



Before Their Time? Early Mounds in the Lower Mississippi Valley

Author(s): Jon L. Gibson

Source: *Southeastern Archaeology*, Vol. 13, No. 2, Archaic Mounds in the Southeast (Winter 1994), pp. 162-186

Published by: Taylor & Francis, Ltd. on behalf of the Southeastern Archaeological Conference

Stable URL: <https://www.jstor.org/stable/40656504>

Accessed: 15-01-2019 20:05 UTC

REFERENCES

Linked references are available on JSTOR for this article:

https://www.jstor.org/stable/40656504?seq=1&cid=pdf-reference#references_tab_contents

You may need to log in to JSTOR to access the linked references.

JSTOR is a not-for-profit service that helps scholars, researchers, and students discover, use, and build upon a wide range of content in a trusted digital archive. We use information technology and tools to increase productivity and facilitate new forms of scholarship. For more information about JSTOR, please contact support@jstor.org.

Your use of the JSTOR archive indicates your acceptance of the Terms & Conditions of Use, available at <https://about.jstor.org/terms>



JSTOR

Southeastern Archaeological Conference, Taylor & Francis, Ltd. are collaborating with JSTOR to digitize, preserve and extend access to *Southeastern Archaeology*

a high proportion of novaculite in the lithic collections (Kidder 1991:37), although Tennessee River valley and midwestern sources are not as well represented at the former site. Beyond these formal resemblances, how closely Lake Enterprise was related to this southerly concentration of sites is not known.

We might predict that other small mound sites of Poverty Point age will become known as research is redirected to their discovery. Obviously, as pointed out numerous times in the past, we find what we are looking for. There is a renewed rationale for the suspicions of researchers that Woodland and Mississippian mounds may have Poverty Point (and now possibly earlier) initial stages. Moreover, reports on numerous untested small mounds languish in site files as being Middle Woodland in origin; a serious reconsideration is in order. We are suspicious of several mounds in the Bayou Bartholomew drainage after our individual and collective failure to procure ceramics from them, despite repeated searches in the best of conditions.

The long tradition of Archaic mound building puts the truly magnificent earthworks at Poverty Point in a somewhat more comprehensible developmental context. The site's enigmatic nature has at least in part been a function of the perception that it sprang from exceedingly humble antecedents. First Middle Woodland (before the chronological placement was secured; Ford and Webb 1956) then Mesoamerican (Webb 1968) origins were deemed necessary to explain its presence. We are now in a position to view the Poverty Point site as a product of more than a millennium of similar activity (albeit a product of significantly greater scale than its precursors). As research proceeds, at least one of us would not be surprised to find on-site evidence of this long earth-moving tradition. As we learn more about how the Archaic mounds may have served their makers, we may gain some new insights regarding the impetus and function of Poverty Point itself.

The less dramatic mounds, of which Lake Enterprise is surely but one example, suggest that there was a role for centrally marked locations of local significance during the Poverty Point period. This role contrasts with the extraregional role of the Poverty Point site, and perhaps Jaketown and Claiborne, which may have served as integrative loci for politically and perhaps ethnically distinct populations (e.g., Jackson 1991a). It does seem clear that the mosaic of social and economic interactions had multiple levels, including a local one. The integrative functions of the Lake Enterprise site were probably not significantly different from those of earlier mound sites, despite its distinction as being occupied by participants in Poverty Point trade. The presence in the region of a deeply rooted tradition of corporate group communal

action manifested in earthen markers allows Poverty Point evidence to be considered in local terms. However, how connections to the systems that articulated the Lower Mississippi Valley populations may have redefined those local roles and the interrelationships that formed the fabric of local society remain to be defined (e.g., Jackson and Jeter 1991:49).

Given the "earthshaking" early mound research now being reported, a report on a Poverty Point mound is not very dramatic. The work at the Lake Enterprise Mound is instead another example of an ongoing social process with very deep roots. We now must incorporate into our interpretations of the development of the Poverty Point culture a long tradition of mound construction in the Lower Mississippi Valley. Explanations that intertwine interregional trade, social differentiation, and corporate public works in a neat package ushering in the Neoin-dian era are no longer feasible. On the other side of this coin, the reports in this volume delineate a long tradition that challenges our preconceptions about the possible cultural functions of mound building and about the cultural milieu that might engender such a practice.

Notes

Acknowledgments. We want to thank Michael Russo for encouraging us to report on the Lake Enterprise Mound despite our limited investigations. Our thanks to the landowners, Mr. and Mrs. William DeYampert for their permission to work at the site and for their long-time interest in local prehistory, and also to Arkansas Archeological Society members Jim Best, Bob Cooper, Ed and Patsy White, and Carolyn Wilson for their assistance in the field. Joe Saunders aided in the testing and provided important substantive and editorial comments on this paper. Finally we appreciate the comments of two other reviewers, Jay Johnson and Charles H. McNutt.

Collections. Artifacts from the Lake Enterprise site are permanently curated at the Arkansas Archeological Survey research station on the campus of the University of Arkansas at Monticello.

Before Their Time? Early Mounds in the Lower Mississippi Valley

JON L. GIBSON

Were mounds built before the Poverty Point period? A growing body of information says yes—maybe. Because the issue is a controversial one, claims for pre-Poverty Point mounds have met with skepticism and calls for proof that tax the limits of the archaeological record itself and of archaeologists too.

The problems with accepting the existence of early mounds are both conceptual and empirical. Until Ford and Webb's (1956) work at the Poverty Point site in

northeastern Louisiana, the earliest mounds in North America above Mexico were thought to be of Early Woodland origin and to date only a few centuries before the widespread Hopewellian mounds. Pushing mounds back to the time of Poverty Point was not that drastic a conceptual jump because the initial radiocarbon dates obtained from two Poverty Point sites, Jaketown (Ford et al. 1955) and Poverty Point itself (Ford and Webb 1956), seemed to indicate that Poverty Point mounds were not only contemporary with Early Woodland but overlapped the earliest part of the Middle Woodland Hopewellian mound-building period.

And even though Poverty Point culture was taxonomically viewed as Late Archaic (Ford and Webb 1956), archaeologists had no qualms about attributing mounds to such a spectacular manifestation. In fact, it is hard to imagine a more appropriate or timely beginning for mounds than in the then seemingly precocious Poverty Point culture (Ford 1969).

The ease with which Poverty Point mound building was accepted was due in large part to the normative thinking that prevailed in the 1950s and 1960s, thinking which held that mound building, pottery, agriculture, sedentism, and large populations were integral aspects of a Formative way of life and that they were an integrated complex (Willey and Phillips 1958). It was this all-or-nothing association that promoted the assumption of an agricultural base for Poverty Point despite the lack of direct evidence and that made the idea of Mesoamerican genesis for the complex so appealing (Ford 1969; Webb 1968:318–319).

However, pre-Poverty Point mounds were another matter. From the traditional culture-historical point of view, mounds were supposed to be built by settled farming peoples, not wandering hunters and gatherers like those of the Archaic period. Mounds were considered to be products of the elaborate civil and ceremonial institutions found in advanced cultures, such as Poverty Point, Marksville, Coles Creek, and Natchezan. Elaborate institutions were not believed to have existed during the Archaic period; ergo, neither were mounds. It was not that the establishment rebuffed the idea of Archaic mounds; it was that the prevailing intellectual climate normally prevented the idea from even taking shape or, when the notion did occur, kept it from being widely endorsed.

The conceptual problems with Archaic mounds were underscored by empirical ones. Data from the first Archaic mounds investigated—Amite River mounds (Gagliano 1963:114–115), Banana Bayou Mound (Gagliano 1967), Kieffer (Gibson 1968a:14–15), and Monte Sano (Coastal Environments, Inc. [CEI] 1977:243–246)—were suggestive but not conclusive enough to convince everyone (Figure 1). Usually only the investigators making the claim were believers, and nobody else paid much attention to them.

The main problem with the reputed Archaic mounds that have been tested is that they yield few if any diagnostic artifacts or, in most cases, few artifacts at all. Without artifacts, the burden of proof is placed on radiocarbon dating. However, radiocarbon dating is not a panacea, especially when it is unclear what is being dated.

Being sure of stratigraphic or architectural context is asking a lot when your view is limited to a two inch-wide solid core, the bottom of a 1 × 1-m test pit, or the fresh track of a dozer blade. With the exception of the Banana Bayou Mound in south Louisiana (Brown and Lambert-Brown 1978; Gagliano 1967), testing of these mounds has been limited to a test pit or two, some solid coring, and machine stripping-trenching. No large-scale hand excavations have been done, and, as a result, the stratigraphic/architectural positions of radiocarbon samples are often not as clear as we would like.

This problem is compounded by the advanced soil growth, which has transpired in the fill of these old structures. This problem is especially acute around the lower edges of mounds, where soil horizonation often obscures the mound-ground contact. Mound flanks are where investigators have tended to put their test units so they would not have to dig very far to reach the mound base, but in so doing they chose the very location where the contact is apt to be most pedogenically altered. And if you cannot tell whether a radiocarbon sample comes from the old underlying ground or from the mound fill, then you cannot really tell how old the mound is. Even if you think you can someone will surely remind you that you cannot.

As if these problems are not enough, there are still others, which hamper secure identification of Archaic mounds and which inhibit conversion of agnostics. Most suspected Archaic mounds have not been tested or radiocarbon dated. Untested mounds generally owe their Archaic attribution to nearby surface artifacts or to their total absence. As long as surface collections represent a single component, they can be a persuasive argument, but if collections represent several components, they are not. The absence of artifacts does not make nearly as convincing a case for Archaic origin because some later mounds also lack surface artifacts dating to the period of mound construction (e.g., Crooks [Ford and Willey 1940] and Coral Snake Mound [McClurkan et al. 1980], both Marksville period structures; Figure 1). When you do not know whether artifacts are really absent or just hidden by alluvium, colluvium, or vegetation, the lack of surface materials carries little weight of argument at all. Besides, there is always the possibility that mounds, no matter when they were constructed, were simply located far from residential areas—the so-called vacant ceremonial sites. In such cases, the absence of artifacts

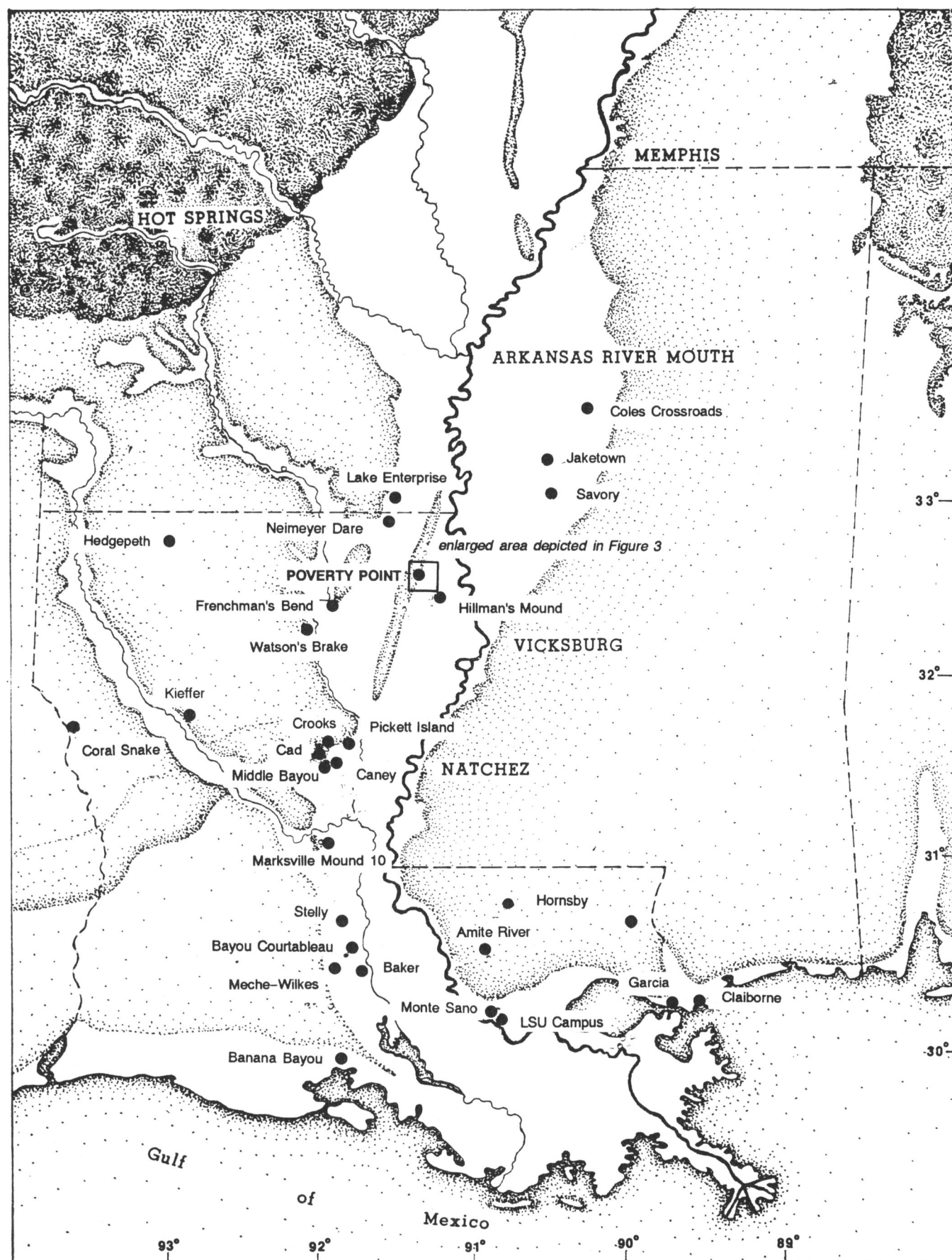


Figure 1. Locations of early mounds in the Lower Mississippi Valley.

would tell us nothing about when the mounds were built.

Nonetheless we should not allow limited data, conceptual and technical problems, and scientific caution to suppress the search for or the vision of Archaic mounds. Good science requires open minds. By the time you add up all the evidences for early mounds, regardless of how circumstantial or inadequate they may be in any given case, they make a substantial argument for pre-Poverty Point Archaic mounds.

Because mounds are generally accepted as integral elements of Poverty Point culture, it is logical to compare them with their presumed Archaic counterparts to see if that brings insight into their nature and if, in turn, that helps in making an Archaic context for the earliest North American mounds more acceptable taxonomically, conceptually, and historically.

Archaic by any Other Name is Still Archaic

Archaic by any other name is still Archaic, and this holds true for Poverty Point culture. Ford (1969) classified Poverty Point as a Formative culture rather than Archaic, but his definition of Formative and the usual definition of Archaic (Willey and Phillips 1958:107–111) are not mutually exclusive. Poverty Point is also attributed to the Gulf Formational Stage (Jenkins and Krause 1986:31–37; Walthall and Jenkins 1976), but Gulf Formational and Archaic are not exclusive terms either, neither culturally nor chronologically. The only change needed to make the chronological position of Poverty Point fit the cultural stage indicated by its artifacts and subsistence patterns is to classify it as Terminal Archaic instead of Late Archaic. That would give us a time slot for every recognized cultural complex.

With these broad taxonomic considerations aside, the problem becomes how to distinguish Poverty Point from older as well as coeval but alien components (cf. Ramenofsky 1986). Later components (post-Poverty Point) are readily distinguishable by the near-universal presence of abundant pottery. However, the mere occurrence of pottery is not an adequate taxonomic criterion since many Poverty Point components also have a little.

Poverty Point components have long been identified by means of Clarence Webb's (1968:Table 2) list of primary, secondary, and tertiary traits. The primary traits include: hand-molded baked clay objects, tubular pipes, baked clay human figurines, stone vessels, microlithic tools (primarily Jaketown perforators), rough greenstone pseudo-celts, plummets made of iron minerals, and polished stone lapidary (especially jasper beads).

The basic difficulty with this trait list guide, as with all trait lists, is that we are not told how many traits or how much of each trait is necessary to have a given

site qualify as a Poverty Point component. Trait lists work normally on a presence or absence basis, or, in Webb's case, on a more than-less than basis. However, even Webb's ordinal list cannot readily distinguish Poverty Point components from earlier Late Archaic or contemporary Terminal Archaic components, which have some of the diagnostic traits. When I complained to Webb about this problem years ago, he was quick to point out:

I grant you that the diagnostic trait lists I defined in 1968 are total culture traits and considerably dependant on the Poverty Point site. But not totally so [and] there would have been a Poverty Point culture (called something else) if Poverty Point site had never culminated. I expected some of you guys to wean away from dependance on my trait list, break it down for the early stage, & define/clarify it considerably. Get going.

Someone . . . will need to formulate the behavioral traits that either replace or expand the material traits to characterize Poverty Point culture. But don't grouse at or throw away what we have used for 2 decades without sticking your neck out with a substitute or addition to clarify. Have at it—I welcome you. No need to wait . . . (Clarence H. Webb, personal communication 1986; Gibson and Gregory 1992).

In spite of Webb's invitation, I have waited, but my solution for taxonomic placement is really little different than I proposed two decades ago (Gibson 1973: 53–57). I would not say that the key for separating Poverty Point from Late and Terminal Archaic components lies in replacing material traits with behavioral ones as much as it has to do with changing the way we look at the relative content and details of collections. This is not an effort to replace one trait list with another. It is something altogether different.

I believe that we can affect a more coherent separation of Poverty Point from other Archaic components by jointly: a) judging concordance on the basis of the most detailed artifact comparisons possible (e.g., cylindrical grooved objects instead of just baked clay objects, Motley points of northern gray flint instead of just projectile points or Motley points of local flint, perforated hematite or magnetite plummets instead of just plummets); b) judging coherence of an artifact collection as an *assemblage* and not as just a group of traits that are present or absent (in other words, making sure that most of the represented types are diagnostically Poverty Point [see Webb 1968:Table 2] and that *most* of the artifacts in the collection fall into these types); and c) finding that a *substantial percentage* of chipped stone artifacts was made of exotic materials and that Crescent Hills chert and northern gray flint were represented among those exotics (Gibson 1992a).

What these taxonomic strictures really do is undo the overly long and broad concept of Poverty Point culture that emerged in wake of Webb's trait list. The pared down and quantitative criteria recommended here do not really narrow the geographic applicability of the taxon appreciably from what we are used

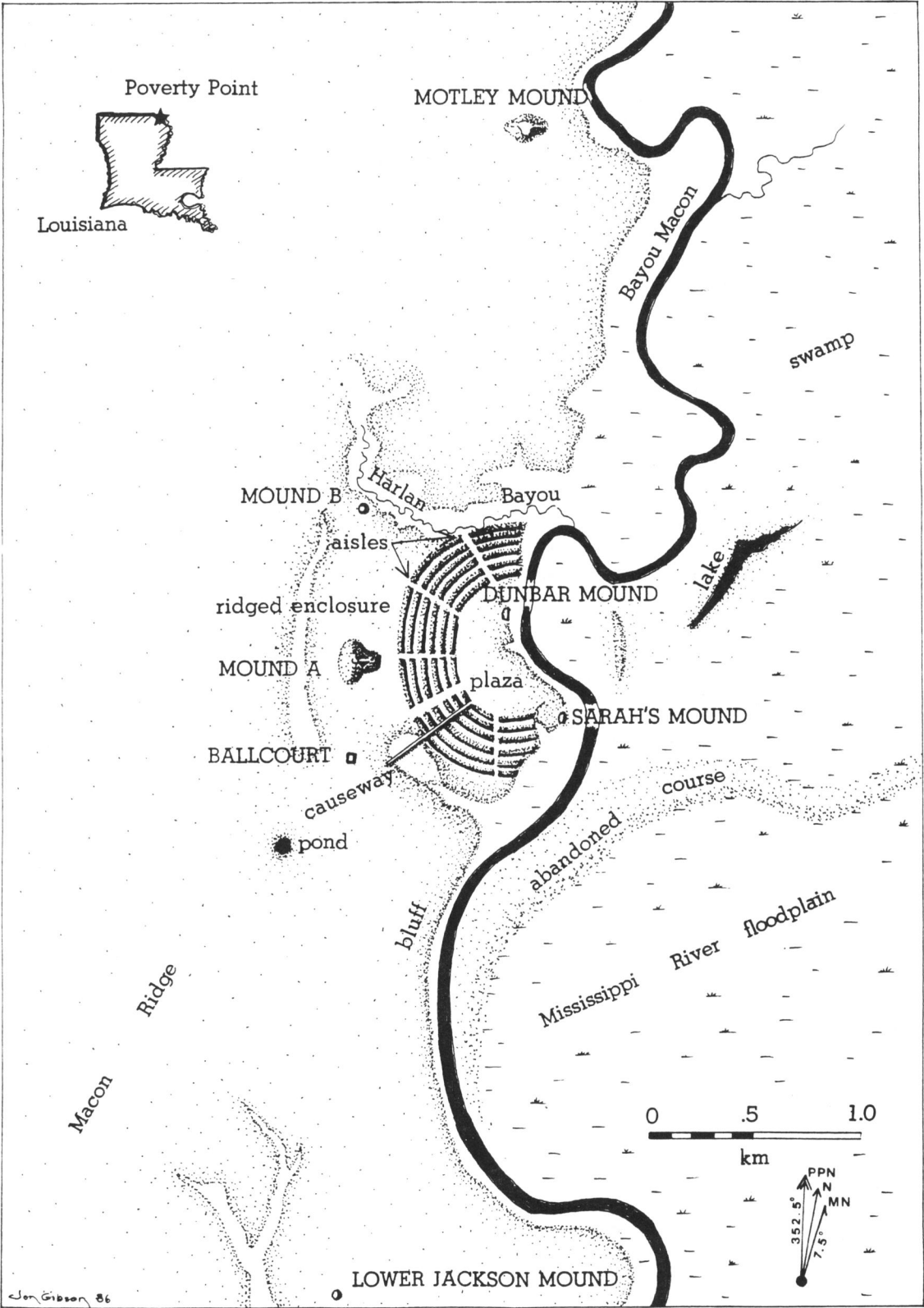


Figure 2. The Poverty Point site.

to (those Lower Mississippi localities within about 300 km of the Poverty Point site itself), but they do restrict its duration to the time when certain Mid-western rocks were being exchanged on a large scale

in the Lower Mississippi Valley. My narrowed view of the Poverty Point taxon means that some of the sites we have previously classified as Poverty Point components must now be classified as Archaic; e.g.,

Caney Mounds (Gibson 1991), Stelly Mounds (Fogleman 1992), Lower Jackson Mound, and others. The Archaic age of Stelly Mounds has recently been confirmed by a radiocarbon date, which shows that construction of at least one of the mounds (Mound B) took place more than 4700 years ago (4720 ± 190 B.P. [Beta 55925]; Russo 1992a), more than 1500 years before the earthworks at Poverty Point were built.

Although cultural classification in and of itself explains little, the measures proposed herein do help us tidy up taxonomy. With them we are less likely to misclassify manifestations dating between 3500–6500 years ago as Poverty Point components. We will not be as apt to classify sites lacking Midwestern exchange materials as Poverty Point sites. We will be more inclined to view Poverty Point sites from functional and organizational viewpoints rather than the perspective of trait lists and historical taxonomy, and we will be more disposed to focus on the role of the Poverty Point site and interregional exchange in cultural articulation and transformation.

Sites with Mounds and Poverty Point Components

The Poverty Point Site. The Poverty Point site is located on the eastern front of Maçon Ridge overlooking Mississippi River swamplands in northeastern Louisiana (Figure 2). Six mounds—A, B, Motley, Dunbar, Sarah's, and Ballcourt—and an elliptical ridged enclosure dominate the site (Ford and Webb 1956:14–19; Gibson 1986:207–232; Moore 1913:64–76; Webb 1982:15–18). The enclosure is composed of six concentric raised earthen rings, which are divided into six compartments by transecting aisles (Figure 2). In addition to the above-ground earthworks, a large amount of dirt was used to level the uneven construction area (Gibson 1986:230–231). The scale of construction here is many times greater than at other sites.

Other Poverty Point Components. In addition to the Poverty Point site, mounds are reported at 15 sites that have Poverty Point components. Most of these sites are located in northeast Louisiana near the Poverty Point site (Figure 3). On Maçon Ridge north of Poverty Point lie Galloway, Head, and Neeley and south of Poverty Point are Marsden, Insley, and Mott (Webb 1982:11). Just west of Maçon Ridge on Bayou Bartholomew is Neimeyer-Dare (Figure 1; Webb 1982:11). In east-central Louisiana is Marksville Mound 10 on the Avoyelles Prairie bluff overlooking Old River (Figure 1; Fowke 1928). Far to the south are Claiborne on the Pearl River estuary in southwest Mississippi (Gagliano and Webb 1970), Garcia on Lake Pontchartrain in southeast Louisiana (Gagliano and Saucier 1963), and Meche-Wilkes Mound (Gibson 1990a) on a low terrace near the Teche Ridge and Baker on Teche Ridge itself in south-central Louisiana (Figure

1). In the Yazoo Basin of western Mississippi are Savory and Coles Crossroads (Webb 1982:12) and Jaketown (Ford et al. 1955), and in Upper Boeuf Basin of southeast Arkansas is the Lake Enterprise Mound (Jackson and Jeter 1994; Figure 1).

Sites with Mounds and Archaic Components

More than a dozen sites in the Lower Mississippi Valley are being touted as having pre-Poverty Point Archaic mounds. These include the following sites in North Louisiana: Lower Jackson Mound on the eastern front of Maçon Ridge (Figure 3; Gibson 1989:67–74; Moore 1913:63–66); Hillman's Mound(s) on the edge of a relict Mississippi River meanderbelt near Tensas Bayou (Saunders et al. 1994); Watson Brake (Jones 1982:121–124, Figure 3) and Frenchman's Bend (Saunders et al. 1994) on the edges of old elevated landforms along the Ouachita River; Hedgepeth (Saunders and Allen 1991; Saunders et al. 1994) on Bayou Darbonne out in the hills west of the Mississippi Valley wall; and Kieffer (Gibson 1968a:14–15) on Saline Bayou along the Red River Valley wall (Figure 1). Other reputed Archaic mound sites include Caney Mounds (Gibson 1979:75–77, 1991:71–74, Figure 3; Hunter 1970:83–86), Pickett Island (Ford 1936:217; Gibson 1968b:88–89, 1973:368–370; Moore 1909:102–103), Cad Mound (Gibson 1968a), and Middle Bayou Mound on the edges of an old terrace in the Mississippi River swampland lying between Catahoula and Larto lakes in east-central Louisiana (Figure 1). Near the western edge of the Mississippi Valley in south-central Louisiana are the Stelly Mounds on a low loess-covered terrace bordering Bayou Petite Prairie (Fogleman 1992; Jones and Shuman 1991:22–39, Figures 6–9); Bayou Courtableau Mounds on Teche Ridge (Gagliano et al. 1978:56–57; Gibson 1990a:117, Table 30; Jones and Shuman 1991:102–108, Figures 32–33); and Banana Bayou Mound on Avery Island, a salt dome in the coastal marshes (Brown and Lambert-Brown 1978; Gagliano 1967:16–19; Figure 1). Along the eastern Mississippi Valley wall in south Louisiana are the Monte Sano Mounds (CEI 1977:243–247; Gibson and Shenkel 1989:9; Haag 1992; Saunders 1994) and the LSU Campus Mounds (Homburg 1991, 1992; Neuman 1985, 1992; Saunders 1994), and further out in the piney woods hills are a number of mound-bearing sites on the Amite River and nearby streams, which have been referred to as the Amite River phase (Gagliano 1963, 1967); the Hornsby Mounds site is included in the Amite River phase (Manuel 1979; Saunders 1994).

Assigning Ages to the Mounds

Poverty Point Mounds. Nearly every one of the possible Poverty Point mound sites has several compo-

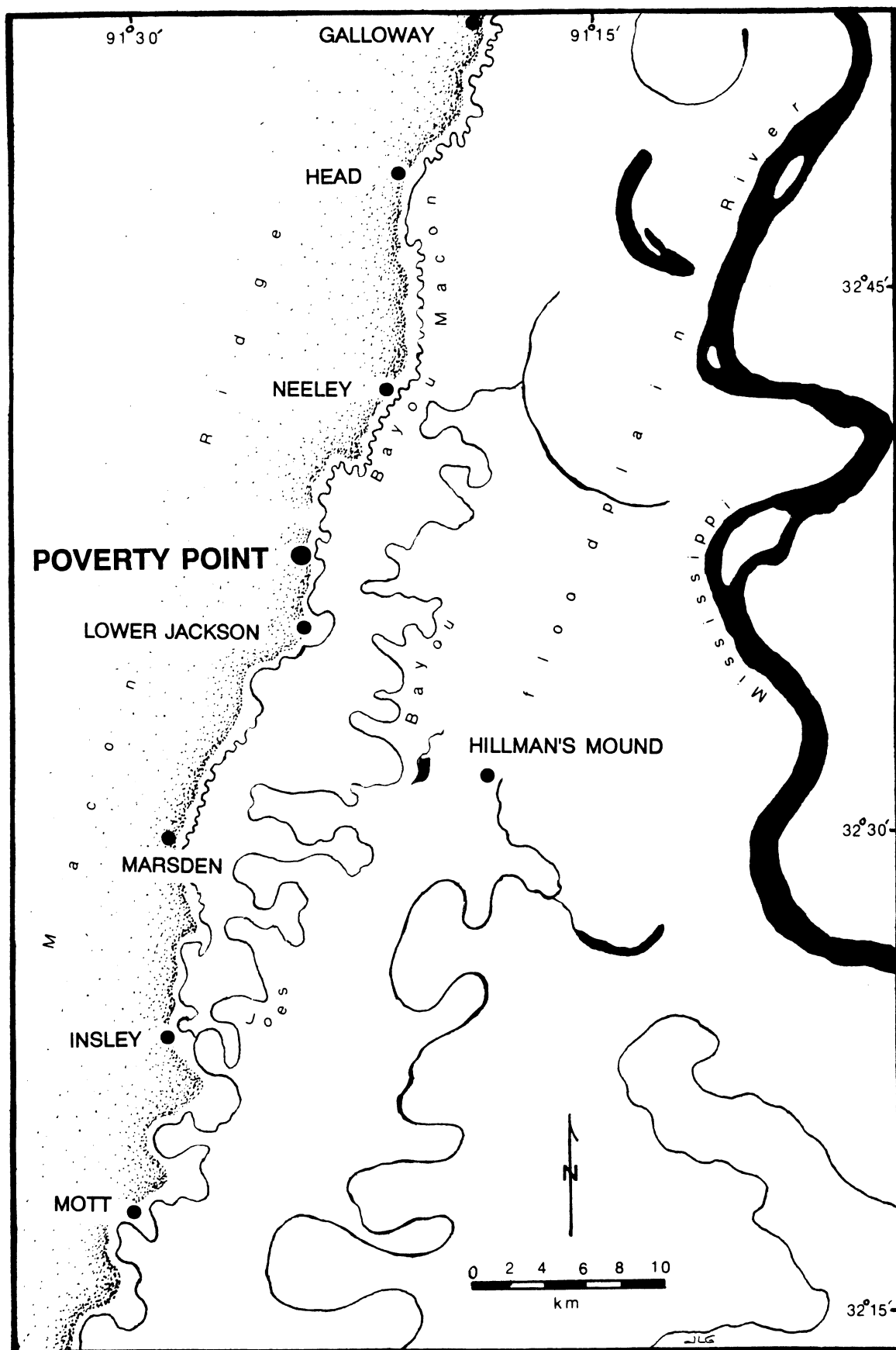


Figure 3. Archaic and Poverty Point mounds near the Poverty Point site.

nents, making it impossible to assign the mounds to the Poverty Point component strictly by artifact association.

Only a few of these mounds have been tested: Mound G at Jaketown (Ford et al. 1955:36–37); mounds B, C, and D at Marsden (Bitgood 1989:Figure 7); mounds 2, 3, 4, 5, 6, 8, 12 (Beyer 1900:28–33) and J at Mott (Gibson 1990b:Figure 4); mounds A and B at Insley (Moore 1913:60–61); Marksville Mound 10 (Fowke 1928; Setzler 1933:Plate 6a–c); Meche-Wilkes Mound (Gibson 1990a:117–118, Tables 26–27); Lake Enterprise Mound (Jackson and Jeter 1994); and mounds A, B, Sarah's, Dunbar, Ballcourt, and Lower Jackson at the Poverty Point site (Ford and Webb 1956:14–19, Figure 2; Gibson 1984:122–153, 1987a:51–66, 1989:12–17, 67–74; Haag 1986:30–31; Moore 1913:67–69).

Of these, only some of the mounds at Poverty Point and Jaketown and Marksville Mound 10, Meche-Wilkes Mound, and Lake Enterprise Mound can be attributed to the Poverty Point period with less than the usual amount of apprehension.

The mounds at Marsden almost certainly do not date from the Poverty Point period but from later Late Marksville and Baytown periods (Bitgood 1989:74). Based on limited testing and collection inventorying by Harvard crews beginning in the 1950s, Kidder (1991:30–35) suggests that the mounds at Head, Neely, and Mott date well after the Poverty Point period and that some of the Insley mounds are probably of Poverty Point origin. Actually Harvard crews did not test the mounds at Insley, Moore did. Harvard crews dug pits in the Insley midden. I suspect Kidder is right in attributing some of the mounds to the Poverty Point component, but, like most of the other sites in question, we need radiocarbon dates from good contexts to prove it. My limited testing of the Lower Jackson Mound located near the massive earthworks at the Poverty Point site (Gibson 1989:67–74) now leads me to favor an Archaic origin for that structure instead of the Poverty Point origin many of us had presumed from the few surrounding artifacts and its seeming north-south alignment with other mounds up at the site center, some 2.8 km to the north (Gibson 1987b:20–21; Webb 1970:9). The artifact association from around the mound, which includes cuboidal baked clay objects, Evans points, a whole soapstone vessel, and a zoomorphic bead but not some of the notable diagnostics, is now believed to predate the Poverty Point period. A small exposure of Poverty Point artifacts occurs a short distance northwest of the mound. I suspect that artifacts from around the mound and the northern exposure had been mixed in private collections and were responsible for assigning the Lower Jackson Mound to Poverty Point culture.

Complicating matters further is the absence of ra-

diocarbon dates. Only Mound B at the Poverty Point site has been dated, and those dates obtained in the 1950s (Ford and Webb 1956) are objectional because they were based on samples from an extensive ash bed at the mound base—an apparently single conflagration, which four radiocarbon assays indicate burned for 811 years (Gibson 1987b:25–27, Table 2). I know southeastern groups maintained perpetual fires, but I think this is a little too long.

Despite the initial radiocarbon dates from the Poverty Point and Jaketown sites (Ford and Webb 1956:117–124, Table 9), which suggested that Poverty Point and Hopewell cultures might have been partly contemporaneous, the latest series of dates from Poverty Point contexts clearly shows that the Poverty Point site predated the primary Hopewellian centers by well over a millennium. Although none of the dates pertain to mound contexts, it is not unreasonable to link the mounds at the Poverty Point site to the time when the rings were being built and the site was experiencing its greatest activity.

The most recently acquired dates from the Poverty Point site can be divided into two groups: one group of 10 ages pertaining to the old occupied ground surface where buried by the artificial rings and the second group of six ages pertaining to ring construction fill itself. The subring dates come from the aisle-separated sectors of the rings. The uncalibrated averages (Stuiver and Reimer 1986) are: North, 3288 ± 44 B.P. (3400 ± 100 B.P. [Tx4968], 3340 ± 60 B.P. [Tx4983], 3130 ± 210 B.P. [Tx4984]; all derived from wood charcoal); Northwest, 3110 ± 70 B.P. (Beta 47965; wood charcoal; Glen S. Greene, personal communication 1991); West, 3229 ± 53 B.P. (3220 ± 80 B.P. [Tx 5544], 3760 ± 720 [Tx 5325], 3230 ± 70 B.P. [Tx 5442]; all based on wood charcoal); Southwest, 2641 ± 485 B.P. (2690 ± 650 B.P. [Tx 5326], 2580 ± 730 B.P. [Tx 5327]; all based on wood charcoal); and South, 2860 ± 220 B.P. (Tx 5328; based on wood charcoal; Gibson 1992c). The second group of dates applies to the fill in the West Sector of the rings. This uncalibrated group averages 3047 ± 33 B.P. (2850 ± 80 B.P. [Beta 62845], 3050 ± 60 B.P. [Beta 62847], 2900 ± 140 B.P. [Beta 62848], 3080 ± 240 B.P. [Tx 5543], 3270 ± 80 B.P. [Tx 5545], 2970 ± 130 B.P. [Tx 5324], 3080 ± 70 B.P. [Tx 5546]; all based on wood charcoal; Gibson 1992c).

A casual glance might lead us to conclude: a) that occupation lasted for about 1200 years (3332–2156 B.P.) or, alternatively, for less than two centuries (3244–3080 B.P.), depending on your preference for a long chronology or a short one—support for both positions can be found in the absolute one-sigma ranges of the radiocarbon averages; b) that occupation sprawled roughly counterclockwise around the area, which was later covered by the rings; and c) that construction of the western rings (the only dated section of the earthworks) followed occupation in the

same area by perhaps more than two-and-a-half centuries or less than a century (3282–3014 B.P. or 3176–3080 B.P.), the western sector of rings being the only section of the site where we have radiocarbon dates for both pre-ring occupation and for ring construction.

None of these conclusions can be confidently asserted because we cannot discount the possibility that *all* radiocarbon dates derive from the *same* population (read *same time*). In other words, we cannot say how long it took to build the Poverty Point earthworks because the current radiocarbon series is statistically indistinguishable (Gibson 1992c). This, of course, does not necessarily mean that Poverty Point was built and occupied for only a short while, but it lets me make that claim with less uncertainty than those who claim that it took a more leisurely 10 to 12 centuries. This conclusion is based on a statistical analysis of radiocarbon dates by means of maximum likelihood ratios/chi-square statistics, which takes into account the unusual circumstance of having known but unequal measurement standard errors (Gibson 1992c).

I must reiterate that none of the recently acquired dates derive from mound contexts, and so we cannot really say how old any of the mounds on the Poverty Point site really are or whether they even belong to the Poverty Point period component for sure. Nevertheless, all of the mounds have been tested, and there is no compelling evidence that they date to any time other than the Poverty Point period. In light of the statistically indistinguishable radiocarbon series, my best guess presently is that they were built during a brief span around 3150 B.P., a time that coincides with the construction of the western rings.

Despite previous claims, radiocarbon dates from other Poverty Point sites (reclassified under present canons) do not extend the Poverty Point period beyond the occupational span of the Poverty Point site itself (Jackson 1986:17–21; Webb 1982:Table 1), with any statistically significant degree of assurance. Furthermore, none of the mounds at other Poverty Point components have been radiocarbon dated, so we cannot tell if the mounds themselves date to the time of the Poverty Point occupation anyway.

In sum then, mounds from only six of the 16 sites with Poverty Point components can be reasonably assigned to the Poverty Point period. These include: Poverty Point, Jaketown, Marksville Mound 10, Lake Enterprise, and Meche-Wilkes. All of the assignments are based on artifact association and not radiocarbon dates. Although I feel safe in concluding that mound building took place during the Poverty Point period, I do not think we can say just yet how widespread or important it was compared to Middle and Late Archaic periods. If it were not for the extraordinary Poverty Point site, there really would be little to distinguish earlier Archaic mounds from Poverty Point

mounds in terms of shape, number, size, arrangement, and construction details.

Archaic Mounds. The rigorous efforts to document claims of Archaic mounds have actually produced a fairly decent radiocarbon chronology, far more substantial than for the Poverty Point period, when mound building is unquestioned. Unicalibrated radiocarbon dates suggest that mounds were being built from the Middle Archaic through the Late Archaic, or from around 6220 to possibly around 2930 B.P. (Gibson and Shenkel 1989:Table 1.1; Russo 1994a). The Hedgepeth Mounds are the oldest known so far (Saunders et al. 1994) and Hornsby, the latest (Manuel 1979), and we have dates for several other sites (Russo 1994a:Table 1). None of the other presumed Archaic mounds have been absolutely dated, and their suspected Archaic affiliation is based on surface artifacts or the lack thereof (although sometimes we do not know whether artifacts are really absent or merely buried).

Shape and Number of Mounds

Mound Sites with Poverty Point Components. Besides the Poverty Point site, only the solitary conical mounds at Lake Enterprise, Marksville Mound 10, and Meche-Wilkes can be attributed to the Poverty Point period without experiencing taxonomic discomfort. At the Poverty Point site, two of the six mounds are thought to be shaped like birds (Figure 4; Ford 1955:471), another is conical (Ford and Webb 1956:33–34), two others are flat-topped platforms (Figure 4; Gibson 1986:213, 215–217), and one is a flat-topped platform possibly capped by a low dome (Figure 4; Gibson 1986:217–219).

Other possible Poverty Point mounds are reported from Galloway, Head, Neeley, Coles Crossroads, Garcia, and Claiborne (Webb 1982:11–12). They are all conical mounds. Twin conical mounds are reported at Neimeyer-Dare (Webb 1982:11); four at Baker, eight each at Savory (Webb 1982:12) and Jaketown (Ford et al. 1955:25), and 10 each at Mott (Beyer 1900) and Insley (Bitgood 1989:Figure 14; Moore 1913:60–66).

Thus, although multiple mounds may have been built at some sites during Poverty Point times, we just cannot prove it at the moment.

Archaic Sites. Single conical mounds are reported at Middle Bayou, Cad, and Banana Bayou; two each at Hedgepeth, Monte Sano, LSU Campus, and Hornsby; three each at Kieffer, Stelly, and Bayou Courtableau; five conical and/or oval mounds at Frenchman's Bend and Pickett Island; six conical mounds at Caney; and 10 conical and oval mounds incorporated in a closed elliptical earthen embankment at Watson Brake.

I am reasonably confident that the mounds at Banana Bayou, Hedgepeth, Monte Sano, LSU Campus, Hornsby, Kieffer, Frenchman's Bend, and Watson

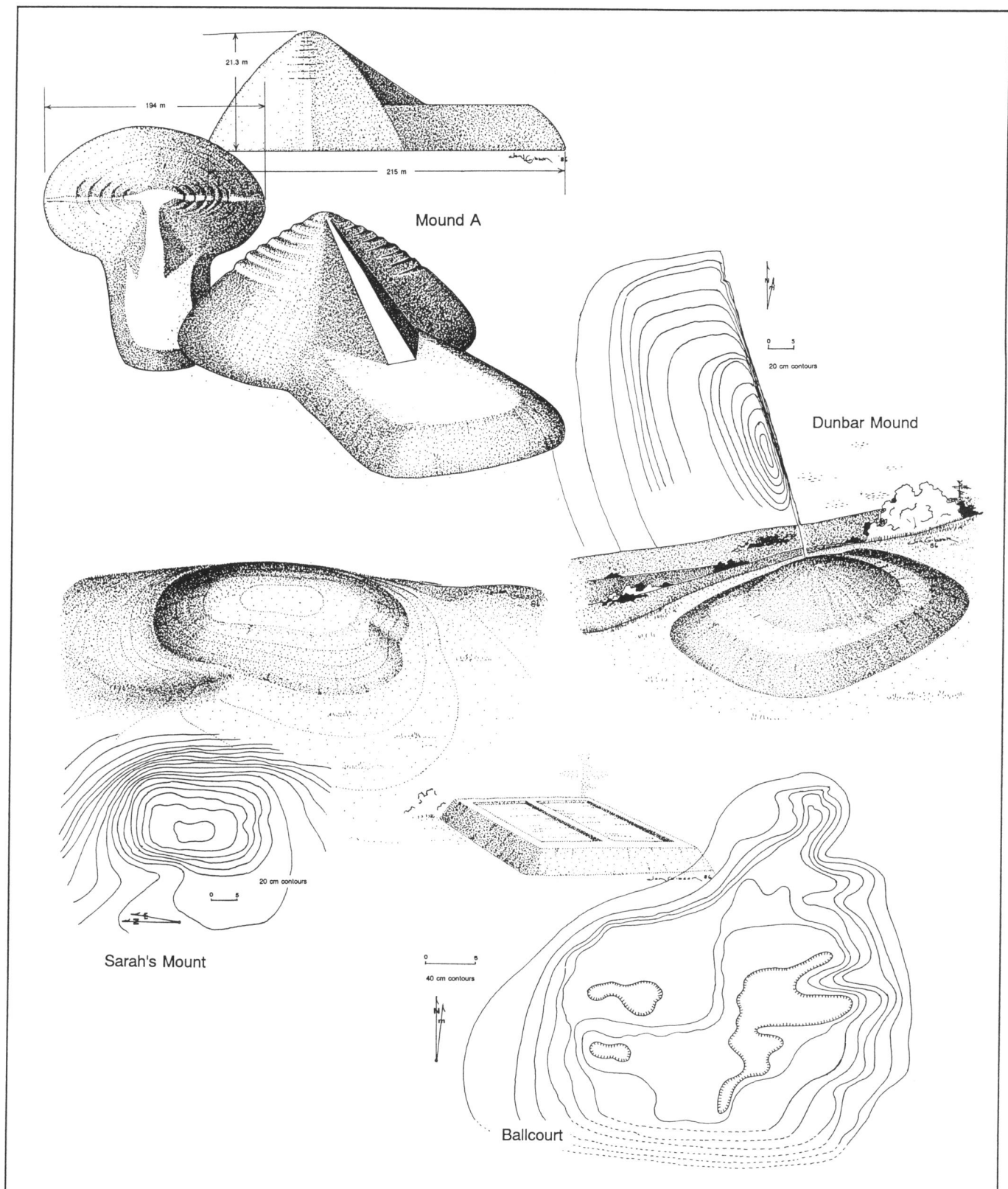


Figure 4. Some of the mounds of the Poverty Point site at various scales and orientations (based on plane table maps by Jon Gibson, except Ballcourt Mound, which was mapped by Mitchell Hillman).

Brake were built during the Archaic period. I strongly suspect that those at Middle Bayou, Cad, Bayou Courtableau, Pickett Island, and Caney are Archaic structures, but investigations and radiocarbon dates are

needed to prove it. The definite Archaic sites have both single and multiple mounds (two to five), and one, Watson Brake, has ten mounds linked by an artificial embankment (Figure 5).

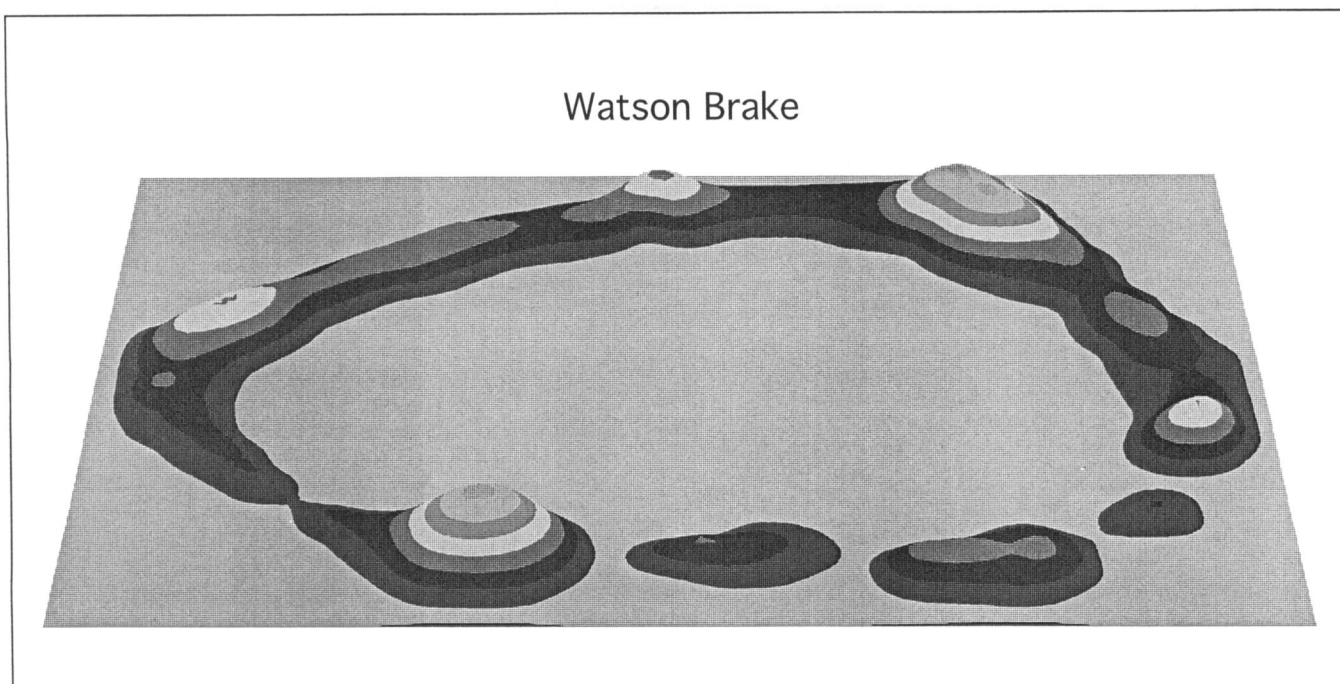


Figure 5. Computerized map of Watson Brake based on sketch map by Reza Jones and John Belmont (produced by Thomas Marckese).

Sizes of Mounds

Poverty Point Sites. Except at the Poverty Point site, the Poverty Point mounds at Jaketown, Lake Enterprise, Marksville Mound 10, and Meche-Wilkes are generally small, ranging from 1 m high and a little over 20 m in diameter to about 2 m high and around 30 m in diameter. The mounds at Poverty Point are larger, much larger. The conical mound (Mound B) is 7.5 m high and 55 m in diameter, but the towering bird mounds measure $23.5 \times 194 \times 216$ m (Mound A) and $15.5 \times 121 \times 170$ m (Motley Mound). Other suspected but unconfirmed Poverty Point mounds fall in the same size range.

Archaic Sites. On the whole, Archaic mounds are larger than Poverty Point mounds. The smallest structures, such as Mound B at Hedgepeth and Mound D at Frenchman's Bend, are only about a meter or so high and 20–25 m in diameter, whereas the largest, such as Mound A at Watson Brake, Hedgepeth Mound A, Hillman's Mound, Monte Sano Mound A, and the LSU Campus mounds, range 5–7 m high and 37–45 m in diameter.

Arrangement of Mounds

Poverty Point. Brecher and Haag (1983) claim that the ridged earthwork layout at the Poverty Point site incorporated various solar and stellar sight lines, although the mounds themselves were not included in their projected alignments. Although only one of the mounds in the Jaketown group has been confirmed

as a Poverty Point mound, the other low mounds are probably so, and they fall in an irregular line along the crest of a ridge.

Because none of the other sites with Poverty Point components have more than one definite Poverty Point mound, we cannot certainly identify any of the mound arrangements as Poverty Point period artifices. However, if they are, then we could have elliptical arrangements at Savory (Webb 1982:Figure 7g), Insley (Bitgood 1989:Figure 14), and Mott (Beyer 1900)—closed ellipses at Insley and Mott and an open-sided one at Savory. This arrangement tends to follow midden arcs. The Baker Mounds were leveled some years ago, and we have not yet determined their original pattern.

Archaic. The layouts of Archaic sites having more than three mounds include arcuate alignments—full elliptical enclosures as at Watson Brake (Figure 5) and ragged lines following escarpments as at Frenchman's Bend. The mound groups at Caney (Figure 6) and Pickett Island also form elliptical (partial) enclosures, but these groups are not certainly Poverty Point. Some of the Caney Mounds are aligned with sunrise positions on the horizon during equinoxes and winter solstices but others do not.

Cultural Contexts, Transformations, and History

What about the cultural contexts of these early mounds? Do they manifest emerging sedentism? Emerging social complexity? Emerging public cere-

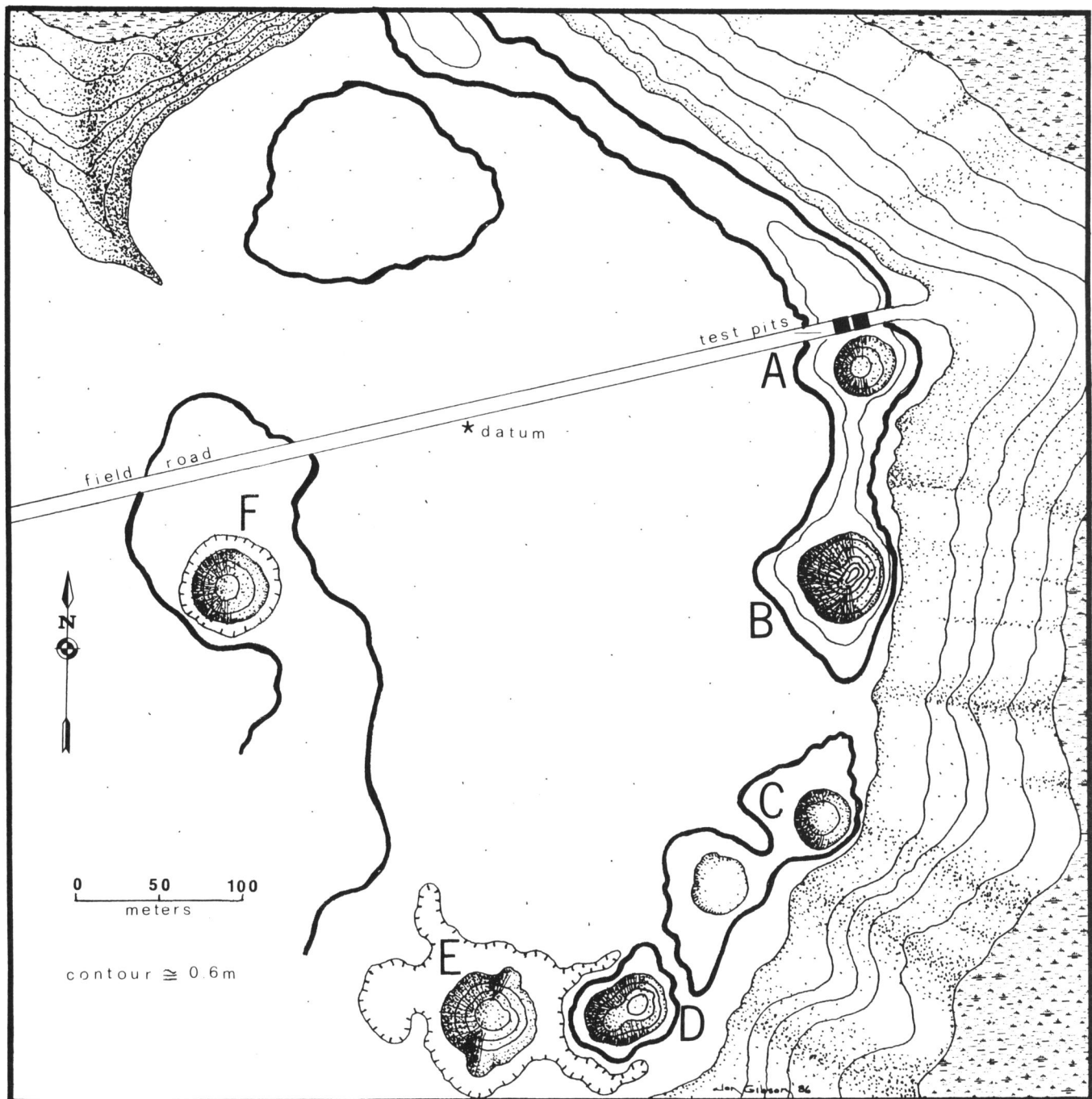


Figure 6. Caney Mounds, based on plane table map by Jon Gibson and Layton Miller.

monialism and the appearance of burial cults? All of these contexts have been envisioned for presumed Archaic mound and rock cairn construction in the Midwest, particularly in Missouri and Illinois (Brown 1983; Brown and Vierra 1983; Charles and Buikstra 1983; Kay 1983; Reid 1983). But was sedentism, complexity, group ceremonialism, and burial cult ritual, singly or collectively, really essential for mound building? Do the cultural contexts of the earliest Archaic mounds in the Lower Mississippi Valley differ from those in the Midwest or from those of Terminal Archaic mounds in the Lower Mississippi Valley, those

of the Poverty Point period? How? Why? Are these cultural contexts peculiar to each time and place or are these factors and transformations historically interconnected—perhaps spinoffs of the information transmission network that drove long-distance exchange systems of the time?

Sedentism. Are the early mounds located at strategic places, where most of the food and other resources could have been gathered year-round? In other words, are they located in places that could have enabled or promoted hunter-gatherer sedentism (Brown and Vierra 1983:170)? In the Lower Mississippi Valley,

exceptional biotic diversity and abundance are usually associated with the walls of the Mississippi Valley and edges of the marsh, or, in other words, along strong ecological seams. Other places in the floodplain or hills also offer bountiful food resources—overflow lakes, for example—which could have supported hunter-gatherer sedentism, but these places are scattered and not as uniformly accessible as valley walls. Living on the edge does not necessarily imply that a population was sedentary, but I am convinced that sedentism was more generally achieved or achieved more frequently by hunter-gatherers who were able to exploit the varied resources along strong ecological edges, especially when those edges incorporated overflow lakes and streams.

A further point about sedentism is that it is a relative condition at best, even among populations that did settle down and adopt logistical foraging. There were probably seasons and perhaps spans of years when residential shifting was the rule. In addition, it is really meaningless and even misleading to generalize from one place to another, even short distances apart, without hard evidence. Poverty Point culture was not a sedentary way of life, but some Poverty Point populations probably were. Late Archaic culture was not uniformly sedentary, but some Archaic populations probably were.

Sites do not have to be located precisely on the seam itself to qualify as candidates for a sedentary pattern; they only need to be nearby, close enough for their economic catchment areas to be draped across the seam. Poverty Point components along Joes Bayou out in the Mississippi floodplain, for example, can be considered as part of a sedentary pattern, even though they are from 2–10 km east of Maçon Ridge bluff.

For the earliest Archaic mounds, location along these seams is not the case consistently. Monte Sano, LSU Campus, Lower Jackson, and Kieffer are located on strong ecological edges—Monte Sano and LSU Campus on the eastern wall of the Mississippi alluvial valley; Lower Jackson on the Maçon Ridge, a high narrow vestige of Pleistocene floodplain surrounded by the modern Mississippi floodplain; and Kieffer, at the margin of the hills and the Red River floodplain. So too is Banana Bayou Mound, which is located in the coastal zone just west of the Mississippi Valley at the interface between brackish marsh and a hardwood-forested salt dome. On the other hand, the Amite River mounds, Hornsby, and Hedgepeth are located on the rims of small stream valleys out in the piney woods hills. Although these upland situations are ecologically sharp, they are narrow and less potentially productive than the edges of major river valleys. This is not to say that they could not have supported relatively permanent settlement for hunter-gatherers. They might have, but I do not think that they could have supported the numbers of people

that the large river or marsh edges would have been able to. Other Archaic mound sites, such as Frenchman's Bend, Watson Break, and Stelly Mounds are located on the edges of old but low terraces down in the floodplain, usually short distances from the Mississippi Valley wall and from the then active Mississippi River. So too are the suspected Archaic mound sites: Caney Mounds, Middle Bayou Mound, and Cad Mound. The probably Archaic Hillman's Mound(s) and Courtableau Mounds lie down in the modern floodplain but are on old relict meanderbelt ridges.

Poverty Point, or Terminal Archaic, mounds, are similarly concentrated along ecological edges, and, like earlier Archaic mounds, they occur on edges of varying strength (Gibson 1973; Webb 1970). The eastern front of the Maçon Ridge bears many of the definite and suspected Poverty Point mound sites (Galloway, Head, Neeley, Poverty Point, Marsden, Insley, and Mott; Figure 3), whereas some occur on the edges of other old high land surfaces fronting the Mississippi Valley (Marksville Mound 10, Claiborne, and Meche-Wilkes Mound), as well as on abandoned meanderbelt ridges of the Arkansas, Ouachita, Sunflower, Yazoo, Mississippi, and other rivers down in the Mississippi floodplain itself (Neimeyer-Dare, Lake Enterprise Mound, Jaketown, Coles Crossroads, Savory, and Baker).

Generally, the less pronounced the edge, the less capable it was of providing the diversity and abundance of critical resources needed to sustain permanent occupations. Many Archaic mounds, especially those out in the hills, like the Amite River mounds and Hedgepeth, do not fall along the strongest ecotones in the Lower Mississippi region. But then some of the Poverty Point mound sites do not occur along the strongest edges either. I question the capability of these weaker edges for supplying the year-round resources needed to sustain sedentary populations, especially sizeable ones. But then, there is no need to assume that sedentism, if really achieved, was uniform across the entire Lower Mississippi region. One group might have been relatively stable, while its neighbors were not. Or a group might have been stable during bountiful periods and transitory during less productive times.

However, if we were to use strength of ecological edge as a measure of possible sedentism, then Poverty Point culture as a whole would seem to have had a somewhat greater potential for sedentism than its Archaic predecessor, strictly because its components were apparently concentrated along the strongest of all ecological edges in the region—the walls of the Mississippi Valley. This does not imply that Poverty Point sites on the valley wall had any greater potential for sedentism than Archaic sites on the wall. What is meant is that Poverty Point sites on the wall had greater potential than Archaic sites off the wall. Pov-

erty Point culture is a Mississippi Valley development, pure and simple. The Archaic is not. It extends from the valley into the hills and from the marsh into the interior.

I have had to examine the case for sedentism in ecological terms because we just do not have data that bear directly on the condition. No mound, Archaic or Poverty Point, has produced sufficient biological residues to enable subsistence to be reconstructed, and thus even our basic assumption that hunting and gathering was the primary means of food provisioning is based on general identification of limited food remains from only a handful of sites and on only one solid analytical study of the Copes site, a nonmound Poverty Point component (Jackson 1986, 1991b). Copes did produce some squash remains, but these are the only cultigens known from Middle, Late, or Terminal Archaic (Poverty Point) contexts in the Lower Mississippi region. Not even the indigenous starchy seed plants thought to have been cultivated in the mid-western Archaic seem to have been important in the Lower Mississippi Valley.

Without these absolutely crucial data, we cannot talk confidently about subsistence strategies, intensification, and other economic factors involved in sedentism. We do not even have data relevant to examining some of the predicted consequences of sedentism—such as the building of substantial houses, the fabrication of greater numbers of other immovable facilities, the planned disposal of trash, and others (Brown and Vierra 1983:170).

There was a 6-m square postmold pattern beneath the largest Monte Sano mound (CEI 1977:243; Gibson and Shenkel 1989:Table 1.1; Haag 1992). Otherwise, we have no evidence for substantial houses on any other Middle or Late Archaic mound component or nonmound component for that matter. However, no houses have been identified on Poverty Point mound components either, except for the Poverty Point site itself. There, excavations in Dunbar Mound disclosed an arc of postmolds, perhaps a section of the wall of a circular building, on the floor of one of the several mound stages (Figure 7; Gibson 1984:130–133). Dunbar Mound has not been conclusively dated to the Poverty Point period, but there are no data to the contrary. Postmolds have also been reported on the rings (Gibson 1987a:148, 1990c:42–49; Goad 1980) and in the central plaza (Gibson 1989:58–61; Haag 1986:16–19), and some of these are very large (Gibson 1987a: Figure 19; Haag 1986:16–19, Figure 6). Unfortunately, no patterns have been recognized or reported. Clay lenses, often encountered in the artificial rings and sometimes described as house floors (Greene 1992), are probably just fill increments designed to seal the piles of silt loam used as building material (Gibson 1990c:47).

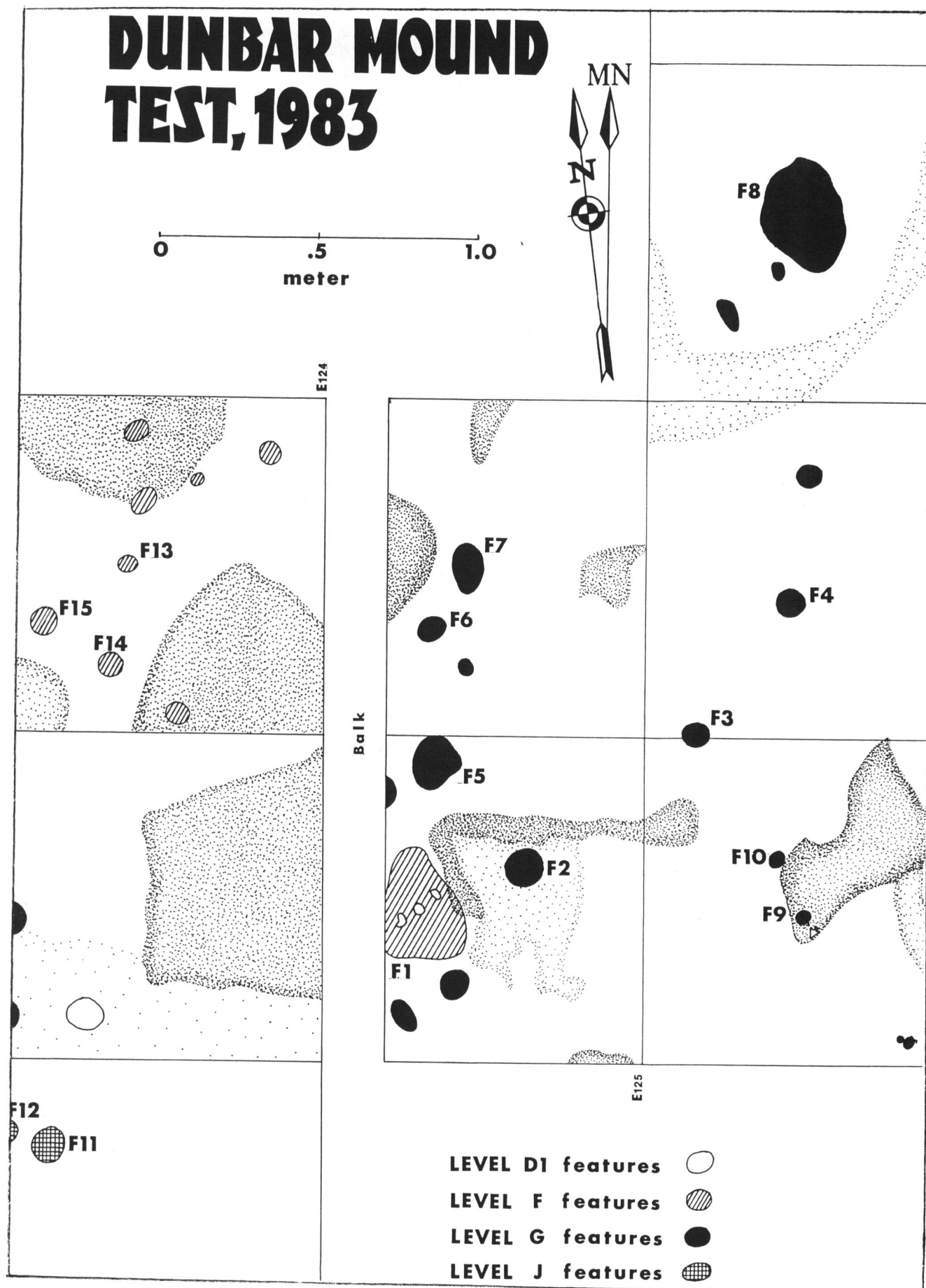
The earthen rings at the Poverty Point site have

been assumed to be elevated foundations for houses belonging to a large permanent population (Ford and Webb 1956:128; Gibson 1973:127–139). This assumption was made before extensive excavations in many parts of the rings failed to turn up the nearly continuous house patterns everyone was expecting. The fairly low incidence of postmolds uncovered by modern excavation does not, however, mean that the ridge crests lacked substantial housing. It does suggest they did not support substantial closely spaced houses while the rings were under construction. Whether they were covered with houses after construction was finished is another matter, one that cannot be certainly resolved because the uppermost levels of the rings have been largely obliterated by more than a century of modern plowing, which would have removed the evidence of ridge-top structures.

Another predicted consequence of sedentism is a large investment in other immovable facilities. Other than at the Poverty Point and Claiborne sites, we have very few comparative data. A number of cache pits from these two sites contain everything from hundreds of kilograms of soapstone sherds (Webb 1944) or several whole vessels (Gagliano and Webb 1970) and stone bead-making materials (R. King Harris, personal communication 1968) to plummet (Robert Pickering, personal communication 1988) and large hafted bifacial foliates (Clarence H. Webb, personal communication 1970). Prepared hearths and earth ovens are also prevalent at Poverty Point and are occasionally reported at other Poverty Point and Archaic mound components, as well as nonmound components. Showing that stationary facilities occur at nonmound sites carries little weight of evidence when trying to demonstrate that mound sites were part of a sedentary pattern. Unless we can figure out what relationships, if any, specific mound sites had with specific nonmound sites, it is not appropriate to use data from one class of sites to characterize the other.

The best evidence for immovable facilities is provided by the mounds themselves. All of the mounds tested to date indicate incremental construction and hence, periodic building (and/or use of different building materials). Some of the interim mound surfaces supported debris-producing activity, which included the raising of wooden structures (Dunbar Mound at the Poverty Point site), the digging of hearths (Frenchman's Bend) and other pits (Jaketown, Kieffer), and the scattering of baked clay fragments (Meche-Wilkes Mound).

The key element here is elapsed time. All of the tested mounds seem to have been built in stages, and those bearing signs of occupational (or ceremonial) activity atop those interim stages clearly indicate that mound facilities were used for a period of time, longer than that normally associated with a once-used



camp site. This is especially true for those sites with more than one mound, and as a general rule, the more numerous the mounds, the longer the span of occupation indicated. This connotes no absolute meaning, because we cannot control for other important factors, such as population size, industriousness, how often and how long builders worked, and other considerations. The presence of two mounds, for example, does not mean that a site was utilized twice as long as a site with a single mound. Length of time can be measured continuously or it can be seen as the sum of repeated episodes over a prolonged span, but whichever the case, we can confidently assume that both Archaic and Poverty Point mounds were places of assembly over relatively considerable periods, longer than if they had been single-stage constructions and single-use events.

Another predicted consequence of sedentary occupation—planned trash disposal—is evident only on the ringed enclosure at Poverty Point, where organically enriched soils line the lower flanks of the rings, sometimes reaching thicknesses of one-half meter. These are the only known locations where organic refuse was purposely discarded, and in this sense, they are unlike the areas of more generalized waste disposal observed on some of the other mound sites.

At best, we have a mixed representation of immovable facilities and other indirect indicators of sedentism at both pre-Poverty Point and Poverty Point mound sites. And generally speaking, the larger mound sites seem to have more indicators than the smaller sites, which may suggest that population size and the involved organizational consequences of larger groups may have contributed as much as or more than length of continuous inhabitation (sedentism) to these conditions. The best case for sedentism, in my opinion, is still the Poverty Point site. Without intensive excavation, the case for sedentism everywhere else is equivocal.

Function. The main problem I have with Archaic and Poverty Point mounds in the Lower Mississippi Valley is trying to figure out what they were used for. It would help, of course, if we had some relevant data, like artifacts, burials, or features from mound contexts. However, this kind of information, which we have come to expect from studying later Woodland and Mississippian mounds, is not readily forthcoming. Although most mounds have not been tested, those that have been are notable for not yielding anything that fits our expectations. We have paradigms for interpreting mounds with things in them,

but we lack any for those that do not. So our problem at the moment is not that we lack data; our problem is that we just do not know what to make of empty mounds, mounds which not only lack diagnostic artifacts but which contain virtually no artifacts at all.

An underpinning of southeastern archaeology is that mounds, especially conical ones, were used for burial. Charles and Buikstra (1983) see the midwestern Archaic practice of interment on highly visible bluff tops and natural knolls as a means of linking people with their ancestors and the land they occupied. Reidhead (1992) expands Charles and Buikstra's interpretation, suggesting a further symbolic role for earthen mounds as places where rituals were publicly enacted in order to proclaim a group's continued rights and claims to the land for all to see, kith and kin and potential contestant alike. In Reidhead's view, public demonstration of these claims was needed to clarify and validate inheritance among emerging lineages, whose ambilineal or patrilineal structure left such matters open. The main problem with viewing early Lower Mississippi mounds in this context is that some, perhaps most, and possibly all of them just do not seem to have been used as burial places.

Of the eight Poverty Point and 10 earlier Archaic mounds that have been tested in some fashion—hand-dug test units, machine excavation, or solid cores—only three have produced possible human remains. An extensive ash bed at the base of Mound B at the Poverty Point site yielded a few, small, burned, and unidentified bones scattered about and a fragment of charred human femur (Ford and Webb 1956:35). Haag (1992) reports "the deposit of some cremation remains on successive episodes on two small earth domes built on a truncated pyramidal mound," in the largest of the Monte Sano mounds, but further details are lacking. After one of the three Kieffer Mounds was skimmed with a bulldozer in 1964, I found tiny pieces of calcined bone, assumed to be human, in several small, oval, and thick-walled basin-shaped pits, dug into the mound surface (Gibson 1968a:14–15). The thick brick-red pit walls suggested intense and prolonged burning had taken place in them, but the lack of ash and charcoal indicated that they had been cleaned out before the bone fragments had been (re)placed in them. Several apparently unburned stone beads were incorporated in the pit fill, and these circumstances led me to suspect that these were human cremations and that the mound was of Archaic age (Gibson 1968a:14). None of the tiny bone fragments have, however, been definitely identified as human.

When only three of 18 tested mounds have pro-

←

Figure 7. Postmolds on tops of various building stages, Dunbar Mound, Poverty Point site (Gibson 1984)

duced what may be human remains, the case for a burial function cannot be considered very strong. Of course, it is conceivable that the wholly inadequate amount of testing just missed the burials or that burials or bones simply were not preserved. However, if cremation or corpse interment had been standard practice in the Lower Mississippi Archaic and if the remains of many people had been interred, then neither lack of preservation nor observation limitations can be held totally accountable for the failure to find remains. Bone fragments can be identified even in a two-inch solid core. I suspect a single core would have been sufficient to detect the burials in every Marks-ville burial mound that has been excavated in the Lower Mississippi Valley. Not so with these Archaic mounds. Until proved otherwise, I think we are simply going to have to accept the lack of human bones as an indication that Archaic mounds in the Lower Mississippi Valley were not primarily used as tombs, although a few contain cremated remains.

What then did the mounds cover, cover up, or symbolically uncover? As I have already noted, Mound B at Poverty Point covered the remains of a fire, a bonfire (Ford and Webb 1956:35). Beneath the largest Monte Sano Mound was the remains of a razed wooden building. Saunders et al. (1994) believe one of the mounds at Frenchman's Bend was built atop a succession of three artificial clay floors, but floors of what is still a question. Mounds at Lower Jackson, Hedgepeth, Caney, LSU Campus, Hornsby, Jaketown G, and Poverty Point (Sarah's, Dunbar, and A and B) were erected over natural or occupational surfaces, or old anthropic epipedons. We have not ascertained what the surfaces were like beneath mounds at Hillman, Insley, Kieffer, Stelly, and Banana Bayou, nor below Marksville Mound 10, Lake Enterprise, or Motley mounds. In spite of data unevenness, we can see that there was little consistency in or preparation of actual building sites themselves. In some cases, the old ground had been occupied, in others, it had not. In some cases, large fires or wood frame buildings preceded the mounds, in others, there was only grass or bare ground. However, in most cases, we are simply unable to tell what the old surface was like.

What about the internal structure of the mounds? Does that give any clues as to mound function? Some of the mounds are comprised of several layers, suggesting to most investigators that building took place accretionally (e.g., Mound G at Jaketown, Dunbar Mound at Poverty Point, Banana Bayou Mound, Monte Sano), but others were apparently built in a single effort. I would caution, however, that continuous building (single stage) using fill from different sources (such as the different soil horizons in a single borrow pit) might be mistaken for separately added mound layers, or stages. Unless a sizeable cross-section of a mound has been exposed and actual internal struc-

tural components (modules) identified, variegated fill should not be taken as proof positive of stage by stage construction.

In addition, just because the top of a mound component bears signs of occupation does not automatically mean that the component represented an interim mound exposed for prolonged periods. If the recognizable activity only involved building fires and discarding a few artifacts or greasy bones, then we might only be looking at an overnight or other short duration activity (Gibson 1992b). On the other hand, if we find that walled buildings were erected on top of the components, we can be more confident that substantial construction lapses occurred. Only Dunbar Mound at the Poverty Point site with its several mound-top buildings indicates lengthy hiatuses between mound-building episodes (Figure 7).

Even sheer size of a mound is not an absolute indicator of lengthy mound-building spans. Lots of people could build a mound much quicker than a few (Gibson 1987b:17-19, Table 1), and because we can not reliably guess about the sizes of mound-building labor crews, we may only confidently view the massiveness of the earth construction at the Poverty Point site as exceeding the normal limits of what might have been accomplished by relatively small groups working for a relatively short time. In other words, all Archaic mounds and mound complexes could conceivably have been built by small groups of sedentary or semisedentary hunter-gatherers working for relatively short total labor times. The earthworks at the Poverty Point site could not. They either took a lot of people or a lot of time, and my view of the radiocarbon chronology is that they took a lot of people (Gibson 1987a:Table 2).

Do the artifacts found within mounds tell us anything more about their nature? The ash, charcoal, fire-cracked rock, baked clay fragments, red ochre, burned animal bone, and chert flakes, which are rarely recovered from the mounds, may only be habitation refuse incidentally incorporated in the fill dirt and may have absolutely nothing to do with mound function. On the other hand, the abundant baked clay objects in the Meche-Wilkes Mound, which actually make up the main part of the mound fill, together with the untempered and fiber-tempered pottery and projectile points, are indicative of some kind of intense mound-top activity (Gibson 1990a:109-111), because baked clay objects are rare or nonexistent in the surrounding midden. The cuboid baked clay object and bone needle in Mound A at Frenchman's Bend (Saunders et al. 1994) may have been intentional placements, and the tubular and barrel-shaped beads of red jasper and other stones at Kieffer Mounds (Gibson 1968a) are almost certainly burial deposits. The zoomorphic bead and large bifacial foliate of exotic gray chert from the largest Monte Sano Mound (Haag

1992) may come from the razed house beneath the mound, but they too could be caches or offerings. Still, with only two or possibly three exceptions, Archaic mounds do not contain specialized mortuary assemblages; they contain regular domestic residue and not even much of that. Most do not contain either.

The inescapable conclusion is that Archaic and Poverty Point mounds in the Lower Mississippi Valley are so different, content- and structure-wise, that no single function seems likely to apply to all of them. On the other hand, they are all above-ground structures and whatever purposes they might have fulfilled for their builders, I suspect they all emerged out of a worldview and symbolism common to many Middle Archaic groups living in the Lower Mississippi Valley and other parts of the Southeast.

Discussion and Conclusions

The essence of this commonality is transmuted and transmitted by the physical nature and location of mounds. Mounds are conspicuous permanent reminders of a group's labor and existence. Whatever rituals might have been enacted on or around them, whatever purposes they may have served, and whatever their *raison d'être*, mounds can be understood as symbols of a community's identity and capacity for common action. That they were above-the-ground, or elevated, features may suggest that they were practical manifestations of the historically widespread cosmological separation of the Upper and Lower Worlds, raising ritual principals above the pollution of the Lower World and the world of ordinary humans (Hudson 1976:121; Lankford 1992:69). By being elevated, mound-top ritual—whether associated with death, birth, marriage, or other rites of passage, or any other ceremonial occasion for that matter—was set apart from the ordinary plane of existence. Having a mound to stand on may have been the simplest and most conspicuous way to make people respect the ritual and its leaders.

It is tempting to link Archaic mounds with the general Muskogean account of creation, which holds that humans and grasshoppers issued forth together from underground through a passage (navel) that opened in top of a mound, whereupon they lay about in the sun until the wet clay of which they were made had dried (Swanton 1931:5–37). Mounds:creation is a logical association (Gibson 1993), especially when one considers that a persistent lapidary object of Middle Archaic through Poverty Point times was a zoomorphic bead, which Webb (1971) likens to adult locusts and their larvae. Locust larvae live underground for 13 years before emerging into the world above, where they spend the next week furiously mating and singing shrilly before dying. John Connaway has been studying these bug beads for years (Connaway 1977,

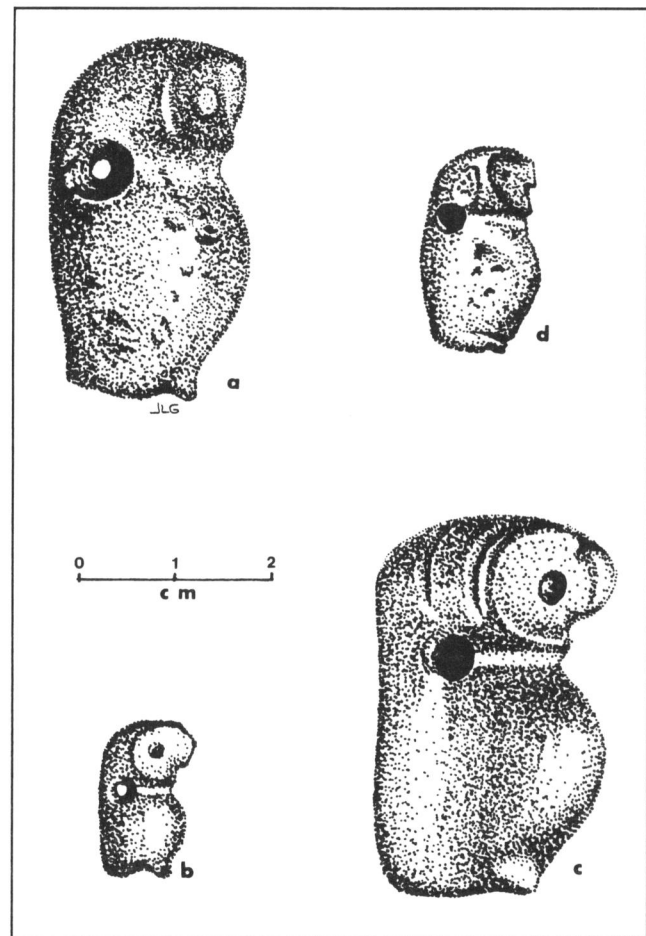


Figure 8. Owl pendants of red stone: (a) bottom of Withlacooche River, west-central Florida; (b) Hebe site, Yazoo Basin, western Mississippi; (c) McMullen site, Bodcaw Bayou, northwestern Louisiana; (d) Owens site, near Poverty Point, northeast Louisiana (drawn by Jon Gibson).

1981), and I think he would quickly tell us that the objects do not all represent insects and furthermore that most of them are not found at sites having early mounds (Connaway 1991).

In fact, bird representations seem to have been the principal iconographic stone artifact, especially later during Poverty Point times (Webb 1982:58). Owls are the only definite group of birds recognized (Figure 8) but a variety of species is probably indicated (Figure 9; Gibson 1993). Birds in historic Muskogean mythology are symbols of death and news bringing (Swanton 1931:198–199, 204, 212, 1946:776, 781).

I suspect these zoomorphic artifacts do have relevance to early mounds contexts, although not to early mound contents, since no zoomorphs have ever been found in them. The pendant recovered during excavations at Monte Sano came from beneath the mound. Some and perhaps even most Middle and Late Archaic mounds, including the ones far from the Mississippi Valley, as well as Poverty Point mounds, are situated near major waterway confluences, on ma-

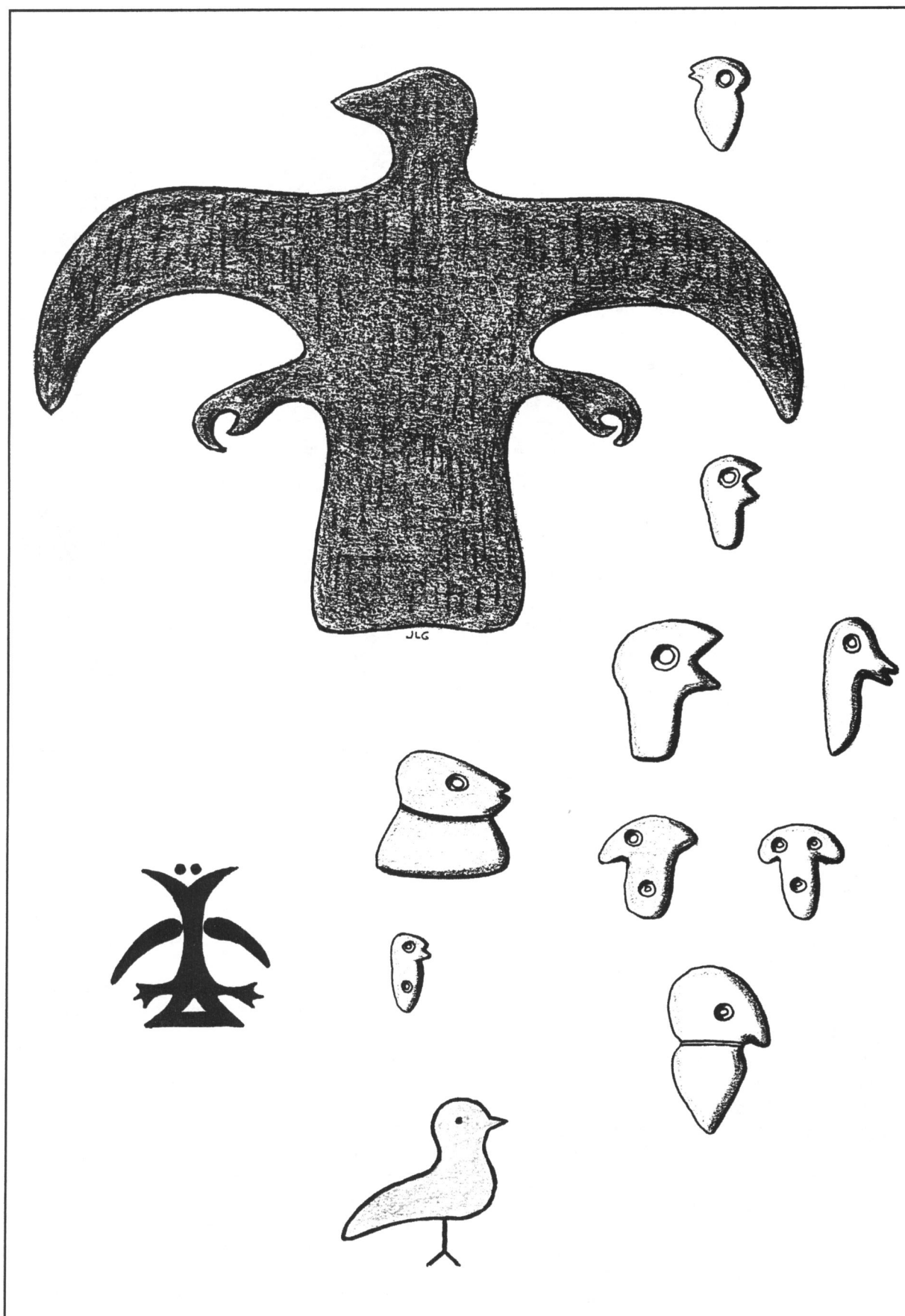


Figure 9. Bird head pendants and bird figure etchings, Poverty Point site (drawn by Jon Gibson).

jor historic (long-used) trails, and often at the conjunction of both. They were, in effect, located at cross-roads, places where news could have traveled far and fast, as if spread by birds, even if those birds were made of stone. There is, of course, no necessary reason why such symbols should have been left around the mounds or buried in them, as they were during Middle Woodland times when entombment may have increased their value by taking the objects out of circulation and raised the statuses of their owners who were able to replace them (Brose 1979). It makes more sense to me for such icons to have freely circulated when social groups were just beginning to close or when intergroup relations were at stake. Buried symbols would probably not work in such circumstances, because they were only important to those who buried them and not to outsiders, who needed to see them to believe.

I can see the seeds of social differentiation and raw economic materialism sprout from the mound tops, regardless of the manner of ritual that sowed them. One of the things that grew out these Middle and Late Archaic mound-building contexts in the Lower Mississippi region was a far-reaching exchange system, which is often accorded culture status—Poverty Point culture. The conduct of exchange was intimately bound to the emergence of a very special and strategic place where much of the exotic material was destined and to the elaboration of social organizational strategies for accommodating large-scale resource distribution, large groups, massive building campaigns, and ritual activities. The place was the Poverty Point site. It can be seen as the consequence of several converging lines of technological, economic, and organizational development, of strategic location, and of human spirit. And mound building, old Archaic mound building, was a salient factor.

Notes

Acknowledgments. Thomas Marckese produced Figure 5.

References Cited (pp. 89–181)

- Allen, Thurman
1989 Stratigraphy. In *Digging on the Dock of the Bay(ou): The 1988 Excavations at Poverty Point*, by J. L. Gibson, pp. 71. Report 8. Center for Archaeological Studies, University of Southwestern Louisiana, Lafayette.
- 1990 Soils: Poverty Point Soils on the Immediate and Locally Surrounding Poverty Point Area. *Louisiana Archaeology* 13:163–200.
- Ammons, J. T., D. L. Newton, J. E. Foss, and W. R. Lynn
1992 Soil Genesis of Two Indian Mound is West Tennessee. *Soil Survey Horizons* 33:38–45.
- Autin, W. J., S. F. Burns, B. J. Miller, R. T. Saucier, and J. I. Snead
1991 Quaternary Geology of the Lower Mississippi Valley. In *Quaternary Nonglacial Geology of Conterminous U.S.*, edited by R. B. Morrison, pp. 547–582. The Geological Society of America, Boulder, Colorado.
- Belmont, John S.
1982 The Troyville Concept and the Gold Mine Site. *Louisiana Archaeology* 9:63–96.
- Bettis, A. E., III
1988 Pedogenesis in Late Prehistoric Indian Mounds, Upper Mississippi Valley. *Physical Geography* 9:263–279.
- Beyer, George E.
1900 Mound Investigations at Lemar, Louisiana. *Publications of the Louisiana Historical Society* 2(3):23–33.
- Birkeland, P. W., M. N. Machette, and K. M. Haller
1991 Soils as a Tool for Applied Quaternary Geology. *Miscellaneous Publication* 91–3. Utah Geological and Mineral Survey, Utah Department of Natural Resources, Salt Lake.
- Bitgood, Mark J.
1989 *The Baytown Period in the Upper Tensas Basin*. Bulletin 12. Lower Mississippi Survey, Peabody Museum, Harvard University, Cambridge, Massachusetts.
- Bouyoucos, B. J.
1962 Hydrometer Method Improved for Making Particle Size Analyses of Soils. *Agronomy Journal* 54:464–465.
- Brecher, Kenneth, and William G. Haag
1983 Astronomical Alignments at Poverty Point. *American Antiquity* 48:161–163.
- Brookes, Samuel O.
1993 Aspects of the Middle Archaic. Paper presented at the annual meeting of the Louisiana Archaeological Society, Lafayette, Louisiana.
- Brose, David S.
1979 A Speculative Model of the Role of Exchange in the Prehistory of the Eastern Woodlands. In *Hopewell Archaeology*, edited by David S. Brose and N'omi Greber, pp. 3–8. Kent State University Press, Kent, Ohio.
- 1993 Changing Paradigms in the Explanation of Southeastern Prehistory. In *The Development of Southeastern Archaeology*, edited by Jay K. Johnson, pp. 1–17. University of Alabama Press, Tuscaloosa.
- Brown, Ian W.
1980 Archaeological Investigations on Avery Island, Louisiana, 1977–78. *Southeastern Archaeological Conference Bulletin* 22:110–118.
- Brown, Ian W., and Nancy Lambert-Brown
1978 Lower Mississippi Survey Petite Anse Project. *Research Notes* 5. Peabody Museum, Harvard University, Cambridge, Massachusetts.
- Brown, James A.
1983 Summary. In *Archaic Hunters and Gatherers in the American Midwest*, edited by James L. Phillips and James A. Brown, pp. 5–10. Academic Press, New York.
- Brown, James A., and Robert K. Vierra
1983 What Happened in the Middle Archaic? Introduction to an Ecological Approach to Koster Site Archaeology. In *Archaic Hunters and Gatherers in the American Midwest*, edited by James L. Phillips and James A. Brown, pp. 165–195. Academic Press, New York.
- Bullen, Ripley P.
1962 Indian Burials at Tick Island. *American Philosophical Society, Yearbook* 1961: 477–480.
- 1978 1961 Excavation of Indian Burials at Tick Island. In *The Tick Island Site, St. Johns River, Florida*. Florida Anthropological Society Publications 10 (*The Florida Anthropologist* 31[2], part 2:20–22). Florida Anthropological Society, Gainesville.
- Bullen, Ripley P., and Adelaide K. Bullen
1976 *The Palmer Site*. Florida Anthropological Society Publications 8 (*The Florida Anthropologist* 29[2], part 2). Florida Anthropological Society, Gainesville.
- Bushnell, Francis F.
1960 The Harris Creek Sites, Tick Island, Volusia County. *The Florida Anthropologist* 21:14–16.

- Byrd, Kathleen M. (editor)
1991 *The Poverty Point Culture: Local Manifestations, Subsistence Practices, and Trade Networks*. Geoscience and Man 29. Louisiana State University, Baton Rouge.
- Caldwell, Joseph R.
1958 *Trend and Tradition in the Prehistory of the Eastern United States*. Memoir 88. American Anthropological Association, Springfield, Illinois.
- Charles, Douglas K., and Jane E. Buikstra
1983 Archaic Mortuary Sites in the Central Mississippi Drainage: Distribution, Structure, and Behavioral Implications. In *Archaic Hunters and Gatherers in the American Midwest*, edited by James L. Phillips and James A. Brown, pp. 117-146. Academic Press, New York.
- Claassen, Cheryl P.
1991 Gender, Shellfishing, and the Shell Mound Archaic. In *Engendering Archaeology: Women and Prehistory*, edited by Joan M. Gero and Margaret W. Conkey, pp. 276-300. Basil Blackwell, Cambridge.
- Coastal Environments, Inc. [CEI]
1977 Cultural Resources Evaluation of the Northern Gulf of Mexico Continental Shelf. Volume I, Prehistoric Cultural Resource Potential. Report submitted to Interagency Archeological Services, Office of Archeology and Historic Preservation, National Park Service, U.S. Department of the Interior, Washington. Copies available from Coastal Environments, Inc., Baton Rouge, Louisiana.
- 1982 An Archaeological Investigation of St. Helena and East Feliciana Parishes, Louisiana. Report submitted to the State of Louisiana, Department of Culture, Recreation, and Tourism, Office of Program Development, Baton Rouge, Louisiana. Copies available from Coastal Environments, Inc., Baton Rouge, Louisiana.
- Connaway, John M.
1977 *The Denton Site, a Middle Archaic Occupation in the Northern Yazoo Basin, Mississippi*. Archaeological Report 4. Mississippi Department of Archives and History, Jackson.
- 1981 The Keenan Bead Cache: Lawrence County, Mississippi. *Louisiana Archaeology* 8: 57-71.
- 1991 "Search . . ." a Raptorial Review. *Newsletter of the Louisiana Archaeological Society* 18(3):3-4.
- Crumley, Carole L.
1987 A Dialectical Critique of Hierarchy. In *Power Relations and State Formation*, edited by T. C. Patterson and C. W. Gailey, pp. 155-169. American Anthropological Association, Washington.
- Daniel, I. Randolph, Jr., and Jay Haviser
1979 Florida Master Site File Report, Tomoka State Park Mounds, Volusia County. Attachment on site file 8VO81, on file, Florida Department of State, Division of Historical Resources, Tallahassee.
- Davis, Dave D.
1984 Perspectives on Gulf Coast Prehistory: A Roundtable Discussion. In *Perspectives on Gulf Coast Prehistory*, edited by Dave D. Davis, pp. 315-332. Ripley P. Bullen Monographs in Anthropology and History 5. University Presses of Florida, Gainesville.
- Douglass, Andrew E.
1881-1885 A. E. Douglass: Florida Diaries (1881-1885). P. K. Yonge Library, University of Florida, Gainesville.
- 1882 A Find of Ceremonial Axes in a Florida Mound. *American Antiquarian and Oriental Journal* 4:100-109.
- 1884 Some Characteristics of the Indian Earth and Shell Mounds of the Atlantic Coast of Florida. *Proceedings: American Association for the Advancement of Science* 31:585-592.
- Erasmus, Charles J.
1965 Monument Building: Some Field Experiments. *Southwestern Journal of Anthropology* 21(4):277-301.
- Espy, Huston, and Associates, Inc.
1989 Cultural Resources Survey of the Darlington Reservoir (Amite River Alternate R-1A), East Feliciana and St. Helena Parishes, Louisiana. Ms. on file, Division of Archaeology, Department of Culture, Recreation and Tourism, Office of Cultural Development, Baton Rouge, Louisiana.
- Fogleman, James A.
1992 Archaic Mounds of South-Central Louisiana. Paper presented at the annual meeting of the Southeastern Archaeological Conference, Little Rock, Arkansas.
- Ford, James A.
1936 *Analysis of Indian Village Site Collections from Louisiana and Mississippi*. Anthropological Study 2. Louisiana Geological Survey, Baton Rouge.
- 1955 The Puzzle of Poverty Point. *Natural History* 64:466-472.
- 1969 *A Comparison of Formative Cultures in the Americas, Diffusion or the Psychic Unity of Man*. Smithsonian Contributions to Anthropology 11. Smithsonian Institution, Washington, D.C.
- Ford, James A., and Clarence H. Webb
1956 *Poverty Point, A Late Archaic Site in Louisiana*. Anthropological Papers Vol. 46, Pt. 1. American Museum of Natural History, New York.
- Ford, James A., and Gordon R. Willey
1940 *Crooks Site, a Marksville Period Burial Mound in LaSalle Parish, Louisiana*. Anthropological Study 3. Louisiana Geological Survey, Baton Rouge.
- Ford, James A., Philip Phillips, and William G. Haag
1955 *The Jaketown Site in West-Central Mississippi*. Anthropological Papers Vol. 45, Pt. 1. American Museum of Natural History, New York.
- Fournerat, W. M., E. B. Millet, E. L. McGehee, J. I. Snead, and M. A. Judice
1984 *Geologic Map of Louisiana* (1:500,000). Louisiana Geological Survey, Baton Rouge.
- Fowke, Gerard
1928 Exploration of the Red River Valley in Louisiana, Archaeological Investigations—II. *44th Annual Report of the Bureau of American Ethnology, 1926-1927*, pp. 399-436. Smithsonian Institution, Washington.
- Gagliano, Sherwood
1963 A Survey of Preceramic Occupations in Portions of South Louisiana and South Mississippi. *The Florida Anthropologist* 16(4): 105-132.
- 1967 *Occupation Sequence at Avery Island*. Coastal Studies Series 22. Louisiana State University Studies. Louisiana State University Press, Baton Rouge.
- Gagliano, Sherwood M., and Roger T. Saucier
1963 Poverty Point Sites in Southeastern Louisiana. *American Antiquity* 28:320-327.
- Gagliano, Sherwood M., and Clarence H. Webb
1970 Archaic-Poverty Point Transition at the Pearl River Mouth. In *The Poverty Point Culture*, edited by Bettye J. Broyles and Clarence H. Webb, pp. 47-72. *Southeastern Archaeological Conference Bulletin* 12.
- Gagliano, Sherwood M., Richard A. Weinstein, Bert Rader, Benjamin A. Small, and Kathleen McCloskey
1978 Cultural Resources Survey of the Teche-Vermilion Conveyance Channel, St. Landry Parish, Louisiana. Ms. on file, U.S. Army Corps of Engineers, New Orleans, Louisiana.
- Gibson, Jon L.
1968a Cad Mound: A Stone Bead Locus in East Central Louisiana. *Bulletin of the Texas Archeological Society* 38:1-17.
- 1968b *Russell Landing: A North Louisiana Phase of the Tchefuncte Period*. M.A. thesis, Louisiana State University, Baton Rouge, University Microfilms, Ann Arbor.
- 1973 *Social Systems at Poverty Point, an Analysis of Intersite and Intrasite Variability*. Ph.D. dissertation, Southern Methodist University. University Microfilms, Ann Arbor.
- 1974 The Tchefuncte Culture in the Bayou Vermilion Basin, South Central Louisiana: A Developmental Case Study. *Bulletin of the Texas Archeological Society* 45:67-95.

- 1975 Fire Pits at Mount Bayou (16CT35), Catahoula Parish, Louisiana. *Louisiana Archaeology* 2:201-218.
- 1979 Perceptions of Atchafalaya Drainage Basin Archaeology. Ms. on file, U.S. Army Corps of Engineers, New Orleans, Louisiana.
- 1984 The Earthen Face of Civilization: Mapping and Testing at Poverty Point, 1983. Ms. on file, Louisiana Division of Archaeology, Baton Rouge.
- 1986 Earth Sitting: Architectural Masses at Poverty Point, Northeastern Louisiana. In *Recent Research at the Poverty Point Site*, edited by Kathleen M. Byrd, pp. 201-237. *Louisiana Archaeology* 13.
- 1987a *The Ground Truth about Poverty Point: The Second Season, 1985*. Report 7. Center for Archaeological Studies, University of Southwestern Louisiana, Lafayette.
- 1987b Poverty Point Reconsidered. *Mississippi Archaeology* 22(2): 14-31.
- 1989 *Digging on the Dock of the Bay(ou): The 1988 Excavations at Poverty Point*. Report 8. Center for Archaeological Studies, University of Southwestern Louisiana, Lafayette.
- 1990a Archaeological Survey of the Mid-Teché Ridge, South Louisiana: From Bayou Gerimond to Bayou Portage Guidry. Ms. on file, Louisiana Division of Archaeology, Baton Rouge.
- 1990b *Island in the Past: Archaeological Excavations at the Francis Thompson Site, Madison Parish, Louisiana*. Report 10. Center for Archaeological Studies, University of Southwestern Louisiana, Lafayette.
- 1990c *Search for the Lost Sixth Ridge: Archaeological Excavations at Poverty Point, 1989*. Report 9. Center for Archaeological Studies, University of Southwestern Louisiana, Lafayette.
- 1991 Catahoula—an Amphibious Poverty Point Period Manifestation in Eastern Louisiana. In *The Poverty Point Culture, Local Manifestations, Subsistence Practices, and Trade Networks*, edited by Kathleen M. Byrd, pp. 61-87. *Geoscience and Man* 29. Louisiana State University, Baton Rouge.
- 1992a Over the Mountain and Across the Sea: Regional Poverty Point Exchange. In *Exchange in the Lower Mississippi Valley and Contiguous Areas at 1100 B.C.*, edited by Jon L. Gibson. Collection of unpublished papers on file with author, Lafayette, Louisiana.
- 1992b *In Helona's Shadow: Excavations in the Western Rings at Poverty Point, 1991*. Report 11. Center for Archaeological Studies, University of Southwestern Louisiana, Lafayette.
- 1992c Poverty Point Chronology: The Long and the Short of It. Paper presented at the 34th Caddo Conference, Bossier City, Louisiana.
- 1993 Religion of the Rings: Poverty Point Iconology and Ceremonialism. In *Mounds, Embankments, and Ceremonialism in the Mid-South*, edited by Richard Walling and Robert Mainfort. Occasional Papers. Cobb Institute of Archaeology, Mississippi State University, State University (in press).
- 1994 Before their Time? Early Mounds in the Lower Mississippi Valley. *Southeastern Archaeology* 13:162-181.
- Gibson, Jon L., and Hiram F. Gregory, Jr. (editors)
 - 1992 *Dr. Webb*. Special Publication 3. Louisiana Archaeological Society, Lafayette.
- Gibson, Jon L., and J. Richard Shenkel
 - 1989 Louisiana Earthworks: Middle Woodland and Predecessors. In *Middle Woodland Settlement and Ceremonialism in the Midsouth and Lower Mississippi Valley*, edited by Robert C. Mainfort, Jr., pp. 7-18. Mississippi Department of Archives and History, Jackson.
- Goad, Sharon I.
 - 1980 1980 Excavations at the Poverty Point Site. Ms. on file, Louisiana Division of Archaeology, Baton Rouge.
- Goggin, John M.
 - 1948 Florida Archaeology and Recent Ecological Changes. *Journal of the Washington Academy of Sciences* 38:225-233.
 - 1952 *Space and Time Perspective in Northern St. Johns Archaeology, Florida*. Yale University Publications in Anthropology 47. Yale University Press, New Haven.
- Greene, Glen S.
 - 1992 The First Complete Structure at Poverty Point: The 1991 Excavations on Ridge 2 Northwest. Paper presented at the annual meeting of the Louisiana Archaeological Society, Baton Rouge.
- Gregory, Hiram F., Lester C. Davis, and Donald G. Hunter
 - 1970 The Terral Lewis: A Poverty Point Activity Facies in Madison Parish, Louisiana. In *The Poverty Point Culture*, edited by Bettye J. Broyles and Clarence H. Webb, pp. 35-46. *Southeastern Archaeological Conference Bulletin* 12.
- Griffin, John W., and Hale G. Smith
 - 1946 Field Notes: V-44. Ms. on file, Florida Museum of Natural History, Gainesville.
- Haag, William G.
 - 1986 Excavations at the Poverty Point Site: 1972-1975. In *Recent Research at the Poverty Point Site*, edited by Kathleen M. Byrd, pp. 1-36. *Louisiana Archaeology* 13.
 - 1992 The Monte Sano Site. Paper presented at the annual meeting of the Southeastern Archaeological Conference, Little Rock, Arkansas.
 - 1993 The Monte Sano Site. Paper presented at the annual meeting of the Louisiana Archaeological Society, Lafayette, Louisiana.
- Hale, H. Stephen
 - 1984 Prehistoric Environmental Exploitation Around Lake Okeechobee. *Southeastern Archaeology* 3:173-187.
- Homburg, Jeffrey A.
 - 1989 Limited Archaeological testing at the LSU Campus Mounds, 16EBR6, East Baton Rouge Parish, Louisiana. Ms. on file, Louisiana Division of Archaeology, Baton Rouge.
 - 1991 *An Archaeological Investigation at the LSU Campus Mounds*. M.A. thesis, Department of Geography and Anthropology, Louisiana State University, Baton Rouge.
 - 1992 Archaeological Investigations at the LSU Campus Mounds. *Louisiana Archaeology* 15:31-204.
 - 1993 Comments on the Age of the LSU Campus Mounds: A Reply to Mr. Jones. *Louisiana Archaeology* 20:183-196.
- House, John H.
 - 1980 Archaic Occupation in the Arkansas River Lowland. *Arkansas Archeological Society, Field Notes* 171:5-10.
- Hrdlicka, Ales
 - 1922 *The Anthropology of Florida*. Publications of the Florida State Historical Society 1. Florida State Historical Society, Deland.
- Hudson, Charles M.
 - 1976 *The Southeastern Indians*. University of Tennessee Press, Knoxville.
 - 1984 Elements of Southeastern Indian Religion. *Iconography of Religions* X, 1. Institute of Religious Iconography, State University Groningen. E. J. Brill, Leiden.
- Hunter, Donald G.
 - 1970 The Catahoula Phase of the Poverty Point Complex in East-Central Louisiana. In *The Poverty Point Culture*, edited by Bettye J. Broyles and Clarence H. Webb, pp. 73-89. *Southeastern Archaeological Conference Bulletin* 12.
- Jackson, H. Edwin
 - 1986 *Sedentism and Hunter-Gatherer Adaptations in the Lower Mississippi Valley: Subsistence Strategies During the Poverty Point Period*. Ph.D. dissertation, Department of Anthropology, University of Michigan. University Microfilms, Ann Arbor.
 - 1991a The Trade Fair in Hunter-Gatherer Interaction: the Role of Intersocietal Trade in the Evolution of Poverty Point Culture. In *Between Bands and States*, edited by Susan A. Gregg, pp. 265-286. Occasional Paper 9. Center for Archaeological Investigations, Southern Illinois University, Carbondale.
 - 1991b Bottomland Resources and Exploitation Strategies during the Poverty Point Period: Implications of the Archaeo-

- biological Record from the J. W. Copes Site. In *The Poverty Point Culture, Local Manifestations, Subsistence Practices, and Trade Networks*, edited by Kathleen M. Byrd, pp. 131-153. Geoscience and Man 29. Louisiana State University, Baton Rouge.
- Jackson, H. Edwin, and Marvin D. Jeter
1991 Late Archaic Settlement and Poverty Point Connections in the Lowlands of Southeast Arkansas: an Initial Assessment. *Mississippi Archaeology* 26:33-55.
- 1994 Preceramic Earthworks in Arkansas: A Report on the Poverty Point Period Lake Enterprise Mound (3AS379). *Southeastern Archaeology* 13:153-162.
- Jahn, Otto, and Ripley P. Bullen
1978 *The Tick Island Site, St. Johns River, Florida*. Florida Anthropological Society Publications 10 (*The Florida Anthropologist* 31[2], part 2). Florida Anthropological Society, Gainesville.
- Jenkins, Ned J., and Richard A. Krause
1986 *The Tombigbee Watershed in Southeastern Prehistory*. University of Alabama Press, Tuscaloosa.
- Jeter, Marvin D., and H. Edwin Jackson
1991 Poverty Point Extraction and Exchange: the Arkansas Lithic Connections. In *Exchange in the Lower Mississippi Valley and Contiguous Areas at 1100 B.C.*, edited by Jon L. Gibson. Collection of unpublished papers on file with editor, Lafayette, Louisiana.
- Jeter, Marvin D., Jerome C. Rose, G. Ishmael Williams, Jr., and Anna M. Harmon
1989 *Archeology and Bioarcheology of the Lower Mississippi Valley and Trans-Mississippi South in Arkansas and Louisiana*. Research Series 37. Arkansas Archeological Survey, Fayetteville.
- Johnson, Gregory A.
1982 Organizational Structure and Scalar Stress. In *Theory and Explanation in Archaeology: The Southampton Conference*, edited by C. Renfrew, M. J. Rowlands, and B. A. Segraves, pp. 389-422. Academic Press, New York.
- Jones, Dennis
1993 The Case of the LSU Campus Mounds Report. *Louisiana Archaeology* 20:169-178.
- Jones, Dennis, and Malcolm Shuman
1986 Archaeological Atlas and Report of Prehistoric Indian Mounds in Louisiana, Vol. 1, East Baton Rouge, East Feliciana, West Feliciana. Ms. of file, Louisiana Division of Archaeology, Office of Cultural Resource Development, Department of Culture, Recreation and Tourism, Baton Rouge.
- 1987 Archaeological Atlas and Report of Prehistoric Indian Mounds in Louisiana, Vol. 2, Ascension, Iberville, Pointe Coupee, St. James, West Baton Rouge. Ms. of file, Louisiana Division of Archaeology, Office of Cultural Resource Development, Department of Culture, Recreation and Tourism, Baton Rouge.
- 1988 Archaeological Atlas and Report of Prehistoric Indian Mounds in Louisiana, Vol. 3, Livingston, St. Helena, St. Tammany, Tangipahoa, Washington. Ms. of file, Louisiana Division of Archaeology, Office of Cultural Resource Development, Department of Culture, Recreation and Tourism, Baton Rouge.
- 1991 Archaeological Atlas and Report of Prehistoric Indian Mounds in Louisiana, Vol. 6, Acadia, Lafayette, and St. Landry Parishes. Ms. of file, Louisiana Division of Archaeology, Office of Cultural Resource Development, Department of Culture, Recreation and Tourism, Baton Rouge.
- Jones, Reca B.
1982 Archaeological Investigations in the Ouachita River Valley, Bayou Bartholomew to Riverton, Louisiana. *Louisiana Archaeology* 10:103-169.
- Kay, Marvin
1983 Archaic Period Research in the Western Ozark Highland, Missouri. In *Archaic Hunters and Gatherers in the American Midwest*, edited by James L. Phillips and James A. Brown, pp. 41-70. Academic Press, New York.
- Kidder, T. R.
1991 New Directions in Poverty Point Settlement Archaeology: An Example from Northeast Louisiana. In *The Poverty Point Culture: Local Manifestations, Subsistence Practices, and Trade Networks*, edited by Kathleen M. Byrd, pp. 27-53. Geoscience and Man 29. Louisiana State University, Baton Rouge.
- Kniffen Fred B., Hiram F. Gregory, and George A. Stokes
1987 *The Historic Indian Tribes of Louisiana: from 1542 to the Present*. Louisiana State University Press, Baton Rouge.
- Kuhn, Thomas S.
1970 *The Structure of Scientific Revolutions*. University of Chicago Press, Chicago.
- Lankford, George E.
1992 "Reysed After There Manner." *The Arkansas Archaeologist* 31:65-71.
- Lauro, James, and Geoffrey R. Lehman
1982 *The Slate Site: A Poverty Point Lapidary Industry in the Southern Yazoo Basin, Mississippi*. Archaeological Report 7. Mississippi Department of Archives and History, Jackson.
- Lehman, Geoffrey R.
1991 Foreign Lithics of the Poverty Point Period in the Yazoo Basin. In *The Poverty Point Culture: Local Manifestations, Subsistence Practices, and Trade Networks*, edited by Kathleen M. Byrd, pp. 187-192. Geoscience and Man 29. Louisiana State University, Baton Rouge.
- Luer, George, David Allerton, Dan Hazeltine, Ron Hatfield, and Darden Hood
1986 Whelk Shell Tool Blanks from Big Mound Key (8Ch10), Charlotte County, Florida: with Notes on Certain Whelk Shell Tools. *The Florida Anthropologist* 39:92-124.
- McClurkan, Burney B., Edward B. Jelks, and Harald P. Jensen
1980 Jonas Short and Coral Snake Mounds: A Comparison. In *Caddoan and Poverty Point Archaeology: Essays in Honor of Clarence Hungerford Webb*, edited by Jon L. Gibson, pp. 173-206. *Louisiana Archaeology* 6.
- McMichael, Alan E.
1982 *A Cultural Resource Assessment of Horr's Island, Collier County, Florida*. M.A. Thesis, Department of Anthropology, University of Florida, Gainesville.
- Manuel, Joe
1979 A Radiocarbon Date from the Hornsby Site - 16SH21. *Newsletter of the Louisiana Archaeological Society* 6(1):18-19.
- 1981 A Key to the Lithic Material of 16SH21 - The Hornsby Site. *Newsletter of the Louisiana Archaeological Society* 8(1):9-22.
- 1983 The Hornsby Site - 16SH21: An Archaic Occupation in St. Helena Parish, Louisiana. Ms. on file, University of Southwestern Louisiana, Regional Archaeological Program Management Unit III, Lafayette.
- 1987 The Antiquity of the Hornsby Mound, A Delta Project 1977-78. Paper presented at the annual meeting of the Louisiana Archaeological Society.
- Marquardt, William H.
1986 Politics and Production among the Calusa of South Florida. Paper presented at the 4th International Conference on Hunting and Gathering Societies, London School of Economics and Political Science, London.
- Michie, James L.
1979 *The Bass Pond Site: Intensive Archaeological Testing at a Formative Period Base Camp on Kiawah Island, South Carolina*. Research Manuscript Series 154. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.
- Milanich, Jerald T., and Charles H. Fairbanks
1980 *Florida Archaeology*. Academic Press, New York.
- Milanich, Jerald T., J. Chapman, A.S. Cordell, S. Hale, and R.A. Marrinan
1984 Toward an Understanding of the Prehistoric Development of Calusa Society in Southwest Florida: Excavations on Useppa Island, Lee County. In *Perspectives on Gulf Coast Pre-*

- history, edited by Dave D. Davis, pp. 258-314. Ripley P. Bullen Monographs in Anthropology and History 5. University Presses of Florida, Gainesville.
- Moore, Clarence B.
1892a A Burial Mound of Florida. *The American Naturalist* 26: 129-145.
1892b Supplementary Investigation at Tick Island. *The American Naturalist* 26:568-579.
1893 Certain Shell Heaps of the St. John's River, Florida, Hitherto Unexplored. *The American Naturalist* 27:113-117.
1894 Certain Sand Mounds of the St. Johns River, Florida, Parts I and II. *Philadelphia Academy of Sciences Journal* 10:88-89, 167-173.
1909 Antiquities of the Ouachita Valley. *Journal of the Academy of Natural Sciences of Philadelphia* 14(1).
1913 Some Aboriginal Sites in Louisiana and Arkansas. *Journal of the Academy of Natural Sciences of Philadelphia* 16(1).
- Morrow, C. A., J. Michael Elam, and Michael D. Glascock
1992 The Use of Blue-Gray Chert in Midwestern Prehistory. *Midcontinent Journal of Archaeology* 17:166-197.
- Morse, Dan F.
1986 The Burkett Point. *Arkansas Archeological Society Field Notes* 208:4-5.
- Nelson, Nels C.
1918 Chronology in Florida. *Anthropological Papers* 22, Part 2:75-103. American Museum of Natural History, New York.
- Neuman, Robert W.
1984 *An Introduction to Louisiana Archaeology*. Louisiana State University Press, Baton Rouge.
1985 Report on the Soil Core Borings Conducted at the Campus Mounds Site (16EBR6), East Baton Rouge Parish, Louisiana. Ms. on file, Museum of Geoscience, Louisiana State University, Baton Rouge.
1992 Report on the Soil Core Borings Conducted at the LSU Campus Mounds Site (16EBR6), East Baton Rouge Parish, Louisiana. *Louisiana Archaeology* 15:1-29.
- Neuman, Robert W., and Jeffrey Allen Homburg
1992 The L.S.U. Campus Mounds and the Meso-Indian Era in the Southeastern U.S. Paper presented at the annual meeting of the Southeastern Archaeological Society, Little Rock, Arkansas.
- Parsons, R. B., W. H. Scholtes, and F. F. Riecken
1962 Soils of Indian Mounds in Northeastern Iowa as Benchmarks for Studies of Soil Genesis. *Soil Science Society Proceedings* 26:491-496.
- Phillips, James L., and James A. Brown (editors)
1983 *Archaic Hunters and Gatherers in the American Midwest*. Academic Press, New York.
- Piatek, Bruce John
1992a Tomoka State Park Survey and Preliminary Excavation Results. *The Florida Anthropologist* 45:326-335.
1992b The Tomoka Point Archaeological Survey. Manuscript on file Tomoka State Park, Florida Department of Environmental Protection, Ormond Beach.
1992c Archaeology and History at Tomoka State Park. *The Florida Anthropologist* 45:314-325.
1994 The Tomoka Mound Complex in Northeast Florida. *Southeastern Archaeology* 13:109-118.
- Powell, G.
1992 Analysis of Feature #2 Organics. Ms. on file, Regional Archaeology Program, Northeast Louisiana University, Monroe.
- Ramenofsky, Ann F.
1986 The Persistence of Late Archaic Subsistence-Settlement in Louisiana. In *Foraging, Collecting, and Harvesting: Archaic Period Subsistence and Settlement in the Eastern Woodlands*, edited by Sarah W. Neusius, pp. 289-312. Occasional Paper 6. Center for Archaeological Investigations, Southern Illinois University, Carbondale.
- Reid, Kenneth C.
1983 The Nebo Hill Phase: Late Archaic Prehistory in the Lower Missouri Valley. In *Archaic Hunters and Gatherers in the American Midwest*, edited by James L. Phillips and James A. Brown, pp. 11-39. Academic Press, New York.
- Reidhead, Van A.
1992 Mounds of the Eastern Woodlands: A Symbolic Approach. Paper presented at the annual meeting of the Southeastern Archaeological Conference, Little Rock, Arkansas.
- Russo, Michael
1991 *Archaic Sedentism on the Florida Coast: A Case Study from Horr's Island*. Ph.D. Dissertation, Department of Anthropology, University of Florida. University Microfilms, Ann Arbor.
1992a 1992 Annual Report for Management Unit 3 Regional Archaeology Program, Department of Sociology/Anthropology, University of Southwestern Archaeology. Division of Archaeology, Department of Culture, Recreation and Tourism, Office of Cultural Development, Baton Rouge, Louisiana.
1992b Chronologies and Cultures of the St. Marys Region of Northeast Florida and Southeast Georgia. *The Florida Anthropologist* 45(2):107-126.
1992c A Proposal for Radiocarbon Dating of Hearth Charcoal from Stelly Mound B, 19SL1. Ms. on file, Louisiana Archaeological Conservancy, Baton Rouge.
1993 1993 Annual Report for Management Unit 3 Regional Archaeology Program, Department of Sociology/Anthropology, University of Southwestern Archaeology. Division of Archaeology, Department of Culture, Recreation and Tourism, Office of Cultural Development, Baton Rouge, Louisiana.
1994a A Brief Introduction to the Study of Archaic Mounds in the Southeast. *Southeastern Archaeology* 13:89-93.
1994b Why We Don't Believe in Archaic Ceremonial Mounds and Why We Should: The Case from Florida. *Southeastern Archaeology* 13:93-109.
- Russo, Michael, and Dana Ste. Claire
1992 Tomoka Stone: Archaic Period Coastal Settlement in East Florida. *The Florida Anthropologist* 45:336-346.
- Sassaman, Kenneth E.
1993 *Early Pottery in the Southeast: Tradition and Innovation in Cooking Technology*. University of Alabama Press, Tuscaloosa.
- Saucier, Roger T.
1963 *Recent Geomorphic History of the Pontchartrain Basin*. Coastal Studies Series 9. Louisiana State University Studies. Louisiana State University Press, Baton Rouge.
1992 The Paleoenvironmental Setting of Northeast Louisiana during the Paleo-Indian Period. *Louisiana Archaeology* (in press).
- Saucier, Roger T., and A. R. Fleetwood
1970 Origin and Chronologic Significance of Late Quaternary Terraces, Ouachita River, Arkansas and Louisiana. *Geological Society of American Bulletin* 81:869-890.
- Saucier, Roger T., and Tristram R. Kidder
1986 Physical Environmental Setting. In *Final Report on Archaeological Test Excavations in the Central Boeuf Basin, Louisiana, 1985*, edited by T. R. Kidder, pp. 8-33. Lower Mississippi Survey, Peabody Museum, Harvard University, Cambridge.
- Saucier, Roger T., and J. I. Snead
1991 *Quaternary Geology of the Lower Mississippi Valley*. Louisiana Geological Survey, Baton Rouge.
- Saunders, Joe W.
1993 1993 Annual Report for Management Unit 2, Regional Archaeology Program, Department of Geosciences, Northeast Louisiana University. Division of Archaeology, Department of Culture, Recreation and Tourism, Office of Cultural Development, Baton Rouge, Louisiana.
- Saunders, Joe W., and Thurman Allen
1991 Evaluation of a Preceramic Mound in Northeast Louisiana. Paper presented at the annual meeting of the Southeastern Archaeological Conference, Jackson, Mississippi.

- 1994 Hedgepeth Mounds: An Archaic Mound Complex in North-Central Louisiana. *American Antiquity* 59:471-489.
- Saunders, Joe W., Thurman Allen, and Roger T. Saucier
1994 Four Archaic? Mound Complexes in Northeast Louisiana. *Southeastern Archaeology* 13:134-153.
- Saunders, Joe W., Thurman Allen, R. Mandel, Roger Saucier, and Recca Jones
1993 Watson Brake (16OU175): a Pre-Poverty Point Mound Complex in Northeast Louisiana. Paper presented at the annual meeting of the Southeastern Archaeological Conference, Raleigh, North Carolina.
- Saunders, Rebecca
1994 The Case for Archaic Mound Sites in Southeastern Louisiana. *Southeastern Archaeology* 13:118-134.
- Schambach, F.
1970 *Pre-Caddoan Cultures in the Trans-Mississippi South: a Beginning Sequence*. Ph.D. dissertation, Department of Anthropology, Harvard University, Cambridge, Massachusetts.
- Schambach, F., and A. M. Early
1982 Southwest Arkansas. In *A State Plan for the Conservation of Archeological Resources in Arkansas*, edited by H. A. Davis, pp. SW1-SW149. Research Series 21, Arkansas Archeological Survey, Fayetteville.
- Scudder, Sylvia J.
1993 *Human Influence on Pedogenesis: Midden Soils on a Southwest Florida Pleistocene Dune Island*. M.A. thesis, Department of Soil and Water Science, University of Florida, Gainesville.
- Sears, William H.
1973 The Sacred and the Secular in Prehistoric Ceramics. In *Variation in Anthropology: Essays in Honor of John C. McGregor*, edited by Donald W. Lathrap and Jody Douglas. Illinois Archaeological Survey, Urbana.
- Servello, Frank A.
1984 Cultural Resources Investigations along Route LA 16 Between Watson and Amite, Vol. 3. Ms. on file, Louisiana Department of Transportation and Development, Baton Rouge.
- Setzler, Frank M.
1933 Hopewell Type Pottery from Louisiana. *Journal of the Washington Academy of Sciences* 23(3):149-153.
- Smith, Bruce D.
1986 The Archaeology of the Southeastern United States: From Dalton to DeSoto, 10,500 B.P.-500 B.P. *Advances in World Archaeology* 5:1-92.
- Smith, Glenn W.
1967 The Hornsby Farm Site. Ms. on file, Coastal Environments, Inc., Baton Rouge, Louisiana.
- Soil Survey Staff
1951 *Soil Survey Manual*. U.S. Department of Agriculture Handbook 18. U.S. Government Printing Office, Washington.
- 1975 *Soil Taxonomy*. U.S. Department of Agriculture Handbook 436. U.S. Government Printing Office, Washington.
- Steponaitis, Vincas P.
1986 Prehistoric Archaeology in the Southeastern United States 1970-1985. *Annual Review of Anthropology* 15:363-404.
- Stirling, Matthew W.
1942 Letter to Harold E. Ryman concerning artifacts from Coatie Island. Letter on file, Historic St. Augustine Preservation Board, St. Augustine, Florida.
- Stuiver, M., and P.J. Reimer
1986 A Computer Program for Radiocarbon Age Calibration. *Radiocarbon* 28:1022-1030.
- Swanton, John R.
1931 *Source Material for the Social and Ceremonial Life of the Choctaw Indians*. Bulletin 103. Bureau of American Ethnology, Washington.
- 1946 *The Indians of the Southeastern United States*. Bulletin 137. Bureau of American Ethnology, Washington.
- Trinkley, Michael B.
1985 The Form and Function of South Carolina's Early Woodland Shell Rings. In *Structure and Process in Southeastern Archaeology*, edited by Roy S. Dickens and H. Trawick Ward, pp. 102-118. University of Alabama Press, Tuscaloosa.
- Tuck, James A.
1970 An Archaic Indian Cemetery in Newfoundland. *Science* 222(6):112-121.
- Twiner, Cindy
1985 Cultural Resources Survey of Verdun-Whitehall, Livingston Parish. Ms. on file, Division of Archaeology, Department of Culture, Recreation and Tourism, Baton Rouge, Louisiana.
- Walthall, John, and Ned J. Jenkins
1976 The Gulf Formational Stage in Southeastern Prehistory. *Bulletin of the Southeastern Archaeological Conference* 19:43-49.
- Waring, Antonio J., Jr.
1977 Fiber-Tempered Pottery and Its Cultural Affiliations on the Georgia-Carolina Coast. In *The Waring Papers: the Collected Works of Antonio J. Waring, Jr.*, edited by Stephen Williams, pp. 253-255. Papers of the Peabody Museum of Archaeology and Ethnology 58. Harvard University, Cambridge.
- Waring, Antonio J., Jr., and Lewis H. Larson, Jr.
1977 The Shell Ring on Sapelo Island. In *The Waring Papers: the Collected Works of Antonio J. Waring, Jr.*, edited by Stephen Williams, pp. 263-278. Papers of the Peabody Museum of Archaeology and Ethnology 58. Harvard University, Cambridge.
- Webb, Clarence H.
1944 Stone Vessels from a Northeast Louisiana Site. *American Antiquity* 9:386-394.
- 1968 The Extent and Content of Poverty Point Culture. *American Antiquity* 33:297-321.
- 1970 Settlement Patterns in the Poverty Point Cultural Complex. In *The Poverty Point Culture*, edited by Bettye J. Broyles and Clarence H. Webb, pp. 3-12. *Southeastern Archaeological Conference Bulletin* 12.
- 1971 Archaic and Poverty Point Zoomorphic Locust Beads. *American Antiquity* 36:105-114.
- 1982 *The Poverty Point Culture* (revised 2nd edition). Geoscience and Man 17. Louisiana State University, Baton Rouge.
- Webb, Clarence H., and Jon L. Gibson
1981 Studies of the Microflint Industry at Poverty Point. In *Traces of Prehistory: Papers in Honor of William G. Haag*, edited by Frederick H. West and Robert W. Neuman, pp. 43-50. Geoscience and Man 22. Louisiana State University, Baton Rouge.
- Webb, William S.
1946 *Indian Knoll*. Reports in Anthropology 4(3). University of Kentucky Press, Lexington.
- Weinstein, Richard A.
1974 *An Archaeological Survey of the Lower Amite River, Louisiana*. M.A. Thesis, Department of Geography and Anthropology, Louisiana State University, Baton Rouge.
- Widmer, Randolph J.
1988 *The Evolution of the Calusa: A Nonagricultural Chieftdom on the Southwest Florida Coast*. University of Alabama Press, Tuscaloosa.
- Willey, Gordon R., and Philip Phillips
1958 *Method and Theory in American Archaeology*. University of Chicago Press, Chicago.
- Williams, Stephen
1991 Poverty Point North and Some Thoughts on Origins. In *The Poverty Point Culture: Local Manifestations, Subsistence Practices, and Trade Networks*, edited by Kathleen M. Byrd, pp. 95-102. Geoscience and Man 29. Louisiana State University, Baton Rouge.