WEST TENNESSEE CERAMIC TYPOLOGY, PART I: TCHULA AND MIDDLE WOODLAND PERIODS

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ABSTRACT

Numerous problems attend attempts at classifying ceramics of the Tchula and Middle Woodland periods in western Tennessee. We present here the first explicit type and type-variety nomenclature for such ceramics. Comments on the efforts of earlier researchers are also offered.

Introduction

Classification of Tchula and Woodland period ceramics from western Tennessee has proven to be a vexing problem for researchers in the area (e.g., Jolley 1981; McNutt 1979), due in part to a lack of formal type descriptions that are based on collections derived from excavated habitation sites (cf. Mainfort and Walling 1992). In conjunction with a multi-year program of archaeological survey and intensive testing within the Obion-Forked Deer drainage, undertaken by the Tennessee Division of Archaeology on behalf of the Memphis District, U.S. Army Corps of Engineers, it seemed both appropriate and necessary to address the problems posed by ceramic variability in the region.

With the exception of the descriptions of ceramics from Pinson Mounds (e.g., Mainfort 1980), the only published descriptions of West Tennessee ceramic types are those of Smith (1979a, Smith and Weinstein 1987), who has employed three rather loosely defined ceramic paste groups in discussions of surface collections from sites throughout the region. In Smith's classificatory scheme, the term "Tchefuncte" refers to ceramics exhibiting "a rather contorted, poorly wedged paste with large fired clay lumps, but *completely lacking* sand" (1979a: 75 [emphasis in original]). In contrast, the original definition of Tchefuncte Plain states that the paste includes "angular particles of clay," as well as a "small amount of fine sand" (Ford and Quimby [1945: 52] and Wimberly [1960] note that sand is *usually* [emphasis added] present). Varying degrees of sandiness within the type is not generally assumed to have chronological significance (Ford and Quimby 1945; see also Phillips 1970 and Weaver 1963).

"Thomas," as used by Smith, refers to "a smooth-textured paste including both the large clay chunks of the (Tchefuncte) ware and the coarse silt to fine sand characteristic of Baldwin ware" (Smith and Weinstein 1987: 50-53). "Thomas" paste is considered to postdate "Tchefuncte" and to predate "Baldwin" (sand tempered) wares (Smith 1979a: 75-78). Certain inconsistencies in the use of the term "Thomas" are discussed below. Finally, Smith's "Baldwin" ware consists of ceramics said to be purely sand tempered (or sandy textured) with no visible clay/grog pellets (1979a: 77).

Some researchers have experienced difficulties in applying Smith's ware descriptions and others have raised questions about sortability and the purported chronological significance of his paste groups (e.g., Jolley 1981; Mainfort 1986b; McNutt 1979). Many of the classificatory

difficulties posed by West Tennessee Woodland ceramics have been ably addressed by McNutt (1979), who provides a thorough discussion of the history of ceramic identification in West Tennessee and the attendant problems. The problems identified by McNutt have largely persisted to the present and it is hoped that the descriptions provided here will be a major step toward remedying the situation.

In an attempt to alleviate some of the current classificatory problems, we offer descriptions of four paste "series" that are characteristic of the Tchula and Woodland periods in western Tennessee and immediately surrounding areas. These paste series form the basis for the type and type-variety definitions that follow.

The resulting typology includes a mixture of terminology from both the Lower Mississippi Valley (cf. Phillips 1970) and the Miller Culture area (cf. Jenkins 1981). Existing types and varieties have been employed where appropriate, but we will also introduce new nomenclature that is critical to clarifying the typological confusion noted by McNutt (1979).

A word of caution must be inserted regarding the term "temper," which has been the cause of numerous classificatory difficulties. Rice (1987: 406-413) correctly notes that "temper," when used as a noun, refers to material "added by potters to modify the properties of the clay" (1987: 406). Various aplastic inclusions, including materials that might also be "added by potters," occur naturally in clays; distinguishing between natural inclusions and materials intentionally added is very difficult. Moreover, baked clay particles can be incidentally created and worked into the clay during construction of ceramic vessels (Weaver 1963).

While there can be little doubt that crushed shell was intentionally added to the paste of Mississippian period vessels, inclusions such as sand and clay particles in Tchula and Woodland ceramics do not necessarily constitute temper in the strict sense of the term. In fact, there seems to be general agreement that Tchefuncte ceramics do not contain temper (Gertjejansen and Shenkel 1983; Phillips 1970; Weaver 1963). At present, we see no basis for assuming that the sand and clay inclusions observed in our Forked Deer and Madison series represent intentional additions to the clay. Inclusions represented in the Baldwin and Tishomingo series may well reflect the selection of particular kinds of clays rather than temper in the strict sense. Also relevant here is the observation of Gertjejansen and Shenkel (1983) that sherds exhibiting a contorted and/or laminated paste have not been worked and, by definition, could not have had a tempering material added.

In discussing Tchula and Woodland ceramics below, we will generally avoid use of the term "temper." Since other ceramic types not discussed here will be cited for comparative purposes, references to paste inclusions will employ "temper" and "tempered" in quotes, by which the reader should understand that these materials may not have been intentionally added by prehistoric potters.

Before proceeding, we should mention that, despite Phillips' (1970: 30-31) admonitions, the basis for the ceramic types defined here is a group of four distinctive ceramic paste groups or

"series." In no way do we feel that defining these series constitutes "begging the question." It is paste groups, not so much specific types, that have created classificatory difficulties in western Tennessee.

CERAMIC PASTE DESCRIPTIONS

Forked Deer Series

The Forked Deer series includes the types Baytown Plain, *var. Forked Deer*, Withers Fabric Marked, *var. Withers*, Mulberry Creek Cordmarked, *var. Bells Road*, Cormorant Cord Impressed, *var. unspecified*, and Twin Lakes Punctated, *var. unspecified*. This series is defined by the presence of unevenly distributed baked clay particles in a paste that is often contorted and occasionally laminated; the clay particles tend to be smaller and the appearance of lamination less extreme than observed in the classic Tchefuncte material found to the south. The paste is usually soft and chalky, although denser (harder) sherds occasionally occur; our collections from 40GB42 exhibit considerable variability in hardness. Early prehistoric ceramic firing technology was not such an exact "science" that the occurrence of Forked Deer series specimens exhibiting a somewhat greater than average hardness should not be a matter for grave typological concern.

As discussed below, the clay particles tend to be large and few in number relative to later paste groups. In contrast to the later Baldwin and Tishomingo series, mica inclusions are virtually never present in the paste of Forked Deer (or Madison) series sherds that we have examined. Most sherds made on this paste exhibit a whitish (5YR 8/1) color, but colors range to reddish yellow (5YR 6/6) and (less commonly) dark gray (10YR 4/1 or 3/1). Sherds generally exhibit the same color on surfaces and in the core.

Vessel forms suggested by rims include both open and slightly restricted bowls, while some basal sherds appear to derive from flat-based beakers. Lips are generally flattened; rounded lips are less common. Execution of lip finishing is summarily done. Rims are generally thickened. Interior notching of the rim with small cords is common on Forked Deer series ceramics; similar decoration has been noted on Sauty Cord Impressed (a sand "tempered" type closely related to Cormorant Cord Impressed) from the Guntersville Basin in Alabama (Heimlich 1952: 12-13).

Based on reanalysis of collections at the C.H. Nash Museum-Chucalissa, which were collected and originally analyzed by Gerald Smith (e.g., 1979a; Smith and Weinstein 1987), it is apparent that much, but not all, of the material classified by Smith as "Tchefuncte" falls within the Forked Deer series. The paste of the Lower Mississippi Valley type Tchefuncte Plain (Ford and Quimby 1945; Phillips, Ford, and Griffin 1951: 71; Phillips 1970: 162-163; Wimberly 1960) is clearly related, although not identical. In reference to similar ceramics in the upper Sunflower region in Mississippi, Brookes and Taylor describe what they call the "Cormorant group," a ceramic paste defined as "soft and very chalky, similar to Tchefuncte, but the appearance of lamination is not present" (1986: 23). With the exception of the occasional occurrence of lamination in the collections examined by us, our definition of Forked Deer series paste closely matches Brookes and Taylor's description of "Cormorant" paste.

Although stratigraphic evidence is lacking in western Tennessee, based on the relative softness of the paste (see below) and the consistent occurrence of Tchula period decorative types (e.g., Cormorant Cord Impressed), we tentatively regard the Forked Deer series as pre-dating both the Baldwin and Tishomingo series.

While we believe that most researchers will be able to accurately sort ceramics of the Forked Deer series based on the description above, we felt that a quantitative assessment of the differences between Forked Deer paste and other clay "tempered" pastes would prove instructive. Specifically, we wished to determine if statistically significant differences in clay particle size and numbers of clay particles could be demonstrated between Forked Deer series ceramics and Late Woodland/Emergent Mississippian "Baytown" paste sherds, and between Forked Deer and the "clay tempered" Mississippian ceramics that typify the ceramic assemblage from the Obion site (Garland 1992).

Using a random sample of 10 Forked Deer paste sherds from 40MD2, the size of all clay particles visible in one randomly selected facet of each sherd was measured. Based on this sample of 92 clay particles, the mean particle size is 1.04 mm, with a standard deviation of 0.79 mm; size ranged from less than 0.05 mm to 3.85 mm. Using the same selection procedure, clay particle size was measured on 10 sherds selected from the Late Woodland/Emergent Mississippian Oliver site (40OB161) assemblage, resulting in a sample of 187 particles. The mean particle size is 0.46 mm, with a standard deviation of 0.53 mm.

An unpaired t-test was performed to determine if the differences in clay particle size between the two samples was significant, resulting in a value of $t=7.262$, which is significant at the .001 level. If the two samples used here can be considered to be representative of the two paste types (we, of course, feel that this is the case), clay particles in Forked Deer paste are indeed generally larger than those found in "clay tempered" Late Woodland/Emergent Mississippian wares of the Central Mississippi Valley.

In comparing the density of clay particles between Forked Deer and Late Woodland/Emergent Mississippian "clay tempered" ceramics, particle counts were made on one randomly selected facet for each of 20 sherds in each paste group (including those used in the clay particle size comparison). The area of each counted surface was roughly calculated. Clay particle density was computed as the ratio of number of clay particles divided by surface area. For the Forked Deer paste sample, the mean clay particle density is 0.129, with a standard deviation of 0.082, while the mean for the Late Woodland/Emergent Mississippian ceramics is 0.195, with a standard deviation of 0.097. These figures yield an unpaired t-test value of 2.29, which is significant at $<.05$, i.e., clay particle density is lower in Forked Deer series paste than in the sample of Late Woodland/Emergent Mississippian "clay tempered" ceramics. This may suggest that the clay particles in the latter sherds represent intentionally added inclusions.

Comparable counts and calculations were made for a sample of clay/grog "tempered" sherds from the Obion site (40HY14). Typical sherds from the Obion site bear a superficial resemblance to ceramics of the Forked Deer series, in that the Obion site sherds also tend to

exhibit a light gray paste (Garland 1992). Differences in hardness between the two pastes are quite readily apparent, but we were curious about quantitative differences.

Mean clay particle size in our sample from the Obion site (N=237 clay particles) was 0.36 mm, with a standard deviation of 0.42; size ranged from <0.05 mm to 1.9 mm. Comparison of particle size between Obion and Forked Deer series produced a *t* value of 10.018, which is significant at <.001. The mean clay particle density of Obion ceramics (again using a sample of 20 sherds) was 0.347, with a standard deviation of 0.339. In comparing the Obion and Forked Deer samples, a *t* value of -2.796, which is significant at <.01, was obtained.

These statistical comparisons clearly demonstrate that clay particle size tends to be larger in Forked Deer paste ceramics than either our Late Woodland/Emergent Mississippian or Obion site paste samples. Moreover, clay particle density in the two temporally later pastes is significantly greater than that observed in ceramics of the Forked Deer series. While neither clay particle size nor density constitute necessary or sufficient criteria for classificatory purposes, the results of the statistical analyses strengthens the validity of our definition of Forked Deer series as a distinctive paste and provides other researchers with some quantitative standards against which their own analyses can be compared.

Types included within the Forked Deer series are as follows:

Baytown Plain, *var. Forked Deer*

REFERENCES: Variety not previously described. The following references provide comparative information: Ford and Quimby (1945: 52); Phillips *et al* (1951: 71); Phillips (1970: 162-163); Smith (1979a: 75-76); Smith and Weinstein (1987: 45).

TEMPER: Probably lacks temper in the strict sense. Moderate (15-20%) to (rarely) abundant (approx. 50%) clay particles. Clay particles tend to be fairly large and blocky on the edges. See description of the Forked Deer series above for more detailed discussion.

TEXTURE: Sherds generally feel soft and chalky. Paste is often contorted to occasionally laminated in cross-section. Breaks are crumbly and jagged to clean. See description of Forked Deer series for discussion.

COLOR: 5YR 8/1 (white) to 5YR 6/6 (reddish yellow) and 10YR 4/1 or 3/1 (dark grey). The majority of sherds are white, shading to pale reddish yellow (orange); a few are dark grey. Surfaces and cores of most sherds exhibit the same color.

THICKNESS: Mean: 7.5 mm; range: 4.4-11.6 mm.

HARDNESS: 2 to 3

SURFACE FINISH: Surfaces are slightly lumpy to evenly smoothed on both the interior and exterior of the majority of sherds, and frequently show weathering.

RIMS: Based on a small sample, rims are generally oriented to produce a straight profile. Lips are usually flattened. Interior notching with a cord is a common treatment.

APPENDAGES: None.

VESSEL FORM: In comparison of rim forms to existing vessels, most suggest open bowl forms though slightly restricted bowls are also suggested. Base sherds from the type collections and other sherd collections indicate that the flat-based beaker or "flower pot" form was also common.

SORTING CRITERIA: Plain, smoothed surface on a Forked Deer series paste. *Forked Deer* and other varieties in the Forked Deer series are distinguished from their Madison series counterparts based on sandiness or the lack thereof. Forked Deer series ceramics generally exhibit a surface that is smooth and chalky to the touch, whereas sand is readily felt on the surface of Madison series ceramics. This distinction is best observed on a smooth, as opposed to decorated or eroded, sherd surface. Note that the "chalkiness" of the Forked Deer series may be due to the surfaces having been floated (Ford and Quimby 1945). Hence, when sorting sherds with eroded surfaces, it is likely that the Madison series will be somewhat overenumerated. We have observed that an eroded spot on an otherwise typical, chalky Forked Deer series sherd will often feel slightly sandy.

Body sherds of this variety can occasionally be difficult to separate consistently from clay/grog "tempered" sherds from other time periods, but the paste description above should provide a sufficient basis for sorting in most instances.

RELATIONSHIPS: Companion types on the same paste are Withers Fabric Marked, *var. Withers*, Twin Lakes Punctated, *var. unspecified*, and Cormorant Cord Impressed, *var. unspecified*.

COMMENTS: The breakage differentiation of sherds seems to relate to the extent of paste manipulation and possibly the clay used. Sherds that show more extensive lamination (which generally seem to exhibit a more orange color) tend to break cleanly, while the more contorted paste (typically associated with a white to light gray paste) sherds break crumbly and jagged.

Definition of this variety is based on surface collections from 40MD2 and 40MD130. The homogeneity of paste and decoration on these two sites indicates what we interpret as single component occupations at each, as well as contemporaneity between the sites. Collections of sherds from Dyer, Gibson, Weakley, and Shelby counties were also examined for comparative purposes (see Smith 1979a; Smith and Weinstein 1987).

Withers Fabric Marked, *var. Withers*

REFERENCES: Phillips *et al* (1951: 73-76); Phillips (1970: 174-175); Smith and Weinstein (1987: 45); Toth (1988: 233).

TEMPER: Probably lacks temper in the strict sense. Moderate (15-20%) to (rarely) abundant (approx. 50%) clay particles. Clay particles tend to be large and blocky on the edges. See description of the Forked Deer series above for more detailed discussion.

TEXTURE: Sherds generally feel soft and chalky. Paste is often contorted to occasionally laminated in cross-section. Breaks are crumbly and jagged to clean. See description of Forked Deer series for more discussion.

COLOR: 5YR 8/1 (white) to 5YR 6/6 (reddish yellow) and 10YR 4/1 or 3/1 (dark grey). The majority of sherds are white, shading to pale reddish yellow (orange); a few are dark grey. Surfaces and cores of most sherds exhibit the same color.

THICKNESS: Mean: 7.35 mm; range: 6.3-10.2 mm.

HARDNESS: 2 to 3

SURFACE FINISH: A simple twined fabric was impressed into the wet clay of the exterior at oblique or horizontal angles to the lip. Numerous well-defined "ridges and valleys" are usually evident on the vessel exterior; these are often visible even though the individual fabric cordage impressions have been largely obscured by surface erosion. Surfaces frequently show weathering.

Jenkins (1981: 143) suggests that this style of surface decoration was produced by wrapping groups of 4 to 6 dowels with fabric, creating a "paddle." Close examination of vessel surfaces, however, suggests that the "ridge and valley" effect actually resulted from properties of the fabric itself, not the technique of application. Ridges occur along the weft elements of the fabric, while the "valleys" correspond to the areas of warp threads between wefts.

RIMS: Based on a fairly small sample, rims are generally oriented to produce a straight profile. Lips are usually flattened. Interior notching with a cord is a common treatment.

APPENDAGES: None.

VESSEL FORM: Comparison of rim forms to existing vessels, most suggest open bowl forms though slightly restricted bowls are also suggested. Base sherds from the type collections as well as other sherd collections show that the flat-based beaker or "flower pot" form was also common.

SORTING CRITERIA: Fabric marked surface on a Forked Deer series paste.

COMMENTS: In sorting the various fabric marked varieties discussed here, it was our impression that the fabric impressions found on *Withers* and *Cypress Creek* (see below) tend to be somewhat coarser than those on Saltillo Fabric Impressed and *Craig's Landing*. To test this inference, cord width measurements were made on a randomly selected sample of cord impressions from several west Tennessee sites. Using these measurements, a series of unpaired t-tests was performed to compare cord widths among the fabric marked varieties.

No significant differences were found between *Withers* (N=40) and *Craig's Landing* (N=69) or Saltillo Fabric Impressed (N=59). Surprisingly, the sample of *Cypress Creek* (N=99) exhibited significantly more narrow cord impressions than *Withers* (t=5.08, p <.001). At this point, we do not regard this difference to be of cultural or temporal significance, because *Cypress Creek* was also found to exhibit narrower cord impressions than *Craig's Landing* (t=5.23, p<.001) and Saltillo Fabric Impressed (t=4.01, p<.001). As mentioned above, it seems likely that these latter examples of our Tishomingo and Baldwin series pastes, respectively, post-date *Cypress Creek*.

It should also be mentioned that in most instances, surface decoration on *Withers* and *Cypress Creek* appears to have been applied while the paste was wetter than was the case on the presumably later fabric marked types, resulting in less clearly defined individual cordage impressions. Cordage impressions on Withers Fabric Marked, *var. Craig's Landing* and Saltillo Fabric Impressed tend to be fairly distinct.

Mulberry Creek Cordmarked, *var. Bells Road*

REFERENCES: Variety not previously described. The following references provide comparative information: Phillips (1970: 138); Smith and Weinstein (1987: 45); Toth (1988: 231).

TEMPER: Probably lacks temper in the strict sense. Moderate (15-20%) to (rarely) abundant (approx. 50%) clay particles. Clay particles tend to be large and blocky on the edges. See description of the Forked Deer series above for more detailed discussion.

TEXTURE: Sherds generally feel soft and chalky. Paste is often contorted to occasionally laminated in cross-section. Breaks are crumbly and jagged to clean. See description of Forked Deer series for discussion.

COLOR: 5YR 8/1 (white) to 5YR 6/6 (reddish yellow) and 10YR 4/1 or 3/1 (dark grey). The majority of sherds are white, shading to pale reddish yellow (orange); a few are dark grey. Surfaces and cores of most sherds exhibit the same color.

THICKNESS: Mean: 6.07 mm; range: 5.0-7.8 mm.

HARDNESS: 2 to 3

SURFACE FINISH: Exterior malleated with a cord-wrapped paddle, creating cord impressions that are oriented vertically or obliquely to the lip over the entire vessel surface.

RIMS: Based on a fairly small sample, rims are generally oriented to produce a straight profile. Lips are usually flattened. Interior notching with a cord is a common treatment.

APPENDAGES: None.

VESSEL FORM: A comparison of rim forms to existing vessels suggests that open bowl forms predominate, although slightly restricted bowls also seem to be represented.

SORTING CRITERIA: Cordmarked surface on a Forked Deer series paste.

COMMENTS: Smith (cf. Smith and Weinstein 1987 and personal communication) has suggested that when cordmarking is present on Tchula period paste (i.e., our Forked Deer series), the cord impressions tend to be coarser than those observed on presumed "later" pastes. As in the case of the various fabric marked types, we tested this proposition using a series of unpaired t-tests. Cords on the rather small measured sample of *Bells Road* proved to be significantly wider than those in samples of both *Tishomingo* ($N=110$; $t=3.38$, $p<.001$) and Furrs Cordmarked ($N=54$; $t=3.03$, $p<.01$). Cord widths on *Bells Road* and *Westover* tend to be of virtually identical size.

Bells Road is not represented in the assemblages from the two sites for which we have the largest collections of Forked Deer series ceramics (40MD2 and 40MD130), but a number of examples were noted during our reanalysis of collections from 40SY40 and 40SY56. *Bells Road* may represent the West Tennessee equivalent of *Porter Bayou* (Phillips 1970: 138; Toth 1988: 231), for which good contextual data appear to be sparse.

Cormorant Cord Impressed, *var. unspecified*

REFERENCES: Phillips *et al* (1951: 73); Phillips (1970: 77).

TEMPER: Occurs primarily on both Forked Deer and Madison series paste, rarely on Baldwin and Tishomingo paste.

TEXTURE: See discussion under Forked Deer and Madison series paste.

COLOR: Within the range described for various types with Forked Deer and Madison series paste.

THICKNESS: Mean: 9.2 mm; range: 6.4-11.7 mm.

HARDNESS: 2 to 3

SURFACE FINISH: Individual cord impressions were used to create simple rectilinear or (less commonly) curvilinear patterns on vessel rims. The band of cord impressions is usually framed by rows of cord notching or punctation above and below. Stylistically, all observed examples fall within the range of *Cormorant*, but the paste differs from that described for *Cormorant* (Phillips 1970: 77).

While studying the type collections (from 40MD2 and 40MD130), we observed that the horizontal rows of Twin Lakes-like punctation were consistently produced by impressing a small segment of cord or a knot into the clay. This decorative treatment is often accompanied by interior cord notching (apparently produced by impressing small knots of cordage), which also occurs on other types exhibiting Forked Deer or Madison series paste; similar decoration appears on the related and probably contemporary type Sauty Cord Impressed in the Guntersville Basin (Heimlich 1952).

RIMS: This type is best regarded as a decorative rim treatment. It seems to occur most frequently on rims with a thickened exterior, straight profile, and a flattened lip.

APPENDAGES: None known.

VESSEL FORM: Slightly restricted bowls or open bowls, such as Tidwell vessel D (Ford 1990: 109).

SORTING CRITERIA: Simple geometric designs on vessel rim formed by impressing single strands of cordage (perhaps woven patterns in some instances). In the western Tennessee collections studied, *Cormorant*-style decoration occurs primarily on Forked Deer and Madison series pastes, although a single example from 40LA40 exhibits Tishomingo series paste.

COMMENTS: With only two exceptions, decoration on the sherds examined conforms closely to the original type description (Phillips *et al* 1951) and resembles various sections of the design on Tidwell vessel D (Ford 1990). Other partial motifs observed include a curvilinear line descending from a horizontal cord impression and widely-spaced chevrons below a row of cord notches and a horizontal cord impression.

Our treatment of Cormorant Cord Impressed and Twin Lakes Punctated is inconsistent with the other type/varieties described here. Specifically, it would seem appropriate to define new varieties of these two decorated types based on the paste series described above. We have elected not to do so primarily because this would result in the definition of eight new varieties based on very small samples. This seems to be of questionable analytical value at this time.

Twin Lakes Punctated, *var. unspecified*

REFERENCES: Phillips *et al* (1951: 76); Phillips (1970: 165-166); Toth (1988: 232-233).

TEMPER: Occurs primarily on both Forked Deer and Madison series paste, rarely on Baldwin and Tishomingo paste.

TEXTURE: See discussion under Forked Deer and Madison series paste.

COLOR: Within the range described for various types with Forked Deer and Madison series paste.

THICKNESS: Small sample; similar to Cormorant Cord Impressed.

HARDNESS: 2 to 3

SURFACE FINISH: Wedge-shaped or oval punctations applied to the rim just below the lip. Stylistically, all observed examples fall within the range of *Twin Lakes* and *Hopson*, but the paste differs from that described for these varieties (Phillips 1970: 166). Stylistically, *Twin Lakes* is distinguished by the characteristic herringbone motif, while *Hopson* usually exhibits horizontal rows.

RIMS: This type is best regarded as a decorative rim treatment. It seems to occur most frequently on rims with a thickened exterior, straight profile, and a flattened lip.

APPENDAGES: None known.

VESSEL FORM: Slightly restricted bowls or open bowls, such as Tidwell vessels C and D (Ford 1990: 108-109).

SORTING CRITERIA: Simple geometric designs on vessel rim formed by applying a band of punctations in a simple geometric motif in a band immediately below the lip. In the western Tennessee collections studied, this type seems to occur primarily on Forked Deer and Madison series pastes.

COMMENTS: Based on the collections studied to date, Twin Lakes Punctated rarely occurs in western Tennessee. As noted above, our treatment of Cormorant Cord Impressed and Twin Lakes Punctated is inconsistent with the other type/varieties described here. We have elected not to define new varieties of these two decorated types based on the paste series described above because of the small samples available.

Madison Series

Ceramic types included in the Madison series include Baytown Plain, *var. Madison*, Withers Fabric Marked, *var. Cypress Creek*, Mulberry Creek Cordmarked, *var. Westover*, Cormorant Cord Impressed, *var. unspecified*, and Twin Lakes Punctated, *var. unspecified*. This series is characterized by the presence of baked clay particles in the paste, but varying amounts of fine sand are also present, resulting in a soft, slightly raspy textured, often contorted to occasionally

laminated paste that closely resembles the Forked Deer series. Indeed, both Forked Deer and Madison series ceramics are present in the large collections from 40MD2 and 40MD130, both of which appear to be single component sites, and it is our impression that Madison paste is simply a sandy variant of Forked Deer (cf. Ford and Quimby 1945; Phillips 1970). Therefore, at this point we ascribe neither cultural nor temporal distinctions to the differences between these two series (cf. McNutt 1979: 19 and 40).

Future research may validate Smith's (1979a; Smith and Weinstein 1987) claim that some of the material we have classified as Madison series represents a "transition" between Forked Deer and Baldwin pastes, but our research, which is based on much larger samples than those used by Smith, provides little support for this interpretation. There is presently no reported stratigraphic evidence from West Tennessee that can be brought to bear on this problem (see below).

As in the case of the Forked Deer series, some Madison series sherds (e.g., some specimens from 40GB42) exhibit a paste that is harder than the norm, but in all other attributes fit easily within our definition of this series.

Using procedures discussed above, clay particle size and density were compared between samples of Forked Deer and Madison series ceramics by means of unpaired t-tests. Based on a sample of 131 clay particles (obtained from 10 sherds), the mean size for Madison paste is 0.91 mm with a standard deviation of 0.61 mm; the range is from $<.05$ mm to 2.9 mm. There is no significant difference in particle size between Forked Deer and Madison paste at either the .05 or the .10 level ($t=1.377$). Mean clay particle density for Madison series paste is 0.084, with a standard deviation of 0.054. Comparison with the density ratio of Forked Deer paste yielded a value of $t=2.07$, which is significant at the .05 level; Madison paste ceramics generally contain fewer clay particles than those of Forked Deer paste. The importance of this apparent difference is not clear at present.

Rims are generally thickened and suggest vessel forms of open and slightly restricted bowls, while flat-based beakers are suggested by basal sherds in the collections. Lips are usually flattened; rounded examples are less common. Lip finishing is done rather summarily. Interior notching of the rim is common.

Many sherds that fall within our description of Madison paste have previously been classified as "Thomas" by Smith (1979a; Smith and Weinstein 1987). Phillips *et al* (1951: 141-142; see also their discussion on p. 77 under "Baytown Plain") proposed the provisional type Thomas Plain to accommodate plain surfaced wares that were primarily or exclusively sand "tempered," but with clay particles often present. The provisional types Blue Lake Cord-Marked and Twin Lakes Fabric-Impressed were also made on this paste. Koehler (1966: 29-40), in his classification of ceramics from the Womack site in northern Mississippi attempted to follow this concept of Thomas, specifically noting that this paste type contained "medium to coarse sand as the primary tempering material with the inclusion of clay particles" (1966: 29).

Phillips (1970: 54-55) subsumed Thomas Plain within Baytown Plain, *var. Thomas*, although he refers to the paste as "sandy-textured," while suggesting that "neither sand nor clay was added to this pottery as tempering" (1970: 54-55). In his discussion of Withers Fabric Marked, *var. Withers*, however, Phillips (1970: 174-175) specifically refers to the "sandy textured clay-tempered *Twin Lakes* variety of Withers." Yet under the definition of *Twin Lakes*, the paste is said to be "equivalent to the *Thomas* variety of Baytown Plain" (Phillips 1970: 175). Toth (1988: 231-233), in discussing the same paste, but with reference to Mulberry Creek Cordmarked, *var. Blue Lake* and Withers Fabric Marked, *var. Twin Lakes*, specifically uses the term "sand-tempered."

Our purpose in reviewing the use of the term "Thomas" here is to point out the ambiguities associated with the term and to note that Smith's (1979a; Smith and Weinstein 1987) "Thomas ware" does not precisely correspond to the other published descriptions. Moreover, "Thomas," as used by Smith, overlaps with and, in fact, includes, the paste commonly associated with Baytown Plain, *var. Tishomingo* (Jenkins 1981; Jennings 1941; Mainfort 1986b; Mainfort and Walling 1992; Smith 1979a: 76-77). We shall therefore eschew use of the term "Thomas" in reference to West Tennessee ceramics and we urge other researchers to do likewise.

Types included within the Madison series are as follows:

Baytown Plain, *var. Madison*

REFERENCES: Variety not previously described. The following references provide comparative information: Ford and Quimby (1945: 52); Phillips *et al* (1951: 141-142); Phillips (1970: 54-55); Smith (1979a: 75-78).

TEMPER: Probably lacks temper in the strict sense. Moderate (15-20%) to very (rarely) abundant (approx. 50%) clay particles and minor to moderate amounts of fine sand often unevenly distributed throughout the paste. Clay particles are usually large and blocky on edges. See description of the Madison series above for more detailed discussion.

TEXTURE: Sherds are generally soft and chalky, but the sand content makes them slightly raspy as well. Paste is often contorted to occasionally laminated in cross-section. Breaks are crumbly and jagged to clean. See description of the Madison series above.

COLOR: 5YR8/1 (white) to 5YR6/6 (reddish yellow) and 10YR4/1 or 3/1 (dark grey). The majority of sherds are white shading to pale reddish yellow (orange). Some specimens are dark grey. Surface and core color is usually the same.

THICKNESS: Mean: 7.5 mm; range: 4.4-11.6 mm. Rim sherd average thickness: 9.2 mm; range: 6.4-11.7 mm.

HARDNESS: 2 to 3

SURFACE FINISH: Surfaces are lumpy to evenly smoothed on both interior and exterior and frequently show weathering. Companion types include Withers Fabric Impressed, *var. Cypress Creek*, Mulberry Creek Cordmarked, *var. Westover*, Cormorant Cord Impressed, *var. Cormorant*, and Twin Lakes Punctated, *var. Hopson*.

RIMS (N=6): Rims are flattened on the lip surface and are the same thickness or thicker than the section of the body on the sherd.

APPENDAGES: None.

VESSEL FORM: In comparison of rim forms to existing vessels, most suggest open bowls although there is evidence for slightly restricted bowls as well. Base sherds show the existence of flat based vessels.

SORTING CRITERIA: We view *Madison* essentially as a sandy variant of *Forked Deer*. Macroscopically, the paste appears to be virtually identical to *Forked Deer*, with the exception of the presence of varying amounts of fine sand.

COMMENTS: As noted above, this variety of Baytown Plain is very similar to *Forked Deer*. The occurrence of sand could be a result of varying amounts of sand within lenses of the clay source or conscious addition of sand to the paste. In the type site collections, both *Forked Deer* and *Madison* occur with the same rim forms and surface treatments. We have elected to separate these two varieties in order to resolve some of the confusion created by Smith's (1979a; Smith and Weinstein 1987) concept of "Thomas" paste, to which he ascribes temporal significance. It is possible that future work will allow more clear-cut separation.

Surface collections from 40MD2 and 40MD130 were used as type collections in defining this variety. At times, it can be difficult to distinguish eroded sherds of this variety from *Tishomingo*. Hardness can be inconsistent and does not, in itself, provide an adequate basis for distinguishing paste types, but if color and clay particle size are also considered, few problems in sorting should be experienced. Differences in rim treatments will also assist in identification if both varieties are present in a collection.

Withers Fabric Marked, *var. Cypress Creek*

REFERENCES: Variety not previously described. The following references provide comparative information: Phillips *et al* (1951: 73-75); Phillips (1970: 174-175); Smith (1979a: 75-78).

TEMPER: Probably lacks temper in the strict sense. Moderate (15-20%) to (rarely) abundant (approx. 50%) clay particles and minor to moderate amounts of sand unevenly distributed throughout the paste. Clay particles are usually large and blocky on edges. See description of the Madison series above for more detailed discussion.

TEXTURE: Sherds are generally soft and chalky, but the sand content makes them slightly raspy as well. Paste is often contorted to occasionally laminated in cross-section. Breaks are crumbly and jagged to clean. See description of the Madison series above.

COLOR: 5YR8/1 (white) to 5YR6/6 (reddish yellow) and 10YR4/1 or 3/1 (dark grey). The majority of sherds are white shading to pale reddish yellow (orange); some are dark grey. Surface and core color is usually the same.

THICKNESS: Mean: 8.0 mm; range: 5.3-11.0 mm.

HARDNESS: 2 to 3

SURFACE FINISH: A simple twined fabric was impressed into the wet clay of the exterior at oblique or horizontal angles to the lip. See discussion under *Withers*.

RIMS: Rims are flattened on the lip surface and are the same thickness or thicker than the section of the body on the sherd.

APPENDAGES: None.

VESSEL FORM: A comparison of rim forms to existing vessels suggests that most derive from open bowls, although there is evidence for slightly restricted bowls as well. All basal sherds represent flat based vessels.

SORTING CRITERIA: Fabric marked surface on a Madison series paste. See discussion under *Withers*.

Mulberry Creek Cordmarked, *var. Westover*

REFERENCES: Variety not previously described. The following references provide comparative information: Phillips (1970: 54-55); Smith and Weinstein (1987: 53-55); Toth (1988: 231).

TEMPER: Probably lacks temper in the strict sense. Moderate (15-20%) to (rarely) abundant (approx. 50%) clay particles and minor to moderate amounts of sand unevenly distributed throughout the paste. Clay particles are usually large and blocky on edges. See description of the Madison series above for more detailed discussion.

TEXTURE: Sherds are generally soft and chalky, but the sand content makes them slightly raspy as well. Paste is often contorted to occasionally laminated in cross-section. Breaks are crumbly and jagged to clean. See description of the Madison series above.

COLOR: 5YR8/1 (white) to 5YR6/6 (reddish yellow) and 10YR4/1 or 3/1 (dark grey). The majority of sherds are white shading to pale reddish yellow (orange). Some are dark grey. Surface and core color is usually the same.

THICKNESS: Mean: 6.9 mm; range: 4.3-10.4 mm.

HARDNESS: 2 to 3

SURFACE FINISH: Exterior malleated with a cord-wrapped paddle, creating cord impressions that are oriented vertically or obliquely to the lip over the entire vessel surface. Surfaces frequently show weathering.

RIMS: Rims are flattened on the lip surface and are the same thickness or thicker than the section of the body on the sherd.

APPENDAGES: None.

VESSEL FORM: Comparison of rim forms to existing vessels, most suggest open bowls although there is evidence for slightly restricted bowls as well. Base sherds show the existence of flat based vessels.

SORTING CRITERIA: Cordmarked surface on a Madison series paste. Using a fairly small sample (N=15), cord widths on *Westover* were found to be significantly larger than those on *Tishomingo* (t=2.95, p<.01) and Furrs Cordmarked (t=2.62, p=.01).

COMMENTS: Like the closely related *Bells Road*, this variety is not represented in the assemblages from the two sites for which we have the largest collections of Forked Deer series ceramics (40MD2 and 40MD130), but a number of examples were noted during our reanalysis of collections from 40SY49 and 40GB6.

Tishomingo Series

The Tishomingo series ceramics include Baytown Plain, *var. Tishomingo*, Mulberry Creek Cordmarked, *var. Tishomingo*, and Withers Fabric Marked, *var. Craig's Landing*. This series is defined by presence of varying amounts of sand and readily visible fired clay particles (possibly used as temper), often somewhat unevenly distributed in a medium hard paste. Pastes are usually darker than that of either Forked Deer or Madison series ceramics and surfaces lack the chalkiness associated with these series. In contrast to the Forked Deer and Madison series, mica flecks are frequently present in the paste of Tishomingo series ceramics that we have examined.

Jennings' original description of Tishomingo paste tempering states " Clay pellets, much sand, rarely fossil shell or limestone . . . Texture: Irregular, lumpy fracture. Contorted paste. Temper irregularly distributed" (1941: 200). Cotter and Corbett (1951: 19) give essentially the same

description, but note that their Tishomingo material from the Bynum site is "predominantly clay-grit tempered, but does contain some sand." This predominance of clay/grit "temper" differs from Jennings' definition, which seems to imply a paste that is primarily sand "tempered" with minor amounts of clay particles.

Jenkins (1981: 90-91) uses "Tishomingo" as a variety of both Baytown Plain and Mulberry Creek Cordmarked, describing the paste as follows: "Crushed sherds (grog) constitute less than 20 percent of the paste. Sand constitutes 10 to 20 percent of the paste. Bone inclusions and hematite nodules rarely occur . . . [Texture is] similar to fine sand paper and sometimes slightly chalky." Based on this definition, particularly his use of the term "slightly chalky," we suspect that Jenkins may include within his Tishomingo varieties some material that we would classify within the Madison series.

In the classification scheme proposed here, all darker colored, non-chalky sherds exhibiting both sand and clay particles in the paste, without regard to specific proportions, are included in the Tishomingo series, while the Baldwin series is reserved for sand "tempered" (or "sandy textured") sherds lacking visible clay particles (cf. Mainfort and Walling 1992). Our Tishomingo series paste can therefore accommodate a much sandier paste than that described by Cotter and Corbett (1951). Reanalysis of several collections at the C.H. Nash Museum-Chucalissa indicates that a substantial number of sherds originally classified by Smith (e.g., 1979a; Smith and Weinstein 1987) as "Baldwin ware" exhibit varying amounts of clay particles in the paste and would be classified within our Tishomingo series.

Rims are generally everted and are of the same thickness or thinner than the vessel body. Exterior rim folds are common and lip notching is a common decorative treatment.

Following the lead of McNutt (1979; see also Ford 1989; Johnson 1988; Mainfort and Walling 1992), at this point we ascribe no temporal significance to Tishomingo series paste. We do not feel that in the West Tennessee area it is sound interpretation to identify a component specifically as Early, Middle, or Late Woodland based on the presence of one or two sand and clay "tempered" sherds with eroded surfaces. It is worth mentioning that the Duck's Nest Sector at Pinson Mounds provides firm evidence of the contemporaneity of Baldwin, Tishomingo, and certain "Baytown" series ceramics, although some of the vessels represented are not of local origin (Mainfort 1986).

Since both Madison and Tishomingo series ceramics are characterized by the presence of both clay particles and sand in the paste, it is inevitable that difficulties will be experienced in sorting these series. We have experienced some problems ourselves. To some extent, this is both understandable and unavoidable (cf. Phillips 1970: 26-27). Careful adherence to the paste and type descriptions presented here should allow accurate sorting in most instances. Context can also provide important clues, e.g., Madison series ceramics should typically be associated with assemblages that include Tchula period decorated types (Cormorant Cord Impressed, Withers Fabric Marked, etc.), while cordmarking should be prominent in Tishomingo assemblages. Vessel and rim forms should also be considered. Our operational use of Tishomingo series paste

subsumes all sand and clay "tempered" (or pastes containing both sand and visible clay particles) sherds that are not *readily* attributable to the Madison series, based on paste and/or the factors mentioned above.

Finally, there are the type collections themselves, which are curated by the Tennessee Division of Archaeology. These provide other researchers with the opportunity to directly compare specimens with the sherds originally used in formulating the definitions presented here.

Types included within the Tishomingo series are as follows:

Baytown Plain, *var. Tishomingo*

REFERENCES: Cotter and Corbett (1951: 19); Jenkins (1981: 90-91); Jennings (1941: 200-201); Mainfort and Walling (1992: 122).

TEMPER: Includes varying amounts of medium to fine sand grains and clay particles, often unevenly distributed. The clay particles are usually smaller than those of the Forked Deer and Madison series, and are blocky on the edges. See description of Tishomingo series ceramics above for more detailed discussion.

TEXTURE: Sherds are hard and the surface feels like fine sandpaper. Paste may occasionally exhibit laminations in cross-section when viewed under a microscope. See description of Tishomingo series ceramics for discussion.

COLOR: 2.5YR 5/6 (red), 5YR 5/4 (reddish brown), 5YR 6/6 (reddish yellow), 7YR 7/1 (light grey), 7.5YR 7/2 (pinkish grey).

THICKNESS: Mean: 6.48 mm; range: 4.5-8.5 mm

HARDNESS: 3 to 4

SURFACE FINISH: Surfaces are smooth or burnished.

RIMS: Generally rims are thinner than or equal to body thickness and everted. A common decorative treatment is lip notching.

APPENDAGES: None

VESSEL FORM: Open globular bowls and conoidal jars are indicated.

SORTING CRITERIA: Plain surface on a moderately hard paste containing varying amounts of sand and visible clay particles. See description of Tishomingo series above.

RELATIONSHIPS: Companion types include Withers Fabric Marked, *var. Craig's Landing*, and Mulberry Creek Cordmarked, *var. Tishomingo*.

COMMENTS: 40LA40 and 40CS156 are the type sites for this variety as defined here. Sites from Shelby, Dyer, and Weakley counties were also examined for comparative purposes (see Smith 1979a; Smith and Weinstein 1987).

Mulberry Creek Cordmarked, *var. Tishomingo*

REFERENCES: Cotter and Corbett (1951: 19); Jenkins (1981: 99-102); Jennings (1941: 200-201); Koehler (1966: 31, 38); Mainfort and Walling (1992: 122).

TEMPER: Includes varying amounts of fine to medium sand grains and clay particles, often unevenly distributed. The clay particles are usually smaller than those of the Forked Deer and Madison series, and are blocky on the edges. See description of Tishomingo series ceramics above for more detailed discussion.

TEXTURE: Sherds are hard and surfaces feel like fine sandpaper. Paste may occasionally exhibit laminations in cross-section when viewed under a microscope. See description of Tishomingo series ceramics above for discussion.

COLOR: 2.5YR 5/6 (red), 5YR 5/4 (reddish brown), 5YR 6/6 (reddish yellow), 7YR 7/1 (light grey), 7.5YR 7/2 (pinkish grey).

THICKNESS: Mean: 6.9 mm; range: 4.1-9.6 mm

HARDNESS: 3 to 4

SURFACE FINISH: Exterior malleated with a cord-wrapped paddle, creating cord impressions that are oriented vertically or obliquely to the lip over the entire vessel surface. Interiors frequently hand smoothed.

RIMS: Rims are commonly folded and straight to excurvate. Lip notching is a common treatment.

APPENDAGES: None

VESSEL FORM: Open globular bowls and conoidal jars are indicated. The decorated sherds are the same as decoration on intact conoidal jars of the same paste.

SORTING CRITERIA: Cord marked surface on a moderately hard paste containing varying amounts of sand and visible clay particles. See discussion of individual cord widths under *Bells Road* and *Westover*. There was no significant difference in cord size between our sample of *Tishomingo* (N=110) and Furrs Cordmarked (N=54).

COMMENTS: 40LA40 and 40CS156 are the type sites for this variety as defined here. Sites from Shelby, Dyer, and Weakley counties were also examined for comparative purposes (see Smith 1979a and Smith and Weinstein 1987).

Withers Fabric Marked, *var. Craig's Landing*

REFERENCES: Jenkins (1981: 104-108); Koehler (1966: 31, 38); Mainfort and Walling (1992: 122).

TEMPER: Includes varying amounts of fine to medium sand grains and clay particles, often unevenly distributed. The clay particles are usually smaller than those of the Forked Deer or Madison series, and are blocky on the edges. See description of Tishomingo series ceramics above for more detailed discussion.

TEXTURE: Sherds are hard and surfaces feels like fine sandpaper. Paste may occasionally exhibit laminations in cross-section when viewed under a microscope. See description of Tishomingo series ceramics above for discussion.

COLOR: 2.5YR 5/6 (red), 5YR 5/4 (reddish brown), 5YR 6/6 (reddish yellow), 7YR 7/1 (light grey), 7.5YR 7/2 (pinkish grey).

THICKNESS: Mean: 7.0 mm; range: 4.5-8.1 mm

HARDNESS: 3 to 4

SURFACE FINISH: A simple twined fabric was impressed into the wet clay of the exterior at oblique or horizontal angles to the lip. Much of the discussion under *Withers* also applies to *Craig's Landing*.

RIMS: Rims are commonly folded and straight to excurvate. Lip notching is a common treatment.

APPENDAGES: None

VESSEL FORM: Open globular bowls and conoidal jars are indicated.

SORTING CRITERIA: Fabric marked surface on a moderately hard paste containing varying amounts of sand and visible grog. As discussed above, individual cord widths on a sample of *Craig's Landing* were found to be significantly larger than those on *Cypress Creek* ($t=5.27$, $p<.001$). No significant differences in cord size were found between *Craig's Landing* and either *Withers* or Saltillo Fabric Impressed.

COMMENTS: 40LA40 and 40CS156 are the type sites for this variety as defined here. Sites from Shelby, Dyer, and Weakley counties were also examined for comparative purposes (see Smith 1979a and Smith and Weinstein 1987).

Baldwin Series

The Baldwin series includes the types Baldwin Plain, Furrs Cordmarked, and Saltillo Fabric Impressed. While variations within these types are clearly present, at present we feel that there is neither an adequate basis nor need for defining sortable varieties. This series is defined by a sandy textured paste lacking visible clay particles and a medium hard paste that may occasionally exhibit laminations in cross-section when viewed under a microscope. Sand particles tend to be fairly evenly distributed.

Like the Tishomingo series, rims are generally everted and are the same thickness or thinner than the vessel body. Exterior rim folds are common and lip notching is a common decorative treatment.

The original definition of the Baldwin paste type was published by Jennings, who defined the temper and texture of the type Furrs Cordmarked as " Temper: Sand fine to very fine, very abundant. Mica flecks common, rare clay pellets. Texture: Fine homogeneous, temper evenly distributed, flaky or straight fracture. Very gritty and friable to touch" (1941: 199-200). Jennings goes on to describe Baldwin Plain as the plain companion type to Furrs Cordmarked, but further emphasizing that both types are characterized by a "lack of burned clay pellet tempering" (1941: 200). Cotter and Corbett (1951: 17) restrict tempering material to sand and confirm that "Burned clay pellets are completely lacking." Jenkins (1981: 123-127) follows the lead of Cotter and Corbett (1951) in his descriptions of Baldwin paste ceramics for the Gainesville Reservoir area.

Our concept of the Baldwin paste series corresponds to the definitions provided by Cotter and Corbett (1951) and Jenkins (1981), with the provision that in sorting, the presence of a single clay pellet in a sherd of average size is permissible; sherds exhibiting two or more clay particles are classified within the Tishomingo series. This usage of Baldwin is also compatible with Smith's (1979a: 77) description, but, as noted above, his operational use of the term included a considerable number of sherds that we would group within our Tishomingo series. In contrast to the Forked Deer and Madison series, sherds of the Baldwin series frequently exhibit a micaceous paste. We have not attempted to assess sand grain size in developing our definition of Baldwin paste.

Ceramics of the Baldwin series generally seem to postdate the Forked Deer and Madison series. At Pinson Mounds, the ceramic assemblage is predominantly sand tempered by *circa* A. D. 100 (e.g., Mainfort and Walling 1992). The relationship between our Baldwin series and the sand tempered Alexander series of the Tchula period is beyond the scope of this paper, but clearly needs to be addressed in a region with major Alexander occupations.

Types included within the Baldwin series are as follows:

Baldwin Plain

REFERENCES: Jennings (1941: 199-200); Cotter and Corbett (1951: 17-18); Koehler (1966: 37); Jenkins (1981: 123-127).

TEMPER: Fine to medium sand grains comprise approximately 10 to 25 percent of the paste.

TEXTURE: Sherds generally feel hard and like fine to medium sand paper. The paste may occasionally exhibit laminations in cross-section when viewed under a microscope.

COLOR: 2.5YR 5/6 (red), 5YR 5/4 (reddish brown), 7YR 7/1 (light grey), 7.5YR 7/6 (reddish yellow), 7.5YR 7/2 (pinkish grey).

THICKNESS: Mean: 6.35 mm; range: 5.8-7.0 mm

HARDNESS: 3 to 4

SURFACE FINISH: Surfaces are smoothed and, in some instances, burnished. Companion types on this paste include Saltillo Fabric Impressed and Furrs Cordmarked.

RIMS: Rims are commonly folded and everted. Rim thickness is generally equal to or thinner than body thickness and everted. Lip notching is a common treatment.

APPENDAGES: None

VESSEL FORM: An open globular bowl is indicated.

SORTING CRITERIA: Smoothed or burnished exterior surface on a sandy textured paste. As noted above, the presence of a single visible clay particle is allowable within our concept of Baldwin paste.

COMMENTS: Surface collections from 40CS156 were used as the type collection. Collections from Shelby, Madison, Dyer, and Weakley counties were also considered. Few sherds with an intact surface were found. Sand ranges from very fine to coarse and mica and iron compounds are frequent inclusions in the paste. The mica and iron compounds occur naturally as inclusions in many West Tennessee clay deposits (Whitlach 1940).

Furrs Cordmarked

REFERENCES: Jennings (1941: 199-200); Cotter and Corbett (1951: 18-19); Koehler (1966: 37); Jenkins (1981: 132-133).

TEMPER: Fine to medium sand grains comprise approximately 10 to 25 percent of the paste.

TEXTURE: Sherds usually feel hard and like fine to medium sand paper. The paste may occasionally exhibit laminations in cross-section when viewed under a microscope.

COLOR: 2.5YR 5/6 (red), 5YR 5/4 (reddish brown), 7YR 7/1 (light grey), 7.5YR 7/6 (reddish yellow), 7.5YR 7/2 (pinkish grey).

THICKNESS: Mean: 7.1 mm; range: 4.8-9.7 mm

HARDNESS: 3 to 4

SURFACE FINISH: Exterior malleated with a cord-wrapped paddle, creating cord impressions that are oriented vertically or obliquely to the lip over the entire vessel surface. Interiors frequently hand smoothed.

RIMS: Rims are commonly folded and straight to excurvate. Rim thickness is generally equal to or thinner than body thickness and everted. Lip notching is a common treatment.

APPENDAGES: None

VESSEL FORM: Conoidal jars are the only form presently known.

SORTING CRITERIA: Cord marked surface on a sandy textured paste.

COMMENTS: Surface collections from 40CS156 were used as the type collection. Collections from Shelby, Madison, Dyer, and Weakley counties were also considered.

Saltillo Fabric Impressed

REFERENCES: Jennings (1941: 201); Cotter and Corbett (1951: 18); Koehler (1966: 37-38); Jenkins (1981: 140-143).

TEMPER: Fine to medium sand grains comprise approximately 10 to 25 percent of the paste.

TEXTURE: Sherds usually feel hard and like fine to medium sand paper. The paste may occasionally exhibit laminations in cross-section when viewed under a microscope.

COLOR: 2.5YR 5/6 (red), 5YR 5/4 (reddish brown), 7YR 7/1 (light grey), 7.5YR 7/6 (reddish yellow), 7.5YR 7/2 (pinkish grey).

THICKNESS: Mean: 6.0 mm; range: 4.5-8.9 mm

HARDNESS: 3 to 4

SURFACE FINISH: A simple twined fabric was impressed into the wet clay of the exterior at oblique or horizontal angles to the lip. See discussion above under *Withers*.

RIMS: Rims are commonly folded and everted. Rim thickness is generally equal to or thinner than body thickness and everted. Lip notching is a common treatment.

APPENDAGES: None

VESSEL FORM: Conoidal jars are the only form presently known.

SORTING CRITERIA: Fabric marked surface on a sandy textured paste.

COMMENTS: Surface collections from 40CS156 were used as the type collection. Collections from Shelby, Madison, Dyer, and Weakley counties were also considered. See discussion of cord widths under *Withers* and *Craig's Landing*.

DISCUSSION

Smith has asserted that "Current data indicates (*sic*) that paste characteristics suffice to indicate basic chronological units for (west Tennessee), with the various surface finishes and decorative styles of secondary chronological significance . . ." (1979a: 49 and 1979b: 20). He does not elaborate on this point and, with the exception of the data from 40LA18 (discussed below), we are unable to find the basis for this statement in any of Smith's reports. Moreover, this position is contradicted by research conducted by Ford (1981, 1989) and Johnson (1988) in northern Mississippi and Mainfort at Pinson Mounds in western Tennessee (e.g., Mainfort 1986a and b; Mainfort and Walling 1992), whose work indicates that decorative treatment, rather than minor differences in paste, are fairly reliable chronological indicators (see also Rice 1987 and Weaver 1963). In fact, virtually all researchers in this portion of the Midsouth seem to agree that the shift in surface treatment from fabric marking to cord marking is a hallmark of the transition from Early to Late Marksville (Middle Woodland).

Smith's interpretation of Woodland ceramics and chronology in western Tennessee is based primarily on relatively small surface collections from sites that may be multicomponent (e.g., Smith 1979a). While much of our data also derives from surface collections, the definitions of Forked Deer and Madison series types were formulated after examining substantial collections from two large, single component sites (40MD2 and 40MD130). There is possible evidence of earlier Archaic occupation at these sites, but the ceramic collections almost certainly reflect

occupations by single social groups. Our Baldwin and Tishomingo series definitions are anchored in the large excavated samples from Pinson Mounds (Mainfort 1980, 1986a), although material from this ceremonial site was intentionally excluded during formulation of our type definitions.

In support of his classificatory scheme for Tchula period and Woodland ceramics, and the temporal significance he ascribes to the various ware groups, Smith (1979a: 78) states that "Test excavations conducted . . (at 40LA18) . . indicate that Thomas ware there is followed by Baldwin, which is in turn followed by a local ware termed Lauderdale. Tchefuncte ware was present on the site in small quantities in all levels, with an abnormally high percentage of cordmarking which suggests that it was still being made at the same time as the Thomas ware." The first of the quoted statements is actually contradictory, because in the same paragraph, Smith goes on to say that ". . . nearly all the material termed 'Lauderdale' . . . should actually be classified as Thomas." Therefore, Smith is saying that the ceramic sequence at 40LA18 is actually Thomas-Baldwin-Thomas, a most interesting state of affairs. Reexamination of the relevant field records and the ceramic collections from the site provides no support for either Smith's interpretation of various ceramic "wares" (i.e., "Tchefuncte," "Thomas," etc.) or the reported stratigraphic relationships between the ware groups.

Site 40LA18 is located within the Mississippi River floodplain in western Lauderdale County, Tennessee, in the general vicinity of Open Lake. At the time of its discovery and excavation the site was located in a tract of land that had fairly recently been cleared by logging operations. Not only had the trees been cut, but stumps were also removed. Additional disturbance to the site had been caused by agricultural utilization. Cultural deposits at 40LA18 extended to a depth of only about 25 cm. The relatively shallow depth of cultural deposits and the extensive disturbance to the site area make 40LA18 a poor choice for delineating stratigraphic relationships in the ceramic assemblage (unpublished field records, C.H. Nash Museum-Chucalissa; John Hesse, personal communication 1992). Excavations at the site were limited to two test pits that were excavated to subsoil in 5 cm arbitrary levels.

Setting aside problems of site integrity, Smith's own ceramic counts from the site provide no apparent basis for his interpretation of stratigraphic and chronological relationships. The results of Smith's ceramic analysis from one of the two completely excavated test units (100R100) at 40LA18 is presented in Table 1. Our reanalysis follows in Tables 2 and 3. Collections from the site, housed at the C.H. Nash Museum-Chucalissa, had been sorted and the various types bagged separately by Smith, which greatly facilitated reanalysis. Ceramics from the second test unit were also examined, but the material from Level 4 of this unit was not bagged by paste type. Although this second unit is only cursorily treated here (Table 4), the data present a situation virtually identical to that found in 100R100.

Table 1: 40LA18 (Unit 100R100). Paste types analyzed and recorded by G. Smith.

PASTE GROUP	Tchefuncte	Thomas	Baldwin	Lauderdale	Beckwith	Neeley's Ferry	TOTAL
PZ	13 (17.3)	34 (45.3)	11 (14.7)	14 (18.7)	2 (2.7)	1 (1.3)	75
L1	23 (18.0)	56 (43.8)	19 (14.8)	22 (17.2)	6 (4.7)	2 (1.6)	128
L2	15 (13.2)	57 (50.0)	23 (20.2)	11 (9.7)	8 (7.0)	0	114
L3	30 (23.6)	52 (40.9)	31 (24.4)	13 (10.2)	0	1 (0.8)	127
L4	22 (26.8)	39 (47.6)	16 (19.5)	5 (6.1)	0	0	82
L5	11 (29.0)	20 (52.6)	7 (18.4)	0	0	0	38
TOTAL	114	258	107	65	16	4	564

Table 2: 40LA18 (Unit 100R100). 1992 reanalysis using paste series proposed here.

PASTE GROUP	Forked Deer	Madison	Baldwin	Tishomingo	Baytown	shell	TOTAL
PZ	0	0	7	53	15	1	76
L1	0	0	8	105	38	2	153
L2	0	0	6	98	34	2	140
L3	0	1	8	154	32	1	196
L4	0	0	7	53	16	0	76
L5	0	0	1	27	9	0	37
TOTAL	0	1	37	490	144	6	678

Table 3: 40LA18 (Unit 100R100). 1992 reanalysis.

TYPE	PZ	L1	L2	L3	L4	L5	Total
Mulberry Creek Cordmarked, *var. Westover*				1			1
Baldwin Plain			2	2			4
Furrs Cordmarked	7	8	3	6	7	1	32
Baldwin paste, eroded			1				1
Baytown Plain, *var. Tishomingo*		9	9	17	7	1	43
Mulberry Creek Cordmarked, *var. Tishomingo*	51	81	85	126	39	25	407
Withers Fabric Marked, *var. Craig's Landing*		2		2	2		6
Tishomingo paste, eroded	2	13	4	9	1	1	30
Baytown Plain, var. unspecified		3	1	2	4		10
Mulberry Creek Cordmarked, *var. unspecified*	14	22	23	26	12	8	105
Withers Fabric Marked, *var. unspecified*					3		3
Wheeler Check Stamped, *var. unspecified*			3		1	1	5
Baytown paste, eroded	1	13	7	4			25
Mississippi Plain, *var. unspecified*		2		1			3
Varney Red, *var. unspecified*	1						1
shell temper, eroded			2				2
TOTAL	76	153	140	196	76	37	678

Table 4: 40LA18 (Unit 91R100). Reanalysis using paste series proposed here.

TYPE	L1	L2	L3	L4	L5	Total
Withers Fabric Marked, *var. Withers*	1					1
Furrs Cordmarked	1	5	2	5		13
Saltillo Fabric Impressed			1			1
Baldwin paste, eroded			1			1
Mulberry Creek Cordmarked, *var. Tishomingo*	27	22	13	10	6	78
Withers Fabric Marked, *var. Craig's Landing*	1		1			2
Tishomingo paste, eroded	6		3			9
Baytown Plain, *var. unspecified*		2				2
Mulberry Creek Cordmarked, *var. unspecified*	11	4	4	5		24
Wheeler Check Stamped, *var. unspecified*	1					1
Baytown paste, eroded	4					4
Varney Red, *var. unspecified*	2					2
shell temper, eroded	1					1
TOTAL	55	33	25	20	6	139

Using Smith's own analysis and tabulations as a starting point (Table 1), several important points may be made. First, considerable disturbance to the site is confirmed by the presence of Mississippian sherds as deep as Level 3. Second, contrary to Smith's published summary of the 40LA18 ceramics (1979a: 78), "Tchefuncte ware" actually is more numerous than "Baldwin ware" in three of the five excavated levels (as well as in the plowzone), and the two occur in nearly identical frequency in Level 3. "Thomas ware" is the most numerous paste type in every level. Finally, while the percentage of "Lauderdale ware" does seem to increase slightly from bottom to top, "Tchefuncte ware" also makes a strong showing in the uppermost level below the plowzone. In sum, even accepting Smith's analysis of the ceramics from 40LA18 as correct, the data do not support his interpretation of stratigraphic changes in the ceramic assemblage.

Our reanalysis of the collections from unit 100R100 at 40LA18, presented in Tables 2 and 3, differs considerably from Smith's original analysis. No ceramics corresponding to what is here designated as the Forked Deer series are present in the sample from this test unit (the Forked Deer series is largely based on sherds identical to Smith's type specimens of what he has called "Tchefuncte" or "Tchula" ware at the C.H. Nash Museum - Chucalissa). Only a single specimen exhibiting Madison series paste, which is based largely on sherds identical to Smith's "Thomas" type specimens, was recovered. Most of the sherds from 40LA18 that were classified by Smith as "Thomas" were placed within our Tishomingo series.

There is considerable variation in the sample of Tishomingo from 40LA18 and we are not entirely satisfied with the results of our reanalysis. One relatively common variant exhibits a hard, sandy paste that contains a moderate number of fairly large fragments of clay particles; Smith classified most of these sherds as "Thomas," despite the fact that they exhibit a markedly different firing technology than most of his "Thomas" type specimens. While it is possible that Smith is correct in grouping these specimens within his concept of "Thomas," we feel that the material in question serves as an excellent illustration of why other researchers have experienced difficulties in attempting to use Smith's paste types. If we were to expand our definition of Madison series paste to include these sherds, we would be forced to remove key sorting criteria, namely the rather chalky surface and the uniform color exhibited by the surface and the core. The explicit differences between the Madison and Tishomingo series would then become hopelessly blurred and would lead to problems of sortability discussed by Jolley (1981) and McNutt (1979).

Over 50 percent of the sherds classified by Smith as "Baldwin" were found on inspection to contain readily visible clay particles and are therefore classified within our Tishomingo paste group. This may account in part for Smith's later observation that in the Nonconnah Creek drainage, his "Thomas" and "Baldwin" wares consistently co-occur on sites (Smith and Weinstein 1987: 53).

According to Smith (1979a: 78), the 40LA18 ceramic assemblage indicates that the primary occupation of the site occurred during the Tchula and Early Marksville periods. Perhaps the most striking aspect of the reanalyzed ceramic sample from 40LA18 is the predominance of

cordmarking (over 80 percent) in every excavated level. Fabric marking, for which a strong representation would be expected if there was an Early Marksville (or slightly earlier) component (Johnson 1988; Mainfort 1986b; Toth 1988), occurs on only 6 sherds. The paucity of fabric marked sherds and the absence of Tchula period decorated types such as Cormorant Cord Impressed, as well as the high frequency of cordmarking, suggests that the major occupation of 40LA18 occurred during the Late Woodland period.

Discussions of several key sites, collections from which formed the bases for the ceramic terminology proposed above, will appear in a forthcoming project completion report, as will reanalyses of collections from a number of western Tennessee sites reported to have significant Tchula period components (see Smith 1979a; Smith and Weinstein 1987).

Concluding Remarks

This article represents an important step toward resolving typological problems that have plagued researchers in western Tennessee for a number of years. As suggested by the title, we recognize the need for additional work. Varietal distinctions within the Baldwin series that are based on large collections from habitation sites represent an obvious area for research, and we are currently formulating comparable type-variety definitions for ceramics of the Late Woodland and Emergent Mississippian periods.

Other important matters that remain to be resolved include the temporal and spatial significance of various paste groups and compositional variability in local clay sources. We hope that this contribution will provide an impetus for the necessary research.

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