1986; Phillips 1988; Phillips and Willingham 1990; Thomas et al. 1982; Willingham and Phillips 1987). These landforms are usually identified as toeslopes and footslopes (Servello 1983) and have associated gravel deposits. Phillips (1996) observed an exposed gravel deposit at site 16-Vn-511 that had been used by the prehistoric inhabitants of the site. Figure 2.8 shows the distribution of sites on the district where gravel chert comprises over 70 percent of the total raw materials. This distribution exhibits a dendritic pattern, where sites are associated with perennial streams that are the sources of the gravel chert (Phillips 1988) and the other raw materials identified in the assemblages.

Summary and Conclusions

Table 2.6 presents the distribution data for the various types of raw material across the four districts of the KNF. Intra-district variability is observable in the data. The assemblages from the Catahoula and Kisatchie ranger districts show the most divergence from the expected levels of occurrence. Gravel chert was the primary material used by prehistoric inhabitants of the study area. It is present in assemblages from sites on all four of the ranger districts investigated. It ranged from a low of 57.24 percent of the total for all assemblages on the Kisatchie Ranger District to a high of 86.79 percent on the Vernon Ranger District. This variability appears to be the product of both the level of natural occurrence within Citronelle gravel deposits and the preferential use of other raw materials in some areas. The frequency of gravel chert in the assemblages from the Kisatchie Ranger District is low compared to the other districts: this appears to be a result of greater distance to source area and the concomitant increase in use of other types of materials.

Table. 2.5. Vernon Ranger District raw material distributions.

Site Number	Gravel Chert	Silicified Wood	Catahoula Sed. Quartzite	Red Chert	Fleming Opal	Fleming Chert	Banded Chert	White Quartzite	Other	Total
16-Vn-509	32	0	0	2	0	0	0	0	1	35
16-Vn-877	18	0	0	4	0	0	2	0	0	24
16-Vn-878	160	0	0	46	0	0	2	0	0	208
16-Vn-879	55	0	0	10	0	0	1	0	0	66
16-Vn-880	28	0	0	7	0	0	0	0	0	35
16-Vn-881	21	2	0	3	0	0	2	0	0	28
16-Vn-882	32	0	0	1	0	0	0	0	0	33
16-Vn-883	25	1	0	7	0	0	0	0	0	33
16-Vn-884	53	0	0	8	0	0	0	0	0	61
16-Vn-887	23	0	0	9	0	0	0	0	0	32
16-Vn-892	48	0	0	11	0	0	1	0	1	61
16-Vn-893	490	2	0	47	0	0	12	0	0	551
16-Vn-901	23	0	0	5	0	2	0	0	0	30
16-Vn-938	108	1	0	12	0	0	0	0	1	122
16-Vn-961	68	0	0	6	0	0	0	0	0	74
16-Vn-968	63	0	0	5	0	0	0	0	0	68
16-Vn-993	58	0	0	0	4	0	2	0	0	64
16-Vn-1000	48	0	0	0	0	0	0	1	0	49
16-Vn-1004	30	0	0	2	0	0	2	0	0	34
16-Vn-1006	120	0	0	17	0	0	3	0	0	140
16-Vn-1007	25	0	1	1	0	0	0	0	0	27
16-Vn-1008	48	0	0	8	0	1	0	0	0	57
16-Vn-1012	58	1	0	10	0	0	1	0	0	70
16-Vn-1016	57	0	0	1	0	0	1	0	0	59
16-Vn-1022	55	2	0	9	0	0	5	0	1	72
16-Vn-1024	234	2	0	24	0	0	2	0	0	262
16-Vn-1028	66	0	0	9	0	0	0	0	0	75
16-Vn-1034	23	0	2	0	0	0	0	0	0	25
16-Vn-1036	205	0	0	20	0	0	3	0	0	228
16-Vn-1038	26	3	0	2	0	0	0	0	0	31
16-Vn-1040	164	0	0	29	0	0	0	0	0	193
16-Vn-1073	105	0	0	8	0	0	0	0	0	113
Total:	2569	14	3	323	4	3	39	1	4	2960
Mean:	86.8	0.4	0.1	10.9	0.1	0.1	1.3	0	0.1	

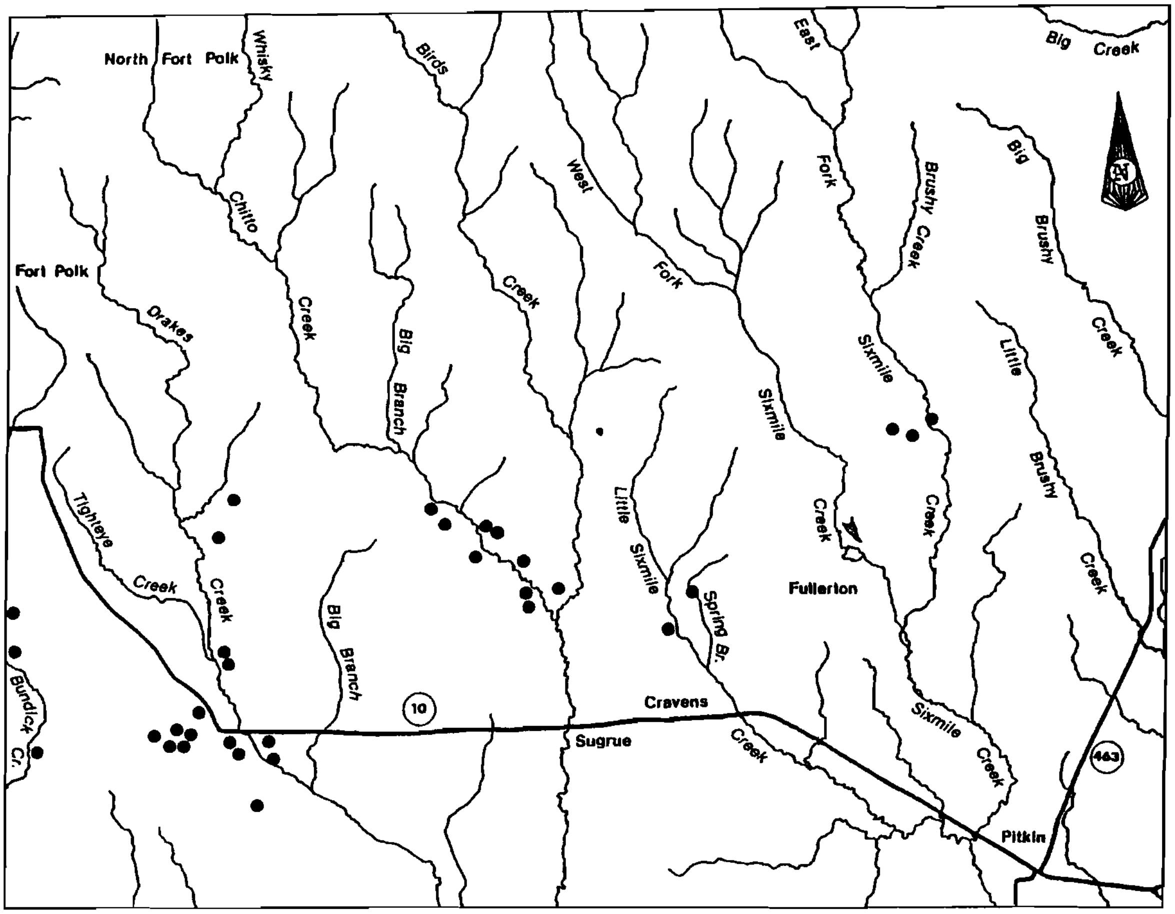

Figure 2.8. Vernon Ranger District sites with 70 percent or more gravel chert.

Table 2.6. Forest-wide raw material distributions.

	Catahoula District		Evangeline District		Kisatchie District		Vernon District	
	Total	Percent	Total	Percent	Total	Percent	Total	Percent
Gravel Chert	1309	72.80	1749	82.50	901	57.24	2569	86.790
Silicified Wood	64	3.56	6	0.28	328	20.84	14	0.470
Catahoula Sed. Quartzite	145	8.06	3	0.14	146	9.28	3	0.010
Red Chert	125	6.95	181	8.54	140	8.90	323	10.910
Fleming Opal	0	0	0	0	2	0.13	4	0.015
Fleming Chert	4	0.22	10	0.47	3	0.19	3	0.010
Banded Chert	69	3.84	100	4.72	25	1.59	39	1.320
White Quartzite	11	0.61	11	0.52	4	0.25	1	0.030
Other	71	3.95	59	2.78	25	1.58	4	0.010

Silicified wood use was widely dispersed across the study area, but it was virtually absent from sites on the Evangeline and Vernon ranger districts, while it was a secondary resource on the Catahoula and Kisatchie ranger districts. The absence of silicified wood on the Evangeline and Vernon districts was unexpected, given its known presence in Miocene and Pleistocene deposits on the Evangeline district (KNF staff 1985) and its occurrence in assemblages from adjacent areas (Brassieur 1983). This absence is attributed to the local abundance of Citronelle gravel chert deposits on both districts and the higher knapping quality of gravel chert as compared to most types of silicified wood. The Catahoula and Kisatchie ranger districts have geological deposits that contain silicified wood (Autin and Pearson 1993; Bara 1971; Fisk 1938; Welch 1942), and it was used as an alternative lithic resource on those districts.

Larger geographical patterning in the distribution of the various raw materials is observable across the KNF. The raw material data for the Evangeline and Vernon ranger districts are similar: the assemblages from those two districts are composed primarily of gravel chert. In contrast, some of the sites on the Catahoula and Kisatchie ranger districts contain relatively high proportions of Catahoula sedimentary quartzite and silicified wood: these materials combined account for over 50 percent of the total raw materials at some sites on the two districts. These patterns are related to source areas. Catahoula sedimentary quartzite and silicified wood are found along the northern edge, and gravel chert along the central and southern parts, of the Kisatchie Wold, which trends northeast/southwest across central Louisiana (Snead and McCulloh 1984). The locations of the sources of silicified wood and Catahoula sedimentary quartzite further correspond with early Quaternary Upland Complex deposits, while the sources for gravel chert correspond to the later Upland Complex deposits (Autin et al. 1993). Further research needs to be conducted in order to document more fully the geological distribution of raw materials across the uplands of central Louisiana.

The variable and widespread distribution of Catahoula sedimentary quartzite in archaeological sites deserves more attention. As noted above, it is present in assemblages from the Catahoula and Kisatchie ranger districts; it has also been noted in assemblages from the Caney Ranger District of northern Louisiana (Haikey et al. 1991) and from the Cad Mound in southern LaSalle Parish (Gibson 1968).

There may be a temporal association in the use of Catahoula sedimentary quartzite and silicified wood. Sites containing elevated proportions of both of these materials have yielded artifacts diagnostic of the Late Paleo-Indian to Middle Archaic periods. A local collector from Natchitoches Parish has a Big Sandy point made of Catahoula sedimentary quartzite. Bell (1960) associates this point with the Middle Archaic, while Cambron and Hulse (1986) associate it with Late Paleo-Indian and Early Archaic in Alabama. Big Sandy points were found in association with Dalton points at the Stanfield-Worley bluff shelter (DeJarnette et al. 1962). A Bulverde point was observed in the assemblage from 16-Gr-380 (Bell 1960). This assemblage contains elevated proportions of both Catahoula sedimentary quartzite (34.9 percent) and silicified wood (34 percent: Haikey et al. 1991). The Bulverde point is associated with Middle Archaic occupations on the KNF (Shum and Krieger 1954). Further research is needed to determine the full temporal range of the use of these two materials.

The proportions of red chert in the assemblages of some sites were unexpectedly high. This is attributed to both uneven natural occurrence and preferential use. Preferential use is identified when proportions of this material are higher than would be expected to occur naturally. Where red chert makes up ten percent or less of an assemblage, it is assumed to be represented in proportion to its natural occurrence. Where it comprises over 20 percent of an assemblage, preferential use is suggested. More detailed information is needed on its pattern of natural occurrence within the local gravel deposits.

The other raw materials identified make up less than five percent of the assemblages. These low levels are reflective of low natural occurrences within the local gravel deposits. Use of these materials was incidental in the lithic procurement and exploitation systems of the prehistoric groups that inhabited the uplands of central Louisiana.

This study has provided information on both the geological and cultural distributions of several types of materials across the KNF. It has also provided some information on preferential use and temporal associations for some of the materials. As is often the case, this study has raised as many questions as it has answered. Further research needs to be conducted that would enhance our knowledge of the lithic landscape of central Louisiana. Of particular value in this regard would be more focused studies of the patterns of natural occurrence of the materials in the local Citronelle gravel deposits as well as more accurate mapping of those deposits. This type of information could be usefully applied to identifying the effects that lithic resource distribution had on prehistoric settlement patterns in the area.

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3

The "Function" of Stone Tools in Prehistoric Exchange Systems: A Look at Benton Interaction in the Mid-South

Scott C. Meeks

The late Middle Archaic period in the Mid-South witnessed one of the earliest exchange systems in North America. Recently referred to as the "Benton Interaction Sphere," this exchange system was characterized by the movement of high quality Fort Payne chert, most likely in the form of prepared biface blanks, throughout the middle Tennessee River valley in Alabama, Mississippi, and Tennessee and the upper Tombigbee River valley in Mississippi. Based on data from nine sites located in northwestern Alabama and northeastern Mississippi and augmented with data presented by other researchers, this paper briefly describes the distribution and nature of the Benton exchange network and presents some preliminary findings concerning both the technological and social function(s) of Benton points and elaborate bifaces within this exchange system.

Introduction

The Middle Archaic represents a time of human adaptation to changing environmental conditions during the mid-Holocene. Commonly referred to as the Hypsithermal or Altithermal, the climate during this period became warmer and drier, resulting in fluctuations in precipitation and changes in vegetation (Delcourt et al. 1983; Delcourt and Delcourt 1985). While the effects of such climatic changes on Middle Archaic populations are at present incompletely understood, many have argued for an increase in sedentariness, an increase in population, a reduction in band territories, and the development of more complex social organization during this time (Brose 1979a; Brown and Vierra 1983; Jefferies 1996; Sassaman and Anderson 1995; Smith 1986; Steponaitis 1986). In the Mid-South, these trends appear to have reached their climax by the late Middle Archaic Benton horizon (6000 to 5000 B.P.). Evidence suggestive of increased sedentariness is found at the large shell midden sites along the middle Tennessee River in Alabama and Tennessee and at the midden mounds along the upper Tombigbee River in Mississippi, where repeated, long-term (possibly year round) site use is suggested by the presence of extensive midden deposits, burials, prepared floors, and possible structural remains (e.g., Bense 1987; Dye and Watrin 1985; Lewis and Lewis 1961; Otinger et al. 1982; Peacock 1988; Rafferty et al. 1980; Webb and DeJarnette 1942). Additionally, temporal patterns of raw material use in the Mid-South are suggestive of increasing sedentariness and reduction in band territories, as these patterns reflect a general trend toward localized raw material use beginning in the Early Archaic and continuing into and becoming more pronounced by the Middle Archaic just prior to the appearance of Benton (e.g., Chapman 1977; Futato 1983a, 1983b; Johnson and Brookes 1988; Lurie 1987).

By the late Middle Archaic, it appears that increased sedentariness and reduction in band territories, coupled with mid-Holocene climatic conditions, fostered the development of regional interaction between discrete social entities in the Mid-South. Recently referred to as the *Benton Interaction Sphere* (Johnson and Brookes 1989), a major aspect of this interaction was the exchange of Fort Payne chert throughout the Tennessee-Tombigbee region in northwestern Alabama, northeastern Mississippi, and western Tennessee (Figure 3.1). In fact, the preferential use of Fort Payne chert for the production of Benton points, regardless of distance to the source area, is well documented in the Mid-South (e.g., Alexander 1983; Futato 1983a, 1983b; Johnson and Brookes 1988, 1989; Lurie 1987). Corresponding with the distribution of utilitarian Fort Payne Benton points are a number of biface caches containing oversized Benton points, large biface blanks (cache blades), and elaborate forms of Turkey Tail points (Johnson and Brookes 1988, 1989). Citing the probable ceremonial context of many of the biface caches and their correspondence with the distribution of utilitarian Bentons produced on Fort Payne chert, Johnson and Brookes (1989) postulate that these caches represent sacred markers that define the limits of both ritual and nonceremonial exchange in the Mid-South. Building on their suggestion that the Benton Interaction Sphere operated at two levels, "ritual and mundane," this paper investigates the functional roles of Benton points and elaborate bifaces within this exchange system from both a technological and social perspective.

The Benton Interaction Sphere

Before discussing the functional roles of stone tools within the Benton Interaction Sphere, a brief overview concerning the distribution and nature of this exchange system is necessary to provide an understanding of both the spatial/temporal distribution of Benton exchange in the Mid-South and the two salient features that characterize this exchange system. The Benton Interaction Sphere, although impressive in terms of its intensity, is relatively restricted both temporally and spatially. A review of 32 radiocarbon dates (including five dates attributed to both Benton and Sykes/White Springs) reported for features and/or stratigraphic contexts associated with Benton from sites in the Mid-South suggests that Benton spans a temporal range of ap-

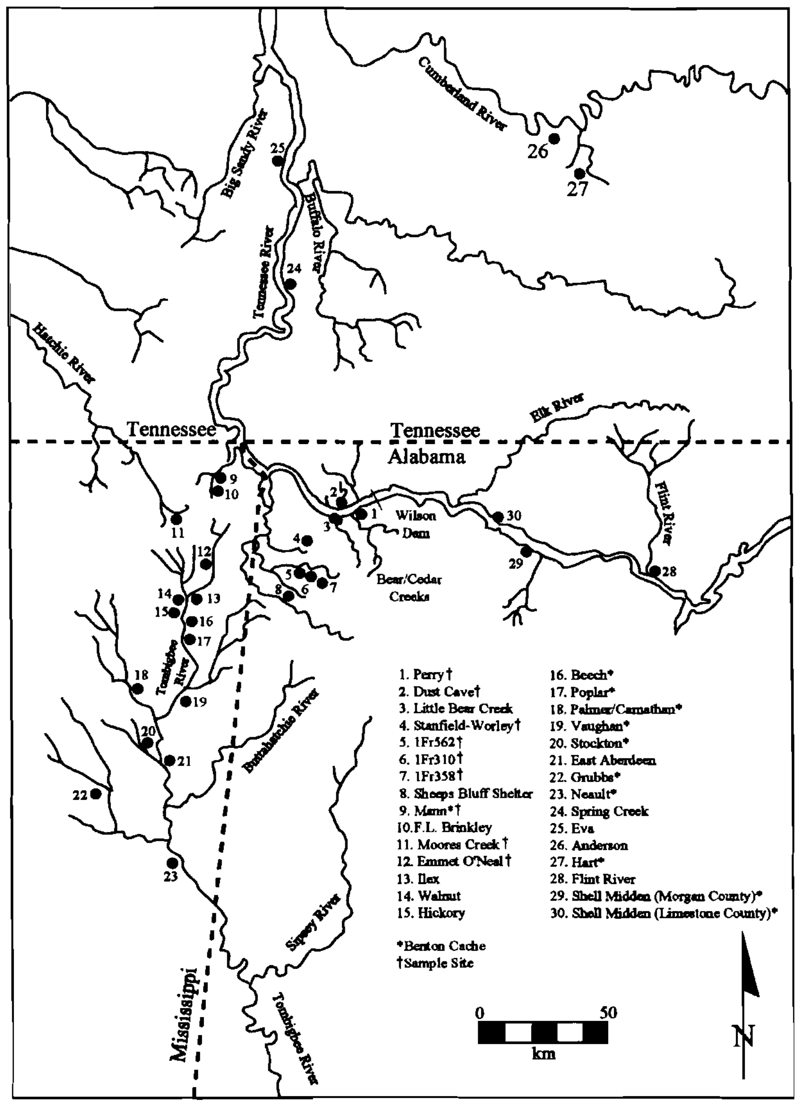

Figure 3.1. Location of major Benton sites and Benton caches in the Mid-South.

proximately 6000–5000 B.P. (Table 3.1). There is, however, a notable cluster of radiocarbon dates between 5700 and 5200 B.P. (26 dates or 81 percent of the Benton dates). A few earlier dates (n=5) place Benton in the early sixth millennium before present (5900–5800 B.P.), with three dates being secured from contexts associated with both Benton and Sykes/White Springs.[1] Finally, one late date of 5005±260 B.P. reported from the Spring Creek site in Tennessee extends Benton into the late sixth millennium before present (Peterson 1973). In terms of the spatial distribution of the Benton Interaction Sphere, the core area is restricted primarily to the Tennessee-Tombigbee region of Alabama, Mississippi, and Tennessee (Figure 3.1). Substantial Benton occupations have been documented at sites along the middle Tennessee River in northwestern Alabama (Webb and DeJarnette 1942; Webb 1939), along the middle and lower Tennessee River in western Tennessee (Alexander 1982; Amick 1987; Lewis and Lewis 1961; Peterson 1973), and along the upper Tombigbee River in northeastern Mississippi (Alexander 1983; Bense 1987; Dye and Watrin 1985; Otinger et al. 1982; Rafferty et al. 1980; Weinstein 1981).

Although relatively restricted in both time and space, evidence of the Benton Interaction Sphere is quite visible in the archaeological record of the Mid-South, being characterized by two major traits: the presence of biface caches and the preferential use of Fort Payne chert for the production of Benton points. Johnson and Brookes (1988, 1989) provide the most comprehensive analysis of Benton biface caches in the Mid-South. The biface caches include regular Benton points, oversized Benton points, cache blades (biface blanks), oversized cache blades, double-notched cache blades, and Turkey Tails, all

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[1] For the purposes of this paper, it is important to note the chronological relationship between Benton and Sykes/White Springs. Traditionally, Sykes/White Springs has been viewed as a morphological continuum between the earlier Morrow Mountain type and the later Benton type, suggesting that Sykes/White Springs evolved stylistically and coexisted with the earlier Morrow Mountain, followed by an exclusive Sykes/White Springs interval, then overlapping temporally with Benton, followed by an exclusive Benton interval (e.g., Alexander 1983; Bense 1987; Futato 1983; Long and Josselyn 1965; Thorne et al. 1981). There is contextual evidence to support such a continuum. Excavations at Stanfield-Worley produced Sykes/White Springs points associated with a Morrow Mountain burial (DeJarnette et al. 1962). Elsewhere in the Midsouth, Sykes/White Springs points have occurred within stratigraphic context associated with Morrow Mountain points, including Sheeps Bluff Shelter (Hollingsworth 1991) and Russell Cave (Ingmanson and Griffin 1974) in Alabama, the Poplar, Ilex, and Walnut (Bense 1987) sites in Mississippi, and the Westmoreland-Barber (Faulkner and Graham 1966) and Eva (Lewis and Lewis 1961) sites in Tennessee. Additional support for the temporal precedence of Sykes/White Springs over Benton, as well as Sykes/White Springs' temporal overlap with Morrow Mountain, can be found in the radiocarbon record (Table 3.1). Amick (1987) reports Sykes/White Springs dates of 6240±500 B.P. (Clay Mine site) and 6375±215 B.P. (Cedar Creek site) from the Duck River Valley in central Tennessee, the latter being associated with both Sykes/White Springs and Eva/Morrow Mountain. Similarly, Bense (1987) reports a Sykes/White Springs date of 6149±96 B.P. from the Walnut site in northeast Mississippi. These dates, which predate the appearance of Benton by approximately 200 to 300 years, overlap with several radiocarbon dates that extend Morrow Mountain into the middle to late seventh millennium before present (e.g., Amick 1987; Bense 1987; DeJarnette et al. 1975; Driskell 1994; Griffin 1974).

However, there is evidence to suggest that Sykes/White Springs and Benton were contemporaneous, at least for several hundred years (Table 3.1). Several features excavated at the Emmett O'Neal site produced both Sykes/White Springs and Benton points, including two features that produced radiocarbon dates of 5380±55 B.P. and 5650±70 B.P. (Alexander 1983). Similarly, a large number of features excavated at the Poplar site and the Walnut site were associated with both Sykes/White Springs and Benton. Two dates from the Poplar site and one date from the Walnut site obtained from occupational levels associated with both Sykes/White Springs and Benton produced dates of 5840±120 B.P., 5945±155 B.P., and 5902±115 B.P., respectively (Bense 1987). Finally, two late dates extend Sykes/White Springs into the mid sixth millennium before present, including a date of 5400±60 B.P. from Sheeps Bluff Shelter (Hollingsworth 1991) and a date of 5570±65 B.P. from the Emmett O'Neal site (Alexander 1983). These two dates (as well as the Sykes/White Springs/Benton dates of 5380±55 B.P. and 5650±70 B.P.) fall within the peak range for Benton.

Table 3.1. Radiocarbon dates for Benton and Sykes/White Springs from sites in the Mid-South.

Sample I.D.	Site Name	C-14 Date*	Sigma	Cultural Affiliation	Reference
GX-2931	Spring Creek	5005	260	Benton	Peterson 1973
DIC-2039	Ilex	5227	70	Benton	Bense 1987
BETA-65168	Dust Cave	5280	130	Benton	Driskell 1994
DIC-2487	Oak	5290	75	Benton	Bense 1987
DIC-1479	1-Fr-538	5300	60	Benton	Futato 1983
DIC-2483	Beech	5310	70	Benton	Bense 1987
DIC-2006	Walnut	5335	75	Benton	Bense 1987
GX-6213	Mann	5370	195	Benton	Peterson 1985
DIC-2556	Emmett O'Neal	5380	55	Sykes/White Springs/Benton	Alexander 1983
BETA-48753	Dust Cave	5380	90	Benton	Driskell 1994
TX-5600	Sheeps Bluff Shelter	5400	60	Sykes/White Springs	Hollingsworth 1991
GX-6462	Mann	5465	205	Benton	Peterson 1985
DIC-2007	Walnut	5490	70	Benton	Bense 1987
I-830	Russell Cave	5490	200	Benton	Griffin 1974
DIC-1478	1Fr538	5520	65	Benton	Futato 1983
UGA-2633	East Aberdeen	5525	75	Benton	Rafferty et al. 1980
UGA-3872	Moores Creek	5550	85	Benton	Weinstein 1981
DIC-1951	Walnut	5552	155	Benton	Bense 1987
DIC-1947	Poplar	5552	70	Benton	Bense 1987
DIC-2560	Emmett O'Neal	5570	65	Sykes/White Springs	Alexander 1983
GX-6215	Mann	5575	200	Benton	Peterson 1985
BETA-58895	Dust Cave	5590	50	Benton	Driskell 1994
UGA-518	Hart	5610	75	Benton	Parker n.d.
DIC-2558	Emmett O'Neal	5630	55	Benton	Alexander 1983
UGA-2634	East Aberdeen	5645	100	Benton	Rafferty et al. 1980
DIC-2557	Emmett O'Neal	5650	70	Sykes/White Springs/Benton	Alexander 1983
BETA-58898	Dust Cave	5670	120	Benton	Driskell 1994
DIC-1954	Walnut	5706	75	Benton	Bense 1987
DIC-2040	Ilex	5758	75	Benton	Bense 1987
DIC-2451	22It606	5800	60	Sykes/White Springs	Bense 1987
DIC-1948	Poplar	5840	120	Sykes/White Springs/Benton	Bense 1987
DIC-1953	Walnut	5902	115	Sykes/White Springs/Benton	Bense 1987
BETA-65169	Dust Cave	5910	70	Benton	Driskell 1994
GX-6464	Mann	5925	160	Benton	Peterson 1985
DIC-1949	Poplar	5945	155	Sykes/White Springs/Benton	Bense 1987
I-823	Russell Cave	5980	200	Sykes/White Springs	Griffin 1974
DIC-1950	Walnut	6149	96	Sykes/White Springs	Bense 1987
A-23671	Clay Mine-Area 1	6240	500	Sykes/White Springs	Amick 1987
GX-8822	Cedar Creek	6375	215	Sykes/White Springs	Amick 1987

*Uncorrected Radiocarbon Date (B.P.)

of which are almost exclusively of blue-gray Fort Payne chert. Johnson and Brookes (1988, 1989) note that the distribution of the Benton biface caches and utilitarian Fort Payne chert Benton points is not only similar but parallels that of the major known Benton sites (Figure 3.1). Based on metric analysis, Johnson and Brookes (1989) divide these cache bifaces into two groups: utilitarian and ceremonial. The utilitarian cache bifaces include regular Bentons and regular cache blades. Although smaller than the ceremonial cache bifaces, they exhibit no obvious signs of use or rejuvenation and tend to be larger than their counterparts found in midden contexts, suggesting that "unused Benton points were selected for the caches" (Johnson and Brookes 1989:143). The ceremonial cache bifaces include oversized Bentons, oversized cache blades, double-notched cache blades, and Turkey Tails. These bifaces tend to be much larger in terms of both length and width as compared to the utilitarian cache bifaces, yet they are generally thinner than the utilitarian artifacts. Similar to the utilitarian cache bifaces, the size of the ceremonial bifaces is independent of distance to the source area of Fort Payne chert. That is, the size of the cache bifaces does not drop off as distance increases. Finally, Johnson and Brookes (1989:143) have identified a "structured" composition to the Benton biface caches, suggesting that "ritual prescription dictated what was to be included" in the caches.

The second major defining characteristic of the Benton Interaction Sphere is the association of Benton points with Fort Payne chert (e.g., Alexander 1983; Futato 1983a, 1983b; Johnson and Brookes 1988, 1989; Lurie 1987). Although the preferential use of Fort Payne chert for the production of Benton points is well documented in the Mid-South, it is instructive to examine the spatial patterns of Benton raw material use and to contrast these patterns with those of the preceding Sykes/Whites Springs sites. In fact, there is a rather striking dichotomy in the use of specific raw materials and, as a corollary, the use of local and non-local raw materials both within Benton and between Benton and Sykes/White Springs. As will be discussed later, these contrasting spatial and temporal patterns of raw material use have important implications for the technological function(s) of both Benton and Sykes/White Springs. The following discussion is based largely on the analysis of 626 Benton and 114 Sykes/White Springs points from nine sites in northwestern Alabama and northeastern Mississippi (Table 3.2; Figure 3.1).[2]

As Table 3.2 demonstrates, Benton points exhibit a clear pattern of association with raw materials from the Fort Payne formation.[3] In fact, 501 (80 percent) of the 626 Benton points in the sample are of Fort Payne chert. Assuming that the relative abundance of Fort Payne chert at each site is largely a function of distance to the source area, it would be expected that the use of Fort Payne chert would be greatest near the source area and that use would subsequently decrease as distance to the source area increased. The sample data do not support this assumption. As would be expected, sites closest to the source area of Fort Payne chert (Perry, Dust Cave, Stanfield-Worley) are marked by the highest percentage of Fort Payne; however, there is no appreciable fall-off in the use of raw materials from the Fort Payne

[2] The analysis presented in this paper is based on selected portions of my thesis research (Meeks 1998). For detailed discussions of each sample site, see the following sources: Perry (Webb and DeJarnette 1942), Dust Cave (Driskell and Goldmann-Finn 1994), Stanfield-Worley (DeJarnette et al. 1962), 1-Fr-310, 1-Fr-538, and 1-Fr-562 (Futato 1983a), Mann (Dye and Watrin 1985), Emmett O'Neal (Alexander 1983), Moores Creek (Weinstein 1981).

[3] The core area of the *Benton Interaction Sphere* encompasses three major physiographic provinces: Coastal Plain, Highland Rim, and Cumberland Plateau. Within these provinces are several unique lithic raw material producing formations, including the Bangor, Fort Payne, Tallahatta, and Tuscaloosa formations. Detailed discussions concerning the geographic distribution of these formations and the lithic raw materials associated with each formation are provided in the following sources: Amick (1987), Butts (1926), Copeland (1968), Ensor (1981), Futato (1983a, 1983b), Johnson and Meeks (1994), Lurie (1987), Raymond et al. (1988), Skrivan and King (1983), and Thomas (1972).

Table 3.2. Data for Benton and Sykes/White Springs from sites in northwestern Alabama and northeastern Mississippi.

	Fort Payne Formation	Raw Material Tuscaloosa Formation	Other	Total	Fort Payne Source Area (km)[1]	Local Material[2]	Nonlocal Material[2]	Mean Length	Metrics (mm) Mean Thickness	Mean Width
BENTON										
Perry	130 (89.0)	11 (7.5)	5 (3.5)	146	1	142 (97.3)	4 (2.7)	70.36	8.71	32.43
Dust Cave	30 (88.2)	4 (11.8)	—	34	2	34 (100.0)	—	64.38	8.06	29.51
Stanfield-Worley	73 (79.3)	16 (17.4)	3 (3.3)	92	17	90 (100.0)	—	60.78	8.32	31.79
1-Fr-538	17 (73.9)	5 (21.7)	1 (4.4)	23	33	6 (26.1)	17 (73.9)	44.00	7.80	30.30
1-Fr-310	46 (86.8)	9 (22.0)	3 (7.3)	41	36	10 (25.6)	29 (74.4)	47.71	8.55	30.58
1-Fr-562	17 (68.0)	7 (28.0)	1 (4.0)	25	38	8 (32.0)	17 (68.0)	52.33	7.16	31.27
Mann	29 (70.7)	7 (13.2)	—	53	55	7 (13.2)	46 (86.8)	67.75	8.74	32.82
Emmett O'Neal	81 (75.7)	23 (21.5)	3 (2.8)	107	63	23 (22.1)	81 (77.9)	61.93	7.19	29.70
Moores Creek	78 (74.3)	27 (25.7)	—	105	65	27 (25.7)	78 (74.3)	61.41	8.81	31.82
Total:	501 (80.0)	109 (17.4)	16 (2.6)	626	—	347 (56.1)	272 (43.9)	64.62	8.23	31.42
SYKES/WHITE SPRINGS										
Perry	8 (66.7)	4 (33.3)	—	12	1	12 (100.0)	—	58.25	9.13	31.83
Dust Cave	2 (66.7)	1 (33.3)	—	3	2	3 (100.0)	—	—	9.00	25.00
Stanfield-Worley	3 (30.0)	7 (70.0)	—	10	17	10 (100.0)	—	49.75	9.60	33.06
1-Fr-538	5 (23.8)	16 (76.2)	—	21	33	16 (76.2)	5 (23.8)	45.50	9.53	30.62
1-Fr-310	—	15 (88.2)	2 (11.8)	17	36	17 (100.0)	—	45.38	8.88	28.83
1-Fr-562	—	6 (100.0)	—	6	38	6 (100.0)	—	44.50	9.25	28.60
Mann	1 (50.0)	1 (50.0)	—	2	55	1 (50.0)	1 (50.0)	60.00	9.50	30.00
Emmett O'Neal	15 (34.9)	25 (58.1)	3 (7.0)	43	63	26 (60.5)	17 (39.5)	46.30	8.25	28.46
Moores Creek	—	—	—	—	65	—	—	—	—	—
Total:	34 (29.8)	75 (65.8)	5 (4.4)	114	—	91 (79.8)	23 (20.2)	49.89	8.88	2.75

[1]Distance to Fort Payne source area based on straight line distance to Wilson Dam, Florence, Alabama.
[2]Local materials available within 20 km radius of site; nonlocal materials occur outside 20 km radius of site.

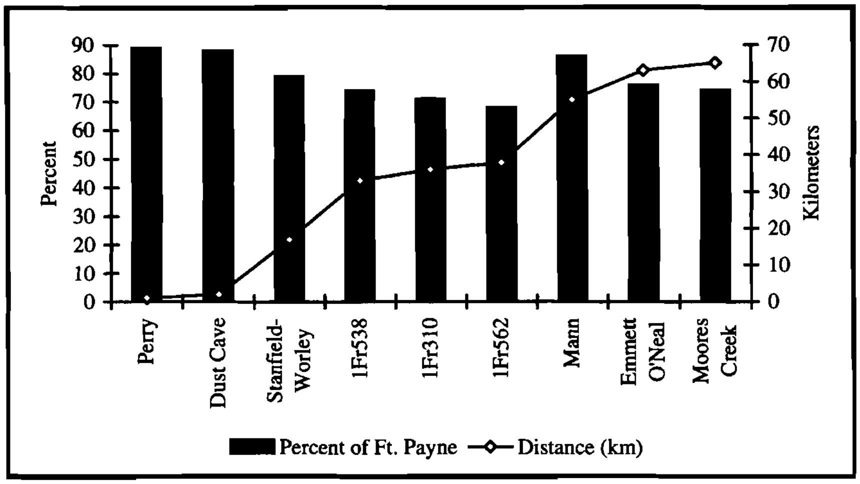

Figure 3.2. Percentage use of Fort Payne chert for Benton by distance to source area.

formation as distance from the source area increases (Figure 3.2). In fact, the use of Fort Payne is fairly constant at the six sites (1-Fr-562, 1-Fr-310, 1-Fr-538, Mann, Emmett O'Neal and Moores Creek) having Fort Payne as a non-local resource. What is more, there is actually a greater percentage of Fort Payne use at the three sites furthest from the source area (Mann, Emmett O'Neal, and Moores Creek). Although the sample sizes vary somewhat across the nine sites, the data suggest a clear pattern for the preferential selection and use of Fort Payne chert for the production of Benton points, regardless of distance to the source area.

With respect to the use of other raw materials, it can be seen in Table 3.2 that materials other than Fort Payne chert comprise only 20 percent (n=125) of the total sample of Benton points; a large percentage of these other materials come from the Tuscaloosa formation (17.4 percent; n=109). While materials other than Fort Payne chert constitute only a small percentage of the overall sample, there is one pattern, albeit subtle, that needs to be addressed. The three sites (1-Fr-310, 1-Fr-538, and 1-Fr-562) located along the Bear/Cedar Creek drainages surpass the remaining six sites in terms of percentage use of raw materials other than Fort Payne (Table 3.2). More conspicuous is the fact that the Benton points from these three sites tend to be smaller in terms of mean length as compared to the other sites in the sample (Table 3.2). Taken together, these data suggest that sites along the Bear/Cedar Creek drainages may have been located along the periphery of the Benton exchange system. This possibility has been suggested previously by Johnson and Brookes, who noted that "the relatively small size of Benton projectile points in the upper Bear Creek and Cedar Creek drainages, despite their proximity to the source area [Fort Payne], may indicate that the lack of midden mounds or shell mounds in this area placed it outside the Benton exchange network. Fort Payne chert may have entered this area through less direct mechanisms" (Johnson and Brookes 1989:144).

The Sykes/White Springs points in the sample exhibit a clear pattern of association with the Tuscaloosa formation, as 75 (65.8 percent) of the 114 were produced on raw materials from this formation (Table 3.2). The sample is augmented with lesser amounts of raw materials from the Fort Payne formation (29.8 percent; n=34). The distribution of raw materials from the Tuscaloosa and Fort Payne formations across the sample universe suggests differing patterns of use for these raw materials. Two sites, Perry and Dust Cave, are marked by higher percentages of raw materials from the Fort Payne formation (67 percent at both sites). The remaining sites are marked by higher percentages of raw materials from the Tuscaloosa

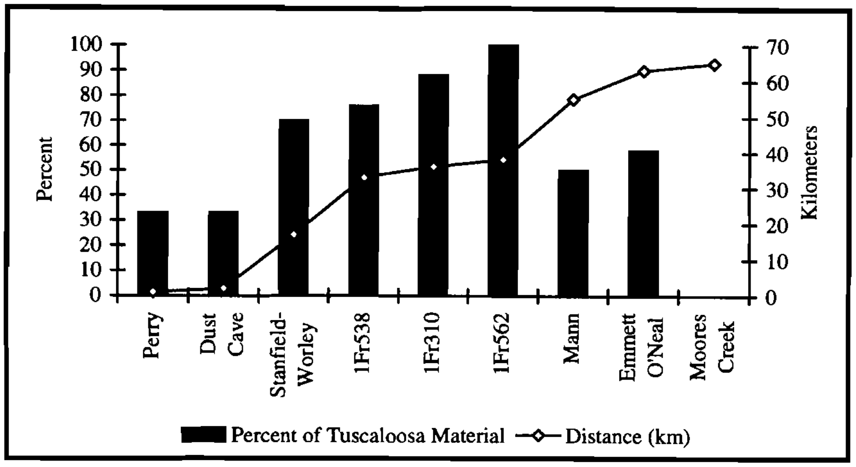

Figure 3.3. Percentage use of Tuscaloosa material for Sykes/White Springs by distance to source area of Fort Payne chert.

formation (50–100 percent). Examining the use of raw materials from the Tuscaloosa formation in terms of distance to the source area of Fort Payne chert, the basis for these two patterns becomes apparent. The use of raw materials from the Tuscaloosa formation is, in general, directly related to distance from the source area of Fort Payne chert (Table 3.2, Figure 3.3). That is, there is a corresponding increase in the use of raw materials from the Tuscaloosa formation as distance to the source area of Fort Payne increases. The only sites departing from this trend are the Mann and Emmett O'Neal sites (the departure from this pattern at the Moores Creek site is due to the small sample [n=2], with one produced on Fort Payne chert and one produced on Tuscaloosa gravel). The deviation at the Emmett O'Neal site, marked by a moderate amount of Fort Payne chert, is somewhat more problematic, but may be due in part to the temporal overlap of Benton and Sykes/White Springs. In fact, several features excavated at the site produced both Benton and Sykes/White Springs points, including two features that produced radiocarbon dates falling within the peak range of Benton. This suggests the possibility that the Fort Payne chert used for the production of at least some the Sykes/White Springs points at the site was, in fact, obtained through the Benton exchange system. As will be discussed later, this apparent temporal overlap has implications concerning a possible functional relationship between Benton and Sykes/White Springs.

As can be seen from the analysis presented above, raw material use patterns associated with the production of Benton and Sykes/White Springs bifaces are quite distinct. The most obvious distinction is the use of specific raw materials. The Benton points are largely associated with raw materials from the Fort Payne formation, with no appreciable falloff in the use of raw materials from the formation as distance from the source area increases (Table 3.2, Figure 3.2). Conversely, the Sykes/White Springs points are largely associated with raw materials from the Tuscaloosa formation, with use of these raw materials generally increasing as distance from the source area of Fort Payne chert increases (Table 3.2, Figure 3.3). Corresponding with these distinct patterns of specific raw material use are distinct patterns of local and non-local raw material use. Comparing the use of local and non-local raw materials for the entire sample of Benton points indicates that locally available materials comprise over half (56.1 percent; n=347) of the sample (Table 3.2), but this pattern is misleading given the almost exclusive use of Fort Payne chert for the production of Benton points at those sites closest to the source area. If those sites having Fort Payne chert as a local resource are excluded, a substantial increase in the use of nonlocal materials (75.6 percent) can be seen. The Sykes/White Springs points in the sample, on the other hand, suggest very localized use of lithic resources, with 91 (79.8 percent) of the 114 points being produced on locally available materials. Comparing the use of local versus non-local raw materials for Sykes/White Springs across the sample universe, this pattern of localized resource use is, in general, consistent at each site (Table 3.2). The only sites deviating from this pattern are the Mann and Emmett O'Neal sites, for the same reasons discussed earlier.

Technological Function

Given differences in the use of specific raw materials and, as a corollary, differences in the use of local and non-local raw materials both within Benton and between Benton and Sykes/White Springs, the question to be addressed is whether these contrasting patterns of raw material use, both spatially and temporally, affected or were affected by the technological function(s) of these projectile points. A previous functional assessment by Ahler (1983) of a small sample of Benton points from the Walnut site, a midden mound located along the upper Tombigbee River in northeastern Mississippi, suggested that, for the most part, Benton points were multifunctional implements. Ahler's analysis found wear patterns indicative of tasks involving both "cutting" and "projection," suggesting that "the Benton form is multifunctional rather than specialized in terms of intended use" (Ahler 1983:IIIE.8). I had noticed, however, that Benton points from sites in the Pickwick Basin of northwestern Alabama were rather "pristine" in condition and did not, at least macroscopically, appear to possess traces of use-wear indicative of having been multifunctional implements. This led me to question whether there were functional differences among Benton points spatially and, if so, if those differences could be related to raw material costs. That is, if non-local raw materials, specifically Fort Payne chert, were being obtained through exchange, were additional costs associated with these raw materials and did such costs affect the function(s) of Benton points?

To address this question, I performed use-wear analysis of a sample of Benton points from the nine sites mentioned in the previous discussions.[4] The results of the analysis were somewhat surprising. Contrary to Ahler's (1983) results and my own expectations, use-wear analysis revealed that only ten (17 percent) of the 59 Benton points in the sample exhibited wear traces indicative of having served as multifunctional implements (Figure 3.4). Not only was the number of "multifunctional" Bentons small, but there was no correlation between multifunctional Bentons and the source area for Fort Payne chert. Additionally, the microwear traces that were present on most of these points tended to be weakly developed, suggesting that the Benton points involved in multiple tasks were used rather expediently and were probably not intended for such generalized use. Although the sample is admittedly small, data pertaining to use-related fractures for the entire sample of Benton points lend additional support to their use as projectiles (Table 3.3). Two fractures considered to be indicative of projectile use, impact fractures and haft snaps (Ahler 1971; Flenniken and Raymond 1986; Johnson 1981; Parry and Christenson

[4] Each artifact was first examined at low power (8X to 40X) using a Nikon Stereoscopic Zoom microscope to identify potential areas of utilization and to observe general patterns of scarring and edge attrition (e.g., Odell and Odell-Vereecken 1980; Odell 1981; Tringham et al. 1974). Higher magnifications and epi-illumination were achieved through the use of a Zeiss compound microscope and incident light attachment with magnifications ranging from 100X to 400X, although most observations were conducted at magnifications from 100X to 200X. All tool edges were scanned both edge-on and along both aspects of each edge, with emphasis on potentially utilized areas. Identifications and descriptions of polish types, linear features (e.g., striations and abrasions), and microscarring followed those advocated by Keeley (1980), Vaughan (1985) and Driskell (1986).

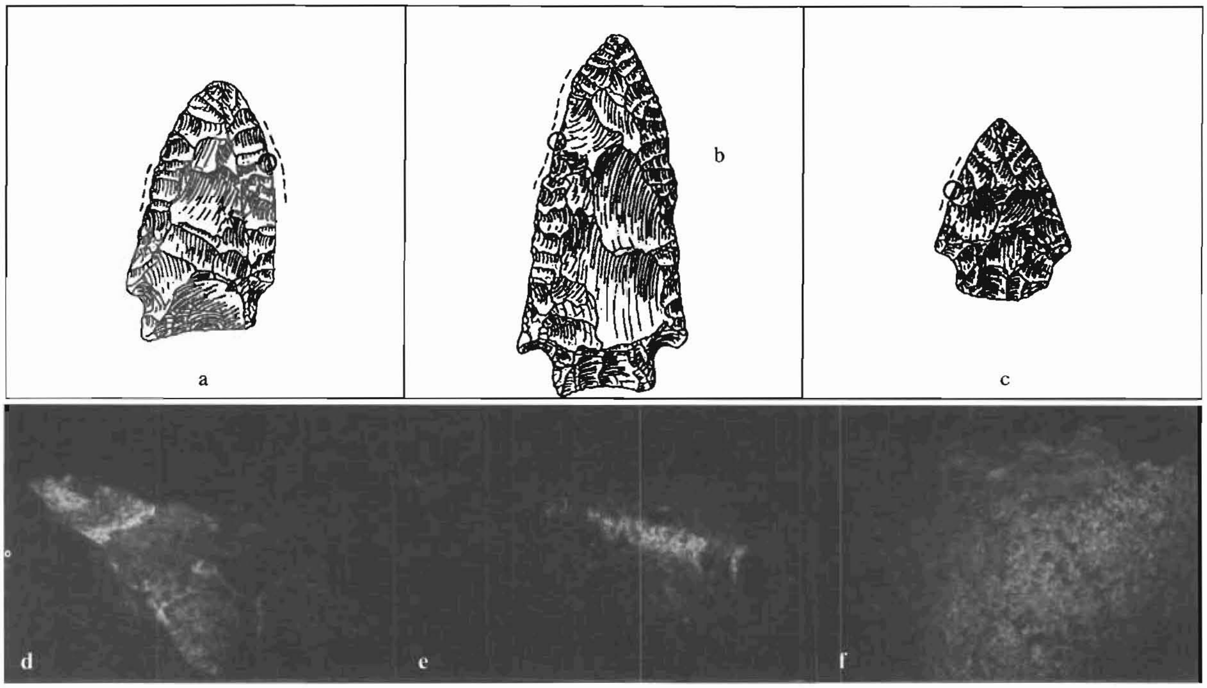

Figure 3.4. Multifunctional Benton and Sykes/White Springs points: (a) Benton point (1-Fr-310-1151.40) used to cut/scrape bone; (b) Benton point (1-Lu-25-13344.09) used to scrape hide; (c) Sykes/White Springs point (22-Ts-954-5009.10) used to cut/slice meat and/or fresh hide; (d) Moderately developed bone polish (200X) within the circle on A; (e) Well developed hide polish (200X) along tool edge within the circle on B. Note the striations perpendicular to the working edge; (f) Weakly developed meat and/or fresh hide polish (150X) within the circle on C. (Note: dashed lines indicate extent of microwear traces, and circles indicate location of photomicrograph.)

1987), comprise 55.7 percent (n=248) of the sample. The remainder of the use-related fractures are transverse fractures. Transverse fractures present more of a problem in terms of interpretation, since they can be related to projectile use, cutting/prying activities, or even non-use related activities (Ahler 1983; Johnson 1981; Lurie 1987; Parry and Christenson 1987; Tsirk 1979), but the high incidence of fractures potentially indicative of projectile use, coupled with the lack of use-wear, does suggest that the Bentons functioned mainly as projectile points and rarely as multifunctional implements.

The discrepancy between Ahler's (1983) results and the results presented here may be due in large part to the nature of the two samples. Ahler's sample was comprised largely of broken Benton points (77.3 percent; n=17) while the sample used here included only intact Benton points. The exclusive use of intact Benton points in this analysis stemmed from an assumption that, because a projectile point may pass through many steps within a lithic technological system during its life history (e.g., Bradley 1975; Collins 1975; Driskell 1986; House 1975; Schiffer 1975), the use of fragmentary points presents a potential bias in interpreting projectile point function. In other

Table 3.3. Absolute and relative frequencies of use-related fracture types for Benton by site.

Site	Impact	Haft Snap	Transverse	Total
Perry	42 (53.8)	3 (3.9)	33 (42.3)	78
Dust Cave	8 (42.1)	3 (15.8)	8 (42.1)	19
Stanfield-Worley	13 (17.6)	25 (33.8)	36 (48.6)	74
1-Fr-538	5 (25.0)	1 (5.0)	14 (70.0)	20
1-Fr-310	7 (21.9)	9 (28.1)	16 (50.0)	32
1-Fr-562	2 (10.5)	13 (68.4)	4 (21.1)	19
Mann	5 (12.8)	14 (35.9)	20 (51.3)	39
Emmett O'Neal	8 (10.5)	26 (34.2)	42 (55.3)	76
Moores Creek	5 (5.7)	59 (67.0)	24 (27.3)	88
Total:	95 (21.3)	153 (34.4)	197 (44.3)	445

words, a projectile point may be manufactured with a particular function in mind, but breakage or edge-damage resulting from manufacturing errors or use may cause the tool to function in a capacity different from its original design. Given that projectile points are frequently recycled, how does one determine the use and function of such artifacts? More importantly, how does one assign functional classifications to recycled projectile points? Schiffer (1975:249) provides an example of such a dilemma:

> Assume a projectile point is used for hunting and that the tip breaks. The tip is not retrieved, but the point is rehafted and used as a knife until accumulated use wear and retouch make it unsuited for cutting tasks. Before it is finally discarded, the same point may be burinated and used to cut or incise bone. How then should this point be classified if one is interested in function?

Although both whole and fragmentary projectile points offer important information, the argument presented here is that whole projectile points more closely reflect the intended function(s) of these stone tools and that allowances must be made for the potential bias inherent in using fragmentary (potentially recycled and/or reused) projectile points.

Building on this line of reasoning, the results of Ahler's (1983) analysis may reflect use of Benton points for other activities *after* the points had sustained debilitating fractures. This possibility has important implications concerning the potential effects raw material costs may have had on the function of both intact and broken Benton points. Although raw material costs do not appear to have had an effect on the function of intact Benton points, Ahler's analysis suggests there may be instances of recycling and reuse of broken Benton points, which may indicate attempts at conserving non-local, presumably expensive, raw materials. Some support for this idea can be found in the spatial distribution of use-related fracture types. As Table 3.3 illustrates, the two sites (Perry and Dust Cave) located in close proximity to the source area of Fort Payne chert are marked by higher frequencies of impact fractures, suggesting that few attempts were made at retipping broken points. Conversely, the remaining sites tend to have higher frequencies of haft snaps, which may indicate that these Bentons were subjected to more intensive conservation and recycling. If this is the case, then we might also expect to find a greater occurrence of use-wear traces indicative of various functional activities on broken Bentons at sites further from the source area of Fort Payne chert.

While this scenario makes sense from an economic standpoint, the data do not support fully such economizing activities. In fact, resharpening, reworking and reuse of Benton points are not common in the sample. Using mean length as a rough indicator of resharpening, the data in Table 3.2 illustrate that mean length of the Benton points in the sample (discounting for the moment the Bentons from the Bear/Cedar Creek drainages) does not decrease significantly as distance from the source area of Fort Payne chert increases. Although, as noted above, the inhabitants at sites further removed from the source area of Fort Payne chert may have been retipping Benton points to prolong their use lives, they do not appear to have made additional attempts at extending tool use life through extensive resharpening.[5]

[5]There is still the question of why Bentons from the Bear/Cedar Creek drainages are smaller in size. As noted earlier, these sites appear to be peripheral to the *Benton Interaction Sphere.* What we may be seeing at these sites, then, are attempts at conserving raw material within the context of the Benton settlement system. The variety of Benton site types (e.g., Bense 1987; Futato 1983a, 1992; Peacock 1988; Weinstein 1981) provide evidence to support a model of aggregation-dispersal involving seasonal movements between riverine and interriverine sites. Under such a model, Benton peoples occupying sites within the Bear/Cedar Creek drainages would most likely have had access to Fort Payne chert during periods of aggregation at the riverine sites. Whether Benton peoples occupying the Bear/Cedar Creek drainages were moving from the middle Tennessee River valley where they were obtaining Fort Payne directly from the source or were coming from the Tombigbee River valley where they were obtaining

Additional evidence supporting this lack of resharpening of Benton points comes from the work of Weinstein (1981) at the Moores Creek site in Alcorn County, Mississippi. Weinstein attempted to place Benton points from the site into stages of resharpening following those outlined by Goodyear (1974) for Dalton points at the Brand site. Weinstein (1981:4–11) found that the majority of the Benton points exhibited little evidence of resharpening, noting that "there was a far greater number of initial Bentons than advanced or final, a situation reversed from what would be expected if reuse or resharpening were occurring on the site." Finally, evidence supporting this apparent lack of resharpening and reuse of Benton points is found in the low number of reworked Bentons. In fact, only 35 (5.6 percent) of the 626 Bentons in the sample discussed here were reworked into another tool form, with no apparent correlation between reworking and distance to the source area of Fort Payne chert. Given the lack of extensive resharpening, reworking, and reuse of Benton points in the sample and the lack of use-wear on intact Benton points, it appears that late Middle Archaic peoples, at least those within the realm of the Benton Interaction Sphere, were not overly concerned with practicing economizing activities to conserve non-local raw materials. In this light, the results of Ahler's (1983) analysis may be indicating that Benton points exhibiting evidence of multiple functions were reused after they had been broken and possibly discarded. That is, they were serving as tools of convenience.

Finally, it is important to consider the functional relationship between Benton and Sykes/White Springs. Given the apparent temporal overlap of these two point types for at least several hundred years, the question to be addressed is whether these two points were functionally equivalent or whether they functioned in different capacities. Use-wear analysis of a small sample of Sykes/White Springs points produced similar results to those displayed by the Bentons, with only three (15.8 percent) of the 19 Sykes/White Springs points exhibiting wear traces indicative of having served as multifunctional implements (Figure 3.4). Again, the samples are small, but if we accept that Benton and Sykes/White Springs were functioning in similar capacities (i.e., as projectile points), then the shift from using locally available materials for the production of Sykes/White Springs points to a reliance on Fort Payne chert (often non-local) for the production of Benton points requires an explanation. That is, if these two point types were serving similar functions and there is no apparent techno-functional reason for the shift in raw material use, then why, in the case of Benton, did people become reliant on Fort Payne chert? As will be discussed below, the answer may have little to do with technology and more to do with the social climate of the times.

Social Function

Beyond serving their technomic roles within a cultural system, stone tools can also function in social capacities (Binford 1962). As Johnson and Brookes (1988, 1989) suggest, the Benton biface caches were most likely serving as sacred markers defining the limits of both ritual and nonceremonial exchange in the Mid-South. If this is the case, then we should expect ceremonial activities associated with the Benton

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Fort Payne by way of exchange, the results would be the same. They would be removed from access to Fort Payne chert. It is not surprising, then, that Bentons from sites in the Bear/Cedar Creek drainages are not only smaller compared to Bentons from sites located within the realm of the *Benton Interaction Sphere*, but they also tend to be produced on higher percentages of raw materials other than Fort Payne. Similar patterns have been documented at other Benton sites located peripherally to the Benton exchange system (e.g., Johnson and Brookes 1988, 1989). Given these differences between sites located within and outside the *Benton Interaction Sphere*, it appears that raw material cost had more to do with raw material availability and less to do with the mode of procurement (either direct or indirect [i.e., exchange]).

biface caches to be manifested in the archaeological record. Building on the work of Sievert (1994), the following criteria are considered to be indicators of ceremonial activity associated with stone tools:

1. *Exaggerated size/ornate crafting.* The bifaces in the Benton caches are all exceptional in terms of their length, tend to be highly crafted (as witnessed by their thinness and excellent flaking qualities) and, in the case of the various forms of Turkey Tails, highly ornate (Johnson and Brookes 1989: Figures 2–3; Fundaburk and Foreman 1957: Plates 68, 70). Given their exaggerated size, extreme thinness, and ornate qualities, these bifaces were obviously not intended for use in a technomic sense. Rather, they were most likely for display and, following Malinowski's (1961) ideas about items involved in Kula exchange, were probably valued for the labor invested in their production. As Malinowski (1961:173) notes: "an article is valued where the workman...has been induced to spend a disproportionate amount of labour on it...he creates an object that is a kind of an economic monstrosity, too good, too big, too frail, or too overcharged with ornament to be used, yet just because of that, highly valued."
2. *Presence of unusual residues.* Red ocher, which is a diagnostic trait of the Benton mortuary ceremonial complex (Futato 1983a, 1992), has been reported for several of the Benton biface caches (Alexander 1983; Futato 1983a; Parker 1974; White 1983).
3. *Evidence of intentional breakage.* Several of the Benton biface caches exhibit evidence of intentional breakage and, in some instances, cremation (Alexander 1983; Craig 1958; Fundaburk and Foreman 1957: Plates 70). Such "ritual killing" of Benton cache bifaces may have served as a means of displaying individual status and fostering social differentiation.
4. *Content.* Johnson and Brookes (1989:143) note that "there is a consistency in the composition of these caches, which suggests that ritual prescription dictated what was to be included." What is more, the types of bifaces included in the caches are similar in form, suggesting the possibility that stylistic information was encoded within these bifaces, which served to promote individual status or group identity (Weissner 1983; Wobst 1977).
5. *Context.* Several of the Benton biface caches are associated with burials (Craig 1957; Fundaburk and Foreman 1957:Plates 68, 70; Johnson and Brookes 1989; Parker 1974). The inclusion of nonutilitarian grave goods with Benton burials contrasts markedly with preceding Morrow Mountain burials, which contain only utilitarian grave goods, further suggesting changes in social organization (Futato 1992). Building on the ideas of Brose (1979a), Johnson and Brookes (1989) postulate that mortuary biface caches represent individuals who were "conduits" for Benton exchange. Similar to the "ritual killing" of Benton biface caches, the inclusion of elaborate bifaces with Benton burials may have served as a means of promoting individual status in an egalitarian society (Bender 1985).

With evidence supporting ceremonial activities associated with the Benton biface caches, the question posed is how exactly did the bifaces within these caches function from a social standpoint? To address this question, it is necessary to examine first why Benton exchange developed in the first place. Johnson and Brookes (1989), citing the similar distribution of Benton caches and utilitarian Fort Payne Benton points with major sites in the Mid-South, suggest that Benton exchange developed as a risk-sharing mechanism in response to increased population pressures, increased sedentariness, formation of band territories, and an unstable resource base. Another possibility (one that was most likely a consequence of population increase, decreased mobility, and environmental stress) is that Benton exchange developed in response to increasing inter-group conflict during the Middle Archaic. If such conflict was prevailing just prior to the late Middle Archaic, as appears to be the case (e.g., Kimberly Neutzling, personal communication, 1997; Sassaman 1993a, 1995; Smith 1990, 1996; Webb and DeJarnette 1942: Plates 275, 290), then the development of regional exchange by Benton times may have served as a means of alleviating such conflict by forming alliances between groups occupying the major river valleys and adjacent drainages in the Mid-South.

The need to alleviate the environmental and social stresses developing during the Middle Archaic necessitated the formation of formal alliances (Bender 1985; Sassaman 1995), and it is within this context that the Benton caches were performing their social functions. At the individual level, the association of Benton caches with burials, coupled with their "ritual" destruction, suggests that the caches functioned as a means of displaying individual status and fostering social differentiation. Although the exact nature of Benton interaction is, at present, unclear, it may be that such individuals had control over or preferential access to resources (i.e., materials, mates, labor, and information). These individuals may also have directed Benton exchange and the labor associated with this exchange. The massive "flint workshops" that have been documented within the lower levels (Benton occupations) of the large shell middens in the Pickwick Basin (e.g., Webb and DeJarnette 1942) are certainly suggestive of some form of directed production.

At the regional level, the Benton caches were most likely functioning as markers defining the limits of Benton exchange and served to identify group membership within this exchange system. It is also within the context of regional interaction and integration that the Benton points themselves were serving social functions within the exchange system. As noted earlier, the shift from using locally available materials for the production of Sykes/White Springs points to a reliance on Fort Payne chert (often nonlocal) for the production of Benton points appears to have had no apparent benefits from a techno-functional standpoint. In fact, as Johnson (1994:107) notes, "in most cases Fort Payne chert replaces a reasonably high-quality local material." Given this apparent disregard for economizing strategies, I suggest that the exchange of Fort Payne biface blanks for the production of Benton points was "socially constituted" and served not only to provide individuals with an emblem of membership in some socially differentiated class but also served to maintain the formal alliances that were geared toward risk avoidance (Sassaman 1994).

Conclusions

The Benton Interaction Sphere represents one of the earliest documented exchange systems in North America. Building on the suggestion of Johnson and Brookes (1989) that this exchange system operated at two levels, "ritual and mundane," I have attempted in this paper to investigate the functional roles of Benton points and elaborate bifaces within the Benton exchange system from both a technological and social perspective. While this study is preliminary in scope, I suggest that the primary functional roles of the Benton points and the elaborate bifaces were social rather than technological. Indeed, the reliance on Fort Payne chert, coupled with the scale of production that was necessary to produce the Fort Payne biface blanks that were the focus of the exchange network, suggests that Benton exchange was not cost effective from an economic standpoint. Yet it is "when these labor expenditures are projected to a regional scale of analysis, [that] there emerges a network of exchange patterns involving labor-expensive goods that helped underwrite alliances ensuring cooperation, reducing land-use redundancy, and alleviating the potential for conflict" (Sassaman 1996:73). The need to reduce the environmental and social stresses developing during the late Middle Archaic in the Mid-South necessitated the formation of such alliances, and it is within this context that the Benton points and Benton caches were performing their social functions.

Acknowledgements

I would like to thank Evan Peacock and Samuel Brookes for inviting me to participate in the symposium at the 1995 Mid-South Archaeological Conference in Jackson, at which an earlier version of this paper was presented. A special thanks to Robert Huffman (University of Alabama) and John O'Hear (Mississippi State University) for providing access to the collections used in the analysis, and Jeffery Motz (University of Alabama) for providing the drafting. I also want to thank the Office of Archaeological Services at the University of Alabama, and especially Boyce Driskell, Eugene Futato, and Carey Oakley, for providing the necessary resources and time needed for my thesis research.

4

Lithic Raw Materials and Settlement Patterns in the Western Middle Tennessee Valley Uplands

Eugene M. Futato

Research in the Bear Creek watershed uplands of northwestern Alabama indicated that Middle Archaic to Late Archaic/Gulf Formational PP/K assemblages generally contain high percentages of non-local cherts originating in the Tennessee Valley. This pattern is believed to result from a seasonal upland-riverine settlement pattern. This paper examines contemporaneous assemblages from the Yellow Creek and Mud Creek/Town Creek watersheds, adjacent to Bear Creek on the west and east, respectively. A pattern of lithic raw material use similar to that in the Bear Creek watershed is noted. Moreover, indications are that while there was considerable movement of lithic raw materials between riverine and upland settings, there is very little indication of upland movement between watersheds.

Introduction

This paper considers aspects of the relationship of lithic raw materials and prehistoric settlement patterns in portions of northwest Alabama and adjacent portions of Mississippi (Figure 4.1), ideas first presented at the 12th Mid-South Archaeological Conference (Futato 1991). The ideas explored in this paper developed out of work in the Bear Creek watershed of northwestern Alabama for the Tennessee Valley Authority (Futato 1983a). That report contains an examination of temporal variability in the use of lithic resources for the Cedar Creek and Upper Bear Creek reservoirs. The information for Cedar Creek was subsequently published separately (Futato 1983b). This paper largely follows that publication in the description of the raw material and artifact categories used.

It was noted in the Cedar Creek Reservoir area of the Bear Creek watershed that lithic assemblages contained a great deal of non-local Blue Gray Fort Payne chert that originates in the Tennessee Valley proper. This material comprises some 30–40 percent of the Middle to Late Archaic hafted bifaces. Analysis of the debitage, cores, and preforms indicated that the material was primarily coming into the region as thin bifaces. The Cedar Creek drainage is an area with abundant, good quality local lithic resources, so one is left to wonder why so much non-local chert was being brought in. The answer was believed to lie in the settlement pattern. If, as is posited for the region, the Middle to Late Archaic occupation of these upland areas is part of a seasonal round that includes the valley, then the presence of riverine cherts on these sites primarily as finished tools is considered to represent the curated artifact assemblage brought into the area from the valley. Local cherts were used for refurbishing tool kits during the time of upland habitation and for manufacture of expedient tools for use in the immediate area.

Further support for this model is found in the decline of Blue Gray Fort Payne chert in the Cedar Creek watershed at the end of the Archaic. The presence of a distinct ceramic sequence indicates that the Cedar Creek area was an independent settlement area during the Woodland stage. Beginning with the

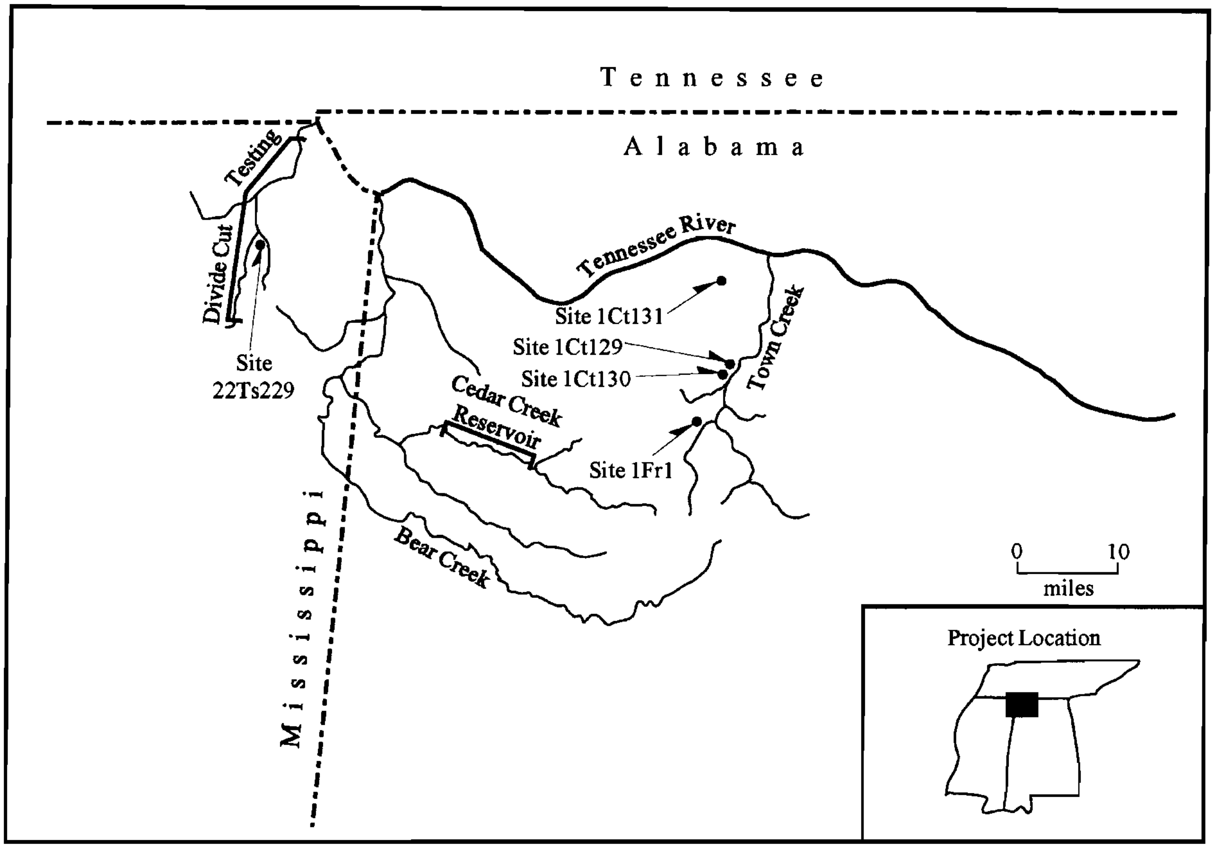

Figure 4.1. Study area, Middle Tennessee Valley Uplands.

Flint Creek type, the presence of Blue Gray Fort Payne in the Cedar Creek watershed declines significantly, generally to less than 15 percent of any assemblage. I believe that this decline is due to a drop in access, as the Woodland settlement system no longer included areas where Fort Payne chert was available.

During this research, I also noted in the Cedar Creek area a conspicuous absence of cherts that originated in the adjacent upland areas to the east and west of Bear Creek: the Town Creek and Yellow Creek drainages, respectively. By a fortunate circumstance of geology, each of these three areas has distinct lithic resources that would stand out in either of the other areas. Thus, the general pattern of movement appeared to result in the transport of cherts from the river valley to the uplands and presumably vice versa, but with little transport of cherts among the upland tributary valley areas. The suggestion of little movement across upland watersheds had interesting implications for later Archaic settlement patterns, but comparative data were needed from the Yellow Creek and Town Creek drainages. This paper provides that comparative data.

Lithic Resources and Availability

Figure 4.2 is an overlay of the study area on a generalized geologic map taken from Sapp and Emplaincourt (1975). As seen in this figure, the Yellow Creek area lies essentially within the Coastal Plain, although the Yellow Creek watershed includes the extreme margin of the Highland Rim, an im-

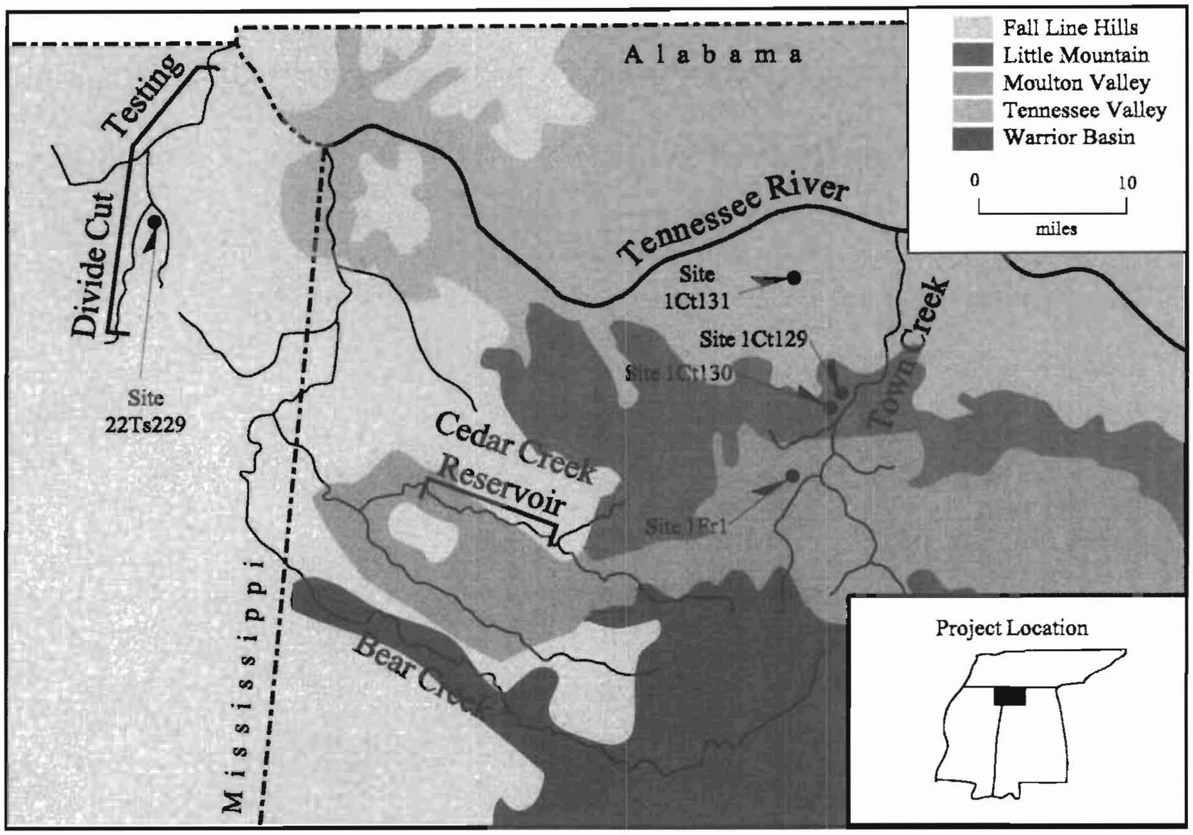

Figure 4.2. Geology of the Middle Tennessee Valley Uplands.

portant source of lithic raw material. The Cedar Creek area lies at the interface of Moulton Valley, part of the Highland Rim, and the Coastal Plain. Moulton Valley is very narrow here and essentially coincides with the alluvial valley of Cedar Creek. Town Creek originates along the north-facing escarpment of the Cumberland Plateau, then flows through Moulton Valley across Little Mountain and into the Tennessee Valley proper. These areas offered a variety of raw materials to their inhabitants. Brief descriptions of these materials are presented below, proceeding generally from west to east. The letter designations in the plate references are to be read from upper left to lower right in the photographs.

Buffalo River Chert (Plate 4.1a–c). Buffalo River is the name given to a tabular or nodular variety of Fort Payne chert that occurs in the vicinity of the Buffalo River in west-central Tennessee. The chert is either light gray or black. Nodular specimens of either color may contain a dense bluish or greenish heart with small brownish to reddish mottles. In stream gravels, Buffalo River chert weathers to a yellowish color, and it is suggested to be the source of much of the yellow chert in the Tuscaloosa Gravel. This chert is probably not a local resource in the study area, but Yellow Creek is nearest the source area and some recognizable Buffalo River chert may be present in the Tuscaloosa Gravel.

Pickwick Chert (Plate 4.2f–g). Pickwick chert is the distinctive, three-colored Fort Payne chert from the vicinity of Pickwick Dam and Savannah, Tennessee. Nodules of Pickwick chert have a red to pink center surrounded by a yellow to tan zone and then a gray to black exterior. Pickwick chert occurs in the upper part of the Fort Payne formation and in the Tuscaloosa Gravels in northeastern Mississippi and perhaps adjacent portions of Alabama. Pickwick chert is a local resource in the Yellow Creek area but is not known from the Tuscaloosa Gravel as far east as Cedar Creek.

Upper and Fossiliferous Fort Payne Cherts (Plate 4.1d–f). Upper Fort Payne chert and Fossiliferous Fort Payne chert occur in the upper part of the formation. This is a tan, cream, or pale gray chert that may contain thin gray banding, small dark fossils, or other inclusions. The dark fossils on a light background often result in a salt-and-pepper appearance. The chert occurs in outcrops in the uplands east of Yellow Creek and was heavily exploited there (Johnson 1981). Upper Fort Payne chert also occurs as hilltop residuum in the Tennessee Valley and may be available near the Town Creek sites on Little Mountain, but it does not occur in the Cedar Creek area.

Blue Gray Fort Payne Chert (Plate 4.1g–i). This is the typical blue gray chert of the Western Middle Tennessee Valley. Blue Gray Fort Payne chert is light gray to dark gray in color with bluish mottles. Although the chert is of very good flaking quality, it is usually distinctly granular. It is also opaque and seldom glossy. These characteristics, along with the distinctive types of mottles, will ordinarily distinguish overlapping colors of Fort Payne and Bangor chert. Blue Gray Fort Payne chert occurs in the lower portion of the formation and does not occur in any of the study areas, but is found in the Tennessee Valley proper north of the Cedar Creek and Town Creek area and to a lesser degree in the Tennessee River valley north of Yellow Creek.

Tuscaloosa Gravel (Plate 4.2a–e). For purposes of this paper, Tuscaloosa gravel includes two chert types. The first of these is a weathered yellow to buff chert that turns pink to red upon heat treatment. Most of this chert appears to have derived originally from the Fort Payne formation. The second element is Camden chert (Marcher and Stearns 1962). Camden chert was originally derived from an Ordovician formation and is the only Ordovician chert in the region. This chert is generally light colored, yellow to white to faintly pink, and turns orangish to pinkish when heated. The distinctive marker for this chert is small veins and inclusions of gray opaline material, most characteristically occurring as filled vugs. Tuscaloosa gravel occurs in the Yellow Creek and Cedar Creek areas but minimally, if at all, in the Town Creek drainage. Whatever the source, however, weathered Fort Payne chert may not be distinguishable from yellow chert in the Tuscaloosa gravel.

Fossiliferous Bangor Chert (Plate 4.2h–i). Fossiliferous Bangor chert is a medium gray to black or, rarely, tan chert containing numerous fossils, mostly small crinoid stems. Due to the large number of fossils, this chert is often of medium to poor quality. Fossiliferous Bangor chert outcrops over a wide area of the Highland Rim, Cumberland Plateau, and Valley and Ridge provinces of Alabama. It occurs in the Cedar Creek Valley and presumably in the Moulton Valley portion of the Town Creek drainage as well.

Little Mountain Bangor Chert (Plate 4.2j–l). Little Mountain chert is characterized by a translucent pale blue or gray color with tan to white streaks or clouds or tan calcareous inclusions. Outcrops of Little Mountain chert have been located along the headwaters of Town Creek. It is not known to occur as far west as the Bear Creek watershed.

Blue Gray Bangor Chert (Plate 4.2j–k). Blue Gray Bangor chert is a variety of Bangor chert that outcrops primarily to the east of the study area, but that may occur in eastern portions of the Town Creek drainage. This is the major variety of Bangor chert found in the Wheeler Lake area. It may be possible to recognize additional regional differences in this chert type. Examples in the vicinity of Flint Creek or Decatur, Alabama, tend to be a little darker and trend to greenish or even olive shades, while that from the Huntsville vicinity tends to be lighter gray and trends toward blue.

The geological setting of the study area thus results in a great variety of locally available raw materials. Although most of these materials are not exclusive to any one of the three upland watersheds, each watershed possesses a different suite of raw materials. The Yellow Creek area has Upper Fort Payne and Fossiliferous Fort Payne chert and what might be termed “enriched” Tuscaloosa gravel, including Yellow chert, Camden chert, Pickwick chert, and perhaps Buffalo River chert. There are additional distinctions of this enriched Tuscaloosa gravel not quantified for this study that include a greater variety of colors, finer texture and higher gloss, and the fact that many of these cherts have been brecciated and resilicified. The Cedar Creek area contains Fossiliferous Bangor chert, and, by contrast, an impoverished Tuscaloosa gravel consisting of Yellow chert and Camden chert only. The Town Creek drainage possesses Fossiliferous Bangor chert, Little Mountain Bangor chert, and possibly easy access to nearby Upper Fort Payne chert and Blue Gray Bangor chert. Upper Fort Payne chert would be most readily available for the Colbert County sites, which are located on Little Mountain, the sandstone cap that sits atop the Fort Payne formation.

The Artifact Sample

The artifact sample used for this paper includes PP/Ks representing the six major Middle Archaic to Late Archaic to Gulf Formational horizons found in northwestern Alabama and adjacent parts of Mississippi. These include the Eva/Morrow Mountain, Sykes/White Springs, Benton, Pickwick/Ledbetter, Little Bear Creek, and Flint Creek clusters, described below. Descriptions of the individual types are as per Cambron and Hulse (1975) and as used in the Cedar Creek report (Futato 1983a).

Eva/Morrow Mountain. The Eva/Morrow Mountain cluster as used in this paper includes the types Eva, Morrow Mountain, Morrow Mountain Rounded Base, and Morrow Mountain Straight Base. It is believed that in the study area this cluster should date from about 5300 B.C. to about 4000 B.C. with components marked by the types Eva I, Eva II, and Morrow Mountain marking successively later segments of this time.

Sykes/White Springs. The Sykes/White Springs cluster includes one combined Sykes/White Springs type. These specimens form a continuum of corner-removed and stemmed forms and may encompass a temporal range from 4500 B.C. to 2000 B.C. The White Springs-like specimens overlap temporally and morphologically with Morrow Mountain and are presumably more common in the earlier portion of this period. The more Sykes-like forms overlap temporally and morphologically with Benton and are probably most common toward the end of the time span.

Benton. The Benton cluster includes the types Benton, disregarding the assorted varieties sometimes used, and Buzzard Roost Creek. A fair number of Benton dates are available for this region, and they cluster from about 3700 B.C. to just prior to 3000 B.C.

Ledbetter. The Ledbetter and Pickwick types are assigned to the Ledbetter cluster for this analysis. The Ledbetter cluster types occur between Benton and Little Bear Creek and should occupy most of the third millennium B.C. A date of 2240±70 was obtained for Feature 2 at site 1-Ma-240 in Madison County, Alabama, just east of the study area (Gilliland 1995). Feature 2 contained one Ledbetter and one Elora PP/K. Within the study area, Stratum V at site 1-Lu-342 has recently been dated to 2850±140 B.C. (Meeks 1997). Limited excavations at this site yielded one Little Bear Creek and one Ledbetter PP/K from Stratum V.

Little Bear Creek. This cluster includes a broadly defined Little Bear Creek type that subsumes other long, narrow, stemmed types such as Mulberry Creek, distinguished primarily by blade morphology. Little Bear Creek dates of 1650±180 B.C. and 1070±75 B.C. were obtained at site 1-Fr-520 in the Bear Creek watershed (Oakley and Futato 1975).

Flint Creek. The Flint Creek cluster contains only the Flint Creek type, a small-to-medium, expanded stemmed form often exhibiting fine retouch flaking or minute serration of the blade edges. Assemblages characterized by the Flint Creek type are associated with Gulf Formational occupations, particularly Alexander. The type is also associated with the latest preceramic occupations of the area, and a smaller variety occurs until the latter Middle Woodland.

Three artifact samples were used for this paper. Data for 729 specimens from the Cedar Creek area were taken from the published information on several sites in the Cedar Creek Reservoir (Futato 1983a). The Yellow Creek area data came from analysis by the author of 426 specimens recovered during test excavations at several sites in the Divide-Cut Section of the Tennessee-Tombigbee Waterway (O'Hear et al. 1985) and from excavations at the Brinkley site, 22-Ts-729 (Otinger et al. 1982). The sample for the Town Creek drainage, also analyzed by the author, included 350 specimens from excavations at four sites in the Mud Creek–Town Creek drainage, sites 1-Fr-1, 1-Ct-129, 1-Ct-130, and 1-Ct-131 (Brock and Clayton 1966). The results of the analysis are presented in Table 4.1 and are shown for PP/K clusters in Figures 4.3–4.8.

Discussion

Given that the purpose of this paper is to examine the use of lithic materials in upland settings, we need to clarify what is meant here by the term uplands. The settlement-subsistence pattern for this region has long been taken to be based on an upland-lowland seasonal round, but there is a great deal of inconsistency in what

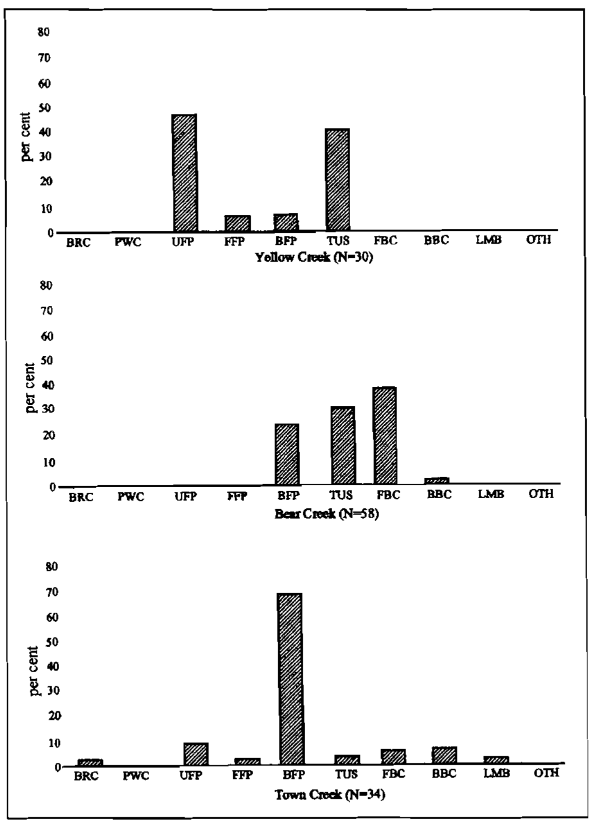

Figure 4.3. Raw materials of Eva/Morrow Mountain PP/Ks. BRC=Buffalo River Chert; PWC=Pickwick Chert; UFP= Upper and Fossiliferous Fort Payne Cherts; BFP=Blue Gray Fort Payne Chert; TUS=Tuscaloosa Gravel; FBC=Fossiliferous Bangor Chert; BBC=Blue Grey Bangor Chert; LMB=Little Mountain Bangor Chert.

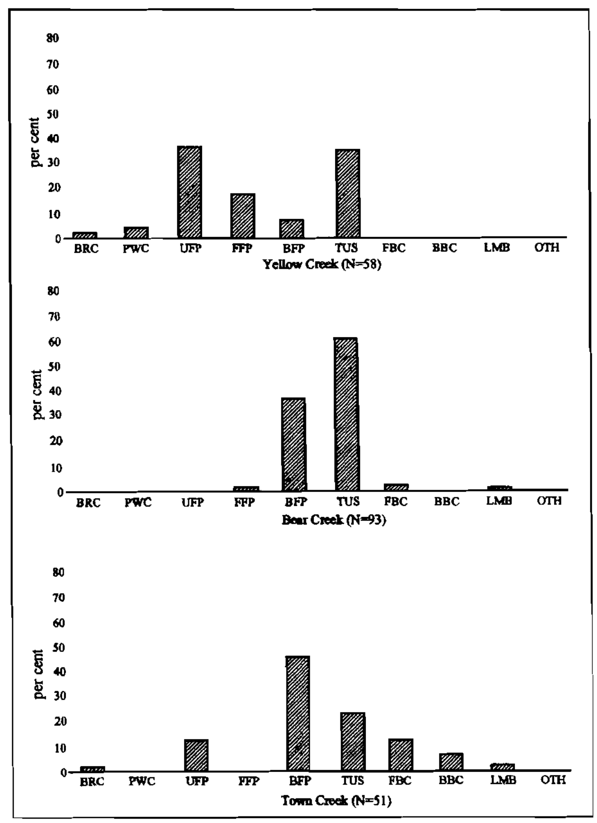

Figure 4.4. Raw materials of Sykes/White Springs PP/Ks. BRC=Buffalo River Chert; PWC=Pickwick Chert; UFP= Upper and Fossiliferous Fort Payne Cherts; BFP=Blue Gray Fort Payne Chert; TUS=Tuscaloosa Gravel; FBC=Fossiliferous Bangor Chert; BBC=Blue Grey Bangor Chert; LMB=Little Mountain Bangor Chert.

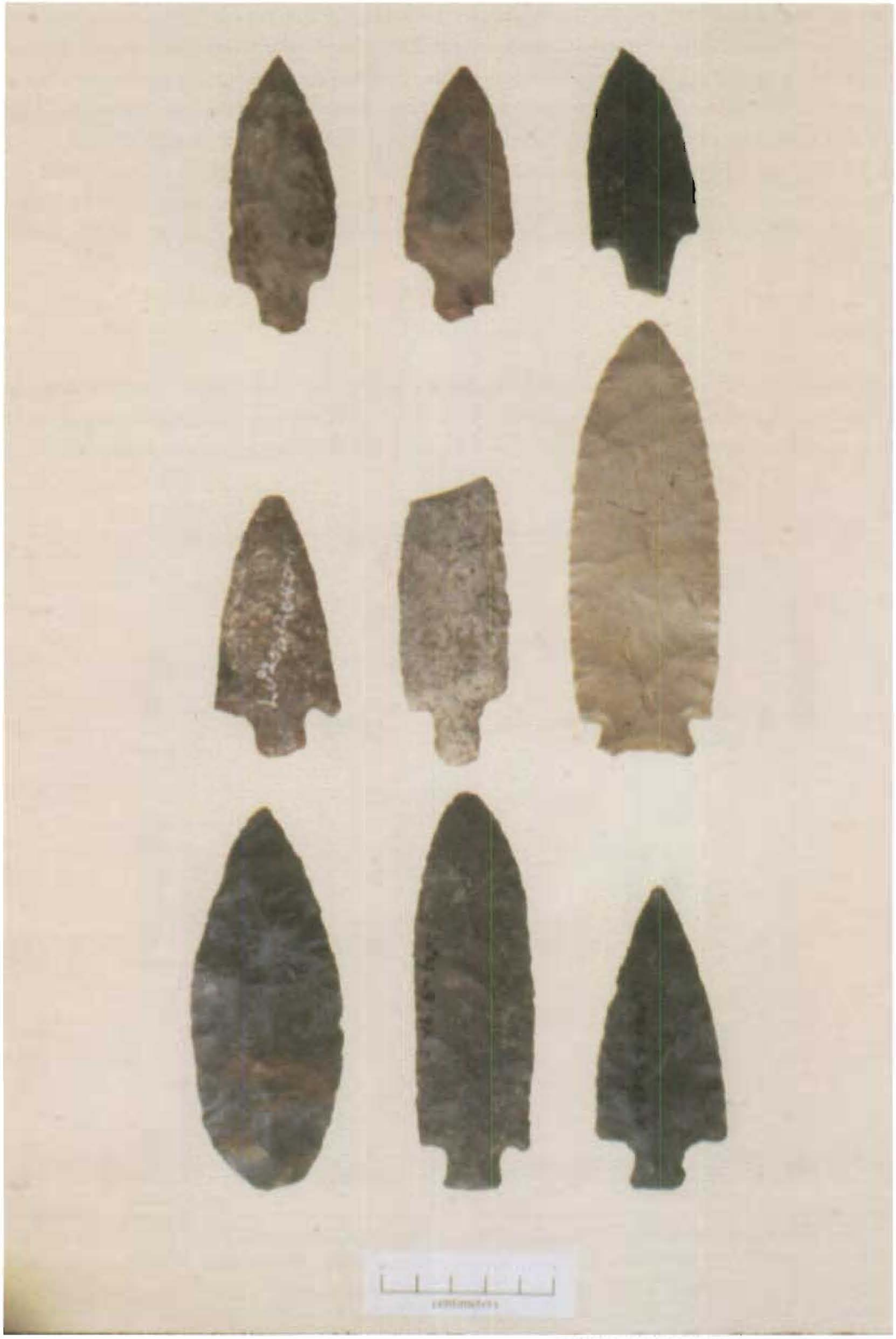

Plate 4.1. Raw materials of the Middle Tennessee Valley Uplands. Examples should be read a–i from left to right and top to bottom.

Plate 4.2. Additional raw materials of the Middle Tennessee Valley Uplands. Examples should be read a–n from left to right and top to bottom.

Table 4.1. Chert types of PP/Ks, middle Tennessee Valley upland sites.

	CHERT TYPE										
	"Buffalo River" no/%	Pickwick no/%	"Upper Ft. Payne" no/%	"Foss. Ft. Payne" no/%	"Blue Gray Ft. Payne" no/%	"Tuscaloosa Gravel" no/%	"Foss. Bangor" no/%	"Blue Gray Bangor" no/%	"Little Mtn. Bangor" no/%	Other no/%	TOTAL no/%
YELLOW CREEK:											
Flint Creek	—	6/11.5	17/32.7	3/5.8	5/9.6	19/36.5	1/1.9	—	—	1/1.9A	52/99.9
Little Bear Creek	1/0.9	2/1.8	22/19.8	7/6.3	42/37.8	33/29.7	—	1/0.9	—	3/2.7B	111/99.9
Pickwick/Ledbetter	1/1.3	6/7.5	10/12.5	1/1.3	31/38.8	31/38.8	—	—	—	—	80/100.2
Benton	2/2.1	—	17/17.9	7/7.4	47/49.5	21/22.1	—	1/1.1	—	—	95/100.1
Sykes/White Springs	1/1.7	2/3.5	21/36.2	10/17.2	4/6.9	20/34.5	—	—	—	—	58/100.0
Eva/Morrow Mountain	—	—	14/46.7	2/6.7	2/6.7	12/40.0	—	—	—	—	30/100.1
TOTAL:	5/1.2	16/3.8	101/23.7	30/7.0	131/30.8	136/31.9	1/0.2	2/0.5	—	4/0.9	426/100.0
CEDAR CREEK:											
Flint Creek	—	1/0.8	—	—	18/15.0	87/72.5	12/10.0	2/1.7	—	—	120/100.0
Little Bear Creek	—	1/0.4	—	2/0.9	78/34.7	63/28.0	68/30.2	4/1.8	3/1.3	6/2.7C	225/100.0
Pickwick/Ledbetter	—	3/3.4	—	—	30/34.1	17/19.3	36/40.9	1/1.1	—	1/1.1D	88/99.9
Benton	2/1.0	6/2.9	—	—	144/69.2	50/24.0	2/1.0	4/1.9	—	—	208/100.0
Sykes/White Springs	—	—	—	1/1.1	33/35.5	55/60.2	2/2.2	—	1/1.1	—	93/100.01
Eva/Morrow Mountain	—	—	—	—	14/24.1	21/36.2	22/38.0	1/1.7	—	—	58/100.0
TOTAL:	2/0.3	11/1.4	—	3/0.4	317/40.0	294/37.1	142/17.9	12/1.5	4/0.5	7/0.9	792/100.0
TOWN CREEK:											
Flint Creek	—	—	—	—	4/20.0	4/20.0	7/35.0	3/15.0	—	2/10.0E	20/100.0
Little Bear Creek	—	—	4/4.3	1/1.1	54/57.5	7/7.5	9/9.6	15/16.0	3/3.2	1/1.1F	94/100.3
Pickwick/Ledbetter	—	—	3/4.2	—	54/75.0	4/5.6	—	7/9.7	3/4.2	1/1.4G	72/100.1
Benton	3/3.8	—	3/3.8	—	69/87.3	2/2.5	—	1/1.3	1/1.3	—	79/100.0
Sykes/White Springs	1/2.0	—	6/11.8	—	23/45.1	11/21.6	6/11.8	3/5.9	1/2.0	—	51/100.2
Eva/Morrow Mountain	1/2.9	—	3/8.8	1/2.9	23/67.7	1/2.9	2/5.9	2/5.9	1/2.9	—	34/99.9
TOTAL:	5/1.4	—	19/5.4	2/0.6	227/64.9	29/8.3	24/6.9	31/8.9	9/2.6	4/1.1	350/100.1

Notes:
A. 1 quartzite
B. 1 quartzite, 1 Tallahatta quartzite, 1 Novaculite
C. 5 Tallahatta quartzite, 1 Unidentified
D. 1 Tallahatta quartzite
E. 1 Tallahatta quartzite, 1 Unidentified
F. 1 Gray Banded Normandy
G. 1 Gray Banded Normandy

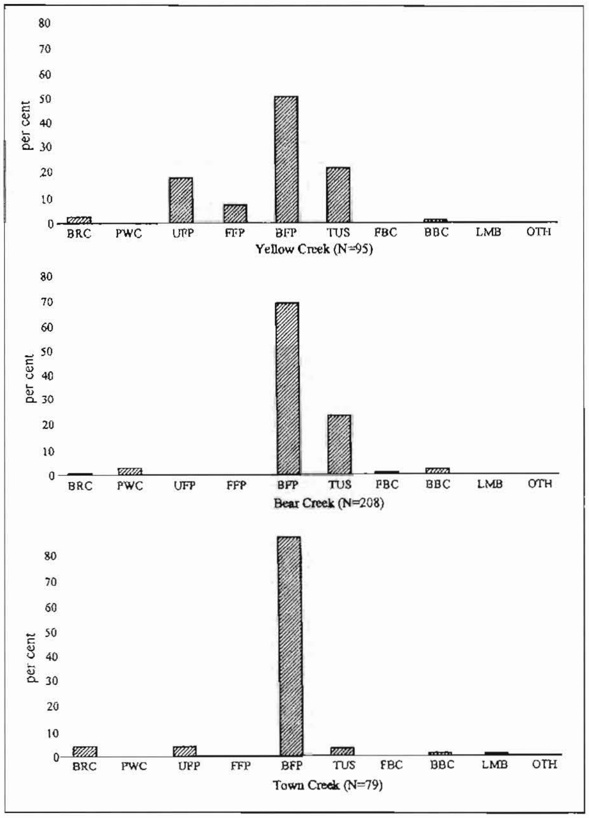

Figure 4.5. Raw materials of Benton PP/Ks. BRC=Buffalo River Chert; PWC=Pickwick Chert; UFP=Upper and Fossiliferous Fort Payne Cherts; BFP=Blue Gray Fort Payne Chert; TUS=Tuscaloosa Gravel; FBC=Fossiliferous Bangor Chert; BBC=Blue Grey Bangor Chert; LMB=Little Mountain Bangor Chert.

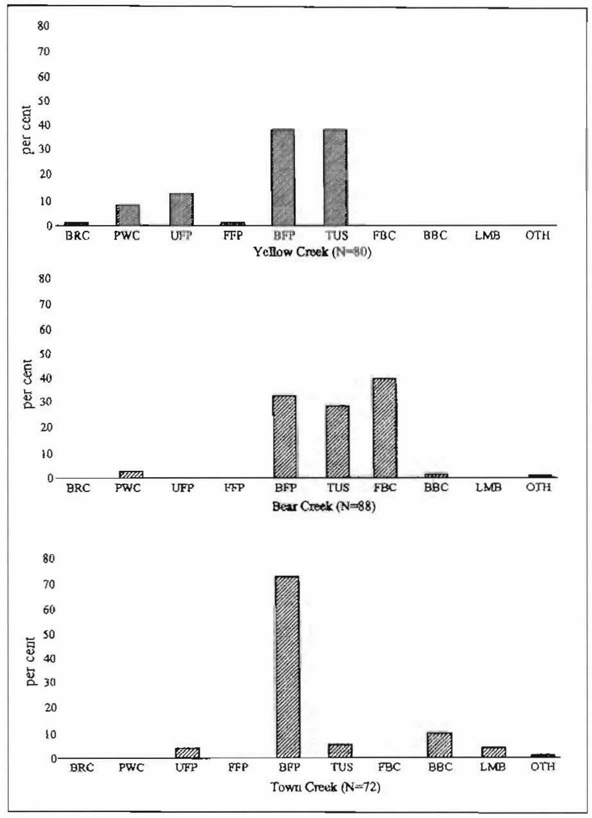

Figure 4.6. Raw materials of Ledbetter/Pickwick PP/Ks. BRC=Buffalo River Chert; PWC=Pickwick Chert; UFP= Upper and Fossiliferous Fort Payne Cherts; BFP=Blue Gray Fort Payne Chert; TUS=Tuscaloosa Gravel; FBC=Fossiliferous Bangor Chert; BBC=Blue Grey Bangor Chert; LMB=Little Mountain Bangor Chert.

is considered to be the uplands and what constitutes the lowlands. Many authors define these terms narrowly. Johnson, for example, in his work at Colbert Ferry Park, considers that area to represent the uplands (Johnson 1985; Johnson and Broyles 1985). From the standpoint of geomorphology, this is correct. Nevertheless, Johnson's survey area is on the edge of the upland bluff directly overlooking the narrow, incised alluvial valley of the Tennessee River. At no point is the river here more than about 500 meters from this bluff edge; the river is often much closer. Goldmann-Finn (1995:1) took the same view in her survey, "north and south of the Tennessee River, into the upland zone." This survey covered areas farther from the river than Johnson's, but still extending from the upland bluff to about five km from the bluff.

In the examination of broad settlement patterns, and in consideration of the seasonal round model, I prefer to take a broader view of the lowlands. I would exclude from the definition of uplands any areas near enough to the alluvial valley to have been exploited conveniently by groups resident on riverine sites. Thus, to me, Johnson's and Goldmann-Finn's survey areas lie within the likely exploitation zone of riverine settlements, and I would not consider these areas uplands for this discussion. Exactly how this near-lowland zone might fit into the overall settlement pattern opens up another whole set of questions, but they are beyond the point of this present paper.

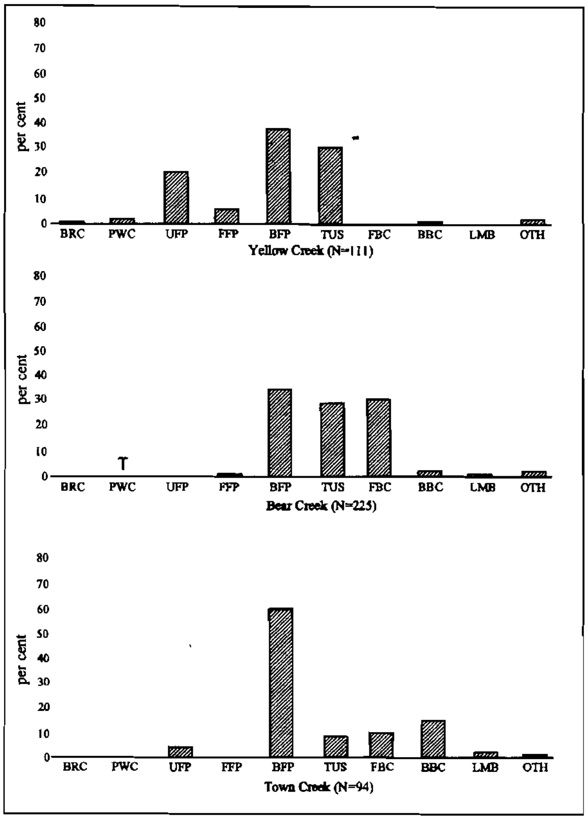

Figure 4.7. Raw materials of Little Bear Creek PP/Ks. BRC=Buffalo River Chert; PWC=Pickwick Chert; UFP= Upper and Fossiliferous Fort Payne Cherts; BFP=Blue Gray Fort Payne Chert; TUS=Tuscaloosa Gravel; FBC=Fossiliferous Bangor Chert; BBC=Blue Grey Bangor Chert; LMB=Little Mountain Bangor Chert.

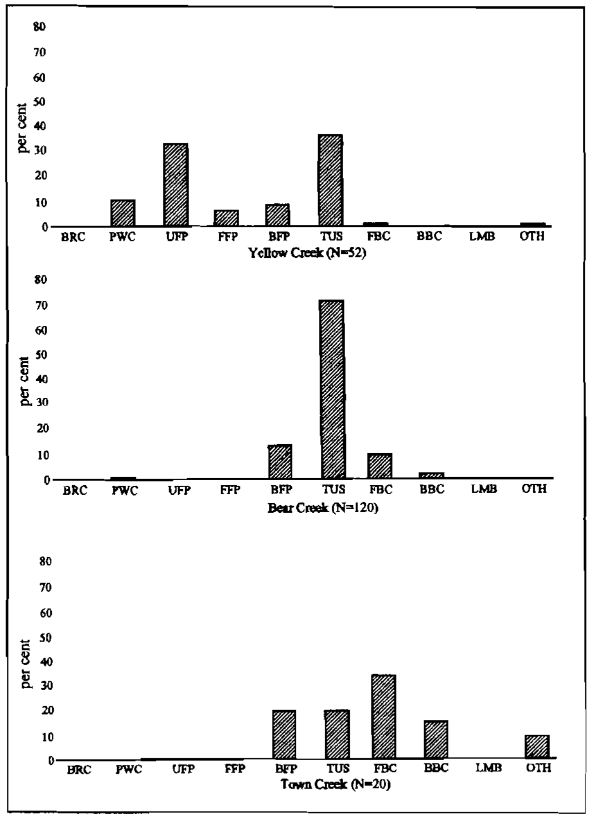

Figure 4.8. Raw materials of Flint Creek PP/Ks. BRC=Buffalo River Chert; PWC=Pickwick Chert; UFP=Upper and Fossiliferous Fort Payne Cherts; BFP=Blue Gray Fort Payne Chert; TUS=Tuscaloosa Gravel; FBC=Fossiliferous Bangor Chert; BBC=Blue Grey Bangor Chert; LMB=Little Mountain Bangor Chert.

If we accept for now that the Cedar Creek settlements are part of the Tennessee River valley seasonal round, then that region typifies what I would consider the uplands. These sites lie over 20 km overland from the river and much farther by water. This distance is great enough so that one would not expect this area to have been an integral part of a riverine-based exploitation zone. By this criterion, site 1-Ct-131 in this present paper falls into that middle ground of near-riverine settings. This should not have a major effect on this paper, however. Our present focus is on the distribution of lithic raw materials from one watershed to the next, not on the upland versus lowland distribution. Also, only 31 of the 350 PP/Ks in the Town Creek sample are from site 1-Ct-131. None of the Yellow Creek sample comes from sites nearer the river than the general vicinity of Burnsville, some 15 km or more from the nearest point on the river and about 20 km from the mouth of Yellow Creek.

As indicated in Table 4.1, there is little evidence here for the transport across upland watersheds. Considering the data, with slightly rounded numbers, Buffalo River chert, which may be non-local to the entire study area, makes up no more than 1.5 percent of any assemblage but is found in small amounts in each watershed. It is interesting to note that Buffalo River chert is primarily confined to Middle Archaic PP/K forms, particularly Benton, when there is evidence for a wide spread exchange network and interaction (see Meeks, this volume, and Brookes, this volume). Pickwick chert, confined to the westernmost portions of the study area, makes up about four percent of the Yellow Creek specimens, 1.5 percent of the Cedar Creek specimens (again mostly as Benton PP/Ks), and did not occur in the Town Creek sample. Upper Fort Payne chert and Fossiliferous Fort Payne chert, which are widely available in the Yellow Creek area, make up almost one-fourth of the assemblage there. These chert types make up less than half a percent in the Cedar Creek sample, where they are not locally available. The Town Creek sites are near potential sources of these cherts, which make up six percent of that assemblage. Blue Gray Fort Payne chert does not outcrop in any of the study areas but is an important constituent of all the assemblages, making up from 31 to 65 percent of the assemblages. Tuscaloosa gravel outcrops extensively in the Yellow Creek and Cedar Creek areas and comprises 32 percent and 37 percent, respectively, of those assemblages. Tuscaloosa gravel, or indistinguishable weathered Fort Payne chert, makes up just over eight percent of the Town Creek materials, which occur along the eastern edge of the source area. Fossiliferous Bangor chert comprises a fraction of one percent in Yellow Creek, 18 percent in Cedar Creek where it is locally available, and seven percent in Town Creek, where it may be available. The remaining Bangor cherts, Blue Gray and Little Mountain, do not occur in either Yellow Creek or Cedar Creek and comprise one-half of one percent and two percent of these respective assemblages. Together, these chert types comprise 12.5 percent of the Town Creek sample.

To summarize each watershed, the Yellow Creek area sample consists primarily of Blue Gray Fort Payne chert, Tuscaloosa gravel, and Upper/Fossiliferous Fort Payne cherts. Bangor chert makes up less than one percent of the total, hardly more than such exotics as novaculite and Tallahatta quartzite. The Cedar Creek sample consists primarily of Blue Gray Fort Payne chert, Tuscaloosa gravel, and Fossiliferous Bangor chert. The other Fort Payne cherts together and other Bangor cherts together, all non-local, make up about two percent each. The Town Creek watershed sample shows the highest reliance on Blue Gray Fort Payne chert, which dominates all other resource types. Bangor cherts, locally available or probably so, make up just under 18 percent. The Tuscaloosa gravel and other Fort Payne cherts here are more problematic. Together they comprise about 16 percent of the sample, but the question is whether or not they were local resources. I suspect that they were. Geologically, these chert types can be expected to occur near the Town Creek study area. There is also some circumstantial evidence that they represent some local sources. First, Pickwick chert does not occur in the Town Creek area, and there is no Pickwick chert in the sample. Also, Upper Fort Payne and Fossiliferous Fort Payne cherts are hardly noticeable in the Cedar Creek materials. If these cherts were being brought into Town Creek from the west, it might be reasonable for them to occur in the intervening Cedar Creek area.

Altogether, there appears to be little evidence for the transport of lithic resources from any one of these three watersheds to either of the others. This pattern cannot be attributed to simple reliance on local materials, however, given the prominence of Blue Gray Fort Payne chert that occurs in none of the study areas. There is indeed considerable evidence for the transport of lithic resources, but the direction is from the river to the uplands, not across the uplands.

How then do we interpret this pattern? With regard to the Blue Gray Fort Payne chert, no utilitarian explanation comes to hand. Local lithic resources in Yellow Creek and Cedar Creek are abundant and of good quality. The total lithic resources of Town Creek are less well known, but there is no reason to think that it is an area of impoverished resources. Social factors may play some role, particularly in regard to the Benton exchange network (see Meeks, this volume, and Brookes, this volume), but it would be difficult to justify 30 to 60 percent usage of non-local chert on this basis alone. Technology, such as the Middle Archaic emphasis on large bifaces, also does not provide a clear answer. The local materials, again in Yellow Creek and Cedar Creek, produced fairly large bifaces.

The answer appears to lie in the settlement pattern. Elsewhere, I have attributed the presence of Blue Gray Fort Payne chert in the Cedar Creek area to the seasonal movement of riverine populations into the area (Futato 1983a, 1983b). All evidence indicates that this chert was being brought into the area as finished tools. Cores and preforms and large flakes of this material are rare. Moreover, the percentage of Blue Gray Fort Payne chert in Woodland assemblages here is small. Distinctive ceramic sequences and other evidence indicates that the Woodland occupation of Cedar Creek was separate from that of the Tennessee River area. There is no reason at this time to believe that the three watersheds would have fundamentally different settlement-subsistence systems at any one time, so a seasonal round may provide the best explanation for the presence of high quantities of Blue Gray Fort Payne chert in each watershed.

The data for the various upland resources further suggest that population movements across these upland watersheds were not extensive. Certainly, we are not in a position to go so far as to state, for example, that there is a one-to-one correspondence between these watersheds and band territories, but there does seem to have been some sort of settlement boundary separating these areas.

Thanks to a possibly unique set of environmental circumstances, the northeast Mississippi–northwest Alabama region has the potential to teach us a lot about the nature of human settlement there. Furthermore, if we are able to detect settlement area boundaries here and isolate separate systems, we have a laboratory in which to study many aspects of interaction between and among the groups. As just one example, we might be able to investigate the posited role of the large shell mounds as congregation sites for Middle Archaic to Late Archaic macrobands by determining whether the chert assemblages on the large shell middens represent multiple upland areas.

Research into this topic is just beginning. The greatest present need is for complementary data from riverine sites. Data from the large shell middens are particularly needed. Fortunately, this work is now underway. Analysis of the chipped stone assemblages from selected riverine sites is being conducted with the support of the Tennessee Valley Authority. This work should result in continued clarification of prehistoric settlement systems in the Western Middle Tennessee Valley.

Curation Note

All analyzed specimens from the Yellow Creek area are curated at the Cobb Institute of Archaeology, Mississippi State University. All other materials are curated at the Office of Archaeological Services, University of Alabama Museums.

5

Swamp Exchange and the Walled Mart: Poverty Point's Rock Business

Jon L. Gibson

Poverty Point culture can be characterized by reference to long-distance exchange. This paper briefly reviews prior suggestions of the nature of that exchange and argues that exotic raw materials were brought into Poverty Point culture sites, especially the Poverty Point site itself, as a general domestic supply rather than as part of a directional system or for differential access by socially distinct segments of the population. Acquisition routes for different raw materials and the organizational basis for acquisition are discussed.

The Materials of Exchange

Much of what the Poverty Point archaeological culture is all about has to do with exchange, long-distance exchange. Large quantities of rocks from throughout the interior Southeast and Midwest were delivered to the Poverty Point site in the Lower Mississippi Valley (Figure 5.1): novaculite, magnetite,

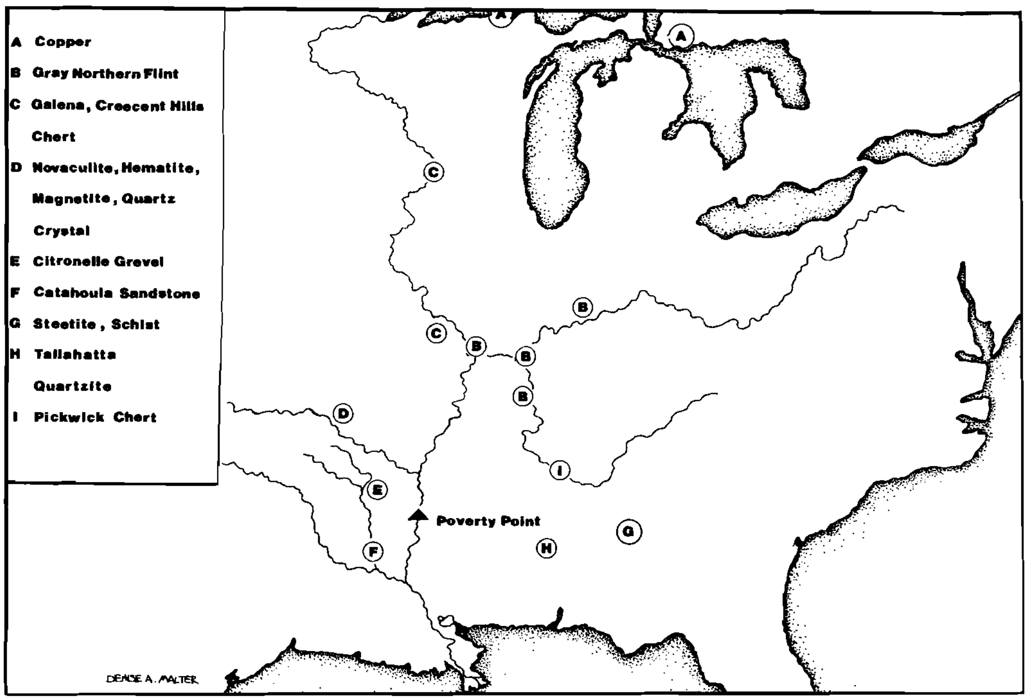

Figure 5.1. Source areas for Poverty Point's exchange materials.

hematite, crystal quartz, and other materials from the Ouachita Mountains in central and western Arkansas; Crescent Hills chert and galena from the Ozark Rim in eastern Missouri; Mill Creek and Dongola/Cobden cherts and fluorite from the Shawnee Hills in southern Illinois; Wyandotte and Harrodsburg flints from the Knobs region of northern Kentucky–southern Indiana; Fort Payne, Dover, Camden, and Pickwick cherts, phyllite, and schist from along the Tennessee River from its junction with the Ohio to the Ridge and Valley province near the common corner of Alabama, Georgia, and Tennessee; Tallahatta quartzite from western Alabama and eastern Mississippi; soapstone and greenstone from the piedmont sections of Georgia, Alabama, and South Carolina; copper from the Great Lakes; galena from the common corner of Iowa, Wisconsin, and Illinois (Conn 1976; Ford and Webb 1956:125, Figure 45; Gibson 1994a; Jeter and Futato 1994; Jeter and Jackson 1994; Lasley 1983; Lehmann 1982:16; Smith 1976; Walthall et al. 1982). There is even a little obsidian from out West somewhere (Richard Hughes, personal communication, 1989). Most materials, especially the cherts and flints, have been attributed to source on the basis of expert identification, but sources for soapstone, galena, copper, hematite, and magnetite have been identified by chemical analysis (Lasley 1983; Anthony Simon, personal communication, 1984; Smith 1976:Tables 1–2; Walthall et al. 1982).

The General Character of Exchange

Several things stand out about Poverty Point exchange. First, volume was heavy. Tons and tons of rocks were imported, especially to the Poverty Point site itself. Based on weight and density figures from excavations, I estimate that Poverty Point's artificial rings alone incorporate around 71 metric tons of exotic exchange materials (Gibson 1994a:160), and long-distance exchange was at a low ebb during moments of active construction, compared to immediately before and after. Second, exotic materials underwent some reduction before arriving at Poverty Point. Third, exchange materials were consumed mainly, if not entirely, in the domestic sector, or at least we have trouble identifying anything that might be strictly sacred, except for small carved stone zoomorphs (Gibson 1995; Webb 1971). And fourth, nothing of identifiable Poverty Point origin reached the continental interior, where exotic exchange materials originated.

The enormity of domestic consumption contrasts markedly with both earlier Archaic and later Hopewellian exchange systems, which focused on the ritual use and exchange of specialized objects, often made of exotic materials (Brose 1979a, 1994; Gibson 1994a:164–167; Goad 1980a; Jefferies 1979; Johnson 1994; Johnson and Brookes 1988; Lafferty 1994; Marquardt 1985; Seeman 1979; Smith 1979; Walthall 1979; Winters 1968; Wright and Zeder 1977). After studying the situation for a long time, it has become apparent to me that materials were circulated in Poverty Point's immediate hinterland (within about 30 km of the Poverty Point site) without much regard for social standing (Gibson and Griffing 1994:233–242); or rather I no longer find persuasive evidence that exotic exchange materials were restricted to personages or ceremonial contexts that would suggest formalized social inequalities.

In a previous lifetime, I thought such inequalities preordained which Poverty Point sites got the most trade goods (Gibson 1979, 1980, 1983). I envisioned Poverty Point exchange as a directional system (Gibson 1983:28–33) wherein most trade materials gravitated to important places, places that were important because the people who lived there were important, and I considered Poverty Point the most important of the important places. Nowadays, I don't think the situation is that straightforward.

Interregional Dimensions and Operations

There is no question that the Poverty Point site is unique, but none of the other Poverty Point components are radically different, at least not in terms of traditional status-differentiating indicators (Peebles and Kus 1977). Oh, a few have earthworks, but most don't. Some are large, some small, but site size alone is not sufficient reason to deem big sites more socially or economically important than small ones (cf. Gibson 1980; Gibson and Griffing 1994:234–236). Simply having higher head counts could have meant more trade materials, and we don't have the data to tell whether some sites have higher per-head quantities, which is really the stuff of social inequality (Renfrew 1977).

Jay Johnson (1980) tried to tell us this more than a decade ago when he waved his statistical wand and, abracadabra, caused the distribution of some exchange rocks in the Yazoo Basin to fall into a down-the-line, not directional, pattern. At the time, most of us thought Jay's wand was a wee bit crooked, or else we just presumed that the Yazoo pattern was unique and unlike the pattern on the other side of the Mississippi River, where some sites showed stronger central-place tendencies for certain kinds of trade materials than other sites (Brasher 1973; Gibson 1973, 1980). When these tendencies were thrown in with site size and presence or absence of earthworks, a settlement hierarchy materialized (Gibson 1974, 1980:325; Kidder 1991:43–46; Webb 1982:9), and that was all many of us chiefdom zealots needed back then to sing the praises of directional exchange, redistribution, and social ranking—the makings of a chiefdom.

We still have little inkling how exotic materials were moved across the hundreds of kilometers separating sources and consumers. We presume exchange was responsible (Gibson 1980; Walthall et al. 1982; Winters 1968:218–219) but are frustrated by the lack of anything of recognizable Poverty Point origin in the bedrock areas where raw materials originated. We talk about perishables and ideas going up North in exchange for rocks, but how can we trace the untraceable? We talk about commercial trade fairs and widespread interaction fostering intergroup alliances but fail to weigh the consequences of the long distances involved.

The Poverty Point site was 260 straight-line kilometers (slk) away from its nearest major foreign rock-supply area in the Ouachita Mountains; more than 500 slk from the Dover flint outcrops on the Tennessee River; 600 slk from the closest soapstone sources in eastern Alabama; and 650 slk from the Ozark Rim flint and galena quarries, just to mention a few places where Poverty Point people got their rocks. You can figure more than twice these distances (but half the time) by water, which was probably the main avenue of travel. These places were too far away to merely hop over for supper or a black drink, spend a night or two with friends, or to depend on when larders got low or neighbors got uppity.

Alliances, fairs, and other intergroup interactions that promoted mutual economic aid or defense had to be geographically localized in order to work. To those who say that living too close together made every group susceptible to the same local economic downturns and therefore incapable of helping troubled neighbors, I would ask what good it is to call for help and have your allies be too far away to hear. For example, getting help from possible trade partners and allies living around the Missouri River mouth (the source of Crescent Hills flint and galena) would have taken two months; from Ouachita Mountain allies, where novaculite, magnetite, hematite, and other metamorphic rocks derived, at least a month. These estimates are based on canoe-travel rates of Iberville's *coureurs* in 1699–1700, who managed seven leagues per day going up the Mississippi River and twice that coming down (McWilliams 1981:75). Peacock (personal communication, 1996) reminds me that there is no direct water link with Tallahatta country, and I don't expect aid to have arrived any quicker overland than by water. A month or two is a long time to wait when you're hungry. So, I don't envision mutual aid alliances being forged between Poverty Point and peoples living in the outcrop areas. The only help I see Poverty Point getting was from its own hinterland, the primary consumption zone, where exchange was at its fullest.

The question remains: how did exotic raw materials get into the hands of Poverty Point peoples and their nearest neighbors? Brose's (1979b:209) idea of "seried [sic], overlapping intraregional community-to-community" transactions better explains why Poverty Point trade goods didn't reach rock country, but not why such large quantities of midwestern and midsouthern raw materials reached Poverty Point country without leaving traces of their passage. Might Poverty Point people have journeyed to outcrops and collected rocks themselves? Clarence Webb thought so (Ford and Webb 1956:126). When you figure it, only a dozen or so medium-size canoes and a good current were required to deliver a hundred metric tons of rocks, which is close to the total that wound up at Poverty Point. Besides not having to fool around with intermediaries, Poverty Point entrepreneurs would have needed only a couple of trips to get the rocks home, one on the Arkansas River and a more roundabout excursion on the Mississippi, Ohio, and Tennessee rivers—all outcrop areas and deposits were on or near these interconnected waterways.

But I am not advocating direct acquisition of foreign materials. There are too many other things involved, which makes delivery more like a system than an event. But the point is this: getting rocks to Poverty Point might have taken such a short time (a few months) and so few people that little residue was left *en route* to mark its operation, that is, outside the primary consumption zone.

Local Exchange Structure and Operation

In the primary consumption zone, exchange reached its fullest expression. Here, evidence of exchange is a primary criterion for identifying Poverty Point components and judging contemporaneity. Here lies the Poverty Point site and more than 30 known Poverty Point components. Here, exotic exchange materials make up between 25 and 80 percent of the flint resources from individual components (percentages based on frequencies, not weight: Gibson and Griffing 1994:Table 4). A buffer zone, scores of kilometers wide, surrounds this trade circle (Kidder 1991; Webb 1982).

Exchange in the primary consumption zone was far from being *ad hoc* or informal. The Poverty Point site rules that out. Poverty Point was *the* trade center, the primary destination for incoming exotic materials. Edwin Jackson (1991; Jeter and Jackson 1994) thinks it was a fairgrounds, where people from near and far got together to swap goods and then went away until time for the next gathering. I don't doubt Poverty Point had its share of visitors and that trading went on, but it was more than a temporary gathering place, much more. It was a place of residence and ceremony (Figure 5.2).

What evidence do we have for this? For one thing, there is too much residual lithic material at Poverty Point for it to have been a trade fair, even one staged year after year. Although three or four hundred annual fairs could have been held during the indicated life of the site (1730–1350 calibrated B.C.; Gibson 1992) and conceivably resulted in a palimpsest of a hundred metric tons or so of stone garbage over the long term, there is too great a discrepancy between the amount of residue at Poverty Point and at small surrounding sites, where fairgoers presumably lived and worked most of the year. It doesn't make sense to me that folks who lived in a rock-poor land and who went to a trade fair to get their rocks would then turn right around and leave most of them behind when they departed for home, sinful waste notwithstanding. Although hard figures are not available, I wouldn't be surprised if all but a few hundred kilograms of exotic materials that made it into Poverty Point's primary consumption zone stayed at the Poverty Point site.

For another thing, the lion's share of exotic materials at Poverty Point consists of debitage and broken tools, which we expect to be thrown away. But there are also thousands and thousands of whole stone tools, preforms, recycled tools—tools of all kinds, made of all manner of raw material, local and exotic, and representing all trajectory stages (Webb 1982). These are implements of work, routine work, maintenance work, full-cycle work beginning with the making and ending with the breaking of tools. And the tools are the same kinds as those used at surrounding residential components (Gibson 1996;

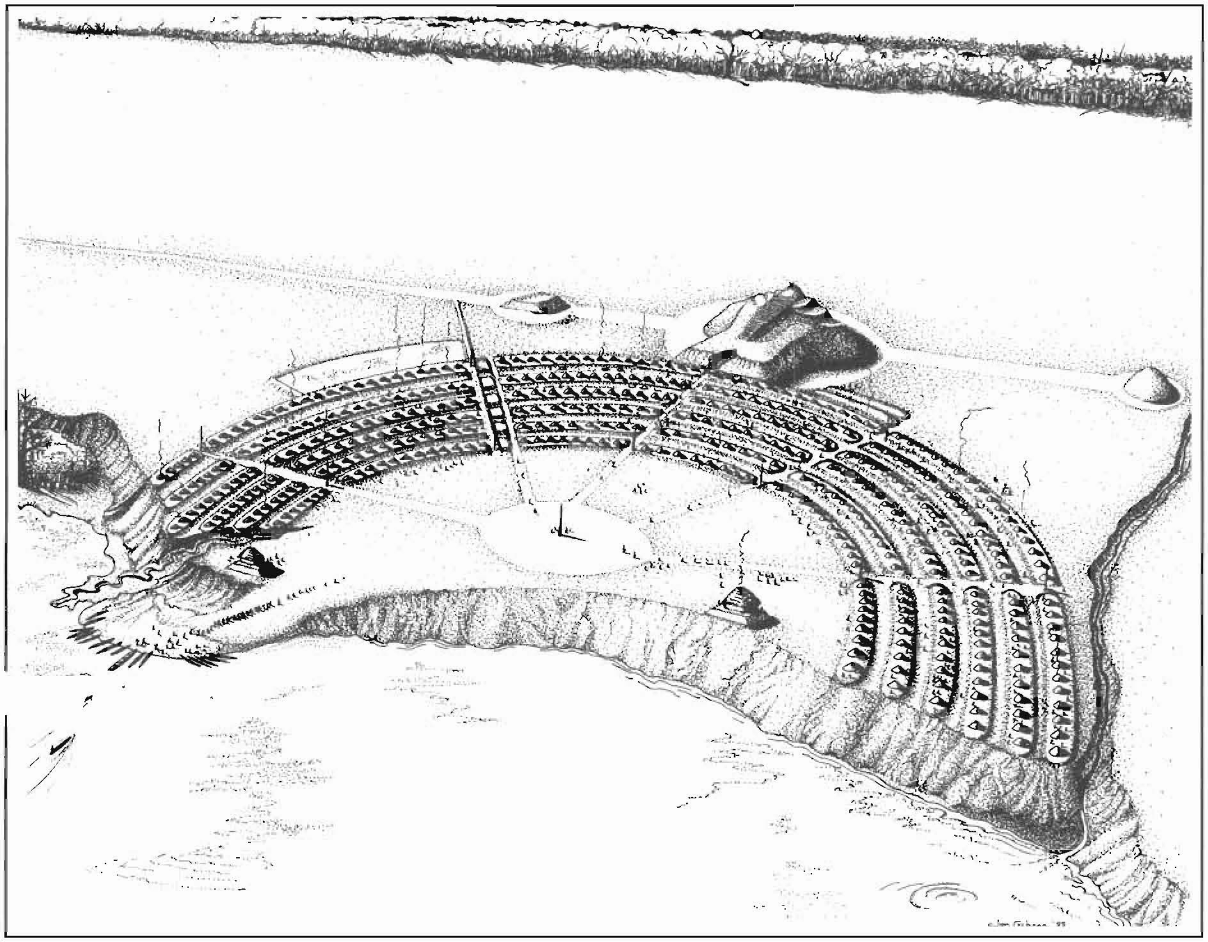

Figure 5.2. The town of Poverty Point about 1350 B.C.

Gibson and Griffing 1994; Gregory 1991; Griffing 1985; Jackson 1986; Webb 1982). Why would people come to a trade fair, ostensibly a big *fête*, and work as hard as or harder than they did at home doing the same kinds of jobs? There are millions of loess cooking balls and fragments and fire-cracked rocks, which remind us of people's need for daily bread and the comfort of warm, cozy homes on miserable wet winter days. There are thousands of ornaments and icons (Gibson 1970; Webb 1971, 1982), most, if not all of which were made and worn where they were lost. No, Poverty Point's assemblage is not that of a periodic trade fair. It is that of a long-lived residential community.

Poverty Point's massive earthworks evince a corporate community too. The architecture is infused with cosmological sign: mounds as earth mothers and microcosmic earth islands, as symbols of corporate identity; broken-circle layout and cardinal directionality as protective shields and escape portals for inner evil and disharmony; water barriers against dark forces; and verticality and sacred numbers (six plus a center position) as cosmos metaphors. These are recurrent symbolic themes of town layouts, sacred areas, and ceremonials of historic southern tribes, whose languages descended from ancient Gulf or Proto-Gulf or from an even older protolanguage (Gibson 1995, 1998), and these themes are manifested in Poverty Point's ringed enclosure and aligned mounds. Mere coincidence? No way. I'd bet my and your lottery chances on it.

Buildings manifesting social identity and protection are erected by corporate groups, not by folks who meet periodically to exchange goods, especially when exchanges were as one-sided as those at Poverty Point. One-sidedness is judged by the massive amounts of exchange exotics at Poverty Point compared with the relatively modest amounts at small surrounding sites. Corporate groups have the most to gain from such symbolism, the most to protect. We're talking about a powerful social statement of a people's identity and an enormous *public* effort devoted to conveying and safeguarding that message in metaphorical terms that everyone, local and foreigner, friend and foe, understood. Poverty Point's earthworks are not individual displays, like shop-keeper's signs: they are the ultimate of billboards because they advertise the singular spirit and cooperativeness of a people.

Besides, how could a bunch of temporarily congregating individuals or small autonomous groups be persuaded to put forth so much physical effort building earthworks, which had so little to do with their daily routines and which offered them no protection once they were outside the rings? There's a serious labor organization and management problem here too, one that's simply incongruous with fair-goer labor crews. Big men or aggrandizers would have had to rise far above their usual station in order to convince reluctant participants of the worth of a project that may have had a low cost-benefit ratio for them personally or for their loved ones.

Now, corporate group labor is another matter, because then you already have a familiar interpersonal and advisory structure in place, as well as predisposition toward a common goal. Many fewer social and political problems inhere in corporate group labor. All the group had to do was the work, lots of it, to move and shape between a half and three-quarters of a million cubic meters of dirt (Gibson 1987:Table 2).

Whatever the case, newer, more comprehensive information and quantitative analyses indicate that work structure played a paramount role in determining where exchange materials wound up, once they got out into the countryside beyond the Poverty Point site (Gibson 1994a:160–161, 1994b:272–281; Gibson and Griffing 1994:236–242). How far small components were from each other and from the Poverty Point site was less important in determining how much and what kinds of exotics were present than was the composition of tool kits.

Take the case of small Poverty Point components, such as Aaron, Arledge, Terral Lewis, and Orvis Scott, located in the Tensas swamp east of the Poverty Point site. Except for Terral Lewis, these sites have similar assemblages—relatively lots of points and microliths and few Poverty Point objects (PPOs)—which makes them look more like field camps than places of residence (Gibson and Griffing 1994:234–236). Terral Lewis's assemblage is a mirror image, which makes it seem more residential. But what all four sites have in common is relatively large numbers of chipped hoes—large bifacial foliates often bearing sickle sheen on bits and obverse faces. They also have high percentages of northern gray flint, especially the Dover variety (Gibson 1996; Gibson and Griffing 1994:238–239; Gregory 1991). Why? Because hoes are usually made of northern gray flint. They required constant resharpening and that, coupled with their size, produced lots of debitage (Gregory et al. 1970:42). Even after hoes were resharpened to the point where they couldn't be used as hoes anymore, they were laterally recycled into cores and other artifacts, thereby producing even more debitage (Jackson 1986). So large quantities of northern gray flint correlate with hoes and hoeing and not especially well with distance from the Poverty Point site, at least not within the primary consumption zone.

Work and specific activities shape the distributions of specific exotic exchange materials in the primary consumption zone (Gregory et al. 1970:41), more so than either distance or residential permanence-impermanence. This finding goes hand-in-glove with the seemingly unrestricted availability of trade materials and the primarily utilitarian tools made from them.

Despite the general commonplace and egalitarian character of Poverty Point exchange, I have no doubt that people most deeply involved in its operation gained and maintained prestige and authority. In fact, I see prestige as a major reason why exchange began in the first place, rather than that exchange begat prestige. Everyone benefited from Poverty Point exchange. People got essential raw materials, and important operators got to be even more important. Poverty Point need not have been a chiefdom to have supported prestigious individuals, whose status and authority remained constant or at least did not fluctuate with every exchange and building episode (cf. Gibson 1974). But exchange does evince social inequalities and hosts a seedbed for their formalization.

Summary and Conclusions

In my opinion, two things make Poverty Point exchange unique in the Southeast—its purpose and its magnitude (Gibson 1994a). Although the Lower Mississippi Valley is an exceptionally rich environment biotically, it is rock-poor. A few gravel deposits exist nearby and, for most of the region's history, these rocks satisfied needs. But they didn't for Poverty Point. Providing domestic hardware for large numbers of sedentary fisher-hunter-gatherers living within a fairly small area of the Maçon Ridge–Upper Tensas Basin was an enormous job, one requiring stupendous effort and coordination.

How Poverty Point traders came to know about so many far-away resources is anybody's guess, but I think it's a matter of importance that most materials, especially the bulkiest and most distant, originated at spots on or near the Mississippi River and its tributaries, *upstream* from Poverty Point. River transport probably eased otherwise formidable acquisition problems, even for preformed materials being passed hand-to-hand. Tons and tons of rock reached Poverty Point and points south, and carrying them by boat or raft would have been a lot easier than packing them by back.

Other southeastern exchange systems do not seem to have focused on general domestic supply like Poverty Point but were more sectarian. I say this despite being unable to separate ritual from residence at the Poverty Point site. A lot about the Poverty Point site has ceremonial and magical significance, but that does not detract from the large number of people who were outfitted and took their daily sustenance there; in fact, it made all that possible and explained things too (Gibson 1993:72). The impetus for and coordination of the exchange effort originated from and focused on the Poverty Point site. Strategic location, substantial population, stable and renewable food supply (fish), personages and persons, long-standing traditions, and historical circumstances all converged there. It is not that long-distance exchange *per se* is unique in the Archaic Southeast, rather it is the Poverty Point site and the exchange system it sponsored.

6

Stone Tools and Debitage from the Claiborne Site: An Analysis of the Mississippi State University Collection

Edmond A. Boudreaux III

This paper presents the results of an analysis of the stone tools and debitage recovered during one of the few controlled excavations to be conducted at the Claiborne site, a Poverty Point-related site located on the Mississippi Gulf Coast near the mouth of the Pearl River. In addition to making a simple inventory of the kinds of artifacts and raw materials present in the collection, this analysis seeks to determine if any of the non-local materials had been processed into tools onsite and if any raw material had been preferred in the production of a particular kind of tool. There is no compelling evidence that tools were made from non-local stone onsite, indicating that these materials arrived at the site in the form of finished tools. While non-local materials do not appear to have been selected for any particular class of tool, there is evidence that the local gravel resources were selected for in the production of microtools.

Introduction

Claiborne (22-Ha-501) is a Poverty Point-related site located on the Mississippi Gulf Coast (Webb 1968:298; see Gibson, this volume). This site has been the subject of controlled excavations (Bruseth 1991:7–9) as well as indiscriminate digging (Neuman 1984:108) since its discovery in 1967 (Neumaier 1974:2). These different explorations have produced staggering numbers of artifacts (Marshall 1970:16), many of which remain undescribed.

This paper will present data and conclusions resulting from an analysis of the lithic artifacts recovered during excavations conducted at Claiborne by Mississippi State University (MSU) in 1969 and 1970. This analysis, which was undertaken in 1994 as part of an undergraduate course in archaeological method and theory, was conducted with several objectives in mind. The first was to determine, as well as possible, what types of artifacts and kinds of materials were present in the collection. The presence of artifacts manufactured from exotic raw materials was known from cursory examinations of the collection, but it was not known what kinds of materials were present and in what quantities. When possible, particular materials with a limited source area were identified. When specificity was not possible, a distinction was at least made between local and non-local materials. The second objective was to see if the MSU collection could provide any information about the manufacture of stone tools by the site's prehistoric inhabitants: whether the manufacture of artifacts made of non-local stone had occurred entirely at Claiborne or these artifacts had been brought to the site in a more finished state. Evidence of the onsite production of tools from non-local stone has been recovered at Poverty Point (Kuttruff 1975:136), while evidence that non-local material arrived in more advanced stages of production has been found at sites related to Poverty Point (Gibson 1979:111), including other collections from Claiborne (Bruseth 1991:17). I also wished to investigate whether certain raw materials had been favored for the manufacture of certain tool types.

Modern History of the Site

The Claiborne site is located south of the city of Pearlington (Smith 1974:1) near the mouth of the Pearl River in Hancock County, Mississippi (Bruseth 1980:285) (Figure 6.1). Discovered during the construction of a port and industrial park (Gagliano and Webb 1970:48; Marshall 1970:14), the site's emergence after its thousands of years of repose has been credited to the "progress of the modern world" (Glaczier 1969:15). An unfortunate result of this "progress" is that tenacious relic collectors have carried off thousands of artifacts (Bruseth 1991:7; Marshall 1970:16), while much of the site has been disturbed by construction (Bruseth 1991:7; Neuman 1984:107–108). Commenting on the covertness of the relic hunters, one participant in the MSU excavations said that it was a somewhat common occurrence for the excavation units to be dug into after the crew had left for the day. As for their boldness, the same participant said that relic hunters were sometimes discovered still digging in the excavation units when the MSU crew arrived in the morning for the day's work (Gerald Berry, personal communication, 1995). It was not uncommon for the MSU crew and the relic collectors to arrive at Claiborne at nearly the same time and work side-by-side all day at removing artifacts from the site (Richard Marshall, personal communication, 1995).

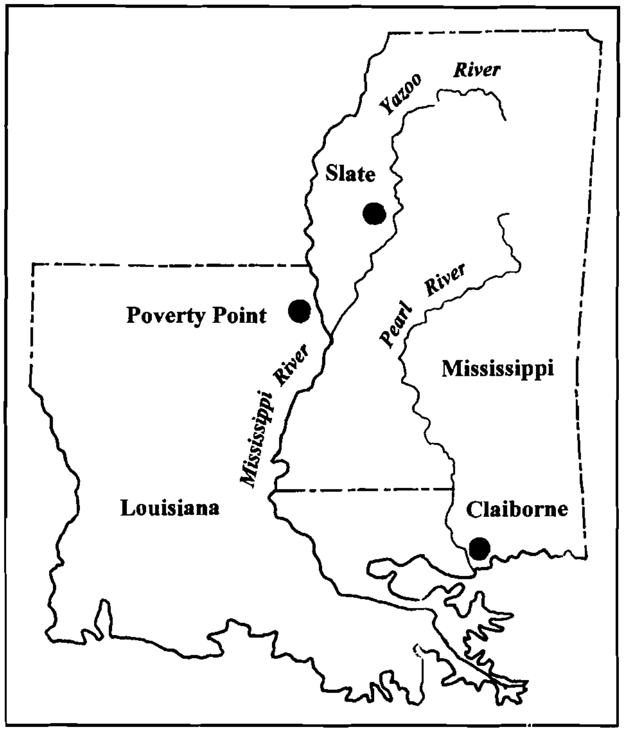

Figure 6.1. Location of Claiborne and other sites mentioned in the text.

Professor Richard Marshall of the Department of Anthropology at Mississippi State University conducted excavations at Claiborne with field schools during the summers of 1969 and 1970 (Neumaier 1974:3). These investigations focused on an area in the northern part of the site that had been left relatively undisturbed by construction and looting because it had been preserved beneath a shell-paved road (Bruseth 1980:284; Marshall 1970:17). The two seasons of excavation in this area produced thousands of whole and fragmentary Poverty Point Objects, pottery, bone, and over 19 kilograms of stone. It is noteworthy that the 1969 crew experienced more than the normal rigors and dangers of archaeological fieldwork. In the late hours of August 17, 1969, Hurricane Camille slammed into the Mississippi Gulf Coast with winds in excess of 200 miles per hour. While the crew safely rode the hurricane out in Pass Christian, the artifacts that they had recovered that season were inundated below several feet of mud and storm-surge. Fortunately, nearly all of the artifacts were "re-recovered" from the post-Camille muck and debris (Richard Marshall, personal communication, 1995).

Claiborne as a Poverty Point Site

A number of similarities exist between the Claiborne site and the Poverty Point site of northeast Louisiana (Figure 6.1). Artifacts that are similar in form and material of manufacture occur to such a great extent between the two sites that the artifact inventory from Claiborne has been said virtually to duplicate that of the Poverty Point site (Neuman 1984:108). The artifact assemblage from Claiborne has been described as being more similar to that of Poverty Point than to any other related site (Bruseth 1991:18). Webb designated Claiborne "a valid Poverty Point coastal site" based on these artifactual similarities (1968:298). His designation was based on the presence at the two sites of artifacts such as microtools, polished celts, and Poverty Point Objects, as well as projectile points of the Gary, Kent, Pontchartrain, Ellis, Delhi, and Hale types (Webb 1968:298).

The Poverty Point site and a number of large, complex related sites are characterized by semicircular site arrangements (Webb 1982:9). Similarly, a dominant feature of the Claiborne site was a semicircular midden composed of black sand, *Rangia* shells, and some oyster shells (Bruseth 1980:285). Although distinguished primarily by its dark sand and high artifact content, the Claiborne midden was slightly elevated as well (Bruseth 1980:291). Largely sterile deposits of yellow sand found inside and outside of the semicircle indicate that the major habitation at the site had taken place along this raised midden (Bruseth 1991:14). Claiborne also possessed earthworks in addition to the raised semicircular habitation area, a feature shared with Poverty Point and other related sites (Webb 1982:9). At Claiborne, a small conical mound was located east of the semicircular midden (Webb 1982:34). Although partially destroyed before it could be investigated (Bruseth 1980:287, quoted in Davis 1984:321), controlled excavations into the mound after it had been partially bulldozed revealed at least one layer of mound-fill (Bruseth 1991:15). Although no artifacts were found in the mound, the presence of only a Poverty Point component at the Claiborne site (Bruseth 1980:287,1991:14) can be taken as an indication that the mound is associated with that component.

Poverty Point and its related sites are characterized by their location in areas segmented into several micro-environments that could have been exploited for a wide variety of natural resources (Gibson 1980:322–323; Neuman 1984:90). The Claiborne site is located on a prairie terrace (Webb 1982:34) adjacent to Mulatto Bayou, a tributary of the Pearl River that joins the Pearl near its mouth on the Gulf of Mexico (Gagliano and Webb 1970:47). With the site in this location, Claiborne's inhabitants would have had access to the Pearl River, located one mile to the southeast, and the Gulf of Mexico, located three miles to the south (Gagliano and Webb 1970:47). The prairie terrace upon which the site is located sits on the eastern margin of the Pearl River estuary (Webb 1982:34), and it is the first high ground upstream from the river mouth that is still within sight of the Gulf of Mexico (Gagliano and Webb 1970:47). This location would have enabled the site's inhabitants to exploit the Pearl River estuary marshlands, the Gulf of Mexico, the Mulatto Bayou swampland, and the prairie terrace of pine and oak (Smith 1974:1).

The similarities between Poverty Point and Claiborne indicate that they were related, although the nature of that relationship is not understood. In addition to numerous similarities in artifacts and kinds of raw materials present, both sites seem to represent well-structured settlements with evidence of deliberate earthwork construction (Bruseth 1991:18). Different ideas have been proposed concerning the exact nature of this well-established relationship. The uniqueness of Claiborne's artifacts in terms of quantity and variety eclipses all other collections from sites of the time period in the same region (Neuman 1984:108; Webb 1982:36). This has been interpreted as an indication that Claiborne served as a regional trade center in the Poverty Point exchange network and that its inhabitants maintained close contact with the Poverty Point site (Webb 1982:36). The fact that Claiborne is the largest known coastal site related to Poverty Point could be taken as evidence to support this notion (Webb 1970:4). Radiocarbon dates from Claiborne and Poverty Point indicate, however, that the former may have flourished and declined prior to any major occupation at the latter (Bruseth 1991:14). In this light, it has been suggested that Claiborne, which is located at what may have once been the juncture of the Mississippi River and the Gulf of Mexico, served as a gateway community into the early Poverty Point exchange system (Bruseth 1991:22–23).

Analysis of the Mississippi State University Collection

In order to address questions of stone tool manufacture, the MSU collection was first classified according to raw material type. Objects were then classified as either unmodified or modified. If modified, objects were then placed in artifact classes. The materials in the MSU collection were identified through macroscopic analysis by using the comparative collection at the Cobb Institute of Archaeology at MSU and by consulting with knowledgeable archaeologists. This analysis was limited by the vagaries of macroscopic analysis (Gibson 1994b:258) as well as by the fact that this was my first introduction to many of the raw materials in the collection. When the assignment of materials to more specific categories was not possible, it was at least determined if the stone was either local or non-local in origin.

Flaked Stone

All of the objects classified as flaked stone are presented in Table 6.1 by raw material and artifact class. Non-local flaked stone materials that could not be specifically identified with confidence were classified as undifferentiated non-local stone, which makes up 24.75 percent of the flaked stone. The remainder of the non-local flaked stone materials could be confidently assigned to more specific categories based on distinctive characteristics. Novaculite (3.53 percent of the flaked stone), the most common Arkansas-derived lithic material found at Poverty Point and related sites (Jeter and Jackson 1994:159), was probably quarried in the region surrounding present day Hot Springs (Jeter and Jackson 1994:159; Johnson 1980:268). Tallahatta quartzite, which comprises 2.07 percent of the flaked stone, occurs in southern and central Alabama as well as east-central Mississippi (Ensor 1981:9; Jeter and Futato 1994:61) as a part of the Tallahatta Formation (Dunning 1964:50). Coastal Plain Agate (0.95 percent of the flaked stone) occurs in thin beds within this same formation (Dunning 1964:50), particularly in southwest Alabama (Ensor 1981:9–10). Pickwick chert (0.06 percent of the flaked stone) is a regional variant of Fort Payne chert distinguished by its alternating zones of red, gray, and yellow (Jeter and Futato 1994:77; Futato, this volume).

Gravels of the Citronelle Formation, the commonly accepted term for the gravel deposits located in southern Mississippi (Russell 1987:7), represent the only locally available resource in the MSU collection that was used for flaked stone tools. It comprises 68.65 percent of the flaked stone in this collection. Significant uplifting and erosion (Collins 1984:8) has resulted in the exposure of large areas of Citronelle deposits in the major drainage basins of several south Mississippi rivers, including the Pearl (Russell 1987:7). Gravels exposed in these drainages would have been available for exploitation by the prehistoric residents of the Claiborne site. In addition, the hills of northeastern Hancock County are capped by deposits of the Citronelle formation (Brown et al. 1944:70). Chert is the principle constituent of the gravels in this formation, with minor amounts of quartz and quartzite also present (Russell 1987:1). The predominantly tan, brown, and gray gravels of the Citronelle Formation (Collins 1984:8) were relatively easy to distinguish from non-local materials.

I initially thought that a comparison of the ratio of primary to secondary to tertiary flakes for all of the flaked stone materials in the MSU collection would be a valid indicator of the manufacturing processes that had once occurred at Claiborne (Boudreaux 1995). Although this approach makes intuitive sense, it has been criticized for several reasons (Bradbury and Carr 1995:101). These include analyst subjectivity, difficulties in recognizing certain kinds of cortex, and the influence of initial nodule size on the number of cortical flakes produced during flintknapping (Bradbury and Carr 1995:101, 105). Due to the inadequacies of this method, the results of the analysis that employed it will not be reported here. Instead, in an effort to salvage these data, the ratio of the number of flakes to the number of finished,

Table 6.1. Flaked stone by artifact class and raw material, Claiborne site.

Artifact Class			Local	Non-local					Totals
			Citronelle Gravel	Undifferentiated Non-local	Novaculite	Tallahatta Quartzite	Coastal Plain Agate	Pickwick Chert	
Debitage	Flakes		756	308	55	25	15	0	1159
	Shatter		127	65	3	3	0	0	198
Cores	Prepared		3	0	0	0	0	0	3
	Informal		3	0	0	0	0	0	3
Unifaces	Retouched Flakes		36	19	0	0	0	0	55
	Microliths	Unmodified Bladelets	94	4	3	0	0	0	101
		Retouched Bladelets	15	0	0	0	0	0	15
		Microtools	92	15	1	1	1	0	110
	Residual		0	0	0	0	1	0	1
Bifaces	Preforms		8	0	0	0	0	0	8
	Projectile Points		80	29	1	8	0	0	118
	Residual		12	2	0	0	0	1	15
		Totals:	1226	442	63	37	17	1	1786

Table 6.2. Flakes and finished formal tools by raw material, Claiborne site.

	Local	Non-Local				
	Citronelle Gravel	Tallahatta Quartzite	Undifferentiated Non-local	Coastal Plain Agate	Novaculite	Pickwick Chert
Flakes	756	25	308	15	55	0
Formal Tools	332	9	69	2	5	1
Ratio	2:1	3:1	4:1	8:1	11:1	—

formal tools was used as one line of evidence to determine if flaked-stone materials had been modified into formal tools onsite. Formal tools will be defined as artifacts such as bifaces, formally prepared cores, and retouched flakes that have "undergone additional effort in production" beyond that required for expedient, flake tools (Andrefsky 1994:22). Since Citronelle gravel is a local material and tools were most likely made from it onsite, the ratio of Citronelle flakes to formal tools was used as a baseline for comparison. Materials whose ratio of flakes to formal tools approximated that of Citronelle gravel were assumed to have been used to manufacture tools onsite. Materials whose ratio of flakes to formal tools differed significantly from that of Citronelle gravel were assumed not to have been used to manufacture tools onsite.

The number of finished tools and flakes as well as their ratios by raw material are presented in Table 6.2. There was a difference in the flakes to formal tools ratio for the local Citronelle gravel (2:1) and for all of the non-local, flaked stone materials combined (5:1). In order to test the significance of this difference, the frequencies of flakes and formal tools for local and non-local stone were compared using the χ^2 test of homogeneity. This test indicated that the frequencies were significantly different ($\chi^2=28.93$, $p<0.01$, df=1). This has been interpreted as an indication that these materials were probably either modified in different ways once they reached the site or arrived in different forms altogether. The latter case can be assumed, since both local and non-local materials were used to produce the same kinds of artifacts.

Some interesting results were obtained when Citronelle gravel was compared to the individual non-local stone categories. The absence of Pickwick chert debitage and the very different flake/formal tool ratios for the non-local materials Coastal Plain Agate (8:1) and novaculite (11:1) indicate that none of these non-local materials were modified into tools at Claiborne. The differences between the ratios for the local resource and Tallahatta quartzite (3:1) as well as the undifferentiated non-local stone (4:1) were not as clear-cut. Once again, the χ^2 test of homogeneity was used to test the significance of the difference in frequencies of flakes and formal tools between these raw material categories. This test indicated a significant difference between Citronelle and the undifferentiated non-local stone ($\chi^2=21.01$, $p<0.01$, df=1). It did not, however, indicate a significant difference between Citronelle and Tallahatta quartzite ($\chi^2=0.25$, $p>0.01$, df=1), indicating that these materials may have been modified at Claiborne in similar ways. This is interesting, since Tallahatta quartzite, although not considered a local resource in this analysis, originated much closer to Claiborne than any of the other non-local materials represented in the MSU collection except for Coastal Plain Agate. This χ^2 value must be interpreted with caution, though, as the sample size for Tallahatta quartzite (n=37) is small.

Another line of evidence used for determining the onsite manufacture of stone tools was the stages of tool manufacture represented. It stands to reason that if a material went completely from its raw state to a finished tool onsite, then a certain amount of unmodified material should be found. Of the materials for which examples of flaked stone tools are present, only unmodified Citronelle gravel is present in the MSU collection (n=81). If tools were made from a material onsite, one would also expect unfinished tools or preforms of that material in the assemblage. While several irregularly shaped or thick bifaces of Citronelle gravel have been classified as biface preforms (n=8), no artifacts within other raw material categories were similarly classified. Also, several Citronelle cores (n=6) are in the collection, while cores from other material were absent. Citronelle is the only kind of stone in the collection that represents several stages of manufacture. It is present in unmodified as well as exhausted form and as finished as well as unfinished tools. No other material is represented in such a way. There are no unmodified, non-local flaked stone materials and no artifacts that represent aborted attempts to manufacture flaked stone tools from non-local stone. Based on this evidence, it appears that Citronelle gravel is the only flaked stone material in the MSU collection that was used to manufacture stone tools at the Claiborne site.

Bladelets and microtools are perhaps the best represented (n=226) tools in the MSU collection. Found at dozens of sites related to Poverty Point (Webb and Gibson 1981:100–101), lamellar microflints have been recovered at the Poverty Point site in amounts in excess of any other class of artifact (Webb 1982:50). The microlith assemblage in the MSU collection consists of unmodified bladelets, retouched bladelets, and microtools (Table 6.1). These bladelets are usually parallel-sided, with at least a 2:1 length to width ratio (Gibson 1979:105). Well-formed bladelets usually display a flat ventral face, a dorsal face with one or more longitudinal ridges, and a triangular or prismatic cross-section (Ford et al. 1955:139; Webb and Gibson 1981:89). Some of the microtools in the MSU collection are Jaketown Perforators, bladelets that have been worked into a "key" shape through steep retouch or backing. This type of artifact is a good Poverty Point marker (Gibson and Griffing 1994:213).

As is the case at Poverty Point (Webb and Gibson 1981:95; Webb 1982:52), a very high percentage of the bladelets and microtools in the MSU collection was made from local gravels. This observation led to the use of the χ^2 test of homogeneity to determine if either local or non-local materials were favored in the production of either microlith or other formal tools. This was done by comparing the number of local and non-local microliths and other finished, formal tools (excluding microliths) to the number of local and non-local flakes. This test found no significant difference ($\chi^2=0.9$, $p>0.01$, df=1) in the frequencies of local and non-local stone between the non-microlith formal tools and flakes. This is interpreted as evidence that the proportion of non-microlith tools made from local and non-local stone simply reflects the proportion of the overall assemblage comprised by these materials. It does not appear that raw material was an important consideration for non-microlith tools. There is a significant difference between local and non-local stone, however, when it comes to the frequencies of microliths and flakes ($\chi^2=49.79$, $p<0.01$, df=1). The significant difference between these frequencies has been interpreted as an indication that Citronelle gravel was specifically selected for the production of microlith tools. Desirable attributes of the local gravels, namely size and flaking quality, have been suggested to explain their preponderant use in the manufacture of microliths (Webb and Gibson 1981:95). Whatever the reason, it is evident from the MSU collection that Citronelle gravel was favored as a material for the manufacture of microliths at Claiborne. It represents 88.94 percent (n=201) of all microlith tools including bladelets, 93.07 percent (n=94) of unmodified bladelets, and 100 percent (n=15) of retouched bladelets.

Non-flaked Stone

The non-flaked stone (Table 6.3) includes materials that were modified by methods such as grinding, polishing, and carving. The nature of the debitage produced by these methods, in which little if any waste material was generated, would be different from that produced by flaking, so determining the location of tool manufacture had to be addressed differently. The percentage of unmodified stone within each raw material category that contained formal tools was used to address the issue of onsite tool manufacture. The presence of unworked stone for a particular material would be taken as an indication that it was brought to the site in a raw state and modified into tools there.

Determining the origin of several non-flaked stone raw materials was impossible, because these materials occur locally as well as non-locally. These materials include sandstone and limonite, which comprise 60.36 percent (n=294) of the non-flaked stone, as well as hematite, at 10.25 percent (n=45). Two other materials, although they also occur at distant sources, were probably obtained locally. Quartz is represented by the top of a small plummet that has been perforated by a hole drilled from both sides of the artifact. Two miniature plummets of quartz crystal have been reported from the Slate site (Figure 6.1) in the southern Yazoo Basin of Mississippi (Lehmann 1981:47). As suggested by Lehmann, these artifacts could have been used as pendants (1981:47). Although quartz is available in the Ouachita Mountains of west-central Arkansas (Jeter and Jackson 1994:178), small amounts of it are also present in the gravels of the Citronelle Formation (Russell 1987:1). The Claiborne artifact is not faceted and appears to have a water-worn cortex, indicating that its origin is probably local. Pumice comprises 6.83 percent (n=30) of the non-flaked stone. Although it is present as abraders and unmodified pieces, no formal tools made from this material were found. Although pumice could have come to the site from as far away as the extreme upper Arkansas River (Lehmann 1982:17), it probably rafted ashore and was available to the residents of Claiborne on local gulf beaches (Gagliano and Webb 1970:66; Lehmann 1982:17).

The remaining non-flaked stone materials were more readily identified and sourced. Soapstone, a generic term used to refer to several kinds of soft metamorphic rock that were commonly used for making stone bowls and other artifacts by Late Archaic and Poverty Point peoples (Jeter and Futato 1994:67), comprises 11.85 percent (n=52) of the non-flaked stone. It is present as vessel fragments and indeterminate pieces, classified as such because it could not be positively determined that they had been modified. Soapstone vessels and fragments are commonly found at Poverty Point and related sites (Webb 1982:44). This includes Claiborne, where caches of soapstone vessels and fragments have been found (Bruseth 1980:297–298; Neuman 1984:108). Aboriginal soapstone quarries have been located in the Piedmont metamorphic rock zone that extends from east-central Alabama, through northern Georgia, into the Western Carolinas, and beyond (Jeter and Futato 1994:68). Mineralogical studies performed on soapstone recovered at Poverty Point indicate northeast Alabama and northwest Georgia as sources (Webb 1982:44). Neutron activation analysis of trace elements performed on soapstone vessel fragments in collections from Claiborne indicates that they also came from the Piedmont zone (Smith 1991:174).

Galena appears in the MSU collection as a plummet fragment and as six indeterminate pieces. Finished objects of galena as well as masses of the material have been recovered at Poverty Point and a number of related sites (Webb 1982:60). In addition to finished objects such as plummets and pendants, it is possible that galena was used to produce a sparkling metallic powder as well as paint (Walthall et al. 1982:133). Trace element analysis on samples of galena recovered at Poverty Point indicates two differ-

Table 6.3. Non-flaked stone by artifact class and raw material, Claiborne site.

		Possibly Local					Non-local					
Artifact Class		**Sand-stone**	**Hematite**	**Pumice**	**Limonite**	**Quartz**	**Soap-stone**	**Galena**	**Chalk**	**Green-stone**	**Slate**	**Totals**
Pieces	Unworked	204	25	27	28	0	0	0	0	0	0	284
	Worked	6	5	0	0	0	0	0	1	0	0	12
	Indeterminate	0	0	0	0	0	3	6	4	0	0	13
Abraders		48	2	3	1	0	0	0	0	0	0	54
Saws		2	0	0	0	0	0	0	0	0	0	2
Vessel Fragments		5	0	0	0	0	49	0	1	0	0	55
Gorgets		0	2	0	0	0	0	0	0	1	2	5
Celts		0	0	0	0	0	0	0	0	2	0	2
Plummets		0	11	0	0	1	0	1	0	0	0	13
	Totals:	265	45	30	29	1	52	7	6	3	2	440

ent source areas for this material. The greater amount of galena tested came from the Potosi deposits of southeast Missouri (Walthall et al. 1982:139) while a lesser amount came from upper Mississippi Valley sources (Walthall et al. 1982:139) that occur near the common corner of Iowa, Wisconsin, and Illinois (Gibson 1994b:261). Chalk, which outcrops in west-central Alabama and east-central Mississippi (Ensor 1981:11), is found at Claiborne in the form of four indeterminate pieces and one worked piece. It is also present as what, oddly enough, appears to be a fragment from the rim of a thick vessel. Slate, which is present in the form of two gorgets, occurs in the Ouachita Mountains of Arkansas, east-central Alabama, and the Midwestern United States (Jeter and Jackson 1994:173).

Greenstone, like soapstone, is a generic term that includes several types of rock (Jeter and Futato 1994:73). It is found in east-central Alabama as well as other locations within the Piedmont province (Ensor 1981:12). Greenstone is represented in the MSU collection by three artifacts, two celts and most of an engraved gorget. The gorget is worthy of further comment. Although it has been broken in a line perpendicular to its long axis, enough of the artifact is present to indicate that it expanded in width towards what would have been its center (Figure 6.2). This gorget possesses a hole that appears to have been drilled from both of its sides. If the missing portion of this gorget possessed a drilled hole as well, the complete artifact would have been similar to what appears to have been a Poverty Point marker in the area surrounding the Poverty Point site. Two-hole, expanded-center gorgets made of non-local materials are restricted to Poverty Point contexts within 30 kilometers of the Poverty Point site (Gibson and Griffing 1994:216–217). Although most of the bar-gorgets that have been recovered in Mississippi and the Mid-South are undecorated (Atkinson 1990:39), one entire side of the greenstone gorget in the MSU collection is decorated with rectilinear designs consisting of cross-hatching, rectangles, and parallel lines. The opposite side is undecorated but shows signs of having been sawed. In addition to the evidence of sawing on its undecorated side, it appears that the missing portion of the gorget was separated from the recovered portion by being partially sawed and then snapped. This is inferred from the cross-section of the gorget's broken end, which is smooth and regular through about half of its thickness and then rough and irregular through the other half. This is interesting in light of observations made from assemblages at Poverty Point and the Slate site. Lehman reports that slate artifacts from the Slate site also appear to have been snapped along sawn grooves (1981:43). Evidence from Poverty Point indicates that gorgets broken beyond repair were used to make pendants, beads, and plummets (Ford and Webb 1956:125). It is possible that the greenstone gorget from Claiborne was being processed in such a way, since the portion of the gorget that remains is broken. It consists of two conjoinable pieces with the thicker line in Figure 6.2 indicating the break. This was apparently a pre-depositional break, as these two pieces were found in different parts of the site.

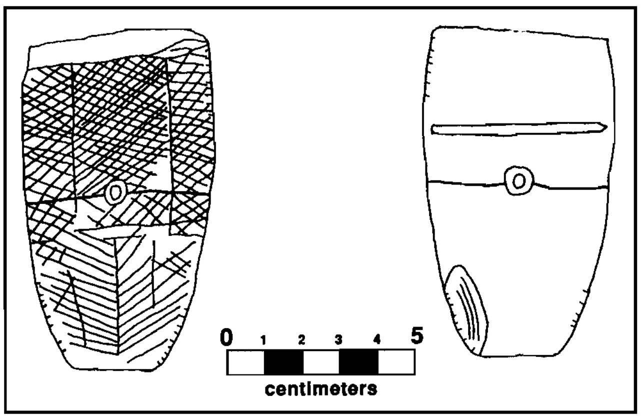

Figure 6.2. Greenstone gorget from the Claiborne site. The thick line drawn on both sides of the drilled hole represents a break in the gorget.

High percentages of unworked sandstone (77 percent), limonite (96 percent), and hematite (55 percent) indicate that these materials were probably processed into tools at the Claiborne site. Unfortunately, it is not known what percentage of these materials is local. It is assumed that if the quality of the local and non-local materials was comparable, the local resources would have been used. What if the local and non-local materials are not of equal quality? According to Lehmann, hematite is available in Mississippi, but it is not of the hardness observed in plummets found at Poverty Point related sites (1991:187). Although a local origin is assumed for most of the materials in the MSU collection that are available at both near and distant sources, no certain macroscopic identification could be made.

There are no examples of unworked slate, greenstone, or quartz in the MSU collection, indicating that these materials probably were not processed into artifacts at the Claiborne site. With the presence of only a few tools and indeterminate pieces of chalk and galena in the collection, the data do not indicate the onsite processing of either material. The three pieces of soapstone classified as indeterminate are very small and probably represent weathered vessel fragments. The presence of vessel preforms at some soapstone quarries (Jeter and Futato 1994:68) and the absence of unmodified soapstone at Poverty Point or sites along its periphery (Sires 1978) suggest that soapstone vessels were manufactured at the material's source.

Conclusions

Analysis of the stone in the MSU collection from the Claiborne site was undertaken in order to address three questions. The first of these was concerned with what kinds of materials were in the collection and in what quantities. Tables 6.1 and 6.3 fulfill this objective. The MSU collection of stone from the Claiborne site indicates that this coastal community had access to materials from all over the eastern United States. Although locally available materials comprise the majority of the collection, nearly one-third of the stone analyzed for this paper is non-local in origin. The fact that this much non-local stone was procured and used for tools indicates that it must have played an important economic and technological role in the lives of the site's inhabitants. Non-local materials for bifaces were not brought in out of necessity. As is evidenced by the large number of Citronelle projectile points and other bifaces in the collection, the locally available gravel was a perfectly acceptable material for the manufacture of bifacial tools. For whatever reasons, the conscious decision was made to procure and use bifacial tools made from materials whose sources were quite a distance from the Mississippi Gulf Coast. Another objective of this analysis was to determine if any raw materials were preferred for specific tool types. An example of this situation was found with the microlith tools, for which the local Citronelle gravel was obviously preferred, possibly for technological reasons.

Regarding the location of tool manufacture, there are definite differences between local and non-local materials. There is convincing evidence that Citronelle gravel was modified into tools at the Claiborne site. Although the ratio of flakes to finished tools for Tallahatta quartzite approximates that of Citronelle, Tallahatta quartzite does not seem to have been modified into tools at Claiborne because it was not present as unmodified pieces or unfinished tools. Citronelle gravel is unique among the flaked stone materials in the collection in that it appears in the form of unmodified stone, unfinished tools, debitage, cores, and finished tools. The evidence is more ambiguous for the materials sandstone, hematite, and limonite, also locally available. Although high proportions of unworked stone were present in these categories, it is not known how much non-local stone is included in these proportions. Since these materials are locally available, it is assumed that the local resources were exploited, and these data are not taken as an indication that non-local stone was used to produce tools onsite. In sum, there is no convincing evidence that any definitely non-local materials were processed into tools at Claiborne. This lack of evidence for onsite modification suggests that non-local stone came to the site in the form of finished tools.

Materials whose sources are quite distant from the Mississippi Gulf Coast appear throughout this collection. When the possible source areas for the more specifically identified non-local examples are considered, a bias for areas east of the Claiborne site is evident. While novaculite originated to the west and galena probably came from well to the north, materials such as Tallahatta quartzite, Coastal Plain Agate, Pickwick chert, soapstone, greenstone, and chalk came from areas more to the east. The origin of the slate is unknown, since it is found both east and west of the site. With the possible exception of Pickwick chert, each of the materials of probable eastern origin could have been transported via tributaries and major rivers from their sources in the interior to the Gulf of Mexico and then westward along the coast to the Claiborne site (Jenkins and Krause 1986:37; Jeter and Futato 1994:Figure 1). If the occupation of Claiborne came early in the scheme of Poverty Point exchange, as radiocarbon dates indicate, then it seems that this exchange took place later at sites that are farther west, more removed from the coast, and more distant from the sources of the eastern materials. Perhaps the Claiborne site was occupied when eastern materials were more important in Poverty Point exchange, with the apparent shift that came later indicating a new emphasis on the exchange of more northern and western materials. A change in trade routes could also account for this apparent shift. Whatever the case may have been, it seems that the Claiborne site was well-positioned along the Gulf Coast to participate in the exchange of finished tools made from eastern materials.

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The Evidence for Terminal Archaic–Early Woodland Exchange from the Upper Cumberland Drainage of Tennessee

Mitchell R. Childress

The geographic focus of this paper is a portion of the Interior Low Plateau covering approximately 5,000 square km. The area is drained by the Cumberland River and its upper tributaries and includes portions of the Eastern Highland Rim and Central Basin in northern middle Tennessee. Evidence for local participation in the well-documented exchange networks of the Southeast is particularly apparent at the Poverty Point and Early Woodland horizons between about 1500 and 200 B.C. Aboriginal wealth items and non-local utilitarian goods moving into the region include marine shell, steatite, "greenstone" (chlorite schists), and Dover chert. Locally available items that may have entered the exchange network in the upper Cumberland region are Motley projectile points made of St. Louis chert and selenite crystals obtained from caves and rockshelters. The evidence for exchange is considered in the context of regional ecology and geophysical constraints (trail networks, drainage patterns, distances from and locations of source areas), intersite assemblage variability, and the general nature of the larger pan-eastern exchange system.

Introduction

The area under discussion lies within the Interior Low Plateau limestone country and includes portions of the Eastern Highland Rim, Cumberland Plateau Escarpment, and Central Basin of Tennessee (Figures 7.1 and 7.2). Drainage is to the northwest toward the Cumberland River. The region is in the "sinkhole plain" and is characterized by abundant karst formations. Crawford (1987) plots some 280 large caves and sinks in an area covering about 13,000 square km, a higher density than any other subregion of the state (Figure 7.3). A marked clustering of sinks and caves in the Monteagle limestone just west of the Cumberland Plateau 300 m escarpment characterizes the distribution. This band continues into Kentucky to the well known Big Mammoth cave area.

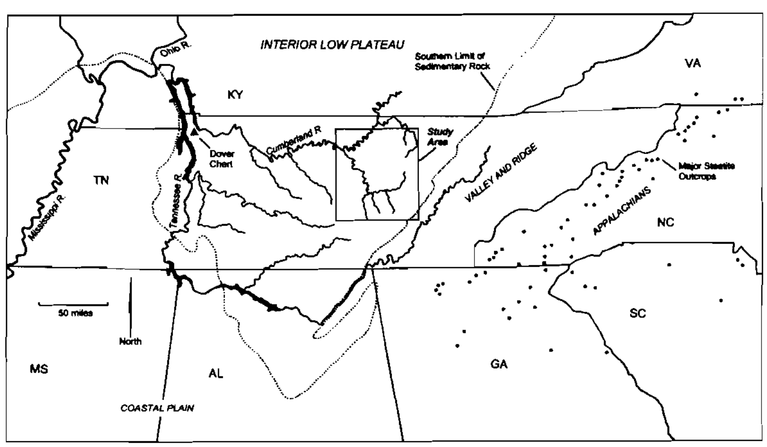

Figure 7.1. Location of study area, Upper Cumberland River drainage.

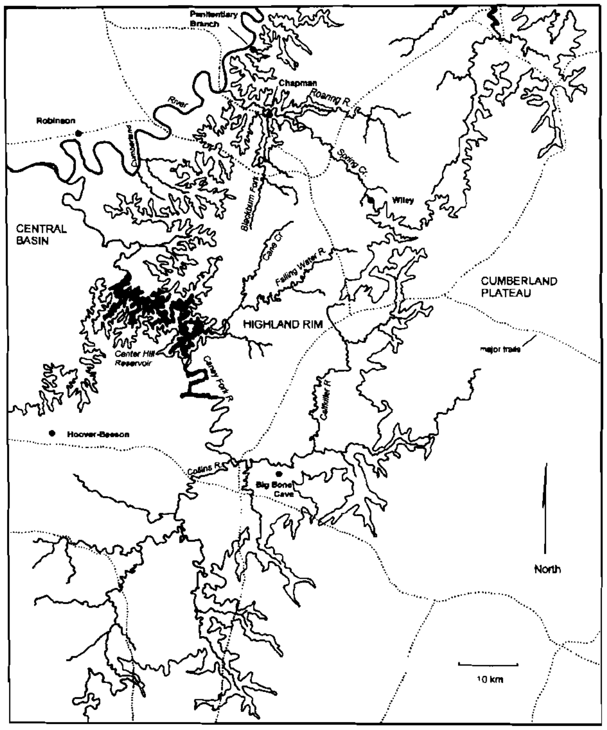

Figure 7.2. Map of Upper Cumberland area showing drainage, physiography, selected archaeological sites, and trails plotted by W. E. Myer.

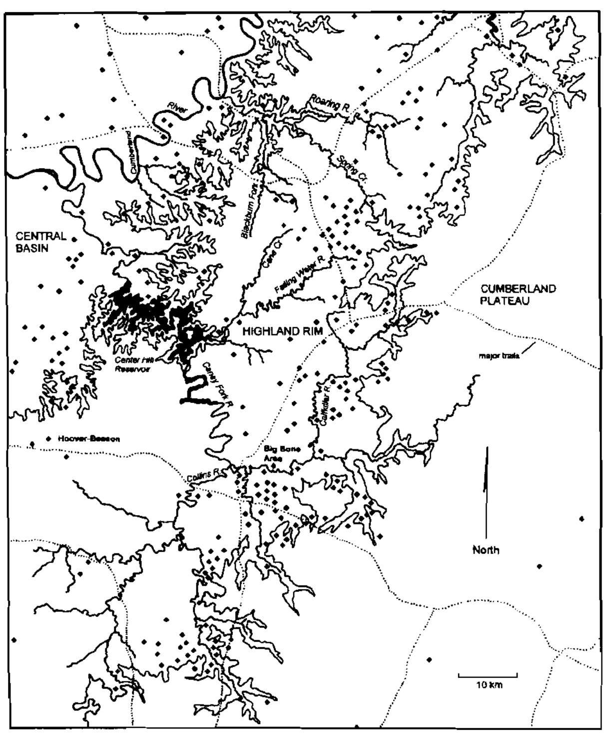

Figure 7.3. Distribution of major caves and rockshelters in the Upper Cumberland area, based on Barr (1961) and Crawford (1987).

Important investigations in the region (Figure 7.1) include W. E. Myer's (1913, 1917, 1924, 1928) early work along the Caney Fork and Cumberland rivers, Gordon Willey's River Basin Survey of Center Hill Reservoir in 1947, and Dan Morse's work along the main stem of the Cumberland prior to the closing of Cordell Hull dam in the 1960s (Morse 1967; Morse and Polhemus n.d.). Particularly important are the excavations at Robinson shell mound (40-Sm-4), which Morse incorporated into his doctoral dissertation at the University of Michigan. Excavation of another shell midden site, 40-Jk-25, located at the mouth of Penitentiary Branch and the Cumberland in Jackson County, was undertaken by Patricia Cridlebaugh in the 1980s (Cridlebaugh 1983). Work along the main channel of the river has been augmented by excavations in the upper tributary regions at sites such as Hoover-Beeson rockshelter (40-Cn-4; Butler 1971), Big Bone cave (40-Vb-103; Crothers 1986), the Chapman site (40-Jk-102; Bentz 1986), and recent work along the upper section of Spring Creek (Childress and Buchner 1991a, 1991b, 1993). Excavations at the Wiley site (40-Pm-90), situated in a cove near the interface of the Highland Rim and adjacent plateau, provided the first systematic information on a fairly large upper tributary Terminal Archaic base camp. Survey in the Calfkiller and Collins drainages by Robert Jolley (1979) produced a fairly large representative sample of diagnostic surface material from these two upper tributaries. In combination with survey coverage, the data from upper tributary karst features and the main stem shell mounds are providing a more complete picture of Terminal Archaic adaptations in the area.

Evidence for local participation in the well-documented exchange networks of the Southeast (see papers by Johnson, Gibson, Lafferty, and Brose in Baugh and Ericson 1994) is particularly apparent at the Poverty Point and Early Woodland horizons between about 1500 and 200 B.C. Aboriginal wealth items and non-local utilitarian goods moving into the region include marine shell, steatite, "greenstone" (chlorite schists), and Dover chert. Locally available items that may have entered the exchange network in the upper Cumberland region are Motley projectile points made of St. Louis chert and selenite crystals obtained from caves and rockshelters.

Cultural Chronology and Occupational History

Our best gauges of long-term occupational trends currently come from analysis of 265 Mid-Southern radiocarbon dates (Figure 7.4), and analysis of nearly 1,700 temporally sensitive projectile points from the region (Figures 7.5 and 7.6). While evidence for Paleo-Indian through Mississippian period presence has been obtained, somewhat sparse occupation of the region is apparent prior to the Late Archaic. A strong series of nearly continuous radiocarbon assays on charred organics from the eastern Highland Rim begins about 1300 B.C. and continues into the agricultural era. A rather marked occupational hiatus (or at least a reduction in the overall intensity of occupation) coincident with the peak of the Hypsithermal at around 6000–5000 B.P. is also apparent. This overlaps the period when concentrations of people producing Morrow Mountain, Benton, and Sykes/White Springs PP/Ks in the heart of the Central Basin are indicated by radiocarbon dates, site distributions, assemblage contents, and midden accumulations.

The archaeological data for the upper stem and tributary region of the Cumberland River are particularly interesting in light of available paleoclimatic and ecosystemic research. Delcourt's (1979) analysis of pollen cores from Anderson pond in White County, Tennessee indicates the formation of mixed dry grasslands and deciduous forest pockets during the "prairie maximum" between about 8000 and 5000 years ago. Brakenridge's (1984) information on stream volume and annual precipitation, derived from studies along the Duck River in the Central Basin, suggests reduction of basin runoff and river

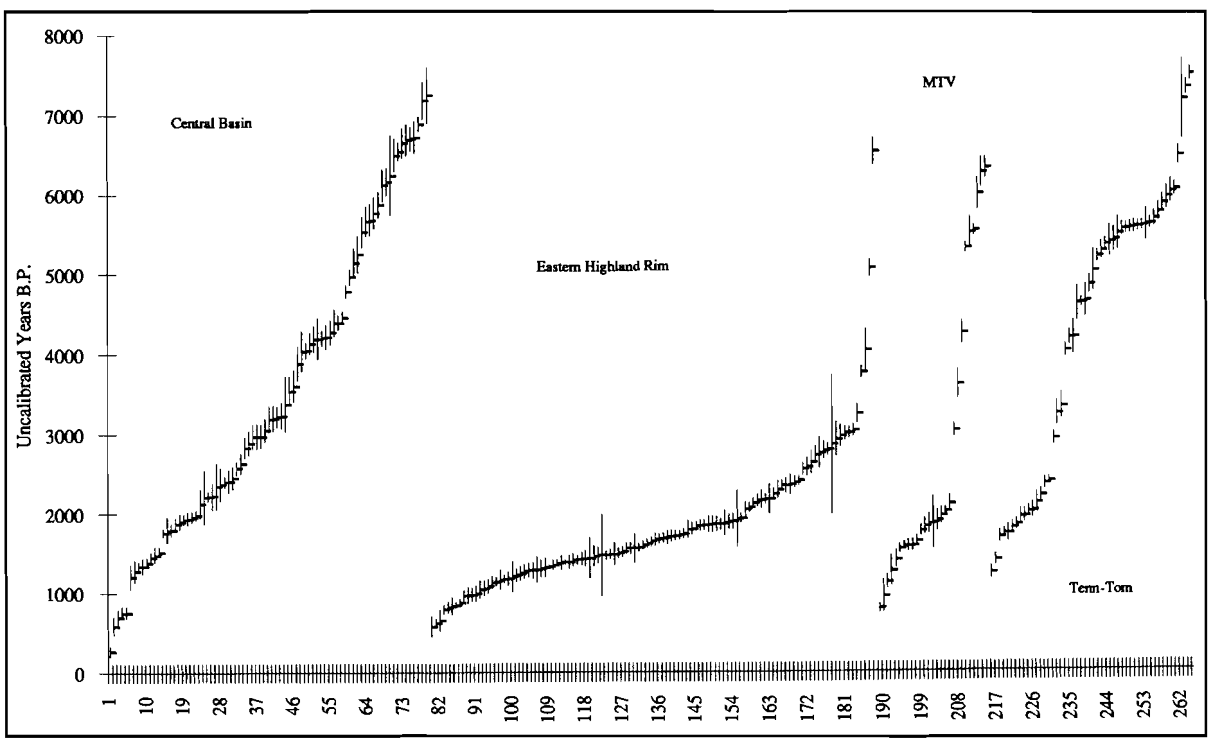

Figure 7.4. Uncalibrated radiocarbon curves for four Mid-Southern regions (one-sigma tails).

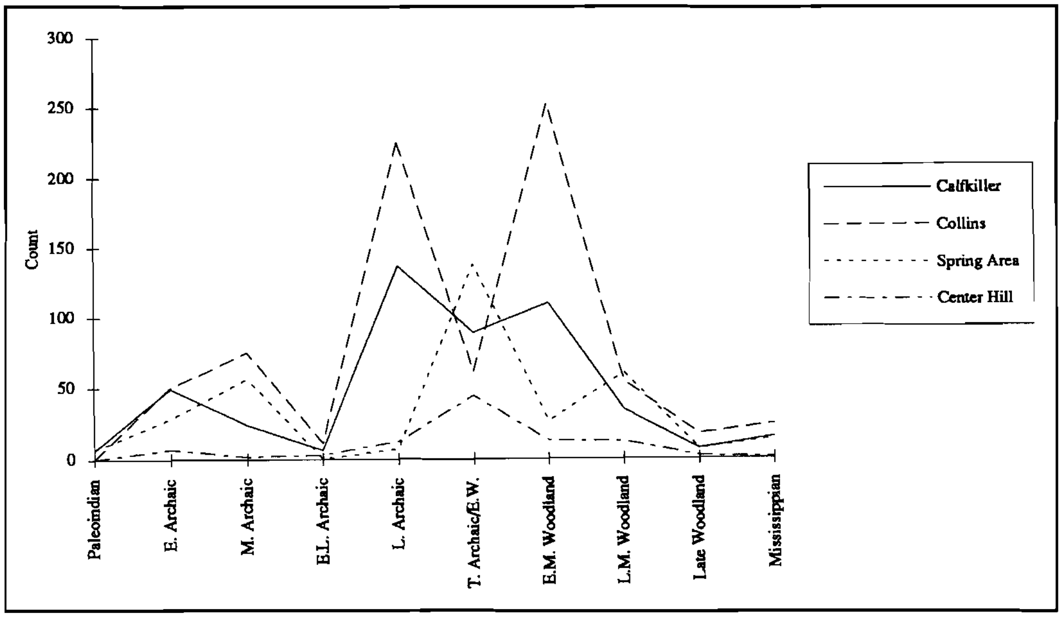

Figure 7.5. Diagnostic hafted biface frequencies (clusters) by cultural period for four Upper Cumberland survey regions (n=1685).

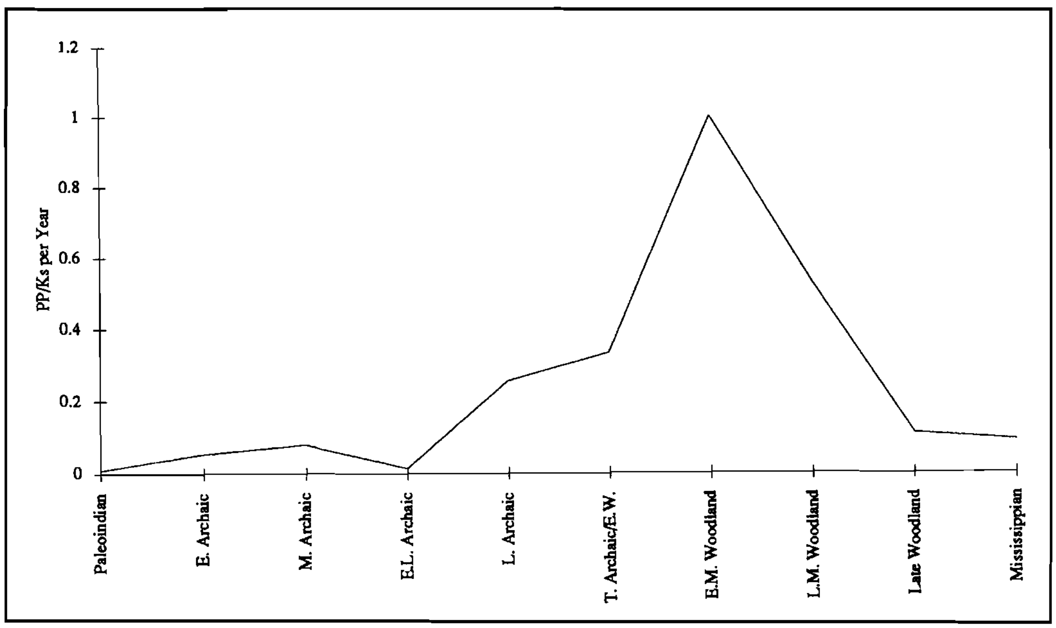

Figure 7.6. Combined temporal distribution of hafted bifaces weighted by duration of sub-period.

discharge during the Hypsithermal by perhaps 50 percent. The effects would presumably have been more severe as one moved upstream and probably peaked between 6000 and 5000 B.P. The fact that the interface of the Highland Rim and Plateau Escarpment was riddled with sinkholes must have contributed to further reduction in the availability of surface water. In addition to the paleoclimatic and hydrologic data, studies of mussel fauna in the upper Cumberland prior to the impoundment of Cordell Hull lake indicated clear upstream movement of species (Neel and Allen 1964), an event that probably coincided with the establishment of modern drainage regimes during the late Holocene.

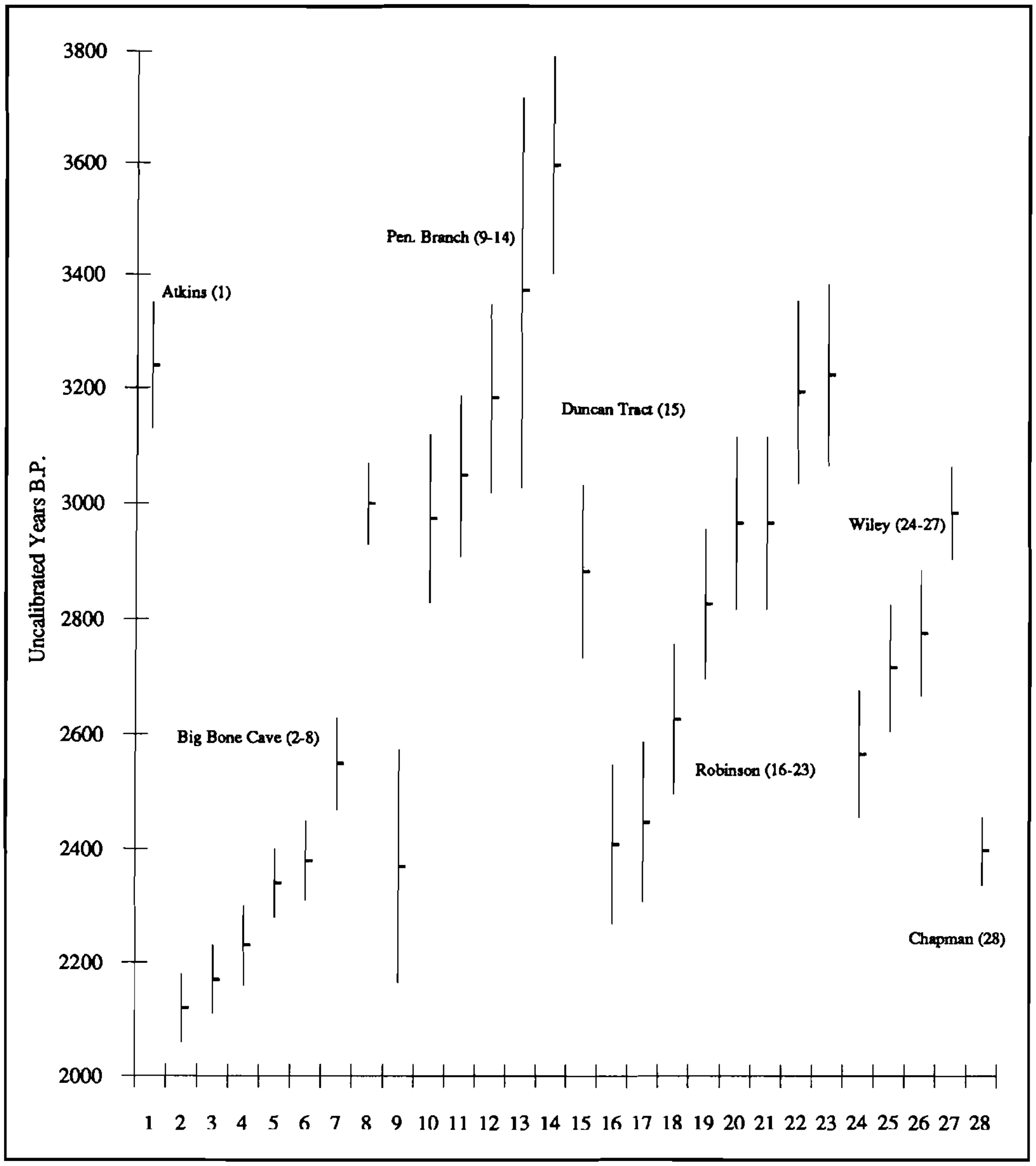

Figure 7.7. Uncalibrated radiocarbon dates for shell mounds and upper tributary sites (one-sigma tails).

Prehistoric populations took advantage of the rejuvenated shoal beds, and maximum occupational intensity in the region is closely correlated with the onset of modern climatic regimes during the latter portion of the Holocene. Dates for Robinson and Penitentiary Branch indicate mounding of shell at these main tributary sites between about 3300 and 2400 B.P., at the end of the series for larger dated Archaic shell mound sites (Smith 1986:22–25, Figure 1.7). These dates, in turn, overlap closely with the radiocarbon series for the main occupations at Wiley and the dates associated with cave exploration and aboriginal mining activities at Big Bone Cave (Figure 7.7). Of particular importance are the uncalibrated dates of 600 B.C. on the paleofecal sample and 1050 B.C. obtained on charred cane and twigs from the cave's interior. Crothers's (1986) data indicate the initiation of intensive cave use in the Terminal Archaic, with apparently increased exploitation of cave minerals in the Early Woodland.

An important regional link to the Terminal Archaic use of upland karst features is provided by the excavations conducted at Hoover-Beeson Rockshelter (Butler 1971) where a fully flexed infant burial was recovered with extensive grave accompaniments. These included a series of projectile points (McIntire, Motley) that are almost identical to those in the Wiley, Robinson, and Penitentiary Branch lithic assemblages, elongate flint bifaces, a steatite bar, turkey bone awls, worked mussel shell, *Leptoxis* (=*Anculosa*) aquatic gastropod beads, a bone whistle, a woodchuck incisor, a worked and polished carnivore (bobcat) mandible, and turtle plastron fragments.

The combined archaeological and paleoenvironmental data as currently understood, then, suggest that initiation of the kind of "occupational intensity" registered in other areas of the interior riverine Southeast (see Smith 1986) was delayed by several centuries in the upper sections of the Cumberland River drainage.

Terminal Archaic Artifact Assemblages and Evidence for Exchange

Important Terminal Archaic diagnostics in the upper Cumberland drainage include Motley and Wade cluster projectile points (Table 7.1). Points identical to the Motley type as originally defined by Haag from Poverty Point period sites in Louisiana and Mississippi were the majority type recovered from the Wiley site excavations. They were accompanied by other Late Archaic stemmed points such as McIntire, Cotaco Creek, and a few Adena and Gary cluster forms (Pontchartrain and Flint Creek). This upper tributary assemblage is matched by material from Robinson, Penitentiary Branch, and the Center Hill sites collected by Willey. The Center Hill collections, curated at the National Museum of Natural History, were reanalyzed during the summer of 1994 (Childress et al., n.d.).

The primary raw material for stone tool production at upper tributary sites is high-quality blue-gray and white nodular chert derived from the St. Louis limestone. Speckled blue oolitic chert from the underlying Monteagle limestone is a consistent minority type. Recovery of "Poverty Point-like" Motley hafted knives made of nodular St. Louis chert is very interesting given the early identification of southern Indiana as the source of some of the high-quality blue-gray material at Poverty Point itself. As Tankersley (1985) has recently shown, Wyandotte chert from southern Indiana is macroscopically identical to material recovered from a number of sources along the Eastern Highland Rim in the study area. These data point to the upper Cumberland as perhaps an alternate source for some of the Motleys at Poverty Point. This is given some additional support by the clear evidence for movement of steatite into the upper tributary region and possibly down the Cumberland and Mississippi rivers via canoes to the Poverty Point site (cf. Gibson, this volume).

As indicated by the assemblage information provided in Table 7.1, steatite had not been recovered in significant quantities from Terminal Archaic site components prior to recent excavations in upper Spring Creek. Both limestone and sandstone bowls have been reported from sites along the main stem of the Cumberland (e.g., Mohrman 1959), but other than a single steatite vessel sherd (lugged rim) found by Polhemus at the Sanders site (40-Jk-10; Morse and Polhemus n.d.:151–152) no other steatite vessels or fragments are documented. In contrast, about 60 steatite bowl fragments, most very small, were recovered from Wiley. Larger sherds have smooth interiors and roughly chiseled or partially smoothed exteriors. Two incised rim sherds were found. A fragment of a limestone bowl with an ochre-impregnated exterior was also found in association with a Motley projectile point of Dover chert. Steatite vessel sherds were also recovered in limite[illegible]ng at two other nearby sites. Findings indicate that a real discontinuity in distribution exists, with more steatite documented near the Cumberland Plateau escarpment and upper tributary areas than areas farther west in the Cumberland drainage.

Table 7.1. Terminal Archaic artifact assemblages from selected sites, Upper Cumberland River drainage.

Artifact Class		Site				
		Penitentiary Branch 40-Jk-25	**Robinson 40-Sm-4**	**Wiley 40-Pm-90**	**Atkins 40-Pm-85**	**Chapman 40-Jk-102**
Chipped Lithic	Projectile Point/Knife	251	289	126	7	9
	Core	934	114	1365	150	50
	Biface/Biface Fragment	887	514	737	94	78
	Adze/Ax	4	30	12	1	—
	Chisel	4	—	—	—	—
	Chopper	1	89	—	—	—
	Drill	42	1	6	—	—
	Scraper	15	5	21	16	—
	Perforator/Microlith	14	4	33	2	—
	Graver/Denticulate	4	27	1	—	—
	Spokeshave	5	—	4	—	—
	Composite Uniface	—	—	1	8	—
	Utilized Debitage	123	187	4467	735	17
	Debitage	103,450	11,195	126,275	27,549	13,772
Ground/Chipped Lithic	Grooved Greenstone Ax	—	—	1	—	—
	Grooved/Notched Limestone Ax	8	8	—	—	—
	Limestone Celt	—	5	—	—	—
	Limestone Hoe	21	163	—	—	1
	Shale Hoe	—	43	3	—	1
	Limestone Mano	—	14	—	—	—
	Limestone "Boatstone"	1	—	—	—	—
Other Stone	Manuport	—	—	—	—	2
	Pitted/Battered Stone	1	—	11	—	2
	Stone Hammer	16	21	1	—	3
	Sandstone Abrader	1	12	—	—	—
	Groundstone Fragments	—	—	31	—	—
	Notched Pebble	—	1	1	—	—
	Limestone Vessel Fragment	—	3	1	—	—
	Steatite Vessel Fragment	—	—	60	—	—
	Limestone Gorget	1	—	—	—	—
	Shale Gorget	2	12	—	—	—
	Siltstone Gorget	—	—	2	—	—
	Limestone Bead/Drilled Pebble	1	—	—	—	1
	Stone Tube Pipe	1	4	—	—	—
	Crinoid Stem Section	—	21	3	—	—
	Ochre (Red or Yellow)	—	3	1	—	—

Table 7.1. Continued.

Artifact Class		Site				
		Penitentiary Branch 40-Jk-25	**Robinson 40-Sm-4**	**Wiley 40-Pm-90**	**Atkins 40-Pm-85**	**Chapman 40-Jk-102**
Bone/Antler	Mammal Bone Awl	84	153	—	—	8
	Bird Bone Awl	9	6	—	—	1
	Bone Pin	43	—	—	—	1
	Bone Point	—	17	—	—	—
	Bone Fishhook	3	6	—	—	—
	Bone Scraper	5	2	—	—	—
	Bone Chisel	—	2	—	—	—
	Bone Spatula	—	1	—	—	1
	Complete/Split Bone Tube	8	22	—	—	—
	Turtle Shell Vessel	30	4	—	—	—
	Other Bone Artifacts	12	11	—	—	—
	Antler Chisel	—	1	—	—	—
	Antler Handle	1	9	—	—	—
	Antler "Bar"	—	5	—	—	—
	Antler Atlatl Hook	—	1	—	—	—
	Antler Flakers	38	18	—	—	—
	Antler Hammer	8	—	—	—	—
	Antler Point	1	—	—	—	—
	Antler Awl	1	—	—	—	—
Shell	Conch Gorget	—	3	—	—	—
	Conch Shell Bead	—	20	—	—	—
	Shell Hoe	—	1	—	—	—
	Shell Spoon	—	2	—	—	1
Total:		106,030	13,049	133,163	28,562	13,947
Total (minus debitage):		2,457	1667	2421	278	158
Artifact Richness		36	43	23	9	15
Excavated Volume (cubic meters)		163.6	219.0	101.6	13.5	4.314

Feature 19 at Wiley, containing steatite fragments, a Motley projectile point, and the lateral section of a fully grooved greenstone ax, was radiocarbon dated to 1040 B.C., uncalibrated (Childress and Buchner 1993). This date correlates quite nicely with what is recognized as the peak of earthwork construction and probably the level of exchange activity at Poverty Point itself. Fully grooved axes have been recovered from Late/Terminal Archaic contexts in the upper Tennessee valley (Schroedl 1975:88), providing an important link to the Wiley specimen. both the morphology and raw material point to an eastern Tennessee source (cf. Chapman 1985:150–151).

Bifaces and Motleys made of Dover chert have been recovered from both Robinson and Wiley and from other Wade phase sites (1100–800 B.C.) in the southern section of the eastern Highland Rim along the Duck and Elk rivers (Faulkner 1991). The Robinson sample is a group of seven pristine specimens recovered from burial context. Dover is a macroscopically distinctive raw material and, like the blue-gray nodular chert of the local area, is found in the St. Louis limestone. It is, however, from the other side of the Low Plateau, down the Cumberland River some 200 km in the western Highland Rim (Stewart County; Figure 7.1). In addition to being quarried and traded in the Mississippian period, it was an important Terminal Archaic exchange item. I believe identical material has been recovered at Poverty Point (a nice example of a Dover biface is in the small collection obtained from the Poverty Point site in the 1960s, mentioned again below).

It is suggested that steatite distribution may be tied with evidence that Eastern Highland Rim Terminal Archaic groups were moving, perhaps seasonally, to locations on the Cumberland Plateau. This movement is inferred mainly from the distribution of distinctive chert types (Faulkner 1991). Small plateau encampments may be the locations where steatite or greenstone from the chlorite schist belt to the Southeast was exchanged for local or downstream products (Figure 7.1; steatite distribution after Chidester et al. 1964). Exchange items may have been Dover chert obtained from downstream locations or crystals obtained from local caves. Heightened warm-season use of upper tributary coves and karst features is documented both in the Eastern Highland Rim and adjacent portions of the Interior Low Plateau during this time interval (Gremillion and Sobolik 1996). Locally produced salt may have entered into regional exchange relations (there are a number of well-known "licks" in the area), but there is currently no direct evidence for this. Because active shell fishing was practiced seasonally, freshwater pearls may also have been involved (again, no direct evidence). A general east–west down-the-line exchange network at the Poverty Point horizon, involving both overland transport along trails from the Great Valley of Eastern Tennessee and movement along interior waterways, is indicated.

Activities directly linked to those well known in the Poverty Point core area are reflected by prepared platform cores and small blade and flake tools at regional occupation sites along the upper Cumberland. Several hundred small blade tools and platform cores were recovered from Wiley, and Morse remarked on the presence of Jaketown perforators at Robinson. Their numbers and density at the Poverty Point site itself are said to be staggering (cf. Boudreaux, this volume, for the presence of such artifacts at the Claiborne site, Mississippi). I recently had the opportunity, here in Jackson, Mississippi, to examine several hundred microtool specimens from the Poverty Point site that were collected by a local Monroe, Louisiana, boy in the early 1960s. His unsolicited report when I asked about them was that they were "everywhere" and could be collected by the bushel basket. The microtools in this collection appeared much more intensively used to drill, pierce, and scrape than any of the examples recovered from Wiley.

The main stem–upper tributary variation in the distribution of steatite is balanced by the presence of marine shell in the region. Gorgets and beads of conch shell were recovered only at Robinson (also in burial context). This material may also have moved overland from the upper Tennessee River region, the presumed (but unconfirmed) source of steatite and greenstone, but contacts through Wade phase groups in the upper Duck and Elk drainages of the middle Tennessee area may have been an alternate or additional source. The quantity of marine shell in the area recovered to date does not suggest pervasive outside contacts between locals and southern sources of this valuable material, but preservation bias is obviously more of a problem here than in the case of steatite. Copper is thus far unreported from Archaic or Woodland contexts in the upper Cumberland area.

Mortuary Data

In addition to documenting intergroup distribution and ritual disposal of trade goods and exotics, burial data provide insight into the social context of exchange. Paradigmatic classification of 224 burials

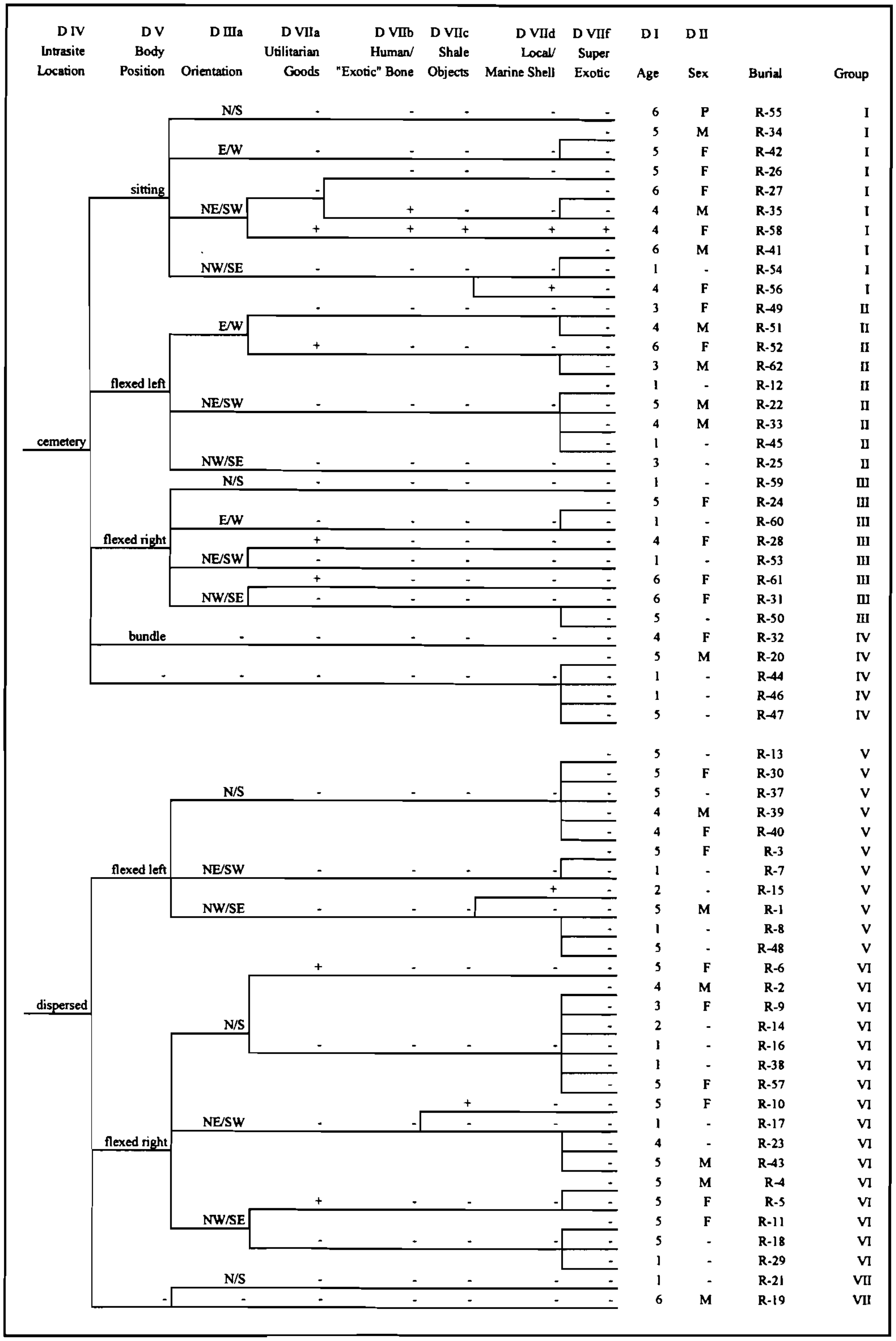

Figure 7.8. Burial dimensions for the Robinson sample.

recovered from six sites in the study area and vicinity has been accomplished (Childress et al. n.d.). All of the burials date between about 1200 B.C. and A.D. 350 and provide an excellent sample for consideration of mortuary practices and social organization during this interval. The well documented cemetery excavation at the Terminal Archaic Oldroy site (40-Hi-131) located along the Duck River (Columbia Reservoir) provides a comparative sample for the upper Cumberland Terminal Archaic material (Amick et al. 1986). Both formal analysis and unconstrained clustering have been performed on the samples, providing independent support for the partitioning of site cemetery populations into discrete groups. Figure 7.8 shows the partitioning of the Robinson sample into two fairly equal groups characterized primarily by location within or outside an identified "cemetery" and by the presence of grave goods. A subset of the site's cemetery burials is additionally distinguished by body position, and within this subset only one individual, a mature female, was interred with both Dover chert and marine shell items. The equally "super-exotic" infant burial from Hoover-Beeson rockshelter, together with the Robinson female, could be used to support an argument for some degree of acquired rather than strictly achieved status. Stratification of individuals and corporate kin groups may have been linked to differential success in trade relations, an interpretation consistent with observations made for the nature of Hopewell horizon social stratification in the Helena region of Arkansas (Mainfort 1988).

Analysis of the slightly later, Adena-related Early Woodland cemetery population at Duncan Tract (40-Tr-27: located downstream in the Hartsville region of Trousdale County; McNutt and Weaver 1983) indicates significant differences from the Late/Terminal Archaic cemetery groups. Numerous small groups of roughly equal size containing burials lacking exotics were the norm. This population may represent one immediately postdating the adoption of ceramics in the region. The earliest radiocarbon date on ceramics thus far (275 B.C.) is associated with crushed quartzite-tempered Watts Bar pottery from Duncan Tract. The implications for interpretation of Terminal Archaic–Early Woodland social dynamics in the region are exciting, particularly considering some of the recent ideas discussed by Ken Sassaman (1993b) concerning ceramic container adoption and its impact on exchange relations at the end of the Poverty Point horizon.

Acknowledgements

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8

Prehistoric Exchange in Mississippi, 10,000 B.C.–A.D. 1600

Samuel O. Brookes

This paper will discuss prehistoric exchange in Mississippi. A temporal span of 11,600 years will be covered. Most materials discussed will be flaked stone, though some mention will be made of other types of materials. Certainly, perishable commodities such as salt and feathers were exchanged, but as yet these have not been directly detected in the archaeological record. Most of the data in this paper has evolved from work done in the last five years by members of both the amateur and professional communities. This report is not original research, but is, instead, a review of work done by a number of people.

Paleo-Indian

The Paleo-Indian period in Mississippi has been the subject of several papers by McGahey (1987, 1993, 1996). Paleo-Indian points in Mississippi are frequently made from materials other than local gravel cherts. Generally, this can be broken down into three basic types of material: Fort Payne chert, Coastal Plain Agate, and blue-black chert of uncertain origin. Quartzite and novaculite points also occur but are rare (McGahey 1987:12). Since most of these data come from surface collections made by amateurs, we have little information on associated tools. The general impression one gets is that these Paleo-Indian points were made near the source area of the material and transported in a finished state into Mississippi (McGahey 1987:10–11). Exotic material use decreased through time during the Paleo-Indian period, suggesting that Mississippi was initially populated from north to south. Groups appear to have come down the Tennessee-Tombigbee river systems and also down the Mississippi (which at this time lay along the eastern Valley margin) and then eastward up into the tributary stream valleys. As time passed and the artifacts made from imported raw material were used up, the groups began to exploit local gravels. By the Dalton period (8500–7900 B.C.), most projectile points and tools were being made from locally-available gravel cherts. At present I have seen no evidence of the "tethering" phenomenon as described by Anderson (1990:11), nor is there evidence to suggest that raw materials were being exchanged. It appears that non-local materials were carried in by hand as finished tools.

Early Archaic

Native Americans in the Early Archaic period similarly made finely crafted stone tools. The northern cherts carried in by the Paleo-Indians are rarely encountered when dealing with Early Archaic materials. Locally available gravels were overwhelmingly favored by Early Archaic tool makers (Brookes 1979:116–119). Evidence suggests, however, that lithic procurement was highly selective during this time (Brookes 1979:15–16). Projectile points of the Scottsbluff type are often made from a non-local honey-colored or white chert, believed to be of western origin (either Oklahoma or central Texas). Brookes and Reams (1996:8) suggest that these points were carried in by hunters moving into the area at the onset of the Hypsithermal and do not represent trade or exchange. Exchange of raw materials does not appear to be a factor in this time period with one possible exception. Makers of Pine Tree points show a preference for Kosciusko quartzite (McGahey, this volume; Brookes et al. 1997). Brookes and Reams (1996) attribute this to the onset of the Hypsithermal, when the warmer temperatures caused lower stream discharge and eroded eolian sediments covered the gravel beds in streams. Since the preferred raw material—gravel—thus became unavailable, prehistoric peoples began to exploit upland chert and quartzite sources.

Whatever the cause, the material is widely distributed over north Mississippi during this time. As previously stated, it is primarily associated with Pine Tree points, that Brookes and Reams (1996:9) argue are late varieties of Kirk points made by peoples displaced from the Carolinas ca. 6500–5000 B.C. Earlier, Brookes (1985:28) suggested that Pine Tree points were later varieties of Kirk carried into the state. In this scenario, Kirk peoples, being accustomed to quarrying their raw material (various forms of rhyolite), sought out similar material in their new environs. This of course does not explain why makers of Pine Tree points did not use the much-superior deposits of Fort Payne chert. Whatever the causes, the early use of Kosciusko quartzite is confined almost exclusively to Pine Tree points in northern Mississippi at the end of the Early Archaic (McGahey, this volume) at the onset of the Hypsithermal. Pine Tree point-makers preferred this material, and it is found up to 80 kilometers from the source. It is possible some Kosciusko quartzite was exchanged with groups making Pine Tree points.

Middle Archaic

Several recent papers (Johnson and Brookes 1988, 1989; Peacock 1988), have dealt with aspects of the Middle Archaic Benton culture of 4750–3900 B.C. (Peacock 1988:16). Diagnostic of this phase is a large, broad-stemmed projectile point with a beveled base. The raw material used by the Benton culture is a distinctive blue-gray tabular chert. Fort Payne chert outcrops in a narrow band at the Mississippi, Tennessee, and Alabama border in northeast Mississippi. Because this material is so distinctive, it is relatively easy to document long-distance trade networks (cf. Meeks, this volume). Benton exchange, while regional in scope, extending no more than 160 km from the source, is very intensive: 50 to 80 percent of all stone tools used during this phase are made from a blue-gray Fort Payne chert (e.g., Rafferty et al. 1980; Smith 1982). Exchange is typified by two artifact types, cache blades and Benton points. In addition to the more mundane artifacts, several unusual specimens have been recorded (Johnson and Brookes 1989). These include oversized cache blades, oversized Bentons, Turkey Tails, double-notch points, double-notch Turkey Tails, and points made of Tallahatta quartzite. Further, large ground and polished objects that appear to be effigies of projectile points are present. Some caches contain stone beads and bannerstones. These special artifacts have been found in a series of caches presumed to have accompanied burials. Of special interest is the fact that the caches have been found at smaller sites on tributary streams, as opposed to larger midden mounds along the Tombigbee River.

One hundred and eighty kilometers south is the Toby Thornhill site (22-Ld-521), a large Tallahatta quartzite workshop excavated by John O'Hear and Geoff Lehmann (1983). Hundreds of Middle Archaic projectile points, mostly Cypress Creek and Pickwick-type, have been recovered from this site. Additionally, numerous Fort Payne chert Benton points have been recovered from the midden. Many of the points at Toby Thornhill are identical in size and form to those recovered with Benton caches in the

Tombigbee region. Most of these Tallahatta quartzite points belong to the Pickwick/Ledbetter cluster. This cluster was originally believed to belong in the Late Archaic because of the contracting stems present on some specimens. It must be pointed out, however, that one of the major attributes of Middle Archaic points is a wide stem, and the majority of Pickwick cluster points fall within the parameters of the wide-stemmed Middle Archaic forms. No Pickwick cluster points had been found *in situ* in dated contexts until the Tombigbee caches were discovered. The Tombigbee caches contained Benton points that are among the best-dated points in Mississippi, ranging from 4750 B.C. to 3900 B.C. (Peacock 1988:14–16). Interaction between these two exchange networks, Benton and Pickwick, can thus be documented. The Pickwick (Tallahatta quartzite) exchange network has not yet yielded the sociotechnic artifacts present in the Benton network. Thus it can be suggested that groups of different social entities and perhaps different linguistic stocks participated in exchange networks. The distribution of different projectile point types may be useful in defining group territorial sizes through time.

Moving to the west, 231 kilometers from the Fort Payne outcrop in the Yazoo Basin, is the Denton site (22-Qu-522). Described by Connaway (1977), the site is contemporaneous with the Benton phase sites of east Mississippi. Numerous projectile points of Fort Payne chert, including Benton and the Elk River variety of Benton, have come from this site. An Aberdeen-style grooved axe, the only such specimen known from the Yazoo Basin, shows a further connection with the Benton network. The outstanding feature of Denton is the lapidary industry. Over 200 stone beads and preforms have been recovered from the site. Most are drilled pebbles or barrel-shaped beads, with tubular beads in the minority. Zoomorphic beads, once thought to be of Late Archaic origin, are also present at Denton. In fact, the 24 examples recovered so far make it a unique site in terms of numbers of this type of artifact. Research by Connaway indicates that while bead making was a common activity at Denton, the zoomorphic beads were made elsewhere and transported to the site. Connaway's (1981) work on the Keenan bead cache illustrates that at least some bead manufacture was done by specialists. Current research is beginning to indicate that the Middle Archaic zoomorphic beads were made by a very few individuals over a short period of time. At present, approximately eighty of these beads are known, with at least 75 percent of them being from Mississippi. The remainder are from Arkansas, Louisiana, and Alabama. While not present in great numbers, the distribution of zoomorphic beads seems to indicate manufacture in southwest Mississippi and exchange with Middle Archaic groups over a wide area, but primarily with the Denton-phase groups in the Yazoo Basin and the Benton-phase groups in the Tombigbee area.

To summarize, several exchange networks were operative within Mississippi during the Middle Archaic. Materials exchanged included mundane artifacts—preforms and points of Fort Payne chert and Tallahatta quartzite—as well as sacred oversize ceremonial blades and zoomorphic beads. All this occurred 2500–3000 years before the better known exchange network of Poverty Point.

An unusual site (22-Hu-655) was discovered in Mississippi in 1980. Dubbed the "Slate site" because of its most common lithic material, it is of special interest. Over 400 pieces of slate have been recovered from this Yazoo Basin site (Lauro and Lehmann 1982). Most of the raw material represented had an origin in the Ouachita Mountains. Green, maroon, and gray slate, nepheline syenite, garnet schist, and opalized shale are from this source. Additionally, over 600 quartz crystals from the site are certainly imports from Arkansas. Bead making was the primary activity at this site. Quartz crystals are small, and use-wear patterns show haft marks where they were used as drills (Johnson 1993).

The Slate site assemblage poses problems for the site's supposed ties to the Poverty Point culture (Lauro and Lehmann 1982). Slate beads do not occur at Poverty Point (Webb 1982) or Jaketown (Lehmann 1982:44). In fact, the only slate artifacts found in the northern Yazoo Basin are gorgets, and these are absent at the Slate site. Projectile point types and the absence of pottery suggest that Slate is Archaic. The form of several of the beads does suggest a Late Archaic assignment, but the recent finding of two slate effigy spearpoints, unknown in Poverty Point culture (Jon Gibson, personal communication, 1997), plus an oversized spearpoint of the type Newnan, possibly of Florida chert, suggests a Middle Archaic placement may be more appropriate. Several more Newnan points have been recovered from Slate, and one is made from Arkansas novaculite. Newnans in Florida have been dated by radiocarbon assay. Several dates clustering around 4000–3460 B.C. have been obtained from three sites (Milanich 1994:76). The effigy points appear to be effigies of the Newnan type. Recently, a large Newnan of novaculite was recovered from a site near Satartia, Mississippi. Newnans of exotic material found along the eastern Mississippi valley margin suggest at least some interaction with the Gulf Coast. If the unidentified chert does turn out to be from Florida, then we have evidence of yet another Middle Archaic group participating in the exchange networks. This large Florida type has not been reported heretofore in Mississippi. This type, plus the effigies, suggests a Middle Archaic occupation at the Slate site. The Slate site certainly does not fit within the Poverty Point Interaction Sphere as it is now known. For the moment it must stand alone as an isolated and unique site chock-full of exotic materials from the Ouachita Mountains. Further work will, in my opinion, reveal it to be earlier than has been previously thought.

Late Archaic

The Poverty Point culture of the Late Archaic period, 1500–1000 B.C., is one of the best known exchange systems in the country (see Gibson, this volume). Raw materials from several different areas were being transported into Mississippi during this time. The Jaketown site (22-Hu-505) in the central Yazoo Basin is the premier Poverty Point site in Mississippi. A number of raw materials from the Ouachita Mountains in Arkansas are found there, most commonly novaculite (used for projectile points) and quartz crystals. Further, most novaculite points on the site are of the classic Gary variety. Quartz crystals were used for projectile point manufacture, but pendants, beads, bannerstones, and other artifacts were also made from them (Lehmann 1982). Lesser amounts of minerals from the Ouachita Mountains present at Jaketown include quartz, quartzite, bauxite, volcanic tuff, and nepheline syenite (Lehmann 1982:16).

Materials from southeast Missouri include galena, hematite, magnetite, and white chert. While Arkansas could be the source for the magnetite and hematite, geologists feel that Missouri is the most probable source (Lehmann 1982:16). Dark gray chert is plentiful at Jaketown and most likely came from several sources, including Tennessee and Indiana (Lehmann 1982:13). Fort Payne chert is present, but it did not get to Jaketown via the Tombigbee River. After the Middle Archaic, the Fort Payne chert exchange network collapsed. Almost no Fort Payne chert was used in northeast Mississippi in the Late Archaic. It appears that the Fort Payne that was quarried moved across the Tennessee River to the Mississippi River and from there to the Poverty Point and Jaketown sites (Johnson and Brookes 1988:59–60). Numerous other materials were being brought into the Jaketown site from a large part of the country.

When outlying sites are visited, one is struck by the lack of imported materials. Tools from Poverty Point sites in the Yazoo Basin are almost exclusively of local gravel. Jaketown is the only Poverty Point site in the Yazoo Basin with a wide array of materials. Further, other Poverty Point sites in the Yazoo Basin lack the microlith industry as well as the lapidary industry. The Poverty Point cultural systems in Louisiana and Mississippi are fundamentally different. Were it not for Jaketown and the Claiborne site on the Gulf Coast (22-Ha-501; see Boudreaux, this volume), Poverty Point would be considered a Louisiana phenomenon.

The Poverty Point culture in Mississippi—one can almost say the Jaketown and Claiborne sites—differs markedly from the preceding Middle Archaic exchange networks. Poverty Point was a superareal exchange network that included much of the Mississippi River system, including the Missouri drainage if the geologists are correct about the magnetite and hematite. It also appears to have been hierarchical, focused on several regional centers and on one supra-regional center, the Poverty Point site itself (Gibson, this volume; Johnson and Brookes 1988:61). Much more work needs to be done, as the Mississippi data do not jibe with the often-suggested redistributive economy and chiefdom level society of Poverty Point. Sites other than Jaketown were not receiving many prestige goods. Indeed, the artifact contents of most Poverty Point period sites in Mississippi suggest that they were not even participating in the Poverty Point interaction sphere.

Middle Woodland

The Yazoo Basin of western Mississippi is known to contain over 60 sites of the Early Marksville period (Toth 1988). Materials from the Ouachita Mountains are present on these sites also. Novaculite is a common material for flaked stone, and quartz crystals are plentiful. The crystals are sometimes unmodified but often are ground and polished and sometimes grooved for suspension. One large crystal was even worked into a boat stone. In the last few years, several sites in the northern Yazoo Basin have yielded numbers of artifacts made of Cobden chert from a source in what is now the Shawnee National Forest in southern Illinois. One North blade (a preform for a Snyders point) has been found that is made from Cobden chert. Several Snyders points have been recovered from these sites, but they are made from novaculite. Cobden chert was made into prismatic blades, preforms, and endscrapers (Johnson and Hayes 1995). Burlington/Crescent chert from Missouri is also present on many of these sites in the form of prismatic blades and unifacial endscrapers. Blade cores are missing, indicating that tool manufacture occurred elsewhere. In addition, the unifacial endscrapers represent a foreign technology as well as a foreign raw material (Brookes 1988). Finally, one Marksville adze of Mill Creek chert has been recovered from a site in the Upper Sunflower region. These foreign cherts indicate a connection with the Illinois Havana tradition via the Mississippi River. The few pieces of Flint Ridge chert located in Mississippi are in the extreme eastern part of the state and suggest an Ohio route. Most of this northern chert was used in the northern Hopewell sites, but enough is present in the South to show exchange systems in operation at this time. Most northern chert imports are mundane tools, but Arkansas materials appear to have been used for status items (polished or grooved quartz crystals and novaculite Snyders points). Johnson and Hayes (1995) have written an informative article on these sites and have shown that there is a differential distribution of raw material through the Marksville period. Evidence suggests that the northern cherts, Cobden and Burlington, dropped out later in the period and were replaced with novaculite. Johnson and Hayes pose the question of the nature of exchange in this period (1995:116) and suggest that it may have been more a social than an economic phenomenon.

Late Woodland/Coles Creek

The Baytown period of the Lower Mississippi Valley, often referred to as a "Good Gray Period," is exactly that, if one is speaking as a ceramicist. If one is speaking of lithics it is a "Good Tan Period," meaning that local gravels were used almost exclusively. However, there is evidence of raw material exchange, as many sites yield hammers, abraders, and other large grinding and pounding tools made from sandstone. The sources for this material could be sandbars on the Mississippi River but are more likely the Loess Bluff escarpment. This material is decidedly unglamorous but was certainly necessary in the nearly rock-free environs of the Yazoo Basin. While no exchange networks on the scale of the Middle Archaic ones appear to be operative at this time, there had to be a mechanism for exchanging this necessary material.

This period and the succeeding Coles Creek Period, together spanning the time from ca. A.D. 500–A.D. 1000, are thought to be the era when local groups were coalescing into tribes. Near the end of this period, specifically ca. A.D. 850–1000, we begin to see imported artifacts appearing on local sites. These artifacts are arrowpoints of the Scallorn and Rockwall types. The local arrowpoint type is a Collins point made from local gravel. The Scallorns and Rockwalls are made from novaculite, Pitkin chert, and Burlington chert: thus, the technology and raw material are foreign to the area. Even more perturbing is the fact that when these points have been found *in situ* they are associated with human remains. The two headless burials at the Bonds Village site (22-Tu-530) contained several of these Scallorn point forms, all of non-local material. The implication is that the individuals (local) were captured, executed, and the heads taken as trophies by a raiding party (Connaway and McGahey, 1970:8–9; cf. McGahey, this volume). The raiding party may well have been from Arkansas, as that is the source of Pitkin chert and novaculite. Further, Scallorn points are a common type of point in Arkansas.

The taking of human heads as trophies is documented for the Mississippian Period but had not been observed in the Coles Creek Period. Archaeological work at the Crenshaw site in Arkansas (3-Mi-6) has a direct bearing on the Scallorn points and headless burials from the Bonds site. Identical point forms of Pitkin chert and novaculite occur at Crenshaw (Schambach, personal communication, 1997). In addition to the projectile points, Crenshaw has other materials of a macabre nature that are almost certainly related to the headless burials of the Yazoo Basin. Schambach (1996:38–39) describes an area he calls the "plaza of the skulls" where several hundred skulls have been recovered. He estimates that as many as 1000 skulls are buried in this area. Mary Lucas Powell (1977:112–14) analyzed a few of the skulls and determined that human heads were buried; i.e., interred with flesh still adhering to the bone. She found no evidence of scalping or scraping of flesh. Powell (1977:113) went on to suggest that the skull plaza represents the taking of human heads as trophies.

Interestingly, Schambach (1996:40) rejects such a hypothesis because the number of skulls "is far too many, it would seem, for warfare on a scale the Caddo might have managed around A.D. 1000, particularly when there is no other evidence of warfare, such as fortified villages." Schambach is here looking at the area around Crenshaw. A visit to certain sites in Mississippi suggests something far more ominous. Scallorn points are known from several sites in the Yazoo Basin. They are always made from non-local (i.e., Arkansas) materials. At two sites at least they are known from burial contexts, imbedded in the remains. One already mentioned was a double headless burial. Few of these sites have been explored on a large scale. One that has is the Austin site in Tunica County, Mississippi (22-Tu-549), which dates to exactly this time period, A.D. 900–1100. Austin has yielded burials with Scallorn points and has the earliest palisade found in the Yazoo Basin (Connaway, personal communication, 1997). Further, Scallorn and Rockwall points made from Arkansas material have been found in the Red Creek area of Stone County, Mississippi, east of the Pearl River, and also from the Natchez Bluffs area. The initial impression one gets is that of a frontal assault by Caddoan groups involved in the bizarre business of headhunting for the purpose of decorating a skull plaza. The result of this action was a consolidation of smaller villages into larger ones surrounded by palisades. The evidence of warfare found along the Tombigbee River does not appear to be of the scale found in the Yazoo Basin. Warfare in the Tombigbee valley appears to have been conducted by small, infrequent raiding parties rather like those known for the historic Chickasaw and Choctaw. At any rate, non-local point forms made from non-local cherts in the

Late Woodland of the Yazoo Basin are indicative of warfare rather than exchange. It is included here because it is an example of another manner in which raw materials and artifacts may be moving within cultural systems.

MISSISSIPPIAN

The final episode of exchange to be addressed is the Mississippian Period. After an interval of nearly 800 years, foreign raw materials begin to appear in Mississippi once again. Burlington chert appears at two Mississippian sites in the Yazoo Basin, the Carson Mound group (22-Co-505) and the Buford site (22-Tl-501). A sample of over 3000 artifacts—mostly cores and blades—was examined by Jay Johnson (1987). This represents just a portion of the material available, impressive when one considers that the site that yielded the material is 434 km south of the quarries. This chert apparently was used to make microdrills employed in the process of shell bead manufacture (Johnson 1987:205). Johnson notes that blade cores and blades are restricted to two cultural periods in the Yazoo Basin: the Poverty Point period and the Early Mississippian. Both are times of maximum cultural complexity, with mound construction and long-distance exchange networks (1987:204). He further suggests that the objective of blade-core technologies may not be to conserve raw material but rather to produce large numbers of standardized blanks for a specific purpose (Johnson 1987:204).

Two types of stone were imported and are hallmarks of the Middle Mississippi period in the Yazoo Basin of west Mississippi. This area is akin to paradise for floodplain agriculturalists, but it lacks two necessary resources that have to be imported. Igneous rock is needed for large heavy-duty woodworking. Large celts are common finds on Middle Mississippian sites and some appear to have originated in the Appalachians. Most appear to be of basalt and to have originated in the Ouachita mountains. These specimens appear to have been curated, as many are worn and resharpened to such an extent that they no longer appear functional. In addition to the standard celts, some oversized examples are known that appear to have had a sociotechnic function. Large hoes of Mill Creek chert from Illinois are present on most sites, as are exhausted hoes and resharpening flakes with telltale soil polish. The local gravel available on sandbars was not large enough for suitable hoes and axes, so a flourishing long-range exchange developed. Sometime after 1400 A.D. both of these artifact types disappear. Mill creek chert hoes are replaced by shell hoes, and large polished celts are replaced by small chipped and polished celts of local gravel (Brown 1992:Fig. 79; Brown 1985:Plates 32, 45, 57, 76, and 115; Brain 1989:Plate 13, L–N; Williams and Brain 1983:252; Morse and Morse 1983:Fig. 12, E–F). This coincides with a shift from local to regional chiefdoms. By the beginning of the fifteenth century there is a population shift into large warring city-states. The De Soto expedition of 1541 encountered areas of uninhabited country and powerful chiefdoms with large populations. It would appear that the evolving political system shut down the exchange networks, forcing the populace to resort to local materials previously considered unsuitable. Again, we have warfare influencing raw material presence/absence on archaeological sites.

CONCLUSIONS

Several different types of exchange, covering a broad spectrum of time, have been discussed. An attempt has been made to explain the nature of the exchange. Exchange may in fact not be a proper term to use here. Several mechanisms for moving materials have been described. Some of them have nothing to do with trade or exchange (e.g., warfare). Suggesting possible reasons for exchange still does not provide us an exact mechanism for the nature of such exchange. For instance, was exchange carried out by everyone or just certain individuals? Was exchange limited to high status individuals or was it a way of obtaining higher status? As discussed in this paper, some of the goods that were being exchanged were obviously status items as opposed to mundane tools. Another problem, not discussed in this paper, is that of some classes of chert. Earlier on I noted that Paleo-Indian and Early Archaic peoples were very selective in their use of raw materials. At the Hester site (22-Mo-569) a large cache of preforms was recovered, the Inmon cache (Brookes, 1979:15–16). These preforms are gravel. However, the quality and size of gravel is finer and larger than that found in nearby Standifer Creek and the site environs today. This cache probably represents imported material. In this case imported means imported from another area of Mississippi. At this time we lack a good method for identifying chert found within the state. Archaeologists need to work more closely with geologists in the future to determine source areas for various materials. I would venture a guess that a lot of "local" gravel will turn out to be imported from other localities: when it does we will have better models of exchange, interaction, and behavior during the prehistoric period.

Additionally, I must mention another aspect of prehistoric exchange. When some professional archaeologists have found imported materials they have frequently misinterpreted the age of the material and the nature of the interaction that was taking place. Imported lithics were usually dropped into the Poverty Point catch-all. I do not wish to offend my colleagues so no names will be mentioned, but all the misinterpretations mentioned here are present in the literature of the state for those who wish to check. The Poverty Point culture thus became the prime mover for exotic material in Mississippi. The late Doctor Clarence H. Webb was the major student of Poverty Point culture and was considered by all, professional and amateur alike, as the authority on the subject. I fully agree with this assessment, but Webb was a medical doctor and not a professional archaeologist, and therein lies the rub. When a site of this culture was reported by amateurs, Webb would set up a weekend visit to see the site and its materials, but when professional archaeologists reported a site, Webb would simply plot it on his maps. I well remember several amateurs finding a large Marksville site in Clarksdale in 1978. The site had over 100 Early Marksville sherds, some Cobden chert including a North preform (preform for a Snyders point) and one or two biconical baked clay objects. Now, while biconicals occurred in the Poverty Point period, they also occurred in Marksville (Ford and Willey 1940). I explained this to the amateurs, but one of them was a close friend of Dr. Webb and they called him to come see the new Poverty Point site they had found. Webb made the journey, walked over the site, and examined all the materials. I will never forget his comment, "Looks Marksville to me." But the amateurs to this day still refer to it as a Poverty Point site, because Webb had visited the site. Unfortunately, he had become the ultimate diagnostic trait!

Other sites, reported by professionals, are still on the Poverty Point list in Mississippi. To be fair, Webb did attempt to visit every such site. The Marksville sites with Cobden (read imported) chert and novaculite points were classified as Poverty Point sites with Marksville components by professional archaeologists. The sherds were the Marksville component, and the lithics were the Poverty Point component. Many sites that had yielded stone beads were automatically assigned to the Poverty Point period. One large Mississippian mound group yielded an area literally covered with white lithic material. Several hundred pounds of this material, Burlington chert, were being used to produce cores and blades. This, of course, is the famous Cahokia microlith industry. Yet the first trained archaeologist to discover this called it—what else—the Jaketown microlith industry! Never mind the numerous Mississippian mounds, the shell tempered pottery, or the little white Cahokia arrowpoints. This assemblage was eventually recognized for what it was (Johnson 1987), but for a number of years it resided in the literature as a Poverty Point component. The Poverty Point period in the Yazoo Basin suffered a serious decline when these earlier Middle Archaic and later Marksville sites were removed. One Middle Archaic assemblage of oversize bifaces was not placed in Late Archaic, but rather was classified as Duck River material, somehow misplaced on an Archaic site in North Mississippi.

As I stated earlier, all these mistaken cultural assignments were made by very competent archaeologists who were just not that familiar with lithic material. I do not mean to belittle them here, but I do have a caveat. Are we doing any better when we see very fine gravel chert (like the Inmon cache) and state that it is "local" material? When we state that the material in question is local but that the people were "highly selective" in their use of raw material, are we doing any better? Until we have some control over the lithic resources of this state, beyond such generic terms as Citronelle and Fort Payne, our studies will amount to little more than guesswork.

Finally, in their recent excellent article, Johnson and Hayes (1995) discuss a question raised by Jerry Milanich and others before him. What was being exchanged? This is a major question for which we do not as yet have an answer. I have suggested (Brookes 1988) feathers and dried fish as possible commodities. To be sure, this is a culture-materialist approach. I still feel that those two commodities may well have been exchanged, but I am in full agreement with Johnson and Hayes that this approach by itself will not answer the question. They further (1995:115) state that short-lived exchange occurred early in the Poverty Point and Mississippian periods. They (1995:116) go on to suggest that "the people to the north may have sent chert south in order to support fledgling social complexity and to solidify alliances that were important in justifying their own status." Another reason for this exchange (especially on a north–south axis up and down the Mississippi river) could well be tribute to enable transient groups access through the territory of these florescent societies. Schambach (1997:65–66) suggested that the Early Caddoan cultures, prior to A.D. 1100, were engaged in exchange with Mississippian cultures from Spiro. Spiroan groups were seeking *bois d'arc* wood to manufacture compound bows. Schambach also mentions several types of prestige goods the Caddo acquired from the groups at Spiro. *Bois d'arc* is the best bow wood available in North America, and the compound bow would have represented a quantum leap in weaponry. As Johnson and Hayes have pointed out, this exchange is at the early part of Caddoan and Mississippian cultures. It is also at this time when warfare first appears in the Yazoo Basin. It seems possible that exchange between two developing societies may have led to warfare with groups who were not as socially complex. Thus we may have economic exchange (*bois d'arc* wood) and social exchange (prestige goods) co-occurring, coupled with a new technology (the compound bow), resulting in warfare. The *bois d'arc* wood would probably not be present in the archaeological record.

To sum it up, we are probably dealing with several groups of differing levels of complexity and social organization, and perhaps even different linguistic stocks, when we discuss prehistoric exchange. In addition, there may be more involved than mere exchange of goods. The social aspect is the driving force behind so much of this exchange. That social aspect is what archaeologists must try to explain.

9

"Through Many Mississippian Hands": Late Prehistoric Exchange in the Middle Cumberland Valley

Kevin E. Smith and Michael C. Moore

During the Mississippian period, the Cumberland River valley of Tennessee served as a critical nexus for widespread trade networks distributing a wide variety of resources throughout the later prehistoric Southeast. Over the past decade, research has been conducted at a series of Mississippian farmsteads, hamlets, villages, and towns. The preliminary results suggest that resources such as mica, copper, galena, greenstone, and various high-quality cherts (Dover, Burlington, Mill Creek, etc.) were readily accessible to local populations—potentially as a result of the centralized location of the region. This paper addresses the distribution of non-local materials and both internal and external exchange relationships for the Cumberland Valley.

INTRODUCTION

The primary purpose of this article is to present preliminary data and interpretations concerning late prehistoric regional exchange systems in north-central Tennessee. As defined herein, the term *Middle Cumberland region* includes that portion of the Cumberland River drainage between the confluence of the Caney Fork River on the east and the Red River on the west (Figure 9.1). This portion of the drainage

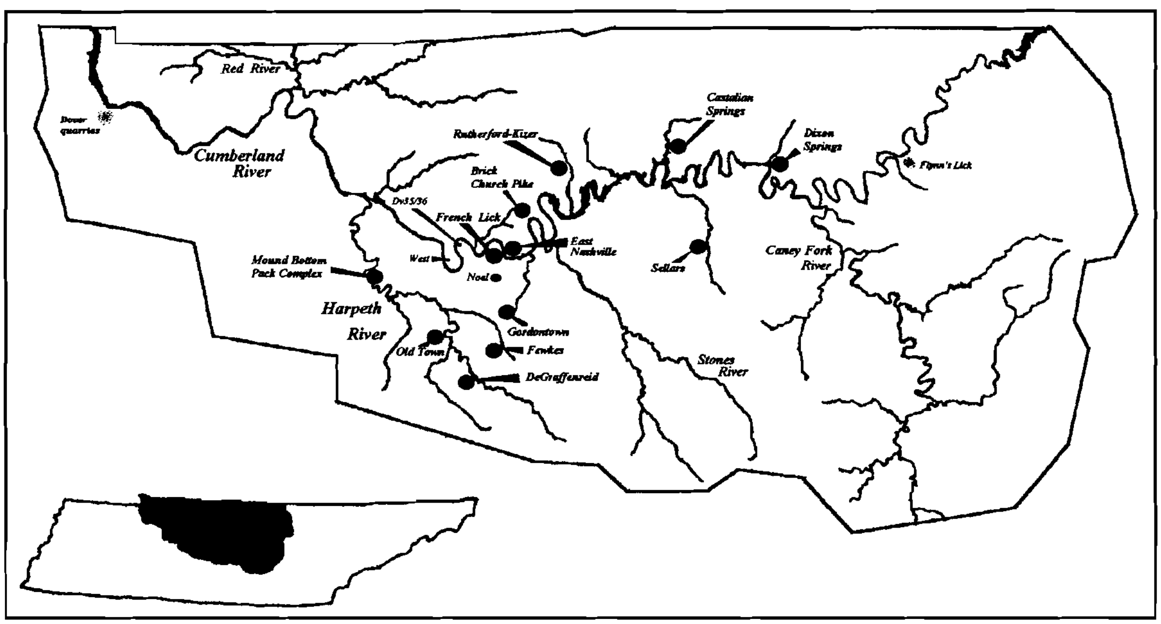

Figure 9.1. Map of Middle Cumberland region with selected Mississippian sites.

includes the northern portion of two major physiographic regions—the Nashville Basin and its interface with the Highland Rim on the western and eastern periphery.

Ongoing research has led to the construction of a tentative model of social and political interaction within and adjacent to the Middle Cumberland region in approximately A.D. 1000–1450. While the boundaries of interaction spheres undoubtedly shifted back and forth over time, some broad generalizations about the nature of late prehistoric societies in the Nashville Basin can be postulated at this point. Five primary loci for interaction appear to have emerged during the initial development of Mississippian cultures along the Cumberland River in Tennessee: (a) the Lower Cumberland below the Red River confluence; (b) the middle and lower Harpeth River valley; (c) the western and central Nashville Basin; (d) the eastern Basin and eastern Highland Rim; and (e) the Caney Fork River drainage (Figure 9.2).

While the period prior to A.D. 1200 remains poorly understood, large multiple mound centers appear to have emerged throughout the region by A.D. 1000–1050. On the Harpeth River, mound construction at the Mound Bottom–Pack Complex (40-Ch-8/40-Ch-1) appears to have been initiated by ca. A.D. 950–1000. Containing approximately thirty platform and mortuary mounds in two adjacent bends of the central Harpeth River, this chiefdom may have been established or influenced by populations originating to the north and west in the lower Tennessee River valley. Regionally unique traits, including dental modification (Autry 1991) and the presence of Cahokia Cordmarked ceramics suggest connections between this site and the lower Tennessee River/southern Illinois region between A.D. 1000 and 1200. The absence of other mound centers on the central Harpeth suggests that the complex served as a primary center. Coinciding with the apparent reorganization of populations at Cahokia, the Mound Bottom/Pack site experienced a depopulation after about A.D. 1250–1300, resulting in an abandonment of the entire middle and lower Harpeth River by nucleated populations. As this dispersal or migration of populations took place along the central and lower Harpeth, a tremendous growth of population can be noted in the heart of the Nashville Basin. While not unrelated, the Mound Bottom–Pack complex shows sufficient distinction in artifact assemblages to suggest a separate phase from contemporaneous happenings in the Nashville Basin proper.

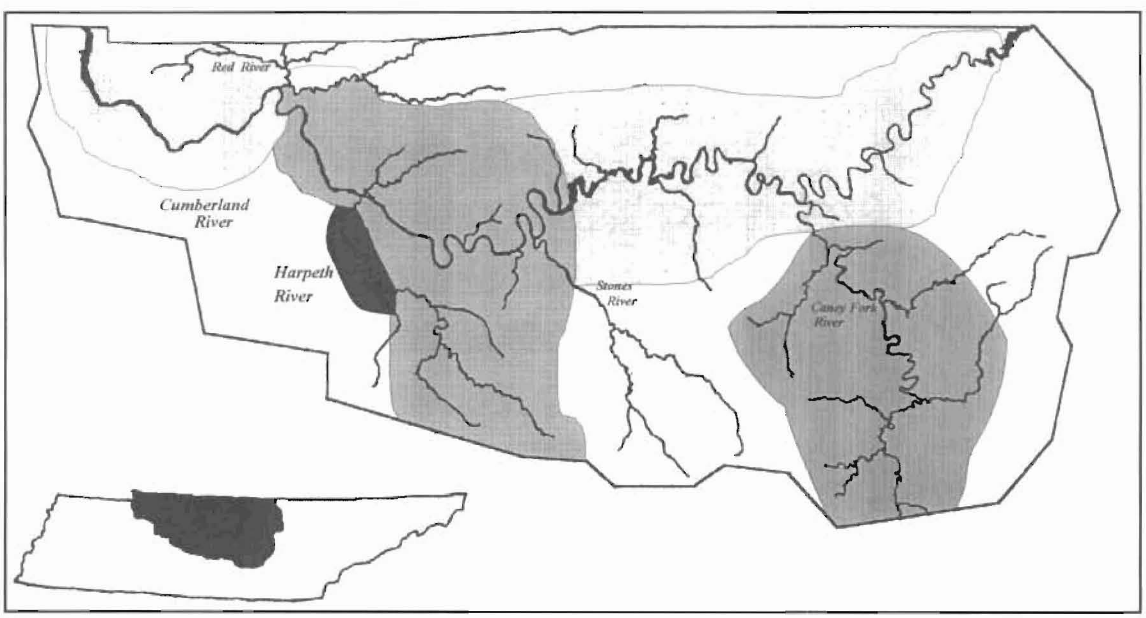

Figure 9.2. Map showing hypothesized "loci of cultural interaction."

In the central and western Basin, the French Lick (40-Dv-5) and Brick Church Pike (40-Dv-39) sites appear to have emerged in a roughly similar time frame (ca. A.D. 1000–1050). Over the course of the following two centuries, numerous towns (many exhibiting one or more platform mounds) emerged on the upper Harpeth and on virtually every major tributary stream in the western and central portion of the Nashville Basin. A closely related and similar process appears to have taken place in the northeastern portion of the Nashville Basin.

In the northeastern Basin, the Castalian Springs Mound complex appears to serve a parallel function for this region. Unfortunately, the currently available data do not permit a postulated date for the initial founding of this site. Nonetheless, by circa A.D. 1200, Castalian Springs appears to have been well established as a sub-regional center, and a similar pattern of the emergence of numerous towns exhibiting one or more platform mounds can be observed in the northeastern Nashville Basin. While developments in the central and eastern Basin cannot be fully distinguished without additional data, qualitative differences in artifact assemblages tend to suggest slightly distinctive centers of local development. Hence the authors retain this sub-regional division pending further testing of this hypothesis.

Along the Caney Fork River, settlements probably best described as marginally Mississippian in nature emerged. Sites are generally smaller, show little evidence of intensive residential occupation, and rarely exhibit even a single mound. The rugged terrain and limited agricultural productivity of the Caney Fork drainage is perhaps of central importance in the differences in intensity of population growth and settlement patterning.

In 1995, as part of the examination of these regional patterns, the authors initiated a compilation of information on objects of non-local materials or manufacture, including an intensive literature review and a survey of collections held in museums and private collections. While research is ongoing, some preliminary thoughts on late prehistoric exchange in the Middle Cumberland region can be presented.

Modeling Exchange Networks

The Nashville area has long been suggested as a source area for certain raw materials and finished commodities traded throughout the late prehistoric southeastern United States. Traditionally, interest has focused primarily on two specific gorget styles (Nashville and Cox Mound), Nashville Negative Painted ceramics, and lithic artifacts manufactured from Dover chert. In general, these artifacts have been considered only from an external perspective. Due to this general focus on "views from outside," few scholars have addressed the quantities or internal distribution of non-local artifacts within the Middle Cumberland region. In addition, while studies of exchange throughout North America have begun to return to larger scale regional treatments (cf. Baugh and Ericson 1994), a lack of accessible published data for the Middle Cumberland region has discouraged considerations of the mechanisms of exchange within and through this region.

From a culture-geographical perspective, the north-central Tennessee River occupies a centralized location in the southeastern United States. As noted by Myer (1928) and confirmed by any examination of modern highway maps, the Nashville Basin has long served as a pivotal focus of overland transportation for the interior Southeast. Simple logistics of distance and transport suggest that some types of raw materials and finished commodities probably passed through the Middle Cumberland chiefdoms on their way to and from various regional centers throughout the late prehistoric Southeast.

The analysis of exchange systems requires, at an initial stage, accumulation of detailed data on: (a) the types of materials being exchanged, (b) the relative quantities of these goods, and (c) the sources from which they were obtained (Ericson and Baugh 1994:3). Beyond these data-gathering goals, the description and evaluation of exchange systems requires two additional steps: (d) description of the spatial patterning of these commodities and (e) reconstruction of the organization of the prehistoric exchange (Earle 1982:3–4).

Identification and Spatial Patterning of Materials

A primary goal of this project has been the accumulation of data from the entire range of site types within the region. At the time of this writing, detailed systematic information has been accumulated for thirty-five sites, primarily regional (n=3) and secondary (n=11) centers and villages (n=13), although information from two hamlets and a single farmstead has also been included. Five additional sites known primarily from very limited historical documentation are also included. By focusing on all levels of the settlement hierarchy, the authors hope to illuminate not only the specific interactions of elites with external systems, but also the internal structure and dynamics of extralocal exchange as reflected within the Middle Cumberland system (Table 9.1).

Table 9.1. Distribution of non-local artifacts by site, Cumberland drainage.

Sites	Marine Shell	Mica	Non-local Chert	Quartz	Galena	Copper	Pipestone	Steatite	Bison	Green Stone	Totals
Primary Centers (n=3)	1	1	—	1	—	2	—	—	—	3	8
Secondary Centers (n=11)	10	4	2	4	1	6	1	3	1	6	38
Villages (n=13)	6	1	—	2	3	5	—	1	—	3	21
Hamlets (n=2)	1	—	1	—	1	1	1	1	—	2	8
Farmstead (n=1)	—	—	—	—	—	—	—	—	—	1	1
Unknown (n=5)	2	—	—	1	—	2	—	1	—	—	6
Totals (n=35):	19	6	3	8	5	16	2	6	1	15	81

Primary Centers	**Villages**	**Hamlets**
Mound Bottom/Pack (40-Ch-1/Ch-8)	Gordontown (40-Dv-6)	40-Dv-35/40-Dv-36
Castalian Springs (40-Su-14)	Travellers Rest (40-Dv-11)	Brick Church Business Park (40-Dv-301)
French Lick (40-Dv-5)	Arnold	
	Pipers Ford	**Farmstead**
Secondary Centers	Logan (40-Dv-8)	Brandywine Point (40-Dv-XXX)
East Nashville Mounds (40-Dv-4)	Moss Rose (40-Dv-XXX)	
Dixon Creek (40-Sm-45)	Williams Farm in Dover (40-Sw-XXX)	**Unknown**
Rutherford-Kizer (40-Su-15)	Zollicoffer Hill	Cave near Rogana
Old Town (40-Wm-2)	Moss-Wright Park (40-Su-20)	Grave in Jackson County
DeGraffenreid (40-Wm-4)	West Site (40-Dv-**)	Perkins Farm
Old Town Gray's Farm (40-Wm-XXX)	Comer (40-Su-46)	Phillips Farm
Bowling Farm (40-Dv-426)	Hooper (40-Dv-234)	Grave in Cheatham County
Flynns Lick (40-Jk-15)	Averbuch (40-Dv-60)	
Bozarth Mound		
Brick Church Pike Mounds (40-Dv-49)		
Sellars (40-Wi-1)		

Based on currently available data, the authors have identified the following materials likely to be of non-local origin: (a) marine shell, (b) specific ceramic types, (c) mica, (d) specific chert types, (e) quartz crystals and quartz artifacts, (f) lead ores (i.e. galena), (g) copper, (h) pipestone or catlinite, (i) bison horn core, and (j) greenstone. The imports of primary economic significance are marine shell, Dover chert, greenstone, and copper. Each of these materials is examined in detail. The remaining materials are recorded only in limited instances or as unique objects, and are discussed together as a class of minority material types. Following sections offer preliminary and tentative tabulations of quantities of these materials and their distributions within the Middle Cumberland region. Postulated sources for these materials have been identified, and potential exchange networks have been proposed for the distribution of these artifacts into and in some cases through the region.

Marine Shell

In general, marine shell artifacts occur in four finished forms: (a) gorgets, (b) shell cups, (c) beads, and (d) masquettes. Of the 35 sites considered in this study, twenty have yielded at least a single artifact manufactured from marine shell. Hence, from a distributional perspective, virtually all sites with any degree of extensive antiquarian or professional examination have yielded examples of marine shell artifacts.

Shell gorgets are by far the most common artifact manufactured from marine shell (for example, the Great Mortuary Mound at Castalian Springs yielded nearly two dozen specimens: Smith 1995). The vast majority of these gorgets falls into the Nashville I style, with a secondary but relatively abundant representation of Cox Mound style (Figure 9.3; Brain and Phillips 1996).

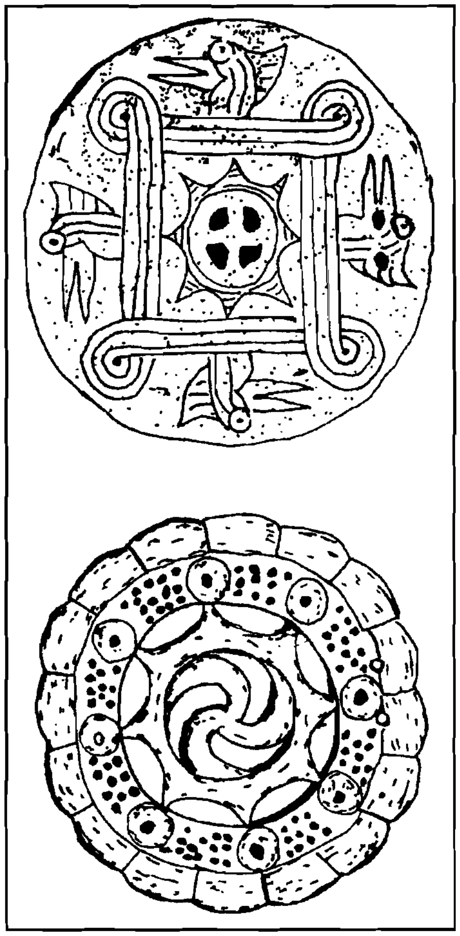

Figure 9.3. Shell gorgets of the Nashville and Cox Mound styles.

Of particular note are the apparent chronological distinctions in the presence/absence of this artifact type at local sites. Mississippian sites with predominantly early Mississippian components (A.D. 1050–1250), including Mound Bottom, Sellars, and Brick Church Pike, have not yielded marine shell gorgets. Thus the importation and/or production of marine shell gorgets in the region appear to be limited to the Thruston phase (ca. A.D. 1250–1450).

A second important observation is that shell gorgets are found at all long-term residential Thruston phase sites from the smallest village to the largest town. Numerous authors have suggested that shell was transported as raw material to be processed into geographically restricted substyles (Muller 1984, 1987; Yerkes 1983). Based on the relatively limited distribution of Nashville I and Cox Mound style gorgets (see Figure 9.3), Brain and Phillips (1996) suggest that both were manufactured in the Nashville area. Hence, while the raw marine shell was an import, the specific gorget styles produced were meaningful only within a sphere of interaction generally restricted to the Cumberland and Tennessee rivers.

Marine shell gorgets are not limited in distribution to large towns containing platform mounds. While the quantities of this specific artifact type are greater at these sites, the primary criterion for the presence of marine shell gorgets appears to be the presence of human interments dating post-A.D. 1200. In other words, any relatively long-term settlement, from the smallest village to the largest town, is likely to contain at least a single example of this artifact type. This distribution at all levels of the regional mortuary hierarchy suggests consideration that they functioned as wealth items as well as elite status markers. As noted by Prentice (1987:198), "access to status items...is determined solely by social position, *regardless of economic wealth.* Wealth items, on the other hand...are attainable by many people because they are not limited to a particular social status." While it could be argued that the symbols present on these gorgets mark a special occupation or status (such as medical practitioner or village spokesperson), Nashville I style gorgets are commonly identified in burials of children in small and large village cemeteries.

While a detailed examination of the distribution of gorgets is outside the scope of this article, the authors postulate that Nashville I style gorgets served dual functions within the local system, appearing as wealth items in small quantities in non-elite mortuary contexts and as both wealth and status items in larger quantities in mortuary contexts at regional centers. While not fully tabulated, the distribution of gorgets produced outside the Middle Cumberland region appears to be limited to elite mortuary contexts. This apparently differential distribution of gorget styles might be attributed to a more purely status-related function, but could also simply reflect a relatively higher value, placing these items outside the economic reach of non-elites.

Unfortunately, the specific mechanisms of exchange cannot be postulated at this point for any of the gorget styles. As suggested by Brain and Phillips (1996), the lack of stylistic variability in these artifacts indirectly supports some type of centralized manufacture (i.e. a production center managed by a "master" or "school" of part-time or full-time artisans). Numerous models for the process of distributing these gorgets from a centralized place to local populations can be postulated, but in the absence of more detailed excavation data, consideration of these various possibilities seems premature.

A second important class of shell artifacts includes beads manufactured from various local and non-local shellfish and gastropods. To date, no detailed analysis of shell beads from the Middle Cumberland region has been undertaken. Often, shell beads are in an extremely poor state of preservation (roughly bead shaped clumps of white powder), and few antiquarians, collectors, or professional archaeologists have pursued identification of the source material. As a result, the authors can only comment that marine shell beads are represented at local sites, but interpretations of the quantity and distribution of marine shell versus mussel shell beads cannot be presented without a more specific reanalysis of these artifacts. Of interest, however, is the relatively high representation of shell beads at the Castalian Springs complex, although the vast majority of these beads was apparently mussel shell with only minor representations of definite marine shell beads (Smith 1995). Speculatively, the ready availability of mussel shell and a possible focus on mussel shell bead production (see discussion below) may have reduced the "display" value of marine shell beads. Overall, the distribution of shell beads follows the wealth model described by Prentice (1987), but further examination may yield more discrete differences based on their material.

Unlike marine shell gorgets and (apparently) beads, shell cups and masks exhibit a much more infrequent and limited distribution within the Middle Cumberland system. Shell cups have been identified at only two large towns with multiple platform mounds. The Great Mortuary Mound at Castalian Springs yielded six conch shell cups from five interments, although none of these appear to have been decorated. The only engraved marine shell cup known from the region comes from DeGraffenreid (along with four unworked conch shells). Fragments of a conch shell have also been recovered from a small hamlet cemetery (40-Dv-35; Smith and Moore 1992), but the condition of the material did not permit an evaluation of whether the shell was in raw or modified form. While the available sample is small, the authors suggest that the pattern of distribution revealed is nonetheless meaningful. Because of their rarity and uniqueness, marine shell cups tend to be mentioned, whether discovered by antiquarians, collectors, or professionals.

Following this assumption, the very limited distribution of conch shells (and more specifically cups) indicates the possibility of a very brief interaction in an elite exchange network involving these types of artifacts. The Castalian Springs site shows some potential for an association with the Spiro site in Oklahoma, although the incredible distance involved makes delineation of the mechanisms difficult to imagine. Based on "common possession of a peculiar feature," Phillips and Brown (1978:180–82) speculated that the Castalian Springs gorget was an example of the Braden A school. In addition, Phillips and Brown (1978:182) noted "It is doubtless absurd to say so, but the style of decoration on the DeGraffenreid cup is generally similar to that of Braden C. Whether to attribute this to the ineptitude of the artist of the cup, to Doctor [Joseph] Jones's tracing of the design, or the engraver of the cup is not an answerable question." The elites at DeGraffenreid and Castalian Springs participated briefly in an exchange system involving conch shell cups. Dates for the presence of conch shell cups at Spiro suggests that the importance of this artifact type might have been most significant between Spiro II and IV (ca. A.D. 1000–1450; Brown 1996). Of relevance to this discussion is the presence of Nashville Negative painted ceramics in Spiro IVB contexts (ca. A.D. 1400–1450). Clearly, more detailed and substantive examination of this particular artifact type is merited.

Two marine shell artifacts generically referred to as *masks* or *masquettes* have been identified from the Middle Cumberland region. Hypotheses concerning distribution based on two artifacts would be meaningless, particularly considering that one artifact came from a secondary center (East Nashville Mounds) and the other from a burial cave (near Castalian Springs). However, these artifacts are of potential interest because of their diagnostic character.

The East Nashville Mounds masquette was designed for use as a gorget based on the paired suspension holes at the top. Excavated from the "grave of a child" by Joseph Jones (Jones 1876:48, Fig. 15), this artifact does not correlate with any of the three mask gorget styles described by Brain and Phillips (1996). In addition, a single example of a long-nosed god masquette was collected by William Edward Myer from a cave near Rogana in Sumner County. Mississippian mortuary caves in this vicinity are probably associated with the nearby Castalian Springs Mound complex. Muller (1989:14) places this type of artifact potentially as early as A.D. 900–1150, although examples from later periods have also been identified.

Discussion

At this point in our research, some tentative patterns and hypotheses can be constructed concerning the availability and distribution of marine shell in the Middle Cumberland region: (a) importation of raw marine shell and marine shell artifacts appears to be largely restricted to the Thruston phase (A.D. 1250–1450); (b) marine shell in raw form was transported into the Nashville Basin from an external source for transformation into gorgets of two styles that are geographically restricted to the region; (c) the internal distribution of marine shell gorgets supports an interpretation of their function as wealth items in addition to functions as status items; and (d) marine shell cups were imported or produced in the region during a relatively short period of time (A.D. 1300–1450?), with distributions that suggest use as elite status items.

As noted by Johnson (1994:104), the obvious sources for the larger marine shell are the Gulf and Atlantic coastlines. Based on the distribution of specific styles of gorgets, the most likely route for importation of raw marine shell would appear to be overland from the middle Tennessee River valley. Finished marine shell artifacts showing possible stylistic connections to the far west may have arrived via the Ohio River valley, passing through the lower Tennessee–lower Cumberland rivers to arrive eventually in the Nashville Basin.

Non-Local Cherts

High quality cherts are readily available in primary deposits and secondary gravels throughout the Cumberland River drainage. The locally available materials comprise by far the largest percentage of debitage and finished tools at any given site, but non-local cherts are consistently found in small quantities.

Dover Chert

The most common non-local chert found on Middle Cumberland sites is Dover chert. While often attributed to the Nashville region, Dover chert sources lie well outside the western boundaries of the Middle Cumberland region as defined here. From this perspective, Dover chert is considered a non-local material, albeit from a relatively close source.

Artifacts of Dover chert are found throughout the study area, suggesting that the material was readily available. However, cores and decortication flakes are extremely rare or absent in Middle Cumberland assemblages, suggesting that most of these artifacts reached the area as finished products. A two-tiered system of exchange has been proposed for artifacts manufactured from Dover chert, including: (a) utilitarian items such as hoes, woodworking implements, and knives; and (b) ceremonial or high status objects such as maces and swords.

Nearly every Middle Cumberland Mississippian site from farmsteads to major mound centers has yielded Dover chipped stone hoes or hoe flakes (Plate 9.1). While hoes made of limestone, Fort Payne chert, and even mussel shell are also present in the region, the vast majority of agricultural implements of this type appear to have been manufactured from Dover chert. In addition to hoes, many sites from farm-

Plate 9.1. Dover hoe.

steads to towns have yielded Dover woodworking implements (including celts, chisels, adzes, and wedges). Woodworking "kits" consisting of three adzes of various sizes (Plate 9.2) have been recovered from at least three mortuary contexts in the local area (all at hamlets or small villages). The largest of these implements are typically manufactured from Dover chert. A final utilitarian (?) form found at several sites (including small villages and large towns) includes a hafted and/or ovate knife form (Plates 9.3 and 9.4).

Plate 9.2. Woodworking "toolkit."

Plate 9.3. Dover hafted knife from Mound Bottom.

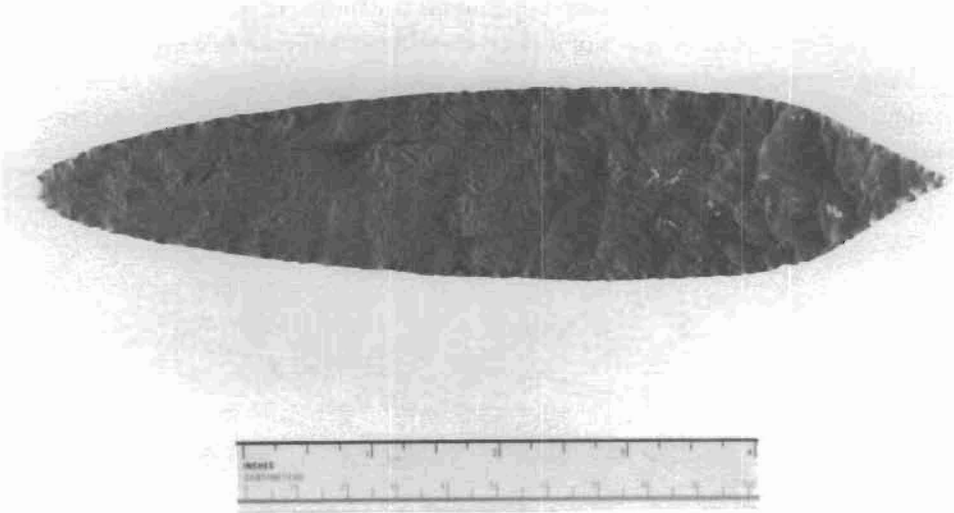

Plate 9.4. Ovate knife from Hooper site.

The distribution of hoes indicates a lively trade in this artifact type between the Nashville Basin and Dover quarry area. In general, acquisition of Dover hoes seems to have been within the means of most Mississippian farmers. Although rarer, the distribution of woodworking implements also suggests ready access to tools of this type by individuals skilled in the production of wooden artifacts. While larger towns and villages may have served as an easy acquisition point for Dover hoes and woodworking tools, their ready availability does not necessarily suggest centralized control of this artifact type. Based on the available data, Dover hoes and woodworking tools are not disproportionately concentrated in larger population centers and hence cannot be considered either a wealth or status item in the local exchange system.

The rarity of Dover knives may, however, represent a departure from this generalized utilitarian pattern. The identification of an ovate Dover knife in a mortuary context at the Hooper site (Plate 9.4), a small village, compared with larger numbers at larger towns suggests the possibility that these items may be classed as wealth items as discussed above.

Finally, numerous ceremonial items manufactured from Dover chert show a different pattern of distribution and may be considered more limited to high status locales. Maces and bi-pointed swords (Plate 9.5) have been identified only at sites exhibiting platform

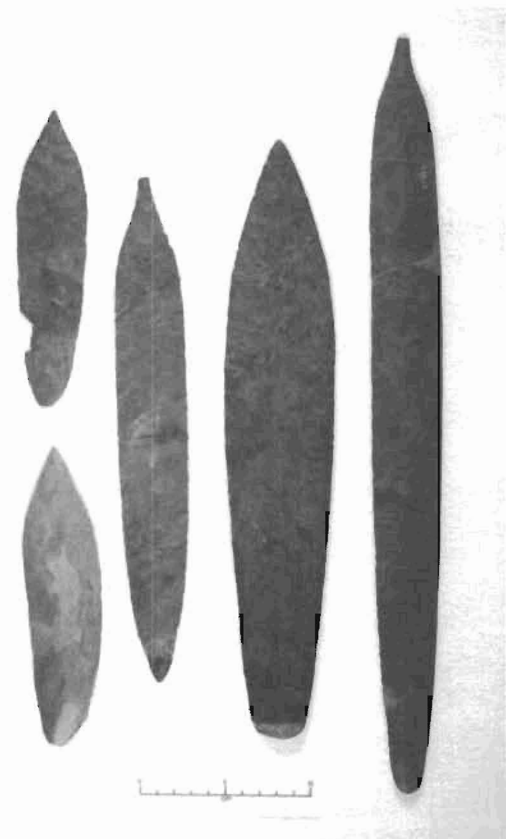

Plate 9.5. Dover sword and knife forms.

mounds, and probably represent items of ritual or ceremonial significance with very specific distributions based on status. The limitation of Dover swords and maces to elite contexts at mound centers matches the pan-Mississippian pattern of Dover forms stretching from Spiro (Brown 1996:473) to Etowah (Larson 1989).

Since our data indicate that processing of Dover chert into finished forms took place outside the Middle Cumberland region, some discussion of the production and exchange of these items seems merited. The mechanisms of acquisition, manufacture, and distribution of Dover chert artifacts are difficult to examine with the currently available information. To date, no platform mound centers have been identified in the vicinity of the primary Dover quarry area. Several large (and potentially fortified) villages have been identified, but few have seen substantive modern archaeological investigations. However, as an example, examinations of the Hogan site (40-Sw-24: Morse 1962; Smith et al. 1995) revealed some evidence supporting the manufacture of large bifacial Dover implements. The prevalence of hoes and celts could be interpreted as evidence that local village populations were producing certain items for exchange. In addition, research by Gramly (1992) in the Dover quarry area shows the presence of widely scattered Mississippian structures. Although Gramly argues for full-time craft specialists living on site, the authors feel that the limited testing does not provide sufficient data for such an interpretation. In general, the results indicate that the manufacture of hoes and adzes was an important function carried out at the quarries themselves. However, no substantive evidence has been located to suggest that the eccentric bifaces (swords, maces, etc.) were being produced at the site. To date, the most compelling evidence for manufacture of these items comes from the Link Farm site (40-Hs-6). During excavations by the WPA, numerous eccentrics were recovered from house floors, including two eccentrics and four eccentric (sword) preforms from a floor in Unit 45 (Bass 1985). These data, along with the presence of the Duck River cache and other caches of eccentrics, suggest the presence of a skilled artisan group producing these items. A vein of macroscopically Dover-like material is located in the bluffline within the Link Farm site, although its use prehistorically cannot be attested at this point. A number of pits excavated on the hillside at the approximate elevation of this chert vein may or may not be prehistoric in date (the discovery of the Duck River cache prompted tremendous historic "diggings" at the site). A detailed comparison of the Duck River cache with raw materials from the Link Farm and Dover sites will be necessary to answer the question of source area.

The raw material source for eccentric "Dover" lithics is clearly a question of great significance to our understanding of the socio-political dynamics of the Tennessee-Cumberland area. If the chert was imported from the Dover quarries, the overall labor investment in these items is substantially increased by acquisition and transport costs. Regardless of the source of raw material, however, the best candidate for a center of production remains Link Farm.

Other Exotic Cherts

In addition to Dover, cherts from more distant sources have been identified in very small quantities from sites in the Nashville Basin, including primarily the readily distinguishable Mill Creek and Burlington cherts. The extreme rarity of these types of chert prohibits detailed interpretation of their significance. However, the recovered examples suggest import as finished artifacts, probably primarily in the form of hoes and woodworking implements. A Mill Creek adze from one of the previously mentioned "toolkits" was recovered from a farmstead near the Rutherford-Kizer site. Two fragments of Mill Creek chert tools (one biface hoe or wedge and one flake with a highly polished dorsal surface) were identified from the East Nashville and French Lick sites (Walling et al. 1993). Recent detailed examinations of lithic materials from the Sandbar Hamlet (40-Dv-36; Smith et al. 1997) yielded four flakes of Burlington chert and a single flake of Waverly chert (available to the west in Humphreys County).

Discussion

Middle Cumberland populations were fortunate in that they had ready access to large quantities of high quality Fort Payne chert. As a result, exchange in exotic cherts does not seem to have been of primary economic importance to the average household population, with the exception of Dover chert. Based on this limited discussion, the authors offer the following observations: (a) Dover chert was imported into the Nashville Basin from the west in the form of finished artifacts; (b) Dover hoes and woodworking implements appear to have been readily accessible to individual households throughout the region and do not necessarily reflect either status or wealth; (c) artifacts (primarily woodworking implements) of other highly visible exotic cherts and Dover knives were present at small settlements and may have functioned as wealth items at the local level; and (d) Dover eccentrics were apparently limited in distribution to the highest level of elites and were symbolic of status.

Greenstone

The term *greenstone* subsumes many lithic materials and is primarily found in the finished form of celts and monolith axes. In the Middle Cumberland region, the source material has generally been described as Hillabee chlorite schist. As reported by Alexander (1993:11-9), "Hillabee chlorite schist or greenstone is composed of metamorphic chlorite and epidote schists of green, gray-green, or gray in color. It occurs in flat slabs with inherent thin, sheetlike fractures formed by bedding planes and small veins of secondary quartz." The most likely source of the material is the Appalachian Mountain region to the east and south. One large deposit of greenstone has been identified in Polk County, Tennessee, along the Hiwassee River some 200 km southeast (Riggs et al. 1988).

Celts or celt fragments generically described as greenstone are found from farmsteads to primary towns in the study area, and can likely be considered as ubiquitous on Middle Cumberland sites (Plate 9.6). To date, only finished celts or highly polished bit fragments have been identified from local sites. The absence of manufacturing residue (such as blocky debris or flakes without polished dorsal surfaces) lends support to the argument that these objects were substantially complete when transported into the Central Basin.

The distribution of these items appears to match that of Dover hoes, although greenstone celts are considerably less common. As basic woodworking implements, celts were probably as valuable to individual households as Dover agricultural implements, and their acquisition does not appear to be substantively limited to large towns.

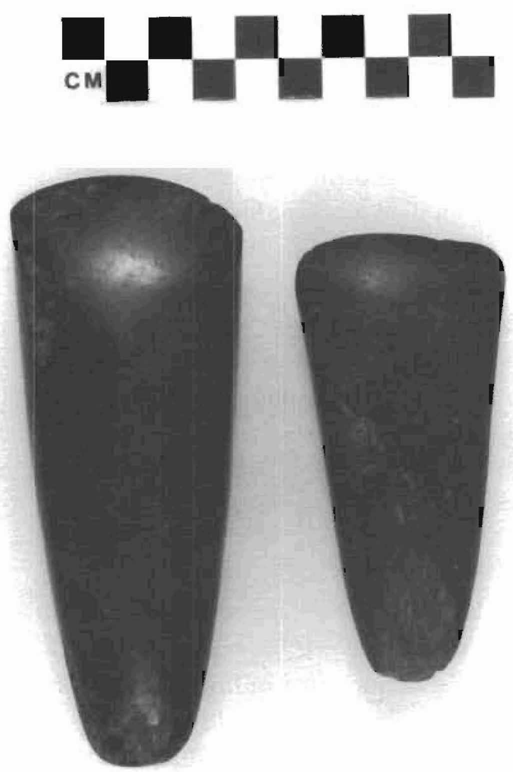

Plate 9.6. Greenstone celts.

Another significant item manufactured from greenstone is one example of a monolith axe from the French Lick site (Jones 1876). The authors suggest that greenstone exhibits a two-tiered system of exchange similar to that posited for Dover artifacts. Common utilitarian items are widespread and readily accessible, while the distribution of eccentric or special-purpose artifacts was limited to high status individuals.

Copper

Copper is by no means evenly distributed throughout the late prehistoric Southeast, and numerous studies (Goad 1980b; Goodman 1984; Putnam 1882) have addressed this issue to some extent. While lacking the concentrations of copper artifacts found at sites such as Spiro, Middle Cumberland sites fall into a second class of sites consistently exhibiting one or more artifacts manufactured from copper.

In the current sample of thirty-five sites, sixteen sites have yielded copper artifacts or residue, usually from mortuary contexts. The types of artifacts represented include: (a) copper breastplates/gorgets, (b) copper bands, (c) copper-coated wooden pendants and beads, (d) copper-coated wooden earspools, and (e) sheet copper hair/headdress ornaments.

Two tentative patterns of distribution should be noted within the region: (a) smaller wooden artifacts adorned with copper (earspools, beads, pendants), distributed throughout the Middle Cumberland system from small village cemeteries to major mound sites, and (b) rare or unusual sheet copper artifacts (breastplates, gorgets, hair/headdress ornaments), typically limited to sites exhibiting at least a single platform mound. This distributional pattern matches that observed for Dover artifacts (with the absence of the lowest level general utilitarian class), and the authors suggest this differential pattern reflects the distinction of wealth items (copper-coated wooden artifacts) versus status items.

Whether the copper used in the manufacture of the specific artifacts from the Middle Cumberland region derives from the Great Lakes region or the Appalachian Mountains has not been adequately examined at this point. Certain objects (including those manufactured from wood, bison horn and copper) may have originated to the north and west and have the potential for manufacture from Great Lakes sources. The authors speculate, however, that the artifacts tentatively identified as wealth items are more likely to have originated from southeastern sources.

Rare and Unique Imported Materials

In addition to the preceding materials, a large number of rarely reported or unique artifacts have been identified as imports to the region. Due to their rarity or uniqueness, these objects are not considered of substantial importance in the local regional economy, but do often demonstrate important connections with specific Mississippian regions. Each type is discussed briefly.

Ceramics

In general, the identification of ceramics as extralocal in origin is based on characteristics of paste and regional decorative styles. In the Middle Cumberland region, the majority (ca. 85–95 percent) of ceramic assemblages consist of undecorated sherds falling into the generic supertype categories of Mississippi Plain or Bell Plain. As a result, the discussion of non-local ceramics is limited to a literal handful of sherds that can be readily identified as non-local based on highly distinctive characteristics of paste or style.

Cahokia Cordmarked

The most distinctive of these artifacts is a large portion of a vessel identified as Cahokia Cordmarked (John Kelly, George Holley, personal communications, 1988), or a very closely related variant produced locally (James Griffin, personal communication, 1988). This vessel (Plate 9.7) is entirely unique within

Plate 9.7. Cahokia Cordmarked vessel from Mound Bottom.

the Middle Cumberland region, and suggests relationships with the lower Tennessee River valley (for example, 45 sherds of flaring rim, cord-marked jars were identified from Gray's Farm, 40-Sw-1: Bass 1985) and ultimately some relationships with the southern Illinois region.

Micaceous Sand-Tempered Complicated Stamped

Approximately a dozen sherds from two micaceous sand-tempered complicated stamped vessels from the Rutherford-Kizer site (40-Su-15) have been tentatively identified as originating in northwest Georgia (David Hally, personal communication, 1995).

O'Byam Incised

Finally, two sherds of O'Byam Incised have been identified in the Middle Cumberland region, one carefully placed in a bowl in a burial context at the West site (40-Dv-12; Dowd 1972) and the other from midden context at the East Nashville Mounds (Walling et al. 1993). While relatively common in assemblages on the Lower Cumberland River, the extremely limited occurrence of this vessel type in the Nashville Basin is one of the defining characteristics for the western boundary of the Middle Cumberland region.

Discussion

In general, importation of ceramics into the Middle Cumberland region does not appear to have served much local economic importance. None of the identified vessels of extraregional origin have been recovered from mortuary contexts, and of the thousands of vessels recovered from mortuary contexts, none confidently suggests non-local manufacture. From the available evidence, the suggestion is that decorated ceramics were primarily significant in the expression of regionally or locally significant symbolism, rather than to exhibit connections with broader external symbolic networks. The few examples of importation of non-local vessels do suggest that when present, these exotic vessels were used in the context of elite activities, but were not necessarily significant in terms of mortuary activities. Of far greater significance in terms of exchange systems is the local distribution and potential exportation of negative painted ceramics (see discussion following).

Mica

Fragments of mica have been recovered from at least five sites in the Middle Cumberland region: Gordontown, Sellars Farm, DeGraffrenreid (Smith 194), Gray's Farm, and Rutherford-Kizer. With the exception of a large stack of mica sheets reported by a collector from Rutherford-Kizer, only small fragments have been identified, hence the specific form of the artifacts from which they derived are difficult or impossible to determine. At this point, the distribution of this material is limited to primary or secondary mound centers, suggesting that this material may have functioned as a status item limited in its distribution to elite sectors of the population.

The major source area for mica is western North Carolina, although deposits are also reported from Alabama. However, the only known source for stacked mica sheets similar to that reported for Rutherford-Kizer is located in North Carolina (Brown 1996). While rare, the presence of this material indicates exchange to the east.

Quartzite Discoidals

While small veins and outcrops of quartzite are found at the peripheries of the Middle Cumberland region, several large quartzite artifacts imply the potential for exchange with areas further to the east where larger sources are available. Primary among these artifacts are discoidals or "chunky stones" made of quartzite. These items have been recovered from five sites in the area, including Dixon Creek (40-Sm-43), Sellars (40-Wi-1), Travellers' Rest (40-Dv-11), Bowling Farm (40-Dv-426), and Rutherford-Kizer (40-Su-15). Generally, the distribution suggests that polished quartzite discoidals were present in small quantities at most mound centers with large resident populations.

Lead Ores (Galena)

Small fragments of lead ores, generally identified as galena, have been recovered from at least four sites in the study area: Rutherford-Kizer, Goodlettsville (40-Su-61), East Nashville/French Lick, and the West site. In addition, a cache including a copper celt and five balls of galena was reported by William Edward Myer from Hell's Bend of the Caney Fork River. While the affiliation of the cache is indeterminate, Myer also mentions a vein of galena "about four miles from this point" (Myer 1921:328), suggesting the potential for acquisition from a nearby source.

Pipestone

Various types of reddish colored pipestones were used in the manufacture of pipes. The most famous of these materials, catlinite, is found in Minnesota, although other sources of similar materials are known from other states. Two disk pipes of red pipestone have been recovered from Mississippian sites in the local area, one from the large stone-box cemetery at Noel Farm (40-Dv-3; Thruston 1897; Cox 1985). The second pipe was excavated from a house floor at the Sandbar Hamlet (Plate 9.8; 40-Dv-36; Smith et al. 1997).

In general, disk pipes of this form are considered Protohistoric markers. As such, these two artifacts provide some evidence of post-A.D. 1450 occupations in the Nashville Basin, despite the absence of supporting radiocarbon dates or other artifactual support. The possibility exists that these artifacts derive from a much later occupation of the Basin by the Shawnee. Cockrill Bend, the location of Sandbar Hamlet, has been postulated as the location of an abandoned Shawnee village mentioned by an early explorer of the Cumberland River (Williams 1928:225), but excavation records clearly associate the

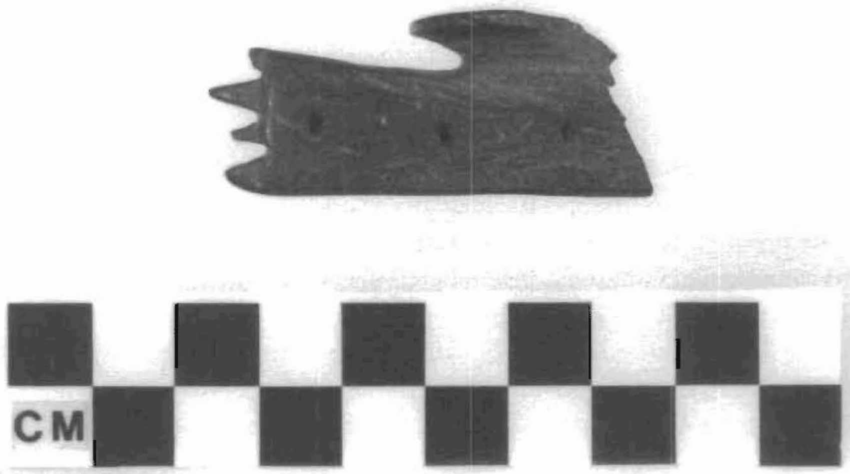

Plate 9.8. Redstone pipe from Sandbar village.

Cockrill Bend pipe with the floor of a typical Mississippian style house (Dowd and Broster 1972; John Dowd, personal communication, 1994). These factors obviously complicate interpretation of these specific artifacts, and the authors can only offer two conclusions: (a) the pipes are found at both a large town and a hamlet, and (b) their presence suggests trade and interaction with the upper Midwest region during the late prehistoric or Protohistoric period.

Bison Horn Core

The total absence of bison food bone from Mississippian contexts in the Middle Cumberland region suggests that the species was not present in the region until sometime after ca. A.D. 1450. While bison were observed and hunted in the region by early European explorers in the middle to late eighteenth century, their absence in prehistoric faunal assemblages is at least suggestive of an expansion of the natural range of bison in the Protohistoric or early historic period.

A singular example of a finished artifact of bison horn core was excavated at the Rutherford-Kizer site (40-Su-15) by Frederick Ward Putnam in 1878 (Putnam 1882). While the artifact has not been examined by the authors, Putnam's expertise as a zoologist lends credence to his initial description and interpretation. An extensive series of radiocarbon dates from the Rutherford-Kizer site places the occupation tightly within an A.D. 1300–1400 timeframe (Moore and Smith 1997).

Based on the total absence of bison from Mississippian faunal assemblages in the region and the finished nature of the artifact, the authors postulate that this item represents trade with areas to the west or northwest.

Summary

In summary, the currently available data suggest the functioning of perhaps three levels of exchange within the Middle Cumberland system: (a) frequent and widespread trade at all social levels in utilitarian items such as Dover chert hoes and woodworking implements and greenstone celts, (b) the presence of a graded set of wealth items including specific styles of marine shell gorgets, specialized household tools such as Dover chert knives, and Mill Creek chert adzes, and (c) a limited set of items distributed only at the highest levels of the social hierarchy, including eccentric Dover chert bifaces, marine shell cups, greenstone monolith axes, and similar items.

With the possible exception of marine shell gorgets, the vast majority of these items seem to have been imported into the region as finished artifacts. In the absence of detailed modern excavation data from mound centers in the region, the mechanisms of distribution for these three classes of artifacts are difficult to construct. At the highest level, status items were probably reaching only the largest mound centers, where they remained in the hands of high status individuals.

For the middle range "wealth items," the most plausible hypothesis would appear to be that the presence of large population centers (including paramount towns and large villages) facilitated acquisition of these types of artifacts. Whether access to these items was controlled by elites cannot be tested at this point, but it appears plausible that skilled part-time woodworkers may have been rewarded by access to these types of artifacts. The wide distribution of woodworking tools and marine shell gorgets would suggest that some type of part-time production of surplus took place at hamlets and small villages (thereby permitting some inhabitants to accumulate sufficient "wealth" to acquire certain items differentially).

For the most common utilitarian imports, primarily Dover hoes and greenstone celts, the wide distribution does not suggest strong control of these items, nor are they found particularly concentrated in mound sites. The existence of centralized population points (mound sites and large villages) may have facilitated the distribution of these items, but the mechanisms of this distribution are difficult to describe with the available data.

Import Implies Export

Exchange implies materials both "coming" and "going." At this point, we turn to a brief discussion of what types of materials may have been exported from the Middle Cumberland settlements in exchange for non-local artifacts and materials. While considerably greater amounts of testing will be required, two classes of items are postulated: (a) locally produced objects and (b) objects passing through the Middle Cumberland region on their way to destinations elsewhere. Several items can be posited as local products, including salt, negative-painted vessels, and possibly finished shell gorgets and mussel shell beads.

Salt

Two of the regional centers included in this preliminary examination are located at two major saline sources along the Cumberland River. At least four other large Mississippian sites are also located at smaller saline sources (Autry 1983). The exchange of salt is difficult to establish archaeologically, but we suggest that the correlation of major regional centers with major mineral springs does strongly indicate an importance for this resource. Salt could have been produced solely for local redistribution, but the Middle Cumberland region is located at the southern edge of a major saline province (Brown 1980; Keslin 1964, Smith 1992). As a result, the export of salt to the south and southeast of the area may have been economically important.

Negative Painted Vessels

Nashville has long been recognized as one of several loci for the production of negative painted vessels (Plates 9.9 and 9.10). While no center of production for negative painted vessels has been identified in the Middle Cumberland region, most scholars have attributed their production to the Nashville area based on their distribution. Within the Middle Cumberland region, Nashville Negative Painted

Plate 9.9. Nashville Negative Painted owl bottle from the Rutherford-Kizer site.

(*variety Nashville*) bottles exhibiting primarily circular motifs are found distributed from small villages to primary centers. Outside the region, this ceramic type is typically found in high status contexts at major regional centers (Smith 1997). The differential distribution is indirectly supportive of local manufacture, with increasing value being attached to these items as they move further from the center(s) of production.

Shell gorgets

Based on distribution, Nashville I style gorgets and possibly Cox Mound style gorgets (Figure 9.3) were manufactured in the Nashville Basin (Brain and Phillips 1996). Within the Middle Cumberland region, these items seem to show distributions reflecting acquisition of wealth items rather than ascribed status. As these objects move outside the local sphere, their meaning and function may have been substantially altered. Nashville II style gorgets, cruder and less finely executed, are found distributed much more widely than the more finely crafted Nashville I style. Brain and Phillips (1996) suggest that these are an "imitative extension" of the style beyond the region of manufacture. It is possible, however, that the more finely crafted versions reflected in the Nashville I style were retained within the Middle Cumberland system because of the regional significance of their symbolism, while less finely executed versions were produced for export. From this perspective, the value systems in action with regard to the gorgets would vary with the cultural context.

Mussel Shell Beads

The manufacture of mussel shell beads appears to have been an important occupation of Middle Cumberland residents for several millennia. Thousands of these beads have been recovered from well-documented excavations, and to state that tens of thousands of these beads reside in both private and public collections would not risk much exaggeration. Some evidence for the manufacture of mussel shell beads has been recovered at Mound Bottom (O'Brien 1976), French Lick (Walling et al. 1993), and the East Nashville Mounds (Walling et al. 1993). The large quantities of mussel shell beads recovered from Castalian Springs also suggests their importance in the local economy (Smith 1995). Whether these items were produced for export from the region cannot be determined with available data. Nonetheless, the fact that they were manufactured locally, and the relative ease of transport of such items suggests the potential trade value of these beads. The authors offer this hypothesis for additional testing in the future.

Plate 9.10. Nashville Negative Painted bottle fragment from the Logan site.

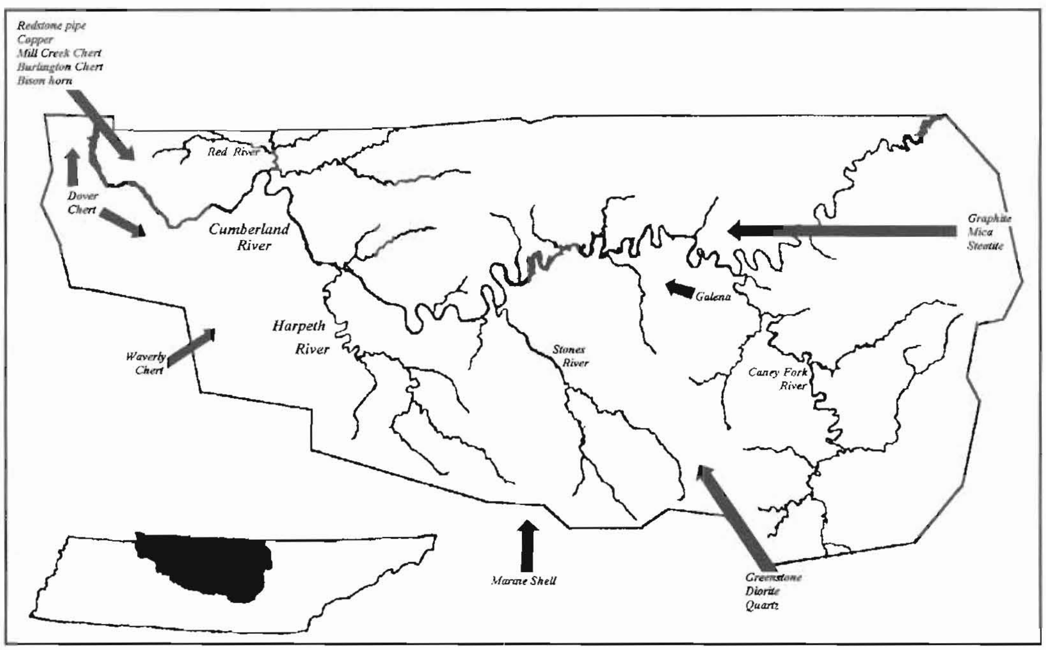

Figure 9.4. Postulated flow of non-local materials into and through the Middle Cumberland region.

Middlemen of Exchange

In contrast to locally manufactured objects, a very significant portion of the exchange system may have involved the passage *through* the Middle Cumberland region of items manufactured elsewhere. The geographic centrality of the Nashville Basin may have encouraged the growth of an exchange system involving a function for residents as intermediaries in the exchange of status items (Figure 9.4). As noted previously, the authors suggest that Dover eccentrics were manufactured outside the Middle Cumberland region, but Middle Cumberland elites may have served as intermediaries in the passage of these artifacts from their source area to regional centers in East Tennessee, Georgia, and other sites to the south and east.

The broad distribution of greenstone and copper artifacts in the Middle Cumberland system also suggests the possibility that Appalachian copper and greenstone (and potentially mica) may have passed through intermediaries at Middle Cumberland regional centers on their way to sites in the Lower Cumberland and eventually the Ohio River valley. While a complete discussion is outside the scope of this article, similar intermediary functions could be postulated for late prehistoric sites in the Tennessee River valley, which follows a longer but parallel course from the east to the Ohio River.

Conclusions

As the title suggests, this article presents some preliminary thoughts on late prehistoric exchange as it relates to the Middle Cumberland region. Research remains in early stages, and more questions have been created than have been answered to date. Undoubtedly, many of these ideas will be modified and changed (perhaps radically) as additional data are quantified and examined in a more rigorous fashion. However, the research to date does suggest some broad patterns of distribution with ramifications for the examination of exchange within regional subsystems.

Late prehistoric societies in the Middle Cumberland region were clearly involved in the acquisition of numerous types of materials and artifacts produced outside the area. At the simplest level of analysis, the types of materials and objects identified in the current study suggest that exchange systems were oriented along a southeast–northwest axis, with potentially lesser interactions to the northeast and southwest of the region. This pattern is dictated to some extent by the distribution of raw materials exchanged within the system. At this level of analysis, the patterns are not particularly enlightening and have traditionally been interpreted to reflect primarily the acquisition of exotic, status-reinforcing items by elites at regional centers.

More detailed examinations of the distribution of specific materials and artifacts *within* the Middle Cumberland region, however, reveal several intriguing differences. First, certain items are apparently restricted in their distribution to regional centers, where they were controlled or acquired only by the highest ranking individuals or families. Some objects described as high status exotics in other regions, however, are found distributed at many or all levels of the Middle Cumberland settlement hierarchy. These apparent contradictions have been explained here through consideration of dual functions for certain specific types of artifacts. Following Prentice (1987), we argue that certain artifact forms were identified solely with specific high status positions. These objects are those functioning as religious paraphernalia, symbols of status, and potentially in some instances, simply as items of such great value as wealth items that they were not attainable outside a restricted core of "wealthy" elites. Other specific artifact types functioned as wealth items that were not socially proscribed and hence could be obtained by individuals at various levels within the sociopolitical hierarchy.

In general, our preliminary examination suggests that examination of late prehistoric exchange systems at the level of raw material type and source area is insufficient to comprehend the nature of exchange. While certain broad interpretations drawn from such studies may be meaningful, they cannot be firmly attested without more detailed examinations of distribution within the specific region. In pursuit of the tedious task of tabulating exotic artifacts, it is tempting to focus on the larger quantities of such artifacts found at regional centers and perhaps even to overlook or dismiss a rare or unique find at a single hamlet or small village as an anomaly. At this stage is our analysis of the Middle Cumberland system, the data can be challenged on several counts. However, we argue that the presence of even a single example of a presumed "high status" artifact in a small village context should not be overwhelmed in our analyses by the greater quantities of such artifacts found at regional centers. Items restricted by social proscription to certain high status positions should not be consistently found—even as singular examples—in the context of hamlets and small villages. Dismissal of these unique finds as anomalies could have permitted the rather simple conclusion that most exchange was by elites acquiring status-reinforcing exotics. Consideration of their presence at various levels of the settlement and sociopolitical hierarchy produces a very different picture of the exchange network in action.

Acknowledgments

The Middle Cumberland Mississippian Survey has been supported by numerous institutions at various times during the course of this research. The authors gratefully acknowledge the support of Middle Tennessee State University, the Tennessee Division of Archaeology, and Vanderbilt University. In addition, we thank Evan Peacock for his persistence in pursuing completion of the final form of this paper. His polite and good natured reminders, requests, and demands over an inordinately long period of time are greatly appreciated.

10

Chronological Implications of Historic Trade Materials from Sites 22-Ad-903 and 22-Ad-901, Adams County, Mississippi

James R. Atkinson

The Pilgrim Bayou site (22-Ad-903), located on the proposed route of the Natchez Trace Parkway in Adams County, Mississippi, is one of the few non-mound Natchez Indian occupation sites excavated in the Natchez Bluffs region that displays prehistoric-historic transition. The transition is primarily suggested by the spatially isolated occurrence of early glass trade beads unaccompanied by other types of trade materials. The beads were undoubtedly obtained from the French, either before or soon after their establishment of a nearby trading post in 1714. This paper describes the trade beads from the Pilgrim Bayou site and nearby site 22-Ad-901 and discusses the chronological implications stemming from differences between the two sites.

Introduction

The Natchez Trace Parkway is a unit of the National Park Service, Department of the Interior. It commemorates an old wilderness road that linked the Cumberland and Ohio settlements to the Old Southwest in the late eighteenth and early nineteenth centuries. The Natchez Trace was originally an Indian trail, or rather, a series of interconnecting Indian trails. The U.S. government recognized its importance as a communication route and in 1801 appropriated funds for improvement of those trails that provided the most direct route from Nashville to Natchez. The Trace waned in importance by 1830 due to the construction of other major roads and the advent of steamboat travel, which made overland return trips to the north from Natchez unnecessary. In 1938, Congress authorized construction of the Parkway; today, however, two segments of the 450-mile route remain unfinished, one of which is the 3X Section leading into Natchez (Figure 10.1). During archaeological survey prior to the beginning of construction in this section, two sites were found that produced an interesting suite of aboriginal and early Historic period artifacts. These assemblages show notable differences that have chronological implications for Natchez phase archaeology in the region.

Natural, Cultural, and Historical Background

The 3X Section is eight miles in length and is located entirely within Adams County. It lies within the Loess Hills physiographic province of the Lower Mississippi Valley. The wind-deposited loess soil of the Natchez Bluffs area is of Pleistocene age and is as much as 15 meters thick. The highly dissected loess hills are characterized by extreme relief, with meandering ridges and steep-walled drainages being com-

Figure 10.1. The route of the 3X Section of the Natchez Trace Parkway.

mon. Trees of the area primarily consist of hardwoods, but pine is not uncommon. Maximum elevation in the county exceeds 140 meters above sea level. All the streams flow directly or indirectly into the Mississippi River. Coles Creek, with its tributaries, is the main outlet for the northern part of the county, while St. Catherine Creek provides the major central and the Homochitto River the major southern drainage.

The 3X Section from northeast to southwest crosses headwater streams of St. Catherine Creek, then St. Catherine Creek itself, runs along the north side of Perkins Creek (a tributary of Melvin Bayou), crosses Perkins Creek and Melvin Bayou (a tributary of St. Catherine Creek), and finally crosses St. Catherine Creek again inside the city limits of Natchez. All of these creeks are deeply cut into the Loess formation, primarily due to scouring in the last hundred years as a result of channelization of the lower part of St. Catherine Creek (Neitzel 1965:10).

Much of what we know about Native American archaeology in the Natchez Bluffs region can be attributed to work of the Lower Mississippi Survey (LMS) over the last 20 years. With reports by Phillips, Ford, and Griffin (1951) and Phillips (1970) came the first formal, comprehensive culture-historical descriptions for the lower valley in general. Armed with Natchez Bluffs data gathered earlier by James Ford (1936), Moreau Chambers (see Ford 1936), George Quimby (1942, 1953), John Cotter (1951, 1952), and Robert S. Neitzel (1965, 1983), the LMS began concentrating on the Natchez Bluffs region in the early 1970s and continued into the 1980s. A comprehensive report on that work remains unpublished (Brain et al., n.d.) but many articles and papers dealing with various aspects of the investigations have been produced (Brain 1978; Brown 1973, 1978, 1982, 1983; Steponaitis 1974, 1981). In particular, Brown (1985) has authored a separate report dealing almost exclusively with the contact period archaeological sites investigated by the LMS. In that report on the Natchez Indians, Brown presented the culture chart that he and his co-investigators had worked out, as well as a list of ceramic types and varieties diagnostic of each post-Archaic phase constructed. Descriptions of each ceramic type and variety were presented in an appendix (Brown 1985). Earlier, Steponaitis (1981) had published the Plaquemine period chronology and ceramic typology of the Natchez Bluffs. Since the LMS, several survey and excavation projects have been carried out in conjunction with construction of the Natchez Trace Parkway (Atkinson 1988, 1989, 1992a, 1992b; Bonath 1977; Ehrenhard 1976; Hamilton 1977; Johnson et al. 1983). The work of Atkinson (1989, 1992a) provided the impetus for further excavations at sites located within the 3X Section (Atkinson 1992b).

The historic Natchez phase began in the area with late seventeenth century European contact. The Natchez were first briefly visited in 1682 by La Salle, who found the chief's village on high terrain somewhere in the interior. It has been speculated that this village was the ceremonial site on top of Emerald Mound. By 1699, when the French colony was established, the Emerald site apparently had been abandoned, for Cotter's (1951) and the LMS's (Brain 1978:360) excavations there failed to produce a single Historic period artifact. Instead, the French found the center of Natchez sociopolitical life some 13 miles to the southwest at the Fatherland site, the Grand Village of the Natchez, where French observers recorded remarkable ethnographic data on the Natchez social system (Swanton 1911). This multi-mound site, extensively excavated in the 1960s and 1970s by Robert Neitzel (1965, 1983), is now a State-operated park under the administration of the Mississippi Department of Archives and History.

As recorded by the French, the Grand Village was the home of the "Great Sun," the paramount chief of the Natchez. In the surrounding countryside a general population was scattered east, north, and south of the Grand Village in villages and hamlets. Survey data indicate that the several villages (whose names were recorded by the French; see Albrecht 1944) were not compact, but rather consisted of occupation locales made up of separated small hamlets and nuclear family units. The sites discussed here, 22-Ad-903 and 22-Ad-901, undoubtedly belonged to one of the "village" divisions: these were called Flour, White Apple, Jenzenaque, Grigra, and Tioux (Brown 1985).

Brown (1985) places the Grigra occupation in the area where sites 22-Ad-901 and 22-Ad-903 are located. Such may be correct, but I am more inclined to include the sites in the White Apple or Jenzenaque divisions. Designation of as large an area for the Grigra as Brown (1985:Figure 3) has done seems somewhat unrealistic considering that this was an outside group adopted by the Natchez in the late seventeenth century. Groups given refuge by stronger groups were usually small in population and their allotted territory was usually separated from the adopting group. Clearly, the artifactual evidence presented here and by Brown (1985) indicates significant occupation of the area by classic Plaquemine period Natchez Indians. Perhaps Brown should have confined his Grigra area to the upper reaches of St. Catherine Creek on the west fringes of the Natchez settlement area.

Prior to the LMS investigations of the 1970s and early 1980s, archaeological knowledge of the Natchez phase was generally confined to that obtained from the mounds and village excavations at the Fatherland site (Neitzel 1965), which, of course, was occupied by the elite only. In 1981 and 1982, the LMS conducted investigations at ten outlying sites with known Natchez or Emerald phase occupations. Eight of the sites turned out to possess European trade materials, which places them at least partially in the Natchez phase. Brown, basing his interpretations on quantities of trade artifacts, separated the sites into two divisions, late seventeenth century and early eighteenth century. The former sites included Lookout, O'Quinn, Antioch, Ben Lomond, and Dead Oak. The early-eighteenth-century sites are Rice, Trinity, and Thoroughbred. A fourth site assigned to the early eighteenth century was Greenville/Locale 1, but this was considered to be an actual French, rather than Natchez Indian, occupation. Of all these sites, Lookout, O'Quinn, Rice, Antioch, Ben Lomond, Dead Oak, and Trinity have Emerald or earlier Plaquemine phase components, while Lookout, Antioch, Ben Lomond, and Trinity also have Coles Creek components (Brown 1985:98–111, 148–62; Atkinson 1992a:69). Brown also indicates the general locations of several other Protohistoric/Historic period sites, the nearest to 22-Ad-903 being Bozeman (Brown 1985:Figure 3).

The aboriginal artifacts of the Natchez phase are indistinguishable from those of the late Emerald phase. They include the main ceramic types Addis Plain, Chicot Red, Fatherland Incised, Leland Incised, Mazique Incised, Maddox Engraved, and Coleman Incised, and varieties thereof. In addition, shell-tempered ceramics occur at some sites as a result of trade and, in the late Emerald and Natchez phases, as a result of local manufacture by northern groups (Grigra, Tioux, and Koroa) that joined the Natchez. These types include Mississippi Plain, Barton Incised, Winterville Incised, Avenue Polychrome, Owens Punctated, Parkin Punctated, and Nodena Red and White (Steponaitis 1981:10–12).

The artifacts that distinguish Emerald phase from Natchez phase occupations are the various European trade items, most of which are logically assumed to have arrived through the French. Present at the sites investigated by Brown (1985) were various types of drawn and wire wound glass beads, European and native gunflints, kaolin pipe fragments, lead and tin glazed earthenware, clinkers, Westerwald stoneware, and copper or brass rampipes. By far the most diagnostic Natchez phase European artifacts were the glass beads. Since the Natchez occupation of the bluffs region terminated in 1730, any early European artifacts found in direct association with native Natchez material can be assumed to date no later than that year.

22-Ad-903 (Pilgrim Bayou)

The site was recorded in 1988 and tested in 1990 and 1992 by the Southeast Archeological Center of the National Park Service. Extensive systematic shovel testing and a total of eighteen 1x1 meter test units (see Atkinson 1992a, 1992b for details) showed that artifacts occurred for over 350 meters over a wooded area. Area 1 is the deepest and presumably was the most heavily-occupied part of the site. The east end of the site (Area 3) has suffered some sheet erosion but is generally level and was thought to have the potential for sub-plowzone features. Although no definite evidence of a historic Natchez phase component was recovered during the testing, it was suggested that the large occupation area might at least be part of one of the Natchez villages of unknown location mentioned in the French documents. Further, more comprehensive investigations were recommended for all three areas of the potential National Register site (Atkinson 1992a:93).

In 1992, a row of five 1x1 meter units was dug along a west-oriented base line at Area 1 (Figure 10.2). These units showed a humus overlying a dark topsoil (Level 1); below this was a dark brown layer to about 20 cm below surface (Level 2). Cultivation has disturbed these strata. Beneath them lies Level 3, a brown cultural level overlying the sterile tan loess (Figure 10.3).

In Units 1, 2, and 4, the first good evidence of a historic Natchez phase component was obtained. In addition to many Fatherland Incised, some Mazique Incised, and a few Chicot Red sherds, three glass trade beads were recovered, one of which was the same type as a fragment of a clear glass bead found in

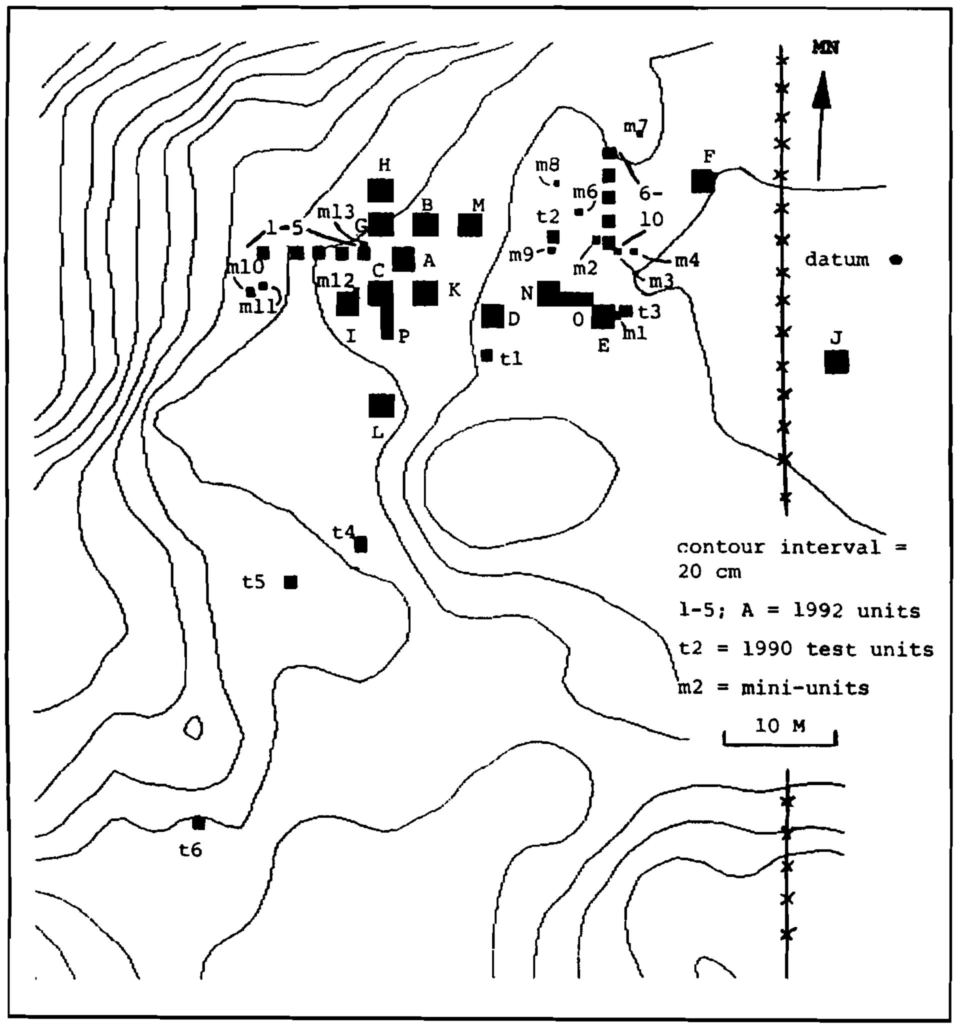

Figure 10.2. Contour map of Area 1 of site 22-Ad-903 showing 1990 and 1992 excavation units.

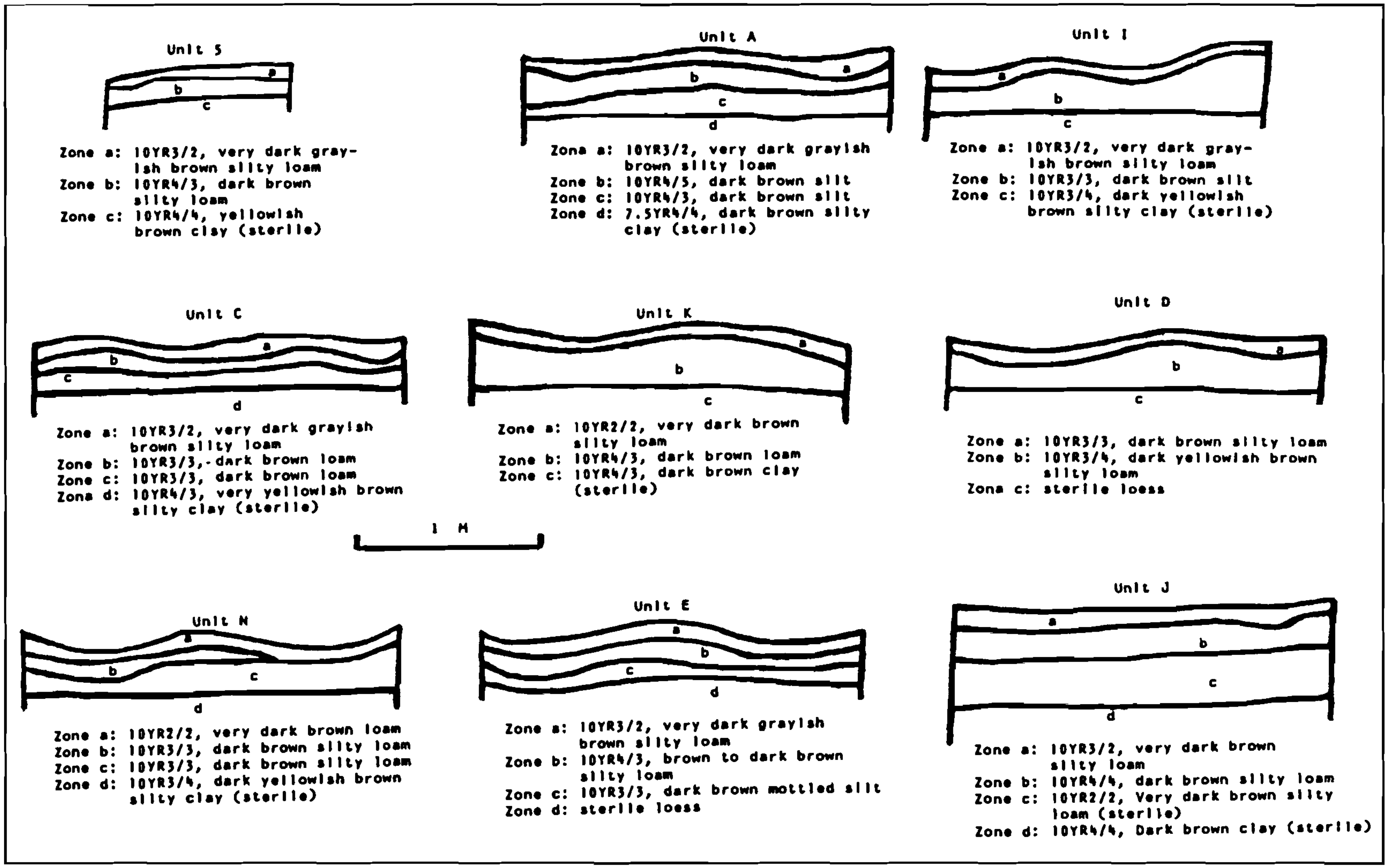

Figure 10.3. North profiles of Units 5, A, I, C, K, D, N, E, and J at site 22-Ad-903.

Unit 3 of the 1990 testing (clear faceted, type WIIA2 in Brain 1979:110; see descriptions below). Because of the recovery of a few late historic artifacts in 1990, the bead fragment recovered that year was thought to be most likely associated with that occupation, but the possibility of an earlier Natchez phase association was recognized (Atkinson 1992a:92).

A second row of units (Units 6–10), excavated perpendicular to the west base line, yielded sherd types similar in general to those obtained from Units 1–5 but not in as large a quantity. The only remarkable artifact was a small, somewhat flattened piece of lead from Unit 6, Level 3. This could have been a lead gunball, possibly temporally associated with the glass beads, but it is more likely associated with a later historic occupation, since several sherds and glass fragments of a late historic, probably slave, occupation were also recovered. Two additional units dug off the colluvial fan that mainly comprises Area 1 proved to be relatively unproductive and exposed thin, eroded soils. Excavation on the fan itself was thereafter made the priority for the remainder of the project.

Several 2x2 meter units (Units A–O) were excavated in two clusters (Figure 10.2). Glass beads were recovered in Units A, B, C, E, G, H, K, L, and M. Cultural deposits reached as deep as 40 cm. Abundant aboriginal material (sherds, debitage, a stone adze, a chert scraper) was recovered, along with some historic artifacts, including a small lead shot, a sherd of late-eighteenth-/early-nineteenth-century Castleford-type ware (see Figure 6hh in Godden 1966:xxiii), and a European spall gunflint. There were no demonstrably early historic metal artifacts.

Puzzled by the fact that so many glass trade beads were being recovered without the usual accompanying metal artifacts, I borrowed a metal detector and ran it over the area in which the two clusters of units were located. Operable signal depth with the detector was found to be no more than about 20 cm for small objects, so many metal items were probably undetected. Each spot that produced a signal was flagged, assigned a number, and subjected to what amounted to a shovel test in search of the detected item. Some spots produced nothing, the signals evidently having occurred as a result of peculiar soil conditions. These test locations are shown on Figure 10.2.

The metal detector examination did not produce a single artifact that can be associated with the Natchez phase. Most of the metal artifacts recovered are probably associated with the late-eighteenth- and/or early-nineteenth-century occupation (Atkinson 1992b). It seems likely that Natchez phase metal is rare or nonexistent, with the possible exception of lead shot.

22-Ad-901

In 1988, as part of the survey phase in the 3X Section, a single 1x1 meter unit was excavated near an obvious pothunter's hole and backdirt at site 22-Ad-901. Aboriginal sherds had been found on the surface, as well as a piece of iron and a glass trade bead. Eighty-nine sherds diagnostic of the Emerald and Natchez phases were recovered from the test unit. A small piece of brass was also recovered, and a shovel test in the pothunter's backdirt yielded a blue glass seed bead. As a result of these investigations, the site was deemed potentially eligible for nomination to the National Register of Historic Places (Atkinson 1989:93–94).

Upon recovering medium to large glass beads, but no seed beads, at 22-Ad-903, it was decided in 1992 to place a 2x2 meter unit at 22-Ad-901 for comparative purposes and to learn more about the relationship between the two sites. The unit was laid off adjacent to the 1x1 excavated in 1988. Unlike the excavation in 1988, seed bead recovery soon occurred, both while troweling and in the screens. This was confirmation that the lack of seed bead recovery at 22-Ad-903 was not due to inability to see them, something that had caused concern after the excavation of several units there. The reason that none were found in the 1x1 meter unit previously excavated at 22-Ad-901 is that the saturated ground was not screened during the survey/initial testing phase at that site. In light of the later excavation results, many seed beads were undoubtedly overlooked in 1988.

The 2x2 meter unit, designated Unit A, was highly productive, and yielded more glass beads than all the units at 22-Ad-903 combined. In addition to many white and blue seed beads, several large beads were also recovered, especially the simple white bead type DIIA1 (Brain 1979:101). In order to determine how many seed beads were being overlooked, a fairly large soil sample (two large plastic zip-lock bags full) was taken from the screened backdirt and later fine-screened in the lab. The results were surprising, for three black seed beads were present (none had been observed previously). It is likely that these "camouflaged" beads, being the same color as the earth, were nearly as numerous as the white ones, for three of the latter were also recovered in the fine-screening. A total of 14 seed beads was recovered from the soil sample, which indicates that numerous specimens eluded us.

In addition to the glass beads, over 800 aboriginal artifacts were recovered, including Fatherland Incised varieties and other diagnostic Emerald/Natchez phase ceramic types. The testing confirmed that site 22-Ad-901 is eligible for nomination to the National Register (Atkinson 1992b:141).

Artifacts

During the 1992 project, over 10,000 artifacts from various components were recovered from 22-Ad-903 and nearly 1000 from 22-Ad-901. This section describes the pertinent materials recovered, and includes description of a few diagnostic artifacts recovered from the 1990 testing. Full descriptions of the recovered materials are given in Atkinson (1992b).

Aboriginal Ceramics: 22-Ad-903

Most of the major ceramic types identified by Steponaitis (1981) and Brown (1985) for the Emerald and Natchez phases were recovered from the Pilgrim Bayou site, as well as a few types from an apparently brief Coles Creek occupation (Figure 10.4). The vast majority of the plainware consists of Addis

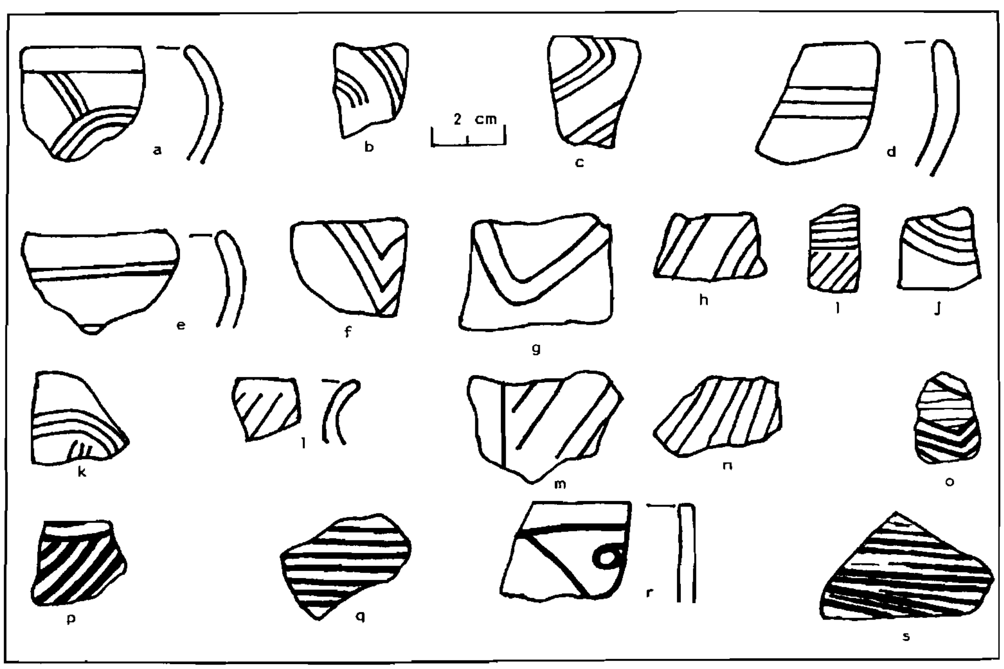

Figure 10.4. Ceramics from 22-Ad-903 (a–l, n–s) and 22-Ad-901 (m).

Plain. The bulk of the decorated sherds consists of varieties of Fatherland Incised. The varieties include *Fatherland* (three parallel curvilinear line motifs), *Nancy* (four curvilinear parallel lines), *Bayou Goula* (five or more curvilinear parallel lines), *Pine Ridge* (multiple parallel lines in a spiral whorl pattern), and *Snyders Bluff* (red slipped). Additionally, one new variety of Addis Plain (*var. Pilgrim Bayou*) and one of Fatherland Incised (*var. Perkins Creek*) were named (Atkinson 1992b:150–51).

Despite the fact that the earlier types and varieties are generally described as having various amounts of shell or "mixed shell" in the temper (Brown 1985:Appendix III; Neitzel 1983; Phillips 1970), analysis of the 22-Ad-903 and 22-Ad-901 materials indicates the virtual absence of shell-tempered ceramics. Nor have obvious shell-tempered ceramics been found on other sites on the 3X Section (Atkinson 1992a). The reality of the Natchez area aboriginal ceramic assemblage is that most of the "shell" or "semi-shell" tempering exists only as a visual phenomenon. Testing with hydrochloric acid revealed that apparent shell inclusions failed to produce any chemical reaction. Microscopic examination of the supposed "shell" temper in a number of sherds revealed that the temper was actually a non-carbonate mineral addition similar to ground quartzite, fine-grained sandstone, or finely ground tan to white fired clay. To test our findings, 15 sherds from 22-Ad-901 and 22-Ad-903 that had been collected during the 1988 survey (Atkinson 1989, 1992a), were subjected to an identical acid test and microscopic examination. The findings were identical. In one case, the white inclusions were found to be fragments of milk quartz.

Trade Beads: 22-Ad-903

Twenty-six whole and partial glass trade beads of various types were recovered at 22-Ad-903. Most of these have been identified and illustrated previously in reports and books on other historic contact sites in the United States. In the Lower Mississippi Valley, a number of French and Indian sites that possessed glass trade beads have been investigated. Most of the bead types found at 22-Ad-903 have been reported from these sites, the two most well known of which are the Fatherland site (Neitzel 1965, 1983) and the fabulous "Tunica Treasure" site (Trudeau) in Louisiana (Brain 1979). Others include the Fort St. Pierre, Portland, Wright's Bluff, Anglo, Lockguard, and Lonely Frenchman sites in the Yazoo Bluffs region of Mississippi (Brown 1979:Appendix 2c, 951–1006). In the Natchez Bluffs region, other Natchez Indian sites besides Fatherland that have yielded glass beads include Antioch, Ben Lomond, Dead Oak, Thoroughbred, Trinity (Brown 1985:Table 63), Rice (Frank 1980; Brown 1985), Play (Barnett 1986), and 22-Ad-901 (Atkinson 1992a, 1992b; see below).

In the following discussion the 22-Ad-903 beads are simply classified in numerical fashion, with each number preceded by a "D" for drawn and a "W" for wire-wound. Brain's corresponding bead type nomenclature is cited when applicable. Those beads to be found in another source, but not in Brain, are identified by citing the particular source and page or figure number. Only one bead type does not appear in the literature. This bead (Type D4) was first described in Atkinson (1992b). Two beads that do not totally correspond with previously identified types but are basically the same except for color variation were recovered (D2 and D3). These are given separate classification numbers and described as variations of Brain's types. Of course, many of the Tunica Treasure beads appear in reports and publications that predate 1979. These sources are cited by Brain in each of his bead type descriptions (Brain 1979). They will not be repeated here. Illustrations of most types are presented in Figure 10.5 and proveniences are given in Table 10.1.

The two major bead manufacturing methods employed by European artisans are "drawn" and "wire-wound." All of the 22-Ad-903 beads, as well as those from 22-Ad-901, fall into these categories. Beads are further classified according to specific manipulations used to produce variations in construction and decoration. Beads constructed entirely from a single kind of glass are referred to as "simple." Beads constructed using two or more colors of glass to create layers are known as "compound." Simple beads decorated with inlays or glass stripes or one or more other colors are called "complex," and compound beads so decorated are called "composite." Most drawn beads have been subjected to tumbling in order to round off the ends and remove the sharp snap fractures created in the manufacturing process (breaking of a long glass tube into bead-sized segments). For detailed discussions of bead manufacturing methods, see Kidd and Kidd (1970), Good (1972), and Brain (1979). Brain came to the conclusion that nearly all the beads in the Tunica Treasure collection were probably made in Amsterdam.

Twenty-six whole and partial beads comprising 15 types were recovered from the Pilgrim Bayou site. Except for a few small fragments and slivers of beads not included in this total, all partial beads were complete enough to allow identification of shape, manufacturing method, decoration, and at least one measurement. Most but not all partial beads are halves split longitudinally (parallel with the hole).

Type D1 (Plate 10.1a). Only one specimen of this complex tubular bead was recovered. Both ends are broken off, but lack of tumbling is indicated (Marvin Smith, personal communication). The light blue-gray, opaque bead has two sets of thin red stripes bordered by thicker light blue stripes. The straight sets are slightly slanted along the length, which exceeds 12 mm. It is 5.5 mm in diameter. Beads of this type are not present in the Tunica collection, but over 20, all of which were about 20 mm in length, were recovered at Hiwassee Island (Lewis and Kneberg 1946:133, Plate 87). Also, a single, unprovenienced specimen from an unknown site in the Guntersville Reservoir in Alabama is illustrated but not discussed

Table 10.1. Proveniences of glass beads from 22-Ad-903 and 22-Ad-901.

	22-Ad-903															22-Ad-901	
															Test Unit 3		Surface
Bead Type	Unit 1	Unit 2	Unit 4	Unit A	Unit B	Unit C	Unit D	Unit E	Unit G	Unit H	Unit I	Unit K	Unit L	Unit M	1988	Unit A	1988
D1	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—
D2	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—
D3	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—
D4	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—
D5	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—
D6	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—
D7	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—
D8	—	—	—	—	—	1	—	1	—	—	1	—	—	1	—	37	—
D9	—	—	—	1	—	1	1	—	—	1	1	1	—	—	—	3	—
D10	1	—	—	—	—	—	—	—	1	—	—	—	—	—	—	1	—
D11	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—
D12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	25	1
D13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—
D14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	—
D15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—
D16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
W1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1	—	—
W2	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—
W3	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
W4	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—

by Fleming (1976). It is shown as Type 17 on his bead figure. A single specimen was found by Marvin Smith (personal communication) on the surface of the Fort Moore site in South Carolina. The type is most common in the seventeenth century and is considered to be the earliest in the Pilgrim Bayou collection (Marvin Smith, personal communication).

Type D2 (Plate 10.1b). This medium-blue, opaque, complex, tubular, tumbled bead fits Brain's (1979:104) DIIB7 type, except for his color designation as turquoise blue. It has three sets of straight, longitudinal red stripes between two white stripes. The whole one from 22-Ad-903 is 13 mm in length and 6 mm in diameter, but the longitudinally-broken one was obviously larger. The latter is 7 mm in diameter. Four are present in the Tunica collection. The type dates to the late seventeenth century and the eighteenth century (Brain 1979:104).

Type D3 (Plate 10.1c). This type also corresponds to Brain's (1979:104) DIIB7 type except for most of the colors, which also differ from the D2 type. The single whole specimen is dark blue, and the stripes bordering the red stripes are pale blue rather than white. It is 16 mm in length and 6 mm in diameter.

Type D4 (Plate 10.1d). This type, only one of which was recovered at 22-Ad-903, is an elaboration of Brain's (1979:104) DIIB7 and the D2 type. Nothing like it appears in the literature, and Marvin Smith has never seen one (personal communication). Unlike Type D2, this complex, tubular, tumbled bead is light blue with six longitudinal red stripes. In between the red stripes (with one exception) are two stripes, one medium blue and the other white. The white stripes, however, border on being pale blue. The exception mentioned above is that two of the red stripes are close together and separated by a single white/pale blue stripe. The 17 total stripes give the appearance that even more stripes are present because of the narrow spaces allowed for the bead body to show between the true stripes. The bead is 13 mm in length and 6.5 mm in diameter.

Type D5 (Plate 10.1e). This complex, tumbled type, one of which was recovered, is Brain's (1979:105)

Plate 10.1. Glass beads and porcelain artifacts from sites 22-Ad-903 and 22-Ad-901.

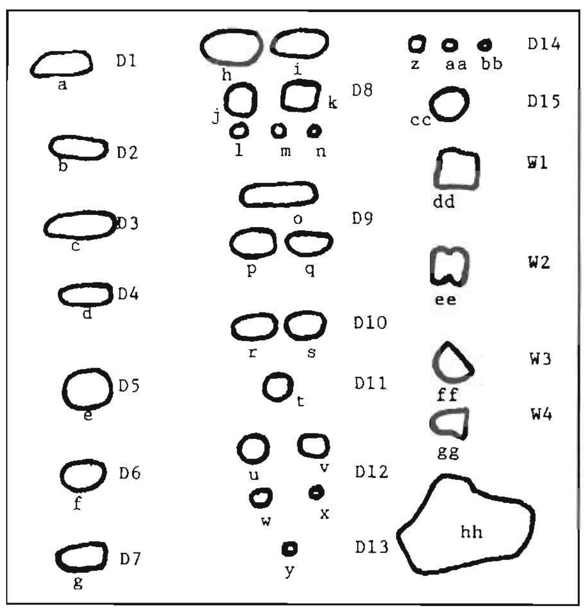

Figure 10.5. Key to Plate 10.1.

DIIB13 type. Six are present in the Tunica collection, some were found at the Fatherland site (Neitzel 1983:110, Plate 29), and 18 were found with a Natchez burial at the Play site on St. Catherine Creek (Barnett 1986:7). The Pilgrim Bayou specimen is white, round with flattened ends, and has three sets of longitudinal dark blue, spiraling stripes. It is 10 mm in length and 10 mm in diameter. Most of the beads of this type are oval or peanut-shaped (Brain 1979:105). The type dates to the early eighteenth century.

Type D6 (Plate 10.1f). This complex, tumbled, oval, opaque, dark blue bead with five longitudinal white spiraling stripes is not present in the Tunica collection. Four were found at the Fatherland site (Neitzel 1983:110, Plate 29aa), and others have been found at sites in the upper Mississippi Valley drainage (see Good 1972:109). One is present in the Pilgrim Bayou collection. It is 11 mm in length and 8 mm in diameter.

Type D7 (Plate 10.1g). This late seventeenth- and eighteenth-century type, known as the "gooseberry," is clear and transparent, with white longitudinal stripes inlaid between layers of glass. Thus they are composite beads (Brain 1979:106). The single longitudinally- and latitudinally-fragmented specimen from 22-Ad-903 originally had at least 16 stripes inlaid longitudinally near the surface. The stripes are sealed beneath a thin veneer of glass. The bead is 7 mm in diameter. There are over 500 in the Tunica collection (Type DIVB1, Brain 1979:106), but only seven were recovered at the Fatherland site (Neitzel 1983:110, Plate 29r). One was found with the Play site burial (Barnett 1986:7). The specimen from 22-Ad-903 is rare in that it is tubular rather than doughnut- or oval-shaped. Marvin Smith (personal communication) is familiar with only one such tubular specimen (once in possession of a dealer in African beads).

Type D8 (Plate 10.1h–n). This is one of the most common beads found on eighteenth-century sites. It is Brain's (1979:101) DIIA1 type. The simple beads vary from very small (seed beads) to very large. They are white, opaque, and are round, oval, doughnut-shaped, or barrel-shaped. The four tumbled specimens from 22-Ad-903 are medium–large in size. Two are oval, one borders on round, and the other is doughnut-shaped. The largest complete specimen is 11 mm in length and 6 mm in diameter, while the smallest is 9 mm in length and 8 mm in diameter. Including seed beads, 5887 are in the Tunica collection (Brain 1979:101), and 262 were recovered at the Fatherland site (Neitzel 1983:110, Plate 29g–h). Eleven were recovered at the Trinity site (Brown 1985:186, Table 63). At 22-Ad-901 (see below), 11 medium to very large ones were recovered, along with 26 small ones.

Type D9 (Plate 10.1o–q). This common type, simple in construction, is classed here as Brain's (1979:102) DIIA6 type. Brain described them as dark blue and translucent. Four of six from 22-Ad-903 are translucent blue, but two placed in this category border on aqua blue. All are oval and tumbled. They vary between 10 mm in length and 6 mm in diameter to 11.5 mm in length and 8.5 mm in diameter. There are over 10,000 in the Tunica collection. Six were found at the Trinity site (Brown 1985:186, Table 63), and three were recovered at 22-Ad-901 (see below). This type can date to as early as A.D. 1600, but they are common on sites dated from 1700 to 1740 (Brain 1979:102).

Type D10 (Plate 10.1r–s). This type fits Brain's (1979:103) DIIA10 type. These simple beads are opaque, aqua blue. The two examples from 22-Ad-903 are oval and almost identical in size (ca. 10.5 mm in length and 6 mm in diameter). Over 170 are in the Tunica collection but none are reported from the Fatherland site. One was recovered at the Dead Oak site (Brown 1985:Table 63) and one was found at 22-Ad-901 (see below).

Type D11 (Plate 10.1t). This somewhat rare simple bead is Brain's (1979:103) DIIA17 type, of which only one is present in the Tunica collection. Brown (1985:186, Table 63) recovered two at the Trinity site. The single specimen from 22-Ad-903 is translucent turquoise/aqua blue. Unlike Brain's example, it is not perfectly round, being 6 mm in length and 7.5 mm in diameter. The type dates to the early eighteenth century.

Type W1 (Plate 10.1dd). This simple, wire-wound bead type fits Brain's (1979:110) WIIA2 type. The two specimens from 22-Ad-903, both of which are fragments, are translucent, clear, faceted beads created by repeatedly pressing a flat tool against an originally smooth bead before it hardened. The 22-Ad-903 specimens probably had eight facets, as described by Brain for his WIIA2 type. The half bead from the 1992 excavation is approximately 11 mm in diameter and 7.5 mm in length. The more fragmented bead from the 1990 testing cannot be measured. Over 70 are in the Tunica collection, and three were recovered from the Fatherland site (Neitzel 1983:110, Plate 29z).

Type W2 (Plate 10.1ee). This clear, simple, "raspberry" bead type fits Brain's (1979:111) WIIB2 type. The single 22-Ad-903 specimen has two rows of rounded nodes, each row having six nodes. Although the type is reported from a sixteenth-century site, it is usually found on early eighteenth-century sites (Brain 1979:111). Over 250 are in the Tunica collection. Several were found at the Fatherland site (Neitzel 1965:Plate 15j), and Brown (1985:186, Table 63) recovered one at the Trinity site. The 22-Ad-903 specimen is 9.5 mm in length and 10 mm in diameter.

Type W3 (Plate 10.1ff). This rare bead type, only one of which was recovered at 22-Ad-903, is simple, clear, and doughnut-shaped. The only known other provenience is in the Tunica collection, where two exist. Brain (1979:109) speculates that beads of this type (WIIE1) are examples of "raspberry" beads that did not go through final molding. The 22-Ad-903 specimen is 11 mm in length and 14 mm in diameter.

Type W4 (Plate 10.1gg). This rare "raspberry" bead type is not present in the Tunica collection, but one was found at the Fatherland site (Neitzel 1983:110, Plate 29y). Both the Fatherland example and the partial 22-Ad-903 specimen have three rows of elongated nodes that slightly overlap. The beads are dark blue and translucent. The length of the 22-Ad-903 specimen is unmeasurable, but it is 14 mm in diameter.

Aboriginal Ceramics: 22-Ad-901

The single 2x2 meter unit excavated at 22-Ad-901 produced a large quantity of aboriginal ceramics. A total of 664 sherds, most of which are small due to past cultivation on the site, was recovered. Except for three sherds of Baytown Plain and one of Chevalier Stamped, the assemblage seems to be almost pure Natchez phase (based on the presence of abundant trade goods), although some pre-contact Emerald phase occupation is possible. The two Plaquemine Brushed sherds probably belong to a late Coles Creek component represented by the types mentioned above, but only further and more comprehensive excavations will confirm or negate this suspicion.

An unusual quantity of decorated sherds is present in the collection, including 45 Fatherland Incised *var. Fatherland*, four *var. Pine Ridge*, seven *var. Snyders Bluff*, seven *var. Pilgrim Bayou*, and 57 *var. unspecified*. The presence of 21 sherds of Chicot Red in a single 2x2 meter unit also seems unusual. Since more decorated sherds often occur at sites occupied by higher ranking persons, perhaps the sherd assemblage is trying to tell us something. These data, coupled with the evidence that an early- to mid-twentieth-century amateur with a voracious burial desecration appetite greatly augmented his Indian pot and bead collection by digging in this specific area, may well indicate that 22-Ad-901 was occupied by the family of a high ranking member of the particular village division located in that part of the Natchez Bluffs region. As mentioned earlier, one large, old, pothunter's hole is visible on the site.

Trade Beads: 22-Ad-901

A total of 73 glass beads complete enough for identification was recovered from 22-Ad-901. Eight types, all of which are of drawn construction, are represented (Plate 10.1). Only three of the eight types are present in the 22-Ad-903 collection. The same simple type designations used in the description of those beads are used below for those three types. The other five types have been assigned classification numbers that follow in order the last ones used in the 22-Ad-903 descriptions.

Type D8 (Plate 10.1h–n). This common eighteenth-century bead, Brain's (1979:101) DIIA1 type, is also the most common in the 22-Ad-901 collection. The type is simple, opaque, and white. Thirty-seven, most of which were small seed beads, were recovered (1.5 to 4 mm). All of these are doughnut-shaped. Eleven are medium to large and range from 10 mm in length and 5 mm in diameter to 16 mm in length and 11 mm in diameter. All but two of these eleven beads are oval (the other two are roundish and barrel-shaped). Interestingly, only four of this usually common type were recovered at 22-Ad-903. The Tunica collection possesses 5887 (Brain 1979:101).

Type D9 (Plate 10.1o–q). This dark blue, translucent bead type is Brain's (1979:102) DIIA6 type. Three were recovered at 22-Ad-901, two of which are oval. The third, however, is tubular, long, and slightly depressed in the center. This aberrant specimen is 19 mm in length and 6 mm in diameter. It is 8 mm longer than the other two. Six beads of this type were recovered at 22-Ad-903. The Tunica collection possesses 10,745 (Brain 1979:102).

Type D10 (Plate 10.1r–s). This is Brain's (1979:103) DIIA10 type. The single bead from 22-Ad-901 is opaque and aqua blue. The oval bead is 11 mm in length and 7 mm in diameter. Two were found at 22-Ad-903, and 170 are in the Tunica collection.

Type D12 (Plate 10.1u–x). This simple, turquoise blue type is Brain's (1979:102) DIIA7 type. Of the 26 specimens from 22-Ad-901, all but two are seed beads (2 to 4 mm in diameter). Beads of this type are usually opaque, turquoise blue, but a few of the seed beads from 22-Ad-901 border on translucent. One of the two larger beads is somewhat round and the other is somewhat barrel-shaped. One is 8 mm in length and 7 mm in diameter and the other is 6.5 mm in length and 6 mm in diameter. The seed beads are all doughnut-shaped. The Tunica collection possesses 31,367 specimens (Brain 1979:102). The burial at the Play site contained 17 (Barnett 1986:7).

Type D13 (Plate 10.1y). The single seed bead of this type from 22-Ad-901 is light powder blue in color and is doughnut-shaped. It is 2 mm in length and 3.5 mm in diameter. It is Brain's (1979:103) DIIA8 type. Forty-three are in the Tunica collection.

Type D14 (Plate 10.1z–bb). This is Brain's (1979:102) DIIA5 type. Although they are described as ranging from small to large, all three of the specimens from 22-Ad-901 are small, doughnut-shaped, opaque seed beads (2–3 mm). They appear black to the naked eye but are actually burgundy. All three were recovered from a fine-screened soil sample taken from earth previously screened through quarter-inch mesh. Isolated ones are virtually impossible to see against dark earth background. Many more were undoubtedly present in the single unit excavated. They date to the early eighteenth century. The Tunica collection contains 12,116 (Brain 1979:102).

Type D15 (Plate 10.1cc). This somewhat rare drawn bead type is translucent blue, round with flattened ends, and has eight longitudinal white stripes. It is Brain's (1979:112) WIIIA2 type, but is erroneously classified by him as wire-wound (Marvin Smith, personal communication). One specimen was recovered at 22-Ad-901. It is 11 mm in length and 7.5 mm in diameter. Four are present in the Tunica collection. According to Brain (1979:112), the type dates from 1714.

Type D16 (not illustrated). This is Brain's (1979:105) DIIB10 type. The single fragmented specimen from 22-Ad-901 was found on the surface in 1988 (Atkinson 1992a:62). It is light blue-gray and has three sets of three straight, blue, longitudinal stripes. The broken specimen is oval. Twenty-five are in the Tunica collection. Three were found with the Natchez burial at the Play site (Barnett 1986:7). This bead type is similar in appearance to Type D5 (see the 22-Ad-903 bead descriptions above) except that the blue stripes are straight rather than spiraling and the body glass is light blue-gray rather than white.

Chronological Implications and Conclusions

The excavations established the time of the post-Plaquemine period component at 22-Ad-903 as being at least very late Emerald phase, for diagnostic, early transitional glass trade beads were found to be present on part of the site. The beads seem to be confined to an area of about 50x25 meters on the west portion of the site, but the limited nature of the excavation on other parts of the huge site could account for the lack of bead recovery elsewhere. If indeed a much larger area of the site was occupied at the terminus of the Emerald phase in the late seventeenth century and afterward, then glass beads should also be present at whichever locales were inhabited.

The almost total absence of European items other than glass beads is significant in determining the temporal position of the occupation within the short, 48-year Natchez phase. Since the English had already established direct trade intercourse with the Chickasaw and other groups to the north and east by 1688, some of the European artifacts found on Natchez sites may be a result of that interaction. Brown (1985:188), in fact, contends that five sites possessing trade items were occupied no later than 1700. He based this late seventeenth-century occupation date on the scarcity and non-diversification of trade goods, as opposed to larger quantities and more diversified assemblages from some of the other sites investigated. Although the beads from 22-Ad-903 may not date prior to establishment of the southern French colony in 1699, the rarity of items other than glass beads indicates an early contact situation. However, it should be remembered that actual first contact with the French occurred in 1682 with La Salle's visit. Although not likely, some or all of the beads from 22-Ad-903 could have been introduced by La Salle.

There is a noticeable difference between the early European assemblage recovered at 22-Ad-903 and the assemblage from 22-Ad-901. The most obvious difference is the apparent absence of small seed beads at the former site and their common occurrence at the latter. Although it is quite possible that seed beads could have been overlooked at 22-Ad-903, the fact that not even one was recovered suggests that they do not exist there. Cognizant of the possibility that we were losing some through the screens, the back dirt piles, which were left intact throughout the field work, were carefully examined following the frequent rains. A few small fragments of large beads were observed on the surfaces of these piles, but no whole or fragmented small beads (smaller than the quarter-inch mesh) were found. In addition, no beads were present in the several soil samples taken from the general deposits. At 22-Ad-901, on the other hand, 41 out of 53 small beads were recovered during the digging process or were plucked from the screen dirt before passing through the quarter-inch mesh.

Although the assemblage from the single unit excavated at 22-Ad-901 is not qualitatively comparable to the assemblage from the fourteen 2x2 meter units excavated at 22-Ad-903, the sample from the former site indicates another difference. At most sites documented to have been occupied well into the eighteenth century, one of the most common bead types is Brain's DIIA1 type (our D8 type). This opaque, white drawn bead type was found at 22-Ad-903 but comprised only four of the 26 beads recovered from the fourteen 2x2 meter and ten 1x1 meter units excavated there. At 22-Ad-901, however, eleven large beads of this type were recovered in a single unit (26 small beads of the type were also recovered). This indicates that the Natchez phase occupation at 22-Ad-903 terminated at an earlier date, and prior to the proliferation of Type DIIA1 as a common component of the French trade bead assemblage.

Comparison of the trade goods assemblages from 22-Ad-903 and 22-Ad-901 with those recovered at ten other sites (Barnett 1986; Brown 1985; Frank 1980) reveals some interesting data. First, it is noteworthy that 99 identifiable beads were recovered at 22-Ad-903 and 22-Ad-901, while only 59 total beads were recovered from the seven Natchez phase sites investigated by Brown (1985:Table 63). However, one of these, the Rice site, had earlier yielded a large quantity of glass beads, most of which were interred with burials (Frank 1980:34, 37). The most productive of Brown's other sites was Trinity, which produced 30 glass beads and a number of other early trade artifacts. As at 22-Ad-901, the DIIA1 (D8) bead type was the most common. Thus Trinity, Rice, and 22-Ad-901 are probably generally contemporary within the early eighteenth century. If the 1714 appearance date for the bead type D15 (Brain's type WIIIA2—see discussion above) is correct, then 22-Ad-901 was occupied after that date, but could well have been occupied earlier.

The other glass beads recovered by Brown (excepting 19 from the Rice site) are about evenly distributed among the Lookout, O'Quinn, Antioch, Ben Lomond, and Dead Oak sites. Because of the scarcity of glass beads and other early European artifacts from these sites, Brown (1985:188) has placed them in his late seventeenth-century category. On the face of it, site 22-Ad-903 would seem to fit with Brown's late seventeenth-century sites, for in general European artifacts are not abundant. However, the low quantity of diagnostic artifacts on a site could be a result of short or intermittent occupation rather than a result of occupation prior to abundant accessibility of those artifacts. In any case, the nature of the early European artifact assemblage from 22-Ad-903 does indeed indicate a possible pre-1700 temporal position for the entire Natchez-phase occupation there.

No matter when glass beads were introduced at the site, the non-diversity of trade items and lack of any one predominant bead type strongly indicates that Area 1 of 22-Ad-903 was abandoned by the Natchez prior to 1714, when a trading post was established by the French. Prior to 1714, French-Indian contact had been intermittent and European goods among the Natchez would logically have been limited to some degree. With the establishment of Fort Rosalie in 1716 and subsequent presence of the French military and hundreds of French civilians, however, a significant influx of French goods into the hands of the Natchez would have occurred.

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11

Contact, Communication, and Exchange: Some Thoughts on the Rapid Movement of Ideas and Objects

Ian W. Brown

Drawing an analogy from the way in which archaeological information is transferred at national and regional conferences, this paper focuses on the general issues of contact, communication, and exchange in prehistoric and historic contexts. A model developed by John Ewers and W. Raymond Wood for explaining the rapid movement of materials and ideas in areas west of the Mississippi River is reviewed. It is hoped that archaeologists working in the Eastern Woodlands might detect some parallels that will aid in their own interpretive models of communication and exchange.

Introduction

This paper was stimulated by a trip to a national archaeology conference. In the process of making contact with colleagues, communicating with them about recent fieldwork, and exchanging information on research, it dawned on me that there are certain parallels between conferences and historic and prehistoric contact situations. What I plan to do here first is to discuss the conference network, which is characterized by nodes of interaction. I will then look at a somewhat similar model of culture contact and exchange that was developed by John Ewers (1968a) and Raymond Wood (1980) to explain the processes of interaction between groups west of the Mississippi River. Finally, I will consider the Eastern Woodlands, where an application of the nodal interaction model might improve our understanding as to how ideas and objects might have moved so rapidly and so far.

The conference to which I refer is the annual Society for American Archaeology (SAA) meeting, which was recently (1995) held in Minneapolis. As with all archaeological conferences, contact, communication, and exchange was the reason for our getting together. Approximately 2500 people attended this conference, its largest attendance ever. Some arrived by air; others by land. My own students crammed into a compact, smoke-filled car and drove north, non-stop, for two solid days. Most of the fliers took the Airport Express to the Hilton, but the somewhat more elderly, established scholars rented cars at the airport. And it was rumored that some arrived by limousine, analogous perhaps to the litter transport of Mississippian chiefs. The officers of the SAA were seldom seen during the day. Their time was spent behind closed doors running the organization. Apart from certain highly ritualized events, officers generally keep very low profiles at such meetings. They simply do not have time to attend the many hundreds of papers given.

As we all know, the paper presentations are the structured means of communication at conferences, but the main value of such presentations is to validate scholarship. Whether or not anyone attends your paper, or even remotely understands or cares about what it is you are saying, it is very important in our profession that one gives presentations at national conferences. Deans love it come promotion time, Department Chairs or employers are more likely to release travel money, and of course it is an absolute must if you are building a résumé for job searches. However, we all know that the real exchange of communication does not occur in these hot, sleep-infested rooms. For the pearls of knowledge you head to the lobby or bar, or perhaps have a meal with a friend. The ritualized organized social events, like receptions and dances, are merely screens for the more important information exchanges.

We search for old friends at these national meetings, seek out past students, and feel all-so-relieved when we come across someone known from regional meetings. Despite the desire and very real need to expand our range of professional contacts, there is comfort in running into a person who normally attends the same regional meeting. Mere acquaintances at regional meetings often become fast friends at national conferences.

Making and building contacts and the exchange of information are structurally the most important aspects of the national archaeological conferences, but there are also important annual rituals. Every year on Friday, precisely at 5:00 p.m., the leaders of the SAA emerge from their various chambers to greet the multitude. The elite sit in designated locations that reflect their role and status. The principal leader, the President, orchestrates the show, calling the various officers to the podium to give their reports. The list of recent dead are read off, and a moment of silence is shared, but before that sad event the awards are given. The honors are many and range from poster prizes to retiring officer recognitions to lifetime achievement awards. The plaques are identical in terms of material and form, but they differ radically in size. If the recipients were to take these honors to the grave, archaeologists of the future would have no trouble recognizing a class of elites and certainly would be able to detect those of highest esteem.

The award ceremony does not just provide recognition to select members; it also validates the existence of the present leaders. Conference participants seldom attend the business meeting just to learn about the trials and tribulations of running the organization. Rather, they attend to pay homage to the leaders of the past, and to cheer on the efforts of the young. The dissertation prize reveals to the greenhorns that age is not the only way to enter the elite.

By virtue of the plaques of varying sizes, each of the award recipients left the SAA conference in Minneapolis with an object that commemorated the occasion. And although the general conferees were not honored, I imagine that everyone carried something with them in their departure from the city. Books were bought and papers exchanged. And, of course, there were gifts. I returned with a garish Minneapolis cap for my wife, a Timberwolf T-shirt for my son, and a Dakota-made bracelet for my daughter. A future explorer of my family's closets will have no trouble detecting a Minneapolis connection. In this day and age of rapid movement, it is not hard to explain the existence of these mementos so far from their source, but the investigator would be hard pressed to recognize within the necklace, hat, and T-shirt all the contacts made and the knowledge received.

After five days of conference, I was happy to leave Minneapolis. On the way to the airport I ran into Bob Hall and Betsy Reitz. They had been at the meeting the whole time, but our paths had never crossed. All the way home I thought about how much more comfortable I feel at the Southeastern Archaeological Conference, because I know most people I see. And when I come to a conference like the Mid-South, it's like a home-coming. Communication is far easier in such contexts. We have shared experiences and do not have to go through elaborate rituals before we can get down to the business at hand. And this process of communication and understanding is even easier on the state and local levels. The members of a state's archaeological chapters are old friends who get together monthly. Many of them go to the annual state meeting where they are joined by the professionals who work at colleges or in the various contract agencies in the state. Some of the amateurs and many of the professionals go to the "mini" regional conferences such as the Mid-South Archaeological Conference. And some of these same professionals attend the "maxi" regional meeting—SEAC. A few go on to the national SAA conference, depending on where it is held and how rich they are feeling in any particular year.

The farther the national meeting is from the Southeast, the fewer the youth who make the trip. But there are always some representatives, and these people return to the regional, state, and local meetings to report on what they learned. There is a hierarchy to the flow of information in the archaeological community. In the Southeast we start with the local chapters, move on to the state meetings, then to the regional Mid-South Archaeological Conference or the Southeastern Archaeological Conference, and, finally, out of the region to the Society for American Archaeology conference. For all these nodes of interaction, the only meeting place that remains the same is the local chapter. The other nodes change depending upon willing hosts and likable locations, but, as the number of attenders increases, the number of possible conference locations decreases. Only a limited number of cities can handle an SAA conference of 2500 people, and even SEAC is becoming limited in the number of cities that can host more than 500 people at one time.

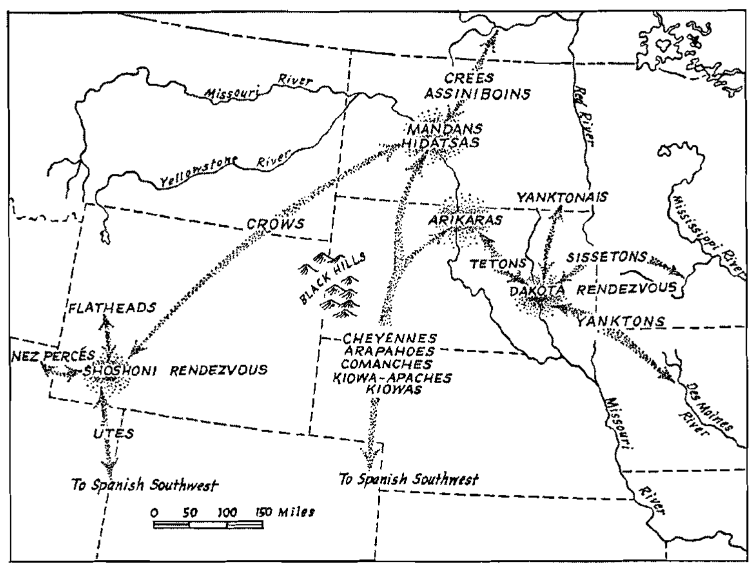
A Model for Exchange

Having now looked at a contemporary, hopefully familiar example of the process of contact, communication, and exchange in our own discipline, I would like to focus on this process among the people of the Plains and points west. A model developed by John Ewers and Raymond Wood to explain interaction and exchange among widely separated groups west of the Mississippi River is, I believe, applicable to the Eastern Woodlands. The model largely developed out of John Ewer's article entitled "The Indian Trade of the Upper Missouri before Louis and Clark" (1968a), originally published in 1954. Raymond Wood, much later, composed "Plains Trade in Prehistoric and Protohistoric Intertribal Relations," which plugged Great Basin, Plateau, and Pacific groups into the exchange network (Wood 1980).

Ewers started with the Louis and Clark expedition of 1804–1806 and examined the process of trade on either side of this dateline. The expedition was promoted by Thomas Jefferson, the scholarly third president of the United States (Ambrose 1996:51–58; Burstein 1995; De Voto 1953:xv–lii; Nasatir 1990:115, 721; Ronda 1984:1–8). Jefferson was greatly interested in the physical and human resources of the west and demanded that both of his captains maintain detailed journals of their explorations (Moulton 1983–96, 2:8–35). They not only wrote about their experiences, but they often provided illustrations, including meticulous maps and drawings of wildlife (Lavender 1988:182–86; Moulton 1983–96,1:3–24; Ronda 1984:13–15; Snyder 1970:24–25). Clark was the better artist, whereas Lewis was more skillful with the pen. The excuse for the expedition was the investigation of the Louisiana Purchase, secured from Napoleon in 1803. However, as can be seen from the actual travel route, the intrepid captains went far beyond the western boundary of the territory. They went all the way to the Pacific Ocean, thus making an American claim on what would soon become heavily contested territory. It is clear that Jefferson was most concerned with the fur resources of this new, largely unknown territory. As a result, Lewis and Clark were given strict instructions to record these resources. They were also required to study how the Indians themselves conducted trade (Moulton 1983–96,2:4–5; Ronda 1984:8–12).

As Ewers (1968a) discussed the Indian trade in detail, I will only summarize it here. He saw three basic trade patterns. The earlier one, the "aboriginal intertribal trade pattern," was characterized primarily by the exchange of perishables. The second pattern, the "protohistoric or transitional trade pattern," involved European trade goods and an increase in imperishable objects. This led directly into the third, historic trade, which was stimulated by the fur trade and involved great quantities of imperishables. This is not to say that prehistoric traders did not exchange furs. They probably did, but it just was not their focus. Ewers believed that prehistoric trade was conducted largely between people who desired the food products of the other. He argued that, prior to historic contact, there was little incentive for trade between two horticultural tribes or between two hunting peoples. Neither possessed an abundance of desirable articles that the other did not already have. Between hunting and gardening groups, however, barter enabled each group to supplement its own economy with the products of the other's labor. In short, the exchange was mutually profitable exchange (Ewers 1968a:19–21). Because perishables like food and leather goods were the focus of the aboriginal intertribal trade pattern, these objects leave little trace in the ground. Like information communicated at archaeological conferences, there is little to show for most materials exchanged in prehistoric trade. And yet, at the same time, some imperishable objects were exchanged, and it is quite clear that these objects passed rapidly over vast distances as a result of these contacts.

Let us look more closely at how the Plains trade system was structured (Figure 11.1). Lewis and Clark spent their first winter among the Mandan of the Upper Missouri River (Moulton 1983–96,3:203–332; Ronda 1984:67–112). At the beginning of the nineteenth century, the Mandan lived near the Hidatsa, another riverine horticultural group. The villages of these densely populated groups sat on the bluffs overlooking the fertile alluvial valley of the Missouri, on which their crops of maize, beans, and squash were grown. In contrast with the nomadic bison hunting tribes of the Plains with their portable tipis, the horticultural groups of the middle Missouri Valley resided in permanent earthlodge villages that were usually fortified. During the warm months of the year these villages were the scenes of numerous festivals and ritual events. Unfortunately, Lewis and Clark arrived at the wrong time to record such events, so they were not able to experience the actual interaction between the Mandan/Hidatsa and nomadic groups. The explorers themselves became the center of attention during the long winter months (Ronda 1984:106–7).



Routes and Centers of Intertribal Trade in 1805

Figure 11.1. The Middle Missouri trade system circa 1805, showing extensive knowledge of the Southwest.

The expedition obtained many items while among the Mandan and Hidatsa, most of which were sent back to Jefferson. Included in the collection of material was a hunting shirt, a painted bison robe that recorded a late eighteenth-century battle, and some Cree dresses (Moulton 1983–96,3:329–31). It seemed curious that Cree dresses should have been among the Mandan/Hidatsa, because this group was located far to the north in the regions west of Hudson Bay. However, as Lewis and Clark soon discovered in their travels, items often seemed out-of-place. One rather amusing example of this was when the captains proudly doled out peace medals to the various chiefs. Much to their chagrin, they received English medals in return (Moulton 1983–96,3:242).

In the spring of 1805 the Lewis and Clark expedition left the Mandan/Hidatsa villages and headed upriver. Eventually they ran into the Rockies, their greatest obstacle in the trek to the sea. Time was an important factor, as they had to get across the mountains before the next winter set in. For weeks they anxiously awaited the arrival of Shoshones from the south, as they desperately needed horses from those Indians to carry their equipment over the mountains. The Shoshones were on their annual trek to trade with the Nez Perce, Flathead, and other groups of the Plateau (Karttunen 1994:29–31; Moulton 1983–96,4:398, 436–37). Horses, of course, were an integral part of the trade network in the West (Ewers 1955; Layton 1981; Secoy 1953). The Shoshones received these animals from the Utes to the south who had earlier secured them from Spanish settlements (Malouf and Findlay 1986:500; Shimkin 1986).

After crossing the mountains, Lewis and Clark continued down the Snake and Columbia rivers to the sea. They had various adventures on the way, but of interest to the topic of trade was their experience at the Dalles on the Columbia. The river gets quite narrow at this location, and there are rough rapids and waterfalls. The Wishram and Wasco Indians were actively fishing and drying salmon at this location at the time the expedition passed through the Dalles. Fish were caught using a variety of nets, traps, and spears. Clark estimated that the towering stack of dried salmon he observed had to have weighed about 10,000 pounds (Ronda 1984:170), far in excess of what these Indians could have consumed themselves. Clearly they were trading it great distances. While at the Dalles, Lewis and Clark were also surprised to discover sailors' overalls, brass bracelets, tea kettles, and scarlet blankets (Ronda 1984:169), objects that were carried hundreds of miles inland from the coast. The explorers were continually amazed at how rapidly materials passed between groups. Another example of this involved their own objects. While wintering among the Mandan the expedition's blacksmiths made iron battle-axes to trade for maize (Moulton 1983–96,3:286–87). A year later, while among the Nez Perce in Idaho, over 700 air-miles distant from the Mandan, Lewis and Clark observed some of these same axes being used as stakes in gambling (Ewers 1968a:32).

Ewers looked at a major slice of intertribal trade in the West in his study, but it is important to point out that the borders of his map were drawn in an arbitrary manner. Raymond Wood (1980) expanded upon the model presented by Ewers (Figure 11.2). The eastern half of the exchange network he called the "Middle Missouri System." This system had its major nodes at the Arikara, Mandan, and Hidatsa, all

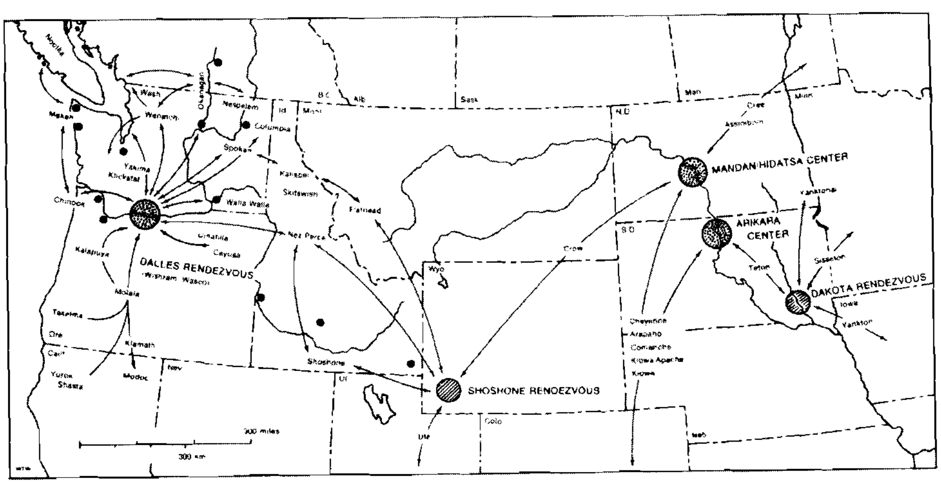


Figure 11.2. The combined Middle Missouri and Pacific-Plateau trade systems.

sedentary village tribes. These principal centers were located at the structural center of the entire system. Each year in the fall nomadic groups came to these nodes to trade. Secondary centers, like the Dakota Rendezvous and the Shoshone Rendezvous, were impermanent loci, in that they changed year after year, but the major nodes were constant sources of garden crops for the nomadic groups. Wood called the western half of the trade system the "Pacific-Plateau System." Here the major node was at the Dalles on the Columbia River, a location that we saw as being important in Lewis and Clark's travels. In addition to the Wishram and Wasco, other Plateau groups were drawn to the Dalles to exchange their own products for the dried fish.

The early travelers in the West were impressed by the major trade fairs. In the Middle Missouri System people came to the principal nodes from all directions. The Crow went to the Shoshone Rendezvous in the spring and then proceeded to the Mandan, Hidatsa, and Arikara villages in the fall. From the Southwest and the southern Plains came the Cheyenne, Arapaho, Comanche, and other nomadic groups. From the Northwest came the Blackfoot. From the Northeast came the Assiniboin and Cree, as well as the Yankton Sioux and Teton. The last two groups obtained most of their goods at the secondary Dakota Rendezvous. These nomadic groups brought such items as dried buffalo meat, flour made of the dehydrated roots of the wild prairie turnip, mountain sheep bows, decorated bison robes, shirts, and pouches. In return, the sedentary riverine groups offered maize, beans, squash, and tobacco; crops that were grown in surplus quantities especially for this trade (Ronda 1984:48–51, 75–77; Wood 1980:100).

The actual trade in the Middle Missouri System was conducted in two different ways. Individual trade was a one-on-one relationship. Usually persons of the same sex traded together. Ceremonial trade, however, was a group affair that involved gift exchange. Large numbers of individuals would put their goods together as gifts and would get gifts from the other groups in exchange. The end product was the same, but the element of barter was absent in ceremonial trade (Wood 1980:104–5).

In the Pacific-Plateau System trading partnerships existed. The same individuals from the two tribes would trade with each other year after year. These ties would last for generations as the bonds were cemented by intermarriage. Trading partnerships did not exist in the Plains. As almost all groups were at odds with each other at one time or another, there had to be some sort of mechanism for establishing alliances. In order for the exchange of resources to run smoothly every year, there had to be some way to declare a temporary peace. In the Plains, the calumet ceremony performed the very important function of making friends out of real or potential foes. The ceremony itself included the smoking of the "peace pipe" as well as the exchange of gifts (Ewers 1986:47–117).

One can imagine the communication difficulties that must have existed in such a complex trade system. The Mandan are reported to have been quite adept in learning foreign languages, which explains their major role in the system, but even they could not have learned all the Plains languages. On the Pacific coast a trade language called the "Chinook jargon" developed. It was a pidgin language that permitted communication between groups as far apart as northern California and southern Alaska (Chamberlain 1907; Kaufman 1971). No such pidgin existed in the plains area, but sign language seems to have been a most effective substitute. Plains Indian sign language is said to have been probably the most efficient form of nonverbal communication in the non-literate world. Sign language not only provided a means for rapid transmission of complex messages, but it also expedited the exchange of goods (Wood 1980:105).

All tribes in the Plains participated in trade, but it should be stressed that they did not need to do so. They could have survived without it, but with it their lives were enriched, both materially and socially. Trade also allowed each tribe to become more specialized in terms of economy. The Mandan, for example, could have spent more of their time hunting, but they did not have to do so because they knew that others were doing it for them. Instead, they devoted their efforts to raising crops, a function for which their environment was admirably suited. Great accumulations of foods occurred among the Mandan and other village tribes of the Missouri. Their principal role in the prehistoric Plains trade was the motivating factor for why Anglo-American traders went to them first and set up their posts. As all nomadic groups eventually came to the Missouri to trade their goods, the Anglo-Americans merely plugged themselves into a pattern that had been operating for centuries (Wood 1980:107).

In many ways Karl Bodmer's portrait of Makuie-Poka (Plate 11.1) summarizes the complex trade system of the West (Davidson and Lytle1982:116–21; Ewers 1984; Thomas and Ronnefeldt 1982:125). Makuie-Poka had a Kutenai father and a Blackfoot mother. He wears a hair bow that is believed to have been a Mandan invention (Ewers 1968b). Around his neck is a bear-claw necklace. Both the necklace and the eagle-wing fan were probably transported to the upper Missouri by the Crow Indians. The striped blanket came from either the Pueblo Indians or the Spanish in the Southwest, having passed perhaps through the Shoshone Rendezvous. There are twenty-seven brass rings on his fingers that came from somewhere in Europe. The brass bells obviously are of European derivation also, as are the glass beads. The long shell ornaments are hair pipes: these objects were fabricated from the lip of conch shells that were brought to New York from the West Indies, carried in ships as ballast. Wampum factories in Bergen County, New Jersey, produced these objects especially for the Plains Indian trade, and the American Fur Company transported them west (Ewers 1968b). In earlier days dentalia shell from the Northwest Coast would have been used in a similar fashion, traded from the Pacific shores via the Dalles. In short, this portrait depicts a complex global trading pattern that stretched from Venice, Italy, through the Anglo-American East and the Spanish Southwest, up through the Plains and Plateau and beyond to the Pacific.

Application to the Eastern Woodlands

Just as Ewers' western boundary for the Middle Missouri trade system was only an arbitrary construct, there is no reason to believe that the eastern boundary set forth by both Ewers and Wood was any more rigid. Primary, secondary and tertiary nodes of interaction must have been in existence throughout time in the Eastern Woodlands, and through these nodes information and materials undoubtedly passed rapidly and over great distances (Brose 1994:215–16). Helen Tanner (1989) argued that the well-informed Indian of the Eastern Woodlands would have known of the Great Lakes, the Plains, the Bahamas, and possibly even of the Pueblo Indians in the Santa Fe region. Whether for war, trade, or diplomacy, it was not unusual for Indians to travel over a thousand miles along the major water and land routes of the East. Whereas most east–west travel in the Southeast was by land, north–south contact and communication was largely by water. The Indians of the North used bark canoes of elm or birch, while the southeastern Indians used dugouts (Adney and Chapelle 1964; Fuller 1992).

The circa 1723 Chickasaw deerskin map illustrated in Waselkov (1989:324–29, Figs. 4, 12) shows quite dramatically that the person who drafted it was well aware of groups stretching from southeastern Texas to southwestern Kansas in the West, and from northeastern Florida to western New York in the East. The area encompassed by this man's knowledge of North America covered an area exceeding 700,000 square miles, far beyond the comprehension of any contemporary European. This knowledge was based on extensive travel and communication, but not necessarily by any specific individual. Rather, it was the collective knowledge of people who had journeyed to the various nodes of interaction and returned with information that contributed to Chickasaw group knowledge.

The watercolor by Alexandre DeBatz of Fox, Illinois, and Atakapa Indians in the Lower Mississippi Valley is a vivid portrayal of how common it was for groups to gather together on a regular basis (Plate 11.2). In reading the letters of the French adventurers that are preserved in the Mississippi Provincial

Plate 11.1. The Plains trade system as represented in the portrait of Makuie-Poka, by Karl Bodmer.

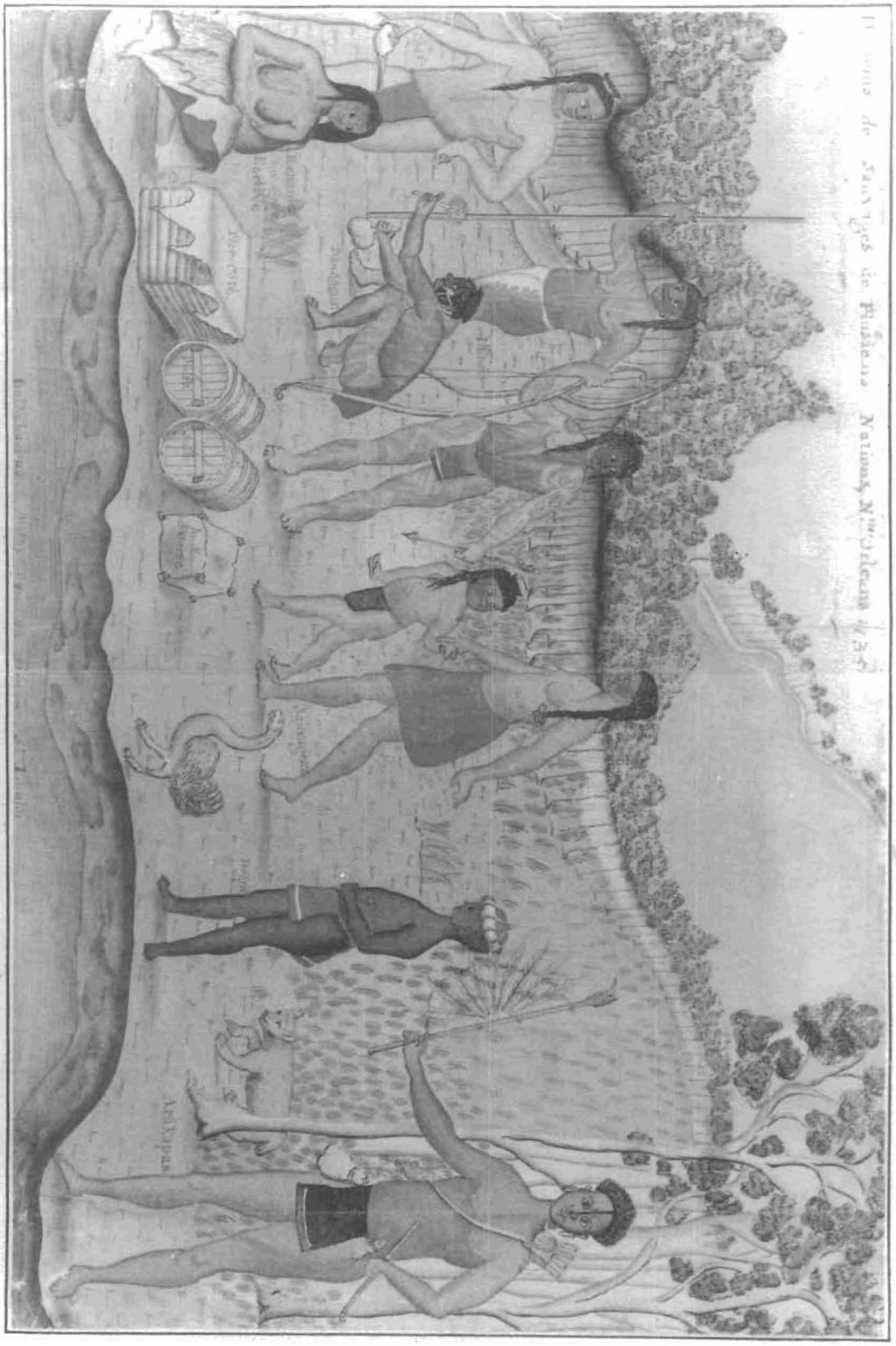


Plate 11.2. Alexandre DeBatz's watercolor of several Indian groups of the Lower Mississippi Valley reveals long distance travel.

Archives (Rowland and Sanders 1927–32; Rowland et al. 1984), it never ceases to amaze me what travelers these people were. In any one year you might find the same Frenchman at Fort de Chartres in Illinois, at Natchez in Mississippi, and then at New Orleans and Mobile. But before they are given too much credit for their energy, we must remember that they did not travel alone. The Indians were not only their guides but also their oarsmen (Rowland et al. 1984, 5:225). It was they who knew the routes and who had great experience covering great distances rapidly. These people carried the calumet with them in historic times, and presumably they had something analogous to the calumet prehistorically. As in the Plains, use of the calumet in the Southeast made friends out of potential foes and permitted the flow of both information and materials (Brown 1989). As with the Chinook pidgin language of the Northwest Coast, the Mobilian jargon was a pidgin that facilitated trade and communication over vast areas of the Eastern Woodlands in historic times (Crawford 1978; Drechsel 1986; Haas 1975). Some means of verbal and/or visual communication also must have existed prehistorically in the Eastern Woodlands, when people came together at the various nodes of interaction.

When we look at where the historic routes crossed in the Eastern Woodlands, it is no coincidence that late prehistoric population centers existed at these intersections. We ourselves have continued the trend today as cities have grown at these same nodes. Nashville, Mobile, and Chattanooga are but several examples. Most of these nodes of interaction already existed in Mississippian times, with some centers being primary, others secondary, and others tertiary. The actual routes of travel may have been the same in earlier times, but the crossings were probably different. And they were probably different still 3000 years ago when Poverty Point was a primary node of interaction (Jackson 1991). Poverty Point, Cahokia, Moundville, and many other sites were primary nodes of interaction at different times in prehistory. These were places where groups converged on a regular basis, probably annually, to exchange ideas and materials. But we must not forget the secondary and tertiary centers that also must have played critical roles in the network. Throughout prehistory, information and objects passed rapidly over great distances, and in extremely short periods of time. And this really should not be a great surprise to us. The mechanisms that were outlined by Ewers and Wood for the Plains, Plateau, and Pacific coast are certainly applicable to the Eastern Woodlands. The key, of course, is to break out of the confines of culture areas. The boundaries of the culture areas, while useful in describing Native American lifeways as well as in defining the location of our contemporary regional conferences, were always very ephemeral borders over which ideas and objects moved rapidly and regularly for the greater good.

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