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REPORTS

Late Period Chronology in the Central Mississippi Valley: A Western Tennessee Perspective

ROBERT C. MAINFORT, JR.

Abstract. *Explaining temporal variation in the late period (A.D. 1400–1700) archaeological record of the Central Mississippi Valley is a difficult task. Current interpretations are hampered by a paucity of radiocarbon determinations. Here I present data, both artifactual and radiometric, from western Tennessee that provide perhaps the best currently available contextual and chronometric control for the period of interest in the Central Mississippi Valley. These data, coupled with information published by other researchers, permit important refinements in late period temporal segmentation.*

During late prehistoric and protohistoric times (A.D. 1400–1700), the Central Mississippi Valley (Figure 1) supported one of the largest concentrations of humans in North America (Morse and Morse 1983; Phillips 1970), and this has attracted intense archaeological interest in the area since the nineteenth century (e.g., Holmes 1886; Thomas 1894). In recent years, the late period sites of this region have figured prominently in attempts to reconstruct the route of the de Soto *entrada* (e.g., Young and Hoffman 1993). Drastic population decline in the wake of de Soto has been hypothesized for substantial portions of the study area (e.g., Hoffman 1993; Morse and Morse 1983), although the timing and causes of depopulation remains unclear (e.g., Burnett and Murray 1993). Attention has also been devoted to delineating the settlement patterns within several geographically separated groups of sites, particularly the Nodena and Parkin phases, which are inferred to represent chiefdoms with hierarchical settlement systems (Morse 1989; Morse 1981). The ethnic affiliation of various late period archaeological sites and phases has also been debated (e.g., Hoffman 1990 and Morse 1990).

Unfortunately, broad-scale interpretations of the late period archaeological record in the Central Mississippi Valley are compromised by the lack of a robust chronology. Phillips's (1970:934) statement that "we haven't even begun to understand the nuances of variation, particularly in the chronological dimension, of our insufficiently specific cultural units such as Nodena" remains largely true today (e.g., O'Brien 1994, 1995). For example, there is only a single radiocarbon determination for the entire Nodena phase in northeastern Arkansas (Morse 1989; Morse and Morse 1983), five assays for the Kent phase to the south (House 1993), and virtually no radiometric dates for all of western Tennessee (see below) or northwest Mississippi.

Although a number of specific ceramic vessel forms and decorative motifs, as well as certain lithic artifacts, are associated consistently with late period occupations in the Central Mississippi Valley (e.g., Morse 1989; Morse and Morse 1983; Phillips et al. 1951; Phillips 1970; Price and Price 1990; Williams 1980), more precise dating of sites/components within the Late Mississippian and Protohistoric periods remains a largely unaccomplished goal.

A somewhat arbitrary date of A.D. 1400 is used often to mark the onset of Late Mississippian in the Central Mississippi Valley (e.g., Morse 1989). Sites of this approximate age are identified generally by the presence Parkin Punctated and Barton Incised ceramics, as well as Nodena (willow-leaf) points, although in the Kent phase area (see Figure 1), Nodena points apparently are associated only with post-A.D. 1500 contexts (House 1993). In contrast, middle period Mississippian sites are distinguished by Madison and/or Scallorn points and a paucity of decorated ceramics (Morse 1993; Morse and Morse 1983; see also House 1993).

Williams (1980) has called attention to a number of specific artifact styles and modes that characterize the latest (protohistoric) aboriginal occupations in the study area (i.e., A.D. 1500–1700), which he refers to as the Armorel phase or horizon. These include gadrooned bottles, "teapots," stirrup-necked bottles, ceramic burial urns, compound vessels, vertical appliqué fillets (e.g., Campbell Appliqué) and arcaded handles on ceramic vessels, Nodena points, small, snub-nosed endscrapers, and (rarely) European artifacts. Although Williams's identification of these hallmarks represents a major advance in establishing relative chronology, in the absence of radiometric dates or stratigraphic evidence, temporal relationships within this complex of artifact types and modes remains unclear (e.g., Morse 1993), and it seems unlikely that all of the Armorel markers appeared at the same time.

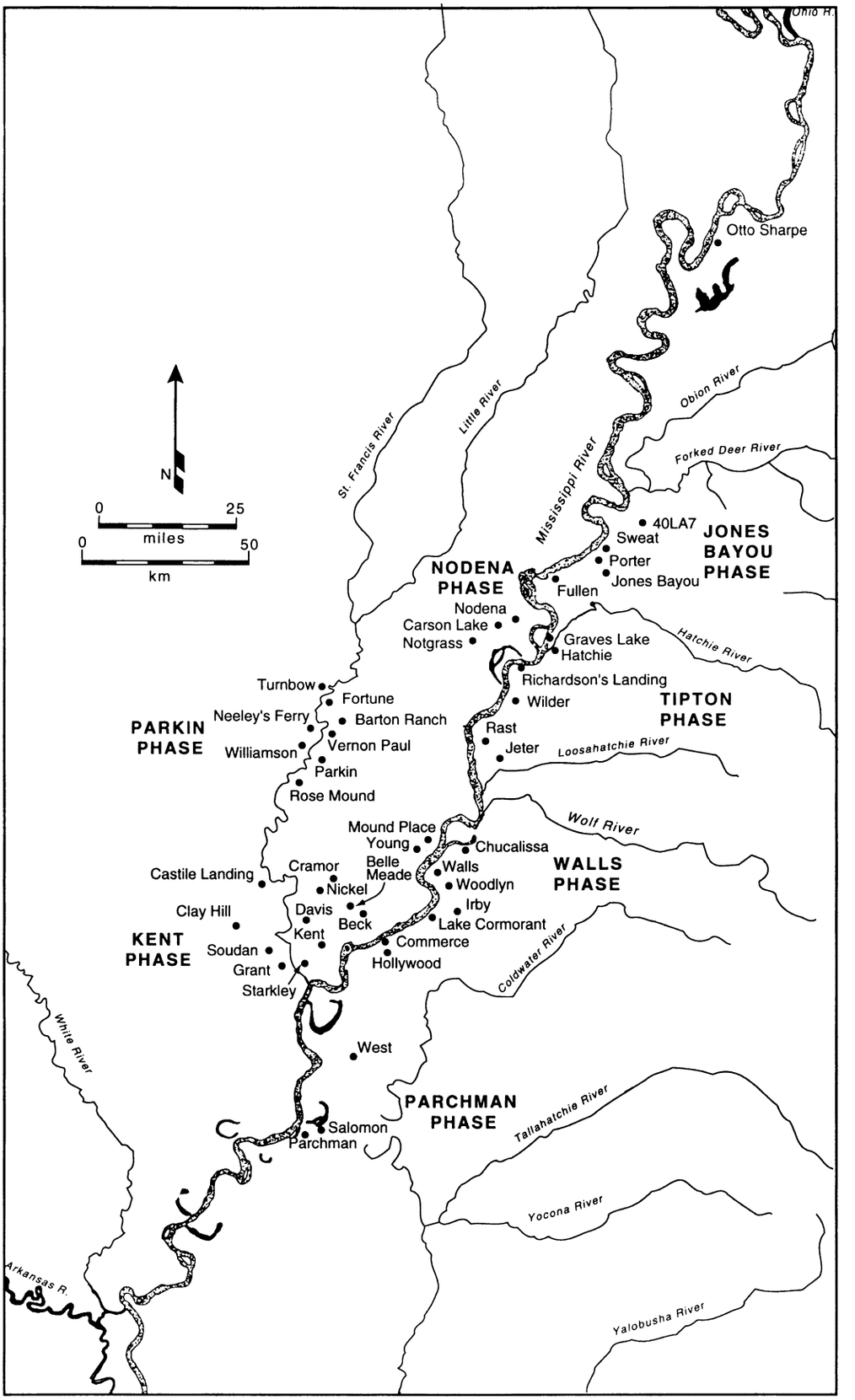

Figure 1. Late period sites and phases in the Central Mississippi Valley.

Artifacts that can be associated confidently with the de Soto *entrada* are potentially excellent horizon markers, but few Spanish (or French) artifacts have been found in the Central Mississippi Valley, precluding establishment of a chronology such as that developed by Marvin Smith (1987) for the interior Southeast. This situation is partially reflected in the somewhat crude chronological scheme used by Ramenofsky (1987) for her Lower Mississippi Valley analysis unit. It goes without saying that Spanish artifacts are not present at all archaeological sites that were occupied at the time of de Soto's wanderings, and while the presence of a Spanish artifact demonstrates post-A.D. 1541 occupation in the study area, the lack of recorded Spanish artifacts does not necessarily have chronological implications.

Here I present data from western Tennessee that provide perhaps the best currently available contextual and chronometric control for the period of interest in the Central Mississippi Valley (Figures 1 and 2). Ceramic and lithic artifacts from late period sites in this area are generally quite similar to presumably contemporary sites in eastern Arkansas, particularly those assigned to the Nodena phase (Mainfort 1994; Morse 1989; Morse and Morse 1983; Williams 1980).

Building on the work of the Morses (e.g., Morse and Morse 1983) and Williams (1980), I use western Tennessee data to develop a refined regional chronology for the Late Mississippian and Protohistoric periods. The discussion that follows relies heavily on artifact assemblages and radiocarbon determinations from four sites. Other pertinent sites have not been ignored, but as will be seen below, there are few truly comparable data sets available in the study area. Importantly, the key artifact types and vessel forms discussed here occur throughout the Central Mississippi Valley.

The sites illustrated in Figure 2 represent all of the recorded, relatively large Late Mississippian/Protohistoric sites in the Mississippi Delta portion of western Tennessee. Although the possibility of unrecorded sites buried beneath alluvium cannot be ruled out, it is fairly likely that, with the possible exception of some recently discovered mounds in the Reelfoot Lake Basin (William Lawrence, personal communication 1995), the illustrated sites probably represent all of the extant large late period sites in this subarea. I make this claim based on the results of survey efforts by myself and others (e.g., G. Smith 1990), as well as the early investigations of Dr. James Hampson (see Williams 1957), who avidly sought out late period sites in eastern Arkansas and western Tennessee.

Within the Central Mississippi Valley, the east and west sides of the Mississippi River presented significantly different adaptive challenges and opportunities for aboriginal populations. West of the river are the broad Eastern Lowlands and the Cairo Lowland of southeast Missouri, much of which lies within the modern Mississippi River meander belt. Major drainage is provided by the St. Francis River and its tributaries, which roughly parallel the Mississippi. To the east, however, the floodplain is comparatively narrow and is flanked by an extensive system of loess bluffs, which provided the setting for several large Mississippian towns, although the floodplain was also utilized.

Today the alluvial soils of the Central Mississippi Valley are highly valued for their agricultural productivity and archaeological evidence suggests that they were also prized by prehistoric farmers. Climate within the study area is characterized by hot summers and relatively mild winters, with a growing season of at least 200 days. Prior to clearing and draining during the last century, the floodplain was covered by vast stands of cypress, ash, hackberry, and gum, with oak and hickory predominating in the uplands (Fisk 1944; Shelford 1963).

Sites, Assemblages, and Radiometric Dates

Located on the loess bluffs about 10 km south of downtown Memphis, Tennessee, Chucalissa (a.k.a. "Fuller" and "Shelby") encompasses a 5-m-tall substructural mound, the remains of a second possible substructural mound/specialized mortuary area, a well-defined plaza flanked by a ridge of house mounds, and various residential loci within an area of approximately 6 ha (Figure 2). The site was excavated on virtually a yearly basis between 1956 and 1987, but relatively little has been published on this research (e.g., Nash 1972); a recent monograph by Lumb and McNutt (1988) and a discussion of the vessel assemblage by Childress (1992) are welcome contributions. The Tennessee Division of Archaeology funded a series of radiocarbon determinations that provide a much firmer basis for interpreting site chronology than the few dates previously published (Lumb and McNutt 1988; Mainfort 1991; Nash 1972; Smith 1972; Smith and McNutt 1991).

Radiocarbon determinations (Table 1) and stratigraphy indicate that Late Mississippian occupation of the site lasted for at least 100 years. Smith and McNutt (1991; see also Lumb and McNutt 1988) suggest that initial Late Mississippian occupation of the site, which they refer to as the Boxtown phase, occurred around A.D. 1250 (calibrated). The Boxtown ceramic assemblage (Lumb and McNutt 1988:120) is said to include Parkin Punctated, Barton Incised, Owens Punctated, and small amounts of Fortune Noded. These types are not typically associated with contexts believed to date prior to A.D. 1350 in the Central Mississippi Valley (e.g., Morse and Morse 1983; see also Lawrence and Mainfort 1993), and I do not believe that an earlier appearance of these types at Chucal-

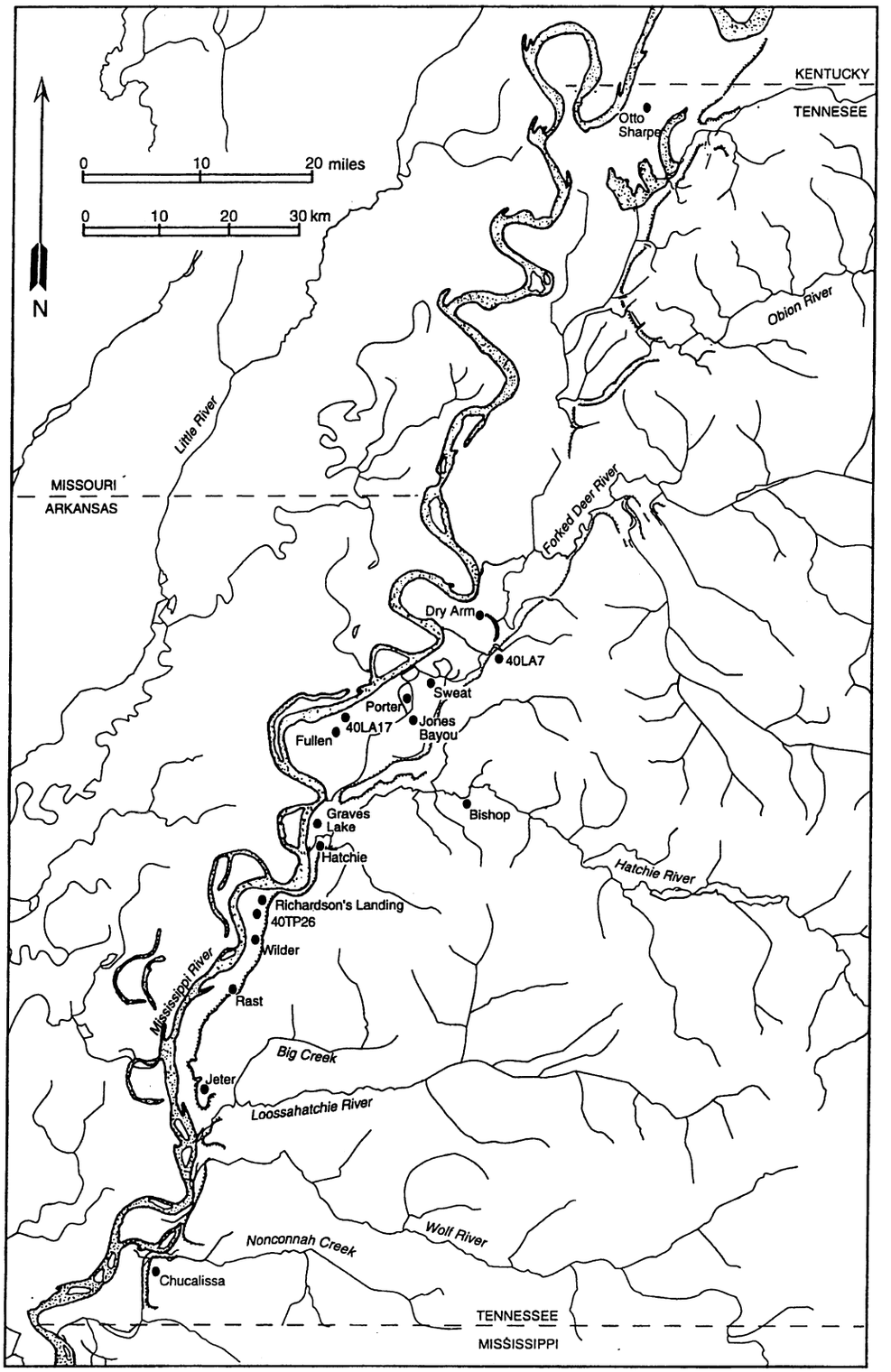

Figure 2. Late period sites in western Tennessee.

issa is supported by either radiometric or stratigraphic evidence (Mainfort 1991, 1994; see also Childress 1992). The penultimate structure of the largest substructural mound has been securely dated to circa A.D. 1430 (calibrated), with use of the site continuing into the early 1500s (Mainfort 1991; Smith and McNutt 1991; see Table 1).

The Chucalissa ceramic assemblage is noteworthy

Table 1. Radiocarbon Determinations from Late Period Sites in Western Tennessee.

Sample ID	Site	Uncorrected Radiocarbon Years B.P.	Calibrated Date (1 sigma)
TX-7784	Otto Sharpe	260 ± 40	A.D. 1632 (1648) 1659
TX-7785	Otto Sharpe	229 ± 40	A.D. 1645 (1656) 1953
Beta-67232	Jones Bayou	370 ± 70	A.D. 1439 (1487) 1637
TX-6079	Graves Lake	280 ± 60	A.D. 1516 (1642) 1659
TX-7194	Graves Lake	520 ± 60	A.D. 1329 (1415) 1435
TX-7195	Graves Lake	480 ± 50	A.D. 1411 (1429) 1442
TX-7196	Graves Lake	390 ± 70	A.D. 1434 (1455) 1629
TX-7197	Graves Lake	500 ± 70	A.D. 1331 (1422) 1442
TX-7486	Graves Lake	320 ± 50	A.D. 1486 (1525, 1563, 1628) 1645
TX-7487	Graves Lake	310 ± 50	A.D. 1490 (1529, 1556, 1634) 1648
Beta-67236	Hatchie	500 ± 60	A.D. 1333 (1422) 1440
TX-7198	Richardson's Landing	530 ± 70	A.D. 1325 (1412) 1435
TX-7199	Richardson's Landing	460 ± 70	A.D. 1412 (1435) 1465
TX-6967	Richardson's Landing	460 ± 70	A.D. 1412 (1435) 1465
M-787	Chucalissa	350 ± 100	A.D. 1440 (1494, 1502, 1506, 1605) 1650
M-788	Chucalissa	360 ± 75	A.D. 1430 (1490) 1650
TX-6173	Chucalissa	470 ± 50	A.D. 1414 (1432) 1444
TX-6174	Chucalissa	490 ± 50	A.D. 1409 (1426) 1440
M-584	Chucalissa	510 ± 100	A.D. 1320 (1418) 1447
TX-6843	Chucalissa	520 ± 70	A.D. 1327 (1415) 1438
TX-6170	Chucalissa	530 ± 50	A.D. 1329 (1412) 1430
I-5780	Chucalissa	540 ± 90	A.D. 1303 (1410) 1437
TX-6171	Chucalissa	600 ± 150	A.D. 1264 (1326, 1353, 1363, 1365, 1389) 1440
TX-6169	Chucalissa	640 ± 60	A.D. 1280 (1300, 1373, 1380) 1393
TX-6172	Chucalissa	710 ± 60	A.D. 1260 (1280) 1377

because of the high frequency of decorated types relative to most other late period sites in the region, suggesting that neither inclusion of the site in the Walls phase, nor identification of the site as a "secondary center" are appropriate (Mainfort 1991, 1994; *contra* Smith 1990; Lumb and McNutt 1988; as well as a number of earlier researchers). Virtually all of the ceramic types traditionally associated with late period occupations in the Central Mississippi Valley are represented (Nodena Red and White, Ranch and Rhodes Incised, Walls Engraved, etc.) (Table 2) and the limited published stratigraphic data suggest that most of these types persisted throughout the major occupation of the site (see Beaudoin 1953; cf. Lumb and McNutt 1988). Of note are several helmet-shaped bowls, which are typically found in post-de Soto contexts, such as the examples from Oliver (Starr 1992) and Kinkead-Mainard (Hoffman 1977). The excavated vessels from Chucalissa are all associated with the uppermost deposits. Also recovered was a Parkin Punctated, *var. Castile* helmet jar with vertical appliqué strips. No gadrooned bottles, teapots, or painted head pots are reported from the site, but a stirrup-necked bottle and several compound vessels have been recovered (Childress 1992; Mitchell Childress, personal communication; personal inspection of collections).

Among the "symbolic" handles reported by Lumb and McNutt (1988:38–41) are three examples of Campbell Appliqué rims (O'Brien et al. 1995). Although not designated as such, the descriptions and the single illustrated specimen (Lumb and McNutt 1988:155) leave little doubt about this identification. Two of the rims were recovered just below the plowzone, while the third was found on the surface. Thus it seems likely that Campbell Appliqué is associated with the latest occupation at Chucalissa, at least as represented in the surviving deposits.

Although the Chucalissa lithic assemblage has not been analyzed or described systematically, Lumb and McNutt (1988) suggest that Nodena points may be associated primarily with the uppermost occupation levels; such a study could provide critical data on the initial adoption of Nodena points. Neither snub-nosed endscrapers, nor large, well-made triangular points have been recovered (Gerald Smith, personal communication 1993; Beaudoin [1953] reports the recovery of some "elongate" triangular points, but it is unclear if these resemble the large triangular points from very late contexts [e.g., Price and Price 1990]; the larger specimens illustrated by Lumb and McNutt [1988:159] do not exhibit the superior workmanship of the distinctive points mentioned by Price and Price [1990]).

Data from a controlled surface collection and limited test excavations at the Graves Lake site (40LA92) in Lauderdale County, Tennessee (Figure 2), complement the artifactual and radiocarbon evidence from

Table 2. Ceramic Sherd Counts from Late Period Sites in Western Tennessee[1].

Site	Missis-sippi Plain	Bell Plain	Parkin Punc-tated	Barton Incised	Kent Incised	Ranch Incised	Old Town Red	Nodena Red and White	Rhodes Incised	Walls En-graved	Vernon Paul Ap-pliqué	Fortune Noded	Total
Otto Sharpe	1,681	274	0	2	8	2	10	0	1	3	0	3	2,188
40LA7	686	133	20	4	0	0	25	0	0	0	0	0	898
Dry Arm	226	54	7	1	0	0	3	0	0	0	0	0	294
Sweat	481	425	33	1	0	2	24	0	0	0	0	0	973
Porter	1,047	515	64	5	1	1	83	1	0	4	1	7	1,780
Jones Bayou	1,423	1,140	87	2	1	2	99	6	0	2	2	0	2,828
40LA17	98	92	5	0	0	0	2	0	0	0	1	0	194
Fullen	504	477	33	5	0	0	70	2	0	2	0	0	1,107
40LA3	150	59	0	0	0	0	10	0	0	0	0	0	221
Graves Lake	1,514	995	51	19	11	30	46	4	3	1	3	1	2,751
Bishop	370	131	9	2	1	0	9	1	2	1	0	0	526
Hatchie	373	388	32	6	4	4	9	0	0	0	1	1	814
Richardson's Landing	492	514	8	2	0	1	23	1	1	3	0	0	1,067
40TP26	77	193	3	0	0	4	20	0	0	0	0	0	299
Wilder	520	650	34	5	4	6	22	3	2	3	0	0	1,266
Rast	617	927	61	2	0	2	12	2	3	6	0	2	1,639
Jeter	363	448	35	2	4	1	10	2	1	4	0	1	874
Chucalissa	3,190	2,748	870	78	26	49	21	11	12	48	0	22	7,129

[1] Most counts for western Tennessee sites are based on collections housed by the Tennessee Division of Archaeology. Reanalysis of collections housed at the C.H. Nash Museum-Chucalissa (cf. Smith 1990) provided additional data for several sites. Sherd counts from Chucalissa were taken from Lumb and McNutt (1988). G. Smith (1990) incorrectly indicates that site 40LA3 is Late Mississippian and it is included here to document the lack of late period types. Row totals include miscellaneous shell-tempered sherds not tabulated here.

Chucalissa. The site occupies approximately two hectares of a low erosional remnant at the southern terminus of the First Chickasaw Bluff system. No mounds are present and occupation deposits are relatively shallow (Mainfort 1991, 1992).

The Graves Lake ceramic assemblage is fairly typical of late period sites in the Central Mississippi Valley (Table 2). Parkin Punctated is the most common decorated ceramic type, including a single specimen of *var. Castile*. Less numerous is Barton Incised, with nearly equal amounts of *var. Barton* and *var. Kent*; Ranch Incised, defined on the basis of curvilinear "fish scale" designs, outnumbers Barton Incised. Minority types include Vernon Paul Appliqué, Campbell Appliqué, Nodena Red and White, Rhodes Incised, and Walls Engraved. The occurrence of vertical appliqué is noteworthy, as this mode is associated with post-A.D. 1500 assemblages in the study area.

Among the whole and partially restorable ceramic vessels recovered during test excavations at Graves Lake are two helmet bowls, a small Kent Incised jar with a herringbone motif and punctated symbolic handles, and a fragment of a gadrooned bottle. A Rhodes Incised "cat-serpent" vessel was recovered from the site by an avocational archaeologist (Hathcock 1988, Perino 1961; the provenience is given as "Gray's [sic] Lake site"). Two fragmentary Kent Incised jars were associated with a house (House 2) that had been rebuilt several times.

All of the identified projectile points are subtriangular to triangular types, including Madison, Nodena, and a Sand Mountain. Several long triangular points identified as Madison are similar to specimens from the Otto Sharpe site (discussed below). A single snub-nosed endscraper fragment was also collected; this distinctive artifact type has been recorded at only two other sites in west Tennessee (Mainfort 1991).

The seven radiocarbon determinations obtained for the late prehistoric/Protohistoric component at the Graves Lake site are presented in Table 1. The calibrated dates may define two distinct periods in the occupational history of the site, although all overlap circa A.D. 1450 at two sigma. Four calibrated dates (those from the House 1 and 2 areas) cluster tightly around A.D. 1430; this seems to be a reasonable age for most of the ceramics from the controlled surface collection, especially in light of the calibrated dates from Chucalissa discussed above. Three other dates provide evidence of occupation during or after the de Soto horizon. The gadrooned bottle, Campbell and Vernon Paul Appliqué sherds, large triangular points, and the snub-nosed endscraper fragment seem consistent with this temporal placement (Lawrence and Mainfort 1995; Williams 1980).

In 1990, surface collections and limited testing were conducted at the Richardson's Landing site, in Tipton County, Tennessee (Mainfort 1991). This and several nearby sites are best known through the work of Stephen Williams (e.g., 1980) with collections from the Hampson Museum in Wilson, Arkansas.

Covering an area of approximately one hectare, Richardson's Landing is located on a major bend of the

Mississippi River several kilometers west of the Second Chickasaw Bluff system (Figure 2). The ceramic assemblage from general surface collections (Table 2) is similar to that from the Graves Lake site, but with lower frequencies of decorated types, such as Parkin Punctated and Barton Incised; Kent Incised, Vernon Paul Appliqué, and Campbell Appliqué have not been found at Richardson's Landing. Lithics include Nodena and Madison points, a number of flaked chert adzes or gouges, and a ground basalt celt.

Two charcoal samples associated with the remains of a house returned a calibrated average date of A.D. 1408 (1424) 1439, and charcoal from an ash-filled pit produced a calibrated date of A.D. 1412 (1435) 1465 (Table 1). The dates for Richardson's Landing derive from only two features at a moderately large site and must therefore be interpreted with some caution, but they are generally consistent with those from Chucalissa and Graves Lake.

Single radiometric assays have been obtained from two other Late Mississippian sites in western Tennessee (Table 1). The Hatchie site (40TP1), located 3 km south of Graves Lake near the mouth of the Hatchie River (Figure 2), covers at least five hectares. No mounds are reported or currently visible (*contra* Smith 1990:151; a map on p. 152 correctly indicates the site location as "village w/o mound"). An unknown, but probably substantial, amount of the site has been destroyed by the meandering channel of the Hatchie River. A large sample of wood charcoal recovered from the remains of a probable house floor exposed in the cut bank produced a calibrated radiocarbon date of A.D. 1333 (1422) 1440.

Although the ceramic assemblage from the Hatchie site is smaller than that from Richardson's Landing, decorated types (especially Parkin Punctated) are more numerous; Kent Incised and Vernon Paul Appliqué, neither of which are represented in the Richardson's Landing collections, are present at the Hatchie site (Table 2).

The Jones Bayou site (40LA4) is located in the Lauderdale County, Tennessee, bottomlands, adjacent to the cut-off channel from which the site takes its name (Figure 2). Within an area of at least five hectares are a habitation area, a cemetery, and the remains of a substructural mound (cf. Smith 1990:153). With the exception of Parkin Punctated and Old Town Red, decorated types are poorly represented in the ceramic assemblage (Table 2). A large sample of wood charcoal obtained from the uppermost surviving summit of the mound yielded a calibrated radiocarbon date of A.D. 1439 (1487) 1637. At least 2 m of fill (presumably including several summits) have been removed from the mound, so if this date is accurate, it is likely that occupation at the Jones Bayou site continued into the 1500s.

The latest known aboriginal occupation in western Tennessee is documented by excavations at the Otto Sharpe site, near Reelfoot Lake in the extreme northwestern corner of the state (Figure 2) (Lawrence and Mainfort 1995; in this publication the site name is incorrectly given as "Otto Sharp"; see also O'Brien et al. 1995). The site covers a minimum of four hectares within a virtually level portion of the Mississippi River floodplain. Limited testing yielded a large artifact assemblage, most of which is associated with a single depositional event. Diagnostic artifacts include snub-nosed endscrapers, large triangular projectile points, and numerous sherds of Campbell Appliqué/Punctated, most of which represent helmet-shaped jars. A small brass tinkling cone and three badly corroded iron objects were recovered from the same undisturbed context as the bulk of the aboriginal artifacts. Two radiocarbon assays (both corrected for C^{13}) on large samples of charred botanical remains from the deposit that produced most of the artifacts returned a calibrated average date of A.D. 1644 (1652) 1661 (Table 1).

The lithic assemblage corresponds to what Brain (1988:277–280) calls the "Oliver lithic complex," which includes several key diagnostics of the Armorel phase/horizon (Williams 1980). The large triangular points generally exhibit excellent workmanship, including fine secondary flaking along the blade edges (Lawrence and Mainfort 1995; see also Price and Price 1990). Most specimens are 30 to 40 mm long, with some grading into the typical size range for Madison points. Less numerous are Nodena points, most of which have contracting, truncated bases (see Morse 1989:20). The most distinctive lithic artifacts are small snub-nosed endscrapers, characterized by a steep, unifacially worked surface along one lateral edge. Brain (1988:279) suggests that endscrapers represent a response to the European stimulation of the deer skin trade, although identical artifacts occur in prehistoric Plains Village assemblages (e.g., Brooks 1989), where they are associated with buffalo hide preparation. Interestingly, the Otto Sharpe site has produced a single identifiable element of *Bison*, providing at least one answer to Williams's (1980:108) "where are the bison?" question of some years ago. Neither Dover nor Mill Creek chert are represented in the lithic assemblage.

Mississippi Plain is the dominant ceramic type (77 percent; n = 2,190), with a notably low frequency of Bell Plain (12.5 percent). Among decorated types, only Campbell Appliqué (n = 108) and Campbell Punctated (n = 89) (Chapman and Anderson 1955) are represented by more than a few sherds. These "types" frequently occur in combination on the necks and shoulders of helmet jars. Surface treatment consists of vertical appliqué strips (often notched) on the neck with a relatively narrow band of punctations around the vessel shoulder. Campbell Appliqué may

Table 3. Summary of Horizon Markers for the Central Mississippi Valley.[1]

A.D. 1600–1650	Artifacts:	Possible decline of "classic" decorated types and exotic vessels toward end of period; significant amount of Campbell Appliqué; appearance of French artifacts (notably beads and brass); endscrapers and large triangular points.
	Key sites:	Otto Sharpe, Campbell (?)
A.D. 1541–1600	Artifacts:	Appearance of snub-nosed endscrapers; significant amount of Campbell Appliqué; proliferation of exotic vessel forms (compound vessels, teapots, stirrup-necked bottles, etc.); rare occurrence of Spanish artifacts.
	Key sites:	Graves Lake, Campbell and other Pemiscot County, Missouri sites (O'Brien 1994)
A.D. 1500–1541	Artifacts:	Appearance of Campbell Appliqué, large triangular points, helmet-shaped vessels, burial urns, gadrooned bottles (at or just prior to the de Soto horizon).
	Key sites:	Chucalissa, Graves Lake
A.D. 1350(?)–1500	Artifacts:	Appearance of most Late Mississippian decorated ceramic types (especially Parkin Punctated, Barton Incised, Nodena Red and White, Rhodes Incised, Ranch Incised, Walls Engraved; Barton Incised, *var. Kent,* Ranch Incised, Rhodes Incised, and perhaps several other type-varieties probably do not appear until near the end of this period); apparently sudden appearance of Nodena points (perhaps later in more southerly portions of the study area).
	Key sites:	Chucalissa, Graves Lake, Richardson's Landing

[1] The absence of certain Armorel horizon markers proposed by Williams (1980) is not meant to suggest that these items are unimportant, rather that they have not been recovered from the western Tennessee sites discussed here. The date of A.D. 1541 is used in the table simply to mark the appearance of Spanish artifacts and is not meant to imply that radiometric dating (much less inferences drawn from groups of assays) allows precision at the level of a specific year.

be distantly related to the protohistoric type Alabama River Appliqué of the central Alabama region (Curren 1984). Kent and Barton Incised, Walls Engraved, and Fortune Noded are present in trace amounts (Table 2). A fragment of a "cat-serpent" vessel was also recovered.

The unequivocal association of vertical appliqué ceramics, snub-nosed endscrapers, and large triangular points at the Otto Sharpe site provides an important baseline for mid-seventeenth century occupations in the Central Mississippi Valley. Several sites in Pemiscot County, Missouri, (e.g., Campbell) have produced artifact assemblages that are generally similar to that from the Otto Sharpe site (Chapman and Anderson 1955; O'Brien 1994; Williams 1972; Williams 1980).

Summary

The data presented above clarify the temporal position of a number of artifact types and modes in the Central Mississippi Valley, as shown in Table 3. Unfortunately, these data are not particularly informative about the initial appearance of traditional Late Mississippian markers. No late period diagnostics were recovered from the Haynes site, near Reelfoot Lake, Tennessee, where the remains of a large wall-trench structure were exposed on a summit of a substructural mound. Two calibrated radiocarbon determinations from excellent contexts date the structure to approximately A.D. 1280 (Lawrence and Mainfort 1993).

At two sigma, the calibrated dates from Chucalissa strongly suggest that the onset of Late Mississippian occurred no earlier than A.D. 1300—hardly a surprising conclusion. My interpretation of the dates and stratigraphy places initial Late Mississippian occupation of the site at approximately A.D. 1350, but publication of additional data from the thirty years of excavation is greatly needed before more forceful statements can be made about the site.

Several ceramic types (e.g., Kent Incised, Ranch Incised, Rhodes Incised, Campbell Appliqué) and helmet-shaped vessels probably appeared during the early sixteenth century, as suggested by evidence from Chucalissa, Graves Lake, and Richardson's Landing. Gadrooned bottles and large, well-made triangular points postdate occupation of Chucalissa and probably appeared around the time of the de Soto *entrada*. Snub-nosed endscrapers are clearly a post-de Soto phenomenon in the study area and may not occur in any quantity until circa A.D. 1600 (see also House 1993); with the exception of European artifacts, endscrapers are probably the single best post-A.D. 1541 marker. Parenthetically, endscrapers have been recorded at only three sites in western Tennessee: Graves Lake (a single fragment), Bishop, and Otto Sharpe. Mid-seventeenth-century lithic assemblages are characterized by endscrapers and large triangular points; vertical appliqué strips and helmet-shaped vessels are key ceramic markers, and European artifacts are present.

Explaining variation in the late period archaeological record of the Central Mississippi Valley is a daunting task. There are numerous sites, many of them quite large and with complex histories. Fundamental to understanding the societies that produced these sites is chronometric control, which has been largely lacking for late period sites in the study area. The radiometric data presented here, while by

no means comprehensive, represent important baseline data that bring into sharper focus the temporal dimension of material culture. Systematic studies of sites within limited geographic areas, such as that being conducted by House (1991, 1993), are a necessary prerequisite to addressing broad-scale questions of settlement and population change in a meaningful fashion.

Notes

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Mississippian Ceramic Jars, Bottles, and Gourds as Compound Vessels

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Abstract. *The shapes of many Mississippian-period ceramic bottles appear to imitate containers fashioned from gourds (*Lagenaria siceraria *and* Cucurbita pepo *var.* ovifera*). Certain of these effigy vessels suggest that some gourd containers had ritual associations with mortuary activities and, perhaps, the brewing of medicines. Two gourd-effigy vessels from west-peninsular Florida's Mississippian-period Safety Harbor culture are analyzed for vessel form, motif, and function. It is hypothesized that vessels like these were fit together and used in a combined fashion with jar-shaped vessels. The compound arrangement consisted of a jar on the bottom, a portion of a bottle in the middle, and a movable neck on top. When joined, such vessels might have served in heating their contents, and large prefired basal holes appear to have allowed passage of heat or steam through the upper two vessels. A compound use also is suggested for some Mississippian jars and bottles in Georgia, Alabama, and Arkansas.*

Archaeological and ethnohistoric data from the Southeast suggest that some Mississippian-period jars and gourd-shaped bottles were used together as compound vessels, possibly for brewing medicines and for use in mortuary ritual. Archaeological evidence from Florida, Georgia, Alabama, and Arkansas hints that some ceramic jars and bottles were used in a stacked or combined arrangement for heating their contents. In building a case for compound use, I describe and analyze the forms and functions of three pottery vessels from Florida. I then widen the analysis to suggest compound uses for some similar Mississippian vessels in other areas of the Southeast.

The three Florida vessels are from a sand mound (8SO401) of the Safety Harbor culture (ca. A.D. 900–1700). Ceramic types typical of the Safety Harbor culture are described by Willey (1949), Griffin and Bullen (1950), Sears (1967), Luer (1985, 1992, 1993), Mitchem et al. (1985), and Mitchem (1989). Some of these types occur predominantly in mortuary contexts in west-peninsular Florida, the region from the Withlacoochee River (in north-central Florida) south to the Ten Thousand Islands (in southwestern Florida). In mortuary contexts, these widespread ceramics are found with different local ceramic assemblages (Luer 1991:70–71; Luer and Almy 1987:315) in both the Tampa Bay area's Safety Harbor culture and southwestern Florida's Caloosahatchee culture.

Provenience and Dating of Vessels

The pottery vessels described below came from 8SO401, a Safety Harbor sand mound in interior eastern Sarasota County about 22 km southeast of the City of Sarasota (Figure 1). The mound is near the edge of a freshwater slough supporting marsh and hardwood swamp vegetation. Such an inland wetland setting is typical of many Safety Harbor burial mounds, such as Tatham (8CI203), Jones (8HI4), Pic-