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THE RISE AND FALL OF THE MISSISSIPPIAN IN WESTERN ALABAMA: THE MOUNDVILLE AND SUMMERVILLE PHASES, A.D. 1000 TO 1600

Christopher S. Peebles

Evidence for the dating of the dissolution of the Moundville chiefdom is examined and contrasted with contemporary evidence for social organization at the smaller Summerville community to suggest a model for regional developments in the late prehistoric period.

**Introduction**

The most apt title for this paper would be "a tale of two towns," with all the metaphorical force of Charles Dickens' opening lines: "It was the best of times; it was the worst of times." It narrates, to the extent possible, the prehistory of two towns in west central Alabama during the first two thirds of the second millennium of our era: from approximately 1000 to 1600 AD. Both towns were centers of agricultural populations, and both would be termed "Mississippian" by Southeastern archaeologists. One town, Moundville, at its height covered well over 100 ha and had a population of approximately 3,000. It served as the political and ceremonial center for a regional population of more than 10,000 people who occupied numerous villages and hamlets spread out over 350 km² of the central Black Warrior Valley (Figure 1). The other town, which here will be called the Summerville phase community, comprised perhaps 300 people at its height, and covered approximately 10 ha in the central Tombigbee Valley, approximately 40 km west of Moundville. Although various episodes in the prehistory of this community seem bound up with that of Moundville, it was neither client nor partner of its larger neighbor. Instead, this Summerville community, from beginning to end, seems to have been autonomous, loosely tied to other similar communities in the upper watershed of the Tombigbee.

These two communities and their respective polities can be used to illustrate the end-points of what has been called the Mississippian (Smith 1986; Steponaitis 1986). Both are representatives of a fully agricultural adaptation; both have the appropriate shell tempered vessels; both have platform mounds. Yet Moundville was the center of a spectacular growth in social complexity and demographic mass, while the Summerville community remained basically simple and stable. Moundville suffered a spectacular crash during the first one half of the 16th century, while the Summerville community faded quietly from the scene several generations thereafter.
Excavation of the Summerville community in the Lubbock Creek Archaeological Locality took place in the late 1970s. In all, a sample of approximately 27,000 m² was excavated and the materials analyzed and reported (Jenkins 1982; Peebles 1983). The greatest part of this area was selected on the basis of a rigorous sampling scheme, and thus can serve as the foundation for the calculation of sample statistics: e.g., the density of structures, burials, and other features, plus volumetric measures of artifacts, carbonized plant remains, and preserved animal bone.

The tales of these two towns can be brought together on several analytical levels. Taxonomically, they were both "Mississippian" in the broadest sense of that term. At a finer level of discrimination, both can be included in what has been termed "the Moundville variant" based on their ceramic assemblages and styles (Jenkins 1982; Sheldon and Jenkins 1986). Both have provided illustrative materials on the relationships among demography, nutritional stress, and the adoption of agriculture (Caddell 1983; Scarry 1986). Yet here is the point at which their common career part company. The Moundville polity rose to regional pre-eminence; the Summerville community remained small and stable. The one became a complex chiefdom; the other stopped at and perhaps regressed from the level of a simple chiefdom.

The explanations that have been employed to account for growth in the case of Moundville and for stability in the case of the Summerville polity have focused on adaptation, demography, organization, and economics. The development of complex forms of organization at Moundville has been explained in terms of their "management" functions and in terms of self-aggrandizement by a developing elite (Peebles and Kus 1977). In effect, there was "positive feedback" or mutual reinforcement among population growth, adaptation (including warfare), maintenance and manipulation of economic exchanges, and the development of complex forms of social organization. It seems as though the checks on population growth and intra-societal "leveling mechanisms" were not operative during the growth of Moundville, at least up to a point. In contrast, both constraints seem to have been effective in keeping the growth of the Summerville Mississippian community within the limits of a segmentary, egalitarian polity.

The greatest points of contrast, and of scholarly disagreement, are not on the respective rise of these two polities but on the causes of their demise. Given the resplendent monuments of Moundville, there are those who would claim that only European diseases could have brought it to an end (Curren 1984). There are others who admit that its decline might have begun before the Europeans, but that the first Spaniards in the region administered the coup de grâce (Hudson et al. 1985). The argument developed below and elsewhere (Peebles 1985) suggests that the collapse of Moundville was precipitated by purely internal factors, and that the demise was protracted by major declines in the economic and political
health of the polity some 100 years before its final dissolution. Moreover, it will be argued below that the failure of the Summerville community to display any of the ills that beset Moundville, and its failure to collapse at the same time as Moundville, rule out a common cause for the dissolution of the Mississippian polities in the region. The Summerville community provides, if you will, the exception that illustrates the rule.

Chronology
The chronologies for the Moundville and Summerville phases have been constructed from ceramic seriations, paleomagnetic and thermoluminescent measures, plus an inconclusive set of radiocarbon determinations. These several scales can be combined to produce the rudiments of a chronology for the Moundville phase sites in the Black Warrior Valley and for the sequent Summerville phase components in the Lubbbub Creek Archaeological Locality. It is clear, from both personal discussions among the several authors and various published disclaimers (Peebles and Mann 1983; Jenkins and Krause 1986; Curren 1984), that whatever consensus exists in these matters, it is uneasy at best and the source of sharp disagreement at worst. Glossing over the differences, a chronological framework, which builds upon Steponaitis (1983) and Peebles and Mann (1983), can be outlined as follows:

<table>
<thead>
<tr>
<th>Moundville Phases</th>
<th>Summerville Periods</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 AD 1050-1250</td>
<td>1 AD 1000-1200</td>
</tr>
<tr>
<td>11 AD 1250-1400</td>
<td>11/11 AD 1200-1450/1500</td>
</tr>
<tr>
<td>111 AD 1400-1550</td>
<td>IV AD 1450/1600-1650</td>
</tr>
<tr>
<td>IV (Alabama River)</td>
<td></td>
</tr>
<tr>
<td>AD 1550-7</td>
<td></td>
</tr>
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The radiocarbon and other "absolute" determinations generally support this scheme. If groups of dates are selected, calibrated (using the tables given in Klein et al. 1982), and their midpoints then averaged, there is some order in the C-14 chaos.

Sealed deposits at Moundville, with ceramics diagnostic of the Moundville I phase, yielded a series of four dates with a calibrated average midpoint of AD 1050 (Scarry 1986: Table 5-4). Additional deposits with materials indicative of the Moundville I phase produced three paleomagnetic dates that averaged AD 1190 and a calibrated radiocarbon date with a midpoint of AD 1100 (Scarry 1986: Table 5-11). A pair of radiocarbon dates from deposits at Moundville, clearly attributable to the Moundville II phase based on their associated ceramics, had a calibrated average midpoint of AD 1300 (Scarry 1986: Table 5-4).

The best set of dates for the Moundville III phase come not from Moundville but from the White Mountain and Village, 1-Ha-7 and -8. One radiocarbon and two thermoluminescent determinations from above an undisturbed floor at the very top of the sequence were clustered tightly in the first third of the 16th century: the calibrated midpoint for the radiocarbon date was AD 1515 and the thermoluminescent dates were AD 1520 and 1530, with sample deviations of 50 and 40 years, respectively (Welch 1986: Tables 3.3 and 3.4). It is thus clear, despite protestations to the contrary (Curren 1984:238-242), that the Moundville III phase ends in the first third of the 16th century. There are two additional radiocarbon dates from the White site one, from a context stratigraphically beneath the three 16th-century dates, had a calibrated midpoint of AD 1325 (Welch 1986: Table 3.3); the other, from Moundville, 1-Ha-7, was 570 ± 80 radiocarbon years (Beta 1110), which yielded a calibrated range of AD 1260 to 1475 and a midpoint of AD 1370.

Calibration of the dates reported by Curren (1982:109) for Alabama River phase (Moundville IV) sites in the Black Warrior Valley yield either midpoints in the early to mid-16th century (those from 300 to 400 radiocarbon years of age) or a spread of dates from the early 16th to mid 20th centuries (those between 200 and 130 radiocarbon years of age). Without European materials of known age as unambiguous indicators, it seems safe to begin the Alabama River phase (Moundville IV) in the mid-16th century and leave the date at which it ends open to additional evidence. It is clear, however, that an average date for the Alabama River phase later than the early 17th century cannot be supported with the data in hand.

The average midpoint for five calibrated radiocarbon dates from features associated to the Summerville I phase was AD 1080. The average midpoint for four calibrated radiocarbon determinations for deposits assigned to the Summerville II/III phase was AD 1350. After careful reconsideration of all the radiocarbon dates and their contexts, it was concluded that no carbon samples could be assigned to features from the Summerville IV phase (Peebles and Mann 1983:76). If, however, Summerville IV components can be linked to the nearby Sorrells phase (Marshall 1977), with which it shares a number of ceramic and cultural features, rather than the later, late 16th- and early 17th-century Mhoon phase, then the beginning date of AD 1500 can be seen as reasonable.

Settlement
At approximately AD 1000, settlements of the West Jefferson phase were scattered throughout the Black Warrior Valley (Figure 2). The greatest concentration of settlements, and presumably the greatest concentration of population, was just south of the Full Line, southwest of the present city of Tuscaloosa. Most of these settlements were small: less than 0.5 hectare. A few "villages," nearby locations where Moundville I phase mounds would be built within the next century, were considerably larger than 1.0 ha. In sum, the West Jefferson phase population, which lived for the most part through hunting and gathering, although they supplemented wild foods with
the cultivation of maize, was distributed among thirty or so small hamlets and at least four larger villages. Moundville itself began as one of these larger West Jefferson phase villages (Figure 3).

At approximately AD 1050, four single mound centers were raised in the centers of the areas occupied by the greatest concentrations of the West Jefferson population. The nucleated settlements associated with each of these mounds covered approximately 2.5 ha:

i.e., 10 ha in total. It is likely that the majority of the population resided in farmsteads and hamlets in the regions served by each of the mound centers (Figures 2 and 4), although archaeological survey of a kind and scale sufficiently fine to demonstrate the fact have not been undertaken. What is clear is that from Moundville I times onward, the Moundville phase was characterized by a fully agricultural adaptation (Scarry 1986).

During the Moundville I phase, Moundville was just one of four single mound centers. It might have been primus inter pares, but there has been insufficient investigation of the other centers to
show that the imported wealth present at Moundville was not present at the other three centers. Given its later rise to prominence, however, it is likely that Moundville was special, even in the beginning.

By Moundville II times, Moundville had become unambiguously the primary center in the valley. Its single mound had grown to four, and the site itself had grown from approximately 2 ha to 50 ha. Major Moundville II phase villages were established to the south of Moundville, and the measured settlement area of all villages was in excess of 20 ha. Again, it is likely but not proven that the majority of the population lived in hamlets scattered in the immediate region around each of the single mound centers.

Moundville reached its full growth of 20 mounds, a 40 ha plaza, and a total extent of over 120 ha in the Moundville III phase. It was at the center of six single mound centers, several of which had large villages nearby. The settlement system had expanded southward to the approximate limit of well drained, arable soils. The total area of the settlements associated with the single mound centers and the other large villages without associated mounds was in excess of 25 ha, yet it is still a safe conclusion that much of the population in the Black Warrior River Valley resided in smaller hamlets and scattered farmsteads.

Sometime near to AD 1500, Moundville was abandoned. No amount of fiddling with the radiocarbon chronology—at least as it is presently understood—can alter this conclusion. It is also clear that the hierarchy of major centers, minor centers, and regional populations focused on these centers, collapsed. Three of the minor centers may have continued as monumental points of reference for Alabama River phase (Moundville IV) communities; each had large Moundville IV villages nearby. Yet the settlement system itself had ruptured. From what seems to have been a “rational” regional system with Moundville at its demographic and geographic center (Stephens 1978; Bozeman 1982), settlements spread into every available niche. These Alabama River phase settlements were equally spaced, like beads along a string established by the course of the river (Figure 2). Each was situated to “hold” the maximum amount of territory and, presumably, to control the maximum amount of arable soils for cultivation and hinterlands for hunting (Peebles 1986, 1987).

The population resident at Moundville cannot be estimated reliably. At its zenith, Moundville probably had a resident population of 3,000 persons. This figure was derived from estimating the total number of burials at the site and then dividing that total into generations spread over 500 years. The number of burials that can be assigned to a particular subdivision of the Moundville phase at Moundville increases by almost 400% between Moundville I and Moundville II and by another 50% between Moundville II and Moundville III. Estimates for the population of the Moundville phase in the Black Warrior River Valley as a whole range from 10,000 to 30,000 persons. The smaller figure probably is a good guess for
the Moundville I phase population and the larger figure is a reasonable approximation of the Moundville III population.

The communities that comprised the later prehistory of the Lubub Creek Archaeological Locality stood in marked contrast to Moundville and its hierarchy of settlements (Figure 5). Like the Moundville phase, the Summerville phase had its roots in a Late Woodland community; in this case seasonal settlements of small hunter-gatherers of the late Miller III period. No Miller III structures were located during the 1978 excavations, but there were midden deposits scattered throughout the higher portions of the eastern half of the area described by the bend of the Tombigbee.

Unlike the West Jefferson to Moundville transition, there is little ceramic continuity from the cordmarked ceramics of Miller III to the shell tempered Mississippian ceramics of the Summerville I period. It is clear, however, that an agricultural community was present in the Locality sometime near to AD 1000. During the 200 years of the Summerville I period, a platform mound was raised over a ceremonial precinct that comprised three sequential pairs of structures. A low yellow clay cap with an orientation congruent with the axes of the buildings was raised over their remains, and then the first stage of the platform mound, which used the cap as a template, was erected. A sequential series of walls was built, perhaps to screen the mound, and a bastioned palisade was built to protect the settlement as a whole. The area encompassed by this palisade was 8.5 ha (Figure 5). During the span of the Summerville I period, there were perhaps ten houses occupied at any one time, and a resident population of from 50 to 100 people.

During the Summerville II/III period, which spanned the centuries from AD 1200 to 1500 (give or take a few decades on either end), the community covered approximately 11.3 ha. The mound was rebuilt, but we will never know how many times, because it was bulldozed flat in the 1950s. It is clear, however, that a considerable settlement was spread out around the mound, and that there was no fortification around this settlement. The Summerville II/III village covered approximately 11.3 ha, and as many as 20 houses were occupied at any one time during this period. Given these measures, the resident population was probably in excess of 100 people.

The Summerville IV community, which began at AD 1500 (plus or minus 50 years), again resorted to fortifications. A one kilometer long ditch, presumably surmounted with a palisade wall, was dug around the village. The size of the village was reduced to the area enclosed by this ditch, and within this area perhaps 7 houses were occupied at any one point in time. As in the beginning, the resident population was probably fewer than 100 people.

One of the advantages of having a reliable sample from an archaeological excavation such as that in the Lubub Creek Archaeological Locality is that sample statistics can be computed and used to cross check each other. If, for example, the population of the Locality from the Summerville I through IV periods is estimated from house floor area, the total population summed from beginning to end comprises 905 persons. If, on the other hand, the total number of burials is estimated from the skeletal population, it comes to approximately 1,000 persons. Together these estimates can be off by a
common factor, but given the assumptions used in the scaling, they certainly validate one another.

The Social Archaeology of Two Mississippian Polities

Elman Service, in his influential work *Primitives, Social Organizations* (1962), noted that societies could be analyzed along three dimensions: the size and composition of co-residential groups, the nature of institutions that cross-cut and united these co-residential groups, and the order of individuals that made up the group and that could be termed "status." Each of these three dimensions can be measured, albeit without great precision, from data routinely available to archaeologists.

Renfrew, in his collection of articles entitled *Approaches to Social Archaeology*, built upon the work of Service, among others, when he observed: "Status is often reflected and maintained by the use of conspicuous symbols. Power, on the other hand, must be exercised to be visible: perhaps the most obvious expression of the sustained exercise of power is seen in the orderly structures of organization [e.g., public monuments]" (Renfrew 1984:24). Thus the "landscape of power" to use Renfrew's term, can be seen in the order of individuals and the order of monuments and settlements. It can be measured through the use of artifacts as symbols among individuals and in terms of the internal structure of settlements, the relationships among settlements within an archaeological "culture," and the relationships among archaeological "cultures."

The Moundville phase has provided a fertile ground for analyses of social dimensions that formed the structural framework of prehistoric society (Peebles 1974, 1986, 1987). Such notions were implicit in the presentation of the settlement structure in the section above. A hierarchy of settlements was evident from either the later part of the Moundville I phase or the early part of the Moundville II phase through the Moundville III phase. When the location of settlements is examined, Moundville is shown to be centrally situated with respect to the other single mound centers and to the population as a whole. In fact, during the latter two-thirds of the Moundville phase, Moundville seems to have been located ideally to facilitate the flow of "tribute" to its population from the provincial centers and settlements (Bozeman 1982; Steponaitis 1978). Both Steponaitis and Bozeman constructed inferential measures of such tribute, and Welch (1987) has suggested, given the distribution of anachronistic elements in the midden around the White Mound Center, that the chipped stone of meat comprised part of this tribute, both that paid to the local centers and to Moundville itself.

Analysis of the internal organization of Moundville during early Moundville III indicated that there were spaces devoted to particular industrial and social activities. The industrial areas included localized debris from ceramic, marine shell bead, and greenstone artifact production. Residential neighborhoods could be ordered on the basis of house size and complexity as well as in terms of the debris found nearby. The midden around a seven-room house located northeast of the plaza contained marine shell and copper fragments, midden near clusters of single-room houses, which were located well away from the southern margins of the plaza, yielded only the detritus of daily living. There were areas set aside for large "public" buildings, and ceremonial spaces were defined in part by the 20 mounds and the 40 ha plaza they bounded. Burials whose grave goods marked them as high status individuals were interred in or near the mounds and on the margins of the plaza. Burials with either no grave goods or with domestic and industrial items as burial furniture were found in the neighborhoods and well away from the ceremonial precincts.

The society of death that has given the firmest evidence for ascriptive ranking of individuals during the height of development of the Moundville phase. At that time a small segment of the population, including both males and females, adults, adolescents, and children, was set apart as a group on the basis of their place of burial and the goods which accompanied them. They all were interred either in or near the mounds or near the margins of the plaza. The goods common to this group as a whole included various items made of copper, marine shell beads, and various other "imported" goods. There were items found only with the adult males? in this group, and these comprised stone palettes, monolithic stone axes, and copper axes. The important point to note here, however, is that this corpus of goods linked together a group in which age and sex were not, in the first instance, criteria for membership. Once a settlement group was established, then some individuals were set off from the rest by their place of burial in the centers and mounds of the mounds and by a subset of these goods, especially ceremonial axes and palettes. The remainder of the population—some 95% of the whole—either had no grave goods whatsoever or had goods that were appropriate to a particular age and sex.

In short, ascription of high rank on the basis of birth into a particular ceremonial group was defined on a small segment of the Moundville population; otherwise, social status (at least as reflected in death) closely paralleled age, sex, and, presumably, the achievements of a lifetime. The size of this superordinate group grew from roughly 1% of the population during the Moundville I phase to approximately 5% of the population during the early Moundville III phase. There are insufficient data from other Moundville phase sites—especially from the single mound centers and large villages—to construct an order of individuals for the Moundville phase as a whole, but there is sufficient evidence to demonstrate that there were common symbols and a common economic system that tied the various parts together into a single polity.

The "ranked" order of individuals collapsed at the end of the Moundville III phase. There was a hyper-egalitarianism among the burials and their mortuary ritual. There was a very few individuals, the vast majority of grave goods were burial urns which, for the most
part, contained the remains of infants and children. Alabama River phase (Moundville IV) settlements show no internal divisions into social spaces beyond those defined as inside versus outside dwellings. There are neither mounds nor plazas, although some of the mounds from the Moundville III phase may have served as regional foci during the first part of the Moundville IV phase.

There is little evidence that the Summerville phase communities in the Lubub Creek Archaeological Locality were integrated formally into a wider polity. These sequent communities seem to have maintained ties to other communities farther up the Tombigbee, including the site at Lyon's Bluff, but no evidence has developed thus far to tie these settlements together into a single polity and a hierarchical structure of superordination and subordination. The organization of the Mississippian settlements in the Lubub Creek Archaeological Locality did not evince division into a variety of social spaces beyond those provided by the mound and village dichotomy. During the Summerville I period there were a few burials with imported copper items, but in every instance these items were placed with adult males. There were marine shell beads placed with an infant and an adolescent, but otherwise even these imports were the prerogative of adults. This pattern is completely consistent with a system of achieved status and differs markedly from that at Moundville. During the Summerville II/III and Summerville IV periods domestic ceramics comprised the only grave goods.

Comparative Economics, Specialized Production, and Foreign Exchange

The differences between the Moundville and Summerville phases can be highlighted by an analysis of the non-subsistence sectors of their respective economies. Moundville had a vigorous set of exchange relationships early in its history, during the Moundville I phase, and again during the later Moundville II and early Moundville III phases. This economic network extended several hundred kilometers to the north, west, and south of Moundville, but it did not extend any appreciable distance to the east. By comparison, the only evidence for extra-local exchange in the Lubub Creek Archaeological Locality was limited to the earliest, Summerville I period. Thereafter there is not a single demonstrable imported item either among the burials or in other formal archaeological contexts at the site.

Graphic illustrations of the volume of imports at Moundville and Lubub Creek are shown in Figures 6 and 7. In each instance selected imported and domestic goods have been standardized in terms of the number of items per burial per chronological period at each site. At Moundville the volume of copper, marine shell, and imported vessels reached a peak in the later Moundville I and early Moundville II phases, declined to near zero in the mid-Moundville II phase, rose again in the later Moundville II and early Moundville III phases, declined to near zero in the later Moundville III phase, and disappeared completely in the Alabama River (Moundville IV) phase (Figure 6). Locally manufactured domestic ceramics, however, maintained a reasonably consistent proportion among all four phases at Moundville and at 1-Tu-4, the Moody Slough site.

The whole tenor of production and consumption at Moundville is consistent with what has been termed a "prestige goods" economy (Podell 1987). There is evidence for tribute in the form of food-stuffs; localized and specialized production of greenstone, marine shell, and fine-ware; engraved ceramics; and the limited distribution of imported goods among the "elite" burials and households. In such an economy, where goods and their consumption served as symbols, possession and manipulation of the exotic, the rare, and the valuable served to legitimize the role of the elite and their place in the social order (Frankenstein and Rowlands 1978; Friedman and Rowland 1978).

Changes in the volume of imports at Moundville can be used to monitor the social well-being of that polity and the stability of its social order. It is clear, for example, that a decline in imported goods in the Moundville III phase presaged the devolution of the polity as a whole by several generations. The decline in the Moundville II phase, however, cannot be explained in the same terms, because the site and phase continued to expand vigorously during and after that time. Paul Welch (1986) has provided an out-
line for an explanation of the decline in imports during the Moundville II phase. He argued that it was during this period that Moundville, through warfare, consolidated its hold on the region and on the sources of imports. Over these three or four generations prestige and legitimization were allocated by prowess on the battlefield, and only thereafter were the fruits of victory again claimed by the elite. In effect, during the Moundville II phase, Moundville eliminated all nearby competitors for foreign exchange and all middlemen between the Moundville elite and the elites who served as their sources of exchange. As Welch has stressed, it was during this period that Bessemer, near Birmingham, Alabama, and other Mississippi sites in the Big Bend of the Tennessee River disappeared. It is also of some interest that this was the period in which the imported goods in the Lubub Creek Archaeological Locality declined to zero.

The volume of imported goods in the Summerville communities is shown in Figure 7. Although the measures used are not strictly comparable to those used at Moundville, they are generally similar. The only two categories of imported goods in the Lubub Creek Archaeological Locality were corrosion and copper items and marine shell beads. Among the former were a number of embossed "projectile points" and a plate depicting a "falcon," the latter include a number of large beads and columellae from marine shells. These items occurred in high numbers with a few burials of the Summerville I period and then declined to zero. Domestic ceramics, on the other hand, occurred with a few burials from all periods, but they too fell off in frequency near the end of the Summerville III period. If in fact Welch's hypothesis is correct, then the Summerville II community was a casualty of the rise of Moundville to regional dominance. It was cut off from direct procurement of imports and it was denied the position of middleman between Moundville and polities in the Lower Mississippi Valley. There was no evidence that the later Summerville communities were included within the wider Moundville polity. Exotic imports aside, there is neither a single vessel nor a single sherd in the collections taken from the Lubub Creek Archaeological Locality that can be tied to the specialized manufacture of fine-ware ceramics at Moundville.

In summary, the contrast between the Summerville phase settlements in the Lubub Creek Archaeological Locality of the Tombigbee River Valley and the Moundville phase settlements of the Black Warrior Valley, some 40 km to the east, is marked and pervasive. The Summerville phase communities were economically unspecialized and did not sustain a widespread exchange network. The Moundville phase communities, and especially Moundville itself, supported some craft specialization in the manufacture of ceramics, greenstone items, and marine shell objects, and maintained a far-flung exchange network with polities in the Central Mississippi Valley, westward to the prairie fringes, and southward to the Gulf Coast. Among the Moundville elite, this network was used to legitimize their status; at Lubub, although there may have been a nascent elite, it and any supra-local exchange it may have engendered was not sustained beyond the Summerville I period.

Demography and Ecology

With minor but important differences, the adaptations of the populations that comprise the Moundville and Summerville phases were broadly similar. Both were fully horticultural in the sense that that term can be used in the Southeast. Corn provided the bulk of the calories and deer provided the bulk of the protein. To a greater or lesser extent domesticated beans and squashes plus wild plants and animals completed the diet. The sites of the Moundville phase and the Summerville communities in the Lubub Creek Archaeological Locality were located near friable, fertile, well-drained, tillable soils. All were positioned to take advantage of a diverse set of habitats and the fauna they supported.

The demography of the sequent populations that made up these two mound phases was very different in dynamics and in scale. The population resident at Moundville, and presumably the population in the Black Warrior Valley as a whole, showed a high rate of growth from the Moundville I through Moundville III
phases. During the Alabama River phase the population seemed to have stabilized near its peak Moundville III level, but it is likely that there was significant migration out of the Black Warrior Valley during the later Moundville II phase. The Summerville communities, in contrast, maintained a zero population growth (more or less) from the Summerville I through Summerville IV periods.

Although there were indications that the Late Woodland Miller III populations of the Tombigbee Valley were subject to nutritional stress (Caddell, Woodrick, and Hill 1981), the subsequent Summerville I through IV populations were, on the average, well fed and healthy (Powell 1983). In the Black Warrior Valley the Moundville I through III population showed signs of nutritional stress (Powell 1984), but the subsequent Alabama River Phase populations were malnourished and unhealthy in the extreme (Hill 1979). Powell (1984) reported that 6.9% of the 564 individuals she examined from the Moundville collection showed skeletal evidence of anemia. By contrast, Hill-Clark (1981) reported evidence of anemia in 24% of the Alabama River phase skeletons from 1-Tu-4 and 62% from 1-Ha-19, an Alabama River phase site south of Moundville. The Summerville I through III populations in the Lubub Creek Archaeological Locality showed skeletal evidence of anemia of approximately 6%; the protohistoric Summerville IV population at the same site had an incidence of less than 5% (Powell 1983).

As Powell has pointed out (1984:378), the underlying causes of malnutrition (and a greater percentage of deaths among adolescents and young adults) between the prehistoric and protohistoric populations in the Black Warrior Valley and the contrast with the populations in the Tombigbee Valley were surely complex. An attempt can be made, however, to understand these differences through an analysis of the breadth of the ecological niche that each regional population exploited. It will be argued that the Summerville IV, protohistoric population utilized a far broader set of wild and domesticated species than did the protohistoric, Moundville IV phase populations.

The Mississippian, by definition, has been characterized as an adaptation to a "deliberately simplified ecosystem" (Ford 1974); an adaptation that depended on corn for its basic, storable foodstuffs (Griffin 1967); and an adaptation that depended on an ecosystem "naturally subsidized" with nutrients deposited by periodic river floods (Smith 1978). In brief, Mississippian populations have been described as "ecological specialists," who reaped the rewards of high productivity and bore the risks of depending on a few species of plants and animals. Such generalizations capture the essence of the utilization by the Mississippian populations in the Black Warrior Valley from the earliest Moundville phase through the protohistoric Alabama River (Moundville IV) phase. They do not, however, adequately describe the adaptation of the Summerville IV population in the Lubub Creek Archaeological Locality. Within the broad definition of Mississippian, the terminal Summerville population was far more an ecological generalist than specialist when it came to exploiting wild species.

Two measures of dietary diversity have been constructed to illustrate these differences. One is a more or less direct measure of the phenotypic diversity of corn grown by these populations; the other indirectly focuses on the diversity of animal species they hunted. The measure used in both instances is \( H \), the Shannon-Weiner "information" function. For present purposes, the only thing one needs to know is that the greater the value of \( H \), the greater the diversity within the population. \( H \) reaches its maximum value when the population is distributed evenly among the \( n \) categories into which it has been divided (for examples, see Krebs 1978: Chapter 23).

<table>
<thead>
<tr>
<th>Period</th>
<th>N</th>
<th>Mean Row Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moundville I</td>
<td>24</td>
<td>11.00</td>
</tr>
<tr>
<td>Moundville II/III</td>
<td>120</td>
<td>9.83</td>
</tr>
<tr>
<td>Moundville IV</td>
<td>41</td>
<td>9.12</td>
</tr>
<tr>
<td>Alabama River Phase</td>
<td>31</td>
<td>10.84</td>
</tr>
<tr>
<td>Miller III</td>
<td>19</td>
<td>9.37</td>
</tr>
<tr>
<td>Summerville II/III</td>
<td>15</td>
<td>9.60</td>
</tr>
<tr>
<td>Summerville IV</td>
<td>5</td>
<td>8.80</td>
</tr>
</tbody>
</table>

Table 1. Mean row number for Moundville and Summerville Phase cob populations. Sources: Caddell (1983: Table 32) and Scarry (1986: Tables 9.1, 9.2, and 9.3).

The vast majority of corn grown during the later prehistoric period in Eastern North America can be assigned to one of three races: North American Pop, which has 12 to 14 rows of grains, Western Twelve Row, and Eastern Eight Row. In the later protohistoric and fully historic periods dent corn, which has a high row number, was introduced to the region from Mexico (Blake 1986). Table 1 gives the mean row number for the cob populations from the Moundville phases and the Late Woodland Miller III and Summerville phases. The average row number decreases through time for the cob samples in both regions. This decrease suggests that there is a greater dependence on a single race—Eastern Eight Row—through time, and that the Mexican dent corns introduced to the Southeast in the 17th century were not incorporated in either the Summerville IV or Moundville IV corn populations. This latter observation, plus the absence of peaches and watermelons, both introduced by Europeans, again calls into question a 17th-century date for the initial Alabama River phase.
The relative importance of various categories of animal species for seven archaeological components in the Black Warrior and Tombigbee valleys is presented in Table 2. These samples have been grouped into major taxonomic classes: large mammals, including deer and bear; small mammals, such as raccoon, opossum, and rabbit; birds, of which turkey is the major member; turtles; snakes; amphibians; and fish. The weight of bone recovered from the excavations has been used to calculate the relative importance of each taxonomic class for all but the Alabama River phase bone assemblage at 1-Tu-4. Because the faunal samples in the 1-Tu-4 collections were not weighed, the relative importance of each taxonomic class was constructed from the count of the Minimum Number of Individuals (MNI) of each species in the sample and the proportion of edible meat each contributed to the diet. These percentages are meant only for a rough comparison of the contribution these major taxonomic groups made to the diet. They cannot be used either to reconstruct the ecosystems around the several sites or as adequate measures of the species actually hunted and consumed by these prehistoric populations.

At first glance, there seem to be few surprises in these figures. Large mammals provided the majority of the protein; birds and small mammals provided much of the rest. The familiar Mississippian mix of deer, turkey, raccoon, rabbit, squirrel, and locally available reptiles and fish were the main sources of animal protein.

<table>
<thead>
<tr>
<th>Period</th>
<th>Phenotypic Diversity of Zea mays</th>
<th>Faunal Diversity by Major Taxonomic Category</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>H_{max}</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.609</td>
<td>1.94</td>
</tr>
<tr>
<td>Moundville I</td>
<td>1.467</td>
<td>0.59</td>
</tr>
<tr>
<td>Moundville II/III</td>
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<td>0.67</td>
</tr>
<tr>
<td>Moundville IV</td>
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<td>0.50</td>
</tr>
<tr>
<td>Alabama River Phase</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Miller III</td>
<td>1.359</td>
<td>no data</td>
</tr>
<tr>
<td>Summerville I</td>
<td>1.104</td>
<td>0.60</td>
</tr>
<tr>
<td>Summerville II/III</td>
<td>1.062</td>
<td>0.47</td>
</tr>
<tr>
<td>Summerville IV</td>
<td>0.673</td>
<td>0.64 to 0.83</td>
</tr>
</tbody>
</table>

Table 3. Subsistence diversity measures, Moundville and Summerville Phases. Sources: Scarry (1986: Table 9:4), Caddell (1983:362) and Table 2 above. The two figures for Summerville IV are for Lubbock and the Yarborough site, respectively.
Figure 8. Measures of subsistence diversity in Moundville Phases and Summerville Periods, Diversity: $H = -E p_i \ln p_i$.

It is only when the variety in wild and domestic foods is examined that the contrast between the Moundville and Summerville phase adaptations becomes apparent. Table 3 and Figure 8 give the information measures $H$ for the relative mix of animal species and the variety in domesticated corn for the several periods in the two regions. Throughout both the Summerville and Moundville phases the phenotypic diversity of corn decreases. Although some variability is probably maintained throughout both phases, greater reliance is placed on a low row number race through time. In both the Moundville and Summerville phases, phenotypic diversity decreases by approximately one-half from the earliest to the latest components.

The relative proportions of animal species exploited by the Moundville and Summerville phase populations move in exactly opposite ways relative to one another. In the Moundville I phase and Summerville I period the variety of animals in the diet was roughly comparable. In the later Summerville II/III period the diversity of animals decreased, but during the same span of time the measure for the Moundville phase increased. In the protohistoric Summerville IV period the diversity index increased markedly, but the comparable figure for the Alabama River phase decreased to the lowest value of any of the seven components.

Although not subject to meaningful quantification, the number of animal species exploited by these populations confirms the broader information measures. In the protohistoric Summerville IV period, 45 species are represented among the animal remains in the Moundville IV period at I-Tu-4, 29 species were present. Similar broad generalizations can be offered for the collection of wild plant foods. It seems as though hickory nuts and acorns were far more prevalent in the Summerville IV period than in the Moundville IV phase. It is as if the latest Moundville phase populations became consummate specialists (and paid a price in anemia and malnutrition), while the Summerville IV population regressed to a more generalized adaptation and continued its bucolic existence.

Conclusions

Just as there is no need to invoke external factors to account for the adoption of agriculture by populations in the Back Warrior and Tombigbee valleys in the tenth century, so there is no need to invoke European incursions and novel diseases as the cause for their decline in the sixteenth century. Although the situation that led to the adoption of agriculture is not understood in all its details, it is clear that there was an imbalance between population, the means to acquire food, and the productivity of the natural ecosystem. The recourse taken by these populations was to domesticate nature and, in large measure, to place their trust in a single crop, corn.

Yet the effects this agricultural adaptation had on the Summerville and Moundville polities were as different as their causes were similar. The Summerville community remained small and self-sufficient. The Moundville system grew in extent and complexity and seems to have formed an interdependent whole. Summerville people maintained a degree of flexibility in their response to variety in their effective ecosystem. They remained ecological generalists and kept some breadth in their diet. Moundville people became ecological specialists, maintained a diet with little variety, and seem to have used organization to smooth out swings in productivity. Consequently, when the organization that "managed" crises collapsed, the Moundville population suddenly found itself beyond the carrying capacity of its habitat. Cooperation, whether enforced or merely orchestrated by the elite, gave way to competition among regional populations. The Pax Moundville was broken. There is evidence to suggest that the Summerville community was affected indirectly by the break-up of the Moundville polity. They found it necessary to rebuild their fortifications, perhaps against the incursions of their eastern neighbors, and to broaden the number of species they hunted and collected from nature. Thereafter, life seems to have gone on as usual for another century. In contrast, the remnants of the Moundville population narrowed their niche and concentrated on their domestic crops and hunting large mammals. The result was
maltreatment and increased mortality among those who would carry on the society, the infants, children, and adolescents.

There is no evidence that the decline and dissolution of the Moundville phase was the result of either the Soto or the Luna expedition. First, the beginnings of the decline are evident in the 15th century, well before the first Europeans came into the area. Second, following Smith (1984), if there had been a brief moment when a fully functioning Moundville met a phalanx of rapacious Spaniards, some of the goods left by the latter would have been consumed by the elite among the former; such was the case among the polities to the east of Moundville. Third, if the populations of the protohistoric Moundville IV or Summerville IV periods had maintained a sustained relationship with any European population (or with intermediaries who had such relationships), then there should have been evidence of imported artifacts or crops among the assemblages from sites of this period. Despite diligent searches through the materials recovered from these sites, no such items have been located thus far. Fifth, and finally, to remanufacture chronology and culture history (as has Curren 1984) and to suggest (as have Hudson et al. 1985) that Soto marched through Moundville without noting 20 mounds and a 40 ha plaza, which surely would have been the largest Mississippian center he had seen to that point, serve only to belabor the issue. As I noted in an earlier paper (Peebles 1986), just because the Mississippian was the zenith of cultural development in the region does not mean that it was invincible and incorruptible. Like their neighbors to the north such as Cahokia, Kincaid, and Angel, many Mississippian centers in the Southeast devolved on their own, without any help from Europeans. Likewise, many Mississippian polities, such as the Natchez and Appalachee, survived sustained contact with the Europeans without collapsing. In brief, one cannot blame Soto for all the bad things that befell the native peoples of the Southeast throughout the whole of the 16th century. To do so reduces the histories of too many societies to a bland, mechanical sameness.

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Annotated References

The general arguments outlined in this paper are given in greater detail in two recent articles:

Peebles, Christopher S.

1987 Moundville from 1000 to 1500 AD as Seen From 1840 to 1985 AD. In Robert D. Drennan and Carlos A. Uribe (eds.), Chiefsdoms in the Americas, 21-42. University Press of America, Lanham, Maryland.

Much of the material that lies behind the generalizations and summary statements in this essay either is not published or is published in series and dissertations that have received limited distribution. For recent work at Moundville, these include:

Bozeman, Tandy Key

Peebles, Christopher S.

1985 Health, Disease and Social Organization in the Mississippian Community at Moundville. Ph.D. dissertation, Department of Anthropology, Northwestern University.

Sarras, Clara Margaret
1986 Changes in Plant Procurement and Production During the Emergence of the Moundville Chiefdom. Ph.D. dissertation, Department of Anthropology, University of Michigan.

Stephanidis, Vincas P.
1980 Ceramics, Chronology, and Community Patterns at Moundville, a Late Prehistoric Site in Alabama. Ph.D. dissertation, Department of Anthropology, University of Michigan.

The dissertation by Vincas Steponaitis has been published (Academic Press, 1983) and Mary Powell's dissertation will be published in 1987 by the Smithsonian Institution Press. A short summary of the research at Moundville up to 1981 can be found in a series of papers in Southeastern Archaeological Conference Bulletin 24(1981):77-112.

There are three fundamental works on the Alabama River Phase: one unpublished, the other two published in monographs that have received only limited distribution:


Work in the Lubhub Creek Archaeological Locality is described in two sets of reports that have received very limited distribution. The first set, subtitled "Archaeological Investigations in the Gainesville Lake Area of the Tennessee-Tombigbee Waterway," comprises five volumes and is published by the Office of Archaeological Research, University of Alabama. The second set, subtitled "Prehistoric Agricultural Communities in West Central Alabama," relates the excavations of the sequent Mississippian components by the Division of Research and Development Administration of the University of Michigan, published by the U.S. Army Corps of Engineers, Mobile District. These several volumes, their editors and authors, and their volume titles are:


A synthesis of archaeological research in the Tennessee-Tombigbee Waterway area has been published recently under the sponsorship of the University of Alabama and the U.S. Army Corps of Engineers, Mobile District:

Additional References Cited

Blake, Leonard W.

Bozeman, Tandy K.

Caddell, Gloria M.

Ford, Richard L.

Frankenstein, Susan M., and Michael J. Rowlands

Friedman, Jonathan, and Michael J. Rowlands (eds.)

Griffin, James B.

Hardin, Margaret Ann

Hill, Mary Cassandra

Hill-Clark, Mary C.

Hudson, Charles, Marvin T. Smith, and Chester B. DePratter

Jenkins, Ned I.

Krebs, Charles J.

Klein, Jeffrey, J.C. Lerman, P.E. Damon, and E.K. Ralph

Leeuw, Sander E. van der

Lenz, David J.

Marshall, Richard A.

Michals, Lauren

Peebles, Christopher S.


Peebles, Christopher S., and Susan M. Kus


THE IRBY BEADS

John M. Connaway

A collection of stone beads of various shapes including some unusual effigies, along with certain associated artifacts from the northern Yazoo Basin, Mississippi, are described. These are thought to be of late Middle Archaic origin.

During the years 1984 and 1985, an artifact collector named Robin Irby visited site 22-Pa-592 in Panola County, Mississippi, and found a total of 26 stone beads plowed up on the surface. The site covers two adjacent low hills situated on the upper slope of an alluvial fan along the eastern edge of the Yazoo Basin. The beads were collected from the southernmost of these hills, primarily from the lower slope. She reported that they were found over an 18 month period and that specimens 2, 7, and three or four of the tubular shapes (Figures 1 and 2) were found at one time within a couple of feet of each other. Specimens 3, 6, 19, and 24 (Figures 1 and 2) came from atop the hill or the gap between the two hills, while the remainder were scattered over the lower slope. Those that were found together may indicate the presence of a cache or an associated burial, although no human bones were noted anywhere on the site. Caches of similar artifacts apparently not in mortuary contexts, such as the Keenan collection (Connaway 1981), have been recorded. In 1985 the collection was acquired by Howard Mize, MAA member from Batesville, who kindly allowed this analysis and who recently donated the collection to the Cobb Institute, Mississippi State University.

The cultural time frame suggested is late Middle Archaic, since the effigies compare in some stylistic respects to other such objects found in Mississippi which are suspected of being of the same time period (see descriptions of some examples in Connaway 1977:113-116, Figure 3). Also indicative of this is the presence of four large projectile points (Figures 3 and 4) collected from the same area by Mrs. Irby. The beads will be described, as part of the data base for future reference, in sequence as shown in Figures 1, 2 and 3, their respective numbers corresponding to their actual inventory numbers as recorded by the author. Colors are given according to the Munsell Soil Color Charts (1954).

Specimen 1 (Figure 1): Made of very fine-grained limonite sandstone, this effigy is mottled dark reddish-brown (SYR3/3-3/4) to reddish-yellow (7.5YR6/6). Measurements are: length 36.5 mm, vertical width 19.7 mm at the disc, maximum lateral thickness 9.9 mm. It is smooth, lightly polished, with fine grinding striations appearing on the surface in various directions. The circular disc on the dorsal surface is hollowed out on both sides, not by drilling but by

Figure 1.
scraping and gouging, as evidenced by deep striations. On the left side there is a small, shallow, secondary depression inside the larger. The dorsal and ventral surfaces, along with both ends, are flattened, and the object is partially drilled with a 5.6 mm diameter conical hole at one end. Toward the opposite end the object tapers somewhat both laterally and vertically. The longitudinal drilling and the circular disc with its depressed sides are suggestive of the style of many of the so-called "locust beads", zoomorphic effigies thought to be late Middle Archaic in origin (see Connaway 1977:100-129, 137-138).

Specimen 2 (Figure 1): This unusual effigy, made of a very soft, very fine-grained silstone, is reddish pink (lighter than 10R6/8) in color. Measurements are: length 29.8 mm, maximum vertical width 20.5 mm, maximum lateral thickness 6.0 mm. It is smooth, highly polished, flattened on both sides, with slightly rounded edges. Near the ventral edge is a hole measuring 4.8 mm and tapering to 2.2 mm in diameter, drilled through from both sides. Just above the hole on both sides is a round "eye" with a raised central core 6.0 mm in diameter, outlined by an incised circular groove 10.9-11.5 mm in outside diameter and 1.0-1.2 mm deep. As shown in Figure 1, the object has a pointed, upward protruding "tail" at one end, while the dorsal surface to the left sports five shallow notches spaced at 3.4 to 5.0 mm intervals. The notch at the left end was recently broken by accident.

Specimen 3 (Figure 1): The only disc-shaped bead in the collection, it is made of fine-grained sandstone and is weak red (10R5/3-5/4) in color. It has a central perforation drilled from both sides, measuring 10.1 and 8.6 mm in diameter respectively and tapering to 6.9 mm. The edge is beveled from one side and shows many facets from grinding. Measurements are: maximum diameter 21.0 mm, maximum thickness 3.7 mm. Both faces are flat.

Specimen 4 (Figure 1): This short tubular or barrel-shaped bead is made of a very soft, very fine-grained material, possibly a silstone, with numerous mica inclusions. It appears somewhat similar to Catlinite, but this is unlikely to be its actual material. Color is mottled from shades of red (10R5/6) to dusky red (10R3/4), probably indicating a heavy iron content. Measurements are: length 11.2 mm, maximum diameter 10.8 mm. The bead is completely drilled from one end, with the hole diameter tapering from 3.7 to 3.5 mm, and exhibiting no edge wear from suspension. It is smooth, well polished, is rounded with only slight facets still evident, and has flattened ends with rounded edges.

Specimen 5 (Figure 1): This barrel-shaped bead is essentially like specimen #4, being the same material and color and of similar shape. Margin is visible on its surface. It is smooth and highly polished. Measurements are: length 11.4-13.4 mm, maximum diameter 12.0 mm. It is drilled from one end, the hole diameter tapering slightly from 4.4 to 4.3 mm, with slightly rounded edges at the ends of the hole.

Specimen 6 (Figure 1): An unusual teardrop-shaped tubular bead, with the small end flat and the large end rounded, it is made of quartzite, dark red (10R3/6) with spots of pink (7.5YR7/4-8/4) to pinkish-white (7.5YR8/2) in color. It is smooth, highly polished, with very little external faceting visible. The hole, drilled completely from both ends, is 4.6 mm in diameter at the large end and 4.4 mm at the small end, tapering to 2.6 mm at the juncture. Bead measurements are: length 40.5 mm, large end diameter 13.2 mm, small end diameter 8.2 mm.

Specimen 7 (Figure 1): This large tubular bead is reminiscent of the two large, undrilled bead blanks in the Keenom bead cache from Lawrence County (Connaway 1998:62-63, Figure 2) and of several others the author has seen from that area of the state which were from sites containing late Middle Archaic projectile point types. It is also similar to the drilled "tubes" described from the late Middle Archaic Denton site (Connaway 1979:83-84, Plate 31), and is almost identical to a drilled tube from 22-Pa-521, a Middle to Late Archaic site only three miles distant. That specimen is of the same material, the same diameter, has nearly the same sized hole, but is 13.4 mm longer. Benton, Denton, Opossum Bayou and Cypress Creek-like points, as well as a red jasper zoomorphic effigy bead, are also known from that site. Specimen 7 is made of very fine-grained limonite sandstone and its color includes patches of dark red (2.5YR3/6), very dark gray (2.5YR3/2), reddish-yellow (7.5YR6/6), and brown (7.5YR5/4), an indication of its iron content. It is smooth, unpolished, rounded with no visible faceting, and has flat ends with sharp edges. The hole, drilled from both ends to the center, measures 11.8 and 11.9 mm in diameter at the ends, tapering to 11.4 mm in the juncture. Measurements are: length 47.8 mm, maximum diameter 21.1 mm, ends taper to 20.0 and 20.5 mm in diameter.

For the sake of brevity, all the following descriptions of the remaining 18 tubular beads will be given in abbreviated form. In summary, all are smoothly ground, finished tubular beads, completely drilled from either one or both ends. Other descriptive elements vary.

Specimen 8 (Figure 1): Material: very soft material with quartz and various other inclusions, thought to be semi-pelitic phyluite (U.M. Pope, University of Texas, personal communication 1985), the same as a number of specimens from the Denton site (Connaway 1979:84, 96-97). Color: light gray (5Y7/1) to light greenish-gray (5G7/1). One end flat, other broken and eroded; slight faceting visible on one side; light polish in spots; some pitting due to leaching of inclusive particles. Drilled from both ends; intact hole diameter 2.5 mm, tapers to 1.5 mm. Length 12.1 mm (original unknown), maximum diameter 5.1 mm.

Specimen 9 (Figure 1): Material: quartzite. Color: dusky red (10R3/2) mottled with specks of pinkish-white (7.5YR8/2) to pink (7.5YR8/4). One end flat, other rounded (may be reground break);
slight faceting on sides; medium polish. Drilled from flat end; hole 3.3 mm diameter, tapers to 3.0 mm. Length 13.7 mm, maximum diameter 6.1 mm.

Specimen 10 (Figure 1): Material: jasper with veins of light and dark quartz. Color: between red (10R4/8) and dark red (10R3/6). One end flat, other slightly excursive; no faceting on sides; high polish. Drilled from both ends; hole diameters 4.6 and 4.4 mm, taper to 2.3 mm. Length 13.8 mm, diameter 8.4 mm.

Specimen 11 (Figure 1): Material: jasper with veins of quartz. Color: red (10R4/8). Ends flattened, slightly excursive; slight faceting on sides; high polish. Drilled from both ends; hole diameters both 3.3 mm, taper to 2.0 mm. Length 19.1 mm, diameter 8.3-9.0 mm.

Specimen 12 (Figure 1): Material: jasper mottled with quartz. Color: red (10R4/8) with darker appearing quartz veins. Ends flattened, slightly excursive; ca. 11 facets around sides; light polish. Drilled from both ends; hole diameters 4.5 and 3.9 mm, taper to 2.5 mm. Length 20.3 mm, maximum diameter 9.8 mm.

Specimen 13 (Figure 2): Material: jasper with spots of quartz inclusions. Color: between red (10R4/6) and dark red (10R3/6). Ends excursive; slight faceting on sides; high polish. Drilled from flatter end; hole diameter 3.7 mm, tapers to 3.4 mm. Length 21.2 mm, maximum diameter 7.3 mm.

Specimen 14 (Figure 2): Material: same soft material as #4 and #5. Color: dark red (10R3/6) mottled with red (2.5YR5/6). Ends slightly flattened; very slight faceting around sides; light polish. Drilled from one end; hole diameter 4.0 mm, tapers to 3.7 mm. Length 24.2 mm, maximum diameter 7.0 mm.

Specimen 15 (Figure 2): Material: same soft material as #4 and #5. Color: mottled dusky red (10R3/4), red (10R4/6 and 5/6), with grayish-white inclusions. Ends flattened; slight faceting around sides; medium polish. Drilled from both ends; hole diameters 3.7 and 2.9 mm, taper to 2.0 mm. Length 22.0 mm, maximum diameter 7.6 mm.

Specimen 16 (Figure 2): Material: jasper with quartz veins. Color: speckled red (10R4/8) and dark red (10R3/6). Ends flattened; slight faceting around sides; medium polish. Drilled from both ends; hole diameters 3.6 and 3.8 mm, taper to 1.9 mm. Length 29.0 mm, maximum diameter 6.8 mm.

Specimen 17 (Figure 2): Material: same soft material as #4 and #5 with white and black inclusions. Color: same as #15. Ends flattened; slight oval cross-section; 10 facets around sides; high polish. Drilled from one end; hole diameter 5.2 mm, tapers to 3.1 mm. Length 42.5 mm, maximum width 10.4 mm, maximum thickness 9.7 mm.

Specimen 18 (Figure 2): Material: same as #17. Color: dusky red (10R3/4) with patches of lighter reds as in #4, #5, and #15. Ends flattened; very slight faceting around sides; high polish. Drilled mostly from one end, short hole from opposite end; hole diameters
5.0 and 3.5 mm, taper to 2.9 mm. Length 33.0 mm, maximum diameter 9.5 mm.

Specimen 19 (Figure 2): Material: banded quartzite. Color: bands ranging from white (2.5Y8/0) through grays (2.5Y7/0-3/0) to black 2.5Y2/0). Ends flattened; very slight facetting around sides; medium polish. Drilled from both ends; hole diameters 3.1 and 3.2 mm, taper to 1.0 mm. Length 33.7 mm, maximum diameter 7.5 mm.

Specimen 20 (Figure 2): Material: same as #4 and #5 with few inclusions. Color: patches of very dusky red (10R2/2), dusky red (10R3/4), and red (10R4/6). Ends flattened; very slight facetting around sides; high polish. Drilled from both ends; hole diameters 5.3 and 4.6 mm, taper to 3.3 mm. Length 25.2 mm, maximum width 13.0 mm, maximum thickness 12.3 mm.

Specimen 21 (Figure 2): Material: same as #4 and #5, few inclusions, slightly harder. Color: very slightly darker than dark reddish-brown (5YR3/3). One end flat, 1.0 mm diameter by 1.0 mm deep hole drilled near edge, other end missing; high polish. Drilled from missing end; hole diameter at broken end 2.9 mm, tapers to 1.9 mm at flat end. Fragment length 22.4 mm, maximum diameter 8.1 mm.

Specimen 22 (Figure 2): Material: fine-grained sandstone. Color: mottled dark red (10R3/6), red (10R5/6), light red (2.5YR6/6), and pink (5YR7/3-7/4). One flat end, other missing; 7 facets around sides; medium to light polish. Drilled from flat end; hole diameter 4.2 mm, tapers to 3.6 mm at broken end. Fragment length 24.7 mm, maximum diameter 9.7 mm.

Specimen 23 (Figure 2): Material: same as #4 and #5, few inclusions. Color: mottled same as #15. One flat end, other missing; no facets on sides; medium polish. Drilled from flat end; hole diameter 4.9 mm, tapers to 4.3 mm at broken end. Fragment length 39.3 mm, maximum diameter 11.4 mm.

Specimen 25 (Figure 2): Material: jasper with veins and specks of light and dark quartz. Color: between red (10R4/8) and dark red (10R3/6). One end flattened, other excursate; ca. 10 facets around sides; light polish. Drilled from both ends; hole diameters 4.4 and 4.1 mm, taper to 3.0 mm at juncture. Length 16.6 mm, maximum diameter 8.5 mm.

Specimen 26 (Figure 3): Material: has the appearance of jasper with quartz veins, but is softer, with the hardness of a steel biology probe. Color: red (10R4/6). Tubular with a squared cross-section; ends slightly excursate; medium polish. Approximately half a bead split lengthwise. Drilled from both ends; hole diameters ca. 3.8 and 3.6 mm, taper to ca. 1.8 mm at juncture. Length 14.6 mm, maximum thickness ca. 8.0 mm.

Specimen 24 (Figure 2): Finally, this effigy is made of jasper with some quartz veins and layers and is a brighter red than is shown by the Munsell charts. The sides are flattened with no raised relief, but the "head" and "body" are separated by a slight groove. There is an overall good polish and it is well smoothed. The "head" has two transverse grooves cut across the top, the "nose" is rounded,
and the rear segment that protrudes above the slightly humped back has a short, longitudinal, V-shaped groove separating it into two "ears". The dorsal and ventral portions of the "body", as well as both ends, are transversely excurvate. A transverse hole is drilled through from both sides of the body. Hole diameters are 4.8 and 5.0 mm, tapering to 2.0 mm at their juncture. Two small holes 1.5 and 0.9 mm in diameter and less than 0.5 mm deep were started in the posterior end. Measurements are: length 35.5 mm, vertical width 20.5 mm including the "head", lateral thickness 9.2 mm.

Presumably within the same cultural context as the beads are four large projectile points (Figures 3A-C and 4A) collected from the same part of the site by Mrs. Irby. Their large size, thickness, and relatively crude flaking may be seen to be technologically similar to Denton and Opossum Bayou points (Connaway 1977). They are thus thought to have occupied the same temporal niche as the latter types (late Middle Archaic) and, judging from their morphology, are here being classified as Cypress Creek points. The appendix gives measurements and descriptions of these and three other specimens shown in Figures 3 and 4. A more detailed discussion of Cypress Creek points in Mississippi will be presented in an additional article. The four points discussed here conform to the larger variety at the Eva site referred to as "Cypress Creek 1" (Lewis and Lewis 1961:37, Plate 9).

Comparing these four points to the Denton and Opossum Bayou types, their projected lengths exceed the maximum for Denton (89 mm) by 6 to 16 mm and Opossum Bayou (70 mm) by 25 to 35 mm. Shoulder widths and stem widths are greater than the ranges for Opossum Bayou (25 to 38 mm and 16 to 26 mm) by at least 5.5 mm and 2.4 mm respectively, and are just within the upper ranges for Denton points (24 to 50 mm and 16 to 30 mm respectively). Blade thickness range is within the upper ranges for both Opossum Bayou and Denton types (6 to 13 mm and 9 to 17 mm respectively). Thus, except for greater length, they are essentially the same size as the larger specimens of both types.

Another Cypress Creek point from the collection (Figure 4D) conforms more closely to the smaller variety, referred to in the Eva site report as "Cypress Creek II" (Lewis and Lewis 1961:37, 40, Plate 9). There they were considered somewhat later than the larger variety ("Cypress Creek I") previously described. All the dimensions of specimen 4D fall within the ranges of measurements for both Denton and Opossum Bayou points, and again similar technologies are apparent. Collections from at least 13 other sites in Panola and Quitman counties have yielded similar points, along with several specimens of Denton and Opossum Bayou types, suggesting that the smaller variety was more commonly used at this time and that the presence of this type on 22-Pa-592 was not an isolated occurrence.

Other private collections from this site have not as yet been examined, but it is hoped that further data on the Cypress Creek type from this site and in other areas of the state can be obtained and
presented in the additional article previously mentioned. Comparative
data on points from this and other sites will be given at that time.

In order to show that the site's occupation was not just re-
stricted to late Middle Archaic, but in fact laps over into Late Ar-
chaic, two other points from the Irby collection are illustrated.
These include a rather large Pontchartrain (Figure 4B) and an
unidentified Late Archaic specimen (Figure 4C). Measurements and
descriptions for both are given in the appendix. A few Woodland
and Mississippian artifacts have been found on other portions of the
site, but these are of no consequence for the origin of the stone
beads and will not be described.

Although all the material described here was surface collected,
and no in situ cultural context was involved, other evidence allows
a chronological placement for the beads. The styles and raw materi-
als of the beads, their resemblance to others found at different sites,
their association with late Middle Archaic artifacts, and the presence
of projectile point types which fit the same temporal span on the
same part of the site as the beads, suggest that the collection was
the result of at least a late Middle Archaic to early Late Archaic
occupation. Further study of other collections will hopefully
substantiate this more fully. There is little chance that any
undisturbed midden remains at the site for excavation, or that
excavation would even be possible for various reasons. It is therefore
likely that future additional conclusions about the Archaic com-
ponent there will also have to remain somewhat speculative,
relying heavily on intersite comparisons.

Acknowledgement

The author wishes to extend his appreciation for the assistance
and interest shown by Mrs. Irby and by Mr. Mize in this project.

John Connaway is an archaeologist with the Mississippi De-
partment of Archives and History, Clarksdale Office.

References

Connaway, John M.
1977 The Denton site. Mississippi Department of Archives
and History Archaeological Report 4.
1981 The Keenan bend cache: Lawrence County, Mississippi.
Louisiana Archeology 8:57-71.
Lewis, Thomas M.N., and Madeline Kneberg Lewis
1961 Eva, an Archaic site. University of Tennessee Press,
Knoxville.

Munsell Soil Color Charts

Appendix: Descriptive catalogue of projectile points associated
with the Irby Beads (Figures 3 and 4).

Specimen 3-A

Type: Cypress Creek
Blade: edges retouched on both
faces forming narrow bevels;
edges straight; slight median
ridge; broad shallow flakes.
Shoulders: barbed; corner notched.
Stem: expanded; light grinding
on edges.
Base: slightly excoriate; thinned.
Color/Material: light brown chert.

Specimen 3-B

Type: Cypress Creek
Blade: edges retouched, slight
bevel on both edges of one face;
edges straight; pronounced median
ridge on one face; broad shallow
flakes.
Shoulders: barbed; corner notched.
Stem: expanded; edges ground.
Base: very slightly excoriate;
thinned; part with cortex.
Color/Material: light brown chert.

Specimen 3-C

Type: Cypress Creek
Base: edges retouched; no bevel;
edges straight; median ridge not
pronounced; broad shallow flakes.
Shoulders: barbed (one missing);
corner notched.
Stem: expanded; no grinding.
Base: very slightly incurvate;
thinned, but with cortex remaining.
Color/Material: mottled shades of
gray, brown, yellow, and white.
Coarse, granular, fossiliferous chert.
**Specimen 4-A**

Type: Cypress Creek
Blade: edges retouched; no grinding or bevel; edges straight and excursive; slight median ridge; broad shallow flake.
Shoulders: straight to slightly barbed; corner notched.
Stem: expanded; edges slightly ground.
Base: slightly excursive; thinned.
Color/Material: light grayish white fossiliferous chert.

**Specimen 4-B**

Type: Pontchartrain
Blade: edges retouched; edges slightly recurved; median ridge; several large hinge fractures.
Shoulders: straight (one broken).
Stem: thick; slightly contracting.
Base: thick; cortex present.
Color/Material: grayish banded chert; pinkish tones may indicate light heat-treating.

**Specimen 4-C**

Type: unidentified
Blade: some edge retouch; wear on protrusion just above barb; edges excursive; median ridge present; broad shallow flake.
Shoulders: one barb, other broken.
Stem: short, thick, contracting.
Base: thick, rough
Color/Material: brown and tan banded chert.

**Specimen 4-D**

Type: small Cypress Creek
Blade: edges retouched; heavy grinding on right edge; median ridge on one face; edges slightly excursive; broad shallow flake; counterclockwise twist from end view.
Stem: thick; thinned one face (plano-convex); expanded.
Base: straight.
Color/Material: yellowish-tan chert.

Length: 72.2 mm
Length (projected original): 95-100 mm
Shoulder Width: 43.5 mm
Maximum Blade Thickness: 11.8 mm
Stem Width: 31.3 mm
Stem Length: 17.0 mm

Length: 101.3 mm
Shoulder Width: 33.1 mm
Maximum Blade Thickness: 12.4 mm
Stem Width: 17.9 mm
Stem Length: 17.8 mm

Length: 53.0 mm
Shoulder Width: 30.5 mm
Maximum Blade Thickness: 8.2 mm
Stem Width: 11.9 mm
Stem Length: 6.3 mm

Length: 56.6 mm
Shoulder Width: 37.6 mm
Maximum Blade Thickness: 9.7 mm
Stem Width: 22.9 mm
Stem Length: 11.3 mm
KENT PHASE INVESTIGATIONS IN EASTERN ARKANSAS,
1978-1984

John H. House

Since 1978 the Arkansas Archeological Survey's Lower St. Francis Survey project has been a long-term program of investigation emphasizing the late Mississippi period Kent phase and other Mississippi period occupations in the region of the confluence of the Mississippi and St. Francis rivers. The most notable results to date concern Mississippi period chronology and Kent phase settlement patterns. Reconnaissance, collector interviews, and salvage excavations have revealed the outline of the region's Mississippi period sequence from about AD 1100 to AD 1600 or later. The Kent phase settlement pattern is complex, including "St. Francis-type" rectangular village midden and mound complexes, other extensive village middens, and small isolated "farmstead" sites.

The Lower St. Francis Survey Project

Since 1978 the Lower St. Francis survey project, conducted by the Pine Bluff station of the Arkansas Archeological Survey, has been a long-term, if intermittent, program of investigation in the area of the mouth of the St. Francis River, in the Lower Mississippi Valley in Lee and Phillips Counties in eastern Arkansas. The focus of this investigation has been the Mississippi period and specifically the Kent phase defined by Phillips (1970:938-939). The Lower St. Francis survey research program is essentially that outlined in the Kent and Old Town phases study unit in the Arkansas State Plan (House 1982a).

The project to date has emphasized revisits to major sites recorded by earlier investigators such as Moore (1910, 1911) and Phillips, Ford, and Griffin (1951). Specific data gathering operations include low altitude aerial photography (black-and-white, color slide, and infrared), preparation of detailed site plans, interviews with landowners and collectors, intensive surface collections, and small-scale excavations. The archeological resources under consideration represent some of the most populous and complex aboriginal societies that ever existed in North America; the overall Lower St. Francis research program reflects a concern with cultural evolution and explanation of the development of complex societies. Realization of such ambitious goals, however, still seems as far off as it did at the beginning. Nevertheless the archaeology of the St. Francis River mouth area is of widespread interest and a progress report at this time may be appropriate.

The Kent Phase

The Kent Phase is a grouping of archaeological components which appear to date to the late Mississippi period, ca. AD 1400-1600. As delineated by Phillips (1970: Figure 447), the distribution of the phase includes components on both sides of the Mississippi River, though only sites in Arkansas will be considered here. There seems to be a consensus that the Kent phase represents one or an-
other of the named "province" or chiefdoms encountered on the west bank of the Mississippi by the De Soto expedition in 1541 (Brain et al. 1974; Morse 1981:66-69; Morse and Morse 1983:305-315)—but the consensus ends when we come to consider of just which province that was.

The environment of the Kent phase may be characterized among Mississippi Valley environments as a floodplain meander belt zone (see Smith 1975:4-8; 1978:481-488). A map based on early nineteenth-century land survey data (Figure 1) shows the landscape to have been dominated by a network of waterways which carried Mississippi floodwaters into and out of all corners of the region, providing extensive avenues of water-borne transportation and a wealth of the aquatic habitats which may have figured so importantly in the subsistence base of Mississippian cultures (Smith 1978:484-485; House 1982b: Table 4-1). Though the Mississippi River floodplain environment is clearly central to the region, nearby Crowley's Ridge and Western Lowlands Wisconsin-age terrace areas provided an extra measure of environmental diversity and ready access to resources not available in the meander belt.

The Kent phase is formally defined on the basis of ceramics and is one of the classic formulations upon which the archeological phases concept was based (Phillips 1970:930). Preliminary analysis of Lower St. Francis project sherd collections generally supports Phillips' original characterization of Kent phase ceramics (1970:938, Figure 448:3). Sherd collections are overwhelmingly shell tempered, with 10 to 20 percent of all sherd decorated. One of the most frequent decorated types is Barton Incised, occurring on jars in the Barton, Kent, and Tego varieties (Phillips 1970:934:2) and a number of design modes. Parkin Punctated is about equally frequent, occurring in both Parkin and less frequent Castillo varieties (Phillips 1970:150-151). Jars are subglobular with short necks and occur across a great size range, sometimes with strap handles or horizontal tab lugs. Bell Plain (Phillips 1970:58-61) is a consistent minority type, occurring in bowls and bottles. Old Town Red (Phillips 1970:144-147) and Carson Red on Bluff (Phillips 1970:62-63) sherdsh are consistently found in middens in small numbers.

In some ways, the elaborate painted ceramics of the Kent phase (e.g., Moore 1911:406-410; Brown 1978) have attracted too much attention. First, non-archaeologists influential with a large lay public (e.g., Westbrook 1982; Hathcock 1982) recently have tended to designate Kent phase mortuary ceramics assemblages categorically as "Quapaw" and decidedly non-Mississippian on the basis of high frequencies of painted wares which include examples of Nodena Red and White (Phillips 1970:141-144) and Avenue Polychrome (Phillips 1970:40-41). This is of course not consonant with the decidedly Mississippian character of the associated midden ceramic assemblages (see P. Morse 1979:277). The other way in which these painted ceramics have attracted too much attention is, of course, their current soaring prices on the collector's market. This has given impetus to a dramatic increase in pothunting in recent years and to the increasing use of heavy machinery by commercial pothunters to strip midden and expose cemeteries on Mississippian period sites in the region.

Lithic industries emphasize the locally available Crowley's Ridge gravel and shell tempered flake tools, and fragments of small polished celts or chisels are the most consistently occurring lithic artifacts on Kent phase sites. Nodena points and small stubnosed endscrapers are found on only a few sites—I will return to this later. Fragments of Mill Creek chert hoes or spades are occasionally identified in surface collections. Some private collections include Bradley-type discoids (Perino 1971:116, Figure 544).

The foregoing brief, artifact-based discussion of the formal content of the Kent phase is a necessary point of departure for reviewing two special topics which have been particular emphases in ongoing Lower St. Francis Survey project investigations: (1) the chronology of the Mississippian period at the mouth of the St. Francis, and (2) Kent phase settlement and community patterns.

**Mississippi Period Chronology**

Until quite recently, our picture of Mississippian culture in the Kent phase region was completely lacking in time depth. The Kent phase was obviously late in the Mississippian period. My own attempts to identify preceding occupations by extrapolating from the northeast Arkansas sequence (Morse and Morse 1983) were notably unproductive. A breakthrough in chronology building came quite serendipitously with emergency salvage excavations at Mound A at the Barret site in 1983 (House 1983; House and House 1985). The excavations revealed Barrett Mound A to be a truncated rectangular pyramid in form, with at least four major construction stages. Analyses of ceramics from the base of earlier construction stages and surface collections from the site revealed a hitherto unrecognized early Mississippian period complex estimated to date ca. AD 1100. This "Barrett complex" is characterized by predominantly plain ceramics in coarse shell tempered, shell and grog tempered, and perhaps just grog tempered paste. Jars appear to be globular with recurving rims and no handles. Large jars with red-slipped interiors compare with some early Mississippian period Old Town Red var. St. Francis (Phillips 1970:147) or Varney Red (Millon 1980) examples. Since the Barrett salvage, this or a similar complex has been identified on three small non-mound sites in the locality. Burlington or Crescent Quary chert debitage occurring at Barrett appears to be diagnostic of the complex. Other "northern" affinities may be seen in Cahokia-type discoids (Perino 1971:115, Figure 544) and flaring-bitted celts or spuds (see Paukett 1983: Figure 2b) in a private collection from two of the sites. Rare L'Eau Noire Incised var. L'Eau Noire-like (Phillips 1970:101) sherd recognized in collections from some sites in the region (Phillips 1979:15; see Phillips, Ford, and Griffin 1951: Figure 99a) appear to represent a distinctly "southern" influence in the Barrett complex.
mound at Kent (1911:409) may represent a minor, very late occupation on this large and complex site.

Protohistoric Armoreal phase (Williams 1980) attributes in the region include a non-repousse copper eagle, said to have been found with the Clarkdale bell at Clay Hill (Williams 1980: Figure 2c), and Nodena points and snubnosed endscrapers. The latter pair of attributes are known to occur with frequency only at two sites, Clay Hill and Grant. These two sites plus Starkley are said to be the only ones in the region which have cemeteries with a high frequency of bundle burials, another attribute which may have chronological significance.

The Quapaw phase-like "look" of some Kent phase mortuary vessel assemblages has long been commented on (e.g., Phillips 1970:939), if recently overemphasized. Systematic comparisons of vessel assemblages between Kent phase sites and Arkansas River sites, however, have yet to be carried out. Taken together, the above evidence points to virtual abandonment of the region by aboriginal populations sometime in the interval of AD 1550-1650.

Settlement and Community Patterns

As of fall 1984, 18 Kent phase components were recognized on the Arkansas side of the Mississippi River (Figure 2, Table 1). This is a very conservative listing, excluding many Mississippian sites which have not yielded diagnostic late Mississippian period artifacts. Geological reconstruction of Mississippi River channel sequences suggests that as much as one-fourth of the Kent phase settlement pattern may have been eroded by meandering of the river since AD 1500 or so (Fisk 1944: Plate 22, Sheet 5).

Surface evidence of past community patterns is a particularly fragile facet of the archaeological record in the world of today's large-scale farming, hence the Lower St. Francis project's emphasis on revisits and mapping at major sites. This effort has revealed some dimensions of variability among Kent phase sites.

Three sites—Clay Hill, Starkley, and Kent—have "St. Francis-type" plans; that is, they are "large rectangular villages with temple mounds" (Phillips, Ford, and Griffin 1985:329-331). The Starkley site exhibits a particularly well preserved plan, with midden ridges in a rectangle enclosing a flat-topped mound and a very distinct plaza, the whole occupying a little under 2 ha (Figure 3). Remnants of the "St. Francis-type" plan described by Moore (1911:406) can still be seen on the Kent site (Figure 4). The plaza approaches 1 ha in area. The plaza with its associated 5 m-high mound and remnant midden ridges forms the core of a 60 m-long linear midden bordering a small lake. Stratigraphic testing at Kent in September 1984 failed to yield hoped-for ceramic chronology but revealed that, in at least one part of the site's midden ridges, a sequence of low residential fill construction began very shortly after the initial Mississippian occupation.
<table>
<thead>
<tr>
<th>Site Name</th>
<th>AAS Site No.</th>
<th>LMS Site No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barrett</td>
<td>3LE3</td>
<td>13-O-1</td>
<td>Kent phase occupation consists of artifact scatter concentrated on Mound D.</td>
</tr>
<tr>
<td>Soudan</td>
<td>3LE5</td>
<td>13-N-1</td>
<td>Midden and artifact scatter areas ca. 2 ha, irregular elongated mound 2 m high, plaza?</td>
</tr>
<tr>
<td>Mound Cemetery</td>
<td>3LE7</td>
<td>13-N-3</td>
<td>Late Mississippi period artifact scatter less than 1 ha in area, 7 m-high mound of unknown affiliation.</td>
</tr>
<tr>
<td>Kent</td>
<td>3LE8</td>
<td>13-N-4</td>
<td>St. Francis-type village midden at center of linear midden 600 m in length, mound 5 m high.</td>
</tr>
<tr>
<td>Davis</td>
<td>3LE9</td>
<td>13-N-5</td>
<td>Midden ca. 1 ha in area at center of linear artifact scatter 1200 m in length, former mound 2 m high.</td>
</tr>
<tr>
<td>Jerusalem Church</td>
<td>3LE10</td>
<td>13-N-6</td>
<td>Midden ca. 1 ha in area, mound ca. 1.5 m high.</td>
</tr>
<tr>
<td>Clay Hill</td>
<td>3LE11</td>
<td>13-N-7</td>
<td>St. Francis-type village midden within midden area ca. 2 ha in area, mound 1 m high.</td>
</tr>
<tr>
<td>Taylor Mound</td>
<td>3LE14</td>
<td>13-N-10</td>
<td>Not visited by AAS, LMS reports daub, Mississippian pottery.</td>
</tr>
<tr>
<td>Grant</td>
<td>3LE15</td>
<td>13-N-11</td>
<td>Midden ca. 6 ha in area, former mound.</td>
</tr>
<tr>
<td>Murdock (Walnut Bend)</td>
<td>3LE16</td>
<td>13-N-12</td>
<td>Remnant of linear midden occupies 0.3 ha.</td>
</tr>
<tr>
<td>Starkley</td>
<td>3LE17</td>
<td>13-N-16</td>
<td>St. Francis-type village midden ca. 2 ha in area, mound ca. 3 m high; Moore’s (1916) “Whitehall”?</td>
</tr>
<tr>
<td>Conner</td>
<td>3LE18</td>
<td>13-N-14</td>
<td>Midden ca. 2 ha in area.</td>
</tr>
<tr>
<td>Greer</td>
<td>3LE24</td>
<td>13-N-17</td>
<td>Not visited by AAS, LMS reports mound 4 m high; collectors report “Quapaw-like” mortuary ceramics.</td>
</tr>
<tr>
<td>Doughtie-Bethea 1</td>
<td>3LE92</td>
<td>na</td>
<td>Dense artifact scatter 0.3 ha in area, burials.</td>
</tr>
<tr>
<td>Doughtie-Bethea 2</td>
<td>3LE95</td>
<td>na</td>
<td>Midden, cemeteries in ca. 1 ha area.</td>
</tr>
<tr>
<td>Jeffersonville</td>
<td>3LE126</td>
<td>na</td>
<td>Not visited by AAS, reportedly yielded &quot;Quapaw-like&quot; mortuary ceramics.</td>
</tr>
<tr>
<td>Troublesome Lake</td>
<td>3LE128</td>
<td>na</td>
<td>Three middens, each 0.1 ha in area; daub, at least one burial.</td>
</tr>
<tr>
<td>Peters Church</td>
<td>3LE130</td>
<td>na</td>
<td>Midden less than 1 ha in area; daub, burials with late Mississippi period ceramics.</td>
</tr>
<tr>
<td>Moore</td>
<td>3PH7</td>
<td>14-N-1</td>
<td>Midden, mound ca. 1 m high reported by LMS; site presently wooded, looted cemeteries extend 400 m.</td>
</tr>
</tbody>
</table>
"St. Francis-type" plans may formerly have existed on a number of sites but have been obliterated by farming over the years. A number of heavily occupied middens greater than 1 ha in area have been mapped. It should be noted that the scale of mound building attributable to the Kent phase is modest by Mississippi Valley standards. The 5 m-high mound at Kent appears to be the largest in the phase. (The cultural affiliation of the 7 m-high mound at Mound Cemetery remains enigmatic; only a relatively minor late Mississippi period artifact scatter is present on the site surface.)

On the lower end of the Kent phase settlement pattern are a number of artifact scatters less than 1 ha in area. The presence of daub, and in some cases burials, demonstrates that these sites do indeed represent habitation on a farmstead or hamlet level. The Troublesome Lake site appears to represent three such residential units lined up at a ca. 100 m interval on a relict point bar beside a small lake (Figure 5).

These preliminary settlement pattern data provide only the most limited data base upon which to begin evaluating alternative models of the Kent phase settlement system. A couple of salient features of this data base, however, may be pointed out at this time.

First, though the Kent phase encompasses a substantial range of site variability, there is no real evidence of a complex multi-level site hierarchy such as appears to be represented by, for instance, the Winterville (Brain 1978) and Moundville (Stephens 1978) phases. No one site in the Kent phase settlement pattern can be singled out as larger or more complex by an order of magnitude. Nor does the locational geography of the Kent phase settlement pattern argue for the centrality of any one site, as appears to be the case with the
Parkin site in the Parkin phase settlement pattern (P. Morse 1981:56-59). It is possible, of course, that more evidence of hierarchical organization may emerge in future research as we gain better chronological control over the growth and development of individual sites.

Second, the Kent phase settlement pattern cannot be characterized as either nucleated or dispersed but rather has elements of both types of patterns. This is paradoxical in terms of present theoretical perspectives on Mississippian settlement pattern variability. Dispersed settlement patterns focused on more-or-less "vacant" centers with civic-ceremonial architecture are widespread in the Southeast and seen as locationally efficient for technologically simple agricultural societies (Chisholm 1968). On the other pole, nucleated settlement patterns in an agricultural society are often seen as a response to high levels of intersociety conflict, or at least unpredictability of such conflict (Green and Munson 1978:318-322; Brown 1982:353; Steponaitis 1983:171-172). Recent survey in the portion of the St. Francis basin immediately north of the Kent phase has shown the Parkin phase settlement pattern to have been highly nucleated (P. Morse 1981:33-43).

Further investigation of the Kent phase—again, employing more refined artifact chronologies—may show the settlement system to have developed from a dispersed to a nucleated regime, or vice versa, over a short span of time. Or it may be shown to have oscillated between dispersion and nucleation in response to relatively short-term changes in the social environment (see Smith 1978:492-493). Certainly the Kent phase would be a good observational laboratory for studying the dynamics of dispersion and nucleation in late prehistoric settlement systems in the Lower Mississippi Valley.

Acknowledgements

These investigations could not have been accomplished without the courtesy and cooperation of many farmers, landowners, and other residents of the study area. Andy Vaccaro of Marianna and Gil Gilbreath of Forrest City, particularly, have been unfailing sources of help and encouragement over the course of the project. The efforts of Arkansas Archeological Society members and other volunteers were indispensable in carrying out test excavations at Kent and Clay Hill and salvage operations at Barrett Mound A.

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References

Brain, Jeffrey P.
Brain, Jeffrey, Alan Toth, and Antonio Rodriguez-Buckingham
Brown, James A.

Brown, Ian

Chisholm, Michael

Green, Thomas J., and Cheryl A. Munson

Fisk, Harold N.

Ford, James A.

Hatfield, Roy

Hoffman, Michael P.

House, John H.
1982a The Kent and Old Town phases, the late Mississippian period. In Hester A. Davis (ed.), *A State Plan for the conservation of archeological resources in Arkansas, SE34-SE41. Arkansas Archeological Survey Research Series* 21.


House, John H., and Rebecca B. House
1985 Investigating early Mississippi period occupation in the Lower St. Francis Basin, eastern Arkansas: Mids in possession of the authors.

Million, Michael G.

Moore, Clarence B.


Morse, Dan F., and Phyllis A. Morse

Morse, Phyllis A.

Pauketat, Timothy R.

Perino, Gregory H.

Phillips, Philip

Phillips, Philip, James A. Ford, and James B. Griffin.

Smith, Bruce D.

Stephens, Vincas P.


Westbrook, Kent C.

Williams, Stephen

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THE DE SOTO EXPEDITION THROUGH NORTH MISSISSIPPI IN 1540-41

James R. Atkinson

When the famous De Soto expedition entered what is now northeast Mississippi in December 1540, the presence of three separate Indian groups was noted by chroniclers of the expedition. One province, "Chicara," was dominant over the other two, "Saquechama" and "Albanae" (Bourne 1904:132). Over 140 years later all but the last of these Indian groups were still occupying the area. The Albanae, or Alabama, however, had apparently migrated to present-day central Alabama by 1686 (Boyd 1936:26). The purpose of this paper is to suggest the most logical locations for the three provinces as they existed in 1540, based on historical documents and current archaeological evidence.

The Chicara, or Chickasaw, among whom the expedition spent the winter of 1540-41, will be examined first. In the late 17th century and early 18th century the Chickasaw settlements were observed by various European traders and military men to have been located on the several tributary creeks of the west fork of the Tombigbee River (Town Creek). These settlements have been identified archaeologically as occurring along the west side of Town Creek, the west side of Coonewah Creek, the south side of Kings Creek, and the south side of Chiapeka Creek. By 1723, the southernmost settlement of Chiapeka Creek, referred to by Adair (1930) in about 1768 as "Yaneka," had been abandoned, a result of population concentration for defense against the hostile French and their Indian allies, most notably the Choctaw to the south. The nature of Chickasaw material culture, especially pottery, has been described and can be used to identify 17th- to 19th-century Chickasaw sites (Willey 1938; Jennings 1941; Stubbs 1983; Atkinson 1985). Cultural material such as pottery undergoes changes in appearance over time, however, so it is not so easy to identify pottery from an earlier period as Chickasaw, especially if the earlier settlements were in a different location than those observed and documented by Europeans. Archaeological research in the Upper Tombigbee River valley has indeed shown that Chickasaw cultural material of the 16th century and earlier was quite different than it was in later times, and in general conformed in appearance to cultural material from other areas of the region occupied by different Indian groups. This is the problem faced by archaeologists in attempting to locate the two De Soto campeates at the villages of Chicasa and Chicacilla in 1540 and 1541.
In recent years, however, archaeological investigations in areas adjacent to the Upper Tombigbee River valley have determined the general nature of mid-16th-century cultural material, especially pottery. To the west in the Mississippi River valley, pottery types in use at the time of the De Soto expedition have been identified and illustrated by Brain et al. (1974) in their attempt to reconstruct the De Soto crossing of the Mississippi River and the route through the Indian provinces on the west side of the river. To the east, 17th-century pottery types have been identified for sites on the Black Warrior River and elsewhere in Alabama (Jenkins 1981; Steponaitis 1983; Peabody 1986; Sheldon and Jenkins 1986). In the Tombigbee River valley, Marshall (1985, 1986) has identified the Lyon's Bluff site and associated sites in the Tiblee-Line Creek area as having been occupied in the 16th century. Pottery from Lyon's Bluff and environs conforms to types identified to the east and west as having been in use at the time of the De Soto expedition. Various other archaeological investigations have reported 16th-century pottery types in the upland Black Belt prairie on the north and south sides of Tiblee-Line Creek (Marshall 1973; Johnson et al. 1984; Sparks 1984; Ward 1984; Atkinson 1986; Johnson and Sparks 1986). The primary diagnostic pottery types include Mississippi Plain, Barton Incised, Parkin Punctated, Carthage Incised var. Carthage, O'Byam Incised var. Stewart, and Alabama River Ancestral. Out of these investigations, I recently established the Chiqua tonchec Creek Phase for this late prehistoric occupation in the area north of Tiblee-Line Creek traversed by Chiqua tonchec Creek, and speculated that the De Soto camp was probably somewhere within it (Atkinson 1986). I speculated that this was the core area of the 16th-century Chicasaw and that its inhabitants were primarily descendents of the population which lived but later abandoned the large Owl Creek ceremonial mound site (22-Ca-502) on upper Chiqua tonchec Creek. I also speculated that the Saque chuma, or Chachkhum, Province was located along Tiblee-Line Creek and in the upland prairie to the south. With this scenario, the Alibamu settlement encountered by De Soto upon leaving Chicasa/Chicacilla and marching northwest would probably have been either at or near the Owl Creek Mounds or in the Tallebina/Chikapons Creek area.

Since drafting the paper in which this argument was presented, I have re-evaluated the archaeological and documentary evidence because of certain circumstances that do not fit well into the hypothesis. First of all, the sites in the upland prairie Chiqua tonchec Creek Phase seem to possess too few examples of the major decorative types identified by other investigators as typical of the mid-16th century. Moreover, the ceramic pastes of most sherds appear to be closer in time to those of the late 17th-century Chicasaw farther north in the southeastern Pontotoc and Lee County areas. That is, the sherds generally have sandy textures, and fossil shell tempering occurs (fossil shell tempering was commonly used by the late 17th- and 18th-century Chicasaw). Also, the usually thin and widely separated occurrence of individual house sites recorded does not coincide with the De Soto chroniclers' descriptions of the Chicasaw settlement area as having concentrations of houses (Chicasa is said to have had 20 houses). Finally, the chroniclers state that much of the land was under cultivation, a circumstance that would not likely have been true if the population was as thinly scattered as that in the Chiqua tonchec Creek Phase area appears to have been. Because of these anomalies, I am now inclined to believe that the Chiqua tonchec Creek Phase settlements probably postdate 1540, with one possible exception that will be discussed below.

The Tiblee-Line Creek terraces and floodplain would seem to better fit the historical descriptions as well as the archaeological requirements for a major Indian group such as the Chicasaw in the mid-16th century. As Hudson et al. (1987) have pointed out, most of the major populations encountered by De Soto seem to have been in areas which possessed ceremonial mounds. The Owl Creek Mound site, although on upper Chiqua tonchec Creek, is outside the Black Prairie area to which the Chiqua tonchec Creek Phase is confined. It is almost a certainty that this typical Middle Mississippian period site with five mounds arranged around a plaza was abandoned by 1540. The traditional ceremonial mound site of the mid-16th century appears to have had only one or more than one mound. There are no ceremonial mounds at all in the Chiqua tonchec Creek Phase area but the Lyon's Bluff site on the south bank of Line Creek possesses a single flat-topped ceremonial mound. The Lyon's Bluff mound was not necessarily still being used for ceremony in 1540, but its presence in an area of obviously intense 16th-century occupation is significant. As hypothesized in the unpublished paper previously referred to (now under revision), the mid-16th-century settlement pattern had probably changed from strictly floodplain to upland prairie occupation to include settlement on the upland prairie ridges along smaller tributary creeks. Just such occupation is in evidence in the prairie south of Tiblee-Line Creek. Ward (1984), for example, has reported the presence of protohistoric material in the prairie along Catalpa Creek in Lowndes County, and several other protohistoric settlement areas have been identified and recorded but not reported in the prairie south of Tiblee Creek. It is perhaps significant also that the largest concentration of what appear to be Middle Mississippian flat-topped mounds on the upper Tombigbee River proper occurs in the area between Tiblee Creek and the Noxubee River to the south (Rucker 1974; Atkinson et al. 1980). One of these six mound sites, the Butler Mound (22-Lo-500), is located on the west side of the Tombigbee River and about eight miles south of the mouth of Tiblee Creek. Unfortunately little is known about these sites, for none have been subjected to professional excavations, with the exception of the Lubbbub Creek mound site in Alabama (Peabody 1983). This site possessed a Middle Mississippi occupation as well as
a late Mississippi occupation. To the west in the Starkville, Mississippi area in Oktibbeha county, a large Middle to late Mississippi occupation area has been identified, part of which also contains a large historic 17th-century component that is almost certainly affiliated with the Chakchiuma (Atkinson 1979; Blakeman 1985).

As shown by the above discussion of late prehistoric and protohistoric occupation in the upper Tombigbee River valley, the area on and below Tibbee-Line Creek and its headwater feeder possessed what appears to have been a large population prior to and at the time of the De Soto entrada. The same cannot be said for the upland prairie Chuquatonchee Creek Phase area on the north side of Tibbee-Line Creek. For this reason and others discussed below, the writer believes that the probable location of the De Soto campsites, Chicasa and Chicecola, were in the area so marked in Figure 1.

We now turn to historical documentation and archaeological evidence in an attempt to determine the locations of the other two Indian groups encountered by the De Soto expedition. While at their camp at Chicasa, the Chickasaw chief requested that De Soto assist him in putting down a rebellion of the "Saquechunas," or Chakchiuna province, which had been withholding tribute (Bourne 1904:101). Accordingly, De Soto took 30 cavalry and 80 infantry and marched to the Chakchiuna province in the company of a large Chickasaw force. They found the object town abandoned, and after setting fire to it, they returned to Chicasa (Bourne 1904:101). Unfortunately the chroniclers do not state which direction nor how far away the Chakchiuna village was from Chicasa. The only documentation for the direction and relative distance is the so-called "De Soto map" which was drawn in about 1544 (Boston 1941; Cumming 1958). It shows "Niculas" almost due west of Chicasa. That "Niculas" signifies Chakchiuna is deduced from the facts that the Chakchiuna chief in 1540 was named "Miculas" (Bourne 1904:132) and that groups encountered by De Soto were often referred to by the name of their chief. As mentioned above, the 17th-century occupation at Starkville is almost certain to have been Chakchiuna, for a French map dated 1743 shows "an ancient village of the Chakchoumans" in the Starkville area (De Marigny 1743; Atkinson 1979); the Starkville settlement also has an intermingled earlier component possessing typical Late Mississippi/protohistoric ceramics. This settlement, the Rolling Hills housing development area, has yielded mass bundle burials with glass trade beads and small brass bells in association. An adult bundle burial which contained a crude iron wedge or celts and a narrow piece of iron resembling a crude knife blade was excavated by me in 1974 (Atkinson 1979). This wedge or celt is considered to be a probable early Spanish artifact, although not necessarily dating to quite as early as the De Soto expedition (Marvin Smith, personal communication). In the vicinity of this burial was a mass bundle burial, excavated later by a collector, which contained eight individuals. In association were a Nodena Red and White water bottle, at least 33 round, drum, and barrel shaped glass beads colored blue, black, red, and clear, a brass bell, and two brass jinglers (Atkinson 1979:64).

H.S. Halbert (1902:303) quoted H.B. Cushman, who had conversed with several aged Choctaws as a young boy, as writing that the Chakchiunas built several forts in Oktibbeha County. Halbert goes on to say that Choctaw tradition held that one Chakchiuna fort was situated about three miles northwest of Starkville. Interestingly,
this is within the archaeologically defined Rolling Hills settlement. Because of the apparent 16th- to late 17th-century occupation present at Rolling Hills, the Starkville settlement is probably within the Chokohoa province visited by De Soto in 1541. If Chicasa was on or just below the Tibbee-Line Creek, the Starkville settlement, located about 25 miles west of the Tombigbee River, would conform with the De Soto map, which shows the village almost due west of Chicasa.

Another equally intriguing possibility exists for the location of the Chokohoa province in 1540. Again we turn to Halbert (1902:308):

About six miles west of Bellefontaine, on the old Grenada road is the site of a Chocquahova village. The chief who lived there, Chula Hommo, Red Fox, is said to have been one of the most powerful chiefs of his tribe. The village was captured and burned by the Choctaws.

Although the basis for this tradition must have originated many years after the De Soto expedition, the presence of a late Indian settlement in the area described is significant. In 1935 Moreau B. Chambers of the Mississippi Department of Archives and History went in search of this traditional Chokohoa village and in fact recorded it. A large collection was made by Chambers, but the collection was lost in a fire in Jackson some 40 years later. The collection was, however, analyzed by James A. Ford in 1938. Recently I found the original and apparently only extant analysis sheet for the material in an obscure place at Natchez Trace Headquarters in Tupelo. This valuable document lists the ceramics as follows:

- Choctaw: 75 or 90
- Natchez: 3 or 4
- Brushed pieces: 2
- "Pink" red slip: 2
- Pink slip: 50 or 60
- Black or Gray slip: 50 or 60
- Shell: 6 or 8

In May of 1987, I visited the area in Webster County and located the nephew of the 1935 landowner, B.E. Roberts. The nephew pointed out the exact location of the village and related a story he had heard about the village being destroyed by another Indian tribe. The large, flat hilltop site was a grassy, fallow field in May 1987, but we were able to find two sherds in extremely poor collecting conditions. Both sherds are tempered with fine live shell and are pinkish red in color, although not slipped as Ford described many of the sherds from the Chambers collection. One sherd has small pittings around the edge of the rim. These sherds conform closely in appearance to protohistoric/historic sherds recovered to the east in the Tibbee-Line Creek and Starkville areas. Ford's identification of sherds in the Chambers collection as "Choctaw" and "Natchez" is questionable at this time and can only be confirmed or contradicted by the recovery of another large collection. In any case, the site could indeed be that of a Chokohoa group. Interestingly, this site (22-We-501) is also almost due west of Tibbee-Line Creek, and therefore could be in the area of the Chokohoa village visited by De Soto and shown as west of Chicasa on the De Soto map. The site is about 40 miles west of the Tombigbee River and in the upper Yalobusha River drainage. This is significant in that Halbert (1902:303) states that the Chokohoa occupied a narrow territory between the Choctaws and Chickasaws which extended from the mouth of the Yalobusha on the west to the vicinity of West Point on the east (West Point is about four miles north of Tibbee Creek). Also of interest here is James Adair's comment in about 1768 that the "Chochohooma" made their first settlements on the lower part of the Tallahatchie River, which, according to Adair was "lower down" called the "Chochohooma River" (Adair 1930:377). Since the Yalobusha enters the Tallahatchie where the latter becomes the Yazoo River, it is quite likely that Adair's "Chochohooma" River was the same as the present-day Yalobusha River. This narrow territory referred to by Halbert, then, from the mouth of the Yalobusha to a point just above the junction of Tibbee and Line Creeks, would take in site 22-We-501 on the Yalobusha headwaters in Webster County and the Starkville settlement on the headwaters of Tibbee-Line Creek in Okibbeha County. In this writer's opinion it is quite likely, based on archaeological evidence, that both of these settlement areas were indeed occupied by the Chokohoa between the early 16th century and the very late 17th century when the Chokohoa became splintered and ceased to exist as a viable independent tribe. Some were living among the Chickasaw by 1702 and others were living on the Yazoo River (Atkinson 1979; Galloway 1982).

If indeed 1540 Chicasa was on and south of Tibbee-Line Creeks, then we must look for the Alibamu settlement somewhere to the northwest, for both Biedma (Bourne 1904:244) and the De Soto map place it in that direction from Chicasa/Chicasilla. The settlement was reached in one day's march, so it must have been no more than about 15 miles from Chicasa. As mentioned above, there is one exception to the general circumstance that the house sites in the Chuquatochee Creek Phase are widely scattered, with no more than three or four appearing to be present in any locale. This exception is a settlement area along the south side of Houkka Creek which seems to have contained an exceptionally large number of houses concentrated in an area about three miles long. Post-cultivation erosion of the thin prairie soil may have obliterated many of these sites. Of special interest at this locale is the apparently commonplace occurrence of the pottery type Alabama River Applique and its compan-
A route from Alibamu recently proposed by Weinstein (1985) is similar to the one proposed here. Weinstein, however, carried the expedition down the Skuna River (a northern tributary of the Yalobusha) to the Yalobusha junction near Grenada, down that river to near Greenwood, and back up the Tallahatchie to the vicinity of Minter City, where he picked up Charley's Trace. He was unable to demonstrate, however, the presence of a documented Indian trail along the Skuna River to the vicinity of Grenada. There is, however, a documented trail from Houston toward Grenada along the Yalobusha River. After the creation of Chickasaw County in 1836, road building from the new town of Houston to other seats of population became a priority for county officials. Accordingly, a 26 mile road was laid out in 1837 from Houston toward Grenada "parallel with an Indian Trace" (Martin 1876:4-5). In 1868, Thomas Welch, an English trader, traveled from the Chickasaws to the Mississippi River, the latter part of the journey apparently being on Charley's Trace (Swanton 1939:236). Welch's route is shown on the Mitchell map of 1755 and labeled as such. The Welch route appears on this map to have approximately followed the De Soto route proposed here from Houston to the Mississippi River. Significantly, the Mitchell map labels the Welch route crossing of the Mississippi River as the place where De Soto discovered the Yalobusha. Thus this De Soto crossing place of the Mississippi River is in agreement with the general crossing area proposed first by Swanton (1939) and later by Brinn et al. (1974) and Weinstein (1985), that is, the Sunflower Bend-Friars Point vicinity in Coahoma County, Mississippi.

In summary, I am suggesting that the De Soto expedition probably crossed the Tombigbee River between the Noxubee River and Tibbee Creek, marched either north up the river to Chicasa or northwest, depending on where Chicasa was. (The De Soto map shows Chicasa on the immediate west bank of the river.) The likely location of Chicasa/Chicacilla was either Tibbee or Line Creek or on a tributary creek to the south. While at Chicasa De Soto and 110 of his men accompanied a force of Chickasaws to the Chakchilumana province, probably located on the southern headwaters of Tombigbee-Cline Creek near Starksville or farther west along the upper Yalobusha River. Following a devastating battle with the Chickasaw at Chicasa, the expedition moved northwest and set up camp in the Alibamu area on the north side of Tibbee-Line Creek, possibly on the south side of Houlika Creek in the Chiquotanchee Creek Phase area. Leaving there the Spaniards encountered and attacked a frontier fort on the trail and captured it. From there the expedition followed Houlika Creek northwest to the headwaters of the Yalobusha River, which it followed to the Yazoo Basin along a documented Indian trail later used by the English to reach the Mississippi River in the Sunflower Bend-Friars Point vicinity.

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References

Adair, James

Atkinson, James R.

Atkinson, James R., John C. Phillips, and Richard Walling
1980 The Kellogg village site investigations, Clay County, Mississippi. Report submitted to the U.S. Army Corps of Engineers, Mobile District, by the Department of Anthropology, Mississippi State University.

Blakeman, Crawford H., Jr.

Boston, Barbara
1941 "The De Soto Map." Mid-America 23:236-250.

Bourne, Edward G., Editor

Boyd, Mark F.

Brain, Jeffrey P., Alan Toth, and Antonio Rodriguez-Buckingham

Cumming, William P.

De Marigny
1943 Map of the Lower Mississippi Valley and adjacent Tombigbee River Valley. Copy on file at Natchez Trace Headquarters, Tupelo, Mississippi.

Galloway, Patricia K.

Halbert, Henry S.

Hudson, Charles M.

Hudson, Charles M., Marvin T. Smith, and Chester B. DePrater
1987 The Hernando De Soto Expedition: From Mabila to the Mississippi River. Revised draft of a paper delivered at the Symposium "Towns and Temples along the Mississippi" at Memphis State University in October, 1985.

Jenkins, Ned J.

Jennings, Jesse D.

Johnston, Jay K., and John T. Sparks

Johnston, Jay K., H.K. Curry, J.R. Atkinson, and J.T. Sparks

Marshall, Richard D.


Martin, Thomas N.
1876 Historical Sketch of Chickasaw County, and also the Town of Houston and Okolona. Address delivered at Houston on the 4th of July, 1876. Copy on file, Houston Carnegie Library.

Mitchell, John

Morse, Dan F., and Phyllis A. Morse

Peebles, Christopher S. (ed.)

Peebles, Christopher S.

Rucker, Marc D.
1974 Archaeological Survey and Test Excavations in the Upper-Central Tombigbee River Valley: Aliceville-Columbus Lock and Dam and Impoundment Areas, Alabama and Mississippi. Report submitted by the Department of Anthropology, Mississippi State University, to the National Park Service, Atlanta, Georgia.

Sheldon, Craig T., Jr., and Ned J. Jenkins

Sparks, John T.
1984 Prehistoric Settlement Patterns in Clay County, Mississippi. M.A. thesis, Department of Sociology and Anthropology, University of Mississippi.

Stepanaitis, Vincas P.

Stubbe, John

Swanton, John R.

Ward, Rufus A., Jr.

Weinstein, Richard A.

Willey, Gordon R.
INCREASED SECOND LINE FOREST ANIMAL CONSUMPTION: A POSSIBLE SIDE BENEFIT OF PLANT FOOD PRODUCTION

Richard A. Marshall

An analogue to the "garden hunting" practiced in rural Panama is suggested for prehistoric Tombigbee Basin agriculturists.

Slash and burn clearing of pristine river bottomland forests by Late Woodland peoples in the Southeastern U.S. may have unwittingly created an environment attractive to small forest animals, which were also harvested. Summarizing the Formative Stage cultures of the Tombigbee River basin of Alabama and Mississippi, Jenkins and Krause (1986:52) present data on the increased use of second-line animals for food (small mammals, turtles, fish, shellfish, and crayfish) while at the same time observing a modest increase in the use of cultigens and cultivars. It is implied that the use of second-line animal resources might be heralded as a sign of over-use of primary or first-line forest animal (deer, bear, etc.) resources. This may be in part true, but the authors recognize (1986:94) that the destruction of pristine natural levee vegetation by Mississippian substage Summerville I peoples provided a beneficial environment for a variety of small forest animals (possum, raccoon, skunk, rabbit, and squirrel) that were taken for food. It may have been the attraction of small forest animals to the garden plot environments that accounts for the increased use of the second-line small mammals in the archaeological food records. It is here postulated that such slash and burn farming along the Tombigbee River bottomlands created an attractive environment for small forest animals, and that this opportunity to increase harvesting of those animals was not overlooked by the farming Indians. The postulate is further expanded to suggest that this practice was probably common in all major and secondary riverine systems throughout the Southeastern U.S. in prehistoric times.

This argument is supported by a documented parallel with current practice in Panama. Many of the Panamanian Indians, particularly those of the northern provinces, are slash and burn food producers. Most of the Indians there today have domestic animals (pig, horse, chicken, cow, etc.), but rarely eat them (Linares 1976). These Old World domesticates are raised largely for cash market sales. For meat for family sustenance, the Indians rely upon hunting. The large primary forest animals (deer and peccary), marine foods, river fish, and on occasion the manatee, are preferred. But these preferred animal foods, other than the fish, are not common; they are hunted to the point of scarcity (a parallel with the Jenkins and Krause observation for the Tombigbee). Most meat consumed by the Panamanian Indians comes largely from the secondary forest animals (rabbit, javelina, raccoon, opossum, squirrel, the several large rodents —agouti and paca—, armadillo, and iguana). These second-line forest animals are often attracted to and are commonly taken in the forest-edge gardens (Linares 1976). Thus, gardens in Panama, and probably other semi-tropical and tropical forest-farming regions, not only produce plant foods but animal foods as well.

This hunting of forest-edge animal species attracted to the gardens is termed "garden hunting" by Linares (1976:331). It is a pattern seen in Panamanian archaeological sites dating well back into prehistoric times. Both Linares (1976) and Cooke (1981) provide substantial data for the use of small animals by prehistoric Panamanian peoples practicing slash and burn gardening. The latter author has an extensive bibliographic list on the subject. It is assumed that many of these animals common to the prehistoric archaeological sites were attracted and systematically hunted then as they are today.

The postulated garden hunting in the Tombigbee basin and in other Southeastern U.S. riverine environments probably provided the main source of fresh meat in prehistoric times after the adaptive use of native cultivars and particularly after the introduction of the characteristic cultivars (squash, sunflower, corn, and beans) common to the Southeast in Mississippian, protohistoric, and early historic times. This garden-meat source may have become the "first-line" meat source, while the more traditionally preferred large primary forest animals then became opportunistic kills or seasonally hunted (individually and cooperatively) sources. A pattern of garden hunting in the Southeastern U.S. apparently continued through the Mississippian into the historic period and may be more clearly identified in future faunal analyses. As a practice, it may be observed today in economically depressed rural communities in the Southeast; Jenkins and Krause have data which strongly appears to support the postulate presented here; future faunal studies will underline it.

This note was stimulated by the coincidence of reading the Jenkins and Krause book and listening to a lecture on Pre-Columbian diet in Panama by Dr. Luz Joly, Department of Agricultural Development, College of Agricultural Sciences, University of Panama, visiting Fulbright Lecturer, Department of Sociology and Anthropology, Mississippi State University.

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References

Jenkins, Ned, and Richard Krause

Linnes, Olga F.

REVIEW: PINSON MOUNDS: A MIDDLE WOODLAND CEREMONIAL CENTER, by Robert C. Mainfort, Jr., Tennessee Department of Conservation Division of Archaeology Research Series No. 7. by Janet Ford

This volume describes archaeological investigation of the Pinson Mounds site in west Tennessee from 1981 through 1984. An appendix covers testing conducted in 1963 by Dan Morse; other appendices detail radiocarbon dates and skeletal analysis.

Pinson is certainly an impressive site. Located near the modern city of Jackson, the site covers 400 acres and consists of at least twelve mounds, a large circular earth embankment and a smaller circular enclosure known as the "Duck's Nest." Five flat-topped mounds are set in a definite pattern: the largest is centered in a rectangle formed by the other four. The larger embankment encircles the mound at the southeastern corner of the rectangle. Other flat-topped and conical mounds (including a pair of conjoined conicals referred to as the Twin Mounds) are scattered throughout the area. Additional surface features complete the complex.

The presence of pyramidal mounds had resulted in a traditional interpretation of the site as a Mississippian ceremonial center. The major contribution of the research reported in this volume is the confirmation of Middle Woodland construction of these mounds, which has, in turn, led to recognition of other flat-topped Woodland mounds in the Southeast.

In an era of long delays between excavation and publication, it is refreshing to have a report issued only two years after completion of research. The volume excels in describing the site's background and in delineation of the original structures. The amount of excavation and the reasons for the choices of test locations are clearly set forth. Construction sequences are logically outlined and more than adequately illustrated.

This is, however, primarily a descriptive report. Some suggestions about site utilization and diachronic construction are attempted, but not all are convincing. For example, there can be little doubt that structures such as the northernmost of the Twin Mounds and areas like the Duck's Nest sector were involved in mortuary ceremonialism of monumental proportions. The burials and included grave goods of the Twin Mounds area are spellbinding, and the evidence for cremation ceremonialism in the Duck's Nest Sector and perhaps the Duck's Nest is compelling. Somewhat less compelling is the suggestion which Mainfort (p. 82) puts forth in his concluding remarks that "Pinson Mounds does not seem to have functioned primarily as a mortuary center."

In the body of the text there is some ambiguity in interpretation. witness the paragraph on page 15:

Little can be said about the function of Ozier Mound at this time beyond the obvious. Clearly the mound was constructed and used for ceremonial purposes. These ceremonies may have related to mortuary rituals, although the mound does not seem to have been used for burials... The complete exposure of the uppermost intact floor of Mound 5 should be given the highest priority in future research plans, as this would afford an opportunity to gain valuable insights in non-mortuary Middle Woodland ceremonialism (emphasis added).

At least one of the suggestions arising from the reconstructed diachronic sequence is bothersome. The flat-topped mound designated as Mound 10 does not fit into the site plan formed by the five major platform mounds. In addition, it is somewhat smaller and is irregular in outline. Radiocarbon dates, we are told, suggest that it was constructed a century later than the others, thereby accounting for its placement. Its size is attributed to construction by a smaller social group. So far, so good. The irregular outline of Mound 10, however, is suggested to be the result of "lack of a ritual specialist who was familiar with the proper shape of such structures" (p. 26). It would seem that the builders would have to be blind or, at best, extremely observant to miss the implication for proper shape provided by the plethora of hundred-year old mounds surrounding the site upon which they chose to build.

Since the subject of radiocarbon dates has come up, a word of elaboration seems in order. There is no doubt that the Pinson Mounds have provided one of the most complete sets of radiocarbon dates extant for a Woodland ceremonial center. Mainfort has provided Southeastern researchers with a firm set of anchor dates; the ultimate implications should be far-reaching. When a single structure has yielded more than one date, however, it is sometimes difficult to discern the manner in which Mainfort has arrived at the single date suggested for construction. This is obviously nit-picking and in no way tarnishes the value of the dates provided.

The report does not pretend to move into the area of extensive or intensive analysis of either ceramics or lithics. To researchers interested in the North Central Hills section of Mississippi, this is regrettable. Although Mainfort infers that most of the ceramics can be
interpreted by the Miller sequence, it seems that he has encountered the same problems of clay-tempering in fabric impressed ware and other pre-Miller III types that haunt analysts to the south. In one specific example (p. 35), he cites a personal communication with Jay Johnson to the effect that cord marked pottery tempered with a combination of fired clay and coarse sand found at Pinson is similar to ware found in the North Central Hills. Mainfort, however, refers to this as Mulberry Creek Cordmarked, var. *Tishomingo*. In the North Central Hills, the same paste/temper is found in fabric impressed (as well as plain and cord marked), indicating a pre-*Tishomingo* connotation. A mixture of clay and much finer sand tempering occurs in both plain and cord marked sherds, but not in those showing fabric impressing. This is probably the local equivalent of *Tishomingo* wares (personal observation). It is also unfortunate that lithic debitage is not at least categorized, since this would provide raw data which might perhaps shed light on site usage.

There is little point in criticizing a report for what one wishes it had done, particularly when the wishes lie beyond the stated goals. No apology need be made for the Pinson volume as it stands. It is an outstanding example of extraction of maximum structural and temporal information from an extensive site with minimal disturbance. The majority of the site remains to provide answers to many questions so clearly outlined by excavation of the selected areas. Every archaeologist interested in the Woodland period in the Southeast should have a copy of the monograph.

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ERRATUM

In the article on Deer Island archaeology in *Mississippi Archaeology* 21(2):50-61, the owner of the site was incorrectly listed as the City of Biloxi. Actually, the City owns only a very small portion of the site. The other owners are Captain Ralph Baker, Dorothy Baker Mayo, and Vera Baker Lusk. The site is posted, and the present landowners will tolerate no unauthorized excavations. They should be commended for their interest in preserving this fine site.